

# Droid Tech Class



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Silvio Defuns

Droid Techclass





# Contents

History  
MacDev Products  
The Droid  
Know your Droid  
How the Droid works  
Quick Setup  
Using the Droid  
Electronics / Software  
Electronics & Trigger  
Eyes / Solenoid  
Breech Maintenance  
The Droid drive train  
The Droid drive train o-ring sizes  
Gladiator Maintenance (Inline Regulator)  
Troubleshooting  
Spareparts  
Contact





# History

## About MacDev

MacDev was established in 1969 in Sydney, Australia. Since that time, MacDev engineers have been working in the fields of pneumatics, hydraulics and engineering consultancy.

In the mid 90's, MacDev engineers designed and manufactured the world's first all aluminium bodied paintball air system, and continued on today by manufacturing markers, barrels, air systems, accessories and clothing for the paintball industry.

In 2003, MacDev created the Cyborg electronic range of markers, releasing subsequent models in 2004, 2005, 2006 and 2007.

Today, MacDev is expanding on their success by creating MacDev USA and MacDev Europe promoting their products.





# MacDev Products



The new improved MatchStik Kits, a combination of improved internal surface finish, small dimensional changes and an all new superslick finish combine to make the new MatchStik the best all around barrel kit available today



The LegionAir is built from high quality materials to give you a high performance - time after time. The recharge rate of the LegionAir delivers the same pressure to your gun each shot for ultra consistency. The LegionAir preset system is designed for the use with a standart bottomline adaptor



Since the creation of the first Cyborg marker, they have been well known for speed, efficiency and reliability. The 2007 model Cyborg is no different, featuring a 33bps and amazing 1900+ shot efficiency, you can shoot ropes of paint all day.





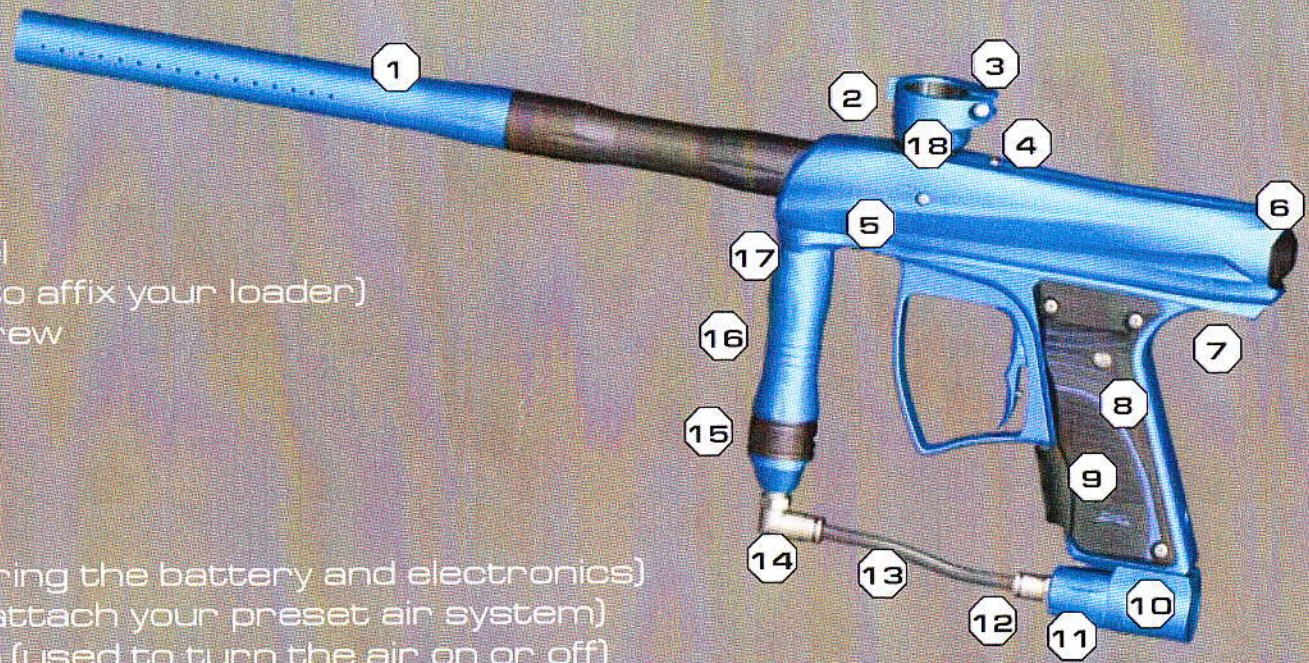
# The DROID



Feed tube: threaded, cam lock  
Barrel threads: Autococker  
Barrel: 2pc MatchStik  
Electronics: MacDev Militia Soft V5  
Fire modes: 12  
Eye: visible break beam  
Indication: Chameleon LED  
Detent: Spring ball  
Inline regulator: Gladiator  
Efficiency: 1700+ (68/4500psi)  
Operating Pressure: 100psi



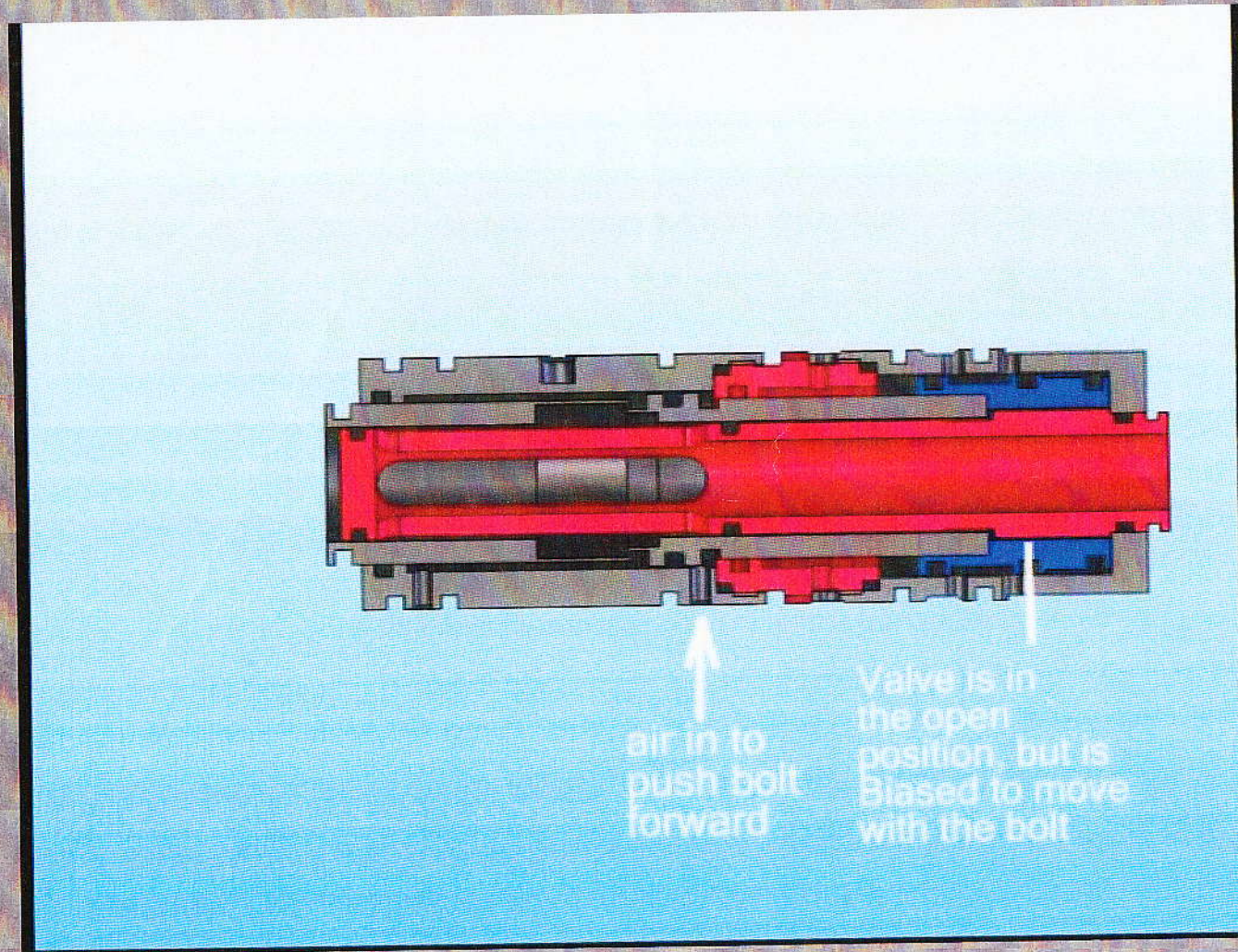
# Know your DROID



1. Matchstick 2 piece barrel
2. Feed clamp lever (used to affix your loader)
3. Feed clamp adjuster screw
4. Top locating screw
5. Eye cover and screw
6. End cap
7. On/Off switch
8. Indicator LED
9. Wrap around grip (covering the battery and electronics)
10. Venting ASA (used to attach your preset air system)
11. Venting ASA on/off cap (used to turn the air on or off)
12. Straight push-fit hose fitting
13. Air hose
14. 90 degree swivel push-fit hose fitting
15. Velocity adjustment screw
16. Inline regulator (Gladiator reg)
17. Vertical ASA
18. Feed Tube



# How the Droid works

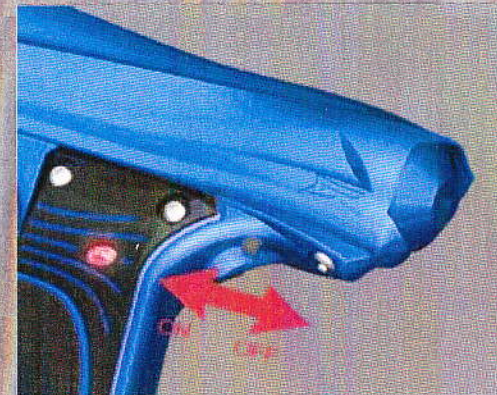




# Quick Setup

## Switching your Droid on and off

The on/off switch is located on the upper section of the rear of the frame. This slide switch should be switched towards the barrel of the marker to switch the marker on. Slide the switch the opposite direction to switch the marker off. Successful power up is indicated by the LED on the side of the wrap around grip.



## Understanding the beam sensor

Your Droid is equipped with a visible light sensor to determine if a paintball is correctly loaded. This system is used to prevent accidental ball breakage due to misloaded paintballs. The LED indicator on the side of your grip will show you the status of the beam sensor:

Green: Ball is loaded

Red: Ball is not loaded

Flashing Orange: Sensor malfunction

Flashing Red: Sensor disabled

Flashing Orange when turning on the marker means the battery is down.



## Disabling the beam sensor

To disable the sensor (for dry firing), hold the trigger in until the indicator LED begins flashing red. You can re-enable the beam sensor the same way.





# Using the Droid

## Adjusting the velocity

The velocity of the Droid is adjusted via an adjustment screw on your inline regulator. To increase velocity, use a 3/32" allen key to turn the adjustment screw anti clockwise. Always adjust your Droid gently and using a chronograph.

## Adjusting the trigger

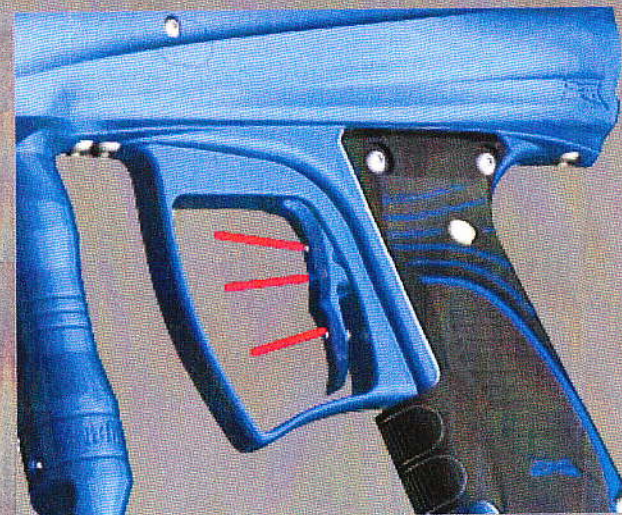
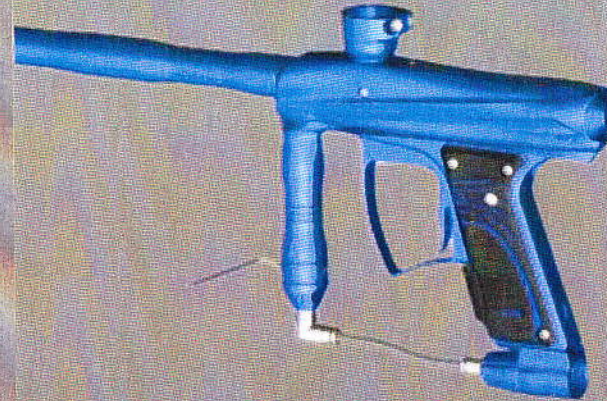
Your Droid trigger has three adjustment screws, they are located in the front face of the trigger in the following order from top to bottom:

- Pull tension
- Switch actuation point
- Pull length

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

### Note:

Make sure that the trigger is not constantly holding the switch down, or that it is not set so that it can not activate the switch





# Electronics/Software

## Programming the Droid Software

Please refer to the Droid manual on page 12-16 and the additional sheet

Millennium settings:

Firemode (white): 5

Max ROF (green): 5 (12 bps)

Ramp start (flickering blue): 6

## Resetting the board

To reset the board on the factory settings, hold the trigger down, switch on the gun, hold the trigger until you get into the programming mode (blue). Press the tourney lock button for 10 seconds until all the colors flash trough. Now your Droid is set back to the factory defaults.

## About the tourney lock

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

Step #1: Remove the three screws holding the left hand side of the wrap around grip on your frame. On the board, there is a small copper button. Use a q-tip or similar non metallic, blunt object 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

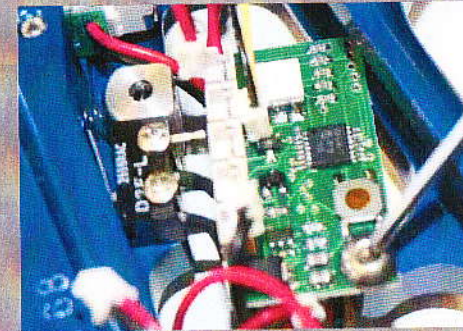
Green: Tourney lock off



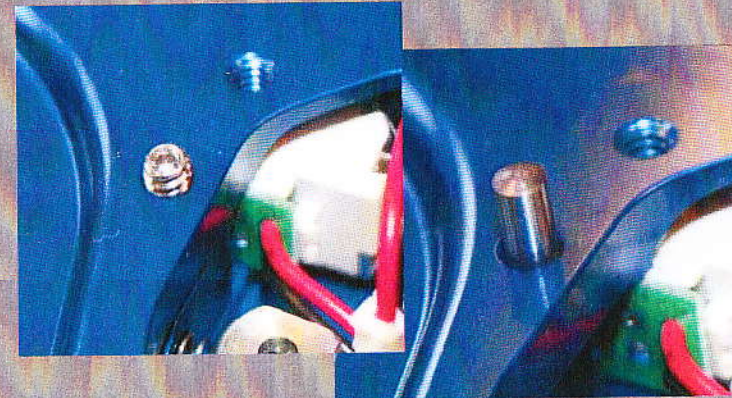


# Electronics & Trigger

Step #2: Remove the battery, disconnect all the wires from the board, remove the board screw and remove the board



Step #3: Remove the trigger pin screw. To push out the pin use an allen key and push it through the hole on the reverse side as shown.



Step #4: Take out the trigger from the frame





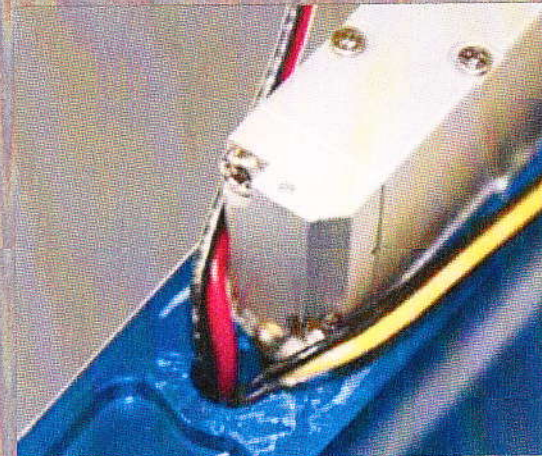
# Eyes / Solenoid

Step #5: To get access to the solenoid, the battery cable and to replace the eyes remove the 2 grip mount screws.  
(make sure all wires are disconnected from the board)



Step #6: Take away the frame from the body

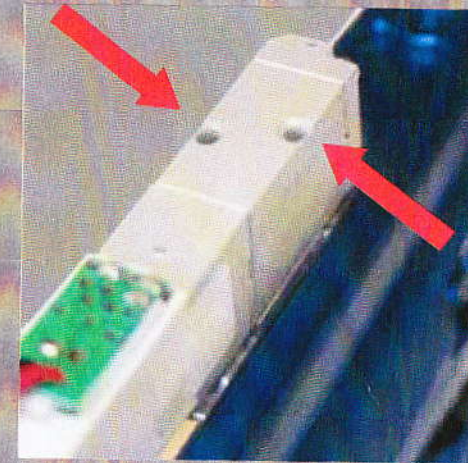
Step #7: Now you have simple access to the eye receiver and sender if you should replace them.





## Eyes / Solenoid

Step #8: Remove the 2 solenoid mount screws and take away the solenoid.



Step #9: Unscrew the subplate screws. Clean the subplate surface and relube the o-rings with a small amount of lube.

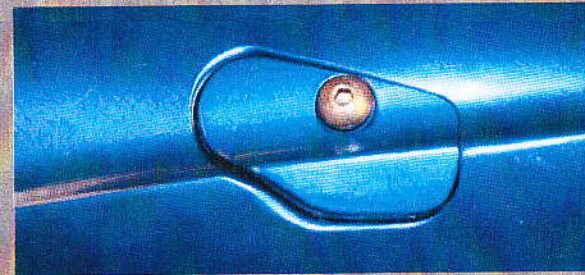


Step #10: Reassemble the subplate, the solenoid, the trigger, the board and connect the wires in the correct position as shown above. Install the battery and mount the frame on the body and put the wrap around grip on the frame.

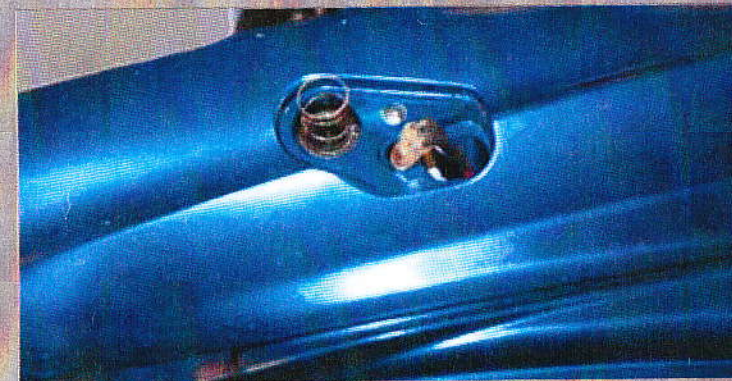


# Breech Maintenance

Step #1: Unscrew the eye cover screw and remove the eye cover.



Step #2: Remove the detents and the detent spring carefully, make sure you don't lose them. Also put aside the eye sensors



Step #3: Clean with a paper towel or a q-tip the eye and detent sockets



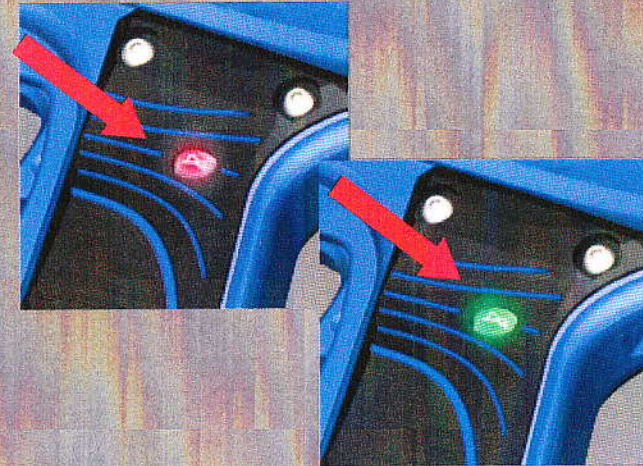


# Breech Maintenance

Step #4: Reinsert the eyes in their sockets. Insert the ball detents and the detent springs.

Step #5: Replace the eyecovers and hand tight them.

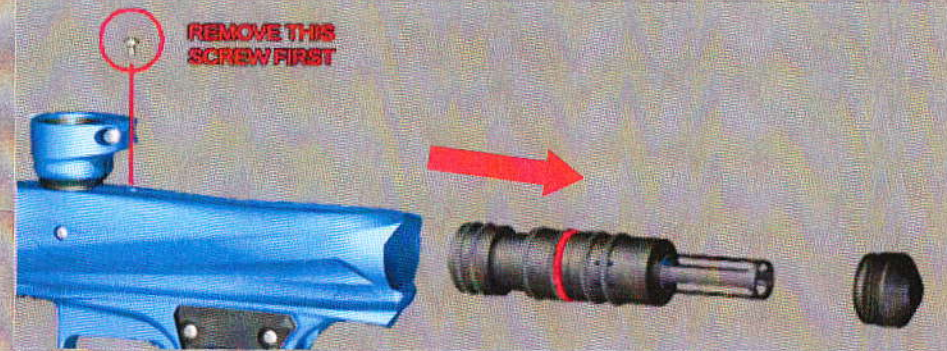
Step #6: You can check that the eyes work properly by observing the LED on your Droids board. Turn the marker on and place a finger in the feedcheck, the LED should now switch to green.



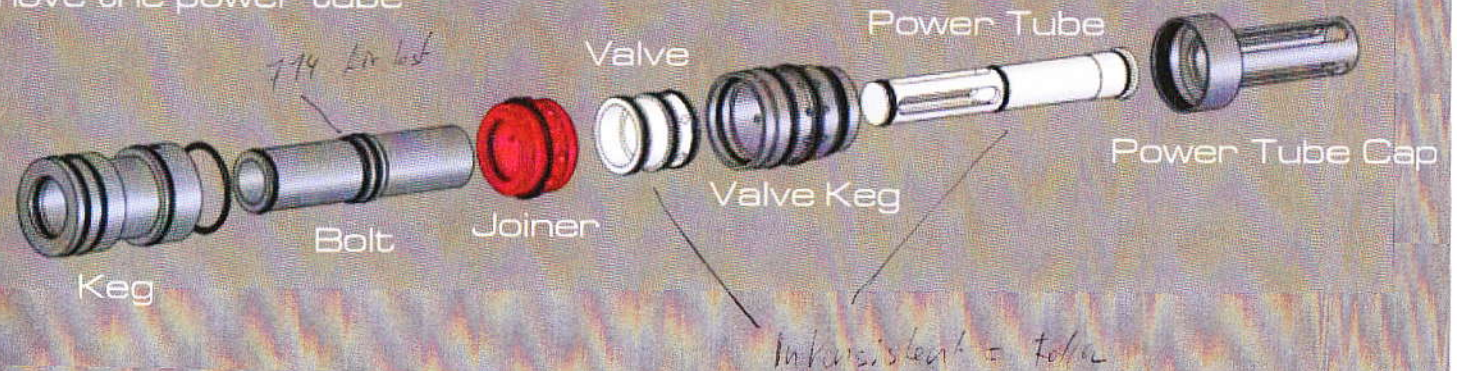


# The DROID drive train

Step #1: Remove the top locating screw. Then remove the back cap. Use either a finger to push the drivetrain out or an allen key to hook the slots and pull out the drivetrain.



Step #2: Dissassemble the drivetrain by unscrewing the keg, joiner and valve keg. Remove the bolt and finally unscrew the power tube cap and remove the power tube and valve.



Step #3: Clean now the old grease of the parts using a clean paper towel or a cloth.



# The DROID drive train

Step #4: Lubricate the valve bore and the valve o-rings. Slide the valve back into the valve bore on the correct way, as shown.

Make sure the dots go in first.



Step #5: Lubricate the bolt o-rings and slide the bolt into the keg.



Step #6: Screw the joiner on the keg and the valve bore on the joiner. Lubricate the powertube and slide it into the back. Screw the powertube cap on the drive train.





# The DROID drive train

Step #7: Lubricate the outside o-rings of the drive train and align the keq locating slot carefully to the top of the Droid. Slide the drive train in the body until it stops.



Step #8: If it is slightly misaligned, use a small allen key to place it. Fix the drive train using the top locating screw.

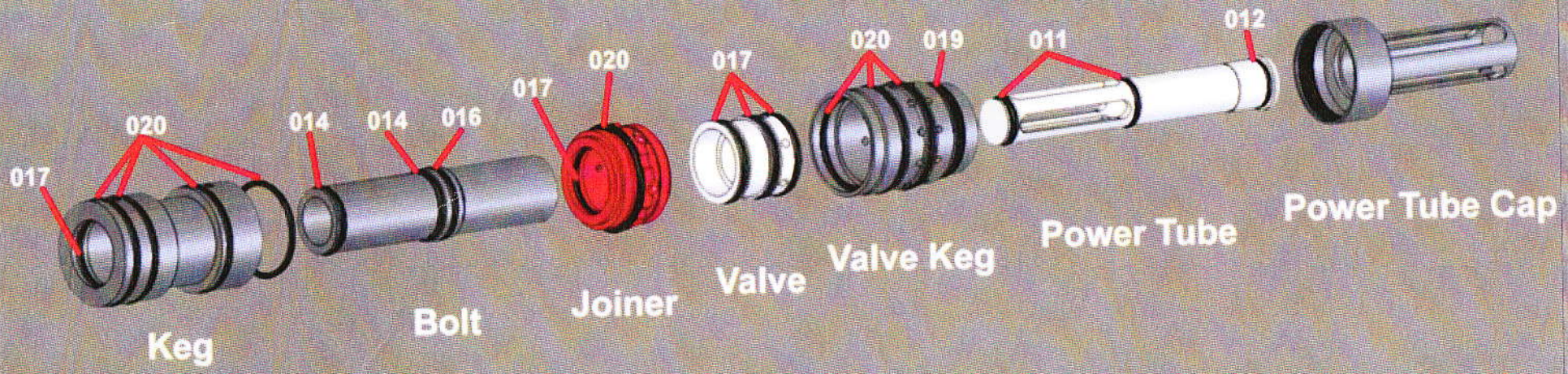
Step #9: Seal the chamber by replacing the back cap.

## Note:

It's recommended to clean and lubricate the drive train after every day using the droid or when the marker becomes inconsistent



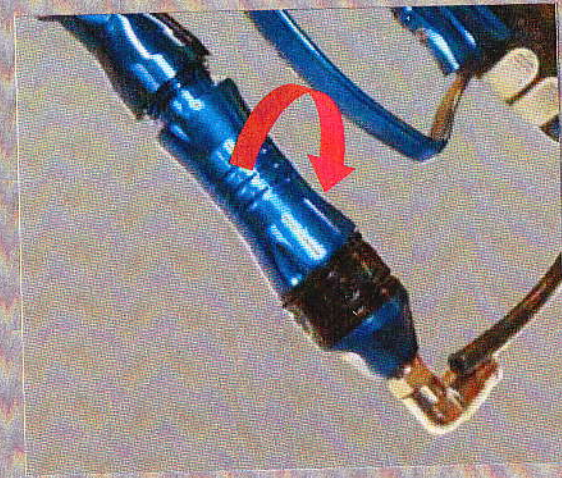
# The DROID drive train o-ring sizes



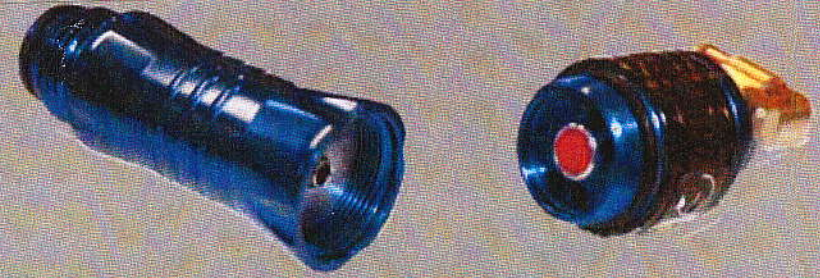


# Gladiator Maintenance (Inline Regulator)

Step #1: Disconnect the macroline connected to the HPR. To do this, pull the collar closest to the macroline towards the rest of the fitting while pulling the macroline out. Unscrew the HPR from the Droid body.



Step #2: Remove the bottom-works from the HPR.



Step #3: Using your Droid's macroline, a pen, or other non-metal object and push the HPR's internals out.





# Gladiator Maintenance (Inline Regulator)

Step #4: Wrap a piece of paper towel around your finger and use it to clean the inside of the HPR housing.



Step #5: Go back and work on the internals of the HPR

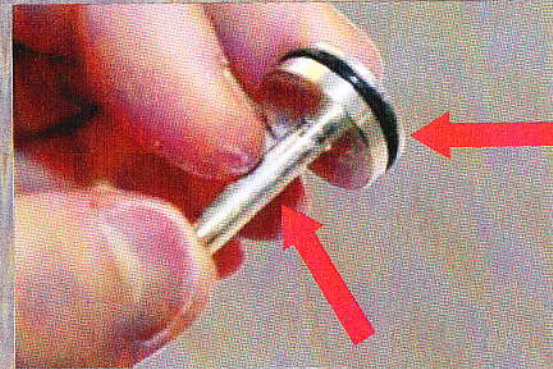
Step #5.1: Using a piece of paper towel, clean all dirt and old lube from the HPR internals





# Gladiator Maintenance (Inline Regulator)

Step #5.2: Lube the o-ring on the HPR piston.  
About half a pea size amount.



Step #5.3: Replace the shims onto the piston.  
You will notice the shims have a convex and  
concave side. Just remember the first shim always  
has the concave side facing down, and it alternates  
from there. The correct pattern is )0000(. Put the  
Gladiator upper retainer on top of it, the o-rings  
have to be on top.



Step #5.4: Place the Gladiator lower retainer on  
top of the package and slide the internals of the





# Gladiator Maintenance (Inline Regulator)

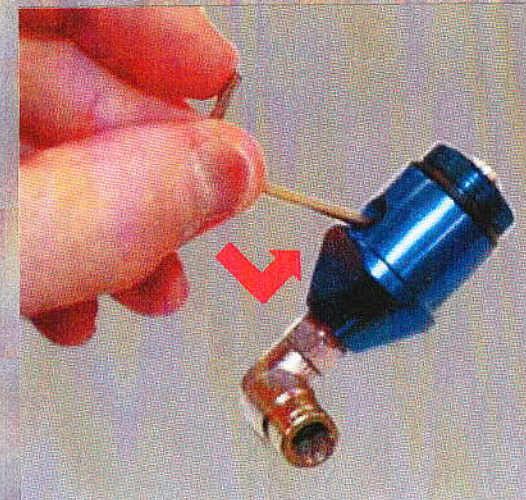
Step #6: The bottomworks



Step #6.1: Remove the sleeve screw and remove The Gladiator sleeve.  
Unscrew the Gladiator adjuster screw and take out the first adjuster ball.



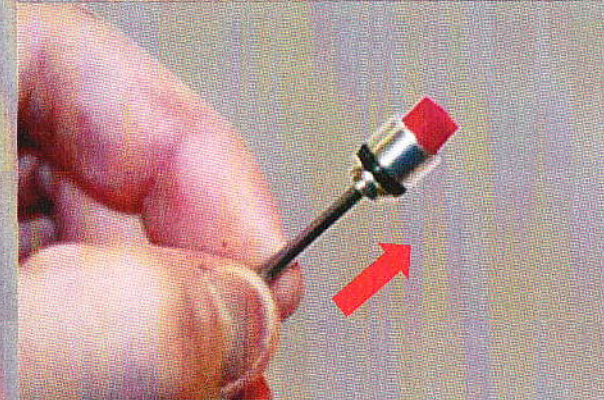
Step #6.2: Now use an allen key to push out the Gladiator seat retainer and the second adjuster ball.





# Gladiator Maintenance (Inline Regulator)

Step #6: With a small allen key you can now push out the seat from the retainer.



Step #6.1: Clean all the parts and put some lube on the seat and place it back into the retainer.  
Reassemble the complete Gladiator

## Note:

To provide damages due to much pressure it's recommended to screw in completely the adjuster screw when assembling the gladiator

## Note:

It's recommended to clean and lubricate the Gladiator every 10000 shots or when you have the "first shot too high" symptom



# Troubleshooting

Please refer to the Droid manual on page 25 and also read this section

Leak down the barrel	<ul style="list-style-type: none"><li>- Check the Ø11 front o-ring on the powertube</li><li>- Check the middle Ø14 o-ring on the bolt</li></ul>
Leak from the trigger/grip frame area	<ul style="list-style-type: none"><li>- Check the input pressure</li><li>- Make sure all the o-rings on the subplate are located properly/not missing</li></ul>
Bolt not cycling	<ul style="list-style-type: none"><li>- Relubricate the drive train</li><li>- Check that the battery is fresh</li><li>- Replace the middle Ø14 o-ring on the bolt</li><li>- Check the bolt switch o-ring (Ø16)</li><li>- Increase the pressure on the Gladiator</li></ul>
First shot drop off	<ul style="list-style-type: none"><li>- Check that the battery is fresh</li><li>- Check the ABS is turned on</li><li>- Check that the dwell is set to stock</li><li>- Make sure the bolt moves smoothly</li><li>- Check the Gladiator seat on damages/dirt</li></ul>
First shot too high	<ul style="list-style-type: none"><li>- Check that the battery is fresh</li><li>- Relube the Gladiator</li><li>- Check the Gladiator seat on damages/dirt - replace it</li></ul>



# Troubleshooting

Please refer to the Droid manual on page 25 and also read this section

Inconsistent velocity	<ul style="list-style-type: none"><li>- Check that the paint/barrel match is good</li><li>- Check the o-rings on the valve, relube them, if necessary replace them</li><li>- Check that the battery is fresh</li><li>- Check that the dwell is set to stock</li></ul>
Droid won't turn on	<ul style="list-style-type: none"><li>- Make sure the battery is fresh</li><li>- Make sure the battery is connected properly</li><li>- Battery cable is damaged, replace it</li><li>- Make sure the battery cable is connected on the board</li></ul>
Eyes do not see each other	<ul style="list-style-type: none"><li>- Check that the battery is fresh</li><li>- Clean the eyes</li><li>- Make sure the eyes are connected on the right place on the board</li><li>- Replace the eyes if necessary</li></ul>
Solenoid doesn't activate	<ul style="list-style-type: none"><li>- Check that the battery is fresh</li><li>- Check that the trigger doesn't hold down the switch constantly or that it's not set so that it can not activate the switch</li><li>- Check that the dwell is set to stock</li></ul>
Any other problems	<ul style="list-style-type: none"><li>- Contact your local dealer</li></ul>





# Spareparts

Spareparts are available through your local MacDev Dealer (XXX Sports)

Spares available:

Droid Seal Kit  
Droid Screw Kit  
Droid Tech Kit  
Droid Drivetrain Complete  
Detents and springs (10 Pack)  
Droid Solenoid  
Droid Wrap  
Droid Board  
Droid Power Harness  
Droid Microswitch Harness  
Droid Eye set  
Droid End Cap  
Droid Venting ASA  
Allen key set



Sportcenter Heinen  
Deidenberg 9  
B-4770 Ambleve

Tel: +32 80 643 560  
Fax: +32 80 643 570

E-mail: [info@xxx-sports.be](mailto:info@xxx-sports.be)





# Contact



MacDev Europe  
CD-sportz GmbH  
Laettichstrasse 1  
6342 Baar  
Switzerland

Phone: +41 41 761 43 43  
Fax: +41 41 761 43 44

Mail: [silvio@macdev.net](mailto:silvio@macdev.net)



MAXS GmbH  
Am Wartfeld 1  
D-61169 Friedberg  
Germany

Phone: +49 6031-16260  
Fax: +49 6031-162622

Mail: [buy@maxs-sport.com](mailto:buy@maxs-sport.com)

[www.macdev.net](http://www.macdev.net)

