

## APU Idle Reduction System

The HOTSTART APU allows an idling locomotive to be shutdown in cold weather at any location. It is a self-contained system that runs off the locomotive's diesel fuel supply, keeping the prime mover warm and ready to restart. It consumes 1/2 gallon per hour (2 L/hr) of diesel fuel on average, depending on ambient temperature. Shutting down an idling locomotive reduces fuel consumption, oil consumption, emissions, noise, engine wear and wet-stacking. Upon locomotive shut down, the APU automatically starts to maintain fluid temperatures and battery charge. It is small enough to install on the walkway, inside the car body or in the nose of the locomotive where space allows. For optimal startability and reduced engine wear in colder climates, it is recommended to heat the locomotive lube oil.



## APPLICATION

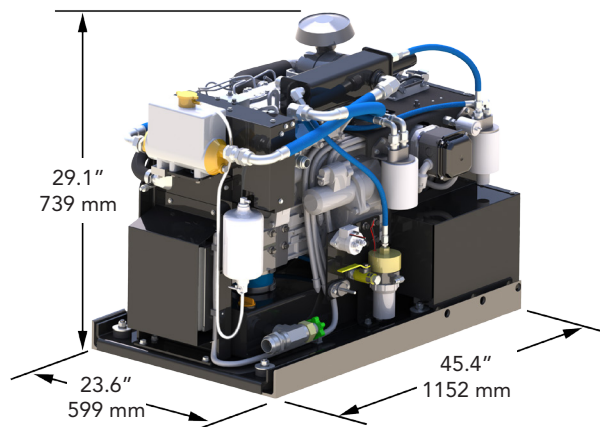
The HOTSTART APU maintains water temperature at 100 °F (38 °C) above ambient for engines up to 200 L displacement/5000 hp. Oil heat typically lags water temperature 10 – 20 °F (5 – 10 °C).

Model	Heat Output <sup>3</sup>	Fuel Consumption
<b>APU5-110-100</b> APU with coolant/oil heating, battery charging, AESS interface and plumbing kit	11.5 kW (heat boost <sup>4</sup> off)	0.45 gph (1.3 L/hr)
	19 kW (heat boost <sup>4</sup> on)	0.81 gph (2.8 L/hr)
<b>APU5-110-110</b> APU with coolant/oil heating, battery charging, AESS interface, cab heat and plumbing kit	11.5 kW (heat boost <sup>4</sup> off)	0.45 gph (1.3 L/hr)
	19 kW (heat boost <sup>4</sup> on)	0.81 gph (2.8 L/hr)

## FEATURES

- AESS interface
- Digital Engine Status feedback
- Cab heat

Weight - 950 lbs (431 kg)



## SPECIFICATIONS

<b>ENGINE</b>	Yanmar 3TNV74F <sup>1</sup> 3 Cylinder, Inline, 4-cycle, Water-Cooled Diesel Engine	
	Bore: 74 mm Displacement: .993 L Combustion: System Indirect Injection Noise Level: 70dB(A) <sup>2</sup> Emissions: EPA Final Tier 4	Stroke: 77 mm Aspiration: Naturally Aspirated Rated Output: 18.4/3000 (hp/rpm)
<b>LUBRICATION SYSTEM</b>	4.0 gallon (15 L) oil tank with internal heater/cooler	
	Remote Paper Element Oil Filter Oil pressure alarm/shut off	Oil Pressure Sender 15W-40 Oil (CH-4/SJ)
<b>ELECTRICAL SYSTEM</b>	Locomotive battery charging: 72 V DC, 80 A available 12 V Starting Battery (Customer supplied) 72 V DC/12 V DC Converter 200 W for 12 V battery charging 12 V Starter Motor 12 V Glow Plugs Emergency shut off Cab heat power for sidewall heaters up to 3 kW, 72 V DC	
<b>FUEL SYSTEM</b>	Fuel Consumption	0.45 gph (1.7 L/hr) without heat boost <sup>4</sup> 0.81 gph (3.1 L/hr) with heat boost <sup>4</sup>
	In-line ML Fuel Injection Pump Remote Paper Element Fuel Filter/Water Separator Fuel supply line: Min ID 0.25" (6 mm) Fuel return line: Min ID 5/16" (8 mm)	12 V Electric Fuel Pump Integrated fuel heating Recommended fuel: No. 2 diesel <b>Bio diesel not to exceed 5%</b>
<b>EXHAUST</b>	Exhaust outlet size at engine hook up: 1.5" (38 mm) Spark arresting muffler (shipped loose with flexible hoses) Integrated exhaust-to-coolant heat exchanger	
<b>COOLANT SYSTEM</b>	Separate APU glycol coolant system APU engine jacket water capacity: 1 gallon (3.7 L) APU engine overheat protection sender: 230 °F (110 °C) Belt driven coolant pump 20 gpm (4.5 m <sup>3</sup> /h) @ 25 psi (1.7 bar) — water pump driven by main crank shaft Port Sizes: Inlet - 24 JIC (1.5"), Outlet - 1" NPT 100-120 °F (38-49 °C) Thermostat	

## NOTES

<sup>1</sup> Yanmar approved application.

<sup>2</sup> Measured outside locomotive body at 30.5 m from unit.

<sup>3</sup> Heat is recovered from engine coolant, exhaust, lube oil and heat booster.

<sup>4</sup> Heat boost is activated at locomotive engine coolant temperatures below 100 °F (38 °C).