



EFFECTIVE TRENCHER MAINTENANCE=EFFICIENCY

Like any piece of construction equipment, you've got to do a good job of maintaining your trenchers if you want them to make you any money. If you don't maintain a machine so it can provide optimum efficiency, chances are it eventually will cost you in terms of lost jobs, wasted labor and diminished return on investment—not to mention out-of-pocket repair costs. A critical—and all too often overlooked—part of profitable, productive trencher operation is the planned execution of a routine, preventive-maintenance program.

Slippery issues

Selecting and maintaining the quality of the oil you use in a trencher engine is probably the single most critical element in your maintenance program. However, selecting the appropriate oil isn't as easy as it used to be. Today's brands vary widely in performance and quality characteristics, even within a single SAE classification. A few years ago, this might not have caused much concern. But with today's high-performance engines, oil quality can significantly impact engine life.

Selecting a suitable lubricant entails evaluating engine performance requirements, your application and the quality of the fuel. For example, diesel engines normally operate at lower speeds and higher temperatures than gasoline engines. This makes the diesel engine exceptionally vulnerable to oil oxidation, deposit formation and corrosion of bearing metals.

Under these kinds of conditions—and worse—we will expect oil to function in an extended capacity. This is where engine-oil additives come in. The final performance characteristics of any oil depend on the base oil—as well as the additives it contains. The amount and type of these additives vary according to the properties of the base oil and the environment in which it must function.

When to say when

Maintenance intervals vary according to trencher models, engine type and jobsite conditions. Of course, the manufacturer's recommendations that come with your trencher are the best source of information on the type and grade of lubricants best-suited to a particular machine. Similarly, you should consult your operator's manual to determine how often you should change the oil and filter. Even so, don't be concerned about changing the oil too often. It's a fact that frequent oil changes are the key to long and trouble-free engine life.

Most engine manufacturers recommend a filter change at least at every other oil change. But remember, when an oil changes does not include changing the filter, the engine still retains about a quart of used oil. To get maximum benefit, then, it makes sense to change both the oil and filter together.

A new filter may look clean when you remove it from the package. However, tiny metal shavings often cling to the filter paper, center core tube and the threads of the base plate. Installing a filter carrying this type of debris means the engine will carry these contaminants along with the oil. The result is accelerated wear on bearings and engine surfaces, resulting in shortened engine life.

Because of this danger, some manufacturers recommend using "pure" filters. These are manufactured via a process that includes several extra steps, such as extended washing, cleaning and rinsing. These pure filters are designed to match an engine's oil-flow rate and recommended oil- and filter-change intervals. These filters also are designed to accommodate the high pressure surges that can occur during engine startups, especially in cold weather.

Remember: Oil is the life blood of any engine. Checking oil often and changing it at the proper maintenance intervals is one of the best steps you can take to ensure optimum engine performance and long engine life.

Hydrostatic hot-buttons

Trenchers with hydrostatic-drive systems are designed for reliable, low-maintenance operation and long service life. However, today's hydrostatic-ground-drive, trending-boom and blade/bucket systems require a planned, regularly scheduled maintenance program, including daily checks. The most important of these daily maintenance tasks is to check all fluid levels and replenish them as needed. These include engine oil., hydraulic fluid and engine coolant. Besides knowing that fluid levels are adequate, it's essential to use the appropriate grades or types of fluids. Fluid requirements vary from machine to machine, so it's also important to follow the recommendations outlined in the trencher's operator's manual.

Always check fluid levels before starting the engine. Once the engine is running, check your instrument panels' gauges to ensure all pressures, temperatures, etc., are rising to normal

levels. If any gauge shows an unusual condition—such as low oil pressure or high engine temperature—tag the machine and remove it from service until you’ve corrected the problem. Dirt and other contaminants can spell disaster for hydraulic systems. That’s why it’s important to avoid reusing O-ring seals. Keep in mind, the expense of an unnecessary tear-down due to O-ring failure far exceeds the cost of a new seal. Also, be sure to replace all filters as recommended. Finally, never raise a relief valve’s setting in an attempt to increase hydraulic performance.

A word about greasing

Greasing a trencher is an important service function. While design improvements have minimized the grease points on many of today’s hydrostatic trenchers, these improvements have not completely eliminated grease fittings. Most manufacturers locate fittings for easy access—a design consideration driven by the fact that it’s critical to service them at least once a day. Useful tips for greasing wear parts include:

- Grease lightly and frequently instead of applying heavy grease less often.
- Don’t overgrease the machine. Pumping too much grease through the zerk—or grease fitting—only wastes grease, collects dirt and can quickly make the whole trencher dirty.
- Clean your hands after greasing. This is important because it keeps grease off the machine’s controls.

Fluid fittings and hoses

The hoses carrying hydraulic fluid throughout a trencher are made of fabric, rubber and steel. Manufacturers design them to withstand the pressures required to operate the machine and its attachments. Despite their rugged design, hoses can become weathered or damaged by hitting or rubbing against objects or other machine parts. Learn to spot such potential problems as slight bulges or exterior degradation and damage. These often indicate a hose is at risk of failing, and you should replace it.

Repeated hose failures are often the result of improper installation. You must allow hoses to flow their natural flex. Never force or twist them in one direction or the other. Also, always use the correct length of hose for a given maintenance job. Using a hose that’s even a fraction of an inch too short—or the wrong diameter—virtually guarantees problems down the road. Exercise care when installing hoses or fittings. One common method for ensuring proper installation involves marking a white line along the hose’s length, then making sure that line remains straight once you’ve installed the hose. If the line curves, it indicates a twisted hose, which can lead to damage from even normal operating pressures. Some replacement hoses come with integral installation guides.

A final note on hydraulics: It’s a good idea to stock plenty of replacement hydraulic hoses and fittings. Doing so obviously helps limit downtime from routine maintenance or in-the-field

failures. However, it also provides an insurance policy against repairs made with fittings or hoses that do not provide a precise match to factory recommendations.

Seasonal considerations

The operational demands of trenchers change dramatically as outdoor temperatures drop. The extent of the winter care that equipment needs clearly depends on both your climate and your applications. Nevertheless, taking time to winterize a trencher can save a significant amount of time and money in the long run. A little extra attention to a trencher's battery, coolant, oil, hydraulics and tires at the end of a working season can help you avoid excessive repair costs and diminished performance next season.

To maintain a battery during the off season, remove the cables, clean post and cable ends, and clean and tighten the trencher itself clean of excess dirt, mud and grease also. Doing so greatly simplifies walk-around inspections before you start the day's work. Don't forget to keep gauges, steps and pedals clean and dry to reduce the possibility of feet slipping off pedals. Finally, make sure the steering wheel and other hand-operated controls are clean and free of grease. In short, the key to maximizing your investment in trenching equipment is to anticipate adjustments and repairs rather than simply reacting to unexpected malfunctions. Staying on top of routine trencher-maintenance requirements—and exercising a healthy measure of common sense on the job—is the best way to continually hit the mark of bottom-line dependability. The preceding maintenance guide was compiled by representatives of the Charles Machine Works Inc. (Perry, OK), makers of Ditch Witch-brand equipment for the underground construction industry.

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