

Proper cooling system care

It's easy to overlook diesel engine cooling system maintenance. If the engine's running within its proper temperature range and the expansion tank shows coolant at acceptable levels, you might assume everything's fine.

You could be wrong. Diesel engine cooling systems don't take kindly to neglect.

Coolant handles a lot of duties within your engine. Maintaining proper operating temperature and protecting against freeze damage are two of the basics, but there's more.

In wet sleeve diesel engines, which have coolant flowing around each cylinder liner, coolant quality directly affects engine life.

Here's why. The cylinder liners vibrate with every power stroke. This causes tiny bubbles to form in the coolant. These bubbles attach to the cylinder liners, and then collapse. Their collapse is actually a miniature explosion with enough force to remove tiny amounts of metal.

Occurring millions of times, this bubble formation and collapse can eat away at cylinder liner surfaces, causing pitting or cavitation erosion. Pitting makes the cylinder liner more vulnerable to corrosion, which in turn makes it more vulnerable to deeper pitting. As the liner weakens, the extreme pressure from combustion ultimately can blow a hole through the liner, causing a costly engine breakdown.

Proper coolant maintenance greatly reduces this potential problem. Coolants designed for heavy-duty diesel engines include additives that adhere to cylinder liner walls to form a hard protective layer. As the bubbles collapse, it's this protective layer that's sacrificed, not the metal.

Other coolant additives protect against corrosion throughout the cooling system, lubricate the water pump, prevent scale erosion, and protect against acid formation and coolant loss through boil-off.

These additives become less effective over time. That's why engine manufacturers recommend replacing coolant periodically. Case IH calls for coolant replacement on a two-year or 2,000-hour schedule, whichever comes first. Realize that

although some of your engines may log only a few hundred hours per year, internal engine corrosion can be affecting them 24/7.

Case IH XHD heavy-duty coolant is the recommended replacement coolant for all Case IH diesel engines, sleeved and nonsleeved. It's available as a concentrate to be mixed with water, or as a 50/50 premix (half coolant

and half deionized water) that can go directly into your cooling system. The 50/50 premix is a good choice if your water supply is less than ideal.

Some engines have coolant filters that may include coolant conditioners. Change these based on the service intervals stated in the equipment's operators manual. Adding conditioners other than those found in the coolant and coolant filters isn't recommended.

Proper cooling system care - specifically, timely coolant changes and using the proper coolant - is an important element of assuring long dependable service from diesel engines. Remember that your Case IH dealer can perform the coolant replacement for you - including proper disposal of the old coolant - if you prefer not to tackle the job yourself.

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Cooling system maintenance

- Change coolant on the recommended intervals, using the proper coolant.
- Keep the radiator and external screens free of dust and chaff.
- Check hoses and clamps for overall condition. If a hose fails due to age, consider replacing all hoses of the same age.
- Remove the radiator cap and check coolant for any signs of coolant deterioration such as gelling, rust color, or corrosion on soldered connections. Don't assume the coolant in the expansion tank accurately portrays coolant condition.

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