

From the team that brought you the world's first commercially available locomotive APU – and supplied tens of thousands of APU's to the transportation industry – 3-APE and IMPCO Technologies present their newest innovation:

The Banana

aka IMPCO LWR
LOCOMOTIVE AUXILIARY
POWER UNIT

We were green, but now we're ripe...

We listened!

You said reduce the size and weight...

You said make it 72 VDC...

We've done that *and* kept the same price as the original locomotive APU first introduced over 15 years ago!

The **Banana** features a CAT/Perkins diesel engine that can be governed at adjustable RPMs. The engine drives a 150 A, 72 VDC (11kW) generator that heats the locomotive coolant and lube oil, charges the batteries, and can be used to power cab heaters, lights and air conditioners, ensuring your crew's comfort.

The **Banana** takes green technology and ripens it to perfection, incorporating innovative new design and automation. The **Banana** includes an advanced control system complete with adjustable on/off locomotive water temperature and battery set points and diagnostics with freeze frame data and real time data monitoring.

Everyone wins with a Banana!

You'll reduce most excess idling, save money on fuel and engine wear, meet EPA emissions regulations and local noise ordinances, and keep your crew comfortable – it's a win-win for everyone.



Only 690 lbs

BANANA also known as
IMPCO LWR is distributed
worldwide by 3-APE

PATENT PENDING

Save on fuel
without sacrificing
crew comfort

Get a Banana



The Banana Locomotive APU

Saves fuel and engine life without sacrificing crew comfort

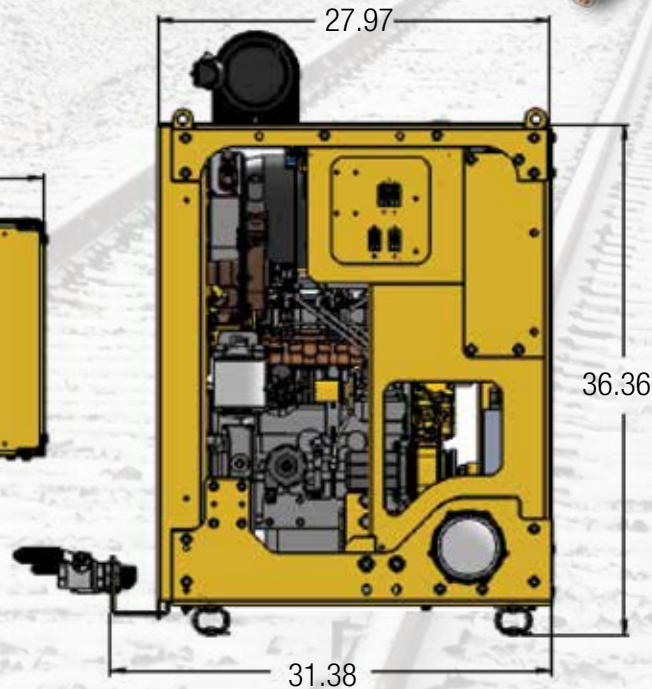
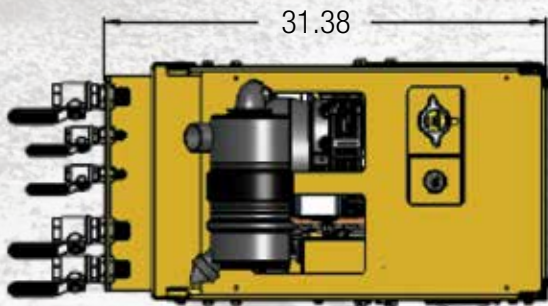
Specifications and features:

Engine	Perkins 400 Series 3 Cylinder Diesel, 28 hp@3200 rpm; Tier 4 Interim; Low oil pressure and coolant over-temperature shutdown's
Lubrication System	6 gallon oil capacity with oil level maintainer and filter
Electrical System	150A, 72VDC generator for locomotive loads; 40A, 12VDC APU alternator for APU loads
Fuel System	12VDC electric fuel lift pump; filter
Exhaust	1.5" diameter pipe; muffler shipped loose
Cooling System	Glycol based APU cooling system; cooled via liquid to liquid heat exchanger with locomotive water
Locomotive Engine Water Heating System	12 kW via smart 74V heater ; 22 gallons/min centrifugal belt driven pump
Locomotive Engine Oil Heating System	4 gallon/min circulation via APU driven pump through liquid to liquid heat exchanger
Drive System	Heavy duty long life generator



Weight & Dimensions:

Dry weight estimate = 690 lbs



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PATENT PENDING



For more information, contact Stefan Nilsson:
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Using proven technology used in off-road vehicles worldwide, 3-APE proudly presents their newest innovation:

The Orange

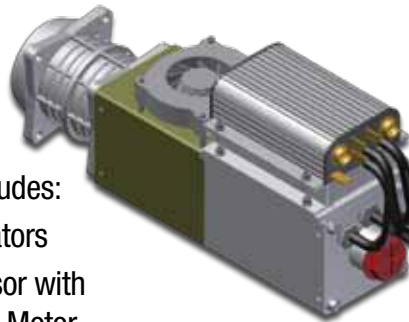
LOCOMOTIVE CAB
SPLIT-SYSTEM
AIR CONDITIONER

Breakthrough technology:
Compact...
Dependable...
Brushless...
and no inverter required!

ORANGE – Locomotive Air Conditioner

When we entered the air conditioner business almost 20 years ago, the weak link was the inverter... until now! The Orange is the ONLY direct 72 VDC driven Locomotive Cab Air Conditioning unit that *doesn't require an inverter*.

Running directly off the locomotive's batteries and using VRF (Variable Refrigerant Flow) technology, the Orange will save up to 30% in energy consumption while reducing power surges in the 72 VDC system. And our compact split-system components can be custom configured to fit any cab without looking like a retrofit.



Complete System includes:

- 2 Evaporators
- Compressor with Brushless Motor
- Condenser

PATENT PENDING

No Inverter
Required

Keep your cab cool
with our reliable
split system

Get the Orange



The Orange Locomotive Cab Air Conditioner

Compact, dependable, affordable.

PATENT PENDING

Specifications and features:

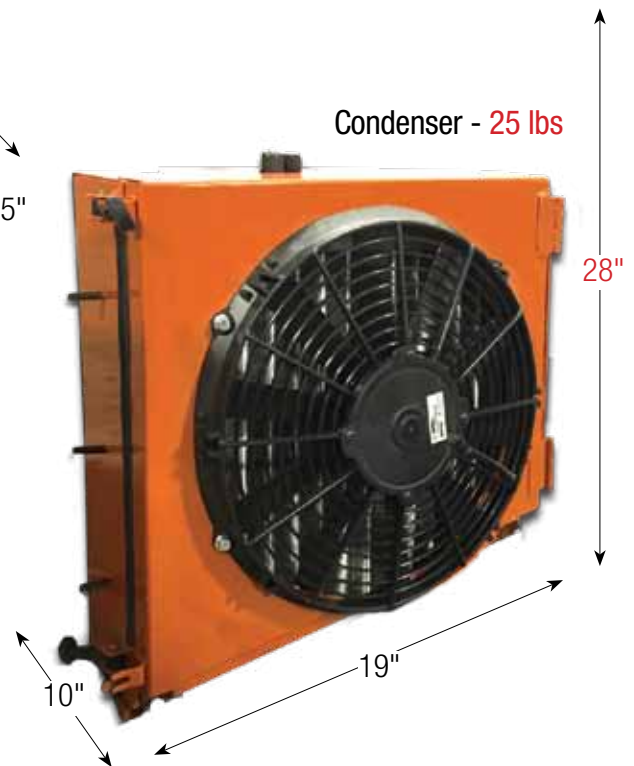
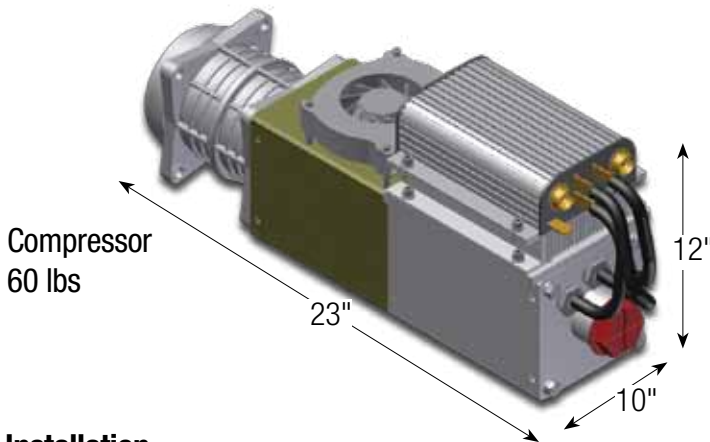
Evaporators	16,000 BTUs each, achieving a cooling capacity of 32,000 BTU and an Amp draw at max load of 60A, with individual adjustable airflow and temperature controls
Refrigerant System	Non Ozone depleting refrigerant, type R134a, sealed systems (eliminates need for refrigeration techs for installation)
72 VDC Power	directly from the locomotives electrical systems battery-bank and/or auxiliary generator
Condenser Unit	32,000 BTU
Compressor	32,000 BTU

Why VRF technology?

A VRF system works like the accelerator in a car, matching the out-put to the load. The compressor starts up smoothly and ramps up until it meets the demand. When the thermostat is satisfied, it ramps down to match the lower demand.

Component Dimensions & Weight:

2 Evaporators (Air Handlers) - 10 lbs each



Installation

A compact split-system, components (such as compressor and condenser) can be remotely mounted anywhere outside of the cab and the air handlers can be customized so the unit appears to be part of the original OEM supplied locomotive.

Distributed in North America by:

