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industries[®]

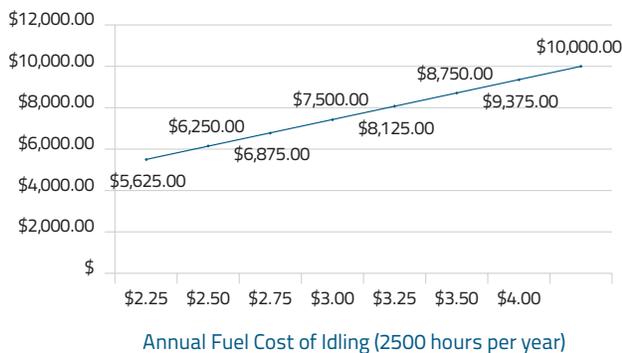


Idle Free[®] eAPU Guide

Why does a fleet or owner/operator need an APU?

■ Idling your truck is costly

- Idling a truck during the 10 hour mandatory off-duty time uses 1 gallon of fuel per hour
- On average, a truck idles between 1800 and 2500 hours per year. This adds \$5000 – \$10,000 per year in annual operating costs based fuel prices in recent years.



■ Idling causes excess engine wear and increases maintenance costs

- To comply with 2010 EPA regulations, trucks have a SCR (Selective Catalytic Reduction) system which includes a Diesel Particulate Filter, or DPF. Excessive idling impedes the regen ability by allowing soot to build up in the DPF, which in turn makes the regen process more difficult. Replacing a particulate filter is costly (approximately \$5000) and cleaning ranges from \$700-\$2500

The Real Cost of Idling: Idling the truck engine impacts the fuel efficiency you can achieve:

If you currently average 8 miles per gallon and drive 500 miles per day, you consume 62.5 gallons of diesel fuel. If you idle the truck at night (using 1 gallon per hour for

- The American Trucking Association states that one hour of idling per day for one year results in the equivalent of 64,000 miles in engine wear. According to the America Transportation Research Institute, the average maintenance cost of a Class 8 truck is 14.8 cents per mile. Idling a truck results in significant additional maintenance costs.

■ Idling a truck increases pollution

- Every 10 minutes of idling releases 1 pound of carbon dioxide into the air
- More and more states, municipalities and businesses are implementing and enforcing anti-idling regulations.

QUESTIONS TO ASK:

- What are your main business concerns?
- Do you have concerns regarding idling the truck's engine?
- On average, how many hours per day do your truck(s) idle?
- What is your average fuel economy (miles per gallon)?
What is your goal?

10 hours) you will use an additional 10 gallons of fuel. Your total usage has now increased to 72.5 gallons per day. Your fuel economy has now decreased from 8 gallons per mile to 6.9 gallons per mile!

Why choose an electric APU over a diesel APU?

Selecting the right APU reduces fuel and maintenance expense as well as ensuring environmental compliance and enhancing driver comfort.

- **Electric APUs are more affordable and result in a quicker pay back**
 - Fuel savings: a diesel APU uses 0.25 gallon of fuel per hour while idling, which amounts to over 600 gallons of fuel each year.
 - Maintenance: annual maintenance costs on a diesel APU are higher than with an electric APU. Because it is a diesel engine, regular scheduled maintenance is required.
 - Oil changes (every 500 -1000 hours of operation): \$200
 - Annual maintenance (every 2000 hours of operation) which includes checking & changing fluids, checking hoses, clamps & valves, and changing the fuel filter: \$800
- **Quiet: Electric APUs provide quiet driver comfort**
- **CARB compliant and SmartWay verified:** currently diesel APUs are not CARB compliant. This is an issue for any truck traveling into California. There is significant additional expense of \$2000 to \$3000 to be in compliance.

	Electric APU	Diesel APU
Purchase Price (Installed)	\$11,000	\$11,000
CARB Compliance	Included	\$2000
Total Acquisition Price	\$11,000	\$13,000
Annual Fuel Cost (\$2.25/ gallon, 2500 idling hours)	\$0	\$1406
Number of Serviceable Years	4	4
Total Fuel Costs for Serviceable Life	\$0	\$5625
Annual Maintenance Costs	\$250	\$1000
Total Maintenance Costs for Serviceable Life	\$1000	\$4000
Battery Replacement	\$1000	\$0
Total Cost of Ownership	\$13,000	\$22,625
Payback Period	26 Months	46 Months
Internal Rate of Return (IRR) based on annual fuel savings	34%	2%

*If fuel is \$4.00 per gallon, payback period for an electric APU is 15 months and 31 months for a diesel APU.

Use the online calculator to determine your payback

With an Electric APU, the payback period is **2 years**

The Real Cost of using a diesel APU:

If you currently average 8 miles per gallon and drive 500 miles per day, you consume 62.5 gallons of diesel fuel.

If you use a diesel APU, you use .25 gallon of gas per hour or 2.5 gallons during the 10 hour mandatory off-duty time.

This now brings your total gallons used per day to 65 gallons.

You now have reduced your miles per gallon from 8 to 7.7 mpg!

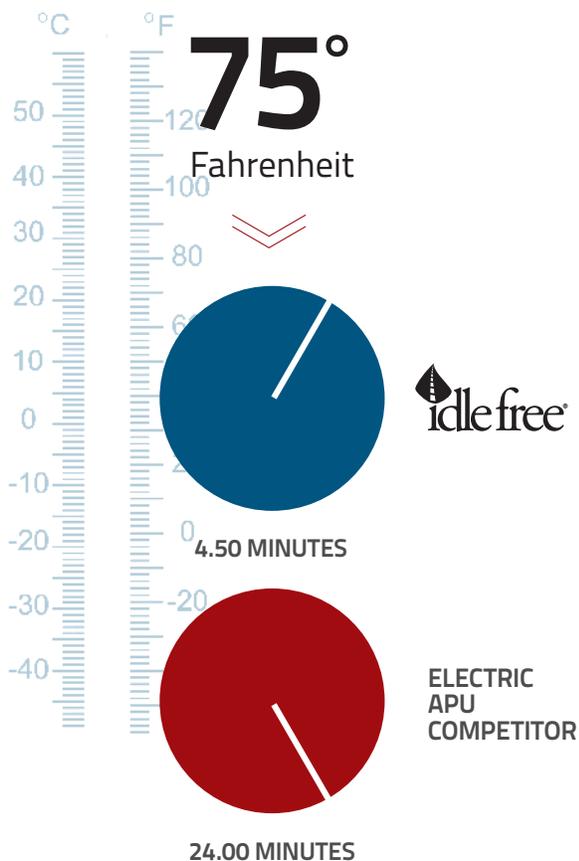
Why choose an Idle Free® eAPU over other electric APUs?

■ Performance: 3rd party lab tested

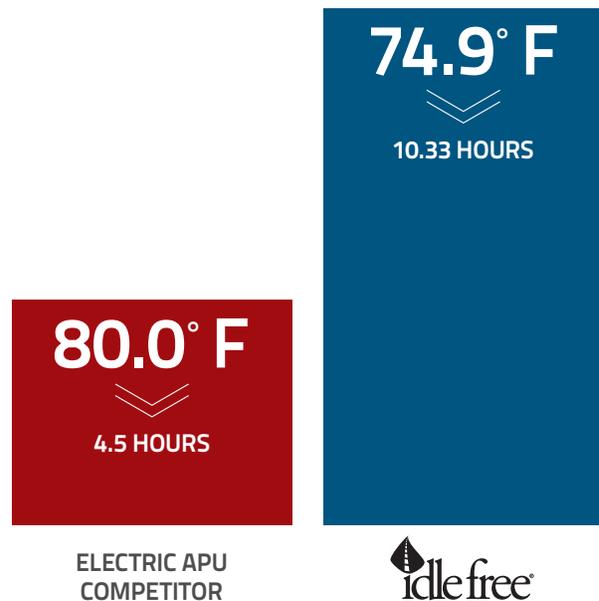
- Run Time: Testing complied with TMC 432A specifications
 - Idle Free met the 10 hour requirement while maintaining an average temperature of 74.9° F with an ambient temperature of 100° F
 - Other APUs do not perform
- Idle Free cools down the bunk area faster than competitor eAPUs
 - Idle Free cooled down a heat soaked bed area from 85° to 75° in five minutes while it took the competitor's eAPU 24 minutes

■ Multiple ways to charge and power the Idle Free eAPU

- Shore power, which is standard on all of our models, charges truck and APU batteries while providing unlimited run time for the APU.
 - (Patented) Reefer Link® for trucks pulling refrigerated trailer. The Reefer Link connection provides a constant source of power to the APU batteries
 - APU batteries recharge with 4 – 6 hours of driving
 - The Idle Free eAPU does not use the truck's batteries to achieve 10 hours of run time
- ## ■ Engine preheat
- The Idle Free APU uses a coolant heater which also preheats the engine ensuring the truck starts on cold winter days.



Run Time & Cool Down Tests:



4 Idle Free® Models

Idle Free offers 4 eAPU models to meet the requirements of every fleet.



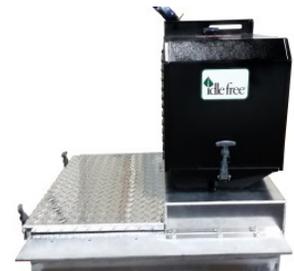
SERIES 1000



SERIES 2000



SERIES 3000



SERIES 4000

	Series 1000	Series 2000	Series 3000	Series 4000
Size	L 30.85" x W 20.24" x H 26.7"	L 22" x W 20.24" x H 17"	L 20.79" x W 15.18" x H 18"	L 27.6" x W 32.5" x H 28.6"
Required frame rail clearance	24"	24"	18"	0"
12 volt DC to 120 volt AC Inverter	1500 Watts, pure sine wave inverter	1500 Watts, pure sine wave inverter	1500 Watts, pure sine wave inverter	1500 Watts, pure sine wave inverter
Mounting Location	Mounts on the frame rail of the truck	Mounts on the frame rail of the truck	Mounts on the frame rail of the truck	Mounts behind the cab
Batteries	4 AGM	4 AGM, separate battery box	4 AGM, separate battery box	4 AGM, patent-pending battery box
Air Conditioning	Standard; 7500 BTUs	Standard; 7500 BTUs	Standard; 7500 BTUs	Standard; 7500 BTUs
Heat	Standard: 17,000 BTUs	Standard: 17,000 BTUs	Optional	Optional
Power Converter/Battery Charger	Standard	Standard	Standard	Standard
Shore Power	Standard	Standard	Standard	Standard
Reefer Link	Optional	Optional	Optional	Optional

Idle Free® Practices for Continuous Improvement

- Compressor mounting durability: Flexible feet are now used to allow for increased compressor movements which will eliminate compressor warranty issues. Also upgraded the bracket from aluminum to stainless steel
- GFCI tripping: Root-cause determination testing revealed that the condenser fan relay can cause tripping when exposed to environmental contaminants. The condenser fan relay has been eliminated due to the harness change.
- APU harness: weatherproof connectors replaced the APU connectors. The condenser fan relay has been eliminated and the run capacitor is now sealed.
- Battery cable change: a new battery cable (marine grade) is now being used which protects the battery connections



New flexible compressor feet



Other electrical upgrades



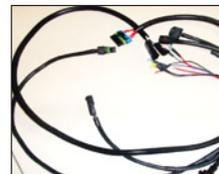
Battery cable gang



Stainless bracket replaces Aluminum bracket



Eliminated the condenser fan relay and replaced with a pressure switch



APU Harness: The old harness contained AC & DC connections as well as heater connections. The new harnesses are specific to the customer's product specifications



Compressor harness: Sealed connectors

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