

Environmental Control Unit / Prime Power Unit (ECU/PPU) for the U.S. Army Avenger Air Defense System



U.S. Army Avenger Air Defense System

KEY FEATURES:

- 6.0 kW 28-vDC power output
- 12,500 Btu/hr cooling
- 10,000 Btu/hr heating
- 40 CFM @ 0.3- Micron Filter



GENERAL PRODUCT DESCRIPTION:

The MLS Environmental Control Unit/Prime Power Unit (ECU/PPU) has been designed to meet the requirements of the U.S. Army Aviation and Missile Command (AMCOM) Avenger Air Defense System Specification MIS-46246D, using state-of-the-art components. The ECU/PPU provides cooling, heating, make-up air and electrical power to the Avenger turret.

The power plant is a Hatz 2G-40 air-cooled diesel engine with a shaft mounted three-phase brushless, permanent magnet generator. The generator system output and engine

power is controlled by a variable speed governor which, depending on system load, optimizes the engine operating speed. The vapor cycle air conditioning system is designed to be in compliance with the current environmental regulations using R-134a refrigerant and is capable of operating in severe desert conditions. Heating is provided through electrical heaters. The make-up air for the air conditioning system is passed through an Nuclear Biological Chemical (NBC) system at 40 CFM using a 0.3-micron filter.

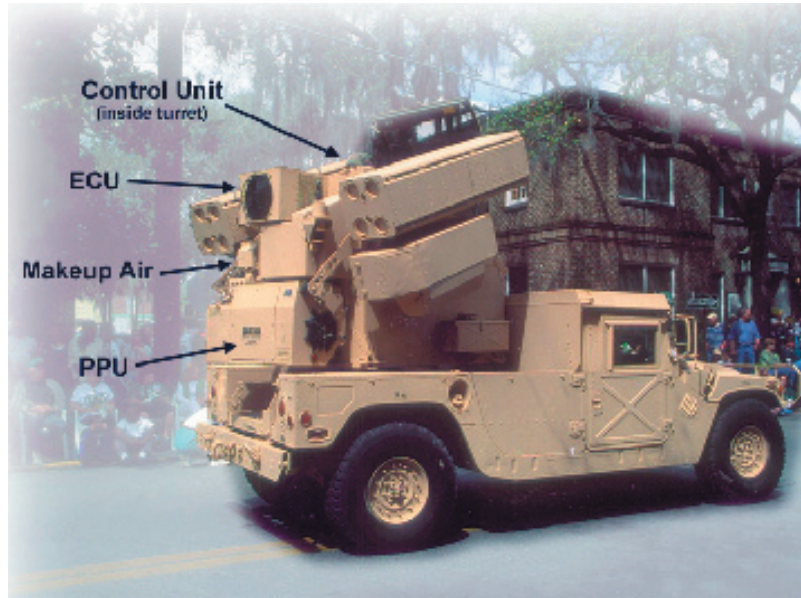
The entire ECU/PPU System gross

weight is under 440 pounds which includes sufficient fuel for eight hours of operation. The System also provides 12,500 Btu/hr cooling capacity and 6.0 kW at 28-vDC power output (with voltage ripple independent of the engine speed or load at less than 100 mV RMS).

Control Unit Data

The control unit consists of an electronic engine speed control and an ECU/PPU electronic control. The internal solid-state components are mounted on printed circuit boards for increased reliability.

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Overall ECU Specifications:

System Specification.....	Per MIS-46246D
Exterior Dimensions (L x W x H).....	16.5 x 39.0 x 22.0 inch
Gross Weight (including fuel).....	440 lb
Electrical Output.....	6.0 kW @ 28 vDC
Air Flow.....	260 CFM
Heating Capacity.....	10,000 Btu/hr
Cooling Capacity.....	12,500 Btu/hr
Refrigerant Type.....	R-134a
NBC Filter Size.....	0.3 micron
Engine Type (air-cooled).....	Hatz 2G-40
Fuel Type (Diesel).....	DF-1, DF-2, JP-4
Fuel Capacity.....	5.5 gallons

Operating Parameters

Temperature.....	-25° to +125°F
Altitude.....	Sea level to 10,000 ft
Slope Angle.....	0° to 31°

Generator System

Type Alternator.....	Brushless, permanent magnet
Alternator Speed.....	1,800 to 2,800 rpm
Output Voltage (Nominal).....	28 vDC
Output Rated Current.....	213 amps
Output Power.....	6.0 kW
