

**A/C PRESSURE MONITOR
INSTALLATION INSTRUCTIONS**

WARNING

Do not attempt to clean or inspect anything while the engine is running.

WARNING

Cleaning and inspection must be done by a certified mechanic.

WARNING

All A/C service must be done by a certified A/C technician.

WARNING

This unit requires a certified A/C mechanic for installation. The A/C system is under high pressure.

WARNING

This monitor is to be used for information purposes only.

WARNING

Install only on a properly cleaned and functioning system which meets OEM specifications.

WARNING

This monitor is designed to warn the operator of a high discharge pressure situation. It is not designed to eliminate compressor or other component failures.

WARNING

Any system converted from R-12 to R-134a may give false warnings due to improper charge or inadequate condenser size or design.

SYSTEM OPERATION

GREEN INDICATOR LIGHT

When system is energized, a green indicator light will come on. This indicates that the discharge pressure is within normal parameters, from 30 psi to 275 psi. The compressor clutch should be engaged.

YELLOW INDICATOR LIGHT

When the yellow indicator light activates, the discharge pressure has exceeded the normal parameters and is in excess of 300 psi. The compressor clutch will still be engaged and will stay engaged. At this point the condenser requires attention. The yellow light will stay on until reset.

RED INDICATOR LIGHT

When the red indicator light activates, the discharge pressure has exceeded 350 psi or a complete loss of freon. The monitor will shut the compressor clutch circuit down and will not come back on until the monitor is reset. To reset the A/C monitor, turn the power off to the monitor for 5 seconds. If problem still exists, the monitor will immediately turn red after reset. A/C system **MUST** be serviced after a red indication.

NOTE:

In extremely cold weather the freon pressure will drop below the 30 psi trigger level. This prevents cold weather operation. The red indication will stay on until the temperature rises and the monitor is reset.

TESTING

1. Turn the power on.
2. Turn the A/C blower on.
3. Turn temperature to coldest position.

Note: Do not start the engine.
4. Green light will be on and compressor clutch will be engaged.
5. Jump the connection at the (green) mid range switch. Disconnect the weather pac connection and jump at the wiring harness side. The yellow light will come on and stay on – compressor will stay engaged.
6. Unplug the binary switch. The red light will come on. The compressor clutch will disengage.
7. Reconnect the binary switch and the mid range switch.
8. Reset the A/C monitor by turning the power off for 5 seconds.
9. The green light will be on and the compressor clutch engaged.

A/C MONITOR INSTALLATION INSTRUCTIONS

1. Install the pressure switches onto the supplied fitting.

See Photo No. 1
2. Install fitting onto a **NEW** dryer at the inlet side of the dryer.
NOTE: SWITCHES MUST BE INSTALLED IN THE DISCHARGE HOSE (COMPRESSOR TO CONDENSER) OR IN THE LIQUID HOSE (CONDENSER TO DRYER).

See Photo No. 2
3. Recharge the A/C system to the OEM specifications.
NOTE: CONDENSER MUST BE 100% CLEAN OR FALSE TRIGGERS WILL RESULT.
4. Performance test A/C to ensure the suction and discharge pressures are within OEM specifications. Normal discharge specifications are between 150psi to 270 psi, temperature and humidity dependent.
5. Locate a flat surface which would be in good view of the operator and in no way obstructs the operator's view.

See Photo No. 3
6. Remove the paper backing off 1 piece of the square-lock velcro on the back of the monitor. Attach the velcro to the monitor. Attach the other piece of the velcro to the mating surface of the velcro already installed. Remove the protective backing and secure it to the surface that was located prior. Insure that it is level. Note: Once the velcro is joined, it is very difficult to separate. Peel protective cover off monitor information panel.

Alternate Mounting: If mounting screws are needed, remove monitor cover and locate two mounting holes in the corners. Secure monitor with two screws, reinstall cover. **Be careful not to damage circuitry. Warranty will be void if damaged.**

See Photo No. 4

7. Route the yellow cable to an appropriate location near the A/C controls. Use the supplied p-clips to secure the cable. If you drill a 7/8 inch hole to route the cable through, snap the grommet already attached to the cable into the hole. If grommet is not needed, snip with side cutters and discard.
8. Route your wiring harness to the same location. The location must be dry and oil free at all times. Connect the yellow cable to the supplied wire harness.
9. Connect the supplied fuse to the red wire and then attach it to a 24 volt power source. (If a 12 volt power source is used, you must replace the relay with a 12 volt **RELAY CONTAINING A DIODE.**) The power source must be able to be turned off with the ignition. Attach the black wire to ground.
10. Remove one wire from the thermostat switch, connect the yellow wire from the supplied wiring harness to that wire. Connect the brown wire from the supplied wiring harness to the thermostat switch where you removed its original wire. The yellow and brown wires act like a switch. They interrupt the flow of current to the compressor clutch when the monitor is triggered red. The yellow and brown wires can interrupt a power wire or a ground wire, whichever controls the compressor clutch circuit.

See Drawing No. 1

11. Route wiring harness to the pressure switches, secure with supplied tie-downs so harness does not get damaged, connect the wires to the pressure switches. They can only be connected one way. Secure so that they cannot come apart.

See Photo No. 2

12. The power for the A/C monitor can be taken from the accessory relay then use a concealed on/off toggle switch for resetting. You must use the fuse at the power source.

TROUBLESHOOTING

NO GREEN LIGHT

Cause: Blown fuse, no power, no ground.

Corrections: Disconnect the yellow cable from the main wiring harness. Test for power on the main wiring harness (not the yellow monitor cable) at pin 1. Test for ground at pin 4. Obtain 12 or 24 volts and a proper ground. Reconnect the harness to the yellow cable. A/C monitor must be reset between tests.

WARNING

Do not jump, test or try to troubleshoot the monitor or yellow cable. Immediate damage will occur and will not be covered under warranty.

NO YELLOW LIGHT

Cause: Bad mid-range switch or open circuit in the wiring harness.

Corrections: Unplug the weather pac connection at the mid-range switch. Jump the connector on the main wiring harness. If the yellow indicator activates, the mid-range switch is bad, replace it. If the yellow indicator will not activate, leave the jumper in the wiring harness and test the wiring harness for an open circuit. Unplug the wiring harness at the yellow monitor cable and test for continuity between pins 5 and 6. If open, repair the circuit. Reset and test.

YELLOW LIGHT STAYS ON

Cause: Shorted mid-range switch or shorted wiring harness.

Corrections: Unplug the mid-range switch and reset the monitor. If the yellow indicator goes off, replace the switch. If the indicator light stays on check for shorted wiring harness and repair. Always reset the monitor between tests.

NO RED INDICATOR LIGHT AT MAXIMUM PRESSURE OR NO FREON

Cause: Bad high pressure switch.

Corrections: Disconnect high pressure switch and if the red light goes on, replace the high pressure switch. Reset and test.

RED LIGHT STAYS ON

Cause: Total loss of freon, very low freon or outside temperature is below 20 degrees Fahrenheit.

Corrections: Repair A/C system to OEM specifications. The monitor will give a red indicator light below 20 degrees Fahrenheit. This is a feature of the monitor so the system will not come on in very cold conditions.

Cause: Bad high pressure switch, bad connection at the high pressure switch or an open circuit.

Corrections: Disconnect the high pressure switch, jump the main wiring harness. Reset the monitor. If the red light goes out, replace the high pressure switch. Make sure the wires are clean and make good contact. If the light stays on, leave the jumper in the wiring harness and test for continuity on pins 3 and 5. Unplug wiring harness from yellow monitor cable before testing. If open, repair wiring harness, reset the monitor and test.

COMPRESSOR CLUTCH WILL NOT ENGAGE

Cause: OEM A/C wiring, switch or compressor clutch problem.

Corrections: Disconnect yellow and brown wires at the thermostat switch. Reconnect the OEM wire at the thermostat switch. This removes the A/C monitor completely from the OEM system and wiring. Test and repair to OEM specifications. Once all wiring problems or refrigerant problems have been repaired to OEM specifications, reconnect the yellow and brown wires to the thermostat switch. Reset and test.

Cause: Bad relay or broken yellow or brown wire.

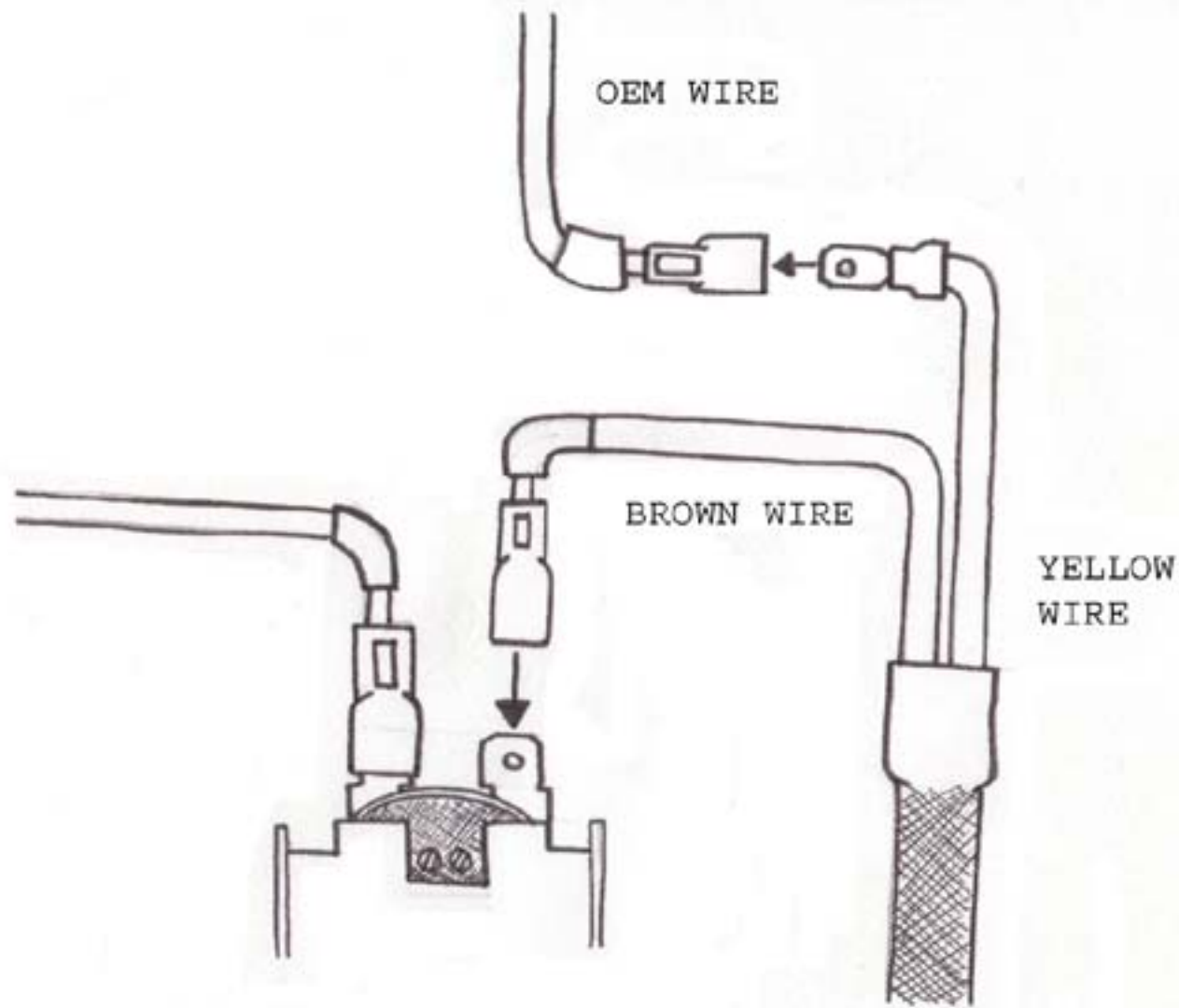
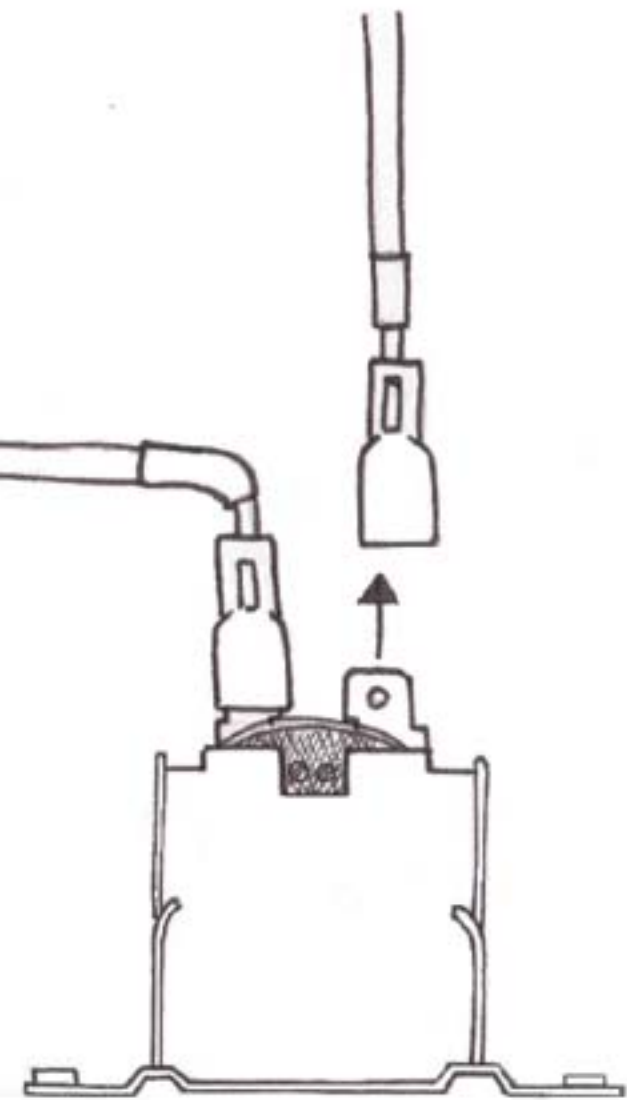
Corrections: Replace relay (**NOTE** - Relay must contain internal diode). If any other relay is used, damage will occur to A/C monitor and warranty will be void. Reset and test.

Cause: Wiring error.

Corrections: Read installation instructions and wire accordingly. Reset and test.

WARNING. Do not attempt to test, jump or connect anything to pins 85 and 86 on the relay socket. This will immediately damage the monitor.

Disconnect the yellow cable from the main wiring harness. Remove the relay. Jump pins 30 and 87a. The compressor should engage. If not, you have a broken yellow or brown wire, poor connection or a wiring error. Reset and test.



DRAWING No. 1

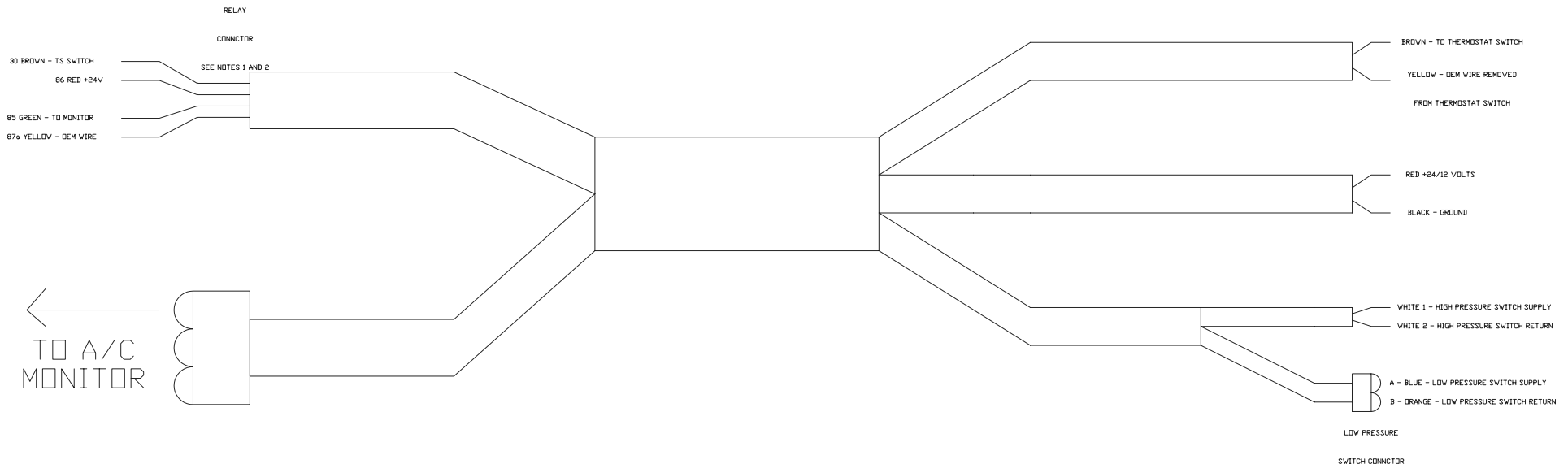
IF PRINTED, THIS DOCUMENT WILL NOT BE KEPT UP TO DATE.

GENERAL NOTES:

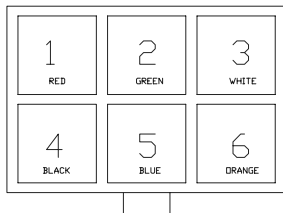
- 1. IF +12V IS USED THE RELAY MUST BE CHANGED TO A 12V RELAY WITH INTERNAL DIODE.
- 2. DO NOT JUMP PINS 85 AND 86.
- 3.
- 4.
- 5.
- 6.
- 7.

REVISION			
REV	DESCRIPTION	DRAWN	DATE
A	A/C MONITOR - WIRE HARNESS DIAGRAM	S.B.	1/3/2003

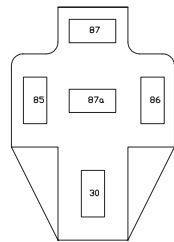
A/C MONITOR WIRE HARNESS DIAGRAM



MALE CONNECTOR ON HARNESS



RELAY CONNECTOR ON HARNESS



- PIN 1 - RED - +24V
- PIN 2 - GREEN - RELAY
- PIN 3 - WHITE - HI/LOW PRESSURE SWITCH RETURN
- PIN 4 - BLACK - GROUND
- PIN 5 - BLUE - HI/LD AND CAUTION SUPPLY
- PIN 6 - ORANGE - CAUTION SWITCH RETURN

- PIN 86 - RED - +24V/12V
- PIN 85 - GREEN - TO MONITOR
- PIN 30 - BROWN - TO THERMOSTAT SWITCH
- PIN 87a - YELLOW - TO OEM WIRE REMOVED FROM THERMOSTAT SWITCH

INFORMATION		A/C MONITOR	
		TITLE	
		WIRE HARNESS DIAGRAM	
MATERIAL	SIZE D	DWG NO. HDS WD-001	REV A
WIRE - 18 ga.	SCALE: 1/1	SHEET 1 OF 1	

DWG NO. HDS WD-001 SH 1 REV A



Photo No. 1 - Fitting Assembly

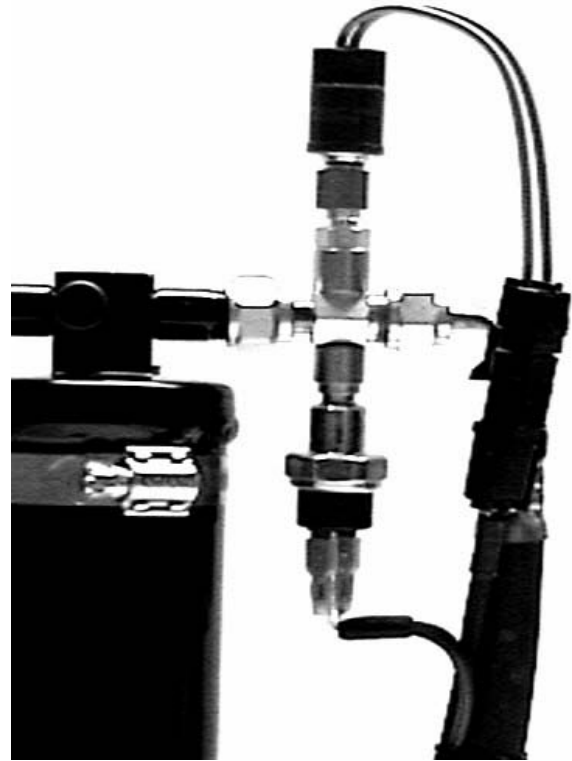


Photo No. 2 - Fitting / Switch / Harness Assembly



Photo No. 3 - Monitor Location Example



Photo No. 4 - Velcro Location

**Kool Radiator Service, Inc.
Limited Warranty Policy**

Kool Radiator Service, Inc. (Kool) warrants each new A/C Pressure Monitor (ACPM) to be free from defects in material and workmanship under conditions of normal use and service for a period of one (1) year from date of purchase.

Kool's obligation under this warranty shall be limited to repairing or replacing at its option any part or parts found to Kool's satisfaction to be warrantable. No labor or refrigerant losses involved in the replacement or repair of these parts will be reimbursed.

1. Where an ACPM is made up of both Kool and non-Kool components, the failure or malfunction of a Kool component caused by or contributed to by the malfunction of a non-Kool component will not be warrantable by Kool.
2. Component part failure or poor performance resulting from improper installation/application are not covered by Kool's warranty.
3. This warranty is the sole-property of the original owner/user of the ACPM. A transfer of ownership of the vehicle in which an ACPM is installed shall terminate the warranty.
4. Kool retains the right to inspect component parts (claimed to be warrantable) at its manufacturing facility and make a determination as to warrantability. No materials shall be returned to Kool without prior written authorization.
5. Replacement component parts furnished at no charge or credited by Kool as remedy to an existing warranty shall carry the balance of the warranty of the component being replaced.
6. In no event shall Kool be liable for consequential damages or contingent liabilities such as damage to vehicle, contents or product cargo, expenses of rental or other equipment, loss of revenue or expenses from failure of any ACPM or part thereof to operate properly.
7. Alterations or modifications in any form to any component or part thereof shall nullify and make void this warranty. The only exception is a modification with prior written approval of Kool. Failed Kool parts must be replaced with Kool parts to be eligible for warranty adjustment credit. No credit will be given for non-Kool parts.
8. Kool shall not be responsible for any delays, additional costs incurred or inability to complete an installation.
9. The owner/user of an installed ACPM has an obligation under Kool's Warranty to provide for reasonable care and maintenance to minimize component parts failure or malfunction.. If Kool determines lack of reasonable care and maintenance is a contributing factor to component failure, warranty credit will not be allowed.
10. LIMITATION ON IMPLIED WARRANTIES: WE ARE NOT LIABLE FOR ANY CONSEQUENTIAL DAMAGES FOR BREACH OF ANY WRITTEN OR IMPLIED WARRANTY OF THIS PRODUCT. The warranties set forth herein are in lieu of any and all other warranties, expressed or implied including any warranty of merchantability or fitness for a particular purpose. This Warranty supersedes all previous warranty policies, expressed or implied.
11. LIMITATION ON LIABILITY: All intended representations have been expressly set forth in this document. This warranty may not be extended by oral or any other additional representations, written sales information, drawings or otherwise. Our liability, in the event of a malfunction, is strictly limited to repair or replacement of the defective ACPM or part, as provided herein and Kool is not responsible hereunder for the incidental or consequential property damage or personal injury, interim loss, inconvenience or other consequential or incidental costs or damages. Kool neither assumes nor authorizes any person or firm to assume for us, any further liability or obligation in connection with the sale, installation, use, maintenance or existence of the ACPM.
12. Some states do not allow the exclusion or limitations of incidental or consequential damages, so the above limitations or exclusions may be apply to you. This Warranty gives you specific legal rights. You may also have other rights which vary by state.

A/C MONITOR INSTRUCTIONS