Bob Long Intimidator

2002 . Dragon . Ripper

Owners Manual

August 2002

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Congratulations on your purchase of the ***Intimidator*** paintball marker. The ***Intimidator*** represents the latest in paintball marker technology at a very affordable price. Before operating your ***Intimidator***, please read the entire manual carefully.

WARNING

This paintball marker is not a toy. Misuse or mishandling can result in serious injury or death. Every person within range of a loaded paintball gun must wear eye protection specifically designed for paintball. Recommended at least 18 years of age to purchase, 14 years old to use with adult supervision or 10 years old to use on paintball fields meeting ASTM standards F1777-97. Ensure you read entire instruction manual before operating your *Intimidator.*

SAFETY

Please follow all local, state, and federal laws concerning the operation and use of paintball markers. ***By purchasing this paintball marker you assume all liability.*** B.L.A.S.T. assumes no liability for injury or death due to misuse or mishandling of this marker.

- 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.
- Never look down the barrel of your marker with or without wearing paintball approved goggles.
- Before performing any maintenance on the marker, ensure air source is disconnected and marker has been dry fired.
- Leave the ON/OFF switch in the OFF position whenever marker is not operational.
- Always insert barrel plug in barrel when marker is not operational. Remove only in designated operational areas.
- Only play at commercial playing fields that have a chronograph, referees, and clearly marked safe areas. Chronograph your marker before each game to ensure marker is operating at a safe velocity. Safe velocity is considered to be 280 feet per second (fps).

WARNING

Make sure marker is not shooting at a dangerous velocity. Ensure all participants are wearing the proper paintball safety equipment. You will be held liable if someone is hurt by a paintball fired from your marker regardless of fault.

WARRANTY

B.L.A.S.T. warrantees the Intimidator against damages in manufacturing and defects. Electrical components are warranted for a period of 90 days. Wire harnesses located within the grip frame will only be warranted against manufacturing defects. When utilizing aftermarket Drop-Forwards ensure attachment bolts DO NOT protrude into internal grip assembly. When utilizing aftermarket Grips ensure attachment bolts DO NOT protrude into internal grip assembly. Failure to do this will result in void of warranty.

For questions concerning your Intimidator manual please call (925) 625-7929.

HISTORY (THEORY OF OPERATION)

The Intimidator marker is a solenoid controlled open-bolt design, very similar to the popular open-bolt blowback design found in the Spyder. The primary difference is that instead of a blowback re-cocking on a spring-loaded striker, the bolt is locked into a dual pressurized machined slider. The back of the chamber is pressurized to move the bolt forward, and the front is pressurized to move the bolt backward. This allows for very low cycling pressure, as well as much less cocking recoil. An electronic 4-way valve controls this slider.

GENERAL DESCRIPTION

The marker includes dual regulators. Both regulators are mounted on the front of the ***Intimidator*** body assembly, with standard 3/8-in. hex key velocity adjustments. The high-pressure regulator is mounted at the top front of the regulator base and maintains the firing rate of the ***Intimidator***. The low-pressure regulator, which is mounted directly below the regulator base, maintains the cycling rate. All functions are electronically controlled via a circuit board and 4-way air valve. Settings are changed via a 2-button, internally lit Liquid Crystal Display (LCD) screen. Rates of fire are variable from 8.1 to 14 balls per second (bps), firing modes are from semi auto, full auto, 3 shot burst, 6 shot burst, turbo, reactive, and test. Located within the marker body is a pair of infrared anti chop eyes. The anti chop eye consists of a set of sensors mounted in the bottom of the breach to restrict firing until the ball has completely loaded in the breach. The trigger is fully adjustable with adjustments for spring tension; pull restriction, and firing pull. The gun will perform on CO2 or HPA/Nitro (factory recommended). The ***Intimidator*** comes stock with a two-piece Bob Long barrel.

SPECIFICATIONS

Model	Intimidator
Caliber	.68
Action	Electro-Pneumatic
Power (air)	CO2 or Compressed Air/Nitrogen (recommended)
Power (electronics)	9-Volt Battery
Cycle Rate	up to 14 paintballs per second
Effective Range	150+ feet
Weight	2 pounds, 10 ounces
Length	(14” barrel) 22.5 inches (10” barrel) 19 inches
Height	10.5 inches

MARKER COMPONENTS

1. Body Assembly
- ❑ Feed Tube (attached w/black max)
- ❑ Body
- ❑ Decoration Block

2. Bolt Assembly
- ❑ Bolt
- ❑ 3 x 015 O-Rings

WARNING

Grease Poppet Assembly every 2000 to 3000 rounds fired. Doing this will reduce cup seal wear. DO NOT use lightweight oil as lubricant.

3. Poppet Assembly
- ❑ Cone Shaped Spring
- ❑ Poppet
- ❑ 1 x 004 O-Ring
- ❑ Cup Seal

WARNING

Grease Ram **Assembly every 2000 to 3000 rounds fired. Doing this will reduce** O-ring **wear. DO NOT use lightweight oil as lubricant.**

4. Ram Assembly
- ❑ 1 x 006 O-Ring
- ❑ 1 x 011 O-Ring
- ❑ Ram

5. Ram Sleeve
- ❑ 2 x 015 O-Ring
- ❑ 1 x 011 O-Ring
- ❑ Sleeve Cap
- ❑ 2 x Barbs w/fiber washers
- ❑ Retaining Allen

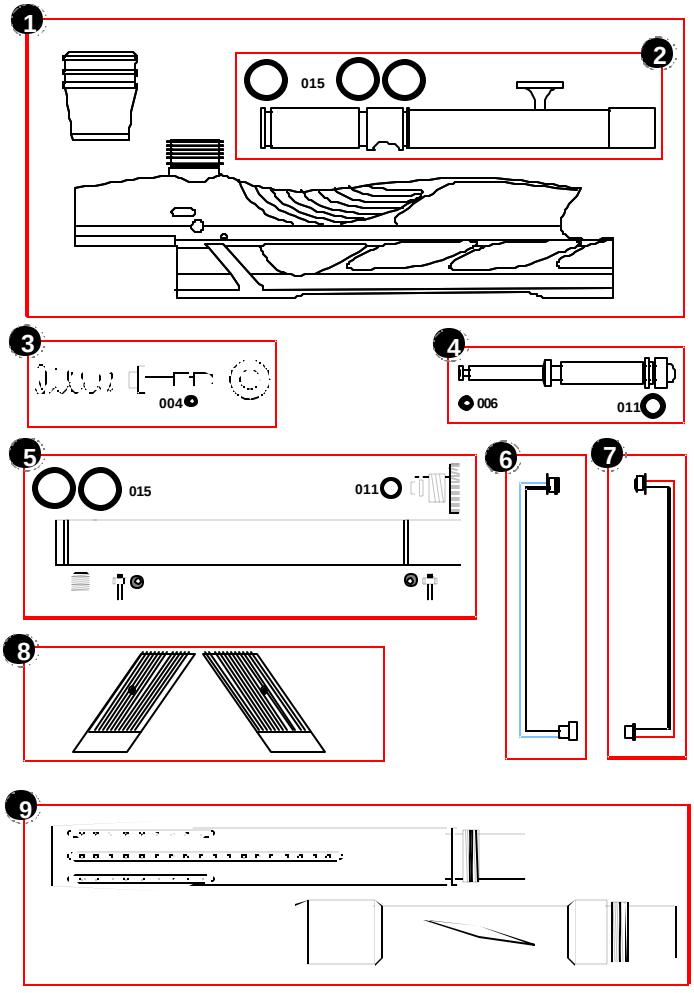
6. Left Eye Sensor Harness w/female connector

7. Right Eye Sensor Harness w/male connector

8. Left/Right Eye Covers

9. Barrel Assembly (2 piece J&J)

Body Assembly



1. High Pressure Regulator

- ❑ 3/16 Allen (velocity adjustment)
- ❑ Regulator Housing
- ❑ 1 x 016 O-Ring
- ❑ Spring Base (washer)
- ❑ Spring (orange)
- ❑ 1 x 113 O-Ring
- ❑ Piston
- ❑ 1 x 010 O-Ring
- ❑ Pin Valve Base (brass)
- ❑ 1 x 006 Teflon O-Ring
- ❑ Pin Valve
- ❑ Pin Valve Spring

2. Low Pressure Regulator

- ❑ 3/16 Allen (velocity adjustment)
- ❑ Bottom Regulator Housing
- ❑ 1 x 016 O-Ring
- ❑ Spring Base (washer)
- ❑ Spring (Orange)
- ❑ Piston
- ❑ 1 x 113 O-Ring
- ❑ 1 x 016 O-Ring
- ❑ Top Regulator Housing
- ❑ Pin Valve Spring
- ❑ Pin Valve
- ❑ 1 x 006 Teflon O-Ring
- ❑ 1 x 010 O-Ring
- ❑ Pin Valve Base (brass)

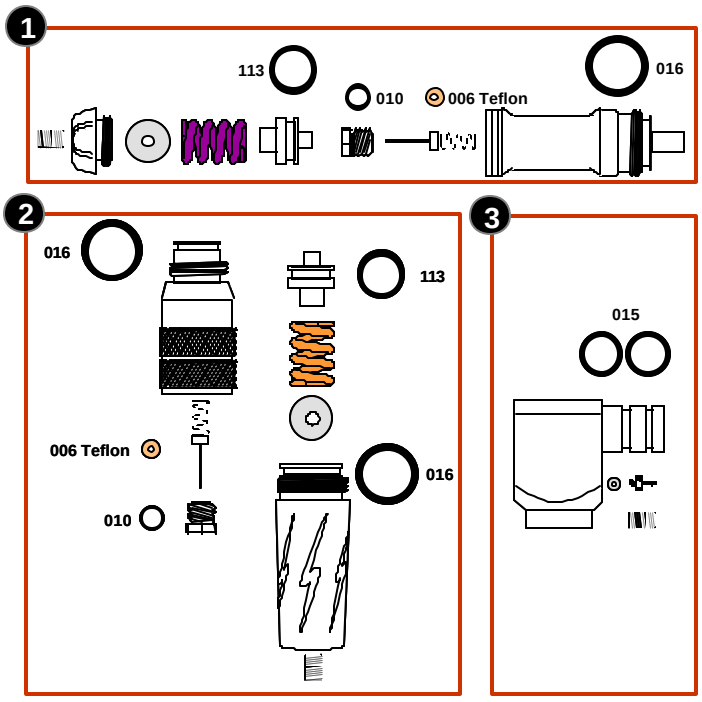
3. Regulator Base

- ❑ 2 x 015 O-Ring
- ❑ 1 x Barb w/fiber washer
- ❑ Base
- ❑ Base Retaining Allen

Regulator Assembly

WARNING

Grease Regulator Piston every 2000 to 3000 rounds fired. Failure to do this will result in excessive Regulator Housing wear.



Trigger Assembly

1. Trigger Frames

- ❑ Right Side Trigger Frame
- ❑ Nameplate Cover (Backside of pictured)
- ❑ Trigger Guard
- ❑ Trigger
- ❑ Trigger Adjusters and Spring
- ❑ Left Side Trigger Frame
- ❑ LCD Cover w/Push Buttons
- ❑ Grip

2. LCD Screen

WARNING

DO NOT use lightweight oil on marker. Oil will destroy internals of Air Valve.

3. Air Valve

- ❑ Air Valve w/male Connector (green/black wires)

4. 12 Point Harness

- ❑ Right Eye Sensor w/female Connector
- ❑ Left Eye Sensor w/male Connector
- ❑ LCD Screen Selection Membrane Male Connector

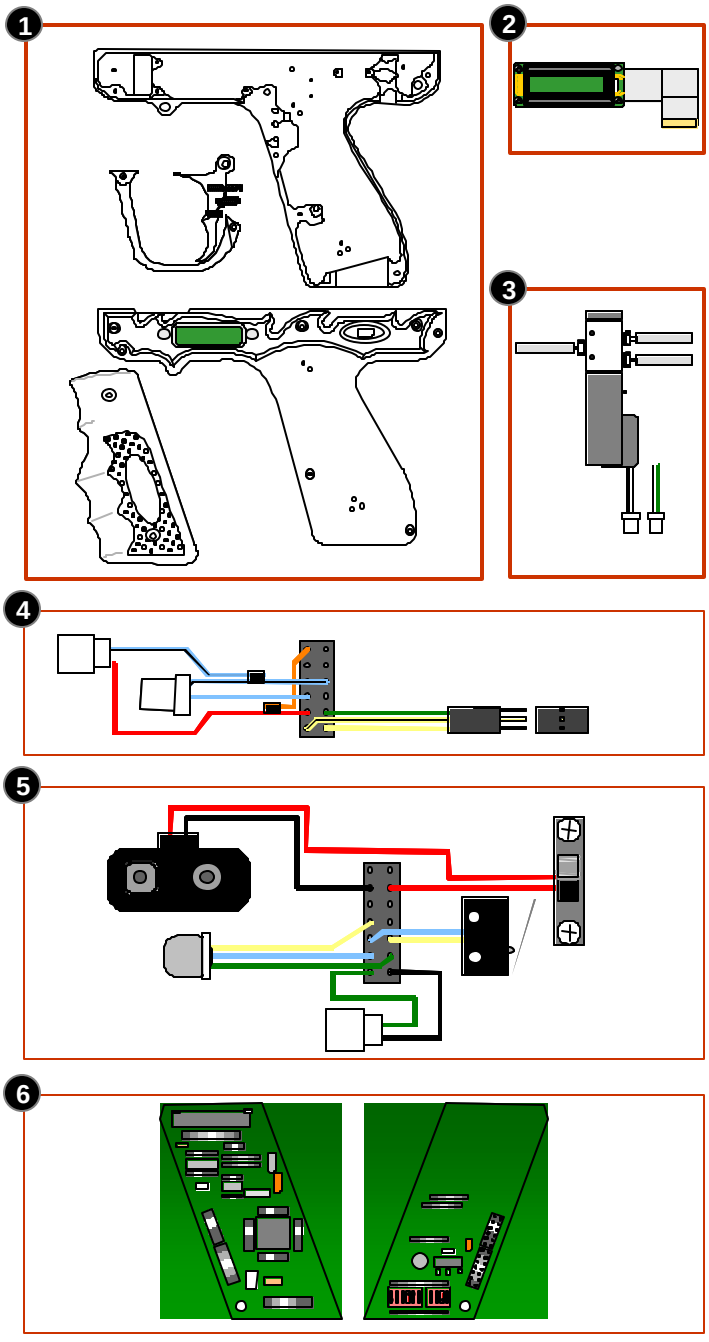
5. 14 Point Harness

- ❑ Connection to 9-Volt Battery
- ❑ Connection to ON/OFF Switch
- ❑ Connection to Indicator Light
- ❑ Connection to Trigger Solenoid
- ❑ Air Valve Female Connector

6. Circuit Board

WARNING

Ensure gun air is disconnected and gun is discharged before making any mechanical adjustments to marker internals or electronics.



OPERATION

GAS CONFIGURATIONS

CO2

When operating the ***Intimidator*** on CO_2 it is strongly recommended to use a form of the following:

- High Flow Expansion Chamber
- CO_2 specific Regulator
- Bottom Line w/tilt
- Anti-Siphon Tank
- Remote with Harness Mounted Tank

Preset HPA/Nitrogen

When utilizing a preset HPA/Nitrogen system it is best to use the optional expansion attachment (reference expansion attachment Conversion). Failure to do this will result in the over pressurization of the o-rings. Factory recommendations are 500 psi to the regulators. As most presets are around 800 to 850 psi output pressure, therefore the use of an external regulator is recommended. This transforms the high-pressure regulator into an expansion chamber. Now the main high-pressure regulation falls on the vertical regulator.

Adjustable HPA/Nitrogen

This is the factory recommended means of airflow for markers not utilizing optional expansion attachment. By setting the output pressure to 500 psi satisfies the air requirement for the marker and does not allow over pressurizing of the o-rings.

AMMUNITION ASPECTS

Hopper

The ***Intimidator*** requires a high flow of paintballs to make full use of its features. To satisfy this the use of the motorized loaders are recommended.

Paint

Using top grade paint ensures the utmost in performance and accuracy.

REGULATORS

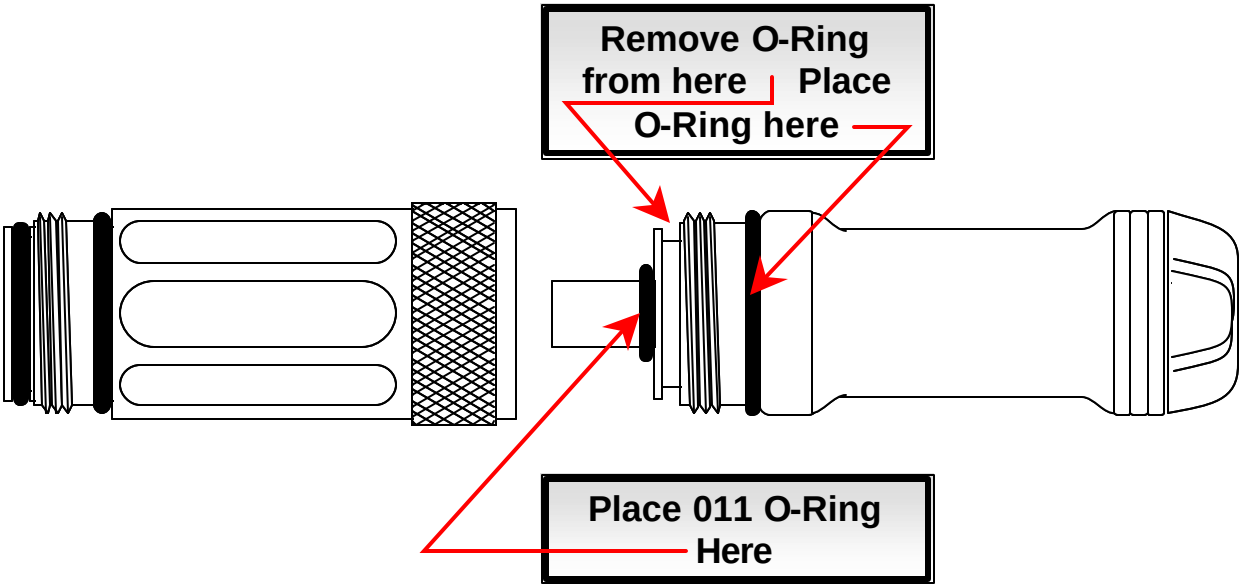
Low Pressure Regulator

The low-pressure regulator (lpr) is mounted at the lower attachment point of the regulator base. Small velocity adjustments are made at the lpr. Velocity adjustment is achieved with a standard 3/8in hex key. Operating pressure for the lpr is between 50 and 100 psi. Operationally speaking, the lower the better, as when the pressure gets too high, the chances of internal air leaks increases, the recoil gets stronger. When the pressure is too high a noticeable ping sound can be heard during operation. When the pressure is tool low the marker will be restricted in firing. There is the option to mount a gauge to the regulator for more precise adjustments. Any standard 1/8in npt gauge within the psi indicated above is sufficient.

High Pressure Regulator

The high-pressure regulator (hpr) is mounted at the upper attachment point of the regulator base. Large velocity adjustments are made at the hpr. Velocity adjustment is achieved the same as the lpr. The only difference between the lpr and hpr is the operating pressure range. Pressure will vary between 200 to 300 psi. The primary use for the hpr is to control ball speed. When adjusting the velocity after adjusting the regulator pressure, 3 to 4 shots should be fired to allow the regulator to flatten out. A gauge is mounted on the right side of the regulator base. During regulator setup, the gauge indicates internal pressure of the marker.

OPTIONAL EXPANSION ATTACHMENT



ELECTRONICS

Battery Information

The ***Intimidator*** uses a standard 9v battery. To change the battery, remove the Grip. Remove the 4 Allen's securing the two grip halves. The battery fits into the bottom of the grip frame. Disconnect the old battery and re-connect the new.

WARNING

At this time it is good to verify bolts are not protruding through the bottom of the grip and into the interior components. Failure to do this could result in damage to the battery or circuit board.

Anti Chop Eye

The Anti-Chop Eye is a pair of photo sensors in the bottom of the breach determining when the paint ball is seated and ready fire. The ***EYE*** mode within the mode menu can be set to determine how long the marker waits after seeing the ball before it will fire. Factory recommended setting is 1ms. Refer to Figure 1 for available settings.

Light Emitting Diode (LED)/Liquid Crystal Display (LCD)

When the gun is on, the LED will light with certain codes representing the status of the marker. The codes are as follows:

- **Solid Orange:** The marker is in the boot up process.
- **Flashing Green:** Standard operation
- **Solid Green:** Marker operational
- **Flashing Red:** Allows normal operation, indicates battery is low.
- **Solid Red:** Marker not operational/marker in menu mode.

Mode Selection

The LCD is a two-button membrane, backlit, and menu driven system. To bring up menu options for the gun, hold down both buttons until backlight illuminates (approx. 1 second). Upon release you will placed in the first menu (MODE = Firing Rate). A definition of firing rates follows:

- ***Semi Auto:*** one pull, one shot
- ***Full Auto:*** Fires continually until trigger is released (up to 30 shots).
- ***3 Shot:*** Fires 3 shots at the same rate as Full Auto.
- ***6 Shot:*** Fires 6 shots at the same rate as Full Auto
- ***Turbo:*** Fires alternating 1 shot/2 shots per trigger pull.
- ***Reactive:*** Fires two shots per trigger pull.
- ***Test:*** Bypasses the Ball Sensor to allow for test firing.

The left button scrolls through the eight available menus. Below are the definitions for the remaining menus:

- ***RATE:*** Determines how fast the marker cycles in balls per second (bps).
- ***EYE:*** Determines how long the marker delays (in milli-seconds) after seeing a ball before firing.
- ***DWELL:*** Determines how long the bolt stays forward before repeating cycle.
- ***TIME:*** Determines game timer setting. Selectable in hour increments.
- ***DISP:*** Determines what is displayed on the LCD.
- ***EXIT:*** Saves changes to menu selections and returns marker to ready state.

The right button selects options within the menus. Reference Figure 1 for the available options:

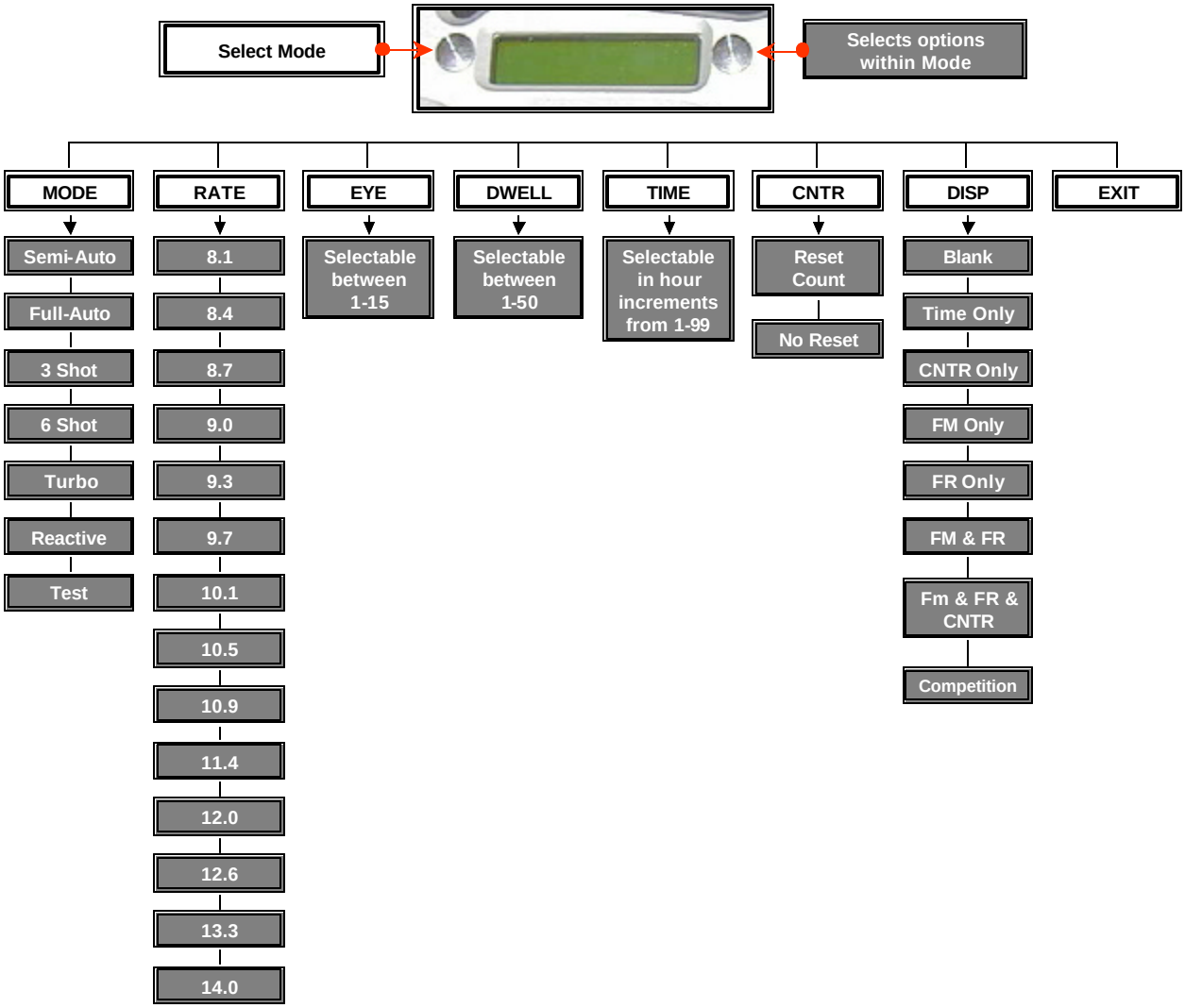


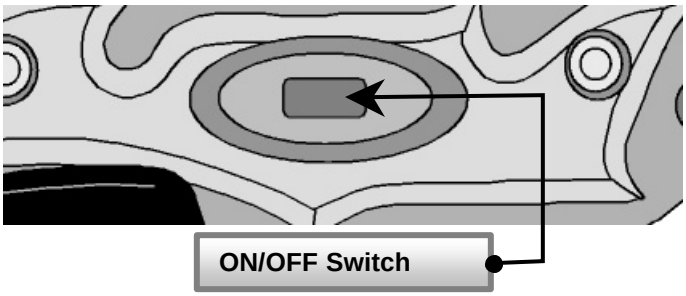
Figure 1. Menu Tree

CHANGE FIRING MODE

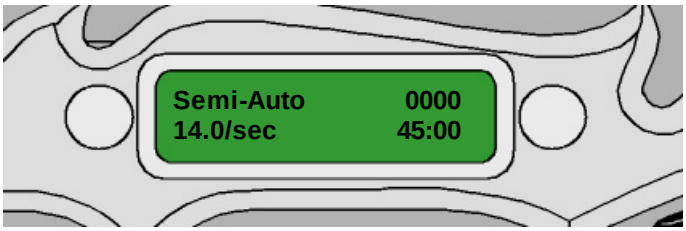
1. Place the ON/OFF switch to ON.
2. Observe in the Display Window

Bob Long's
INTIMIDATOR

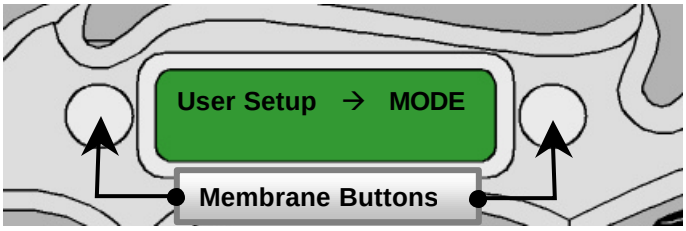
INTIMIDATOR
LCD Ver. 1.4.3



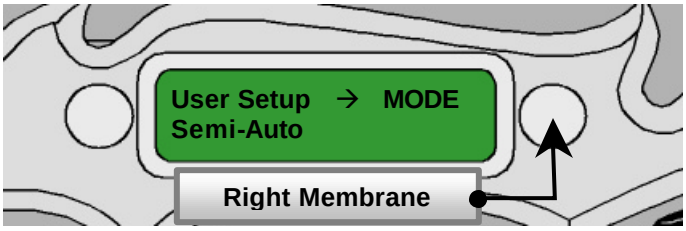
3. Observe in the Display Window



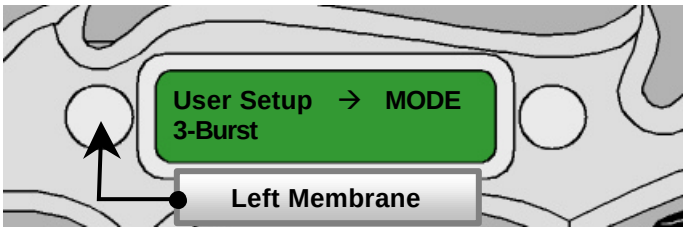
4. Press and hold both membrane buttons down at the same time until backlight illuminates.
5. Observe in the Display Window



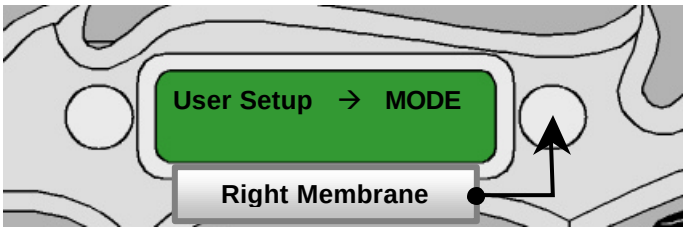
6. Press right membrane button.
7. Observe in the Display Window



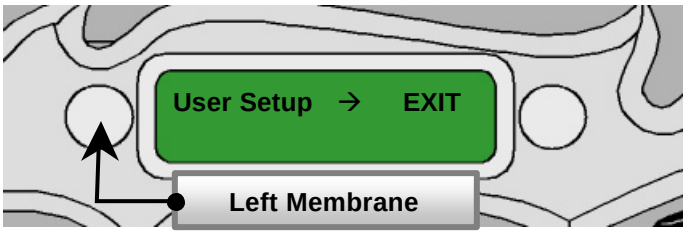
8. Press the left membrane button to select the desired firing mode.
9. Once the firing mode is selected press the right membrane button.



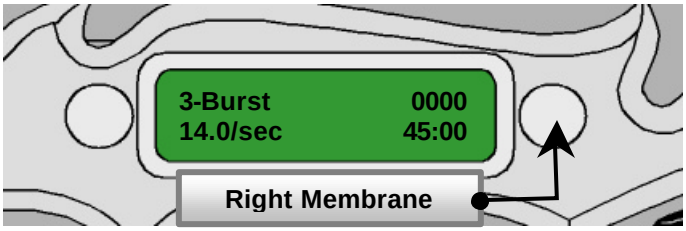
10. Observe in the Display Window



11. Press the left membrane button seven times and observe in the display window.



12. Press the right membrane button to save the change.
13. Observe in the display window.
14. Ensure LED located left of the ON/OFF switch blinking green.

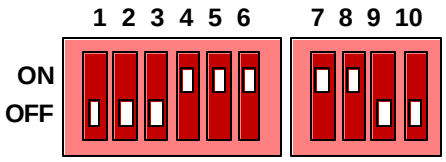


Note: 3-Burst was used in this example. Whatever you as the user select, will appear in the same position on the display window.

DIP Switch Settings

DIP Switch settings determine the default settings used by the marker upon power up. These switches allow the user to customize the markers default settings. To access the DIP switches, remove the right side grip. DIP switches are located at the base of the Circuit Board. Reference Figure 2 for appropriate settings.

Based on Version 1.4.3



Example above indicates marker will power up with the following settings:

- ***Firing Mode:*** Semi Auto
- ***Rate of Fire:*** 14 Shots/sec.
- ***Forward Dwell:*** 6 ms
- ***Ball in place delay:*** 1 ms
- ***Tournament Lock:*** Disengaged

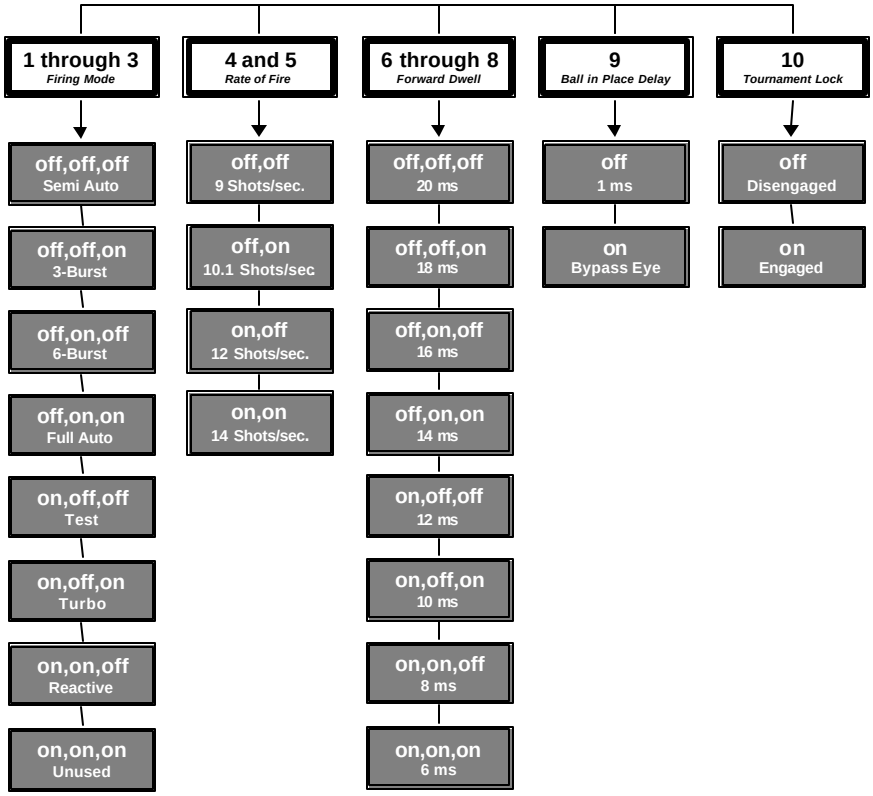


Figure 2. DIP Switch Settings

DISASSEMBLY/ASSEMBLY

When disassembling the Intimidator always ensure the marker is de-gassed. The disassembly portion of this manual will be divided into three sections.

- Trigger disassembly
- Regulator disassembly
- Body disassembly

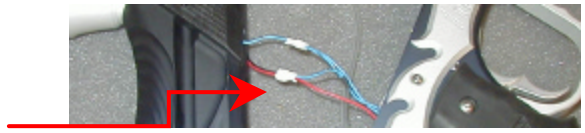
When assembling the marker perform the respective assembly on reverse order as disassembly.

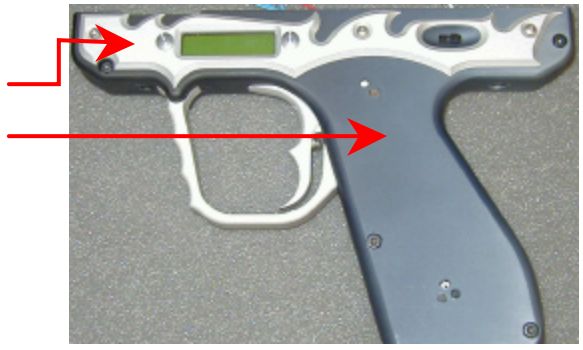
Trigger Disassembly

1. Remove Trigger Assembly retaining screws (2 each). Ensure screw with washer is installed in front when assembling.
2. Pull Trigger Assembly down to expose airlines.
3. Disconnect airlines from body (3 each).

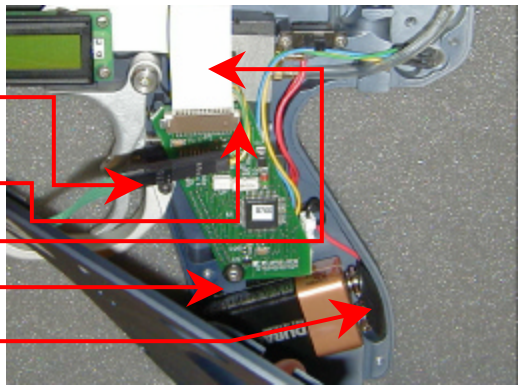
Note: Use care when removing airlines. Inspect after removal to ensure no tears in hose took place during removal.

4. Disconnect Eye Sensor Harnesses (2 each).
5. Remove grip.
6. Remove LCD Cover.
7. Remove 4 allen's to split Trigger Halves.

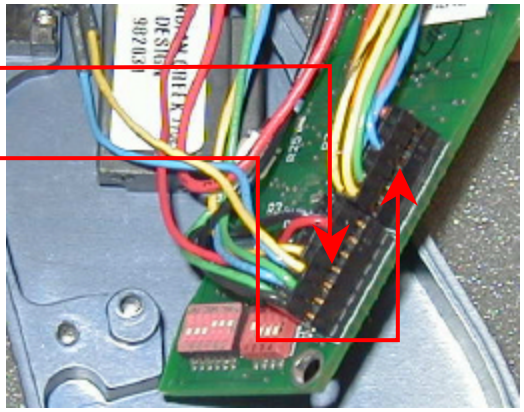




8. Disconnect Grip membrane on backside of opposite trigger half from 12-point wire harness.
9. Lift up on LCD white ribbon locks located each side of ribbon.
10. Remove ribbon from Circuit Board.
11. Remove Circuit Board retaining screw.
12. Disconnect and remove battery.

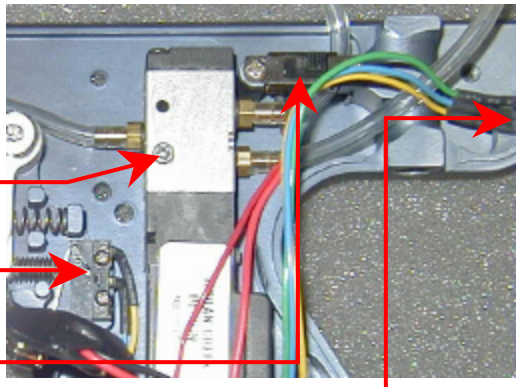


13. Disconnect 14-point wire harness from backside of Circuit Board.
14. Remove Circuit Board, and 12-point wire harness from trigger housing half.
15. Remove 12-point harness from circuit board.
16. Place Circuit Board and Harness in safe area to avoid damage.



17. Remove three Phillip screws, remove LCD screen from trigger housing half. Place in safe area to avoid damage.

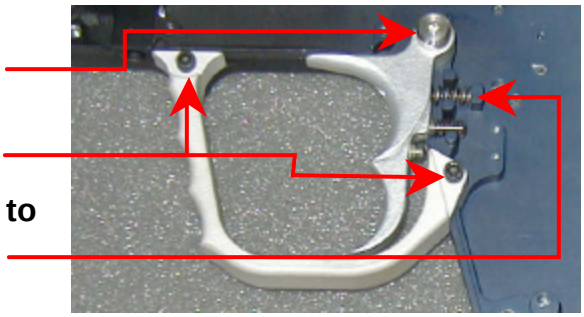
18. Disconnect Air Valve from harness (green/black wire).
19. Remove Air Valve retaining screw; remove Air Valve from trigger housing half. Place in safe area to avoid damage.
20. Remove Trigger Micro switch retaining screws (2 each).
21. Remove ON/OFF switch retaining screws (2 each).
22. Push on power indicator light from backside; pull from front side to remove.
23. Remove 14-point harness from trigger housing half.



24. Remove Trigger shouldered screw and remove Trigger.
25. Remove Trigger Guard screws (2) and remove Trigger Guard.

Note: When removing Trigger ensure not to loose Trigger Spring.

26. If required use allen to back out Trigger adjustment screws. If not required leave allen's adjusted to maintain original adjustment.



Note: At this time the Trigger is disassembled. Listed below are key points to remember when assembly occurs.

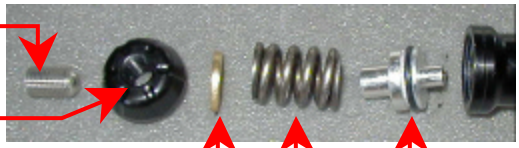
- **LCD Install:** Ribbon comes pre-folded from the factory. Fold ribbon and place screws in LCD before placing into trigger frame. Start all screws in all holes prior to tightening.
- **Trigger Micro-Switch:** When installing Trigger Micro-switch, ensure hinged portion is on top.
- **Circuit Board:** Do not over tighten the circuit board. Lay harness in trigger frame to avoid pinching of wires when attaching Trigger halves.
- **Harness Connection:** When connecting to the circuit board ensure orange wire is up on 12-point harness and black and red wire is up on 14-point harness.
- **Airline Attachment:** Ensure airlines are seated on air barb bases. This will prevent the possibility of air leaks. Do not pinch airlines when routing through trigger halves.
- **Eye Sensor Connection:** After connecting eye sensor harnesses pull remaining wire through trigger halves. This avoids pinching of wires during trigger frame attachment to body.
- **Trigger Assembly Attachment:** When you have finished assembly of the trigger frame and are ready to attach to body, ensure screw with washer goes in the front. Failure to do this will result in the puncture of the pressurized sleeve.

Regulation Disassembly

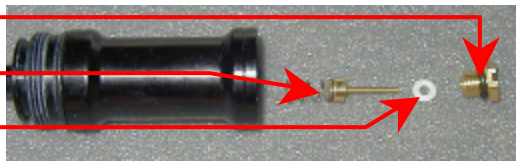
1. Remove Regulators
2. Remove Air Barb from base.
3. Remove regulator base retaining screw (1 each) from body.

4. Slide regulator base from body and remove poppet spring.

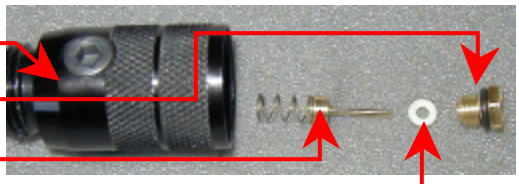
5. Unscrew allen adjuster.
6. Unscrew end of high-pressure regulator housing.
7. Remove regulator spring washer.
8. Remove regulator spring.
9. Remove piston.



10. Remove Pin Valve Retainer.
11. Remove Pin Valve.
12. Remove Teflon Washer.



13. Unscrew ASA end from adjustment end of low-pressure regulator.
14. Remove Pin Valve Retainer.
15. Remove Pin Valve.
16. Remove Teflon Washer.



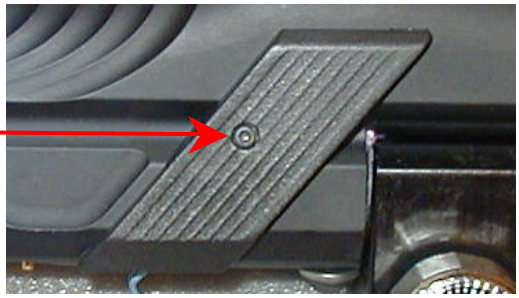
17. Remove piston.
18. Remove regulator spring.
19. Remove regulator spring washer.
20. Unscrew allen adjuster.

Note: At this time the Regulators are disassembled. Listed below are key points to remember when assembly occurs.

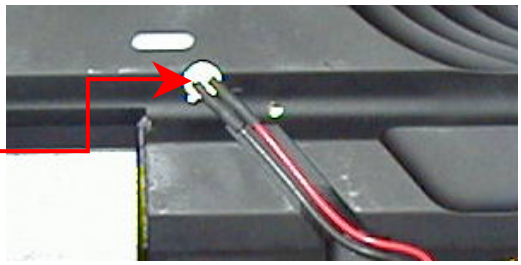
- **Piston:** Ensure cupped small end of piston is facing towards pin valve.
- **Regulator Spring:** Ensure orange spring is in vertical regulator housing and dark gray spring is in Horizontal regulator housing.
  Failure to do this will cause regulators not to function properly.
- **Pin Valve:** Ensure pin valve is not bent and seats in cupped small end of piston.
  Failure to do this will cause regulators not to function properly.
- **Air Barb:** Ensure fiber washer is on air barb base when installing. This will ensure air barb does not leak.
- **Poppet spring attachment:** Ensure small end of spring sits firmly on poppet.
- **Base Attachment:** Place small portion of lock tight on retaining screw when installing. This will ensure regulator base does not loosen up during operation.

Body Disassembly

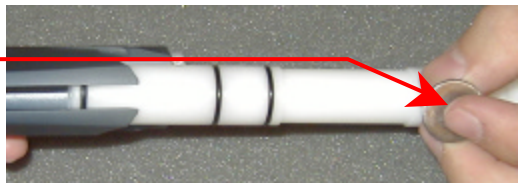
1. Ensure barrel of marker is removed.
2. Remove Eye Sensor covers (both sides) by removing retaining screw (1 each side).



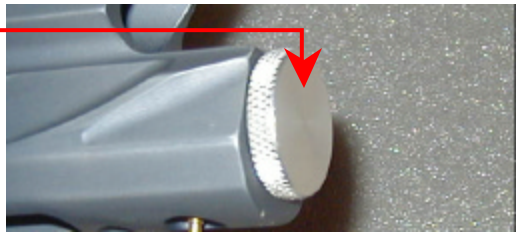
3. Remove Eye Sensor Harness (both Sides) by carefully pulling sensor heads from mounting holes. Be careful not to loose small o-ring on each head.



4. Lift up on bolt-retaining pin and slide bolt out of rear of marker.

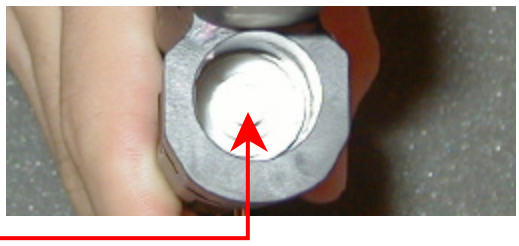


5. Remove rear sleeve cap screw.

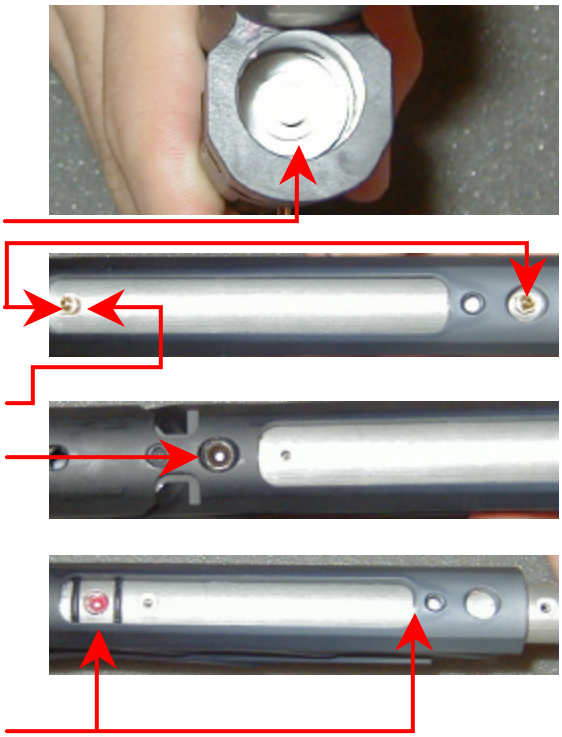


6. Turn marker up and allow ram to fallout of marker rear. Hold hand underneath to catch ram. Do not let ram fall freely on to ground or any other hard surface.

7. Remove poppet from sleeve front. Use a small pair of pliers to grab poppet end. Do not use force on poppet. Poppet will come out with little or no pulling pressure. Use care not to damage poppet lip. Damaging poppet lip will not allow the poppet to seal properly to the cup seal.



8. Remove cup seal. Use extreme caution not to scratch or damage cup seal. It is recommended to replace the cup seal every time it is removed. Any small scratch or fragment on the cup seal will induce an air leak.
9. Turn body over to gain access to the bottom of the marker.
10. Remove air barb from middle of sleeve. Do not loose fiber washer at base of air barb.
11. Remove sleeve retaining allen.
12. At this time you are ready to remove the sleeve from the body. When removing rotate the sleeve right and left pulling towards the rear of the marker. Use caution to avoid cutting the o-rings. There are sharp openings that the o-rings must cross.



Note: At this time the Body is disassembled. Listed below are key points to remember when assembly occurs.

- **O-rings:** Apply grease to all o-rings before installing.
- **Front Sleeve O-ring:** Ensure o-ring is in good shape upon install.
- **Sleeve Installation:** Use caution when installing the sleeve. Be careful not to cut the o-rings on the sharp openings.
- **Air Barb:** Ensure fiber washer is on air barb base prior to installation. This will ensure proper seal.
- **Cup Seal:** Ensure cup seal snaps into sleeve seal. Failure to do this will allow the cup seal to jump from seat, causing an extreme air leak.
- **Poppet installation:** Ensure poppet o-ring is well greased. Allow poppet to slide into sleeve, once seated tap on poppet end to mate poppet with cup seal.
- **Sleeve retaining allen:** Use small amount of lock tight on allen when installing. Failure to do this may result in sleeve sliding back, causing extreme damage to the marker and possible injury to the operator.
- **Eye Sensor Harness:** Ensure harness is seated in grove provided before attaching Eye Covers. Failure to do this could pinch the wires and render the eyes inoperable.
- **Eye Covers:** Ensure ball detents remain aligned and in covers upon install. Do not over tighten the covers. Over tightening will result in the cracking of the covers.

Note: The base of the feeder neck is pressed in at the factory. To remove the neck, simply unscrew feeder neck top. Do not attempt to remove the neck base. Failure to do this will result in the damage of the feeder neck.

MAINTENANCE

WARNING

DO NOT use lightweight oil on marker. Oil will destroy internals of Air Valve, O-rings, and Cup Seal.

General

Provide all O-rings within the marker a heavy coat of grease. The Poppet and Ram O-rings need to be greased between 2000-3000 rds. fired. Keep foreign obstructions out of marker internals.

Regulator

Regulator O-rings should be greased every 5000 rds. fired. Failure to do this will reduce recover time of Regulators. Additionally, the piston will wear a grove in Regulator housing. Ensure the Pin Valve lines up with the cup on the Piston. This will eliminate the inadvertent bending of the pin.

Consumables

Component/Quantity	Size
Body Assembly	
Bolt (3)	015
Poppet (1)	004
Ram Front (1)	006
Ram Rear (1)	011
Pressurized Sleeve (2)	015
Sleeve End Cap (1)	011
Cup Seal (1)	order from Delta
Regulator Assembly	
HPR Housing (1)	016
HPR Piston (1)	113
HPR Pin Valve Base (1)	010
HPR Pin Valve (1)	006 Teflon
LPR Housing (1)	016
LPR Piston (1)	113

LPR Pin Valve Base (1) 010

LPR Pin Valve (1) ..... 006 Teflon

Regulator Base (2).....015

Trigger Assembly

Airline (to regulator base) .....5.0 in.

Airline (to middle body) .....5.0 in.

Airline (to rear body) .....2.5 in.

Circuit Board (1).....004

TROUBLESHOOTING

Note: Refer to Assembly/Disassembly to perform repairs indicated below.

Problem	Cause	Repair
When gas is applied to the gun a load POP is heard and air is escaping in our around the Trigger Frame.	Airline or lines have become stretched or disconnected from Ram Sleeve (usually due to over-pressurizing of the Regulators).	Re-connect airline. Replace stretched/leaking airline.
Gun leaks from inside the Trigger Frame and hoses are fine.	The Low pressure Regulator is over-pressurized and causing the Air Valve to leak.	Turn down Low Pressure Regulator.
	Foreign Material has lodged inside Air Valve.	It is not recommended to disassemble the Air Valve. Remove and return Air Valve to factory.
	Heavy use of lightweight oil ion marker causing internal destruction of Air Valve.	It is not recommended to disassemble the Air Valve. Remove and return Air Valve to factory.
Gun consistently leaks down the barrel, decreasing slightly when bolt is pushed forward.	Heavy use of lightweight oil causes deterioration of Poppet O-ring and/or Cup Seal.	Remove Poppet and replace O-ring. Remove and replace Cup Seal.

Problem	Cause	Repair
Gun is pressurized and will not fire.	If bolt moves freely, one or more of the airlines are crimped.	Remove grip and re-position airline/lines
	If bolt does not move, Trigger Solenoid is sticking or inoperable. The solenoid flap wedging against the Trigger Spring housing causes this.	Remove Grip and re-position Trigger Solenoid.
LCD shows nothing or displays unreadable characters.	Ribbon has become disconnected or damaged.	Re-connect ribbon to docking port on circuit board. If ribbon is damaged remove and return to factory.
Marker fires with first shot extremely slow.	Poppet O-ring is dry.	Grease Poppet O-ring.
Marker cycles but does not fire.	High Pressure Regulator is set to low.	Increase pressure in High Pressure Regulator.
	Dwell is set to low.	Set Dwell, green and black wire Air Valve requires a #16 Dwell setting; double black wire Air Valve requires #6 Dwell setting.
Regulator/Regulators pressure will not adjust.	Regulator Pin Valve has debris lodged between valve and seal.	Remove debris from Regulator Pin Valve.
	Pin portion is bent causing unreliable seal.	Remove and replace Pin Valve.
Unexplained ball breakage and Sensor Eyes are fine.	Ball Sizer was not installed at barrel attachment.	Install ball sizer and re-attach barrel. If your marker does not have ball sizers, upgrade the type of paint your shooting
Gun leaks down barrel.	Setscrew used to retain sleeve has become loose causing sleeve to move rearward.	Remove sleeve and replace front 015 o-ring (placing teflon tape in groove before seating o-ring). Re-install sleeve. Use caution to ensure you do not cut o-rings. Use lock tite on retaining screw.

Problem	Cause	Repair
Inconsistent velocity.	High-pressure regulator piston dry.	Lube piston.
	Large ram o-ring (rear) is worn.	Replace o-ring.
	Paint does not fit barrel.	Use appropriate size of paintball.
When gun is turned to ON, bolt moves forward and fires.	Low Battery.	Remove and replace Battery.
	Retaining screw for circuit board is shorting out board.	Remove retaining screw and install rubber o-ring (poppet o-ring works fine). Re-install circuit board ensuring screw does not touch board.

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