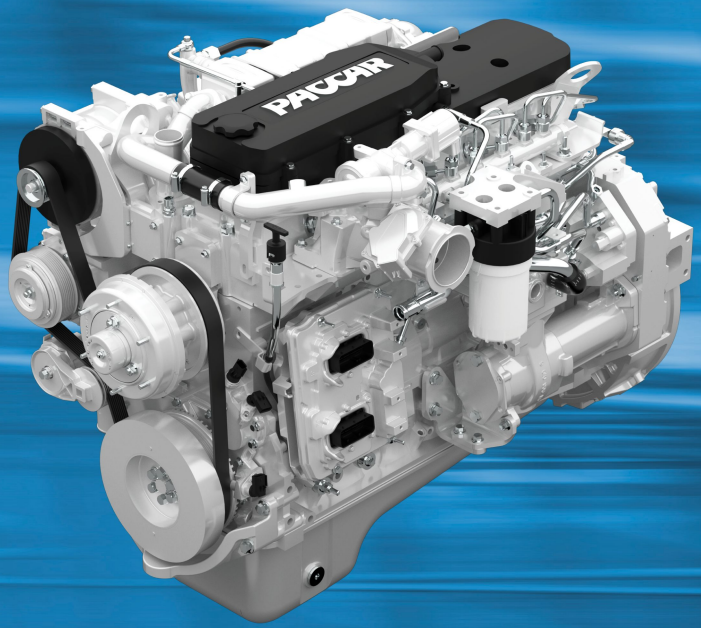
PACCAR PX-7



Operator's Manual

Important Reference Numbers

Fill in the part name and number in the blank spaces provided below. This will give you a reference whenever service or maintenance is required.

Part Name	Number
Engine Model (See Engine Identification on page 6-3.)	
Engine Serial Number (ESN) (See Engine Identification on page 6-3.)	
Oil Type (See Lubricating Oil Recommendations and Specifications on page 5-25.)	
Filter Part Numbers:	
Air Cleaner Element	
Lubricating Oil (See Lubricating Oil Recommendations and Specifications on page 5-25.)	
Fuel (Use ultra-low sulfur diesel fuel only) (See Acceptable Types of Fuels on page 5-21.)	

WHAT TO DO IF...

You Need Roadside Assistance

Call toll-FREE to talk to someone at the PACCAR Customer Center. The toll-FREE telephone number is located on the windshield decal.

- Open 24-7-365 days a year
- They can help you get roadside assistance.
- They have a custom mapping system which locates authorized PACCAR engine dealers and Independent Service Providers (ISPs) near you and lists types of services offered, hours of operation and contact information.
- They can assist with jump and pull starts, tires, trailers, fines and permits, chains, towing, hazardous clean-up, out of fuel (roadside), mechanical repairs and preventive maintenance services.
- They have multilingual agents and access to a translation service to ensure quality assistance for customers who speak any language.
- They can't answer your warranty questions but can get you in contact with an authorized dealer who can.
- The PACCAR Customer Center service is FREE.

Stop Engine Lamp Turns On

If the Stop Engine warning lamp illuminates, it means you have a serious engine system problem.

⚠ WARNING!

This should be considered an emergency. You should stop the vehicle as safely as possible and turn "OFF" the ignition. The vehicle must be serviced and the problem corrected before driving again. Failure to do so may result in personal injury, severe engine damage, equipment or property damage.

Stop Engine Lamp

The STOP ENGINE lamp indicates, when illuminated, the need to stop the engine as soon as it can be safely done. **The engine must remain shut down until the engine can be repaired**.

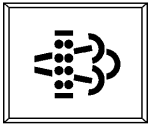
For engines with the Engine Protection Shutdown feature enabled, if the STOP ENGINE lamp begins to flash, the engine will automatically shut down after 30 seconds. The flashing STOP engine lamp alerts the operator to the impending shutdown.

High Exhaust System Temperature (HEST) Warning Lamp

HEST Warning Lamp

Refer to Engine Aftertreatment Systems Operator's Manual for additional information.

Diesel Particulate Filter (DPF) Warning Lamp



A flashing AFTERTREATMENT DIESEL PARTICULATE FILTER lamp indicates that the aftertreatment diesel particulate filter needs to be regenerated at the next possible opportunity. Engine power may be reduced automatically. When this lamp is flashing, the operator should:

1. Change to a more challenging duty cycle, such as highway driving, for at least 20 minutes.
2. Performing a stationary regeneration.

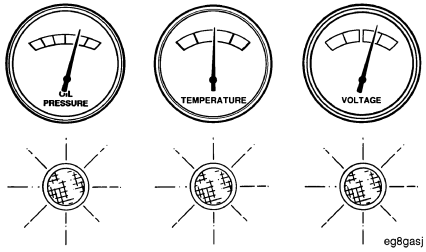
DRIVING INSTRUCTIONS

General Information

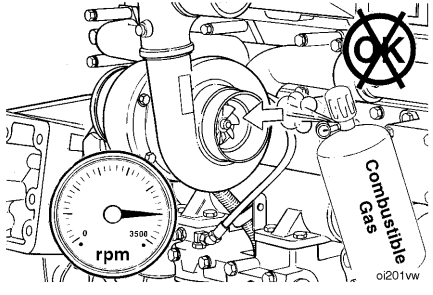
Correct care of your engine will result in longer life, better performance, and more economical operation.

Follow the daily maintenance checks listed in “Maintenance Schedule” on page 5-3.

The new PACCAR engine associated with this manual does not require a ”break-in” procedure. This section of the manual provides all of the necessary information required for proper engine operation.



Check the oil pressure indicators, temperature indicators, warning lights, and other gauges daily to make sure they are operational.



⚠ WARNING!

Combustible vapors near the air intake system could be ingested into the engine, causing the engine to suddenly accelerate and overspeed. This condition could result in operator losing control of the vehicle if an unexpected increase in engine rpm occurs. Combustible vapors could also cause a fire. Do not operate your vehicle in an area where combustible chemicals or vapors may be present. Failure to comply may result in death, personal injury, equipment or property damage.

IT IS THE RESPONSIBILITY OF THE OWNER AND OPERATOR TO OPERATE THE VEHICLE IN A SAFE ENVIRONMENT.

- An increase in oil consumption.
- An increase in fuel consumption.
- Fuel, oil, or coolant leaks.

CAUTION

Do not allow your engine to idle, at low rpm's (400-600 rpm), longer than five minutes. Long periods of idling after the engine has reached operating temperatures can decrease engine temperature and cause gummed piston rings, clogged injectors, and possible engine damage from lack of lubrication. The normal torsional vibrations generated by the engine can also cause transmission wear. If an engine must idle for an extended period of time, it should be done at fast idle (1,000 rpm or greater).

NOTE

An idle shutdown feature, available on PACCAR Engines, can be programmed to shut the engine down after a period of low idle speed operation with no driver activity. A flashing warning lamp will inform the driver of an impending shutdown. If the truck is equipped with PTO equipment, the idle shutdown system can be deactivated when the PTO is operational; however, engine low RPM idle periods should not exceed 5 minutes whenever possible.

NOTE

The power take off (PTO) feature, available on PACCAR engines, can be programmed to adjust engine idle speed with the use of switches to pre-programmed set points.

Cold Weather

It is possible to operate engines in extremely cold environments if they are properly prepared and maintained. Satisfactory performance of an engine in low ambient temperature conditions requires modification of the engine, surrounding equipment, operating practices and maintenance procedures.

The correct engine coolant, lubricating oil and fuels must be used for the cold weather range in which the engine is being operated. See the Maintenance Section on page 5-3 for these critical engine fluids recommendations and specifications.

MAINTENANCE GUIDELINES

Maintenance Specifications

Table - 1 Maximum Oil Drain Intervals

(A) Severe Duty (If the Vehicle Meets Any of These Conditions)	(B) Normal Duty (If the Vehicle Meets All of These Conditions)
Average fuel economy is less than 2.98 km/liter [7.0 mpg], or idle time is 40 percent or greater, or vehicle operates in dusty areas, or gross vehicle weight is greater than 20,865 kg [46,000 lbs].	Average fuel economy is greater than 2.98 km/liter [7.0 mpg], and gross vehicle weight is less than 20,865 kg [46,000 lbs].
Vehicle uses the severe-duty oil drain interval (A).	Vehicle uses the normal-duty oil drain interval (B).
14.2 liter [15 qt] oil pan: 14,500 km [9000 mi], 500 hours, 6 months, or 7571 liters [2000 US gal] of fuel, whichever occurs first.	14.2 liter [15 qt] oil pan: 24,000 km [15,000 mi], 500 hours, 6 months, or 7571 liters [2000 US gal] of fuel, whichever occurs first.

Table - 2 Oil Drain Intervals

Dump Truck, Mixer, or Refuse Truck	Kilometers	Miles	Hours	Months
Below 10 mph average	4,850	3,000	500	6
10 to 15 mph average	9,650	6,000	500	6

Fuel Recommendations

WARNING!

The use of diesel fuel that has been mixed with other fuels may cause an explosion. Do not mix gasoline, alcohol, or gasohol with diesel fuel. Make sure you know your fuel source and use the recommended diesel fuel as indicated in this section of the manual. Failure to comply may result in death, personal injury, equipment or property damage.

CAUTION

Dirt or water in the fuel system can cause severe damage to both the fuel pump and the fuel injectors. Due to the precise tolerances of diesel injection systems, it is extremely important that the fuel be kept clean and free of dirt or water. Know your fuel source and make sure all steps are taken for dispensing or using clean fuel in your vehicle. Failure to comply may result in equipment or property damage.

CAUTION

Lighter fuel can reduce economy or possibly damage fuel system components. Lighter fuels typically do not have enough lubricity elements in the fuel to properly lubricate the fuel injection system. Be sure you follow the fuel recommendations as indicated in this section of the manual. Failure to comply may result in equipment or property damage.

CAUTION

Using diesel fuels blended with lubricants may cause damage to your exhaust aftertreatment system. Service intervals for aftertreatment systems will be reduced. Do not use diesel fuel blended with lubricating oil in engines equipped with an aftertreatment system. Failure to comply may result in equipment or property damage.

If the replacement coolant is Chevron Texaco, Shell Rotella or their private label counterparts which do not meet the elastomer compatibility section of CES 14603, the coolant must be treated by adding 0.24 liter [8oz] of liquid silicate fluid for every 45 liters [12 gal] of total coolant system volume. It is critical to not over treat the coolant with silicate fluid. If overtreatment is suspected, drain the cooling system and discard the filter. Clean the cooling system immediately. Symptoms of silicate over-treatment can be thickened coolant in the lower radiator tank, water pump seal leakage soon after silicate addition, reduced heater output and/or elevated engine temperatures.

To obtain order forms or ask questions relative to ordering the silicate fluid, contact:

Silicate Fluid Order Program

P.O. Box 27388
Houston, TX 77277-7388

Phone: 800-346-9041

Fax: 800-876-5317

If the replacement coolant is Chevron Texaco, Shell Rotella or their private label counterparts the coolant must be replaced with new coolant whenever the engine is overhauled or repairs involve the replacement of the following components:

- Rocker lever housing gasket.
- Lubricating oil cooler housing gasket.
- Cylinder head gasket.
- Thermostat housing gasket.

For further details of engine coolant for PACCAR PX-7 engines, refer to Cummins Coolant Requirements and Maintenance Bulletin 3666132.

PACCAR Engine Technology

General Information

The service model name for this product is PX-7.

This engine is being released first to meet EPA 2013.

This engine has the following Agency defined Emissions Control System (ECS) hardware:

- Charge-air cooler (CAC)
- Direct diesel injection (DDI)
- Engine control module (ECM)
- Exhaust gas recirculation (EGR)
- Oxidation catalyst (OC)
- Periodic trap oxidizer (PTOX)
- Selective catalytic reduction - urea (SCR-U)
- Turbocharger (TC).

This engine has the following emissions related hardware:

- Aftertreatment outlet NH3 gas sensor
- CM2350 ECM
- Engine Intake Throttle Actuator
- Integrated aftertreatment DEF controller into the ECM
- Ambient Air temperature Sensor

Replacement Parts

PACCAR recommends that any service parts used for maintenance, repair or replacement of emission control systems be new or genuine approved rebuilt parts and assemblies, and that the engine be serviced by an authorized PACCAR Engine dealer or an authorized Cummins Distributor. Your vehicle contains air, fuel, and electrical components that may affect engine emission controls. The use of non-genuine engine or vehicle replacement parts that are not equivalent to the PACCAR engine or OEM vehicle manufacturer's original part may impair the engine and vehicle emissions control system from working or functioning effectively, and may jeopardize your emissions warranty coverage.

Limitations

Your sole and exclusive remedy against PACCAR and the Selling Dealer arising from your purchase and use of this Engine is limited to the repair or replacement of "warrantable failures" at authorized United States and Canadian PACCAR Engine Dealers, or an authorized Cummins Distributor, or an authorized PACCAR Engine facility where applicable, subject to PACCAR's time, mileage, and hour limitations of the engine emission warranty. The maximum time, mileage and hour limitations of the engine emission warranty begin running on the Date of Delivery to the First Purchaser. The accrued time, mileage, or hours is calculated when the engine is brought into an Authorized Dealer for correction of warrantable failures.

Failures, other than those resulting from defects in material or factory workmanship, are not covered by this Warranty. PACCAR is not responsible for failures or damage resulting from what PACCAR determines to be abuse or neglect, including, but not limited to: damage due to accident; operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine. PACCAR is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel exhaust fluid. Failure of replacement parts used in repairs due to the above non-warrantable conditions is not warrantable.

PACCAR is not responsible for non-Engine repairs, downtime expenses, cargo damage, fines, all applicable taxes, all business costs