

Rebel™

Rebel™

Operation Guide





# Play Safe

## Safety

### Instruction Manual

Congratulations on your purchase of the 32 Degrees Rebel semi-auto. Before you use this marker, please read this manual in its entirety. Please follow all safety instructions as described in this manual.

### Warning

This paintball marker is not a toy. Misuse or mishandling can result in serious injury or death. The Rebel is to be used by adults 18 years of age or older, or under the direct supervision of an adult. Please follow all local, state, and federal laws concerning paintball markers and playing paintball. By purchasing this marker you assume all liability. 32 Degrees accepts no liability for injury or death due to misuse or mishandling of this marker.

### Rebel Specifications

Model	Rebel Semi-Auto
Caliber	.68
Action	Blow Back Semi-Auto
Power	CO2 or Compressed air
Cycle Rate	Up to 6 balls per second
Effective	Range 150+ feet
Length	16.5 inches
Height	10.5 inches

1. Never point a paintball marker at anyone not wearing paintball approved goggles. Even at the lowest possible operating velocity, a paintball will cause serious injury should it hit someone in the eye area.
2. Never look down the barrel of your marker with or without wearing paintball approved goggles.
3. Always disconnect your air-source and dry fire the marker before working on or cleaning it. Always have a qualified air smith do repairs or modifications to your Rebel.
4. Always leave the Rebel uncocked and turn the power feed plug to the "off" position.
5. Only play at commercial playing fields that have a chronograph, referees and clearly marked safe fields. Chronograph your marker before each game to ensure your gun is operating at safe velocities. Safe velocities are considered to be below 280 feet per second.



Always wear  
Paintball Approved  
Goggles



## Getting Started

### General Description and Basic Use Instructions

Included with your Rebel semi-auto should be the following items:

- Rebel Semi-Auto
- Barrel
- Low Pressure Chamber
- Packet with o-rings, velocity thumb screw, and allen wrench
- Separate Allen wrench

The 32 Degrees Rebel is almost ready to use out of the box. All that is needed is a CO2 tank, paintballs, and a feeder, and then you are ready use your marker.

First screw in your barrel (hand tight). Now that your barrel is in, insert the barrel plug into the front of the barrel. With your barrel plug in, you are ready to work on your marker. Next push the safety in the "safe" position and attach your feeder elbow and feeder to the power feed tube. Turn the power feed plug so that it does not allow paintballs to enter the chamber. Screw the low pressure chamber into the front end of the marker, just below the barrel. Now that you have everything connected you are ready to gas up the gun. Before you gas up the marker you should always wear paintball approved goggles.

## maintenance

Now that the goggles are on make sure your marker is in the cocked position. Install the CO2 tank and your Rebel is ready to fire. Make sure you chronograph your marker before you use it. Like any other paint marker, maintenance is the key to keeping the Rebel shooting consistently. This chapter is a basic overview of what it takes to keep the Rebel functioning properly.

**Lubrication:** To keep your Rebel's internal components operating smoothly, place about four drops of oil in your gun's CO2 adapter and dry fire the gun (after removing the barrel). This will spread the oil throughout the gun. After cleaning your Rebel internally, lube the hammer/push strut assembly as well--be careful not to over-oil this area.

**Warning:** Some petroleum based oils can damage your gun's o-rings. Use only oil manufactured specifically for paintball markers. If you expect any degree of consistency from your Rebel, you must keep it clean internally and externally. The two external areas you'll need to be the most careful with are the power feed/feed tube and the barrel. If you break a ball in the barrel, you will lose most of your accuracy until you clean it completely. On the field, remove the barrel and run a pull-through squeegee through it. For a more complete cleaning (off the field) you'll need to clean the barrel with warm water or barrel cleaner/treatment and squeegee it until it is dry. A pull-through squeegee can also be used to clean the power feed once the plug is removed.



## Disassembly / Reassembly

Internally, inspect the hammer/push strut assembly and clean with warm water if necessary. Always lube the internal parts after cleaning as described above. Check the o-rings on the bolt and striker for wear and replace if necessary. Standard tank o-rings work well on the bolt, but don't use the black rubber type.

To ensure that your Rebel will be operational at the paintball field, there are a few parts and tools you'll need. The most common o-ring in the Rebel is the "tank" o-ring. If you need to change any of these o-rings, you'll probably need an o-ring pick to remove the old ones. You really should keep several of these on hand at all times.

### **Adjusting the Velocity:**

To adjust the velocity of your Rebel, screw the thumb screw velocity adjuster (found in the bag of parts) into the rear lower hammer plug. By adjusting your thumb velocity screw clockwise you will increase your markers velocity. By adjusting your thumb velocity adjuster counter clockwise you will decrease your velocity.

To properly clean and lubricate your Rebel, you'll need to remove the hammer, push strut, main spring, and upper and lower plugs. After de-gassing the gun, make sure the cocking handle is in the forward position. This will guarantee that no air is left in the marker before disassembly.

Remove the connecting pin located in the rear portion of the main body. To do this apply pressure to the upper and lower plugs, located on the rear of the marker. While pressure is being applied remove the connecting pin. After the connecting pin is removed release pressure slowly. Now the lower plug will come out. Now that the lower plug is out you gain access to the lower chamber of the main body. Inside the lower chamber you will find the spring strut, recoil pad, and main spring. After removing these three parts, remove the upper plug. Now remove the connecting pin, this is located on the top of your marker. To remove this simply pull the pin out through the top of the main body. After the connecting pin is removed you will now be able to remove the upper and lower bolt from the main body

To remove the grip frame unscrew the two allen screws that hold the grip frame to the main body. To reassemble the marker simply follow the above instructions in reverse order

(Tech Tip) If your marker is rapid firing be sure to check the lower bolt o-rings and trigger sear.



## Trouble Shooting

**Gun does not recock:** If you fire the Rebel and it does not recock by itself, remove your air source and disassemble the gun (after you've made sure that your CO2 tank has enough gas). Look for debris wedged between the upper bolt and the breach. Free your marker of any debris, and re-lubricate all of your o-rings. Now reassemble your marker and you should be ready to go. Be sure to check and see if the connecting pin is still in place. Sometimes the connecting pin will shift up or down and "lock" the bolt and hammer.

**Low velocity:** The first thing you'll need to do (after you make sure your CO2 tank is not empty or low) is to check the velocity adjusting screw located in the rear of the hammer plug. To increase the velocity, turn the screw clockwise and re-chronograph the gun. Still shooting low? Check to make sure the gun is clean and lubricated internally. Look for debris on or around the bolt/hammer assembly and clean if necessary. Another possible cause of velocity problems with the Rebel is a weak striker spring. You may need to order a stiffer or longer spring. If all else fails, you can place a spacer between the velocity adjusting screw and spring guide.

**Air leaking out of the barrel:** You will need to replace your cup seal, the cup seal is your number four and five piece. To replace the cup seal remove your gas connector, valve spring, and existing cup seal. Replace the cup seal and reassemble.

(Tech Tip) Cup seals leaking are a common problem among blow back style markers.

**Excessive ball breakage:** Ball Breakage is usually the result of high velocity, weather, dirty marker, paint, or bore size.

**High Velocity:** Be sure that your marker is shooting below 290 (fps) feet per second. High velocity is a common cause of ball breakage.

**Weather:** Cold weather can make paintballs brittle allowing for more ball breakage. Hot weather can cause paint to expand and therefore your paint will be torn through your barrel.

**Dirty Marker:** Remember a clean marker is a happy marker. Dirty components will usually result in ball breakage.

**Paint:** Old paint or lower end paints can sometimes be the cause of ball breakage. Check your paintballs for flat spots, color fading, etc.

**Bore Size:** Your barrels bore size plays a large part in shooting accurate and limiting ball breakage. So be sure to use the proper size barrel.

**Inconsistent velocity:** Velocity can be effected by the list given above. Be sure that your marker is clean and lubricated and remember CO2 is affected by temperature therefore when using this gas allow for expansion and contraction.

**High velocity:** High Velocity is usually the result of expanded CO2 or broken paint in your barrel. To help maintain a consistent velocity be sure your marker is clear of all debris in both the lower and upper chambers.

(Tech Tip) If using CO2 as your power source we recommend an expansion chamber to help stabilize a very active gas.



## Rebel Tips

**1. Never leave your CO2 tank in the sun or heat. CO2 is a volatile gas that is greatly affected by temperature.**

### More on CO2...

#### Understanding the Characteristics of CO2

Understanding the characteristics of CO2 is a bit more difficult than it sounds. CO2 is a volatile gas, or should I say substance compared to other gasses used in Paintball. The fact that CO2 can convert from gas to liquid and visa versa easily is a real problem for Paintball players and their equipment. CO2 is greatly affected by temperature changes. In fact, a properly filled CO2 tank will have an internal pressure of about 850 pounds per square inch (psi) in 70 degree (F) temperatures. A temperature increase of one degree will cause the pressure in your tank to rise by 11 psi. So if you're playing in a cool summer morning of about 70 degrees, when the hot afternoon temperature comes your tank pressure can rise 400+ psi with no trouble at all. This will probably cause your gun to shoot "hot." Possibly even dangerously high. Let's take a closer look at why CO2 is a real problem for Paintball players.

Why your tank "chills" when you rapid fire: Have you ever noticed that when you rapid fire your paint gun for any length of time, your CO2 tank gets cold or even "frosted"? What happens next is a real pain -- your velocity drops off. Here's why. When you rapid fire your paint gun, you are using a large amount of

**Double feeding paintballs:** If your Rebel is double feeding, you've probably lost the ball detent. A new one will almost certainly fix the problem. If not, your paint is probably very small. To replace the ball detent simply remove recoil spring cover. Then remove the old ball detent and replace with a new one.

**Double firing on one trigger pull:** This can be caused by liquid CO2 in the valve. If your double firing problem is not caused by liquid CO2, inspect your trigger sear and be sure to remove any debris in the trigger assembly. This will most likely solve double firing. If double firing persists check the lower bolt o-ring.

**The gun fires but no paint comes out:** Make sure the power feed plug is turned the right direction. Check your paint for swollen balls. This will cause the gun to misfeed. Never pick paint up off of the ground. It will cause more problems than you could imagine.



CO2 quickly. Your tank gets cold because the liquid CO2 inside is changing into gas to replace the CO2 used during rapid firing. This change from liquid to gas is called a

change of phase. When you fire your gun (with a chilled tank), you are releasing less CO2 than if the tank was warm.

Velocity Spikes: If you are shooting a regular (gas) CO2 tank and you point the gun downward, you will notice frost coming out of your barrel. With some guns (Automag, Autococker, etc.) you will quickly render your gun unusable if this happens. If liquid CO2 gets into your gun's valve, you will usually get velocity spikes. Let's take a look at why this happens. The liquid and gas CO2 in your tank is always the exact same pressure because your tank is a "closed system". The pressure in your gun's valve will also be the same pressure. The exception to this rule is if you are using a pressure regulator on your gun. When liquid gets into the gun valve, your velocity will spike because you are hitting the paintball with more CO2. In other words, the CO2 in the valve is of a much greater weight than if it were in a gaseous state.

2. CO2 works fine for paintball guns, but if you're looking for high performance, you may want to look at purchasing a high pressure system.

About high pressure (nitrogen and compressed air)

When someone refers to high pressure in regards to paintball, they generally are speaking about nitrogen or compressed air. For Paintball purposes both are

the same. A high pressure system can be filled with either nitrogen from a bulk tank, or compressed air from a compressor or a scuba tank that was filled from a compressor. The reason these systems are called high pressure systems is that they are filled (by pressure, not by weight as with CO2) to 3000 - 4500 600-800 psi outgoing pressure. This means that a constant pressure flow to your gun can be safely achieved.

The advantages of high pressure: Nitrogen and compressed air have virtually the same characteristics. Compressed air is the air that you breath every day that is compressed into a higher pressure than its normal state. Compressed air is around 78% nitrogen and 21% oxygen. Under normal conditions, nitrogen and compressed air are unaffected by temperature changes and fluctuations. Unlike CO2 which boils at about 89 degrees Fahrenheit, nitrogen boils at the very high temperature of 196 degrees Celsius.

So for paintball, no matter how hot or cold it gets the gun will be supplied with consistent pressure from the regulated tank (assuming your equipment is working properly). This means that your velocity will stay much more consistent than you've come to expect appealing to Paintball players than CO2. Another advantage with high pressure is that you do not have you don't have to chill the tank to fill it. To get a complete fill however, you need to fill to 3000 psi, wait a few minutes for the tank pressure to stabilize,



and top off with 300 - 400 psi. There are many more smaller advantages to using high pressure--High pressure systems allow you to play all year, where as CO2

does not really work well in any gun in the extreme cold. What happens if you burst a hose or damage your system using high pressure is actually less dangerous than the more volatile CO2. Again we'll cover that one in the next chapter.

3. Use only oil designed for paintball guns in your Rebel.

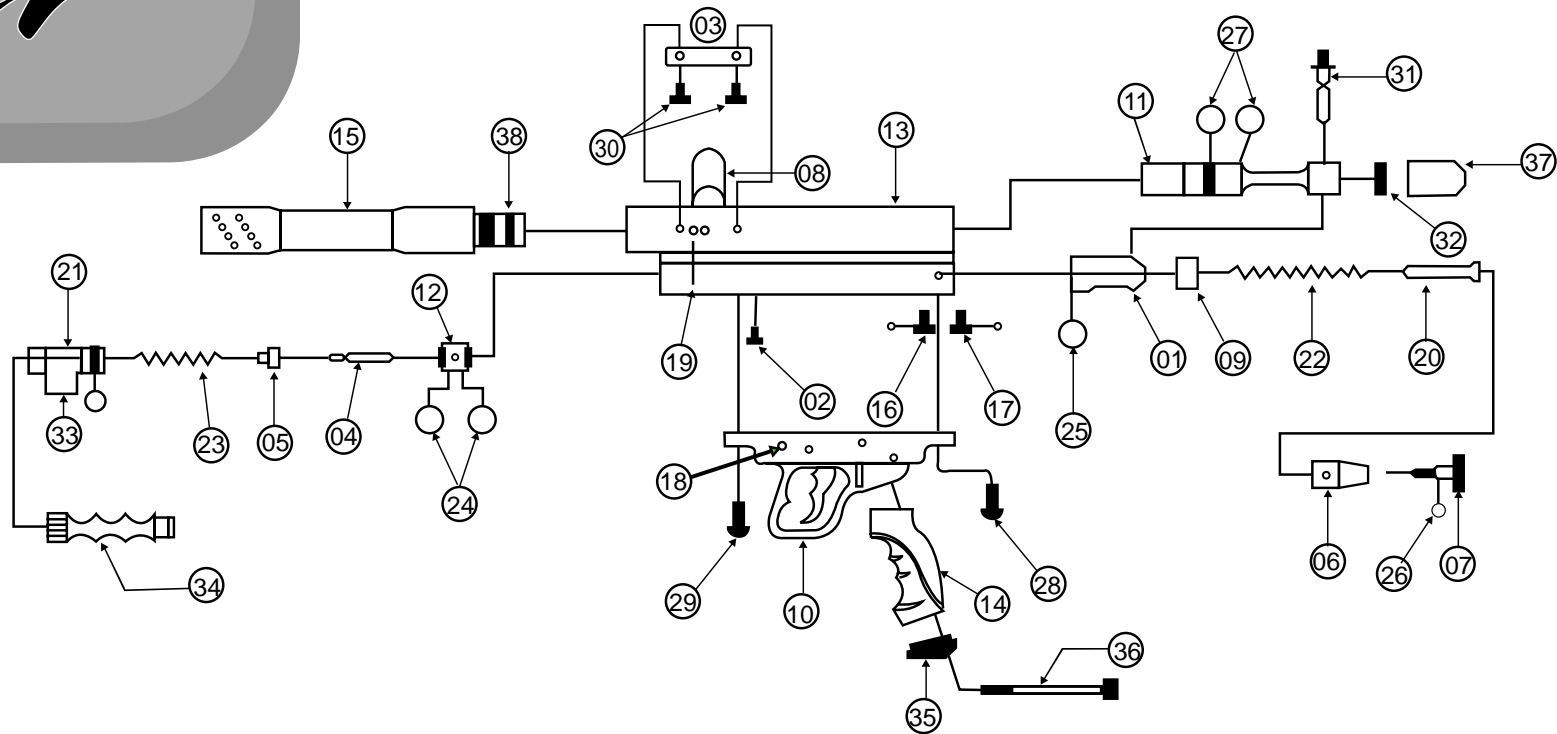
The primary function of oil in regards to your paint gun is to reduce friction in the moving internal components. This will minimize the wear of the parts while increasing the speed and smoothness of the operation. If you are going to use an oil that is not specifically designed for paint guns there are some important issues to look at. First, the temperature of liquid CO2 is somewhere in the -50 to -60 degree Celsius range. You'll need an oil that does not thicken in that temperature range. Motor oil for instance, is designed to work in hot temperatures and will thicken in the cold. This will cause the internal parts of your gun to slow down or even cease. The "thickness" of an oil is called viscosity. Some oils tend to have viscosity break-down in extreme hot or cold temperatures--some do not. There is actually a viscosity index which will tell you how "durable" an oil is in hot or cold temperature. Paint gun oil should have a viscosity index of 300+ and should be able to handle temperatures of -60 to +60 degrees C.

## Check Out These Great Paintball Resources

- Paintball 2Xtremes Magazine
- [www.Paintball Safety.com](http://www.Paintball Safety.com)
- NPPL Website
- [www.Paintballbusiness.com](http://www.Paintballbusiness.com)



**Rebel**<sup>TM</sup>



# REBEL PARTS LAYOUT

- 1. HAMMER
- 2. M\*10 SCREW
- 3. RECOIL SPRING COVER
- 4. GAS OUTLET GUIDE
- 5. GAS STOP VALVE
- 6. HAMMER PLUG
- 7. SPEED ADJUSTER
- 8. FEED PORT
- 9. RECOIL PAD
- 10. DOUBLE TRIGGER

- 11. UPPER BOLT
- 12. GAS VALVE
- 13. MAIN BODY
- 14. GRIP
- 15. BARREL
- 16. M5\*8 SCREW
- 17. M5\*8 SCREW
- 18. SAFETY LOCK
- 19. CARTRIDGE STOPPER
- 20. SPRING STRUT

- 21. GAS CONNECTOR
- 22. PRESSURE SPRING
- 23. GAS STOP SPRING
- 24. VALVE BODY O-RING
- 25. STRIKER O-RING
- 26. VELOCITY SCREW O-RING
- 27. UPPER BOLT O-RINGS
- 28. M5\*15 SCREW
- 29. M5\*15 SCREW
- 30. M3\*6 SCREW

- 31. CONNECTING PIN
- 32. RUBBER BUFFER
- 33. METAL FILTER
- 34. LOW PRESSURE CHAMBER
- 35. GRIP PLATE
- 36. GRIP SCREW
- 37. UPPER BODY PLUG
- 38. BARREL O-RINGS