



**UTCIS-G™ & UTCIS-V™ Regulator
Engine Management System**

UnwiredTools, LLC
2200 East Cedar #1
Flagstaff, AZ 860004
www.unwiredtools.com
info@unwiredtools.com

Installation Guide and Owner's Manual

*For UTCIS-G™ and UTCIS-V™
Replacement Warm-up Regulator and
Engine Management System*

Approximate installation time = 1 hr

Note to installers: This product has powerful features to monitor, diagnose, and fine tune the operation of the fuel system. These advanced features require the use of a PC with UnwiredTools software. If you intend to use these features you should download and become familiar with the software before installing the UTCIS™. If you make a mistake in setting up and using the available fuel management controls it is far preferable to do this on the bench.



UTCIS-G™ & UTCIS-V™ Regulator Engine Management System

UnwiredTools, LLC
2200 East Cedar #1
Flagstaff, AZ 860004
www.unwiredtools.com
info@unwiredtools.com

WARNING: THE STATE OF CALIFORNIA MAY NOT CONSIDER THIS PRODUCT TO BE LEGAL FOR USE OR SALE IN CALIFORNIA, OR IN A CAR REGISTERED IN THAT STATE, DEPENDING ON SUCH THINGS AS HOW THE VEHICLE IS USED, THE SPECIFIC INSTALLATION AND OTHER FACTORS. IF YOUR VEHICLE IS REGISTERED IN CALIFORNIA OR YOU WILL USE IT THERE, PLEASE CONTACT UNWIREDTOOLS BEFORE PROCEEDING.

Printed in the U.S.A.
Copyright © 2008 *UnwiredTools, LLC*
All Rights Reserved.

NOTICE REGARDING WARRANTIES

The *UnwiredTools*™ UTCIS™ 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 to obtain the latest version, to obtain information about the Product, and to obtain other support information.

NOTICE REGARDING TRADEMARKS

UnwiredTools™, UTCIS™, UTCIS-G™, UTCIS-V™, and UTCIS-PT™ are trademarks of UnwiredTools, LLC. All other trademarks referred to herein are the marks of their respective companies, and not of UnwiredTools.



UTCIS-G™ & UTCIS-V™ Regulator Engine Management System

UnwiredTools, LLC
2200 East Cedar #1
Flagstaff, AZ 860004
www.unwiredtools.com
info@unwiredtools.com

WARNING: READ BEFORE BEGINNING INSTALLATION

The *UnwiredTools*™ UTCIS-G™ or UTCIS-V™ installs into vehicles for which it is designed, and couples into the fuel and electrical systems. 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 or fire. 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

Important Note:

*The UTCIS™ products install into a pressurized part of the fuel system. These products require **professional** installation. A trained technician will have the documentation, tools, and training needed to handle high-pressure fuel and related systems and equipment. Improper installation may lead to destruction of property, severe injury, or death. Professional installers may be found under the Support section of www.unwiredtools.com.*



Table of Contents

Contents of the UTCIS™ Product	5
Product Description	6
Theory of Operation	7
Installation	8
Starting, monitoring, troubleshooting	12
Revision History	13
Warranty	14



UTCIS-G™ & UTCIS-V™ Regulator Engine Management System

UnwiredTools, LLC
2200 East Cedar #1
Flagstaff, AZ 860004
www.unwiredtools.com
info@unwiredtools.com

Contents of the UTCIS™ Regulator:

Please check the contents of this package to make sure it is complete. Your kit should include the following:

- A. UTCIS™
- B. Hardware Kit



The hardware kit includes the following:

- 4 ea tie wraps 3" long
- 2 ea Aluminum spacers
- 2 ea M6 x 65mm Socket head bolts
- 2 ea copper sealing washers
- 1ea 1/8" vacuum "T"
- 4ea #10 self-drilling mounting screws





UTCIS™ Product Description

The UTCIS-G™ and UTCIS-V™ Regulators are designed to replace the Warm-up Regulator in Bosch CIS fuel injection systems. The UTCIS™ is a cost-effective, and easy to install, replacement for the OEM part¹. The UTCIS™ regulates the Control Pressure circuit with modern, reliable digital controls including a digital microprocessor and sensor system.

The features of UTCIS™ include:

- Robust and reliable electronic controls, replaces inaccurate mechanical controls
- Easier cold and hot starts²
- Easy installation procedure
- Cost effective replacement
- Brings digital precision to older analog CIS injection systems
- Retains OEM fittings for superior fit
- Engine management software
- Live data and diagnostics
- 5 year warranty

The UTCIS™ is installed by removing the OEM Warm-up Regulator, then bolting the UTCIS™ into place. The OEM electrical connector is retained so the electrical connection is as simple as plugging it in. The air/fuel ratio in a CIS injected engine is regulated by the Control Pressure. The UTCIS™ does not just set Control Pressure, the control pressure is now regulated. A pressure sensor on the UTCIS™ monitors the Control Pressure and a stepper-motor driven needle valve continuously adjusts it.

The UTCIS-V™ includes a vacuum port for precise tailoring of the fuel delivery according to the air pressure in the intake manifold.

Note: These products are not intended for use on vehicles equipped with turbochargers or superchargers. For intake manifold pressures above 1.0 bar use the UTCIS-PT™

Note 1: The UTCIS™ replaces Warm-up Regulators for Mercedes, Porsche, VW, Audi and other vehicles, including European models.

Note 2: Warm-up Regulator failure is a common cause of starting problems. Other factors unrelated to the Warm-up Regulator may adversely affect engine startup. Consult a trained technician for an accurate diagnosis.

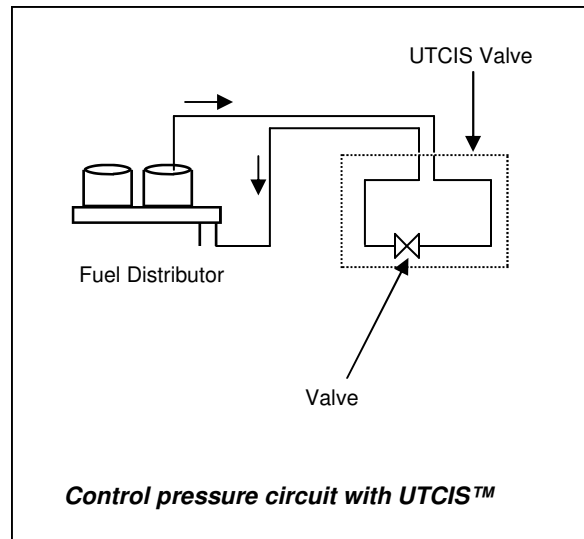
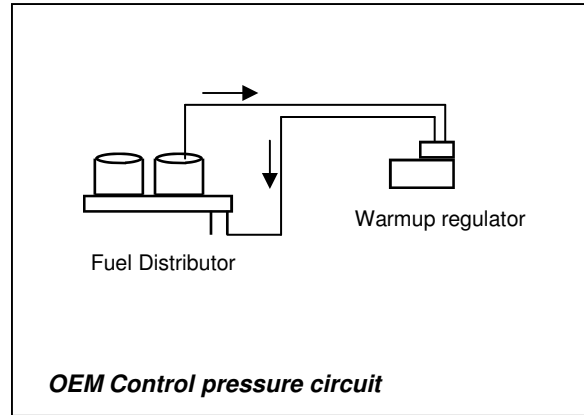


Theory of Operation

The OEM Warm-up Regulator works by allowing a small amount of fuel to flow out of the control pressure port of the Fuel Distributor. This flow determines the control pressure, which regulates the air/fuel mixture. The OEM Warm-up Regulator is a complex assembly of vacuum diaphragms and electrical bi-metallic heating elements which exert very small forces to control a small flow at high pressure. This delicate balancing act is prone to error and failure, especially over time.

The UTCIS™ replaces this complex mix of sensitive parts with a simple, robust system. The UTCIS™ uses a rugged and very accurate stepper-motor driven needle valve to regulate the control pressure.

The needle valve opens to reduce the control pressure during the warm-up cycle. The control pressure is varied after warm-up (UTCIS-V™ only) under varying road conditions.





UTCIS-G™ & UTCIS-V™ Regulator Engine Management System

UnwiredTools, LLC
2200 East Cedar #1
Flagstaff, AZ 860004
www.unwiredtools.com
info@unwiredtools.com

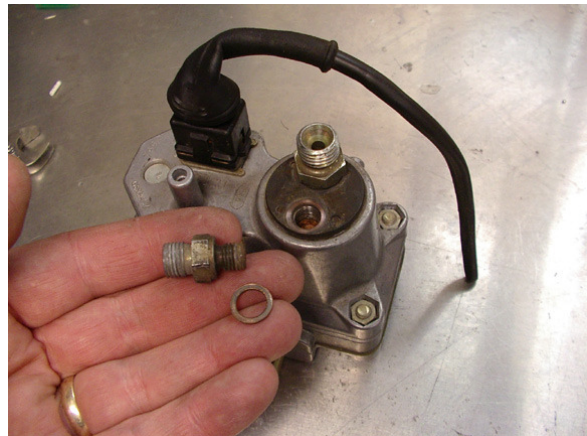
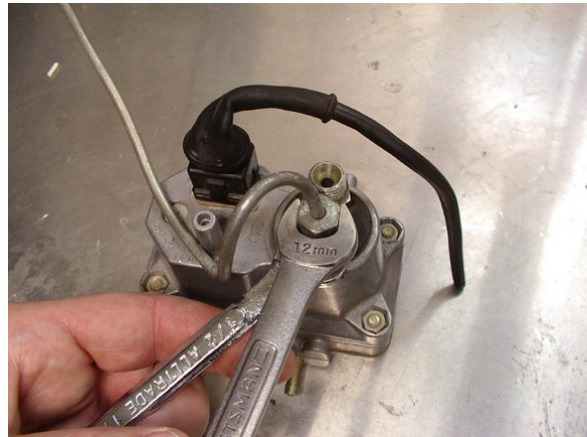
Installation:

The installation of the UTCIS™ Regulator begins with careful removal of the two fuel lines connected to the top of the OEM Warm-up Regulator. Next, unplug the electrical connector and the vacuum connections from the OEM part. Be sure to plug the vacuum connections. Remove the mounting bolts holding the OEM part to the engine. The OEM part may now be removed from the vehicle.

Working on the bench, remove the two fuel fittings and transfer them to the UTCIS™ Regulator Valve assembly. Note the use of a backing wrench to first remove the fuel line, then the fitting.

Note: Working on high-pressure fuel systems is dangerous and requires proper tools and training.

Eye protection is highly recommended when working with pressurized fuel lines, as pressurized fuel tends to spray. When loosening fuel line connections, the joints should be covered with a rag to minimize the fuel spray. Working on fuel lines while smoking or in the proximity of a shop heater is highly discouraged.

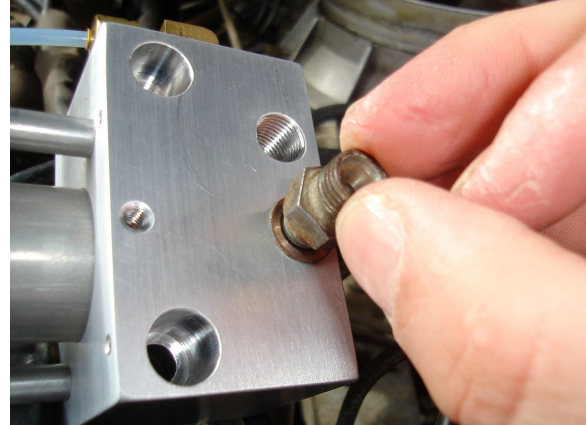




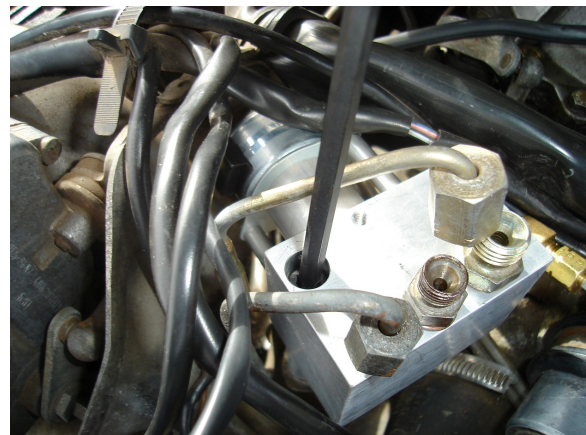
UTCIS-G™ & UTCIS-V™ Regulator Engine Management System

UnwiredTools, LLC
2200 East Cedar #1
Flagstaff, AZ 860004
www.unwiredtools.com
info@unwiredtools.com

Transfer the old fittings to the body of the UTCIS™. New copper sealing washers are provided in the hardware kit.



The body of the UTCIS™ regulator can now be mounted in the same location as the OEM part. The aluminum spacers in the hardware kit are used to position the UTCIS™ at the same height as the OEM regulator. Tighten the M6 x 65 mm screws as shown. These screws thread into the same mounting points as the OEM Warm-up Regulator.



Now tighten the fuel fittings on the top of the valve assembly then tighten the fuel lines. **Note: The fuel lines must be properly torqued, not over-torqued, to prevent leaks. Use a backing wrench as shown to properly tighten the fuel line nut onto the fitting. The body of the UTCIS™ is aluminum, DON'T STRIP THE THREADS!!**



The UTCIS-V™ has a vacuum connection which can now be connected. The UTCIS-G™ does not have a vacuum connection.



UTCIS-G™ & UTCIS-V™ Regulator Engine Management System

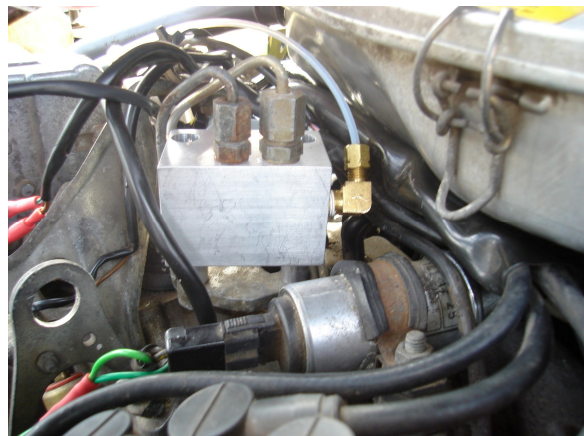
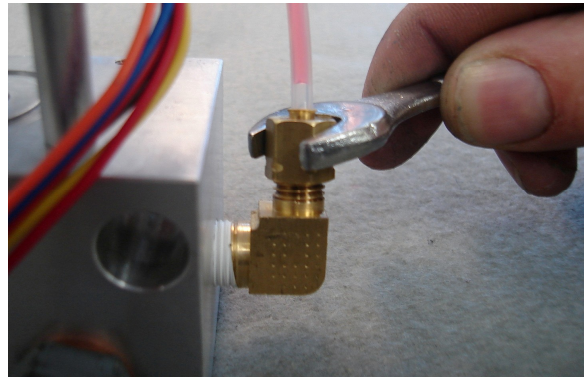
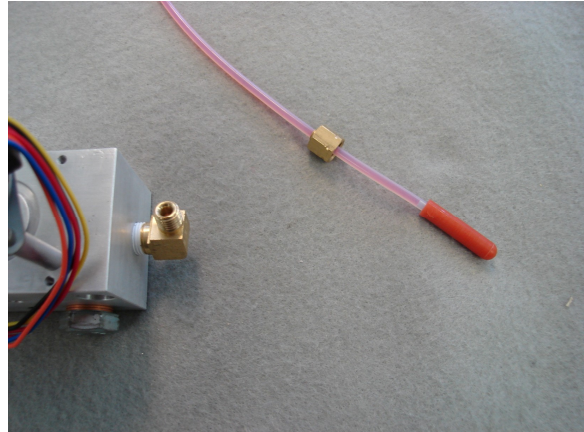
UnwiredTools, LLC
2200 East Cedar #1
Flagstaff, AZ 860004
www.unwiredtools.com
info@unwiredtools.com

The UTCIS™ control pressure line is filled with a colored oil which helps identify fuel leaks in the control pressure line of the UTCIS™ or in the controller at the end of the line. In the unlikely event of a leak this red fluid will be slowly displaced by gasoline and the color of the line will change from red to clear. The control pressure line is capped at the factory to prevent the fluid from leaking out into the body of the UTCIS™ during shipment.

Note: there is a small amount of trapped air inside the UTCIS™ pressure sensor at the end of this pressure line. When the car starts this air will be compressed and some of the red fluid will be displaced. This is normal.

Remove the cap then fit the tube onto the body of the UTCIS. Tighten the self-aligning brass fitting. Make sure the tube stays bottomed against the full depth of the fitting while the nut is tightened.

The mechanical assembly is now done and you're ready to mount the controller.





UTCIS-G™ & UTCIS-V™ Regulator Engine Management System

UnwiredTools, LLC
2200 East Cedar #1
Flagstaff, AZ 860004
www.unwiredtools.com
info@unwiredtools.com

The pressure sense lines and electrical connections of the UTCIS™ form a bundle which connect the UTCIS™ mechanical body to the electrical controller. This controller must be securely mounted to the body, inside the engine compartment. On 107 chassis Mercedes vehicles there is convenient location against the inner fender just behind the passenger side headlight. **Note: it may not be possible to fit all 4 mounting screws on a curved panel. A minimum of 2 screws are required.**



Secure the wire and pressure line bundle so that it's safely away from moving parts and rubbing from vibration.



Note: Mount the controller box so that the pressure sense lines and wires exit out the bottom or exit horizontally. If these lines enter the controller from the top it will increase the possibility of water entering the controller housing.

The last step is to plug in the electrical connector.



Double check your work, make sure the fuel fittings are tight and check for leaks. The installation is done.



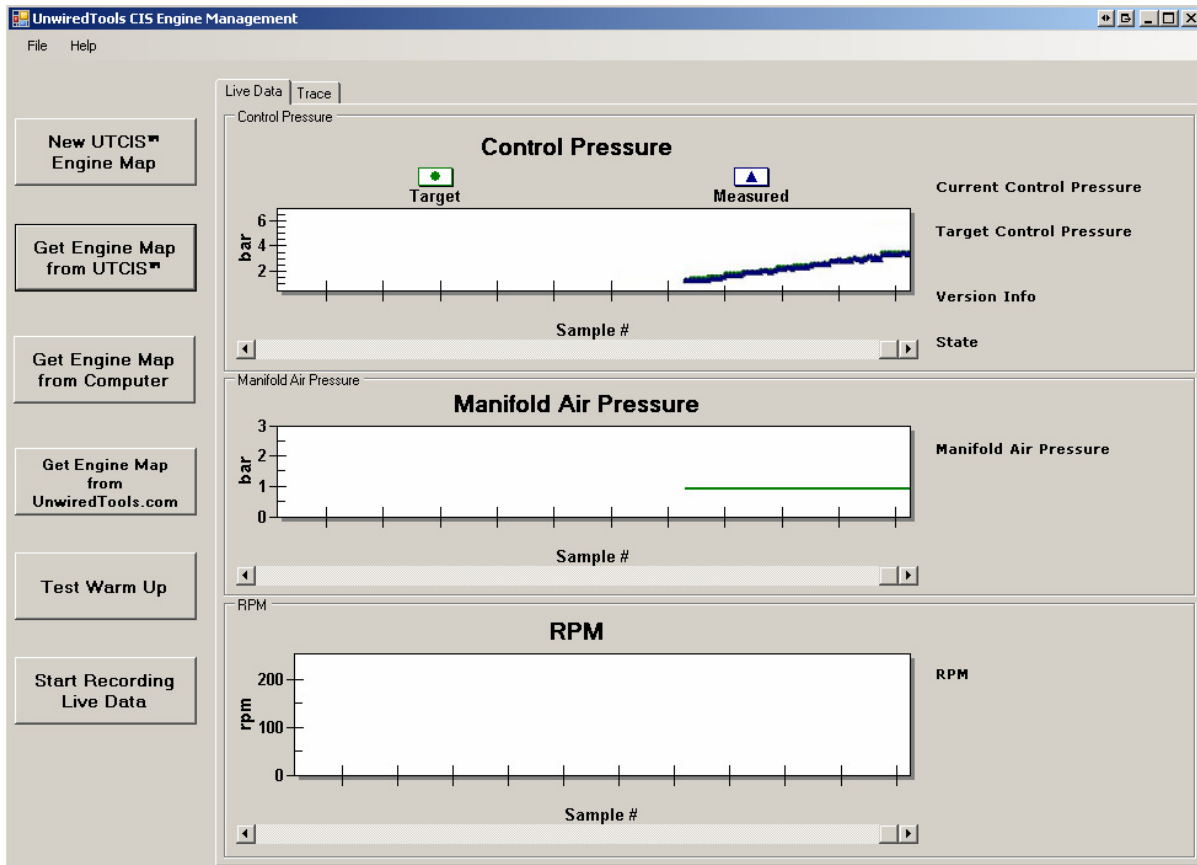
UTCIS-G™ & UTCIS-V™ Regulator Engine Management System

UnwiredTools, LLC
2200 East Cedar #1
Flagstaff, AZ 860004
www.unwiredtools.com
info@unwiredtools.com

Starting, monitoring, troubleshooting:

Experienced installers use a CIS pressure gauge set to monitor the function of the regulator during the cold start and run phases. There's a much easier and faster way. The UTCIS™ has a powerful diagnostic function which allows for the monitoring and adjustment of the engine controls. The screen capture below shows an example of a properly working UTCIS™ which has progressed through the cold-start mode:

This screen shot was taken from the UTCIS™ Engine Management Software. For more information regarding this software please visit www.unwiredtools.com.





UTCIS™ Manual Revision History

Date	Revision	Description
01/31/08	A3	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.



UTCIS-G™ & UTCIS-V™ Regulator Engine Management System

UnwiredTools, LLC
2200 East Cedar #1
Flagstaff, AZ 860004
www.unwiredtools.com
info@unwiredtools.com

UNWIREDTOOLS Limited Warranty

UNWIREDTOOLS, LLC ("UT") warrants that your new UnwiredTools™ UTCIS™ Regulator ("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, tubing, wiring connector, 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. The warranty is voided if this UTCIS™ product is not installed by a qualified mechanic.

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.

OTHER THAN THE EXPRESS WARRANTIES PROVIDED HEREIN, THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED. UT HEREBY EXPRESSLY DISCLAIMS ALL SUCH OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. UT SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL, OR EXEMPLARY DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO SUCH DAMAGES RESULTING FROM ANY FAILURE, DEFECT, OR MALFUNCTION OF THIS PRODUCT, EVEN IF UT IS NOTIFIED OF THE POTENTIAL FOR SUCH DAMAGES. UT'S LIABILITY UNDER THIS WARRANTY SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE PRODUCT OR A REFUND OF YOUR ORIGINAL PURCHASE PRICE FOR THE PRODUCT. Some states do not allow limitations on how long an implied warranty lasts and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from State to State. This warranty is valid only for Products delivered and used in the United States. Your purchase of this Product, or installing or using the Product, will be deemed acceptance of this Limited Warranty and Remedies Limitation as set forth here. If you do not accept these and do not intend to be bound by them, please return the Product in its original packaging as you received it to your original point of purchase for a full refund of your purchase price.

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

rev. 053105