

GEN 5
INTIMIDATOR

VICE & PROTÉGÉ MANUAL VERSION 2.0



BOB LONG TECHNOLOGIES
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CAUTION: READ ALL WARNINGS BEFORE USING OR ATTEMPTING ANY WORK ON YOUR VICE. SHOULD YOU BE UNSURE AT ANY POINT, STOP AND SEEK PROFESSIONAL SUPPORT.

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. It is 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 the entire instruction manual before operating your marker.

WARRANTY

Bob Long Technologies warrants our paintball markers to be free from defect in materials and workmanship for a period of 1 year from purchase date. This warranty will only be honored for the initial retail purchaser and is non-transferable. Wear items such as batteries and seals are not covered under warranty. Main PCB, electro-pneumatic solenoid, eye PCB's and wire harnesses will be covered under warranty for a period of 6 Months from purchase date.

This warranty does not cover:

- > Any system failure resulting from the use of a non-authorized propellant. The only authorized propellants are nitrogen or compressed air.
- > Damage to electro-pneumatic solenoid resulting from external air source regulation failure. The use of an external regulated air source is your choice, so research well and choose wisely.
- > Damage to electro-pneumatic solenoid from foreign objects, specifically Teflon® tape.
- > Surface damage such as scratches, nicks, or dings.
- > Improper disassembly or re-assembly.
- > Improper lubrication. The only authorized grease for maintaining a Bob Long marker is Molykote® 55 made by the Dow Corning Corporation (Dow 55). Authorized oil is limited to Tri-flow® or any other synthetic oil made specifically for maintaining a paintball marker.
- > Modification or any other alteration of a marker or its parts. Dremels, acid, most things involving a show on the Bravo network or HGTV fit in this category.
- > Misuse of any conceivable kind. Basically if it involves law enforcement officers, the phrase "I hope we don't get caught!", use as a pry bar, or other things that would have made it into an episode of the show Jackass.

This warranty is limited to repair or replacement of defective items with the initial retail purchaser to pay shipping costs. The initial retail purchaser must enclose a copy of the original sales receipt with the marker to be repaired for this warranty to be honored.

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QUICK START

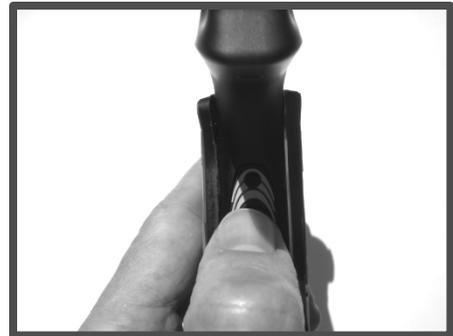
INSTALLING AIR TANK

Much like any other tournament marker, the Vice requires the use of compressed air or nitrogen only. The Vice is compatible with both high-pressure and low pressure compressed air systems. If using an adjustable-output air system, set the system's output between 450 and 550 psi. Screwing your preset air system into the ASA at the bottom of the grip will pressurize the marker, preparing it for use.

TURNING MARKER ON/OFF

To power on the marker: press and release the power button.

To power the marker off: press and hold the power button for 1.5 seconds, until the LED turns off, then release.



ADJUSTING VELOCITY

Although both of the regulators on the Vice come preset from the factory, you may need to adjust the regulators to account for paint to bore match, atmospheric differences, and your field's maximum chronograph limit. The velocity of your marker is controlled through the vertical regulator, which is adjusted with a 1/8" Allen wrench. Turning the screw clockwise (or inward) will increase your velocity; turning the screw counterclockwise will decrease your velocity. Only turn the wrench 1/8th - 1/16th of a turn with each adjustment.



TURNING EYES ON/OFF

Briefly press and release the power button when the marker is turned on to disable the eyes. Briefly touch it a second time to re-enable the eyes. Each time the marker is turned on the eyes are enabled regardless of whether they were enabled when the marker was shut off.

For early releases of the Protégé which incorporated the Frenzy 3.0 board consult the control board manual on www.boblongdirect.com for eye operation.

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GENERATION 5 MODEL DIFFERENCES:

The fifth generation Intimidator platform, including the Vice and Protégé, share the same basic operation and underlying technology. While the Protégé provides tournament level performance in a cost effective package, the Vice brings a fully loaded marker that is lighter and fully equipped. Both are designed, machined, and built in the USA.

	Vice	Protege
Feedneck	LeverLock	Twist Lock
Control Board	Tadao Ryujin	Frenzy 4.0
Bolt	Pillow Bolt	Open Face Bolt
Weight	Lighter	Only a snackie cake difference
Ram Sleeve	Integrated	Separate

Comparison of Vice and Protégé Features

The Protégé can be upgraded with the same components as the Vice, with the exception of the ram sleeve. Both markers accept the Low Pressure Poppet Valve, 4C Eye System, Cam-Drive or Gear-Drive ASAs and other accessories. The maintenance procedures in this manual apply to both markers.

MAINTENANCE SCHEDULE

Amount of Time	Estimated Cases of paint	Recommended Upkeep
While talking smack with your friends in between games		<ul style="list-style-type: none"> Removing the bolt, and barrel Run a swab through the firing chamber Put a drop of oil on the bolt o-rings if your friends are still flapping their gums Reinstall bolt
After a day of play	1-2 Cases	<ul style="list-style-type: none"> Repeat above steps Wipe down marker outside Clean and oil bolt
After a Weekend	2-4 Cases	<ul style="list-style-type: none"> Repeat above steps Remove the Ram Cap and Ram Clean debris and old grease from ram interior Inspect o-rings for damage Clean and grease ram
A Month	10 Cases	<ul style="list-style-type: none"> Repeat above steps Clean, inspect, and grease HPR Piston o-ring
6 Months or when consistency issues appear	20 Cases	<ul style="list-style-type: none"> Clean, inspect, and grease LPR Piston o-ring Clean, inspect, and grease poppet shaft o-ring

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ADJUSTING THE TRIGGER

The Gen 5 Intimidator trigger has two adjustment screws. The bottom screw is for trigger post-travel and the top screw adjusts the activation point (where the marker fires). To adjust the screws insert a hex key and turn the screw. The screws have Loctite to prevent the adjustment from slipping so a firm, steady pressure is needed for the adjustment.



REPLACING/UPGRADING

The stock trigger is similar to the S-class trigger. However, the stock trigger does not have a roller bearing. To replace the trigger with an S-class trigger remove the grip frame then remove the retaining screw from the left side of the grip frame.

The trigger can be removed and a replacement inserted. Make sure to install the spring on the new trigger. The S-class trigger has a new pivot screw and a spacer, which goes between the trigger and the right side of the grip frame. The spacer is shown in the picture below.

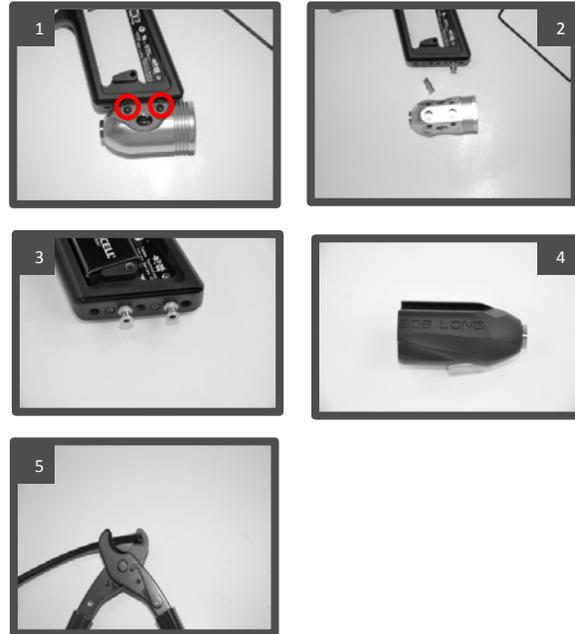


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ADJUSTING THE ASA (FRONT/BACK)

The Air Source Adapter (ASA) that connects your high pressure air tank to your Vice is a direct mount ASA. Direct mount ASA systems have screws that attach directly to the bottom of the grip frame. This ASA can be adjusted forward or backwards to help position the tank so that it is comfortable for you.

1. Loosen the four set screws in the ASA then lower it from the mounting studs. Notice the smiley face integrated into the milling? Pretty cool, eh?
2. Adjust the mounting screw positions forwards or backwards to achieve the position you prefer. Make sure to leave two empty holes between each stud.
3. Snug the studs in place. Don't use excessive force. Optionally use a drop of blue Loctite instead to prevent them from coming loose. Additionally a drop of Loctite will help secure the four set screws in the ASA.
4. A dovetail mount ASA, such as the Bob Long Cam Drive ASA, is secured by set screws which are accessed via the inside of the grip frame.
NOTE: Not all of the holes in the bottom of the frame are accessible from inside the grip frame. Use of a Dovetail mounting ASA requires one or two 10-32 x 1/4" socket set screws. These are not installed with the marker from the factory but are readily available from most hardware stores for less than \$1.
5. Depending on the change in the ASA position your macroline hose may need to be replaced. When cutting a piece of macro line make sure the cut is smooth and perpendicular to the length of the hose. Cutting a macro line too short will result in a poor connection and a leak from the fitting. Using a tool with curved cutting surfaces will help ensure a solid cut as shown in the picture.
6. Install an air tank and check for any leaks with the ASA in the new position. If it helps remind you – change the holes, check your hose!

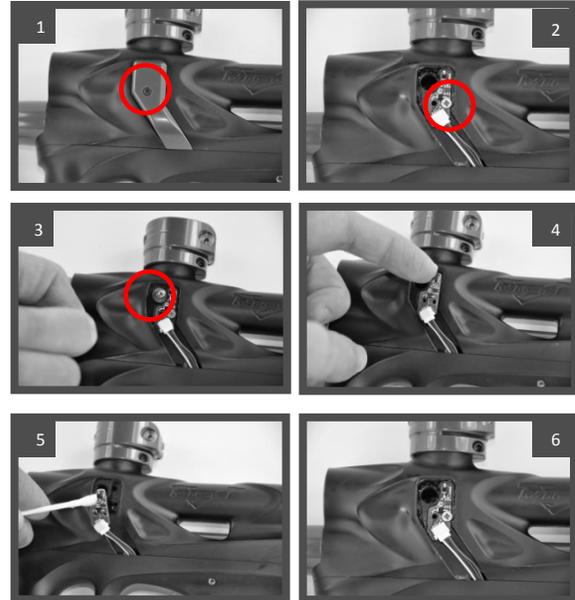


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MAINTAINING THE EYES AND DETENTS

In the event of a chopped ball or debris in the breach, your marker eyes may need cleaning.

1. Remove the eye cover screw using a 5/64" hex wrench, and remove the eye cover.
2. Carefully unscrew the PCB retaining screw. (Phillips head)
3. Remove the detent and spring by pressing on the detent from inside the chamber.
4. Gently tilt the eye PCB away from the body of the marker in order to access the inside surface.
5. Use a cotton swab to clean the surface of the eye, the eye holes, detent and detent hole. Dampen the swab with rubbing alcohol if necessary.
6. If removing the eyes from the wiring harness unplug the harness from the eye PCB by pulling the white plug and not the wires. Pulling the wires could potentially damage your harness and/or eye PCB.
7. After the eye and detent have been sufficiently cleaned, reinstall the PCB and eye cover.



Optional Upgrade: The use of 4C eyes allows the control board to calculate when the paintball will be fully in the breach based on the drop rate into the chamber. This results in quicker firing once the ball is in the chamber. The 4C eyes are installed in the picture to the right with the stock eyes sitting next to them.

Optional Upgrade: The standard Delrin detents can be replaced with Super Ds - an upgraded Type III anodized aluminum detent which provides longer detent life. If the Super Ds are used the sides of the detents must be greased slightly. Super Ds must be rotated slightly each time the eyes are cleaned in order to ensure even wear.



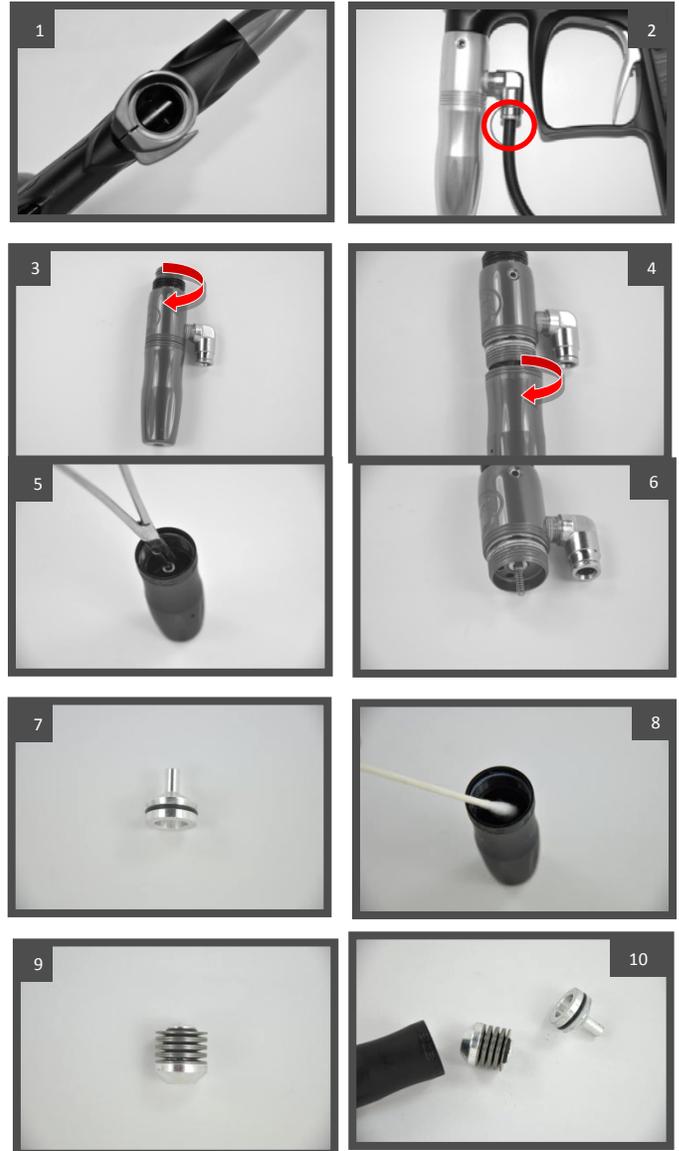
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MAINTAINING THE HPR

Your Vice comes equipped with the best regulators on the market. To ensure the best consistency and the highest flow possible, it is recommended that you clean and grease the in line regulator (HPR) according to the maintenance schedule.

1. Degas the marker and ensure that there are no paintballs in the breech or barrel of the marker.
2. Remove your macroline hose from the 90° fitting on your regulator. Push up on the hose then hold the silver ring while pulling the hose down.
3. Unscrew the regulator from the vertical adaptor, and set your marker down.
4. Grasp the two halves of the regulator, and unscrew the regulator base counter clockwise.
5. Reach into the regulator base with tweezers or needle nose pliers to remove the regulator piston.
6. The main valve does not need to be removed from the upper portion of the regulator. Never replace or attempt to service a working main valve.
7. Inspect the surface of the piston and piston o-ring for excessive wear or nicks, and replace as necessary.
8. Inspect the interior walls of the regulator base— if necessary, use a swab on the interior of the regulator base to clean debris and old grease.
9. When reassembling the spring follower (spring stack assembly) make sure that the top and bottom spring washers curve to the outside. A close up of the spring assembly with the retaining o-ring is shown to the right. The retaining o-ring does not require lubrication. If in doubt – just stack the spring washers like this:

10. Grease the piston o-ring with and gently replace the spring follower (spring stack assembly) and piston into the regulator base. There is a concave area around the o-ring that holds additional lube and reduces the need for frequent maintenance. Reassemble the regulator to the marker. Make sure the regulator body halves and the regulator itself are snugly screwed together.



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SETTING HPR PRESSURE

The HPR pressure is adjusted through a hex screw at the bottom of the regulator. Turning the screw clockwise increases the pressure and velocity. Turning it counterclockwise will lower the pressure and velocity. Only turn the wrench $1/8^{\text{th}}$ - $1/16^{\text{th}}$ of a turn with each adjustment.

After rebuilding the regulator you can do a basic setting using a second ASA with a gauge installed in the place of a macro fitting. For this method unscrew the HPR from the marker then screw on the second ASA to the top of the regulator.

Once an air source is connected you can see the pressure leaving the regulator. A basic setting of 200 PSI is sufficient for initial tuning of the marker. **ALWAYS TEST YOUR VELOCITY WITH A CHRONOGRAPH AFTER ADJUSTING YOUR HPR.**



SETTING LPR PRESSURE

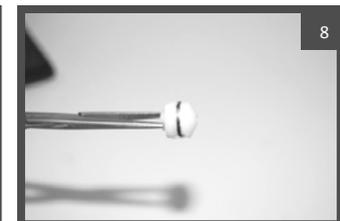
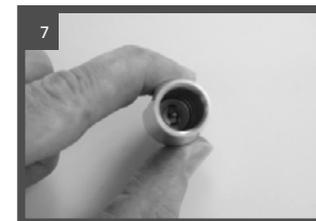
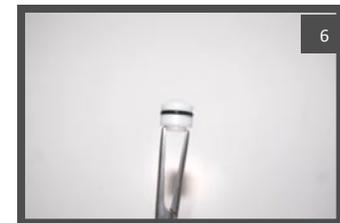
1. Remove the bolt from the marker.
2. Remove the back cap and tap the ram out into the palm of your hand.
3. Screw the tester into the marker body – it uses the air cap threads.
4. Attach the air source and, if necessary, turn on the ASA.
5. Turn on the marker's control board and disable the eyes.
6. If you did everything correctly you will now see the pressure your LPR is set to. This justifies cookies.
7. Adjust the LPR using small increments – $1/8$ of a turn at a time. Keep pulling the trigger while doing the adjustment to allow pressure to equalize. Maniacal laughter during this step is optional, but highly encouraged.
8. The stock poppet should have the LPR between 70-75psi. The upgraded Low Pressure Poppet Valve should be 65-70 psi. Once the pressure is set correctly:
 - Turn off the board
 - Degas the marker
 - Remove the tester and reassemble the ram, back cap, and bolt



If you are still laughing maniacally at this point it is getting creepy. Take a break from laughing and get some cookies.

MAINTAINING THE LPR

1. Remove the macro-line and the HPR from your marker. Set the regulator to the side.
2. Remove the LPR retaining screw from inside the vertical adaptor.
3. Slide the LPR assembly forward and out of the marker
4. Remove the adjustment screw from the end of the LPR then remove the LPR cap.
5. Tap the LPR body on a hard, flat surface to allow the LPR piston, spring, and spring follower to slide out of the regulator base. If the piston doesn't come out easily some needle nose pliers will make pulling it out easier. Gently grab the nubbin on the end to pull it out.
6. Inspect the surface of the piston and o-ring for excessive wear or nicks. Wipe off the old grease and replace the o-ring if necessary. Note that the nubbin mentioned in the previous step is at the bottom in the above picture. Our main engineer hates it when we call it the nubbin but we may get this paragraph through review before he catches it.
7. Use a swab to clean the interior of the LPR body. Don't try to remove the main valve in the center. Use caution to avoid getting fibers stuck to the main valve when using the swab.
8. Lubricate the piston o-ring with grease. There is a concave area around the o-ring that holds additional lube and reduces the need for frequent maintenance. Gently replace the piston, spring, and spring follower (washer) back into the LPR body.
9. Tightly screw the LPR cap to the LPR body. Put a drop of blue Loctite on the adjustment screw threads. To complete reassembly reverse the steps you used when disassembling the LPR.

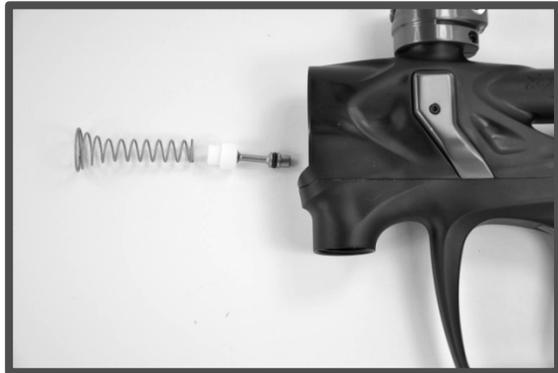


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MAINTAINING THE POPPET VALVE ASSEMBLY

1. With the LPR removed from the marker, remove the poppet valve by tapping the front of the marker firmly against the palm of your hand or a padded surface. Alternately use a pair of needle nose pliers, remove the poppet return spring and poppet valve from the front of the ram sleeve.
2. If step #1 sounds annoying do it the easier way – remove the ram as described in the ram maintenance instructions and use a chopstick to push the poppet out from the back. (If you don't have a chopstick ordering Pad Thai for lunch will get you a chopstick)
3. Inspect the surface of the poppet and o-ring for excessive wear or nicks, and replace as necessary.
4. Clean debris and excess grease from the poppet surface, and grease the poppet o-ring.
5. Replace the poppet and poppet return spring into the ram sleeve, and attach the LPR with the LPR retaining screw. The narrow end of the tapered spring goes towards the poppet with the wider end going toward the LPR.

NOTE: If you aren't sure whether you have the regular or LP poppet take a look at the shaft. The LP poppet has a silver shaft.



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MAINTAINING THE BOLT

1. De-gas the marker and insure that there are no paintballs in the breech or barrel of the marker.
2. Remove the bolt from the marker by pulling upward on the pull pin.
3. Slide the bolt to the rear of the marker body.
4. Inspect the surface of the bolt and o-rings for excessive wear or nicks, and replace as necessary.
5. Place one drop of oil on each o-ring and spread it around the ring with your finger to ensure an equal coating.
6. Inspect the firing chamber and body – if necessary run a clean swab through the body to clean out any dust or debris.
7. Reinsert the bolt into the marker ensuring to place the pin into the groove of the ram.



MAINTAINING THE RAM

1. Remove the bolt from the marker
2. Remove the back cap from the marker
3. Tap the ram out into the palm of your hand – if you have trouble tapping it out use a hex key or chopstick to push it back from the top where the bolt sits.
4. Wipe off any old grease or debris.
5. Wipe out any old grease from the ram housing using a swab.
6. Inspect the o-rings for excessive wear or nicks, and replace as necessary.
7. Apply a thin coat of grease to the o-rings.
8. Reinsert the ram with the smaller diameter section to the front of the marker.
9. Replace the back cap and tighten snugly.
10. Perform the Bolt maintenance process.



O-RINGS AND FASTENERS

O-RINGS

Part Name	Specifications	Quantity
Drive Manifold O-rings	1mm X 3mm Buna (Durometer 70)	2
90 Degree Hose Barb Fitting Seal	1mm X 3mm Buna (Durometer 70)	1
Solenoid Manifold O-ring	1mm X 4.5 mm Buna (Durometer 70)	1
Ram Cap (Vice – located on Ram Cap)	1mm X 12mm Buna (Durometer 70)	1
Ram Cap (Protégé-located in Ram Sleeve)	1mm X 14mm Buna (Durometer 70)	1
Poppet Shaft O-ring	006 Buna (Durometer 70)	1
Front Ram O-ring	006 Buna (Durometer 70)	1
Rear Ram O-ring	011 Buna (Durometer 70)	1
LPR Piston O-ring	012 Buna (Durometer 70)	1
Bolt O-rings	015 Buna (Durometer 70)	3
360° Regulator ASA Adapter Internal O-Rings	014 Buna (Durometer 70)	2
360° Regulator ASA O-ring	015 Buna (Durometer 70)	1
Poppet Housing (Vice)	015 Buna (Durometer 70)	3
Ram Sleeve (Protégé)	015 Buna (Durometer 70)	5
LPR Housing O-rings	015 Buna (Durometer 70)	3
360° Inline Regulator Piston O-ring	016 Buna (Durometer 70)	1
Primary Air Chamber Gasket	028 Buna (Durometer 70)	1

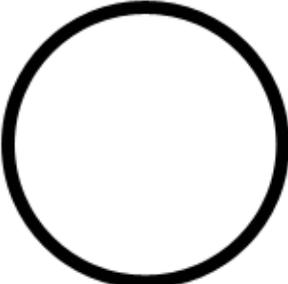
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FASTENERS

Part Name	Specifications	Quantity
Bottom PCB Retaining Screw	M2x4mm Pan Head Machine Screw	1
Top PCB to Grip Frame	M2x12mm Pan Head Machine Screw	2
Bottom Air Passage Plug	M3x3mm Cup-Point Socket Set Screw	1
Rear Air Passage Plug (Vice)	M3x5mm Cup-Point Socket Set Screw	1
Front Air Passage Plug (Vice)	M3x5mm Cup-Point Socket Set Screw	1
Rear Air Passage Plug (Protégé)	M3x8mm Cup-Point Socket Set Screw	1
Front Air Passage Plug (Protégé)	M3x8mm Cup-Point Socket Set Screw	1
Eye Cover Screws	2-56x1\4" Socket Head Cap Screw	2
Eye PCB Retaining Screws	2-56x1\4" Flat Head Machine Screw	2
Drive Manifold Screw	2-56x1\4" Socket Head Cap Screw	1
Trigger Activation Point Set Screw	6-32x3\8 Cup-Point Socket Set Screw	1
Trigger Post-Travel Set Screw	6-32x1\4 Cup-Point Socket Set Screw	1
Grip Panel Screws	6-32 x 3\16 Button Head Socket Cap Screw	6
Xpress Mount ASA Set Screws	8-32x3\16 Cup Point Socket Set Screw	4
Rear Grip Frame Screw	10-32x5\16 Button Head Socket Cap Screw	1
LPR Retaining Screw	10\32 x 1\2 Socket Head Cap Screw	1
360° HPR Swivel Lock Screws	10\32x1\4" Cup-Point Socket Set Screw	2
360° HPR Adjustment Screw	1\4-28x3\8 Cup-Point Socket Set Screw	1

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O-Ring Size Table

1x3mm		1x4.5mm	
1x12mm		1x14mm	
006		011	
012		014	
015		016	
028			

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Q&A

- Q:** My Vice is VERY bouncy and I can't do anything! I've topped out the debounce and AMB and I put the trigger in like every position possible. Would it be the loader delay help any? What else should I do?

A: Make sure the trigger spring is installed. Make sure the trigger activates near the end of the pull. If necessary back out the trigger activation set screw ½ turn.
- Q:** Where can I get an o-ring kit?

A: Bob Long Technologies and authorized resellers have o-ring and parts kits available.
- Q:** What is the recommended dwell setting?

A: Dwell should be at 6 when you get the marker and after you use it. There's no advantage to running a higher dwell to "break it in". There are exactly zero heavy springs in the HPR or LPR that need broken in.
- Q:** What pressure should my LPR be set to with the LPR tester?

A: The Upgraded Low Pressure Poppet around 65-70. The stock poppet should enable you to run the LPR around 70-75.
- Q:** I am seeing large velocity fluctuations – what should I do?

A: Check for a good paint to barrel match. Ensure the HPR shim stack is assembled correctly and that your ram, LPR, HPR and poppet o-rings are lubed with Dow 55. Check the LPR pressure and apply a drop of blue Loctite to the threads of the LPR adjustment screw.
- Q:** I lowered my bolt delay and now the eyes registering an eye malfunction and lowered my bps to 12. What should I do?

A: The bolt delay is too low at 8ms, the eyes are activating too early while the bolt is still cycling backwards to prepare itself for the next paintball to drop. The eyes activate, see your bolt, and never register a change from the bolt to the ball coming in place. Raising the setting to 10 will normally clear this problem.
- Q:** So what is this bolt delay setting?

A: Bolt delay is actually an eye activation setting and not a bolt setting. Essentially you need a delay added in so the eyes don't turn on as the bolt is on it's backward travel. If they turn on too soon, the marker thinks the bolt is a ball and will queue up the next shot. This causes skipped shots and often chops. Keep it at 10 (or higher)...because your board isn't seeing a gap between when the bolt cycles and the ball drops and thinks the eyes are malfunctioning.
- Q:** What weight is the stock vice micro switch?

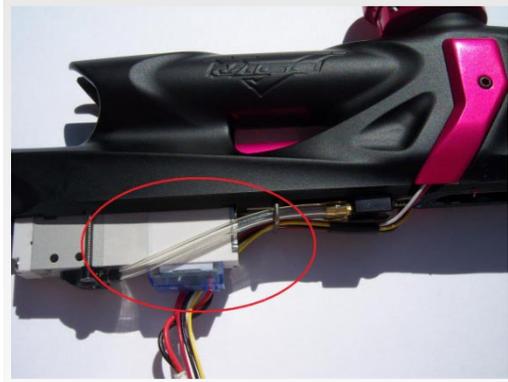
A: 80g
- Q:** How much oil should I put on the bolt?

A: Just a drop on each o-ring. Put a drop on, then use your finger to put it around the entire ring. Too much oil can cause bolt movement problems or result on oil splattering on the eye system in extreme cases.
- Q:** What threading is the barrel?

A: Autococker

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11. **Q:** Should my air hose be squeezed between the solenoid and frame like in the picture below?
A: This is normal and does not impact air flow.



12. **Q:** Is the Stock trigger a roller bearing?
A: Nope

13. **Q:** What items are recommended to keep in my toolkit?
A: Each of the following:

- LPR tester
- Dow 55
- Triflow oil
- O-rings
- Timmy hose for solenoid
- One wooden chopstick (occasionally helpful for poppet or ram removal)
- Hex key set

14. **Q:** How do I reset the settings to factory on the Ryujin board?
A: Hold the tourney lock for 10sec

15. **Q:** My HPR seems to keep coming loose – what should I do?

A: Degas your marker. Take off your regulator and take out both set screws, Separate the threads of the HPR from the HPR body. You'll know where your set screws are holding, you'll see the little indents they make around there. Wipe off lube well, and if there's some excess on the screws, do that too. Put it back together and crank down with moderate pressure. If you're throwing your whole body into it and it's still not holding, there's too much lube left still.

16. **Q:** My feedneck isn't tightly clamping my loader- what should I do?
A: For the Vice – use a hex wrench to tighten the adjustment screw.

17. **Q:** I can't seem to get an adjustment screw on my trigger to move – what should I do?

A: Most triggers have blue Loctite on the adjustment screw. Just apply some steady force with the hex wrench and the screw will move.

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18. Q: What is the racetrack o-ring?

A: It is the o-ring in the body of the marker above the grip frame. It is actually a round o-ring just sitting in the oval groove. If you have leaking between the body and grip frame remove o-ring, lubricate and place back into the slot.



19. Q: Where can I find additional information and other users of Bob Long Markers?

A: www.intimidatorowners.com also the PBNation subforums dedicated to Bob Long products located at <http://www.pbnation.com/forumdisplay.php?f=146>

20. Q: I need to ship my marker in for technical support – what is the address?

A: The address varies depending on whether shipping by postal service or another method.

USPS/Postal Shipping:

Bob Long Technologies
P.O. Box 457
Mokelumne Hill, CA 95245

Other shipping methods:

Bob Long Technologies
11669 Highway 26
Mokelumne Hill, CA 95245

21. Q: Where can I order a jersey like on the cover of the manual? www.intimidatorowners.com

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TROUBLESHOOTING GUIDE	
Marker will not turn on out of the box	<ul style="list-style-type: none"> -Ensure that the battery that you're using in your new marker is a high quality alkaline 9 volt. -Verify that your battery is correctly oriented (matching with the correct terminals), and that it is making firm contact with the prongs on the circuit board. -Make sure that the wiring harness is correctly inserted into the receptacle, and that the on/off pad is making contact with the switch on the circuit board.
Velocity is inconsistent over the chronograph	<ul style="list-style-type: none"> -Always check that your paintballs are of high quality, and consistent in size, as well as using a good paint to bore match. -Make sure the LPR and the HPR are set to the proper pressures. -Replace your battery. -Inspect the ram o-rings for nicks and that they are properly greased
Marker is breaking paint	<ul style="list-style-type: none"> - Always check that your paintballs are of high quality, and consistent in size, as well as using a good paint to bore match. -Make sure the LPR and the HPR are set to the proper pressures. -Ensure that your detents and bolt face are in good condition, and there is no debris in the breech of the marker. -Reset your board settings to factory settings and use a force-fed loader. -Check the tension/pressure settings if you are using a force fed loader. Having too high of a feed pressure with fragile paint can cause balls in the stack to break
Marker does not gas up after tank is connected	<ul style="list-style-type: none"> -Verify that the pin valve on your tank is outputting pressure to the regulator—some tanks will not work properly with certain ASAs. -Attempt gassing up the marker with another tank to see if this remedies the issue.
Marker does not display correct LED indicator color when turned on	<ul style="list-style-type: none"> -Verify that your battery is correctly oriented (matching with the correct terminals), and that it is making firm contact with the prongs on the circuit board. -Verify that the breech of the maker is clear of obstructions, the bolt is in the back position, and that the eyes are clean and plugged into the harness.
Marker is leaking from the ASA	<ul style="list-style-type: none"> -Check the tank o-ring (015 Urethane D90) for nicks or tears. -Check that the macroline hose is in good condition and is cut evenly - The macroline fitting has a 010 o-ring. Remove the fitting and replace the o-ring if the above does not correct the problem
Marker is leaking from the HPR	<ul style="list-style-type: none"> -If the leak is coming from the macroline elbow, make sure that the macroline fitting has been secured to the regulator with factory approved thread-sealant (NOT TEFLON TAPE) - Check that the macroline hose is in good condition and is cut evenly -Replace the piston o-ring inside the regulator.
Air is leaking from the front of the marker frame	<ul style="list-style-type: none"> -Verify that the racetrack o-ring in the front of the frame is free of nicks and has a light coat of grease to induce swelling. -Verify that the screw in the center of the vertical ASA is snug and that nothing obstructing the frame from making a tight seal with the bottom of the body.

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Air is leaking from the rear of the marker frame	<ul style="list-style-type: none"> -Remove the trigger frame from the marker, and inspect the hose to the solenoid. If it appears worn or pinched, consider replacing the hose. -If your marker has this excessive compression of the hose replace the hose and apply a small amount of grease to the hose to allow it to compress in the frame without being deformed. If this does not fix your issue, consult expert advice or seek professional repair
Marker leaks down the barrel	<ul style="list-style-type: none"> -Ensure that your ram o-rings are free of nicks, and properly lubricated. -Verify that your poppet seal is in good condition, with its shaft o-ring is free of nicks and properly lubricated. -If this does not correct your issue, consult expert advice or seek professional repair
Marker fires more than one shot per pull, or has trigger bounce	<ul style="list-style-type: none"> - Verify that your trigger has the spring installed and that it is properly seated - Verify that your marker is in semi-automatic mode - Raise your marker's debounce level, and make sure that your trigger activation level is not too short.
Marker double feeds	<ul style="list-style-type: none"> -Verify that detent springs are in place and detents move freely -Replace the marker's ball detents if they are excessively worn -If using Super Ds make sure the detents are lubricated on the sides

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