

# Instruction Manual

RT **ULE**



***Airgun Designs Inc.***

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## **SAFETY WARNING      MUST READ**

THIS PAINTBALL MARKER IS NOT A TOY! This paintball marker should be treated as a dangerous instrument and should always be treated with respect. Never point a paintball marker at anyone not properly attired. This paintball marker can cause serious bodily injury including, but not limited to, blindness or even death. Please read all safety instructions and directions in this manual before using this paintball marker. **Always wear approved safety goggles or an approved mask whenever you handle this paintball marker!** Do not point or shoot this paintball marker at animals. Do not point or shoot this paintball marker at any person unless you and your target are engaged in paintball activities and are wearing proper safety gear including approved paintball goggles, mask, and pads. Never shoot anyone at close range! Never load this paintball marker with anything except approved paintballs. Never put anything down the barrel except paintballs, barrel squeegees or barrel plugs. Do not attempt to repair this paintball marker by yourself. Follow all maintenance instructions carefully. If you are unsure about any aspect of the maintenance procedures contact your local dealer or Airgun Designs, Inc. at (847) 520-7225.

This paintball marker is always armed and cocked when an air supply is installed. Always engage the safety (located behind the trigger on the grip) and use an approved barrel plug when an air supply is attached or installed. Disengage the safety and remove the barrel plug only when on a playing field, the game has started and all players are wearing proper safety gear. When the red ring of the safety pin is showing, the safety is off and the paintball marker will fire.

Always chronograph this paintball marker before using it. Never shoot this paintball marker when the chronograph readings exceed 300 fps! There is a blow-off valve incorporated into the valve mechanism that will release air pressure if pressure exceeds a predetermined amount. This blow-off valve is factory set and is not user adjustable.

Remember to wear proper approved goggles or masks when chronographing your paintball marker. Prior to disassembly remember to wear approved safety goggles or masks to prevent accidental injury. Never point the paintball marker at anyone or anything that could be injured or damaged if shot. Always remove the air source from the paintball marker and dry fire in a safe direction before disassembling. The velocity adjusting nut is on the back of the regulator body. Do not disassemble the velocity adjusting nut while the paintball marker is under pressure. If air is leaking out the back of the velocity regulator nut, the paintball marker is over-pressurized and will shoot at a higher velocity than intended. Reduce the regulated pressure by backing off the velocity regulator nut and re-chronograph the paintball marker. If problems persist, call your dealer or Airgun Designs, Inc.

Do not put your fingers into the breech area, down the ball feed tube or into the barrel while firing the paintball marker; serious injury could result.

The pressure regulator allows gas under pressure to push the trigger forward after shooting. An excessively hard trigger pull indicates over pressure in the system. Do NOT fire a paintball marker that has excessive trigger pull; call your local dealer or Airgun Designs immediately.

### **COMPRESSED AIR ONLY**

Your RT-ULE is designed to run on compressed air only! It will not function at all on CO<sub>2</sub> no matter what hoses, expansion chambers, etc., you use. We recommend that you purchase a high quality 3000 psi compressed air tank and regulator for your RT-ULE. The maximum input pressure to the paintball marker should be above 700 psi and less than 1000 psi for best performance. Pressures over 1000 psi will damage the regulator and reduce performance.

## **FAST START**

This is a quick overview of how to use the RT-ULE for the experienced player. Introducing air pressure to the paintball marker will charge and cock the system. The system is a blow forward from open bolt, similar in concept to a cork in a champagne bottle.

The velocity adjustment nut is on the back of the valve body and requires only one turn to adjust from 200 to 300 fps. Air venting out of the back of the regulator indicates that the internal blow-off valve is responding to over pressure in the system, and the velocity should be turned down. Field stripping is accomplished by unscrewing the knurled bolt underneath the frame while the bottle is off. **THE TRIGGER MUST BE PULLED TO SLIDE THE VALVE BODY OUT.** There is a locking pin for alignment in the regulator body which allows the valve body to only come out part way before you must twist the valve body clockwise to continue sliding out the back. Reinstall in the same manner. Once removed, the entire valve and bolt assembly is available for cleaning.

Maintenance on most active o-rings can be accomplished without tools; however, a small dental type pick may be required. When adjusting the velocity regulator, dry fire the paintball marker several times before chronographing to allow the regulator piston and spring to seat properly. Always start below your intended velocity and work your way up. Always use fresh, high-quality paintballs.

The bolt may stick forward causing the trigger to lock due to when degassing the paintball marker, caused by turning off the tank and shooting those last few blooping shots. When the bolt sticks forward the trigger will not come forward. Remove the barrel and push the bolt back until the trigger clicks forward.

The paintball marker will give very little indication that it is running out of gas; by the time you see the velocity drop you are 20-30 shots away from total shutdown. Additionally, if you use a compressed air tank with an on/off valve, make sure you open it all the way.

## **LEVEL 10 ANTI-CHOP SYSTEM**

Your RT-ULE utilizes a mechanical state of the art anti-chop system developed after extensive research by the AGD Engineering team. The details are beyond the scope of this manual but have been included on a Micro-CD in your packaging. Please refer to the LVL 10 Micro-CD for comprehensive information.

## **LOADER**

Often paintballs will not feed because the recoilless design does not jiggle the loader. You must remain aware enough to keep the balls feeding. We recommend that you use an agitator and/or force-feed type loader to keep the balls feeding, such as a Viewloader coupled with a Warp Feed.

## **PERFORMANCE**

Take-up is the movement of the trigger before it comes in contact with the sear. After sear contact, continuing to pull through fires the paintball marker. The trigger in the RT-ULE has been designed to have a “snap” action with no take-up to give the shortest possible stroke and, therefore, the highest possible firing rate. The average person can fire 4-5 shots per second but, when charged with adrenaline, this can climb to 6 per second.

If your marker came equipped with a ULE Trigger Pull Kit then your 3 lb. “snap” action trigger pull weight has been reduced to a mere 15 ounces.

## **LUBRICATION**

We find that customers who properly lubricate their paintball markers once a week have the fewest problems. To lubricate your RT-ULE, drip 6 drops of AUTOLUBE into the back bottle adapter. Then gas up and dry fire the paintball marker several dozen times with the barrel removed to prevent oil build-up in the barrel.

## **VELOCITY ADJUSTMENT**

The velocity of your RT-ULE is adjusted by increasing or decreasing the regulated pressure. This is accomplished by turning the regulator adjusting nut located on the back of the regulator body. Only a minimal amount of rotation is necessary to adjust the velocity. We recommend that you always start at a low velocity setting and continue to screw the adjustment clockwise up to your desired setting.

Always shoot several shots to seat the regulator piston and spring. High velocities will cause the blow-off valve built into your system to vent air out the back of the regulator body. If you ever hear air venting, stop and re-chronograph the paintball marker immediately. We found the best performance to be in the 270-280 fps range. Occasionally grease the threads of the velocity adjusting nut and regulator coils of the regulator.

## **BLOW-OFF VALVE**

The blow-off valve is self contained in the regulator piston and is not user adjustable. It is a safety device for venting air from the paintball marker should abnormally high pressure occur in the regulator or air chamber. Always check your velocity any time the blow-off valve has vented.

## **CLEANING**

Always remember to wear approved safety goggles or mask when cleaning your paintball marker. After every hard use, a paintball marker should be taken down and all the exposed parts cleaned and inspected for wear or problems. Lightly lubricate all surfaces and reassemble according to instructions.

## **PLEASE READ THIS CHRONOGRAPH PROCEDURE CAREFULLY BEFORE USING YOUR RT-ULE**

The RT-ULE has the fastest recharging regulator found on any paintball marker. There are certain characteristics that you should understand about this regulator before you chronograph your RT-ULE.

The X-Valve recharges so quickly (up to five times faster than the 68 AUTOMAG valve) that friction heats up the compressed air molecules filling the air chamber. The temperature in the air chamber can get as high as 180 degrees and can make the front of the gun warm after a string of shots. It is important to understand that when the air chamber is filled with hot air under pressure, it cools off rapidly over several seconds. This cooling will reduce both the chamber pressure and the velocity.

If you fire the RT-ULE while the air chamber is hot (high pressure), your velocity will be higher. If you wait, the air chamber will cool and velocity will drop noticeably. The faster you fire your RT-ULE, the more consistent your velocity will be.

### **QUICK SETUP AND CHRONOGRAPH PROCEDURE FOR YOUR AUTOMAG RT**

1. Set the pressure going into the RT-ULE to 800 psi.
2. To record your highest rapid fire velocity: Fire a paintball and hold the trigger back. Then release the trigger completely and fire the next paintball as quickly as possible, once again holding the trigger back. Repeat as necessary. This procedure will simulate rapid fire, thus recording your highest possible rapid fire velocity.

PLEASE NOTE: The RT-ULE is sensitive to differences in trigger release, so always attempt to be consistent with your trigger finger!



## **FURTHER DETAILS ABOUT SETUP AND CHRONOGRAPH PROCEDURE**

The RT-ULE, like any manufactured product, will vary a bit from one example to the next. Our testing shows that the best input pressure for each RT-ULE will be somewhere between 750 and 850 psi. This is why we recommend 800 psi as a starting input pressure.

Higher input pressures will make the trigger more reactive, but the velocity will drop off more when fired slowly.

Lower input pressures will reduce the reactive trigger and may cause slight shoot down on rapid fire, but the RT will be more consistent over the chronograph when fired slowly.

As you can see, the RT-ULE can be adjusted to suit your preferences and style of play. We hope this information provides you with some insight on the best methods for setting up your RT and giving your game the performance edge.

Airgun Designs is committed to bringing you the highest performance products possible. The RT-ULE was designed to be (and is) the world's fastest shooting paintball marker! The RT-ULE performs best when fired rapidly, much like a high performance racing engine that runs best at high RPMs but doesn't idle well. After thousands of computer gun test runs and dozens of regulator variations, we feel that the RT-ULE X-Valve represents the best balance between outstanding rapid fire performance and stability over the chronograph.

Sincerely,

Tom Kaye  
President, Airgun Designs

## TECHNICAL DATA FOR EXPERIENCED AIRSMITHS

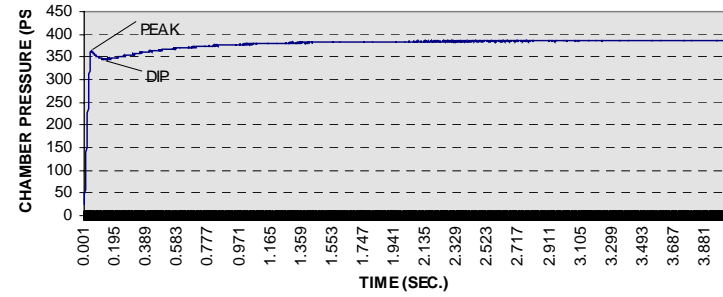
The velocity fluctuations in the RT-ULE are caused by the temperature changes of the compressed gas in the air chamber. Temperature-related pressure profiles will have different characteristics depending upon input pressure. The graphs on the next page show how chamber pressure changes over time. This page contains more technical data to help you understand what is going on inside the RT-ULE and to help you make the RT-ULE perform to your style of play.

Refer to the high input pressure graph. Notice that the graph peaks higher, goes into a dip, and then levels off. When the gas cools, the regulator opens up and maintains a steady pressure. After .5 seconds the pressure has stabilized. When firing at a rate of 2 shots per second or slower, the RT-ULE will maintain consistent velocities. When shooting at a rate of 3 shots per second or faster, the velocity will be closer to your maximum rapid fire velocity, as set with the quick shot test. Higher input pressure also gives a stronger Reactive Trigger. When chronographing at high input pressures, a rapid fire shot (as described earlier) will be higher than a shot fired after a ten second wait.

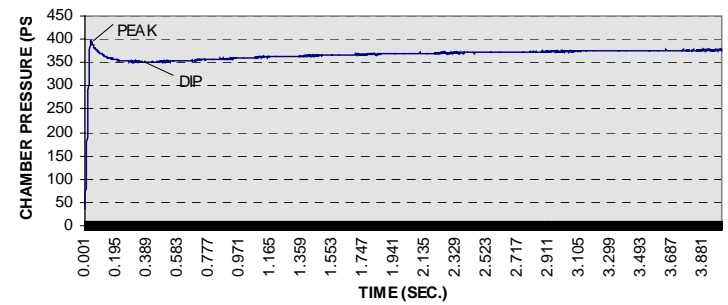
Refer to the medium input pressure graph. You will notice a peak followed by a dip and then a gradual climb back to your rapid fire pressure. The peak is where the temperature of the gas is at its highest. This is where your rapid fire pressures (velocities) will be seen. When shooting at your maximum rate, you will be shooting the same velocity as when you wait 10 seconds or more and take another shot. If you are shooting at a rate lower than your maximum, you will notice lower velocities. This is where the graph is falling to its lowest point (labeled "dip" on the graph). Here the gas is cooling, and the regulator has not opened back up. After this point, the regulator opens back up and the chamber pressure begins to climb back to your rapid fire pressure. This input pressure range is for the player who combines rapid firing with an occasional sniper shot. This will also give a positive Reactive Trigger feel. When chronographing at medium input pressures, a rapid fire shot (as described earlier) and a shot after a ten second wait will be similar.

Refer to the low input pressure graph. Notice that the peak and dip pressures in the first second are lower than the pressures after 1 second. This means that all shots spaced less than 1 second apart will be at lower velocity than shots spaced longer than 1 second apart. At lower input pressures, all benefits of the fast recharge regulator diminish and the regulator acts like the regulator on a 68 AUTOMAG. The main advantage is that this setup is more consistent over the chronograph where shots are at least one second apart and may benefit a sniper with consistent slow shots. Lower input pressure also weakens the Reactive Trigger. When chronographing at low input pressures, a rapid fire shot (as described earlier) will be lower than a shot fired after a ten second wait.

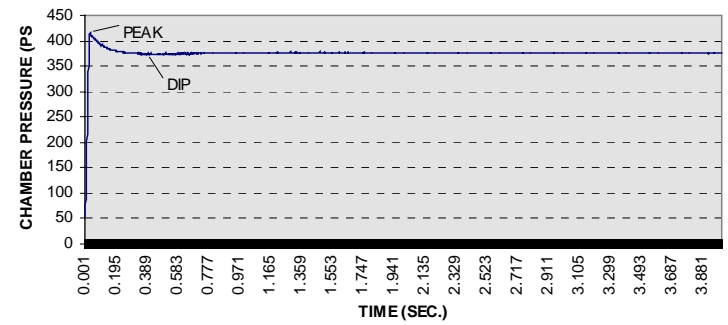
**LOW INPUT PRESSURE**



**MEDIUM INPUT PRESSURE**



**HIGH INPUT PRESSURE**







**X-Valve**

**Part #**

1 001507	6 001688	11 000818	16 000802	21 001083-10	26 000799	31 000844
2 002011	7 000844	12 000781	17 000815	22 000779	27 000800	32 000841
3 001687	8 002000	13 000736	18 000123	23 000123	28 000157	33 000782
4 000781	9 001694	14 000123	19 000778	24 000113	29 000826	34 000779
5 001695	10 000796	15 000798	20 000814	25 000822	30 000843	

## ACCESSORIES

Airgun Designs has a wide variety of add-on products and accessories for your paintball marker like the powered force-fed feeder "Warp Feed," all available directly to you at our online store at <http://store.airgun.com/>

## TECHNICAL SUPPORT

Please refer to this manual for basic information about your RT-ULE. If you have questions about your RT-ULE, please call our Technical Support staff at (847) 520-7225 or visit <http://www.automags.org>.

Our technical support staff is available Monday through Friday between the hours of 9:00 a.m.-11:30 a.m. and 1:00 p.m.-5:00 p.m. (Central Time). **Call us first** if you need to send your paintball marker to us for repair! Our Technical Support staff might be able to solve your problem over the telephone. If your paintball marker needs to be returned to us for repair, we need to verify that we have your current address, telephone number and email address on file, and that you are aware of our warranty repair policies and our usual turnaround time. At this point you will be given a return authorization number.

**Important!** Packages received without this RA number on them will be returned unopened.

This procedure can also be accomplished easily online and it is highly recommended that you visit <http://www.airgun.com/Techinfo.shtml#> and select "Request Repair Authorization". A Tech will then evaluate your problem and determine if you require an RA number or if your problem can be solved with simply an e-mail or phone call.

AIRGUN DESIGNS, INC.  
804 Seton Court  
Wheeling, Illinois 60090

Telephone: 847-520-7507  
Tech Phone: 847-520-7225  
Fax: 847-520-7848

AIRGUN DESIGNS, INC.  
804 Seton Court  
Wheeling, Illinois 60090

Telephone: 847-520-7507  
Tech Phone: 847-520-7225  
Fax: 847-520-7848

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