



CHONGQING CUMMINS ENGINE
OPERATION AND MAINTENANCE GUIDEBOOK



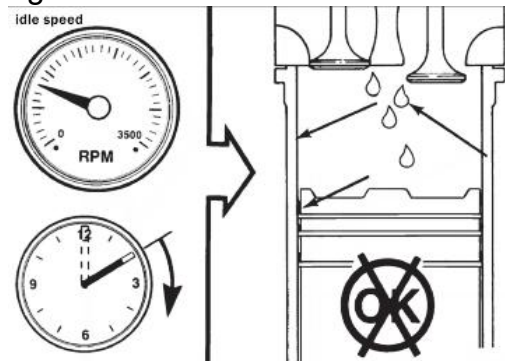
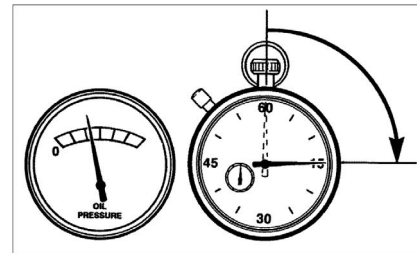
Overview

- Strictly follow tips and maintenance schedules recommended in this manual to carry out operation and maintenance. Keep the operation and maintenance records. Keep the engine in good condition. Give full play to its excellent performance and reliability, and obtain better long-term economic benefits.
- Use fuel, lubricating oil and coolant that meet the specifications as specified in the technical specifications.
- Chongqing Cummins Engine Co., Ltd(CCEC) uses the latest technology and the highest quality parts in engines production, so when to replace parts, we recommend that you **MUST** use genuine Cummins parts..
- During operation, pay close attention to whether the engine has the following conditions. If any one of them appears suddenly, it is likely to be a harbinger of failure. Please check and repair in time
 - Engine poor Start/Stop
 - Abnormal vibration
 - Abnormal noise
 - Working pressure,temperature change suddenly
 - Increased fuel consumption
 - Excessive exhaust smoke
 - Power insufficient
 - Increased oil consumption
 - Fuel, oil or water leakage

Correct start the engine

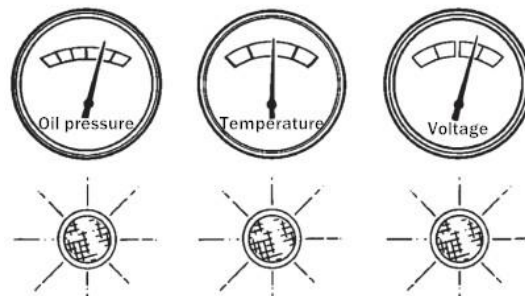
- To avoid damage to the starting motor, do not allow it operating continuously more than 20 sec, wait 2 mins before restart.
- Within 10 seconds after starting, the alarm indicators on the instrument should all go out. Otherwise, it should be checked or stopped ASAP.
- Do not let the engine idle for too long. If the idle time exceeds 10 mins, It may cause the following failures and even damage the engine.

- Exhaust pipe leaking black oil
- Increased fuel consumption
- Oil is diluted by diesel
- Maintenance interval shorten
- Carbon deposits in the cylinder
- Key parts failure
- Valve stuck



Correct operate the engine

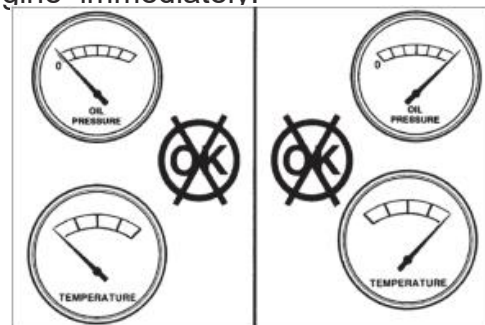
- Daily check the oil pressure, coolant temperature and other engine parameters through the OEM panel to ensure they are working properly. Check the panel for any warnings Report. Take proper action to correct the alarm status or contact the nearest Cummins dealer.



- Always check the OEM panel readings. If the pressure or temperature does not meet the specifications technical specifications, shut down the engine immediately.

- Properly shut down the engine

After the engine is running at full load, it is necessary to let the engine idle for 3-5 mins, then shut down. This is to allow the piston, cylinder, bearing, turbocharger, etc to fully cool down, Avoid damaging the engine.



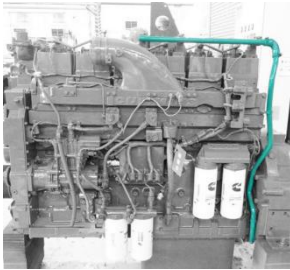
Correct maintain the engine

- Chongqing Cummins recommends maintaining the engine in accordance with the maintenance procedures in the operation and maintenance manual.
- When performing a certain level of maintenance, repeat all work from the previous maintenance level. .
- If the engine working ambient temperature is lower than -18°C (0°F) or higher than 38°C (100°F), the maintenance interval should be shortened. Working in a dusty environment, or frequent shutdown, also need to shorten the maintenance interval. Time.
- Some maintenance procedures require special tools or must be performed by a qualified technician.
- If the system is equipped with parts not produced or provided by Chongqing Cummins, please refer to the maintenance recommendations of the corresponding parts maker.

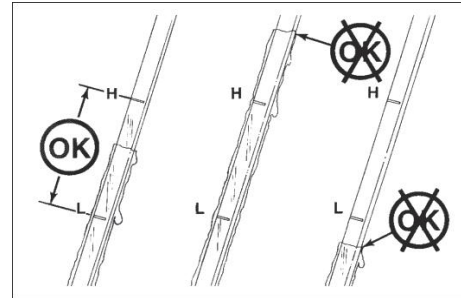


Maintenance steps (once a day) Class A

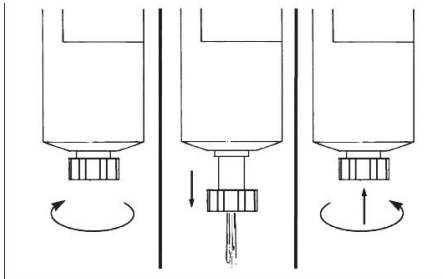
- Crankcase breather tube - check for mud.



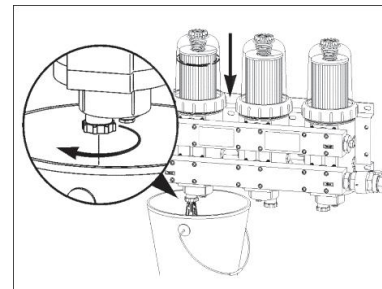
- oil level - check



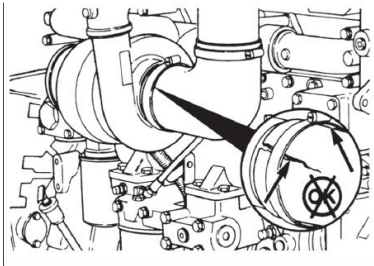
- Fuel/Water Separator - Drain the water from the separator until see clean fuel



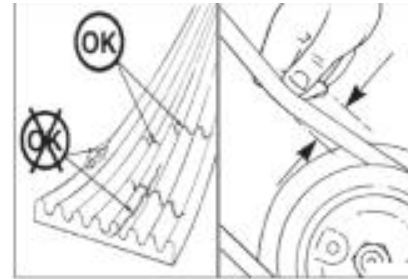
- Remote assemble Fuel Filter (Elec Controlled Engine) - Water Storage in Exhaust System



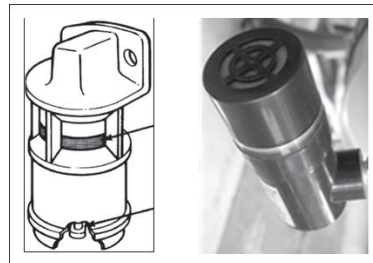
Intake manifold - to check, if damaged, clamp loose, then replace or tighten the clamp



Drive belt - check whether damage and adjust tension

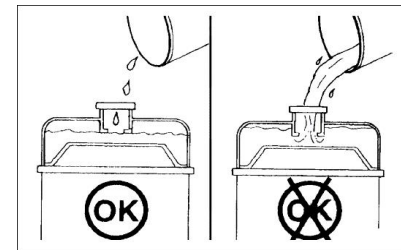


Air filter resistance -- check (red/green)



Daily check
air filter
element

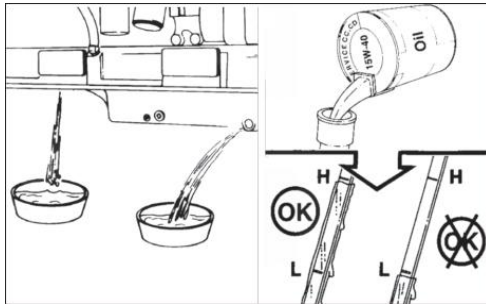
Coolant level - check



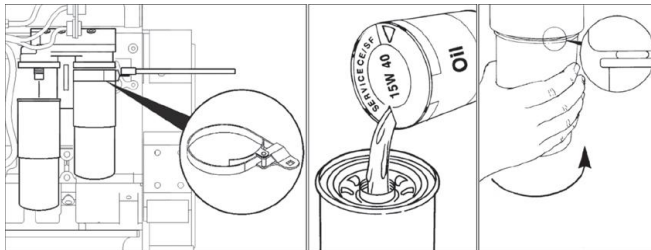
Reserve
expansion
space

Maintenance schedule (every 250 hrs or 6 months) Class B

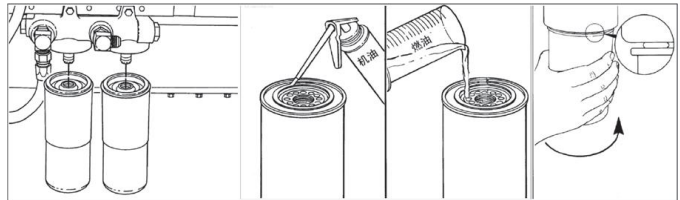
■ Change the oil



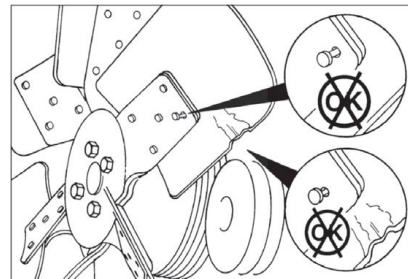
■ Change the oil filter



■ Change the fuel filter (mechanical engine)

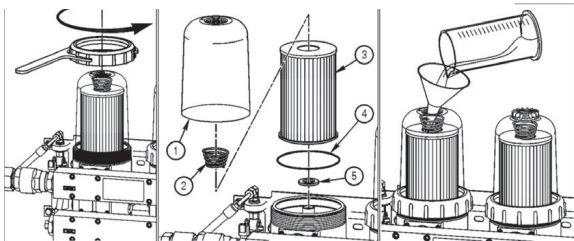


■ Check the cooling fan

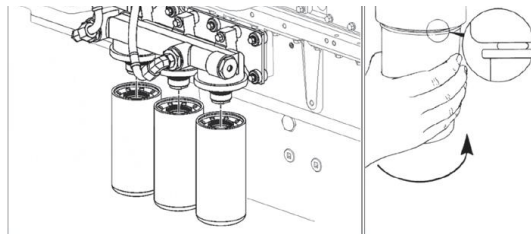


Maintenance schedule (every 250 hrs or 6 months) Class B

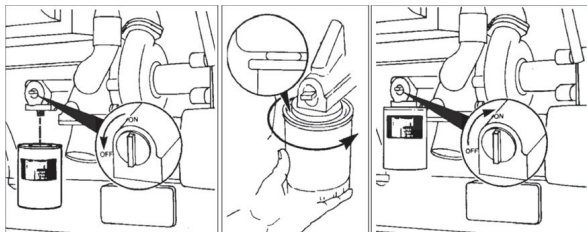
- Replace the 1 class fuel filter (elec control engine)








- Replace the 2 class fuel filter (elec control engine), Note: Do not fill the new 2 class filter with fuel.



- Replace the coolant filter



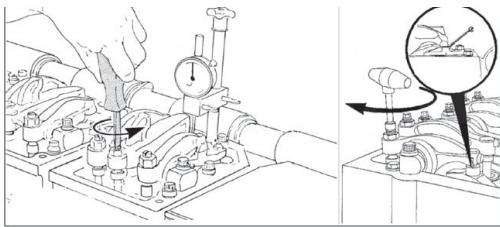
Check coolant additives(DCA)

 <p>Test strips SCA Concentration Test Kit</p>  <p>Injector</p>	 <p>< 1.2 unit SCA</p>	 <p>1.5 unit SCA</p>	 <p>> 3 unit SCA</p>
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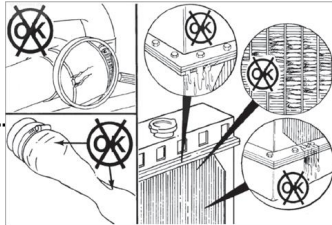
Maintenance schedule (every 1500 hrs or 1 year)

Class C

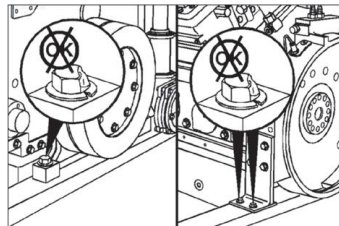
- Injector stroke, valve interval adjustment



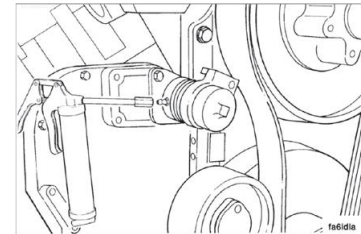
- Front and rear bracket mounting bolts- Check



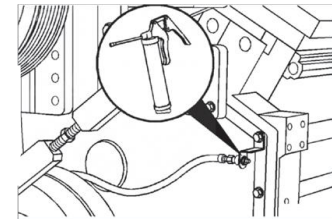
- Radiators and hoses-- Check for reuse



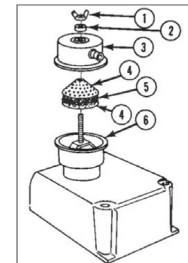
- Cooling fan belt tensioner -- add grease



- Engine front support-- add grease



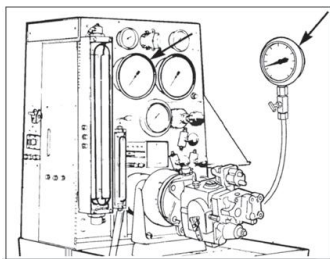
- Crankcase breather -- clean, check for keep using



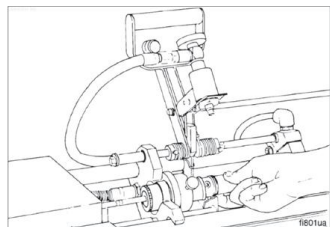
Maintenance schedule (every 6000 hrs or 2 yrs)

Class D

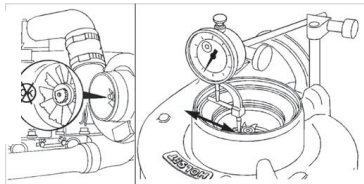
- Fuel pump
--calibration



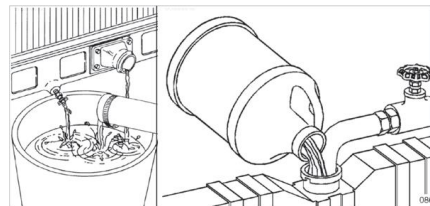
- Injector--
calibration



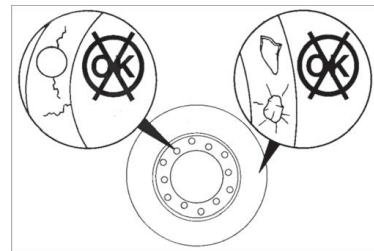
- Turbocharger--
check for
keep using



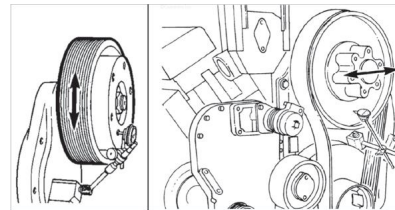
- Cooling
System -
Inside Add
detergent to
descale



- Silicone oil
shock
absorber--
check



- Fan hub--
check



Maintenance Specifications - Fuel System

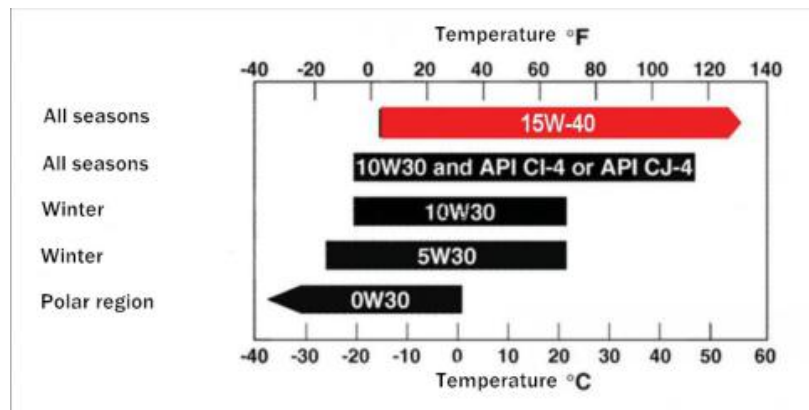
- Diesel
According to local ambient temperature, choose proper grade Light diesel.
- Part number & quantity
Based on specific engine model,
The information on the right is for reference only

Engine Series (Mechanical injector)	Fuel filter	
	Cummins P/N	
M11	3329289	
NT855	3315843	
K19	3315843	
K38	3313306	
K50	4095189	
Engine series (Elec control injector)	1 grade fuel filter	2 grade fuel filter
	Cummins P/N	Cummins P/N
QSNT	4297154	4297132
QSK19	FS19763	5417137
QSK38	FS19763	5417137
QSK50	4328043	5417137

Maintenance Specifications - Lubrication system

Oil

- According to local ambient temperature, choose proper viscosity grade of oil, performance grade CH-4 or higher.
- Oil change cycle unit: hour



API level	CCEC level		M11	NT855	K19	K38/50	QSNT	QSK19/38/50
CH-4	H grade	Oil	Recommend	Recommend	Recommend	Recommend	Stipulation	Stipulation
		cycle (hour)	250~400	250~400	250~400	250~400	250~400	250~300
CI-4	I grade	Oil	Recommend	Recommend	Recommend	Recommend	Recommend	Recommend
		cycle (hour)	250~500	250~500	250~500	250~500	250~500	250~400
CJ-4	J grade	Oil	Recommend	Recommend	Recommend	Recommend	Recommend	Recommend
		cycle (hour)	250~500	250~500	250~500	250~500	250~500	250~500



Final replace cycle pls consider in combination with fuel quality, operating environment, load, etc.

Maintenance Specifications - Lubrication system

- Oil filter

* Part number & quantity Based on specific engine model, The information on the right is for reference only

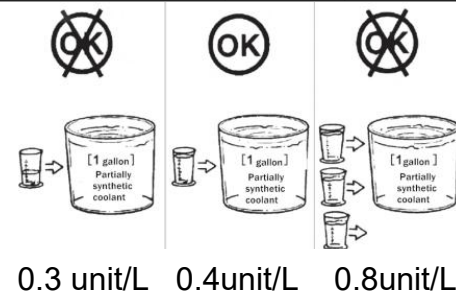
Engine Series (Mechanical injector)	Full flow filter	Bypass filter
	Cummins P/N	Cummins P/N
M11	3401544	
NT855	3401544	
K19	3889310	3889311
K38	3889310	3889311
K50	3310169	3889311
Engine series (Elec control injector)	Full flow filter	Bypass filter
	Cummins P/N	Cummins P/N
QSNT	3401544	
QSK19	4367100	
QSK38	4920071	
QSK50	4920071	

Maintenance Specifications - Cooling system

Suggest to use
Chongqing Cummins
special coolant

SEQ	P/N	PART NAME	KG /PKG	Boiling point	Freezing point
1	4914746	cooling protection fluid	16kg	>110°	<-3°
2	4914747	cooling protection fluid	40kg	>110°	<-3°
3	4914748	cooling protection fluid	170kg	>110°	<-3°
4	4913744	cooling antifreeze(-40°)	16kg	>110°	<-40°
5	4913745	cooling antifreeze(-40°)	40kg	>110°	<-40°
6	4913746	cooling antifreeze(-40°)	170kg	>110°	<-40°
7	5493271	cooling antifreeze(-18°)	16kg	>110°	<-18°
8	5493272	cooling antifreeze(-18°)	40kg	>110°	<-18°
9	5493273	cooling antifreeze(-18°)	200kg	>110°	<-18°

DCA concentration
between 0.3-0.8 unit
/liter



Maintenance Specifications - Cooling system



Water filter



Part number & quantity Based on specific engine model, The information on the right is for reference only



DCA additive

DCA Unit	Capacity	Cummins P/N
20	1.89 L	3888312

DCA Unit	Cummins P/N
4	3100304
6	3100305
8	4058964
12	3100307
15	3100308
23	4058965



Contact US

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