Proper Care and Maintenance Maximizes Wheel Loader Uptime and Productivity

As seen in Pit & Quarry Magazine.

Wheel loaders take a pounding. They work in material that wears away at the very steel they're built from. They lift and carry enormous loads across uneven terrain for hours on end. They fight dust that is determined to go places it shouldn't. But the burden on wheel loaders is lessened when owners and operators practice proper maintenance. Here are a few considerations to help maximize your wheel loader's uptime – and ultimately improve productivity and extend its service life.

The Pre- and Post-Operation Check: The Most Important Part of Your Day

A daily wheel loader walk-around inspection, both before and after operation, is an essential part of the day. Before you begin your day, check all routine daily items associated with fluids and filters – as with your personal health, prevention is the best medicine, and spotting something wrong before you begin work will go a long way into preventing more serious issues.

Equally important for quarry and aggregate operations is the need to pay close attention to features of the machine that contribute to safety – both for the machine itself and the people working around it.

Make sure the operator's visibility is not impaired by any unnecessary obstructions. Check for chips and cracks in the windows. The glass should also be free of dirt and cleaned frequently, and wiper blades and windshield cleaning fluid levels need to be maintained.

Examples of other safety components to check during the pre- and post-operation walk-around include running lights, rear-view cameras, backup alarms and safety belts. Watch for debris accumulation, too. Are steps cleared to prevent slipping? Are handrails clean? Have air vents been cleared to prevent steaming in the cab?

In addition to safety, focus on wear items: check ground-engaging tools and buckets during the walk-around for signs of wear or cracking. In addition to the morning pre-operation check, make it a top priority at the end of the shift. That's often the best time to spot cracks, leaks or other damage that might have occurred that day.

Capitalize on Technological Advancements

Wheel loaders are built with a host of technological advancements. Take advantage of them as part of the equipment maintenance process.

For instance, some wheel loaders use programmable controls to ease the pounding wheel loaders and their operators encounter in pits and quarries. One such feature is the ride control feature found on CASE wheel loaders. It reduces loader arm bounce during travel – and dampens the vibration that reaches critical machine components. The system is especially beneficial in aggregate applications given the weight the wheel loaders carry, and the uneven terrain over which they transport materials.

Speaking of technology, take advantage of telematics at every opportunity. It provides actionable information from the wheel loader to your location of choice – including an office computer, laptop, or mobile device.

Many use it to schedule automated maintenance alerts, which significantly reduces the time involved in the data collection process and the paperwork that triggers preventive or corrective maintenance. Users can also quickly pull reports with all the pertinent information needed to schedule maintenance at the opportune time.

Additionally, users can hone in on specific areas that need attention. In short, it's a technology ideally suited to helping operations achieve maximum wheel loader uptime.
It should be noted that some manufacturers now offer telematics as a complementary solution. For instance,

CASE SiteWatch is a component of CASE ProCare, which comes standard on all new CASE full-size wheel loaders.

Newer Maintenance for Newer Engines

Many newer wheel loaders in the industry are built with technologically advanced engines that require a different level of maintenance than older wheel loaders. These engines are designed with high-pressure common-rail (HPCR) fuel systems. With HPCR, fuel cleanliness is critical. The fuel storage tank should be regularly inspected for rust and damage as well. Another must is to change fuel filters at manufacturer-recommended intervals, or more frequently depending on the work environment. Use OEM filters instead of knockoffs that typically cost more in the long run. Follow manufacturer recommendations on filter types and sizes. Utilize the same micron-size filters on both the fuel system and storage tanks to ensure a clean supply. Remember to drain water from the separator daily, or immediately if a warning light signals trouble. Periodically check the fuel lines for leaks.

Many new loaders are also equipped with selective catalytic reduction (SCR) technology to meet Tier 4 mandates. SCR is popular because it meets the environmental requirements while allowing wheel loaders to perform at full capacity.

SCR reduces the formation of particulate matter in the combustion chamber and eliminates pollutants by treating exhaust gases with diesel exhaust fluid (DEF). It's a simple and easy-to-maintain Tier 4-solution. Filters in the DEF circuit are easily accessible on most machines and come with the same maintenance schedule as engine oil. DEF, which is only needed in relatively small amounts, is easy to locate and replenish. A warning light signals when DEF is running low. The DEF tank can also be refilled as part of regular maintenance when checking fluid levels or refueling. With an SCR-equipped wheel loader, there's also no need to use anything other than standard oils and diesel.

Don't Overlook the Basics

Despite a steady stream of advances found on newer wheel loaders, pit and quarry operations can't lose sight of basic maintenance best practices.

Every maintenance technician knows filters and fluids need to be changed at the recommended intervals – but it doesn't always happen. Make sure there's a routine maintenance plan in place – and make sure it's followed. Consider filter and fluid changes before recommended intervals given the demands of aggregate applications. Consider partnering with your dealer on a planned maintenance contract to help simplify this process and ensure that the work gets done right. Some manufacturers offer planned maintenance as a standard service upon purchase, such as the three-year plan offered with CASE ProCare.

Fluids analysis is also important. The right analysis program will raise an early flag regarding the health of the wheel loader's engine, planetaries, axles, hydraulic systems and gearboxes. Early discovery can save substantial money and time.

Some machines feature automated maintenance activities, such as self-lubricating grease points that engage at pre-determined intervals. If your wheel loader has such a feature, check to ensure the selected intervals are scheduled according to your application.

Keeping the radiators clean is another best practice that can't be overlooked since the dust in aggregate applications can be extremely hard on wheel loader cooling systems. It's also why some wheel loaders feature new cooling methods, such as the "cube" cooling system found on new CASE F Series wheel loaders. This design features five radiators mounted together for consistent fresh air circulation. Make sure the crew takes advantage of the cube system's reversible fans that blow out dust and debris. It's an effortless, yet extremely effective preventive maintenance step.

Paying Attention to Tires

The typical aggregates application dictates a higher level of care when it comes to wheel loader tire selection and maintenance. The reason: key components are susceptible to damage if tires are not properly sized and inflated.

Many pits and quarries choose tires with a radial design to provide a good footprint and tractive effort. This is a good practice, but only part of the equation. The team should also ensure that outside diameters are identical between all tires. Tires with different outside diameters can technically be the same size, yet they won't feel like a match to your wheel loader. The machine will attempt to compensate, ultimately placing undue and uneven stress on certain parts of the machine, which may lead to unwanted maintenance problems.

Tire inspection should be part of the daily walk-around routine. Make sure pressures are proper and no damage has occurred, helping to ensure the machine is running on sure footing all day.

It's all about the bottom line

Construction equipment manufacturers have introduced a number of features over the years to ensure wheel loaders can withstand the rigors of aggregate applications. Equipment makers have also made it easier to maintain these machines, compared to years ago. All that's left is for owners and operators to follow maintenance best practices to ensure their wheel loaders regularly contribute to a safe operation and healthy bottom line.

(Source: Case Construction)

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