

LINCOLN

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Capabilities

INFORMATION FROM THE LEADER IN THE LUBRICATION INDUSTRY

Construction's Best Lubrication Solutions

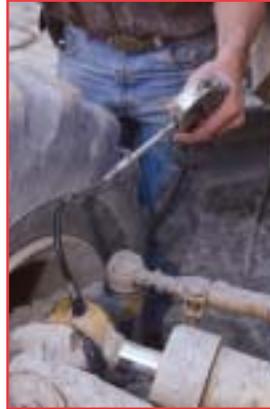


Daily Lubrication Is A “ Required Maintenance Practice”

that’s vital to the life of pins and bushings

Frequent lubrication not only maintains the proper lubrication film to reduce wear, but also acts as a means to purge the pins and bushings of contamination. If rock dust, dirt, sand, and water are allowed to work their way into these components, they will form a “grinding compound” that reduces bearing life dramatically. This will cause downtime and higher maintenance cost.

To do this properly with manual lubrication, it normally takes at least 30 minutes per machine every day.



Daily Manual Lubrication Is Not Easy Due To:

- Bad weather conditions
- Production demands—you don’t want to shut machinery down
- Safety concerns
- Logistics—such as lube truck availability and equipment location
- Many bucket and boom pins need to be lubricated in more than one position to evenly distribute lubricant and protect components under heavy load
- Manpower issues—not all employees perform lubrication properly

When manually lubricating a bearing, typically grease is not even spread inside the bushing and is not completely purged

Failure to lubricate every lubrication point, on every machine, every day, can affect your schedule, your maintenance costs and your “on time” performance.



The Cost Of Improper Lubrication

- Increased spending for repairs and parts
- Lost production due to daily manual lubrication and unexpected repairs
- Contamination—wearing down the pins, bushings and other components.
- Lower resale value for used equipment
- Waste of lubricant caused by excess lubrication

You Need Automatic Lubrication For Daily And Weekly Lubrication Points

Lincoln's Recommendations

- 1) Use automated lubrication systems for all your daily and weekly lubrication points
- 2) Use manual lubrication only for extended lubrication interval (every 250 hours) bearings and small equipment with few lubrication points.

Benefits From Automatic Lubrication

- Gain 30 to 45 minutes a day of increased productivity for each machine by lubricating “on the fly”
- Substantially improve bearing life by delivering frequent, smaller amounts of grease to each bearing
- Lower maintenance cost by eliminating daily lubrication and reducing repairs
- Cut grease consumption by delivering exact amount required
- Improve safety by eliminating the daily practice of climbing all over machinery to lubricate
- Proper lubrication no matter the environment or weather conditions
- Increase resale value of equipment



The Quicklub® Advantage

Through Lincoln's unique Quicklub system, small, measured amounts of grease are delivered to each bearing at specific time intervals (typically every 10 to 30 minutes) while equipment is operating. This method produces a grease “donut” seal around each pin and bushing . . . this acts as a barrier to keep contamination out. Wear surfaces are lubricated dynamically during operation while the critical components are in motion.

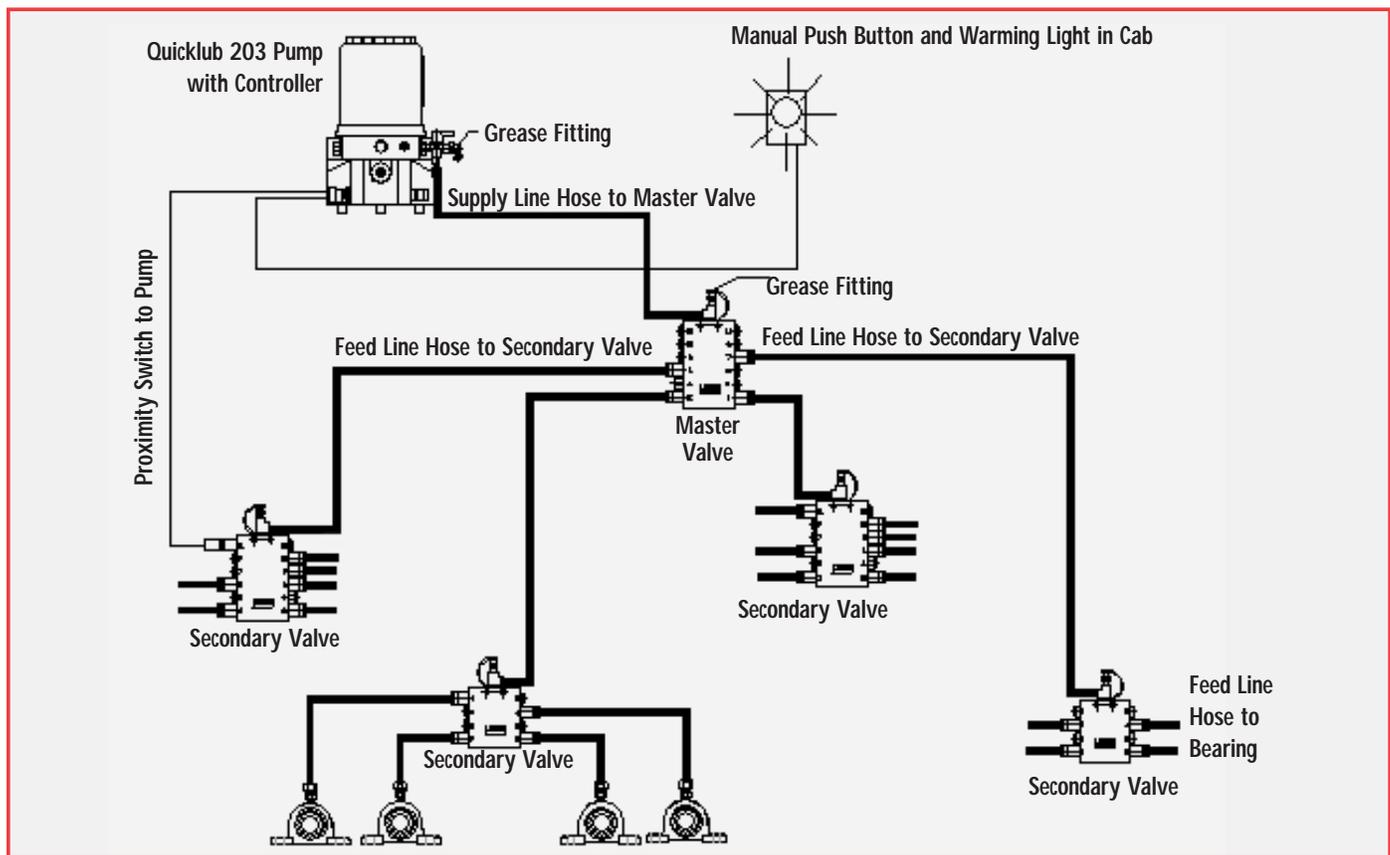
How Lincoln Quicklub® Automated Lubrication Systems Work

System Description

A typical system includes an automated electric pump, metering valves, supply line and feedline hoses, mounting hardware, and custom guarding.

Lincoln's Quicklub 203 combines a lubricant reservoir, a pump and control system into one unit. Available control options include the ability to notify the operator of system malfunction using a special light in the cab.

The metering valves used in Lincoln's system are the Quicklub SSV divider valves. The grease flow created by the pump is proportioned in the SSV divider valve and distributed to each bearing.



System Operation

1. The Quicklub Pump is actuated automatically by an internal adjustable timer.
2. Grease flow starts and lubricant is delivered to the "Master Divider Valve" through the supply line hose.
3. The Master Divider Valve distributes grease in measured amounts to the secondary valves.
4. The secondary valves proportion the grease and deliver exact measured amounts to the bearings according to their specific needs through feed line hoses.
5. Typically the pump shuts off after receiving a signal from a proximity switch located on a secondary valve. The proximity signal indicates a successful lube cycle. (Some systems do not use a proximity switch. Instead, a built-in timer turns the pump off).

Quicklub[®] 203 Pump And Divider Valve Features

The Lincoln Quicklub Pump

Designed for the harsh environment of the construction and mining markets, Quicklub pumps are loaded with features:

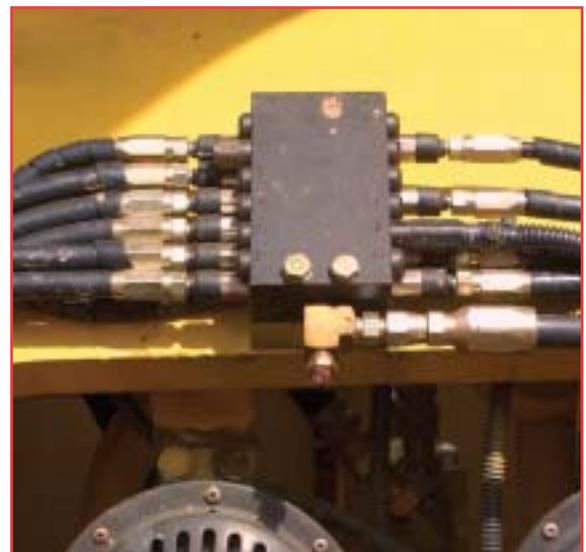
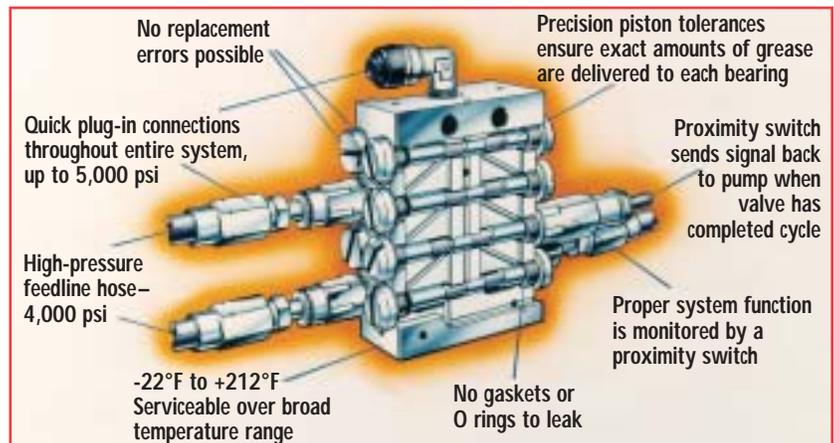
- Available in 12 and 24 VDC
- Capable of dispensing #2 grease (oil systems available)
- Optional low-level alarms and system operation alarms with warning lights in the cab
- Reservoir (2, 4, or 8 liter) can be refilled through a grease fitting, typically every 250 hours of operation
- All pumps have high-pressure capability to ensure grease is delivered to each component.
- A blocked lube point can be detected at the pump
- Pump controls run-time with built-in timer
- Data Logger models available that store information on system operation history



Quicklub Divider Valves

The heart of the Lincoln System is the Quicklub SSV Divider Valve. These valves utilize unique internal pistons to precisely “divide” the grease flow to ensure each pin and bushing receives the proper amount of lubricant.

- Operating pressures of up to 4,000 psi. The valve delivers grease to every point, even under heavy loads.
- Valves can be “ported” to deliver more grease to specific lube points.
- If the pump is ever damaged, the system can be cycled from the grease fitting on the pump or master valve.
- Valves are available with cycle indicator pins to provide visual indication of operation.
- With advanced monitoring, a proximity switch can send back a signal to the pump when the system has completed a lubrication cycle.
- Special Lincoln high-pressure hose (4,000 psi working pressure) is used with the Quicklinc fittings that work like a quick-coupler to facilitate system maintenance.



Like Our Solutions For Excavators, Lincoln Offers Custom Systems For All Brands Of Wheel Loaders

Both Factory-Fit & Locally Installed Systems Sold Through Distribution Are Available



Typical Quicklub® pump mounted on operator deck behind the cab for ease of visual monitoring and service



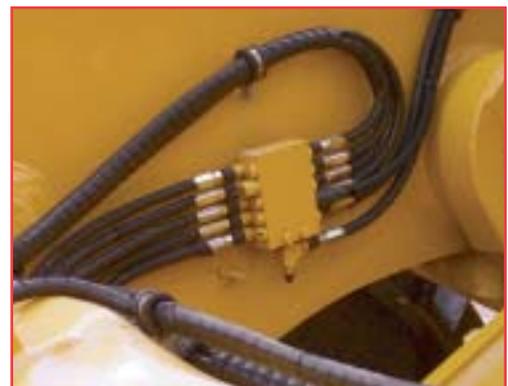
Quicklub® metering valves ensure more grease is delivered to high demand bearings



Ground level reservoir filling is made easy with optional remote fill fitting



Feedline hoses are protected in “high impact” areas with custom bolt on guarding—note the grease seal that keeps highly abrasive rock and sand out of the bearing



Lincoln system houses have experience to ensure installations are clean and neat

We Can Design A System For Your Machine

Haul Trucks Are A Popular Application Due To High Productivity Requirements

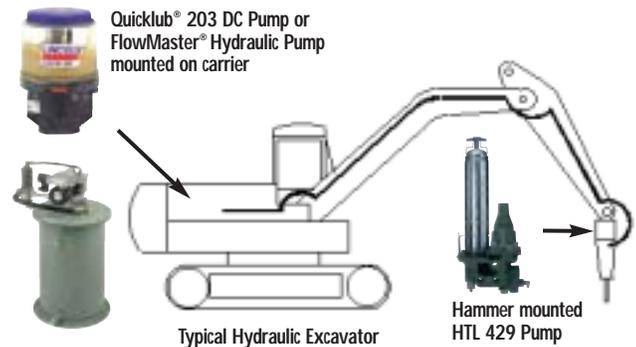


Keep both articulating and stiff-framed trucks moving.

Lincoln's automated lubrication systems create a consistent, properly-greased donut that seals out grit and grime from articulating joints, pins and bushings. Lines going to high-impact zones are consistently protected.

Note: The Quicklub® divider valve mounted near the center articulating joint. Typically these systems will double the life of these pins and bushings.

Demolition Hydraulic Hammers—Keep Your Hammer On The Job



Lincoln is the only company that offers three types of lubrication systems for hammers . . . even one that mounts directly on a hammer.

Other Equipment



Quicklub system installed on a ready mix truck

Quicklub divider valve mounted on a milling machine

Lincoln distributors have experience installing systems on many types of mobile equipment, including stationary plant equipment.

Other common applications include:

- Graders, scrapers, dozers
- Drills (horizontal and vertical)
- On-road trucks paving equipment (milling machines)
- Trenchers
- Crushers, screens, conveyors
- Ready mix trucks
- Cement pumps
- Recyclers
- Backhoes
- And many more

Automatic Lubrication Works For Your

Lincoln Knows How To Tackle The Toughest Situations—Including Excavators

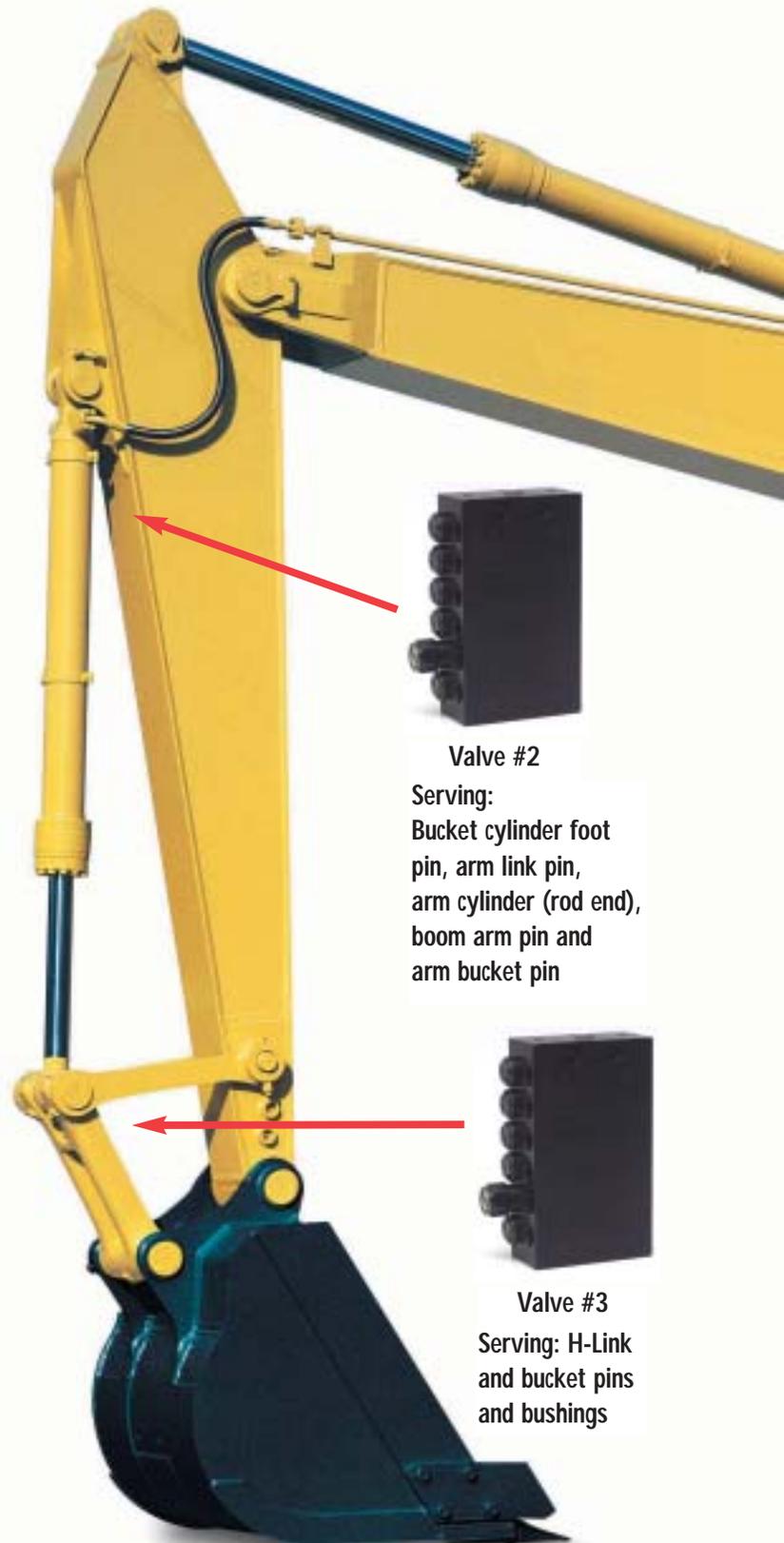
Many equipment OEMs offer Quickclub as a factory installed option. The Lincoln network of qualified distributors can also custom design and install systems on most pieces of equipment... including plant equipment—conveyers, crushers, screens, etc.

High “Impact Areas”

On many excavators, the H-link can be lubricated automatically with custom guarding installed and relocation of the grease inlet fitting. Consult your local Lincoln distributor to determine if your machine can be modified to protect these vital components.



The Quickclub valve is located in the cavity of the H-link. A flat plate of steel will cover and protect the meter valve and hoses



Valve #2

Serving:
Bucket cylinder foot pin, arm link pin, arm cylinder (rod end), boom arm pin and arm bucket pin

Valve #3

Serving: H-Link and bucket pins and bushings

Most Challenging Applications



Master Valve
Serving: Secondary valves 1, 2 and 3 as well as right and left boom foot pins



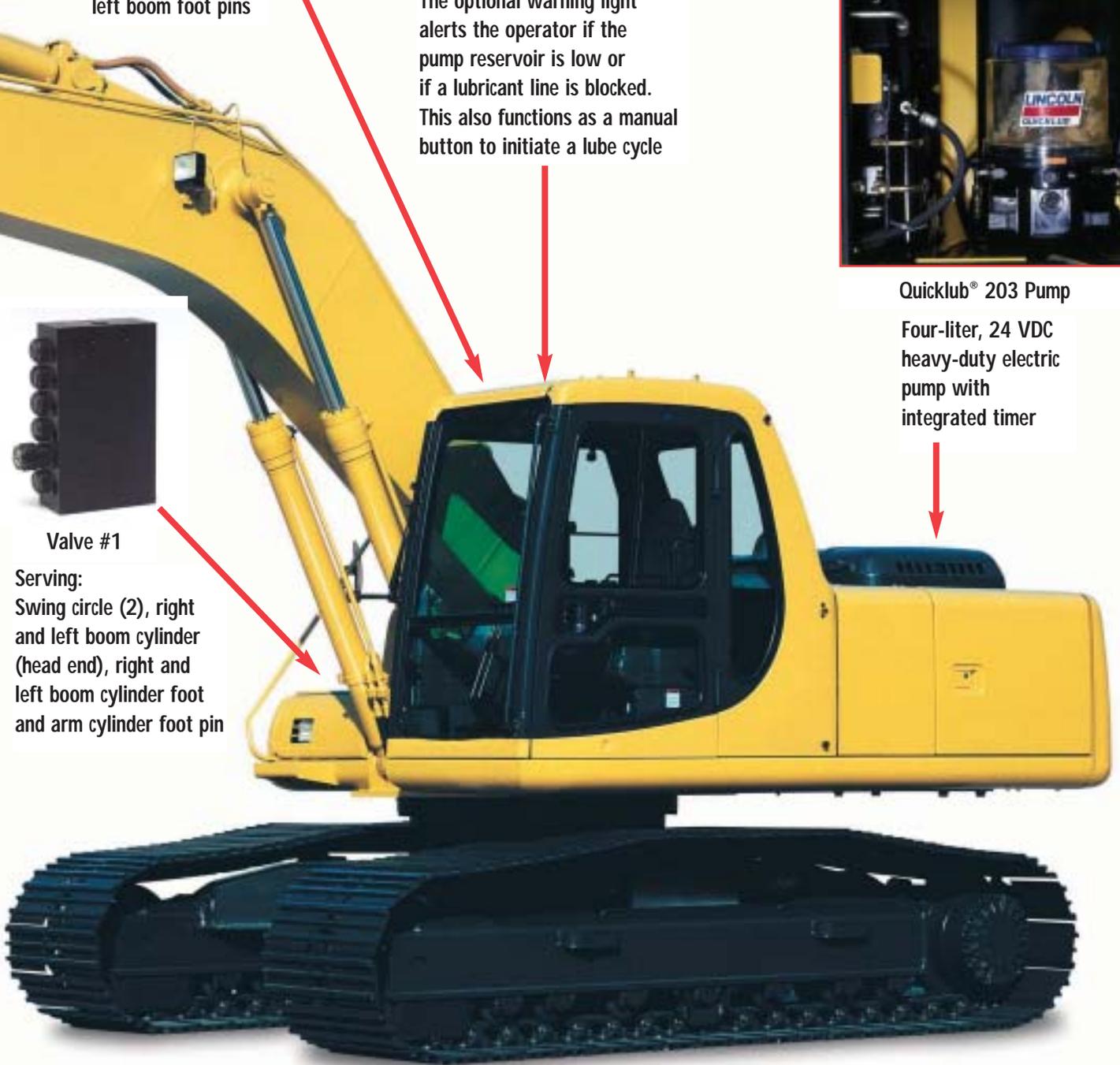
The optional warning light alerts the operator if the pump reservoir is low or if a lubricant line is blocked. This also functions as a manual button to initiate a lube cycle



Quicklub® 203 Pump
Four-liter, 24 VDC heavy-duty electric pump with integrated timer



Valve #1
Serving: Swing circle (2), right and left boom cylinder (head end), right and left boom cylinder foot and arm cylinder foot pin



The Single Source For All Your Lubrication Needs

Centro-Matic® Automatic Lubrication

The system trusted by the mining industry world-wide is the same system you need for your largest equipment. Major original equipment manufacturers install Centro-Matic systems in their factories to ensure their customers get the best value and longest service possible. The famous SL-1 and the new SL-V injectors, provide consistently reliable, large doses of grease to all critical lubrication points. Our latest FlowMaster pumps drive these system using either DC electric or hydraulic power sources.



State-Of-The-Art Lube Truck

Many contractors rely on the services of a good lube truck to maintain equipment in the field. Our specialty distributors can help you build and maintain the best lube trucks in the business. They feature on-board pumps, reels, control devices and accessories that make quick work of lubricating equipment on-site.



Complete In-Shop Maintenance Equipment

When designing or updating your shop, our comprehensive line of performance-proven pumps, hose reels, controllers, grease guns and lubrication accessories offers you everything you need to build a fully-functional lube station.



A Broad Range Of Pumps

Whether you're pumping grease, oil, antifreeze, windshield washer fluid or other vital solutions, Lincoln has the medium- or high-pressure pump to get the job done. Choose from air-operated Series 20, 25 or 40 and PowerMaster® reciprocating pumps, diaphragms and transfer pumps, bulk oil systems, plus all the accessories you'll ever need.



Hand-Held Lubrication

Using a grease gun may never be the same. Our 12-volt, battery-powered PowerLuber® outperforms traditional lever-action grease guns by generating as much as 6,000 psi of working pressure:

- Each battery dispenses two tubes of grease
- Convenient whip hose allows for easy access on hard-to-reach points
- Comfortable trigger makes one-hand operation easy

If you need extended battery time, order the 1244 in a case with two batteries, or select the 1215 battery charger that plugs into the accessory/lighter receptacle of your construction machine.

Back in the shop, attach the Powerluber® 1163 air-powered grease gun to your compressor for maximum productivity.

Lincoln also carries a full line of the most dependable hand-operated grease guns in the business.



Lincoln Quicklub® Systems Pay For Themselves In A Few Months

Calculate the return on your investment

Annual Costs to Manually Lubricate a Mid-size Loader

Labor	Typical	Your Anticipated Benefits
30 minutes per 8 hour shift X \$20/hour X 250 days	\$2,500.00	_____
Lost Production		
30 minutes per 8 hour shift X \$75/hour X 250 days	\$9,375.00	_____
Manual Lubrication Cost	\$11,875.00	_____

Annual Costs to Repair Failed Components

Replacement Pins and Bushings		
2 Pins X \$400.00 each	\$800.00	_____
Repair Labor		
One Person X \$45.00 X 2 Repairs X 6 hours each	\$540.00	_____
Lost Production		
2 Repairs X 6 hours each X \$75.00/hr.	\$900.00	_____
Repair Cost	\$2,240.00	_____

Annual Manual Lubrication Cost **\$14,115.00**

Estimated Savings with a Lincoln Quicklub Automatic Lubrication System

	% Savings	\$ Savings
Labor and lost production to manually lubricate	95%	\$ 11,281.00
Parts, labor and lost production to repair failed components	50%	\$ 1,120.00
Total Annual Savings		\$ 12,401.00

System Cost and Return on Investment

Typical installed Quicklub® System cost (loader) \$ 6,200.00

Return on Investment

System Cost / Annual Savings X 12 Months = R.O.I.

\$6,200.00 / \$12,401.00 X 12 Months = **6 Months Pay Back (ROI)**

Lincoln's Global Distribution Network

Whatever the service—evaluating your lubrication needs, installing custom-engineered systems, supplying top quality accessories or selling manual lubrication components, your Lincoln distributor gives you the best value on the best products.

Lincoln's Qualified Distributors

Our systems house and specialty distributors offer the highest level of expertise. After a consultation, they can custom-design a system with the right combination of Lincoln components to fit your equipments' specific needs. But it doesn't stop there. Working with your personnel, their experienced technicians will install the system on your equipment, guaranteeing that the work is done correctly.

Plus, they will fully train your equipment operators and maintenance personnel on how our systems work and the simple upkeep required to ensure everything runs smoothly.



For your nearest authorized sales and service representative call:

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Capabilities

contains product information for
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