

# A Division of Bergstrom Inc.



February 5, 2010



Bergstrom Inc. is a global leader in the design and supply of climate control systems to the commercial vehicle industry.

Since 1949, Bergstrom has supplied many of the world's largest and most respected companies with their heating and air-conditioning needs.



# **Market Opportunities**

#### **SAVINGS**

Unnecessary idling costs big money, and with diesel prices fluctuating constantly, it's not getting any cheaper. The NITE Plus system virtually eliminates the need for idling, saving fuel and maintenance costs.

#### **IDLING REGULATIONS**

With idling laws on the books in twenty five states, NITE Plus alleviates concerns any driver may have. NITE Plus is CARB approved and meets all anti-idling laws now in effect.

#### **EPA TAX EXEMPTION**

The EPA has added Bergstrom's NITE system to its list of Eligible Products for the Federal Excise Tax Exemption.



# **Market Opportunities**

#### **NITE Plus**

All trucks with sleepers can benfit from the NITE Plus System

#### **NITE Day Cab**

All trucks with cab only Construction equipment Ambulances Cranes And so much more!



# Be 30% cooler!

The NITE *Plus* system is a revolution in no-idle technology. With a 30% increase in cooling capacity and a 10% reduction in required power, the NITE Plus system is the most energy efficient no-idle product on the market today. Which means longer run times and cooler temperatures for hard working drivers.



As the premier on-board idle-free system for cooling & heating sleeper compartments, NITE Plus incorporates a variety of break-through patented technologies that make it's year-round, idle-free performance possible.

The NITE Plus system features a redesigned refrigeration system featuring new heat exchangers and metering devices. In addition airflow has been improved creating highly engineered and efficient cooling performance.

As a battery-powered, no-idling system, the NITE Plus unit is able to generate high BTU/h cooling capacity without sending damaging emissions into the environment.





4 Deep Cycle AGM Batteries

Compact
Air-Heating System



# **NITE Plus Packaging**

#### Two kits are necessary for each installation

(1) Base Kit and (1) Install Kit

All components that are universal to every make and model of truck installing a NITE Plus unit will be packaged in a Base kit with or without heater option.

All components that are unique to each truck model will be packaged separately in an Install kit.

Not only will you be able to take advantage of quantity discounts, you will be able to store Base kits and your most popular Install kits easily. You will also have the ability to serve any customer who comes in the door within days. All because Install kits are able to be sent via UPS. Base kits and Install kits are stackable. Save your precious storage space while storing more inventory.



# **Packaging**







# How Much Does Unnecessary Idling Cost You Each Year?

**Not to Mention** Year 1 3,839 gallons **Reduction in Engine** Life & Increased Year 2 7,676.7 gallons **Maintenance Costs** Year 3 11,515.1 gallons Year 4 15,353.5 gallons 19,191.9 gallons Year 5

Based on 6 Cylinder Engine, 1000 idling RPM, Idling 8 hours per day, 300 days per year. Reference: www.epa.gov.



# How Much Does Unnecessary Idling Cost All of Us Each Year?

**Foreign Oil Dependency** 

1,000,000,000 Gallons of Diesel Consumed While Idling

**Global Warming** 

11 Million Tons of Carbon Dioxide Emitted Into the Air While Idling

**Global Warming** 

200,000 Tons of Oxides of Nitrogen Emitted Into the Air While Idling



5,000 Tons of Particulate Matter Such as Trace Metals Emitted Into the Air While Idling

Reference: www.epa.gov



# **Rules & Regulations**

When used effectively, the NITE Plus System virtually eliminates overnight idling.

The NITE Plus unit is approved by the California Air Resources Board (CARB) and satisfies all current anti-idling regulations.

Approval # 08-643-004



## **Facts & Figures**

Battery operated system

Operates off 4 deep cycle AGM batteries that are independent from the truck's batteries

Hermetically sealed air conditioning unit

Maintenance-free

Mounts conveniently under the bunk

Optional fuel-fired heater



## **Facts and Figures**

Field tested and proven with over 10,000 units in the field

Supported by all OEMs and a nationwide sales & service network of over 2,000 dealers

Only no-idle system factory installed at 2 truck OEMs



## **Operation Notes**

For the NITE Plus System to properly maintain the sleeper temperature, start the engine and run the factory A/C system until desired temperature is reached. Once the sleeper temperature is pulled down, the NITE Plus System will maintain a comfortable setting depending on solar load & ambient temperature.

The system must be turned off every time the system is not in use or the batteries may not charge properly. After use of the system turn the control back to OFF, even if the unit is not running.



# **Operation Notes**



Laminated operation card is included in every installation kit.



# **Heating Performance**

Up To 7,860 Btuh

65 CFM

Sips Only .05 Gallons of Diesel per Hour (That is Only One Gallon in 20 Hours!)



# System Advantages

Half the cost of most diesel powered APUs

Half the installation time of most diesel powered APUs

Reduction in global warming potential

Increased driver retention

Decreased maintenance costs

Longer engine life

Cost savings to truck owners



# **NITE System Current Users**

- o Ryder
- Gainey
- o EPES
- Schneider
- Crete
- A & M Transport
- Catawba
- CR England and the list goes on...



#### **FREIGHTLINER**



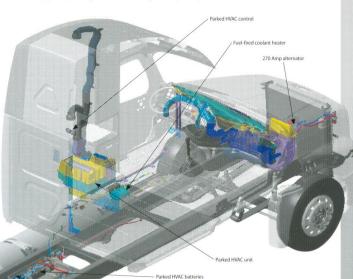
PARKSMART™ HVAC SYSTEM FOR THE CASCADIA™



A FULLY INTEGRATED ELECTRICAL TEMPERATURE MANAGEMENT UNIT

#### A more efficient way to keep you comfortable.

Freightliner's ParkSmart" system for the Cascadia" creates the ideal sleeper climate. With an innovative battery-powered HVAC system that fits seamlessly under the Cascadia's left-hand cabinets, your engine no longer needs to be idling to heat or cool your sleeper. That helps keep your operating costs down while your sleeper stays comfortable.



(four group 31 AGM)

Between-rail battery box

The fully integrated system provides heat or A/C while the truck is running, just like the traditional auxillary HVAC system. However, when the engine is turned off, four AGM heavy-duty batteries kick in to provide eight to ten more hours of cooling, without idling or operating a fuel-burning auxiliary power unit. The system can provide more than 34 hours of warmth in conjunction with it's efficient diesel fuel-fired heater, circulating engine coolant through the auxiliary heater core and truck engine and providing the added benefit of an engine block heater.

Your Freightliner dealer can provide complete details on the ParkSmart system including information to maximize battery life and cooling performance.

\*The four AGM heavy-duty batteries are separate from the truck's starting batteries.

#### ParkSmart HVAC unit



The reliable, hermetically-sealed refrigerant system runs on battery or alternator power, replacing traditional HVAC systems with similar controls and existing ducting. And the batteries recharge through the alternator during normal running conditions. The system cooling mode maintains a bunk temperature of 75 degrees F for 10 hours with 100 degrees F ambient, 50% relative humidity and moderate solar load.

#### A ParkSmart upgrade offers:

- Fuel savings
- · Quiet operation
- · Reduced idling for less engine wear
- Low maintenance
- No loss of personal storage space
- Meets all anti-idle/emissions regulations

#### Climate control at your fingertips



Intuitive, well-lit controls integrate with the ParkSmart system. Engaging the PARK button provides climate control when the engine is off.

PARK button replaces snowflake found on standard control



# MAXXPOWER® BATTERY-POWERED HVAC SYSTEM

ADVANCED HEATING AND AIR CONDITIONING PERFORMANCE BROUGHT TO YOU BY THE COMPANY YOU TRUST, FROM THE PEOPLE WHO DESIGNED YOUR TRUCK.

THE MAXXPOWER BATTERY-POWERED HVAC IS THE ONLY 12V SYSTEM ON THE MARKET TODAY THAT MEETS THE TECHNOLOGY AND MAINTENANCE COUNCIL'S STRINGENT RECOMMENDED PRACTICES FOR HEATING AND AIR CONDITIONING.

What's more, the battery-powered HVAC comes from the same team who designed your truck, which means perfect integration for higher performance MaxxPower components are also backed by the International\* new truck limited warranty, so you can rest easy.

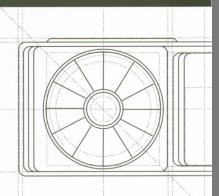
COMPONENTS YOU TRUST FROM THE PEOPLE YOU KNOW



#### MAXXPOWER

# BATTERY-POWERED HVAC SYSTEM

NEARLY HALF A MILLION COMBINATION TRUCKS TRAVEL MORE THAN 500 MILES FROM HOME EVERY DAY. ON THE AVERAGE, INDUSTRY ESTIMATES SAY THOSE TRUCKS IDLE ABOUT SIX HOURS A DAY, BURNING 840 MILLION GALLONS OF DIESEL FUEL. WITH THE MAXXPOWER BATTERY-POWERED HYAC, YOU DRAW YOUR POWER FROM ADDITIONAL TRUCK BATTERIES FOR CLEAN, QUIET AND COST-EFFECTIVE HEATING AND COOLING.



#### MAXXPOWER CONFIDENCE

With a MaxxPower battery-powered HVAC, you get:

- > Integrated components that work together in perfect synchronicity for ultimate performance.
- International-designed components made specifically for International trucks, which makes retrofitting a thing of the past.
- > Backing by the same dealer network you know and trust.
- > Industry-leading warranty coverage.
- Powerful savings from reduced fuel consumption and idling time.

#### HOW TO ORDER

Contact your local International dealer.

#### THE MAXXPOWER BATTERY-POWERED HVAC DIFFERENCE

	N. B. Maria	MAXXPOWER BATTERY HVAC	BERGSTROM NITE PLUS	FREIGHTLINER
>	Alternator	320A	160 amp minimum	270A
>	Batteries	8 AGM (total)	4 Deep Cycle (add'l)	4 Deep Cycle (add'l)
	Battery Life	2+ years	2+ years	2+ years
	Charge Time	2 hours (on road)	4-6 hours	4-6 hours
	Cooling System	6,000 BTU/hr	4,600 BTU/hr	3,500 BTU/hr
	Heating System	17,000 BTU/hr	Requires a separate heater	7,860 BTU/hr
	Cooling Performance	10 hours minimum per TMC RP 432	8–10 hours depending on solar load	15 degrees below ambient
	Heating Performance	10 hours minimum per TMC RP 432	8–10 hours depending on solar load	8-10 hours
	Weight	485 pounds	370 pounds	445 pounds

ACCORDING TO THE DEPARTMENT OF ENERGY,

A LONG-HAUL SLEEPER AVERAGES 1,800 IDLING HOURS PER YEAR.

NAVISTAR







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#### What is a Hybrid Power System?

A hybrid power system is an idle reduction system that runs on both battery power and fuel. This is a true hybrid – it runs off of 4 deep cycle AGM batteries for cooling and diesel fuel for heating. When the batteries reach a 12 Vdc, a diesel power unit will either start automatically or can be manually started to recharge the batteries. When operating in automatic mode, the power unit will run for 2.5 hours then automatically turn off. The heating and cooling system will continue to operate normally throughout the battery recharging process.

#### What are the benefits of the Hybrid Power System?

Quiet, simple installation, similar weight to average APU, very little maintenance, and virtually unlimited\* operation time without having to idle the truck's main engines. The Hybrid Power System could run for months on very little fuel.

\*limited only by the amount of diesel in the truck's fuel tank.



#### Do I need to install a larger alternator?

For trucks that have extended stays in California, we recommend that an alternator with a minimum 30 amp increase over the stock OEM alternator be installed. This will allow the batteries to be fully charged in case someone is running extended time in California and they cannot run the Hybrid Power System in recharge mode.

#### What is recharge mode?

Recharge mode simply refers to the time when the diesel power unit is recharging the system's batteries.

#### Does the Hybrid Power System meet EPA regulations?

Yes. The Hybrid Power System is certified by the EPA to conform to tier 2 emissions regulations.



#### Is the Hybrid Power System CARB approved?

When not in the recharge mode, the Hybrid Power System is CARB approved and can run in all 50 states. In recharge mode, the Hybrid Power System cannot run in California.

#### How much fuel does the Hybrid Power System use?

In air conditioning mode: No fuel consumption

In heating mode: 0.05 gallons per hour

In recharge mode: 0.10 gallons per hour

#### What is the typical install time for the Hybrid Power System?

Typical install time of the Hybrid Power System is approximately 11 hours.

#### Why do the batteries charge faster with the Hybrid Power System?

The Hybrid Power System provides a dedicated 110 amps of charging with no other parasitic truck draw.



# How long does it typically take to re-charge batteries for the Hybrid Power System?

When the system is operated in auto mode, the batteries should recharge in 2.5 hours. If the batteries are 80% or more discharged, the system may have to cycle on and off twice. (Or the system can be operated in manual mode to re-charge the battery system.)

Will the Hybrid Power System recharge the truck batteries also? We use a bi-direction separator, so both the system battery bank and the truck's batteries will be charged. NITE Plus batteries will have first priority. At 13.2, truck's batteries will then be charged.

Can I operate a hotel load with the Hybrid Power System? Yes. Hotel loads can be operated off of the system batteries through an optional inverter.



#### What is the total weight of Hybrid Power System?

DC power unit:

NITE Plus (including vent):

4 batteries:

Battery box(es):

Espar Heater:

Total Weight:

243 lbs.

70 lbs.\*\*

70 lbs.\*\*

8 lbs.

691 lbs.

# Is there a lot of required maintenance for the Hybrid Power System?

No. There is virtually no maintenance on the air conditioning unit, and small amounts of scheduled maintenance on the Kohler diesel power unit - filters and belt maintenance. The optional fuel fired heater should be started once a month and the filters and screens should be cleaned and/or changed at specified intervals.

<sup>\*\*</sup>Depending on manufacturer.



# **NITE Day Cab**





# **NITE Day Cab**

As the premier on-board idle-free system for cooling cab compartments, NITE Day Cab incorporates a variety of break-through patented technologies that make idle-free performance possible.

The NITE Day Cab system features a split evaporator/condenser system. With 6500 BTU/h it will keep operators cool in almost any temperature.

As a battery-powered, no-idling system, the NITE Day Cab unit is able to generate its high BTU/h cooling capacity without sending damaging emissions into the environment.



# **Rite Temp**





#### RITE TEMP

The Rite-Temp Compact 1-1 and Rite-Temp Compact 1-2 are unique heating systems designed to heat coolant in on- or off- road equipment. Keeping the motor and fuel warm is just the basic job of this versatile little heater. It is also possible to heat hydraulic fluid and provide cab heat with optional heater accessories.

Both Rite-Temp Compact units utilize the Espar compact diesel fired coolant heater.

When used in conjunction with the NITE Plus system additional batteries are not required. If used as a stand alone option an additional battery may be required.



### **Tundra Inverters**

#### **MODIFIED SINE Inverters**

Available in 1000W and 1500W

Digital remote available on 1500W

Best battery protection/safety

Complete quality install kits

- Best A/C efficiency
- Low maintenance
- •200% peak capacity
- •100% surge capacity

•100% continuous output power only
1500W shown at right with optional install and shore power kits

#### PURE SINE Inverters also available

Created without compromise to support specific needs of high-end and sensitive electronic appliances, the 300W HTS and 1200HTS inverters have been designed for recreational and professional use, and provide a perfect sine wave equal or superior to most conventional networks.





# **Tundra Battery Charger**

- •45 Amps
- •Built-in Charge Controller module
- Prevents gassing
- Reduces water loss
- •Reduced battery charging time
- Increases autonomy time
- Ignition protected
- Multi stage (boost, normal, storage & equalizing mode)





# **Aluminum 4 Battery Between Rail Box**





# **Aluminum 4 Battery Vertical Clamp On Box**

16.45"w x 24.2"h x 20.25"d 48 lbs. (21.8 kg)

#### **Part Numbers**

Bergstrom 1000163931 Kysor 3699025 Fleetrite ZNI733498 ClimaTech 1000163931BSM Volvo BSM1000163931 Freightliner BSM 1000163931







# **Steel 2 Battery Mounted Battery Box**

14.5"w x 12"h x 20"d 44 lbs. each

# Part Numbers (kit includes 2 battery boxes)

Bergstrom 1000045775 Kysor 3699010 Fleetrite ZNI733483 ClimaTech 1000045775BSM Volvo BSM1000045775 Freightliner BSM 1000045775



#### Z Brackets (optional)

(optional kit includes 2 brackets, one kit needed per box)
Brackets used to mount steel battery boxes away from structure on frame rail.

#### **Part Numbers**

Bergstrom 1000167211 Kysor 4499010 Fleetrite ZGG740008 ClimaTech 1000167211BSM Volvo BSM1000167211 Freightliner BSM 1000167211







## Window Heat Shields/Bunk Curtain Kit

#### **Part Numbers**

1 dit Hailibolo										
BERGSTROM		FLEETRITE	CLIMATECH	VOLVO	FREIGHTLINER					
WINDOW HEAT SHIELDS										
Freightliner Cascadia										
1000132411	4499013	ZNI740013	1000132411BSM	BSM1000132411	BSM 1000132411					
Freightliner Century/Columbia										
1000177374	4499020	ZNI740020	1000177374BSM	BSM1000177374	BSM 1000177374					
International 9000 series (available soon)										
1000177227	4499018	ZNI740018	1000177227BSM	BSM1000177227	BSM 1000177227					
International Pro Star										
1000132409	4499014	ZNI740014	1000132409BSM	BSM1000132409	BSM 1000132409					
Kenworth T600										
1000176050	4499015	ZNI740015	1000176050BSM	BSM1000176050	BSM 1000176050					
Mack Vision (front window)										
1000132413	4499011	ZNI740011	1000132413BSM	BSM1000132413	BSM 1000132413					
Mack Vision (side windows)										
1000138867	4499012	ZNI740012	1000138867BSM	BSM1000138867	BSM 1000138867					
Peterbilt 379										
1000176058	4499016	ZNI740016	1000176058BSM	BSM1000176058	BSM 1000176058					
Peterbilt 387										
1000176060	4499017	ZNI740017	1000176060BSM	BSM1000176060	BSM 1000176060					
Volvo VN (available soon)										
1000177230	4499019	ZNI740019	1000177230BSM	BSM1000177230	BSM 1000177230					
BUNK CURTAIN KIT - All makes and models										
1000028005	4499004	ZNI740005	1000028005BSM	BSM1000028005	BSM 1000028005					



## **Training Overview**

**Price \$1000.00** 

Identify NITE Plus System models and components contained in the basic kit.

NITE Plus AC **Systems**, Optional Heating Unit, Power System, Shore Power Inverter & Charger.

Alternator requirements: Minimum 30 amp increase over stock OEM alternator.

Identify best location for the power system on frame rail, sleeper birth or side box.

Identify the correct mounting location for the NITE Plus A/C & optional heating system.

Identify the correct mounting location for the NITE Plus Air ducting delivery system.

Complete unit control and charging system wiring, including best routing methods and under truck requirements.

Unit start up and operation check off, including operation of the NITE Plus A/C and optional heat controls, including charging system check.

Troubleshooting system basics.

Instruction on warranty claims and procedures.



# **Training Guidelines**

Upon request at OEM Dealership or Fleet shop, requestor will provide air min 120 psi, 115V AC power, enclosed shop area.

Normal training time eight to twelve hours. Allow 2 to 3 weeks from needed install date.

**NOTE:** Normal training requires 1 to 2 technicians per truck, our trainers will supervise and assist in installation only. If 2 trucks are to be completed during training 4 technicians are required.

#### **TOOLS NEEDED**

- 1) Drill Bit Set
- 2) Hole saws
- 3) Electric/Air Drill
- 4) Razor Knife
- 5) #4Professional Grade Cable Crimpers
- 6) Air saw/Jigsaw (Cutting Sheet metal)
- 7) Torx Head (T30) Bit
- 8) Torque Wrench up to 50 in/lbs

- 9) SAE Wrenches
- 10) 1/4", 3/8 Drive Ratchets
- 11) SAE Socket Set
- 12) Metric Socket Set
- 13) Wire Cutters
- 14) Terminal Crimpers
- 15) Wire Strippers
- 16) Screwdrivers/Assorted Bits (Flat and Phillips heads)

- 17) Electrical Tape
- 18) Cable Cutters
- 19) Impact Gun
- 20) Cable Strippers
- 21) Work Light
- 22) Metric Wrenches
- 23) U-barrel Crimper
- 24) Pop Rivet Gun



# **Display Unit**









- GERRY OKADA Western Region 815-520-6426 (cell)
- SCOTT LANDRETH South Central Region 815-520-4319 (cell)
- DAVID STOOS Upper Midwest Region 815-218-1135 (cell)
- LARRY LANDRETH Southeast Region 815-222-9804 (cell)
- VICTOR GONTERO Northeast Region 815-721-7499 (cell)

PROFORCE MKTG Canadian Region 204-837-9800 (office)





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