banks

Owner's**Manual**

Banks OttoMind® Programmer
w/EconoMind Features

01-07 GM 8.1L Workhorse Class-A Motor Home
99-07 4.8L, 5.3L, 6.0L, 8.1L Trucks

THIS MANUAL IS FOR USE WITH P/N 66051, 66053

banks

09/22/09 **PN 96343** v.6.0

General Installation Practices

1. Before starting work, familiarize yourself with the installation procedure by reading all of the instructions.

2. Refer to each step and section diagram in this manual for proper instruction.

3. Throughout this manual, the left side of the vehicle refers to the driver side, and the right side to the passenger side.

4. Ensure the vehicle battery is in a fully charged state and all voltage draining electrical equipment in OFF position during Banks OttoMind installation.

5. Save this Owner's Manual as a reference for system maintenance and service.

Introduction

The Banks OttoMind is designed to reprogram the factory ECM in order to give you a custom Banks Performance tune. The Banks OttoMind programmer will store your factory tune and install the Banks OttoMind tune, easily and in minutes. With the Banks OttoMind programmer you will be able to diagnose any trouble codes and clear trouble codes. Follow the instructions to complete the Banks OttoMind performance tune and get ready to enjoy a Banks Power product upgrade.

Table of Contents

Section 1
PREPARING VEHICLE FOR BANKS OTTOMIND PROGRAMMING

Follow the vehicle preparation steps to ensure a complete program installation. These steps must be performed prior to installing the Banks OttoMind program.

Warning

• **Failure to follow proper instructions can result in a damaged or disabled ECM (Engine Control Module).**

• **Do not perform any operations on Banks OttoMind while vehicle is running. The vehicle must be parked and engine OFF.**

Precautions for Tuner Flashing

The vehicles Batteries must be fully charged and in good condition before using the Banks OttoMind.

Note: Always turn off all auxiliary vehicle systems or functions that might come active while the key in the vehicle is in the "ON" position. Locate the fuse box and remove the fuses for the fuel pump cooling fans and all auxiliary systems or functions. Auxiliary systems/functions draw power from the battery and can cause the download/upload process to take longer or freeze the process if the battery charge is to low.

Figure 1: *Display and Keypad Description*

ESC (ESCAPE):
Scroll menu back to previous page

Arrow LEFT:
Scroll menu to the left

ARROW DOWN:
Scroll down the menu

ARROW UP:
Scroll up the menu

ENT (ENTER):
Select parameter highlighted in menu

Arrow RIGHT:
Scroll menu right (use this key to view entire descriptions)

Familiarize yourself with Banks OttoMind keypad controls. The keypad will allow the user to navigate between screens and to select functions. (See **Figure 1**).

Preparation and Precautions

WARNING: The Banks OttoMind Programmer will NOT work with 2003 GM ECMs with an Intel chip. Locate the ECM and look at the weather stripping gasket on the ECM housing. If the weather stripping is reddish-orange, then the ECM has an Intel chip and the Programmer will not work.

1. Do not activate any electrical accessories while installing the Banks OttoMind Performance tune. Ensure that there are no electronic devices wired or plugged into the vehicle that can cause a substantial voltage drop, which can be activated during the installation of the Banks OttoMind Performance tune. Please contact a Banks dealer if uncertain about devices that are on your vehicle.

2. Certain cellular phones or radio equipment might also cause interference, please remove or turn such devices off.

3. Ensure that the vehicle battery voltage is correct. Charge your battery if necessary.

Note: Do not attempt to install the Banks OttoMind performance tune on a vehicle with a insufficiently charged battery.

4. Unless instructed in the installation steps, never turn the ignition key OFF while the Banks OttoMind is plugged into the OBDII connection port.

Warning: Unplugging the Banks OttoMind Programmer while uploading or downloading a program can damage the vehicles ECM.

5. Ensure that the factory "stock" tune is in the vehicle's ECM before installing the Banks OttoMind. If you are uncertain if your vehicle has the stock tune then have the vehicle's ECM reflashed by a GM dealer.

Note: GM dealer re-flashes are the same as stock factory tune.

WARNING: The Banks OttoMind should not be installed over a nonfactory/aftermarket performance tune, and cannot be used in conjunction with other tuning devices such as chips or plug in modules of any kind.

Connecting to OBD II

6. Locate the OBD II connection port in your vehicle. The OBD II connection port is located under the dash panel and can be located on either side of the steering wheel.

7. Connect your Banks OttoMind programmer to the vehicle OBD II connection port.

*Note: When the OBD II connector is plugged, the Banks OttoMind will automatically power on and illuminate its screen. If the Banks OttoMind does not come on then check the fuse to the cigarette lighter in the fuse panel. The screen will display the Banks OttoMind (See **Figure 2**), Then display the 'Main Menu'.*

```
FIGURE 2

        Banks
       OttoMind
```

-END, SECTION 1-

Section 2
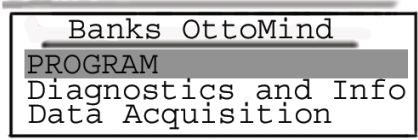## BACKING UP THE FACTORY TUNE AND INSTALLING TUNE

Warning: Do not unplug the Banks OttoMind Programmer while uploading or downloading a program. Doing so can damage the vehicles ECM.

DISCLAIMER: OttoMind must be used with a factory tuned vehicle, otherwise damage may occur. If you are not sure about your vehicle tune, contact Banks Technical Service.

–IMPORTANT- Turn the ignition ON, but DO NOT start the engine. Apply the parking brake to turn off lights and conserve the battery. (Not necessary on some models that do not activate parking lights when the ignition is turned ON).
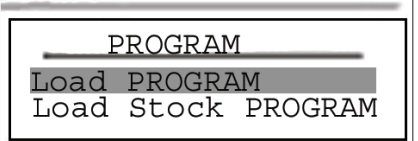
1. Using the keypad, scroll up or down to 'PROGRAM' and press the 'ENT' button on the keypad. See **Figure 3**.

```
FIGURE 3
┌────────────────────────────┐
│    Banks OttoMind          │
│ PROGRAM                    │
│ Diagnostics and Info       │
│ Data Acquisition           │
└────────────────────────────┘
```

2. Select 'LOAD PROGRAM' inside the 'PROGRAM' submenu and press the 'ENT' button. See **Figure 4**.

```
FIGURE 4
┌────────────────────────────┐
│       PROGRAM              │
│ Load PROGRAM               │
│ Load Stock PROGRAM         │
└────────────────────────────┘
```

3. Select desired tune to install and press the 'ENT' button to continue

4. Banks OttoMind will display the Disclaimer. Read through the disclaimer. You can choose to accept the disclaimer and continue with the tune by pressing the 'Enter' button or press the 'ESC' button to reject and exit.

5. The programmer will ask you to choose your vehicle type. Select between a 'Truck/SUV' or 'Motor home'. Highlight your selection and press the 'ENT' button to continue.

- For GM (8.1L) Motor Homes Skip to **Step 8**.

Motor home models do not have adjustable parameters.

- For Gas Chevy/GMC Trucks or a Chevy/GMC SUV proceed to **Step 6**.

For All Trucks & SUVs

6. In the 'ADJUST OPTIONS' screen you may modify Limited parameters to your tune by selecting 'Adjust Options' (advanced users only). Selecting 'Skip Options' will use Stock values for your tune.

The following parameters may be modified:

-Tire Size
-Axle Ratio
-Speed Limiter
-Fuel Octane

Warning: Engine Detonation may occur if incorrect Octane Fuel is selected. Select the correct fuel octane or damage may result to your engine.

Warning Only Adjust/Remove speed limiter higher than stock if your vehicle is equipped with appropriately speed-rated tires.

Note: Adjustable parameters vary by model and year range. See Figure 15.

In the parameter menu. Scroll Up and Down and press 'ENT' to select desired parameter. Once in the parameter sub

menu press the Up or Down key to select the appropiate/desired value. To save your changes press the 'ENT' button.

Note: If you have previously flashed your vehicle with the OttoMind and made changes to adjustable parameters, the OttoMind will retain your most recent parameter selections. To modify your selections when reflashing your vehicle again select 'ADJUST OPTIONS' instead of 'KEEP PREV OPTS' in the adjust options screen.

-IMPORTANT- Verify your vehicles axle ratio. The vehicle axle ratio can be determined by the RPO number in the glove box. See **Figure 5** for conversion of the RPO number to rear axle ratio. An incorrect axle ratio entry will alter engine R.P.M and transmission shift points.

If adjusting your axle ratio you must calculate the change in percent of the old ratio in relation to the new ratio. To calculate the percentage change in axle ratios divide the new axle ratio by the current axle ratio. The result will be the percentage of the old axle ratio on the vehicle in relation to the new ratio in decimal form.

If adjusting tire size, you must enter the change in size as a percent. The tire size percentage can be determined by using the vehicles GPS and run the vehicle at highway speed (60MPH). Take the GPS Speed and divide it by the speedometer speed. This will give you the percentage of adjustment.

7. Once you have finished modifying your selected tune, press the 'ESC' button to save changes and begin installing the tune.

All Vehicles

8. In the 'Tune Vehicle' screen, select 'Begin PROGRAM' and press the 'ENT' button to continue.

9. Follow the on screen instructions and turn the ignition key 'ON', but do not start the engine, when prompted by the programmer.
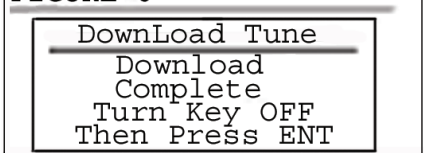
Note: The initial tune process may take up to thirty minutes to complete.

Warning: Unplugging the Banks OttoMind Programmer while uploading or downloading a program can damage the vehicles ECM.

10. The Banks OttoMind programmer will begin to upload the Stock tune to the Handheld and display percentage of completion. After the completion of the stock tune upload, Banks OttoMind will download the selected tune to the ECM. The Banks OttoMind message center will display the percentage of completion.

11. When the process is complete the screen will display "Download Complete, Turn Key OFF, Then Press ENT." See **Figure 6**.

```
FIGURE 6
     DownLoad Tune
       Download
       Complete
     Turn Key OFF
    Then Press ENT
```

12. The selected tune is now in the vehicle. You may drive it now. Please unplug the programmer before driving.

 -END, SECTION 2-

Figure 5 Axle Ratio from RPO number

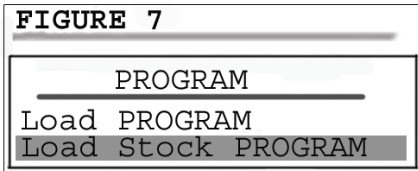| RPO Number into Rear Axle Ratio			
RPO #	**Rear Axle Ratio**	**RPO #**	**Rear Axle Ratio**
GT4	3.73 (DUP with 5x1)	GM3	3.45
GT5	4.10 (DUP with GT8)	GM4	3.67
GT7	3.33	GM5	3.89
GT8	4.10 (DUP with GT5)	GM6	4.22
GU2	2.73	GM7	3.68
GU4	3.08	GM8	2.56
GU5	3.23	GN9	4.11
GU6	3.42	G44	3.07
GU7	2.77	G84	3.70
GU8	3.90	G90	3.15
GV2	5.83	G91	6.83
GV9	4.25	HA5	4.625
GW6	3.27	HC2	4.27
GW9	2.93 (DUP with GU3)	HC4	4.56
GX5	3.53	HC7	5.13
GY2	4.30	HC9	5.125
GY4	4.53	HE3	3.07
GY9	4.31	HF7	4.56
GH0	3.54	HF8	4.88
GH1	3.55	HJ1	4.55
GH7	2.73 (with disc brake)	HJ2	5.857
GJ1	5.38	HJ3	4.75
GJ2	5.13	HJ4	6.50
GK7	4.78	HJ5	5.571
GK8	4.33	HJ6	4.78
GK9	4.63	HJ7	4.875
GL0	5.13	HK3	6.143
GL3	6.17	G80	Positraction Limited Slip
GM1	2.59	G86	Limited Slip
GM2	3.44		

Section 3
RESTORING FACTORY TUNE

The stock tune can be reinstalled at any time by following the instructions below. This feature will remove the Banks OttoMind performance tune and will reinstall the factory tune. The Banks OttoMind performance tune will be saved in the Banks OttoMind programmer.

NOTE: It is recommended to return to stock tune whenever the vehicle goes in for service. This will allow any reflashing of the ECM by the dealership without affecting the Banks OttoMind performance tune.

1. Plug the OBD II connector from your Banks OttoMind programmer into the OBDII connection port of your vehicle.

2. Scroll to 'Program' in the main menu screen and select it by scrolling up or down until it is highlighted and press the 'ENT' button.

3. Using the keypad in the 'PROGRAM' screen, scroll up or down to highlight the 'Load Stock PROGRAM' and press the 'ENT' button. See **Figure 7**.
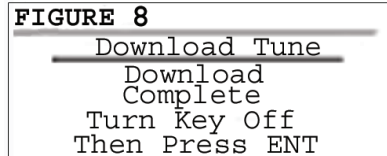
```
FIGURE 7

        PROGRAM

Load PROGRAM
Load Stock PROGRAM
```

4. Press the 'ENT' button to continue restoring stock tune or 'ESC' button to abort and go to the previous menu.

5. Follow the on screen instructions and turn the ignition key ON, but do not start the engine, when prompted by the programmer.

Warning: Unplugging the Banks OttoMind Programmer while uploading or downloading a program can damage the vehicles ECM.

6. The data downloading may take a few minutes to complete. Once the upload is complete you will be instructed to turn key OFF and press 'ENT' as shown in **Figure 8.**

```
FIGURE 8
    Download Tune
      Download
      Complete
   Turn Key Off
  Then Press ENT
```

7. The original factory stock tune restoration is complete. You may unplug the OttoMind programmer and drive your vehicle.
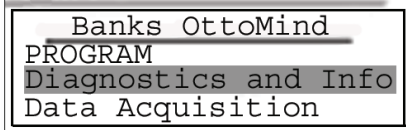
-END, SECTION 3-

Section 4
DIAGNOSTIC SECTION

The diagnostic feature on the Banks OttoMind programmer allows you to check and clear Diagnostic Trouble Code (DTC) light and assist in Troubleshooting.
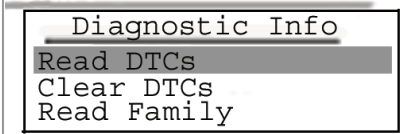
1. Plug the OBD II connector from your Banks OttoMind programmer into the OBDII connection port of your vehicle.

2. After the welcome screen, scroll up or down in the main menu screen and highlight to select 'Diagnostics and Info' and press the 'ENT' button. See **Figure 9**.

```
FIGURE 9
    Banks OttoMind
 PROGRAM
 Diagnostics and Info
 Data Acquisition
```

3. Scroll through the 'Diagnostics and Info' screen using the up and down arrow keys to view the options.

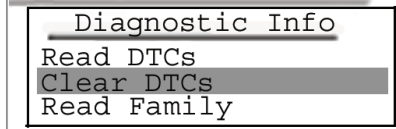**4.** Highlight 'Read DTCs' and press the 'ENT' button to select it.   See **Figure 10.**

```
FIGURE 10
    Diagnostic Info
 Read DTCs
 Clear DTCs
 Read Family
```

5. Follow the on screen instructions and turn the ignition key ON, but do not start the engine, when prompted by the programmer. Then press the 'ENT' button.

6. Screen will display any stored DTC. Highlight any DTC to select it and press the 'ENT' button to get a more detailed description. Press the 'ESC' button to EXIT.

7. To remove Diagnostic Trouble Codes (DTC) press the 'ESC' button to return to the 'Diagnostics and Info' menu and scroll down to 'Clear DTCs'. Press the 'ENT' button.

See **Figure 11**.

```
FIGURE 11
    Diagnostic Info
 Read DTCs
 Clear DTCs
 Read Family
```
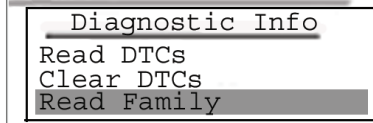
8. Follow the on screen instructions and turn the ignition key ON, but do not start the engine, when prompted by the programmer. Then press the 'ENT' button.

9. Screen will announce that the DTCs have been cleared. Follow the on screen instructions and turn the ignition key OFF, when prompted by the programmer. Then press the 'ESC' button to EXIT and go to the previous menu.

10. To read the family, in the 'Diagnostics and Info' menu scroll down to 'Read Family' and press the 'ENT' button to continue.
See **Figure 12**.

```
FIGURE 12
    Diagnostic Info
 Read DTCs
 Clear DTCs
 Read Family
```

11. Follow the on screen instructions and turn the ignition key ON, but do not start the engine, when prompted by the programmer. Then press the 'ENT' button.

12. Screen will Display 7 digit designation of calibration version of ECM (Family).

Note: Read Family is only for dealer vehicle reflashes or if family is unsupported by current Banks OttoMind Software, in which case you should contact Gale Banks Engineering Technical Support.

-END, SECTION 4-

Section 5
DATA ACQUISITION SECTION

The Data Acquisition feature allows you to view the status (temp, pressure, etc) of various systems that are monitored through your vehicles ECM.

1. Plug in your OttoMind Programmer and turn the key to the ON position. Do not start the vehicle.

2. After the welcome screen, scroll up or down in the main menu screen and highlight to select 'DATA ACQUISITION' and press the 'ENT' button.

3. In the 'ACQUISITION' submenu highlight to select 'SETUP DATA' and press 'ENT'.

4. Select the type of fuel your vehicle uses (Gas/Diesel). To select highlight and press 'ENT'.

5. In the 'DATALOG SETUP' screen, use the UP and DOWN arrow keys to view all your options. Select the items you would like to monitor by highlighting them and pressing the 'ENT'. An arrow will appear next to the options you have selected.

Note: To unselect highlight the item you have already selected and press the 'ENT' button.

6. Once you are done selecting, press the 'ESC' key to continue.

7. To start the datalogging select 'START MONITOR' by pressing 'ENT' or select EXIT by pressing 'ESC'.

8. Follow the on screen instructions and turn the vehicle ON, when prompted by the programmer. Then press the 'ENT' button to continue.

9. The monitor will setup your configurations. The options you have selected will be displayed on the left of the screen and their status (temp, pressure, etc) will be displayed on the right of the screen.

Note: Screen can only display 5 items. If more than 5 items were selected for datalogging, use the Up and Down Arrow buttons to scroll through your selected items.

10. To Exit datalogging press the 'ESC' button at anytime during the datalogging.
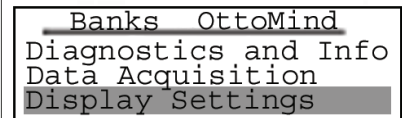
-END, SECTION 5-

Section 6
DISPLAY SETTINGS

The display setting on your Banks OttoMind programmer allows you to control the contrast level and turn the backlight ON and OFF.

1. Plug the OBD II connector from your Banks OttoMind programmer into the OBDII connection port of your vehicle.

2. After the welcome screen, scroll down the main menu and select 'Display Settings' by highlighting it and pressing the 'ENT' button. See **Figure 13**.
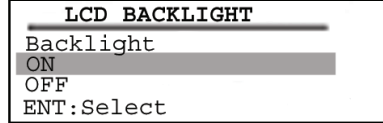
```
FIGURE 13

    Banks   OttoMind
Diagnostics and Info
Data Acquisition
Display Settings
```

3. To toggle the backlight from ON to OFF or vice versa, highlight 'LCD BACKLIGHT' from the 'DISPLAY' screen and select it by pressing the 'ENT' button.

4. In the 'LCD BACKLIGHT menu you can press the UP and DOWN key to toggle the backlight ON/OFF. See **Figure 14**.

```
FIGURE 14

     LCD BACKLIGHT
Backlight
ON
OFF
ENT:Select
```

5. To keep your settings, you must save them by pressing 'ENT'.

6. To adjust the contrast, highlight 'LCD CONTRAST' from the 'DISPLAY' screen and select it by pressing the 'ENT' button.

7. In the 'LCD CONTRAST' screen you can press the 'LEFT, RIGHT, UP and DOWN' key to change the percentage of contrast. The 'RIght' and 'UP' buttons will increase the contrast and the 'Left' and 'DOWN' buttons will decrease the contrast. The contrast will change by increments of 1%.

8. To keep your settings, you must save them by pressing 'ESC'.

-END, SECTION 6-

Section 7
TROUBLESHOOTING

Table 1

	Event	Course of Action
1	Banks OttoMind will not power up when I plug it into the OBDII port	Make sure that the cigarette lighter fuse in your vehicle is functional. You may also want to try plugging the Banks OttoMind into any other vehicle with an OBDII port to see if it powers up. If it does not, please return to point of purchase for a warranty exchange.
2	Banks OttoMind lights up, but nothing happens.	Please contact Gale Banks Engineering customer service department for further assistance.
3	Banks OttoMind is flashing "Script error: Interpreter stopped." Verify that you have done the following:	-Check to see that all fuses in the fuse panel are good. -Make sure you have disabled any aftermarket electronics in the vehicle such as alarm systems, stereos, CD players etc. -Removed anything that is plugged into the cigarette lighter.
4	Banks OttoMind says "ECM Not Supported"	Please contact Gale Banks Engineering customer service department for further assistance.
5	Error 22- Time Out	Press 'ESC' and restart.
6	Error 25- Comm Failure	Key was not turned ON in enough time. Leave key in the ON position and press the 'ESC' button to restart.
7	Error 48- DLCS- Time Out	Data link communications system (DTCS) timed out. press 'ESC' and restart.
8	Program Failed, Press ESC	Press 'ESC' and try again.

Figure 15-Table of Adjustable Parameters

Figure 15

Vehicle	Display on unit	Year	Options
8.1L GM Motor Home	8.1L MH	99-07	(None)
4.8L Full Size Truck	4.8L	99-06	Speed Limiter, Tire Size, Axle Ratio, Fuel Octane
4.8L Full Size Classic Truck	4.8L	2007	Speed Limiter, Tire Size, Axle Ratio, Fuel Octane
5.3L Full Size Truck	5.3L	99-06	Speed Limiter, Tire Size, Axle Ratio, Fuel Octane
5.3L Full Size Classic Truck	5.3L	2007	Speed Limiter, Tire Size, Axle Ratio, Fuel Octane
6.0L Full Size Truck	6.0L	99-06	Speed Limiter, Tire Size, Axle Ratio, Fuel Octane
6.0L Full Size Classic Truck	6.0L	2007	Speed Limiter, Tire Size, Axle Ratio, Fuel Octane
8.1L Full Size Truck	8.1L	99-06	Speed Limiter, Tire Size, Axle Ratio, Fuel Octane
8.1L Full Size Classic Truck	8.1L	2007	Speed Limiter, Tire Size, Axle Ratio, Fuel Octane

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