Power Unit

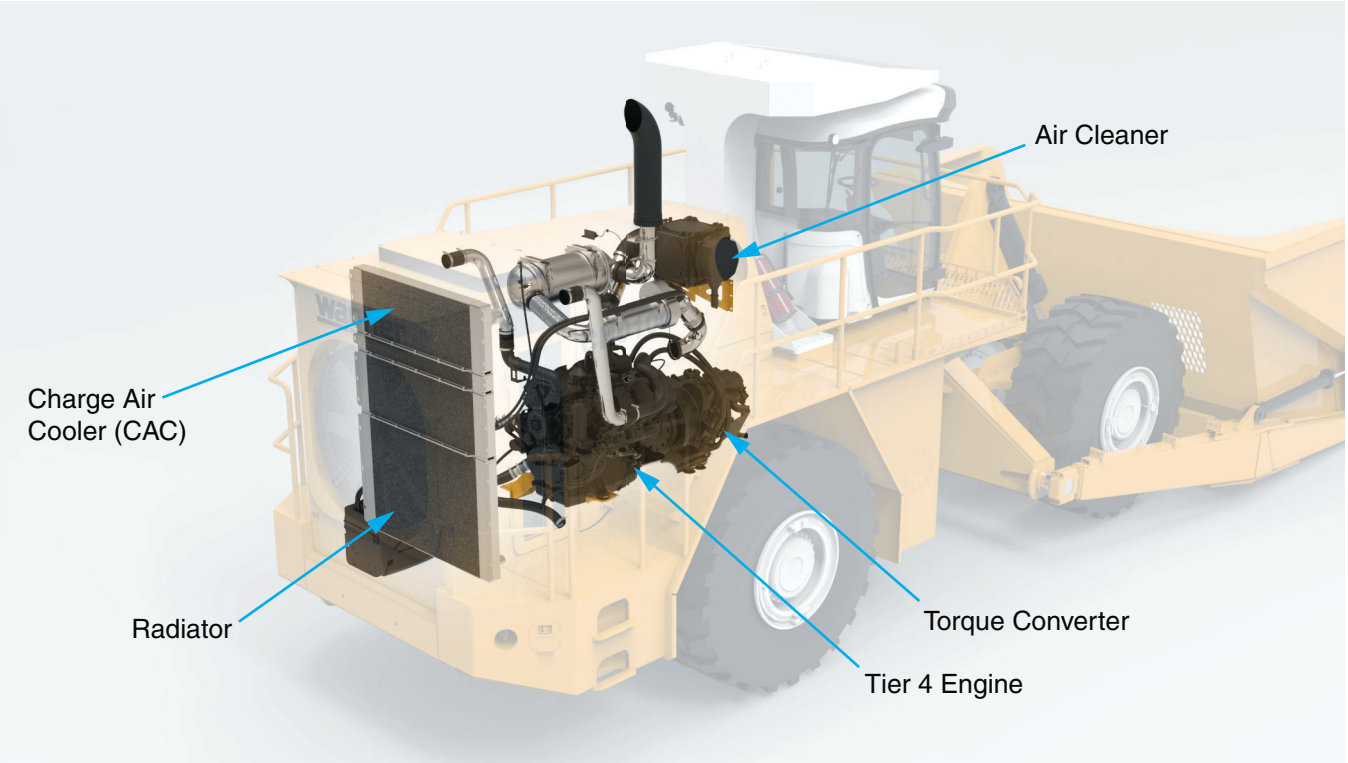

Figure 3-1-1 Power Unit (Model CHD100 with Scania Tier 4 Engine Shown)

General

Your Wagner's power unit consists of a powerful, efficient Tier 4 diesel engine, and a torque converter. See Figure 3-1-1. This section will also discuss the air intake and engine cooling systems.

Engine

See Figure 3-1-2. The heart of the machine is the Tier 4 diesel engine, carefully selected for the intended use of the vehicle. The engine provides the power for the drivetrain, hydraulic system, and electrical system.

The Tier 4 engine provides:

- Improved fuel efficiency
- Power and performance
- Reliability
- Reduced emissions
- Long life

Refer to the operation and maintenance manual from the engine manufacturer for additional information.

Figure 3-1-2 Tier 4 Engine

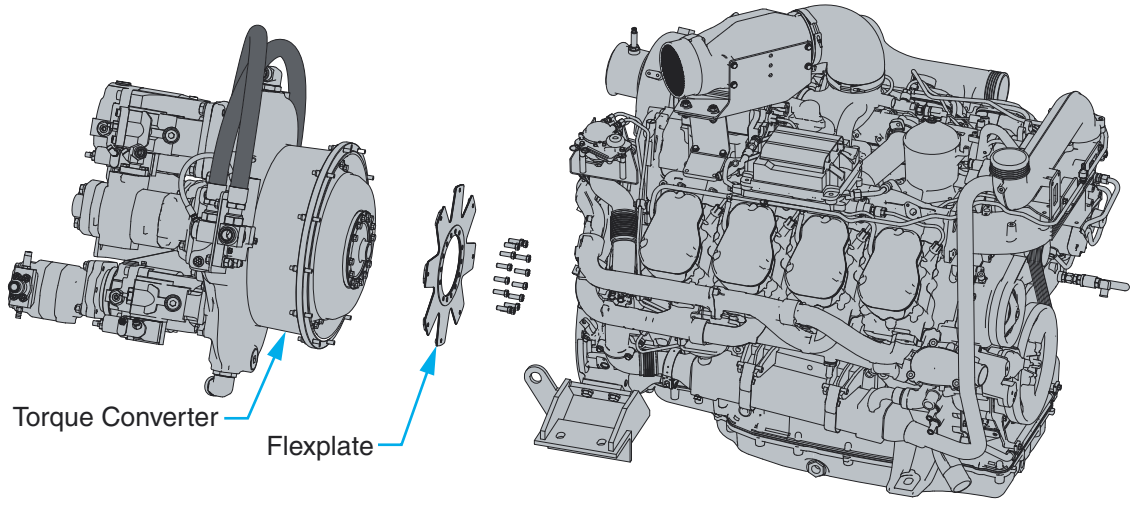

Figure 3-1-3 Torque Converter

Torque Converter

See Figure 3-1-3. The torque converter is mounted between the engine and the transmission. A flexplate assembly couples the converter to the engine. The flexplate assembly is connected to an impeller inside the converter, which rotates along with the engine. A turbine is mounted just inside the impeller. Transmission oil is the only connection between the turbine and the impeller. As the impeller is driven by the engine, the oil is put into motion, which turns the turbine. The turbine is coupled to the output shaft, which is coupled to the transmission input.

Radiator

The water pump on the engine draws coolant from a reservoir, and forces it through the engine block. The coolant absorbs heat from the engine block, and is then directed through the radiator.

The radiator consists of multiple aluminum tubes with fins to increase surface area. As the hot coolant is forced through the tubes, the copper absorbs heat from the coolant. The cooling fan(s) blows cool air over the copper tubes, dispersing the heat to atmosphere.

With the heat transferred away from the coolant, it returns to the reservoir, where begins the process again.

The radiator on your Chipdozer may be accessed at the rear of the machine, and is mounted along with the charge air cooler, a brake oil cooler, and a transmission oil cooler (see Figure 3-1-4). The fan is mounted in a door that may be swung out for easy cleaning of the cooling cores.

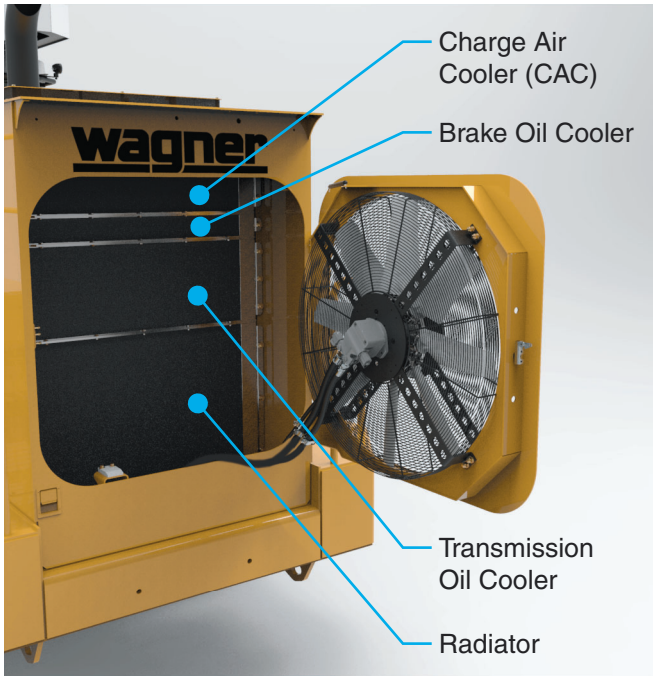

Figure 3-1-4 Cooling Package

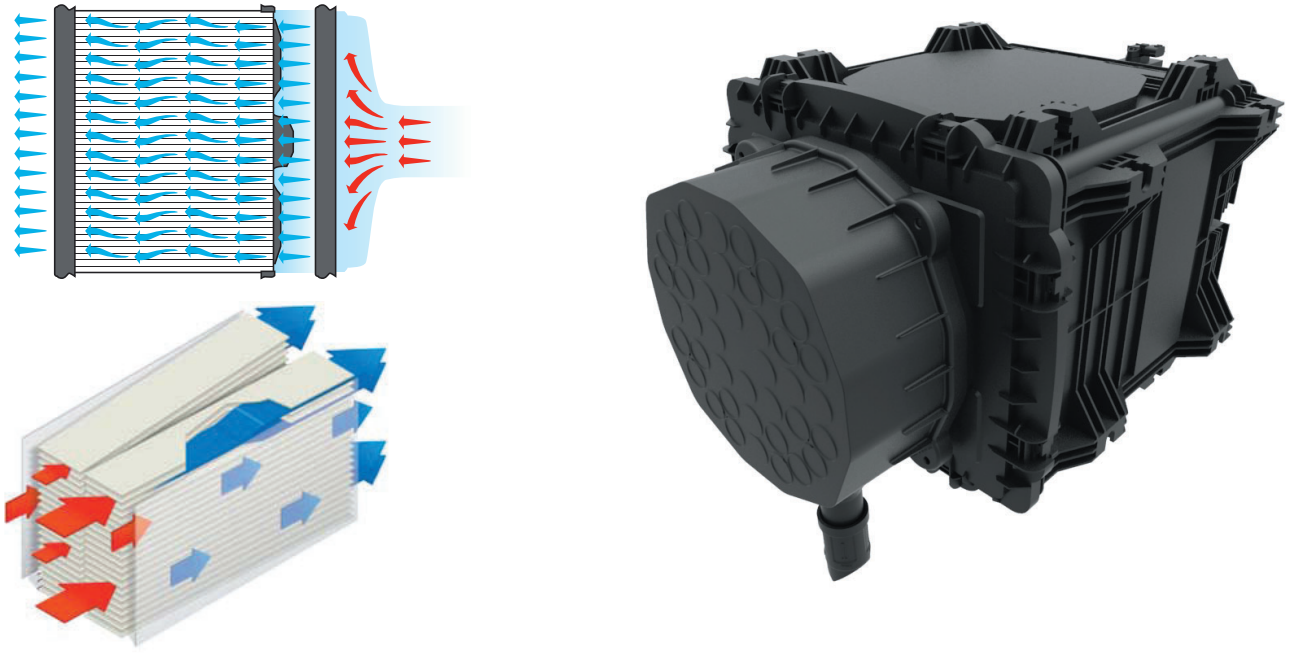

Figure 3-1-5 Air Cleaner Assembly

Air Intake

See Figure 3-1-5. The two-stage air cleaner is critical to the life of the engine. It prevents dust and debris from entering the engine air system causing premature engine wear and possible failure. The air cleaner has been lab tested to meet OEM, SAE, ISO, ASTM and JIS test standards.

A pre-cleaner is used to remove about 75% of all incoming dust from reaching the filter element. A pre-cleaner uses centrifugal force to move dust particles out of the air stream and then expels these particles back into the environment. An integrated dust ejector valve (DEV) removes large particles and moisture.

The creative design utilizes a straight air flow path allowing filter media to be packaged in a smaller space with easier serviceability. Longer service life is available versus typical cylindrical air filter shapes. The housing is an injection molded composite, and provides a durable rust-free, and flexible design.

The proven technology employs highly optimized, stiff phenolic media arranged in a rectangular “V-block” configuration to optimize space normally wasted in the inner diameter of a typical cylindrical air filter. The design advantage maximizes filter life and minimizes air flow restriction.

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