



# Installation and Operator's Manual





## **Table of Contents:**

Trademarks and Exclusion for Documentation.....	5
Revision, Manual, and Contact Information.....	6
Introduction.....	7
Warranty and Registration.....	8
Manual Overview.....	12
Safety.....	13
10-Step Installation.....	17
Required Tools Checklist.....	18
Step 1: Mounting the APU.....	19
Step 2: Evaporator System and Duct Hoses.....	20
Step 3: A/C Line Installation.....	22
Step 4: A/C System Vacuum and Charge.....	23
Step 5: Fuel Draw Tube Installation.....	24
Step 6: Connecting Battery Cables.....	26
Step 7: Water Connections.....	27
Step 8: Controller And Ductwork Installation.....	30
Step 9: System Prime and Safety Check.....	33
Step 10: Initial Start.....	34
System Components.....	35

<b>APU Commander.....</b>	<b>38</b>
<b>Troubleshooting with the Controller.....</b>	<b>46</b>
<b>Maintenance.....</b>	<b>48</b>
<b>Maintenance Schedule.....</b>	<b>49</b>
<b>Fuse Box Location.....</b>	<b>51</b>
<b>Owner’s Responsibility.....</b>	<b>52</b>
<b>Specifications.....</b>	<b>54</b>
<b>Warning Against Stop Leak and Dye.....</b>	<b>55</b>
<b>Warranty Registration Card.....</b>	<b>56</b>
<b>Installation, Service, and Operator’s Manual Form.....</b>	<b>57</b>
<b>Other Provisions.....</b>	<b>58</b>
<b>Warranty Coverage Table.....</b>	<b>59</b>
<b>Perkins Engine Coverage.....</b>	<b>59</b>
<b>HP2000 APU Scale.....</b>	<b>60</b>
<b>2-Cyl. Perkins Cross References.....</b>	<b>61</b>
<b>A/C Components Diagram.....</b>	<b>62</b>
<b>Maintenance Components Diagram.....</b>	<b>63</b>
<b>Component Notes.....</b>	<b>64</b>
<b>Contact Information.....</b>	<b>65</b>
<b>Thank You.....</b>	<b>66</b>

## **Trademarks**

HP2000™ HP2000 Xtreme™

## **Exclusion for Documentation**

Unless specifically agreed to in writing, EcoFleet LLC

- (A) Makes no warranty as to the accuracy, sufficiency or suitability of any technical or other information provided in its manuals or other documentation.***
- (B) Assumes no responsibility or liability for injury, losses, damages, costs or expenses, whether special, direct, indirect, consequential or incidental, which might arise out of the use of such information. The use of any such information will be entirely at the user's risk.***

### **Revision information**

*Rev G, September, 2023*

### **Manual Product Number**

*PCM002-01*

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## INTRODUCTION

### **Congratulations on your purchase of your new HP2000 / HP2000 Xtreme Series Auxiliary Power Unit!**

Here are some simple, but very important, tips on how to get the most out of your unit:

- 1) It should be standard practice to idle your truck for 10-15 minutes after you park for the day/night to allow the drivetrain components to cool off naturally prior to starting the APU. This assists the APU because it is easier to maintain a cool cab rather than starting from the ambient temperature. Once you have idled for a few minutes, start the APU.
- 2) Put reflective coverings on your windows when you are parked. This will help cool your cab down 30-Degrees or more!
- 3) Keep all doors and windows closed as much as possible. We can't cool down mother nature!
- 4) Keep your unit clean, especially the condenser and evaporator. This is what dissipates the heat in any A/C system.
- 5) Keep both the Supply and Return Vents clear of any obstructions. Air Flow is very important to allow the cold air in and push the hot air out.

By following the steps above you can not only enhance the performance of your APU, but also extend its life and the savings that it will provide you. We truly believe that the HP2000 APU is the best, most efficient unit on the market and we know that you will too! Congratulations and Welcome to HP2000 APU Family!

## WARRANTY AND REGISTRATION

**A/C COMPONENT WARRANTY:** Each HP2000 APU purchased comes with a 2 Year / 2,000 Hours limited express warranty from EcoFleet LLC, unless otherwise specified on the purchase invoice.

**PERKINS ENGINE WARRANTY:** Perkins gives you a 2 Year / 2,000 Hour limited express warranty on the engine unless otherwise specified on the purchase invoice. Extended warranties are available and can be acquired by contacting the EcoFleet LLC office at (618) 997-9608. To find the nearest Authorized Warranty Repair Center for your engine, please visit the Perkins website at [www.perkins.com](http://www.perkins.com) and follow the provided instructions.

**STARTERS AND ALTERNATORS:** Starters and Alternators possess a One Year or 1,000 Hour Warranty. Even though EcoFleet LLC offers parts and items for sale, they can't be used for **PERKINS** warranty purposes and will not be reimbursed by EcoFleet LLC. The components that we offer are for out of warranty replacement only and are strictly customer pay.



**A/C Component Warranty:** EcoFleet LLC provides a warranty for manufacture defects for 2 years or 2,000 hours, (whichever comes first) on the following components: A/C Compressor, Condenser Fan Assembly, Orifice Tube, Condenser Core, Evaporator Core, Evaporator Blower, and Faulty Hoses and Tubes due to a manufacturing defect, as well as all of the Diagnostic and Vac & Charge Labor utilized to repair such faulty components as specified in the SRT Guide. Additionally, Alternators and Starters carry a One Year or 1,000 Hour Warranty, while Electronic Components carry a 90-Day Warranty. Warranty does **not** cover items such as oil, shop supplies, and miscellaneous materials, etc. Refrigerants are only covered if a covered component fails and the refrigerant is lost, at which point they are reimbursed as outlined in the SRT Guide. EcoFleet LLC does not pay miscellaneous supplies and /or Hazardous Material Charges. Freon, however, is covered at \$0.81 per ounce (a complete fill is 18.4 to 19.2 ounces or 1.15 to 1.20 lbs) only if the leak was caused by manufacturing defect, not by normal wear and tear. Make yourself aware of the maintenance and customer responsibility portion of the manual, as lack of maintenance and/or neglect are not covered under the warranty. This is the only warranty on this product, and EcoFleet LLC hereby expressly excludes all other warranties, express or implied, including but not limited to the implied warranty of merchantability and/or the implied warranty of fitness for a particular purpose. EcoFleet LLC expressly excludes any claims for incidental and/or consequential damages.

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### **IN ORDER FOR YOUR WARRANTY TO APPLY:**

1. You must complete, sign, and submit the attached Limited Express Warranty Registration Form on page 58, as well as the Installation, Service and Operator's Manual Form on page 59.
2. Your warranty starts on the date of installation.
3. You must promptly notify EcoFleet LLC of all Warranty Claims.
4. You must perform the Scheduled Maintenance on your APU and the Perkins Engine as listed in this Manual.
5. You must bring the APU to EcoFleet LLC or to one of their Authorized Service Centers for Warranty Work.
6. EcoFleet LLC will not pay for down-time or any consequential damages.
7. APU(s) must be Installed by an Authorized and Trained Installer.
8. Warranty is non-transferrable.

**IMPORTANT!** Without the completion and submission of both the Limited Express Warranty Registration Form and the Installation, Service and Operator's Manual Form, your HP2000 is not covered under warranty. It is important that you register your APU within fifteen (15) days of having your unit purchased and installed, and have a copy of your registration card with the unit.

## MANUAL OVERVIEW

This manual covers the topics of installation, operation, general maintenance and troubleshooting for the HP2000 and the HP2000 APU by EcoFleet LLC. The patented design of the HP2000's unique features set it apart from any other unit currently available on the market today. It provides solutions to many of the problems faced by the transportation industry on a daily basis, yet reduces the overall costs.



## SAFETY



**THIS SYMBOL IS USED TO CALL YOUR ATTENTION TO SAFETY PRECAUTIONS THAT SHOULD BE FOLLOWED BY THE OPERATOR AND MAINTENANCE PERSONNEL TO AVOID CARELESS ACCIDENTS. WHEN YOU SEE THIS SYMBOL BE SURE TO OBSERVE AND FOLLOW THESE PRECAUTIONS. BE CERTAIN THAT ANYONE OPERATING THIS MACHINE IS AWARE OF THESE SAFETY RULES.**

**NOTE, IMPORTANT, WARNING, and CAUTION** are used in this manual to emphasize important and critical instructions.

Tips and safety warnings are listed throughout this manual. These tips and safety warnings alone cannot eliminate all hazards that can occur. Pay close attention to instructions and use common knowledge during maintenance procedures to prevent unnecessary accidents and injuries.

Follow all safety precautions listed below:

- Read this manual to familiarize yourself with the HP2000 APU. Performing maintenance on unaccustomed machines can cause accidents.
- Wear proper safety equipment as required for the job you are performing with the machine. Such equipment may include: hard hats, safety shoes, ear protectors, reflective clothing, safety goggles, heavy gloves, etc., as well as safe work clothing.
- Do not wear rings, watches, jewelry, or other loose or hanging apparel that can catch on moving parts while servicing the machine.
- The APU should only be operated or serviced by those who are qualified, responsible, and delegated to do so.

Use the following safety procedures to ensure a safe workspace:

- Provide proper ventilation when operating an engine in a closed area to remove exhaust gasses. Breathing exhaust fumes may be fatal.
- Never use starting fluid around lighted smoking materials, sparks, or open flame.
- Do not place any of your body parts near a rotating fan, belt or power-driven part.
- When dealing with a servicing that pertains to the truck's batteries, please remember that electric storage batteries give off highly flammable hydrogen gasses, and you should therefore avoid lighted material, open flames, and/or sparks from being near the battery. Additionally, do not lay tools or other conductive materials on the battery where they may cause short circuits and sparks.
- Use extreme caution when removing the radiator cap. Stop the engine and let it cool off before removing the cap. When removing the cap, loosen it very slowly and avoid pressurized steam that might be in the radiator. Coolant may be added **ONLY** when the engine is idling or stopped.
- Always use safety stands in conjunction with hydraulic jacks or hoists to avoid personal injury.
- Do not run the engine in an unsafe condition. If one is noticed, tag the unit so others will also know it.
- Ensure that there is a **FIRE EXTINGUISHER** nearby that is up to code.
- Know the location of an easy-to-access **FIRST AID KIT** for treatment to minor cuts and scratches.

NOTE:

- Hazards or unsafe practices could result in injury or death.
- Persistent inhalation of exhaust fumes may cause serious injury and/or death. Anyone suspected of suffering from carbon monoxide inhalation should be removed from the hazardous area and given immediate medical attention.
- Exercise extreme caution when working near fuel or flammable substances.
- Moving parts can cause severe injury and/or death. Before working on any unit, shut it off, and make sure that the power supply is disconnected. If the power supply is not disconnected the unit could automatically start up without warning. This could cause serious injury.
- It is not recommended for the APU to provide power to sensitive medical equipment.



## 10-STEP INSTALLATION

### INSTALLATION OVERVIEW:

Before beginning installation of your HP2000, take time to inspect the unit and the desired area of installation. If you believe you are missing a part, please consult the included checklist. Before you begin, perform an inspection of the truck and installation area. Be sure that all batteries are fully charged and in good condition. We recommend that you load test your battery bank prior to installation. Take your time to look over the area where you plan to install the HP2000 and make necessary measurements to ensure proper installation. Make sure that you have at least 23" of free frame rail space for power unit installation. Check to see that there is nothing behind the APU protruding more than one inch. Also, make sure you have the necessary space available under the bunk for the evaporator unit and cable pass through.

Before you get started, un-package your new system and all components. Inspect all components to make sure they were not damaged during shipping. Examine your truck thoroughly, both inside and out, to locate the best place to mount the APU. The diesel engine, A/C components and electrical controls are all contained in the frame-mounted power unit enclosure, which measures 22.8" in height, by 20.5" in width, by 24.4" in depth. It is important to remember that the APU location should not interfere with the driver's access to other vital areas or crowd any wires, air lines or fuel lines that may be nearby. While installation may vary slightly depending upon the make and model of the truck it is installed on, proper installation will always be critical in guaranteeing proper operation of the APU system

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## REQUIRED TOOLS CHECKLIST

**IMPORTANT!** IT IS IMPERATIVE THAT ALL TOOLS ARE AT THE TRUCK SIDE AND NOT IN YOUR TOOL BOX ACROSS THE SHOP. TO KEEP YOUR INSTALL TIME TO 4-5 HOURS, YOU MUST HAVE TOOLS AT THE TRUCK.

½" drive ratchet with 15/16" socket	Tubing cutter	5/16" Nut Driver
15/16" wrench	3" hole saw	3/8" Drive Ratchet
Hose cutter	3 ½" hole saw	Wire Ties
4 hose clamps	Battery cable end crimper	Drill
7/16" wrench	Teflon tape	Shop Vac
9/16" wrench	1 5/8" Hole Saw	Cut-Off Wheel
Crescent wrench	Lift cart or fork truck	R134-A Refrigerant
Channel locks	Torque Wrench	
¼" nut driver	A/C Machine	

**ADDITIONAL TOOLS MAY BE REQUIRED!**

## STEP 1: MOUNTING THE APU

You are now ready to install the APU. Begin by mounting the APU to the frame rail. On most installations, the HP2000 does not require any drilling into the frame rail.

- Using a lift cart or fork truck, position the APU against the frame rail in the desired location. Make sure that the APU is perfectly level with the frame rail. Check the back of the APU to ensure the bolt holes align with the top and bottom of the frame rail.
- Slide the patented low-pro mounting blocks onto the top frame rail, the two blocks will mount to the bottom of the frame.

**MAKE SURE THAT THE MOUNTING BLOCKS DO NOT INTERFERE WITH AIR LINES OR WIRING INSIDE THE FRAME RAIL.**

After confirming that the APU is level, tighten the mounting bolts to 80 ft-lbs in an X pattern. Do not over tighten the bolts past 80 lbs. This can lead to damaging of the APU and its internal components.



## STEP 2: EVAPORATOR SYSTEM AND DUCT HOSES

The evaporator system is designed to be mounted under the bunk in the storage area. The evaporator system measures 18" in length by 8" in height by 10" in depth. For the A/C hoses and power supply cable, you will need a 3-inch hole in the floor directly beneath the hose connection side of the evaporator.

Once the install location has been determined, check underneath the cab to be sure that there are no supports, wires, hoses, cables or beams where the three inch hole must be cut. This hole will serve as a pass through for cables and hoses for the evaporator system.



The steps below represent our STANDARD evaporator installation.

- Place the evaporator in the desired location.
- Draw a mark on the floor indicating where both the drain and 3" holes should be cut.
- Remove the evaporator and drill both a pilot hole and a drain hole.
- Utilizing the pilot hole, use a hole saw to cut the 3" hole.
- Insert the included hose pass-through and secure it using the self-tapping screws.
- Reposition the evaporator so that the drain tube is inserted into its own hole, as to allow the passing of condensation to the outside of your truck.
- Secure the evaporator to the floor using four self-tapping screws.
- Some trucks may not have a return air supply. If this is the case, return air holes will need to be cut to allow air back to the evaporator.

Most trucks allow for the ducting from the evaporator box to be tied into the existing ductwork of the truck, however, it is at the owner's discretion and is not recommended. Note that ideally there will be one duct discharging low in the cab and the other either discharging high to get air circulating in the cab.

**DO NOT DISCHARGE BOTH DUCTS ON THE FLOOR.**

### STEP 3: A/C LINE INSTALLATION

Two A/C lines must be run from the APU to the evaporator in order to supply Freon to the evaporator unit.

- Begin by routing the two 9' A/C lines through the 3" hole near the evaporator unit.
- Make sure both hoses are clean and clear of debris and that all connections contain one O-ring of the appropriate size.
- Connect the ends of each hose to the corresponding fitting on the APU.
- Connect the 5/16" line (supply) to the Evaporator. The Filter Drier goes in the High Pressure (5/16") Line and is Directional. Connect the 13/32" (return) hose to the other fitting.
- Once connected, tighten the fittings. Be sure not to over-tighten fittings as this will damage the O-Rings.
- Cable-tie all hoses and wires to the frame up and out of the way.



**IMPORTANT!** DO NOT OVER-TIGHTEN THE A/C LINES, AS DAMAGE TO O-RINGS MAY OCCUR.

**IMPORTANT!** BE CAREFUL NOT TO BEND THE CHECK VALVE DURING INSTALLATION.

**IMPORTANT!** IT IS SUGGESTED THAT YOU INSTALL THE CONTROL CABLE AT THIS STEP. INSERT THE ROUND, APU PLUG THROUGH THE HOLE AND ALLOW THE REMAINDER OF THE CONTROL CABLE TO BE INSIDE THE TRUCK.

## STEP 4: A/C SYSTEM VACUUM AND CHARGE

Now you are ready to charge the A/C system. Before charging, check to make sure there are no leaks or system contaminations by pulling a vacuum on the system. Observe the system for 10 minutes for any loss of vacuum. We recommend that a minimum of 30-minute vacuum duration be performed to make sure that there are no leaks or moisture in the system.



**IMPORTANT!** IT IS IMPORTANT TO PULL THE VACUUM AT THIS POINT IN THE INSTALLATION AS IT ALLOWS YOU TO CONTINUE WITH THE INSTALL WHILE THE SYSTEM CHECKS FOR LEAKS. THIS IS IMPERATIVE IN KEEPING TO YOUR 4-6 HOUR INSTALL TIME.

- Once the system has passed the leak test, charge the A/C system.
- Charge the system by adding 1.15 to 1.20 lbs of R-134a refrigerant to start, then adjust based on the Ambient Temperature, High Pressure, and Low Pressure. Target Low Side Pressure is 11-12 PSI.
- Set Engine RPMs to 2750 with compressor engaged.
- Do not inject oil into the system on a new install.
- Do not inject dye into system under any circumstances or at any time



## STEP 5: FUEL DRAW TUBE INSTALLATION

The fuel block must now be installed in order to provide fuel supply return and tank venting to the APU. It is important that you **DO NOT** tie into existing truck fuel lines.

- Locate the existing truck's fuel tank vent cap. Remove the cap from the tank.
- Use Teflon thread tape, install and screw in the fuel block assembly.





The fuel draw tube is designed to vent the fuel tank as well as supply and return fuel to the APU.

When looking down on the top of the fuel block and the barbs pointing away from you, the right brass fitting is the return (remember R and R, Right is Return) and the left fitting is the supply.

Once installed, route two fuel hoses from the APU to the fuel draw tube.

Tighten the fuel hoses onto the barbs of the fuel draw tube using the worm gear clamps or oetiker clamp supplied.

Connect the fuel supply and return to the correct barbs on the APU. The top fitting is the return and the bottom fitting is the supply. Reversing the two fuel lines will not allow fuel to reach the APU. Tighten all hose connections using a worm gear clamp or oetiker clamp.



**IMPORTANT!** When installing the fuel block that is located in close proximity to the truck's fuel gauge sensor, be sure that the fuel draw tube is not installed where it will interfere with the fuel gauge sensor.

## STEP 6: CONNECTING BATTERY CABLES



**IMPORTANT:** Before connecting the battery cables, make sure that the APU commander is NOT plugged in. The Commander should be the last thing that is connected before the unit is to be started.

You are now ready to connect the battery cables. Make sure the truck battery posts are clean, as improper connections could cause the APU to fail. Always be careful not to reverse the polarity of the battery cables or touch the positive cable to ground. Doing so will cause detrimental damage to APU, and possibly the truck, and is also a fire hazard.

- Route both positive and negative battery cable to the truck's battery bank. Cable-tie all slack during this process.
- Be extra careful to not let the cables rest on or come in contact with any moving parts. This could cause a shortage in the future.
- Prior to connecting the cables to the batteries to the APU, install the included MRBF fuse onto one of the positive posts on the battery. This will be the APU power supply and truck charge supply. This fuse is necessary to protect against any potential electrical hazards.
- Once the MRBF fuse is installed, connect the positive (red) lead to the top of the post and tighten the lead against the fuse. Place the rubber cap over the connection. Tape if necessary.
- Once inside the battery compartment, connect the ground (black) wire to the negative battery post. Do not connect this to a frame or any other metal for ground.



## STEP 7: WATER CONNECTIONS

The APU is liquid cooled and requires coolant in order to operate at a safe temperature. Before beginning this step, be sure you have the proper size water T for integrating into the existing cooling system. NOTICE: Coolant temperatures can exceed 150°F, so be cautious when working with coolant lines to avoid burns.

- Lift the truck hood; take note of the current truck coolant level. In connecting this APU you will need to add approximately two gallons of coolant to make up for the additional coolant line volume.
- Locate the coolant supply and coolant return lines at the main truck engine. If unsure, check the temperature. The return line will usually be hotter than the supply line.





**IMPORTANT:** When installing the water connectors, be sure and install them on the coolant lines at the engine and NOT the coolant lines running to the bunk heater. Tying into the bunk heater lines can cause an unsafe loop in circulation through the bunk heater core causing the APU to overheat.

- Lay out the supply and return water lines (at the same time), being careful not to cross them.
  - We recommend marking one of the lines on both ends prior to installation to prevent accidental crossing that could cause the APU to overheat.
- Connect the supply water line to the bottom fitting on the APU and tighten it to the water barb using the included  $\frac{3}{4}$ " worm gear hose clamps. Remember which line you selected for supply and which line for return.
- Connect the return water line to the top fitting on the APU and tighten it to the water barb using the included  $\frac{3}{4}$ " worm gear hose clamps.
- Route the hoses to the front of the truck where they will tie into the water connectors. Be sure that the hoses are securely cable tied and out of the way.
- Once the hoses are secured and pulled into the engine compartment of the truck, determine the required length to reach the water connectors.
- Mark and then trim excess hose.



- For one water-Y at a time:
  - Cut the coolant hose between the hose crimpers.
  - Install the water connector with a hose clamp on each side.
  - Tighten the two hose clamps.
  - Install a worm gear hose clamp and connect the APU coolant hose to the clamp.
  - Tighten the worm gear hose clamp.
- Once this has been completed for both Y's, check that the hoses and clamps are tight, and then remove the hose crimpers.



## STEP 8: CONTROLLER AND DUCTWORK INSTALLATION

The APU controller is responsible for all functions of the APU. It is important that the controller is mounted upright, in an area with adequate air flow. Failure to do so will lead to inaccurate temperature readings and poor performance.

**Make sure that the location selected for the controller:**

1. Has a clear path to route the control cable
2. Provides a flat surface for mounting
3. Has decent air-flow
4. Make sure it is not mounted on the same wall as the refrigerator

Secure the APU controller to the flat surface using the short self-tapping screws. Be careful not to drill into any other wires or obstacles.

Once the controller is secured, it is time to route the control cable from the controller to the APU.

- Connect the square end into the controller.
- Using the Adel clamps, secure the cable to the wall.
- Route the cable out of sight, if possible.
- Track the cable back to the evaporator box.
- Push the round APU-end of the controller through the floor collar.
- From the outside of the truck, pull enough slack to reach the APU.
- Cable-tie the control cable up and out of the way, being sure to leave enough length to reach the APU without leaving too much additional slack.
- Connect the power supply to the evaporator as shown in the figure to the right.



Select a location for the air two ducts and louvered vents. It is recommended to position one vent high and one vent low for optimal cooling. Select a location in which the 3" duct hose will be easy to conceal. A flat surface is required for through-mounting the louvered vents. Once two locations have been selected:

1. Use the 3" hole saw to cut the holes where the vents will be located. Do not cut this hole larger than 3"; the vents will not fit correctly.
2. Use a 3 ½" hole saw to cut the holes that the ducting will pass through. Holes must be 3 ½", 3" is not large enough for duct hose to pass through.
3. Connect each of the duct hoses to the evaporator and tighten all the hose connections using the included 3" worm gear clamps.
4. Route the hoses to the vents and tighten all of the hose connections using the included 3" worm gear clamps.



## STEP 9: SYSTEM PRIME AND SAFETY CHECK

You are almost ready to start your engine. It is now time to prepare the unit for the initial startup. Be sure that all tools are clear of the APU and that all connections are tight.

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### CONNECT THE CONTROL CABLE

Check once again to be sure all tools are removed from the APU and that all connections are tight. Now that the system has been primed and all connections have been made, you may connect the APU control cable by twisting it until it locks into place.

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### PRIMING THE WATER PUMP

It is necessary to run the truck engine for a period of at least five minutes in order to prime the APU water pump. Not doing so could cause the APU to overheat, causing serious and permanent damage.



**IMPORTANT!** TO SPEED THE PRIMING PROCESS, YOU MAY REMOVE THE SUPPLY LINE (BOTTOM HOSE) FROM THE APU UNTIL YOU SEE ENGINE COOLANT START TO FLOW FROM IT. IF YOU USE THIS METHOD TO PRIME THE APU, BE SURE THAT THE CONTROL CABLE IS FULLY PLUGGED IN OR THAT THE RED SAFETY CAP IS INSTALLED. THIS IS TO PREVENT ENGINE COOLANT OR OTHER LIQUID FROM ENTERING THE POWER CABLE CONNECTOR. NOT FOLLOWING THIS IMPORTANT STEP CAN CAUSE THE CONTROL CABLE TO SHORT OUT CAUSING SERIOUS DAMAGE TO THE APU.

## STEP 10: INITIAL START

At this point you can use the controller to start your APU. Press “Start” on the controller (press “Mode” on the old controller) and select “Climate Control”. Set your desired temperature. At no more than 30 seconds you will hear the APU attempt to start. The APU may fail to start on the first try due to air in the fuel lines. If this is the case, unplug the controller and bleed any air out of the fuel filter by unscrewing the top screw and allowing air to escape.

Allow the APU to run for 30 minutes to guarantee that the system is working properly. Check thoroughly for any water leaks or cable wear. If any other issues are encountered during the initial startup, check the troubleshooting guide for a solution. If no solution is available, contact your nearest dealer.

**Congratulations, your new HP2000 is now fully installed!**

## SYSTEM COMPONENTS

### POWER UNIT

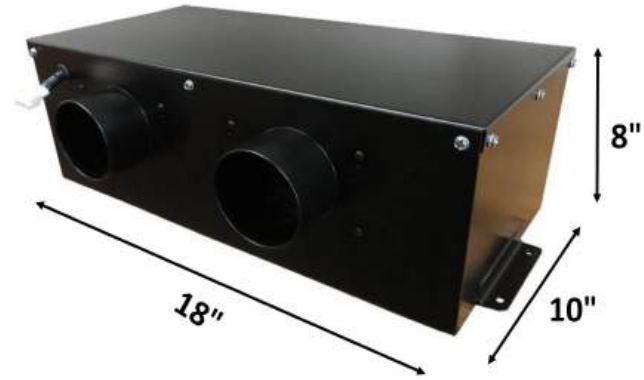
The power unit consists of the 2-Cyl. Perkins Diesel Engine, the A/C Components and the Electrical Controls. This unit is typically mounted on the Frame Rail of the truck or on the Catwalk located directly behind the Cab. A/C lines, water lines, fuel lines, and power supply lines must all be routed to the APU in order to provide its cooling and battery charging capabilities.



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## EVAPORATOR ASSEMBLY

The evaporator is mounted somewhere inside of your cab and provides hot or cold air depending on your needs. Typically, the evaporator is mounted underneath the bunk. A/C lines and a power supply will need to be routed from the evaporator to the APU to supply it's cooling capabilities.



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## APU COMMANDER

The APU Commander is the brain of the APU. It is responsible for triggering the relays which power and control the APU, and contains numerous features such as an Integrated Error Log, on-the-fly Error Code Diagnostics, Calendar Start, Complete System Monitoring, and Auto Climate Control which will allow the APU to cool as necessary without any additional user input. There's no computer required, and in the event of a problem your APU Commander will alert you with an easy-to-read problem report and description, as well as remind you when it needs to be serviced. All errors are saved in an easy-to-access log, giving the APU total transparency and history when taking it to a repair center.

Please see the “Controllers” section for more detail and instruction for each control system.



## APU COMMANDER

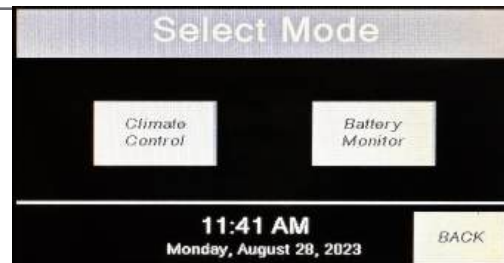
### GETTING STARTED

The APU Commander has two basic functions, Climate Control and Battery Monitor Mode. To access these modes, press “Start” and select the desired mode. More details on each mode as well as other settings can be found in this section.



### STOP, BACK, MORE AND SETTINGS BUTTONS

A button labeled “MORE” and “STOP” will be displayed at all times during APU operation. “SETTINGS” however, will only be displayed when the APU is in the “OFF” mode.

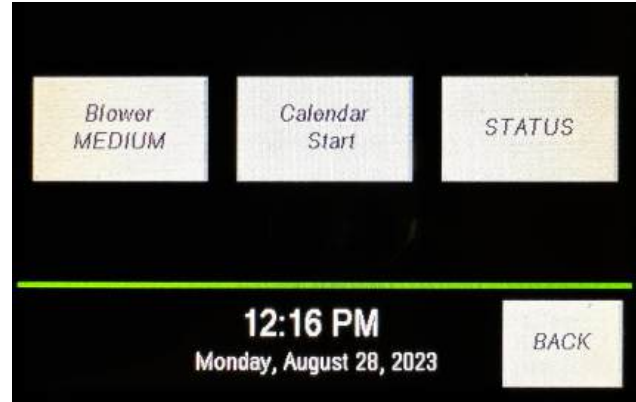


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## MORE BUTTON

Press “MORE” at any time to access Fan Speed, Fan Mode, Calendar Start or APU Status.

- By pressing the blower button, the blower fan settings will rotate through Low, Medium, and High. Select either “Medium” or “High”.
- Pressing “Calendar Start” will enter the calendar start setup screens. See the “Calendar Start” section for complete instructions.
- Press “Status” to display APU status details and access the error log. See the “Status” section for complete instructions.



## CALENDAR START

Calendar start is designed to allow for the APU to start in a specific mode at a set time on any day of the year. This is a useful feature if you plan to store your truck and return to it on a specific day. Using this feature will preheat your engine, charge your batteries and, if you wish, cool your cab in advance.

- Access Calendar Start settings through the “MODE” button.
- By pressing the “ON/OFF” button, you can toggle this feature on and off. Once ON the button will be green.
- Press the “MODE” button to cycle through the mode you wish to resume. Whenever activated, the setting that was last used for this feature is what will be recalled. For example, if you select “Climate Control” as the calendar start mode that you previously set it to hold at 70°F, then the temperature will again be at 70°F.
- To adjust the start time and date, press each value to advance it.

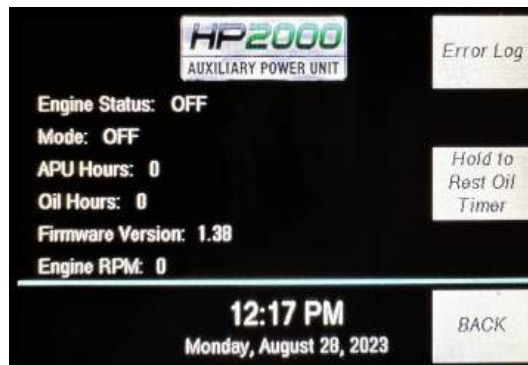


Once the calendar start operation has been performed, the calendar start feature will return to off. This prevents any unintentional starting for the next calendar year.



The status screen displays useful information about the current operating parameters of the APU.

- Access the status screen through the “MORE” button.
- “Engine Status” will display heating, cooling, running, or charging depending on the current function.
- “Mode” displays the function currently in use.
- “APU hours” displays the total engine hours on the APU.
- “Oil Hours” displays the number of hours since the timer has been reset and the oil has been changed.
- “Firmware Version” is displayed here. To update the firmware version see the “Firmware Update” section.



## OIL TIMER RESET

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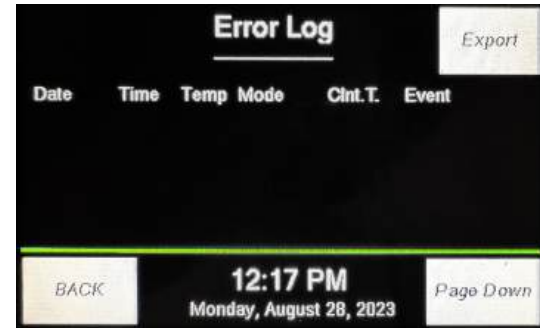
You can access the oil timer reset button through the “Status” screen. To reset the oil timer, hold the “Hold to Reset Oil Timer” button until “APU Oil Hours” goes to 0.

## ERROR LOG

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The error log keeps track of any error events as well as some of the external conditions when the event occurred.

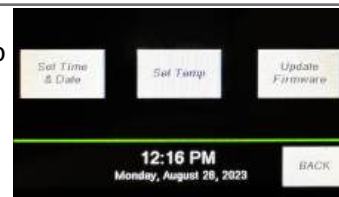
The error log can be exported to a USB drive in order to have a diagnosis performed at a remote location. To do so, insert a USB memory drive into the USB slot on the right side of the controller and select “Export”. The APU will read “Done” in the top right hand corner once this is complete. Press page up and page down to navigate through multiple entries.



## SETTINGS

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The settings button is only available from the OFF mode screen. Use this page to set the time and date, set temperature units and update the firmware.



### SET TIME AND DATE

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To adjust the time and date, depress each value to advance it. Once you have reached the correct time and date, press “Back” to save your settings and return to the previous screen.



### SET TEMP

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To select between Celsius and Fahrenheit, tap the symbol to alternate it.



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## CLIMATE CONTROL

Climate Control mode is designed to provide cooling as needed to maintain a certain set temperature. During climate control the APU is constantly monitoring the battery bank charge. The APU will run continuously to maintain a full battery charge.

- Use the up and down arrows to select the desired temperature.
- Press “Stop” at any time to stop the APU
- Press “More” to access more settings.



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## BATTERY MONITOR

Battery monitor mode is used in situations where battery charging is needed, but A/C or heating is not. Using this mode, the APU will maintain the battery voltage above a set point. If the voltage drops below this point the APU will provide a charge for a period of 30 minutes. At the end of the cycle the APU will begin monitoring again and provide additional charging if necessary.

- To specify the desired battery voltage, use the up and down arrow to raise or lower the voltage set point.

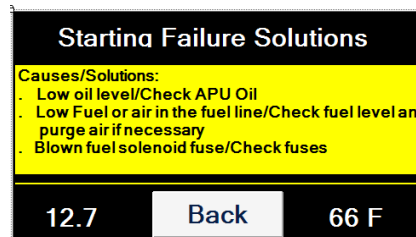
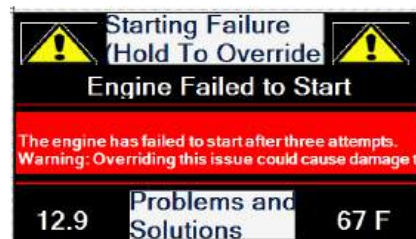


## CONTROLLER ERRORS

The APU Commander has built in error messages that display when a problem is detected within the unit. All these error messages come with a short troubleshooting guide built directly into the controller!

The errors that can be displayed are as follows:

- Low Oil Pressure
- High Engine Temperature
- Low Battery
- AC Low Pressure Failure
- AC High Pressure Failure
- Starting Failure
- Standby
- Engine Stalled
- Low Engine RPM
- No RPM



## TROUBLESHOOTING WITH THE CONTROLLER

The HP2000 APU Commander will specify a problem when something is causing the APU to not turn on. You can pinpoint the problem that is causing the APU from not starting by using the error messages that are displayed. This table will help guide you through the most probable causes and solutions to your unit.

PROBLEM	POSSIBLE CAUSE	SOLUTIONS
Engine turns over but will not start.  Error displays on screen: “Low Oil Pressure”	Fuel Supply clogged Fuel filter dirty Blown Fuse Oil Level Low	Check that the fuel lines are clear and that the filter is not clogged. Check the fuse panel for any blown fuses. Make sure the engine has the proper amount of oil.
APU engine shut down. Error displays on screen: “High Engine Temp”	The engine is overheated	Check the truck’s coolant line. Check for crimps in the coolant line. If coolant is sufficient, remove the coolant cap and allow the truck engine to run for at least ten minutes. This will clear any residual air bubbles from the coolant system.

Error displays on screen: "Charging system failure"	The charging system has failed More power is being used than the APU is generating.	Make sure all battery cables are tight and corrosion free. Make sure all electrical components are securely plugged in. Check the alternator belt and replace it if necessary. Check the fuse panel for any blown fuses Make sure the battery charge set point is not set too low. 12.4V is a good starting point Ensure an inverter or other device is not drawing more than 1000W continuously.
Error displays on screen: "High A/C Pressure Fault"	High head pressure Fan is turning in the wrong direction or not working.	Check condenser and evaporator for air restriction. Make sure the condenser fan is running. If not, check or replace the fuse. If the fan is not functioning, contact a service center near you. Make sure the operating pressures are correct (A/C System Maintenance).
Error displays on screen: "Low A/C Pressure Fault"	Low refrigerant	Make sure the condenser fan is running. If not, check or replace the fuse. Check all hoses and fittings for refrigerant leaks. Make sure the operating pressures are correct (A/C System Maintenance).
Screen has frozen or buttons do not respond	Calibration needed	Calibrate the screen by disconnecting the power, then pressing and holding one finger on the screen while reconnecting the power. Once the calibration screen appears, follow the prompts on the screen.

**\* If you are experiencing issues with your APU Commander, disconnect the power for up to one hour to reboot the system.**

## MAINTENANCE

By following service and warranty procedures, your new HP2000 will provide years of comfort and service. Please pay close attention to the directions for each procedure listed below.

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### WALK-AROUND INSPECTION

A walk around should be performed during your daily pre-trip inspection to ensure maximum service life of your HP2000 APU. You will need to remove the lid and inspect for any leaks, debris in the fan, loose bolts and/or worn belts, and service your APU accordingly as these are not covered under warranty.

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### TYPICAL INSPECTION

After the initial break in period it is important to check all A/C connections. Although the unit is leak tested at the factory, heat and vibration can loosen certain components over time. Most A/C leaks are the result of loosened components. In addition, all fluid levels, coolant and oil should be checked. Electrical connections, cables, hoses and hose clamps should also be checked before operating the APU.

**Failure to provide proper maintenance as set forth in this manual will void any and all warranties.**



## MAINTENANCE SCHEDULE

Interval Between Maintenance	Break-In Period (50 hrs after initial start)	Every 600hrs
Change the oil and the oil filter.	X	X
Check all coolant hoses, A/C fittings, pipes, clamps. Look for unusual wear, loose fittings, loose connections or signs of fuel, coolant or A/C system leaks.	X	X
Check power cable connections at the battery bank, APU starter and alternator. Look for excessive corrosion or loose connections.	X	X
Check the muffler clamps and the frame mounts for tight fit.	X	X
Check/tighten the isolator, compressor and cabinet bolts.		X
Check the alternator and the compressor belt tensions; adjust or replace as necessary.	X	X

Interval Between Maintenance	Break-In Period (50 hrs after initial start)	Every 600hrs
Check the air filter, and clean or replace it as needed.		X
Check and/or Replace the fuel filter	X	X
Using a low-pressure water hose, clean debris from APU cabinet		X
Clean condenser fan blades from both directions. (Use only low-pressure water)		X

\*Extreme conditions may require more frequent filter element change and check intervals, check regularly and replace if necessary. Engine component failure due to lack of maintenance on these items will void warranty.

## FUSE BOX

The fuse box is located on the upper-right back corner of your Perkins powered HP2000 APU. Before attempting to get to the fuse box make sure that the unit is completely powered off. Not doing so can cause harm to both you and the unit.

To release the protective shroud covering the fuses, use your fingers to press the release latches on both sides of the box and slowly pull out. The inside of the fuse box should have a list of all the fuses in order from left to right. If the readout is illegible, please consult the table below.



**FUSE BOX LAYOUT**

Heat Relay	Cool Relay	Heat: Fan (40A)	Cool: Fan Only (40A)	Evap. (40A)	Comp. (40)	Fuel/Alt. (40)	Glow (40)
					Starter (40)	Cont. GND (2)	Cont. Power (5)
Evaporator Relay	Compress or Relay	Fuel/Alternator Relay		Glow Plugs Relay		Starter Relay	

## OWNER'S RESPONSIBILITY

1. **In addition to any other Owner's responsibility stated in this manual, the following are the Owner's responsibility:**
2. As the HP2000 / HP2000 Xtreme APU owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual. We require that you retain the original purchase documentation and all receipts covering maintenance on your APU.
3. Please be aware that we will deny warranty coverage if your APU or a part has failed due to neglect, abuse, improper maintenance, improper installation, and/or unapproved modifications.
4. As the owner, you are responsible for presenting your APU to an authorized service facility as soon as a problem occurs. The warranty repairs should be completed in a reasonable amount of time and following the SRT Guide (Suggested Repair Time).
5. Keep all maintenance records, dates, receipts, and parts used for all warranty claims. You may be asked to provide all maintenance records and parts used for the warranty to be effective.
6. Inspecting your equipment daily will help keep your APU working for a long time. **Daily inspections should include items such as: belts, hoses, oil, bolts, mounts, etc. Dirt and debris in the evaporator or condenser coil and/or fans will cause unsatisfactory heating and cooling. Please keep these cleaned at all times.**

**7. WHEN FILING A WARRANTY CLAIM OR ORDERING PARTS, YOU MUST HAVE THE FOLLOWING:**

- a. Customer and/or Company Name
  - b. Engine Serial Number and a Picture of Hours on APU
  - c. Part Number and/or Part Description, and a Picture of the Part
  - d. Compressor Serial number
  - e. Touch Screen Controller Serial Number
- All of the information above is required to be on the warranty invoice before it will be submitted for payment. Warranty claims can only be manufactured defects and do not cover the cost of shipping.
  - In order for any warranty claim to be honored, the attached Warranty sheet must be filled out completely and sent to EcoFleet LLC at 15460 Crabtree School Road, Marion, IL 62959 or emailed to [chelsey@hp2000apu.com](mailto:chelsey@hp2000apu.com) or [mkelley@hp2000apu.com](mailto:mkelley@hp2000apu.com).

## SPECIFICATIONS



**DO NOT USE SYNTHETIC OIL**

APU Engine	402F-05 9.9 HP
Engine Oil	2.8 US Quarts, 15W-40 Non-Synthetic
Alternator	60 Amp
Weight	310 lbs
Dimensions	20.5" x 22.8" x 24.4"
BTU's	20,000 from Compressor
Refrigerant	1.15 to 1.20 lbs / 18.4 oz to 19.2 oz of R-134a refrigerant
AC System oil capacity	6 oz. of PAG 46

# WARNING!

**DO NOT USE STOP LEAK OR DYE!**

STOP LEAK AND DYE AND  
DETRIMENTAL TO OUR SYSTEM. IF  
USED, ALL WARRANTY WILL BE  
VOIDED.



## **LIMITED EXPRESS WARRANTY REGISTRATION**

REGISTRATION OF YOUR HP2000 LIMITED EXPRESS WARRANTY IS THE RESPONSIBILITY OF THE PURCHASER. THE FOLLOWING INFORMATION MUST BE COMPLETED IN FULL AND SENT TO EcoFleet LLC WITHIN FIFTEEN (15) DAYS FOLLOWING THE DATE OF INSTALLATION FOR YOUR WARRANTY TO BE VALID. **FAILURE TO DO SO WILL VOID THE WARRANTY.**

### **APU/TRUCK INFORMATION**

APU MODEL: \_\_\_\_\_ ENGINE SERIAL # \_\_\_\_\_

AC COMPRESSOR SERIAL # \_\_\_\_\_ CONTROLLER # \_\_\_\_\_

INSTALLED VEHICLES VIN # \_\_\_\_\_

### **INSTALLATION INFORMATION**

DATE OF INSTALLATION: \_\_\_\_\_

INSTALL TECHNICIAN(S): \_\_\_\_\_

INSTALLATION LOCATION: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PHONE NUMBER: \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

### **PURCHASER'S INFORMATION**

PURCHASING COMPANY: \_\_\_\_\_

COMPANY REPRESENTATIVE: \_\_\_\_\_

COMPANY REPRESENTATIVE'S TITLE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PHONE: \_\_\_\_\_

EMAIL: \_\_\_\_\_

COMPANY REPRESENTATIVE'S SIGNATURE: \_\_\_\_\_

**RETURN COPY OF COMPLETED FORM VIA MAIL, FAX, OR EMAIL TO THE FOLLOWING:**  
EcoFleet LLC - 15460 CRABTREE SCHOOL ROAD - MARION, IL 62959  
FAX: 618-997-9608, EMAIL: [CHELSEY@HP2000-APU.COM](mailto:CHELSEY@HP2000-APU.COM) OR [MKELLEY@HP2000-APU.COM](mailto:MKELLEY@HP2000-APU.COM)



# Installation, Service, and Operator's Manual

For HP2000 Auxiliary Power Unit

**Quality Without Compromise!**

Your signature below confirms that you have read and understand the terms, conditions, warranty and information contained in this manual, and you agree to be bound by the terms, conditions, warranty and information herein:

**OWNER / PURCHASER OR DULY AUTHORIZED REPRESENTATIVE**

\_\_\_\_\_  
PRINT NAME

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
TITLE

\_\_\_\_\_  
DATE

## **OTHER PROVISIONS**

- A. Any claim, dispute, or other matter arising out of or relating to the terms, conditions, warranty, and information contained in this Installation, Service & Operator's Manual shall be resolved in Williamson County, Illinois.
- B. Entire Agreement. This Installation, Service and Operator's manual sets forth the entire agreement between EcoFleet LLC and the Owner/Purchaser and supersedes any other agreement by the parties, whether written or oral. This Agreement may not be modified except in writing signed by EcoFleet LLC and the Owner/Purchaser.

## **STANDARD HP2000 APU A/C WARRANTY COVERAGE**

DIAGNOSTIC LABOR	1 HOUR LABOR	A/C COMPRESSOR	1 HOUR LABOR
VAC & CHARGE LABOR	1 HOUR LABOR	EVAPORATOR CORE	1 HOUR LABOR
A/C CONDENSER CORE	1 HOUR LABOR	ORIFICE TUBE	1 HOUR LABOR
CONDENSER FAN ASSEMBLY	1 HOUR LABOR	A/C HOSE (MANUFACTURER'S DEFECT)	1 HOUR LABOR
12V EVAPORATOR BLOWER	1 HOUR LABOR		

**FREON IS COVERED AT \$0.81 PER OUNCE (A COMPLETE FILL IS 23.2 OZ OR 1.45 LBS) ONLY IF THE LEAK WAS CAUSED BY MANUFACTURING DEFECT, NOT NORMAL WEAR AND TEAR.**

For Perkins Engine Warranty Coverage you must contact a Perkins Dealer. [www.perkins.com](http://www.perkins.com)

ALL WARRANTY WORK MUST BE DONE AT EcoFleet LLC OR AT A CERTIFIED EcoFleet LLC SERVICE CENTER.

**IF THE PARTS OR LABOR ARE NOT LISTED IN THE HP2000 APU WARRANTY COVERAGE TABLE IT IS NOT COVERED. WEAR & TEAR IS NOT A COVERED EXPENSE AT ANY TIME**

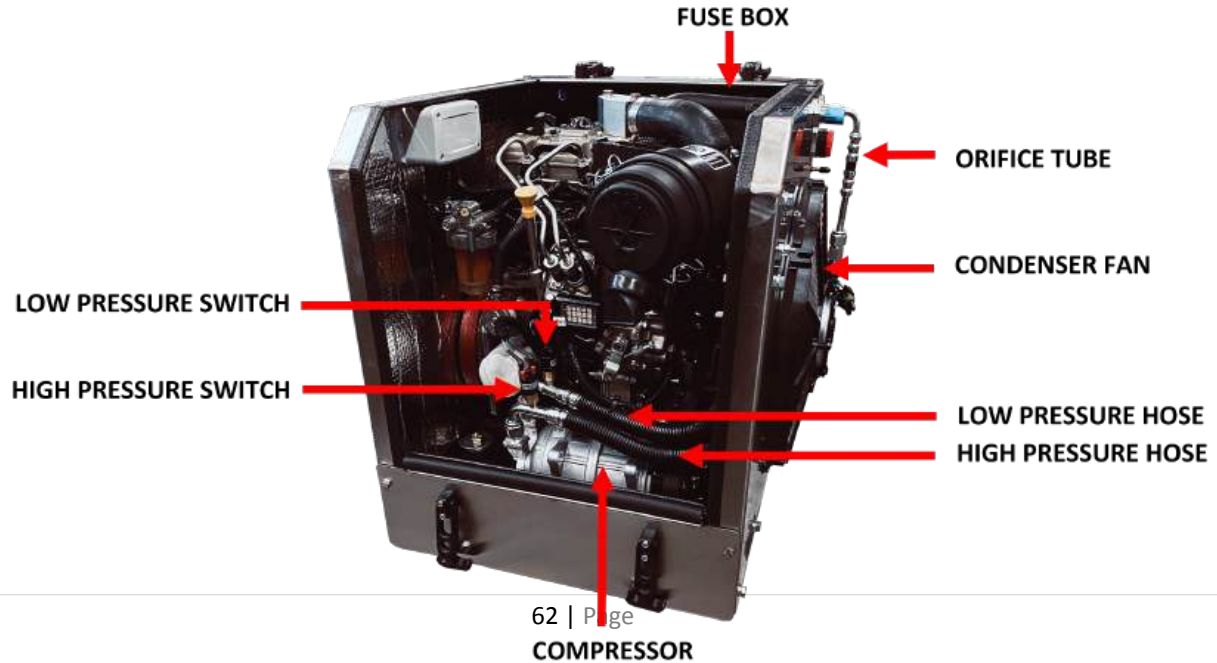
**2-CYL. PERKINS HP2000 APU = 310lbs**

The HP2000 Auxiliary Power Unit is manufactured by EcoFleet LLC. The current version of the H2000 and components were weighed on 01/01/2023. The weight of the unit and the material needed for connection to the truck is listed below for each model engine. These units were weighed without fluids. The scales are certified annually.

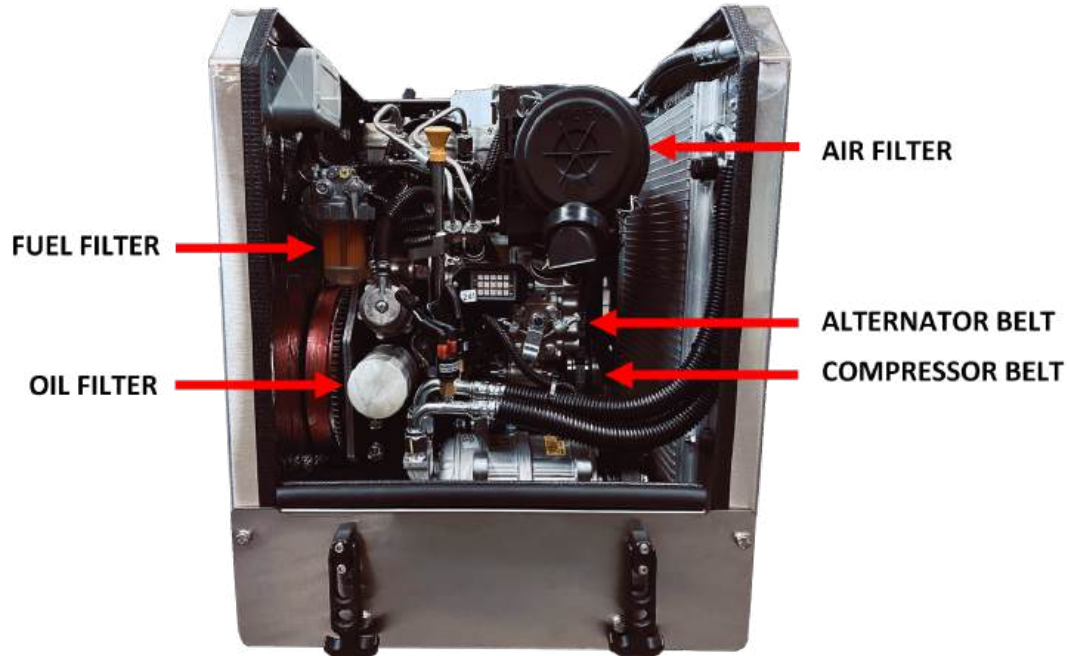
## **2-CYL. PERKINS CROSS REFERENCE SHEET**

	<b>OIL FILTER</b>	<b>AIR FILTER</b>	<b>FUEL FILTER</b>	<b>ALTERNATOR BELT</b>	<b>COMPRESSOR BELT</b>
<b>EcoFleet LLC</b>	PCC081-00	PCA037-F1	PCF082-00	PCC049-00	KCC041-01
<b>PERKINS</b>	140517030		130366040		
<b>NAPA</b>	7145	6449	3262	25-7300	25-050316
<b>WIX</b>	57145	46449	33262		
<b>BALDWIN</b>	B37	RS3715	PF937		
<b>FRAM</b>	PH4386	CA9248	C7516		
<b>MITSUBOSHI</b>				RECMF-1305	5PK805
<b>DAYCO</b>				15305	5050316
<b>GATES</b>				7300	K050316

## A/C Components Diagram



## Maintenance Components Diagram



### **A/C Component Notes:**

The High Pressure Hose is connected to the fitting on the Compressor closest to the outside of the cabinet, with the Low Pressure Hose being connected to the fitting on the Compressor closest to the engine. The High Pressure Switch is then connected to the charging port on the High Pressure Hose, and the Low Pressure Switch is connected to the charging port on the Low Pressure Hose.

### **Wiring Harness Notes:**

The Fuse Box located on the Wiring Harness contains all of your APU's fuses and relays, including (7) 40 AMP Mini Fuses, (1) 2 AMP Mini Fuse, (1) 5 AMP Mini Fuse, (2) 5-Pin Relays, and (5) 4-Pin Relays.



# EcoFLEET LLC

15460 Crabtree School Road, Marion, IL 62959

**[www.hp2000apu.com](http://www.hp2000apu.com)**

**(618) 997-9608**

THANK YOU!  
*thank you!*

FOR YOUR BUSINESS



