

People are always asking what's the best oil for their engine? It depends on many factors. Your type of driving? Stop and go short trips or highway? What climate do you drive in? How many miles are on the engine? Does the engine burn oil? Service history? Is the Timing Chain stretched? Is the DPF regenerating to often or not enough? Have the NOx sensors failed? Has the Turbo failed? Is there oil in the Turbo Impeller? There are about 10 different oil possibilities with various combinations of oil additives for particular situations. People think a better oil is all their engine needs. I'm sure it does; but it also needs updated parts published in Service Bulletins. Mercedes admits the engine will never work right without the updates. By the time the engine has 50,000 miles, it is fighting sludge in the crankcase and the Air Intake system. The best oil in the world can't clean out the sludge in the Intercooler, Swirl Flaps or EGR Cooler. Some people just want to keep it simple. They don't care about all the other stuff. They'll sell it if and when it becomes a problem. I've highlighted the contradictions in the 2019 BlueTec Owners Manual. Mercedes is notorious for saying one thing in the Owners Manual and the opposite in their Service Bulletins.

Without more information, I can only suggest an oil that exceeds the Mercedes branded diesel oil. Amazon has their own brand oil. It's called "Amazon Basics 5W/40 Full Synthetic Diesel oil". It's cheaper and way better than the Mercedes-Benz 5W/30 oil. It also complies with the proper API and ACEA classifications for a Turbocharged BlueTec diesel. Which is more than Mercedes can say about their own oil.

330 Technical data

### Quality and capacity of engine oil

The containers of the various engine oils are marked with the ACEA (Association of European Automotive Manufacturers) and/or API (America Petroleum Institute) classifications. Only use approved engine oils that correspond to the MB Specifications for operating fluids and the prescribed ACEA and/or API classifications named below. Engine oils of other grades are not permissible and can result in the loss of the New Vehicle Limited Warranty. The use of other engine oils not approved for diesel engines can damage the diesel particulate filter (DPF).

### MB-Freigabe or MB-Approval

Gasoline engine	MB-Freigabe or MB-Approval
M274	229.5
Diesel engines	MB-Freigabe or MB-Approval
OM642/OM651	228.51, 229.31, 229.51, 229.52

If the engine oils listed in the table are not available, you may add a maximum 1.1 US qt (1.0 liter) of the following engine oils once only:

- **Vehicles with a gasoline engine:** MB-Freigabe or MB-Approval 229.3 or ACEA A3/B4
- **Vehicles with a diesel engine:** MB-Freigabe or MB-Approval 228.5, 229.3 or 229.5

Multigrade engine oils of the prescribed SAE classification (viscosity) may be used all year round, taking the outside temperature into account.

### Viscosity of the engine oil

**NOTE** Engine damage due to incorrect SAE classification (viscosity) of the engine oil

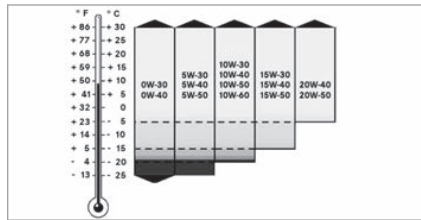
If the SAE classification (viscosity) of the engine oil added is not suitable for prolonged low outside temperatures, it may cause engine damage.

The temperature readings of the SAE classification are always based on fresh oil. Engine oil ages when driving as a result of soot and fuel residue. The characteristics of engine oil deteriorate significantly at low outside temperatures.

- ▶ Use an engine oil of the appropriate SAE classification at low outside temperatures.
- ▶ Use oil for all-year-round operation.

The temperature readings of the SAE classification are always based on fresh oil. The temperature characteristics of the engine oil, especially at low outside temperatures, can deteriorate significantly due to aging when driving.

Therefore, Mercedes-Benz recommends that you change the engine oil before the start of the cold season. Only use an approved engine oil in the prescribed SAE classification for this purpose.



The viscosity indicates the flow characteristics of a fluid. With regard to engine oil, a high viscosity is synonymous with thick liquid and a low viscosity with thin liquid. Depending on the outside temperatures, select the engine oil according to the SAE classification (viscosity). The table shows the SAE classifications to be used. The low temperature characteristics of engine oils can deteriorate significantly during operation due to aging and soot and fuel accretion, for example. A regular oil change with an approved engine oil in the appropriate SAE classification is therefore strongly recommended.

### Additive

**NOTE** Engine damage due to use of additives in the engine oil

The use of additional additives in the engine oil can damage the engine. Do not use any additional additives in the engine oil.

### Miscibility of engine oil

The benefits of high-quality engine oils are reduced by mixing oil.

We recommend that you only use engine oil of the same grade and SAE classification as the oil filled at the last oil change. If, in exceptional

(This is the most important and confusing explanation for the type of oil to be used in a BlueTec.

It's too bad Mercedes didn't explain what the correct ACEA and API classifications are for a BlueTec diesel engine.

- For the ACEA, "E9" or "C5" are the correct classifications for a turbocharged BlueTec diesel.

- For the API, "CK-4" is the correct classification for a BlueTec diesel.

- The Mercedes approvals, MB228.51, 229.31, 229.51 and 229.52; do NOT always correspond with the ACEA or API BlueTec diesel classifications. For example, the official Mercedes-Benz factory recommended oil does NOT have the ACEA or API BlueTec diesel approvals. The ACEA and API only approve the factory recommended oil for a GAS engine. The factory recommended oil has extra friction modifiers that make the oil extra slippery. The factory recommended oil also causes "Bore Glazing". Glazed cylinder walls cause excessive Blow-by / oil consumption. That's why Mercedes tells owners that it is normal to burn one quart of oil every 600 miles. However, owners don't notice this, because the burnt oil is replaced with diesel fuel from the DPF regeneration. This is the "Fuel Accretion" Mercedes mentions.)

This statement is very true. It's too bad Mercedes doesn't tell owners who drive in freezing climates that they need to change the oil every 3,000 miles. Mercedes says this in a service bulletin that most owners never see. Why can't Mercedes tell owners in plain English, when to change the oil?

Here Mercedes tells owners they should use an SAE viscosity that is appropriate for their climate. But the only oil dealers offer is 5W/30 ESP. What is Mercedes really trying to say? Diesel fuel transfers soot into the engine oil. Soot causes the oil to turn black. Soot is like tiny clumps of hard carbon floating in the oil. When 5W/30 oil gets hot, the oil film gets very thin. The soot in the oil is actually thicker than the oil film. The soot causes "Bore Glazing". The cylinder walls look like polished mirrors. Over time this causes Blow-by / oil consumption. A heavier viscosity oil will have a thicker oil film. The soot is suspended in the oil and that prevents Bore Glazing. So what oil does Mercedes expect owners to use if dealers only offer 5W/30?

This is total B.S. Additional oil additives won't damage the engine. The factory recommended oil that doesn't have the API or ACEA BlueTec turbocharged diesel oil approval will damage the engine. Driving 20,000 miles between oil changes will damage the engine.

For 2019 and 2020 Mercedes eliminated the dipstick for the engine. The Owners Manual says there is a dipstick, but there really isn't one. If you want a dipstick you have to special order it.

In 2019, Mercedes added a feature which switches on the Check Engine light and tells the driver the DPF is at 96%. But Mercedes forgot to explain this in the Owners Manual. What does 96% mean? The engine goes into "Limp Home" and won't go over 30 mph. What's the driver suppose to do? Nothing in the Owners Manual tells you what to do. (The warning message means the DPF is full of soot. Owners drive to many short trips and the DPF has not Regenerated. The engine needs to be driven harder and longer so the DPF has time to burn off the soot trapped in the DPF. It also means the engine oil is full of soot. The oil and filter should be changed as soon as possible. You also need to change your driving habits.)

cases, oil of the type in the engine is not available, use another approved mineral or synthetic engine oil.

**Vehicles with a diesel engine:** if the grade is not available, you may also refill with engine oils according to MB-Freigabe or MB-Approval 228.5, 229.3 or 229.5. The top-up quantity is then limited to maximum 1.1 US qt (1.0 liter).

You must then have an oil change carried out at the earliest possible opportunity.

**Vehicles with a gasoline engine:** if the grade is not available, you may refill with engine oils according to MB-Freigabe or MB-Approval 229.3 or ACEA A3/B4. The top-up quantity is then limited to maximum 1.1 US qt (1.0 liter).

You must then have an oil change carried out at the earliest possible opportunity.

Engine oils are distinguished by:

- engine oil brand
- grade (MB-Freigabe or MB-Approval)
- SAE classification (viscosity)

#### Oil change interval

The on-board computer automatically shows the date of the next oil change as an event message on the display.

Mercedes-Benz recommends having the oil changed at a qualified specialist workshop.

#### Engine oil capacities

Engine	Engine oil
M274	around 11.2 qt (10.5 liters)
OM642	around 13.2 qt (12.5 liters)
OM651 (rear wheel drive)	around 12 qt (11.5 liters)

#### Information on oil consumption

Depending on the driving style, the vehicle consumes a maximum of 1.1 US qt (1.0 liter) of engine oil per 620 miles (1000 km).

In the following cases, oil consumption may also exceed this limit: (See page 264)

- the vehicle is new.
- you use the vehicle mostly under arduous conditions. (This is city driving in stop and go traffic)
- you drive frequently at a high engine speed.

Regular maintenance is a prerequisite for favorable consumption figures. You can only assess the oil consumption after a long journey. Check the oil level in the engine regularly, e.g. weekly or every time you refuel.

#### Notes on brake fluid

Observe the notes on operating fluids (→ page 325).

**WARNING** Risk of an accident due to vapor pockets forming in the brake system

The brake fluid constantly absorbs moisture from the air. This lowers the boiling point of the brake fluid. If the boiling point is too low, vapor pockets may form in the brake system when the brakes are applied hard.

This causes the braking effect to be impaired.

- ▶ Have the brake fluid renewed at the specified intervals.

**NOTE** Damage to paint, plastic or rubber by brake fluid

There is a risk of damage to property if brake fluid comes into contact with paint, plastic or rubber.

- ▶ If paint, plastic or rubber comes into contact with brake fluid, rinse with water immediately.

Observe the notes on paintwork/matte finish paintwork care (→ page 273).

Have the brake fluid replaced regularly at a qualified specialist workshop.

Only use brake fluid approved by Mercedes-Benz in accordance with MB-Freigabe or MB-Approval 331.0.

Further information on brake fluid:

- in the MB Specifications for operating fluids at <http://bevo.mercedes-benz.com>

Note: You will not notice the engine burning oil until it's way to late. The regeneration of the DPF injects so much diesel fuel that it washes past the piston rings and into the crankcase oil. Fuel accretion replaces the burnt oil.

See the oil test on page 5. This is a new Sprinter with the factory oil. The test shows 16% diesel fuel after 8,000 miles.

No kidding! Who would have ever guessed. Why can't Mercedes just tell owners exactly what they mean by regular maintenance? Mercedes publishes Service Bulletins telling dealers to recommend more frequent oil changes, but Mercedes can't find a way to tell owners directly. I hate to tell you, but most dealers never read the Service Bulletins.

The computer will tell you when to change the oil??? Mercedes implies the computer has some special ability to analyze the oil and recommend the optimal service interval. WRONG! The computer is a milage counter. It's set to 20,000 miles at the factory. This "computer" doesn't know anything about your oil.

WHAT! You expect owners to pay up to \$250,000 for a new vehicle that "may" burn more than a quart of oil every 620 miles. This is why you use Break-in oil and throw the factory oil in the trash.

Mercedes-Benz... you say the oil should be changed before the start of cold weather. Please explain how the computer knows when the ambient temperature drops below freezing? Will the computer tell me to change the oil?

Mercedes dealers will never tell you about the known problems with the BlueTec diesel. If they did, owners would demand that Mercedes pay for all of their mistakes. When you go in for routine maintenance or a specific problem, the dealer will fix what you ask for, and that's it. They'll never tell you about the additional things that should also be addressed. They want to keep it as simple as possible. Mercedes publishes Service Bulletins that explain what else should be done. Customers always want the cheapest possible repair bill. Skipping over additional parts of the repair will not save you money in the long run. I'll send you all the bulletins about the major problems on your specific vehicle. You may not like knowing what else can happen, but at least you'll know why you have to keep going back for more repairs. For example; if your engine has over 60,000 miles, your dealer should have explained the problems with the Timing Chain. It's a known problem that Mercedes has published many Service Bulletins about. If your dealer used a better oil, they wouldn't even have a Timing Chain issue, but that's too much to ask. They should have recommended the Chain be measured for stretch. I'll send you the Mercedes Bulletin and work instructions. A new Timing Chain cost about \$2000. A broken chain will destroy the engine.



AmazonBasics Full Synthetic Motor Oil, for Heavy Duty Diesel and Gasoline Engines, 5W-40, 1 Gallon

by AmazonBasics

- One-time purchase: \$22.99
- Subscribe & Save: \$22.00

You'll notice this oil has the appropriate API CK-4 and the ACEA E9 approvals that Mercedes requires for warranty approval. If Amazon can put these required approvals on their oil, why can't Mercedes put them on their factory recommended oil? And, this Amazon oil is an average diesel oil. Mercedes can't put these approvals on their oil because the Mercedes oil does not meet these approvals. Ask your dealer to please explain the discrepancy? If your dealer doesn't know, you can call 1-800-FOR-MERC and ask Mercedes-Benz.



- resistance to viscosity and thermal breakdown
- Helps to fight volatility burn-off to minimize engine deposits and exhaust emissions
- CK-4/SN approved; always follow vehicle manual

Parts Fix OCS-100 Clear Premium Quality Oil Change Stickers Static Clin...  
 ★★★★★ 274  
 \$5.22 /prime

You don't see the MB229.52 Mercedes approval because Amazon wouldn't pay Mercedes the copyright fees for their approval. The API and ACEA approvals are independent approval test that oil companies cannot buy.





This is the exact oil that every Mercedes dealer uses in a BlueTec diesel. It's the same oil the factory puts in a new engine. If you ask your local Mercedes dealer about this oil, or search the Sprinter Owners Forums, they all swear this is the one and only oil for a BlueTec diesel. However, if people would simply open their eyes and read what Mercedes actually says in the owners manual, they might see that this oil does not comply with Mercedes-Benz own requirements for warranty compliance.

Ask your dealer to show you where this oil bottle is marked with any ACEA or API oil classification? The MB229.52 approval is not good enough. MB229.52 is not an ACEA or API classification. MB229.52 is something Mercedes-Benz made up. MB229.52 doesn't have any testing standards to back it up. Ask your dealer to show you the standardized oil test required for the MB229.52 approval? Mercedes doesn't have any test data, because they didn't make the oil or test oil. So who makes this oil? Everyone implies that Exxon Mobil makes the oil. Where does it say that, and where are the ACEA and API test results? If it's such a great oil, why does Mercedes hide the information?

Show me where this label has the required API or ACEA approvals as stated in the 2019 Sprinter Owners Manual?

Mercedes-Benz  
Genuine Engine Oil

SAE 5W-30 MB 229.52

Huile moteur d'origine

CONT. NET.  
1L / 1.056 US Qts

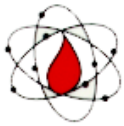


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Mercedes-Benz



Show me where this label has the required API or ACEA approvals as stated in the 2019 Sprinter Owners Manual?



# BTA Reliability Centered Maintenance: A Division of BTA Oil Analysis Ltd.

An ISO 9001 Company

Phone: (250) 374-0022 Fax: (250) 374-2298 1-800-399-1656

Page 5

Unit #: XXXKNIGHT  
 Serial #:   
 Client:   
 Description: DIESEL 3.0L ENGINE

Make: MERCEDES  
 Oil Type: MOBIL 1 5W30

Model: 3.0L  
 Component: ENGINE

## Unit Information

Sample Date 09/19/2019  
 Oper Hr/Km 8000  
 Oil Hr/Km 8000  
 Oil Chg Date 09/19/2019

## Spectro Analysis (Wear Metals & Contaminants)

		New Oil
Aluminum	C 32	0
Chromium	A 4	0
Copper	B 15	0
Iron	C 92	0
Lead	A 2	0
Silicon	B 31	4
Tin	A 0	0
Silver	A 0	0
Nickel	C 17	0

These highlighted readings are 4 times higher than better diesel oil.

## Additives

Sodium	8	1
Boron	67	102
Calcium	1825	1042
Magnesium	18	678
Zinc	674	792
Phosphorus	955	786

(Zinc is important. It protects the Timing Chain from stretching. The ideal Zinc level is between 1600 ppm and 2000 ppm. The Mobil One 5W/30 ESP only has 674 ppm. This is why Mercedes has trouble with the Timing Chains.)

## Infrared Analysis

RPVOT		
Oxid/AN	A 0.08	1.244
Sulf/BN	A 0.00	
Soot	A 0.21	
AntiWearZDDP	A -0.08	

## Physical Properties

Particles/ISO	B	Tgt:
Water	B *	
Fuel	O/C 16%	
Glycol		
Visc@40	A 70.9	64.5
Visc@100		

(This is the "fuel dilution" caused by the regeneration of the DPF. After 8000 miles, 16% of the oil was actually diesel fuel. There are several ways to reduce the amount of fuel that gets in the oil. Better oil, less sludge in the DPF equals fewer regenerations, highway driving, a new Oil Separator and a Catch Tank will all effect the fuel dilution. For older models, the ECU must be rebuilt by Mercedes in Germany.)

Notation: A = Average B = Be Aware C = Caution D = Danger O/C = Over Concentrated Tgt = Target

A new Sprinter owner sent me this oil analysis. After buying a new BlueTec Sprinter he drove 8,000 miles on the original factory filled oil, Mobil One 5W/30 ESP. Mercedes tells owners the engine doesn't need Break-in oil and they can go 20,000 miles between oil changes. After reading the article about the BlueTec problems he changed the oil at 8,000 miles and sent the used oil to be analyzed. As you read the test results you can see the engine is already in trouble. The engine will make it through the warranty period, but you can easily see this is the start of future problems. If Mercedes put actual diesel Break-in oil in the new engine, you would not see the negative results. If Mercedes actually recommended diesel oil that meets the ACEA "E9" or API "CK-4" approval, you would not see the negative numbers. But that's the minimum. There are diesel oils with high levels of zinc to protect the Timing Chain. There are diesel oils with extremely low NOACK Values for the Blow-by that is causing the 16% fuel dilution.

The highlighted items are the most important. They indicate the bearings are already loosing their hardened coatings to the Mobil One 5W/30 ESP oil.



## BTA Reliability Centered Maintenance: A Division of BTA Oil Analysis Ltd.

An ISO 9001 Company

Phone: (250) 374-0022 Fax: (250) 374-2298 1-800-399-1656

Page 6

Unit #: XXXKNIGHT

Serial #:

Client:

Description: DIESEL 3.0L ENGINE

Make: MERCEDES

Oil Type: MOBIL 1 5W30

Model: 3.0L

Component: ENGINE

### Comments

#### ISSUES:

- Iron reading is High.
- Nickel indicates hard surfacing. This may be from bearing or shaft wear.
- Combination Silicon & Aluminum usually indicates dirt.
- Water content is moderate.

#### SUGGESTIONS:

- Check engine for normal operation. If OK, maintain regular oil changes.
- Check air induction system for possible sources of dirt ingestion.

Here you can read the comments from the testing company. This engine is already in trouble at 8,000 miles. This oil is what came in it from the factory. This is NOT Break-in oil. If the engine had gone the first 1000 miles on Break-in oil and then 5,000 miles with an oil actually approved for a Turbocharged BlueTec diesel, the results would be completely different. I actually have oil test that prove this. Can you imagine what this report would read like if the owner followed the Mercedes recommended 20,000 mile oil change?

Note: These readings may be normal during the break in period. Future tests will confirm

wear trend

I've seriously lost count of the hundreds of BlueTec diesel owners who've contacted me after their engine has locked-up because of the oil. The latest owner to contact me thought he had a special relationship with his dealer. He had all of his maintenance done by his Mercedes dealer and also paid them \$7000 for an extended warranty. You can imagine his disappointment when his dealer told him his engine failed because the fuel had gasoline in it. There is no warranty coverage for contaminated fuel. **If you're counting on your warranty to save you from a catastrophic failure, THINK AGAIN!** This is one of the areas where I show owners how to protect their engine from contaminated fuel. But in this case, the dealers diagnosis stank from the beginning. The engine locked up and wouldn't turn over. Contaminated fuel won't cause the engine to lock-up. The 20,000 mile oil changes with Mobil One 5W/30 ESP caused the engine to lock up. Come to find out, the dealer did not send the fuel out for testing. Instead, someone at the dealership used their nose to smell gas in the tank. Excuse me, but I learned long ago that you cannot trust your nose to smell gas in diesel fuel. The dealer gave the owner a \$27,000 estimate to replace the fuel system, DPF, Catalytic Converter and all of the exhaust sensors. Their estimate did not include a factory rebuilt engine.

I told the owner this was beyond stupid. The engine was locked-up and wouldn't turn over. The dealer had misdiagnosed the problem. The engine will still crank over with contaminated fuel. Plus, for \$13000 plus labor, he can get a factory rebuilt engine with most of the fuel system parts included. This owner had been a loyal customer and paid an extra \$7,000 for the extended warranty. This is how the dealer treats him! I told the owner the first thing he had to do, was determine if the fuel was actually contaminated. I told him to ask the dealer for two fuel samples. The dealer would send out one sample and the owner would send the other. When the owner ask the dealer for the fuel samples the dealer got very defensive. They refused to take the fuel samples and said it didn't matter. They told the owner the fuel system failure could have been caused by a previous tank of fuel. Wait a second... I thought they said the fuel had gas in it. Now they're changing their tune. I told the owner to have the dealer put the reason they were denying warranty coverage on his Repair Order. They refused and told the owner he had until 5 PM to tow his vehicle away. Unfortunately, I've heard this story many times before. Most dealers are honest and don't pull this stunt. But some dealers know they can intimidate a customer and bully them into accepting the denial of warranty. If the owner tows the vehicle and then sends the fuel out for testing, the dealer can say the owner didn't actually send the fuel from his vehicle. If I hadn't heard this same story so many times, I would say it was a one off inexperienced employee having a bad day. But I've heard this from owners all over the country. High oil consumption with sky high combustion temperatures caused the engine to lock-up. Mercedes doesn't want to honor the warranty, so they blame the failure on contaminated fuel. The Magnuson Moss Warranty Act says the manufacture must tell the consumer in writing, why they are denying warranty coverage and prove the consumer is at fault. The dealer told the owner to contact his insurance. Unless you have a rider on your policy for contaminated fuel, most insurance won't pay for the damage. If the insurance adjuster inspected the engine, they would immediately know it wasn't contaminated fuel because the engine was locked-up.

Customers don't know about the thousands of other owners who've been told the same bogus story. The customer doesn't know how to confront the dealer and call them out on this. Unless you enjoy arguing with your dealer, it's easier to understand the way this engine works and take the preventive measures that avoid this mess all together.



XENTRY



## - Engine makes noise, ticking/crackling -

<b>Topic number</b>	LI03.20-N-056658
<b>Version</b>	2
<b>Design group</b>	03.20 Crankshaft
<b>Date</b>	08-08-2013
<b>Validity</b>	Model 639 with engine 642 Model 906 with engine 642 (Sprinter)
<b>Reason for change</b>	Distribution extended

### Complaint

The engine makes ticking noises when idling at speeds up to approx. 1500 rpm.

- The noise occurs at mileages as of approx. 20.000 km or after an oil change.
- Noise is clearly noticeable in area of 1st crankshaft main bearing.
- Noise can no longer be heard when the poly-V belt is removed for diagnostic purposes.

### File

2.mp3

### Designation

Ticking noise, isolated ticking/crackling

### Cause

Run-in effect of 1st crankshaft main bearing

### Remedy

Replacement of crankshaft bearing shells of 1st crankshaft main bearing (see AR03.20-S-4351SE).

Note:

When replacing the installed crankshaft bearing shells, new bearing shells of the same tolerance class must be installed (see color code).

The tolerance classes of the installed bearing shells are specified on the cylinder crankcase (for the upper bearing shell) and on the front crankshaft stub (for the lower bearing shell) (see attachment).

The bearing class information runs from left (1st main bearing) to right (2nd - 4th main bearings).

**Meaning of color codes (color index): G = yellow (54), R = red (56), B = blue (52), W = white (57). V = violet (58)**



Mercedes-Benz TSB LI03.20-N-056658

Make: Mercedes-Benz

Number: LI03.20-N-056658

OM642

Date: 8/8/2013

Title: Engine Makes Noise, Ticking/Crackling - Crankshaft #1 Main Bearing failure / Replace engine

Models:

2010-2014 Sprinter 2500

2010-2014 Sprinter 3500

(This also applies to all OM642 diesels in other models from 2008 to 2014. Frequent oil changes with the best quality diesel oil is the only way to prevent the failure.)