



HC7000U
Auxiliary Power Unit (APU)
Driver Training & Reference Manual



Freightliner Cascadia

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1. INTRODUCTION

- Your tractor is fitted with a DCClimate HC7000U Auxiliary Power Unit, the industry's 1st true Hybrid APU Solution.
- This training module will educate you on the DCClimate system and how to use it most effectively.



2. SYSTEM OVERVIEW

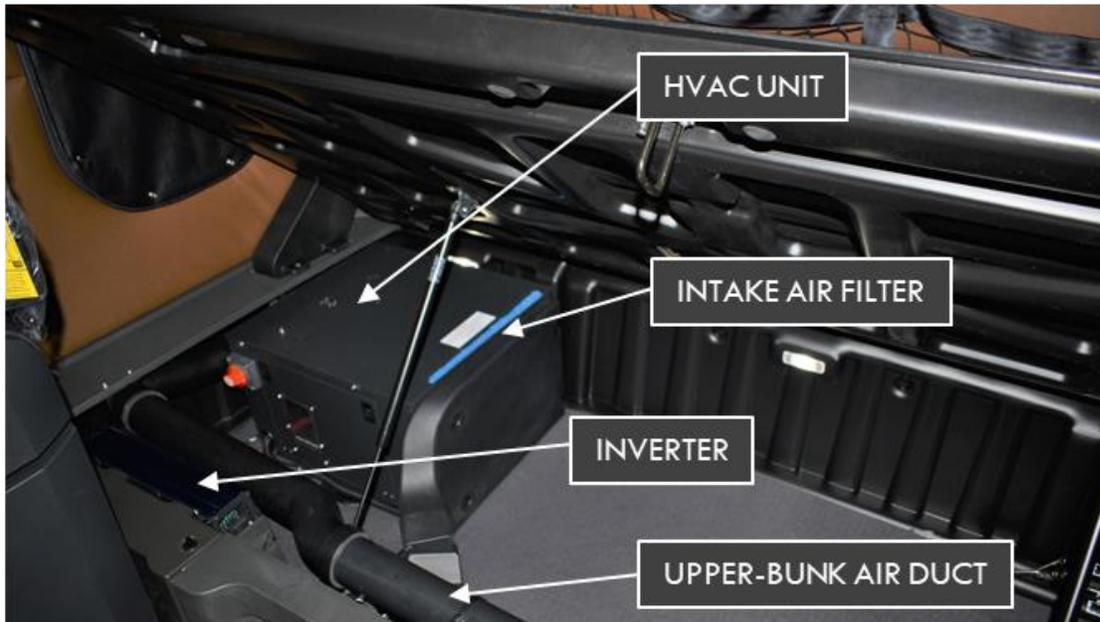
WHAT IS THE PURPOSE OF THE SYSTEM?

- The system is designed to minimize tractor engine idle time while providing you with a comfortable environment for rest and relaxation.
- Low idle percentage means lower fuel consumption & engine wear; reducing operating cost (fuel and maintenance), increasing MPG performance and helping the environment.
- The DCClimate system integrates with the truck to deliver uninterrupted & unlimited access to Heat, Air-Conditioning and 120V Inverter Power.

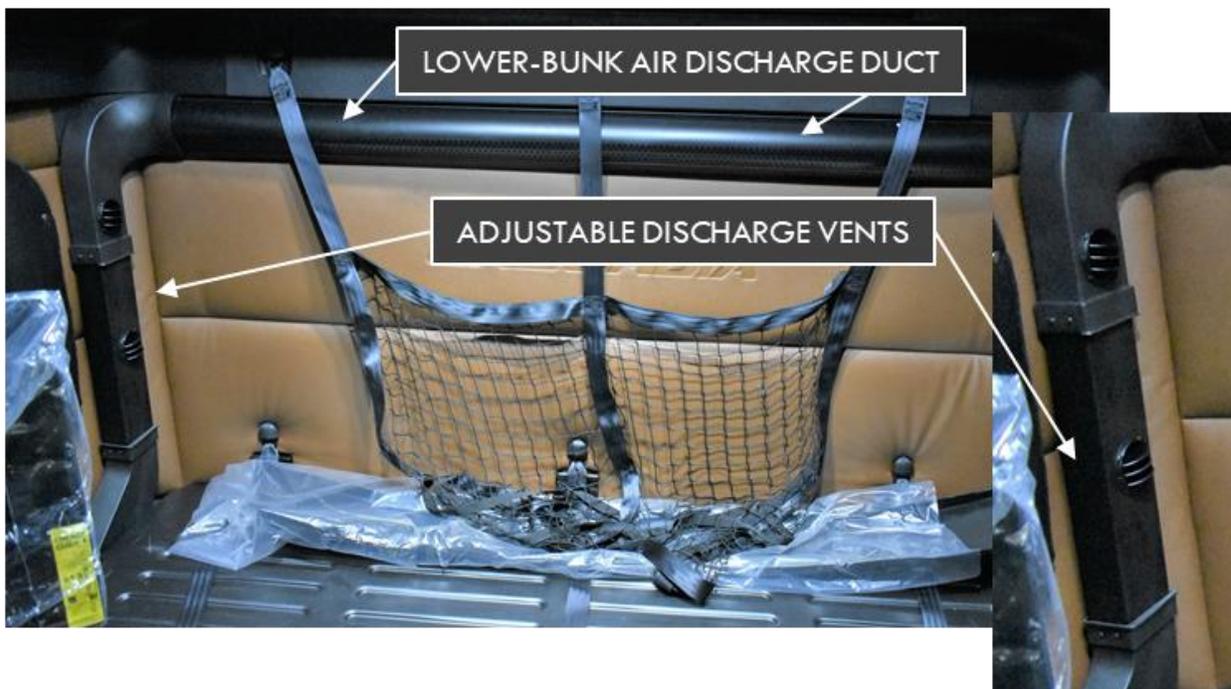


HVAC UNIT:

Located under the bunk the HVAC unit provides heating and cooling, significantly reducing the need to idle the engine.



Air is delivered through a duct system, providing tight temperature control in the bunk area.



HVAC UNIT (CONTINUED):

You can manage all functions through a simple control panel (see page 12). The unit delivers enough heating and cooling capacity to handle extreme ambient conditions and provides a wide range of temperature settings options.

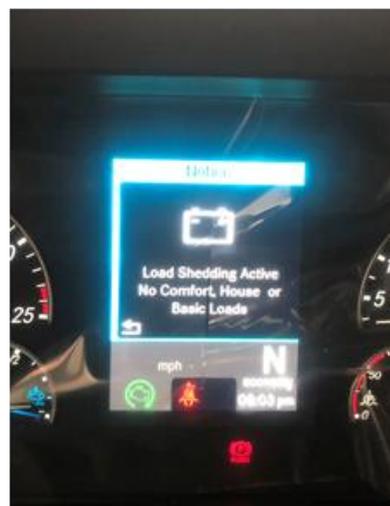
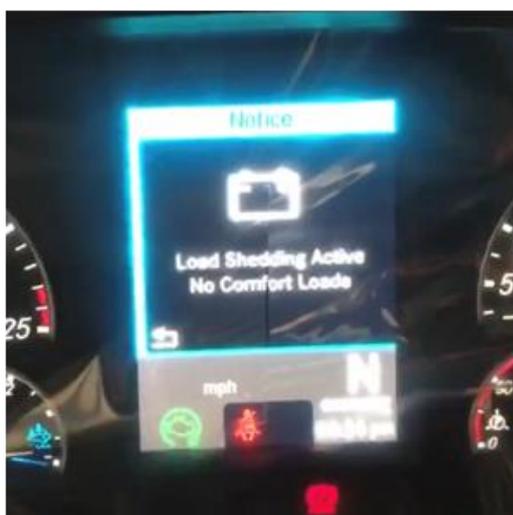


The DClimate system will only operate when the Parking Brake is engaged and will automatically deactivate when the parking brake is released. When driving, the OEM bunk HVAC system should be used to heat or cool the bunk area, using the control panel shown above.

OPTIMIZED IDLE (AUTO-START):

The truck is fitted with the Freightliner Optimized Idle (auto-start) system. Once activated the engine will start when the batteries voltage reaches 11.8V and will run for 1-hour to recharge, before shutting down. The engine will start before the DCClimate HVAC unit or the 120V inverter low voltage disconnect (LVD) points are reached, guaranteeing continual uninterrupted operation no matter how long the stop.

Independent of the DCClimate and 120V inverter, the truck is designed to load-shed at 12.3V and 12.1V, shutting off internal lights and 12V receptacles. These events will be signaled by a beep and dashboard alert; as shown below.



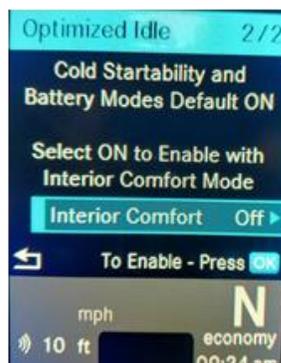
NOTE: No action is required when these LVD levels are reached; the combination of auto-start and the low voltage disconnect settings on the DCClimate and 120V inverter will ensure that you have uninterrupted access to 120V accessories and HVAC functions. PLEASE ensure that all critical accessories (CPAP machines, phone charging etc) are powered from the 120V inverter receptacles (page 10).

OPTIMIZED IDLE (AUTO-START):

NOTE: The auto-start function should always be activated during extended stops, 10-hour rest periods and 34-hour resets. The truck will only start when required and it is quite normal for it not to start at all during a full rest period.

To activate Opti-Idle:

- Make sure hood is closed, transmission is in neutral and parking brake is set.
- Turn the key to the ON position or if the engine is running allow it to idle.
- Navigate to the Optimized Idle menu.
 - Use “quick access” button for easy access.
- Ensure Interior Comfort mode is in the **OFF** position.
- Press the “OK” button on the steering wheel to arm Optimized Idle.



HIGH EFFICIENCY ALTERNATOR:

The 320amp high efficiency brushless alternator enables rapid recharging of the system at engine idle speed. Recharge time at idle is set at 60 minutes at which point the tractor will shut-down, minimizing idle & fuel consumption.



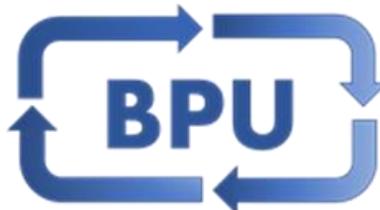
BATTERIES:

Your truck is equipped with 8 high performance EnerSys AGM batteries. Four are located under the driver-side door and four in a battery box behind the cab. All 8 batteries are interconnected and utilized for all truck functions, providing power for the DClimate system, inverter and truck starting.



BATTERY MANAGEMENT SYSTEM:

The unique design links all elements of the system together, enabling rapid recharging, starting capability and a healthy environment for the batteries.



TRUCK SETTINGS:

In order to assist in maximizing idle reduction and MPG performance objectives, the truck has been set with the following parameters:

- Automatic 5-minute idle shutdown when outside ambient temperatures are above 20F and below 100F.
- The DClimate system has ample heating and cooling capacity and you are encouraged to shut the engine off and utilize the APU unless you are in an extreme temperature environment (<10F or >120F).
- The Optimized Idle (auto-start) system is configured to start the truck at 11.8V and will run for 1-hour to recharge the batteries. **Remember to activate the auto-start system during all extended stops.**
- If the auto-start system is not enabled, the DClimate system and truck will be shut-off when the batteries reach 11.6V (low voltage disconnect setting). To avoid any inconvenience, please ensure the auto-start is enabled during all extended stops.
- When Optimized Idle is activated the engine will automatically start when the oil temperature is <10F and will shutdown when it reaches 104F.

INVERTER:

This truck is fitted with a 1500-Watt Pure Sine Inverter, located under the bunk in front of the HVAC unit. The inverter has an 11.6V LVD setting, guaranteeing continuous uninterrupted inverter functionality when the Optimized Idle (auto-start) system is activated. Four 120V outlets are provided for your convenience, two upper (microwave and TV) and two lower for general use.



3. SYSTEM USE

WHEN SHOULD YOU USE THE SYSTEM?

1. The DClimate system should be used whenever you have a stop, whether long or short. Examples include fuel stops, lunch breaks, loading & unloading, rest and sleep periods etc.
2. **IMPORTANT:** The truck is programmed to automatically shutdown after idling for 5 minutes, however, in order to minimize idle percentage and maximize the MPG, maintenance and environmental benefits of the DClimate system you should shut your engine off as soon as possible, no matter how short the stop.

WHAT RESULTS SHOULD YOU EXPECT?

1. Used to maximum effect the system will deliver single digit idle percentage, without compromising your comfort, safety or flexibility.

HOW DO YOU ACTIVATE THE SYSTEM?

1. Set the parking brake and start the DClimate APU using the control panel located in the sleeper. Be sure to activate Opti-Idle (auto-start), particularly for extended stops; this will guarantee uninterrupted APU & inverter functionality through the entire rest period and protects battery health.
2. **IMPORTANT:** The DClimate system will only function when the Parking Brake is set and will automatically deactivate when the Parking Brake is released.



 **Status Light**

Solid Green: System On - Normal Operation

Flashing Green: System On - Error*

**Restart system, if error persists contact qualified service provider*

 **Unit Function Selection**

 Unit Off  AC/Cool  Heat  Fan Only

 **Fan Speed Selection**

Auto: Recommended* 1- 4: Overrides Auto-Setting

**Auto provides best balance of temperature control, capacity & efficiency*

 **Temperature Selection**

Cool Range: 65-80F Heat Range: 40-90F

**Recommend top half selection to optimize comfort*

NOTE: The system is designed to shut-down if there is no interaction with the “Unit Function” or “Fan Speed” control knobs for a 15hr period. Should this occur simply turn the system “off” and “on” again to reset the timer. To avoid inconvenience we recommend that the system be turned off & back on each day.

5. BEST PRACTICE TIPS

There are a few general guidelines to help maximize the benefits and your experience with the DCClimate System.

1. The primary objective of the system is to provide HVAC to the bunk area. In extreme weather conditions, make sure the bunk curtain is fully closed for maximum comfort.
2. Selecting temperatures between the “10 & 2” positions is recommended. In cool mode this range will be 69-72F, in heat 65-75F.
3. The system will operate at maximum capacity until the set temperature is achieved, setting the temperature to maximum cold (65F) or maximum heat (90F) **WILL NOT** decrease the time required to reach a desired temperature. **Select your desired temperature and set the fan to auto for best results.**
4. Solar Heat: If you are resting during the day, try to orient the windshield away from direct sunlight and use a sun reflector or heat shield on your windshield to limit the solar heating within the cab.
5. Airflow is crucial for maximum comfort. Make sure the inlet or outlet vents are not blocked. If they are blocked the system will not control temperature effectively.
6. The under-bunk unit has a removable & cleanable intake air filter, located at the front of the unit (see page 4). Check and clean monthly to ensure optimum system operation. **NOTE: IT'S IMPORTANT FOR PET OWNERS TO INCREASE FREQUENCY**
7. **The system will automatically shut-down after 15 hours if there is no interaction with the Function or Fan controls. To reset the 15hr timer, turn the system off and on again.**

6. USER INSTRUCTION CARD

PLEASE REFER TO THE USER INSTRUCTION CARD FOR FURTHER INFORMATION



**TO LEARN MORE, VISIT OUR WEBSITE
WWW.DCLIMATE.COM**

**WE HOPE YOU ENJOY YOUR
EXPERIENCE !**

