2007 Model Cyborg

Owners Manual

MACDEV

Australia

www.macdev.net

07 Cyborg Users Manual Version 4.03

Statement of Liability

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Caution!

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. READ OWNER'S MANUAL BEFORE USING.

Warranty

The Cyborg marker is covered by the MacDev 12 month warranty against manufacturing defects. The Cyborg is guaranteed free of manufacturing defects for a period of twelve (12) consecutive months beginning immediately after purchase from a registered Cyborg retailer. The solenoid is warranted for a period of thirty (30) days after the date of purchase. If a manufacturing defect is detected, the defective part will be either repaired or replaced at no cost to the owner. The Cyborg warranty is not transferrable in the event of 2nd hand sales - the warranty may only be claimed by the original Cyborg retail purchaser. The Cyborg warranty does not cover damage due to theft, misadventure or operator error/abuse.
To make a successful warranty claim, the owner must produce their warranty card and proof of purchase.

Notes

Macdev Tech Support: info@macdev.net
Australia phone support: +612 9531 5055 (MacDev)
USA phone support: +1 704 624 4115 (Paintball Kingdom)

Accessories

Use genuine MacDev accessories or factory approved aftermarket upgrades for best results. For the latest list of approved aftermarket products visit www.macdev.net

Rebuild Kit

The Cyborg rebuild kit contains all the most important parts of your Cyborg. This kit is good for peace of mind, especially when entering an important tournament.

LegionAir Air/Nitro System

The LegionAir air/nitro system is the highest quality compressed air delivery system available. The legionAir will deliver high volume, clean consistent air to your Cyborg in a lightweight compact unit - the ultimate accessory to your Cyborg.

MatchStik Kit

Your Cyborg was supplied bundled with a 2-piece MatchStik barrel. Own the full kit to allow good paint to barrel match with the barrel designed for your Cyborg.

Ram Gauge

Check your LPR precisely for creep and recharge problems. Takes the guesswork out of tuning.

Introduction

Thank you for purchasing an 07 Cyborg marker. This users manual will give you a guide to setting up, tuning and maintaining your marker. Please read it thoroughly to ensure you get the best out of your Cyborg.

The 07 Cyborg is a very high performance paintball marker. When operated correctly, it can achieve speeds and effieicency greater than any other marker previously produced.

Specifications

Operation	Electro-pneumatic
Electronics	MacDev 07 Custom
Solenoid	5V, 5 way
Power Source	9V
Weight (incl Barrel)	1lb 14oz
Length/Height/Width	9.5”/8.2”/1.1”
Max Rate of Fire	Unlimited
Paint Sensor	Visible break-beam
Propellant	Compressed air/nitrogen ONLY
Operating pressure (HPR)	200psi
Cycling pressure (LPR)	65psi
Efficiency (approx)	1900 shots/68cu4500psi fill
Barrel threads	AutoCocker
Calibre	0.68”
Barrel	MatchStik 14”, 0.689 bore 2 piece
Lubricant	Dow 55 or Dow 33

Proudly designed and manufactured in Australia

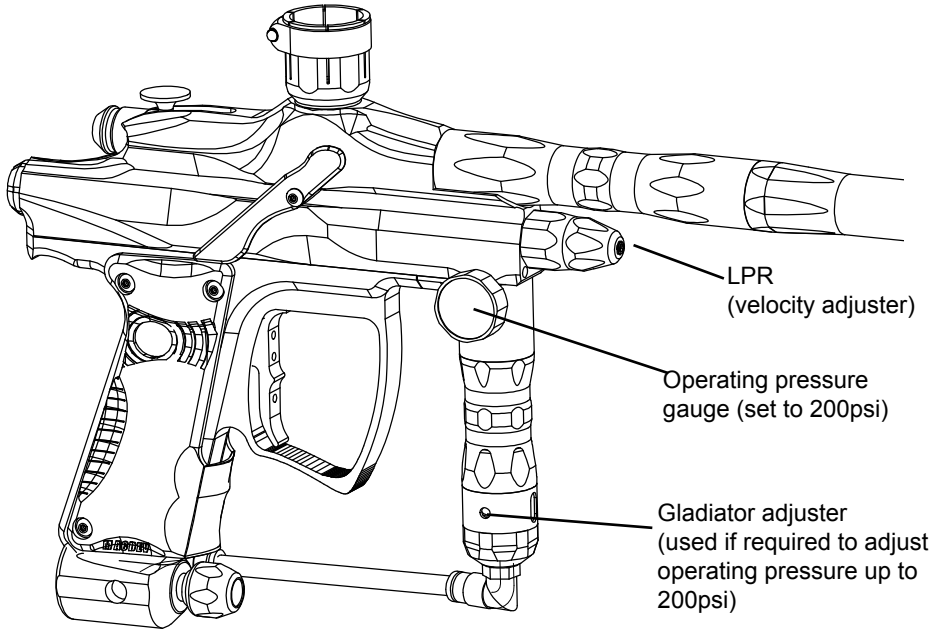
Getting Started

Your 07 Cyborg is packaged with a venting ASA, ready to accept an industry standard screw-in compressed air system (DO NOT USE CO2). While the use of a low pressure output system (400-500psi) is recommended, a higher pressure system (up to 900psi) is also acceptable.

Setting the Velocity

Your 07 Cyborg has been factory set to between 275 and 300fps. Your marker should be adjusted to comply with local legal velocities. The 07 Cyborg velocity can be adjusted over the chronograph using an allen wrench. First gas up your marker and check the gauge on the side (above the front grip). This gauge indicates the pressure setting of your inline regulator (Gladiator) and should be set to 200psi at all times. If required, you will find the Gladiator adjuster on the side and towards the bottom of the regulator. Use an allen key to turn the adjuster counter-clockwise to increase pressure. Always use small increments and watch the gauge as you make adjustments.

Now chrono the marker, to increase the velocity turn the LPR adjuster clockwise, or turn the adjuster counter-clockwise to reduce the velocity. Never set the velocity over 300fps, or use/chrono your Cyborg without first ensuring that you and all other people in range are wearing appropriate protective clothing.



Troubleshooting

Some common difficulties are detailed in this section, for the latest troubleshooting information, please visit www.macdev.net. If you require more assistance with troubleshooting related issues, please contact your local MacDev/Cyborg tech.

The marker is on, but will not cycle

Ensure that the paint is loaded correctly and that there is gas to the marker. If paint is loaded correctly, point the Cyborg at a safe target and hold the trigger for at least half a second. If the marker cycles then paint was not loaded correctly.
Check that the trigger actuator adjustment is not set too far in or too far out (always back the adjustment out before trying to screw it in, because screwing it in too far may damage your trigger switch.

There is a leak from the marker

Check the gauge on the side of the gun. It should be set to approximately 200psi. If the Gladiator needs adjustment, then adjust the pressure (see pg 4 “Setting velocity” for detailed instructions on this). Then re-chrono the marker - the leak should disappear when the velocity is set correctly.
If the leak persists check the ram switching o-ring to ensure it is not dry or damaged. If the leak still will not disappear, please contact tech. support.

The marker breaks paint

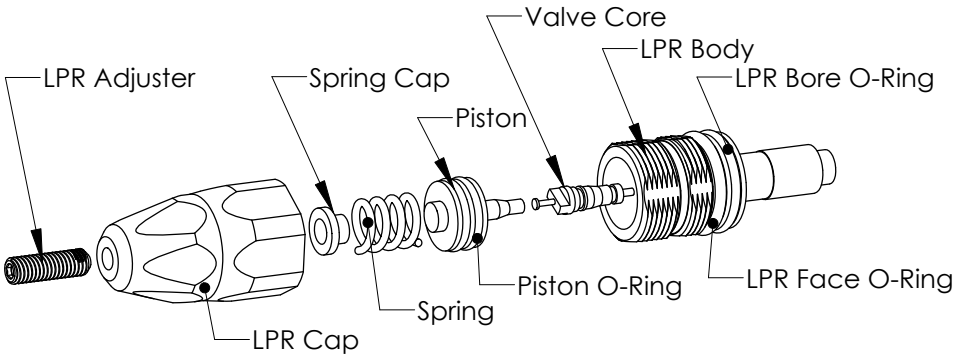
Ensure that the top tube, bolt and barrel of your Cyborg are completely clean. Check to make sure that the paint is not too large for the Cyborg barrel. Ensure that your anti chop eyes are turned on and the barrel is screwed in completely.

The marker shoots down under rapid fire

Check to make certain that your air system is set to 400psi or above. When firing the gun ensure that the gauge on the side of the gun recharges quickly (if this recharges slowly, perform routine Gladiator inline reg maintenance). If the air system is set correctly and the gauge on the side of the gun recharges well, perform routine maintenance on the Cyborg ram and LPR.

Low Pressure Regulator (LPR) Assembly

The LPR should be serviced by cleaning and relubricating the piston o-rings and piston bore. You need not remove the assembly from the Cyborg, you can just remove the LPR cap and, remove the piston using a pair of long nosed pliers.



Operating Your Cyborg

Turning the power on and off
The Cyborg on/off switch is located on the underside of the trigger guard. Slide the switch to turn the marker on. When the Cyborg is on, the indicator LED on the side of the grip will ignite. To turn your Cyborg off, simply slide the switch in the opposite direction.
The LED will display the following things:

Solid red: eyes on, no ball in breech
Solid green: eyes on, ball in breech
Flashing red: eyes off
Flashing orange: eye fault
Flashing orange (on powerup): low battery

Deactivating the eye system
To dry fire your gun, you will need to disable the eye system. To do this, press and hold the trigger. After 1 second, the marker will fire a single shot, after 2 seconds, the LED will begin flashing red, and the eyes will be disabled. The eyes can be re-enabled by holding the trigger again for 2 seconds.

Fine Tuning and Customising your Cyborg

Your Cyborg can be adjusted in many ways to suit your individual playing style. You can adjust the trigger feel, sensitivity and speed.

Trigger Adjustment
There are 3 set screws around the trigger area to use for fine tuning the trigger. The lower screw on the front of the trigger is used to adjust the length of the trigger pull - screw it clockwise to reduce the trigger pull length. The second, higher screw on the front of the trigger is used to adjust the actuation position. Screw this screw clockwise to actuate the microswitch earlier in the trigger pull.

The final adjustment screw is located on the top of the trigger - winding this screw in a clockwise direction will increase the trigger pull tension.

Tourney locking the board
On the board, there is a small copper button. Use a q-tip to hold this down. The board will flash red/green, and then end on either red or green. This ending colour indicates the state of the tourney lock:

Red: Tourney lock on
Green: Tourney lock off

Programming Your Cyborg
To program the board, turn the gun off. Hold down the trigger whilst turning the gun on. The indicator light will turn white, continue to hold the trigger until it goes blue (debounce register). Press the trigger once to advance to the next setting as given below. When you have a setting you would like to change, hold the trigger until the indicator light goes out. Release the trigger, and the indicator light will flash to show the current setting. Then when it goes out, input the new setting by the trigger and wait for the indicator light to go solid again. The settings are:

Register Settings
Debounce (Blue) – Increase this setting to remove trigger bounce from the marker. To remove trigger bounce, increase this slowly.

Dwell (Red) – Adjustment for the solenoid on time. This should be set to 6 or 7, do not use other settings unless you are an advanced user.

Fire mode (White) – use this to set the gun to different fire modes. Always observe the rules in the locality in which you are playing. Note: ramping or modes other than semi are not permitted in some countries. If you have purchased your Cyborg within a country with restricted firemodes, you will find the modes removed.

Max ROF (Green) – in uncapped modes, the ROF will only be limited by the speed of the gun and hopper. However, if you use a capped mode (like PSP or Millenium), the mode will obey this max ROF. The ROF is adjustable from 14bps to unlimited in 1/4bps increments (1=14, 2=14.25, 3=14.5, 4=14.75, 5=15 … 26=uncapped).

Loader Delay (Yellow) – This is a small dwell included to allow the ball to settle into your marker breach before firing. For a very fast hopper, this may be set to 1, for slow hoppers it should be higher.

Anti Mechanical Bounce (Teal) – This is a parameter used to remove mechanical bounce (causing multiple shots). To remove mechanical bounce, increase this slowly.

Anti Bolt Stick (Purple) – if your marker has sticking o-rings or parts, this setting can increase the dwell temporarily if your marker has been sitting around. 1-10ms, setting 1 is off.

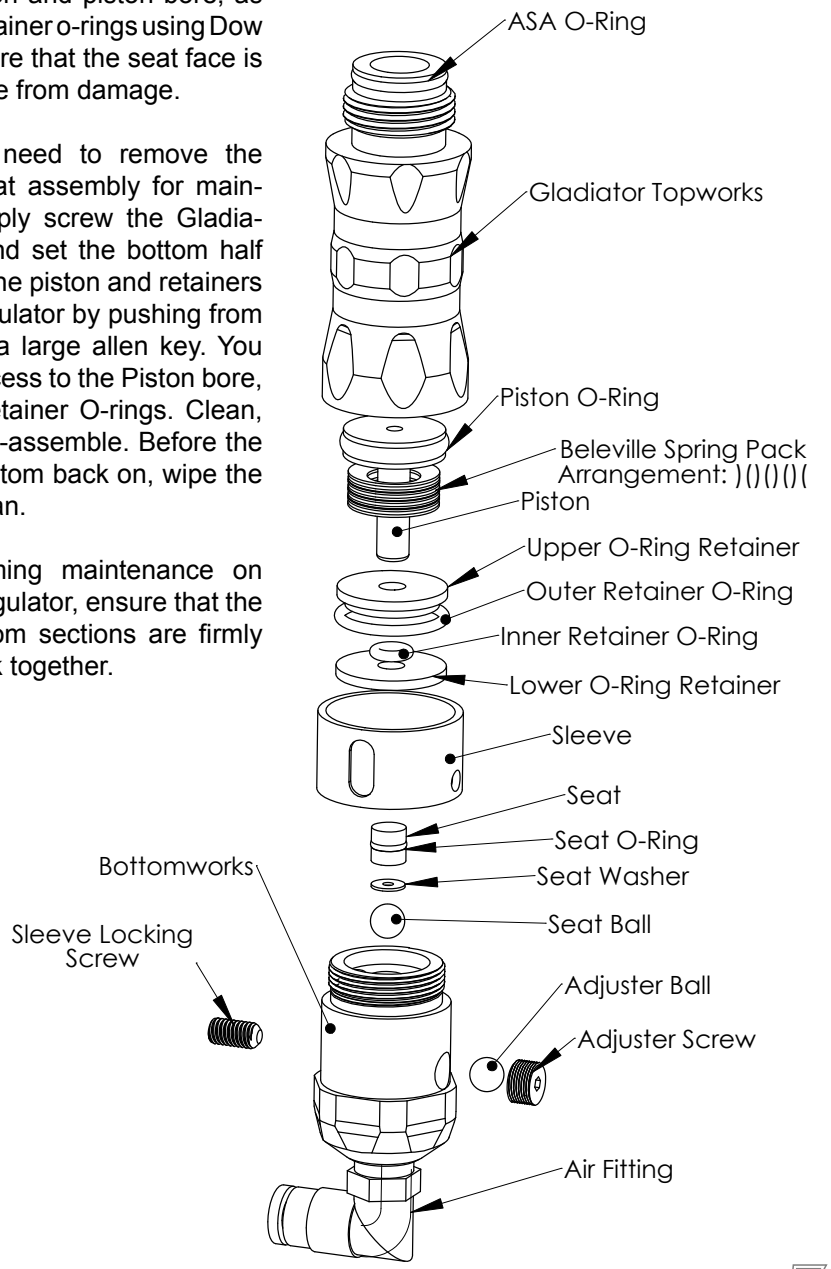
Ramp Start (Flickering Blue) – When using a ramp mode, this setting can be used to set the fire rate at which ramping starts – adjustable from 4-14bps (default 5).

Gladiator (High Pressure Regulator - HPR)

Your Gladiator is a very hard wearing and reliable regulator. Regularly clean and lubricate the piston and piston bore, as well as the retainer o-rings using Dow 33. Also ensure that the seat face is clean and free from damage.

You do not need to remove the sleeve or seat assembly for maintenance, simply screw the Gladiator in half, and set the bottom half aside. Push the piston and retainers out of the regulator by pushing from the top with a large allen key. You now have access to the Piston bore, piston and retainer O-rings. Clean, relube and re-assemble. Before the screw the bottom back on, wipe the seat face clean.

After performing maintenance on your inline regulator, ensure that the top and bottom sections are firmly screwed back together.



Caring for your Cyborg

The Cyborg is a very low maintenance marker, however there are some things that you can do to keep it running at optimum performance. Always use Dow 33 to lubricate your Cyborg, do not use Silicone spray or oil of any kind.

Bolt Maintenance

The Cyborg bolt is made from a very high quality self lubricating plastic, for best results, the bolt should be kept clean and dry. During normal usage, the Cyborg bolt can become dirty. To remove the bolt, gently pull the pull pin upwards until it clicks. The bolt and pull pin should then slide freely out of the gun. Clean the bolt with a clean, dry soft cloth. If you notice scratches along the bolt, it is likely that you have not cleaned it often enough - it is a good idea to clean the bolt after evey days play, or if it gets excessive paint/dirt in it during the course of play.

When replacing the bolt, it is critical to ensure that the bottom of the pull pin is located correctly in the slot on the ram inside the gun. If the bolt is incorrectly installed your Cyborg will not operate correctly and damage may result.

Ram Maintenance

The ram of your Cyborg does the most work of any part of the gun. For this reason the ram system needs to be kept clean and well lubricated. Before removing your ram ensure that there is no gas in the gun. First remove the bolt (as described above in bolt maintenance) and unscrew the ram cap (counter-clockwise) and remove it from the gun. Then grasp the ram end and pull it out of the Cyborg. Now remove the hammer from the ram housing. Clean the old grease off the ram housing bore using a clean q-tip, and clean the old grease from the ram housing and hammer using a clean lint free cloth. Use a clean q-tip to re-lubricate the bore of the ram housing with Dow 33 or 55, and use your finger to re-lubricate the o-rings on the hammer as well as the hammer shaft. Slide the hammer back into the ram housing and re-lubricate the o-rings on the outside of the ram housing. Now your ram is ready to be replaced back into the marker - slide it back in carefully before securing it in place with the ram cap. Take care that the bolt is replaced correctly as described above in bolt maintenance.

Ram maintenance can be performed as often as you like, and should be done at least every 20,000 cycles.

Regulator Maintenance

Your Gladiator inline regulator and LPR should be kept clean and lubricated for best results.

Cycle Filter (Flickering Red) – Your software allows the buffering of a single shot in case you pull the trigger during a cycle. This filter can be used to reduce the time allowed to buffer this shot. Adjustable from 1 (full buffer) to 10 full cycle filter. Higher settings will reduce the amount of mechanical bounce in the marker.

Eye Mode (Flickering White) – setting 1=delayed (if there is no ball in breach when trigger is pulled, the software will wait ½ sec and fire) 2=forced (trigger can be held to force a shot) 3=test mode with full dwell, 4=test mode with adjusted dwell (test mode dwell setting).

Bolt Tracking Delay (Flickering Green) – This is the delay used to ensure that bolt tracking works correctly. Do not change this unless directed to by a MacDev tech.

Test Mode Dwell (Flickering Yellow) – this mode is used to see how fast a user can cycle the marker. Using this setting, the dwell can be reduced to reduce air consumption. Whilst firing in test mode, the max ROF is set to uncapped, and the LED reports the following findings: red:less than 10bps, yellow:10-15bps, green:15-20bps, blue:20-25bps, white:25+bps.

Register Summary Table

LED Colour	Setting	Default
Blue	Debounce (1/2ms increments)	10
Red	Dwell (1ms increments)	6
White	Fire mode	1 (semi)
Green	Max ROF - only used in capped and ramp modes	5 (15bps)
Yellow	Loader delay (1/2ms increments)	2
Teal	Anti Mechanical Bounce	2
Purple	Anti Bolt Stick	1 (off)
Flickering Blue	Ramp Start (used on ramping fire modes)	5bps
Flickering Red	Cycle filter	2
Flickering White	Eye Mode	2 (forced shot)
Flickering Green	Bolt Tracking Delay (ms)	10
Flickering Yellow	Test Mode Dwell (ms)	2

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