



**UTBoost™ Installation Manual**  
**(Patent Pending)**

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*UnwiredTools™ UTBoost™*

*Installation Guide and Owner's Manual*



# UTBoost™ Installation Manual

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## NOTICE REGARDING WARRANTIES

The *UnwiredTools™* UTBoost™ comes with a Limited Warranty, a copy of which appears on the back of this Manual. With regard to this Manual and the information in it (the “Manual”), please note that, although UnwiredTools has endeavored to make it as accurate and informative as possible, the variability of vehicles, the circumstances of installation, changes from year to year, and other factors make it impossible for UnwiredTools to guarantee that this information is accurate and/or directly applicable for your vehicle and your particular circumstances. The information in this Manual therefore is provided as a general guide or illustration. It is your responsibility and not that of UnwiredTools to ensure that this Product is suitable for your vehicle and that it meets your needs or requirements. This Manual is provided “as is” and without any warranties of any kind. UnwiredTools makes no representations or warranties with respect to this Manual, e.g., as to its accuracy, completeness or appropriateness to any particular vehicle or situation. UNWIREDTOOLS HEREBY DISCLAIMS ANY AND ALL WARRANTIES AS TO THIS MANUAL, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. UNWIREDTOOLS ALSO DISCLAIMS ANY LIABILITY FOR YOUR USE OF THE MANUAL. PLEASE USE IT AT YOUR OWN RISK. This Manual may be updated from time to time. Users are encouraged to visit our Web site at [www.unwiredtools.com](http://www.unwiredtools.com) to obtain the latest version, to obtain information about the Product, and to obtain other support information.

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## **WARNING: READ BEFORE BEGINNING INSTALLATION**

The *UnwiredTools™* UTBoost™ installs into the electrical system of your vehicle. Please be aware that improper handling, installation or use can cause damage to your vehicle, other property, and even injury, grave harm or worse to you and others. Please follow the instructions set out in this Manual where they are applicable to your vehicle. If you are in doubt or have questions, contact a qualified service representative.

1. Read this entire Manual before beginning installation.
2. Check all kit components to make sure that all appear undamaged.
3. Make sure your vehicle is off, and is cool. Ensure that it is immobilized, e.g., in park with the emergency brake engaged.
4. Ensure that your work area is free of any circumstances that could result in electrical shock. All power tools and electrical cables should be properly grounded. Keep floors and other areas dry if electrical equipment is being used.
5. Ensure that there is nothing loose or unconnected before the vehicle is started.
6. Always use a fuse of the correct type and rating. Failure to use the correct fuse may result in fire or explosion.

### ***Important Note:***

This kit is intended for professional installation. A trained technician will have the documentation, tools, and training needed to find wiring or other problems in your vehicle's AC system which may interfere with the function of this product. Professional installers familiar with this product may be found under the Support section of [www.unwiredtools.com](http://www.unwiredtools.com).



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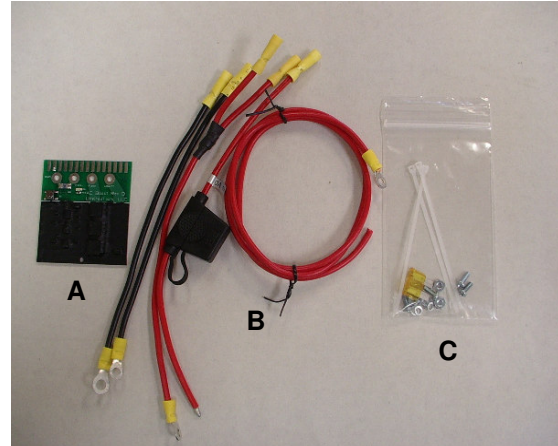
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## Contents of the UTBoost™:

Please check the contents of this package to make sure it's complete. You should have the following:

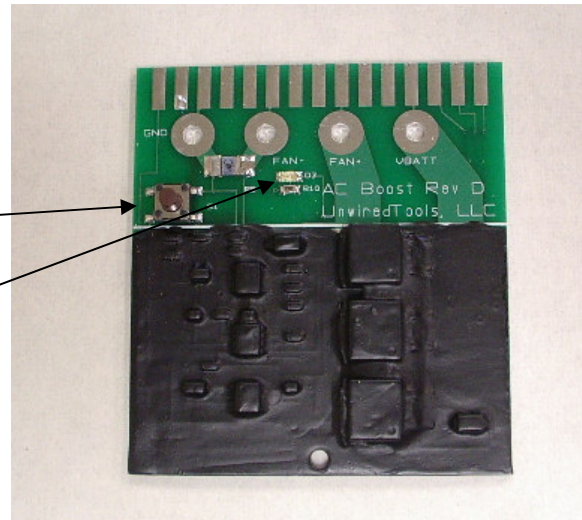
- A. UTBoost™ Controller
- B. Wiring Harness (You should have two black wires, one red "Y" cable, one long red wire, and a fuse holder)
- C. Hardware Kit



The UTBoost™ Controller has four wire mount holes. These are labeled GND, FAN-, FAN+, and VBATT. There's also a calibration button and an indicator light.

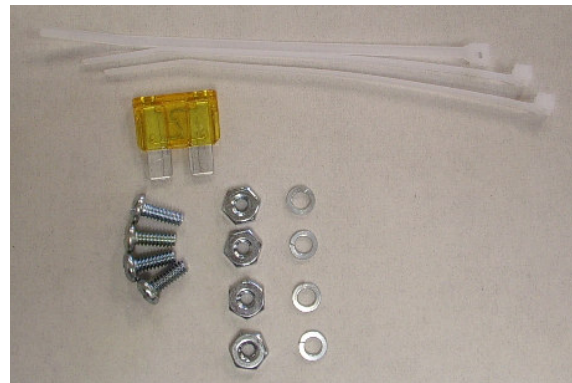
Calibration Button

Red Indicator Light



The Hardware Kit includes the following:

- 3 each 4" Cable Tie Wraps
- 4 each 6-32 x 1/4" Screws
- 4 each 6-32 Nuts
- 4 each 6-32 split lock washers
- 1 each ATC 20A fuse





UTBoost™ Product Description

The UnwiredTools™ UTBoost™ is designed to increase the performance of the air conditioning and heating systems in your vehicle. This upgrade is compatible with any vehicle AC/heat system in which one side of the air blower is connected to chassis ground. If one side of the AC/heater blower in your vehicle is not connected to chassis ground, then call UnwiredTools for more information. Installation of the UTBoost™ involves cutting two wires, crimping four wires, and connecting one wire to the battery. That’s essentially it. The state of the art microcontroller technology in the UTBoost™ works quietly in the background without changing any of the AC or heat controls in the vehicle. The substantially improved results from an installation on a Mercedes 300D sedan are shown below in Table 1.

The features of UTBoost™ include:

- Big increase in AC or heat output
• Retains OEM controls, and maintains the “factory” look
• Easy installation
• No moving parts to wear out
• Works well with R134a refrigerant conversions to recover cooling capacity
• Clears fog and ice from windows much faster
• 5 year warranty

Table with 2 columns: Center Vent Flow and Velocity (FPM). Rows: Low, High, With UTBoost™.

Table 1, Test results

The UTBoost™ not only gives you substantially more airflow, but it makes the AC system put out more cold air at normal road speeds. The expansion valve in your vehicles’s AC system is designed to throttle the refrigerant flow at low temperatures to keep the evaporator from getting choked with water ice. At normal road speed your vehicle’s condenser and compressor have excess capacity. As shown in Figure 1, the increased airflow through the evaporator forces more coolant through the evaporator by requiring the expansion valve to admit more refrigerant to maintain the same evaporator temperature. The result is more air, cooler air, and a vehicle that cools down much faster. In winter this means clearing foggy windows and ice much faster.

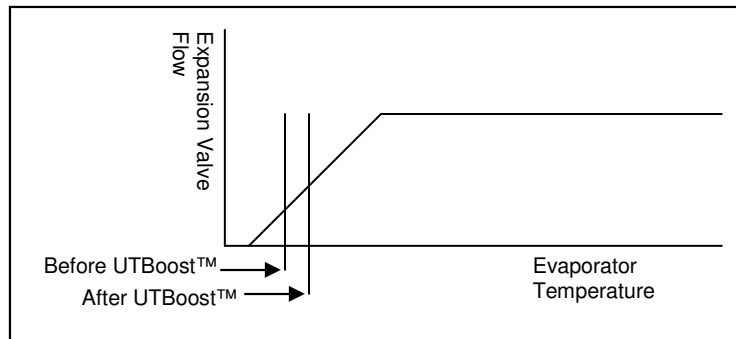


Figure 1, Expansion valve flow vs. evaporator temperature

Note 1: Measured at engine idle using an Extech 4115 Anemometer.
Note 2: This test vehicle has 5 speeds in the Low range and 5 speeds in the High range. Low here means the highest speed in the Low range. High is the highest speed in the high range.
Note 3: At engine idle with the vehicle stopped, the AC systems of most vehicles are limited by the output of the compressor or the condenser. Under these conditions the UTBoost™ provides more airflow but no additional cooling capacity. As vehicle speed and engine speed increase, the limiting factor becomes the airflow through the evaporator. Under these conditions the UTBoost™ increases cooling capacity and airflow.

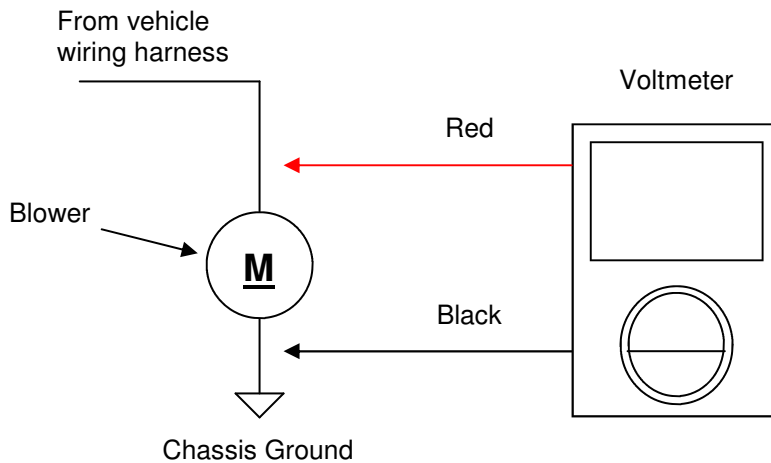


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## Important - Test your vehicle first!

The UTBoost™ will give excellent results with most vehicles. The benefit of this product on any vehicle can be predicted based on a simple test. This test requires an accurate digital voltmeter, two sharp pins, and access to the AC/heat blower. The setup of this test is as follows:



First locate the blower and gain access to the two wires leading into it. Push a sharp pin through the insulation and into each of the wires. Using the voltmeter verify that one of the wires going to the fan is connected to the chassis ground. Connect the black lead of the voltmeter to the chassis ground wire. Connect the other wire to the red lead of the voltmeter. Set your voltmeter to read about 12V. For most meters this is the 20V scale.

Now start the vehicle, let the engine idle, and turn the AC (or heat) fan up to maximum. Read the voltage on the meter. We'll call this Blower Voltage. Leave the vehicle running with the blower at maximum. Now remove the voltmeter and measure the voltage on the vehicle's battery. We'll call this reading Battery Voltage. Now turn off the vehicle and write these values down as follows:

$$\frac{\text{Battery Voltage}}{\text{Blower Voltage}} - \frac{\text{Blower Voltage}}{\text{Blower Voltage}} = \frac{\text{Voltage Drop}}{\text{Blower Voltage}}$$

$$\text{The \% power gain by using the UTBoost™ is: } \frac{\text{Battery Voltage}^2 - \text{Blower Voltage}^2}{\text{Blower Voltage}^2} * 100$$

For example, if the Battery Voltage is 13.0V and the Blower Voltage is 11.25V then:

$$\frac{13.00}{11.25} - \frac{11.25}{11.25} = \frac{1.75}{11.25}$$

$$\text{Power Gain} = [(13.00^2 - 11.25^2) / 11.25^2] * 100 = 34\%$$

You can also use our online boost calculator at [www.unwiredtools.com](http://www.unwiredtools.com).

Note: UnwiredTools does not recommend the use of the UTBoost™ on vehicles with a voltage drop less than 0.5V.



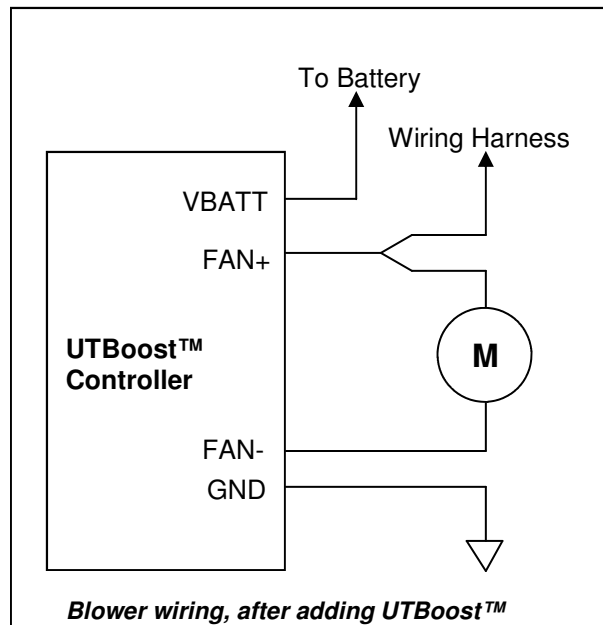
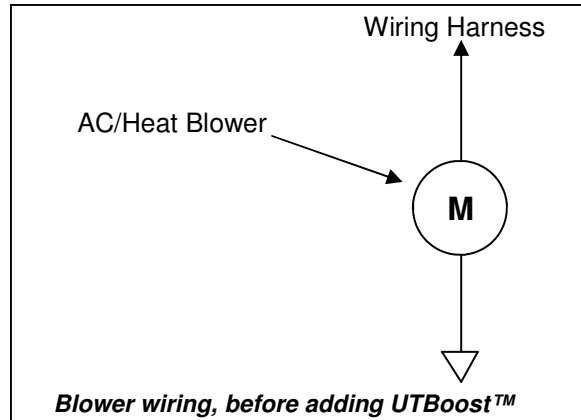
## Summary of Installation

The installation of the UnwiredTools™ UTBoost™ begins by locating the AC/Heat blower in the vehicle and making sure that one of the two wires going to the blower is connected to chassis ground. If you're not sure then consult with UnwiredTools customer service for more information.

Current flows from the vehicle's battery through the wiring harness and switches to the blower. The current then moves the fan in the blower and flows out into the chassis ground. The UTBoost™ works by providing another current path which provides more energy to the blower.

The diagram to the right shows how the UTBoost™ is connected into the vehicle's wiring. First the wire from the vehicle's wiring harness to the blower is cut and the FAN+ cable is crimped in. This cable resembles a "Y". Then the wire from the blower to chassis ground is cut and the FAN- and GND wires are crimped into place. Next a wire is run to the battery and connected to the VBATT terminal of the UTBoost™ Controller. This wire has a fuse.

Once the UTBoost™ is installed, it has to be calibrated. This last step is easy. Just run the vehicle and turn up the blower to the highest setting. Now press the Calibration Button. You should hear and feel the boost effect immediately. A red light on the UTBoost™ Controller turns on when the boost mode is in effect.







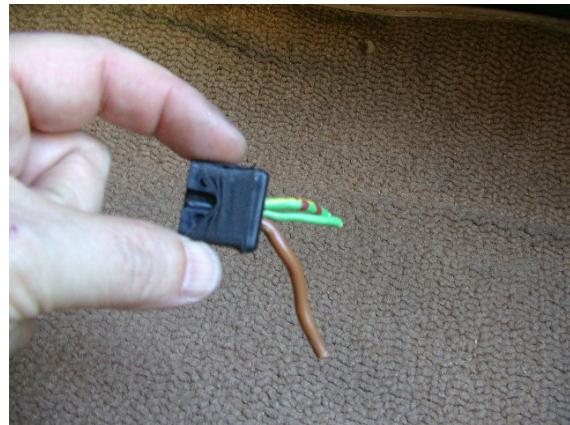
## Step - by - Step Installation

These pages guide you through the details of installing the UTBoost™. Your vehicle may differ from these photos<sup>1</sup> but the intent of each step is the same for every vehicle.

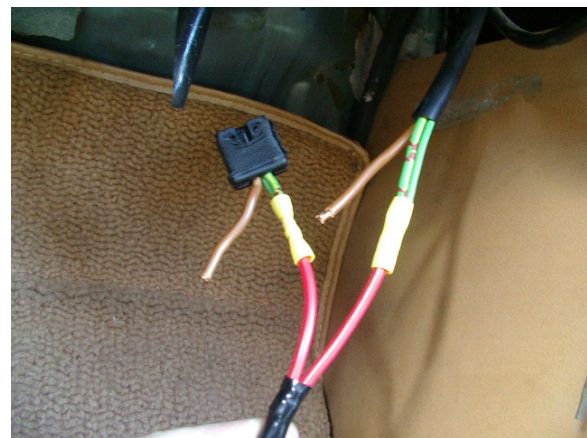
1.1 Start by finding the AC/Heat blower. Find the electrical connector for the blower. Now would be a good time to scout around for a good place to mount the UTBoost™ Controller. Cable ties are supplied for this purpose. Often the blower housing itself is a good mounting place. Any flat, open place with easy access and nothing to short out is a good place. Avoid areas with excessive heat, moving parts, or other hazards. In this photo the solid color wire is ground and the striped wire is the current supply from the wiring harness.



1.2 Next remove the electrical connector from the blower housing if possible.



1.3 Now connect the red “Y” wire to the striped wires to the fan and wiring harness using a crimp tool. In this example the striped wire is the positive side of the fan and the current supply from the wiring harness.



Note 1: The installation photos in this manual were taken from a 1980 Mercedes 300D (123 chassis).



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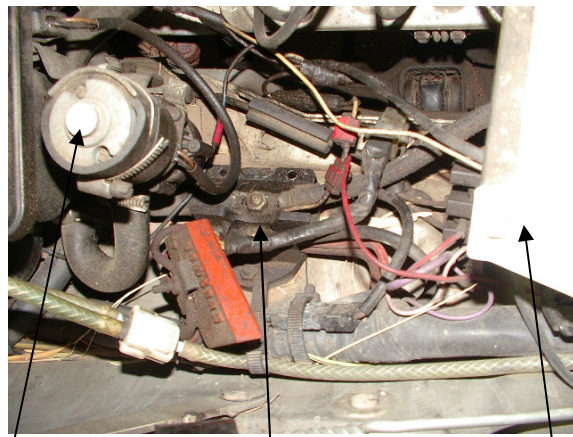
1.4 Next connect the black wires to the ground wire and the ground side of the blower. These two black wires are identical. It doesn't matter which one is connected to either the fan or the ground wire.



1.5 Now run the long red wire into the engine compartment. Push the blunt cut end through any easy access point through the firewall from the inside. Retrieve this end in the engine compartment, strip the wire, then crimp the fuse holder in place. **Double check that the fuse is not installed**, then bolt the ring terminal of the fuse holder to the battery.



Note: Mercedes 107 chassis models (SL models) locate the battery in the trunk. These models have a battery terminal in the engine compartment near the bracket for the coolant expansion tank. The size of the stud on this battery terminal is the same as the clamp on the battery so it's easy to connect the fuse holder here. A photo of the 107 Chassis battery Terminal is shown here.



Auxiliary Water Pump

Battery Terminal

Coolant Tank





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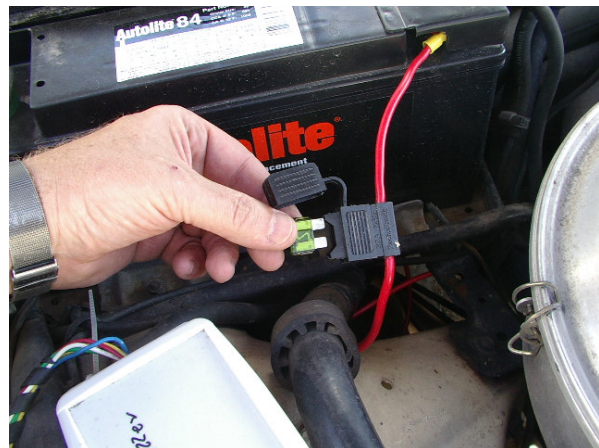
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1.6 All four wires can now be bolted to the UTBoost™ circuit board. Double check that the “Y” cable connects to the FAN+ terminal. **Warning: Connecting the “Y” cable to any other terminal may damage the UTBoost™.** If you’re mounting the UTBoost™ to a flat surface you should bolt the wires to the **front** side of the board. The wires shown here are bolted to the back side for clarity.

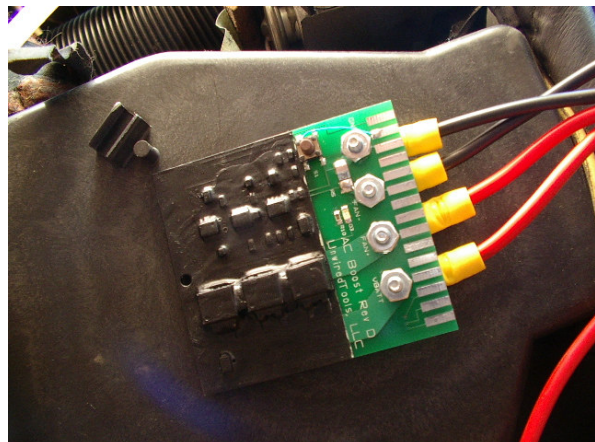


1.7 Don’t mount the UTBoost™ yet. Leave it loose for the next step. All the wires should be connected at this point. Now it’s time to plug in the fuse. **Warning: Only use a 20A ATC type fuse. A higher rated fuse or a jumper may pose a risk of fire or explosion!**



1.8 Watch the fuse housing carefully when you insert the fuse. Proceed carefully, this is a live connection to the battery. No current should flow. When you insert the fuse there should be no sparks or sound. If this happens check for nicks in the insulation of any of the wires.

1.9 Now it’s time to start the vehicle and turn on the blower to maximum. Press the Calibration Button on the UTBoost™ Controller to calibrate it. You should immediately hear the blower speed up and the red light will turn on. The light shows when the UTBoost™ is operating. If you accidentally pressed the button at the wrong time, you can press and hold the Calibration Button to un-calibrate and reset the UTBoost Controller. Now shut down the vehicle and mount the UTBoost™ using the included tie wraps.





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## **UNWIREDTOOLS Limited Warranty**

UNWIREDTOOLS, LLC ("UT") warrants that your new UnwiredTools™ UTBoost™ ("Product") is free from defects in materials and workmanship at the time of manufacture. This warranty extends for a period of FIVE YEARS from the date of purchase of the original Product. If there is a defect in or malfunction of this Product that is covered by this warranty, UT will repair the Product free of charge as follows: PARTS: New or comparable rebuilt parts will be provided in exchange for defective parts. LABOR: You will not be charged for labor required by UT to make the necessary repairs under this warranty. UT is not responsible, however, for any other labor charges, for example, such as those attributable to removing the Product from your vehicle or reinstalling it in your vehicle. This warranty does not include normal wear and tear, wires, wiring connectors, or other parts which may wear or fail as a result of normal use. This warranty also does not include any defect or failure of any kind arising from improper installation, improper use, neglect, abuse, accident, or any cause other than defects in materials and workmanship at the time of manufacture. This warranty applies only to the original purchaser of the Product from UT or an authorized distributor or reseller. It does not apply to persons who purchased this Product second hand or used.

TO OBTAIN SERVICE UNDER THIS WARRANTY, the Product must be delivered to a UT Authorized Service Center nearest to your location; or the Product must be shipped postage prepaid, insured and via a traceable shipping method to a UT Authorized Service Center or to the UT Corporate Service Center at 2200 East Cedar Avenue, Suite 1, Flagstaff, Arizona 86004. You must:

- Pack your Product in the original carton or equivalent.
- Enclose a copy of the bill of sale or invoice showing original purchase date and seller. (Please note that you should retain the original proof of purchase for your records to establish date of original purchase. Your warranty starts with the date of original purchase.)
- Enclose a card or note describing in detail the difficulty you are experiencing with the Product.
- Be sure to include your complete name, address and daytime telephone number. In addition, please include your e-mail address if you agree to permit UT to contact you through it.
- Bring or ship, prepaid and insured, via a traceable shipping method, the above Product to the nearest UT Authorized Service Center location or to the UT Corporate Service Center.

Please note that UT will NOT pay return postage, shipping or insurance, so you will need to make arrangements for this. Products repaired or replaced pursuant to this warranty will be returned to the address identified as the sender unless another address is provided. The UT and/or the Service Center cannot be held responsible for any loss or damage that occurs while in transit or outside our control.

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To find the nearest Authorized Service Centers within your local area, see our Web site at [www.unwiredtools.com](http://www.unwiredtools.com), or you may call the UT Corporate Service Center directly at 928-773-0469.

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## UTBoost™ Manual Revision History

Date	Revision	Description
09/9/2005	A1.0	Initial Release

***Support:***

Please visit <http://unwiredtools.com> for the latest product and support information. You can join the UnwiredTools support forum and view the latest manuals and tech notes as well as find an installer in your area.