

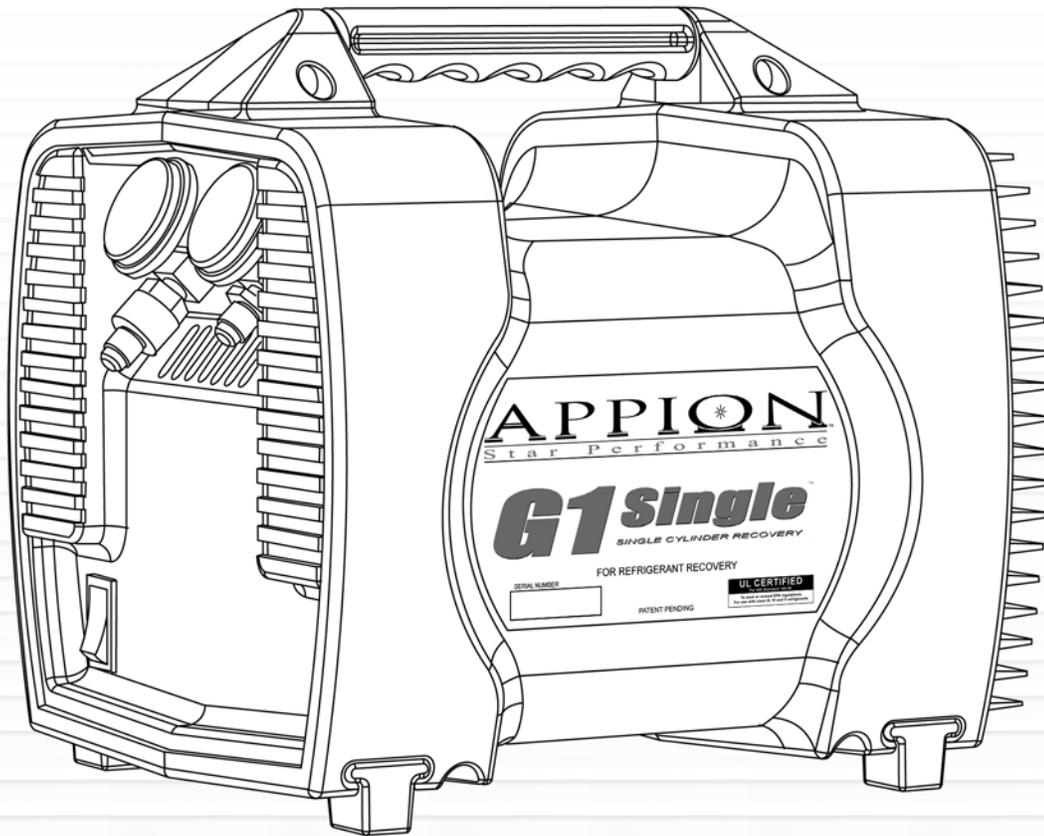
APPION™

Star Performance

G1 Single™

SINGLE CYLINDER RECOVERY

FOR REFRIGERANT RECOVERY



OPERATION MANUAL

⚠ WARNING

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

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Welcome to the G1SINGLE

Thank you for your purchase of the Appion G1Single 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, and 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.

Table of Contents

Warnings and Safety Information	4 - 5
Refrigerant Storage Container Safety	6
 <u>Machine Usage</u>	
Preparing for Operation	7
Standard Recovery Procedure	8
Push Pull Recovery Procedure	9
Tank Cooling Methods	10
Purging Non-Condensables from Recovery Cylinders.....	11
Changing Between Refrigerant Types.....	11
Storing the Machine Between Uses.....	11
 <u>Helpful Hints</u>	
Planning Ahead	12
Remove Restrictions at the Valves, Fittings & Hoses.....	13
Extension Cords and Low Voltage.....	13
 <u>Care and Maintenance</u>	
Screen Cleaning & Replacement	14
Planned Maintenance & Bench Test.....	14
 <u>Specifications and Support</u>	
Troubleshooting Guide	15
Electrical Diagram	16
Refrigerant Flow Diagram.....	16
Parts Diagram	17
Manufacturers Limited Warranty	18
Product Registration Card.....	19

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.

WHAT CAN HAPPEN	HOW TO PREVENT IT
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.	Use only in well ventilated areas. In enclosed areas, mechanical ventilation should provide at least four air changes per hour.
Flammable/combustible gases may become unknowingly ingested through leaks in the temporary connections, leading to compression of these gases.	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.
Flammable substances may ignite or explode when compressed in certain situations.	Do not use this machine to pump flammable substances, including blends containing butane, isobutane, or propane.
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.

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

HAZARD: RISK FROM MOVING COMPONENTS

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

WHAT CAN HAPPEN	HOW TO PREVENT IT
Debris or other objects may enter the machine housing through the air vents, causing machine damage.	Be sure the area around the machine is free and clear of debris before operating the machine.
Physical damage may occur to body parts, tools, or other objects if inserted into the air vents of the machine while it is running.	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.
Damage may occur to the machine and surrounding objects if the machine is dropped while running.	Use caution while moving this equipment, especially during operation.

HAZARD: RISK FROM UNATTENDED OPERATION

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

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

HAZARD: RISK FROM NOISE

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

WHAT CAN HAPPEN	HOW TO PREVENT IT
Under some conditions and duration of use, noise from this product may contribute to hearing loss.	Always wear certified safety equipment, including ANSI or equivalent hearing protection.

Refrigerant Storage Container Safety

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

WHAT CAN HAPPEN	HOW TO PREVENT IT
<p>Refrigerant storage containers may vent or explode when the working pressure of the container is exceeded.</p>	<p>Refrigerant storage containers are designed with different working pressures. Verify that the rating of the storage cylinder is appropriate for the refrigerant being recovered.</p> <p>For R-410a, 4BA400 and 4BW400 are appropriate ratings for refrigerant storage containers.</p>
<p>“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.</p> <p>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.</p>	<p>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.</p> <p>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.</p>
<p>Refrigerant expands when heated (Diagram 1), and storage containers may vent or explode when filled over 80% capacity.</p>	<p>A refrigerant scale must be used to monitor the amount of refrigerant in the storage container.</p> <p>Be sure to close the valves on the storage container when it has reached 80% capacity.</p>

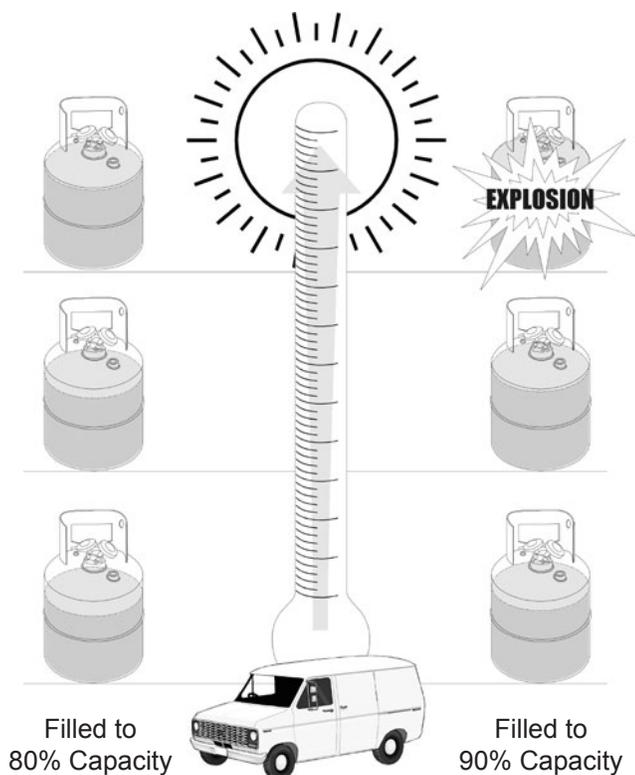


Diagram 1

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 G1Single 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 G1Single 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 G1Single, 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 G1Single 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.**

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 G1Single.

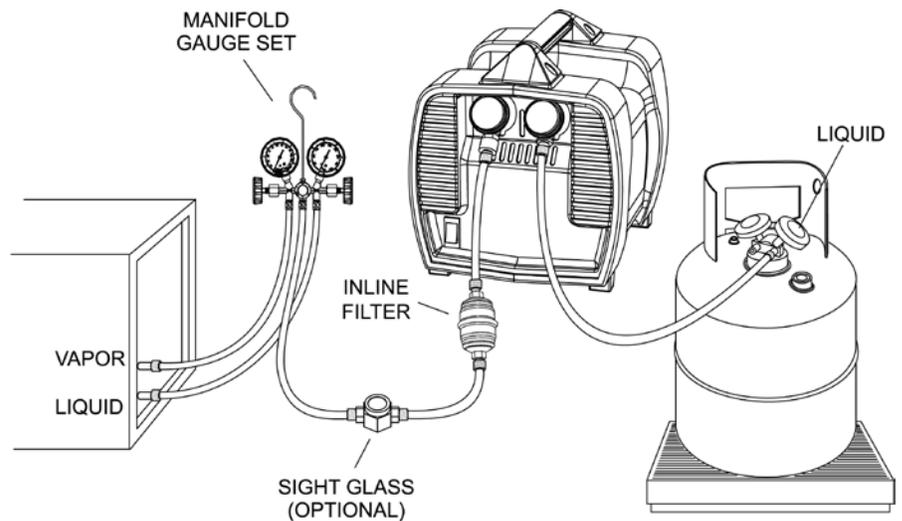
STANDARD RECOVERY PROCEDURE

1. Setup the G1Single 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 **G1Single input port**.
 - D. Connect the **G1Single 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 G1Single 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.
5. Turn on the G1Single. 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 G1Single until the EPA-required vacuum is achieved.
9. Close both valves on the Manifold Gauge set.
10. Turn off the G1Single.
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 G1Single.

PUSH/PULL RECOVERY PROCEDURE

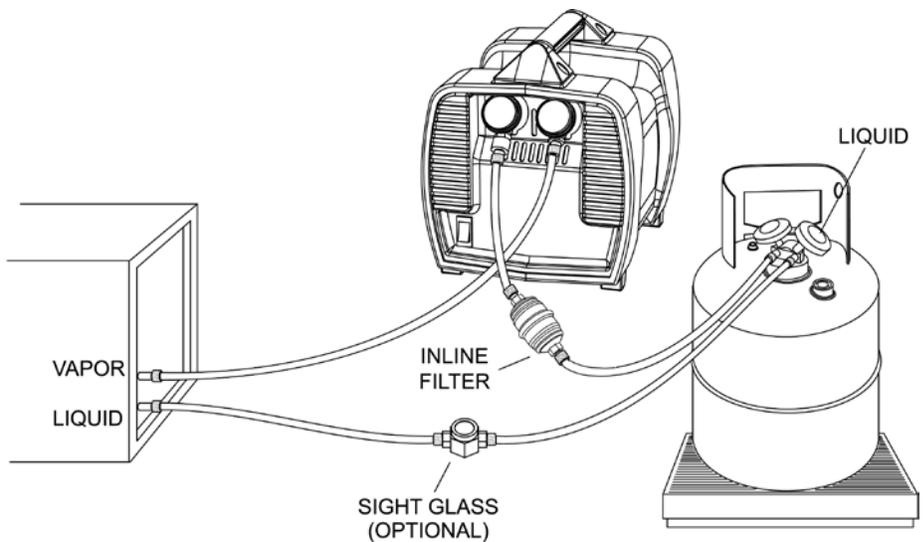
The Push/Pull method induces a siphon from the system directly into the recovery cylinder using the G1Single. This method is useful for recovering large amounts of liquid from a system. This will only work on large systems where the liquid can be accessed easily. Do not attempt this on systems that contain 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 G1Single as shown in the **Diagram 3** (below). Make sure that all connections are tight.
 - A. Connect the **AC/R System Vapor Port** to the **G1Single output port**.
 - B. Connect the **AC/R System Liquid Port** to the **Recovery Cylinder Liquid port**.
 - C. Connect the **G1Single input port** to the **Recovery Cylinder Vapor port**.

Diagram 3

The Push/Pull recovery method induces a siphon to move large amounts of liquid directly from the system to the recovery cylinder.



2. Connect the G1Single 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. Turn on the G1Single. The compressor and fan should start.
4. 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.
5. When all the liquid has been siphoned off, turn off the G1Single and close all the valves.
6. You can now proceed to remove the remaining refrigerant vapor using the Standard Recovery Procedure (Page 8).

Tank Cooling Method (Optional)

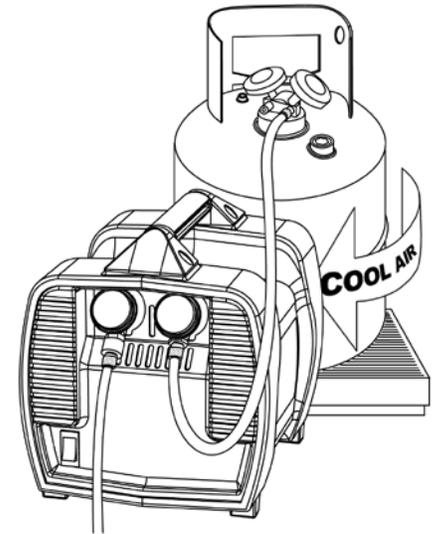
Refrigerant temperature and pressure may increase during the recovery process. In some conditions, additional steps taken to cool the tank can increase the speed and efficiency of the recovery process.

AIR-COOLING THE TANK

The G1Single 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 G1Single 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.

Diagram 4



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 G1Single) 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 G1Single 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 G1Single (*with a closed ball valve attached to the input port*), 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, 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

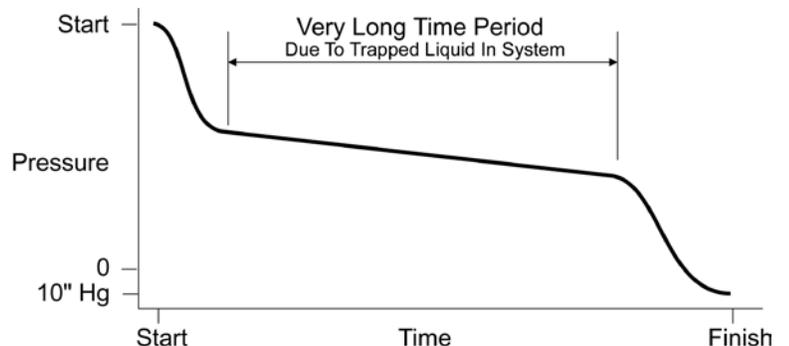
Knowing the quantity of refrigerant that will be recovered is important. Not just for storage requirements, but for the recovery process as well. For example, most systems that contain more than 5 lbs. of refrigerant will probably have areas where liquid can become trapped.

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.

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.

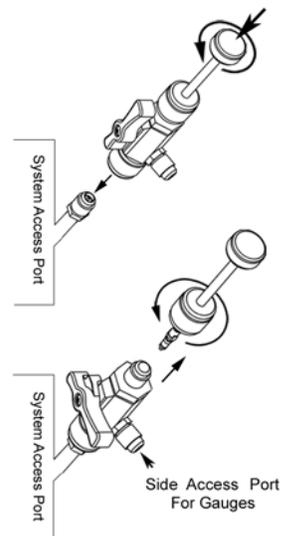
Use a Valve Core Removal Tool to remove these valves cores while leaving the system seal intact, as shown in **Diagram 8**. These tools are available from your local wholesale distributor. Core depressors in the ends of the hoses should be removed as well.

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.

Diagram 8



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 G1Single 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.

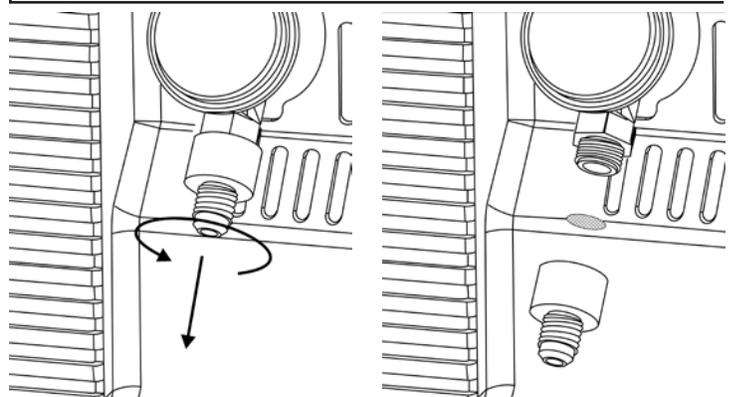
While specifications may vary, most Size 032 filters will not be effective for more than 50 lbs. (22.6 Kg) of refrigerant. Also, once refrigerant has been introduced into the inline filter, it may continue to wear down, and may not have the same effective capacity if used across multiple jobs. Change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

SCREEN CLEANING AND REPLACEMENT

The G1Single 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. Using a 1/4" port cap, fill it with refrigeration oil and hold it up against the input port, allowing the G1Single 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.

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'

CAUSE	SOLUTION
Power cord not plugged in, or no power in outlet	Check power cord, try different outlet
Machine in High Pressure Shutoff	See symptom below
Motor in Thermal Overload	Allow motor to cool down

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

CAUSE	SOLUTION
Low voltage at source outlet	Try different power source outlet
Voltage drop in extension cord	See Extension Cord sizing guidelines on Page 4
Too much back pressure on compressor	Try starting the machine with the valves on the Manifold Gauge Set closed to reduce back pressure on compressor

SYMPTOM: Machine pumps into high pressure shutoff

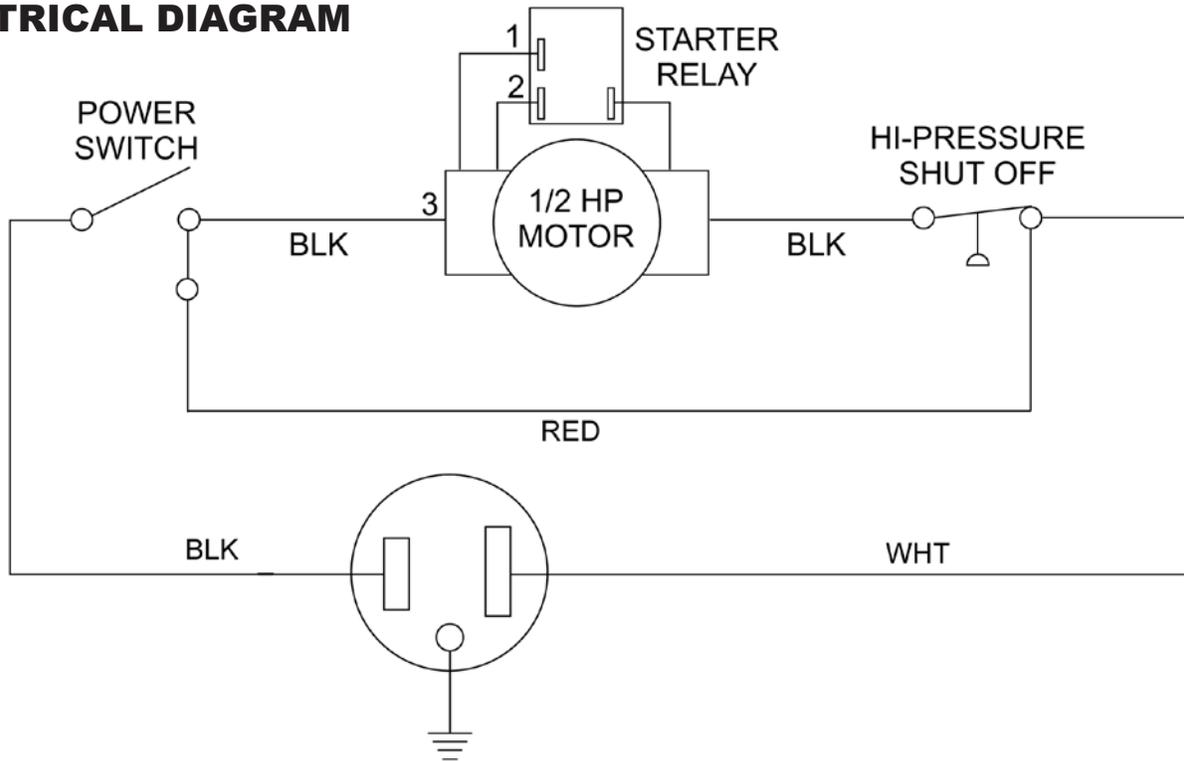
CAUSE	SOLUTION
Valve on machine or recovery cylinder not fully opened	Check that the valve on the recovery cylinder is fully opened
Restriction in output hose	Check hoses for any blockage; Remove any core depressors

SYMPTOM: Pumps liquid slowly

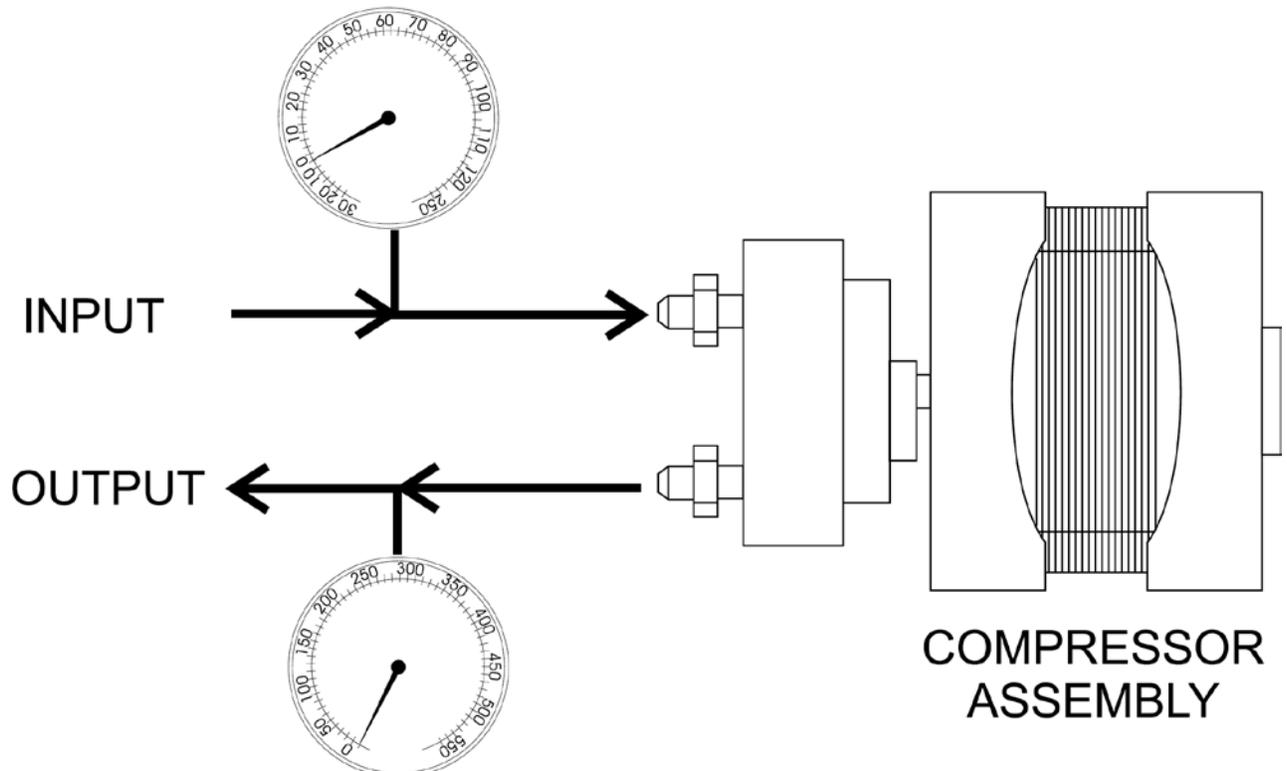
CAUSE	SOLUTION
Flow restrictions on input side of machine	Use 3/8" hoses; Remove "Schrader" valve cores and core depressors
Trapped liquid in system	Cycle system compressor for a few seconds to move trapped liquid to another area; Check for condensation on system, and apply heat as needed; Check for condensation at hose fittings, and apply heat as needed

Machine Specifications

ELECTRICAL DIAGRAM

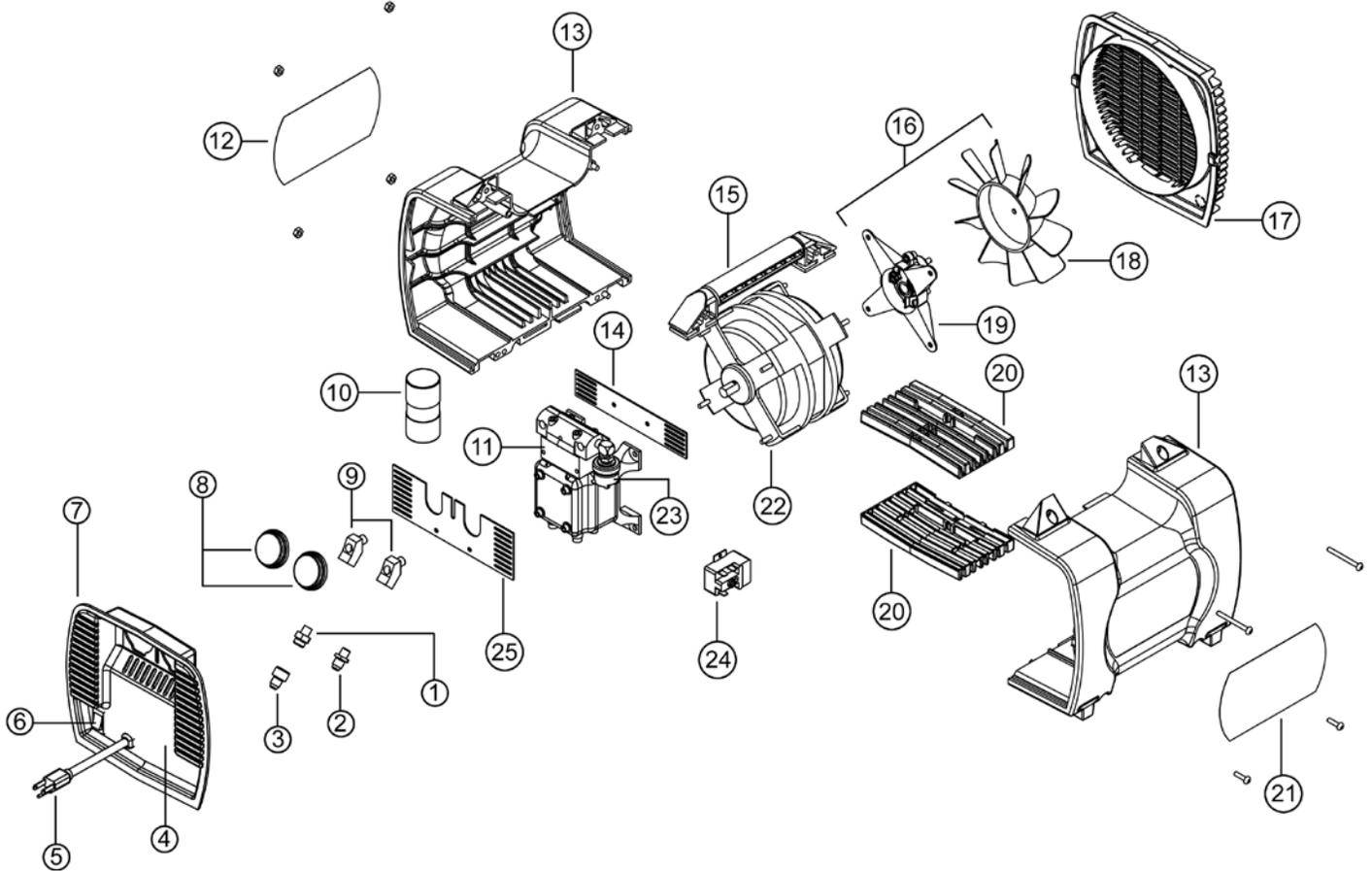


REFRIGERANT FLOW DIAGRAM



Machine Specifications

PARTS DIAGRAM



Dia.	Part No.	Description
1	MF3627	Inlet Manifold Fitting
2	MF3000	Outlet Fitting
3	MF3612	Inlet Filter Cap
4	LB1402	Front Panel Label
5	WR9000	Power Cord - 115v US
5	WR9230	Power Cord - 230v EU
6	EL5120	Power Switch
7	PL7511	Front Panel Only (no label)
8	GA0700	0-700 PSI Gauge (each)
8	GA0761	PSI & Kg/cm ² Gauge (each)
9	MF3530	Gauge Manifold Fitting (each)
10	EL5028	Motor Start Capacitor - 115v
10	EL5034	Motor Start Capacitor - 230v
11	CA1634	Cylinder
12	LB1415	G1Single Side Label
13	PL7600	Case Side Panel

Dia.	Part No.	Description
14	SH3532	Rear Heatsink (small)
15	PL7000	Case Handle
16	AY0030C	Fan Gearbox Assembly w/Fan
17	PL7602	Case Back Panel
18	PL7020	Fan Blade
19	AY0030	Fan Gearbox
20	PL7625	Motor Support Bracket (each)
21	LB1417	G1Single Warning Label - 115v
21	LB1422	G1Single Warning Label - 230v
22	EL5000	Motor - 115v
22	EL5230	Motor - 230v
23	EL5030	High Pressure Switch
24	EL5017	Motor Start Relay - 115v
24	EL5027	Motor Start Relay - 230v
25	SH3525	Front Heatsink (large)

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 G1SINGLE Warranty Registration Card			
Please complete this card and return it within 10 days of purchase with a copy of your sales receipt.			
Your Name		Your Company	Phone Number
Street Address		Date of Purchase	
City	State	Zip	Place of Purchase
Email Address:			
Please select your type of business:	How did you learn about our products?	What features most interested you?	
<input type="checkbox"/> Automotive <input type="checkbox"/> Commercial <input type="checkbox"/> Residential <input type="checkbox"/> Service <input type="checkbox"/> Installation	<input type="checkbox"/> Wholesaler: <input type="checkbox"/> Recommended By: <input type="checkbox"/> Magazine: <input type="checkbox"/> Newspaper Ad: <input type="checkbox"/> Mailing <input type="checkbox"/> Internet	<input type="checkbox"/> Recovery Speed <input type="checkbox"/> Low Cost <input type="checkbox"/> Low Maintenance <input type="checkbox"/> Portability <input type="checkbox"/> Product Availability <input type="checkbox"/> Other:	
Register by Mail: Appion Inc. 2800 South Tejon Street Englewood, CO 80110 USA		Register by Email: 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: _____

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