

Power Unit



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

General

Your Wagner's power unit consists of a powerful, efficient Tier 3 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 3 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 3 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.

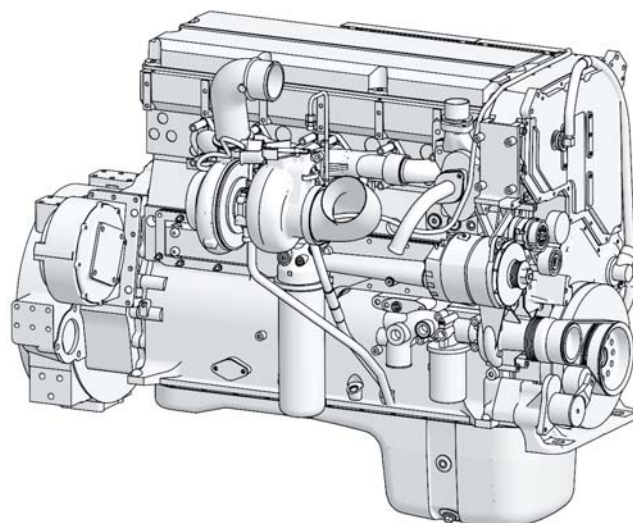


Figure 3-1-2 Tier 3 Engine

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.

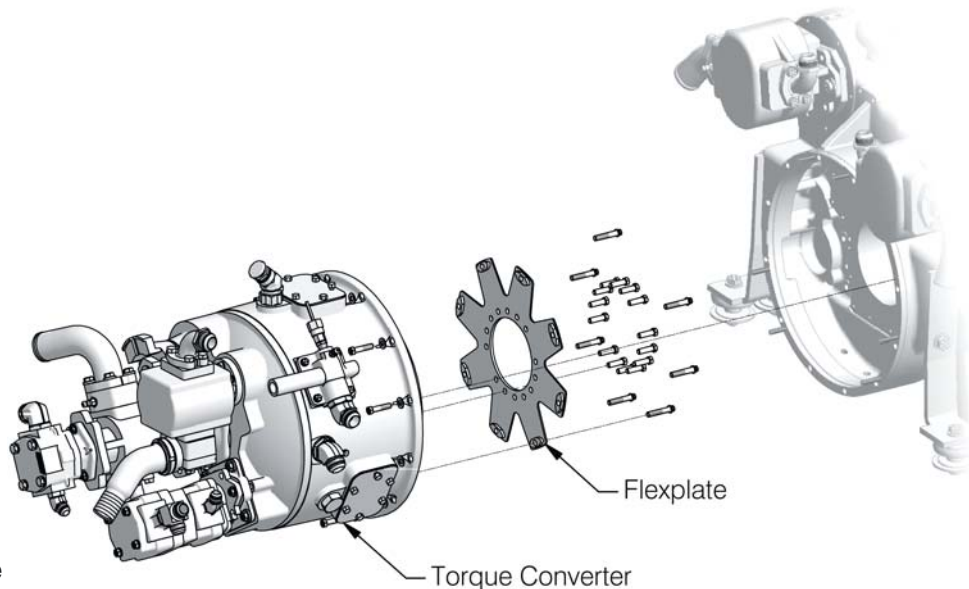


Figure 3-1-3 Torque Converter

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 copper 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 Wagner is unique, and designed for long life and easy serviceability. See Figure 3-1-4. The copper tubes are installed individually, and can be replaced individually in the event of a leak or other damage. With the ability to replace tubes individually, the radiator rarely needs to be replaced as a whole, increasing the life of the radiator, reducing downtime, and minimizing repair costs.

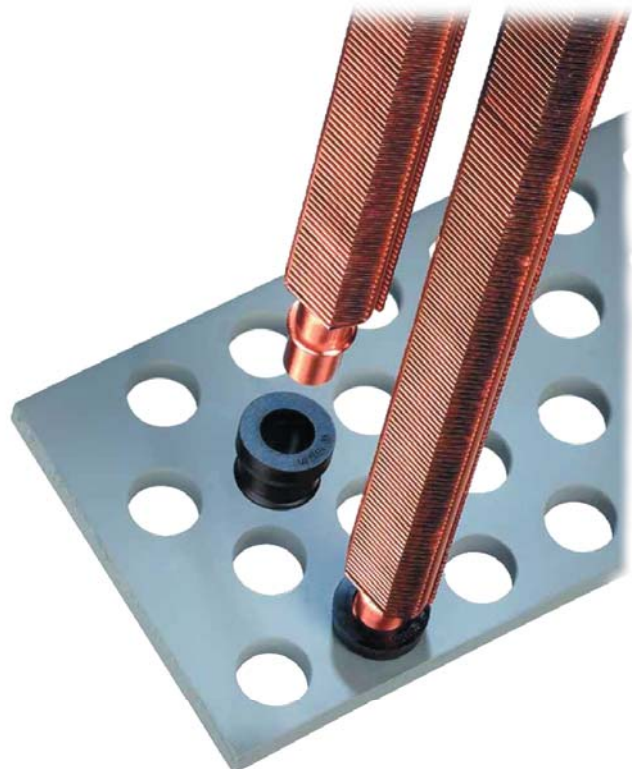


Figure 3-1-4 Replaceable Radiator Tubes

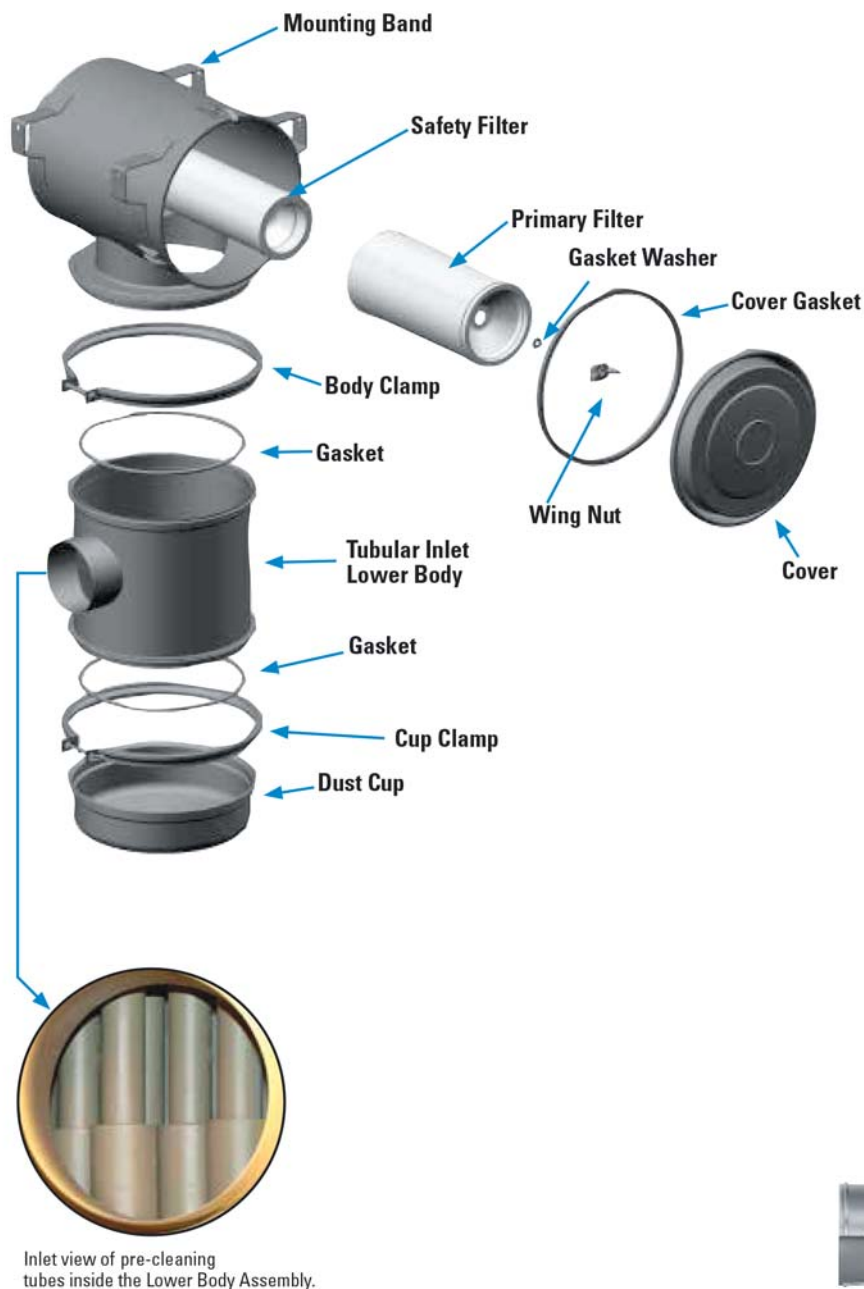


Figure 3-1-5 Air Cleaner Assembly

Air Intake

See Figure 3-1-5 and Figure 3-1-6. 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 first stage of the air cleaner consists of a cluster of tubes. They spin the incoming air to create a centrifugal force that separates up to 97% of the dust and dirt in the airstream. These tubes have no moving parts, so there is nothing to break down or maintain.

Pre-cleaned dust falls into the dust cups and expels through valves at the bottom of the air cleaner.

The second stage of filtration is the primary filter, a cylindrical shaped unit of specially-developed pleated filter media, designed to trap and stop dust particles, both large and small.

A safety filter, which fits inside the primary filter, is for protection during primary filter changeout.

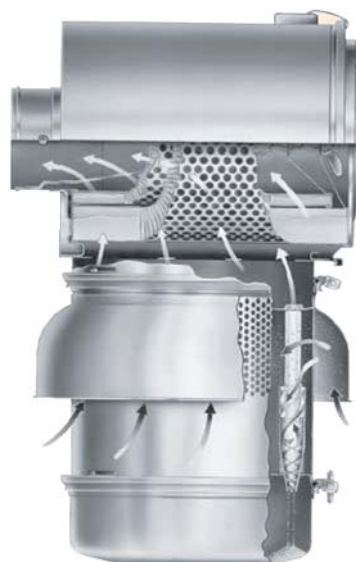


Figure 3-1-6 First Stage (Centrifugal Separation)

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