



Lubrication system extends component life

An automatic greasing system is helping a contractor keep its equipment fleet on the move.

By Andy Bateman, Editor

Gazzola Paving Limited is a well known name in the Greater Toronto Area, with a range of services that includes roadbuilding, road reconstruction, asphalt production, recycled aggregate production and winter snow maintenance services. An automatic greasing system fitted to three pieces of equipment is helping to keep the company's mobile fleet on the move.

Head mechanic Fausto Mussato explains that the greasing systems are fitted to two wheel loaders, Caterpillar 950 and 966 units, as well as a Roadtec SB2500 Shuttle Buggy material transfer vehicle. Both wheel loaders are based in Gazzola's busy Etobicoke yard where their materials handling duties include loading customer trucks with recycled aggregates, building product stockpiles, feeding crushed RAP to a fractionating plant and, for the 966, occasionally charging the asphalt plant's cold feed bins.

On both wheel loaders, the FLO Components Ltd. lubrication system greases joints on the bucket arms, bucket pins, steering linkages and centre pin of the body articulating joint. The Shuttle Buggy's system, also supplied by FLO Components, focuses on the unit's conveyor system and lubricates bearings on the head and tail shaft pulleys of conveyors two and three, conveyor idler bearings, the conveyor three pivot and the conveyor one dump and hopper bin auger bearing. In normal operation, these systems deliver a



measured amount of grease at frequent intervals to each bearing covered by the system, based on pump timer settings and machine running time.

Mussato notes the grease delivery system utilizes a number of manifolds, each of which may supply several individual greasing points. As a result, it is important to set the pump timing and select metering valve sizes so that the system remains as balanced as possible. If a manifold has four outlets, for example, increasing the grease flow by increasing pump timing to one of the downstream components can lead to over greasing of another. Within limits, the system settings can be adjusted for the frequency of greasing cycles and the volume of grease dispensed during each cycle. Mussato prefers a relatively frequent lubrication cycle with a lower volume of grease per cycle to provide a more consistent grease level overall.

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MAIN PHOTO: An automatic greasing system has been fitted to two of Gazzola Paving's wheel loaders, Caterpillar 950 and 966 units, as well as a Roadtec SB2500 Shuttle Buggy material transfer vehicle.

ABOVE: The grease delivery system utilizes a number of manifolds, each of which may supply several individual greasing points. The manifolds incorporate grease nipples to enable manual or local greasing to be completed if necessary.



Supply lines are routed to recognize machine movement in order to minimize kinks or chafing and are protected in vulnerable areas such as loader arms. The manifolds incorporate grease nipples to enable manual or local greasing to be completed if necessary. Mussato is of the view that the system is a useful addition to all three pieces of equipment and delivers a noticeable improvement in component life compared to manual lubrication.

In the past, wheel loader operators typically greased the machine at the beginning of a shift, but after that, greasing could be erratic with both operator and machine on almost continuous duty for the rest of the shift. Once a day greasing was usually sufficient for components such as steering linkages and the centre pin, says Mussato, but not adequate for others. Bucket pins and bushings were particularly susceptible to rapid wear as they were exposed to abrasive material each time the bucket entered a stockpile. Absent a protective film of grease, any dust and fine material getting past the seals formed a grinding paste that wore out pins and bushings in short order. Pin replacement was a regular event, resulting in increased labour and material costs as well as reduced machine availability.

By contrast, the automatic lubrication ensures that the pins are regularly lubricated and, better still, can be fine tuned so that a slight outflow of grease provides an additional barrier to joint contaminants. Some of the most severe duty seen by the loader buckets occurs in winter when Gazzola's snow clearance and road maintenance program is in full swing. During these periods, buckets are in direct contact with an aggressive combination of salt, salt/sand mixes, water and low temperatures. Nonetheless, the lubrication system still utilizes standard NLGI #2 grease, which covers most working situations and works well down to about minus 10 degrees Celsius, says Mussato.

According to a study used by FLO Components, improper lubrication accounts for 53 per cent of all bearing failures, most of which are caused by contamination of bushings by dust, dirt and moisture, inadequate amounts of lubricant applied to bearings or over-lubrication of key pivot points. Direct costs resulting from inadequate lubrication can include replacement bearings, labour to repair or replace bearings, and downtime and its impact on productivity. Indirect costs can include wasted lubricant, environmental issues, safety or house-keeping issues, and higher labour costs related to inefficient manual lubrication practices. A typical FLO Components installed system

Grease supply lines are protected in vulnerable areas such as loader arms.

consists of a 12/24 volt direct current Series 203 pump, UV positive displacement grease metering valves, fittings, tubing, hose and custom guarding. Pumps include an integrated adjustable timer, while reservoir capacities range from 2.3 kg to 6.6 kg. FLO Components designs, assembles and installs systems using components from Lincoln, Fairview, CoreLube, Petro-Canada and other manufacturers. ■