Operator's Manual

ComfortPro™
200INT, 210STA, 220PWR, 230SKY
Diesel Auxiliary Power Unit

COMFORT PRO

62-12076
Rev C

Carrier
TRANSICOLD

Carrier
TRANSICOLD

Operator's Manual

ComfortPro™

Auxiliary Power Unit
Models 200INT, 210STA, 220PWR, 230SKY

Manual Revision History 62-12076

Rev	Date	Reason for Release
	4/2018	Initial Release
A	8/2018	Updated to add Prop 65 warning label on back cover.
B	4/2019	Updated to add instructions on Stand-Alone APU block heater
C	4/2020	Full edit (DM); updated AFCI/GFCI image; updated Maintenance Table;

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INTRODUCTION

ComfortPro® Models

Integrated (200INT)	APU provides sleeper cab air conditioning and heating. 120 VAC is available to power 120VAC household accessories. APU coolant lines connect to the tractor engine cooling system, with engine warming provided via APU coolant exchange.
Stand-Alone (210STA)	Provides similar capabilities to the integrated model, but tractor and APU coolant systems are independent. Tractor engine warming can be optionally done via the tractor's block heater, powered by the ComfortPro APU's generator or with an engine coolant heater.
Power Only (220PWR)	Provides power for hotel loads in applications where no cab climate control is needed.
Integrated with ClearSky™ DPF (230SKY)	Integrated APU based off the 200INT with the ClearSky Diesel Particulate Filter (DPF).

SAFETY

These safety alerts alone cannot eliminate hazards that can occur. Strict compliance with these special instructions when performing the installation and maintenance, plus common sense, are major accident prevention measures.

WARNING: Warns against hazards or unsafe conditions which COULD result in severe personal injury or death.

CAUTION: Warns against potential hazard or unsafe practices which could result in minor personal injury.

NOTICE: Warns against potential product or property damage.

EXHAUST

Inhalation of exhaust gas (containing carbon monoxide) may cause severe personal injury and/or death. Anyone suspected of suffering from carbon monoxide inhalation should be removed from the hazardous area and given medical assistance immediately.

California Proposition 65 Warning: The APU and CCU components of this product contain lead, a chemical known to the State of California to cause cancer and birth defects, and other reproductive harm.

FUEL/ BATTERIES

Exercise extreme caution when working near fuel or fuel-filled equipment. Do not operate equipment during fueling operations. Use eye protection when working near batteries, which contain acid and can explode. Do not smoke or use open flames near batteries.

ELECTRICAL

Electric shock can cause severe personal injury, burns, and death. Disconnect the batteries before working on any unit. Use only approved materials and methods when working on the electrical system, and follow local electrical codes. Never work on the APU or the electrical circuitry when the APU is running. Never work with electricity in wet conditions.

TOXIC SUBSTANCES

Fuel, oil, coolant, and refrigerant are toxic and in some cases, carcinogenic. Wear eye and hand protection at all times. Remove contaminated clothing immediately and wash contaminated skin. Do not breathe in vapors.

HOT OR MOVING PARTS

Moving parts can cause severe injury and/or death. Before working on any unit, shut it off and disconnect it from the truck batteries. Do not start until protective covers have been replaced. Also, loose parts and tools falling into machinery can cause severe accidents. Always ensure bolts and clamps are correctly torqued and secured. Inspect mechanical components periodically for damage, corrosion, and proper torque.

MISUSE

The APU is designed to provide electrical power, and power for heating and cooling vehicles in normal on-road conditions. Never use the APU to power critical medical equipment or sensitive electronic equipment without the manufacturer's express written approval.

⚠ WARNING

DO NOT open the APU enclosure when the APU is running. Moving parts inside the APU can cause severe injury and/ or death. DO NOT restart the APU until the covers have been replaced.

⚠ WARNING

Danger from moving parts: In order to perform these maintenance checks, you must open the access covers to the APU. Before doing so, shut off the APU and disconnect it from the truck batteries. Never observe the inside of the APU enclosure or insert your fingers or a tool into the enclosure when the APU is running.

⚠ CAUTION

DO NOT open the CCU enclosure. There are no operator-serviceable parts inside.

⚠ CAUTION

Stand-Alone APU only: Truck engine oil/block heater connector is energized along with APU engine start.

⚠ WARNING

DO NOT start the APU when the enclosure cover is removed. Operating with the cover off may result in injury and/or death.

⚠ WARNING

When the APU is about to start, a buzzer sounds. Make sure no one is standing near the APU or touching it.

⚠ WARNING

Once automatic functions are set, the system could start at any time. Before servicing the unit, disconnect the unit from the batteries to prevent injury should the unit attempt to start while servicing. All presets will remain once battery cable is reconnected.

Stand-Alone APU only: DO NOT open the radiator surge tank cap when engine and coolant is HOT.

If you are not qualified to perform the specified check or the required maintenance task, consult your dealer about servicing.

OVERVIEW

Key Features

- Provides heating or air conditioning to the truck bunk
- Provides power to run 120VAC appliances in the truck bunk
- Charges the truck battery: It is more efficient to charge the battery by running the ComfortPro than by running the truck engine.
- Integrated APU only: Warms the truck engine by passing coolant that has been warmed by the APU into the engine.

ComfortPro Options

- **Main Engine Interlock**: The main engine interlock option is available to prevent the APU from operating when the truck engine is running. The APU is designed to be started when the truck engine is not running. When the main engine interlock option is enabled, the only situation in which the APU and truck engine can both be running is during **ComfortPro Options**.
- **Shore Power**: The ComfortPro Shore Power option lets you plug your ComfortPro into standard 120VAC electrical outlet (shore power) and use the HVAC without having to run the APU. This option provides additional fuel savings.

ComfortPro Functions

The ComfortPro includes the following HVAC system functions:

- **Manual Operation**: Manual control of the HVAC to provide a comfortable temperature in the truck bunk.
- **Comfort Monitor:** Automatically turn on the APU and HVAC as required in order to maintain a comfortable temperature in the truck bunk.
- **Timer:** Automatically turn on HVAC at specific times and days of the week, and for a specific length of time. There are two timers.

The ComfortPro also includes the following APU functions:

- **Temp Start:** Automatically turn on the APU and HVAC periodically whenever the temperature goes below a specified value. This will prevent the APU engine and truck engine from getting so cold that they will not start. In the event that the truck alternator malfunctions, this feature will allow the truck to “limp home.”
- **Battery Monitor:** The ComfortPro can be programmed to detect when the truck batteries are running low and automatically turn on the APU in order to recharge the batteries.
- **Maximum Run Time:** Set the maximum time that the APU will run.

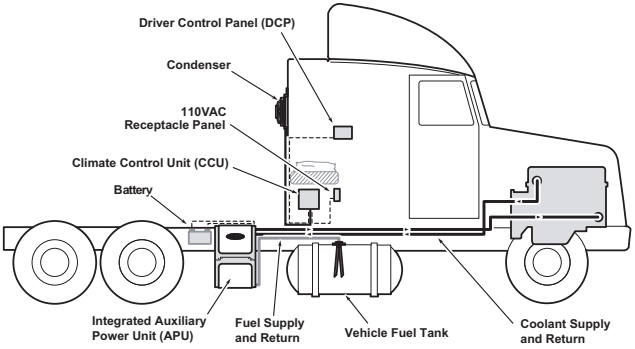
A password can be set up to restrict the ability to set up or change the operation of any or all automatic functions (see **DCP Configuration**).

NOTICE

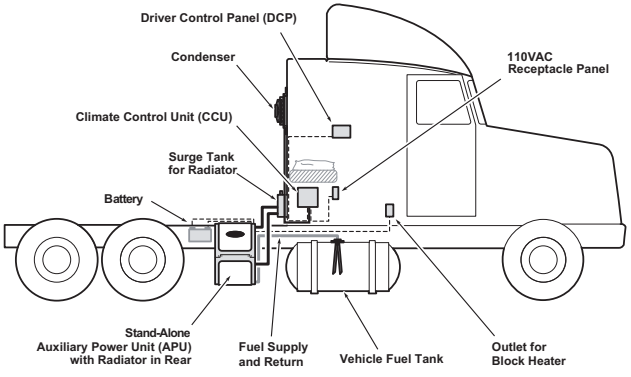
Stand-Alone APU only: The truck engine oil/block heater connector is independent from the APU “comfort system” functions and is energized along with the APU engine start.

Components

Integrated Unit Components



Stand-Alone Unit Components



The APU is mounted on the frame rail of the truck. It consists of an engine and belt driven generator. The engine draws fuel from the truck's fuel tank, independent of the truck's main engine. The APU provides power to the Climate Control Unit (CCU)

Simple maintenance and inspection, such as checking oil level, belt tensions and general cleanliness, can be performed by removing the upper and lower access panels. Turn off the APU, unscrew the hand wheel bolts, and carefully remove either access cover.

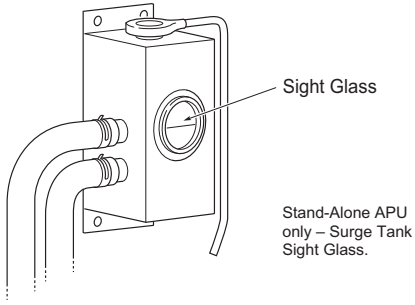
Integrated Cooling System

The integrated APU is plumbed into the truck's coolant system. The APU and the tractor share the same coolant reservoir. When the integrated APU is running, it provides heat to the truck's engine and when the truck's engine is running, the truck provides heat to the APU.

Stand-Alone APU Cooling System

The Stand-Alone APU does not plumb into the truck's cooling system. However, a connector is provided to supply power for the engine block heater to warm the truck engine.

Coolant level can be checked through the sight glass on the surge tank (ensure the coolant is visible). The surge tank is mounted remotely away from and above the APU, where the sight-glass is easily visible. The surge tank is connected to the APU with coolant hoses.



Stand-Alone APU only – Surge Tank Sight Glass.

⚠ WARNING

Do not open the APU enclosure when the APU is running. Moving parts inside the APU can cause severe injury and/or death. Do not restart the APU until the covers have been replaced.

Electrical System

The APU electrical system is connected to the truck's batteries and uses the batteries to start its engine. The APU engine's alternator charges the batteries.

NOTICE

If equipped, the truck engine oil or block heater connector is independent from APU "comfort system" functions, and is energized as soon as APU engine starts. The block or oil heater must be plugged into the connector when required during cold weather operation. Unplug the block heater connector from the block heater receptacle when not in use.

⚠ WARNING

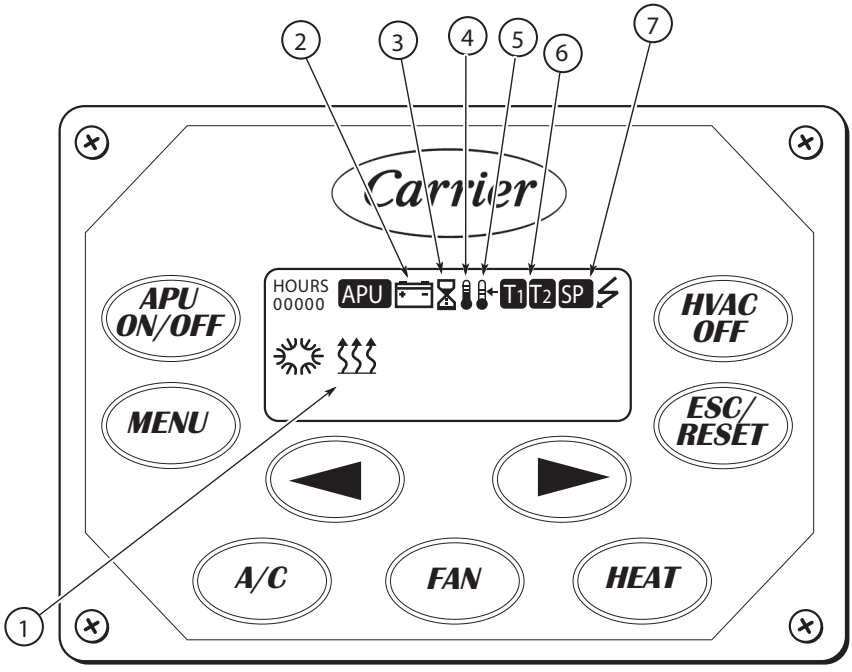
Danger from moving parts! In order to perform these maintenance checks, you must open the access covers to the APU. Before doing so, shut off the APU and disconnect it from the truck batteries. Never observe the inside of the APU enclosure or insert your fingers or a tool into the enclosure when the APU is running.

Power Outlet (AFCI/GFCI)

The power outlet is mounted in truck sleeper. Provides 120 VAC (15A max) to power hotel loads. Outlet is arc fault and ground fault protected.

Driver Control Panel (DCP)

Mounted inside the truck bunk, the DCP controls the APU and the CCU. The DCP provides status information using words and icons:



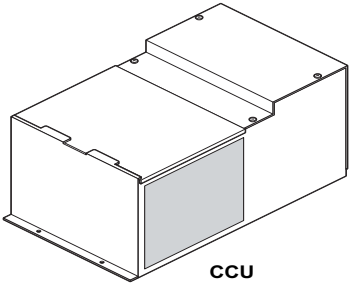
1. When visible, system is heating.
2. Battery Monitor enabled.
3. Maximum run time enabled.
4. Temp Start enabled.
5. Comfort Monitor enabled.
6. Timer 1 or Timer 2 enabled.
7. The ComfortPro is connected to shore power.

TRIP High heat breaker tripped.

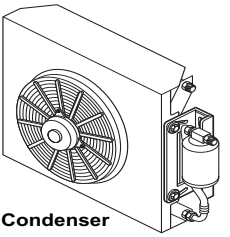
HVAC System

The HVAC System consists of the following components:

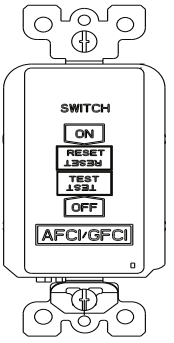
- The CCU provides heat and air conditioning to the truck sleeper. This unit is typically installed underneath the bunk.
- Three air ducts in the truck sleeper connected to the CCU.
- The condenser is mounted on the outside of the truck and is connected to the CCU.



CCU



Condenser



AFCI/GFCI

⚠ CAUTION

Do not open the CCU enclosure. There are no operator-serviceable parts inside.

OPERATION

The APU has two modes of operation - manual and automatic.

Manual Mode: The APU is started and stopped using the APU ON/Off button located on the DCP. Once the APU is running, use the DCP to start and stop the fan, heater and air conditioning (see **Starting the APU**).

Once the heater or A/C is running, it will cycle (automatically turn on and off) in order to keep the truck bunk at the specified temperature. The HVAC will continue to cycle until it is turned off. While the HVAC is cycling, the APU remains on and will only turn off when it is manually turned off using the ON/OFF button on the DCP.

In manual mode, the APU will continue to run until turned off or the maximum run time is reached. When the APU is running, power is supplied to the power outlet in the truck bunk (except in high heat).

Automatic Mode (Comfort Monitor): Intended to maintain the truck cabin temperature at a desired setpoint by cycling both the APU and HVAC on and off as required. When operating in Comfort Monitor mode, the HVAC operates in high heat or high A/C depending on cabin temperature.

There is an option to allow the selection of High or Low heating and air conditioning. This option is owner selectable (see **Comfort Monitor**).

NOTE

Comfort Monitor mode and manual APU operation are mutually exclusive. An ON setting enables Comfort Monitor mode and disables Manual APU operation. An OFF setting disables Comfort Monitor mode and enables Manual APU operation.

Comfort Monitor Operation

- **APU ON/OFF Button:** With Comfort Monitor enabled and the duration timer set to a nonzero value, the **APU ON/OFF** button may be used to activate / de-activate Comfort Monitor mode.
- **Duration Timer**: The Comfort Monitor duration timer begins each time that Comfort Monitor mode is activated via the **APU ON/OFF** button. When the timer has elapsed, Comfort Monitor mode will de-activate. The driver may re-activate Comfort Monitor by pressing the **APU ON/OFF** button.

NOTE

If Comfort Monitor is not manually de-activated, it will continue to operate until the duration timer has expired.

Set Duration: Allows the user to set the maximum run time that the APU can remain in Comfort Monitor mode. The duration timer may be set between 0.0 HRS to 24.0 HRS in increments of 0.5 HRS.

Set Temp: Allows the user to set the desired ambient temperature in the range from 64°F (18°C) to 86°F (30°C).

Other Control Panel Buttons: The **MENU**, **ESC/RESET** and **ARROW** buttons may continue to be used for accessing and navigating the menu. The balance of front panel buttons, including **HVAC OFF**, **A/C**, **FAN**, and **HEAT**, have no associated functionality while the system operates in Comfort Monitor. Additionally the **ARROW** buttons may not be used to adjust the temperature setpoint.

Other Automatic Modes: If enabled in the menu, other automatic modes may become active while the APU operates in Comfort Monitor mode or is OFF in manual mode. Activation of any of the other automatic modes will temporarily override Comfort Monitor, however APU operation will return to Comfort Monitor mode if all automatic mode duration timers have expired but the Comfort Monitor duration timer has not expired.

Timer: The APU and HVAC turn on automatically at the specified time and period, and the HVAC cycles to maintain the desired temperature. When the time expires, both the APU and HVAC turn off automatically. During the specified timer duration, the HVAC cycles on and off to maintain the desired temperature. When the timer duration expires, both the APU and HVAC turn off automatically.

Temp Start: The APU will run when the cab temperature drops below a set value. This feature warms the APU and tractor engine to assist with cold starting. After the timer duration expires, both the APU and HVAC turn off automatically.

Battery Monitor: When the truck battery voltage drops below a specified level, the APU runs for 90 minutes to charge the batteries. The HVAC does not turn on when battery monitor is active.

If the APU or HVAC is on, and was not started manually, it can be assumed that it has started by one of the automatic modes. The DCP will steadily flash an icon that indicates the current mode of operation. See **Driver Control Panel (DCP)**.

Whenever the APU is running in an automatic mode, (except for Comfort Monitor mode), pressing the **HEAT**, **A/C** or **FAN** buttons on the DCP, the APU will switch to manual mode. This does not automatically turn off the APU. The icon on the DCP will also stop flashing. When operating in Comfort Monitor mode, manual APU operation is locked.

Automatic Mode And Minimum Time Off: All these automatic functions work on a minimum time off. The APU must be off for at least 10 minutes before the automatic function will turn it on again. For example, the Timer function may be set to turn on at 10:00 a.m. The APU has been running in manual mode and turned off at 9:55 AM. The timer will not turn the APU on until 10 minutes later at 10:05 AM.

Other Functions

- **Time and Date:** The time and date are displayed on the home screen of the DCP. See **Setting time and date**.
- **Maximum Run Time**: The maximum time that the APU is allowed to continuously run in manual mode can be set. See **Maximum Run Time**.
- **Password Protection**: Add a password to the DCP to protect one or more functions so that only a person who knows the password can set the function. See **DCP Configuration**.
- **APU Interlock**: If the APU is running and the interlock is activated by starting the tractor engine, the APU shuts down automatically. After the tractor engine is turned off, the APU can be restarted by pressing the APU ON/OFF button. When the tractor engine is already running, the APU will not start.

STARTING THE APU

⚠ WARNING

Do not start the APU when the enclosure cover is removed. Operating with the cover off may result in injury and/or death.

⚠ WARNING

When the APU is about to start, a buzzer sounds. Make sure no one is standing near the APU or touching it.

1. Press and release the **APU ON/OFF** button.
2. The display shows "**PLEASE WAIT – APU STARTING**" and the APU icon flashes. When the APU icon stops flashing, it indicates that the APU has started successfully. This may take 20-30 seconds depending on temperature.
3. If the sequence fails, "**RESTARTING**" appears for six seconds. Then the startup sequence automatically repeats up to five times or until the APU starts.
4. If "**CRANK LIMIT**" appears, see **Troubleshooting Fault Codes**.

STOPPING THE APU

NOTE

Make sure to shut down HVAC before stopping APU!

1. Press and release the HVAC OFF button if currently heating or cooling.
2. Press and release the APU ON/OFF button to turn off the APU. When the APU icon has a slash through it, the APU has stopped.

Turning the Heater ON or OFF

NOTICE

Heat mode will not function if the temperature is above 85°F.

1. Press the **HEAT** button to activate the heater. The display shows "**HEAT LOW**." The heater will turn on only if it is below the temperature setting. When the heater is on, the HEAT icon appears.
2. Press the **HEAT** button again to switch between high and low heat to heat the truck bunk more or less quickly. In "HEAT HIGH" mode, the power outlet is disabled.
3. Press the **HVAC OFF** button to deactivate heating.

Heating: Setting the Temperature

When HEAT LOW or HEAT HIGH is displayed on the DCP, press the < or > buttons to change the temperature setting. The slider bar on the DCP will move as the setting is adjusted.

Turning the A/C ON or OFF

1. Press the **A/C** button to activate the A/C. The display shows "**A/C LOW**". The A/C will turn on only if the temperature is above the temperature setting. When the A/C is on, the **A/C** icon appears.
2. Press the **A/C** button again to switch between high and low A/C.
3. Press **HVAC OFF** button to deactivate the A/C.

A/C: Setting the Temperature

When A/C Low or A/C HIGH is displayed on the DCP, press the < or > buttons to change the temperature setting. The slider bar on the DCP will move as the setting is adjusted.

Fan Operation

The fan operation is independent of the air conditioning and heat modes. When the fan speed is manually set to high or low, the fan will return to that setting after the A/C or heat cycles off after reaching the set temperature. Press the **FAN** button to toggle between OFF, LOW, and HIGH.

DCP Configuration

- Enabling the password in the DCP will protect one or more functions.
- On a newly installed DCP, the password is set to 000, which means that no password protection is in place. If the default password is not changed from 000 or is changed to 000 all password protection is disabled.
- If the password is ever lost, contact a Carrier Transicold dealer to have the password reset.

Set Up Password Protection

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**SET/CHANGE PASSWORD**" is displayed, then press the **MENU** button. "**ENTER PASSWORD**" is displayed with three blank squares, one for each digit in the password. The first digit flashes.
3. Press the ◄ or ► button until the first number in the password is displayed. For example, if your password is "432" press ► until "4" is displayed, then press the **MENU** button.
4. Repeat for each digit in the password.
5. Press the **MENU** button again after entering the last digit. "**NEW PASSWORD**" is displayed.
6. Repeat the above steps to enter the new password. "**CONFIRM**" is displayed.
7. Enter the new password again, then press the **MENU** button to exit this function.

⚠ WARNING

When Automatic modes are set the system could start at anytime. Before servicing the unit be sure to disconnect the unit from the truck batteries to prevent injury. All presets will remain once battery cable is reconnected.

Function Password Protection

1. Press the **MENU** button.

2. Press the ◄ or ► button until "**PASSWORD PROTECT**" is displayed, then press the **MENU** button. If this menu item does not appear, the factory password has not been changed from 000. Change the password and try again.
3. ENTER PASSWORD will be displayed. Press the ◄ or ► button until the first number in the password is displayed, then press the **MENU** button.
4. Repeat for each digit in the password.
5. Press the **MENU** button again after entering the last digit. The first feature that can be password protected is displayed with "**YES**" or "**NO**" (indicating whether it is currently password protected).
6. Press the ◄ or ► button to change the "**YES**" or "**NO**".
7. Press the **MENU** button to move to the next feature. Or press the ◄ or ► button to skip to the next feature.

Entering The Password

When setting up a function, you may be prompted to enter the password.

1. Press the ◄ or ► button until the first number in the password is displayed, then press the **MENU** button.
2. Repeat for each digit in the password.
3. Press the **MENU** button again after entering the last digit.

SETTING TIME AND DATE

The time and date do not automatically change when moving between time zones. If the time and date is not adjusted for the new time zone, the timer functions will continue to operate for the time zone that was originally set.

To set the clock:

1. Press the **MENU** button.
2. Press the ◄ or ► button until Time and Date is displayed, then press the **MENU** button.

   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, this function cannot be set up (see **DCP Configuration**).

   The clock function takes you through several settings: 12/24-hour-clock, hour set, minutes set, am/pm-set (for 12-hour clock only), and day of week.
3. Press ◄ or ► to change the 24/12 hour clock.
4. Press ◄ or ► **to** set the hours.
5. Press **MENU** to confirm hours.
6. Press ◄ or ► **to** set minutes.
7. Press **MENU** to confirm minutes.
8. If 12-hour clock was selected, press ◄ or ► to adjust time between AM/PM.
9. Press ◄ or ► to set the day of the week.
10. Press MENU to confirm the day of the week.
11. Press ◄ or ► to set the year.
12. Press **MENU** to confirm the year.
13. Press ◄ or ► to set the month.
14. Press **MENU** to confirm the month.
15. Press ◄ or ► to set the day**.**
16. Press **MENU** to confirm the day.

The time and date are now set.

COMFORT MONITOR

Enabling/Disabling Comfort Monitor

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**COMFORT MONITOR**" is displayed, then press the **MENU** button.
3. Press the ◄ or ► button until ON is displayed and then press the **MENU** button.
4. To disable Comfort Monitor, press the ◄ or ► button until OFF is displayed and then press the **MENU** button.

   Comfort Monitor settings remain enabled until it is changed. Turning off the APU or manually starting the APU does not permanently cancel this setting.

Setting Comfort Monitor Temperature

The truck bunk temperature can be specified using Comfort Monitor. Whenever the truck bunk temperature goes 2° above or below this temperature, the APU starts and the HVAC turns on until that temperature is reached or for 15 minutes, whichever is longer.

NOTE

Comfort Monitor default temperature is 70°F (21°C). Range is 64°F to 86°F (18°C to 30°C).

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**COMFORT MONITOR**" is displayed, then press the **MENU** button.

   If **ENTER PASSWORD** is displayed, the password must be entered. If the password is unknown, this function cannot be set (see **DCP Configuration**).
3. Press the ◄ or ► button to display **SET TEMP**, then press **ENTER**.
4. Press the **MENU** button to confirm this setting. The current temperature is displayed.
5. Press the ◄ or ► button to scroll to the desired temperature.
6. Press the **MENU** button to confirm this setting or press the **ESC/RESET** button to cancel and retain the current setting.

7. Press the **MENU** button to exit.

Setting Duration in Comfort Monitor

NOTE

The comfort monitor duration sets the maximum time the APU will run when Comfort Monitor is enabled. Setting the duration hours to 0.0 disables the comfort monitor run time. In this configuration, Comfort Monitor cannot be de-activated by the operator. Comfort Monitor can only be enabled/disabled via the comfort monitor menu settings.

NOTE

The factory default duration is eight hours. The range can be set between 0-24 hours in 0.5 hour increments.

1. Press the **MENU** button.
2. Press the ◄ or ► button until "the **MENU** button" is displayed, then press the **MENU** button.

   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, this function cannot be set up (see **DCP Configuration**).
3. Press the ◄ or ► button to display "**SET DURATION**".
4. Press the **MENU** button to confirm this setting. The current temperature is displayed.
5. Press the ◄ or ► button to scroll to the desired duration.
6. Press the **MENU** button to confirm this setting or press the **ESC/RESET** button to cancel and retain the current duration.
7. Press the **MENU** button to exit.

Setting Enhanced Features in Comfort Monitor

NOTICE

By default, the Comfort Monitor will operate in high mode to achieve the set temperature as quickly as possible.To take advantage of the enhanced features for the Comfort Monitor, a password must be set and the Comfort Monitor

must be password protected. See DCP Configuration for details on setting the password.

NOTICE

If a password is not required, these functions will not be available. Set the password first.

Setting Comfort Monitor Range

NOTE

The default Comfort Monitor range is 0° F/C. Range can be set between 0 - 22°F (0 - 12°C).

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**COMFORT MONITOR**" is displayed, then press MENU.

   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, this function cannot be set up. See **DCP Configuration**.
3. Press the ◄ or ► button to display "**SET RANGE**". Using the ◄ or ► button, select the ± temperature range. Choose "**2C 4F**". This will allow the operator to select a temperature setting of ± 4°F. A
4. Press the **MENU** button to confirm this setting. The current temperature is displayed.

Setting Fan Speed

1. Press the ◄ or ► button to scroll to "**SET FAN SPEED**" then press the **MENU** button. Choose "**SPEED LOW-HIGH**" or "**SPEED HIGH**" (only high speed).
2. Press the **MENU** button to confirm this setting or press the **ESC/RESET** button to cancel and retain the current fan setting.
3. Press the **MENU** button to exit.

Comfort Monitor is now configured. When the APU is turned on, the operator can access the Comfort Monitor features by the following steps:

1. Press the **MENU** button.

2. Press the ◄ or ► button until "**COMFORT MONITOR**" is displayed, then press the **MENU** button.
3. Press the ◄ or ► button to display "**SET TEMP**" and press the **MENU** button. A password will not be required. Using the ◄ or ► button, select the desired temperature within the allowable range.
4. The operator can use the **FAN** button to control fan speed if "**SPEED LOW-HIGH**" was chosen, otherwise the fan will always be on high speed.

TIMER

The Timer function can be set up so that the APU and CCU run automatically for a set time and day (s) for the week. Two timers are available.

For example, Timer 1 may be set to run every day at 6 p.m. for five hours and Timer 2 may be set to run every Monday at 6 a.m. for four hours.

Timer Setup

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**TIMER 1**" or "**TIMER 2**" is displayed, then press the **MENU** button.

   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, this function cannot be set up (see **DCP Configuration**).
3. Press the ◄ or ► button to display "**ON**" or "**OFF**".
4. Press the **MENU** button to confirm this setting.

NOTE

The timer setting remains until changed. Turning the APU off or manually starting the APU does not cancel the timer function.

Setting Start Time/Day

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**TIMER 1**" or "**TIMER 2**" is displayed, then press the **MENU** button.

   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, this function cannot be set up (see **DCP Configuration**).
3. Press the ◄ or ► button to display "**SET START**".
4. Press the **MENU** button to confirm this setting. The current start time is displayed.
5. Press the ◄ or ► button to set the hours, minutes and day.
6. Press the **MENU** button to confirm this setting.

Setting Duration

NOTE

Factory Default Duration Setting is 1 hour. Range is 0.5 hrs - 10 hrs (in 0.5 hr increments).

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**TIMER 1**" or "**TIMER 2**" is displayed, then press the **MENU** button.

   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, this function cannot be set up (see **DCP Configuration**).
3. Press the ◄ or ► button to display "**SET DURATION**".
4. Press the **MENU** button to confirm this setting. The current duration time is displayed.
5. Press the ◄ or ► button to scroll to the length of time to run the APU.
6. Press the **MENU** button to confirm this setting or press the **ESC/RESET** button to cancel and retain the current duration.
7. Press the **MENU** button to exit.

Setting Cab Temperature for the Timer

NOTE

Factory Default Temperature Setting is 70°F / 21°C. Temperature range for the timer is 64° to 86°F (18°C to 30°C).

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**TIMER 1**" or "**TIMER 2**" is displayed, then press the **MENU** button.

   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, then you cannot set up this function. See **DCP Configuration**.
3. Press the ◄ or ► button to display "**SET TEMP**".
4. Press the **MENU** button to confirm the setting. Current temperature is displayed.
5. Press the ◄ or ► button to scroll to the desired temperature.
6. Press the **MENU** button to confirm this setting or press the **ESC/RESET** button to cancel and retain the current temperature.
7. Press the **MENU** button to exit.

TEMP START

NOTE

This feature is not intended to maintain a comfortable truck bunk temperature; instead, see **Comfort Monitor Operation**.

Turning Temp Start On / Off

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**TEMP START**" is displayed, then press the **MENU** button.

   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, the function cannot be set up (see **DCP Configuration**).
3. Press the ◄ or ► button to display "**ON**" or "**OFF**".
4. Press the **MENU** button to confirm this setting. The current setting remains until you change it; turning off the APU or manually starting the APU does not permanently cancel this setting.

Setting Start Temperature

NOTE

Factory Default Temperature Setting 14°F (-10°C). Temp start range is -4° - 41°F (-20° - 5°C).

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**TEMP START**" is displayed, then press the **MENU** button.

   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, then you cannot set up this function. See **DCP Configuration**.
3. Press the ◄ or ► button to display "**SET TEMP**".
4. Press the **MENU** button to confirm this setting. The current start temperature is displayed.
5. Press the ◄ or ► button to scroll to the desired temperature.
6. Press the **MENU** button to confirm this setting or press the **ESC/RESET** button to cancel and retain the current start temperature.
7. Press the **MENU** button to exit.

Setting Duration

NOTICE

Factory default duration setting is two hours. Range is one hour to four hours.

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**TEMP START**" is displayed, then press the **MENU** button.

   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, this function cannot be set up (see **DCP Configuration**).
3. Press the ◄ or ► button to display "**SET DURATION**".
4. Press the **MENU** button to confirm this setting. The current duration is displayed in hours.
5. Press the ◄ or ► button to scroll to the amount of time you want the APU to run before automatically shutting off.
6. Press the **MENU** button to confirm this setting or press the **ESC/RESET** button to cancel and retain the current setting.
7. Press the **MENU** button to exit.

MAXIMUM RUN TIME

The maximum time that the APU is allowed to run can be set. If the APU runs the specified time, it will shut off automatically. If the APU is manually restarted, the maximum run time clock is reset.

Turning Maximum Run Time On or Off

NOTICE

Factory default run time setting is eight hours. Range is 2 to 24 hours.

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**MAXIMUM RUN TIME**" is displayed, then press **MENU**.
   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, then you cannot set up this function. See **DCP Configuration**.
3. Press the ◄ or ► button to display "**ON**" or "**OFF**". Press the **MENU** button to confirm this setting.

Setting Desired Run Time

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**MAXIMUM RUN TIME**" is displayed, then press **MENU**.

   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, this function cannot be set up (see **DCP Configuration**).
3. Press the ◄ or ► button to display "**SET**".
4. Press the **MENU** button to confirm this setting. The current duration is displayed.
5. Press the ◄ or ► button to scroll to the desired number of hours.
6. Press the **MENU** button to confirm this setting or press the **ESC/RESET** button to cancel and retain the current duration. Press the **MENU** button to exit.

Battery Monitoring

The battery monitor feature allows the APU to automatically run when the truck batteries are low. If the main engine is running and the battery voltage is below the set voltage, the APU will automatically start regardless if the main engine interlock is enabled. This feature allows the truck to “limp home” if the main engine alternator malfunctions. The APU will run for 90 minutes when battery monitor is active.

The calibration voltage (truck battery voltage) must be set for proper function of the battery monitor feature. (see **Set Calibration Voltage** below).

Set Calibration Voltage

1. Press the **MENU** button.
2. Press the ◄ or ► button until “**CALIBRATE VOLTAGE**” is displayed, then press the **MENU** button.

   If “**ENTER PASSWORD**” is displayed, enter your password. If you do not know the password, this function cannot be set up (see **DCP Configuration**).
3. Press the ◄ or ► button to set the current voltage of the truck batteries.
4. Press the **MENU** button to confirm this setting.

Turning Battery Monitoring On and Off

1. Press the **MENU** button.
2. Press the ◄ or ► button until “**BATTERY MONITOR**” is displayed, then press the **MENU** button.

   If “**ENTER PASSWORD**” is displayed, enter your password. If you do not know the password, this function cannot be set up (see **DCP Configuration**).
3. Press the ◄ or ► button to display “**ON**” or “**OFF**”.
4. Press the **MENU** button to confirm this setting.

   The current setting remains it is changed. Turning off the APU or manually starting the APU does not permanently cancel this setting.

NOTICE

Factory default voltage setting is 11.8V. Range is 11.0V to 13.5V.

NOTICE

APU will not start until battery voltage has been below the specified level for 10 minutes.

Setting Voltage Level

The APU starts if the truck battery voltage drops below this setting.

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**BATTERY MONITOR**" is displayed, then press **MENU**.

   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, this function cannot be set up (see **DCP Configuration**).
3. Press the ◄ or ► button to display "**SET**".
4. Press the **MENU** button to confirm this setting. The current voltage level is displayed and flashes.
5. Press the ◄ or ► button to scroll to the desired voltage.
6. Press the **MENU** button to confirm this setting or press the **ESC/RESET** button to cancel and retain the current voltage.
7. Press the **MENU** button to exit.

Heater Disable Feature

A heater disable feature is available for fleets that desire to disable the electric heat. Note that the only case where the Heater Disable feature is overridden in “TEMP START” mode.

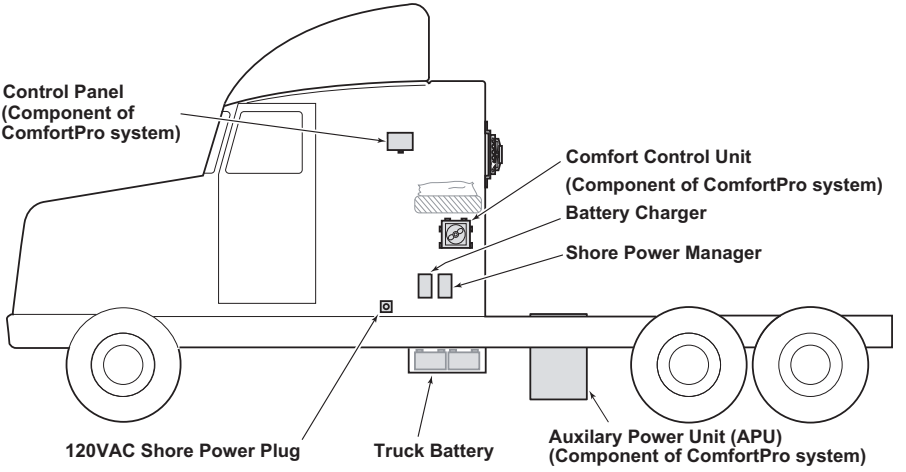
1. Press the **MENU** button.
2. Press the ◄ or ► button until “**SYSTEM CONFIG**” is displayed, then press the **MENU** button.

If “**ENTER PASSWORD**” is displayed, enter your password. If you do not know the password, this function cannot be set up (see **DCP Configuration**).

3. Press the ◄ or ► button until “**CONFIGURE**” is displayed, then press the **MENU** button.
4. Press the ◄ or ► button until “**SYSTEM SET DEVICES**” is displayed, then press the **MENU** button.
5. Press the ◄ or ► button until “**HEATER**” is displayed, then press the **MENU** button.
6. Press the ◄ or ► button until “**DISABLE**” is displayed, then press the **MENU** button.
7. Press the ◄ or ► button until “**ENABLE**” is displayed, then press the **MENU** button to turn the heater back on if required.

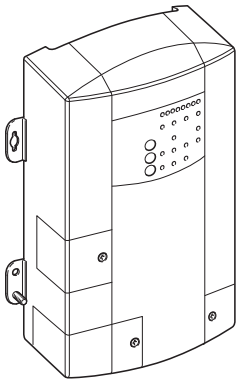
SHORE POWER

When operating in Shore Power mode, the 120VAC power source is automatically switched between the APU and shore power connection. The default power source is the APU. The APU engine does not run in shore power



The Shore Power option consists of the following:

- Shore Power Manager: Controls incoming power source from the APU or shore power.
- Battery Charger: Maintains DC power drawn by the CCU from the main truck batteries.
- Shore Power Receptacle (120 VAC/15A): Allows connection to shore power.



Battery Charger

120 VAC Plug Receptacle

Shore Power Manager (SPM)

Switching from Shore Power to APU

1. Turn off the HVAC system. Press the HVAC OFF button on the DCP.
2. Disconnect the Shore Power extension cord from the 120 VAC Shore Power receptacle.
3. Start the APU from the DCP.
4. The SPM will automatically switch to APU power.

Switching from APU to Shore Power

1. Turn off the APU at the control panel.
2. Connect to shore power cable to the 120 VAC shore power receptacle.
3. The SPM will automatically switch to Shore Power.

4. The HVAC system and outlet power can now be used.

NOTE

High Heat and Comfort Monitor are not available in Shore Power.

NOTICE

Use 12 AWG shore power extension cord for distances of 0 to 50 feet and 10 AWG fro 50 to 100 feet.

STAND-ALONE APU BLOCK HEATER (OPTIONAL - 210STA ONLY)

A 210STA model may be equipped with a connector that supplies power for an engine block heater. The purpose of this feature is to provide power for the engine block heater to heat the truck engine during cold weather operation. The APU block heater is typically located on the driver's side of the truck, near the block heater receptacle. Stow the block heater connector when not in use to minimize exposure to weather and physical damage.

Additionally, the APU block heater features an Arc Fault Circuit Interrupter/ Ground Fault Circuit Interrupter (AFCI/ GFCI), which provides protection to the block heater circuit against the unwanted effects of arc and ground faults. In the event of an arc or ground fault, the AFCI/ GFCI will trip and quickly stop the flow of electricity to mitigate arcing effects as well as to provide protection against serious injury.

Status Indicator	**AFCI/GFCI Device Operation**
Solid Green	AFCI/GFCI has power from the APU, is reset and working correctly
Solid Red or Flashing Red	A problem may exist. Press the TEST button to trip the AFCI/GFCI. If unable to reset, contact a Carrier Transicold dealer.
Indicator Off	AFCI/GFCI has tripped either from a ground fault or pressing the TEST button.
Two Red Flashes Every Five Seconds	AFCI/GFCI tripped as a result of detecting a potential arcing fault.
Press the RESET button to reset the AFCI/GFCI. If the device trips and continues to indicate an arcing fault, contact a Carrier Transicold dealer. Operation of the AFCI/GFCI device should be tested monthly. To test, press the TEST button. The device should trip and the indicator light turn off. Press the RESET button to reset the device.	

DPF System (Optional)

ClearSky DPF Overview

The Diesel Particulate Filter (DPF) is a system that removes most of the soot and ash particles from the APU engine exhaust. This results in cleaner air exiting the exhaust pipe. The DPF replaces the APU muffler and reduces exhaust noise from the engine.

APU Engine Oil

When the APU is equipped with a ClearSky DPF, the APU engine oil must be CJ-4 or higher compliant low ash oil ONLY.

Determining if your Unit is Equipped with DPF from DCP:

1. Press the **MENU** button and use the ◄ or ► button to scroll to "**SYSTEM CONFIG**".
2. Press the **MENU** button and use the ◄ or ► button to scroll to "**CHECK**"
3. Press the **MENU** button again to display "**PRESENT DEVICES**".

This will display APU, CCU, and DPF if each device is present. If DPF is not displayed, the unit is not equipped with a DPF.

DPF Service

The DCP may display a warning to service the DPF. If this occurs take the unit to an authorized dealer for service. Refer to the ClearSky operator manual (62-12047) for further information.

MAINTENANCE SCHEDULE

⚠ WARNING

Danger from moving parts. In order to perform these maintenance checks, you will have to open the access covers to the APU. Before doing so, shut off the APU and disconnect it from the truck batteries. Never observe the inside of the APU enclosure or insert your fingers or a tool into the enclosure when the APU is running.

⚠ WARNING

Do not open the CCU enclosure. There are no operator-serviceable parts inside.

⚠ CAUTION

If you are not qualified to perform the specified check or the required maintenance task, consult your dealer about servicing.

NOTICE

Once a year contact a Carrier Transicold dealer to arrange for a tune-up of the CCU. This tune-up prepares the CCU for the air conditioning season and should therefore be performed in the spring.

For the most reliable operation and maximum life, the APU requires regular maintenance. This includes, but is not limited to, oil and filter changes, fuel and air cleaner replacement, and inspection. Maintenance is to be performed in accordance with Table 1.1

Pre-trip inspections should be performed before every trip. Pre-trip inspection procedure can be found in table 1.2

Table 1–1 Maintenance Schedule

Interval between checks (in hours of operation)	Every 1000 Hours	Every 2000 Hours	Every Year	Every Two Years
Check coolant level on truck engine	X	X		
Check APU coolant hoses and clamps	X	X		
Check fuel hoses, fuel pipes and clamps	X	X		
Check the tension of the alternator/water pump belts	X	X		
Torque APU mounting bolts and nuts to 100 ft-lbs (135Nm)	X	X		
Check wire connectors	X	X		
Check air filter. Clean/replace as necessary	X	X		
Clean inside of APU enclosure	X	X		
Clean radiator fins	X	X		
Clean condenser fins	X	X		
Check CCU air filter. Clean/replace as necessary.	X	X		
Check fuel hoses and clamps/replace as necessary	X	X		
Inspect block heater connector. Apply dielectric grease to connector.				
Change oil and filter		X		
Change fuel filters		X		
Check injection nozzle opening pressure		X		
Check injection pump timing		X		
Check water pump performance		X		
Check alternator performance		X		
Check air conditioning performance		X		
Check heater performance		X		
Check generator voltage		X		
Check coolant hoses and clamps from APU to main engine		X		
Check engine thermostat		X		
Check air intake hose and clamps on APU		X		
Check fuel hoses and clamps/replace as necessary		X		
Change alternator belt		X		
Adjust engine valve lash		X		
Change coolant (21STA only)				X

PRETRIP INSPECTION

The Pretrip Inspection should be performed before operating the unit. This inspection is essential to ensure reliable operation of this unit. These checks take only a few minutes.

⚠ WARNING

Once automatic functions are set, the system could start at any time. Before servicing the unit, disconnect the unit from the batteries to prevent injury should the unit attempt to start while servicing. All presets will remain once battery cable is reconnected.

Table 1–2 Pretrip Inspection

Before Starting Engine
Drain water from bottom of fuel tank
Check truck coolant level (Integrated) or surge tank level (Stand-Alone)
Check air cleaner indicator (if equipped)
Check engine oil level
Visually check condition of belts
Check battery cables for rubbing or chafing
Check truck battery terminals for cleanliness
Inspect block heater connector (if equipped).
Stow connector if not in use and start APU.
Immediately After Starting Engine
Visually check fuel lines and filters for leaks
Visually check oil lines and filters for leaks
Visually check coolant hoses for leaks
Visually check exhaust system for leaks
After Starting Engine Running
Check DCP for correct display of all icons and words
Check operation in cool mode (ambient above 65°F)
Check operation in heat mode (ambient below 85°F)

HVAC General Inspections

Recommended Service Actions

1. Check the evaporator for:
   - Intake filter cleanliness; clean if required
   - Damaged and/or contaminated fins that may restrict air flow
2. Check air ducting and outlets for damage and/or restrictions.
3. Check electrical harnesses for tight connections and harness abrasions.
4. Check the refrigerant lines and connections for abrasion and wear points
5. Check the condenser for damage, leakage and/or contaminated fins that may restrict air flow.

CCU Tune-up

See your local Carrier Transicold dealer for details.

⚠ CAUTION

If you are not qualified to perform the work required for the suggested solution, please consult your dealer about servicing.

⚠ WARNING

Danger from moving parts: In order to perform some troubleshooting tips, the access covers will need to be removed. Before doing so, the APU must be shut-down and disconnected from the truck batteries. Never observe the inside of the APU enclosure or insert fingers or tools into the enclosure when the APU is running.

⚠ WARNING

Do not open the CCU enclosure. There are no operator-serviceable parts inside.

View Fault Codes

1. Press the **MENU** button.
2. Press the ◄ or ► button until "**FAULTS**" is displayed, then press the **MENU** button.
3. Press the ◄ or ► button until "**VIEW**" is displayed, then press the **MENU** button.

   If "**ENTER PASSWORD**" is displayed, enter your password. If you do not know the password, this function cannot be set up (see **DCP Configuration**).
4. The ◄ or ► button on the DCP can then be used to move through the fault list. If the fault codes do not return for 30 days, they will self-clear.

TROUBLESHOOTING FAULT CODES

Fault Messages - see **View Fault Codes**

Check APU Engine

Possible Cause	Solution
Open the access cover on the APU (not the enclosure covers) and read the LED on the APU controller located at the back of the enclosure (a flashlight is required). There are three LEDs (lights) towards the bottom of the controller. A red LED indicates a possible problem. The LEDs are: • Oil: there may be a problem with the oil pressure. • Temp: there may be a problem with the coolant temperature. • Alt F/B (Alternator feedback): there may be a problem with the alternator.	• If the **Oil LED** is red, check the oil level in the APU. • If the **Temp LED** is red, check the coolant level. • If the **Alt FB LED** is red, check that the alternator belt is loose or broken. Contact a Carrier Transicold dealer if belt is broken.

Crank Limit

Possible Cause	Solution
The truck fuel tank is empty.	Check the fuel level. If this is not the problem consult a Carrier Transicold dealer.

HVAC Breaker

Possible Cause	Solution
The HVAC breaker has tripped.	Wait for the display to change to **RESET**. Then press **ESC/RESET**. If the breaker does not automatically reset or if the problem recurs, contact a Carrier Transicold dealer.

HVAC Breaker – Press Reset

Possible Cause	Solution
The HVAC breaker tripped and has already reset itself.	Press **ESC/RESET**. If the problem recurs, contact a Carrier Transicold dealer.

Main Engine Interlock

Possible Cause	Solution
The main engine interlock option is enabled (see **ComfortPro Options**) and the operator has tried to start the APU and either: • The truck engine is running. You cannot turn on the APU when the truck engine is running. • The truck engine is not running, but the APU thinks it is running.	Turn off the truck engine. If Main Engine Interlock message persists with truck engine off, contact Carrier Transicold dealer.

Possible Cause	Solution
If operating in HIGH HEAT, the OFF icon always appears. This is normal operation. Outlet power is not supplied in high heat.	Adjust to low heat setting to enable power outlet.
If not operating in high heat, the generator breaker may have tripped.	Solution: Reset the generator breaker. The outlet icon should change to  Reduce the number of devices plugged into the outlet at one time.
For DPF equipped units, the APU may be performing a regeneration. Outlet power is disabled during regeneration.	Solution: Wait for the REGENERATING message to clear from the DCP. This may take up to 30 minutes. After regeneration is complete outlet power will be restored.

Possible Cause	Solution
The power outlet breaker has tripped.	• Wait for the display to change to RESET. Then press **ESC/RESET**. • Reduce the number of devices connected to the power outlet. • If you were only using one appliance when the breaker tripped, there may be an electrical problem. Stop operating the system until you can have the problem checked by a Carrier Transicold dealer. • If the breaker trips again, stop operating the high heat setting. Contact a Carrier Transicold dealer.
The high heat breaker has tripped.	• Wait for the display to change to RESET. Then press **ESC/RESET**. • If the breaker trips again, stop operating the heat at the high setting contact a Carrier Transicold dealer.

TROUBLESHOOTING SYMPTOMS

APU engine will not start

Possible Cause	Solution
The truck is connected to shore power. The APU cannot start when shore power is connected.	• Continue to use shore power. • Disconnect from shore power • Contact a Carrier Transicold dealer

APU shuts down on its own

Possible Cause	Solution
The APU may have been running in automatic mode, and has reached the shut-off point.	• Change automatic mode settings • Manually restart APU

APU engine cranks but will not start

Possible Cause	Solution
• No fuel.	• Check fuel in tank.
• Fuel filter plugged.	• Change filter.
• Air in fuel system	• Check fuel lines for cracks or leaks.
• Plugged air filter	• Change filter.
• Fuel solenoid	• Contact a Carrier Transicold dealer.
• Glow plugs	• Contact a Carrier Transicold dealer.

APU Timer function is starting the APU later (or earlier) than programmed time.

Possible Cause	Solution
DCP time and date not set correctly for current time zone.	Adjust time and date

APU engine runs but then stops. Message on DCP 'Check APU Engine'

Possible Cause	Solution
• Low oil • Coolant temperature • Alternator feedback	• Check oil level. • Check coolant level. • Check coolant hoses for restriction. • Check shut off valves. • Check fan belt. • Contact a Carrier Transicold dealer.

Blue exhaust smoke from APU engine

Possible Cause	Solution
Engine oil overfilled	Reduce oil level (see specifications)

White exhaust smoke from APU engine

Possible Cause	Solution
• Coolant in combustion chamber • Incorrect timing	Contact a Carrier Transicold dealer.

Black or dark gray smoke from APU engine

Possible Cause	Solution
Air cleaner clogged	Change air cleaner.

No 120VAC at power outlet in truck bunk

Possible Cause	Solution
35 amp breaker tripped	Reset the breaker at the generator in the APU enclosure. If the problem recurs, contact a Carrier Transicold dealer.
Generator belt loose	Replace per the Operations and Service manual.

No 120VAC at truck engine oil/block heater connector

Possible Cause	Solution
Power outlet AFCI/GFCI tripped	Reset power outlet AFCI/GFCI (see AFCI/GFGI outlet). If outlet cannot be reset, contact a Carrier Transicold Dealer.
AFCI/GFCI outlet tripped	Reset AFCI/GFCI outlet (see AFCI/GFGI outlet). If outlet cannot be reset, contact a Carrier Transicold Dealer.
15 amp breaker tripped	Reset the breaker at the generator in the APU enclosure. If the problem reoccurs, contact a Carrier Transicold dealer.
Generator belt loose	Replace per the Operations and Service manual.

DCP blank

Possible Cause	Solution
20 amp fuse blown	• Replace the 20 amp fuse next to the APU control unit. • If the problem reoccurs, contact a Carrier Transicold dealer.

SPECIFICATIONS

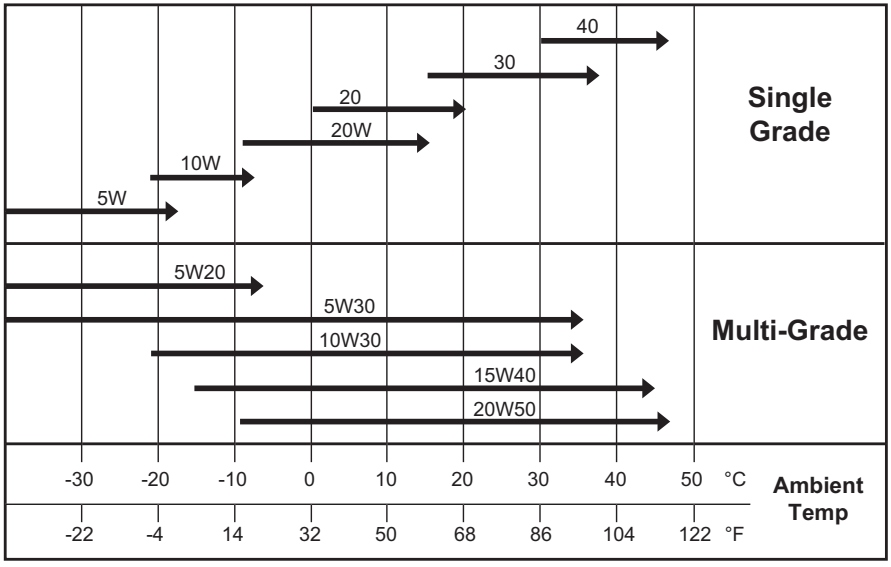
APU Specifications:

Engine	8.9 hp Kubota, 2 cylinder, 479cc (model Z482)
Engine Oil	3.5 US quarts (3.3L). Any API Service CK-4, CI-4, or CJ-4 oil, and any SAE Viscosity (or weight) of oil can be used. CK-4 oil must be used for the 2000 hour oil change interval. Consult the table on the following page to select the optimal engine oil grade.
Engine Coolant	Stand-Alone APU only - 5.8 US quarts (5.5L). Use 50/50 mix of extended life ethylene glycol and clean soft water.
Alternator	60 Amps @ 14.2 Volts DC
Generator	6000 Watts rated, 60Hz @ 120 VAC
Dimensions (h/w/l)	(h/w/l) - 28.5" x 25" x 18.5"

CCU Specifications:

Air Conditioner	12000 BTU/hr hermetic compressor
System Capacity	50–55 oz of R-134A
System Oil Capacity	14 oz of PVE (polyvinylether)
Low Heat	5,000 BTU/hr (1,500 watts)
High Heat	10,000 BTU/hr (3,000 watts)
Dimensions (h/w/l)	12.5" x 15" x 24"
Operating Range	Heat: 85°F and lower. A/C: 65°F and higher

Engine Oil Selection Chart:



WARNING: Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information, go to www.P65warnings.ca.gov/diesel

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