

Owner's Manual

with Installation Instructions

Banks Bus Modules

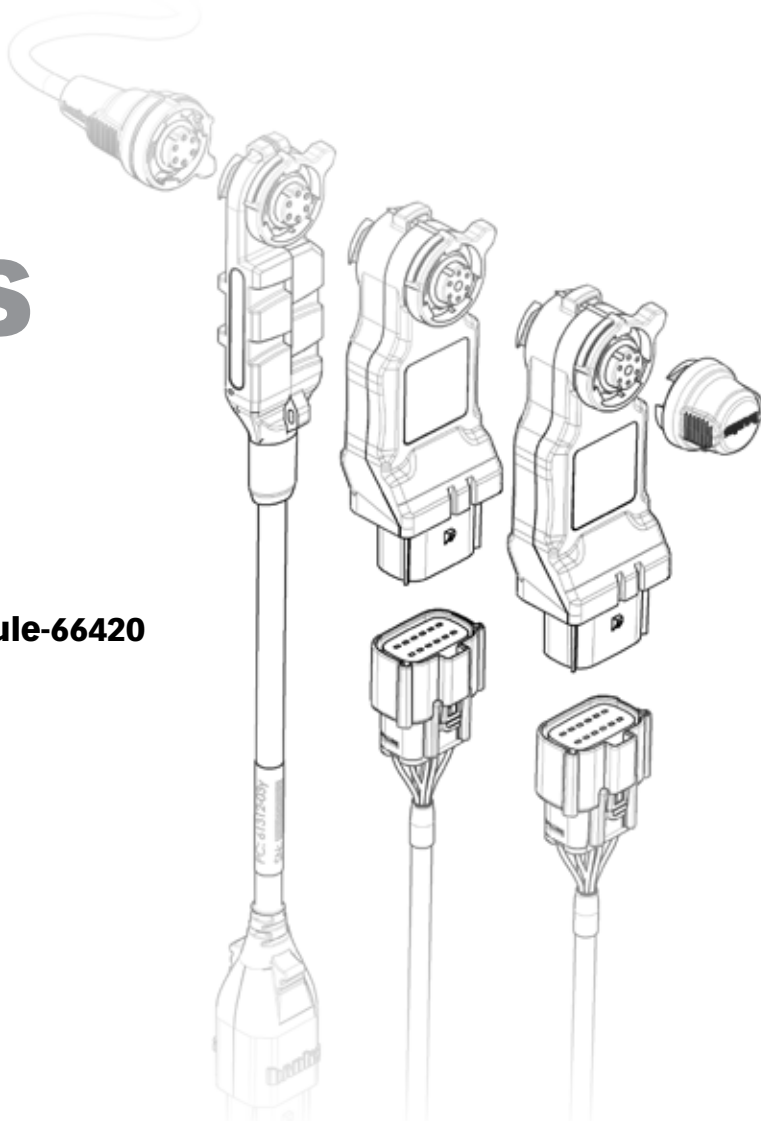
THIS MANUAL IS FOR USE WITH THE FOLLOWING PART NUMBERS:

- **Ambient Air Density (AAD) Module-66420**

Gale Banks Engineering
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(626) 969-9600 • Fax (626) 334-1743
Product Information & Sales: (888) 635-4565
Customer Support: (888) 839-5600
Installation Support: (888) 839-2700

Find our latest installation guide at www.bankspower.com

To ensure that your Banks Bus system is operating as designed, it is recommended that you check if there are any firmware updates for your iDash 1.8 gauges or B-Bus Modules.



BANKS

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Section 1 **BANKS BUS DOCUMENTATION**

1.1 BANKS BUS DOCUMENTATION: INTRODUCTION

Welcome to the World of Banks Bus Expansion Modules

Congratulations on your Banks Bus (B-Bus) Module purchase. You're about to discover how B-Bus Modules are designed to help you get the most out of your iDash 1.8. The unlimited expansion capabilities of the B-Bus system will open a new world of sensor data and powertrain control capabilities. Updated to this manual are posted online at bankspower.com/manuals.

Ambient Air Density (AAD) Module

Your power potential is affected by ambient air conditions surrounding your engine. Banks' AAD Module monitors the pressure, temperature, and humidity of the air entering your intake with extreme accuracy. You will gain a new understanding of how elevation, temperature, and humidity effect your engine's performance.

Derringer Tuner

Adding the Banks Derringer Tuner with iDash 1.8 will result in torque and power gains across the full operating rpm range, providing control of all features through one amazing "gauge."

4-Channel Analog Sensor Module*

Did you ever want to monitor your transmission's fluid temperature or engine's oil pressure but the manufacturer was unwilling to include that sensor? Now you can do something about it. Banks 4-Channel Analog Sensor Module, allows you to add additional sensors to view almost any data you can dream of. The system is plug-and-play and user configurable. Own your vehicle's performance with a variety of pressure and temperature sensors for air, fluid, exhaust measurements, and more.

4-Channel Thermocouple Module*

Add up to four K-Type thermocouples per module and configure them to read EGT, Coolant, Oil, Air temperature, and more.

Water Methanol Module*

The iDash 1.8 interfaces with the all-new Banks Water Methanol Injection Systems, allowing you to quickly change calibration settings and tune how much fluid is used on-the-fly. You can also monitor/datalog flow rate, pump activity, and more with the iDash 1.8.

Don't forget, we're always working on expansions, upgrades, and new applications that will make your iDash 1.8 do even more. Be sure to register at www.bankspower.com/contact/productregistration to receive important e-mail alerts regarding warranty, updates, and upgrades for your iDash 1.8 device. Or call us with questions at:

1-800-GET POWER.

*Coming Soon



WARNING

BEFORE INSTALLING, please review Sections 4.0, 4.1, and 4.2 to familiarize yourself with your product's safe operating procedures.

1.2 BANKS BUS DOCUMENTATION: BANKS BUS HARDWARE CONFIGURATION

The iDash 1.8 Gauge is equipped with an expansion port which allows your iDash 1.8 to interface with and control a variety of Modules. These B-Bus Modules increase the capabilities of the system by allowing you to read additional sensors that might not exist on your vehicle, with higher accuracy and faster update rates. They also allow you to control existing Banks Tuning devices such as (the Derringer Tuner) and other control modules that will be available soon.

Connecting B-Bus Devices

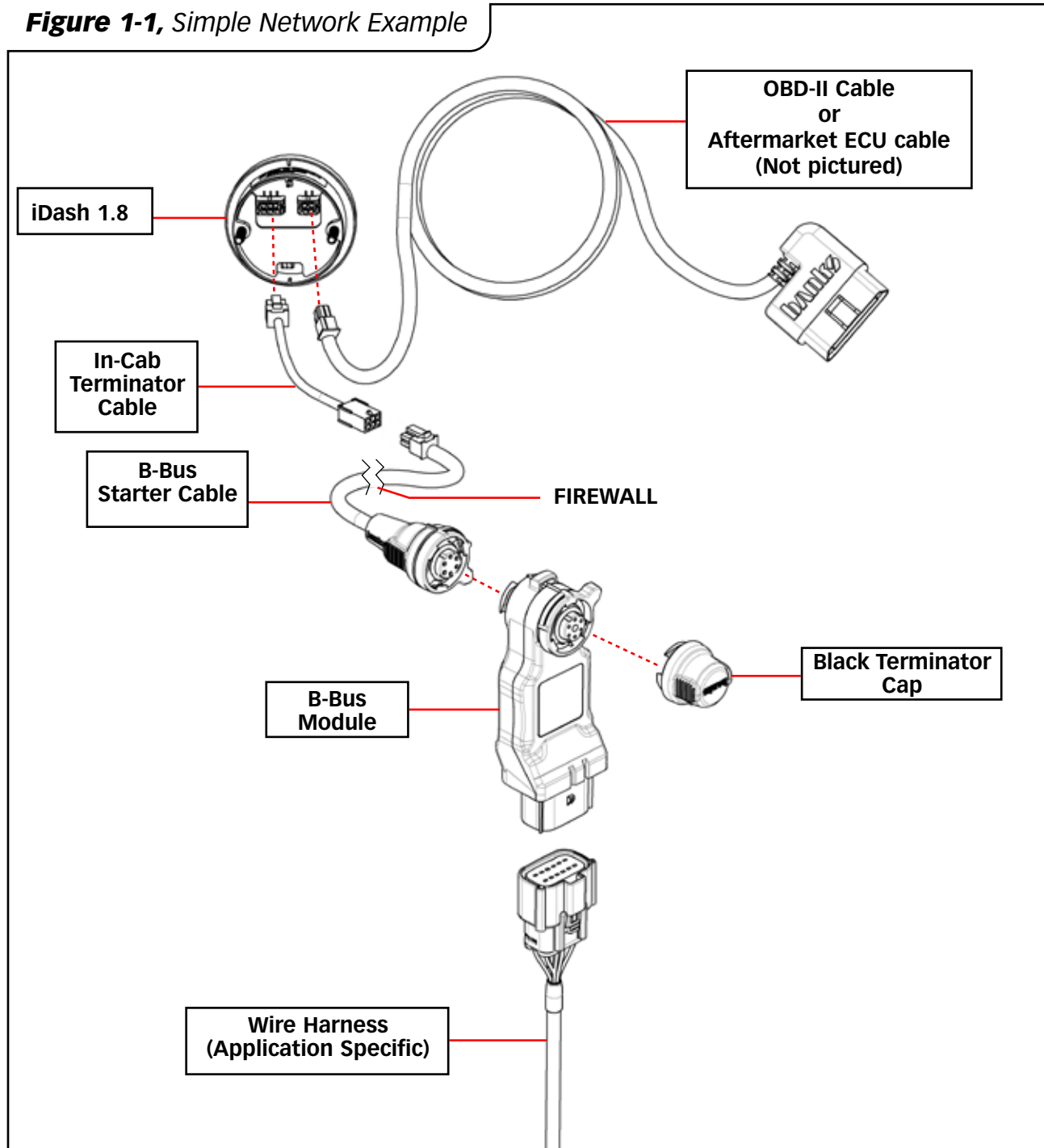
This communication network allows you to connect a multitude of different Modules. Based on your specific needs, custom tailor your data acquisition and performance tuning.

The B-Bus network is designed to be extremely scaleable allowing you to easily add new Modules as they are needed. The first Module you connect to the B-Bus network requires a Starter Cable, an In-Cab Termination Cable, and a Black Termination Cap. Every additional B-Bus Module requires just the Module itself, since it stacks onto the existing network in the engine bay. Only a single cable is required to be routed through the firewall, making installation both easy and clean.

B-Bus Simple Network

The network requires a minimum of one iDash 1.8 Gauge, an In-Cab Terminator Cable, a B-Bus Starter Cable, a B-Bus Module, and a Black Termination Cap.

Figure 1-1, Simple Network Example



B-Bus Advanced Network

Adding More Gauges

Up to three additional iDash 1.8's can be added to the network (a maximum of four iDash units). Each additional iDash 1.8 requires a B-Bus Y-Cable.

Primary iDash 1.8 Gauge

The iDash 1.8 that has the OBD-II cable or aftermarket ECU cable plugged into it is referred to as the primary iDash 1.8. Some functionality, such as data logging and vehicle diagnostics, can only be performed on the primary iDash 1.8.

Secondary iDash 1.8 Gauges

Any additional iDash 1.8 gauges connected other than the primary iDash 1.8.

Adding More Modules

Additional B-Bus Modules can be added to the system simply by stacking them onto existing Modules. The maximum number of a particular Module allowed in the network varies based on the Module type and can be found in **Figure 1-2**.

Adding an AAD Module

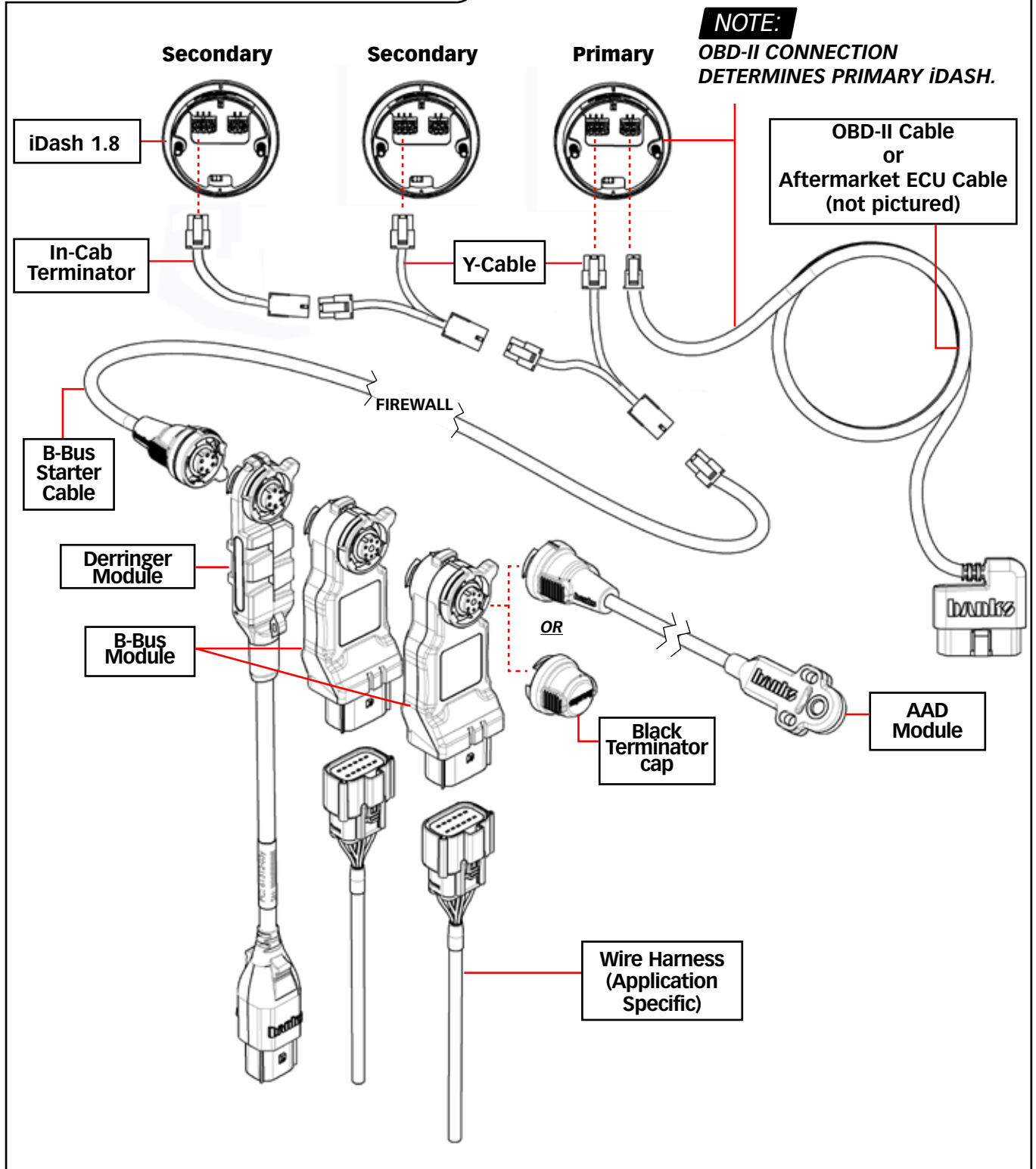
If using an AAD Module, the Module will replace the termination cap.

Figure 1-2, Max number of Modules Allowed

Name	P/N	Max Allowed
iDash 1.8 Gauge	62882	4
4-Channel Analog Sensor Module*	61301	6
4-Channel Thermocouple Module*	61300	4
Ambient Air Density Module	61303-11	1
Water-Methanol Module*	61306	1
Derringer Tuner	61312	1

**Module Coming Soon*

Figure 1-3, Advanced Network Example



1.3 BANKS BUS DOCUMENTATION: GENERAL BANKS BUS HARDWARE INSTALLATION

Starter Cable to iDash 1.8 Installation

Required Tools & Materials

For Wire Routing:

- Zip Ties (4" or longer)*
- Cutting tool (i.e. Diagonal Cutters)
*(Included in kit)

For Firewall Access (Need based on type of access through firewall):

- Carpenter's Knife or Razor Blade
- Silicone Sealer (Recommended)
- Wire Coat Hanger (Recommended)
- Screwdriver
- Power Drill
- Step Drill Bit (Recommended)
- Grommet (1/4" Inner Diameter)



WARNING

BEFORE INSTALLATION:



Ensure that the engine bay is cool.



Disconnect iDash 1.8 from OBDII.
This will prevent accidental damage
to electronics.

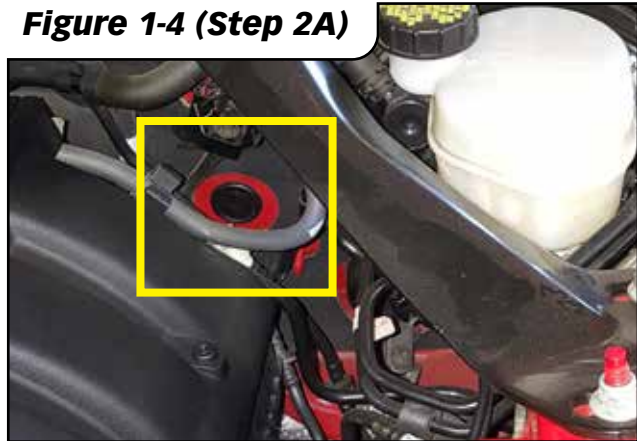
1. To locate any possible passage for wire routing, inspect the firewall from under the dash (in the foot well) and from under the hood. See **Figure 1-4, 1-5**.

2. Firewall routing options:

A. Preferred method: Some vehicles provide an extra harness access point in the firewall. See **Figure 1-4**.

- 1) Remove Cap sealing access point (if available). See **Figure 1-4**.
- 2) Install a properly sized grommet.
- 3) Feed the smaller terminal of the Starter Cable through the hole.

Figure 1-4 (Step 2A)



B. Secondary Method: Route the Starter Cable through the firewall using the OEM wire harness gasket.

See **Figure 1-5**.

- 1) Cut a small "X" away from the edge of the harness.
 - Check for penetration through the gasket.
 - Be careful not to cut wires.
- 2) Feed the smaller terminal of the Starter Cable through the hole.

TIP: A wire coat hanger is helpful for pulling the harness through the OEM wire harness gasket. Be careful not to damage the OEM gasket or harness.

Figure 1-5 (Step 2B)



C. Only use this if A and B are not possible. Create a new access point through the firewall if no other options are available.

- 1) Inspect potential drilling location from both sides of the firewall. Ensure that you will not drill into anything.
- 2) Drill a hole to the size your grommet requires.
- 3) After drilling a new hole, install a properly sized grommet.
- 4) Feed the smaller terminal of the Starter Cable through the grommet hole.



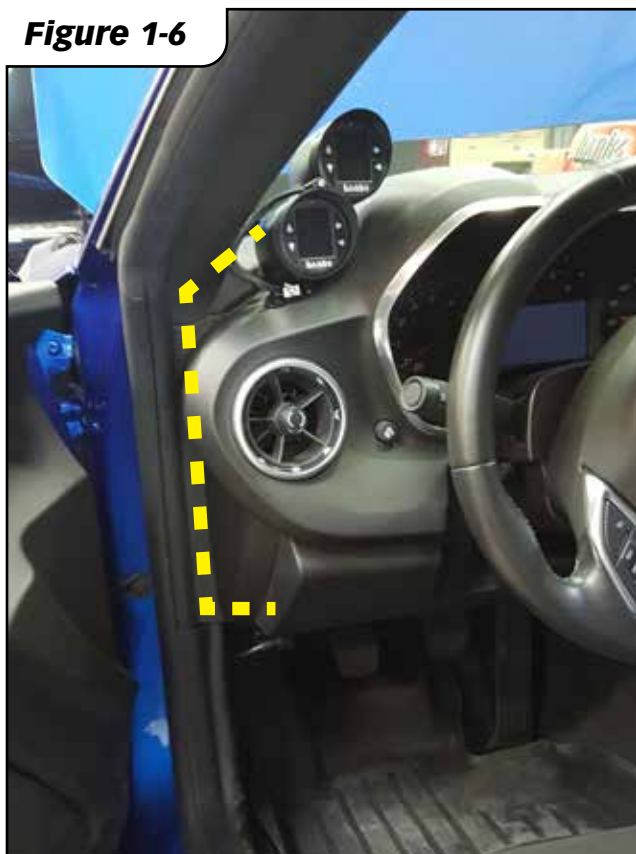
WARNING

AVOID any Starter Cable slack in the footwell to prevent foot getting caught while driving.

3. Route the Starter Cable from the firewall access point to the iDash 1.8 and zip-tie the cable to a secure location. See **Figure 1-6**

NOTE: You may need to loosen or remove the dash panel or trim to install the cables between dash crevices or behind dash panels.

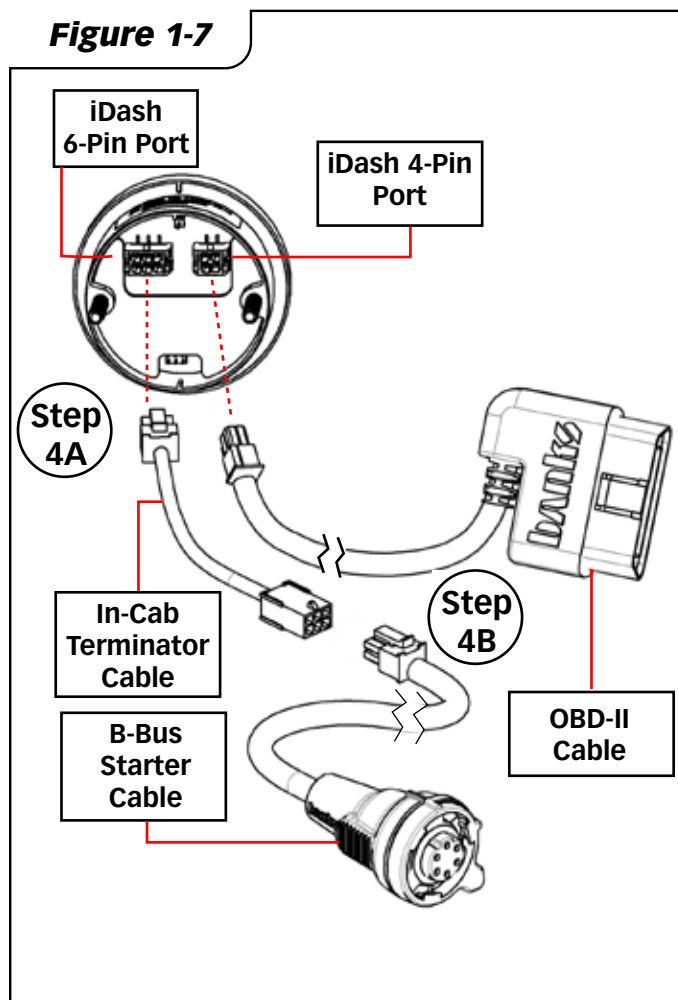
Figure 1-6



4. If using a single iDash 1.8 Gauge:

- A.** Connect In-Cab Terminator to iDash 1.8 6-pin port.
- B.** Connect Starter Cable terminal to the In-Cab Terminator.

Figure 1-7



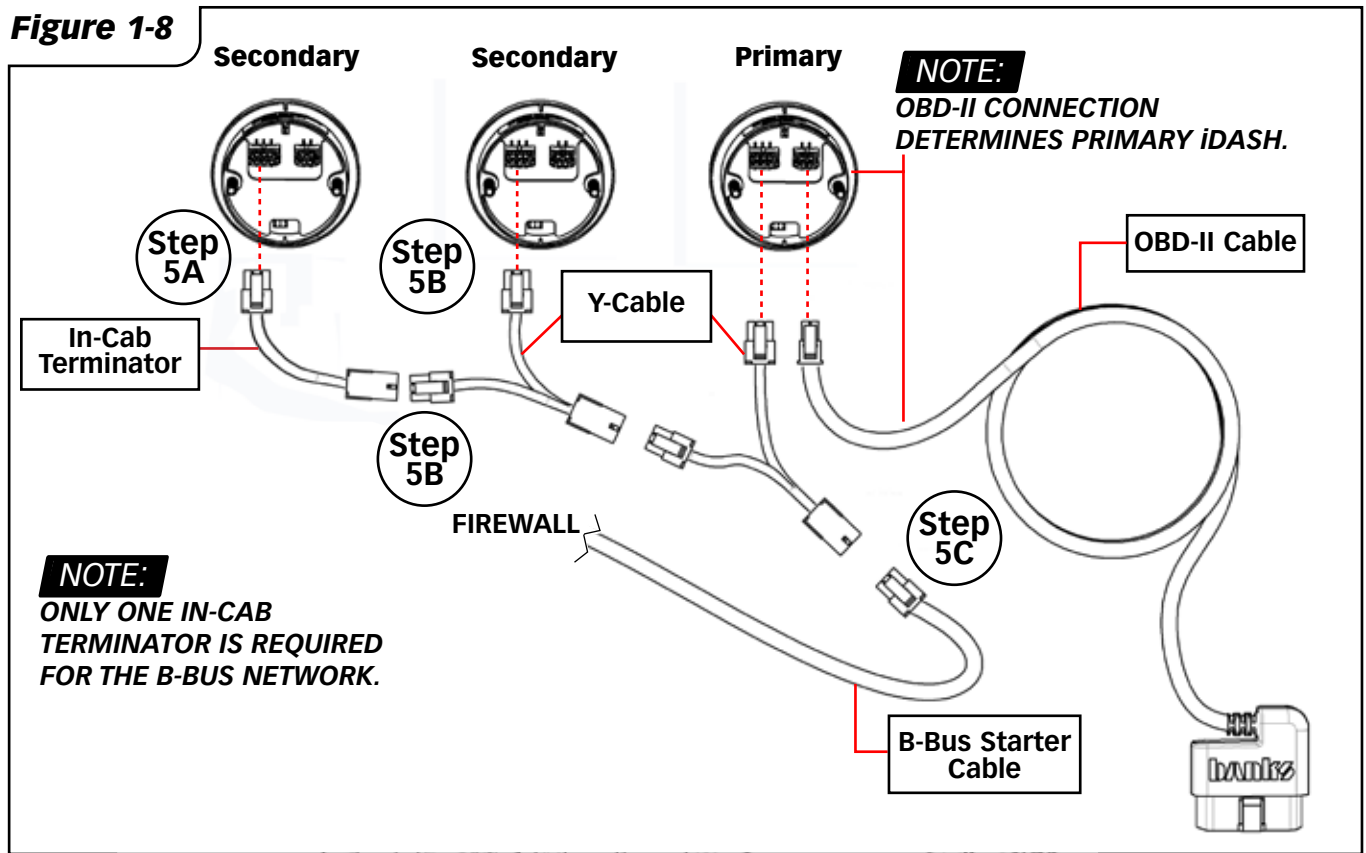
5. If using multiple iDash 1.8 Gauges:

- A.** Connect the In-Cab Terminator to the iDash 1.8 6-pin port.
- B.** Connect the Y-Cable to the second iDash 1.8 and the In-Cab Terminator.

NOTE: Each additional iDash 1.8 gauge uses its own Y-Cable. See **Figure 1-8**.

- C.** Connect the Starter Cable to the Y-Cable. See **Figure 1-8**.

Figure 1-8



6. On the engine bay side of the firewall, pull excess wire and secure the Starter Cable to an easily accessible point for connection. See **Figure 1-9**.

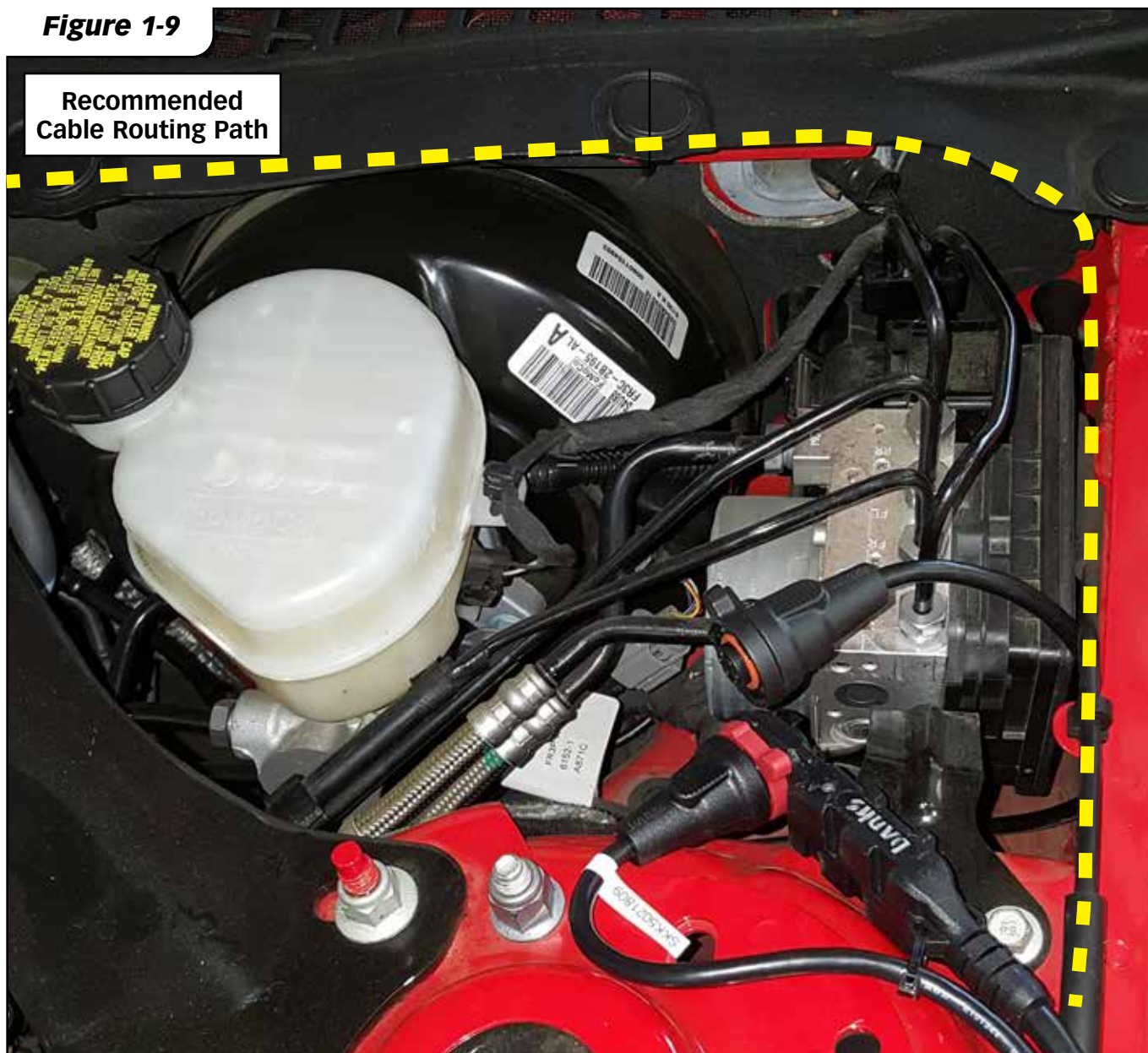
7. Recommended: Apply black silicone sealer around the access point used by the Starter Cable.



CAUTION

DO NOT mount to heat emitting objects.
DO NOT mount to rotating and moving components.
DO NOT mount to high voltage sources.
DO NOT mount to sharp edges.

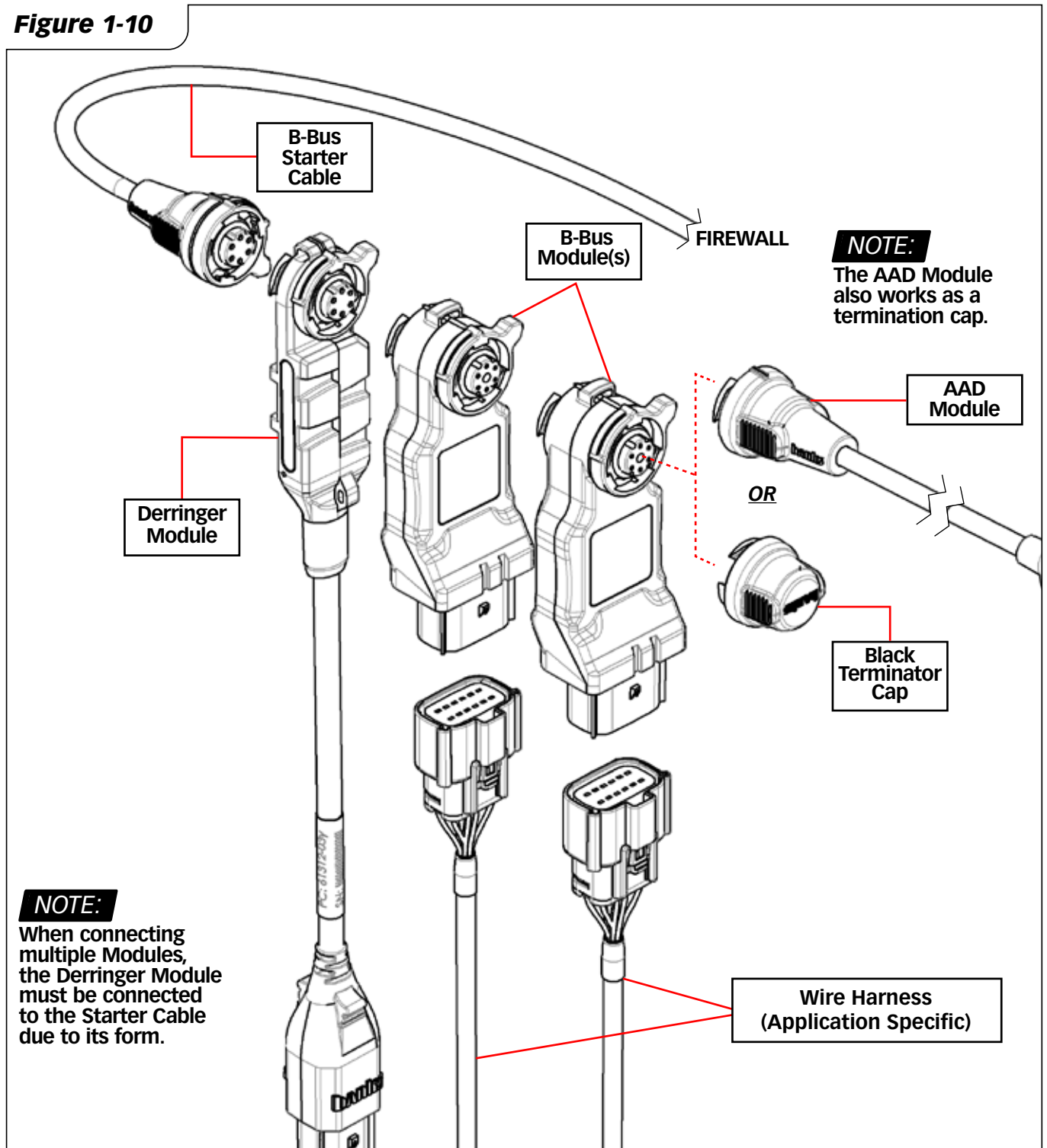
Figure 1-9



Locking Ring Connection Procedure

1. To connect Modules, the orientation and order should be followed as shown in **Figure 1-10**.

Figure 1-10



2. Rotate the locking ring towards the 12 o'clock position then connect the mating ends together ensuring proper alignment using the 12 o'clock "un-lock" marks. See **Figure 1-11**.

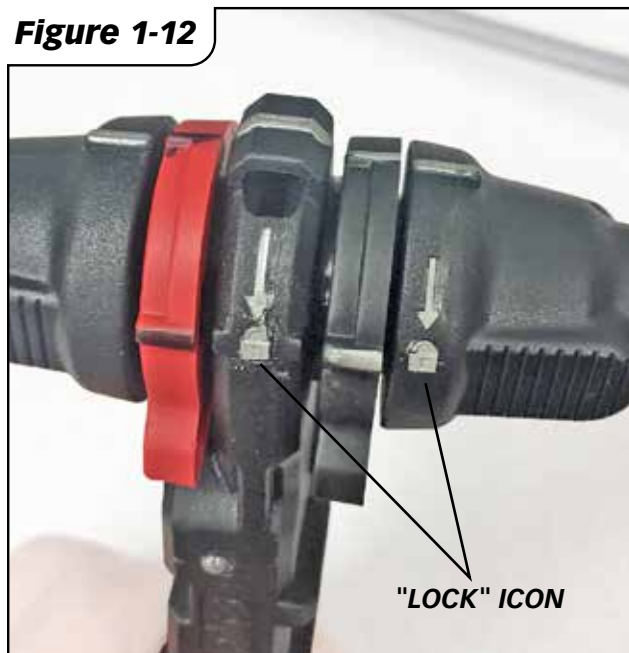
NOTE: Highlighted features for clarity only.

Figure 1-11



3. Rotate the locking ring towards the "lock" icon until you feel a click. See **Figure 1-12**.

Figure 1-12



Section 2

MODULE SPECIFIC INSTRUCTIONS:

2.1.1 AMBIENT AIR DENSITY MODULE: INTRODUCTION & OPERATION

Intro

Configuration

Install

B-Bus Documentation

Intro

Install

Tech Specs

Diagnostics

AAD Module

Firmware Updates

General Diagnostics

B-Bus Operation

Safety

Disclaimer

General Information

Introduction

Why you need Banks' Ambient Air Density (AAD) Module?

An engine's power potential is directly affected by ambient air conditions. The Banks AAD Module allows you to monitor the pressure, temperature, and humidity of the air entering your engine with extreme accuracy. You will gain a new understanding of how elevation, temperature, and humidity effect your vehicle's performance.

What information does this module provide?

- Ambient Pressure
- Ambient Temperature
- Ambient Relative Humidity
- Ambient Air Density Mass (Banks Patented)
- Ambient Air Density Percentage (Banks Patented)

What can I do with the sensor?

- Measure air density of ambient air around your vehicle.
- Measure air density of the airbox inlet to evaluate how effective your "cold air" intake really is.
- Measure the "Ram-Air" effect of an airbox duct location.
- Data log ambient conditions at the racetrack to compare data between different days.
- Ambient relative humidity can be used to evaluate if air will condense out during the intercooling stage.

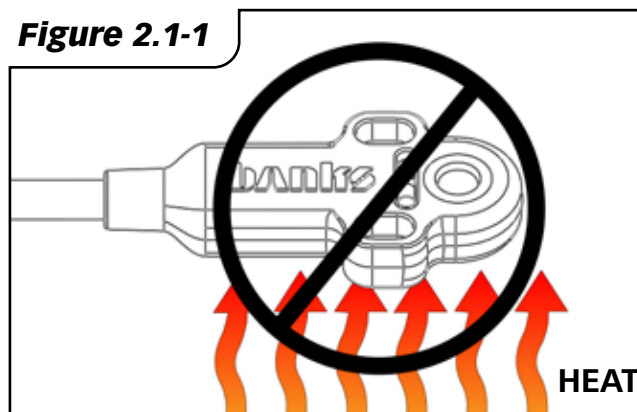
Operation

Considerations When Locating AAD Module:

1. Difficulty of installation.
2. Potential for damage.
3. Potential for non-ideal readings from vehicle emitting heat, dynamic pressure changes when driving, and water on Gore-Tex™ film.

NOTE: Heat soak may be a problem encountered when at idle. Temperature readings may increase due to installation location.

Figure 2.1-1



For best Ambient condition readings, place the AAD Module near the front of the vehicle, in the path of air flow, and where installation is simple.

Example: Attached to the grill, in front of the radiator.

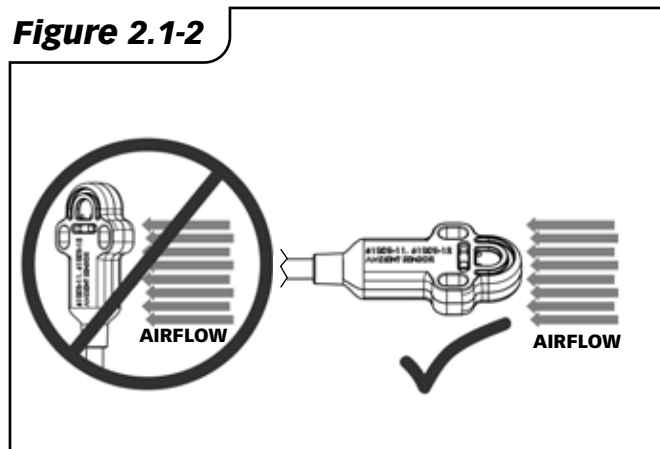
- The AAD Module can easily be zip-tied to the grill.
- Temperature readings may skew from ambient at idle, due to radiating and convecting heat from radiator.
- There is always airflow through the grill while driving.

What orientation is best for the AAD Module?

Avoid having the AAD Module oriented with the membrane installed facing against the direction of air flow. Pressure readings may be skewed due to static pressure buildup when driving, resulting in incorrect Air Density readings. This will reduce life of the membrane, leading to potential damage of the sensor within the AAD Module.

The AAD White Gore-Tex™ membrane should be faced towards the ground to keep water off the membrane.

Figure 2.1-2




2.1.2 AMBIENT AIR DENSITY MODULE: INSTALLATION


NOTE: If you have not installed the **Starter Cable** on your vehicle, refer to **1.3 BANKS BUS DOCUMENTATION: GENERAL BANKS BUS HARDWARE INSTALLATION "Starter Cable Installation"** on **page 9**.

Required Products & Tools

- AAD Module PN: 61303-11*
 - Zip Ties (4" or longer)*
 - Cutting tool (i.e. Diagonal Cutters)
 - Coat Hanger (Recommended)
- *(Included in kit)

 **WARNING**

BEFORE INSTALLATION:

 **Ensure that the engine bay is cool.**


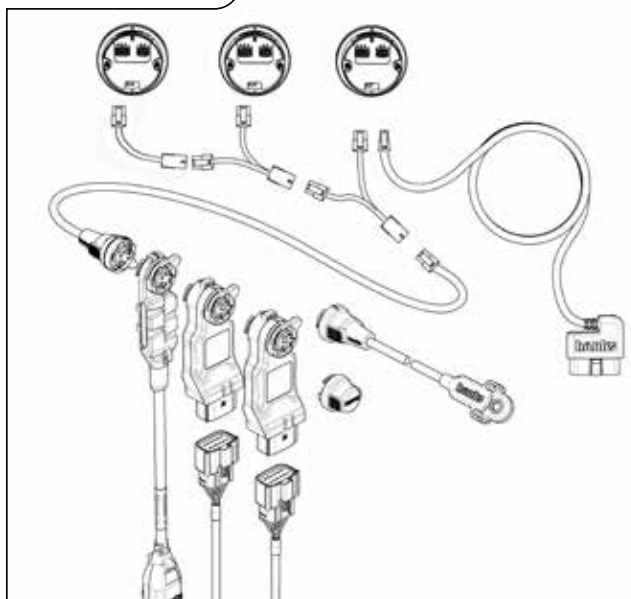

 **Disconnect iDash 1.8 from OBDII. This will prevent accidental damage to electronics.**

Figure 2.1-3



For other mounting location ideas, refer to **2.1.1 Ambient Air Density Module: Introduction & Operation** on **page 17**.

1. Route AAD module to your vehicle grill. See **Figure 2.1-4**.
 - A. Route the cable along the fender.
 - B. Zip-tie the cable to ensure it will stay in place.

 **CAUTION**

DO NOT mount to heat emitting objects. DO NOT mount to rotating and moving components. DO NOT mount to high voltage sources. DO NOT mount to sharp edges.

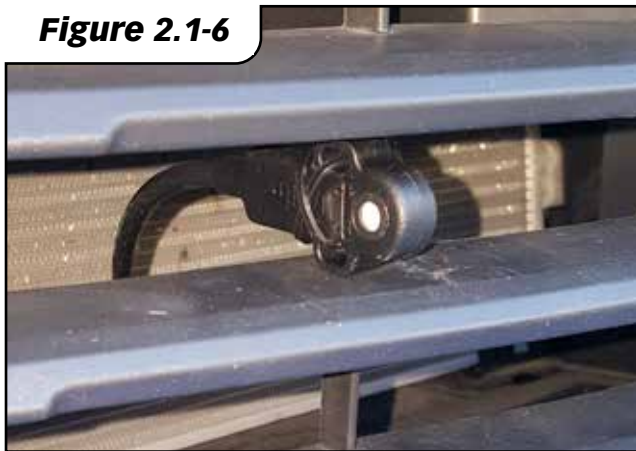


2. Fasten the AAD Module to the grill with the Gore-Tex™ face unobstructed and parallel to the airflow direction. See **Figures 2.1-5, 2.1-6, 2.1-2.**

Figure 2.1-5



Figure 2.1-6



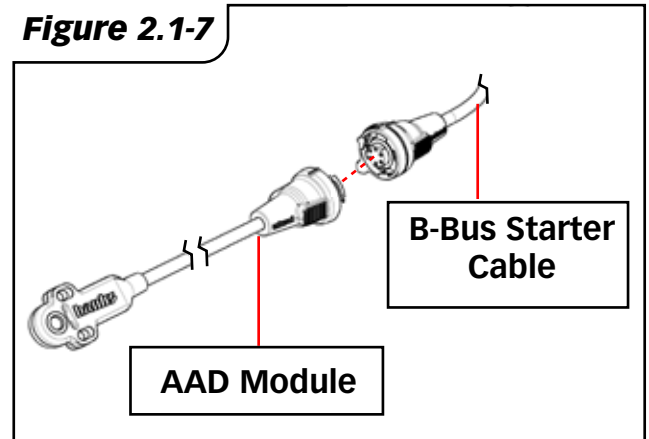
3. Connect AAD Module to the Banks Bus system.

NOTE: For locking ring connection operation, refer to **1.3 B-Bus Documentation: General B-Bus Installation** on page 12.

A. If adding the AAD Module to an iDash 1.8 system with no B-Bus Modules:

- Connect the AAD Module directly to the Starter Cable. See **Figure 2.1-7.**

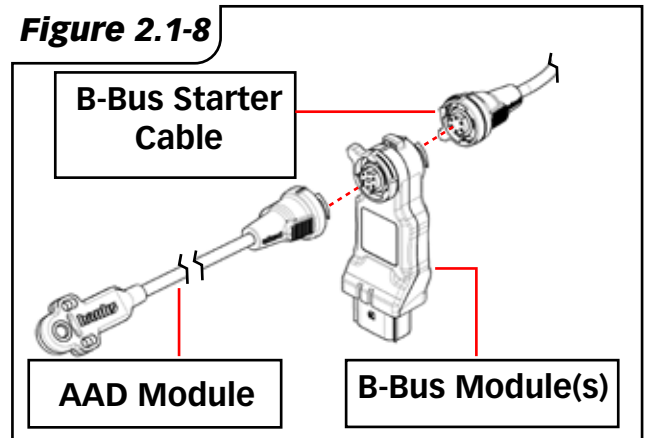
Figure 2.1-7



B. If adding the AAD Module to an existing B-Bus Network:

- 1) Remove the Black Termination Cap from the B-Bus/Derringer Module.
- 2) Connect the AAD Module to the B-Bus/Derringer Module (replaces Black Termination Cap). See **Figure 2.1-8.**

Figure 2.1-8



AAD Module Installation Check

1. After installation, the AAD Module will add the following parameters:

- Ambient Pressure
- Ambient Temperature
- Ambient Relative Humidity
- Ambient Air Density Mass
- Ambient Air Density Percentage

NOTE: If your vehicle possesses OEM temperature and pressure sensors, this data will be overwritten by the more accurate and faster-responding AAD Module data.

2. To change iDash 1.8's displayed parameters (See **Figure 2.1-9**):

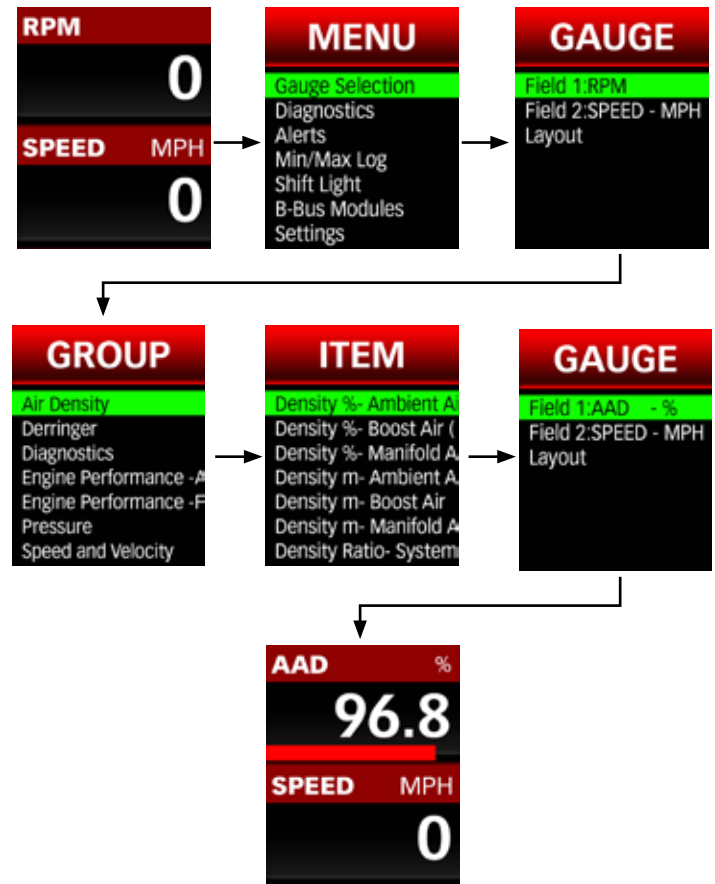
- Go to "**Menu**" and select "**Gauge Selection**".
- Select a "**Field #**" to change the parameter.

NOTE: Consider layout selected when choosing field to change.

- Select a "**Group**".
- Select an "**Item**" to display the parameters.
- Hold the **BACK** button to return to the gauge screen and your new parameter will be displayed.

TIP: Gauge units can be changed in "**Settings**".

Figure 2.1-9



2.1.3 AMBIENT AIR DENSITY MODULE: TECHNICAL SPECIFICATIONS

Figure 2.1-10

General Operating Ranges	
Temperature:	-40 to 185 °F
Pressure:	4.35 to 15.95 PSi
Relative Humidity:	0 to 100% RH

Figure 2.1-11

Sensor Absolute Accuracy		
Temperature:	± 1.8 °F	@ -40 to 149 °F
Pressure:	± 0.0145 psi	@ 4.35 to 15.95 psi & -40 to 149 °F
Relative Humidity:	±3 %RH *	±3 %RH *

*Including Hysteresis: ±1 %RH @ 10→90%→10% & 77 °F

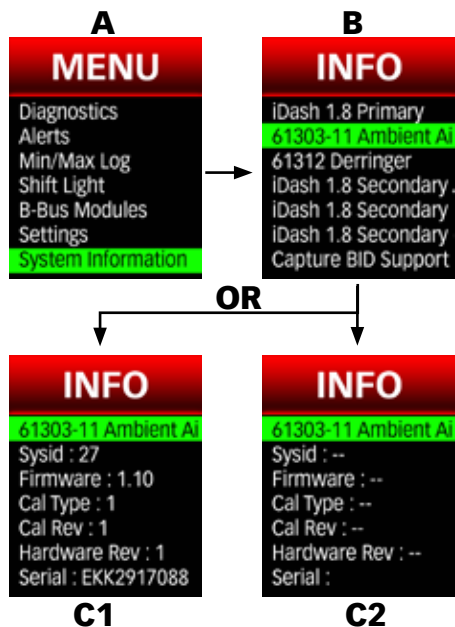
2.1.4 AMBIENT AIR DENSITY MODULE: DIAGNOSTICS

Check for iDash 1.8 connection to AAD Module

Identify AAD Module connection on the iDash 1.8.

- A.** Go to "Menu" and select "System Information." See **Figure 2.1-12A**
- B.** In "System Information" any Module(s) connected will be displayed. Look for "61303-11 Ambient Sensor" and select it. See **Figure 2.1-12B**.
- C.** When looking at the Module information, if all data values are filled with dashes, (**Figure 2.1-12C2**) check physical connections. (Refer to **3.2 Banks Bus Operation: General Diagnostics.**)

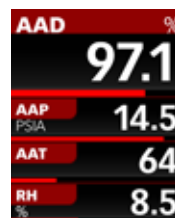
Figure 2.1-12



Check for sensor accuracy

TIP: It is easier to have all relevant parameters displayed at once. See **Figure 2.1-13**.

Figure 2.1-13



1. Pressure

A. Ensure the AAD Module is placed in a stable environment. Not in a windy area.

B. Compare Ambient Air Pressure (AAP) value to atmospheric pressure in your area. Refer to your local weather station.

2. Temperature

A. Ensure the AAD Module is placed in a stable environment.

- Not in a windy area.
- Not next to any heating/cooling source.
- Allow your vehicle to cool overnight if mounted.

B. Compare Ambient Air Temperature (AAT) values to atmospheric temperature. Refer to your local weather station.

3. Relative Humidity

NOTE: Make sure to check the AAD Module's temperature accuracy before checking relative humidity. Relative humidity is a function of moisture content and temperature.

A. Ensure the AAD Module is placed in a stable environment.

- Not in a windy area.
- Not next to any heating/cooling source
- The sensor is dry (specifically on the Gore-Tex mesh).

B. Compare Relative Humidity (RH) values to atmospheric relative humidity. Refer to your local weather station.

Section 3 **BANKS BUS OPERATION**

3.1 BANKS BUS OPERATION: MODULE & iDASH FIRMWARE UPDATES

To ensure that your Banks Bus system is operating as designed, we recommended checking for firmware updates for your iDash 1.8 gauges or B-Bus Modules.

1. Visit www.bankspower.com/update
2. Click on the corresponding product that you would like to update. See **Figure 3-1**.

Figure 3-1



3. Insert a microSD Card into your computer using a USB-to-microSD card reader (not included) or similar device. See **Figure 3-2**.

Figure 3-2

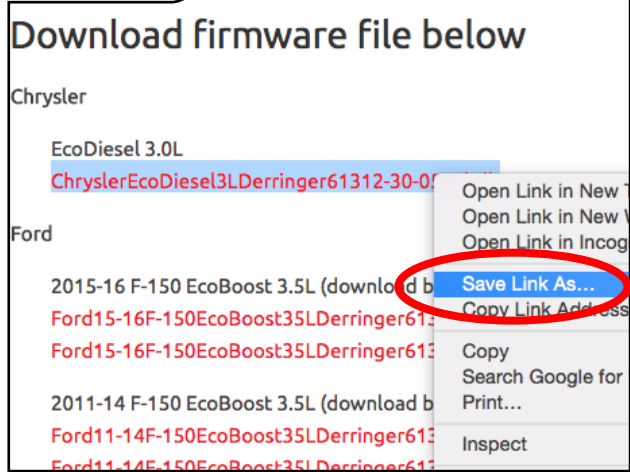


TIP: MicroSD card included if data logging option purchased. You can use any microSD card up to 32GB for firmware updates.

4. Right click on the appropriate firmware and select "Save Link As..." See **Figure 3-3**.

NOTE: You can save several updates for multiple products on the same microSD card.

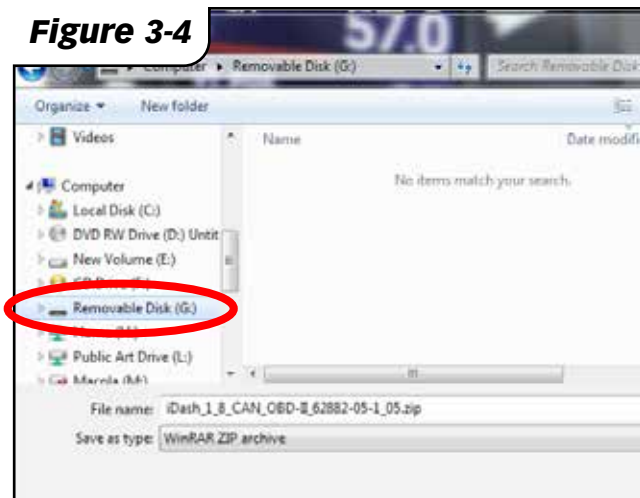
Figure 3-3



5. Navigate to the microSD card drive to save the file. This can be found under the "Computer" section on the left section of the window. The microSD card is typically labeled "Removable Disk."

NOTE: The disk letter will be different from computer to computer. See **Figure 3-4**.

Figure 3-4

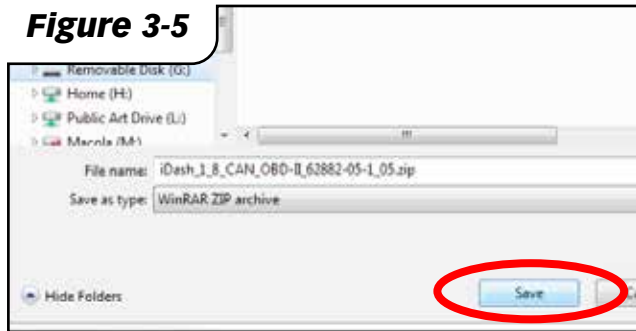


6. Click the "**Save**" button to save the firmware file to the microSD card. See **Figure 3-5**.

- DO NOT change the file name of the firmware.
- Take note of the file name so you can select the correct firmware later. See **Figure 3-5**.

NOTE: DO NOT save file in a folder.

Figure 3-5

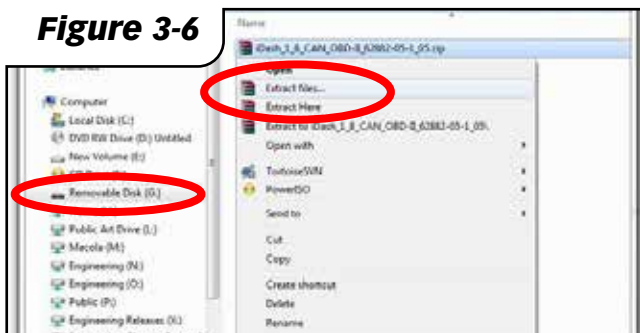


IF UPDATING THE iDASH 1.8, complete **Step 7**; otherwise, for any module skip to **Step 8**.

7. Extract the firmware from the zip folder to your microSD card.

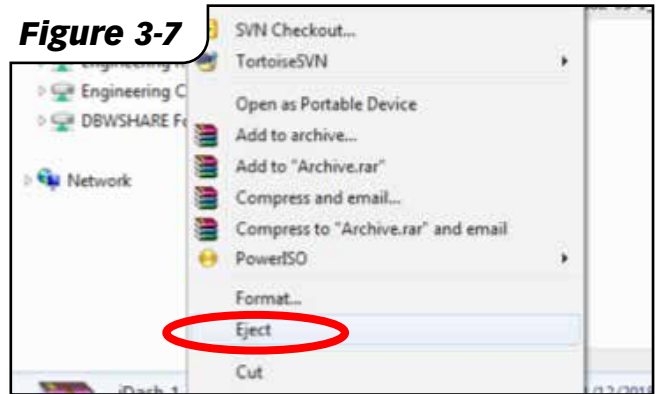
- Open a file browser and navigate to your microSD card folder.
- Right click** on the ".zip" file that you just downloaded, then click on "**Extract Here**".

Figure 3-6



8. Eject and remove the microSD card from the computer by **right-clicking** on the removable drive and clicking on "**Eject**". See **Figure 3-6**.

Figure 3-7



9. In the vehicle with the iDash 1.8 awake, insert the microSD into the iDash 1.8; you will see a notification stating that the microSD card is synced. See **Figure 3-8, 3-9**.

NOTE: **IF UPDATING B-BUS MODULE(S)**, any iDash 1.8 connected could be used for updating the B-Bus Module(s).

IF UPDATING THE iDASH 1.8, each iDash 1.8 must be updated one by one.

Figure 3-8



Figure 3-9



10. Press the "SELECT" button, then select "Firmware Update." See **Figure 3-9**.

Figure 3-10



11. Scroll down and highlight the appropriate B-Bus Module that you want to update then press the "SELECT" button. See **Figure 3-11**.

Figure 3-11



CAUTION

DO NOT remove the microSD card, OBD-II, power cable, or disconnect anything from the B-Bus network while an update is in process. Damage will be caused by failing to adhere.

12. Scroll down and highlight the appropriate Firmware version you downloaded in **Step 6** and press the "SELECT" button. See **Figure 3-12**.

NOTE: You will get an error if the firmware file you select is not compatible.

Figure 3-12



13. The update process will begin and show a progress bar. See **Figure 3-13**.

Figure 3-13



14. If you have multiple Modules with the same part number on the B-Bus, the next Module will automatically begin updating after the first Module is complete. Let this process continue until all Modules are updated.

15. If updating an iDash 1.8, it will need to reset. See **Figure 3-14.**

NOTE: Leave the microSD card inserted for this process.

Figure 3-14



If engine is off during iDash 1.8 update, you may need to press a button to wake up the iDash 1.8 to finish the update. When the iDash 1.8 wakes back up it will begin to load new files (30-45 seconds). See **Figure 3-15.**

Figure 3-15



Upon completion, a message box will let you know the update is complete. It is now safe to remove the microSD card. See **Figure 3-16.**

Figure 3-16



16. Repeat the process (Steps 9-16) for all iDash 1.8's or connected B-Bus Modules.

3.2 BANKS BUS OPERATION: GENERAL DIAGNOSTICS

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WARNING



Disconnect iDash 1.8 from OBD-II. This will prevent accidental damage to electronics.

Inspect B-Bus 6-pin connector.

- Ensure that connector is in the locked position.
- If not in the locked position, ensure that connectors are properly mated.
- Check for any damage to the key on the mating connectors.
- Check connector pins for any damage (i.e. bent pins).

Inspect iDash 1.8 6-pin connector.

- Remove connector and lightly tug on each wire to ensure pins are properly seated in connector housing.
- Ensure connectors are properly mated to the iDash 1.8.

Section 4

GENERAL INFORMATION

4.1 GENERAL INFORMATION:

SAFETY PRECAUTIONS

Always observe safety precautions!

Gale Banks Engineering urges you to always follow safety precautions. These pages include important information intended to prevent property damage and personal injury to yourself and/ or others.

Always be sure you carefully read and understand each precaution before moving on to the rest of the manual.

HANDLING PRECAUTIONS

- Never try to disassemble or modify the iDash 1.8 in any way.
- Do not wipe with a wet cloth.

The iDash 1.8 contains combustible and metal parts, so water and foreign substances can cause malfunction and create the risk of overheating due to wiring insulation failure, short circuiting, smoke, fire, combustion, and electric shock.

OUTDOOR PRECAUTIONS

When outdoors, avoid using the iDash 1.8 anywhere it might get wet with rainwater or other moisture, and/or in dusty conditions. The iDash 1.8 is not water resistant or dust resistant. Water and dust create the risk of fire and smoke, combustion, electric shock, resulting in damage and malfunction.

Never touch the iDash 1.8 or its electronic accessories with wet hands. This will create the risk of electric shock, short circuiting or insulation failure, fire, smoke and combustion. Also, never allow the connector plugs to become wet.

Keep microSD cards out of the reach of small children as they may be swallowed.

If you think this might have happened, Call 911 or consult your local emergency services (police, fire, or ambulance) immediately.

Do not touch the iDash 1.8 or its OBD-II cable if there is lightning in your area.

Lightning strikes create the risk of electric shock.

IN-VEHICLE PRECAUTIONS

Use this unit in 12V DC negative-ground vehicles only.

WARNING: Below 32° F (0° C) or above 140° F (60° C), the iDash 1.8 may be susceptible to damage as a result of extended direct exposure to sunlight, heat, or extreme cold. If the vehicle will be subjected to these conditions, we highly recommend that you remove the iDash 1.8 from its mounting location. Gale Banks Engineering is not responsible for damage to the iDash 1.8 resulting from exposure conditions.

Always drive in accordance with traffic rules and regulations. Failure to do so may result in traffic accident and injury to yourself and/or others.

Never take your eyes off the road to adjust the iDash 1.8 settings or change screens while driving. Doing so can result in a traffic accident. Always stop your vehicle in a safe place before operating the unit. Only look briefly at the iDash 1.8 screen images while operating your vehicle. Doing otherwise can take your mind off the road and create the risk of a traffic accident and injury to yourself and/or others. Do not set volume level too high. Blocking out the sound of other vehicles and traffic can create the risk of a traffic accident.

Never install the iDash 1.8 in a location where it will interfere with operation of the motor vehicle, block the driver's view, or where it may endanger passengers. Installing the unit near the shift lever, brake pedals or other vehicle controls, or blocking front, side or rear vision, can create the risk of a traffic accident and cause injury to yourself and/or others. Never install the iDash 1.8 where it can interfere with airbag operation. Do not install in a location where deployment of the airbag might cause the iDash 1.8 or its parts to become projectiles. Also, be sure to check installation precautions for your exact vehicle model and year.

Make sure to install the iDash 1.8 mount so it does not come off or fall down. Clean off any dirt and wax from the installation location, and install securely.

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4.2 GENERAL INFORMATION: DISCLAIMER

DISCLAIMER OF LIABILITY & WARRANTY

Gale Banks Engineering Inc. (GBE), and its distributors, employees, and dealers (hereafter "SELLER") shall in no way be responsible for the product's proper use and service. The BUYER hereby waives all liability claims.

The BUYER acknowledges that he/ she is not relying on the SELLER's skill or judgment to select or furnish goods suitable for any particular purpose and that no liabilities extended beyond the description on the face hereof and the BUYER hereby waives all remedies or liabilities, expressed or implied, arising by law or otherwise, (including without any obligations of the SELLER with respect to fitness, merchantability, and consequential damages) whether or not occasioned by the SELLER's negligence. The BUYER is responsible to fully understand the capability and limitations of his/her vehicle according to manufacturer specifications and agrees to hold the SELLER harmless from any damage resulting from the failure to adhere to such specifications.

The SELLER disclaims any warranty and expressly disclaims any liability for personal injury or damages. The BUYER acknowledges and agrees that the disclaimer of any liability for personal injury is a material term for this agreement and the BUYER agrees to indemnify the SELLER and to hold the SELLER harmless from any claim related to the item of the equipment purchased. Under no circumstances will the SELLER be liable for any damages or expenses by reason of the use or sale of any such equipment.

The BUYER is responsible to obey all applicable federal, state, and local laws, statutes, and ordinances when operating his/ her vehicle, and the BUYER agrees to hold SELLER harmless from any violation thereof.

The SELLER assumes no liability regarding the improper installation or misapplication of its products. It is the BUYER's responsibility to

check for proper installation and if in doubt, contact the manufacturer. The BUYER is solely responsible for all warranty issues from the automotive manufacturer.

The use of this device signifies automatic approval of these conditions.

GALE BANKS ENGINEERING LIMITED WARRANTY

Please see enclosed warranty information card, or go to www.bankspower.com/support/warranty, for warranty information regarding your product. THIS WARRANTY APPLIES ONLY TO THE ORIGINAL CONSUMER PURCHASER OF THIS PRODUCT.

In the event of a defect, SELLER will, at its discretion, repair or replace the hardware product with a product of like kind or quality, which may be new or reconditioned, with no charge to the purchaser for parts or labor. SELLER's limit of liability under this limited warranty shall be the actual cash value of the product at the time the purchaser returns the product to SELLER for repair, less a reasonable amount for usage, as determined by SELLER in its sole discretion. The repaired or replaced product will be warranted for 90 days from the date of return shipment, or for the balance of the original warranty, whichever is longer.

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PURCHASER’S EXCLUSIVE REMEDY UNDER THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY SHALL BE LIMITED TO THE REPAIR OR REPLACEMENT, AT SELLER’S OPTION, OF ANY DEFECTIVE PART OF THE UNIVERSAL iDash 1.8 OR ACCESSORIES WHICH ARE COVERED BY THIS WARRANTY. REPAIRS UNDER THIS WARRANTY SHALL ONLY BE MADE BY SELLER AT ITS FACILITY. ANY REPAIRS BY ANYONE OTHER THAN SELLER WILL VOID THIS WARRANTY.

For repair or replacement of the SELLER iDash 1.8 product the purchaser must obtain a Return Materials Authorization (RMA) number from SELLER Technical Support, prior to shipping. The purchaser must return the product postpaid with a copy of the original sales receipt, purchaser’s return address and the RMA number clearly printed on the outside of the package to the SELLER Service Center address provided by SELLER with the RMA number. SELLER reserves the right to refuse to provide service free-of-charge if the sales receipt is not provided.

If the information contained in it is incomplete or illegible or if the serial number has been altered or removed. SELLER will not be responsible for any losses or damage to the product incurred while the product is in transit or is being shipped for repair. Insurance is recommended. SELLER recommends using a trackable shipping service like UPS or FedEx when returning a product for service.

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- (a) periodic maintenance and repair or

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SAFETY INFORMATION

DO NOT USE THE iDASH 1.8 NEAR WATER OR IN AN ELECTRICAL STORM AS THIS COULD LEAD TO AN ELECTRICAL SHOCK. DO NOT USE THE iDASH 1.8 NEAR A NATURAL GAS LEAK.

Check local regulations for disposal of electronic products.

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