



MARQ SERIES

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redefined.

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Congratulations on your purchase of the MARQ Series Paintball Marker. The MARQ represents the latest in Paintball Marker technology at an affordable price. Before operating your MARQ, Please read the entire Manual thoroughly.

! 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 Marker 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. Be sure to read the entire instruction manual before operating your MARQ.

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.

CAUTION

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 under any circumstances look down the barrel of your Marker. Even if wearing Paintball approved goggles, you should *Never* look down the barrel of any Paintball Marker.

Before performing any maintenance on the Marker, ensure air source is disconnected and Marker has been degassed. Always ensure Marker is OFF whenever Marker is not operational.

Always insert barrel plug in barrel when Marker is not operational. Remove barrel plug 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!

Always ensure 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. warrants the MARQ Series Marker against damages in Manufacturing Defects only. Electrical components are warranted for a period of 90 days. Solenoids are not warranted. When utilizing aftermarket Drop-Forwards and/or aftermarket grips, ensure attachment bolts *DO NOT* protrude into internal grip assembly. Failure to do so may damage the internals and will result in void of warranty. Use of Teflon tape will void warranty. Aftermarket anodizing will result in void of warranty.

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

Operation

The MARQ Series Marker is a solenoid controlled, enclosed, inline open-bolt design. The bolt is directly affixed onto a dual pressurized machined slider that is controlled by the solenoid (An electronic 4-way valve control). The back of the chamber is pressurized to move the bolt forward while simultaneously striking (opening) the poppet valve, while the front of the chamber is pressurized to move the bolt backward. This allows for very low cycling pressure, as well as much less cocking recoil.

General Description

The MARQ is a low pressure operating, enclosed, inline, open bolt, electronic Marker, featuring microchip managed solenoid control, anti-chop eyes* (ACE), dedicated low and high pressure regulators attached to a sculpted body. The bolt is directly affixed to a dual pressurized sliding ram. This ram is held within the inline firing mechanism/chamber within the body. The low pressure regulator supplies air to the front barb of the solenoid. Upon activation, the solenoid redirects alternating pressure through the rear of the body, from the chamber in front of the ram to the chamber behind the ram. The forward shifting ram will then strike the poppet, opening the main valve which releases high pressure regulated air through the front of the volume chamber and through the bolt which pushes the paintball into the breech while simultaneously sending the charge of air to propel the projectile (paintball) to its target.

INTRODUCTION

The MARQ Series Paintball Marker is controlled via the single-button rubber on/off membrane located on the rear of the Trigger Frame. All of the functions of the MARQ can be easily accessed and changed via the dip switch panel located on the front side of the board.

Getting Started

To power up your MARQ, Press the ON/OFF button. To turn off your MARQ, press and hold ON/OFF button for approximately 1 second until the LED turns Red and release. A detailed description of each function and how to adjust them can be found in the *Board Operation* section.

Note: The Factory Board IS NOT Programmable via the trigger.

Trigger Adjustment

The trigger is adjustable using the two screws within the trigger. The *upper* screw controls the trigger's travel length while the *bottom* screw adjusts the micro-switch activation point .

Barrel

The MARQ comes standard with a one piece, .689 Bore, 12-inch Assassin barrel. Barrel threads for the MARQ are Auto-cocker type.

Specifications

Model	MARQ Series	Cycle Rate	Unlimited Semi Mode
Caliber	68	Effective Range150+ feet
Action	Electro-Pneumatic	Weight2 pounds, 1 ounces
Air Source	Compressed Air/Nitrogen	Length	(12" barrel) 18.25 inches
Battery Type	9-Volt Battery	Height7.75 inches

*Weight of Marker without 12" Assassin Barrel is 1lbs., 13oz.

INTRODUCTION [continued]

REGULATORS

Included with the MARQ are 2 High-Flow Regulators. Both regulators use a standard 1/8 inch hex key for adjustment. Turn the adjustment screw clockwise to increase pressure and counter-clockwise to decrease pressure.

Low Pressure Regulator

The low pressure regulator is mounted towards the front of the Marker on the underside of the Marker body. It controls the cycling pressure of the Marker. The pressure should be set between 75 to 80 PSI. **Never exceed 100psi as overpressurization can damage the solenoid.** The low pressure regulator is **not** used for velocity adjustments but for cycling pressures only.

High Pressure Regulator

The high pressure regulator (also called the Torpedo or inline regulator) is the vertical regulator that screws into the bottom of the Marker body. All velocity adjustments are done with the Torpedo regulator. Typically, pressures vary from 200 to 280 PSI depending on chronograph speed.

AMMUNITION ASPECTS

Hopper

The MARQ requires a high feed rate of paintballs to make full use of its features. To satisfy this need, the use of a high-end motorized loader is recommended.

Paint

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

OPERATION – GAS CONFIGURATIONS

Preset and Adjustable Tanks

A Compressed Air System also known as a Nitrogen Air System is the recommended propellant air source for operating the MARQ. If you are using an Adjustable Tank, the output should be set between 400 & 500 PSI. Ideally, Preset Tanks should be low pressure or 400 PSI output. However, a high pressure system is acceptable.

Co2

Co2 *IS NOT* the recommended propellant for the MARQ. You should only use a Compressed Air System to operate your MARQ. When attaching air system hose fittings to your Marker, **DO NOT USE TEFLON TAPE.** Use a thread sealant such as Loctite 545 instead.

GETTING STARTED

Maintenance for the MARQ is very simple.

The Bolt should be lubricated sparingly with Paintball Gun Oil. Lubricating once a day or when dirty will eliminate bolt drag.

The Ram or “Hammer” should be lubricated every 5000 shots with *DOW 55*. First degas your Marker. Next, remove the Firing Engine Assembly Retaining Screw and remove the entire Assembly through rear of Marker body. Remove the Ram Cap by removing the 3 Set Screws and separate from rest of assembly. Then unscrew Bolt from Bolt/Ram shaft using a 1/4” socket driver while securely holding the Bolt and slide out. Next, lubricate the Poppet O-rings. This should be done every 15,000 shots. The Poppet located within the MARQ’s Firing Engine and is accessed by separating the two Firing Engine Halves. Simply remove the Poppet and lubricate the 2 outer O-rings. **Don’t forget to lubricate the internal O-ring located within the base of the Poppet Shaft.** Clean inside of Poppet and Ram Chamber with Q-tips, lubricate O-rings with *DOW 55* and reassemble. *Be sure to use Loctite when re-installing Bolt onto Bolt/Ram Shaft and DO NOT over tighten as this may damage the Bolt. Be sure to lubricate the Firing Engine Assembly O-rings before re-inserting into Marker body.*

The Final O-rings that need to be lubricated are The Low Pressure Regulator Piston and High-Pressure Regulator Piston O-rings. These O-rings should be greased every 10,000 shots. These are accessed by opening the Regualtors. Simply wipe clean and lubricate with *DOW 55*. Performing this simple maintenance will increase the life of the O-rings and keep the Marker performing at the highest level possible.

ELECTRONICS

Battery Information

The MARQ uses a standard 9v battery. To change the battery, remove the Left Rubber Grip Panel. You'll notice the battery fits into the bottom of the Trigger Frame. Remove the old battery and insert the new battery.

CAUTION!

At this time you'll want to verify that no screws are protruding through the bottom of the grip and into the interior components. Failure to do so may result in damage to the battery and/or Circuit Board.

Anti-Chop Eyes*

The MARQ incorporates a break beam Anti-Chop Eye system, commonly referred to as the ACE system. The ACE system consists of a set of sensors mounted near the bottom of the breech to restrict firing until a paintball is completely loaded into the breech. Always operate the MARQ with the eyes ON. Failure to do so will more than likely result in broken paintballs in the breech. The Transmitter Eye is located on the right side of the Marker and has a 2-Wire Harness. The Receiver Eye is located on the left side of the Marker and has a 4-Wire Harness. Both Eyes run onto a single wiring harness that connects directly to the board. Always inspect ACE System wiring and harness upon removal to ensure there is no damage present. If there is damage to either the wiring and/or harness, the Eyes and/or harness should be replaced to ensure the ACE system does not fail during operation.

* The MARQ was designed to incorporate the first ever **Smart 4-Eye** Anti-Chop Eye System. This system was developed by Bob Long to make the Marker-to-Loader interface more seamless than ever thought possible. The first set of eyes is positioned at the base of the feedneck while the second set is positioned directly below, at the bottom of the breech. This **Smart System** times the loader's feedrate in order to precisely calculate when a paintball will be fully seated in the breech. This eliminates the Ball-In-Place Delay normally implemented in the standard 2-Eye Systems and accelerates firing speeds. This System is an upgrade and can be purchased through B.L.A.S.T. Simply call (925) 625-7929 to order.

Powering up

1. To power up your MARQ, press the ON/OFF button.
2. To turn off your MARQ, press and hold the ON/OFF button for approximately 1 second until the LED turns Red and release. Your MARQ is now OFF.

Light Emitting Diode [LED]

The MARQ Series Marker features a Multi-Color LED that indicates the operational Status of the Marker. Once powered up, the LED on the rear of the Trigger Frame will flash Green, indicating the Marker is ready for operation. Depending on the particular Eye System of your MARQ, the LED will flash a certain color once paintballs are loaded into the Breech. See the chart below for details.

Dual-Eye equipped	Quad-Eye equipped
● No Paintball in Chamber	● No Paintball in Chamber
● Paintball in Chamber	● Paintball in Chamber
● Eye Malfunction*	● Top Eye Malfunction
● Low Battery*	● Bottom Eye Malfunction
* These indicators are the same for both Eye Systems.	
	● Eye Malfunction* ● Low Battery*

The default Eye Sensor setting on the MARQ's is FORCE. To disable Eyes, hold in trigger while powering up until the LED flashes Green. To set the Eyes on Delay Mode Hold in the Trigger, press the On/Off Button and release Trigger, allowing the Board to fully boot. The LED blinks Green upon fully powering up regardless of Eye System status.



LED On/Off Button

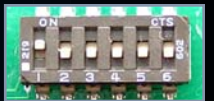
The LED On/Off Button is the MARQ's control center. The LED can be seen through the high-lighted LED window in the above image.

FACTORY BOARD SETTINGS

Standard Factory Board Dip-Switch Settings are as follows:

CYCLE DELAY	DEBOUNCE	FIRING CAP †	FIRING MODES	DWELL
[1]	[2]	[3]	[4] [5]	[6]
ON-Fine Tuning Cycle Delay Active	ON-Max Setting	ON-15bps Cap Enabled (all firing modes)	OFF-OFF Semi Auto OFF-ON 3-Shot Burst*	OFF-Dwell 8
OFF-Fine Tuning Cycle Delay Inactive	OFF-Min setting	OFF-15bps Cap Disabled (all firing modes)	ON-OFF Ramp* ON-ON Full Auto*	ON-Dwell 10

Settings highlighted in Yellow indicate the Factory Default Setting. † While in CAPPED Mode the Marker will be limited to a 15bps limit. While UNCAPPED the Marker will operate at an unlimited rate of fire. * All firing modes other than Semi-Automatic will become active after 3 rapid trigger pulls.



Dip Switch Panel

The Dip Switch Panel is located towards the bottom of the board. For visual reference, the board in the above image, is rotated 90° counter clock-wise.

ASSEMBLY & DISASSEMBLY

GETTING STARTED

When disassembling the MARD, always ensure the Marker is degassed.

The DISASSEMBLY portion of this manual will be divided into four sections.

1. FIRING ENGINE DISASSEMBLY

2. TRIGGER FRAME DISASSEMBLY

3. BODY DISASSEMBLY

4. REGULATOR DISASSEMBLY

Note: When ASSEMBLING the MARD, perform the entire disassembly process in reverse order.

ASSEMBLY TIPS

When assembling the MARD, always be sure to place a good amount of lubricant in the O-ring grooves before installing all O-rings and then lube O-rings as normal. This serves to assist in creating a proper seal and reduces the likelihood that the Marker will leak once re-assembled.

When affixing the frame onto the body, be sure to hold the trigger all the way in to allow for seamless installation.

To install and remove Trigger, the Trigger Frame must be removed from the Marker Body to allow the Trigger to slide out through the top of the Frame.



1. FIRING ENGINE DISASSEMBLY

The Firing Engine can be accessed by removing the retaining screw located on the bottom of the rear plate [figure 1] and using the Allen Key, work the assembly loose [figure 2] and then slide out the entire assembly [figure 3].

1. remove firing engine retaining screw
2. work loose the assembly using an allen key
3. slide out entire assembly
4. remove rear cap retaining screws [3]
5. slide off rear cap from rest of assembly
6. using a pair of needle-nose pliers and a 1/4" socket driver, unscrew bolt from bolt/ram shaft

HOT TIPS

The Bolt is firmly secured onto the Bolt/Ram Shaft using Red Loctite from factory and must be heated up in order to break the seal. A lighter or heat gun can be used to do this without damaging any of the components.



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1. FIRING ENGINE DISASSEMBLY [continued]

- 7. with the bolt removed, the rest of the firing engine can be disassembled
- 8. separate the two engine halves
- 9. remove poppet spring
- 10. slide out bolt shaft through rear
- 11. remove poppet

The Firing Engine is now fully disassembled!

Below are some helpful tips on reassembly of the Firing Engine.

HOT TIPS

When reassembling the Firing Engine, be sure to inspect all O-rings and check for tears or worn out O-rings and replace as needed.

DON'T forget to inspect the INTERNAL O-ring located on the inside of the Stainless end of of the Poppet Shaft.

FIRING ENGINE

Rendering & Parts List HERE



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2. TRIGGER FRAME DISASSEMBLY

1. remove high-pressure regulator
2. remove asa retaining screws [2] using a 1/8" allen key and remove asa
3. remove left rubber grip panel
4. remove battery
5. using an allen key or small screw driver, carefully disconnect wiring harness
6. remove board retaining screw

HOT TIPS

Always inspect the Frame's internal components to ensure no damage is present. If a part is damaged it should be replaced to ensure Marker does not fail during normal operation.

When reconnecting wiring harness to Board, DO NOT apply excessive pressure. The Harness should connect with relative ease using minimal pressure.

Always inspect Rubber On/Off Button to ensure it is still firmly secured to the rear of the Trigger Frame.



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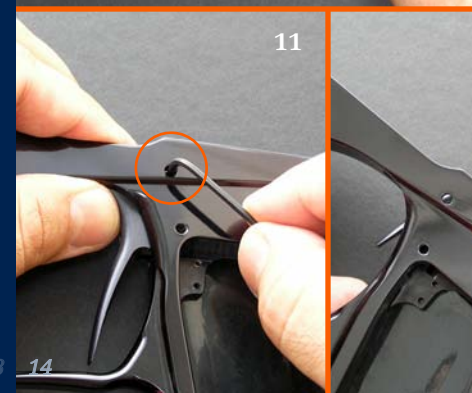
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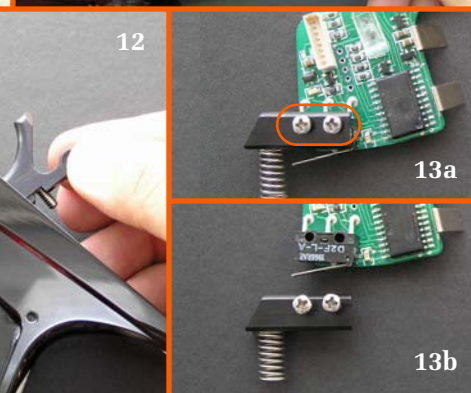
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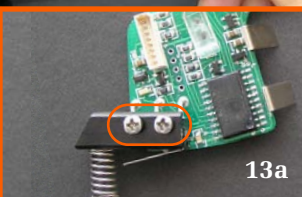
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13a



13b

7. lift out board and carefully remove from frame

8. unscrew FRONT trigger frame retaining screw until there is a slight gap between the body and frame – see **HOT TIPS** below

9. unscrew REAR trigger frame retaining screw until there is a slight gap between the body and frame – see **HOT TIPS** below

10. slide frame gently towards rear of marker body and remove frame from body

11. remove trigger retaining screw

12. remove trigger by sliding up through top of frame

13a. remove trigger return spring plate retaining screws [2]

13b. trigger return spring plate removed

HOT TIPS

To re-install trigger frame, be sure both Trigger Frame Screws are slightly threaded into the body. Hold in Trigger while aligning the frame and gently slide frame forward into position and then tighten screws in unison.

If only one screw is fully tightened, the frame will not properly mount onto the body. You must turn in one screw a few turns and then do the same on the other. Repeat until the frame is properly mounted to the Marker Body.



3. BODY DISASSEMBLY

1. remove eye cover retaining screws and remove covers [1 on each side]
2. remove detent springs [1 on each side]
3. remove ball detents [1 on each side]
4. remove eye board retaining screws [1 on each side]
5. disconnect eye boards from wiring harness [1 on each side]
6. turn body over to expose solenoid and low-pressure regulator

HOT TIPS

To ensure you don't lose the Detents and/or Detent Springs, always ensure Marker is lying on it's side BEFORE removing eye covers.

When re-connecting the Eye Boards to the Harness and DO NOT use excessive force as they should connect with relative ease. If you feel you are applying too much pressure, inspect the parts to ensure you are connecting the correct board to the particular Harness lead.



7. disconnect hose from solenoid manifold
8. disconnect solenoid from wiring harness
9. remove solenoid manifold retaining screws [2] and remove solenoid from body
10. remove LPR retaining screws [4] and remove LPR from body
11. carefully remove wiring harness from body
12. remove feedneck wedge adjustment screw
13. remove feedneck wedge
14. remove feedneck

HOT TIPS

Be sure to route the Wiring Harness correctly as the Eye Boards are side specific and cannot be used on either side.

When removing the Solenoid and LPR, be careful not to lose the 3 small O-rings as they are detrimental to the proper operation of the Marker.

For easier installation of the Feedneck Wedge, tilt the Marker Body backwards and carefully insert wedge. Then carefully turn in the adjustment screw into the Wedge.



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4. REGULATOR DISASSEMBLY

HIGH-PRESSURE REGULATOR

1. separate regulator halves
2. loosen asa swivel adapter set screws [1 on either side side]
3. remove asa swivel adaptor from hpr upper regulator body
4. remove air valve from upper regulator body
5. remove regulator adjustment screw
6. slide an allen key up through the bottom of the lower regulator body and push out the regulator piston and spring washer assembly [ensure parts do not fall as they can become damaged]
7. complete regulator assembly - see below for assembly tips

HOT TIPS

When reassembling the High-Pressure Regulator be sure the parts are assembled in the order shown in figure 7.

Place a small bead of blue Loctite on the Air Valve threads during Assembly to ensure a proper seal.



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LOW-PRESSURE REGULATOR

8. remove brass adjustment cap from regulator body
9. remove regulator spring
10. remove regulator piston
11. remove air valve from regulator body
12. complete regulator assembly - see below for assembly tips

HOT TIPS

Removal of the Pin-Valve inside the LPR Body may require the use of a specialized valve tool.

When reassembling the Low-Pressure Regulator be sure the parts are assembled in the order shown in figure 12.

Place a small bead of blue Loctite on the Air Valve threads during Assembly to ensure a proper seal.



11



12

FINAL NOTES:







Always remember to lubricate O-ring grooves BEFORE installing O-rings to ensure a proper seal.

Use Dow55 to lubricate all O-rings. May be substituted with Dow33 if necessary.

NEVER Grease Bolt. Only use OIL to lubricate Bolt.








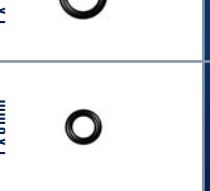
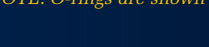

TECHNICAL SPECIFICATIONS

Screw Identification Chart

Screw & Size	Quantity / Description	Screw & Size	Quantity / Description
 8/32 x .5"	x 1 Feedneck Wedge Adjustment Screw	 trigger retaining screw	x 1 Trigger Retaining Screw
 8/32 x .375"	x 1 Firing Engine Retaining Screw	 8/32 x .5"	x 2 1 Trigger Return Spring Adjustment Screw 1 Micro-Switch Activation
 8/32 x .125"	x 3 Firing Engine End Cap Retaining Screws	 M2 x 20 FH	x 6 2 Solenoid Retaining Screws 4 LPR Retaining Screws
 2/56 x .3125"	x 2 Eye Cover Retaining Screws	 M2 x 12 PH	x 2 Upper Board Retaining Screws
 2/56 x .25"	x 2 Eye Board Retaining Screws	 M2 x 4 PH	x 1 Lower Board Retaining Screw
 10/32 x .375"	x 2 Trigger Frame Mounting Screws	 8/32 x .375"	x 2 HPR ASA Swivel Adapter Set Screws
 6/32 x 500	x 6 Rubber Grip Retaining Screws	 8/32 x .5	x 1 FRONT Transfer Hole Plug
 M3 x 5	x 6 Rubber Grip Retaining Screws	 8/32 x 500	x 1 HPR Pressure Adjustment Screw

NOTE: Screws are shown in actual size.

O-ring Identification Chart

O-ring & Size	Quantity / Description	O-ring & Size	Quantity / Description
 022 x 1"	x 6 4 Firing Engine Ram Housing 2 Firing Engine Volume Chamber	 016 x 5/8"	x 1 HPR Piston
 018 x 3/4"	x 2 1 HPR Upper Housing Base 1 Firing Engine Ram Housing Threads [Located just in front of the Ram Housing Threads]	 011 x 5/16"	x 2 1 Ram Shaft 1 Back Block
 015 x 9/16"	x 3 2 Bolt O-rings 1 HPR ASA Swivel Neck – EXTERNAL	 010 x 1/4"	x 1 External Poppet Shaft
 014 x 1/2"	x 2 2 HPR ASA Swivel Neck – INTERNAL [The Swivel adapter must be removed in order to gain access to the Lower O-rings.]	 009 x 3/16"	x 1 Internal Poppet Shaft
 012 x 3/8"	x 2 1 Cup Seal 1 LPR Piston	 1 x 4mm	x 1 LPR Gasket Seal
		 1 x 3mm	x 3 – Solenoid Gasket Seals 2 On Marker Body 1 On Under Manifold

NOTE: O-rings are shown in actual size.