

QUESTIONS AND ANSWERS ON THE CAT 3208 ENGINE

OIL MAINTENANCE

When should I change the oil?

The average RV will travel about 10,000 miles per year therefore the oil should be changed spring and fall. For owners who travel more, there is a chart on page 41 of the Cat 3208 owners manual which goes into more details on proper engine maintenance.

What type of oil should I use?

The turbo 3208 requires CE grade oil. The most common CE oil is 15/40 weight. When the engine leaves the factory it has 10W/30 which is not a break-in oil and will perform to the regularly scheduled oil change.

What oil additives should I use?

Oil additives are not required. Caterpillar engine development is done on commercially available oil without the need for additives. Unless oil additives cause a problem for the engine, they will not affect the warranty.

How much oil should the Cat 3208 use?

The minimum target is 1 quart of oil to 50 gallons of fuel consumed. Unless the consumption is above this amount, Caterpillar dealers are not authorized to do any investigation.

What oil pressure should I see?

A 65 psi with 10W/30 oil at 210 deg F is normal at 2600 RPM.

ENGINE MAINTENANCE

What are the maintenance recommendations for the Cat 3208?

Oil and fuel filters should be changed every 300 hours or 6000 miles. The valves should be adjusted at the first oil change and every 1200 hours or 50,000 miles. In the operators manual, there is a maintenance schedule which outlines the before failure schedule for planned component replacement.

When should I change the antifreeze?

Antifreeze should be changed every 2 years.

What fuel additives should I use?

The only fuel additives that you need to use are those which retard algae growth. This occurs when there is heat and water in the fuel tank.

How can I prevent diesel fuel waxing?

To prevent the waxing of diesel fuel during winterized operation we suggest that you use a blend of No. 1 and No. 2 diesel fuel. Waxing is not harmful except that it will get caught in the fuel filter and stop fuel flow. Warming the filter will melt the wax. No. 1 diesel fuel has less wax so it will plug at a lower temperature than No. 2 fuel. Because No. 1 diesel fuel has less wax, it will also have less energy. Consequently, you'll see a decrease in your fuel economy.

When should I overhaul my engine?

When approximately 30,000 gallons of fuel is consumed is when you can expect to overhaul your Cat 3208 engine. It is recommended that the rod bearings be checked and a new set rolled in when there has been between 25,000 to 30,000 gallons of fuel consumed. If starting and oil control are satisfactory then rolling in new rod bearings is all that is required. The turbo-charger should be checked every 1200 hours of operation for proper working condition.

Are there filter kits available?

Yes, they include oil and fuel filters, and either the can or liquid type coolant conditioners. These are available through any Caterpillar Dealer.

When should the coolant conditioner be used?

Coolant conditioner should be checked and added at every oil change to prevent block pitting. The coolant conditioner percentage should register between 3 – 6% and can be checked with Caterpillar's 8T5296 Test Kit

ENGINE OPERATION:

How long should I idle the engine before shutdown?

Caterpillar recommends that you idle your Cat 3208 engine from three to five minutes. This allows the turbo to wind down and engine to properly cool down. Water will circulate through the radiator preventing after boil and possible coolant loss.

How many miles to the gallon will I see?

Generally 7 to 9 miles per gallon. The top three factors of fuel economy are speed, weight of the coach and idle time. Super tuning of the engine will influence power more than fuel economy.

What boost pressure should I see?

At cruising speed you will see five to six inches. Going up a hill will cause the boost pressure to climb to 9 to 10 inches. With an automatic transmission you do not have much control over boost pressure.

May I drive at full throttle up hill?

Yes, the engine is governed and will be controlled.

Is manually downshifting going up hill ok?

Yes, Manual downshifting will keep rpm up. This will provide better performance and increase water flow for proper engine cooling.

What gear should I use to go downhills?

Allison says the same gear which was used to climb the hill may also be used when coming down the hill. However, do not exceed 2800 rpm with the 250hp and 3000rpm with the 300hp.

What does the high idle check tell you?

The high idle check tells you if the engine controls will allow the engine to get full power. The number one cause of low hp is wear in the throttle linkage which will not allow the engine to open up. You can check high idle by putting the throttle on the floor. The tachometer should read 2800 rpm on the 250hp and 3000rpm on the 300 hp. The throttle linkage should be readjusted to bring engine speed up to standard.

How can I get more horsepower with my current 250hp?

The horsepower of the 250hp Cat 3208 cannot be increased because this would require more cooling capability. The only way to get more horsepower is to buy a new coach with the 300hp Cat 3208. The 300 hp is aftercooled which means that another radiator is added to cool the inlet air.

What is the best way to store my coach in regards to the engine?

Have fresh oil in the engine and a full tank of fuel. It is good to add some type of fuel stabilizer and anti-algae additive to prevent algae growth in the fuel tank. Do not run the engine unless you can road travel for at least 40 to 50 minutes. It is better to let your RV sit than to just warm it up without putting a load on it.

What are the most common problems seen?

Air in the fuel system will reduce horsepower. Air is most likely to enter through loose connections in the suction line or filters. The last place to look is the governor control shaft.

Hot inlet air (above 125 degrees F) will cause a reduction in horsepower.

Electrical, where the voltage will not power the on/off solenoid.

Cold weather fuel gel. Double check to see that you are running a blend of No. 1 and No. diesel fuel or No. 1 diesel fuel.

What type of antifreeze should I use with the diesel engine?

The recommended antifreeze is GMC6038M. This is a low silicate anti-freeze and is best for diesel engines. An equivalent low silicate anti-freeze may also be used as long as it meets the recommended specifications.

Are there any Limp Home techniques?

The hand priming pump can be used on the forward control coaches to partially overcome air in the fuel system.

The fuel system can be switched on by removing the solenoid and pulling up on the "fuel on" lever should the solenoid fail. It will have to be shut down by pushing on the same lever.

OIL FILTERS	Filter No.	Filter Kit No
40S 32Y5335 (32Y6001 - 32Y8101)	9N5630	6V8888
32Y5336 - 32Y6000	8N9586	6V8889
32Y8102 - up 51Z1 - up	8N9586	6V8889
2Z1 - up	9N6007	6V9739

OIL CAPACITY	Total	Full Mark	Add	Oil Change
	Quarts	Quarts	Quarts	Hours
40S-32Y32180	12	10	7	150
32Y32181 - 32Y68440	14	12	10	150
32Y68441 - up (210 HP)	18	16	12	200
51Z68765 - up (210 HP)	16	14	12	300
2Z1 - (200/250/300 HP)	20	16	12	300

FUEL FILTERS

40S - 32Y - 51Z - 2Z

1P2299

Oil change

COOLANT CONDITIONER

1/2 Pint

6V3542

Oil change

1 Pint

8T2589

Oil change

COOLANT CONDITIONER TEST KIT

8T5296

Amount of Supplemental Coolant Additive Needed for Pre-mixed Coolant Solution

Cooling System Capacity	Amount at Initial Fill	Approx. Amount at 250 Hour
22-32 (6-8)	3P2044 (1 Bottle)	6V3542 (1 Bottle)
33-47 (9-12)	3P2044 (2 Bottle)	6V3542 (1 Bottle)
48-62 (13-16)	3P2044 (2 Bottle)	8T1589 (1 Bottle)
63-85 (17-22)	3P2044 (3 Bottle)	8T1589 (1 Bottle)
86-115 (23-30)	3P2044 (4 Bottle)	6V3542 (1 Bottle)
116-165 (31-43)	3P2044 (5 Bottle)	3P2044 (1 Bottle)
166-244 (44-64)	3P2044 (8 Bottle)	3P2044 (2 Bottle)

Do not exceed 6% max. concentration. See supplemental Coolant Additive Test Kit

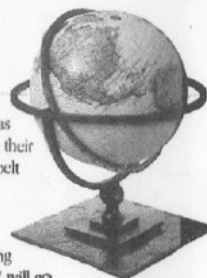
Supplemental Coolant Additive Elements by Capacity

Cooling System Capacity	Initial Precharge Element	250 Hour Maint. Element
22-32 (6-8)	9N6123 (1)	9N3368 (1)
33-47 (9-12)	9N6123 (1)	9N3718 (1)
48-62 (13-16)	9N3366 (1)	9N3368 (1)
63-85 (17-22)	9N3367 (1)	9N3368 (1)
86-115 (23-30)	9N3367 (1)	9N3718 (1)
116-165 (31-43)	9N3367 (2)	9N3368 (2)
or 116-165 (31-43)	9N3367 (1)	9N6123 (1)
166-244 (44-64)	9N3367 (2)	9N3718 (2)

When using Caterpillar Antifreeze, no precharge elements are required.

Your trucks will go at least that far with the **green FleetRunner®** heavy-duty belts from Gates.

The new heavy-duty diesel engines, with their exhaust gas recirculation systems, are reducing emissions, alright. But their higher underhood temperatures are wreaking havoc on belt drives, shortening belt life.

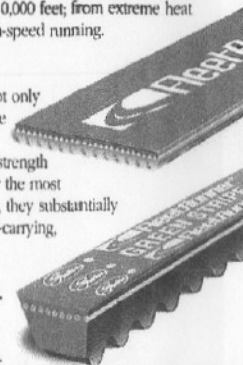


Gates FleetRunner Micro-V® and V-belts can take the heat and, on a typical application, last nearly twice as long as any other belt. Testing shows the FleetRunner Micro-V will go at least 100,000 miles. That's four times around the planet. And in actual field testing, our V-belt is still going strong after 250,000 miles.

These are the results we're getting from actual field tests with major fleet customers running Class 7 trucks from sea level to more than 10,000 feet; from extreme heat to extreme cold, from stop-and-go to extended, high-speed running.

The most evolved heavy-duty belts yet.

With their green overcords, our FleetRunner belts not only look different, they deliver performance never before seen in actual field trial. Composed of a patented blend of elastomers, they maintain excellent tensile strength and adhesion to reinforcement materials even under the most extreme temperature and loading conditions. In fact, they substantially outperform the old technology on measures of load-carrying, flexibility and wear.



Built to survive global warming under the hood.

The new FleetRunner technology produces a belt with superior resistance to cracking, even with the higher underhood temperatures. And it better withstands the modern threats of deterioration from increased exposure to ozone and water-based coolants.

Ask for the new FleetRunner products, and keep on trucking.

Until you try our FleetRunner belts on your problem application, there's no telling how many times your trucks can circle the earth between belt changes. But we're confident these belts will change your entire outlook on belt change intervals, help you prevent downtime and save a lot of green on maintenance. Don't settle for anything less than our new, longer-lasting V-belts and Micro-V Belts, part of a whole line of rugged, heavy-duty Green Stripe® products from Gates.



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