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RULE FOR SAFE MARKER HANDLING

- Treat every marker as if it were loaded.
- Never look down the barrel of a paintball marker.
- Never put your finger or any body part in the breach of the mini while under connected to air source.
- Keep your finger off the trigger until ready to shoot.
- Never point the marker at anything you don't wish to shoot.
- Keep the marker on safe until ready to shoot.
- Keep the barrel blocking device in/on the marker's muzzle when not shooting.
- Store the marker unloaded and degassed in a secure place.
- Follow warnings listed on propellant source for handling and storage.
- Do not shoot at fragile objects such as windows.
- Every person within range must wear eye, face, and ear protection designed specifically to stop paintballs and meeting ASTM standard F1776.
- Always measure your marker's velocity before playing paintball and never shoot at velocities in excess of 300 feet (91.44 meters) per second.

INSTRUCTION MANUAL

Version 1.0

***INVERT PAINTBALL
MINI***

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WARNING:

This is not a toy. Misuse may cause serious injury or death. The user and any person within range must wear eye protection designed specifically for paintball use. Recommend 18 years of age or older to purchase. Persons under 18 years of age must have adult supervision. Obey all local, state and federal laws. Follow the rules of safe paintball marker handling.

**READ
OWNER'S MANUAL BEFORE USING.**



1. THE INVERT MINI

Welcome to the world of the Invert MINI. The MINI is a modern culmination in the pursuit of speed, technology, weight reduction, and overall performance. It started with radical imaginative concepts, which in turn inspired years of research and development, plus countless hours of testing and engineering. As a result the MINI features innovative electronic and pneumatic technology that challenge the paradigm that formerly defined "how a high performance paintball marker should function". The patented valve design, Slip Stream(TM) Solenoid, and Hall effect Sensor Trigger, set new standards for marker technology. The MINI is precision engineered from aircraft grade aluminum to meet the demands of the most competitive players, teams, and climates. The ultimate intent of the MINI is to exceed your expectations.

Invert Paintball expects you to play hard and play frequently and thus the MINI was built with this in mind. All internal parts, wear, and contact surfaces have been heat treated or hard anodized. The toughest and most resilient materials and components have been used in the construction of this marker.

- The MINI uses a single standard 9-volt battery for operation. The circuitry is a microprocessor based digital controller.
- ***The MINI operates on low-pressure. The main operating pressure is 180-200 PSI.*** The pressure can be nominally adjusted and monitored visually via the gauge on the bottom-line regulator. There is no secondary regulator to worry about.
- The MINI comes standard with an accurate lightweight 12" aluminum barrel that may be removed and replaced to specifically suit players' aesthetic and performance desires.



2. OPERATION

*****Read the entire manual before you prepare your MINI for play.*****

A. OPERATION

Safety and safe marker handling are the most important aspects of paintball sports. Please practice each of the following steps with an unloaded marker before attempting to charge your marker with compressed air and paintballs.

Do not load compressed air and paintballs into your MINI until you feel completely confident with your ability to handle your MINI safely.

Keep your finger out of the trigger guard and away from the trigger; point the muzzle of the marker in a safe direction at all times. Keep the marker turned off until ready to operate. The MINI uses an on-off switch for one of its safety devices.

Always keep your MINI pointed in a safe direction. Always use a barrel plug or barrel-blocking device. Always use ASTM approved paintball specific eye protection in any areas where paintball markers may be discharged. Remember that the ultimate safety device is you, the operator.

B. SWITCHING ON YOUR MINI

To switch the MINI on, locate the Power Button on the back side of the front fore-grip, in front of the trigger guard and directly under the LED. Push and hold the button for 1 second and the LED light will turn GREEN and then to RED. Release button and the LED will intermittently flash green indicating that the marker is now ON and LIVE.

C. SWITCHING OFF YOUR MINI

Push and hold the Power Button on the front fore-grip for 1 second and the LED will turn solid RED and then to GREEN. Release button and the MINI will switch off.

The Invert MINI also has an “Automatic OFF” feature. If you accidentally leave your MINI powered up, it will shut itself off after approximately 1 hour of inactivity.



3. REPLACING THE 9-VOLT

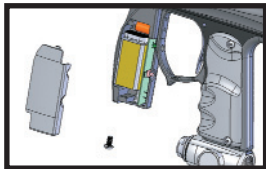
The MINI requires a single 9-volt battery as the electronic power source. The use of long life batteries is recommended.

The 9-volt battery is located in the front fore-grip in front of the trigger guard. The battery is accessed through the removable left side plate on the front fore-grip.

Confirm that the marker is OFF. Remove the screw at the bottom that secures the left side plate in the front fore-grip. If there is already a battery in the fore-grip, gently disconnect the battery from the battery harness, and then connect a fresh 9-Volt battery to the harness. Carefully re-insert battery and harness back into the battery compartment with the harness pointed down towards the bottom of the grip. Make sure that there are no abrupt kinks and the wires are comfortably placed, do not force them into place. Replace the grip panel and screw.

The MINI also has a Battery Life indicator. If in standard operation and the LED flashes with a GREEN color then the battery is GOOD, if the LED is ORANGE the battery is fairly depleted and you should change battery soon, or if the LED is RED then there is less than 20% of the full battery strength remaining and battery should be replaced immediately.

NOTE: *Some rechargeable batteries are too large for the MINI battery compartment. If they don't fit, please don't force them as this may damage the gun.*



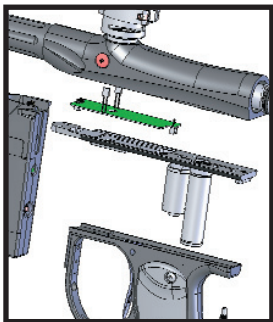
4. THE MINI EYES OPERATION

The MINI uses a unique break beam eye system to determine the absence or presence of a ball for the purposes of reduced paint breakage and optimum rates of fire. The MINI board is pre-programmed to activate the eye system each time the marker is powered up.

To turn the eyes off, ensure that there are no paintballs in the MINI breach or feed-neck, make sure the marker is switched off, and then while pulling and holding the trigger, turn the marker on. A quick double blinking green LED will indicate that the eye system has been deactivated.

To turn the eyes back on, simply turn the marker completely off and power it up again without holding the trigger.

A slow consistent single flashing green LED indicates that the eyes are ON with no ball in the breach and a rapid flashing green LED indicates that there is a ball in the breach.



For optimal performance of the MINI eyes, keep the inside of the MINI breach clean and clear of broken paint, paint residue, or other debris.

Although the eyes can be cleaned via cleaning the breach of the MINI marker, if the eyes need to be accessed please follow the steps outlined in the Main Body Assembly section of this manual.



V. COMPRESSED AIR / NITROGEN SUPPLY

The MINI is designed to work with Compressed Air/Nitrogen.

IT DOES NOT WORK WITH CO2.

Consult the place where you purchased your MINI, or a recognized and competent armsmith, for instruction in the safe handling of compressed-air cylinders before purchasing or connecting one to your MINI.

The MINI utilizes a fully functional regulator at the bottom of the grip frame that doubles as an ASA adaptor or receiver for a standard threaded pre-set output compressed air system. It is strongly recommended that a very high flow consistent air system is utilized as an air source for your MINI. There are several manufacturers of high quality fixed output compressed air systems.

It is recommended that you use a "low pressure" (350-450 psi) fixed output regulator system, although it is acceptable to use a "high pressure" fixed output (750-850 psi) system.

If you are using an adjustable output regulator system the output pressure should be between 350-450 psi.

Before pressurizing your MINI, check to make sure that you and anyone within range are wearing eye protection designed specifically for paintball. Double check that the body is screwed into the frame and the screws are tightened. Ensure you have a barrel plug sock or barrel-blocking device in place and there are no paintballs in the marker. The on-off switch should be OFF. Air can now be applied, the marker will become pressurized.

REMEMBER: compressed air or nitrogen systems can be extremely dangerous if misused or improperly handled. Use only cylinders meeting D.O.T. or regionally defined specifications. Do not perform any work to your tank or tank regulator. NEVER disassemble your tank or tank regulator. Only a qualified and trained technician should perform work on your tank and tank regulator.



VI. PAINTBALL AND LOADER USAGE

The MINI comes equipped to accept 1.03" (outer dimension) standard-gravity feed loaders as well as most agitating and force-feed loaders. Fit the loader directly into the vertical feed tube. Always twist it down in a CLOCKWISE direction.

The MINI uses .68 caliber, water-soluble paintballs, readily available at paintball pro-shops, commercial playing fields, and many sporting goods stores. The paintballs are fed from the loader through the direct vertical feed port and into the breech of the marker.

VII. FIRING THE MINI

Keep your finger out of the trigger guard and away from the trigger; point the muzzle of your marker in a safe direction at all times during this process. Be sure your goggles are securely in place and make sure the MINI marker is off. Push on/off button and hold for over 1 sec until the Led light changes from Green to Red

Warning Always keep your MINI pointed in a safe direction! Everyone within firing range should always use paintball approved eye and face protection in the presence of live paintball markers.

- Place the empty loader onto the marker.
- Be sure that it is securely mounted in place.
- Apply the compressed gas, pressurizing the marker.
- Put the paintballs into the loader.
- Remove the barrel plug, sock or barrel-blocking device.
- Aim the MINI in a safe direction.
- Turn the MINI on: Push the on/off button for 1 sec until the LED light changes from solid Green to solid Red, then release button and LED should do a slow Green flash.
- Aim the MINI at the target.
- Place your finger on the trigger.
- Pull the trigger with a smooth squeezing motion.



VII. MINI REGULATOR AND VELOCITY ADJUSTMENT

*****THE MINI BOTTOM-LINE REGULATOR IS NOT AN ADJUSTABLE POSITION ASA.** To adjust your shooting position check out the options available from Invert Paintball.***

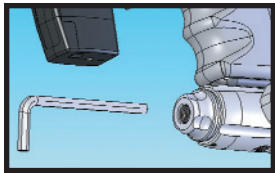
The MINI utilizes a fully functional MINI Bottom-line Regulator at the bottom of the grip frame that doubles as an ASA adaptor/receiver for a standard threaded pre-set output compressed air system. This unique regulator system channels air through a chamber in the grip frame eliminating the need for external macro line and fittings. The MINI Bottom-line Regulator controls the amount of air pressure going from your compressed air system into the marker itself.

DO NOT USE CO2!!! THE USE OF A LOW PRESSURE OUTPUT COMPRESSED AIR SYSTEM IS STRONGLY SUGGESTED!

Velocity adjustments should be made via the velocity adjustment allen screw.

NOT THE BOTTOMLINE REGULATOR CAP.

THE MINI BOTTOM-LINE REGULATOR IS PRE-SET AND LOCKED FROM THE FACTORY AND SHOULD NOT BE DISASSEMBLED. The MINI regulator should be pre-set at 200 PSI as this is the best operating pressure for firing the marker. However, if over time you do need to adjust the pressure only use the Regulator Adjuster Screw on the front of your MINI Bottom-line Regulator. Tightening the Adjustment screw increases the pressure, which can be monitored via the Bottom-line Regulator Gauge. The MINI will operate with less than 200 psi going into it, but YOU SHOULD NEVER RUN IT AT MORE THAN 200 PSI! Once you set the MINI Bottom-line regulator at 200 PSI, then you can make your velocity adjustments at the bolt guide cap at the rear of the main body.



The following directions are not for adjusting the Bottom-line regulator. They are only to be followed in the event the bottom-line regulator has come apart or the cap has been removed. First loosen the small set screw on the bottom of the regulator that locks the Regulator Cap in place. At the front side of the bottom-line regulator there is a Regulator Cap and a Regulator Adjuster screw inside of that cap. In the case that the Regulator Cap becomes loose, do not use tools, use your hand strength only. Back out the brass adjuster completely with the correct allen wrench then screw the cap in by hand until you feel resistance (with gun gassed up) then back it out a 1/8 turn.

DO NOT OVERTIGHTEN THE REGULATOR CAP! OVER PRESSURIZING CAN DO SERIOUS DAMAGE TO YOUR MINI!

Once this adjustment has been made, retighten the locking set screw then screw in the brass adjuster to set the pressure.

Do not attempt to adjust the physical position of the MINI Bottom-line Regulator! Invert Paintball manufactures alternate designs of the MINI Bottom-line Regulator to achieve alternate shooting positions.

Please see your local paintball Pro-Shop for or call Invert Paintball or Paintball Solutions for more information.



ADJUSTING THE VELOCITY

At the back of the MINI main body is the Bolt Guide Cap. The allen screw in the bolt guide cap serves as your velocity adjuster. Confirm that the pressure on your MINI Bottom-line Regulator is at 200 PSI. Then you can increase or decrease the velocity on your MINI by tightening or loosening the velocity adjustment screw, with a 1/4 inch Allen wrench.

• **TO INCREASE YOUR VELOCITY –**

Unscrew or loosen the velocity adjustment screw by turning it counter clockwise. Rotate the velocity adjustment screw counter-clockwise in small increments (1/4 turn or less), stopping between slight turns to test velocity, until desired velocity is achieved. Do not back the adjuster out passed being flush. Stop if you hear an air leak, and adjust back in a 1/4 turn. A paintball specific radar chronograph should be used to accurately measure your velocity.

• **TO DECREASE YOUR VELOCITY –**

Tighten or screw-in the velocity adjustment screw by turning it clockwise. Rotate the velocity adjustment screw clockwise in small increments (1/4 turn or less), stopping between slight turns to test velocity, until desired velocity is achieved. A paintball specific radar chronograph should be used to accurately measure your velocity.

This marker was designed with safety and safety standards in mind. If you attempt to shoot paintballs at a higher velocity than established safety standards, the marker may not function properly.

NOTE 1! *If you attempt to operate the marker at extremely high velocities, the internals will not function properly!*

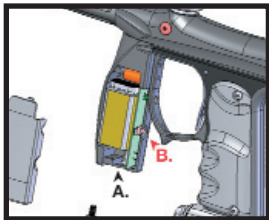
NOTE 2! *This gun is not designed to shoot above the safety limits established by industry standards but under certain conditions it may. It is therefore important*



VIX. BOARD DESCRIPTION

to check the velocity each time before playing with your MINI.

NOTE 3! Higher pressures DO NOT equate to better performance and higher velocities. High pressures in this marker will cause problems, showing up in erratic velocity, extreme gas consumption, leaks, and general poor performance.



The Invert MINI is driven by a Optimus I™ Board. The Optimus I™ Board features several modes and functions that are listed below. The Optimus I™ Board is located inside the front fore-grip.

VIX. FUNCTIONS ,MODES

Before adjusting firing modes, rate of fire or dwell, always remove propellant source from the MINI and install barrel blocking device.

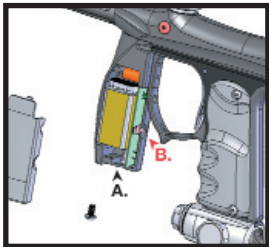
The Optimus I™ Board inside your MINI features 5 functions. It uses a 3 color LED indicator on the backside of the front fore-grip to indicate functions and modes during live play and during programming.

To access and set the Optimus I™ Board, place MINI on a flat surface with muzzle pointing to the left. Using a 5/64" hex wrench, remove the screw that secures the left side plate in the front fore-grip. This will expose the battery and the Optimus I™ Board. Please locate the (A) Function Key, which is a small black button on the rear of the board, to the left and slightly above the Power Button (B), marked DIP (see illustration). It is not necessary to remove the board from the housing in order to manage settings.



VIX. FUNCTIONS ,MODES

The MINI must be OFF to begin managing functions. While the MINI is OFF press the Function Key to access one of the 5 different functions and make adjustments. For example, press the Function Key 1 time and you will be in "Function 1" which is "Firing Modes" or press the Function Key 3 times and you will be in "Function 3" which is "Dwell".



1. **Firing Modes (Solid Red LED)**
2. **Rate of Fire (Solid Green LED)**
3. **Dwell (Solid Orange LED)**
4. **BIP Delay (Flashing Red LED)**
5. **Ramping Point (Quick-Flashing Green LED)**

Once you push the Function Key the appropriate amount of times to get into the desired function, the LED will flash a specific color per the descriptions below followed by flashing which will indicate the current setting in that function. To change settings in each function, you use both the Power Button and Function Key, to shift up or down much like shifting through motorcycle gears. To increase the number in that setting, hit the Function Key. To decrease the number in that setting hit the Power Button. **Function Key for up – Power Button for down.**



1. Firing Modes –

WILL BE INDICATED BY SOLID RED LED

To get into the Firing Mode Function, make sure the POWER IS OFF, then push the Function Key one time and LED will turn to Red and then flash to indicate the Firing Mode that it is currently in. For example the Default mode is Semi-Auto which will be demonstrated by one flash. There are 4 Firing Modes:

a. Semi-Auto/NPPL (1 Flash)

– one shot per trigger pull. Max ROF 20 BPS

b. Ramping/PSP (2 Flashes)

– First 3 shots will be standard semi-auto, on 4th shot, MINI will ramp to a pre-set 15 BPS ROF.

c. Full-Auto/NXL (3 Flashes)

– First 3 shots will be standard Semi-auto, on 4th shot MINI will go into full auto mode with a pre-set 15 BPS ROF.

d. Ramping/Millen. (4 Flashes)

– the MINI will operate in a semi-auto mode until player achieves an 8 BPS trigger pull. At that point, and as long as 8 trigger pulls per second are maintained, the MINI will ramp to a pre-set 15 BPS ROF.

To cycle through these modes you use both the Power Button and Function Key. Once you push the Function Key one time to get into the Firing Modes the LED will flash red. While the LED is lit Red push the Function Key to cycle up (from 1 for Semi to 4 for Full Auto) and to go the opposite direction (from 4 at Full Auto through to 1 for Semi) use the Power Button to cycle down.

For example, if you are in the Default Semi-Auto mode and want to go to 3 Shot Burst, Push the Function Key twice while the LED is lit Red. Upon release you should see the LED flash red 3 times. To move from 3 Shot Burst to 2 Shot Burst, push the Function One time to get into firing modes, then while LED is lit Red, push Power Button one time and release. LED should flash Red two times to indicate that you are now in Firing Mode 2 – 2 shot burst.



2. Max Rate-of-Fire –

WILL BE INDICATED BY SOLID GREEN LED

To get into the ROF Function, make sure POWER IS OFF, then push Function Key two times and LED will turn to Green and then flash to indicate the Rate Of Fire (1-20) that you are currently using. Default is 15 Balls Per Second. To adjust ROF push the Function Key two times and when the LED is lit Green use either the Function Key (to toggle up or increase your ROF) or the Power Button (to decrease the ROF). For example – To start you will be in a Default setting of 15 BPS. Push the Function Key twice to get into ROF Mode. While the LED is lit Green, press the Function Key 5 times to take you to 20 BPS. Upon releasing the Function Key, the LED should then blink 20 times indicating your new Rate Of Fire.

The easy way to know your rate of fire:
number of flashes divided by two then
add ten. eg 15 flashes / 2 = 7.5
7.5 + 10 = 17.5 BPS

ROF Select	ROF
(Flash 1 time)	10.5 BPS
(Flash 2 time)	11 BPS
(Flash 3 time)	11.5 BPS
(Flash 4 time)	12 BPS
(Flash 5 time)	12.5 BPS
(Flash 6 time)	13 BPS
(Flash 7 time)	13.5 BPS
(Flash 8 time)	14 BPS
(Flash 9 time)	14.5 BPS
(Flash 10 time)	15 BPS
(Flash 11 time)	15.5 BPS
(Flash 12time)	16 BPS
(Flash 13time)	16.5 BPS
(Flash 14 time)	17 BPS
(Flash 15 time)	17.5 BPS
(Flash 16 time)	18 BPS
(Flash 17 time)	18.5 BPS
(Flash 18 ime)	19 BPS
(Flash 19 time)	19.5 BPS
(Flash 20 time)	20 BPS



3. Dwell Setting –

WILL BE INDICATED BY SOLID ORANGE LED

To get into the Dwell Function, make sure the POWER IS OFF, then push the Function Key three times and the LED will turn to Orange and then flash to indicate the Dwell Setting that you are currently at. The MINI Dwell Setting is Defaulted at setting 38 (which is 38 x .25 milliseconds). Dwell is adjustable from 1 to 45. This Function is also controlled through the same techniques used for Firing Modes and ROF Functions, while the LED is lit ORANGE, to increase or decrease your Dwell by increments of .25 milliseconds.

4. BIP (Ball In Place) Delay –

WILL BE INDICATED BY A QUICK FLASHING RED LED

To get into the BIP Function, make sure the POWER IS OFF, then push the Function Key 4 times. The LED will quickly flash red to indicate that you are in the BIP Function. Then the LED will pulse / slowly flash to indicate the BIP Setting that you are currently using.

Default is (1) One Pulse (1 millisecond). BIP is adjustable from 1 to 40 milliseconds. This Function is also controlled through the same techniques used for Firing Modes and ROF Functions (while the LED is Red) to increase or decrease your BIP in 1 milliseconds increments.

5. Ramping Point –

WILL BE INDICATED BY QUICK FLASHING GREEN LED

To get into the Ramping Point function make sure the power is OFF, then push the Function button 5 times and the LED will turn to a quickly flashing green and then pulse / slowly flash too indicate the ramping point setting you are currently using. The default ramping point for PSP firing mode is 3 (4PBS). The default ramping point when firing mode is changed to millennium firing mode is 7 (7.5 BPS). Ramping Point is adjustable from (4 to 9.5 PBS). Please see chart for corresponding flashes and BPS settings.

(See Chart on next page)



	Select			
maintains trigger pull	(Flash 3 time)	4	BPS	maintains trigger pull (BPS)
	(Flash 4 time)	4.5	BPS	
	(Flash 5 time)	5.5	BPS	
	(Flash 6 time)	6.5	BPS	
	(Flash 7 time)	7.5	BPS	
	(Flash 8 time)	8.5	BPS	
	(Flash 9 time)	9.5	BPS	

XI. FACTORY BOARD RESET

There are 2 ways to reset the Optimus I™ board to default factory settings.

1 – Turn the power OFF then push the Function Key and Power Button at the same time. Or

2 – Remove the battery then simultaneously push and hold the Function Key and Power Button for a full 10 seconds.



XII. UNLOADING THE MINI

Keep your finger out of the trigger guard and away from the trigger; point the muzzle of your marker in a safe direction during this entire process.

Always keep your MINI pointed in a safe direction!

- Make sure the MINI marker is off: Push the on/off button and hold for over 1 sec until the Led light changes from Red to Green
- Place the barrel plug, sock or barrel blocking device into the end of the barrel.
- Remove the pressurized gas from the marker slowly and carefully.
- Tilt the marker so that the loader is lower than the body of the marker.
- Remove the paintball loader from the direct vertical-feed tube, turning the loader in a clockwise direction.
- Inspect the inside of the direct vertical-feed tube to be sure that a ball does not remain inside the breach.
- Remove the barrel and make sure there is no ball in the barrel and double-check the breach area for the presence of a paintball.
- Remove and discard any paintballs that are found in the barrel or breach.

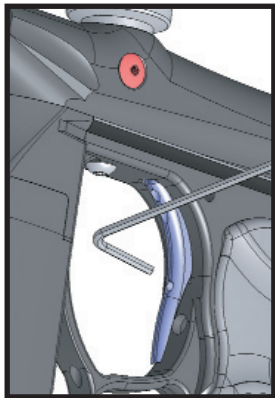


XXI. ADJUSTING THE TRIGGER PULL

The MINI features a Hall Effect Sensor Trigger. There is no trigger switch to worry about, clog with paint, or break.

You will notice three (3) screws in your trigger. The screw on the face of the trigger adjusts your rear movement range and stop point. The rear top screw adjusts forward movement and stop point. The front top screw adjusts your trigger activation point.

Use blue loctite while adjusting the screws. Normal activity can cause the screws to back out of adjustment. **DO NOT** glob the loctite on. Make your adjustments Very Carefully. Clean up any excess loctite and let it dry for at least an hour before using your MINI. This ensures the screws will remain in place.





XIV. MAINTENANCE

CAUTION: Before attempting to perform any maintenance operations or any marker disassembly, make sure that all paintballs and propellant sources have been removed from the marker. Install a barrel blocking device, push on/off button and hold for over 1 sec until the Led light changes from Red to Green, and keep the marker powered OFF.

Simple Maintenance

Keep your MINI clean and lubricated to eliminate the friction that would prevent reliable operation. Clean and lube the marker before each use, and do not put it away dirty. USE NO OILS! Do not use oils made for paintball markers, real firearms or pneumatic tools, do not use oils at all. Do NOT use petroleum-based lubricants in the lubrication of this marker. Teflon or silicon (NON-spray only) lubricants may be used for lubrication for the bolt area only of the main housing. paintball recommended grease such as Dow 33 is recommended

for lubricating the regulator pistons and cylinder assembly. Be sure it is paintball recommended Grease and not axel grease.

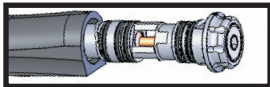
Ball Detents

The MINI ball detents are located on either side of the main breech, directly beneath the feedneck and secured under the MINI ball detent covers.

Bolt Guide Lubrication

When you feel a performace drop off the only real maintenance needed is the bolt and bolt guide lubrication.

Remove the rear grip frame screw to release the bolt and bolt guide assembly. Clean all dirt and old grease from the spring, bolt and bolt guide. On the bolt guide there are six o-ring that need to be lightly lubricated with Dow 33. Also lubricate the two rear o-rings on the bolt and lightly lubricate the o-ring at the bolt tip.





XIV. MAINTENANCE

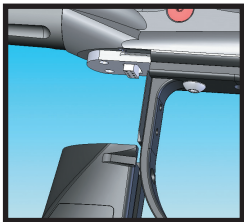
The MINI ball detents are designed for extended use and should not need replacing for long periods. If they do need replacing, simply unscrew the ball detent covers on both side of the marker's main body, remove the old ball detents, replace with new ball detents, and replace the ball detent covers making sure to NOT over-tighten screws.

Cleaning Paint from the Barrel

Unscrew the barrel to remove the barrel for swabbing/cleaning. Keep the barrel clean to insure the continued accuracy of the MINI. Gelatin from the paintballs has a tendency to build up in the barrel. As part of your cleaning ritual, wash out the barrel with hot soapy water and rinse it well.



XV. FRONT FOREGRIP Assembly and Disassembly



CAUTION: Before attempting to perform any maintenance operations or any marker disassembly, make sure that all paintballs and propellant sources have been removed from the marker. Install a barrel blocking device, push on/off button and hold for over 1 sec until the Led light changes from Red to Green, and keep the MINI power OFF.

The front fore-grip of the MINI is the housing for the Optimus I™ Board and the battery. You only need to loosen two screws to remove the front fore-grip

from the main body, however this is not necessary or recommended. There is an easy access removable side plate which gives you access to the Optimus I™ Board, Function Key, Battery. To access it simply remove the screw at the bottom of the fore grip and remove the plate. There is very little need to ever remove the Front Fore-Grip from the Frame.

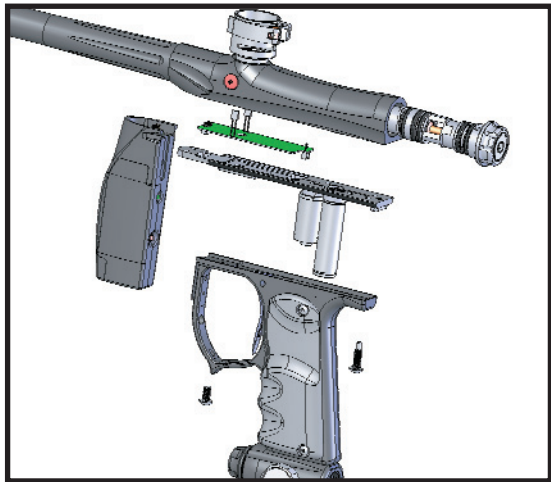
PLEASE USE CAUTION!

If you remove and re-install the Front Fore-Grip. The male portion of the board connector is located on the Optimus I™ board and is guided into the female connection point located on the Sensor board (which is housed in the main body). This can be very fragile, so please be gentle. Likewise there is a small groove in the bottom of the battery/board compartment to make sure the alignment of the board is accurate in re-assembly. Ensure that the Front Fore-Grip is secured on the trigger guard guide, when reinstalling onto the Frame.

DO NOT over tighten retention screw!
CAUTION: Before attempting to perform



21. XVI. GRIP FRAME AND BOTTOM REGULATOR ASSEMBLY





any maintenance operations or any marker disassembly, make sure that all paintballs and propellant sources have been removed from the marker. Install a barrel blocking device, push the on/off button and hold for over 1 sec until the LED light changes from Red to Green, and keep the MINI power OFF Insert Image of Grip Frame and Regulator

The Grip Frame houses the trigger, and the air channel (which feeds air from the MINI Bottom-line Regulator into the main body). Attached to the bottom of the grip frame is the MINI Bottom-line Regulator. The MINI Bottom-line Regulator is a functioning regulator and cannot be adjusted forward or backwards without MINI approved aftermarket parts.

To access the bottom-line regulator first remove the grip panels using a hex wrench. Next loosen the outside set screws located on the outside lower end of the grip frame. The outside set screws only need to come out enough to loosen the bottom regulator so it can be pulled down from the MINI.

When reattaching the bottom-line regulator, put the piece back into the grip frame and first tighten the outside set screws so that they are flush to the grip frame. If the bottom-line regulator is not tight enough turn the MINI over to access the inside set screws in the grip frame. Tighten inside set screws just until tight. Do not over tighten any set screws in the MINI.



XVII. MAIN BODY Assembly and Disassembly

CAUTION: Before attempting to perform any maintenance operations or any marker disassembly, make sure that all paintballs and propellant sources have been removed from the marker. Install a barrel blocking device, push the on/off button and hold for over 1 sec until the Led light changes from Red to Green, and keep the MINI power OFF

The main body consists of the Air Transfer Plate, the Check Valve, the Sensor board (which the eyes are attached to), the Main Spring, and the Bolt Assembly. The Bolt Assembly can be accessed by loosening the rear main body screw (Primary Retention Screw) so that the internals pop out the back of the MINI.

To access the eyes, the main body must be separated from the grip frame. This must be done in the following order:

- 1.** Using a hex wrench, remove the two set screws accessible through the front of the trigger guard allowing the front foregrip assembly to slide down the attachment rail and away from the main body.
- 2.** After the front foregrip assembly is removed, remove the two main body screws.
- 3.** Slide the Grip Frame Assembly away from the main body. Do NOT twist while separating.

The Sensor Board is located under the Air Transfer Plate in the bottom of the main body, which is fastened with 7 small Hex head screws.

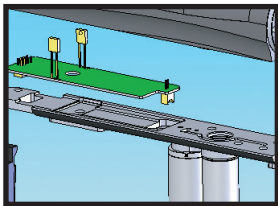
MAIN BODY Assembly and Disassembly

PLEASE USE CAUTION WHEN REMOVING THE SENSOR BOARD – IF THE CHECK VALVE IS ACCIDENTALLY REMOVED IT WILL AFFECT THE PERFORMANCE OF THE MARKER!

The Check Valve is a very small plastic piece located between the body and the Sensor Board. It is designed to control the bolt speed of the marker, but due to its size may be easy to misplace. If it is misplaced the MINI will fire, but the bolt speed will increase drastically and likely cause problems. To re-insert the Check Valve, insert it with the “crown side” in first, back into it’s spot on the main body.

To re-attach the Grip Frame and Front Foregrip to the main body:

1. Line up the solenoid and gas transfer tube attached to the body with the space and the tube in the grip frame.
2. Slide Grip Frame into place
3. Insert two main body screws and tighten (do NOT over tighten).
4. Slide Front Foregrip Assembly up the rail located on the front of the trigger guard and carefully press upwards while making sure the circuit board connectors line up and are properly seated.
5. Using a hex wrench, install the two set screws accessible through the front of the trigger guard holding the front foregrip assembly to the attachment rail (do NOT over tighten).





MAIN BODY Assembly and Disassembly

The technology in the MINI Sensor board and Eyes eliminate the need for wires. The Eyes are an integrated fixed part of the circuit board. To remove the eyes you will need to remove the Sensor board, however it is recommended that the eyes should be cleaned via the breach with a clean cloth, cotton swab, or swab style squeegee.

The main body and the grip frame are held together with a front and a back body screw (Primary Retention Screw) both 1/8 Hex Key. Use caution when unscrewing the Primary Retention screw as the bolt and spring will pop out the back of the Mini. Remove the Primary Retention Screw at the back of the gun directly behind the grip frame and on the underside of the main body. By loosening and removing this screw, the pressure of the Main Spring will push the Main Body Internals out of the back of the marker, so please keep a firm grip on the Rear Body Cap!

NOTE – The main spring must be fitted to the bolt and does so in ONLY ONE DIRECTION. The Main Spring is actually slightly tapered or conical, so when the spring is slid onto the bolt correctly, there will be a snug fit and most importantly when pressed firmly, it will actually “click” into place against the rear of the bolt. Adversely if you attempt to slide the spring onto the bolt the wrong way, the fit will be loose and will not “click” into place.

To re-assemble the Main Body, insert the Main Spring and Bolt Assembly into the body with the Spring towards the front of the marker, gently compress the Main Spring by pushing in the components towards the front of the marker, line up the Rear Body Cap, then re-insert the Primary Retention Screw.



MAIN BODY Assembly and Disassembly

TO LINE UP THE REAR OF THE BOLT GUIDE ON THE BODY—There is a small hole on the back of the Bolt Guide that should be lined up to match the small hole on the back of the body which is at the top dead center of the body.

Tighten both body screws without over tightening either screw.

XVIII. STORAGE AND TRANSPORTATION

- Your MINI must be clear of all paint and propellant when not being used.
- Make sure the MINI marker is off: Push on/off button and hold for over 1 sec until the Led light changes from Red to Green
- Put the barrel blocking device in its place. Make sure the marker is clean.
- Store your MINI in a clean, cool, dry place.

- Keep your MINI away from unauthorized and unsafe users.

This is not a toy. Misuse may cause serious injury or death. Eye Protection designed specifically for paintball must be worn by the user and persons within range. Recommend 18 years of age or older to purchase. Persons under 18 years of age must have adult supervision.

Your MINI must be clear of all paint and any source of propellant during transportation to and from the playing field. Keep your barrel blocking device in place. Keep the MINI Marker in the off state. Protect your MINI from excessive heat during transportation. Observe and obey all local, state and federal laws concerning the transportation of paintball markers. For information concerning any of the laws in your area, contact your nearby law enforcement agency.



MAIN BODY Assembly and Disassembly

IMPORTANT: Never carry your MINI uncased when not on a playing field. The non-playing public and law enforcement personnel may not be able to distinguish between a paintball marker and firearm. For your own safety and to protect the image of the sport, always carry your MINI in a suitable marker case or in the box in which it was shipped.

If you must ship your MINI for any reason, the box in which you purchased the marker should be used to protect your marker against rough handling during transport.

***Never ship charged CO2
or pressurized gas cylinders!***



XIX TROUBLE SHOOTING

Ball Breakage Problems

The balls break in the breach.

- The balls in you loader can bind, messing up your trigger timing. Always use an agitated or powerfeed loader and verify the eyes are on.
- If the ball detents do not move freely, the paintballs may crush against them or they may have stuck in the depressed position, allowing double feeding. Check tension regularly and keep this area as clean as possible.
- If the ball detents are too sloppy, the ball will not be held in the proper position. This may allow the next ball to enter the path of the bolt, subjecting it to impact cracking or shearing. Verify the tension.

Regulator Related Problems

The gauge reads correctly when charged, but climbs in pressure after a few moments.

- The regulator seal has been contaminated. Disassemble the regulator and clean the seal with a Q-

tip and alcohol or back out the adjuster screw completely and check that the pressure is zero. If not back out the reg cap until it reads zero then adjust te pressure to 200psi with the brass adjuster only. If you need assistance in the disassembly of the regulator, please go to www.paintball-solutions.com or call 1-800-220-3222.

Battery Related Problems

- LED Functions but the marker does not fire.
- LED flashes either Orange or Red during normal operation.
- Alternately missed shots.
- Velocity drops while firing several shots.
- Erratic velocities. Jumps of 20 fps or more.
- Unexplainable paint breakage.
- **Solution:** Change the Battery. All batteries are NOT created equal. Performance will vary. Therefore, if you experience any erratic behavior, always use a new battery.



XX. INVERT PAINTBALL LIMITED WARRANTY

Invert Paintball warrants the replacement of any original part due to defect in materials and/or workmanship of this marker. This warranty will be in effect for twelve (12) months for parts and twelve (12) months for labor following the original date of purchase for the original purchaser. Such warranty service will be provided only if the warranty registration card included with this manual is filled in completely and on file at Invert Paintball. All other service will be duly charged for and returned via UPS C.O.D.

Invert Paintball will replace, without charge, any original part that is determined by Invert Paintball to be defective under the terms of this warranty. However, shipping charges are not covered hereunder. Failure due to an accident, abuse, neglect, modification, normal wear, operator error, maintenance by other than an authorized Invert Paintball dealer, or use of parts inconsistent with the use originally intended for the marker as

sold, is not covered by this warranty.

There are no other warranties or guarantees, expressed or implied, made by Invert Paintball on this marker. The sole and exclusive liability of Invert Paintball and/or its authorized dealers, affiliates, or agents pursuant to this warranty will be for repair or replacement of the defective part; incidental or consequential damages are expressly excluded hereunder.

Removing the original regulator voids all warranties, unless Replaced with another MINI Bottom-line Regulator produced by Invert Paintball.

For warranty parts, service or information contact:

Paintball Solutions
www.paintballsolutions.com
570 Mantua Blvd
Sewell, NJ 08080
1-800-220-3222





www.invertpaintball.com