



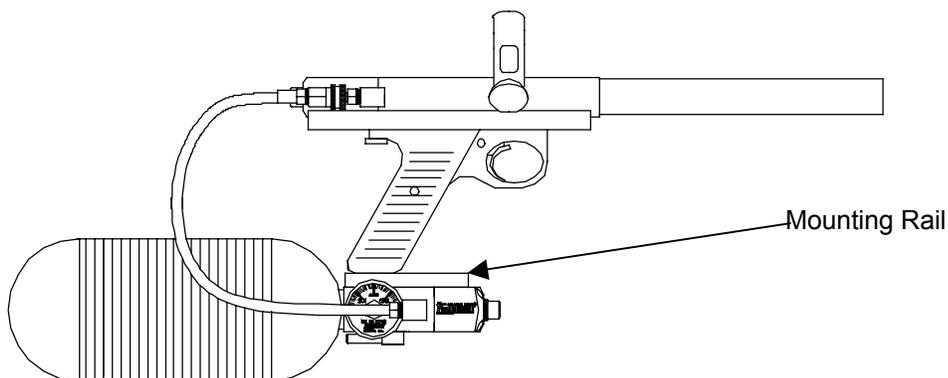
2240 Elmhurst Road Elk Grove Village, IL 60007 USA Tel: 847 545 9999 Fax 847 545 0275  
www.airamerica.com

## OWNER'S MANUAL

Congratulations on your purchase of the most advanced Nitrogen/High Pressure Air powered Paintball system available in the sport of Paintball. Your Air America® Apocalypse™ is engineered to provide a lifetime of performance and reliability far exceeding the most rigid demands of the International tournament-level Pro Player.

The Apocalypse™ is a single stage regulator; Micro Precision™ machined from a solid block of stainless steel, designed to accept input pressures up to 4500 PSI. With a 200 to 1000 PSI output pressure range the Apocalypse™ is totally compatible with virtually all Paintball markers; including the incredibly demanding mechanical and electronic “super markers”. The Apocalypse™ features include; the Air America® Limited Lifetime Warranty, tournament-level field maintenance, internally integrated on-off control, multiple input and output pressure safeties, ambidextrous input/output hose and gauge positioning, on-marker system fractional slide rail adjustment, severe service; stainless steel, (American Made) input and output gauges, and a Military, Airline, and Space program accepted D.O.T. (United States Department of Transportation) approved composite wrapped pressure vessel.

### APOCALYPSE™ ON-MARKER CONFIGURATION

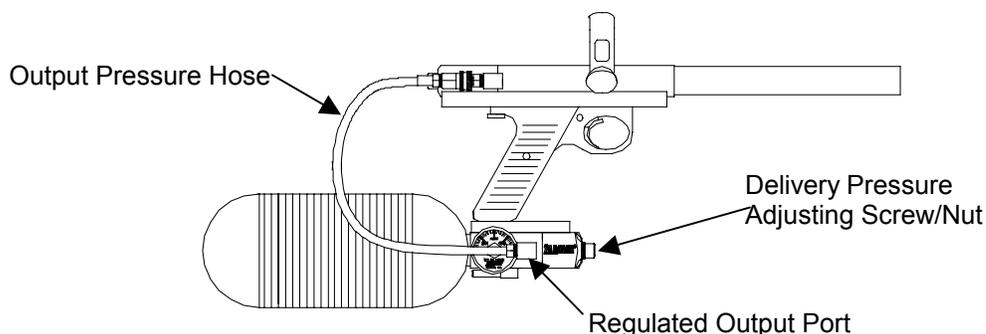


The Apocalypse™ uses a pistol grip mounted rail to attach your Apocalypse™ to your marker. The first step is to attach the mounting rail to the pistol grip of your marker. The rail is configured to use two 10-32 Allen screws with a center-to-center spacing of .75” (3/4 of an inch). This is the standard thread and spacing used on markers such as the Automag and Autococker. If you marker is equipped with a “Lone Star” types M16 grip, contact your local dealer or Air America® for the appropriate adapter block. You will note that the mounting rail can be installed with the long end facing either forward, or to the rear, providing flexibility in the adjustment of the horizontal placement of the Apocalypse™ system.

Once the mounting rail has been secured, slide the Apocalypse™ regulator onto the dovetail portion of the rail. You will note that the Apocalypse™ can be moved back and forth on the rail. This allows the player to position the system in the location he feels to be the optimum setting for his arm length and shooting style. Once the Apocalypse™ system is in the desired position, a light torque on the setscrew in the rail will hold the Apocalypse™ in place.

**CAUTION:** Care should be taken to ensure that the Apocalypse™ system is not positioned so that the setscrew bears directly on the top of the on-off valve drum. If the setscrew is tightened down on the drum, you will not be able to turn the on-off valve.

When the Apocalypse™ system has been securely mounted on the pistol grip attach the output pressure hose from the regulated pressure output port on the Apocalypse™ to the inlet port or ASA adapter on your marker. The on marker installation is now completed.



## APOCALYPSE™ REMOTE CONFIGURATION

If you are using your Apocalypse™ in a remote configuration, you simply screw the ASA adapter into your marker's receiver, and connect the remote hose to the Apocalypse™ regulated outlet port. The forward male adapter on the regulator (the one opposite the regulated output gauge) is the regulated (1000 PSI max) output port. If a left-handed configuration is desired, the gauges and male connection fittings can be switched to the opposite side. This procedure is documented in detail in the service section of this manual.

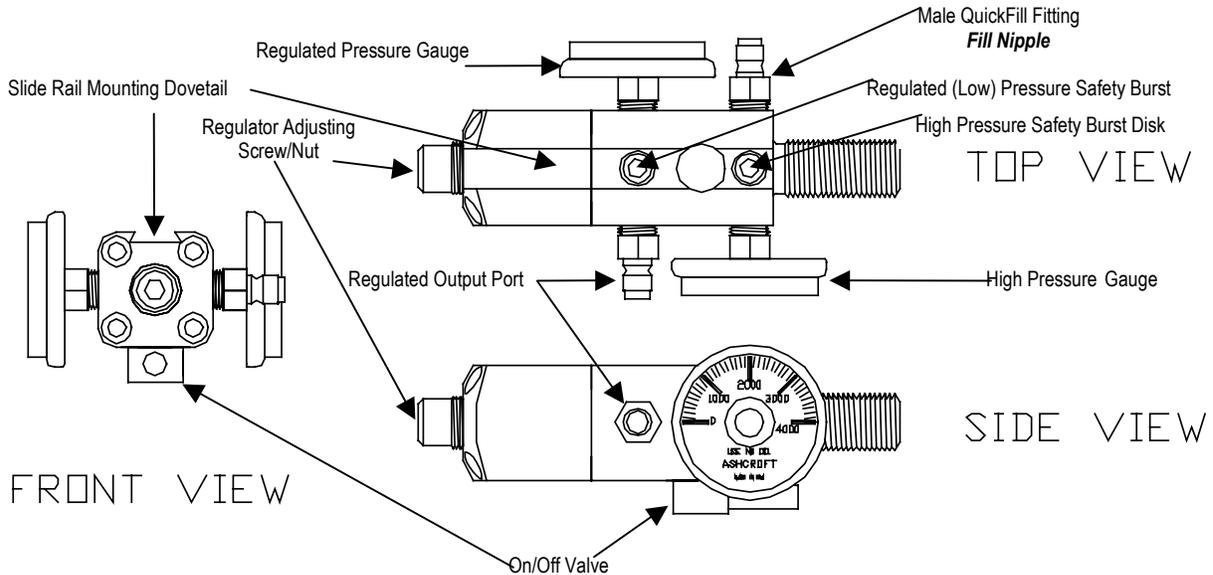
## INITIAL ADJUSTMENTS

Your Apocalypse™ left the factory set for an output pressure of 700 PSI. This is a good average setting. You should alter that setting if your particular marker requires a different delivery pressure.

The delivery pressure is adjusted with the Adjusting Screw/Nut at the front of the Apocalypse™. You will need a 3/16 Allen key for this operation. Turning the Adjustment Screw/Nut in (clockwise as you face the front of the regulator,) ↻ to increases the pressure, **a maximum of ¼ turn while cycling your marker** and turning the Adjustment Screw/Nut out (counterclockwise,) ↻ reduces the pressure, **a maximum of ¼ turn while cycling your marker.** **Do not turn in (increase) the Adjusting Screw/Nut more than two (2) full turns. Excessive turns can 'bottom out' the internal piston and permanently damage the regulator pin valve.**

NOTE: If you are increasing or reducing the pressure setting, remember to cycle your marker several times after each ¼ turn of the adjustment screw. This allows the pressure trapped in the delivery hose to drop down to the new setting.

**Check your owner's manual to determine the proper operating pressure. Do not exceed the factory recommended pressure.** By altering spring rates and valve characteristics your marker can be dialed in to run extremely low pressures. The proper pressure setting for your Apocalypse™ will depend on your marker, and the modifications made to your marker.



## CONVERTING YOUR APOCALYPSE™ TO LEFT HAND OUTPUT

If your application requires that the location of the Male regulated pressure output fitting is located on the left side of the Apocalypse™ unit, the change can be made by swapping the gauges and Male regulated pressure output fittings from side to side.

Note: The High Pressure Gauge and the **Quickfill Male High Pressure fill fitting** assembly must be installed into the ports closest to the bottle.

Always use a good anaerobic thread sealant when reassembling threaded high pressure and low pressure fittings. The use of Teflon tape should be avoided.

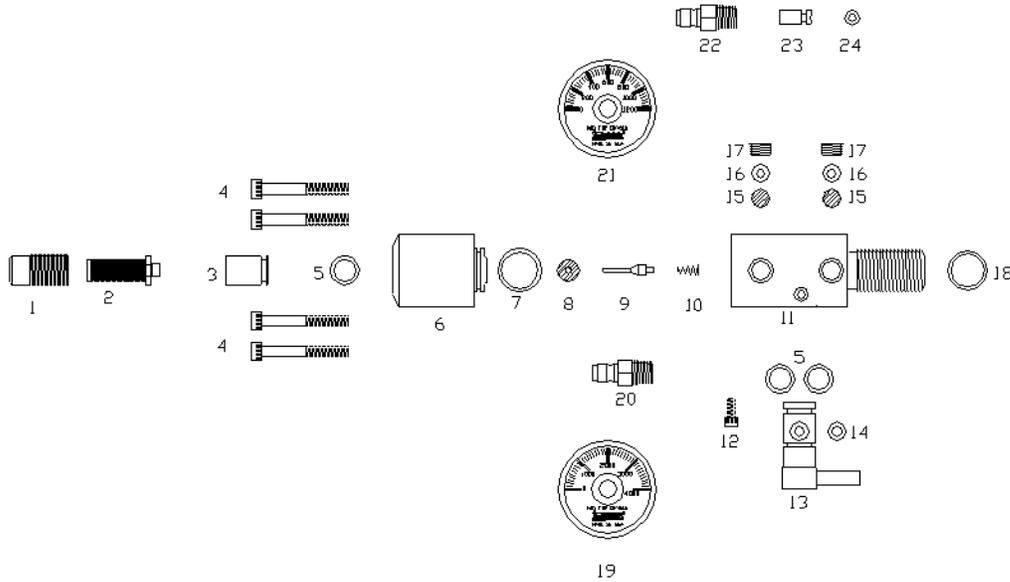
## CHARGING THE SYSTEM

The Air America® Air/Nitrogen **Quickfill Male High Pressure fill fitting** on your Apocalypse™ is the *rear male quick disconnect fitting*, the one closest to the bottle, opposite the high pressure gauge. **Note: Do not attempt to fill/pressurize your Apocalypse™ tank through the Male Regulated Output Port fitting. Your Low Pressure Gauge will be permanently damaged. Only allow knowledgeable fill operators to fill/pressurize your system.**

If you have your own fill station, connect the system and follow the fill directions that pertain to your fill station. If you prefer, your local field or paintball pro shop can be relied upon for fills

The following chart and exploded drawing will assist you in identifying and troubleshooting your Apocalypse™.

PROBLEM	POSSIBLE CAUSE
No Gas Delivery	Adjusting screw not set properly. On off valve in OFF position. Defective valve seat or pin. Dirt in regulator seat/pin valve area. Internal Obstruction.
Poor Gas Delivery (Shutdown)	Pressure not set high enough for specific marker. Deformed valve seat or pin. Regulator piston sticking. Dirt in regulator seat/pin valve area. Spring pack malfunction.
Poor Gas Delivery (Erratic delivery pressure)	Regulator piston sticking Springpack malfunction. Worn regulator seat.
Poor Gas Delivery (Output pressure creeps up)	Defective regulator seat. Dirt in regulator seat/pin valve area. Damage to seating face on regulator pin valve
Gas Venting From Adjusting Screw	Output pressure set too high. (Safety is performing it's normal function.) Defective regulator seat. (Incomplete sealing - pressure creeps high.) Defective regulator pin valve. (Incomplete sealing - pressure creeps high.) Damaged or dirty piston "O" rings. Defective safety in piston. (Do not attempt disassembly - replace piston.)
On-off Valve (Does not shut off flow)	Defective or dirty "O" ring on valve drum.
On-off Valve (Leaks around drum)	Defective or dirty "O" ring on valve drum.
On-off Valve (Valve drum will not turn)	Set screw in mounting rail bearing on top of valve drum. Inadequately lubricated or dirty valve drum.
Fill Fitting (Air leaks from fill port)	Damaged or dirty "O" ring on fill fitting check strut.



- |                             |                               |                                   |
|-----------------------------|-------------------------------|-----------------------------------|
| 1. Regulator Adjustment Nut | 9. Regulator Pin Valve        | 17. Safety Retainer Screw         |
| 2. Spring Pack              | 10. Cone Spring               | 18. Bottle O' Ring (015-90)       |
| 3. Piston Assembly          | 11. Gas Distribution Body     | 19. High Pressure Gauge           |
| 4. Head Bolts (10-32 x 1.5) | 12. Drum Retainer Screw       | 20. Male Regulated Output QD      |
| 5. Piston O' Ring (012-90)  | 13. Valve Drum                | 21. Low Pressure Gauge            |
| 6. Piston Housing           | 14. Saddle O' Ring (008-90)   | 22. Male QuickFill Fitting        |
| 7. Piston Housing O' Ring   | 15. Burst Disk                | 23. Male QuickFill Check Strut    |
| 8. Regulator Seat           | 16. Burst Disk Orifice Washer | 24. QuickFill Check Strut O' Ring |

## SERVICING YOUR APOCALYPSE™

The Apocalypse™ has been engineered to require an absolute minimum of service. The following section has been included for those individuals who prefer to do their own service/maintenance.

Your Apocalypse™ can be completely disassembled using only a set of Allen keys and a 7/16 open-end wrench. You should note however, that complete disassembly is rarely required. There are three basic service assemblies: the Piston and Spring Pack assembly, the Regulator Seat and Valve Pin Assembly, and the On-Off Assembly. Any one of these assemblies can be serviced independently.

**SAFETY ALERT!! ALWAYS DE-GAS YOUR SYSTEM PRIOR TO DOING ANY SERVICE OR REPAIRS.**

### SERVICING THE PISTON & SPRINGPACK ASSEMBLY

The brass piston and spring pack assembly can be removed for service by completely removing/unscrewing the regulator adjusting nut. The spring pack assembly and brass piston can be pulled out of the piston housing with the aid of an "O" ring pick, or a bent paper clip. Use caution when extracting the brass piston; do not damage or deface the wall of the piston housing.

Normally, the only wear item in this group is the piston “O” ring. A periodic replacement of this “O” ring is recommended. Before installing the new “O” ring, make sure the “O” ring groove in the piston is clean.

Once you have the piston out of the piston housing, the piston-housing bore should be cleaned. This is done by inserting a piece of lint free cloth into the bore and rotating gently. If you are only working on this portion of the regulator, and have not disassembled the rest of the unit, care should be taken to avoid bending the valve pin extension, which can be seen extending through the center hole in the bottom of the bore.

To reassemble, lube the piston lightly with a very light coat of 30W motor oil, and gently push it back into the piston bore, replace the springpack, and screw the adjusting nut in. Always put a 1 or 2 drops of the 30 W motor oil on the spring pack assembly, and a very light application of lithium grease on the adjusting nut threads when you reassemble these pieces.

## **SERVICING THE APOCALYPSE™ SEAT AND VALVE PIN**

To service these components, it is necessary to separate the two halves of the Apocalypse™. If the system is being used on-marker, remove the system from the marker. If the system is configured as a remote, remove the cover plate from the dovetail slot in the side of the regulator.

Remove the four retaining screws, and carefully pull the two Apocalypse™ halves apart. The regulator seat and valve pin can now be inspected or replaced.

The sealing face of the valve pin should be free of nicks and scratches. If yours appears to be marred in any way, replace it. Valve pins normally last for years if they are not damaged by careless handling.

Normally, the regulator seat can be popped out of the seat pocket with just finger pressure. If you find it necessary to use a pick to pop it loose, be careful not to scratch any of the metal surfaces.

When reassembling, the new seat should be placed in the pocket in the piston housing half of the Apocalypse™. You will note that the new seat does not fit the pocket as tightly as the old one you removed. This is because the seat “upsets” slightly when the two halves of the Apocalypse™ are torqued together.

When reassembling the Apocalypse™, always tighten all four screws evenly in a criss-cross pattern.

## **SERVICING THE ON-OFF VALVE**

There are only three “O” rings on the on-off valve that could require servicing. The valve has been designed to allow these “O” rings to be easily changed.

If your Apocalypse™ is set up “on-marker,” it may be necessary to remove the Apocalypse™ system from the marker, in order to service the on-off valve.

To remove the valve drum, **first remove the small retaining screw in the side of the Apocalypse™ body.** Once that screw is out, the valve drum can be pulled out of the Apocalypse™ body. If the drum does not easily pull out, you can insert a flat piece of wood or plastic between the valve handle and the Apocalypse™ and gently pry it free. **Do not use a metal object.**

Extreme care should be exercised when reassembling the on-off valve. The “*saddle “O” ring*” must be lubricated and very carefully held in place while reinserting the on/off valve drum into the operating position. The valve drum has a cutout designed to receive the retaining screw. The cutout must be properly aligned with the retaining screw hole. Before reassembling, make sure that the “O” rings are lightly lubricated with lithium grease.

Once the valve drum is back in place, reinstall the retaining screw. **Do not tighten the retaining screw.** The only function of the retaining screw is to prevent the drum from backing out. Make sure the drum turns freely. Periodic lubrication of the valve drum with lithium grease is required for smooth operation.

## ADVANCED TUNING OF THE APOCALYPSE™ FOR THE AUTOCOCKER

### THE APOCALYPSE™ AND THE AUTOMAG

When the *APOCALYPSE™* is mated to the Automag's internal regulator a true, functioning, dual stage regulated system is created. The *APOCALYPSE™* should be set to deliver approximately 700 PSI to the Automag's internal regulator. The Automag's internal regulator then reduces the *APOCALYPSE™* incoming regulated 700 PSI to the Automag's typical working pressure of approximately 375 PSI. The minimum pressure your *APOCALYPSE™* should deliver to your Automag's regulator should be no less than 625 PSI.

### THE APOCALYPSE™ FOR THE AUTOCOCKER TUNING THE SYSTEM

**NOTE:** For maximum, tournament level performance, the Autococker requires a dual stage regulated air/nitrogen system. The Air America® Vigilante™, Black Ice™, Violator™, or the Prophecy™ will enable you to upgrade your Autococker to a razor sharp, tournament level, dual stage regulated system when joined with your *APOCALYPSE™*.

Tuning of the Autococker's is accomplished by creating a balanced set of pressures within the Autococker itself. Valve design, valve and hammer spring energy, and air chamber size and pressure, are crucial elements in achieving maximum performance from your Autococker.

*Example:* if hammer spring energy is set to high for the air chamber internal pressure then the duration of valve open time will be increased beyond its useful point. If the air chamber pressure and/or the valve return spring energy is too high then the amount of valve lift needed for proper flow will not occur. These examples illustrate how performance is diminished when internal pressures are not properly tuned.

The following is an overview of how to tune your system to achieve maximum efficiency. Different combinations of springs, valves and modifications will give you a variety of results, keep in mind this is only an overview. Your particular marker, depending on its modifications may react differently.

If you are using a secondary regulator: the Air America® Vigilante™, Black Ice™, Violator™, or the Prophecy™, to create a dual regulated system, you must first set the regulated outlet delivery pressure of your *APOCALYPSE™* to a minimum of approximately 750 PSI for the secondary regulator to have sufficient pressure to function properly. If you are using your *APOCALYPSE™* as the only pressure regulator, and will not connect your *APOCALYPSE™* to a secondary pressure regulator, than proceed as follows:

**STEP 1** Turn the hammer spring adjustment on your marker all the way out to the *minimum* setting.

**NOTE:** When *INCREASING* the output pressure of your *APOCALYPSE™* the Regulator Adjustment Nut is **SCREWED IN**, in ¼ turn increments, (clockwise) or when *DECREASING* the output pressure, **SCREWED OUT**, in ¼ turn increments (counterclockwise) dry fire the marker several times after each adjustment to cycle the air in the system.

**STEP 2** Decrease the output pressure on your *APOCALYPSE™* system to the "no flow" point. If you are using a secondary regulator, (dual stage,) this procedure should be done at the secondary regulator only.

**NOTE:** The term "no flow" refers to the point at which the air supply is cut off totally.

- STEP 3** Connect the *APOCALYPSE™* air system to the marker: if applicable, to the secondary regulator, and then to the marker.
- STEP 4** Slowly boost the *APOCALYPSE™* regulated outlet pressure to your marker, to the point at which you have enough pressure to operate the re-cock system to effectively cock the marker.
- STEP 5** When the marker sounds like it will launch a ball, stop and readjust the re-cock pressure on the marker using the Autococker front mount adjustable (Rock) regulator.
- STEP 6** Load the marker with paint and begin to chronograph each of your shots, in three shot strings. After each 1/4 turn of your *APOCALYPSE™ Regulator Adjustment Nut*, if your Autococker is configured as a single stage system, or the secondary regulator if your Autococker is operating with a dual stage regulated air/nitrogen system. It is best to record the average of each string so that you can get a feel for a typical velocity increase per 1/4 turn.
- STEP 7** Continue to do this until you see either no increase or maybe even a decrease in velocity is noted. This is your balance point between air chamber pressure and hammer spring energy.
- STEP 8** Now go to the velocity adjuster on the back of the marker and adjust the hammer spring only enough to achieve the desired velocity.

**NOTE:** If you cannot achieve the desired velocity by adjusting the hammer spring energy; then you may need to increase the hammer spring rate in your marker and rebalance the air chamber pressure (steps 6, 7 and 8) at a higher point. Once you achieve a balance between air chamber pressure and hammer spring energy, never increase air chamber pressure without making a corresponding increase in hammer spring energy.

The importance of a “balanced” set of springs working inside your marker is highly illustrated by this tuning procedure. The gas pressure in the air chamber of the valve acts as a spring just as the remainder of the mechanical springs in your marker does. Any change in air delivery pressure must be counteracted with the altering of the effected mechanical spring energy.