Banks Six-Gun® & Banks Brake®

For use with Six-Gun® Power Tuner, with Six-Gun Switch only

2008-2010 Ford Power Stroke 6.4L Turbo-Diesel

THIS MANUAL IS FOR USE WITH SYSTEMS 63907 & 55469

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The installation of this product indicates that the buyer has read and understands this agreement and accepts its terms and conditions.

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General Installation Practices

Dear Customer,

Your new Banks Brake is a uniquely designed braking system with electronic controls, designed to achieve the optimum level of braking from your vehicle’s engine. If you have any questions concerning the installation of your Banks Brake System, please call our Technical Service Hotline at (888) 839-2700 between 7:00am and 5:00pm (PST). If you have any questions relating to shipping or billing, please contact our Customer Service Department at (888) 839-5600.

Thank you.

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

2. The exploded views provide only general guidance. 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. Disconnect the negative (ground) cable from the battery (or batteries, if there are two) before beginning work.

5. Route and tie wires and hoses a minimum of 6” away from exhaust heat, moving parts and sharp edges. Clearance of 8” or more is recommended where possible.

6. When raising the vehicle, support it on properly weight-rated safety stands, ramps or a commercial hoist.

Follow the manufacturer’s safety precautions. Take care to balance the vehicle to prevent it from slipping or falling. When using ramps, be sure the front wheels are centered squarely on the topsides. When raising the front of the vehicle, put the transmission in park (automatic) or reverse (manual), set the parking brake, and block the rear wheels. When raising the back of the vehicle, be sure the vehicle is on level ground and the front wheels are blocked securely.

CAUTION: Do not use floor jacks to support the vehicle while working under it. Do not raise the vehicle onto concrete blocks, masonry or any other item not intended specifically for this use.

7. During installation, keep the work area clean. Do not allow anything to be dropped into intake, exhaust, or lubrication system components while performing the installation, as foreign objects will cause immediate engine damage upon start-up.

8. Save this Installation Manual as a reference for system maintenance and service.

TOOLS REQUIRED:
- Inch and metric sockets
- Inch and metric combination and open-end wrenches
- Pliers
- Standard and Phillips head screw drivers
- Wire cutters
- Scissors
- Foot-pound torque wrenches
Section 1
INSTALLATION OF BANKS SIX-GUN WIRE HARNESS

Figure 1: Banks Six-Gun and supplied wiring harness

If you have previously installed a Six-Gun and are adding the Banks Brake, Skip to Section 2.
If you are installing the Banks Six-Gun for the first time, continue to Step 1.

Six-Gun Installation
1. Locate the Six-Gun Powertrain Control Module (PCM) Harness. See Figure 1. Place harness over the driver side fuse box. Route the PCM connectors from the driver side fuse box along the rail on the rear of the engine compartment to the passenger side of the vehicle. See Figure 2.
2. Locate the Factory Powertrain Control Module (PCM) on the passenger side firewall in the engine compartment. See Figure 2.

3. Disconnect the left connector from the PCM by opening the locking tab as shown in Figure 3.

4. Insert the male connector on the Six Gun Tuner PCM harness into the female connector on the factory harness. Insert the female connector on the Six Gun Tuner PCM harness onto the male connector on the factory PCM. Lock the connection by closing the locking tabs. Secure the connectors behind the oil reservoir and away from any heat source.

5. Secure the Six-Gun Tuner PCM harness along the rail on the firewall with the supplied cable ties.

NOTE: Do not connect the Six-Gun PCM harness to the tuner. It will be connected in step 17.

6. Locate the Six-Gun Turbo/In-cab harness. Place the harness over the driver side fuse box. Route the turbo actuator connector on the Turbo/in-cab harness along the rail on the rear of the engine compartment to the turbo.

7. Unplug the turbo actuator connector shown in Figure 4. The turbo actuator cable connector can be unplugged by sliding the red safety slide down, pressing the locking button, and then pulling on the connector.

8. Plug the female Six-Gun turbo actuator connector into the male factory turbo actuator connector. Plug the female factory turbo actuator connector into the male Six-Gun turbo actuator connector.

9. Secure the Six-Gun turbo actuator connector wires to the firewall rail using the supplied zip ties. Secure the wires away from any heat source.

Figure 2: Six-Gun Harness routing
Figure 3: PCM Location on Passenger side.

Disconnect Left Connector from PCM

To disconnect, pull lock to the right and then pull the connector out.

Figure 4: Turbo Actuator Connector
10. Remove the bottom steering column panel by pulling out to release the retaining clip. See Figure 5.

**Installing harness through firewall.**

11. Locate the rubber grommet on the driver’s side of the vehicle firewall. The grommet is about 3” in diameter. Make a 1” x 1” cross-shaped (X) incision in the grommet. Be careful so you do not cut the factory harness.

12. From inside the cab locate the grommet on the firewall and make another 1” x 1” cross-shaped (X) incision on the grommet, opposite the spot that was cut from the outside.

Now, feed the Six-Gun In-Cab cable on the Turbo/In-cab harness through the incision made in the firewall grommet and into the cab See Figure 6.

**NOTE:** Some thick putty may be used to provide additional sealing around the In-Cab cable and the grommet. If also installing Banks Brake wait until after Section 2, step 5 to use putty.

**Mounting The Six-Gun Diesel Tuner**

13. If equipped, remove the vacuum pump from its mounting location by turning the thumb screw and lifting the pump aside. See Figure 7.

14. Clean the area on top of the fuse box cover.

**NOTE:** Make sure the entire mounting surface is clean and free of dirt and oil before mounting the Six-Gun Diesel Tuner. Clean and dry as required using a cloth damped in rubbing alcohol or similar cleaning solution.

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**Figure 5**  Ford (08-09)
Figure 6: Rubber Grommet on driver side Fire wall

Figure 7

Driver Side Fuse Box

Remove Thumb Screw & Lift Pump
15. Locate the two (2) dual-lock fasteners in your kit. Peel the protective backing off from one side of the hook and loop interlocking fasteners and attach to the recess area on the back of the tuner module.

16. Peel the protective backing off the other side of the hook and loop interlocking fasteners on the back of the tuner module and affix the tuner to the top of the fuse box cover as shown in Figure 8. Apply light pressure to the Six-Gun Diesel Tuner module by hand for 60 seconds to create a strong bond between the fuse box and hook & loop interlocking fasteners.

17. Connect the PCM and Turbo/In-Cab harness connectors to the correct Six-Gun module connection. The connections are keyed differently so make sure to connect the correct one into the appropriate connection. See Figure 8.

18. If previously removed, reinstall the Vacuum Pump in place and secure with the factory thumb screw.

19. Go over all connections. Check all connections under the hood and keep wires away from heat sources when possible.

END, SECTION 1-
Section 2
INSTALLATION OF OPTIONAL BANKS BRAKE WIRE HARNESS

If you are not installing the Optional Banks Brake Skip to Section 3.

If an existing Six-Gun Tuner has been previously installed, verify that the Tuner has the latest version firmware. Check and compare to the current version available on the Banks website. Banks Brake may not function properly if Six-Gun Tuner firmware isn’t up to the current version. If the Tuner is not to the latest version contact Customer Support (888) 839-5600 before continuing with installation.

Installing Banks Brake Wire Harness

1. From inside the engine compartment, locate the factory brake pressure sensor connector on the brake master cylinder. The brake pressure sensor will be the connector farthest away from the firewall. See Figure 9. Disconnect the factory brake pressure sensor connector.

2. Locate the Brake Pressure Sensor harness in your kit. See Figure 10. Connect the female connector on the Brake Pressure Sensor harness to the factory male connector. Connect the male connector on the Brake Pressure Sensor harness to the factory female connector.

3. Route the 2-pin connector on the Brake Pressure Sensor harness following the six-gun in-cab cable through the firewall. Secure the wiring harness with the supplied cable ties away from any heat source or moving parts.

4. From inside the vehicle, continue to pull the cable through the firewall until it is approximately 22” inside the cab. Secure the cable to the lower access panel area. Take precaution to leave the three connectors accessible for usage further in the installation process.

5. From under the dash, pull the 2-pin connector on the Brake Pressure Sensor harness through the fire wall.

Figure 9  Brake Pressure Sensor
6. Locate the Banks Brake Wire Harness and connect the 2-pin male connector on the Brake Pressure Sensor harness to the 2-pin connector on the Banks Brake wire harness.

**Installing Banks Brake Wire Harness**

7. Connect the Banks Brake Wire Harness OBD II connector to the vehicle’s OBD II connector. Use a cable tie, as shown in Figure 11 to secure the Banks Brake Wire Harness to the vehicle’s OBD II connector.

8. Connect the 8-pin connector from the Banks Brake Wire Harness to the 8-pin connector on the Six-Gun In-Cab Cable.

9. Locate the Foot Brake position switch connector under the dash. See Figure 12. Disconnect the foot brake position switch connector.

10. Locate the Brake Position Switch intercept connectors on the Banks Brake Wire Harness. Connect the female connector on the Brake Position Switch intercept connectors to the factory black brake position switch connector. Connect the male connector on the Brake Position Switch intercept Connectors to the factory female brake position connector that was disconnected.

11. From under the steering column, loosen the screws that hold the steering column panel covers in place.

12. Move the steering column down to the lowest possible position to aid in removal of the top steering column panel. Remove the top steering column panel. See Figure 13.

**CAUTION:** Be careful when removing the top steering column panel or damage may result.

13. Locate the tow haul connector towards the top rear of the steering column. See Figure 14.

14. Disconnect the tow haul connector.
Figure 11  OBDII Connector

Figure 12  Brake Position Sensor location under dash
Figure 13  Remove top column panel cover

Figure 14  Tow Haul Connector on steering column, under main harness
15. Locate the tow haul intercept connector on the Banks Brake Wire harness. Route the Tow Haul intercept connectors under the dash towards the front of the vehicle and up to the top of the steering column following the factory harness to the factory tow haul connector. Make sure the connectors and wires are free of rotation from the steering column. Connect the female connector on the Tow Haul intercept connectors to the factory male tow haul connector. Connect the male connector on the Tow Haul intercept connectors to the factory female tow haul connector. Secure the connectors and wires with supplied cable ties.

16. Connect the Brake module 10-pin connector on the Banks Brake wire harness to the Brake module. The connector will be the only one with a label.

NOTE: Make sure the correct connection is made to the Tuner and the Banks Brake before proceeding.

17. Secure Brake Module under the dash to any dash frame support or main wiring harness using the supplied cable ties. Use the cable tie support loops on the side of the Brake Module to securely fasten it under the dash. See Figure 15.

NOTE: Make sure to mount the Brake Module under the dash away from moving parts and where it cannot obstruct feet movement.

18. Install the top steering column panel back in place.

19. Reinstall the factory screws to fasten the steering column plans back together.

20. Go over all connections. Secure the wire harness with the supplied ties under the dash.

WARNING: Take care to keep any cables away from the pedals or where they could become tangled.

-END, SECTION 2-

Figure 15  Banks Brake Module mounting location
CAUTION: Do not use excessive force when working on plastic parts. Permanent damage to the part might result.

1. Remove the Center Finish Panel by removing the two (2) screws behind the screw panel covers and pulling out on the panel. Disconnect any electrical connectors. See Figure 16.

2. Remove four (4) screws that hold the instrument cluster in place. See Figure 17. Retain hardware for reuse.

3. Apply the parking brake and put the vehicle in the lowest gear possible. Remove the instrument cluster by pulling out. Disconnect any electrical connector.

4. Cut out the template in Figure 24 on page 32, and tape to the front of the instrument cluster panel as shown in Figure 18. The template will be used as a guide for drilling the holes to locate the Banks Six-Gun and Banks Brake switch.

If you are only installing a Six-Gun switch, skip Step 5 and use only the bottom hole in the template.

5. Remove the plastic honeycomb pattern from the back of the cluster panel around the top hole to make sufficient room for the switch. See Figure 19. To ease process use a die grinder to remove the plastic honeycomb pattern.

6. If only installing a Six-Gun switch, only use the bottom hole in template. Using a 1\(\frac{3}{32}\)" Uni-drill, center the bit onto the 1\(\frac{3}{32}\)" drill locations on the template and slowly drill through. Using a 1\(\frac{1}{8}\)" drill bit, center and drill through the 1\(\frac{1}{8}\)" location(s) on the template. Remove and discard the template and any plastic shavings. De-burr the drilled hole(s) as needed to ensure that the Six-Gun/Brake switch(s) fit(s) squarely against the dash panel.

7. Remove the nut(s) and internal tooth washer(s) from the Six-Gun/Brake switch(s) and test fit the switch(s) into the drilled hole(s). Ensure that the alignment pin(s) properly fit(s) in the 1\(\frac{1}{8}\)" hole(s). Enlarge the hole(s) as necessary to allow the switch(s) to properly fit. Do not fasten the switch(s) to the dash panel yet.

Figure 16 Remove screw covers to access screws in center finish panel
Figure 17  Removal of the Instrument Cluster Panel

Figure 18  Template taped to front of instrument cluster
8. Align the Banks Six-Gun and Brake label on the previously drilled holes on the front of the dash panel. Make sure the entire mounting surface is clean and free of dirt and oil before mounting the label. Clean and dry as required using a cloth damped with rubbing alcohol of similar cleaning solution. Remove the adhesive backing and affix the label to the dash panel. Hold the labels against the panel for approximately 20 seconds while applying pressure to allow the adhesive to properly adhere to the surface.

9. Rotate the switches counterclockwise until the shaft stops. Verify that the Six-Gun washer tab is inserted into the #6 position and that the Brake washer tab is inserted into the #5 position on the switch as shown in Figure 20.

NOTE: All of the Six-Gun and Brake settings may not be usable if the tabs are not inserted into the proper position.

10. Install the switch through the 13/32” hole on the backside of the bezel. The alignment pin should rest in the 1/8” hole and the switch fully rotated counterclockwise. Secure the switch with the internal tooth washer and nut. Snug the nut. Be careful not to over-torque the nut and damage the threads.

11. Install the knob on the shaft facing the “OFF” setting for the Banks Brake and the “1” setting for the Six-Gun. On the knob, snug the two (2) set screws with the supplied 0.050” hex key wrench. The completed switch installation will appear as shown in Figure 21.

If not installing the optional Banks Brake, skip step 12.

12. Route the RJ12 connector (phone like connector) to the Banks Brake switch cable connector, and plug the connectors. Secure all loose wiring under the dash with supplied cable ties.

13. Re-install the instrument cluster, make all electrical connections that were disconnected, and secure with the factory screws.

14. Re-install the Center Finish Panel, make all electrical connections that were disconnected, and secure with the factory screws.

Figure 19  Remove the plastic around the top hole for switch placement
15. Route the Six-Gun switch’s cable to the wire harness that was routed into the passenger compartment from the Six-Gun Diesel Tuner, and plug the 2-pin connector into the corresponding connector on the Six-Gun harness. 

**NOTE:** The 6-pin plug on the wire harness routed from the Six-Gun module to the passenger compartment will not be used by the Banks Six-Gun.

**WARNING:** Take care to keep any cables away from the pedals or where they could become tangled.

16. Re-install the bottom Steering Column Panel.

-END, SECTION 3-

**Figure 20:** Banks Six-Gun/Brake switch, orientation of the tab on the washer

**Figure 21** Finished installation of the Six-Gun/Banks Brake Switch
The Banks Brake has five (5) operating settings; OFF, LOW, Medium (MED), HIGH and Foot Brake Activation (FB). See Figure 22.

OFF mode allows the vehicle to behave as if the Banks Brake is not present.

When the selector switch is turned to the LOW, MED, or HIGH the Banks Brake will activate and begin slowing the vehicle any time the accelerator pedal is not applied and the vehicle speed is greater than 15 mph.

LOW strength setting achieves a lower level of braking force and is recommended for lightly loaded or unloaded vehicles. The LOW setting may also be used for daily driving.

MEDIUM (MED) strength achieves a moderate level of braking force by slightly delaying transmission downshifts. This setting is recommended for moderately loaded vehicles.

HIGH strength achieves the highest level of braking force by aggressively downshifting the transmission and closing the turbocharger vanes. This setting is recommended for heavily loaded vehicles or whenever aggressive braking is desired.

CAUTION: Using the HIGH setting with a lightly loaded vehicle will result in VERY aggressive braking. Become familiar with the characteristics of the Strength Settings before encountering slippery road conditions, including rain, snow and icy.

Foot Brake Activation

When Foot Brake Activation is selected the Banks Brake will only activate when the foot brake is applied. In this setting the Brake will apply the highest level of braking force to assist in slowing the vehicle.

To Enable Foot Brake Activation, turn the Brake selector switch to the Foot Brake Activation (FB) Level. To Disable, turn the switch to any other desired level.

CAUTION: Your Banks Brake is NOT a substitute for the hydraulic brakes on your truck. The device will not correct or compensate for improperly maintained hydraulic brakes. Also, please be aware that your Banks Brake is not designed to be used as a parking brake or to bring your vehicle to a complete stop. Your Banks Brake is a supplementary braking system designed to help you slow down or to assist you in maintaining a more constant speed when descending a grade. Remember that Banks Brake is first and foremost a preemptive device and is most efficient when used to help prevent, rather than correct, a vehicle over speed situation.

The use of a Banks Brake does not increase the load capacity of your vehicle. Gross combined Weight Rating specifications should always be adhered to. The Banks Brake will allow you to slow your vehicle more effectively within your vehicle’s weight specifications.
OPERATION/DRIVING

Now that you are familiar with the features that are available with Banks Brake, it is recommended that you experiment with the various settings prior to using the braking features in a towing or extreme driving situation. Under light load conditions on local streets, the MEDIUM (MED) setting is an appropriate starting point to provide a reasonable demonstration that the brake is functioning.

NOTE: Whenever the brake is active and the footbrake is applied, the vehicle will not upshift until the throttle is pressed. This is also true even if cruise control is resumed.

For some model vehicles, whenever the brake is active the vehicle's Tow-haul mode will activate. The tow-haul mode will deactivate when the Banks Brake is deactivated.

WHEEL SLIP DETECTION

The Banks Brake continuously monitors wheel speeds to detect possible slippage caused by braking. If this occurs, the brake will shut off until traction is regained and then remain off for 30 seconds. This will be communicated as a fault via the Banks iQ Status Indicator.

- END, SECTION 4 -

Figure 22: Banks Brake Selector Switch Guide
Section 5
AUTOMATIC TRANSMISSION LEARNING

The 6.4L Ford Trucks equipped with the TorqShift™ 5-speed automatic overdrive transmission use an adaptive shift control logic. This will require the transmission to learn how to cope with the additional power created by the Banks Power products before it will shift properly. Additionally, the Banks Six-Gun Diesel Tuner will require a short learning curve to characterize the transmission in order to optimize fueling during gear change events. The following sequence must be followed to allow for collaborative learning between the Banks Six-Gun and the transmission’s control system. Failure to follow the sequence can result in damage to the transmission.

Perform the following sequence at a location where it is safe to accelerate to 60 mph without exceeding the posted speed limit.

1. Start the truck and allow the engine to reach normal operating temperature.
2. Set the Banks Six-Gun switch to power level 2.
3. Accelerate with the pedal to the floor, from a standing start to 60 mph. Repeat three (3) times.
4. Cruise at 30 mph, then press the accelerator to the floor to cause the transmission to downshift. Continue accelerating to 60 mph.
5. Repeat steps (2) and (3) for the next power setting.
6. Continue to increase the power setting and drive cycle until the desired power setting is achieved.

The TorqShift™ 5-speed automatic transmission will continually adapt to the power output of the engine to optimize shift quality. This will result in the transmission un-learning how to cope with the higher power settings of the Six-Gun Diesel Tuner, if the Six-Gun Diesel Tuner is returned to a lower power setting. The rate that the transmission un-learns how to cope with the higher power levels, when switching to a lower power level, depends on the driving cycle. The transmission will quickly adapt to the power setting if the driving cycle includes regular gear changes at high loads. The transmission learning procedure will need to be repeated when switching back to the higher power settings once the transmission adapts to the lower power settings. It will be apparent when the transmission adapts to the lower settings by monitoring the feel of the gearshift. Gear changes will be noticeably harder when initially switching from a higher to lower power setting. This will soften as the transmission adapts to the new setting.

For example: If the transmission has adapted to level 3 and it is desired to go to level 6, the transmission learning procedure can start at level 3.

IF TRANSMISSION SLIP IS DETECTED DURING THE TRANSMISSION LEARN PROCESS, REDUCE THE POWER LEVEL BY ONE, AND START OVER AT STEP 3.

-END, SECTION 5-
Section 6
CHECKING ENGINE PERFORMANCE

The Six-Gun Diesel Tuner requires the engine coolant temperature (ECT) to be above 110º before it will add fuel. If the optional DynaFact® gauges are installed, observe the operation of the boost and pyrometer (EGT) gauge values while driving under varying conditions. Turbocharger boost pressure will increase as a function of load and engine RPM, thus the engine will produce little boost while cruising at light throttle, with maximum boost while climbing hills heavily loaded during acceleration. Note the boost level seen during hard acceleration with a given load. If performance seems to have deteriorated sometime in the future, the maximum boost figures may be compared to see if boost has dropped off. Lower boost may be caused by turbo ducting leaks, a malfunctioning wastegate or fuel injection pump, or dirty air filter. Typical maximum boost pressure settings will vary considerably with stick or automatic transmission options, year model of vehicle and altitude.

NOTE: Before key-off, check tuner for error codes.

Use your EGT gauge to monitor exhaust gas temperature (EGT) in the engine. At idle, exhaust gas temperature will be very low, perhaps only 300ºF. As the engine is accelerated for higher speeds with greater loads, the EGT will rise. The highest EGT will be seen under maximum load at full throttle, such as climbing a steep grade with a heavily laden vehicle.

To avoid heat damage to various engine components it is recommended that the exhaust gases cool below 400º before the engine is shut down. Your Six-Gun Diesel Tuner is calibrated to maintain a maximum EGT of 1350ºF. You may experience brief excursions slightly above 1350ºF under acceleration. This is normal and EGT should return to 1350ºF or below within a few seconds. If you find that EGT remains high for any length of time, check for boost leaks or a dirty air filter.

-END, SECTION 6-
Section 7
TROUBLESHOOTING

If an existing Six-Gun Tuner has been previously installed, verify that the Tuner has the latest version firmware. Check and compare to the current version available on the Banks website. Banks Brake may not function properly if Six-Gun Tuner firmware is not up to the current version.

Six-Gun & Brake Troubleshooting (Using Tuner/Module LED’s)

If you feel that your Six-Gun Diesel Tuner and/or Banks Brake is not functioning properly, some diagnostics can be performed. Your Six-Gun Diesel Tuner and Banks Brake is equipped with diagnostic features that will detect and display certain errors. Remove the Six-Gun Diesel Tuner and Banks Brake from its mounting location while keeping all connectors plugged in. Turn the vehicle key to the ON position. Observe the two LEDs mounted on the upper corner of the brake and/or the Six-Gun Diesel Tuner.

• **A steady GREEN LED will illuminate** if all wire connections are correct, the engine is running and the engine coolant temperature is within its normal operating range.

• **The GREEN LED will flash** if all wire connections are correct, the engine is running, but the engine coolant temperature is not within its normal operating range. The GREEN LED will stop flashing once the engine coolant temperature is within normal operating range. Power will not be added if the coolant temperature is not within its normal range.

• **None of the LEDs will illuminate** if the fuse on the Six-Gun wiring harness is blown or the power supply hook-up is not properly connected. If the power connection and fuses are okay, contact Banks Technical Service.

• **The RED LED will flash** if a connection is incorrect or if there is a problem with the system, when the engine is running. The RED LED will flash in sequence to identify a particular fault code. A Six-Gun Diesel Tuner’s fault code is comprised of 2 digits. Each code is expressed in a sequence of 2 sets of the flashing RED LED separated by a brief flashing of the GREEN LED. Each set of a number of RED LED flashes represents a digit. A longer flashing of the GREEN LED separates the sequences. The LEDs will continue to flash to display all the errors, and then repeat.

**Table 1** lists the Six-Gun Tuner fault codes.

**Table 2** lists the Banks Brake fault codes.

For example, if a faulty thermocouple is detected (code 2,3) by the Six-Gun Diesel Tuner, the following RED and GREEN LED flashing sequence is observed when the key is ON:

1. Two times flashing RED LED
2. One time quick flashing GREEN LED
3. Three times flashing RED LED
4. One time longer flashing GREEN LED

The above flashing sequence will repeat continuously. When the problem is corrected, the fault code will be eliminated and replaced with a steady GREEN LED. Note: If multiple codes are set, they will be displayed in a series separated by the longer flashing GREEN LED. When reading codes, make sure to watch the entire series until you see the first code repeat.

-END, SECTION 7-
<table>
<thead>
<tr>
<th>Code</th>
<th>Event</th>
<th>Course of Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1</td>
<td>Fuel Rail Pressure (FRP) Input Voltage Out of Range.</td>
<td>Turn ignition OFF and check the 96-pin male and female PCM connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>1,2</td>
<td>Manifold Absolute Pressure (MAP) Input Voltage Out of Range.</td>
<td>Turn ignition OFF and check the 96-pin male and female PCM connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>1,3</td>
<td>Six-Gun Switch Input Value Out of Range.</td>
<td>Turn ignition OFF and make sure either Banks IQ or Six-Gun switch is connected to Six-Gun tuner. If Six-Gun switch is connected (no Banks IQ), check 2-pin connection on tuner’s in-cab cable. Turn ignition back ON and re-check for presence of code.</td>
</tr>
<tr>
<td>1,4</td>
<td>Exhaust Back Pressure (EBP) Input Voltage Out of Range.</td>
<td>Turn ignition OFF and check the 96-pin male and female PCM connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>2,1</td>
<td>Fuel Rail Pressure (FRP) Output Voltage Out of Range.</td>
<td>Turn ignition OFF and check the 96-pin male and female PCM connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>2,2</td>
<td>Manifold Absolute Pressure (MAP) Output Voltage Out of Range.</td>
<td>Turn ignition OFF and check the 96-pin male and female PCM connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>2,3</td>
<td>Mass Air Flow (MAF) Signal Fault.</td>
<td>Turn ignition OFF and check the 96-pin male and female PCM connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>2,4</td>
<td>Exhaust Back Pressure (EBP) Output Voltage Out of Range.</td>
<td>Turn ignition OFF and check the 96-pin male and female PCM connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
</tbody>
</table>

If code/problem persists, note conditions when code appears and call Gale Banks Engineering Tech Support.
<table>
<thead>
<tr>
<th>Code</th>
<th>Event</th>
<th>Course of Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,1</td>
<td>Engine Position Sensor Fault.</td>
<td>Turn ignition OFF and check the 96-pin male and female PCM connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>3,2</td>
<td>Internal Module Malfunction or Intermittent Power.</td>
<td>Turn ignition OFF and check the 96-pin male and female PCM connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>3,3</td>
<td>EGR Valve Position (EGRP) Input Voltage Out of Range.</td>
<td>Turn ignition OFF and check the 96-pin male and female PCM connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>3,4</td>
<td>OBDII CAN communication error</td>
<td>Turn ignition OFF and check the 4-pin male and female turbo actuator connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>4,1</td>
<td>EGR Valve Position (EGRP) Output Voltage Out of Range.</td>
<td>Turn ignition OFF and check the 96-pin male and female PCM connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>4,2</td>
<td>Transmission Slippage Detected.</td>
<td>Transmission is slipping excessively. Code will automatically clear once transmission stops slipping (repaired).</td>
</tr>
<tr>
<td>4,3</td>
<td>Internal Module Malfunction or Intermittent Power.</td>
<td>Turn ignition OFF and check the 96-pin male and female PCM connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>4,4</td>
<td>Internal Memory Malfunction.</td>
<td>Turn ignition OFF. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
</tbody>
</table>

If code/problem persists, note conditions when code appears and call Gale Banks Engineering Tech Support.

Table 1: Banks Six-Gun Fault Codes (continued)
<table>
<thead>
<tr>
<th>Code</th>
<th>Event</th>
<th>Course of Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 1</td>
<td>Insufficient power supply to brake module</td>
<td>Turn Ignition OFF and check connection at fuse tap, 10-pin connection to module and 8-pin connection to Tuner. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>1, 2</td>
<td>Brake signal malfunction while brake is on</td>
<td>Turn ignition OFF and check connections at 5-pin male and female brake pedal connector. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>1, 3</td>
<td>Insufficient voltage to tow-haul switch</td>
<td>Turn Ignition OFF and check connections at 3-pin male and female tow-haul switch. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>1, 4</td>
<td>Brake Signal malfunction while brake is off.</td>
<td>Turn Ignition OFF and check connections at 5-pin male and female brake pedal connector. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>2, 1</td>
<td>No response to generated OBD ISO messages</td>
<td>Turn Ignition OFF and check connections at OBD II connection. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>2, 2</td>
<td>Brake pressure switch signal malfunction</td>
<td>Turn Ignition OFF and check connections at 2-pin male and female brake pressure sensor intercept connector and 2-pin in-cab cable connector. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>3, 1</td>
<td>Rear wheel slip during braking</td>
<td>Module has detected rear wheel slipping. Code will automatically clear 30 seconds after traction regained.</td>
</tr>
<tr>
<td>3, 2</td>
<td>Power Up Error or Internal Module Malfunction</td>
<td>Turn Ignition OFF and check connection at fuse tap, 10-pin connection to module and 8-pin connection to Tuner. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>3, 3</td>
<td>Internal Module Malfunction</td>
<td>Turn Ignition OFF and check connection at fuse tap, 10-pin connection to module and 8-pin connection to Tuner. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>4, 3</td>
<td>Exhaust Back Pressure (EBP) Input Voltage Out of Range</td>
<td>Turn Ignition OFF and check the 96-pin male and female PCM connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>4, 4</td>
<td>Communication failure to brake module.</td>
<td>Turn Ignition OFF and check connections at 10-pin brake module, 8-pin Tuner, and OBD II connector. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
<tr>
<td>5, 1</td>
<td>Internal Module Malfunction</td>
<td>Turn Ignition OFF and check connections at 10-pin brake module, 8-pin Tuner, and OBD II connector. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.</td>
</tr>
</tbody>
</table>
Section 8
CLEARING LEARNED INFORMATION

If the Six-Gun Diesel Tuner has been moved to a different vehicle, or you are instructed to do so by Banks Technical Staff, it is possible to reset all of the parameters that the Six-Gun has 'learned' - presence of an EGT thermocouple or Speed-Loader, etc.

CAUTION: The following procedures can only be carried out with the engine OFF!

1. Turn the vehicle key to ON but DO NOT start the engine.

2. Fully depress the throttle pedal and then release it completely. Repeat 5 times. The GREEN LED will flash when this is completed successfully.

3. Turn the key OFF. Wait 30 seconds, or until the GREEN LED goes off and stays off. Turn the key back to the ON position but DO NOT start the engine.

4. Fully depress the throttle pedal and then release it completely. Repeat 5 times.

-END, SECTION 8-

Section 9
REMOVAL OF THE SIX-GUN DIESEL TUNER

If the Six-Gun Diesel Tuner should ever need to be removed from the vehicle, perform the following:

NOTE: The ignition must remain in the OFF position throughout the removal process.

1. Disconnect the Six-Gun’s PCM connector from the left connection on the PCM.

2. Re-connect the vehicle’s PCM connector back into the left connection on the PCM.

3. Disconnect the Six-Gun’s turbo actuator connector from the vehicles turbo actuator connection and harness. Re-connect the vehicle’s turbo actuator connector.

4. Disconnect the 3 small connectors on the ‘In-Cab Cable’ and gently pull the cable back through the firewall.

5. Remove the Six-Gun Diesel Tuner, PCM harness and Turbo/In-cab harness from the vehicle.

Failure to follow the above instructions when removing the module will result in a “Check Engine” light on the dash and a Diagnostic Trouble Code being stored in the factory computer, in addition to the engine not running.

NOTE: Banks Brake will not function without the Six-Gun Tuner installed.

-END, SECTION 9-
Section 10
PLACEMENT OF THE BANKS POWER DECALS

Figure 23: Placement of the Banks decals

-TYPICAL LEFT FENDER-

-TYPICAL RIGHT FENDER-

-END, SECTION 10-
**Figure 24** Template for locating the Banks Brake and Six-Gun switch on the dash panel

Place on front side of dash panel.