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U.S. Patent Nos. 5,228,427; 5,755,213; 5,957,119; 6,260,821; 6,349,711; 6,494,195; 6,644,295; 6,644,296; 6,823,857;
6,694,963; 6,810,871; 7,017,497; 7,044,119.

PRIMETM XTS

PRIMETM XTS
Owners Manual

MACDEV

Prime XTS Owners Manual

V1.10

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MacDev Warranty

MacDev offers a 12 month limited warranty period on your MacDev manufactured electro-pneumatic marker. The MacDev electro-pneumatic marker is warranted to be free from all manufacturing and production defects for a period of 12 months from the date of original purchase. If requested by MacDev, an original proof of purchase must be provided. Warranty exceptions include, but are not limited to, accidental damage, misadventure, reasonable wear and tear and consumable components such as O-rings, detents, batteries and eyes. Warranty work must be undertaken by an authorized MacDev tech centre or at a MacDev sanctioned tech support booth.

For assistance with your warranty, please visit www.macdevpaintball.com/warranty or contact customer service on our website (www.macdevpaintball.com)



Warning!

This is not a toy. Misuse may cause serious injury or death. Eye protection designed specifically for paintball must be worn by user and persons within range. Recommend 18 years or older to purchase. Persons under 18 must have adult supervision. Do not use muzzle velocities over 300fps. Do not use within 5m of target. READ OWNER'S MANUAL BEFORE USING.

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Maintaining your purchase is essential to long term product satisfaction.

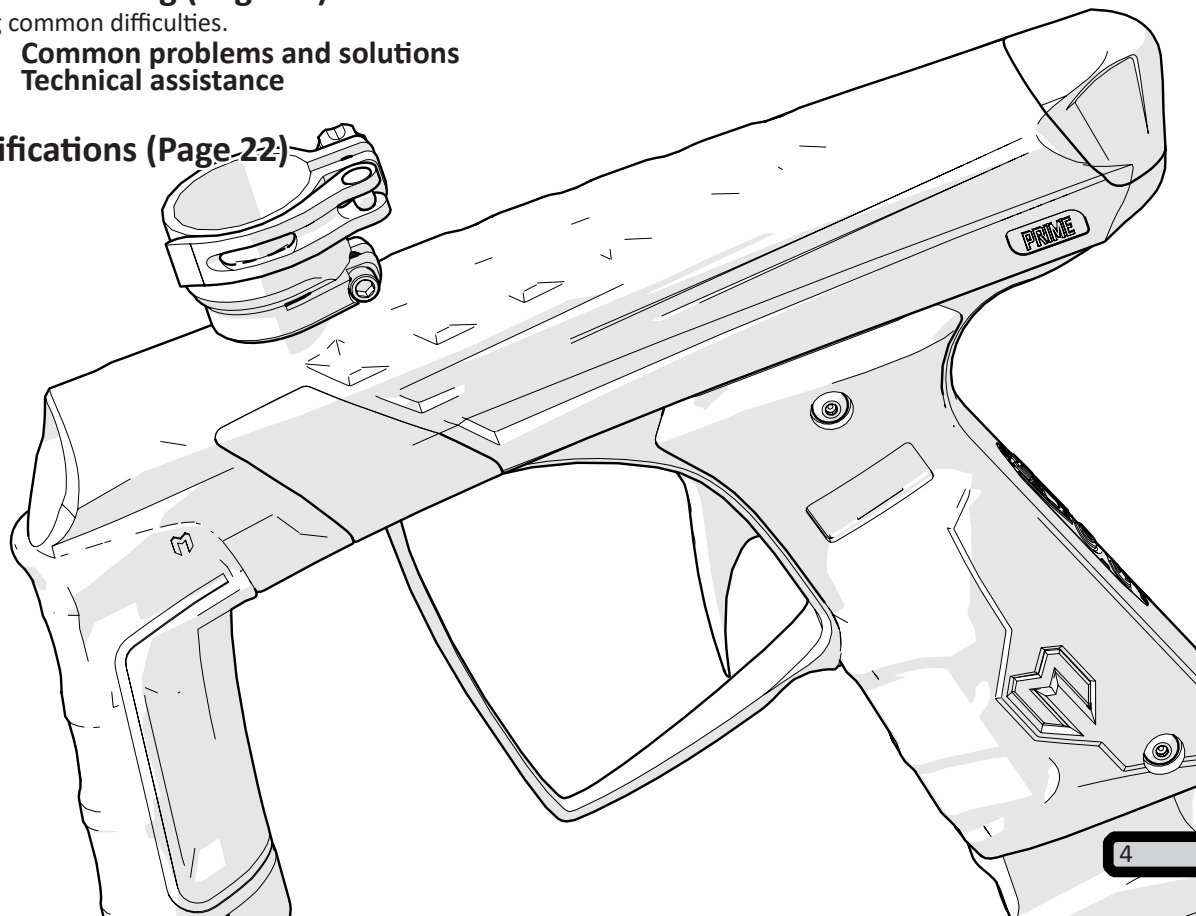
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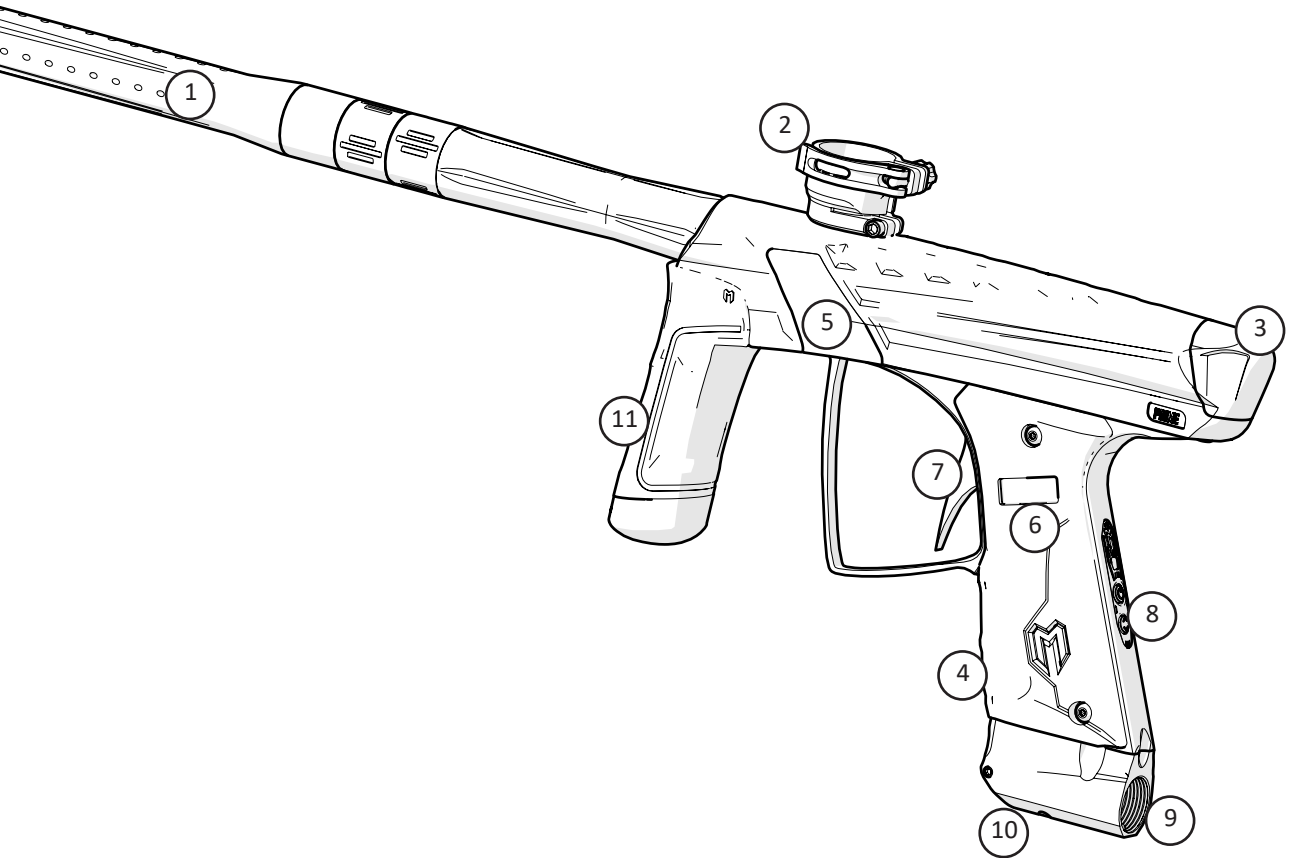
Solving common difficulties.

Common problems and solutions
Technical assistance

Specifications (Page 22)



KNOW YOUR Prime® XTS



Congratulations on your purchase of a new MacDev Prime XTS. Your marker uses a highly efficient spool valve drive for a flat, consistent and accurate shot. The drive is powered by a high precision, low power solenoid valve, manufactured in house by MacDev. The entire system is controlled by a new generation, robust microprocessor running a proprietary operating system.

The latest features have been added around this powerful base core to bring you a marker with unrivalled usability, quality and reliability.

Please take the time to learn the parts of your Prime XTS, it will help you when reading this manual.

Numbered basic parts as shown in the figure on the left:

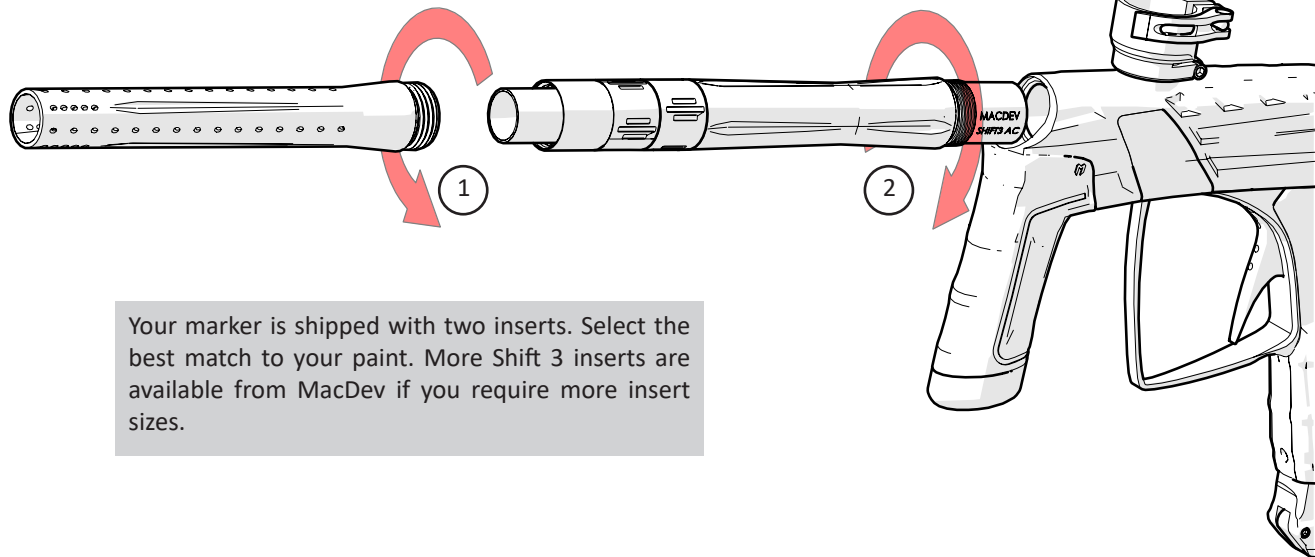
1. Shift 3 barrel
2. Feed clamp lever (used to affix your loader)
3. Drive cover (pull up and back to remove)
4. Velocity regulator adjustment (anti clockwise to increase velocity)
5. Tool-less eye covers
6. OLED display used to view gun status/settings
7. Trigger with screw adjustments
8. Membrane pad with power and programming buttons
9. Venting ASA, screw your air system in here
10. Venting ASA on/off lever (used to turn the air on or off)
11. Front grip assembly

Please note, the features and included accessories are subject to change, and may vary from those show in this manual.

QUICK SETUP

Assemble your barrel

Your marker comes with a Shift 3 barrel system. Screw the two halves together, before screwing the barrel into your marker. The barrel and back are reverse threaded.



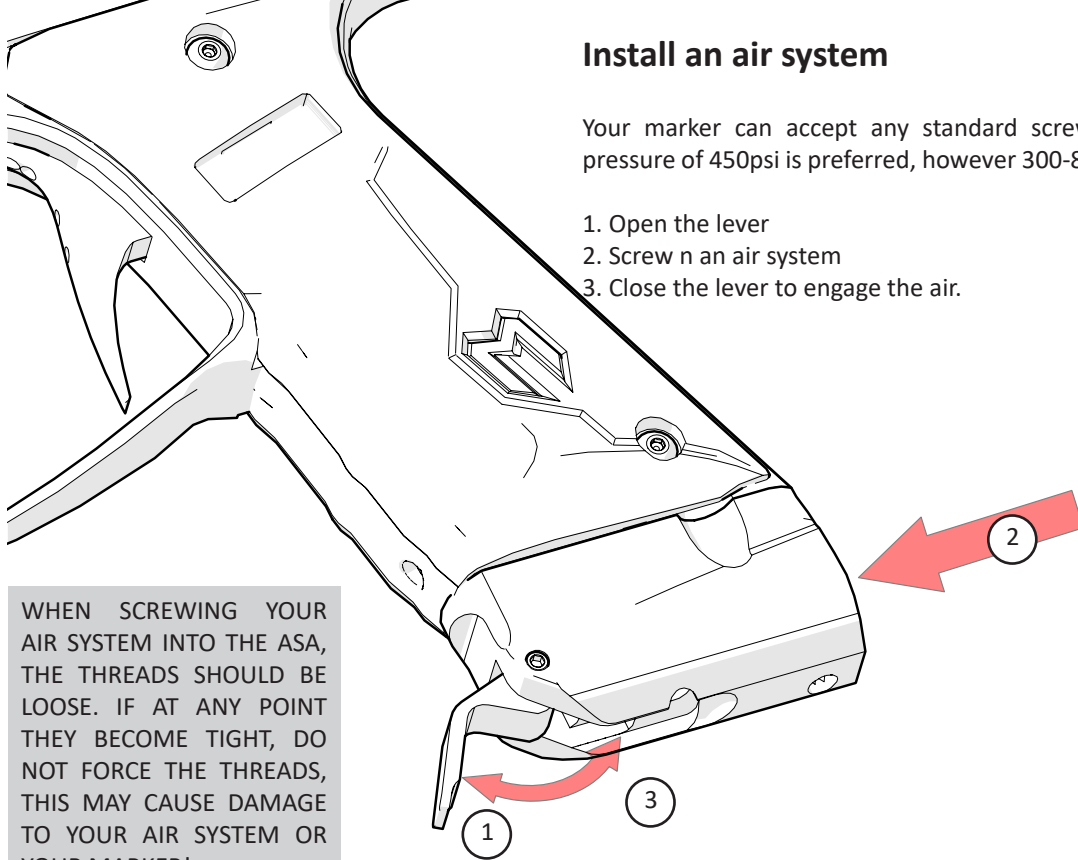
Your marker is shipped with two inserts. Select the best match to your paint. More Shift 3 inserts are available from MacDev if you require more insert sizes.

Install an air system

Your marker can accept any standard screw in air system. A pressure of 450psi is preferred, however 300-800psi is acceptable.

1. Open the lever
2. Screw in an air system
3. Close the lever to engage the air.

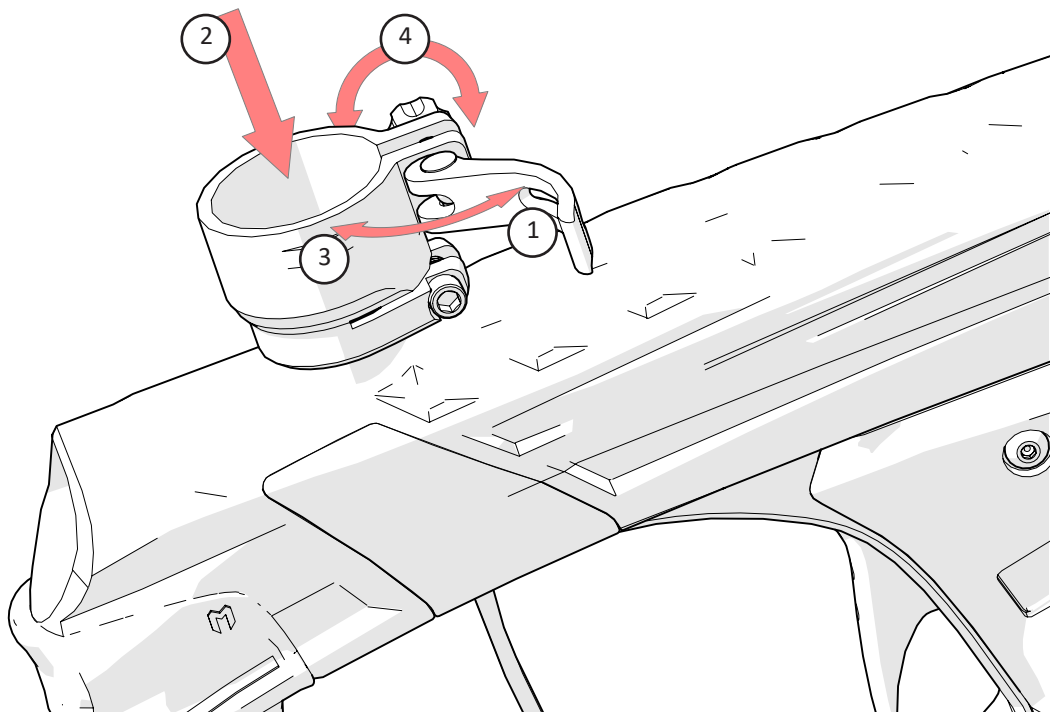
WHEN SCREWING YOUR AIR SYSTEM INTO THE ASA, THE THREADS SHOULD BE LOOSE. IF AT ANY POINT THEY BECOME TIGHT, DO NOT FORCE THE THREADS, THIS MAY CAUSE DAMAGE TO YOUR AIR SYSTEM OR YOUR MARKER!



Fit your loader

1. Open the lever
2. Push in your loader
3. Close the lever
4. Make fine adjustments to the clamp force using the thumb adjuster

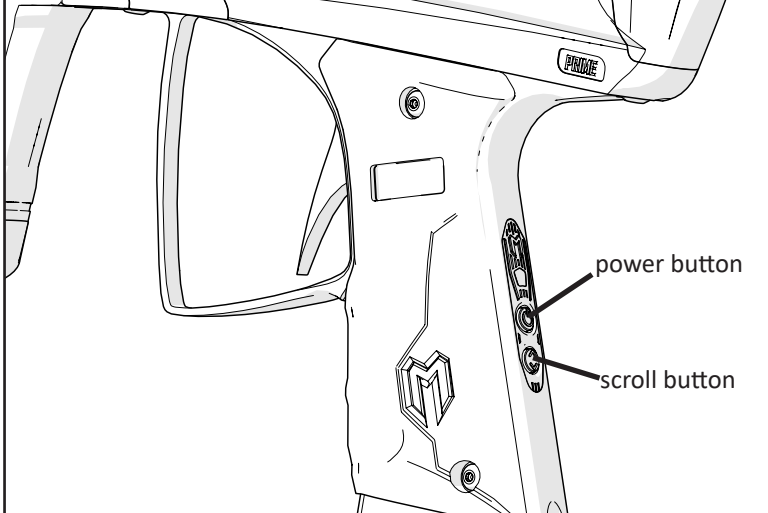
Use any loader you like with your Prime XTS, your marker will use the beam sensor to wait for a ball before firing. If you would like to fire at a faster rate, use a faster loader.



Turning on your marker

Tap the power button to turn on. Long press the power button to turn off.

Long press the scroll button to toggle the eyes on and off.



Understanding the OLED display

Your OLED display indicates the battery level, eye status, fire mode and recent rate of fire.



Ball loaded



No ball loaded

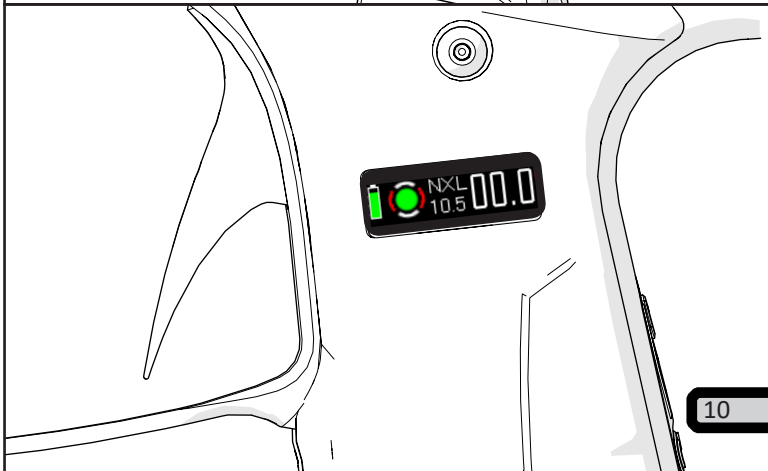


Bolt is not seen*

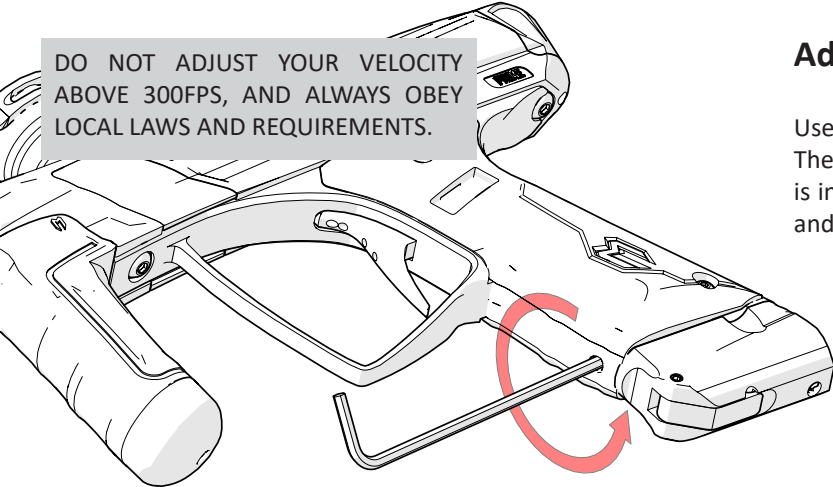


Eye system disabled

* Your marker looks for the bolt to move back and forth during firing. If this is not seen, your display will show a question mark. This is common if the marker does not have any air.



DO NOT ADJUST YOUR VELOCITY ABOVE 300FPS, AND ALWAYS OBEY LOCAL LAWS AND REQUIREMENTS.



Adjusting velocity

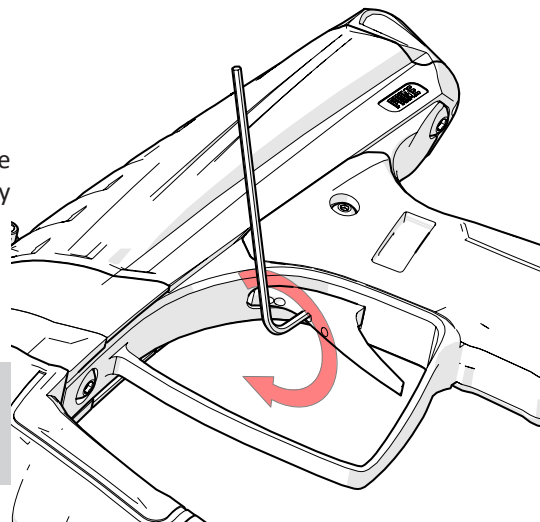
Use a 1/8" allen key to adjust velocity as shown. The arrow on the diagram is anti clockwise, which is increasing velocity. Always use a chronograph, and use small adjustments.

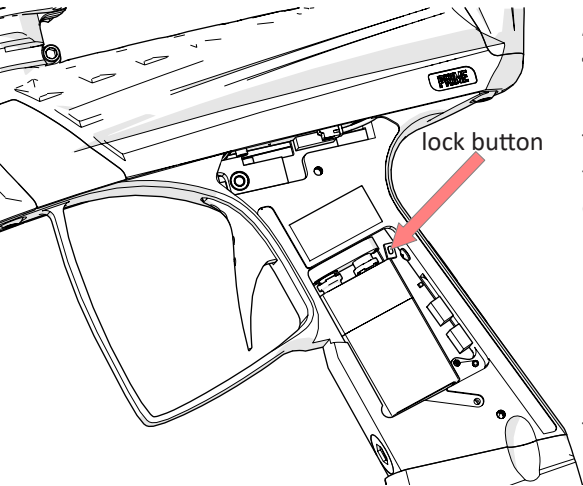
Adjusting the trigger

Your trigger has four adjustment screws, they are located in the front face of the trigger and also on the upper face. In order of top to bottom, they are the trigger rest point, spring tension, actuation point and stop point.

You can easily adjust these screws to personalise the feel of your trigger.

CAUTION! WHEN ADJUSTING THE SWITCH ACTUATION SCREW, MAKE CERTAIN THAT YOU DO NOT ADJUST THE SCREW IN TOO FAR, AS THIS MAY RESULT IN DAMAGE TO YOUR MICROSWITCH.





ADVANCED SETUP

Tourney lock

The marker board is equipped with a tourney lock system. When the tourney lock system is activated, the marker cannot be reprogrammed on the field - making it tournament legal.

If your board is in locked mode, you can view your settings, but a lock indicator will be shown on the right hand side of the screen, indicating that your board will need to be unlocked before settings may be changed.

The lock status can be changed by opening the left hand side of the marker wrap around grip to gain access to the circuit board. The tournament lock is a black button. Press and hold the tourney lock button until an on screen indication of tourney lock status is shown.

Entering program mode

To program the board, hold down the trigger whilst turning the marker on. When done correctly, you will see a message on your display screen indicating that programming mode is loading. You must continue to hold the trigger until the program mode is loaded, then release the trigger.

Finding and changing settings

Once in program mode, the OLED display will show a current setting. you can advance to the next setting by tapping the scroll button (⏮). You can go back to the previous setting by tapping the power button (⏻).

Once you have found a setting you would like to change, press and hold the trigger until the setting changes to red. The setting can now be changed by tapping the scroll button to increase its value (or change to a different option), or tapping the power button to decrease its value.

Once you have adjusted the setting to a value you would like, press and hold the trigger again until the setting returns to white colour, it has now been saved.

If your tourney lock is on, settings that can change the tournament legality of your marker will be locked. Their setting can be viewed, but not changed. You will know if the tournament lock is blocking editing, because a red lock symbol will show in the upper left hand corner of the screen, and the setting will not change to the usual red colour. If you would like to change a locked setting, you must open the wrap around grip and hold in the tourney lock button. This may be done inside program or normal running mode.

Settings in detail

Mode - The type of firing system used, semi auto, Millenium and PSP are common tournament modes. Ramp mode allows the programming of custom ramping behaviour.

ROF - This is the maximum rate of fire allowed by the marker. This setting is only observed if the nex setting, rate of fire cap is set on.

ROF cap - If the cap is enabled, the marker will be limited to the ROF setting. Otherwise, it will fire as fast as the laws of physics (and paint supply) will allow.

Dwell - the amount of time your solenoid is given power - the Prime should be set to a maximum of 12ms. If the weather is very cold, or your marker requires it, you may set this a little higher.

Debounce - the amount of bounce filtering applied by the software. This setting may be increased to remove unwanted trigger bounce.

Ball delay - this is a parameter used to give a paintball time to settle in the breach of the gun. If you have unexplained ball breakage, then you may need to increase this setting.

Eye sensitivity - the sensitivity of the software to changes in your eyes. Please do not change this parameter unless directed (default 10).

Forced shot - when enabled, this will allow the user to force a shot by holding the trigger in - even if the eyes cannot detect a ball. Set this to off, if you would not like to use this function.

FSDO time - FSDO stands for First Shot Drop Off. If you leave your gun for some time, and the first shot is lower than it should be, then you can use this parameter to correct it. This parameter is the time that the software waits before correcting for FSDO.

FSDO dwell - this is the amount of extra dwell given to the solenoid to overcome FSDO - if directed to do so by the above parameter.

Ramp semishots - this setting (and the other three below) is only used if you are using the Ramp firemode. This is the number of semi auto shots which must be fired before ramping is allowed.

Ramp rate - this is the number of shots per trigger pull when in ramp mode.

Ramp ROF - this is the rate of fire which must be achieved and maintained to stay in ramp mode.

Ramp timeout - the amount of time the user can spend below the ramp ROF before ramping is exited.

Sound - turn sounds on or off.

Auto power off - save power by automatically turning the marker off after 30 minutes.

Load/Save profiles - Your marker has two profile save slots. Once you have your marker set up as you like it, go to save profile and select one of the profiles. Hold the trigger in on the profile number you would like, and the current settings will be save to that profile slot. You can reload them at any time using the load profile option.

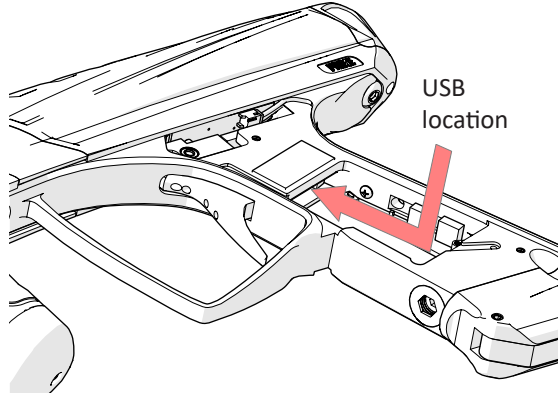
There is an option under load profile, to load factory defaults.

Version information and shot counter is shown on the final setting screen.

Using the USB connector

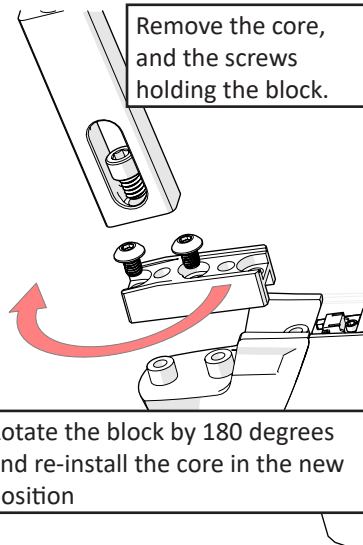
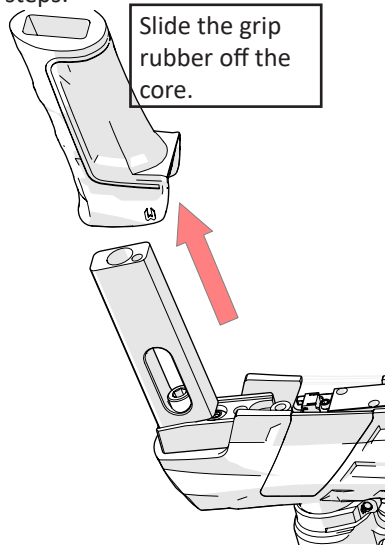
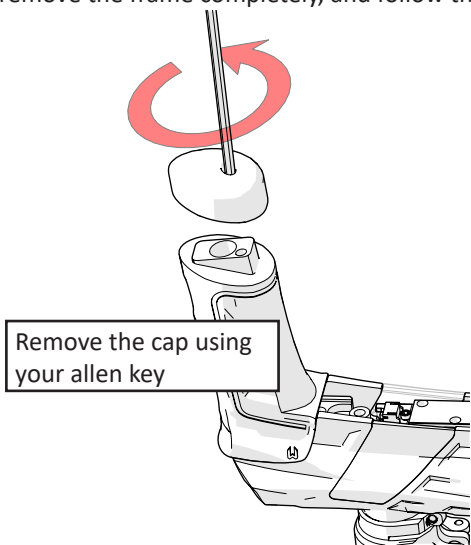
Your stock board has a USB connector under the display. Instructions and software downloads are available at macdevpaintball.com.

Please note: USB is only used for firmware updates, not for everyday settings changes.



Changing the front grip angle

Your Prime XTS front grip can be used in an 8 degree or vertical position. It is shipped in the 8 degree position. To change it to vertical, remove the frame completely, and follow these steps:



MAINTENANCE

If you take 10 minutes after every day of play to maintain your marker, you will be rewarded with consistent reliable performance.

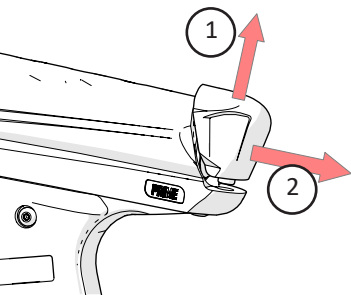
You should perform basic cleaning after every day of play, and you should perform drivetrain maintenance every 5 cases. You should perform inline regulator maintenance every 20 cases. You can clean and maintain your marker more often, it is up to you.

When maintaining your marker, use only MacDev accessories. Your marker is packaged with an allen key set and a small tube of MacDev Militia Lube, only use Militia Lube for lubrication.

Basic cleaning

After using your marker, always clean old paint from the outside. Always clean your barrel using a barrel swab to remove traces of dirt and paint. Use your barrel swab to clean the breech and feed tube in a similar way. Your marker internal parts are quite well protected and sealed. However, when not in use, dirt can get into the marker and cause problems - so storage of your marker is just as important as cleaning. When storing your marker, ensure that it is stored a bag that is free of dirt, otherwise dirt may get into the venting ASA or breech.

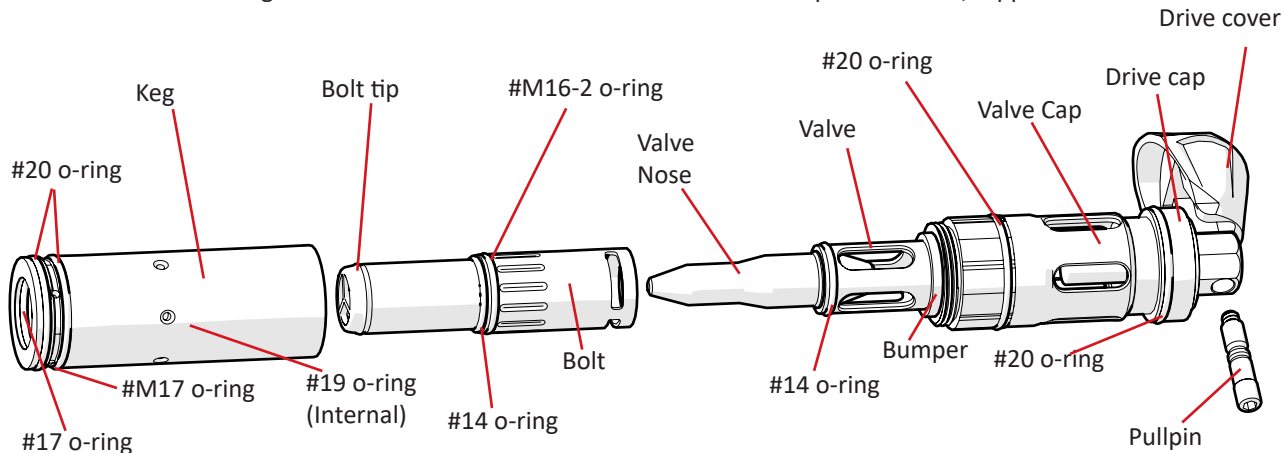
Maintaining the drivetrain (every 10,000 shots)

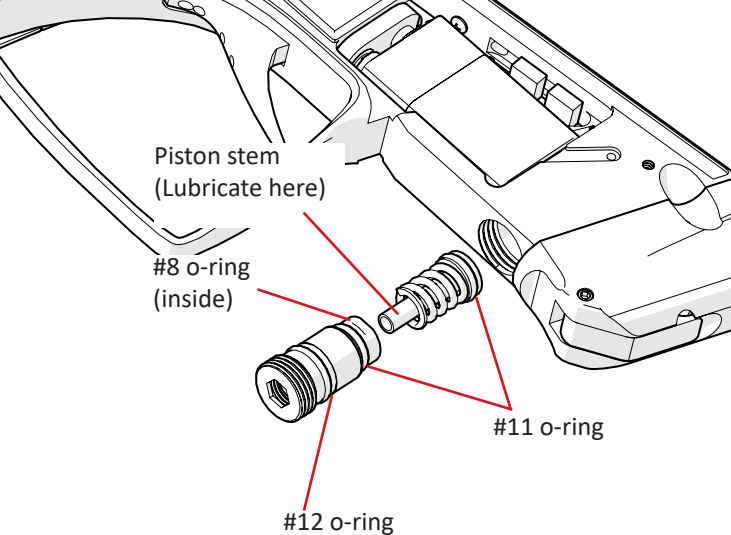


To maintain your drive, ensure your marker is fully degassed and pull the drive cover up to release the drive. Slide the drive out of your Prime. Unscrew the drive parts to access the components shown in the diagram below.

Clean the old grease and dirt from the keg, bolt and valve. Apply fresh Militia Lube to the keg inner o-rings (#17 and #19). Apply fresh lube to the #M16-2 o-ring on the bolt, as well as the inside of the larger end of the bolt. Slide the bolt back into the keg. Apply fresh lube to the #14 o-ring on the valve and slide it into the bolt, then screw the valve into place. Complete the drive assembly by screwing the valve cap back onto the valve. Lightly regrease the outside of the drive and slide it back into your Prime marker.

More detailed drawings of the sub assemblies are available from macdevpaintball.com/support.





Unscrew regulator from frame
(degass marker first)

The piston may not come out with the regulator body. Never use pliers or any tool to grab the piston, this can damage it. Use a 1/8" allen key pushed into the centre hole of the allen key to help remove the piston if it is lodged in the frame bore.

Maintaining the inline regulator (40,000 shots)

Before working on your inline reg, make certain that the air supply is turned off (via the venting ASA), and safely fire any gas out of the gun to ensure it does not have any residual pressure.

To access the regulator, remove the left hand side of your wrap around grip. This will allow you to unscrew the body of the regulator.

Clean the inside of the frame bore with a q-tip, and remove old grease from the regulator piston. Apply new grease to the piston shaft, and the #11 o-ring on the piston, as well as the #8 o-ring.

Apply new grease to the inside of the frame bore before re-installing your regulator.

More detailed drawings of the sub assemblies are available from macdevpaintball.com/support.

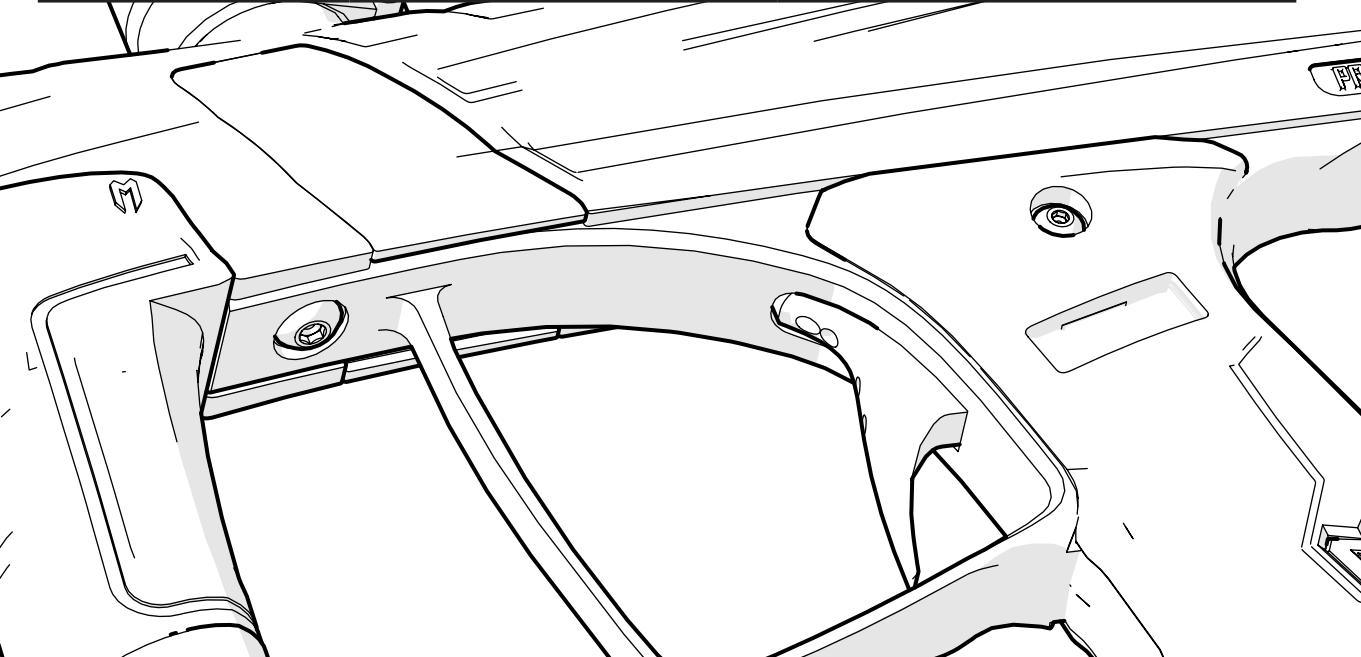
TROUBLESHOOTING

If you are experiencing difficulties with your marker, please check this table first to see if there is an easy solution listed. If at any time you are unsure about how to work on your marker, please contact a certified MacDev technician or service centre.

Symptom	Possible Cause	Solution
Although a fresh battery has been fitted, your marker will not turn on	The battery has not been fitted correctly	Ensure that the battery is firmly connected to both terminals. Ensure that the positive (+) terminal is connected to the positive terminal on your battery.
Your marker leaks from the solenoid	Leaking bolt #M16-2 o-ring	Clean and relubricate the drivetrain with particular attention to the bolt o-ring #M16-2. Replace if necessary.
	Solenoid installation or operational fault	Check the solenoid is mounted correctly. If mounting is correct and the seal is in place, contact your local tech.
	Pressure too high	Reduce the pressure setting on your inline regulator
Your Prime uses excessive air	Keg internal number 19 o-ring leaks	Relube and check the keg o-ring. Replace as necessary.
	General leak	Make certain that there are no leaks from your gun or air system wasting your air supply.

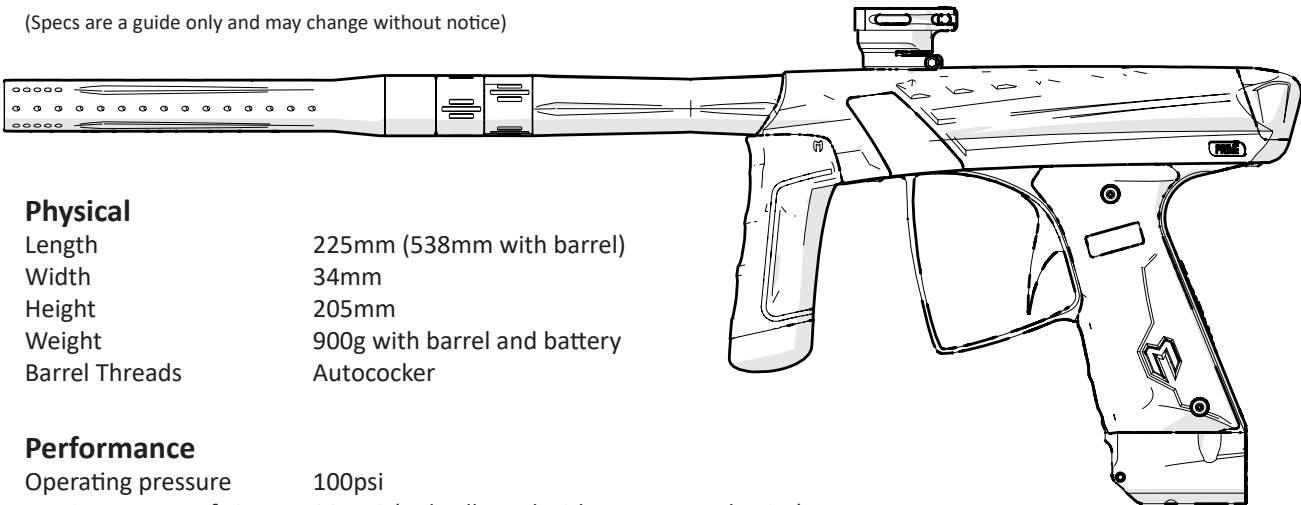
Symptom	Possible Cause	Solution
The beam sensor is not reading correctly	Bolt is not moving	Trying to cycle your Prime without air can lead to sensor fault signals, ignore them unless your bolt is moving back and forth.
	Eyes are dirty	Check that the eyes are clean and not blocked. Clean with water and a swab inside the breach.
	Eyes are faulty	Replace the eye pair.
Your Prime is chopping paintballs	Beam sensor is turned off	Always play with the beam sensor enabled.
	Beam sensor is dirty or blocked	Clean the breach with water and a swab, and wipe off the bolt tip.
	Loader is set on a force setting too high for your paintballs	Some force fed loaders can apply enough force to break a fragile paintball. If this is the case, consult your loader manual to reduce the force setting.
	Detents are missing or incorrectly installed	Replace or re-install your detents.
Your Prime will not fire	The trigger is set up incorrectly	Ensure that the trigger actuates the micro-switch by adjusting the actuator screw.
	The beam sensor is on, and there are no paintballs loaded	Load some paintballs.
	The solenoid is not plugged in	Plug the solenoid into the board.

Symptom	Possible Cause	Solution
Your Prime fires high on the first shot or inconsistently.	Creeping regulator	Clean and lubricate the regulator, ensure that the seat and piston are in good condition.
Your Prime fires low on the first shot	Sticking drivetrain	Clean and relubricate the drivetrain. If you continue to have problems: -increase the dwell by 1-2 ms. -increase the ABS parameter on your board.



PRIME SPECIFICATIONS

(Specs are a guide only and may change without notice)



Physical

Length	225mm (538mm with barrel)
Width	34mm
Height	205mm
Weight	900g with barrel and battery
Barrel Threads	Autococker

Performance

Operating pressure	100psi
Maximum Rate of Fire	30 BPS (only allowed with eyes on, and paint)

Electronics

Software	Militiasoft V1.xx
Hardware	PRIME V1.03 (Lead Free)
Display	65K colour OLED, low power usage 128x32px
Power	9V standard battery 6LR61
Fire modes	Semi, NXL, PSP, Custom ramp, Full Auto
Connectivity	Mini USB
Solenoid	5V 1W

MACDEV TECHNICAL ASSISTANCE



If you require technical assistance, please contact your local MacDev service centre. You can also find assistance on the MacDev support website :
macdevpaintball.com/support