



WARNING: Emergency Shutdown Procedure

Never disconnect power to the unit while it is running. To turn it off, press and hold the Power Button for a couple of seconds. Once that's done, it's imperative that you let the unit run its pre-programmed cool-down cycle and turn itself off completely. Failure to do so, could result in ECU (Electronic Control Unit) destruction. If power is suddenly lost to the unit, open the top of the heater and use a fan of some kind, to displace heat. Do this as quickly as possible.

WARNING: Physical Installation Safety Procedure

Never install Diesel Heater directly through the carpet, wooden floor or any flammable materials. Remove at least 12 inches in diameter of such material from the center of the exhaust outlet. The exhaust generates extreme heat and may cause a fire, smoke, severe injuries or death as a result. This unit must be installed by a professional technician.



Mastering the Diesel Air Heater LCD Digital Control Unit



There are various types of Controllers supplied with Air Diesel Heaters. The majority, however, are the Digital variety like the one shown here. They can be quite confusing for the new owner.

To help in that regard, we've reproduced some basic instructions below, that should get you up to speed quickly.



Manual Fuel Pump Operation - Priming the Pump

The facility is provided to run the pump alone (without the heater or fan) This is to allow priming of the pump after draining. Note that the fuel will pass into the combustion chamber and exhaust system, where it may accumulate and cause much smoke when the heater is next used. Avoid excessive use of the manual pump!

From Default Screen, (non setting mode, showing time), press and hold DOWN/OK simultaneously, until the screen shows H-OF. Then press UP to start the pump. When you want to exit Fuel Priming, press DOWN. **With a brand new heaters, leave the machine to complete a priming cycle on its own. DO NOT INTERRUPT by pushing any buttons. It may take a few minutes to complete. If the first priming is inadequate (error code E-08), or in other words, the air is still present in fuel lines, run the priming cycle without interruption again.**

Press OK to move on to the next setting

TO TOGGLE BETWEEN HZ AND TEMPERATURE MODES

In the non setting mode, press SET/UP simultaneously which will change display from Hz to Centigrade. Pressing SET/UP again will reverse the setting.

REMOTE CONTROL PAIRING

Firstly, make sure a battery is installed in the Remote Control. Most are supplied without a battery fitted. The battery is a 12v A27 available from various outlets.

With the Controller connected, but in the OFF state, press the UP ARROW and OK simultaneously and hold, until the display shows HFA - Now press the ON button on the remote. When the controller acknowledges the Remote, press ON on the Remote and the heater will start. If you don't need the heater on at that time, press and hold OFF until Controller acknowledges. The fan will run for a minute or so, then shut down.

You can now start the heater using the remote.

Be aware, if you disconnect power to the Heater/ Controller, you will need to pair the Remote again.

SETTING THE DESIRED TEMPERATURE

From Default Screen, press OK and the current temperature in the van will display. Press OK again and the Target Temperature shows... note it's in **BOLD** face.

To adjust Target Temperature, press UP or DOWN buttons to display desired Temperature. Can be adjusted while machine is running. OR

... Set Temp by adjusting Hertz Settings... 1.6 to 5.5

SETTING THE TIME

In the non setting mode, press SET once to enter the Time Setting Mode which is 24 hour format.

Press UP and/or DOWN to set the first desired number and press OK to set that number. Do the next number and press OK. Work through all settings, pressing OK after each desired number is chosen. After the correct time is set, press SET several times to return to the Default Screen.

SETTING THE TIMERS START/STOP

After the Time Setting is completed, press OK to enter Timing Start or Stop Mode. The default is OFF, press UP to open the timer. There are 2 sets of Timers here, set the Start time, then the Stop time.

The setting method is the same process as the Time Setting.

ADVANCED SETTINGS

Gaining Access to the Password Protected Area

WARNING: This area is Protected for a reason. If you don't know what you're doing, don't mess with the settings.

The advanced settings control the operating parameters of the heater (as opposed to the user requirements).

Access to the advanced settings are protected by a 4-digit PIN code.

The PIN code is entered digit-by digit in a similar way to the time entry. The four dashes representing the code, will flash until set. The digits of the PIN number are only displayed during setting, each digit being hidden (shown as a steady dash) once set. When all four digits are correctly set, the controller will move on to the first of the advanced settings. Common default PIN codes are: 1688 and 9009.

Fan Speed Limits

During normal operation, the fan speed adjusts automatically. These settings allow the minimum and maximum fan speed to be selected, which limits the range of the automatic function. This could be used for example, to force quieter operation, or to optimise burn (with an emission analyser). There are limits on the available maximum and minimum speed settings, which cannot be overridden.

The min and max speeds are set in that order in the same way as the time settings, one digit at a time using arrow keys and OK. After the speeds are set, the controller moves on to the next setting.

System Voltage Setting

Although the *controller* is designed to operate at both 12V or 24V DC, according to this setting, the *heaters* themselves are EITHER 12V OR 24V. The controller will not operate the heater if the battery voltage is too high or too low, so if the voltage setting is incorrect, the heater will not operate until the setting matches the supplied voltage. To reiterate, changing the controller setting will not alter the operating voltage of the heater. Power must be supplied at the correct voltage for the heater and the controller must be set to match. If the correct voltage is being supplied and the battery icon is flashing, with either E-01 or E-02 displayed then it is possible that the controller is incorrectly set. **IMPORTANT - Check the actual heater voltage (sticker on the heater body) before adjusting the control setting.**

On entering this setting, the screen shows either U-12 or U-24 and can be changed using the arrow keys. The setting will be applied immediately the OK key is pressed, and the controller will move on to the next setting.

Speed Sensor Type

There are two configurations of fan speed sensor on the heaters which can be controlled by these displays. Select one or the other according to the sensor type fitted. The original instructions say that if this is set incorrectly then the fan speed is doubled. As ever, select using arrow keys and press OK. It seems that different sensors are used, some with 1 and some with 2 magnets – speed could also be halved I guess!

SN=1: If fan has 1 magnet attached to it, to give the RPM signal

SN=2: If fan has 2 magnets attached to it, to give the RPM signal

PIN Code Change

It is not necessary to change the PIN code, but if desired a new number can be entered, once again using arrow keys and pressing OK. *Take care to remember any new code!*

NOTE – the settings menu at both levels will time out and the controller return to basic operation mode. The settings already confirmed will have been saved, but the currently active setting will NOT be actioned or memorized. Thus, the parameter setting may simply be abandoned without the remaining settings or any previous settings being affected.

Hz Setting

This setting regulates the upper and lower bounds of the amount of fuel injected. It can be adjusted from a low of 0.8Hz to a high of 8.0Hz. Do not jacked around with the settings when you do not know what you are doing. You will end up with a heater that quits working or becomes a fire hazard. Fuel baseline should be 1.8Hz low side and 5.2 Hz High .

RPM Setting (Revolutions per Minute)

Rpm regulates the fan speed and combustion air. Settings range from 1450 low to 5000 high. Desirable settings are 1680 Low and 4410 High.

ERROR CODES

E-01 Voltage is too High

E-02 Voltage is too Low

E-03 Glow Plug failure

E-04 Pump failure

E-05 Too hot

E-06 Motor failure

E-07 Controller not connected properly

E-08 The Burner flame has extinguished

FURTHER HELP AND INSTRUCTIONS

If you want to learn more about Diesel Heaters than most people will ever learn, then do yourself a big favor and go to YouTube Channel [John McK 47](#) and watch his excellent series of 15 videos. They cover ALL aspects of Air Diesel Air Heaters.



Voice Remote Control Switch Instructions

Version code: 802

1 Feature Overview

1.1 operating mode

- Warm air mode

The heater is operated with the current control switch setting gear, and the operating gear position is not adjusted according to the cab temperature change;

- Air conditioning mode

The heater automatically adjusts the operating gear according to the relationship between the current switch setting temperature and the cab temperature;

Adjustment error is 2 ° C;

Operate in the lowest gear when the cab temperature is lower than the set temperature by 2 ° C or greater than the set temperature;

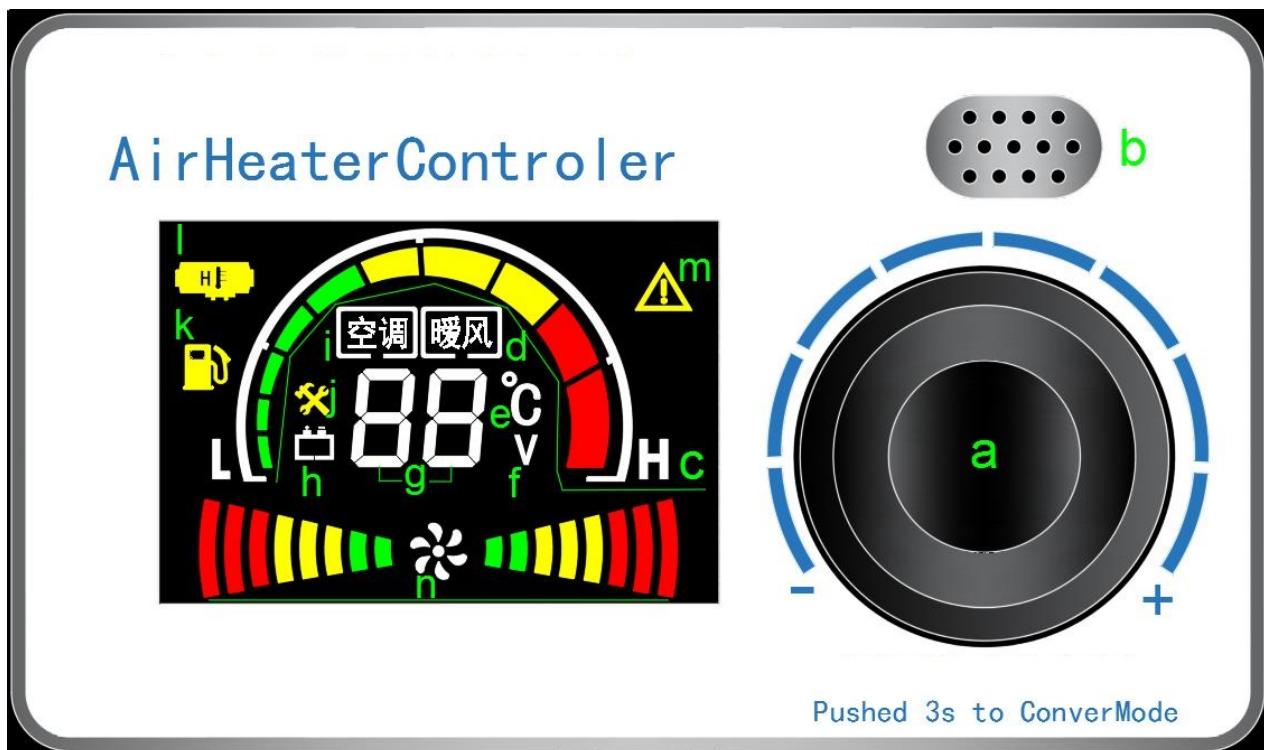
When the cab temperature is lower than the set temperature by more than 2 ° C, the operating range of the cab is reduced by 2 degrees Celsius, and the gear is increased by one gear until the highest operating gear is 10 gears;

- Engineering mode

View heater operation data and remote control pairing and enter automatic pump oil mode;

- Remote control matching;

1.2 Overall display and operating instructions



- a: switch button and gear position, temperature adjustment knob;
- b: speaker;
- c: gear position display, set the gear position in manual mode, and the heater running gear position in air conditioning mode;

- d: heater mode indicator frame, when the frame is lit, the control switch works in the warm air mode;
- e: Celsius unit;
- f: voltage unit;
- g: 2 digits * 7 segments digital display;
- h: battery voltage display prompt;
- i: air conditioning mode indicator box, when the frame is lit, the control switch works in the air conditioning mode;
- j: fault indication;
- k: lack of oil and flameout failure prompt;
- l: The temperature of the housing is too high;
- m: secondary ignition failure prompt;
- n: Personalized display, without special features of the table;

2 Operating instructions

2.1 Operation

- Power on: When the power is off, click [button a] to power on;
- Shutdown: Jog [button a] to turn off when the power is on;
- Mode switching: In the warm air mode, press [button a] 3s to switch to the air conditioning mode. In the air conditioning mode, press [button a] 3s to switch to the warm air mode.
- Gear adjustment: In the warm air mode, rotate clockwise [button a] running gear +1, maximum to 10 gear,

Rotate counterclockwise [button a] to run gear -1, the minimum to 1st gear,

In the air conditioner mode, turn [Button a] clockwise to set the temperature +1, up to 45 °C.

Rotate counterclockwise [button a] to set temperature -1 to a minimum of 18 °C;

- Engineering mode: Press and hold [button a] 5s to enter the engineering mode in the shutdown state;
In the engineering mode, the gear position display [c] represents the display data item;
 - C1: heater motherboard version number;
 - C2: fault code (see the fault code table 4.1 for details);
 - C3: housing temperature;
 - C4: battery voltage;
 - C5: heater operating gear position;
 - C6: cab temperature;
 - C7: Enter the pump oil mode enable;
 - C10: remote matching enable;
- Engineering mode project switching: In engineering mode, rotate the [button a] item +1 clockwise.

Rotate [Button a] item-1 counterclockwise;

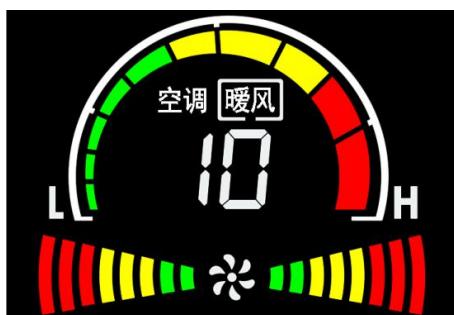
- Remote control matching: In the engineering mode, under the c1 item, rotate [counter-clockwise] [button a] 5 times, enter the “c10” interface and display “P1”. At this time, click the button on the remote control that you think can be set to “adjust plus”. Until

the buzzer “嘀” sounds at the same time, “P2” means “adjustment plus” matches successfully P2, P3, P4. After P4 matches successfully, it automatically exits the engineering mode and returns to the running interface. A total of four buttons can be matched. Defined as follows;

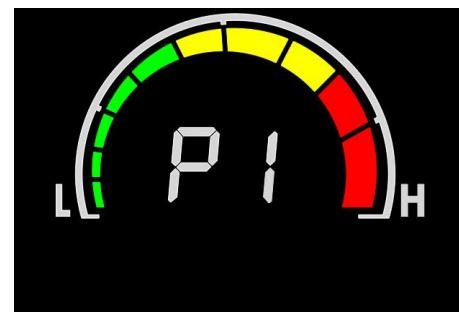
- P1: adjustment plus button;
 - P2: adjust the minus button;
 - P3: mode switching button;
 - P4: switch button;
- Pump oil mode: enter engineering mode and adjust to "c7" project and click [button a] under "c7" item (this set of operations must be completed within 20s), hear the buzzer prompt "嘀嘀" And “-P” is displayed, waiting to return to the running interface to enter the pump oil mode (this function is more suitable for loading in the heater device);

3 Run display instructions

3.1 Run display



Legend 1: Warm air mode 10 files, 'n' flashing legend 2: Air conditioning mode 45 ° C, 'n' flashing



Legend 3: Engineering mode c4: Battery voltage legend 4: Remote control matching P1 - adjustment plus button

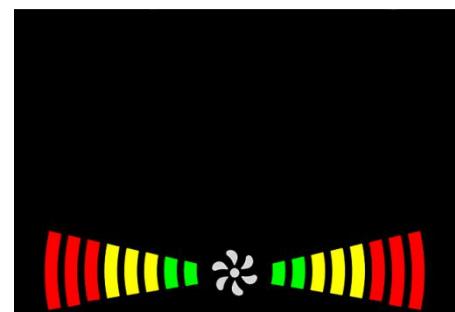


Figure 5: Fault 06 Oil pump abnormality Figure 6: Stop process, 'n' flashes



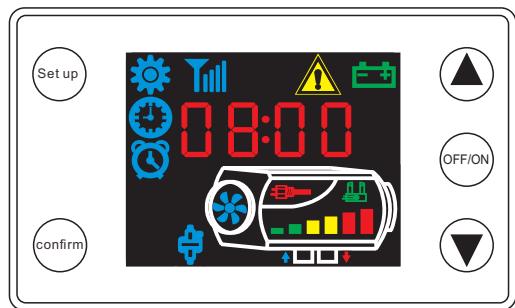
Error Codes

Error Code Table

error code	Fault type	Troubleshooting
E-00	Trouble free	
E-01	Startup failed	<ul style="list-style-type: none">● Check if the fuel pump is working;● Check whether ports on the fuel circuit are blocked.
E-02	Fuel shortage	<ul style="list-style-type: none">● Check if the fuel tank is short of fuel;
E-03	Abnormal voltage	<ul style="list-style-type: none">● Check if the heater supply voltage type matches the actual vehicle voltage;● The 24v version checks if the power supply voltage is higher than 32v or lower than 18v;● The 12v version checks whether the power supply voltage is higher than 18v or lower than 9v;● Check if the main harness connector is loose and connected;
E-04	Outlet temperature sensor failure	<ul style="list-style-type: none">● Check whether the wind temperature sensor connector is loose;● If the air outlet sensor fails, replace the main board;● The motherboard is faulty and must be replaced.
E-05	Inlet air temperature sensor	<ul style="list-style-type: none">● The inlet air sensor is faulty and the main board must be replaced;
E-06	Fuel pump abnormality	<ul style="list-style-type: none">● Check if the fuel pump plug is loose and connect if needed;● Check if the main harness has an open circuit;● The oil pump is faulty and the oil pump must be replaced;
E-07	Fan abnormal	<ul style="list-style-type: none">● Check if the car fan impeller is stuck;● Check if the fan plug is loose and reconnect if needed;● Fan failure, replace the fan;● Check if the rotor induction magnet is missing or wrong in polarity;● Check if the motherboard wind speed sensor is normal;● The motherboard is faulty and must be replaced.
E-08	Ignition plug is abnormal	<ul style="list-style-type: none">● Check if the ignition plug is loose and reconnect if needed;● The ignition plug is faulty and the ignition plug must be replaced;● The motherboard is faulty and must be replaced.
E-09	High temperature protection	<ul style="list-style-type: none">● Check whether the nozzle is blocked;● The model of the furnace temperature sensor is wrong or faulty, and the sensor must be replaced;● Check if the fuel pump matches, and consult the heater manufacturer to replace the fuel pump;● The motherboard is faulty and must be replaced.
E-10	Furnace temperature sensor is abnormal	<ul style="list-style-type: none">● Check if the furnace temperature sensor connector is loose and reconnect if needed;● The furnace temperature sensor model is wrong or faulty, and the sensor must be replaced;● The motherboard is faulty and must be replaced.



12 V - 24V general instructions LCD panel



1. The key function

- | | |
|----------------|--|
| Set up | -> Enter the Settings, adjustable parameters, change the working state of the machine |
| confirm | -> Set state, confirmed that the current setting, to the next item parameter is set, the set state, to view the state of the machine |
| ▲ | -> Set state, increase set parameters, the setting state, increase the setting temperature |
| OFF/ON | -> Short press boot, light is normally on, long press seconds shutdown, status indicator lights flashing |
| ▼ | -> Set state, cut set parameters, the setting state, cut the set temperature |

2. Remote control code description

In the condition of not setting, press raised first, press the confirmation key at the same time, to keep more than 3 seconds. Remote control for the code into the interface, display HFA -, according to the key to launch on the remote control, remote control to code after exit code interface, the machine into the boot state, if the code does not enter the boot failure state. Timeout is wrong code automatically withdraw from code.

3. Set parameters describing press set button to enter displays the corresponding state icon lit

1. The time setting → The key parameter Hourly press the confirmation key, set in turn (hours, minutes, confirm button to enter the next item)
2. Time switch machine Settings → Off by default, showing 1 -, press raised after open, show 1 - on entering Press the confirmation key, in turn, set up the first set of boot, shutdown time, the second boot, shutdown time adjust good, confirm button to enter the next item
3. Administrative password input → Press raised, lowered, a correct value, according to the confirmed into the next one, who entered correctly, press ok button to enter the next item
4. The oil pump set → Press raised, lowered, reach the required value, minimum pump oil is modified according to the confirmation Largest oil pump set, with the increase, cut key after modification is achieved, the confirm button to enter the next item
5. The fan speed setting → Press raised, lowered, modify the minimum fan speed, reach the required value, according to the confirmation Biggest fan speed Settings, with the increase, cut key after modification is achieved, the confirm button to enter the next item
6. Working voltage setting → In the shutdown state can choose the mainboard working voltage, press raised, lowered, switching voltage 12 V system adjustment to show U - 12, 24 V system to show U - 24. (pay attention to check before starting the machine oil pump, motor, plug whether facilities, avoid damage)
7. Speed signal choice → Press raised, cut, set the speed signal, the impeller 2 magnet polarity opposite or only one magnet option 1. Impeller 2 2 magnet polarity please choose same parameter, the parameter selection error, will cause the rotation speed difference 1 times.
7. Management password changing → Into after showing OFF state, without change, according to determine key, skip the password changes, and save the parameters automatically after exit, press raised, show ON, press determine the state of modified input according to determine the key after four new password, save the new password and set parameters adjusted automatically after exit.

4. To track the status of the machine

- | |
|---|
| Time to show The environment temperature display Set temperature display (automatic temperature control)/ set pump oil shows (manual temperature control) |
| In the condition of not setting, press the confirmation key Historical fault code display The voltage display |

5. Manual fuel filling description

In the condition of not setting, press down don't let go first, then press the confirmation key into the manual oil pump interface, display H - release confirmation button first, then release the cut key, press raised start the manual oil pump, show H - on, can hear the pump work, the oil pump icon lit. Press down key, or set key can be shut down, exit the manual oil pump, oil pump icon disappeared.

6. Time switch machine description

Set at run time to end, press ok key to enter the time switch machine function set, the default to OFF the closed position, press raised open on state, press the confirmation key can set the first group, boot time the number of hours for a few minutes, make sure good after the shutdown time is set on the number of hours for a few minutes. Press the button to enter the second group is determined, set the above method, set up hours before a few minutes, and then set off hours to a few minutes. Two groups of timing can leave space in the middle. Timing function is runs only once, after the end, the current time is closed, the next time to use, please open and set the time again. There is a timing Settings, alarm clock icon lit, disappeared after the timing.

7. The temperature control mode switch

In the condition of not setting, press raised don't let go first, then press the set key, show that P - 7.0.x.x pump oil (xx representative), namely into manual temperature control mode, is limited in the current oil pump oil - starting running between pump oil. When press the above 2, according to xx (xx represents temperature) °C namely into the automatic temperature control, oil pump control in the biggest pump oil - starting running between pump oil. Two way to pump oil automatically change depends on temperature, the difference between the two is that the automatic way to pump oil can achieve maximum value in the parameter Settings, the machine heat is higher. Manually pump oil is limited in the current set point, not at the upper end of the parameter Settings in the machine heat will be limited to the scope of the choice to two or morethings some old driver using habit.