

demon



VANGUARD

demon manual

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included with your demon

Demon Barrel Back (A/C Thread)

.685" x 14" Barrel Front

.689" x 14" Barrel Front

Vanguard Allen Keys

Barrel Sock

Spares Kit

Lube

Owner's Manual

Warranty Card

Extra Battery



WARNING**IMPORTANT SAFETY INSTRUCTIONS AND GUIDELINES**

The VANGUARD MARKER is not a toy.

- Careless or improper use, including failure to follow instructions and warnings within this Operator Manual and attached to the VANGUARD MARKER could cause death or serious injury.
- Do not remove or deface any warnings attached to the VANGUARD MARKER.
- Paintball industry standard eye/face/ear and head protection designed specifically to stop paintballs and meeting ASTM standard F1776 (USA) or CE standard (Europe) must be worn by user and any person within range.
- You must be at least 18 years of age to purchase the VANGUARD MARKER.
- Persons under 18 years of age must have adult supervision when using or handling the VANGUARD MARKER.
- Observe all local and national laws, regulations and guidelines.
- Use only on professional paintball fields where codes of safety are strictly enforced.
- Use compressed air/nitrogen gas only. Do not use CO2.
- Do not exceed 850 psi (58 bar) input pressure.
- Always follow instructions, warnings and guidelines given with any first stage regulator you use with the VANGUARD MARKER.
- Use 0.68 calibre paintballs only.
- Keep the VANGUARD MARKER switched off until ready to shoot.
- Treat every marker as if it is loaded.
- Never point the VANGUARD MARKER at anything you do not intend to shoot.
- Do not shoot at persons at close range.
- Do not shoot at fragile objects such as windows.
- Always measure your markers velocity before playing paintball, using a suitable chronograph



WARNING**IMPORTANT SAFETY INSTRUCTIONS AND GUIDELINES**

- Never shoot at velocities in excess of 300 feet (91.44 meters) per second, or at velocities greater than local or national laws allow.
- Do not Gas Up the VANGUARD MARKER without the Drivetrain inserted, as high pressure gas will be emitted.
- Never look into the barrel area of the VANGUARD MARKER whilst the marker is switched on and able to fire.
- Never put your finger or any foreign objects into the paintball feed tube of the VANGUARD MARKER
- Never allow pressurised gas to come into contact with any part of your body.
- Always switch off the VANGUARD MARKER when not in use.
- Always fit a barrel blocking device to your VANGUARD MARKER when not in use on the field of play.
- Always remove all paintballs from the VANGUARD MARKER when not in use on the field of play.
- Always remove the first stage regulator and relieve all residual gas pressure from the VANGUARD MARKER before disassembly.
- The VANGUARD MARKER can hold a small residual charge of gas, typically 2 shots, with the first stage regulator removed. Always discharge the marker in a safe direction to relieve this residual gas pressure.
- Always remove first stage regulator and all residual gas pressure from the VANGUARD MARKER for transport and storage.
- Always follow warnings and guidelines given with your first stage regulator for safe transport and storage.
- Only charge the VANGUARD MARKER using the charger supplied.
- Only use 12 Volt negative earth vehicles as a power supply for the charger.
- Do not leave the VANGUARD MARKER unattended whilst charging.
- Always store the VANGUARD MARKER in a secure place.
- THIS OPERATOR MANUAL MUST ALWAYS ACCOMPANY THE PRODUCT IN THE EVENT OF RESALE OR NEW OWNERSHIP.
- SHOULD YOU BE UNSURE AT ANY STAGE YOU MUST SEEK EXPERT ADVICE.





The Vanguard Demon Is A Spool Marker
With An Inline Drive Train
Operating Pressure 100-130 Psi
Full Colour Oled Board
Anti Chop Eyes
Self Purge On / Off Asa
Gas thru Grip Design
Lithium Polymer Battery
Micro Usb
No Lpr
Low Rise Clamping Feedneck
Adjustable Bearing Trigger

vanguard demon overview



Oled Board Functions

Turning the Marker on

To turn the marker on, hold the Power/OK button until the Vanguard Logo appears on the display in the left hand side of the grip. After a short delay, the home screen is displayed; at this point the marker is powered on and ready to fire.

Turning the Marker off

To turn the marker off, hold the Power/OK button to enter the menu, and then push the Power/OK option again on the first item in the Main Menu, "Power Off." The marker will shut down when this function is selected.

The OLED Display

The marker incorporates a full-colour Organic LED (OLED) display, providing an instant visual indication of the marker's status and an easy means of adjusting the marker's settings. When the marker is turned on, and during normal use, the home screen is visible on the display. The home screen displays several items of useful information; notably the battery level, current fire mode, and eye status indicator. The battery level indicator also shows when the marker is being charged.

Break beam Eye System

The marker is equipped with a break beam eye system which prevents paint breakage by allowing the marker to fire only when a ball is fully seated in the breach and ready to fire, and also by monitoring the movement of the bolt to allow the highest rate of fire. When the marker is turned on, the eyes are active by default, and the marker will be prevented from firing unless a ball is in the breach ready to fire. It is recommended that the marker be operated with the eyes on at all times, unless there is a problem preventing them from working (such as broken paint blocking the sensor.)

If you do need to turn the eyes off, press and hold the Up button (whilst in the home screen) until the eye status indicator changes to show that the eyes are disabled. When the eyes are off, the rate of fire is limited by the Eye off ROF setting, and the eyes are not used to control the firing cycle or to prevent the marker from firing. To turn the eyes back on again, press and hold the Up button again, until the status icon changes back to normal.

If the eyes fail, for instance if they become blocked by broken paint, they will automatically be disabled and the marker will be limited to a reduced rate of fire to prevent further breakage. If the failure clears itself, the eyes will automatically be re-enabled, although a warning symbol will continue to be displayed in the eye status icon to alert you to the problem. This warning will not affect operation of the marker, but it may be cleared by turning the eyes off and back on again.

Using the Menus

Settings and information are available through an easy to use menu tree, making use of the full colour screen built into the marker. To enter the menus, hold the Power/OK button for a second. Once in the menu, navigate using the Up and down buttons, and select options with the Power/OK button.

Charging the marker

The battery level is displayed in the top left corner of the home screen; when this gets low you should recharge the marker with the provided charger. You may also charge the marker from any USB host (such as laptop computer, etc.) although the charge rate will be slower.

The dedicated wall charger typically takes about 60-90 minutes to fully charge a low battery; other USB devices will only fully charge the marker in about 6 hours, although even a few minutes' charge can be enough to extend playing time by a considerable amount.

To connect the charger, remove the usb plate cover which protects the USB port, and insert the USB plug of the charger into the port. If charging from another USB host, use a cable terminated in a standard USB 5-pin Mini-B plug.

Because the marker is powered by an advanced Lithium Ion Polymer (Lipoly) battery, no particular care is needed to fully charge or discharge the marker (as with older NiCad or NiMH cells.) It is generally a good idea to get in the habit of always topping up the battery the night before you play, so you can be sure that it is always ready to run. A full charge should provide several days playing time.

Tournament Lock

The marker features a tournament lock function which allows certain settings, which could affect how the marker fires, to be disabled. This ensures that once a marker has been set up within the rules of a tournament, it cannot be modified to increase velocity, rate of fire, or engage enhanced fire modes, without the use of tools.

To change the setting of the tournament lock, insert a pointed object such as a paper clip or small Allen key through the hole below the USB port. A "Tourney Lock" menu will appear on the screen, which allows you to turn the lock on or off. Confirm your selection with the Power/OK button.

Menu Map

Main Menu

Power Off

Fire Mode Preset

Max Rof

ROF Cap

Ramp Cofig

Ramp Start

Ramp Stop

Ramp Reset

Semi Shots

Max Burst

Back

Back

Settings

Dwell

Debounce

Eye Delay

Eye Sens

Bolt Delay

Clearing Shot

FSDO Time

FSDO Dwell

Loader Pulse

Back

Info

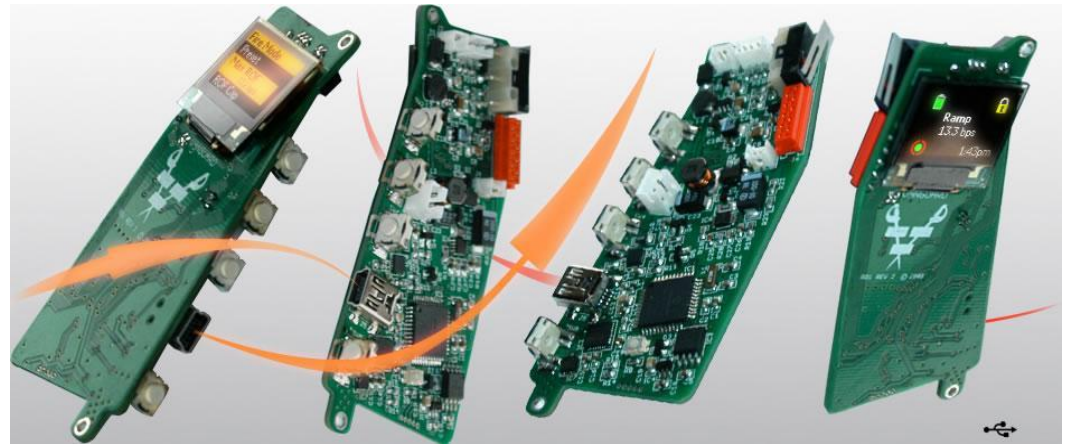
Total Shots

Battery Level

Serial Number

Software Version

Exit Menu



Function Descriptions

Note: depending on the software version running on your marker, some options may be different. See the documentation accompanying the software release for further information.

Power Off - switches off the marker, to prevent unwanted firing and stop the battery from being drained.

Fire Mode - enters the menu containing settings affecting how the marker fires. This includes fire preset (displayed in the menu item when highlighted) as well as maximum rate of fire and custom ramping parameters. This menu groups together the settings which may need to be changed for particular field or tournament rules.

Settings - enters the menu containing basic marker settings, including Dwell and Debounce parameters, and other preferences. These are settings which should not need changing once the marker is correctly set up.

Info - provides some information about the software and hardware versions, of the electronics, and some status information which can be useful when diagnosing problems.

Exit Menu - leaves to exit and returns to the home screen. Each submenu also has a “Back” option which returns to the previous menu.

Preset - sets the fire mode used. Note that selecting a preset does not affect other settings such as Max ROF, so you must also set Max ROF correctly to ensure that the marker is tournament legal.

Max ROF - sets the maximum rate of fire of the marker. When the ROF Cap is in effect (or the eyes are not in use), the marker will never fire faster than this rate.

ROF Cap - sets whether the rate of fire is capped according to the Max ROF setting. If this is off, then the marker will fire as fast as the loader can feed it, as long as the eyes are in use. When the eyes are disabled, the rate of fire will always be limited by the Eye off ROF setting (or Max ROF, if set lower).



Ramp Start - sets the minimum rate of fire which must be achieved for ramping to start, when using the Ramp preset (other modes such as PSP and Millennium are not affected by these settings).

Ramp Stop - sets the minimum rate of fire which must be maintained for ramping to continue, when using the Ramp preset (other modes such as PSP and Millennium are not affected by these settings).

Ramp Reset - sets the rate of fire below which ramping will cease and further safety shots will be required to restart ramping, when using the Ramp preset (other modes such as PSP and Millennium are not affected by these settings).

Semi Shots - sets the number of shots which must be fired in Semi Automatic mode before ramping may start, when using the Ramp preset (other modes such as PSP and Millennium are not affected by these settings).

Max Burst - sets the maximum number of shots discharged for each trigger pull when ramping is active, when using the Ramp preset (other modes such as PSP and Millennium are not affected by these settings).

Dwell - sets the length of time the solenoid valve is held open to actuate the firing cycle. If set too low, shot velocity will be low or inconsistent, or the marker may not cycle fully; if set too high then air efficiency will suffer.

Debounce - sets the length of time that must pass after the trigger is released before another trigger pull may be registered. Increase this value to eliminate unwanted “trigger bounce” or switch noise which may cause unwanted additional shots to be fired.

Eye Delay - sets the amount of time that a ball must block the eyes before the marker is allowed to fire. Increase this setting when using a gravity-fed loader and paint breakage is a problem.

Eye Sens. - sets the sensitivity of the eye sensor (higher means more sensitive). Adjust this if the eyes are dirty and not reliably detecting balls, or if ambient light is interfering with the operation of the eyes.

Bolt Delay - sets the length of time that the bolt must block the eyes for the marker to recognise a full cycle. Adjust this setting if you are experiencing frequent eye errors or “stuttering”, particularly when the ROF Cap is disabled. A higher setting will **not** affect the rate of fire of the marker.



Clearing Shot - sets whether holding the trigger for a second will cause the marker to fire, even if a ball is not detected. This is useful to “kick-start” sound-activated loaders. If a ball is detected and fired before the one second delay, no additional clearing shot will be fired.

FSDO Time - allows an option to increase the dwell on the first shot after an idle period. This can be useful particularly in very cold conditions, or if the marker's internals are in need of servicing, and the first shot after an idle period is at a lower velocity (“First Shot Drop Off”). If reduced to zero, this option is disabled; otherwise the setting determines how long must pass without a shot before the next shot is corrected. **NOTE: FSDO correction may increase the velocity of the first shot over the limits set by the field or tournament, so use this option with care, and only if necessary.**

FSDO Dwell - sets how much time is added to the dwell of the first shot after the idle period above. If the FSDO Time is set to “Disabled”, this option will have no effect. **NOTE: FSDO correction may increase the velocity of the first shot over the limits set by the field or tournament, so use this option with care, and only if necessary.**



Low Battery



Charging



Full Battery



Eyes On No Ball In Breach



Eyes On Ball In Breach



Eyes Off



Eye Error

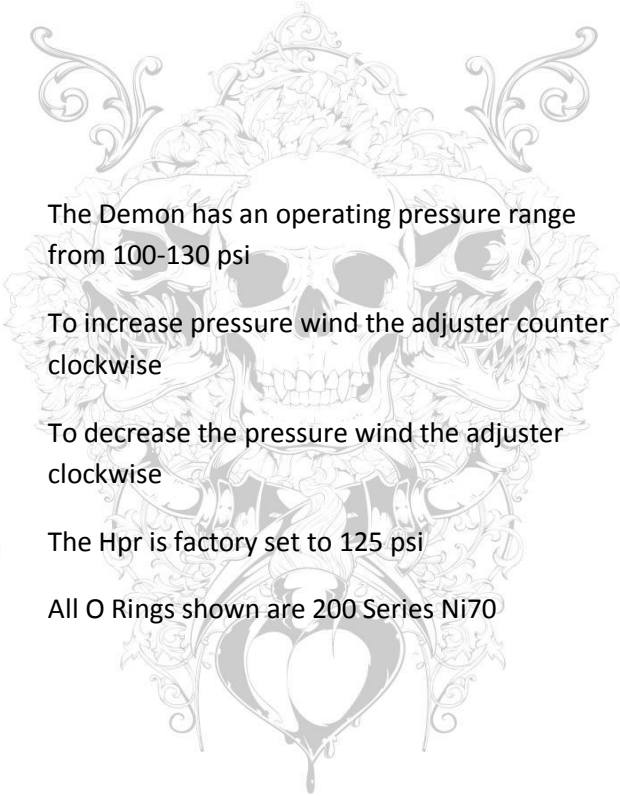
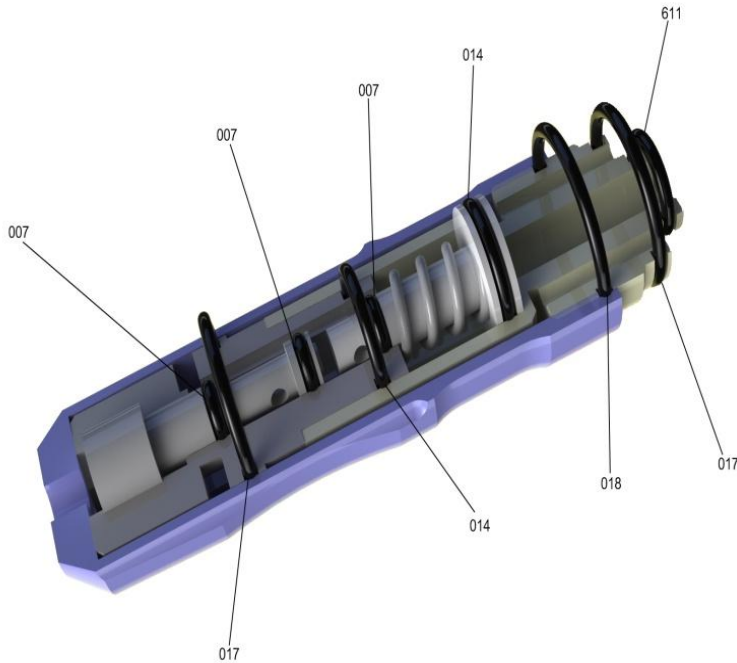


Error Recovered



Tournament Lock

High Pressure Regulator (Hpr)



The Demon has an operating pressure range from 100-130 psi

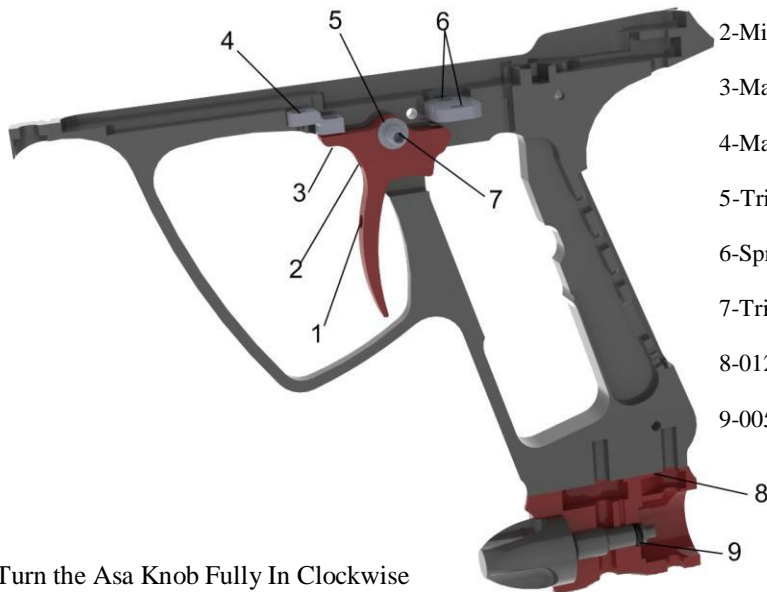
To increase pressure wind the adjuster counter clockwise

To decrease the pressure wind the adjuster clockwise

The Hpr is factory set to 125 psi

All O Rings shown are 200 Series Ni70

Grip Assembly & On / Off Asa



- 1-Post Travel Screw 6-32 x 1/4 Unc set
- 2-Micro Switch Screw 6-32 x 3/4 Unc set
- 3-Magnet Screw 6-32 x 1/8 Unc set
- 4-Magnet Hsg Screw 2-56 x 3/16 Unc cap
- 5-Trigger Bearing
- 6-Spring Clamp Screw 2-56 x 3/16 Unc cap
- 7-Trigger Set Screw 8-32 x 1/4 Unc set
- 8-012 O Ring (Not Shown)
- 9-005 O Ring

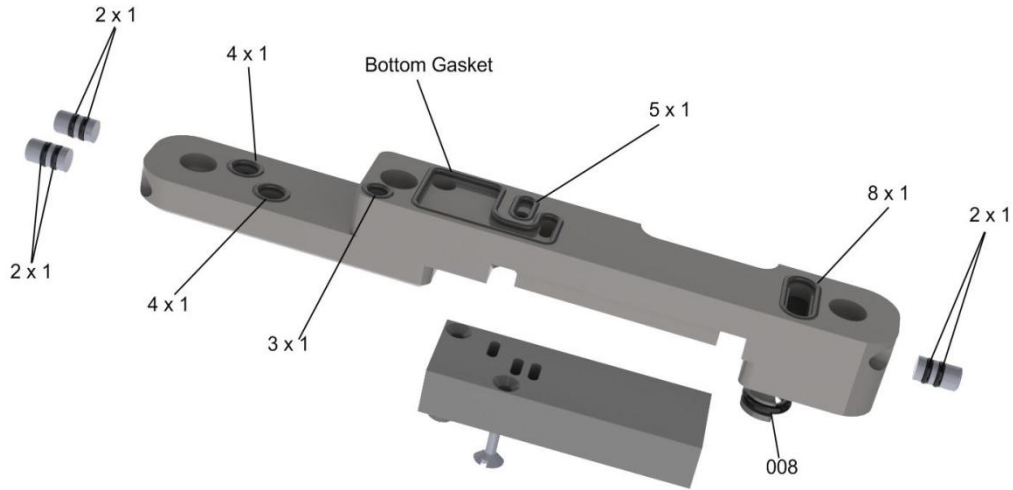
To Gas Up Your Demon Turn the Asa Knob Fully In Clockwise

You Will Hear Your Demon Energise

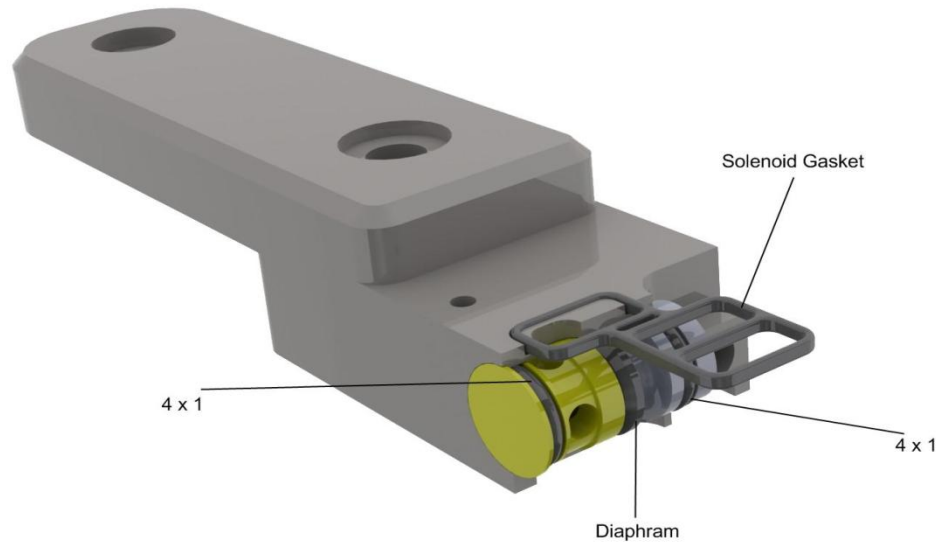
To Degas Your Demon Turn the Asa Knob Counter Clockwise

You Will Hear Your Demon Degas and the Asa Will Purge

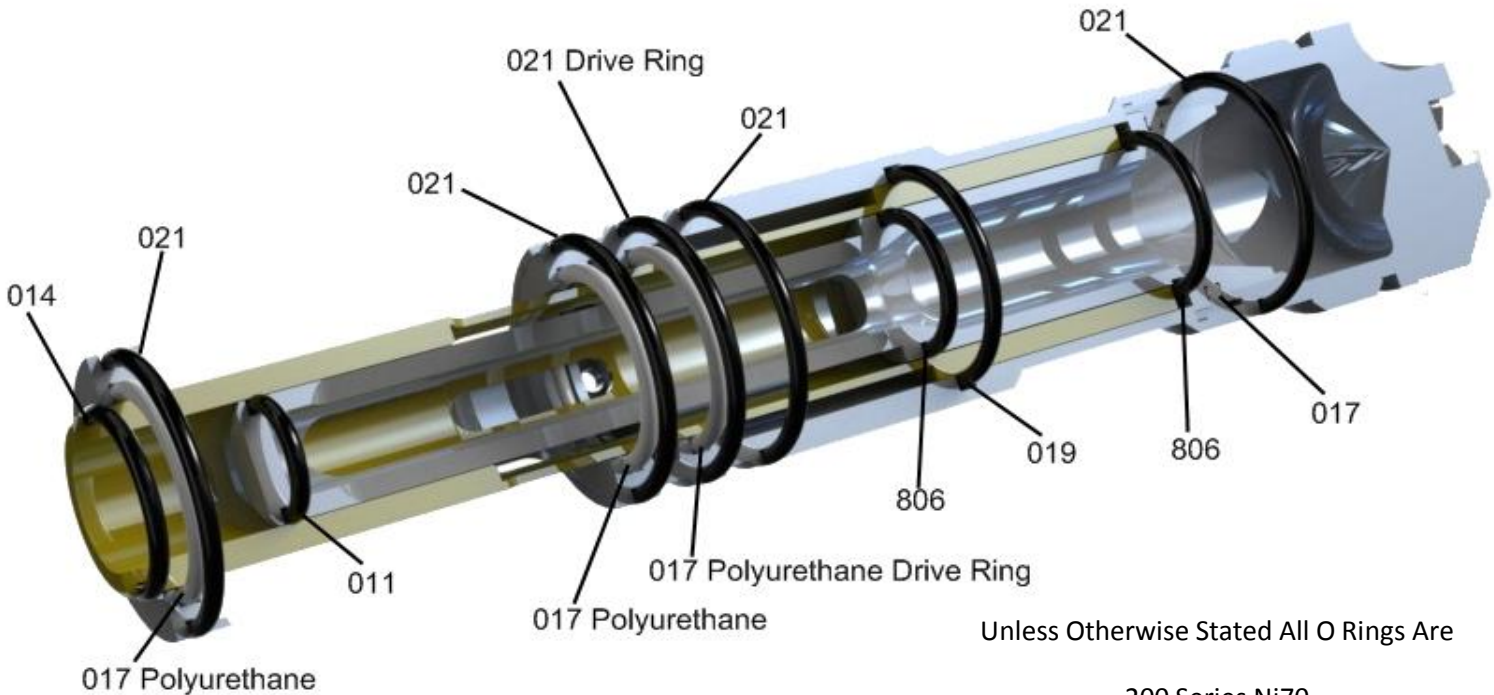
Manifold



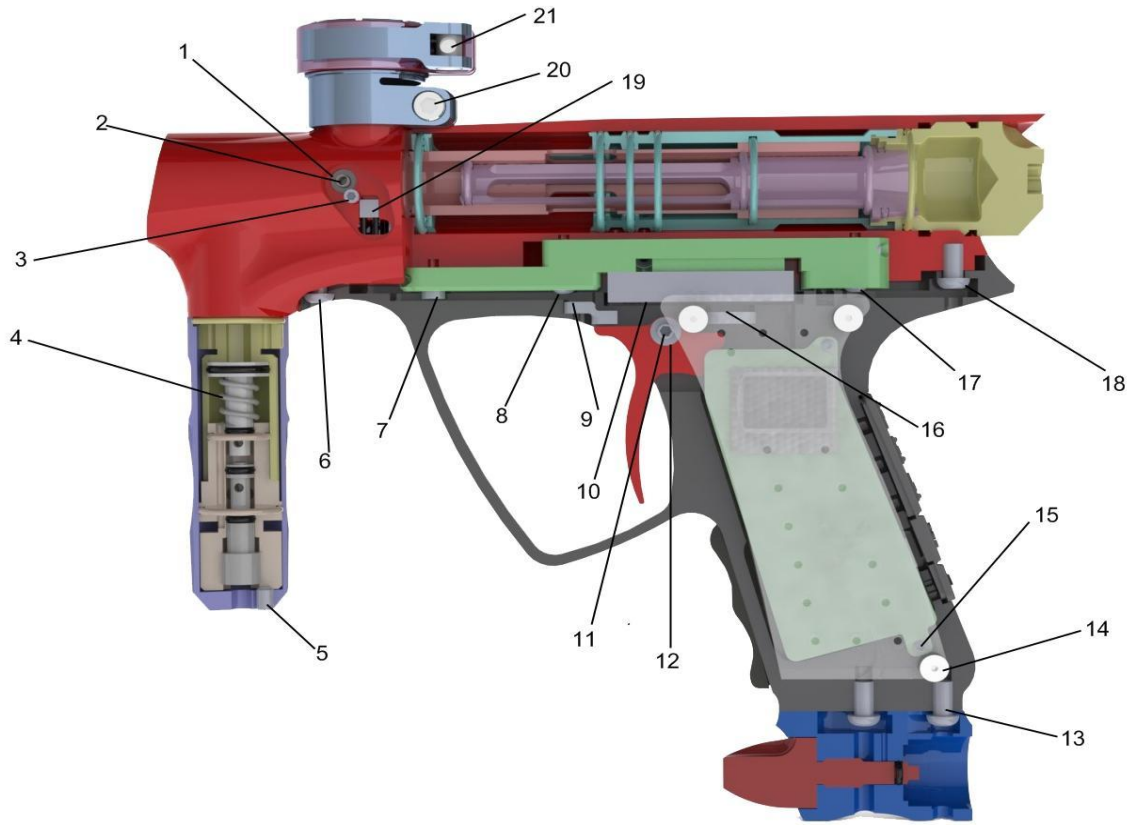
Quick Exhaust Valve



Drive Train



Exploded View



Item	Description	Specification	Qty Per Marker
1	Delrin Detent	Turned Delrin	2
2	Detent Spring	C1010D 02 M	2
3	Eye Cover Screw	2-56 x 3/16 Unc Cap A2	2
4	Hpr Spring	LC059F01M	1
5	Hpr Stop Screw	8-32 x 1/4 Unc Set S/C	1
6	Front Grip Frame Screw	8-32 x 5/16 Unc Btn A2	1
7	Front Manifold Screw	6-32 x 3/16 Unc Cap A2	1
8	Mid Manifold Screw	6-32 x 1/2 Unc Btn A2	1
9	Magnet Retainer Screw	2-56 x 3/16 Unc Cap S/C	1
10	Solenoid Screw	M2 x 10 Slot Head A2	2
11	Trigger Set Screw	8-32 x 1/4 Set S/C	2
12	Trigger Bearing	FR144ZZ	2
13	Asa Mount Screw	10-32 x 3/8 Unf Btn S/C	2
14	Rubber Grip Screw	6-32 x 1/4 Unc Csk A2	6
15	Oled Board Screw	2-56 x 3/16 Unc Btn S/C	2
16	Trigger Spring Mount Screw	2-56 x 3/16 Unc Cap S/C	1
17	Rear Manifold Screw	6-32 x 1/2 Unc Btn A2	1
18	Rear Grip Frame Screw	10-32 x 3/8 Unf Btn A2	1
19	Eye	Led Eyes	2
20	Feedneck Body Screw	10-32 x 7/16 Unf Cap A2	1
21	Feedneck Clamp Screw	10-32 x 9/16 Unf Cap A2	1
22	Trigger Magnet (Not Shown)	Ø4mm x 3mm F334	1
23	Trigger Spring (Not Shown)	C1010D05M	1
24	Usb Tab Screw (Not Shown)	2-56 x 3/16 Unc Cap S/C	1



Warranty

Vanguard warrants for one year to the initial retail purchaser, from the initial date of purchase, that the paintball marker and regulator are free from defects in materials and workmanship, subject to the requirements, disclaimers and limitations of this warranty. Disposable parts, normal maintenance and standard wear and tear parts such as batteries, O-rings and seals are not warranted. The solenoid and electronic components on the marker are warranted for six months. This warranty does not cover scratches, nicks, improper disassembly, improper re-assembly, misuse, neglect or improper storage. Modification to the product will void the warranty. This warranty is limited to repair or replacement of defective parts with the customer to pay shipping costs. Proof of purchase must be submitted to Vanguard, for warranty to be in effect. This warranty is not transferable. Unless otherwise agreed with Vanguard, This warranty does not cover performance. Paintball markers are non-refundable.

TECHNICAL SUPPORT UK

Our Technical Support Department is open Monday through Friday, from 9am to 5pm, GMT
And can be reached at +44 (0)2476 353698.
Or contact martin@vanguardpaintball.com Skype: - martin.carnall

**USA Sales, Warranty & Service
Centre**

service@vanguardpaintballusa.com



DISCLAIMER

The specifications & photographs in this material are for information and general guidance purposes only. Our products are continually updated and changes may be made to specification, design or appearance from time to time. These are subject to change without notice. Contents of box may therefore vary from owner's manual. For details of changes in design, specification or appearances consult your local dealer. Design rights, copyrights and all other rights reserved. All patterns, drawings, photographs, instructions or manuals remain the intellectual property of the manufacturer.

Vanguard products are covered under U.S. AND INT'L PATENTS PENDING And PUBLISHED by one or more of the following UK and U.S. Patents, 5,613,483; 5,881,707; 5,967,133; 6,035,843 and 6,474,326. All rights will be strictly enforced.

Vanguard Paintball Ltd

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sales@vanguardpaintball.com

www.vanguardpaintball.com

Diagnostic Service, Repair & Tune: \$25.00 (non Refundable)

(Diagnose, Repair, O ring, lube & replacement, testing functions, Complete Tuning and setting all pressures to manufactures specs.)

Parts upgrades/Replacement: Cost of parts (Installation included in cost of service & repair)

Warranty Repair: Will be filed under manufacturer's warranty on any marker that is within the one Year from date of purchase.

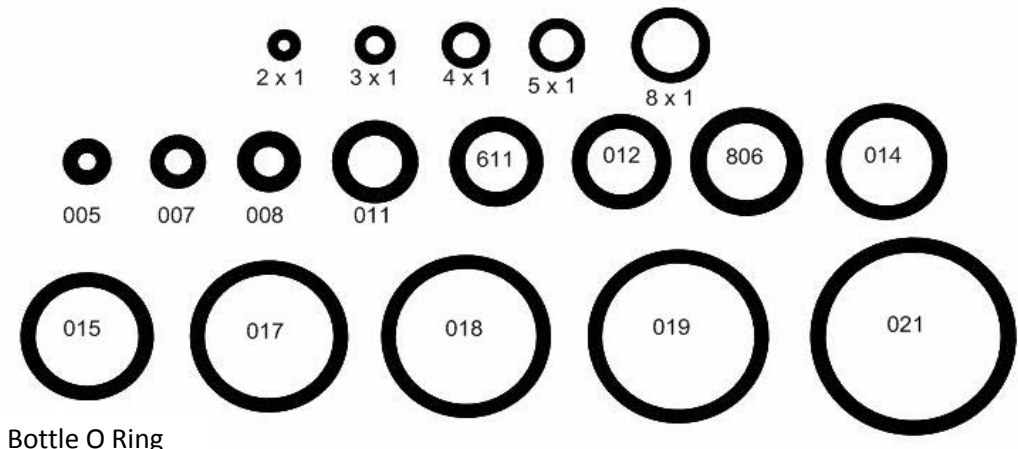
Warranty will cover all parts and labour excluding damages incurred from misuse, abuse, scratches, nicks, improper disassembly, improper re-assembly, neglect or improper storage. It also does not cover any damages due to modifications installed or used without Vanguard Paintball Limited's written approval. Any product modifications without written approval from Vanguard Paintball Limited are strictly prohibited and will void your warranty immediately. Warranty does not include any wearable items such as Orings, detents, stripped or broken screws or parts that are damaged by the customer. All warranty claims must be submitted to a Vanguard Service Centre prior to Shipment of the Marker.

Return Shipping: \$10-\$15 Flat rate depending on location.

Customers will be responsible for all costs of shipping to and from the service centre, unless otherwise noted, because of manufacturer warranty.



O Ring Chart



O Rings Per Marker

- 2x1=6
- 3x1=1
- 4x1=4
- 5x1=1
- 8x1=1
- 005=1
- 007=3
- 008=2
- 011=3
- 611=1
- 012=1
- 806=2
- 014=3
- 017 Poly=3
- 017 Ni70=3
- 018=1
- 019=1
- 021=5



Problem	Possible Cause	Solution
<u>Air Leak Problems</u>		
Air leaking down the barrel	O ring failure on drive train	Check bolt guide front 011 o ring replace if necessary
		Check can outer front 021 o ring replace if necessary
		Check can inner front 017 o ring replace if necessary
		Check can outer rear 021 o ring replace if necessary
	Damage or debris on bolt surface	Check bolt for wear or damage or debris
Air Leak From Top Of Grip Area	Manifold gasket or solenoid gasket may be worn or damaged	Check main gasket and solenoid gasket
	Manifold o ring seals may be worn or damaged	Check 3x1,4x1,5x1 and 8x1 o rings
	Manifold plug o rings may be worn or damaged	Check the 2x1 o rings on the plugs
	Qev diaphragm may be worn or damaged	Remove manifold and & check diaphragm
	Rear can sail o ring 019 may be worn or damaged	Check 019 o ring replace if necessary
	Rear 806 bolt guide o ring may be worn or damaged	Check 806 o ring replace if necessary
	Transfer nipple o rings may be worn or damaged	Check 008 o rings replace if necessary
	Solenoid may be damaged or over pressurized	Check solenoid and pressures
Air Leak From bottom Of Grip Area	Asa body may have become loose	Check and tighten if necessary
	Asa to grip 012 o ring maybe worn or damaged	Check 012 o ring replace if necessary
	Asa knob 005 o ring maybe worn or damaged	Check 005 o ring replace if necessary
Air Leak From Hpr Area	Hpr adjuster o rings may be worn or damaged	Check 007 o rings replace if necessary
	Hpr piston o ring may be worn or damaged	Check 014 o ring replace if necessary
	Hpr bonnet o rings may be worn or damaged	Check 611, 017 & 018 o rings replace if necessary
	Hpr piston puck may be worn or damaged	Check the puck for wear
Air Leak From rear of marker	Ram cap o ring maybe worn or damaged	Check 021 o ring replace if necessary
	Drivetrain may not be fully inserted	Tighten drive train in correctly



<u>Shooting Problems</u>		
<u>Inconsistent velocity</u>	Hpr adjuster o ring maybe worn or damaged	Check 007 o rings replace if necessary
	Hpr piston o ring maybe worn or damaged	Check 014 o ring replace if necessary
	Hpr piston puck maybe worn or damaged	Check piston puck replace if necessary
	A Drivetrain o ring maybe leaking	Inspect drivetrain
	Drivetrain may be dry and require lubing	Re lube drivetrain
	Dwell maybe set to low	Increase dwell settings
	Pressure may be to low or restricted	Check bottle & hpr are set correct
<u>Coughing or burping from drivetrain</u>	Third from front outer 021 Can o ring may be worn	Check and replace 021 can o ring if necessary
	Third from front inner 017 Can o ring may be worn	Check and replace 017 can o ring if necessary
	Marker running under pressure	Check bottle & hpr are set correct
	Dwell is set to low	Increase dwell settings
	Diaphragm may need lubing or changing	Re lube diaphragm
	Main manifold gasket may be damaged or not seating	Check and replace gasket if necessary
	Low battery or low bottle	Charge battery or refill bottle
	Drivetrain may be dry and require lubing	Re lube drivetrain
<u>Electronic Problems</u>		
<u>Marker won't turn on</u>	Battery may be flat or not plugged in	Check battery is fully charged and plugged in ok
	Wires	Check wires are ok
	Board	Check board is functioning
<u>Marker fires once when turning on</u>	Trigger actuating screw maybe sitting on the micro switch	Unwind screw to correct the adjustment
<u>Screen scrolling down continuously</u>	buttons maybe sitting on the board switch	Take board out and check position
<u>Not firing when pulling the trigger</u>	Micro switch maybe set incorrect	Wind in screw to make contact with micro switch
	Eyes maybe on with no ball in breach	Turn eyes off
	No pressure to marker	Gas marker up
	No pressure to marker	Make sure the hpr is set
<u>Battery wont charge</u>	Faulty battery or charger	Take battery out for 30 minutes and retry
<u>Eyes don't work</u>	Possibly dirty or wires chopped	Clean eyes & check wires
		Check board settings sensitivity
<u>Other problems</u>		



Double feeding	Worn or dirty detents	Check and clean detents
Breaking paint	Hopper	Make sure hopper is operating correctly
	Hopper battery	Check hopper battery and feed is not to strong
	Detents	Check detents are working correctly
	Barrel	Check barrel size and that it is clean
	Paint	Try a better quality paint
Accuracy	Dirty barrel or Feedneck	Clean barrel and Feedneck
	Dirty / bad paint	Use better quality and clean paint
	Barrel to paint match	Always use a barrel that matches your paint
	Spares Kit Included With Marker	
	200-Ni70 2x1 x 6	
	200-Ni70 3x1 x 1	
	200-Ni70 4x1 x 4	
	200-Ni70 5x1 x 1	
	200-Ni70 8x1 x 1	
	200-Ni70 005 x 1	
	200-Ni70 007 x 3	
	200-Ni70 008 x 2	
	200-Ni70 011 x 3	
	200-Ni70 011 x 1	
	200-Ni70 012 x 1	
	200-Ni70 806 x 2	
	200-Ni70 014 x 3	
	200-Ni70 015 x 2	
	200-Ni70 017 x 3	
	Polyurethane 017 x 3	
	200-Ni70 018 x 1	
	200-Ni70 019 x 1	
	200-Ni70 021 x 5	
	Delrin Detent x 2	

