

Auxiliary Power Unit Heating System

APU



Hotstart's APU heating system is a self-contained coolant and oil preheater that uses the locomotive's onboard fuel supply to heat prime movers without requiring a shore power connection.



IDLE REDUCTION - ANYWHERE

Unlike electric heating systems, the APU allows a locomotive to be shut down in any location by using the locomotive's own diesel fuel supply. Eliminating unnecessary idling means reducing fuel consumption, oil consumption, emissions, noise, engine wear and wet-stacking.



INTUITIVE & INTEGRATED

Every aspect of the APU's design is intended to work seamlessly with a locomotive's day-to-day operations, including an easy-to-use configurable display, real-time operating parameters, automatic operation, and AESS-ready capability.



EFFICIENT & RESPONSIVE

During normal operation, the APU consumes under a half gallon (2 liters) of fuel per hour. Featuring four heat exchange points plus a built-in tank heater and heavy-duty alternator, the APU provides up to 19 kW of total heating power and 80 amps of battery charging power.

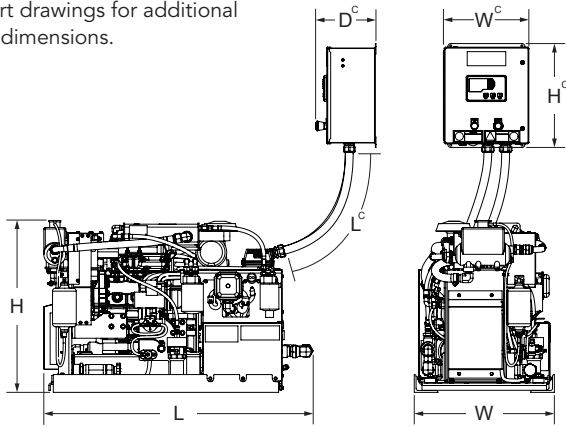


CREW COMFORT

Installation is made easy with our optional plumbing kit. Choosing the cab heat option delivers APU power directly to the locomotive's cabin heaters, keeping the crew comfortable during layover periods.



See part drawings for additional model dimensions.



Height (H)	Width (W)	Length (L)	Weight
30.0"	24.0"	47.0"	950 lbs
762 mm	610 mm	1194 mm	431 kg

Height (H ^c) Control Box	Width (W ^c) Control Box	Depth (D ^c) Control Box	Length (L ^c) Cable
17.5"	14.4"	10.2"	77"
455 mm	366 mm	259 mm	1981 mm

Engine	
Model	Yanmar 3TNV74F ¹
Type	3-cylinder, inline, 4-cycle, water-cooled, diesel
Displacement/Stroke	0.993 L / 77 mm
Aspiration/Combustion	naturally aspirated / system indirect injection
Rated Output	18.4 hp @ 3000 rpm
Noise Level	70 db(A) ²
Emissions	EPA Final Tier 4
Lubrication Type	15W-40 oil (CH-4/SJ)
Oil Capacity	4.0 gal (15 L) tank with internal heater/cooler
Oil Pressure Alarm	20 psi (138 kPa) warning / 7 psi (48 kPa) shutdown
Starting Battery	12 V battery (required, user-supplied)
Coolant Capacity (APU)	1 gal (3.7 L)
Temp. High-limit (APU)	200 °F (93 °C) warning / 230 °F (110 °C) shutdown
Emergency Shut Off	control box, remote (cab)

Fuel & Exhaust	
Consumption	0.45 gph (1.7 L/hr) / 0.81 gph (3.1 L/hr) with heat boost ³
Type	No. 2 diesel (recommended), bio-diesel not to exceed 5%
Inlet/Return	0.25" (6 mm) hose barb / 0.3125" (8 mm) hose barb
Fuel System	in-line ML fuel injection pump (12V), remote paper element fuel filter/water separator, integrated fuel heating
Exhaust	exhaust engine hook up 1.5" (38 mm), spark arresting muffler, integrated coolant heat exchanger

Locomotive Battery Charging & Cab Heat	
DC/DC Converter	72 V/12 V DC, 200 W for 12 V battery charging
Locomotive Charging	72 V DC, 80 A available
Cab Heat	up to 3 kW, 72 V DC (sidewall heaters)

Coolant	
Fluid Type	Water Coolant mix (50% water/50% glycol)
Heat Exchange	oil tank, radiator exchanger, exhaust exchanger
Heat Boost ³	3 kW tank heater, thermostat 100–120 °F (38–49 °C)
Pump Power	APU belt-driven
Flow	20 gpm @ 25 psi (75.7 L/min @ 170 kPa)
Inlet/Outlet	24 JIC / 1.0" NPT

Oil	
Fluid Type	Lubrication oil
Heat Exchange	oil/coolant exchanger
Pump Power	APU belt-driven
Flow	6.86 gpm @ 25 psi (26.0 L/min @ 170 kPa)
Inlet/Outlet	10 JIC

Options shown represent typical tested or certified configurations. Additional options or configurations may be available. For assistance with your heating system application, contact Hotstart at 509.536.8660 or sales@hotstart.com.

¹ Yanmar approved application.

² Measured outside locomotive body at 30.5 m from unit.

³ APU heat output rated 11.5 kW without heat boost / 19 kW with heat boost activated. Heat boost activated at locomotive coolant temperatures below 100 °F (38 °C).

Ordering Information

APU

Engine Displacement*	Fluid Heating	Battery Charging	AESS Interface	Plumbing Kit	Cab Heat	Model
9000–12000 CID	coolant/oil	yes	yes	yes	no	APU5-110-100
150–200L	coolant/oil	yes	yes	yes	yes	APU5-110-110

* Heat loss through wet cooling systems (wet radiators) during heating system operation may reduce or impair the heating system's ability to maintain optimal heat levels for engine operation or engine start.

