

# Lubricant Applications for Wheel Loaders

## Introduction

A wheel loader is a heavy equipment machine used to move aside or load materials. wheel loader is mostly used in construction, quarry, palm oil mill, and timber industries. Wheel loader has a front-mounted square wide bucket connected to the end of two booms (arms) to scoop up loose material from the ground.



Image from iplamail.com, hitachicm.com, newholland.com, and volvo ce

## Why Wheel Loaders?

It is depending on the material that needed to be load or stockpiled. Loading with wheel loader means scooping the material, back around, lining up with the truck, raising the bucket, and dumping, then returning to the pile or pit for another scoop which depending on how loose the materials are and how close the truck is parked. Which means you can do it almost instantly, or it take a minutes per scoop.

The size of bucket plays the important role for why we use wheel loader. Huge capacity of the wheel loader bucket increases the efficiency of loading a material or transferring it to other places.

## Type of Wheel Loaders

Most wheel loader manufacturers classify their product line up into four categories with these approximate power and bucket-capacity specifications: compact (40-100 horsepower, 0.76-1.9 cubic meter); small (115-180 horsepower, 1.9-5.0 cubic meter); medium (230-400 horsepower, 5.0-11.5 cubic meter); and large (with horsepower ratings up to 1,800 or more and capacities in excess of 22.9 cubic meter).

**1 Compact**



**2 Small**



**3 Medium**



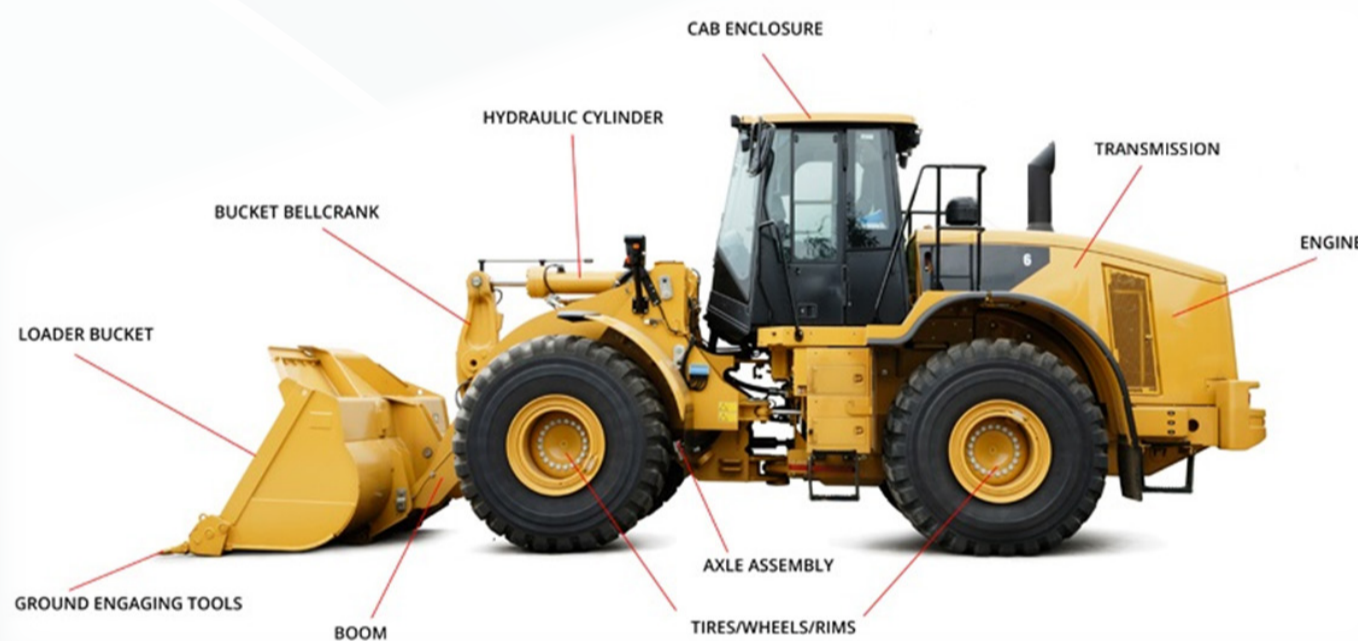
**4 Large**



Images from Caterpillar.com

## Major Components of Wheel Loader

The major components in wheel loader are the engine (mostly diesel), the hydraulic components (such as pumps, motors and valves) and the transmission components (gearbox, axles, wheels, pumps, motors, etc.). The engine runs both the hydraulics and transmission, and these in turn move the front bucket.



## Major Manufacturer of Wheel Loaders



## PETRONAS Lubricant Product For Wheel Loader

Equipment	Application	Lube Spec	Lube Requirements	Products		
				Standard	Premium	Supreme
Engine	Diesel Engine	Engine Oil 15W-40 / 10W-40	Cold starting, Long idling periods, Soot handling	PETRONAS URANIA 800 (15W-40)	PETRONAS URANIA 3000 CI-4 (15W-40)	PETRONAS URANIA 5000 LD (10W-40)
Transmission	Manual Transmission	GL-4 CAT TO-4	Long drain intervals, High temperature handling, High load capability	PETRONAS Tutela 100 SAE 90 / SAE 140 Tutela Trans TO4 SAE 30		PETRONAS Tutela Axle 700 EHD (75W-90)
Differentials & Final Drives	Drivetrain Lubricant	GL-5 CAT TO-4	Long drain intervals, High temperature handling, High load capability	PETRONAS Tutela 100 EP SAE 90 / SAE 140 Tutela Trans TO4 SAE 50	PETRONAS Tutela Axle 300 EHD, 300 HD, 300 LS, 300 (80W-90, 80W-140, 85W-140)	PETRONAS Tutela Axle 700 EHD (75W-90, 75W-140)
Hydraulic	Hydraulic System	DIN 51524 Part II and III ISO 11158 HM/HV CAT TO-4	Long drain intervals, High temperature handling, High load capability	PETRONAS Hydraulic (46,68) Tutela Trans TO4 SAE 10W	PETRONAS Hydraulic HV (46,68)	PETRONAS Hydraulic HVZF (46,68)
Brake	Brake Fluid	DOT 3 / DOT 4	Long periods of work, High temperature	PETRONAS Tutela Brake Fluid DOT 3	PETRONAS Tutela Brake Fluid DOT 4	
Radiator	Coolant	JIS K2234	Long periods of work, High temperature	PETRONAS Long Life Radiator Coolant	PETRONAS Long Life Premix Coolant	
Grease Points	Grease for bearings	NLGI 2 EP	With solid lubricants, Extreme pressure, Water tolerance, High load capability		PETRONAS Grease Li EP 2	PETRONAS Gris EP/LC 2

