Cat® Engine Storage and Preservation

Preserve Your Investment….

If your engine is out of operation and use is not expected short term, precautions should be taken to protect your engine from damage and ensure proper operation when you return to full production.

If an engine is not in use, oil can run off the cylinder walls, piston rings, main bearings, connecting rod bearings, crankshaft, gears, and other parts that normally receive lubrication.

This lack of lubricant allows corrosion to begin to appear on the metal, especially in areas of high humidity.

Preserve your investment by following the engine storage and preservation procedures recommended by Caterpillar. Your Cat® dealer has all the supplies and reference material you will need to preserve your investment.

Parts Needed to Preserve Your Engine

Part	Part Numbers and Available Quantities
Volatile Corrosion Inhibitors (VCI) Oil	4C-6792 – 0.946 L (1.0 qt) 4C-6794 – 18.950 L (5.0 gal) 185-4770 – 18.9 L (5.0 gal) EAME* only
Cat® Extended Life Coolant (ELC)	Contact your local Cat dealer for part numbers and available container sizes.
Cat Antifreeze	8C-3684 – 3.78 L (1 gal) 8C-3686 – 208 L (55 gal)
Cooling System Conditioner	3P-2044 – 0.946 L (1 qt) 5P-2907 – 208 L (55 gal) 6V-3542 – 0.237 L (0.25 qt) 8T-1589 – 0.473 L (0.5 qt)

*EAME – Europe, Africa, Middle East

Part numbers and package quantities may vary by region. For a complete listing of parts needed, please contact your local Cat dealer.

Equipment Needed to Preserve Your Engine

Part	Part Numbers and Available Quantities
Sprayer	331-3626
Rust Preventive	Cat 450 Rust Preventive Oil
Oils & Lubricants	Refer to the Operations & Maintenance Manual for your engine
Multipurpose Grease	5P-0960 129-1952 EAME* only
Filters	Refer to the Parts Book for your engine
Coolant Conditioner Test Kit	4C-9301
Coolant and Battery Tester	245-5829
Volatile Corrosion Inhibitors (VCI) Oil	4C-6792 – 0.946 L (1.0 qt) 4C-6794 – 18.950 L (5.0 gal) 185-4770 – 18.9 L (5.0 gal) EAME* only
Calibration Fluid	6V-6067 – 208.1 L (54.9 gal) 6V-6068 – 18.9 L (5.0 gal) 185-4665 – 18.9 L (5.0 gal) EAME* only

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Storage Procedures – Up to One Year for All Diesel and Natural Gas Engines

1. Clean the engine of any dirt, rust, grease, and oil. Inspect the exterior. Paint areas that contain paint damage with good quality paint.
2. Remove any dirt from the air cleaner(s). Check all seals, gaskets, and the filter element for damage.
3. Apply lubricant to all points shown in the Operation & Maintenance Manual, "Lubrication & Maintenance Table" for your equipment.
4. Drain and replace the crankcase oil and change the oil filter(s). For the proper procedure, refer to the Operation & Maintenance Manual for your equipment.
5. If equipped with an air starter, fill the reservoir with a mixture of 50 percent VCI oil and 50 percent engine oil.
6. Add VCI oil to the crankcase at the rate of three to four percent by volume.

   Note: If the engine crankcase is full, drain enough engine oil so the mixture can be added.
7. Remove the air filter element(s). Turn the engine at cranking speed with the throttle control in FUEL OFF position. Use a sprayer to add a mixture of 50 percent VCI oil and 50 percent engine oil into the air inlet or turbocharger inlet.

   Note: VCI oil mixture can also be added to the inlet by removing the plug for checking turbocharger boost pressure. The minimum application rate is 5.5 mL per L (3 oz per 1000 cu in) of engine displacement.
8. Use a sprayer to apply a 50 percent VCI oil and 50 percent engine oil mixture into the exhaust openings. The minimum application rate is 5.5 ml per L (3 oz per 1000 cu in) of engine displacement. Seal the exhaust pipe, including any drain holes in the muffler.
9. Remove the fuel from the secondary fuel filter housing or empty and reinstall the spin-on fuel filter element to remove any dirt and water. Drain the fuel injection pump (sleeve metering only).

   Clean the primary fuel filter. Fill with calibration fluid or kerosene. Install the primary fuel filter and operate the priming pump. This will send clean oil to the secondary filter and engine.

   Open the fuel tank drain valve and allow any water or dirt to drain from inside the fuel tank. Apply a spray of 30 ml per 30 L (1 oz per 7.50 gal) of fuel tank capacity to prevent rust in the fuel tank. Add 0.15 ml per L (.02 oz per 1 gal) of commercial biocide such as Biobor JF or an equivalent to the fuel.

   Apply a small amount of oil to the threads on the fuel tank filler neck and install the cap. Seal all openings to the tank to prevent evaporation of the fuel and preservative.
10. Remove the fuel nozzles or spark plugs and apply 30 ml (1 oz) of VCI oil mixture (50 percent VCI oil and 50 percent engine oil) in each cylinder.

    Use a bar or turning tool to turn the engine over slowly to put the oil on the cylinder walls. Install all fuel nozzles or spark plugs and tighten to the correct torque.
11. Spray a thin amount of VCI oil mixture (50 percent VCI oil and 50 percent engine oil) on the flywheel, ring gear teeth, and starter pinion. Install the covers to keep in the VCI vapors.
12. Apply a heavy amount of multipurpose grease (MPGM) to all outside parts that move, such as rod threads, ball joints, linkage, etc.

    Note: Install all covers and ensure that tape has been installed over all openings, air inlet, exhaust openings, flywheel housing, crankcase breather(s), dipstick tubes, etc.

    Ensure that all covers are air tight and weatherproof. Use a waterproof, weather resistant type tape such as Kendall No. 231 or an equivalent. Do not use duct tape. Duct tape will only seal for a short period of time.
13. Under most conditions it is best to remove the batteries and use them in another application. As an alternative, place them in storage where they can be periodically checked and electrically charged again when needed.

    If the batteries are not removed, wash the tops of the batteries until clean. Apply an electrical charge to the batteries to obtain a specific gravity of 1.225.

    Disconnect the battery terminals. Place a plastic cover over the batteries.
14. Loosen all belts (fan, alternator, etc.).
15. Place a waterproof cover over the engine. Ensure the engine cover is secure, but loose enough to allow air to circulate around the engine to prevent damage from condensation.
16. Attach a tag to the engine with a notation of the date that the unit was preserved.
17. Remove the waterproof cover every two or three months and check the engine for corrosion. If the engine has signs of corrosion at the check period, repeat the protection procedure.

For complete storage procedures, contact your local Cat dealer.

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