

# ARMAGEDDON™

BY AIR AMERICA, INC.

Congratulations! You have purchased the most advanced high-pressure Air/Nitrogen Paintball system available to the Paintball World. Your Air America® ARMAGEDDON™ is engineered to provide a lifetime of performance and reliability, far exceeding the most rigid demands of the International tournament-level pro player.

The ARMAGEDDON™ is a single stage regulator; Micro™ precision machined in Stainless Steel and high strength, tempered alloy Aluminum, designed to accept input working pressures up to 4500 PSI. With a 200 to 1100 PSI output pressure range, the ARMAGEDDON™ is totally compatible with virtually all of the markers currently used in the sport of Paintball. The ARMAGEDDON™ delivers unmatched tournament-level performance, high & low side pressure safeties, ambidextrous input/output hose and gauge positioning, fractional on-gun slide mounting rail adjustment, precision input and output gauges matched with the Military, Airline, and Space program, tried and proven, high pressure Composite Wrapped Bottles.

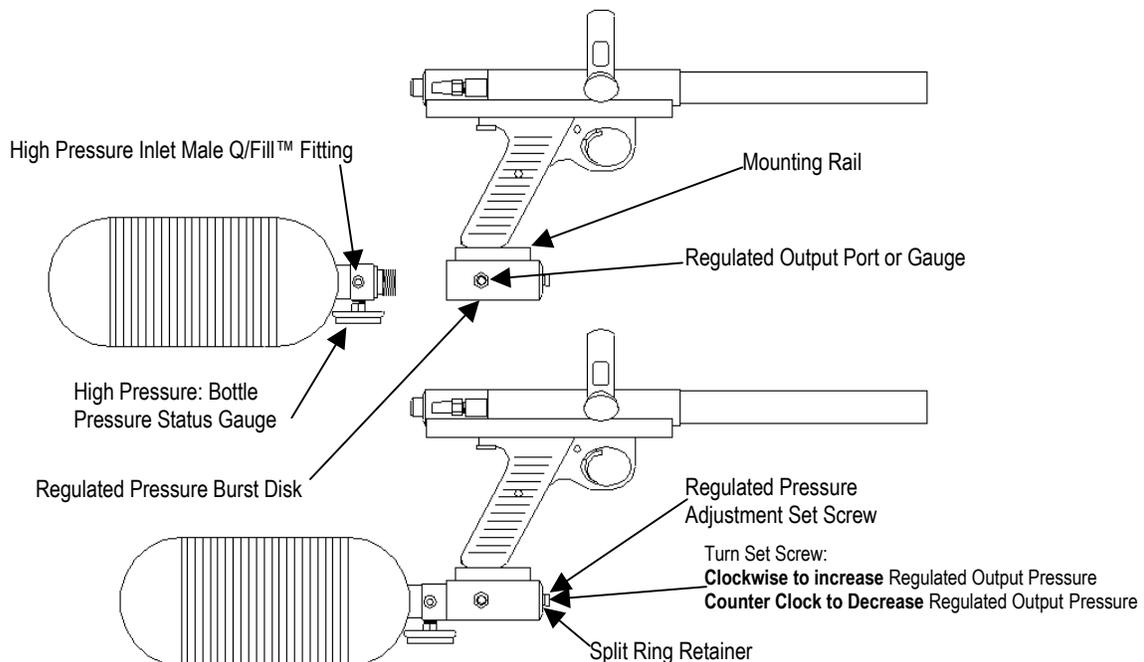
## ARMAGEDDON™ ON-GUN CONFIGURATION

In place of the 'cradle', used on the Air America®, 320™ and Raptor® series, the ARMAGEDDON™ uses the identical mounting rail system used on the Air America® Apocalypse™.

The first step in mounting your ARMAGEDDON™ 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 3/4". This is the standard thread and spacing found on AutoMags and Autocockers, as well as other popular markers. If your marker is equipped with a 'Lone Star' type M16 grip, contact your local dealer or Air America® for the appropriate adapter block.

When the mounting rail has been secured, slide your ARMAGEDDON™ onto the dovetail portion of the rail. The rail can be installed with the long end facing either forward or to the rear. You can now position your ARMAGEDDON™ at the optimum point for your arm length and shooting style. A **light to medium** torque on the rail set-screw will secure your ARMAGEDDON™ in your selected position.

Once your system has been mounted on the marker, attach the output hose from the regulated **output** port male quick disconnect fitting on the Aluminum Body of your ARMAGEDDON™, to your marker, to complete the on-gun installation.



### Note: Safety Caution!

**Do not install or use substandard non-rated fittings on your ARMAGEDDON™ or marker.**

## CHARGING THE SYSTEM

Your ARMAGEDDON™ can be charged/filled, on or off your marker, totally independent of the Aluminum Body portion of the ARMAGEDDON™ that is secured to the pistol grip of your marker. **The Air America® 4500 psi pressure rated Stainless Steel male quick disconnect Q/Fill™; quick fill assembly, is the male quick disconnect fitting closest to the bottle on the Stainless Steel 'Arm' of your ARMAGEDDON™, opposite the bottle/tank/cylinder high pressure status gauge. The Stainless Steel 'Arm' is non-removable from your bottle/tank/cylinder. Do not attempt to remove the 'Arm' from your bottle/tank/cylinder.**

The Air America® 4500 psi pressure rated Stainless Steel male quick disconnect Q/fill™ is the standard Q/fill™ fitting used on all Air America® systems. If you have your own fill station, with a suitably rated Female fitting that is compatible with the Air America® Q/Fill™ male adapter, connect the rated Female quick disconnect to the ARMAGEDDON™ and follow the fill directions that pertain to your fill station. The fill operation for your ARMAGEDDON™ is identical to the procedure used with all other Air America® systems.

## INITIAL ADJUSTMENTS

Your ARMAGEDDON™ left the factory set for a regulated output pressure of 700 psi. With the introduction of the new 'Super Guns' and the popularity of custom modified markers, your marker may require a regulated output delivery pressure ranging from 150 to 1000 psi. ***The regulated output delivery pressure setting for your marker will depend on the performance requirements of your marker and the modifications made to your marker.***

### **Note:**

***Check with your corresponding owner's manual, factory tech support staff or Airmith, if in doubt regarding questions of performance pressures and tuning procedures for your marker.***

The regulated output delivery pressure is adjusted with the small 10/32 adjusting set screw located in the threaded Stainless Steel shaft on the front of the Aluminum Main Body of the ARMAGEDDON™. You will need a suitable Allen key for this operation. Turning the set screw ***in, clockwise***, as you face the front of your ARMAGEDDON™, ***increases*** the regulated output pressure, turning the set screw ***out, counter-clockwise***, ***reduces*** the regulated output pressure. **Adjust the regulated output pressure set screw in 1/4-turn increments as you increase, or decrease, the regulated output pressure to your marker.**

***NOTE: As you adjust the pressure setting cycle your marker several times, after each adjustment, to allow your marker to adjust to the new setting.***

## SERVICING YOUR ARMAGEDDON™

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

Your ARMAGEDDON™ can be completely disassembled using only a set of Allen keys; complete disassembly is rarely required. The basic components contained within the Aluminum Body of the ARMAGEDDON™ are the Regulated Outlet Pressure Gauge, Regulated Outlet Pressure Male Fitting, Regulated Outlet Pressure Burst Disk, Piston, Regulated Outlet Pressure Adjustment Strut and Set Screw, Piston Seal Carrier, MainSpring and Split Ring Retainer. The basic components of the Stainless Steel 'Arm' assembly are the Q/Fill™ Assembly, High Pressure Status Gauge, High Pressure Burst Disk, Hollow Hex Allen Set Screw Retainer, Regulator Seat Retainer, Seat/Seal and the Pin and Spring Valve assembly.

The following chart will assist you in troubleshooting your ARMAGEDDON™.

| PROBLEM  | POSSIBLE CAUSE   |
|--|--|
| No Gas Delivery                                  | Adjusting set screw not set in position.<br>Defective Valve Seat.<br>Internal Obstruction.   |
| Poor Gas Delivery<br>(Shutdown)                  | Pressure not set high enough for specific marker.<br>Defective Valve Seat.<br>Piston Seal Carrier O' ring failure.<br>Main Spring malfunction. |
| Poor Gas Delivery<br>(Erratic delivery pressure) | Piston Seal Carrier O' ring failure.<br>Main Spring malfunction.<br>Defective Valve Seat.  |
| Poor Gas Delivery<br>(Output pressure creeps up) | Defective Valve Seat.<br>Dirt in regulator Seat/Pin Valve area.<br>Damage to Seating face on regulator Pin Valve.                              |
| Burst Disk Failure                               | Over pressurized bottle/tank/cylinder, see 'Note' below.   |
| Air leaks from Q/Fill™ port                      | Damaged or dirty "O" ring on Q/Fill™ check strut.  |

**Note: Safety Caution!**

**In the event of a Safety Burst Disk failure do not attempt to change or reinstall the Safety Burst Disk. Contact Air America® for the designated replacement.**

## SERVICING THE PISTON/ MAIN SPRING ASSEMBLY

To remove the Piston Seal Carrier, Piston, Pressure Adjustment Strut, and MainSpring for maintenance inspection, first unscrew and separate the Bottle and 'Arm' Valve from the Aluminum Main Body of your ARMAGEDDON™. These components can be withdrawn from the Aluminum Main body with the removal of the Split Ring Retainer at the Pressure Adjustment set-screw. Once the Split Ring Retainer is removed the complete Piston Main Spring Assembly will separate from the Aluminum Main Body. The Pressure Adjustment Strut is then withdrawn from the Piston by pulling the Pressure Adjustment Strut out of the center of the Piston. **Do not use any gripping device to extract the Pressure Adjustment Strut.**

Carefully inspect the condition of the Inner and outer O' rings of the Piston Seal Carrier and the Pressure Adjustment Strut O' rings. If the O' rings appear to be bruised or scraped the O' rings should be replaced. The 2 (two) O' rings on the Pressure Adjustment Strut can be difficult to reinstall, they are a tight fit and can easily be damaged if they are over-stretched. If your inspection of the O' rings on the Piston Seal Carrier indicates; due to bruising or scrapes on the surface of the O' rings, that replacements are required, the following procedure is recommended.

The inner diameter bore of the Aluminum Main Body should be cleaned by inserting a piece of lint free cloth into the bore and rotating gently. The Piston Seal Carrier Inner & outer O' ring grooves must be free of grit or dirt. Before installing replacement O' rings, O' rings should be wiped with a **very light coat of \*Silicone lubricant**. Once the O' rings are replaced; **O' ring type and size cannot be substituted**, the Piston Seal Carrier can be pushed back onto the Piston Rod. The inner O' ring of the Piston Seal Carrier will ensure a positive fit with the Piston Rod. The Outlet Pressure Adjusting Strut should then be re-inserted into the center shaft of the Piston Assembly, ensuring that the Outlet Pressure Adjusting Strut is inserted with the lubricated O' ring end first. Before re-inserting the Main Spring into the Aluminum Main Body wipe the coils of the Main Spring with a **Very light coat of \*Silicone lubricant**. It is doubtful that the Main Spring will need replacing, in the event there are any visible signs of hair-line cracks or separations on the spirals of the Main Spring, the Main Spring must be replaced.

When the components of the Aluminum Main Body are in place, the Piston shaft must protrude out of the Aluminum Main Body enough to position the Split Ring Retainer onto the protruding Piston shaft at the location of the Pressure Adjustment set-screw. The basic maintenance of your ARMAGEDDON™ Aluminum Main Body is now complete.

Note: \*If a Silicone lubricant is not available, 10W/30 or 30W motor oil can be substituted. **WD40 or similar products are not recommended for O' ring lubrication.**

## SERVICING THE ARMAGEDDON™ SEAT SEAL AND REGULATOR PIN & SPRING

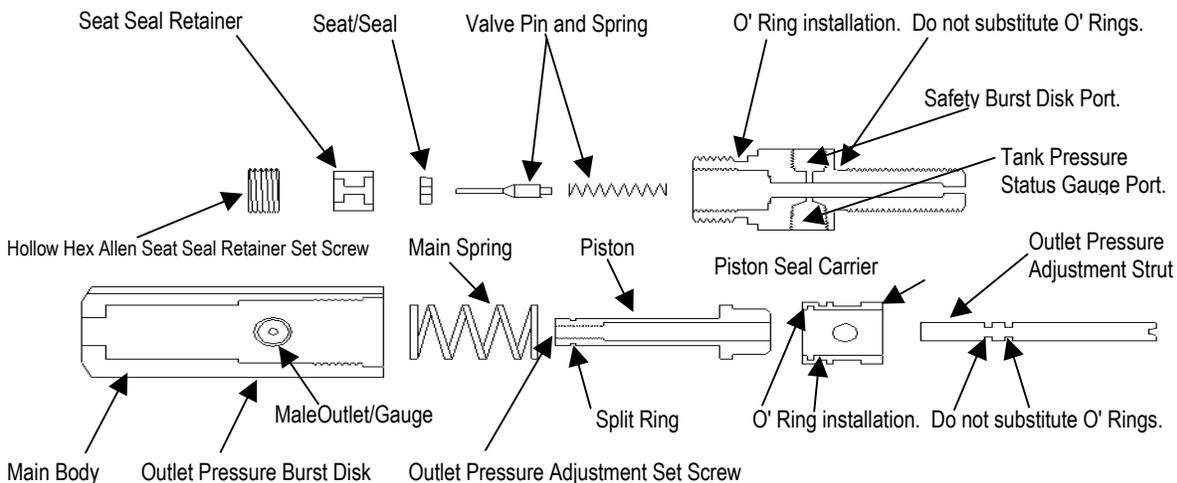
**SAFETY ALERT!**  
**ALWAYS DE-GAS YOUR SYSTEM**  
**PRIOR TO DOING ANY SERVICE OR REPAIRS.**

To service these components, it is necessary to unscrew/separate the 'Arm' regulator and bottle section from the ARMAGEDDON™ Aluminum Main Body.

**When the Bottle is completely empty of any pressure** remove the large hollow hex Allen retainer set-screw securing the Seat Seal Retainer in place. The regulator Seat/Seal and regulator Valve Pin and Spring can now be inspected, and if necessary, replaced. The sealing face of the regulator Valve Pin should be free of nicks and scratches. If the Valve Pin appears to be marred in any way it must be replaced. Regulator Valve Pins and Springs rarely need replacement, unless they are damaged by careless handling.

The regulator Seat Seal can be removed from the Regulator Seat Retainer with finger pressure. If you find it necessary to pry it loose, be careful not to scratch any of the metal surfaces. The Air America® regulator Seat material has a 'memory,' and once removed from the Seat Retainer, may lose its sealing qualities. In an emergency, the Seat can be turned over and reinstalled as a temporary solution. Under optimum conditions a new Seat should be installed.

When reassembling, insert the Seat in the Regulator Seat Retainer, with the Seat in the Regulator Seat Retainer Seat pocket, facing the bottle. The Regulator Seat Retainer and Seat is placed over the Pin and Spring assembly. The large hollow hex Allen retainer set-screw is then tightened down with **a light to medium torque, the amount of torque necessary to assure a pressure seal of the Seat. If excessive torque is applied to the Allen set screw, the removal of the Allen set screw, when a subsequent Seat replacement becomes necessary, could be very difficult. Do not use a sealant to secure the large hollow hex Allen retainer set-screw.**



### CONVERTING YOUR ARMAGEDDON™ TO LEFT HAND OUTPUT

If your playing style requires that you switch the regulated pressure **output** port to the opposite side of the Aluminum Main Body, the change can be made by swapping the low pressure gauge; gauge face: 1200 psi, and the male regulated output pressure fitting, from side to side.

The positions of the high pressure gauge; gauge face: 5000 psi, and the Q/Fill™ Adapter on the Stainless Steel 'Arm' Valve, although not recommended, can be interchanged/swapped.

**Note: Always use a brand name, high-pressure anaerobic removable thread Sealant, when reassembling threaded fittings. The use of Teflon tape should be avoided.**

### ADVANCED TUNING OF THE ARMAGEDDON™

## FOR THE AUTOCOCKER

**NOTE: As you adjust the pressure settings, remember to cycle your marker several times after each adjustment.**

- STEP 1 -** Turn the hammer spring adjustment all the way out to the minimum setting.
- STEP 2 -** Connect your ARMAGEDDON™ to the marker.
- STEP 3 -** **Reduce** the output pressure on your ARMAGEDDON™ down to the 'no flow' point by turning the Outlet Pressure Adjustment Set Screw **counter clockwise in 1/4-turn increments, dry firing the marker after each 1/4 turn** until the 'no flow' point is reached. **Do not remove the Outlet Pressure Adjustment Set Screw.**
- STEP 4 -** **Increase** the output pressure slowly by turning the Outlet Pressure Adjustment Set Screw **clockwise, in 1/4-turn increments, dry firing the marker after each 1/4 turn**, until you have just enough pressure to operate the automation system and to recock the hammer.
- STEP 5 -** As soon as the marker's discharge sounds like it might launch a ball, start chrono-graphing two or three shot strings after each 1/4-turn adjustment. Write down the average of each string so that you can get a feel for the typical velocity increase each 1/4 turn should produce. The average marker will produce either no increase or possibly a decrease in velocity somewhere in the low 200's. At this point you have found the balance point between the hammer spring energy and the chamber pressure.
- STEP 6 -** Turn up your hammer spring just enough to produce the necessary velocity increase. The amount of hammer spring energy is now correct for the chamber pressure present.
- STEP 7 -** Your velocity is still in the low to middle 200's. From this point on, never increase the chamber pressure without making a corresponding increase in hammer spring energy. Work both adjustments together until you have the velocity you need.
- STEP 8 -** Once everything is set, note the output pressure from your ARMAGEDDON™ system. This will eliminate repeating Steps 1 through 8 for future tuning.

This tuning procedure illustrates the importance of having a "balanced" set of springs working inside your marker. The gas pressure spring in the valve chamber is a spring just like the metal coil behind the hammer.

If the hammer spring is too strong for the chamber pressure present, excessively long Valve open times will occur. If it is too weak, the exhaust Valve will not be opened to its proper lift, and performance will suffer. Having these two spring elements in tune with each other is critical to the consistent performance of the marker.

## THE ARMAGEDDON™ AND THE AUTOMAG

Since the AutoMag incorporates an internal regulator, when the ARMAGEDDON™ is installed onto an AutoMag, a dual stage regulated system is created. The ARMAGEDDON™ should be set to deliver approximately 700 PSI to the AutoMag's internal regulator. The minimum pressure your ARMAGEDDON™ should deliver to your AutoMag regulator should be no less than 625 PSI.

**Note: Always check with your markers manual or factory tech support staff if in doubt regarding questions of performance pressures and tuning procedures.**