INSTALLATION AND OPERATOR'S MANUAL
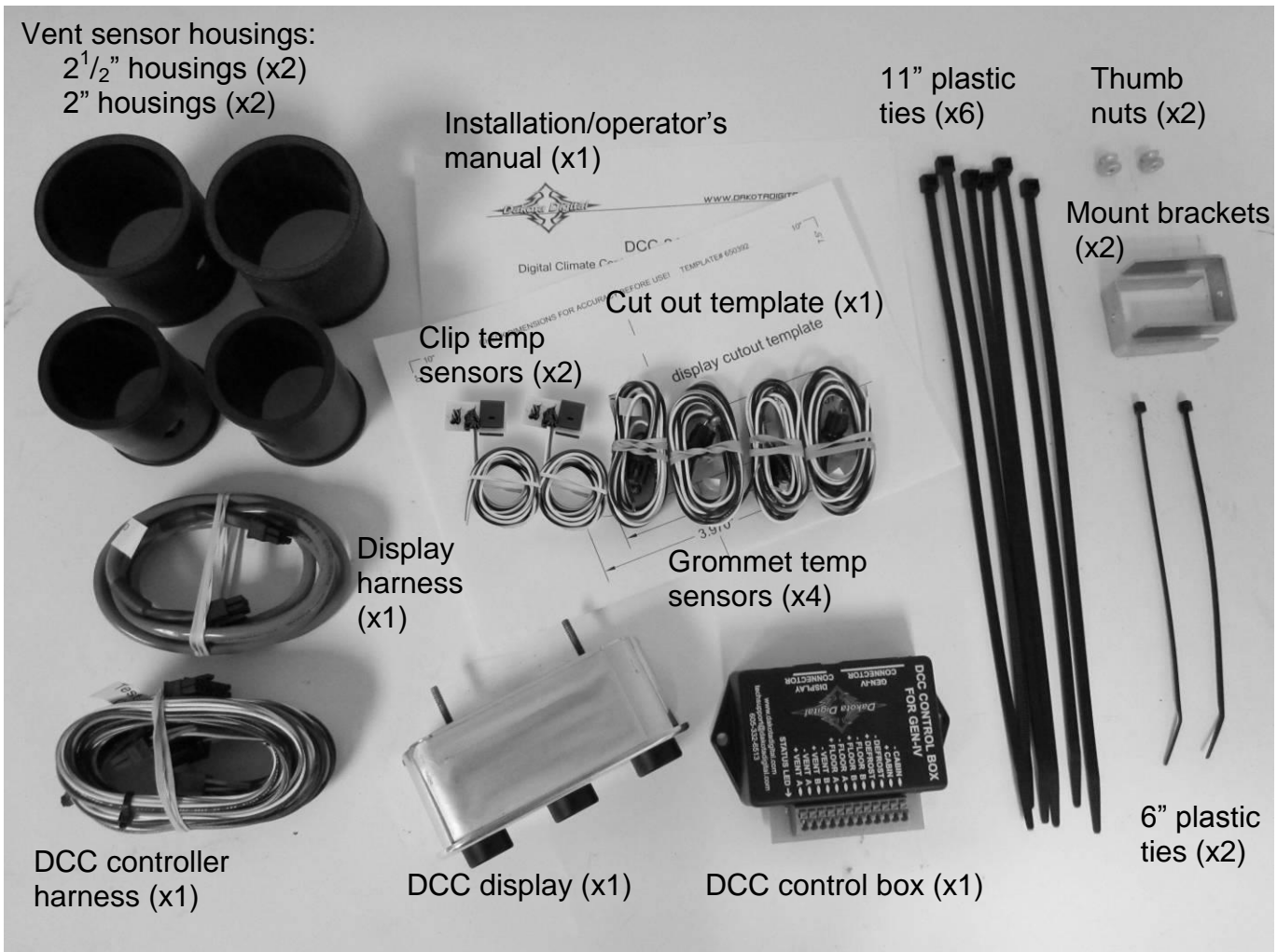FOR
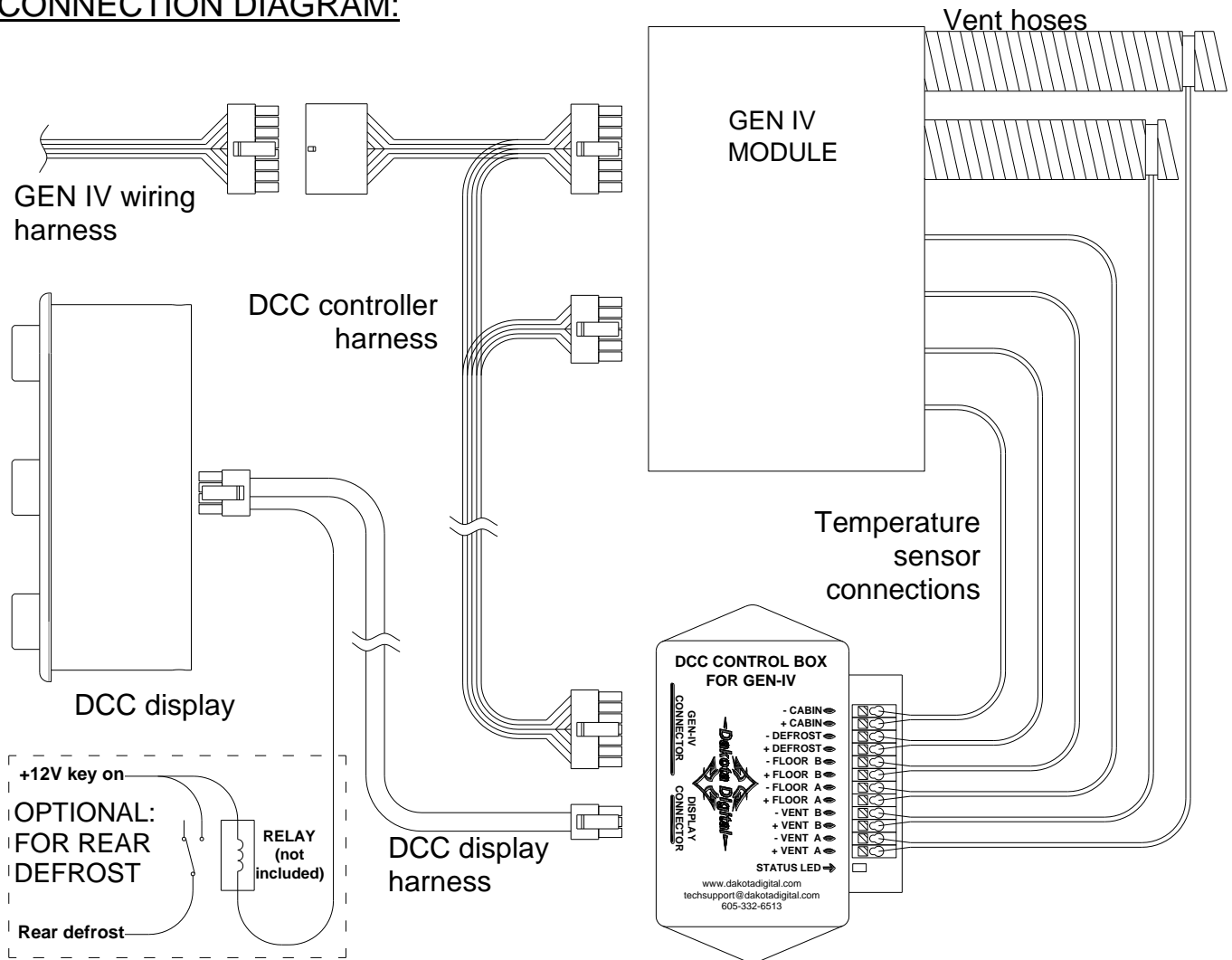
DCC-3000
Climate Control for Vintage Air GEN-IV systems

PARTS INCLUDED WITH THIS SYSTEM

Vent sensor housings:
 2 1/2" housings (x2)
  2" housings (x2)

Installation/operator's manual (x1)

11" plastic ties (x6)

Thumb nuts (x2)

Mount brackets (x2)

Clip temp sensors (x2)

Cut out template (x1)

Grommet temp sensors (x4)

Display harness (x1)

DCC controller harness (x1)

DCC display (x1)

DCC control box (x1)

6" plastic ties (x2)

CONNECTION DIAGRAM:

GEN IV wiring harness

DCC controller harness

DCC display

GEN IV MODULE

Vent hoses

Temperature sensor connections

DCC CONTROL BOX FOR GEN-IV

GEN-IV CONNECTOR

DISPLAY CONNECTOR

- CABIN
+ CABIN
- DEFROST
+ DEFROST
- FLOOR B
+ FLOOR B
- FLOOR A
+ FLOOR A
- VENT B
+ VENT B
- VENT A
+ VENT A
STATUS LED ➔

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OPTIONAL: FOR REAR DEFROST

+12V key on

RELAY (not included)

Rear defrost

DCC display harness

INSTALLATION:

NOTE: While installation is possible with the GEN-IV system already in the vehicle, it is easier to install some of the sensors when you have full access to all sides of the GEN-IV module. If the GEN-IV is not yet installed in your vehicle, we recommend installing the temperature sensors first.

STEP 1: INSTALLING THE DEFROST SENSOR

The supplied grommet type temperature sensors require a 3/8" hole to be drilled so they can be inserted into the housing. To prevent drilling too deeply, create a stop for your drill bit (see photos at right) with a piece of rubber hose or small block of wood that is long enough to allow just the tip (about ¼") of the bit to protrude.

NOTE: As an alternative to drilling, one of the extra Vent Sensor Housings could be used to put the sensor in one of the defrost duct tubes. This should only be done if drilling the hole is difficult or impossible with an installed GEN-IV system. See STEP 5 for install method.

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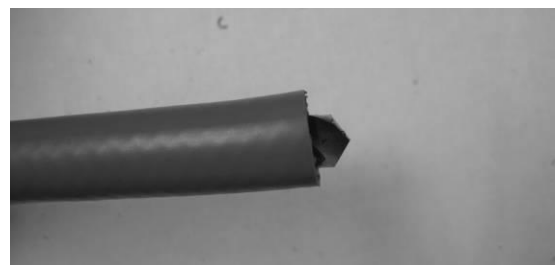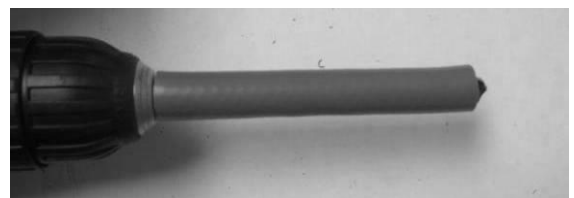
Using the 3/8" drill bit with the proper rubber or wood stop installed, drill a hole in the defrost duct in the location shown.

Insert one of the four supplied grommet type temperature sensors into the drilled hole with the wires pointing to the outside of the duct housing. The sensor should snap into the hole with the collar of the sensor resting against the housing.

Defrost sensor location
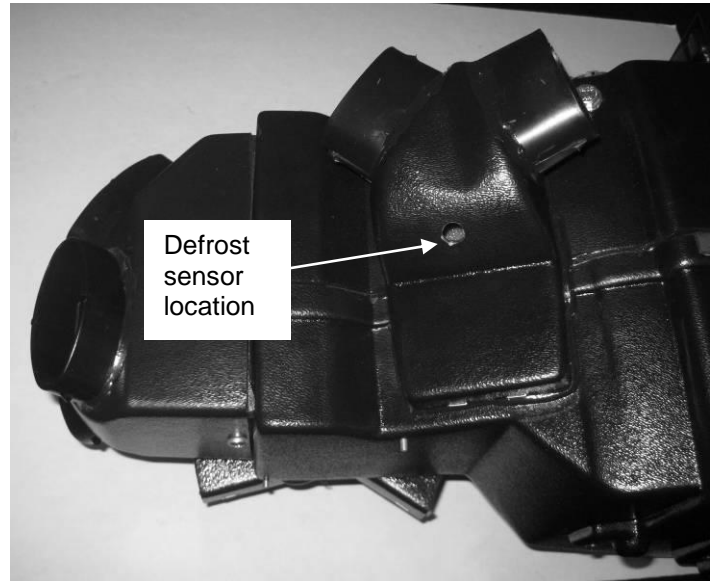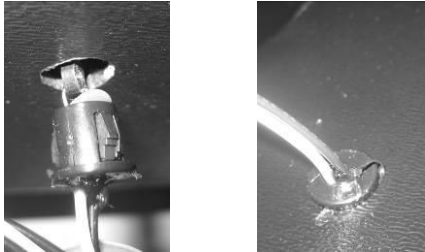
STEP 2: INSTALLING THE FLOOR SENSORS

Push a clip type temperature sensor onto the side wall of each opening of the floor duct so that the sensor sits inside the duct at about the center of the opening.

It is recommended to label the free end of the sensor wires to ensure proper connection to the control box later.

Floor sensor locations
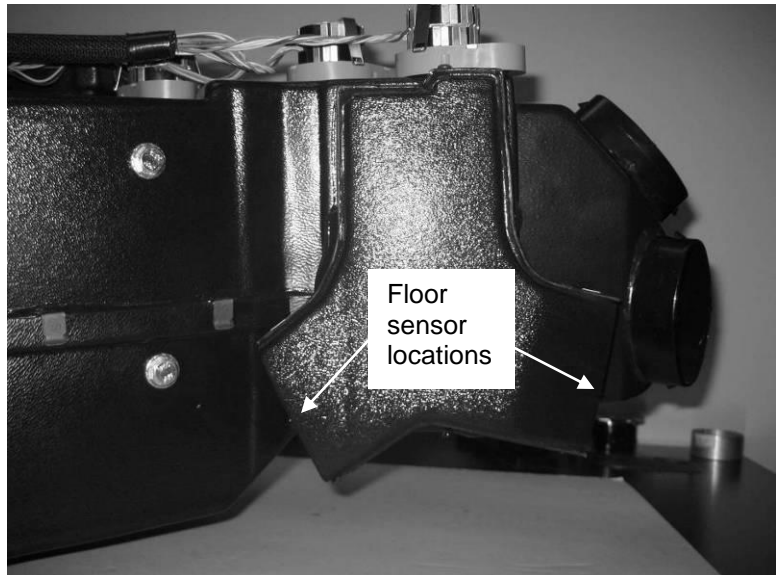
STEP 3: INSTALLING THE CABIN SENSOR

Secure one of the grommet type temperature sensors to the grate of the blower fan using the supplied 6" plastic ties. The sensor should be mounted so that the silver colored element will be in the incoming airflow to the fan when the fan is running.

Be carful that the plastic tie, the sensor, or its wires will not contact the fan blades when the fan is running.

Label the wires for the Cabin Sensor for easier identification later.

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STEP 4: INSTALL THE GEN-IV MODULE

Install the GEN-IV module if it has not yet been installed in the vehicle. Refer to the installation manual for the GEN-IV module for detailed instructions for your application.

STEP 5: INSTALL THE VENT SENSORS

The vent temperature sensors are mounted in the flexible duct tubing from the GEN-IV module. Determine which two tubes will have the sensor and cut the tubing a **minimum of 6" away** from the GEN-IV module.

Choose tubes to vents that will blow the most air or blow most directly on passengers in the vehicle.

Of the four included Vent Sensor Housings, use the two that fit the diameter of the cut flexible tubing. Insert the two remaining grommet type temperature sensors into the predrilled holes in these Housings.

Work the Vent Tubes over both ends of the Sensor Housing and secure the tube on both sides of the housing using the provided 11" plastic ties. Make sure the plastic ties are positioned over the body of the Sensor Housing so the raised end of the Housing holds the Tube from slipping off.

STEP 6: MOUNT THE CONTROL BOX

Find a location to mount the DCC control box where the wires will reach without being pulled. There are two tabs on the case of the control box to allow for easier mounting.

STEP 7: WIRE THE TEMPERATURE SENSORS

Wire the temperature sensors wires to the connection strip on the DCC control box. The small tab on the top of the connector can be pressed down with a screw driver to allow insertion of the stripped ends of the sensor wires. Connect the black wire to the "-" terminal. The other wire is connected to the "+" terminal.

Take care when connecting the sensors to the control box. If the sensors are connected to the wrong terminals, the controller will not control the temperature properly. Either Floor Sensor can be connected to either of FLOOR terminal (A & B). Similarly either Vent Sensor may be connected to either VENT terminal.

STEP 8: MOUNT THE DISPLAY

Determine your mounting location of the display and use the provided cutout template to make the opening for the display. (A diagram of the display mounting is on the cutout template for reference.)

Insert the display into the opening from the front of the dash making sure the symbols and text on the front of the display are in the upright position.

Place a mounting bracket onto each of the studs so that the two legs of the bracket contact the dash panel along the sides of the display unit.

Place a thumb nut onto each of the studs to hold the bracket in place. Tighten the thumb nut to push the bracket up against the back of the dash panel to secure the display in place.

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STEP 9: WIRING

Refer to the wiring diagram on previous pages for guidance on the connections described below.

Connect one end of the Display Harness to the display. Route the other end of the cable to the DCC-control box and plug it into the control box connector labeled "DISPLAY CONNECTOR."

Connect the 14 pin connector of the DCC controller harness to the connector labeled "GEN-IV CONNECTOR".

Route the DCC controller harness to the GEN-IV module.

Connect the 12 pin wire connector to the 12 pin connector on the GEN-IV module.

Connect the 16 pin wire connector to the 16 pin main wiring harness connector on the GEN-IV.

Connect the GEN-IV harness into the remaining 16 pin connector on the DCC controller harness.

If not already wired, wire the GEN-IV wiring harness as described in the GEN-IV manual.

REAR DEFROST (optional):
If your vehicle has a rear defrost, it can be wired to the DCC-3000 for timed control with the press of a knob. To use this option, you will need a relay (not supplied in kit).
    Connect one end of the relay coil to the single unconnected GREY wire in the Display Harness.
    Connect the other end of the relay coil to a circuit that has +12V with the key on.
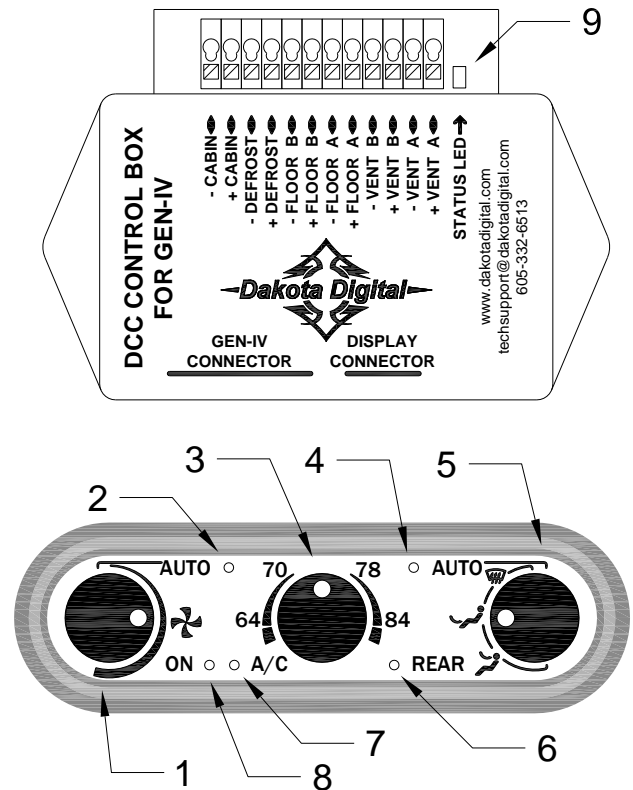   Connect the common terminal of the relay to the rear defrost circuit.
    Connect the normally open terminal of the relay to a circuit that has +12V with the key on.

OPERATION:

FEATURE DIAGRAM

1. Fan speed control and on/off button
    Turn to adjust fan speed
    Press to turn system on or off

2. Fan auto indicator
    Lights when fan speed is in auto mode

3. Temperature control and AC on/off button
    Turn to adjust temperature
    Press to toggle between AC on or off modes

4. Mode auto indicator
    Lights when mode setting is in auto mode

5. Mode control and rear defrost on/off button
    Turn to set location of air output
    Press to start or stop the rear defrost

6. Rear defrost indicator
    Lights when rear defrost is turned on

7. AC mode indicator
    Lights when AC is on

8. ON indicator
    Lights when system is turned on

9. Status light
    Indicates current status of DCC control unit

DCC CONTROL BOX FOR GEN-IV

- CABIN + CABIN - DEFROST + DEFROST - FLOOR B + FLOOR B - FLOOR A + FLOOR A - VENT B + VENT B - VENT A + VENT A STATUS LED

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—Dakota Digital—

GEN-IV CONNECTOR   DISPLAY CONNECTOR

AUTO   70   78   AUTO
64   84
ON   A/C   REAR

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MAKING ADJUSTMENTS:

MODE ADJUSTMENT:

If the mode control knob is turned fully counter clockwise, the air output will be fully out of the vents. Turning the knob clockwise toward the middle of the range will gradually blend the output from vent to floor. Continuing to turn the knob clockwise will blend the output from the floor to the defrost outputs.

If the knob is turned fully clockwise, the "AUTO" mode indicator will light and the controller will automatically determine where to put the output air. For heating, the controller will force air to the floor and some defrost. For cooling, the controller will force air to the vents. To stop automatic mode, simply turn the knob counter clockwise to the desired mode.

TEMPERATURE ADJUSTMENT:

Turning the temperature control knob clockwise will increase the temperature setting. As a guide to the current setting, numbers on the display show temperatures in degrees Fahrenheit.

Turning the knob fully counter clockwise will put the system in full cool mode. In this mode the controller will cause the GEN-IV module to be driven in maximum A/C regardless of the temperature readings from the sensors.

Turning the knob fully clockwise will put the system in full heat mode. In this mode the controller will cause the GEN-IV module to be driven to maximum heat regardless of the temperatures reading from the sensors.

For all other temperature settings, the controller will work toward maintaining the air in the cabin at that set temperature.

FAN ADJUSTMENT:

Turning the fan control knob clockwise increases the fan speed, counter clockwise decreases it.

If the knob is turned fully counter clockwise, the fan "AUTO" indicator will light and the controller will automatically set the fan speed as needed. To stop automatic fan, simply turn the knob clockwise to the desired fan speed.

TURNING SYSTEM OFF / ON:

The system can be turned on and off by pressing the fan speed control knob. If the system is turned on, the "ON" indicator by the fan knob will be lit. The indicator is turned off when the system is turned off.

AC / ECON:

Pressing the temperature control knob during normal operation will toggle the AC / ECON mode. If the system is currently in AC mode, it will turn the AC off. If it is currently in ECON mode, it will turn the AC on. AC mode is indicated by the "AC" indicator being lit. Econ mode is indicated by the "AC" indicator being off.

There are instances when the AC / ECON mode may not be overridden. Two of these instances are the full cool and the full heat modes. In these situations, the AC / ECON state may appear to change for a short time after the knob is pressed but will then return to the previous setting.

REAR DEFROST:

An output wire from the display is provided to control a rear defrost through a relay. This option is only needed if your vehicle has a rear window defroster. Pressing the mode control knob will turn on the "REAR" indicator and provide ground to the output wire to turn on the relay.
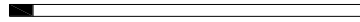
The rear defrost will be kept on for approximately 15 minutes, then it will automatically be turned off. Pressing the mode control knob while the rear defrost is still on will cancel the timer and shut off the rear defrost output.

NIGHT TIME DIMMING:

The DCC unit uses the dim circuit in the stock GEN-IV harness to determine if your instrument panel lights are on. If they are on, the display will change brightness to the level selected in setup. In order to use this setting, the dash light wire of the GEN-IV harness must be connected. (See the GEN-IV manual for details.)

STATUS LIGHT:

The DCC control box has a status light beside the temperature sensor connector to indicate status. The chart below describes the different status indications. (▢ = LED on, ▄ = LED off)

Constant power to controller, ignition is off. (Short flash every 4 seconds)

Key on, no errors, normal operation (Light on steady)

Controller and display are in setup

Controller is in Calibration mode, calibrating GEN-IV module

Key is on but system is turned off (One flash every 1.5 seconds)

Controller can't communicate with display (Two flashes)

One or more temperature sensors are disconnected or shorted to ground

SETUP:

To enter the setup menu, press and hold the fan speed control knob while turning the key ON (do not start engine). The "ON" indicator will flash indicating the system is in setup. Release the knob.

When finished with setup, press the fan control knob. The system will return to normal operation with the new settings. Alternatively, you can turn the key off to leave setup.

Below is a description of the setup options and how to set them.

TEMPERATURE SPAN:

This sets the temperature change needed to change from cooling to heating mode or vice versa. If the system seems to often change between heat and cool mode, set this to a higher value.

To change this setting during setup, turn the temperature control knob. Turning the knob clockwise increases the value, counter clockwise decreases it. If the knob is pointing at the currently saved setting, the "AC" indicator light will be on.

To save a new setting, adjust the knob, and press it. The new setting will be saved and the "AC" indicator light will come on to indicate this is the new saved setting.

The default setting will have the knob pointing at approximately the 70F reading.

DIM BRIGHTNESS

This allows setting the brightness for nighttime dimming. This display brightness will only be used when 12V is on the park light circuit in the GEN-IV harness. Otherwise the display will always be using daytime brightness.

Turn the mode control knob clockwise to increase the display brightness, counter clockwise to reduce the brightness. The "REAR" indicator will light when pointing to the currently saved setting.

To save a new setting, adjust the knob as desired, and press it. The new setting will be saved and the "REAR" indicator will light to indicate this is the new saved setting.

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CALIBRATION OF GEN-IV UNIT:

The GEN-IV module is capable of having its control inputs calibrated to a specific control setup. The factory default calibration of most GEN-IV modules should match the control method used by the DCC controller and shouldn't need calibration.

Some applications for the GEN-IV however use different calibrations to match the manual control levers or knobs used. These GEN-IV modules will then read the control signals from the DCC controller incorrectly and behave in unexpected ways. If the DCC unit is being installed into a previously installed and operating GEN-IV system or the system seems to not behave as expected, it is advised to calibrate the GEN-IV unit to the DCC controller.

Calibration is fully automated with the DCC controller and takes about 18 seconds. Simply put the system into setup mode (as described under SETUP) keeping the engine OFF, and press and hold the mode knob.

Both "AUTO" indicators will blink alternately during calibration and the fan will run and change speeds several times during calibration. When calibration is complete, the system will return to setup and the "AUTO" indicators will stop flashing. Turn the key off and the GEN-IV module should now be calibrated to the DCC controller.

DCC Specifications		
SUPPLY		
Voltage Range (BAT)	8 to 18 V	
Ignition	> 5 V	
INPUTS		
	Low Max	High Min
DIM (dash lamp)	3.1 V	3.8 V
CURRENT DRAW		
IGN off	≈ 0.2 mA	
IGN on	< 200 mA	

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TROUBLESHOOTING:

Problem	Possible cause	Solution
Display doesn't light.	Control box not connected or has no power.	Status light should blink once every 4 seconds with the key off and come on solid when key is on. If not check harness connection to control box and verify proper connections on GEN-IV wiring harness.
	Display harness is not connected or damaged.	Check display harness for proper connections and for cuts or pinched locations.
Status light flashes rapidly and controller doesn't respond.	DCC has inadvertently entered a factory test mode and needs to be reset.	Unplug the DCC controller harness from the DCC control unit. Wait for 2 seconds and then reconnect the harness to controller.
Display is dark or too dim.	Dim setting is set too low.	Go into setup and adjust dim setting.
AC or ECON changes back shortly after pressing AC/ECON button.	Controller is currently in a mode that doesn't allow overriding the AC / ECON function.	Try changing the temperature setting, especially if the temp control knob is set to fully clockwise or counter clockwise.
"ON" indicator not lit and fan doesn't run.	System has been turned off.	Push the fan control knob to turn system back on.
System switches between blowing on the floor and through the vents often.	The temperature span may be set too small for your vehicle.	Go into setup and set the temperature span to a higher value.
System not operating as expected and the status light is flashing 3 times.	One or more sensors are open or shorted to ground.	Check the connection of the sensor wires. Also check the sensor wires for breaks or pinched areas.
Fan speed, air output location, or temperature does not seem to match settings.	The GEN-IV may not be correctly calibrated to the DCC control signals.	Enter setup as described in "SETUP" section and keep engine off. Start a calibration operation to recalibrate the GEN-IV module to the DCC control signals.
System doesn't cool, even when set to lowest temperature setting.	GEN-IV may need calibration.	See "CALIBRATION" in setup section.
	Air conditioning system may need to be charged or may not be setup properly.	Refer to the GEN-IV manual regarding system charging and troubleshooting.
Fan speed is low at startup when set to fan auto.	DCC keeps fan low until the GEN-IV unit output air begins to change toward desired temperature.	This is normal operation and is done to prevent uncomfortable blasts of hot or cold air when the opposite is desired at start up. If a faster speed is desired at startup, manually set the speed.

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SERVICE AND REPAIR

DAKOTA DIGITAL offers complete service and repair of its product line. In addition, technical consultation is available to help you work through any questions or problems you may be having installing one of our products. Please read through the Troubleshooting Guide. There, you will find the solution to most problems.

Should you ever need to send the unit back for repairs, please call our technical support line, (605) 332-6513, to request a Return Merchandise Authorization number. Package the product in a good quality box along with plenty of packing material. Ship the product by UPS or insured Parcel Post. Be sure to include the RMA number on the package, and include a complete description of the problem with RMA number, your full name and address (street address preferred), and a telephone number where you can be reached during the day. Any returns for warranty work must include a copy of the dated sales receipt from your place of purchase. Send no money. We will bill you after repair.

Dakota Digital 24 Month Warranty

DAKOTA DIGITAL warrants to the ORIGINAL PURCHASER of this product that should it, under normal use and condition, be proven defective in material or workmanship within 24 MONTHS FROM THE DATE OF PURCHASE, such defect(s) will be repaired or replaced at Dakota Digital's option.

This warranty does not cover nor extend to damage to the vehicle's systems, and does not cover removal or reinstallation of the product. This Warranty does not apply to any product or part thereof which in the opinion of the Company has been damaged through alteration, improper installation, mishandling, misuse, neglect, or accident.

This Warranty is in lieu of all other expressed warranties or liabilities. Any implied warranties, including any implied warranty of merchantability, shall be limited to the duration of this written warranty. Any action for breach of any warranty hereunder, including any implied warranty of merchantability, must be brought within a period of 24 months from date of original purchase. No person or representative is authorized to assume, for Dakota Digital, any liability other than expressed herein in connection with the sale of this product.