WARNING

TO REDUCE THE RISK OF INJURY OR
PRODUCT DAMAGE, READ OPERATION
MANUAL PRIOR TO OPERATING PRODUCT.

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APPION™ AND G5TWIN™ ARE TRADEMARKS OF APPION INC.
Welcome to the G5Twin

Thank you for your purchase the Appion G5Twin Refrigerant Recovery Machine. This machine was designed to deliver fast, reliable recovery of Class III, IV and V refrigerants. Use of this machine for any other purpose is done at your own risk.

Faster refrigerant recovery requires proper training, preparation, operation. Working with refrigerants under pressure also presents numerous safety risks and hazards.

To safely reach the full potential of this machine, read this manual and all safety material before use.

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Warnings and Safety Information

IMPORTANT - READ THIS MANUAL BEFORE OPERATION
This Operation Manual contains important information for protecting your safety and preventing equipment problems. Unsafe operation could lead to serious injury or death to you or others. For best results and safe operation, read this entire manual before operation. Keep this manual in a safe, accessible location during operation.

OPERATOR TRAINING, CERTIFICATION AND RESPONSIBILITY
⚠️ NOTICE This machine compresses and pumps liquid and vapor refrigerants at high pressures, which can create dangerous conditions. This equipment is for use by technicians that are professionally trained and certified in the safe handling of refrigerant, and safe refrigerant recovery techniques.
⚠️ NOTICE Keep away from children at all times. Do not leave unattended.
⚠️ NOTICE Never defeat the safety features of this product. Do not operate with missing, broken, or unauthorized parts. Remove broken or altered equipment from service immediately.

PERSONAL PROTECTIVE EQUIPMENT AND MSDS
⚠️ WARNING When working with refrigerants, always use the appropriate Personal Protective Equipment (PPE), including eye and hand protection. Read all Material Safety Data Sheets (MSDS) for any compounds that you are likely to encounter during operation. Failure to do so could lead to injury or death.

HAZARD: RISK OF EXPLOSION OR FIRE
⚠️ DANGER Use of this equipment may pose certain explosion and fire hazards.

<table>
<thead>
<tr>
<th>WHAT CAN HAPPEN</th>
<th>HOW TO PREVENT IT</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is possible for electrical components within the unit to spark. If electrical sparks come into contact with flammable vapors, they may ignite, causing fire or explosion.</td>
<td>Use only in well ventilated areas. In enclosed areas, mechanical ventilation should provide at least four air changes per hour.</td>
</tr>
<tr>
<td>Flammable/combustible gases may become unknowingly ingested through leaks in the temporary connections, leading to compression of these gases.</td>
<td>Do not use in the vicinity of spilled or open containers of gasoline, propane, butane, acetylene, or other flammable gases. Do not use near open sewer lines which may be emitting sewer gases.</td>
</tr>
<tr>
<td>Flammable substances may ignite or explode when compressed in certain situations.</td>
<td>Do not use this machine to pump flammable substances, including blends containing butane, isobutane, or propane.</td>
</tr>
</tbody>
</table>
| Improper use of extensions cords may result in overheating or fire in the cord or machine. | Use only 12AWG or 10AWG extension cords:  
- Up to 25 Feet: 12/3 UL/CSA cord  
- Up to 100 Feet: 10/3 UL/CSA cord |
# Warnings and Safety Information (continued)

## HAZARD: RISK TO BREATHING (ASPHYXIATION)

⚠ **DANGER** Air and refrigerants pumped by this machine may pose certain breathing hazards.

<table>
<thead>
<tr>
<th>WHAT CAN HAPPEN</th>
<th>HOW TO PREVENT IT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigerant vapors may be harmful or toxic when inhaled.</td>
<td>Use only in well ventilated areas. In enclosed areas, mechanical ventilation should provide at least four air changes per hour.</td>
</tr>
<tr>
<td>Compressed air from this machine may contain carbon monoxide or toxic refrigerant vapors.</td>
<td>Air from this machine should never be used to supply air for human consumption</td>
</tr>
</tbody>
</table>

## HAZARD: RISK FROM MOVING COMPONENTS

⚠ **WARNING** This machine is equipped with a fan and motor rotating at high speeds.

<table>
<thead>
<tr>
<th>WHAT CAN HAPPEN</th>
<th>HOW TO PREVENT IT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debris or other objects may enter the machine housing through the air vents, causing machine damage.</td>
<td>Be sure the area around the machine is free and clear of debris before operating the machine.</td>
</tr>
<tr>
<td>Physical damage may occur to body parts, tools, or other objects if inserted into the air vents of the machine while it is running.</td>
<td>Always unplug the machine and ensure that the fan and motor are not rotating before opening the case or inserting any object into the machine.</td>
</tr>
<tr>
<td>Damage may occur to the machine and surrounding objects if the machine is dropped while running.</td>
<td>Use caution while moving this equipment, especially during operation.</td>
</tr>
</tbody>
</table>

## HAZARD: RISK FROM UNATTENDED OPERATION

⚠ **CAUTION** Factors affecting operation may change during the recovery process.

<table>
<thead>
<tr>
<th>WHAT CAN HAPPEN</th>
<th>HOW TO PREVENT IT</th>
</tr>
</thead>
<tbody>
<tr>
<td>As refrigerant recovery is a dynamic process, and often performed in open spaces, factors affecting the operation of the unit may change.</td>
<td>Always remain in attendance with the machine while it is operating.</td>
</tr>
<tr>
<td>Remain observant to changes in environment, refrigerant pressure and refrigerant temperature.</td>
<td></td>
</tr>
</tbody>
</table>

## HAZARD: RISK FROM NOISE

⚠ **CAUTION** Moving components, high airflow, and pumping refrigerant can all cause noise.

<table>
<thead>
<tr>
<th>WHAT CAN HAPPEN</th>
<th>HOW TO PREVENT IT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under some conditions and duration of use, noise from the unit may contribute to hearing loss.</td>
<td>Always wear certified safety equipment, including ANSI or equivalent hearing protection.</td>
</tr>
</tbody>
</table>
## Refrigerant Storage Container Safety

**WARNING** Use only DOT CFR 49 or UL-approved storage containers for recovered refrigerant.

<table>
<thead>
<tr>
<th>WHAT CAN HAPPEN</th>
<th>HOW TO PREVENT IT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigerant storage containers may vent or explode when the working pressure of the container is exceeded.</td>
<td>Refrigerant storage containers are designed with different working pressures. Verify that the rating of the storage cylinder is appropriate for the refrigerant being recovered. For R-410a, 4BA400 and 4BW400 are appropriate ratings for refrigerant storage containers.</td>
</tr>
<tr>
<td>“80% Shut Off Switches,” also known as Tank Overfill Sensors and Overfill Protection devices, may fail to prevent overfilling of the storage cylinder, leading to venting or explosion. These sensors only cut power to the recovery machine, and do not stop the flow of refrigerant, which may continue due to a siphon, or due to temperature-induced migration.</td>
<td>Do not rely on these switches to prevent overfilling. Only a refrigerant scale can provide an active and accurate measurement of the amount of refrigerant in the storage container. Do not rely on these switches to stop the flow of refrigerant into the container. Only the valves on the recovery machine and on the cylinder can stop the flow of refrigerant into the container.</td>
</tr>
<tr>
<td>Refrigerant expands when heated (Diagram 1), and storage containers may vent or explode when filled over 80% capacity.</td>
<td>A refrigerant scale must be used to monitor the amount of refrigerant in the storage container. Be sure to close the valves on the storage container when it has reached 80% capacity.</td>
</tr>
</tbody>
</table>

### Diagram 1

Overfilled storage containers may explode due to liquid refrigerant expanding when heated.

Transportation of refrigerant storage cylinders more than 80% full is a DOT violation.
Getting Started

⚠ CAUTION Always use a grounded outlet that meets minimum voltage supply requirements for industrial equipment. Do not use with portable power generators.

⚠ CAUTION Always open valves slowly for safety, and to check for leaks.

⚠ CAUTION The G5Twin is equipped with a 550psi (38.6 kg/cm²) pressure shut off switch to protect the machine from damage. This does not prevent overfilling of the storage container. (See Page 6)

ACCESSORY EQUIPMENT
Additional tools and equipment are used to connect the G5Twin to the system you are recovering refrigerant from. Verify operational details and safety information from the manufacturers of other equipment before use.

PREPARING FOR OPERATION
Before connecting or operating the G5Twin, verify that your accessory equipment is in good working condition:

- ⚠ CAUTION A leaking hose may cause venting of refrigerant, and may introduce atmospheric air or other contaminants into the recovered refrigerant. Examine the gaskets on each hose to ensure they are intact, checking for any damage or wear that may lead to leaks.

- Examine your external manifold gauges for proper valve operation and calibration of the gauges. Contact the manifold gauge manufacturer for instructions in this process.

- Check your refrigerant scale with a known weight to ensure that is operating correctly. A malfunctioning scale may not alert you to the amount of refrigerant in the storage container.

- Check that the debris screen at the inlet fitting is clean before starting every job. This screen prevents damage to the machine that may get past the inline filter. When pumping dirty/used refrigerant, this screen may quickly clog and slow the process when used without an inline filter.

- Verify the power source provides adequate voltage at the machine while it is running (within 10% of the rated power). When using an extension cord, follow the sizing guidelines on Page 4.

- Remove all “Schrader”-type access valve cores from the access fitting. Remove core depressors from the hoses. Hoses going into the tank and hoses connected to the outlet of the G5Twin should be completely open and free from any restrictions (no core depressors, no “quick disconnect” fittings).

- Use a new inline filter dryer with the machine when pumping dirty refrigerant. Replace the filter dryer after each use. If the filter has exceeded its capacity, this may affect the performance of the machine.

- To maximize recovery speeds: use the shortest length of 3/8” hoses possible. Even with 1/4” fittings, the larger hose can deliver better performance during vapor recovery. When using a Manifold Gauge Set, use a manifold with a 3/8” or larger diameter bore to maximize liquid and vapor refrigerant flow.

- When using 3/8” hoses and manifolds, some slight valve throttling on the Manifold Gauge Set may be helpful in reducing compressor noise in some conditions (such as with very cold refrigerant), though it is not required for proper operation of the machine.

✪ For additional refrigerant recovery tips, see pages 12 and 13.
STANDARD RECOVERY PROCEDURE

1. Setup the G5Twin as shown in Diagram 2 (below). Make sure that all connections are tight.
   A. Connect the AC/R System Liquid Port to the Manifold high side.
   B. Connect the AC/R System Vapor Port to the Manifold low side.
   C. Connect the Manifold Center port to the G5Twin input port.
   D. Connect the G5Twin output port to the Liquid Port on the Recovery Cylinder.

   Diagram 2
   Recover into the Liquid Port of the Recovery Cylinder for faster recovery.

   OPTIONAL: To reduce the effect of high back pressure at the end of the recovery process, recover into the Vapor Port instead (may increase recovery times).

2. Connect the G5Twin to a grounded power source for the proper voltage of the machine (115v/230v).
   If using an extension cord, follow the cord sizing guidelines on Page 4.

3. Close both valves on the Manifold Gauge Set.

4. Open the Recovery Cylinder Liquid Port and both G5Twin valves.

5. Turn on the G5Twin. The compressor and fan should start.

6. Slowly open the Manifold High Side (liquid) valve. Removing the liquid first will keep the recovery time to a minimum.

7. When all the liquid has been removed, slowly open the Manifold Low Side (vapor) valve. Both sides should now be fully open to maximize vapor flow.

8. Continue to run the G5Twin until the EPA-required vacuum is achieved.

9. Close both valves on the Manifold Gauge set, then close the valves on the G5Twin.

10. Turn off the G5Twin.

11. Close the valves on the Recovery Cylinder and disconnect the hoses.
Machine Usage

⚠️ CAUTION To reduce the risk of injury or product damage, read this entire operating manual, with particular emphasis on the Safety and Preparation sections (Page 4-7), prior to operating the G5Twin.

PUSH/PULL RECOVERY PROCEDURE

The Push/Pull method induces a siphon from the system directly into the recovery cylinder using the G5Twin. This method is useful for recovering large amounts of liquid from a system. This will only work on large systems where the liquid can be accessed easily. Do not attempt this on systems that contain less than 15 lbs. of refrigerant (unless there is a receiver tank), or it may not work correctly.

⚠️ CAUTION Once the siphon starts, it can continue to fill the tank even when the machine has been powered off. To avoid overfilling, you must close all valves on the tank and system when finished.

1. Setup the G5Twin as shown in Diagram 2 (below). Make sure that all connections are tight.
   A. Connect the AC/R System Vapor Port to the G5Twin output port.
   B. Connect the AC/R System Liquid Port to the Recovery Cylinder Liquid port.
   C. Connect the G5Twin input port to the Recovery Cylinder Vapor port.

2. Connect the G5Twin to a grounded power source for the proper voltage of the machine (115v/230v). If using an extension cord, follow the cord sizing guidelines on Page 4.

3. Slowly open both valves on the G5Twin.

4. Turn on the G5Twin. The compressor and fan should start.

5. Slowly open the valves on the tank and system. The liquid should now begin to be pulled out of the system. You can monitor the progress with an inline sight glass.

6. When all the liquid has been siphoned off, turn off the G5Twin and close all the valves.

7. You can now proceed to remove the remaining refrigerant vapor using the Standard Recovery Procedure (Page 8).
Tank Cooling Methods (Optional)

Refrigerant temperature and pressure may increase during the recovery process. In some conditions, additional steps taken to cool the tank can increase the speed and efficiency of the recovery process.

**AIR-COOLING THE TANK**

The G5Twin is equipped with a high performance fan. You can use this fan to provide additional tank cooling while you are performing the recovery process.

Place the Recovery Cylinder behind the G5Twin during the recovery process, as shown in Diagram 4. This will pull cool air across the tank surface and lower the temperature of the tank.

**DIRECT COOLING PROCEDURE**

In order for this procedure to work, there must be at least 5 lbs. (2.25 Kg.) of liquid refrigerant in the recovery cylinder.

1. Connect the hoses as shown in Diagram 5.
   - A. Connect the G5Twin input port to the Recovery Cylinder Vapor port.
   - B. Connect the G5Twin output port to the Recovery Cylinder Liquid port.
2. Open all valves on the G5Twin and the Recovery Cylinder.
3. Turn on the G5Twin. The compressor and fan should start.
4. Throttle the G5Twin output valve so that the pressure on the Output Gauge is at least 100 psi (7 Kg/cm²) greater than the input pressure, but never greater than 300 psi (21 Kg/cm²).
5. Run until the tank is cooled.

**INLINE COOLING PROCEDURE**

By setting up your equipment as shown in Diagram 6, it is possible to cool the Recovery Cylinder during the recovery process as needed.

**Normal Recovery:**
   - A. Recovery Cylinder Vapor valve closed.

**Tank Cooling:**
   - A. Recovery Cylinder Vapor valve open.
   - B. Manifold Gauge Set - both valves closed.
   - C. Follow steps 3-5 above to cool the tank.
Additional Machine Usage

PURGING NON-CONDENSABLES FROM RECOVERY CYLINDERS

In the event that the Recovery Cylinder pressure is higher than expected, or if the recovery process seems slower than usual, use an external gauge (not the gauge on the G5Twin) and a Refrigerant Pressure/Temperature chart to check for the presence of non-condensable gases in the cylinder.

You can bleed/purge non-condensables into another cylinder following this procedure:

1. The Recovery Cylinder must remain undisturbed for at least 24 hours for the non-condensables to rise to the top of the cylinder.

2. Through a Manifold Gauge Set, connect the Recovery Cylinder Vapor Port to the Vapor Port of a second recovery cylinder.

3. Consult a Refrigerant Pressure/Temperature chart, and check the temperature of the Recovery Cylinder to determine what the pressure should be.

4. While the pressure is higher than the pressure on the chart, slowly open the Vapor Port to bleed off excess pressure until it is about 5 psi (0.35 Kg/cm²) above the pressure listed on the chart.

5. Close the valves and let the cylinder stand still for 10 minutes. Repeat if necessary.

⚠️ NOTICE The US EPA only allows purging if done into a secondary cylinder. Once a recovery cylinder has refrigerant inside, it may never be opened directly to atmosphere.

CHANGING BETWEEN REFRIGERANT TYPES

Appion refrigerant recovery machines are unique in that there is no refrigerant directly introduced into the compressor crankcase. This allows the G5Twin to easily and efficiently clear out refrigerant at the end of the recovery process. However, as with all recovery machines, trace refrigerant vapors may remain and should be cleared out when switching between different types of refrigerant.

When you are changing between refrigerant types, any refrigerant remaining in the recovery machine should be drawn into a deeply evacuated cylinder before switching. Then, to prevent any cross-contamination, it is recommended that a vacuum pump be connected to the output port of the G5Twin (keep the Input Valve closed and the Output Valve open), and run the vacuum pump to completely evacuate the machine of any trace refrigerant vapors.

STORING THE MACHINE BETWEEN USES

When storing the machine between recovery jobs, trace refrigerant vapors can continue to wear on the internal components of the machine. If the machine is fully sealed (closed valves or port covers), storing the machine in a hot truck can cause the trace vapors to expand and wear on the components further.

To minimize wear during storage, leave both valves on the G5Twin open. You can use port caps/covers to protect the machine from dirt, but make sure they do not have an airtight seal.
Helpful Hints

In just a few years, refrigerant recovery has come a long way. At first glance, it’s simply the process of taking refrigerant out of a system and putting it into a storage tank. However, this simple process can rapidly become difficult and time consuming if a few things are overlooked. What follows are some notes and guidelines that we have learned over the years that can help you save time and make the job easier.

The first thing you need to do is determine the quantity and type of refrigerant that is being used in the system you are working on. Use a tank that is DOT approved for the high pressures that are present with R410a. If the system is a burnout, you will need to use a special tank marked as containing burnout and other unidentified gases and you must use extra filtration before recovery. This extra filtration is to protect your equipment from corrosion caused by acids that may be present.

If the gas in the system is fairly clean or new, then you should use a clean, new tank. If the refrigerant is going to be reclaimed, or you are going to put the refrigerant back into the system when you are done servicing it, then you should use a tank with the same type of refrigerant in it. One note of caution: If you use many different gases and you only own a single tank, you’re asking for trouble with the Environmental Protection Agency (EPA). You should own at least one tank for every type of refrigerant that you will service, and a spare tank for unknown gases and burned out systems.

PLAN AHEAD

Knowing the quantity of refrigerant that will be recovered is important. Not just for storage requirements, but for the recovery process as well. For example, most systems that contain more than 5 lbs. of refrigerant will probably have areas where liquid can become trapped.

The secret for a quick recovery is to remove all of the liquid first, then get the remaining vapor out. Unfortunately, many systems are not “recovery friendly.” That is, the access ports are not at the lowest point in the system. If you do regular maintenance on these machines, it would be a wise decision to install access ports at the lowest point possible in the system. This will greatly reduce the time needed to perform the recovery process.

If the system does not have ports at the lowest point in the system, you can use a heat gun to boil off the trapped liquid. Look for areas that have frost or condensation forming on them. This is a good indication that liquid is trapped there. Any trapped liquid will greatly increase the length of time needed to perform the recovery, as can be seen in Diagram 7.

If you are sure there is trapped liquid in the system, but are unable to find it, it could be in an area that you are unable to see. If this is the case, turn on the system compressor if possible, and let it run for a couple of seconds. This should move the liquid to another area in the system and in the process it should heat up enough to boil away.

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Diagram 7
Helpful Hints (continued)

REMOVE RESTRICTIONS AT THE VALVES, FITTINGS & HOSES
AC/R Systems are generally not designed specifically for the recovery process, and this is reflected in the wide use of 1/4” access valves with “Schrader”-type valve cores. These valve cores block about 90% of the flow through the access port, and require the use of core depressors in the hose fittings. When left in during the recovery process, both of these items can significantly restrict the flow of refrigerant, making the recovery process take up to six times longer to complete.

Use a Valve Core Removal Tool to remove these valves cores while leaving the system seal intact, as shown in Diagram 8. These tools are available from your local wholesale distributor. Core depressors in the ends of the hoses should be removed as well.

Use ball valves or open-ended hoses. Another common restriction is found in charging hoses that have “Quick Disconnect, Low Loss” fittings. These fittings use a restrictive internal check valve to limit venting when disconnecting the hose from the system. While these may be useful in charging setups, they restrict the flow of refrigerant, and are not ideal for use in refrigerant recovery.

Use the shortest length of 3/8” hose for fast recovery. The length and diameter of the hose can also impact the recovery speed. Even when recovering through 1/4” fittings, using 3/8” hose will allow for greater vapor flow, and greatly reduce the time needed for the recovery process.

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 recovery machine 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.

EXTENSION CORDS AND LOW VOLTAGE
Recovery machines will work best when the voltage at the machine (while it is running) is about 100-105% of the rated power (115v-122v or 230v-240v). A lower voltage can cause difficulty in starting against high pressures. If you have low voltage source power, you may need to relieve the back pressure on the unit to allow it to start.

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. Also, recovery equipment is used primarily in the hot summer months when supply voltage can be at the lowest point of the year due to the demand from A/CR equipment operating at peak conditions. These factors may cause a lower voltage and reduced performance.

Likewise, long and thin extension cords starve the motor of necessary voltage and can cause very dangerous overheating of the motor and extension cord. A hot, sunny rooftop can also reduce the ampacity of the extension cord. Refer to the extension cord sizing guidelines on Page 4.
Care and Maintenance

INLINE FILTER DRYERS
Use a new inline filter dryer on the input side of the G5Twin when pumping dirty refrigerant. Refrigerant acts like a solvent and can collect dirt and debris when it is pumped out of a system. Failure to use an inline filter dryer can cause damage to the compressor, and will void the warranty on your machine.

While specifications may vary, most Size 032 filters will not be effective for more than 50 lbs. (22.6 Kg) of refrigerant. Also, once refrigerant has been introduced into the inline filter, it may continue to wear down, and may not have the same effective capacity if used across multiple jobs. Change the inline filter dryer regularly, and consult the filter manufacturer for expected capacity.

SCREEN CLEANING AND REPLACEMENT
The G5Twin is equipped with a debris screen inside the input fitting. This is the last line of defense for the recovery machine against any debris that might make it past an inline filter. For best results it is recommended to clean it before each use. If it becomes worn, replace it immediately.

1. Unscrew Filter Cap from Input Port.
2. Remove screen from Filter Cap.
3. Clean screen and Filter Cap thoroughly. If the screen is worn or damaged, replace it.
4. Check the O-ring that seals the Filter Cap to the Input Port. If it is dry, apply a drop of refrigeration oil. If it is damaged, replace it.
5. Place clean screen into Filter Cap and screw it back onto the Input port.

Diagram 9

PLANNED MAINTENANCE
You can use any standard refrigeration oil (mineral is ideal) to scavenge out dirt and debris, and recondition the seals. Run the machine with no hoses connected and both valves open. Using a 1/4” port cap, fill it with refrigeration oil and hold it up against the input port, allowing the G5Twin to suck it in. Place a towel below the output port to catch any oil spray. This is very helpful after recovery of burnout systems, and as regular maintenance depending on the frequency of use.

1-MINUTE BENCH TEST
The following test can be performed to verify that the G5Twin is operating normally:

1. Disconnect any hoses from the machine.
2. With the input valve open and the output valve closed, turn the machine on.
3. Time how long it takes for the unit to pressure up and cut off. The unit should pressure up and cut off at approximately 550 psi (38.6 Kg/cm²) in under 1 minute. Otherwise, the unit may be in need of maintenance or repair.
# Troubleshooting Guide

⚠ **WARNING** Read all safety information found in this manual and in the Material Safety Data Sheets (MSDS) for any refrigerants used with this machine prior to performing any service on this machine.

## SYMPTOM: Machine will not start, no sound when power switch turned ‘On’

<table>
<thead>
<tr>
<th>CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power cord not plugged in, or no power in outlet</td>
<td>Check power cord, try different outlet</td>
</tr>
<tr>
<td>Machine in High Pressure Shutoff</td>
<td>See symptom below</td>
</tr>
<tr>
<td>Motor in Thermal Overload</td>
<td>Allow motor to cool down</td>
</tr>
</tbody>
</table>

## SYMPTOM: Machine tries to start, makes humming/buzzing sound

<table>
<thead>
<tr>
<th>CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low voltage at source outlet</td>
<td>Try different power source outlet</td>
</tr>
<tr>
<td>Voltage drop in extension cord</td>
<td>See Extension Cord sizing guidelines on Page 4</td>
</tr>
<tr>
<td>Too much back pressure on compressor</td>
<td>Try starting the machine with the Input Valve closed to reduce back pressure on compressor</td>
</tr>
</tbody>
</table>

## SYMPTOM: Machine pumps into high pressure shutoff

<table>
<thead>
<tr>
<th>CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve on machine or recovery cylinder not fully opened</td>
<td>Check that both valves on machine are fully open (pointing upward); Check that the valve on the recovery cylinder is fully opened</td>
</tr>
<tr>
<td>Restriction in output hose</td>
<td>Check hoses for any blockage; Remove any core depressors</td>
</tr>
</tbody>
</table>

## SYMPTOM: Pumps liquid slowly

<table>
<thead>
<tr>
<th>CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow restrictions on input side of machine</td>
<td>Use 3/8” hoses; Remove “Schrader” valve cores and core depressors</td>
</tr>
<tr>
<td>Input Valve on machine not fully open</td>
<td>Check that the blue Input Valve on machine is fully open (pointing upward)</td>
</tr>
<tr>
<td>Trapped liquid in system</td>
<td>Cycle system compressor for a few seconds to move trapped liquid to another area; Check for condensation on system, and apply heat as needed; Check for condensation at hose fittings, and apply heat as needed</td>
</tr>
</tbody>
</table>
Machine Specifications

ELECTRICAL DIAGRAM

POWER SWITCH

1

2

STARTER RELAY

1/2 HP MOTOR

BLK

3

HI-PRESSURE SHUT OFF

BLK

RED

BLK

WHT

REFRIGERANT FLOW DIAGRAM

CONDENSER 1

INPUT

CONDENSER 2

OUTPUT

COMPRESSOR ASSEMBLY
### Machine Specifications

#### Parts Diagram

<table>
<thead>
<tr>
<th>Dia.</th>
<th>Part No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>AY0050</td>
<td>Front Panel Assembly</td>
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<tr>
<td>2</td>
<td>PL7601S</td>
<td>Front Panel Only w/Labels</td>
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<tr>
<td>3</td>
<td>WR9000</td>
<td>Power Cord - 115v US</td>
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<tr>
<td>4</td>
<td>WR9230</td>
<td>Power Cord - 230v EU</td>
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<tr>
<td>5</td>
<td>PL7011</td>
<td>Output Knob - Red</td>
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<td>6</td>
<td>PL7010</td>
<td>Input Knob - Blue</td>
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<td>6</td>
<td>GA0700</td>
<td>0-700 PSI Gauge</td>
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<tr>
<td>6</td>
<td>GA0761</td>
<td>PSI &amp; Kg/cm² Gauge</td>
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<td>7</td>
<td>EL5120</td>
<td>Power Switch</td>
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<tr>
<td>8</td>
<td>CT1760L</td>
<td>Left Side Condenser</td>
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<tr>
<td>9</td>
<td>LB1235</td>
<td>Front Panel Label (Top)</td>
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<tr>
<td>10</td>
<td>MF3612</td>
<td>Inlet Filter Cap</td>
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<td>11</td>
<td>EL5030</td>
<td>High Pressure Switch</td>
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<td>12</td>
<td>LB1205</td>
<td>G5Twin Side Label</td>
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<td>PL7600</td>
<td>Case Side Panel</td>
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<tr>
<td>14</td>
<td>EL5017</td>
<td>Motor Start Relay - 115v</td>
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<td>14</td>
<td>EL5027</td>
<td>Motor Start Relay - 230v</td>
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<td>15</td>
<td>PL7000</td>
<td>Case Handle</td>
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<tr>
<td>16</td>
<td>AY0030C</td>
<td>Fan Gearbox Assembly w/Fan</td>
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<td>17</td>
<td>PL7602</td>
<td>Case Back Panel</td>
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<td>18</td>
<td>PL7020</td>
<td>Fan Blade</td>
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<td>19</td>
<td>AY0030</td>
<td>Fan Gearbox</td>
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<td>20</td>
<td>PL7625</td>
<td>Motor Support Bracket (each)</td>
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<td>21</td>
<td>LB1201</td>
<td>G5Twin Warning Label - 115v</td>
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<td>21</td>
<td>LB1262</td>
<td>G5Twin Warning Label - 230v</td>
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<td>22</td>
<td>EL5000</td>
<td>Motor - 115v</td>
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<td>EL5230</td>
<td>Motor - 230v</td>
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<td>23</td>
<td>EL5028</td>
<td>Motor Start Capacitor - 115v</td>
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<td>EL5034</td>
<td>Motor Start Capacitor - 230v</td>
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<td>24</td>
<td>CA1603</td>
<td>Cylinder (each)</td>
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<td>25</td>
<td>CT1760R</td>
<td>Right Side Condenser</td>
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<tr>
<td>26</td>
<td>AY0020</td>
<td>Manifold Assembly</td>
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Appion reserves the right to make changes to product and specifications without notice.
Manufacturer’s Limited Warranty

Appion Inc. (hereinafter Appion) warrants that this equipment will, under normal and anticipated use, be free from defects in materials and workmanship for a period of one (1) year from the date of purchase by Purchaser from an Appion-authorized distributor.

Appion shall be liable to repair or replace the applicable parts during this period, so long that:

- The User of this equipment notifies Appion of the discovery of an alleged defect during the warranty period;
- Purchaser obtains return authorization from Appion during the warranty period (see Page 19 of this Manual);
- Purchaser returns the equipment during the warranty period with all transportation charges prepaid by purchaser;
- Appion’s examination of the equipment confirms a defect that is not caused by Purchaser or its agents;
- The equipment has not been modified by Purchaser or its agents; AND
- The defective part(s) are otherwise covered by this limited warranty.

Purchaser may attempt to repair or replace defective parts without risk of voiding this warranty, so long that:

- Purchaser follows all instructions and guidance provided by Appion to perform such repair AND
- Purchaser utilizes only parts obtained from or authorized by Appion in such repair;

Notwithstanding anything contained in this limited warranty to the contrary, this limited warranty shall become null and void upon the use of any improper chemicals, or in the event that modifications or improper service or installation is performed on the equipment.

This limited warranty is applicable only to the first Purchaser when purchased through an authorized wholesale distributor, and no subsequent purchasers of the equipment from Purchaser shall be entitled to any warranty whatsoever from Manufacturer, express or implied.

The obligation of Appion under this limited warranty is limited to the repair or supply of parts, excluding consumables such as oil, grease, and plastic parts. Parts shall be new or nearly new. Appion 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.

This warranty constitutes the sole and exclusive warranty of manufacturer with respect to the equipment. There are no other warranties, express or implied, and Appion 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 hereunder. The exclusive remedy of Purchaser against Appion for any breach of the foregoing limited warranty shall be to seek replacement of the affected parts. In no event will Appion’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 Appion’s breach of this limited warranty, Purchaser, for itself and its successors and assigns, hereby waives and releases Appion from any and all other claims or causes of action they have against Appion on account of or associated with the equipment purchased hereunder or for Appion breach of this limited warranty.

In no event shall Appion 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 Appion 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 purchase of the affected equipment by Purchaser from an Appion-authorized distributor. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

The provisions of this warranty shall supersede any contrary provisions contained in this agreement, any document supplied by Appion to Purchaser or by Purchaser to Appion, 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, and specifically provide that they are amending this and are signed by the President of Appion.

This warranty gives you specific legal rights, and you may also have other rights which vary in certain states or provinces. If any term herein is declared invalid or unenforceable, the validity of the remaining terms shall not be affected thereby.
Product Registration & Warranty Service

OBTAINING WARRANTY SERVICE
All warranty services must receive Appion Factory Authorization and an RGA number prior to any action. Contact your local Appion authorized distributor to obtain the RGA number and shipping instructions. To help us provide the best service, be sure to have the following information available:
- Serial number of the equipment
- Purchase date of the defective unit
- A detailed description of the problem

LIFETIME TECHNICAL SUPPORT
Appion offers technical and troubleshooting customer support for the lifetime of every product. Regardless of your warranty status, you can always contact us for assistance. Our website includes additional technical information that can help you experience the fullest potential of our products, making your job quicker and easier.

PRODUCT REGISTRATION
To allow Appion to provide warranty service, please register your purchase using the below Warranty Registration Card within 10 days of purchase. Be sure to include a copy of your sales receipt.

Appion G5 Twin Warranty Registration Card
Please complete this card and return it within 10 days of purchase with a copy of your sales receipt.

<table>
<thead>
<tr>
<th>Your Name</th>
<th>Your Company</th>
<th>Phone Number</th>
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Street Address

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<tr>
<th>City</th>
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<th>Zip</th>
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</table>

Email Address:

Please select your type of business:
- Automotive
- Commercial
- Residential
- Service
- Installation

How did you learn about our products?
- Wholesaler:
- Recommended By:
- Magazine:
- Newspaper Ad:
- Mailing
- Internet

What features most interested you?
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- Low Cost
- Low Maintenance
- Portability
- Product Availability
- Other:

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Appion Inc.
2800 South Tejon Street
Englewood, CO 80110 USA

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1. Scan this page AND a copy of your sales receipt.
2. Email to: Sales@AppionTools.com
or Fax this page and your sales receipt to: 1-303-937-1599

Promo Code: __________________