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After a Flood: Engine and Machine Renovation

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After a flood . . . Engine and Machine Renovation

by G.R. (Bob) Durland, *Extension farm machinery and structures specialist*

After an engine has been immersed in water for a period of time, such as occurs in a flood or "dropping in a lakes" situation, it usually can be salvaged. *It will need to be cared for immediately, however.*

If an engine is not cleaned, rusting can occur and the soil particles suspended in the water and deposited on the equipment can cause rapid and excessive wear of bearings and engine parts if the machine is operated.

After recovering the equipment from the water, flush the engine thoroughly with clean water and dry completely, both externally and internally. Clean all bearing parts with a good solvent such as kerosene or a commercial solvent. This is necessary to remove all of the soil grit particles that have a tendency to stick to the bearing grease. After cleaning the bearing, grease it thoroughly and reassemble. Completely drain gear cases of used oil. Clean with kerosene or other approved cleaning material to remove the gritty particles that may have accumulated.

Disassemble other components that may have collected water internally, and dry them thoroughly. This would include gauges, electronic components, and sensors. A hair dryer works well to speed up the drying of small components.

Dry machine components that are shiny, such as chisel blades or mower sickles, and then coat with a rust inhibiting material. There are products on the market especially designed for this purpose.

Internal Combustion Engines

These usually need to be completely disassembled after being submerged in water from lakes or floods. First, clean thoroughly on the outside to help prevent rust and corrosion from occurring under grease and dust accumulations. Drain all liquid from the engine, and discard it in a safe and legal fashion. Disassemble the engine, dry it, and lubricate it internally.

An overhaul job will involve complete disassembly of all components. Follow a systematic procedure so that no area of the engine is overlooked.

Transmission, differential, power steering, and hydraulic systems — Remove all lubricants from their respective systems and discard safely. Completely clean all bearings and other moving parts. Replace or clean thoroughly all filter units. After cleaning and inspecting, reassemble the parts and add a new lubricant. It would be good to *change this lubricant at one-half the normal lubricant change interval.*

Fuel system — Drain and give particular care to cleaning the carburetor, fuel pump, and injectors. In some cases, it might be easier and more economical to replace the component rather than to disassemble and clean it. Definitely replace the fuel filter and air filter.

Coolant system — Since this is a sealed system, there is little chance of getting contaminants in the system proper. Check the radiator screen for plugging from silt and sediment. If plugged, flush clean using a water hose and brush. Check all hoses for damage and replace if necessary. Check the fan belt tension.

Electrical system — After marking the electrical wires so they can be resumed to the proper place, remove them and look for cracks or breaks in the insulation. If any are found, replace the wire with a new one. Clean the voltage regulator, alternator, and starter, and dry them completely. Then blow them out using the air compressor at a medium setting. After they're dry, spray them with an electric wire coating or cleaner. Do not use a spray with solvent that might melt the shellac coating on the wire.

If it's a gas engine, dry the distributor before starting the engine. Check all electrical connection junctions on the engine and remote-controlled equipment. Don't forget to drain the water from the head, tail, and running lights.

Other accessories — Check air conditioners, heaters, radios, and telephones for water damage. Inspect and adjust drive belts. Clean the units of all silt, dirt, and water, and repair any damage.

Remember....

It takes time to return flood- or water-damaged property to normal, so prioritize necessary repairs. Since engines are one of the more difficult items to clean and renovate, consider hiring a professional mechanic. Often a professional overhaul will be accompanied by a warranty. If you do decide to overhaul equipment in your farm shop, limit it to the small gas engines and hire a mechanic to service larger engines. This will allow you to direct more of your cleanup time to the rest of your farmstead.

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