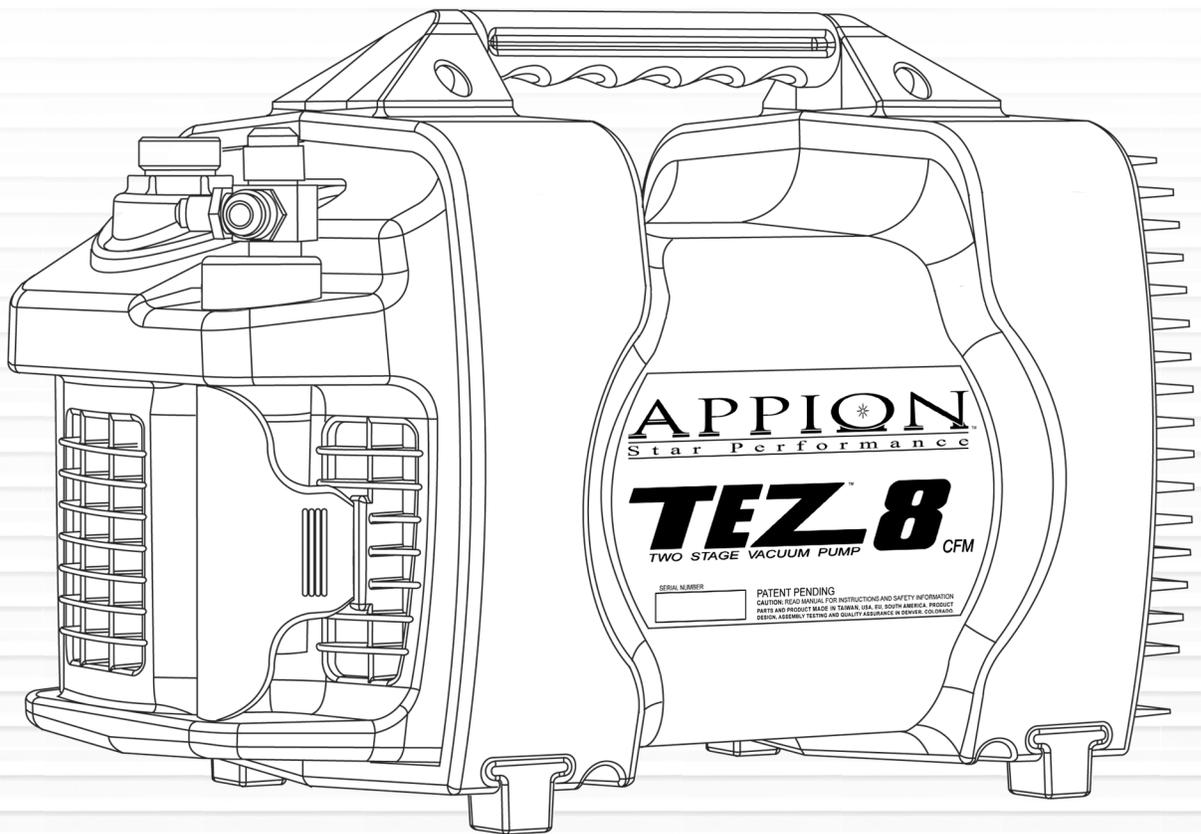


**APPION**  
Star Performance

**TEZ<sup>TM</sup> 8**  
TWO STAGE VACUUM PUMP CFM



**OPERATING MANUAL**

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# Warnings and Safety Information

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This machine is for use by trained and certified professionals only.

Always wear gloves and eye protection when using this machine or handling refrigerants.

Read all Material Safety Data Sheets (MSDS) for any compounds that you are likely to encounter. Failure to do so could lead to injury or death.

To reduce the risk of fire, Extension cords must be at least 12AWG and not longer than 15 ft. This equipment should be used in areas with mechanical ventilation providing at least four air changes per hour, or be located at least 18" above the floor. Do not use this equipment near any spilled or open containers of gasoline or other flammable liquid.

Remove all refrigerant from the system before connecting the vacuum pump. Attempting to evacuate the system while it is under high pressure may cause damage to the vacuum pump.

To reduce the risk of equipment damage or fire, do not leave the TEZ8 running while unattended.

Disconnect the TEZ8 from the power supply before any maintenance or service of the TEZ8 to reduce the risk electrical shock or injury.

Keep out of reach of children at all times.

## Machine Usage

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**Caution:** Always use a grounded 3-prong outlet.

**Caution:** Always remove all refrigerant from the system before connecting the vacuum pump. We recommend using the Appion G5Twin for this purpose. Equipment damage may occur if the evacuation is started while the AC/R system is under high pressure.

**Note:** For the deepest final vacuum, ensure that all fittings and hose connection are properly and tightly secured before beginning the evacuation process.

**Note:** The TEZ8 is equipped with a clear monitor tube located in the right-front corner of the machine which allows you to observe the incoming airflow for debris, oil, or any other material which could damage the pump.

### Standard Setup

1. Install a fresh TEZOM oil cartridge into the front of the Appion TEZ8 Vacuum Pump before using (See the section on changing the oil for further details).
2. Connect the pump to the system according to the AC/R manufacturer's guidelines.
3. If you are using a vacuum gauge, attach it to one of the other inlet ports. All unused inlet ports should be kept sealed with caps.

## Standard Setup Continued

4. Turn the power switch ON.

**Note:** If the vacuum pump is turned off with the inlets closed, the pump chamber can become filled with oil, which may make it hard to start. If this has happened, slightly open one of the inlet ports when starting the vacuum pump to allow it to start easier.

5. Evacuate the system, following standard servicing procedures.

## Shut Down Procedure

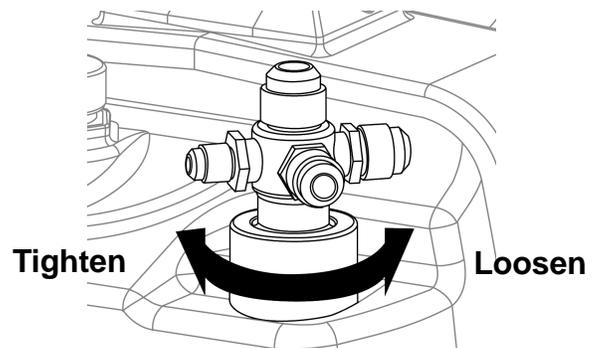
1. Close the manifold valve between the pump and the system.
2. Slowly remove the hose from the pump inlet to remove any residual oil from the pump.
3. Turn the power switch OFF.
4. Keep inlet ports capped when not in use to prevent moisture accumulating inside the pump.

## Hose Attachment

The TEZ8 is equipped with multiple sizes of fittings that can be used to hook it up to the system you are working on. These fittings should be kept sealed with caps when the pump is not being used to prevent moisture from accumulating inside.

The input fittings can be swiveled to allow easy access to the desired ports, depending on hose and system port availability.

To change the orientation, loosen the screw collar under the ports by turning it counterclockwise. You can then swivel the input fittings to face the desired direction. Once you have oriented the fittings, tighten the screw collar by turning it clockwise.



## Changing the Oil

It is a good idea to always use clean fresh oil in your Appion TEZ8 vacuum pump. This not only prolongs the life of the pump, but also helps you to achieve the deepest ultimate vacuum. Changing the oil in the Appion TEZ8 is as easy as installing a new TEZOM oil cartridge following the below procedure. Replacement TEZOM Oil Cartridges can be purchased from your local wholesaler.

**Note:** Be sure to only use genuine Appion TEZOM Oil Cartridges in your TEZ8 vacuum pump.

1. Turn ON the Appion TEZ8 momentarily with one of the inlet ports open to remove any residual oil from the pump. Then turn the machine OFF and unplug from power source.
2. Open the large door on the left side of the machine to gain access to the TEZOM oil cartridge.
3. While holding the lower part of TEZOM, pull the cartridge out of the side of the vacuum pump. (Fig. 1)
4. Locate and remove the cap and protective seal from the top of a new TEZOM. The cap can be used to seal the old TEZOM for easy disposal. (Fig. 2)

**Note:** Dispose of the waste oil in accordance to your local regulations.

5. Locate the flat side of the new TEZOM and hold the cartridge so that this is facing toward the machine.
6. Insert the top of the TEZOM first and make sure the oil suction tube is placed inside the cartridge. (Fig. 3)
7. Gently push the bottom of the cartridge forward until the TEZOM is secured in place. (Fig. 4)

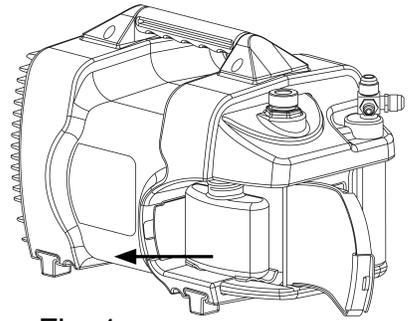


Fig. 1

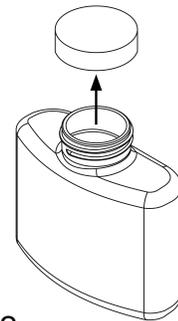


Fig. 2

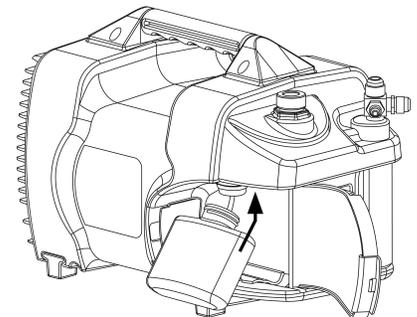


Fig. 3

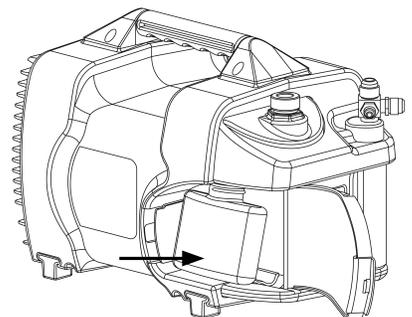


Fig. 4

## Helpful Hints

### Why Should You Use a High Vacuum Pump?

Damage caused by moisture is one of the leading causes of failures in AC/R systems. Moisture can combine with your refrigerants to create acids that can corrode copper plating inside the system. Refrigeration oil readily absorbs water and can turn into a sludge, losing its lubricating ability. The best way to remove moisture from a system is with a good high-vacuum pump.

## Helpful Hints Continued

For a system to be adequately dehydrated, the deep vacuum must reach the farthest point in the system, not just the point where the gauge is attached. To accomplish this, a connecting line of the largest diameter and shortest length possible must be used.

As the pressure in a system decreases, the boiling point of water decreases also. The following chart shows that you can get water to boil at 72° F by creating a vacuum of 29.12 Inches Hg in a system.

| Temperature in °F | Inches of Mercury | Microns* | Pounds/Sq. In. (Pressure) |
|-------------------|-------------------|----------|---------------------------|
| 212°              | 0.00              | 759,968  | 14.696                    |
| 205°              | 4.95              | 535,000  | 12.279                    |
| 194°              | 9.23              | 525,526  | 10.162                    |
| 176°              | 15.94             | 355,092  | 6.866                     |
| 158°              | 20.72             | 233,680  | 4.519                     |
| 140°              | 24.04             | 149,352  | 2.888                     |
| 122°              | 26.28             | 92,456   | 1.788                     |
| 104°              | 27.75             | 55,118   | 1.066                     |
| 86°               | 28.67             | 31,750   | .614                      |
| 80°               | 28.92             | 25,400   | .491                      |
| 76°               | 29.02             | 22,860   | .442                      |
| 72°               | 29.12             | 20,320   | .393                      |
| 69°               | 29.22             | 17,780   | .344                      |
| 64°               | 29.32             | 15,240   | .295                      |
| 59°               | 29.42             | 12,700   | .246                      |
| 53°               | 29.52             | 10,160   | .196                      |
| 45°               | 29.62             | 7,620    | .147                      |
| 32°               | 29.74             | 4,572    | .088                      |
| 21°               | 29.82             | 2,540    | .049                      |
| 6°                | 29.87             | 1,270    | .0245                     |
| -24°              | 29.91             | 254      | .0049                     |
| -35°              | 29.915            | 127      | .00245                    |
| -60°              | 29.919            | 25.4     | .00049                    |
| -70°              | 29.9195           | 12.7     | .00024                    |
| -90°              | 29.9199           | 2.54     | .000049                   |

\*Remaining pressure in system in microns.

### **Hoses and Valves**

Other important factors in keeping evacuation times short are hose lengths and Schraeder valves. The larger the hoses are, the less restriction there will be on the evacuated flow and the evacuation times will decrease. Even if you are connecting to 1/4" fittings, using 3/8" hose will decrease the time needed for the evacuation process.

Also check the rubber seal at the ends of the hose for damage. If the seal becomes worn out and deformed, it can create a restriction when it is tightened up against a flare fitting and the system is being pulled down into a vacuum.

Schraeder valves will also create a restriction and slow down the evacuation process. Remove any Schraeder valves from your connections beforehand. You can get a removal tool that will leave the seal intact from most wholesalers. Core depressors, in the end of the hose, should be removed as well. Both of these items, if left in, can cause a short job to take hours to perform.

Imagine trying to drink water through a 1/4-in., 3-ft. long straw. Now pinch the end closed a little bit, and you get an idea of the kind of work your vacuum pump is trying to accomplish. Using larger hoses without any restrictions will make it easier on your machine and allow you to finish the job much quicker.

# Helpful Hints Continued

## Extension Cords and Low Voltage

Vacuum pumps will work best when the voltage at the machine (while it is running) is between 115 and 122 volts.

Check that the voltage coming from the source outlet is adequate. Please note that the circuit could have many other items on it e.g. light fixtures, appliances, or other motors. All of these extra loads on the circuit will cause a lower voltage and reduced performance.

Likewise, long and thin extension cords also starve the motor of necessary voltage and can cause very dangerous overheating of the motor and extension cord. Extension cords should be at least 12AWG and not longer than 15 ft.

# Care and Maintenance

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## Cleaning the Input Debris Screen

The TEZ8 is equipped with a clear monitor tube located in the right-front corner of the machine which allows you to observe the incoming airflow for debris, oil, or any other material which could damage the pump.

A small filter screen is located in the fitting at the top of this monitor tube to prevent large debris from entering the pump and causing damage. For best results, this screen should be cleaned regularly.

1. Open the door located on the right side of the machine to access the clear monitor tube.
2. Grab the monitor tube and pull it straight down to release it from the input fitting, then remove it from the machine. (Fig. 1)
3. Remove the screen from the input fitting, clean it thoroughly and place it back into the fitting. If the screen is damaged, it should be replaced. (Fig. 2)
4. Connect the monitor tube back up to the pump with the tube opening facing towards the top. Make sure that the spring is pushing against the bottom of the tube when it is installed.

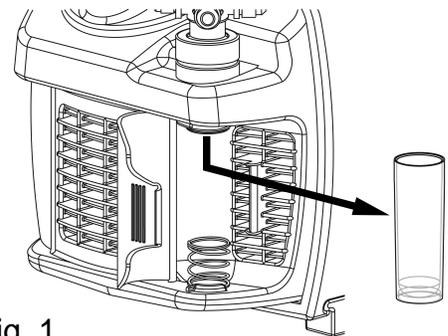


Fig. 1

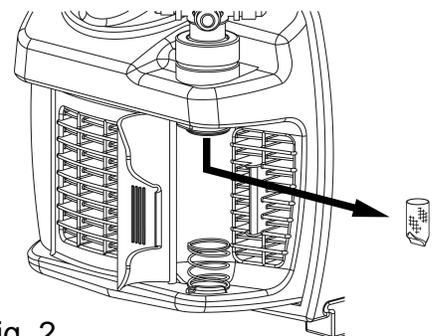
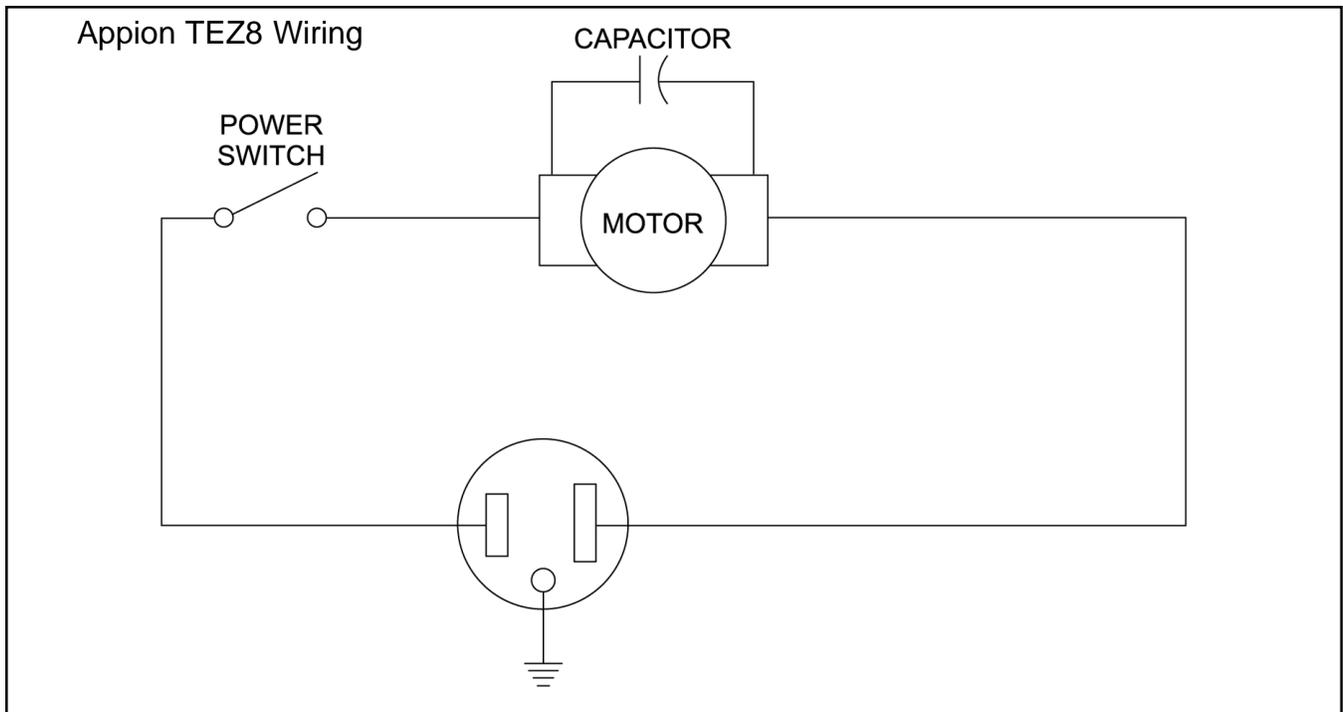


Fig. 2

# Troubleshooting Guide

| Symptom                     | Cause   | Solution                                     |
|-----------------------------|---|--|
| Pump will not start.        | Power cord not plugged in or plugged into a bad outlet. | Check power cord, try a different outlet.    |
|                             | Motor in thermal overload.                              | Allow motor to cool down.                    |
|                             | Loose wire in machine.                                  | Open case and check wire connections.        |
| Poor vacuum.                | Loose hose connection.                                  | Check all hose connections for any leaks.    |
|                             | Oil contaminated.                                       | Replace with new oil.                        |
|                             | Low oil level.  | Replace with new oil.                        |
|                             | Miscalibrated gauge                                     | Recalibrate gauge, or try a different gauge. |
| Oil murky or dark in color. | Oil contaminated.                                       | Replace with new oil.                        |

## Electrical Diagram



# **Manufacturers Limited Warranty**

Manufacturer warrants that the equipment will, under normal and anticipated use, be free from defects in refrigerant related parts for a period of one (1) year from and after the date of shipment, and be free from defects in electrical related parts for a period of ninety (90) days from and after the date of shipment, but in all cases excluding consumables and other matters as hereinafter provided. Labor is NOT covered and shall be the sole cost and responsibility of the Purchaser. The obligation of Manufacturer under this limited warranty is limited to the supplying of parts (excluding consumables and all plastic parts) as hereinabove specifically provided. Parts shall be new or nearly new. Manufacturer assumes no liability for failure in performing its obligations thereunder if failure results, directly or indirectly, from any cause beyond its control, including but not limited to, acts of God, acts of government, floods, fires, shortages of materials, strikes and other labor difficulties or delays or failures of transportation facilities.

Manufacturer shall be liable to replace the applicable parts only if (i) Manufacturer is properly notified by Purchaser upon discovery of the alleged defects, (ii) defective parts are returned to Manufacturer upon authorization with all transportation charges prepaid by Purchaser, (iii) Manufacturer's examination of the parts discloses to its satisfaction that the defects were not caused by the Purchaser or its agents and (iv) the parts are otherwise covered by Manufacturer's limited warranty.

Purchaser shall be responsible to select the means of transportation and bear the cost of inbound and out-bound freight expense associated with any replacement parts, and all risk of loss attendant thereto.

Notwithstanding anything contained in this warranty to the contrary, (i) this limited warranty shall become null and void upon the use of any improper chemicals or in the event any modifications or improper service or installation is performed on the equipment, (ii) this limited warranty does not apply to consumable materials such as, but not limited to, indicator lamps, fuses, all fluids, filters, coatings, seals, etc., and (iii) this limited warranty is applicable only to Purchaser, and no subsequent purchasers of the equipment from Purchaser shall be entitled to any warranty whatsoever from Manufacturer, express or implied.

THIS WARRANTY CONSTITUTES THE SOLE AND EXCLUSIVE WARRANTY OF MANUFACTURER WITH RESPECT TO THE EQUIPMENT, THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, AND MANUFACTURER SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING (WITHOUT LIMITATION), ANY AND ALL WARRANTIES AS TO THE SUITABILITY OR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF THE EQUIPMENT FURNISHED HERE-

UNDER. THE EXCLUSIVE REMEDY OF PURCHASER AGAINST MANUFACTURER FOR ANY BREACH OF THE FOREGOING LIMITED WARRANTY SHALL BE TO SEEK REPLACEMENT OF THE AFFECTED PARTS.

IN NO EVENT WILL MANUFACTURER'S LIABILITY IN CONNECTION WITH THE EQUIPMENT WHICH IS FOUND TO BE DEFECTIVE EXCEED THE AMOUNTS PAID BY PURCHASER TO APPION HEREUNDER FOR SUCH EQUIPMENT WHICH IS SPECIFICALLY FOUND TO BE DEFECTIVE. THESE LIMITATIONS APPLY TO ALL CAUSES OF ACTION IN THE AGGREGATE, BOTH AT LAW AND IN EQUITY, AND INCLUDING WITHOUT LIMITATION, BREACH OF CONTRACT, BREACH OF WARRANTY, MANUFACTURER NEGLIGENCE, INFRINGEMENT, STRICT LIABILITY, MISREPRESENTATION AND OTHER TORTS AND CONTRACTUAL CLAIMS. EXCEPT FOR THE EXCLUSIVE REMEDY PROVIDED ABOVE FOR MANUFACTURER'S BREACH OF THIS LIMITED WARRANTY, PURCHASER, FOR ITSELF AND ITS SUCCESSORS AND ASSIGNS, HEREBY WAIVES AND RELEASES MANUFACTURER FROM ANY AND ALL OTHER CLAIMS OR CAUSES OF ACTION THEY HAVE AGAINST MANUFACTURER ON ACCOUNT OF OR ASSOCIATED WITH THE EQUIPMENT PURCHASED HEREUNDER OR FOR APPION BREACH OF THIS LIMITED WARRANTY. IN NO EVENT SHALL MANUFACTURER BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, SUCH AS, BUT NOT LIMITED TO, LOSS OF ANTICIPATED PROFITS, LOST SAVINGS, LOST REVENUES, FINES, OR OTHER ECONOMIC LOSS IN CONNECTION WITH OR ARISING OUT OF THE EXISTENCE, FURNISHING, FUNCTIONING OR USE OF ANY ITEM OF EQUIPMENT PROVIDED UNDER THIS AGREEMENT, EVEN IF MANUFACTURER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND/OR SUCH DAMAGES ARE REASONABLE AND/OR FORESEEABLE. FURTHER, PURCHASER FOR ITSELF AND ITS SUCCESSORS AND ASSIGNS, WAIVES AND RELEASES ANY RIGHTS THEY MAY HAVE TO BRING AN ACTION ARISING OR RESULTING FROM THIS AGREEMENT, REGARDLESS OF ITS FORM, MORE THAN FIFTEEN (15) MONTHS AFTER SHIPMENT OF THE AFFECTED EQUIPMENT BY MANUFACTURER TO PURCHASER.

The provisions of this warranty shall supersede any contrary provisions contained in this agreement, any document supplied by Manufacturer to Purchaser or by Purchaser to Manufacturer, or any other agreement, written or oral, between Purchaser and Manufacturer, notwithstanding the fact that the provisions contained in this warranty directly conflict with other terms or provisions of this agreement or such other documents, or that such other documents or agreements were provided, delivered, made or executed subsequent to this agreement unless such agreements are in writing, specifically refer to this agreement, specifically provide that they are amending this and are signed by the President of Manufacturer.

## WARRANTY SERVICE

To Validate your warranty, follow these steps **within 10 days of purchase**:

1. Complete the Warranty Card below.
2. Send (1) completed Warranty Card and (2) copy of your sales receipt to:

Appion Inc.  
 1930 S. Navajo Street  
 Denver, CO 80223

To obtain warranty service, contact your wholesaler/distributor to obtain a Return Goods Authorization (RGA) Number. All returned goods MUST be accompanied by an RGA in order to receive service.

| <b>WARRANTY CARD</b>  |  |   |                   |
|---|--|---|-------------------|
| Please complete this and return it within 10 days of purchase with a copy of your sales receipt to validate your warranty   |  |   |                   |
| Name of Purchaser   |  | Company   | Phone Number      |
| Street Address  |  | City  | State    Zip Code |
| Model   | Serial Number  | Date of Purchase  | Place of Purchase |
| Please select your primary line of business.<br>(Check all that apply)<br><br><input type="checkbox"/> Automotive<br><br><input type="checkbox"/> Commercial<br><br><input type="checkbox"/> Residential<br><br><input type="checkbox"/> Service<br><br><input type="checkbox"/> Installation | How did you learn about our products?<br>(Please only check one)<br><br><input type="checkbox"/> Wholesaler _____<br><br><input type="checkbox"/> Recommended By: _____<br><br><input type="checkbox"/> Magazine<br><br><input type="checkbox"/> Mailing<br><br><input type="checkbox"/> Newspaper Ad<br><br><input type="checkbox"/> Internet | What features most interested you ?<br>(Check all that apply)<br><br><input type="checkbox"/> High Production<br><br><input type="checkbox"/> Low Cost<br><br><input type="checkbox"/> Low Maintenance<br><br><input type="checkbox"/> Portability<br><br><input type="checkbox"/> Ease of Use<br><br><input type="checkbox"/> Other: _____ |                   |

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