with Installation Instructions

Owner's Manual

Turbo Speed Sensor

FITS MOST TURBOCHARGERS, UNIVERSAL

IDASH AND 5 CH ANALOG WITH FREQUENCY SENSOR MODULE REQUIRED
THIS MANUAL IS FOR USE WITH THE FOLLOWING PART NUMBERS: 66566

General Installation Practices

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

2. The exploded view (**Figure 1**) provides 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's side, and the right side to the passenger's 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; put the transmission in park or in gear if manual; set the hand brake; and place chocks behind the rear wheels.

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.

Introduction

This kit allows for the speed of the compressor wheel to be obtained accurately anywhere from 5,000-400,000 RPM. This is a universal kit which may require modification to ensure proper usage and no damage to your turbo occurs. This kit should be installed by a qualified automotive technician. **Modify at your own risk.**

The Banks Turbo Speed Sensor uses the threads of the sensor itself as the mounting & sealing aspect. Some Turbo's compressor housings may come pre-machined to accept an O-Ring sealed sensor, secured by an M4 bolt adjacent to the sensor port. These ports will not work with the Banks Turbo Speed Sensor, and a separate location of the Turbo compressor housing must be drilled & tapped to accept the threads of the sensor. **It is recommended to have this work done by a qualified machine shop.**

Part List

Item	Description	Part #	QTY
1	Wire Harness, Adapter, Turbo Speed Sensor	62803	1
2	Sensor, Turbo Speed, M6x0.5mm	63094	1
3	Blue Thread Locker	90001	1

Section 1: Included Parts

Figure 1

Sensor Installation

1. Ensure your vehicle and its components are sufficiently cool enough to allow for disassembly. Remove the V-Band clamp or bolted clamps securing compressor housing from the turbo, and remove the housing. This may require removal of the turbo from the vehicle.

2. As mentioned previously, pre-machined ports with O-Ring sealing and a separate bolt for mounting will not work with the Banks Turbo Speed Sensor.

If a port must be drilled & tapped on the housing, so refer to your turbo manufacturer for ideal locations on the compressor housing to use. The sensor should sit flush with the compressor housing. The end of the sensor should be mounted just below the tip of the compressor wheel, above the level of the splitter (small) blades. **See Figure 2, 3.**

Figure 2

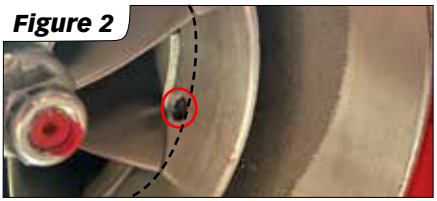
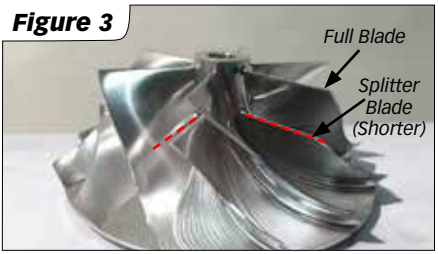


Figure 3



3. Once the port is drilled & tapped, ensure the inner surface is free of burrs that may damage the compressor blades. If necessary, use a deburr knife and/or sandpaper to remove.

4. Count the number of blades on your compressor wheel that pass over the sensor in one revolution. Record this number as it will be needed for properly setting up the sensor.

NOTE: Splitter blades may or may not be included depending on the sensors location

5. Apply a small amount of Blue Loctite to the sensor threads and jam nut, and insert the Banks Turbo Speed Sensor in the compressor housing. Ensure the tip of the sensor is almost flush with the inner section of the compressor housing.

6. Reinstall the compressor housing to the Turbo. If you are able to turn both the sensor itself and the compressor wheel by hand with the Turbo on the vehicle, reinstall the Turbo. If not, keep the Turbo removed for final sensor depth fitment.

7. To set the sensor depth, ensure there is sufficient space to turn the compressor wheel by hand. Slowly turn the sensor clockwise, while simultaneously spinning the wheel very slowly. Turn the sensor, just until the tip contacts the edge of a compressor wheel blade. Be extremely careful not to force the sensor into the wheel, as the blades or sensor could be damaged. You should be able to feel a minor resistance while lightly turning the wheel as it contacts the sensor. Then turn the sensor back counterclockwise, approximately 1.5-2.5 full turns. This sets the sensor depth properly.

8. Tighten the speed sensor jam nut firmly with a 10mm wrench. Ensure the sensor does not rotate any further as the depth is already set. Torque to 4.5Nm. **See Figure 5**

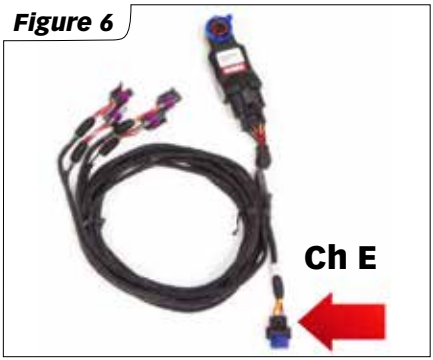
Figure 5

Wiring Setup

1. Plug the female end of the supplied wire harness into the Sensor's male connector.

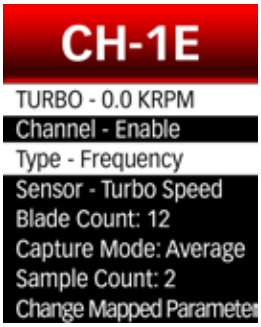
2. Plug the opposite end of the wire harness to the frequency connector on your Banks 5ch Module harness. **See Figure 6**

Figure 6



3. Update both iDash and 5 ch analog module to the latest firmware on the website: **bankspower/update**

4. On the iDash go to Menu -> Banks Modules -> 4 Ch Analog Module -> Ch 1E ->



5. Set the Sensor Type to "Turbo Speed"

6. Input the Blade count for your turbo.

7. Set Capture mode to "Averaging"

8. Set Sample count to 2 (this can be increased if the sensor signal is noisy).

9. Select "Change Mapped Parameter", then select "speed and Velocity", then select the "Turbo RPM" parameter

10. Return to the main menu and add turbo RPM to the iDash layout to confirm sensor is reading accurately.

Troubleshooting

Data is always 0 or data is choppy:
The optimal sensor install depth will vary depending on the thickness of the blades of your turbo and will vary with every turbo. Start by setting the Speed sensor to 2 turns away from the blade and test. If the signal does not improve increase 1 more turn out (3 total) and test. Repeat until a clean signal is achieved (typically between 1-5 turns out).