

APU – Auxiliary Power Units

In the United States, Federal Department of Transportation regulations require 10 hours of rest for every 11 hours of driving. When stopped, drivers often idle their engines to provide heat, light, and power. Idling burns fuel and puts wear on engines. Some trucks carry an APU designed to eliminate these long idles. An APU can save up to 20 gallons (Cat600 – 10 hours downtime @ 2 gallons per hour idling) (= 76 liters) of fuel a day and can extend the useful life of the main engine by around 100,000 miles (= 160,000 kilometers), by reducing non-productive run time.

On some older diesel engines, an APU was used instead of an electric motor to start the main engine. There were primarily used on large pieces of construction equipment

Diesel APU's

The most common APU for a commercial truck is a small diesel engine with its own cooling system, heating system, generator or alternator system with or without inverter, and air conditioning compressor, housed in an enclosure and mounted to one of the frame rails of a semi truck. Other designs fully integrate the auxiliary cooling, heating, and electrical components throughout the chassis of the truck. The APU generator engine is a fraction of the main engine's displacement and so uses a fraction of the fuel; some models can run for eight hours on one US gallon (=4 liters) of diesel. The generator also powers the main engine's block and fuel system heaters, so the main engine can be started easily right before departure if the APU is allowed to run for a period beforehand. These units are used to provide climate control and electrical power for the truck's sleeper cab and engine block heater during downtime on the road.

Electric APU's

Electric APU's have started gaining acceptance. These electric APU's use battery packs instead of the diesel engine on traditional APU's as a source of power. The APU's battery pack is charged when the truck is in motion. When the truck is idle, the stored energy in the battery pack is then used to power an air conditioner, heater and other devices (television, microwave oven, etc.) in the bunk.