

Planned Maintenance

Pay a little attention now . . . or pay a lot later

These Top Ten maintenance points can make or break a lift truck fleet.

How close are you to making it . . . or breaking it?

Do you and your staff find forklift maintenance dull, boring and a real pain in the posterior? Want to liven things up a little bit?

Line up your forklift fleet and walk down the line. As you pass each machine, take a \$1,000 bill, tear it into tiny pieces and toss them gaily into the air. That's a rough estimate of how much money you may throw away on each machine during its working life if you let routine maintenance slide.

With hourly shop rates in the \$50- to \$65-range, it only takes 16 hours of mechanic's labor over the life of the machine to tally that \$1,000 bill. Add the cost of expensive hydraulic or drive train components, multiply it times the number of trucks in your fleet, and repair bills can skyrocket into 'budget busting' range. Yes, forklift maintenance may be boring, but ignoring maintenance is an expensive way to add excitement to shop and budget meetings.

Easy to overlook; hard to justify

The problem is that maintenance is easy to overlook or ignore. Your machines may get their engine and hydraulic oil levels checked daily, but there are dozens of other maintenance points that can quietly self-destruct during normal use if not checked on a regular basis.

Forklift mechanics know these as the Top Ten. They know that on any machine, chances are excellent that one or more maintenance points have been ignored to the point where damage has occurred and repairs are necessary.

Here is a list of those Top Ten maintenance points

1- Check all fluid levels and change at recommended intervals. Nothing new here, but engine oil, hydraulic oil and radiator fluid are the lifeblood of any forklift. Over time, oil slowly loses its ability to lubricate and clean.

Old, dirty oil in engines and hydraulic systems accelerates wear on bearings, gears and other expensive moving parts, while old, contaminated antifreeze can lead to overheating due to clogged radiator cores.

2- Pay special attention to hydraulic oil in machines that do not get a lot of use. "When you run a machine, then let it cool off, moisture can condense in the hydraulic reservoir," says Curt Bish, Service Manager for Clarklift of Washington/Alaska. "People think that low-use machines will last longer, but they usually don't. Running a machine ten hours a month is actually harder on it than running it nonstop ten hours a day."

"The hydraulic system makes up as much as two-thirds of the cost of a new lift truck," Bish noted. "Ignore hydraulic oil and you're ignoring the most expensive part of the machine."

3- Keep radiators and transmission coolers clean. "The engine fan acts like a vacuum that sucks all sorts of dust and debris off the floor," says Bish. "That stuff gets stuck in the radiator and makes the whole machine run hot. I see a lot of lift trucks that run right up to the red on their temperature gauges, and running them hot breaks down the engine and hydraulic oils faster."

Use high-pressure air to blow out radiators and oil coolers, paying special attention to corners and areas covered by the radiator shroud.

Soaking stubborn clogs with water from a garden hose often helps loosen hardened dirt so air pressure can blow it clean. Use high pressure water only as a last resort; fins and tubes can be damaged by car wash-style pressure washers.

4- While checking radiators and oil coolers, check fan belts and alternator belts. Yeah, yeah, everybody knows they're supposed to check the belts, but who really takes time to do it on a regular basis? Chances are excellent that if you went and checked, one quarter of the lift trucks in your fleet would have loose or damaged belts. Loose belts encourage engine overheating and poor alternator performance. Broken belts cause unexpected downtime. Both are avoidable if drivers and maintenance people do more than pay lip service to the practice of 'checking belts.'

5- Check for leaky hoses. For some reason, many people think that hydraulic hose leaks are self-repairing. They see oil drooling from a fitting or hose but never take time to repair the leak until it suffers a complete failure that usually strands them in one of two places: in the farthest corner of the warehouse, or blocking a main traffic aisle. Leaks will not get better if you ignore them; fix them as soon as they appear.

6- Check and lubricate all pivot points. Steer axle pivots and kingpins carry the weight of the machine's counterbalance and can grind themselves into expensive metal filings if not kept lubricated. Greasing steer axle lubrication points is also a safety consideration; break a tie rod end or king pin on a loading dock and the machine could plunge off a dock or into the side of a truck or building.

7- Fix broken gauges and 'idiot lights.' Maintaining dashboard indicators may seem like an unimportant item, but they keep drivers aware of critical machine functions. Faulty or inoperative gauges can lead to expensive repairs.

"We had a customer who had a faulty oil pressure gauge in a lift truck and wrecked the engine when he lost oil pressure but didn't know it," says Bish.

"We suggested fixing the gauge when we put a new engine in the truck, but the customer didn't want to spend the \$45 to have it installed. They neglected the oil in the new engine, didn't change it for 600 hours and eventually lost oil pressure again and blew the engine. Two engines gone for the price of a \$45 oil pressure gauge."

8- Inspect and lubricate wheel bearings regularly. If wheel bearings have external grease fittings, check for free play before adding grease. Jack the wheel off the ground, grab it at top and bottom, and try to wiggle it. Excessive free play or clicking or clunking sounds merit a complete teardown and inspection. Wheels without external grease fittings should be removed, inspected and repacked with grease at recommended intervals. It's a messy job, but not as messy as cleaning up after the bearings failed and the wheel fell off while carrying a pallet of parts worth \$5,000.

9- Check brakes at recommended intervals. Jacking up and pulling off heavy lift truck wheels is no fun, but neither is replacing brake drums and shoes worn beyond specifications. (See Item #10 of this story if this sounds like too much work.)

Be sure to check brake fluid levels regularly, and keep brake fluids pure. "Some mechanics have been using their shop or service van's air compressor to pressurize master cylinders to 'power bleed' brake systems, and the moisture and oil in the air lines really contaminate the brake system,

Dirty brake fluid causes all sorts of problems. Use only clean brake fluid, and, if at all possible, bleed brake systems from the wheel cylinders back to the master cylinders.

10- On electric lift trucks, practice good battery maintenance on a daily basis. Properly maintained lift truck batteries should last five to seven years; poor maintenance can cut that by half. Never add acid to a battery, add distilled or approved water only to a fully charged battery, and never fill a battery to the top with water.

"If you add water to a discharged battery it will overflow when the battery is recharged," says Clarklift of Washington/Alaska's Bish. "Recharging causes a chemical reaction that 'refills' batteries that look low. And only add enough water to just cover the plates. Filling batteries to the bottom of the fill holes is too full and will cause spills."

Consider getting a maintenance agreement for your lift truck fleet. Yes, having a Clarklift Of California mechanic come on-site at regular

intervals to check and perform maintenance on your forklifts will cost a few extra dollars. Yes, your monthly outlay for maintenance and repairs will be slightly higher than if your people do the maintenance (when they remember). But your annual expenses for (expensive) engine and transmission overhauls will be reduced.

The bottom line is that you will spend money maintaining and repairing your lift truck fleet; it's an unavoidable cost of doing business. Take time to do thorough maintenance in-house, or sign a maintenance contract. Only then will maintenance become a predictable, manageable cost of doing business.

Or you can throw caution to the wind and ignore routine maintenance, in which case you might as well start feeding those \$1,000 bills into a paper shredder . . . you'll be flinging green confetti at those machines real soon.

Battery Maintenance Basics

Electric trucks have unique maintenance needs. While they have a reputation of being more reliable than engine-powered units, poor maintenance practices greatly affect availability. Here are some tips to keep in mind with electric lift truck batteries.

Modern industrial batteries are designed to be charged, discharged, and recharged between 1,200 and 1,500 times. Depending on the workload, that figures out to give the average industrial battery a lifespan of three to five years, with maintenance playing a deciding role in how long a battery actually survives in the workplace.

Every battery has a finite number of charge/recharge cycles built into it. Each time the battery is recharged its 'supply' of charging cycles is reduced by one. It doesn't matter if the battery is fully discharged or if the battery is only slightly discharged and is being 'topped off' the recharging process still uses up one of the battery's charging cycles.

Ideally, to maximize each cycle, batteries should be completely discharged before recharging. In the real world, battery manufacturers have determined that 80 percent discharge is the best time to recharge batteries. Running batteries beyond 80 percent discharge can severely damage the battery and cause crippling heat

buildup in the electric motors they power.

'Battery interrupts,' devices that warn operators that their machine's battery is approaching the 80 percent discharge level, can dramatically reduce problems with running batteries too long. Once a battery interrupt flashes a 'low charge' warning, drivers have one to five minutes before the battery interrupt automatically disconnects power to the lifting mechanism. The machine can be driven to a charging station; it just can't do any lift work until it has a recharged battery. This protects the batteries and the circuits it powers from overheating.

Too much charging, or overcharging, can be equally damaging to batteries. Overcharging encourages chemical reactions that transform water in the battery into hydrogen gas, throwing the critical acid-to-water ratio out of proportion. Problems with overcharging batteries can be minimized by using modern self-monitoring battery charging systems that meter current flow into a battery and automatically halt charging when the battery is fully charged.