

The logo features the letters 'GEF' in a bold, outlined, sans-serif font. The letters are rendered in a dark blue color with a white inner glow. Behind the letters, there is a vibrant, multi-colored digital glitch or data stream effect, consisting of horizontal streaks of blue, green, yellow, and purple. The background is a dark, textured blue with a subtle, swirling pattern.

GEF

OPERATORS MANUAL



WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES!

WARNING

01. **PLEASE READ AND UNDERSTAND ALL INSTRUCTION MANUALS BEFORE USE.**
02. The Eclipse Geo3 is not a toy. **PAINTBALL SAFETY RULES MUST BE FOLLOWED AT ALL TIMES.**
03. Careless or improper use, including failure to follow instructions and warnings within this User Manual and attached to the Geo3 could cause death or serious injury.
04. Do not remove or deface any warnings attached to the Geo3.
05. 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 the user and any person within range. Proper protection must be worn during assembly, cleaning and maintenance.
06. Hearing protection should be worn.
07. Never shoot at a person who is not wearing proper protection.
08. Never look directly into the barrel of the marker. Accidental discharge into the eyes may cause permanent injury or death. Never look into the barrel or breech area of the Geo3 whilst the marker is switched on and able to fire.
09. Keep the Geo3 switched off until ready to shoot.
10. Treat every marker as if it is loaded and ready to fire.
11. The electronic on/off is the markers safety, always switch off the marker when not in use. Always fit a barrel-blocking device to the Geo3 when not in use.
12. Always remove all paintballs from the Geo3 when not in use on the field of play.
13. Never point the Geo3 at anything you do not intend to shoot.
14. Do not shoot at persons within close range.
15. Do not field strip or remove any parts while the marker is pressurised.
16. Do not pressurise the Geo3 without the bolt system correctly installed, as high-pressure gas will be emitted.
17. Do not fire the Geo3 without the bolt system correctly installed.
18. Never put your finger or any foreign objects into the paintball feed tube of the Geo3.
19. Never allow pressurised gas to come into contact with any part of your body.
20. Always remove the first stage regulator and relieve all residual gas pressure from the Geo3 before disassembly.
21. Always remove the first stage regulator and relieve all residual gas pressure from the Geo3 for transport and storage.

WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES!

22. Always follow guidelines given with your first stage regulator for safe transportation and storage.
23. Always store the Geo3 in a secure place. Persons under 18 years of age must have adult supervision when using or handling the Geo3.
24. Observe all local and national laws, regulations and guidelines.
25. Use only professional paintball fields where codes of safety are strictly enforced.
26. Use compressed air/nitrogen only. **DO NOT** use any other compressed gas or pressurised liquid including CO₂.
27. Always follow instructions, warnings and guidelines given with any first stage regulator you use with the Geo3.
28. Use 0.68 calibre paintballs only.
29. Always measure your marker's velocity before playing paintball, using a suitable chronograph.
30. Never shoot at velocities in excess of 300 feet (91.44 meters) per second, or at velocities greater than local or national laws allow.
31. Any installations, modifications or repairs should be carried out by a qualified individual at a licensed and insured paintball facility.



THIS USERS MANUAL IS IN ENGLISH.
It contains important safety guidelines and instructions. Should you be unsure at any stage, or unable to understand the contents of this manual you must seek expert advice.



LE MODE D'EMPLOI EST EN ANGLAIS.
Il contient des instructions et mesures de sécurité importantes. En cas de doute, ou s'il vous est impossible de comprendre le contenu du monde d'emploi, demandez conseil à un expert.



ESTE MANUAL DE USUARIOS (OPERARIOS) USARIOS ESTÁ EN INGLÉS.

Contiene importantes normas de seguridad e instrucciones. Si no está seguro de algún punto o no entiende los contenidos de este manual debe consultar con un experto.



DIESE BEDIENUNGS - UND BENUTZERANLEITUNG IST IN ENGLISCH.

Sie enthält wichtige Sicherheitsrichtlinien und -bestimmungen. Sollten Sie sich in irgendeiner Weise unsicher sein, oder den Inhalte dies Heftes nicht verstehen, lassen Sie sich bitte von einen Experten beraten.

THIS USER MANUAL MUST ACCOMPANY THE PRODUCT IN THE EVENT OF RESALE OR NEW OWNERSHIP. SHOULD YOU BE UNSURE AT ANY STAGE YOU MUST SEEK EXPERT ADVICE (SEE SERVICE CENTRES PAGE 75).



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Tear-out product registration card to be completed and returned. Alternatively register online at www.planeteclipse.com

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SWITCHING ON THE GEO3

To switch on the Geo3 press the  button twice in quick succession, referred to elsewhere in this manual as 'double-clicking'. The Geo3 can also be switched on by pushing and holding the  button (FIGURE 1A).¹

SWITCHING OFF THE GEO3

Press and hold the  button until the display shows "TURN OFF". Release the  button and re-press it to turn off the Geo3. Alternatively double click the  button to enter the menu tree then press  to turn off the Geo3.¹

FIRING THE GEO3

Pull the trigger to fire the Geo3. The entire firing sequence is controlled electronically by the Geo3 circuit board, enabling any user to easily achieve high rates of fire.

THE GEO3 CIRCUIT BOARD

There are four sockets on the circuit board; the Break Beam Sensor System (BBSS) socket (A), the Solenoid Valve socket (B), the auxiliary socket (to which third party products such as loaders and RF transmitters can be connected using the relevant wiring harness) (C) and the Expansion Board socket on the back of the circuit board (which connects the Eclipse E-Portal USB Daughter Board to the Geo3) (D).^{2,3}

¹The double clicking feature is user selectable, factory default is set to on. It can be turned off using the double click parameter in the Hardware menu (see page 49).

²The auxiliary socket is turned on and off manually via the AUX OUT parameter in the Hardware menu on page 49.

³Eclipse E-Portal sold separately (see page 81).



FIG 1A



FIG 1B

USING THE BREAK BEAM SENSOR SYSTEM

The Break Beam Sensor System, referred to elsewhere in this manual as 'BBSS' is used to detect when a paintball is ready to be fired from the Geo3. If no paintball is ready then the BBSS will prohibit the Geo3 from firing. This prevents the Geo3 from "chopping" paintballs that are not fully loaded into the marker.¹

To switch off the BBSS, press and hold the  button for 0.5 seconds (SEE FIGURE 2A). The BBSS indicator on the top right of the LCD will change from  (enabled) to  (disabled).

To switch the BBSS back on, press and hold the  button for 0.5 second. The indicator will change back to .

When the BBSS is enabled, the indicator will change depending upon whether the system has detected a ball or not. When no ball has been detected the indicator will look like this . When a ball has been detected the icon changes to look like this .

Additional features of the Geo3's Break Beam Sensor System are covered in full on page 30 of this operators manual.



FIG 2A



¹When the Geo3 is turned on, the Break Beam Sensor System is automatically enabled.



FACTORY SET-UP GUIDE

⚠ WARNING ⚠

DE-GAS YOUR MARKER, DISCHARGING ANY STORED GAS IN A SAFE DIRECTION, AND REMOVE THE BARREL, LOADER, AIR SYSTEM AND ANY PAINTBALLS TO MAKE THE MARKER EASIER AND SAFER TO WORK ON.

Before using the Geo3 it is important to make sure the SL3 inline regulator, solenoid flow restrictor (SFR) and all electronically controlled parameters are set correctly. All of these can have a negative effect on the performance of the marker if incorrectly set.

The steps below will restore the Geo3 settings to the factory settings. These settings will give the Geo3 a more balanced performance, ideal for the average user.

-Check the inline regulator adjuster screw is set to $4\frac{1}{2}$ turns clockwise from its maximum out (counter-clockwise) position (SEE FIGURE 3A). This will ensure the inline regulator is set to an output pressure that will not damage the Geo3 when supplied with compressed air/nitrogen (see page 25 for more information on the inline regulator).

-Check that the SFR is set to maximum (indicator pointing upwards) (SEE FIGURE 3B). Use a $5/64$ " (2mm) hex key to adjust the SFR. See page 26 for more information on the solenoid flow restrictors.

-Load the Factory preset stored on the Geo3 circuit board. This preset will restore all the electronic parameters to their default settings. See page 40 on loading the Factory preset.



FIG 3A



FIG 3B



INSTALLING A 9V BATTERY

Ensure that the Geo3 is switched off. Lay the marker on a flat surface in front of you with the feed tube furthest away and with the barrel pointing to the right.

Use a 5/64" (2mm) hex key to remove the two countersunk screws that hold the rubber grip onto the frame. Peel the grip to the right to expose the circuit board within the frame.

Remove the fitted battery by sliding your thumb or finger into the recess below the battery and levering the battery out of the frame (SEE FIGURE 4A).

DO NOT pull on the top of the battery to remove it as this can cause the battery terminals to bend and will result in a poor electrical connection.

Fit a 9-volt alkaline battery (type PP3, 6LR61 or MN1604) into the recess with the battery terminals away from you. The positive terminal should be on the right hand side, nearest to the front side of the frame (SEE FIGURE 4B).¹

Ensure that all of the wires are within the recess of the frame and away from the trigger, micro-switch and Opto sensors so as not to interfere with their operation. Replace the rubber grip and screw in the two countersunk screws.

DO NOT OVER-TIGHTEN THE SCREWS.



FIG 4A



FIG 4B

¹Do not use rechargeable batteries or low quality batteries.

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KNOW YOUR GEO3

ORIENTATION



ECLIPSE SHAFT4 BARREL

The Eclipse Geo3 comes as standard with an Eclipse Shaft4 barrel.^{1,4}

The barrel screws into the body of the Geo3 using a right hand thread meaning that if you hold the Geo3 pointing away from you the barrel screws into the body in a counter-clockwise direction.²

The barrel comprises of two parts, a barrel back (A) and a barrel front (B). The two parts are joined together with a left hand thread meaning that if you hold the barrel, with the back nearest you, the front unscrews in a counter-clockwise direction. The bore size of the barrel back is engraved at the end of the barrel back (C).³

On the barrel back there is a 016 NBR 70 o-ring (D) which prevents the barrel from vibrating loose from the Geo3 body when the marker is fired. There is also a 015 NBR 70 o-ring on the tip of the barrel back (E) helps with alignment when the two sections are screwed together.

Replace and lubricate these o-rings with Eclipse Grease as necessary.



¹The bore size of your Shaft4 may vary according to the model of Geo3 you have.

²The Geo3 will only accept COCKER threaded barrels. Do not use any other type of barrel thread.

³The Eclipse Shaft4 front and back barrel sections are not interchangeable with older version shaft front and back barrel sections (including Shaft3 barrel kits).

⁴The model of barrel accompanying your Geo3 may differ from described.

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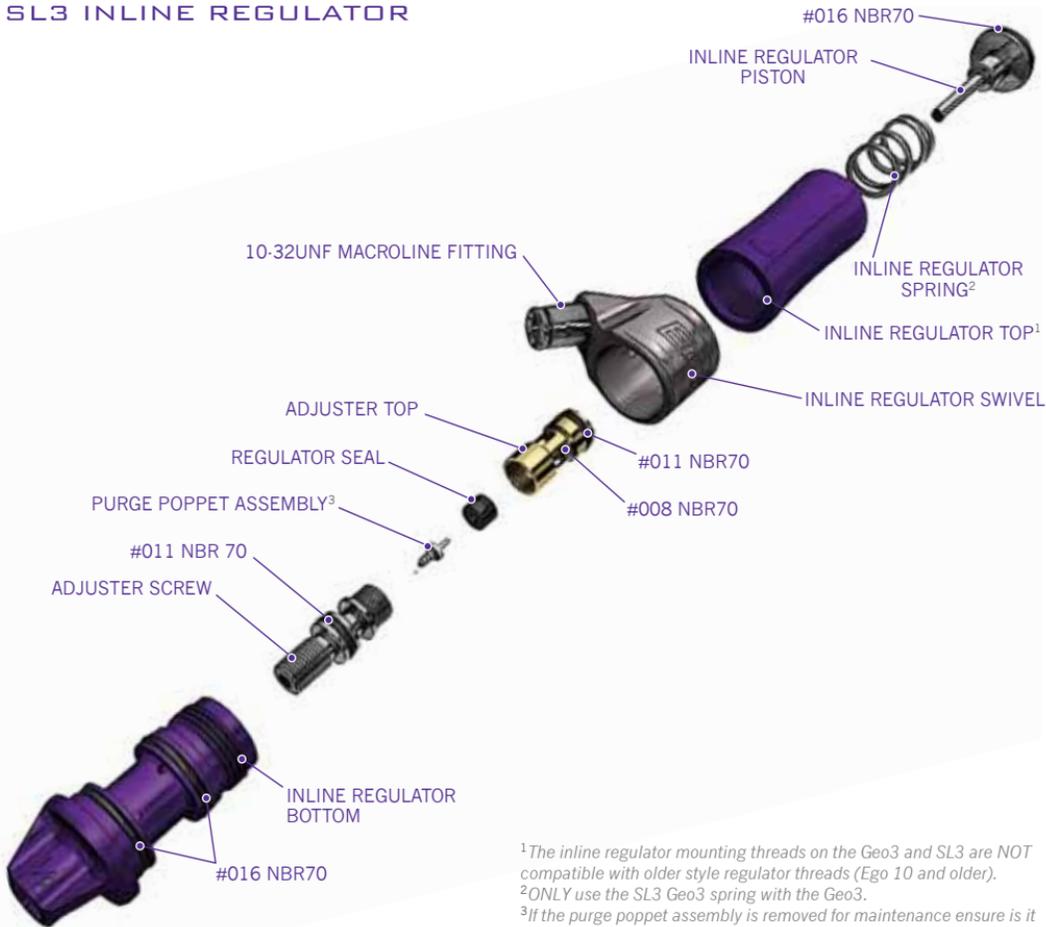
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SL3 INLINE REGULATOR

ORIENTATION
1 2.



¹The inline regulator mounting threads on the Geo3 and SL3 are NOT compatible with older style regulator threads (Ego 10 and older).

²ONLY use the SL3 Geo3 spring with the Geo3.

³If the purge poppet assembly is removed for maintenance ensure it is re-installed correctly, failure to do so may seriously damage the Geo3.

GEO3 BOLT SYSTEM¹



¹The prop shaft does not need to be fully disassembled for basic maintenance. Only if a leak around the prop shaft screw develops should disassembly take place.

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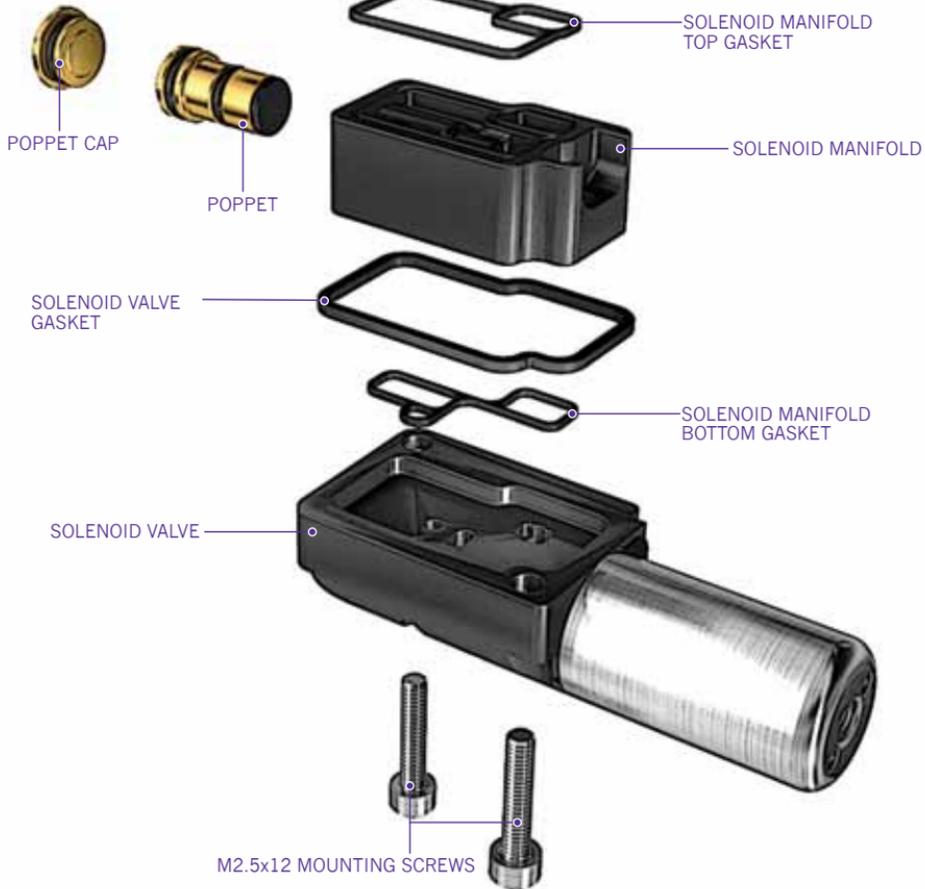
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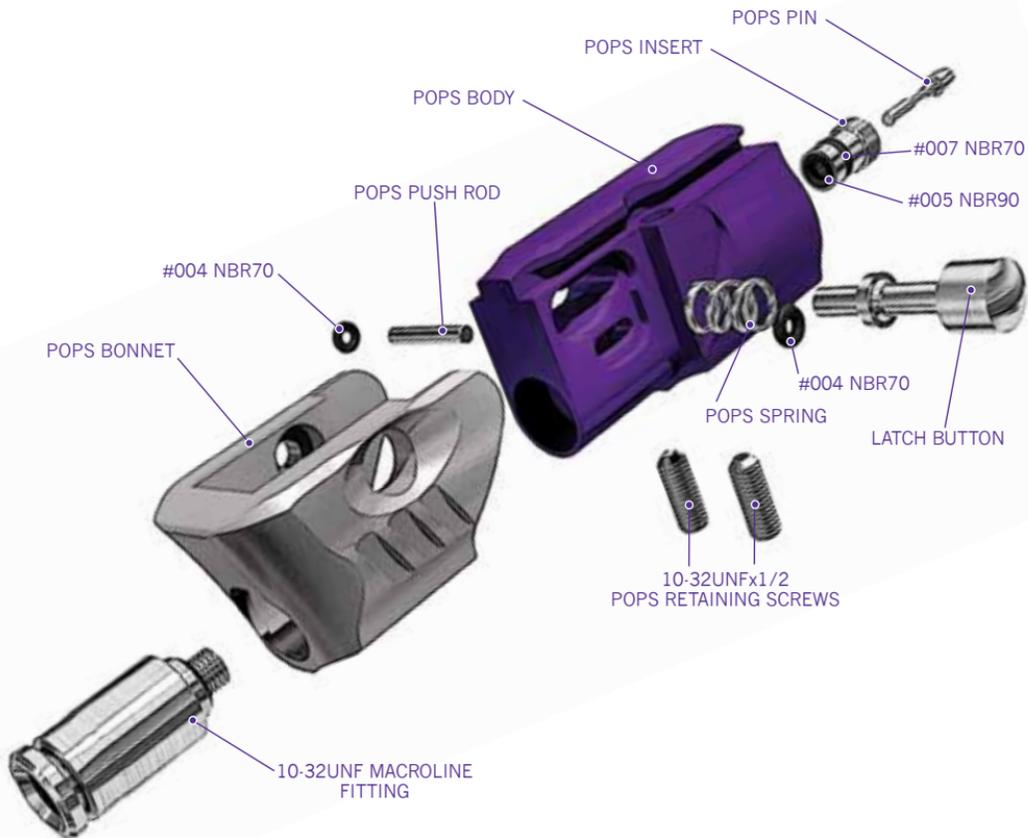
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GEO3 SOLENOID ASSEMBLY



PUSH OPERATED PURGE SYSTEM (POPS) ASSEMBLY



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THE GEO3 NAVIGATION CONSOLE

At the rear of the Geo3 grip frame you will find the navigation console (FIGURE 5A) which is used for:

- > TURNING THE GEO3 ON AND OFF USING THE  BUTTON
- > SCROLLING THROUGH MENUS WITH THE  AND  BUTTONS
- > SELECTING PARAMETERS TO EDIT USING THE  BUTTON
- > EDITING PARAMETERS USING THE  AND  BUTTONS
- > TURNING THE GEO3 BREAK BEAM SENSOR SYSTEM ON AND OFF USING THE  BUTTON (PUSH AND HOLD)
- > RESETING RECORDED VALUES USING THE  BUTTON (PUSH AND HOLD)
- > CONTROLLING THE GAME TIMER WITH THE  BUTTON (QUICK PUSH AND RELEASE)
- > SCROLLING THROUGH THE VARIOUS RUN SCREENS USING THE  BUTTON (QUICK PUSH AND RELEASE)

WARNING

WARNING: THE BACKLIGHT ON THE LCD DISPLAY TURNS OFF AFTER A PERIOD OF TIME. WHEN THIS HAPPENS THE MARKER IS STILL ON AND ABLE TO FIRE.
TO ADJUST THE LCD BACKLIGHT SEE PAGES 48-49

 PREVIOUS / RAISE

 SELECT

 NEXT / LOWER

FIG 5A



OPERATIONAL OVERVIEW

Below is a brief overview of what happens when you fire your Geo3. The location of parts discussed in the text below can be found on pages 76-77.

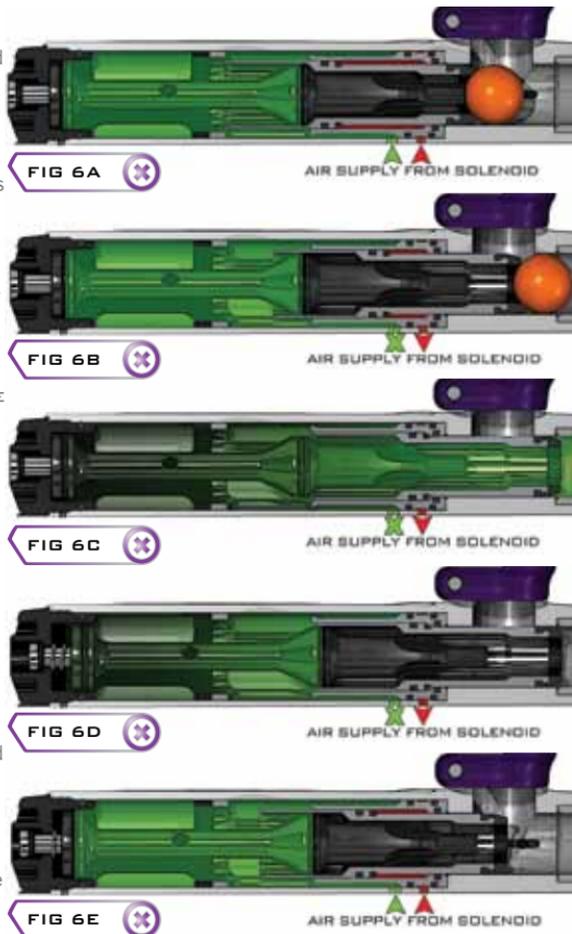
Assuming the Geo3 is gassed up and turned on **FIGURE 6A** shows the marker in its idle position. The firing chamber is full of compressed air, the prop shaft is pushed back into the back cap by this compressed air. The bolt is held back by the air in the bolt can. Both the firing chamber and the bolt can are supplied with air via the Solenoid Valve.

Providing a ball is in the breach when the trigger is pulled, a signal is sent to the Solenoid Valve which shuts off the supply of air to the firing chamber and allows the air in the bolt can to be exhausted. This removes the force holding the bolt in its rear position and the bolt is propelled forwards (**FIGURE 6B**).

As the bolt passes the front prop shaft o-ring the firing chamber seal is broken and the air in the firing chamber vents down the bolt, in turn propelling a ball (**FIGURE 6C**).

As air is vented from the firing chamber the force pushing the prop shaft back is overcome by the spring tension in the back cap. The spring pushes the prop shaft forward. The front 14x2 o-ring on the prop shaft enters the bolt and seals off the firing chamber (**FIGURE 6D**).

The length of time the bolt remains in this forward position is dependant on dwell. When the solenoid has completed its dwell time, air is routed back into the bolt can and pushes the bolt back towards its rear position. Simultaneously the firing chamber is re-filled through the Solenoid Valve to the operating pressure set by the user via the inline regulator, and the prop shaft is pushed into its rear position by the air pressure inside the valve chamber. (**FIGURE 6E**).



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SETTING UP THE GEO3

Before you can begin to use your Geo3, you will need to attach a barrel, an air system and a paintball loader.

INSTALLING A BARREL

⚠ WARNING ⚠

MAKE SURE THE MARKER IS TURNED OFF AND THAT NO PAINTBALLS ARE IN THE MARKER OR LOADER BEFORE INSTALLING A BARREL.

Every Geo3 comes complete with an Eclipse Shaft4 barrel (see page 11).

To install the Shaft4 barrel, firstly screw the barrel tip and barrel back sections together. The threads on the Shaft4 barrel tip are *reverse threaded*. To screw the two sections together, with the barrel pointing away from you, turn the barrel tip in a clockwise direction (SEE FIGURE 7A).

While pointing the Geo3 marker in a safe direction, insert the assembled Shaft4 barrel into the front of the Geo3 body and screw the Shaft4 barrel into the Geo3 (in a counter-clockwise direction). Continue to screw the Shaft4 barrel into the Geo3 body until the barrel becomes tight in the body (SEE FIGURE 7B). **DO NOT** over tighten the barrel.

Install a barrel blocking device over the barrel such as the Eclipse Barrel Sock supplied with the Geo3¹ (SEE FIGURE 7C). You have now installed the barrel.

T-SLOT MOUNTING SYSTEM

The Geo3 utilises a T-slot arrangement to mount the POPS to the bottom of the frame (A). There are two retaining screws on the POPS body underside (B). These are used to clamp the POPS onto the frame. It is advisable to make sure that these screws are tight using a 3/8" hex key before attaching an air system (SEE FIGURE 7D).

¹Instruction on using the Eclipse Barrel Sock can be found on the Eclipse Barrel Sock warning label.



STRAIGHT HOSE FITTINGS

The 10-32UNF macroline fittings found on the Geo3 (SEE FIGURE 8A & 8B) **DO NOT** require thread lock or tape to secure them on the marker. These are secured by the capture o-ring on the end of the fitting. Only use a 3/32" hex key in the designated hole inside the fitting to remove or re-attach the fitting (SEE FIGURE 8C). When re-attaching the fittings **DO NOT** apply too much force or the threads on the fitting/receiving part may be damaged (remember to stop when you meet resistance).

MACROLINE HOSE

To aid the longevity of your macroline hosing, it is very important to remove it from and install it back into the fittings in the correct manner:

Pull back the collet section of the hose fitting and keep the collet depressed. Pull the macroline hose out of the hose fitting and release the collet.

Before installing the macroline hose into the fitting ensure that the end has been trimmed correctly and is the correct length to ensure a tight fit in the hose fitting.

⚠ WARNING ⚠

IF THE MACROLINE BECOMES WORN, DAMAGED OR IS THE WRONG LENGTH, REPLACE IT IMMEDIATELY.

**REPLACE THE MACROLINE HOSE WITH THE FOLLOWING GRADE OR HIGHER -
1/4" OD X 1/8" ID SEMI RIGID NYLON 11
IF UNSURE CONTACT YOUR NEAREST ECLIPSE SERVICE CENTRE**



FIG 8A



FIG 8B



FIG 8C

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INSTALLING A PRESET AIR SYSTEM

⚠ WARNING ⚠

MAKE SURE THE MARKER IS TURNED OFF WITH A BARREL BLOCKING DEVICE INSTALLED AND THAT NO PAINTBALLS ARE IN THE MARKER OR LOADER BEFORE INSTALLING AN AIR SYSTEM.

COMPRESSED AIR AND NITROGEN SYSTEMS CAN BE EXTREMELY DANGEROUS IF HANDLED OR USED INCORRECTLY.

ONLY USE AN AIR SYSTEM CERTIFIED FOR USE WITHIN THE TERRITORY OF INTENDED USE

THE GEO3 CANNOT BE USED WITH CO2. ONLY USE COMPRESSED AIR OR NITROGEN.

NEVER ADD ANY LUBRICANTS OR GREASES INTO THE FILL ADAPTER OF THE AIR SYSTEM REGULATOR

ENSURE THAT ALL SCREWS ARE TIGHTENED AND NO PARTS ARE LOOSE BEFORE INSTALLING AN AIR SYSTEM

DO NOT PRESSURISE THE GEO3 WITHOUT THE BOLT SYSTEM CORRECTLY INSTALLED, AS HIGH PRESSURE GAS WILL BE EMITTED.

DO NOT INSTALL A COMPRESSED AIR SYSTEM OR LOAD PAINTBALLS INTO THE GEO3 UNTIL YOU FEEL COMPLETELY CONFIDENT WITH YOUR ABILITY TO HANDLE THE MARKER SAFELY AND RESPONSIBLY.

ALWAYS RELIEVE ALL RESIDUAL GAS PRESSURE FROM THE GEO3 BEFORE UNSCREWING THE PRESET AIR SYSTEM.

⚠ WARNING ⚠



Every Geo3 comes complete with an Eclipse Push On/Off Purge System (POPS) which provides a direct connection for a preset air system. Before screwing an air system into the POPS ensure that the bonnet is disengaged in its forward position (SEE FIGURE 9A). If the bonnet is engaged, depress the latch button and slide the bonnet forward.

Screw the preset air system into the POPS (SEE FIGURE 9B) so that the bottle screws in all the way and is tight. Pull the bonnet backwards allowing the POPS pin to depress the pin in the preset air system causing the Geo3 to become pressurised (providing that there is sufficient air in your tank) (SEE FIGURE 9C). When the bonnet has been pulled back far enough it engages with the POPS body.^{1,2}

You have now installed a preset air system onto your Geo3.

¹High, mid and low pressure output preset air systems can be used with the Geo3, providing the Geo3 has the SL3 inline regulator originally supplied with the marker.

²The force needed to engage the bonnet may vary depending on the output pressure and internal design of the air system being used.



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ATTACHING A LOADER

⚠ WARNING ⚠

WARNING: DO NOT OVER TIGHTEN THE CLAMPING FEED TUBE AS THIS MAY DAMAGE THE LOADER OR FEED TUBE ITSELF.

Using a 5/32" hex key or your fingers, turn the sprocket screw of the clamping feed tube counter clockwise (SEE FIGURE 10A).

Release the clamping lever on the feed tube (SEE FIGURE 10B) and test to see if your loader can easily be pushed into the top of the feed tube. If the loader cannot easily be pushed into the feed tube, loosen the sprocket screw of the clamping feed tube a little more by turning it counter clockwise using a 5/32" hex key or your fingers (SEE FIGURE 10A).

When you have managed to push your loader into the clamping feed tube, close the clamp to secure it firmly in place (SEE FIGURE 10C). If the loader is loose then you will need to release the clamp, tighten the sprocket screw slightly by turning it clockwise with a 5/32" hex key or your fingers and close the clamp. Repeat this process as necessary to secure your loader in place.

You have now attached a loader to your Geo3. Once you have filled your loader and air tank you will then be ready to begin using your Geo3.



SETTING THE TRIGGER

The Geo3 provides the user with the option to use either a Micro-switch or an Opto sensor as the means for detecting trigger pulls. Before you begin to adjust and set your trigger, you must first select the method of trigger detection that you wish to use by entering the Main menu and making your selection from the Hardware menu (see page 47).

There are five adjustment points on the trigger – the **Front Stop screw**, the **Rear Stop screw**, the **Magnet Return Strength screw**, the **Micro-switch Activation screw** and the **Spring Return Strength screw**.

As standard each Geo3 comes with a factory set trigger travel of approximately 2mm in total length; one millimeter of travel before the firing point and one millimeter of travel after the firing point, and the trigger detection method set to Opto.

The **Front Stop screw** is used to set the amount of trigger travel prior to the marker firing. Turn this screw clockwise to reduce the amount of travel. Do not turn the screw too far or the trigger will be pushed past the firing point and the marker will not work. Turn this screw counter clockwise to increase the amount of trigger travel (SEE FIGURE 1 1 A).

The **Rear Stop screw** is used to set the amount of travel after the marker has fired. Turn this screw clockwise to reduce the amount of travel. Do not turn the screw too far or the trigger will be prevented from reaching its firing point and the marker will not work. Turn this screw counter clockwise to increase the amount of travel (SEE FIGURE 1 1 B).

The **Magnet Return Strength Screw** is used to adjust the amount of force with which the trigger is returned to its rest position by the magnet. Turn the screw clockwise to increase the amount of force. Do not turn the screw too far or it will negate the position of the Front Stop screw. Turn the screw counter clockwise to reduce the amount of force. Do not turn the screw too far or there may not be enough force to return the trigger (SEE FIGURE 1 1 C).



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(CONTINUED)

The **Micro-switch Activation screw** is used to adjust the point in the trigger pull at which the Micro-switch is activated. Turn the screw clockwise to decrease the amount of trigger travel to the activation point. Turn the screw counter clockwise to increase the amount of trigger travel to the activation point (SEE FIGURE 11 D).

The **Spring Return Strength screw** is used to adjust the spring strength that returns the trigger to its resting position. Turn the screw clockwise to increase the amount of spring return strength in the trigger pull. Turn this screw counter clockwise to reduce the amount of spring return strength in the trigger pull. Do not turn the screw too far counter clockwise or there will not be enough force to return the trigger consistently (SEE FIGURE 11 E).

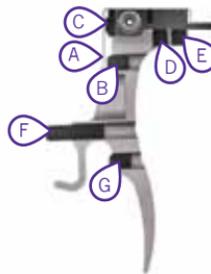
When setting the trigger it is important to ensure that the electronic trigger detection is working correctly. When the trigger is fully depressed the Trigger Detection Indicator (TDI) should point upwards . When the trigger is fully released the TDI should point downwards .

For more information, see understanding the Trigger Detection Indicator (TDI) on page 31 and The Filter menu on pages 45-47.

FIGURE 11 F KEY

- (A) Trigger spring
- (B) Spring Return Strength screw
- (C) Trigger Pin Retaining screw
- (D) Front Stop screw
- (E) Magnet Return Strength screw
- (F) Micro Switch Activation screw
- (G) Rear Stop screw


FIG 11 D

FIG 11 E

FIG 11 F

ADJUSTING THE VELOCITY

When using your Geo3, you may wish to change the velocity at which your Geo3 is firing. This is done by inserting a 1/8" hex key into the adjuster screw at the bottom of your Geo3 inline regulator and adjusting it accordingly (SEE FIGURE 1 2A). By turning this adjuster screw clockwise you decrease the output pressure of the inline regulator and consequently the velocity, by turning the adjuster screw counter clockwise you increase the output pressure of the inline regulator and consequently the velocity. On the bottom of the inline regulator there are engraved arrows to illustrate which direction to turn the hex key to make the relevant adjustment.¹

⚠ WARNING ⚠

THE INLINE REGULATOR OUTPUT PRESSURE AND SOLENOID FLOW RESTRICTOR SETTING MUST BE SET / CHECKED EVERY TIME MARKER IS USED. USING A CHRONOGRAPH TO MEASURE THE FIRING VELOCITY OF THE MARKER.

THIS WILL ENSURE THE MARKER IS FIRING AT A SAFE, LEGAL VELOCITY EVERYTIME IT IS USED.

¹After each adjustment fire two clearing shots to gain an accurate velocity reading. Never exceed 300fps.



FIG 12A



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SOLENOID FLOW RESTRICTOR

The following section covers direct adjustment of the Solenoid Valve which should only be used by users with a sound knowledge of the Geo3 firing cycle.

Built into the left side of the frame is the Solenoid Flow Restrictor SFR (SEE FIGURE 13A), which controls the exhaust flow from the Bolt System through the Solenoid Valve. By controlling the exhaust flow from the Bolt System, the speed of the bolt during the forward stroke can be sped up or slowed down. The SFR can be adjusted using a 5/64" hex key.

The restrictor has a 90° range of adjustment from minimum to maximum flow.

By setting the restrictor to different levels of flow the user can control how the gun performs and feels when firing the marker.

Setting the restrictor to a higher level of flow will allow for higher cycles per second (dependent on the ROF Cap, see page 41). However these higher settings will also reduce the smoothness of the firing cycle compared to setting the restrictor at a lower level of flow.¹

Setting the restrictor to a lower level of flow will increase the smoothness of the firing cycle, however reducing the flow also lowers the cycling rate of the Geo3.¹

The restrictor controls the forward stroke of the bolt. As such it has the ability to directly control the velocity of the paintball. It is strongly recommended to chronograph the Geo3 after adjusting the restrictor.

⚠ WARNING ⚠
SETTING THE RESTRICTOR TOO LOW (ESPECIALLY IN EXTREME WEATHER CONDITIONS) MAY RESULT IN: LOW VELOCITY, INCONSISTENT VELOCITY OR PREVENTING THE BOLT FROM CYCLING.
IF THIS OCCURS INCREASE THE SFR FLOW SETTING

The SFR has a minimum and maximum exhaust flow setting.

The maximum exhaust flow setting can be achieved by turning the SFR dial counter-clockwise so it is pointed vertical. This will allow the bolt to move forwards at its fastest possible speed.

The minimum exhaust flow setting can be achieved by turning the SFR dial clockwise so it is pointed horizontal. This setting will apply the greatest restriction on gas exiting the marker, slowing down the bolt forward stroke.

The SFR can be set anywhere in between the minimum and maximum.

In the event that you do not want this adjustability available on the marker, a blanking plug is provided. This plug has the same effect as having the SFR set to maximum flow.

To install the blanking plug. Push the SFR out of the right side of the frame using a small hex key or pick (SEE FIGURE 13B), then simply push in the blanking plug making sure it is flush with the frame.



FIG 13A

FIG 13B

UNLOADING THE GEO3

⚠ WARNING ⚠

ALWAYS KEEP THE ECLIPSE GEO3 POINTED IN A SAFE DIRECTION AND ENSURE ALL PERSONS WITHIN RANGE CONTINUE TO WEAR FACE PROTECTION, UNTIL MARKER IS COMPLETELY UNLOADED AND SAFE.

Securely attach a barrel blocking device such as the Eclipse Barrel Sock¹ (supplied with the Geo3) to the marker as shown in FIGURE 14A.

Turn off the Geo3 electronics by holding down the  button on the back of the frame. When the screen turns off and the marker speaker emits the 'off' tone (if the *Sound* parameter is enabled), the marker has been turned off (SEE FIGURE 14B).

With the Geo3 pointing away from you. De-gas the marker by depressing the POPS latch button allowing the bonnet to slide forward and vent air. Only when the POPS has fully degassed the Geo3 marker, unscrew and remove the air system. (SEE FIGURE 14C).

Open the clamping lever on the feed tube and slacken off the sprocket screw if necessary on the feed tube. Carefully pull the loader out of the feed tube (SEE FIGURE 14D).

Looking down the feed tube, check to see if there are any paintballs still in the breech, if there are, turn the marker upside down while still keeping the barrel facing away from any persons within firing range then tip out any paintballs within the breech (SEE FIGURE 14E).

Next remove the barrel blocking device, and unscrew the barrel (SEE FIGURE 14F). Remove any paintballs within the barrel.

The Eclipse Geo3 has now been unloaded and is ready for storage.

¹Instruction on using the Eclipse Barrel Sock can be found on the Eclipse Barrel Sock warning label.



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STORAGE AND TRANSPORTATION

⚠ WARNING ⚠

CAUTION: NEVER CARRY YOUR ECLIPSE GEO3 UN-CASED WHEN NOT ON A PLAYING FIELD. THE NON-PLAYING PUBLIC AND LAW ENFORCEMENT PERSONNEL MAY NOT BE ABLE TO DISTINGUISH BETWEEN A PAINTBALL MARKER AND A REAL FIREARM. FOR YOUR OWN SAFETY AND TO PROTECT THE IMAGE OF PAINTBALL, ALWAYS CARRY THE ECLIPSE GEO3 (OR ANY OTHER PAINTBALL MARKER) IN A SUITABLE MARKER CASE SUCH AS THE ONE IN WHICH IT WAS SUPPLIED.

- Your Eclipse Geo3 must be clear of all paint and propellant during transportation or storage.
 - Make sure the Eclipse Geo3 marker is off.
 - Remove the Barrel from the marker.
 - Make sure the marker is clean of any paint residue, dirt and moisture.
 - Store your Eclipse Geo3 in a clean, cool, dry place.
 - Keep your Eclipse Geo3 away from any unauthorized and unsafe users.
 - It may be a good idea to remove the battery when storing your Eclipse Geo3 to prevent unauthorized use.
 - Protect your Eclipse Geo3 from excessive heat during transportation.
 - When transporting a paintball marker by air, check with the airline regarding their policies on transporting paintball equipment as hold luggage before arriving at the airport.
 - Observe and obey all local and national laws concerning the transportation of paintball markers. For information concerning any of the laws in your area, contact your nearby law enforcement agency.
- When shipping the Eclipse Geo3 for any reason, Planet Eclipse recommends using the box in which the marker was originally supplied to protect the marker against rough handling during transport.

2. USING THE GEO3

USER INTERFACE

The Geo3 has a simple user interface through which all aspects of its electronic control system can be monitored and adjusted by means of the three pushbuttons and graphical LCD which comprise the navigation console.

RUN SCREEN LAYOUT

The root of the user interface is the run screen. This screen is the one most often displayed and provides the user with essential feedback on the state of the Geo3. A typical run screen is shown on the right.¹

On the left of the screen is a display option that is user selectable from the following options by briefly pressing the  button on the navigation console.

- > A GAME TIMER
- > A SHOT COUNTER
- > AN ACTUAL RATE OF FIRE INDICATOR
- > A PEAK RATE OF FIRE INDICATOR

On the right of the screen are a number of icons, each of which provides graphical indication on different parts of the Geo3 control electronics:

BREAK BEAM SENSOR
SYSTEM INDICATOR

AUX OUT INDICATOR

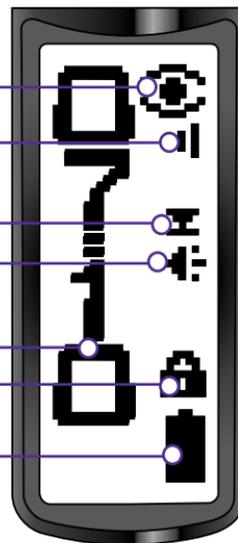
TRIGGER DETECTION
INDICATOR

SOUND INDICATOR

USER SELECTABLE
DISPLAY OPTION

LOCK INDICATOR

BATTERY LEVEL
INDICATOR



¹The layout of the run screen is correct at time of printing. However newer versions of the Geo3 software may have a different layout of the run screen from what is printed in this manual. You may find some icons have been added or removed entirely. If you are unsure about any icons which do not feature in the manual contact your local dealer/service centre or Planet Eclipse directly.



THE BREAK BEAM SENSOR SYSTEM INDICATOR (BBSS)

The BBSS is able to switch itself off in the event of a blockage or contamination preventing it from functioning correctly. In this instance, the BBSS will switch itself back on once the blockage is cleared and the correct operation can be resumed.

The BBSS indicator on the main screen is used to indicate the eight possible states of the BBSS as follows:



BBSS ENABLED AND BALL DETECTED
The Geo3 can be fired at the maximum rate of fire determined by the chosen firing mode.



BBSS ENABLED NO BALL DETECTED
The Geo3 cannot be fired.



BBSS DISABLED
The Geo3 can be fired at a maximum rate of fire as set by the *BS OFF ROF* parameter (see page 42).



BBSS FAULT DETECTED
The system is disabled. The Geo3 can only be fired at a maximum rate of 2bps less than the maximum rate of fire, up to a maximum of 10 bps.



BBSS FAULT HAS BEEN CLEARED AND BALL DETECTED
The system has been re-enabled. A ball is detected and the Geo3 can be fired at the maximum rate of fire determined by the chosen firing mode.



BBSS FAULT HAS BEEN CLEARED AND NO BALL DETECTED
The system has been re-enabled. No ball is detected so the Geo3 cannot be fired. To reset the BBSS icon, use the  button to switch off the BBSS and then back on again.



BBSS ENABLED IN TRAINING MODE
The BBSS has been over-riden as the user has selected training mode. As the user has chosen to leave the BBSS on, the achievable rate of fire is limited by the firing mode.



BBSS DISABLED IN TRAINING MODE
The BBSS has been over-riden as the user has selected training mode. As the user has chosen to turn the BBSS off, the achievable rate of fire is limited by the *BS OFF ROF* parameter (see page 42).

THE AUX OUT INDICATOR

The auxiliary socket on the Geo3 circuit board allows third party products such as loaders or RF transmitters to be interfaced to the Geo3.

The AUX out indicator is turned on and off via the *AUX OUT* parameter (see page 49).

There are two possible conditions that can be indicated:



AUX OUT ENABLED
The AUX OUT is enabled. Each time the circuit board detects a valid trigger pull a signal will be sent to the AUX connector on the circuit board.



AUX OUT DISABLED
The AUX OUT is disabled. No signal will be sent to the AUX connector on the circuit board.

THE SOUND INDICATOR

The sound indicator on the run screen is used to convey if the Sound parameter in the Hardware menu (page 48) is switched on or off.

There are two possible conditions that can be indicated:



SOUND ENABLED

The *SOUND* parameter is enabled. The Geo3 will make sounds when switched on and off and when the game timer alarms or times out.



SOUND DISABLED

The *SOUND* parameter is disabled. The Geo3 will not make any sounds.

THE TRIGGER DETECTION INDICATOR (TDI)

In order for the trigger to be successfully operated it must first be released and then pulled. The trigger detection indicator (TDI) is used to indicate each of the possible trigger states.



OPTO SENSOR SELECTED, READING 0%

The Geo3 is configured to use the Opto sensor to detect trigger pulls. The Opto sensor is currently reading 0%, i.e. the trigger is fully released.



OPTO SENSOR SELECTED, READING BELOW RELEASE POINT

The Geo3 is configured to use the Opto sensor to detect trigger pulls. The Opto sensor is currently reading below the Opto release point, i.e. the trigger is considered 'released'.



OPTO SENSOR SELECTED, READING MID-RANGE

The Geo3 is configured to use the Opto sensor to detect trigger pulls. The Opto sensor is currently reading somewhere between the Opto release point and the Opto pull point, i.e. the trigger is half depressed.



OPTO SENSOR SELECTED, READING ABOVE PULL POINT

The Geo3 is configured to use the Opto sensor to detect trigger pulls. The Opto sensor is currently reading above the Opto pull point, i.e. the trigger is considered 'pulled'.



OPTO SENSOR SELECTED, READING 100%

The Geo3 is configured to use the Opto sensor to detect trigger pulls. The Opto sensor is currently reading 100%, i.e. the trigger is fully depressed.



MICRO-SWITCH SELECTED, NOT ACTUATED

The Geo3 is configured to use the micro-switch to detect trigger pulls. The micro-switch is not currently actuated, i.e. the trigger is released.



MICRO-SWITCH SELECTED, ACTUATED

The Geo3 is configured to use the micro-switch to detect trigger pulls. The micro-switch is currently actuated, i.e. the trigger is pulled.

From the factory the Geo3 will have the Opto sensor enabled. The micro-switch can be enabled from the Hardware menu (see page 47).

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THE LOCK INDICATOR

The Geo3 has a tournament lock which prevents the user from making changes to any parameter that affects the way in which the Geo3 shoots, without the need for tools. This feature is necessary in order to make the Geo3 legal for tournament play.

When the lock is enabled the lock indicator will show a closed padlock .

When the lock is disabled the lock indicator will show an open padlock .

To enable or disable the tournament lock see *Accessing the Menu System* on page 38.

THE BATTERY LEVEL INDICATOR

The battery level indicator is used to show the state of the battery within the Geo3. When the battery is fresh the indicator will show a 'full' battery  and as the battery is drained, so will the indicator show the battery emptying. When the battery reaches a point at which the Geo3 will no longer function reliably, the indicator will start to flash. At this point the battery must be changed immediately.

As well as displaying the voltage level of the battery, the indicator also warns if the battery being used has an incorrect voltage to operate the electronics reliably. The icon for a battery with an incorrect voltage output is . If this icon is shown the battery must be replaced immediately.

THE GAME TIMER

When the game timer is shown on the run screen then it can be started by pressing the  button and the timer will start to count down. The game timer can also be configured to start on a trigger press with the *START* parameter (see page 51).

When the game timer reaches the *ALARM TIME* the game timer will start to flash and the audible alarm will sound every second, provided that the *SOUND* parameter is on.

When the game timer reaches 00:00, **GAME OVER** will be displayed and the audible alarm will sound continually, provided that the *SOUND* parameter is set to 'ON'.

To stop the game timer at any time press and hold the  button for 0.5 seconds.

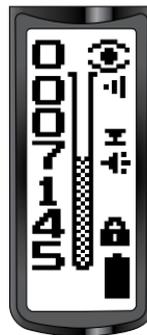
To reset the game timer to its preset start time, push and hold the  button for 0.5 second. The game timer will also be reset whenever the Geo3 is switched off.



THE SHOT COUNTER

The shot counter will increment every time that the circuit board registers a trigger pull, regardless of whether the shot counter is displayed or not. When the shot counter is displayed on the run screen it can be reset to 0 by pressing and holding the  button for 0.5 seconds.

There is also an optional shot gauge that can be displayed on this run screen. The gauge counts down from a user adjustable number. To alter the gauge settings see page 50. The gauge is reset whenever the Geo3 is switched off or the  button is pressed.



THE ACTUAL RATE OF FIRE

When the actual ROF is selected for display the run screen will look something like the screen to the right. The value displayed in the top left of the screen represents the number of full cycles completed in a second - the actual rate of fire over that second. The value below it is the maximum actual rate of fire that has been achieved. The graph below this number shows the actual rates of fire achieved over time where each bar represents the amount of pulls in that second. To reset the maximum, press and hold the  button for 0.5 second.



THE PEAK RATE OF FIRE

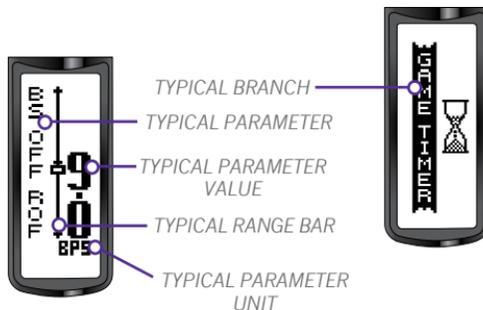
When the peak ROF is selected for display the run screen will look something like the screen to the right, which differs from the display of the actual ROF by the inclusion of the indicator 'PK'. The value displayed in the top left of the screen represents the maximum rate of fire that has been recorded over the last second. The value below it is the maximum peak rate of fire that has been achieved. The graph below this number shows the peak rates of fire achieved over time. To reset this maximum, press and hold the  button for 0.5 seconds.



The peak ROF is typically higher than the actual ROF as it is much easier to fire two shots in quick succession than it is to maintain a string over a longer period of time.

THE MENU SYSTEM

Behind the run screen is a structured menu system comprised of two layers of menus. Each menu contains a number of menu items and each menu item can either be a parameter or a branch to another menu. Branches have an animated graphic on the right of the display, whereas parameters have their current value.



On parameter screens a range bar will be displayed where there is a large scale of adjustability in that parameter. The current parameter value is displayed as a box on the range bar which is used to indicate the range of adjustability in the parameter value.

At the bottom of the parameter screen the unit for that parameter will be displayed. Some parameters will not have units, such as on or off parameters. For a detailed list of which parameters have units, and what they stand for, please see the Menu Tree on pages 34-37.

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MAIN MENU

MAIN MENU

TURN OFF		Turn off the Geo3.
PRESET		
🔒 LOAD	USER 1 USER 2 FACTORY NPPL PSP 10 PSP 12 MS 10 CANCEL	Load the USER1 settings. Load the USER 2 settings. Load the default factory settings (semi-automatic). Load NPPL compliant settings. Load the PSP 10 balls per second (BPS) compliant settings. Load the PSP 12 balls per second (BPS) compliant settings. Load Millennium Series 2010 compliant settings. Cancel the load operation.
🔒 SAVE	USER 1 USER 2 CANCEL	Save the current settings as the USER 1 settings. Save the current settings as the USER 2 settings. Cancel the save operation.
BACK		Return to Main Menu.
🔒 FIRE MODE	SEMI RAMP CANCEL	Select semi-automatic mode of fire. Select ramping mode of fire. Cancel the mode selection.
🔒 ROF CAP	ON OFF CANCEL	Rate of fire cap on. Rate of fire cap off. Cancel selection.
🔒 BS ON ROF*	4.0 - 30.0 BPS	Maximum with breech sensor on (ROF CAP dependant).
🔒 BS OFF ROF	4.0 - 15.0 BPS	Maximum rate of fire with breech sensor off.

The 🔒 symbol indicates parameters that are locked when the Tournament Lock is on. See Accessing the Menu System on page 38 for instruction on releasing the Tournament Lock.

Parameters followed by a * are part of the Smart Menu System and will only be displayed depending on your chosen settings. (E.g. The BS ON ROF parameter will only become available if the ROF CAP parameter is set to on).

MAIN MENU

RAMP SETUP* (FIRE MODE DEPENDANT)

TYPE	STEP LINEAR CANCEL	Step ramping. Linear ramping. Cancel selection.
RATE*	0 - 100%	Percentage linear ramp rate (TYPE dependant).
SEMI SHOTS	3 - 9	Number of shots before ramping can start.
KICK IN	3.3 - 10.0 PPS	Rate at which the trigger has to be pulled in pulls per second (PPS) before ramping can start.
SUSTAIN	3.3 - 10.0 PPS	Rate at which the trigger has to be pulled in pulls per second (PPS) in order to maintain ramping.
RESTART	0.0 - 1.0 S	Time in seconds after the last trigger pull during which ramp can be restarted.
BACK		Return to Main Menu.

TIMING

DWELL	10.0 - 30.0 ms	solenoid energise time in milliseconds (ms) for each shot.
FSD COMP	0.0 - 5.0 ms	First shot drop-off compensation time in milliseconds (ms).
FSD DELAY	00:00 - 04:00	First shot drop-off delay.
BACK		Return to Main Menu.

FILTER

DEBOUNCE	LEVEL 9 LEVEL X LEVEL 1 CANCEL	Use trigger Debounce level 9 (less bounce). Use trigger Debounce level 8 - 2. Use trigger Debounce level 1 (more bounce). Cancel Debounce selection.
EMPTY	1.0 - 20.0 ms	Time in milliseconds (ms) that the breech must remain empty before the BBSS can look for a paintball.

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MAIN MENU

FULL	1.0 - 20.0 ms	Time in milliseconds (ms) that a paintball must be in the breech for the Geo3 to be ready to fire.
PULL TM	3.0 - 25.0 ms	Time in milliseconds (ms) that the trigger must be pulled for a shot to be fired.
RELEASE TM	3.0 - 25.0 ms	Time in milliseconds (ms) that the trigger must be released before a pull can be recorded.
PULL PT*	51 - 99%	Percentage at which the trigger Opto sensor pull point is set (TRIGGER dependant).
RELEASE PT*	1 - 49%	Percentage at which the trigger Opto sensor release point is set (TRIGGER dependant).
BACK		Return to Main Menu.

HARDWARE

TRIGGER	OPTO SWITCH CANCEL	Use Opto sensor to detect trigger operation. Use Micro-switch to detect trigger operation. Cancel trigger detection method selection.
SOLENOID	LO PWR MED PWR HI PWR CANCEL	Select standard solenoid power level. Select medium power level for solenoid. Select high power level for solenoid. Cancel solenoid power level selection.
SOUND	OFF ON CANCEL	Turn off audible indicator. Turn on audible indicator. Cancel audible indicator selection.
TONES*	OFF ON CANCEL	Turn off audible tone when any button is pressed (SOUND dependant). Turn on audible tone when any button is pressed (SOUND dependant). Cancel audible tone selection.
BACKLIGHT	00:00 - 00:20	Time in seconds that the backlight comes on for (00:00 = no backlight).
RED LEVEL*	0 - 100%	Percentage of red light in backlight (BACKLIGHT dependant).
GRN LEVEL*	0 - 100%	Percentage of green light in backlight (BACKLIGHT dependant).
BLU LEVEL*	0 - 100%	Percentage of blue light in backlight (BACKLIGHT dependant).
CONTRAST	0 - 30	LCD contrast level

MAIN MENU

AUX OUT	OFF	AUX socket output off.
	ON	AUX socket output on.
	CANCEL	Cancel AUX socket selection.
AUTO OFF	05:00 - 60:00	Time in minutes after which the Geo3 automatically powers off.
DBL CLICK	NONE	Double click is disabled entirely.
	POWER UP	Double click for power up only.
	ALL	Double click is fully enabled.
	CANCEL	Cancel the double click selection.
BACK		Return to Main Menu.
TRAINING	OFF	Training mode disabled.
	ON	Training mode enabled.
	CANCEL	Cancel training mode selection.
SHOT COUNT		
GAUGE	OFF	Shot gauge off.
	ON	Shot gauge on.
	CANCEL	Cancel selection.
GAUGE MAX*	100-2000 SHOTS	Shot gauge maximum (reset value) (GAUGE dependant).
BACK		Return to Main Menu.
GAME TIMER		
GAME	00:00 - 60:00	Countdown game timer start time in minutes.
ALARM	00:00 - 60:00	Alarm activation time in minutes.
START	BUTTON	Pressing the  button starts the Game Timer.
	TRIGGER	A trigger pull starts the Game Timer.
	CANCEL	Cancel Game Timer start selection.
BACK		Return to Main Menu.
EXIT		

The arrangement of menus and sub menus displayed in the above menu tree may not be replicated in your marker due to any software updates that may have taken place since printing.

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ACCESSING THE MENU SYSTEM

To access the Main menu from the run screen double-click the button and the first item on the Main menu will be displayed. Alternatively, push and hold the button for 2 seconds.

Some of the parameters in the menu system can have a tournament lock applied to them. This lock can be toggled on and off by pressing the tournament lock button on the circuit board (SEE IN FIGURE 1 5A). If you try to select a parameter that is locked, the locked display will show on the screen.



MOVING AROUND THE MENUS

Press and release the button to display the next item on the menu. When the last menu item is displayed, pressing the button will display the first item.

Press and release the button to display the previous item on the menu. When the first menu item is displayed, pressing the button will display the last item.

When the displayed item is a branch, as indicated by an animation on the right of the screen, press the button to move to another menu.

ALTERING PARAMETERS

WARNING

WARNING: THE MARKER CAN BE FIRED WHILE NAVIGATING ALL MENUS AND PARAMETERS.

When the displayed item is a parameter, as indicated by a parameter value on the right of the screen, pressing the button will activate the *EDIT* mode which allows the parameter value to be altered. When *EDIT* mode is active, the black box surrounding the text disappears. There are two types of parameter, numeric parameters and choice parameters.

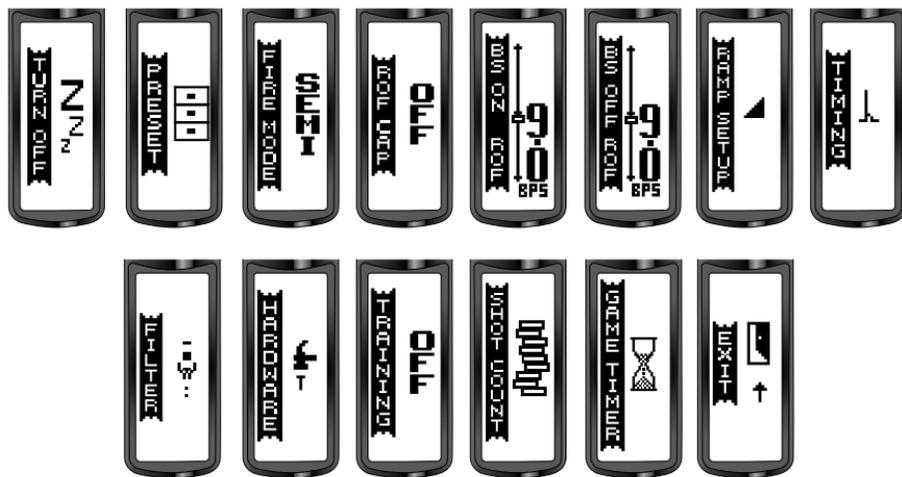


A numeric parameter has a numeric value whereas a choice parameter is one that has a small number of distinct choices. Altering parameter values is essentially the same for both types of parameter.

To alter a numeric parameter, first activate the *EDIT* mode. Press the button to increase the parameter value one step at a time. Press and hold the button to increase the parameter value rapidly. When the value reaches its maximum it will revert to its minimum value. Press the button to decrease the parameter value one step at a time. Press and hold the button to decrease the parameter value rapidly. When the value reaches its minimum it will revert to its maximum value. When the required parameter value is displayed press the button to accept the value and end the *EDIT* mode.

To alter a choice parameter, first activate the *EDIT* mode. Press the button to display the next choice in the list. When the last choice is displayed, pressing will display the first choice in the list. Press the button to display the previous choice in the list. When the first choice is displayed, pressing the button will display the last choice in the list. When the required choice is displayed press the button to accept the choice and end the *EDIT* mode. If the displayed choice is cancel then pressing the button will end the *EDIT* mode and restore the parameter to the value that is was prior to editing.

THE MAIN MENU



The Main menu contains both individual editable parameters and sub-menus which contain editable parameters. Some of these parameters affect the way the Geo3 shoots and are tournament locked as standard from the factory.¹

¹The layout of the Main menu is correct at time of printing. However newer versions of the Geo3 software may have a different layout of the Main menu, sub-menus and parameters from what is printed in this manual. You may find some parameters have been added or removed entirely. If you are unsure about any parameters which do not feature in the manual contact your local dealer/service centre or Planet Eclipse directly.

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PRESET

THE PRESET MENU

In order to simplify the set up of the Geo3 a number of preset configurations are available for selection. Choosing one of these presets will cause all of the necessary parameters to be set in such a way as to make the Geo3 comply with the rules governing a particular paintball league¹. It is also possible for the user to save up to two preset configurations of their own.

LOAD

THE LOAD PRESET PARAMETER

This parameter is used to load the required preset configuration and has the following choices:

- > USER 1: Load a set of custom firing mode parameters that have been previously saved by the user.
- > USER 2: Load a set of custom firing mode parameters that have been previously saved by the user.
- > FACTORY: Reset every parameter to the factory set default. The Geo3 leaves the factory set in this way.
- > NPPL: Load a set of parameters that configures the Geo3 to comply with the NPPL rules governing firing modes.^{1,2}
- > PSP 10: Load a set of parameters that configures the Geo3 to comply with the PSP rules governing firing modes in lower divisions (10bps).^{1,2}
- > PSP 12: Load a set of parameters that configures the Geo3 to comply with the PSP rules governing firing modes in higher divisions (12bps).^{1,2}
- > MS10: Load a set of parameters that configures the Geo3 to comply with the 2010 Millennium Series rules governing firing modes.^{1,2}
- > CANCEL: Editing is cancelled and the parameter remains unchanged.



SAVE

THE SAVE PRESET PARAMETER

This parameter is used to save the current set of parameters as a user defined custom preset configuration.

This parameter has the following choices:

- > USER 1: Save the current parameters as the preset '**USER 1**'.
- > USER 2: Save the current parameters as the preset '**USER 2**'.
- > CANCEL: Editing is cancelled and the parameter remains unchanged.



¹Some presets and fire modes may only be available in certain countries and on some models of the Geo3.

²All presets are correct at time of printing. It is the users responsibility to ensure that the loaded preset complies with the event rules the marker is intended to be used in.

FIRE MODE

THE FIRING MODE PARAMETER

This parameter is used to select the firing mode of the Geo3 and has the following choices:

> SEMI: This is the default and in this firing mode the Geo3 will fire one shot for every trigger pull.

> RAMP: In this firing mode, the rate of fire is increased above the rate at which the trigger is pulled once certain criteria have been met. These criteria are set by the parameters on the *RAMP SETUP* menu.¹

> CANCEL: Editing is cancelled and the parameter is unchanged.



ROF CAP

THE RATE OF FIRE CAP PARAMETER

The *ROF CAP* parameter is used to specify whether or not the Geo3 should have a limited, or capped rate of fire. When the *ROF CAP* is enabled, the maximum achievable rate of fire is set by the *BS ON ROF* parameter. Choices for the *ROF CAP* parameter are:

> OFF: Rate of fire only limited by the loader.

> ON: Rate of fire limited to the *BS ON ROF* parameter value.

> CANCEL: Cancel editing and leave the parameter unchanged.



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¹Some presets and fire modes may only be available in certain countries and on some models of the Geo3.



4.2. ADVANCED SET-UP.

BS ON ROF

THE MAXIMUM RATE OF FIRE PARAMETER
The *BS ON ROF* parameter is used to set the maximum achievable rate of fire from the Geo3. The value of this parameter can be adjusted between 4.0 and 30.0 balls per second in 0.1bps increments.¹

The *BS ON ROF* parameter will only be displayed if you have set the *ROF CAP* parameter to 'ON'.



BS OFF ROF

THE RATE OF FIRE WHEN BBSS IS OFF PARAMETER
The *BS OFF ROF* parameter is used to control how fast the Geo3 cycles when the Break Beam Sensor System is disabled. This parameter can be set between 4.0 and 15.0 balls per second and should always be set to the slowest speed of the loading system in use.¹



¹Always calibrate your Geo3 ROF CAP parameters to the local field BPS meter as readings may vary from meter to meter.

RAMP SETUP

THE RAMP SETTINGS MENU

This menu is only available when ramping has been selected with the *FIRE MODE* parameter and comprises a list of parameters that control the way in which the Geo3 ramps, as shown below.

TYPE

THE RAMP TYPE PARAMETER

This parameter is used to select the ramping style and has the following choices:

> **STEP:** Step ramping will cause the Geo3 to shoot in semi-automatic until a number of trigger pulls, set by *SEMI SHOTS*, have been made at a minimum pull rate, set by *KICK IN*. At this point the rate of fire will step up to the maximum rate of fire as set by *BS ON ROF* (or the maximum loader speed if the *ROF CAP* parameter is set to off). Ramping is maintained as long as the user continues to pull the Trigger at a required rate set by *SUSTAIN*.

> **LINEAR:** Linear ramping will cause the Geo3 to shoot in semi-automatic until a number of trigger pulls, set by *SEMI SHOTS*, have been made at a minimum pull rate, set by *KICK IN*. At this point the rate of fire will equal the rate of trigger pulls increased by the percentage specified by *RATE* up to a maximum rate of fire as set by *BS ON ROF*, if the *ROF CAP* is on. Ramping is maintained as long as the user continues to pull the Trigger at a required rate set by *SUSTAIN*.

> **CANCEL:** Editing is cancelled and no changes are made to the parameter.



RATE

THE LINEAR RAMP RATE PARAMETER

The parameter is only available when *LINEAR* ramping is selected and is used to set the percentage increase in rate of fire over rate of trigger pulls.

For example, if the user is pulling the Trigger at a rate of 10 pulls per second and the *RATE* parameter is set to 50% then the rate of fire is 10 plus 50% extra which is 15 balls per second.

This parameter can be set between 0 and 100% in 10% increments.

SEMI SHOTS

THE SEMI SHOTS MENU

The parameter sets the number of shots in semi-automatic that are required at the *KICK IN* rate before ramping will start. The parameter can be set between 3 and 9 pulls in 1 pull increments.

KICK IN

THE KICK-IN PARAMETER

This parameter sets the minimum rate at which the user has to pull the Trigger in order to start ramping. This parameter can be set between 3.3 and 10.0 pulls per second in 0.1 pulls per second increments.



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4. ADVANCED SET-UP

SUSTAIN

THE SUSTAIN RATE PARAMETER

Once the Geo3 is ramping the user has to continue to pull the Trigger at a minimum rate in order to maintain the ramping. This parameter sets this rate and can be between 3.3 and 10.0 pulls per second in 0.1 pulls per second increments.



RESTART

THE RAMP RESTART PARAMETER

The *RESTART* parameter defines the amount of time after the last trigger pull during which the ramp can be restarted with a single trigger pull. If a trigger pull occurs after the *RESTART* time has expired, then the other ramp start conditions have to be met before ramping will restart. This parameter can be set between 0.0 and 1.0 seconds in 0.1 second increments.



TIMING

THE TIMING MENU

These parameters all relate to the control of the Solenoid Valve.

DWELL

THE DWELL PARAMETER

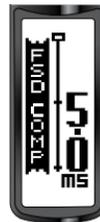
The *DWELL* parameter sets the amount of time that the Solenoid is energized and therefore the amount of gas that is released with each shot of the Geo3. Setting this parameter too low will result in low velocity shots and/or excessive shot to shot velocity fluctuations. Setting the parameter too high will simply waste gas and make the Geo3 louder. The *DWELL* can be set between 0.0 and 30.0 milliseconds. The factory default setting can normally be reduced after a few thousand shots as the Geo3 'beds-in'.



FSD COMP

THE FIRST SHOT DROP-OFF COMPENSATION PARAMETER

"First shot drop off" is a reduction in velocity of the first shot fired after an extended period of not firing and is caused by the stiction between dynamic o-rings and the surfaces that they are in contact with. In order to compensate for first shot drop-off this parameter can be set to add extra time to the *DWELL* parameter for the first shot. This parameter can be set between 0.0 and 5.0 milliseconds.



FSD DLY

THE FIRST SHOT DROP-OFF DELAY PARAMETER

The time that has to elapse before the FDS COMP is applied to a shot following a previous shot. This parameter can be set between 00:00 and 04:00 minutes.



FILTER

THE FILTER MENU

The parameters on the *FILTER* menu are all used to tune the Geo3's software filters which prevent the Geo3 from firing unless all of the necessary conditions are met. The factory default settings will be suitable for most set-ups, however certain loader and trigger set-ups may require modification of one or more of these parameters.

DEBOUNCE

THE DEBOUNCE PARAMETER

The *DEBOUNCE* parameter is used to combat any trigger bounce that might occur in the Geo3 and can be set between level 1 and level 9 in one level increments.

> LEVEL 9: Level 9 providing the most filtering (least 'bouncy').

> LEVEL1: Level 1 providing the least filtering (most 'bouncy').

> CANCEL: Cancel editing and leave the parameter unchanged.



EMPTY

THE BREECH EMPTY TIME PARAMETER

In order for the BBSS to function correctly it must first detect that the Bolt is fully retracted and the breech is empty, and then detect that a paintball is loaded into the breech before the Geo3 is allowed to fire. The parameter can be set between 1.0 and 20.0ms in 0.5ms increments.



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FULL

THE BREACH FULL TIME PARAMETER

Tumbling paintballs can take time to settle in the breach before they can be successfully fired. This parameter is used to set the amount of time that a paintball has to be in the breach before the Geo3 is allowed to fire. This parameter can be set between 1.0 and 20 milliseconds in 0.1ms increments.



PULL TM

THE TRIGGER PULL TIME PARAMETER

The *PULL TM* parameter is used to set the minimum amount of time that the Trigger must be pulled before it is recognised as a valid trigger pull. This parameter can be set between 3.0 and 20.0 milliseconds in 0.1ms increments.



RELEASE TM

THE TRIGGER RELEASE TIME PARAMETER

The *RELEASE TM* parameter is used to set the minimum amount of time that the Trigger must be released before it is recognised as a valid trigger release. This parameter can be set between 3.0 and 25.0 milliseconds in 0.1ms increments.



PULL PT

THE TRIGGER PULL POINT PARAMETER

The *PULL PT* parameter is only available if *OPTO* has been selected in the *HARDWARE* menu. *PULL PT* defines the point at which the Trigger is considered pulled and is adjustable between 51% and 99% in 1% increments.



RELEASE PT

THE TRIGGER RELEASE POINT PARAMETER

The *RELEASE PT* parameter is only available if *OPTO* has been selected in the *HARDWARE* menu. *RELEASE PT* defines the point at which the Trigger is considered released and is adjustable between 1% and 49% in 1% increments.



BASIC TRIGGER FILTER SET-UP

95% of Trigger bounce problems can be eliminated by utilizing one of the nine fixed *DEBOUNCE* choices (LEVEL 1-9). In attempting to eliminate Trigger bounce it is advisable to try the nine fixed *DEBOUNCE* choices before attempting any advanced set up of the Trigger filters.

ADVANCED TRIGGER FILTER SET-UP

In order to optimize the Trigger filters it is necessary to have the *PULL PT* parameter set as high as possible and the *RELEASE PT* parameter set as low as possible:

1. Select the *PULL PT* parameter. Observe that the graphical bar rises and falls as the trigger is pulled and released. The actual value of the graphical bar is displayed in the top right of the display.
2. Set the Rear Stop Screw as required, ensuring that the bar is as close to 100% as possible when the trigger is fully depressed against the set screw. It is advisable to allow for some extra travel in the trigger pull once the bar has reached its maximum value.
3. Adjust the *PULL PT* parameter so that when the trigger is fully depressed the bar settles above the indicator on the left hand side of the screen (see page 46).
4. Select the *RELEASE PT* parameter. Observe that the graphical bar rises and falls as the Trigger is pulled and released. The actual value of the graphical bar is displayed in top right of the display.
5. Set the Front Stop Screw as required, ensuring that the bar is as close to 0% as possible when the trigger is fully released against the set screw. It is advisable to allow for some extra travel in the trigger release once the bar has reached its minimum value.
6. Adjust the *RELEASE PT* parameter so that when the trigger is fully released the bar settles beneath the indicator on the left hand side of the screen (see page 46).
7. Set the Magnet Return Strength Screw and the Spring Return Strength Screw as required, making both the spring tension and the return force as strong as possible without compromising the "feel" of the trigger.

HARDWARE

THE HARDWARE MENU

This menu comprises parameters that control low level functionality of the Geo3 electronic hardware.

TRIGGER

THE TRIGGER DETECTION PARAMETER

The Geo3 is fitted with a dual trigger pull detection system. A non-contact Opto-electronic trigger sensor arrangement is used to detect Trigger movement whilst a Micro-switch is used to provide a more traditional tactile feedback for the Trigger. The *TRIGGER* parameter is used to select which system is used. The choices available are as follows:



> OPTO: Select the Opto sensor for trigger pull detection.

> SWITCH: Select the Micro-switch for trigger pull detection.

> CANCEL: Cancel editing and leave the parameter unchanged.

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SOLENOID

THE SOLENOID POWER PARAMETER

This parameter controls the amount of power used by the Solenoid Valve and should normally be left at it's default 'LO PWR' setting. Cold weather (sub 0°C/32°F) will cause lubricants to thicken and increase stiction in the marker system which may cause velocity drop-off and/or shot to shot inconsistency. Increasing the solenoid power will often help to eliminate these problems, but will cause more drain on the battery. The choices available for the parameter are:-

- > LO PWR: Low power Solenoid drive (default)
- > MED PWR: Normal power Solenoid drive
- > HI PWP: High power Solenoid drive
- > CANCEL: Cancel editing and leave the parameter unchanged

SOUND

THE SOUND PARAMETER

The Geo3 board is capable of emitting a variety of sounds to audibly signal when certain functions have been performed, including, but not limited to, powering up, powering off, changing the BBSS mode and resetting various counters and timers. This parameter determines if this feature is switched on or off, switching it on will cause increased drain on the battery. The choices available for this parameter are:

- >OFF: Sounds switched off.
- >ON: Sounds switched on.
- >CANCEL: Cancel editing and leave the parameter unchanged.



TONES

THE TONES PARAMETER

This parameter determines if the Geo3 emits a tone each time any of the Pushbuttons on the Navigation Console are activated. As part of the smart menu system the TONES parameter will only be shown in the HARDWARE menu if the SOUND parameter is switched 'ON'. The choices available for this parameter are:

- >OFF: Tones switched off.
- >ON: Tones switched on.
- >CANCEL: Cancel editing and leave the parameter



BACKLIGHT

THE LCD BACKLIGHT TIME PARAMETER

The time the LCD backlight remains on after a Pushbutton is pushed. The parameter can be set between 0 and 20 seconds.

If the time is set to 00:00 then the light will not be displayed.



RED LEVEL

THE LCD BACKLIGHT RED LEVEL PARAMETER

The percentage of red light emitted from the LCD backlight.



GRN LEVEL

THE LCD BACKLIGHT GREEN LEVEL PARAMETER

The percentage of green light emitted from the LCD backlight.



DBL CLICK

THE DOUBLE CLICKING PARAMETER

This parameter is used to select where double-clicking the  button can be used. The choices available for this parameter are:

>NONE: Double clicking is disabled entirely. To power up the Geo3 and enter the Main Menu the user needs to push and hold the  button.

>POWER UP: Double clicking only works when powering up the Geo3. To enter the Main Menu the user still needs to push and hold the  button.

>ALL: Double clicking works when powering up the Geo3 and entering the Main Menu. Push and hold still works for these procedures as well.

>CANCEL: Cancel editing and leave the parameter unchanged.



BLU LEVEL

THE LCD BACKLIGHT BLUE LEVEL PARAMETER

The percentage of blue light emitted from the LCD backlight.

CONTRAST

THE LCD CONTRAST LEVEL PARAMETER

Sets the contrast level of the LCD. This parameter is adjustable between 0 and 30 in increments of 1.



AUTO OFF

THE AUTO POWER OFF TIME PARAMETER

The time that has to elapse before the Geo3 switches itself off if not used. The parameter can be set between 5 and 60 minutes.



AUX OUT

THE AUX OUT PARAMETER

This parameter turns on and off the AUX socket on the PCB. The choices available for this parameter are:

>OFF: AUX socket switched off.

>ON: AUX socket switched on.

>CANCEL: Cancel editing and leave the parameter unchanged.



TRAINING

THE TRAINING PARAMETER

The *TRAINING* parameter is used to select Training mode. In Training mode the Geo3 will function exactly the same as normal but with two important differences:

1. The solenoid valve is not driven so the Bolt does not move and does not release a burst of air. Instead the beeper will sound for each pull of the Trigger. This simulates the firing cycle without wasting air and generating lots of noise.
2. The BBSS is overridden so that the Geo3 can cycle without paint. The centre of the BBSS indicator changes to a 'T' to indicate that Training mode is enabled. The *TRAINING* parameter choices are as follows:

- > OFF: Training mode is disabled and the Geo3 functions normally.
- > ON: Training mode is enabled.
- > CANCEL: Cancel editing and leave the parameter unchanged.



SHOT COUNT

THE SHOT COUNT MENU

The *SHOT COUNT* menu allows the user to alter the shot gauge that appears in the shot count Run Screen.

GAUGE

THE GAUGE PARAMETER

The *GAUGE* parameter allows the user to toggle the gauge graphic on and off, in the shot counter Run Screen. The choices for the *GAUGE* parameter are:

- >OFF: Gauge graphic on the shot count run screen is disabled.
- > ON: Gauge graphic on the shot count run screen is enabled.
- > CANCEL: Cancel editing and leave the parameter unchanged.



GAUGE MAX

THE GAUGE MAX PARAMETER

The *GAUGE MAX* parameter allows the user to set the number the gauge counts down from every time the Geo3 is fired. The user can set the gauge from 100 to 2000 in increments of 10.



TIMER

THE GAME TIMER MENU

This menu is comprised of parameters that control the operation of the Game Timer.

GAME

THE GAME TIME PARAMETER

This parameter is used to set the Game Time; the time from which the game timer counts down to zero. This parameter can be set between 00:00 and 60:00 minutes in 10 second increments. The factory default is 07:10 (7 minutes 10 seconds).

When the game timer reaches 00:00, GAME OVER will be displayed and the audible alarm will sound continually, provided that the *SOUND* parameter is set to 'ON'.



START

THE TIMER START PARAMETER

This parameter is used to select the event which will cause the Game Timer to begin counting down. This parameter has the following choices:

> **BUTTON:** Pressing the  button will start the Game Timer.

> **TRIGGER:** Pulling the trigger will start the Game Timer.

> **CANCEL:** Cancel editing and leave the parameter unchanged.



ALARM

THE ALARM TIME PARAMETER

An alarm condition is generated whenever the Game Timer counts down to a specific time set by the *ALARM* parameter. This parameter can be set between 00:00 and 10:00 minutes in 10 second increments.

When the alarm condition is generated the Game Timer will start to flash and the audible alarm will sound every second, provided that the *SOUND* parameter is set to 'ON'.





CLEANING THE BREAK BEAM SENSOR SYSTEM

⚠ WARNING ⚠
DE-GAS YOUR MARKER, DISCHARGING ANY STORED GAS IN A SAFE DIRECTION, AND REMOVE THE BARREL, LOADER, AIR SYSTEM AND ANY PAINTBALLS TO MAKE THE MARKER EASIER AND SAFER TO WORK ON.

Undo the retaining screw for the Break Beam Eye cover on the left hand side of the Geo3 using a 5/64" (2mm) hex key (SEE FIGURE 16A).

Remove the eye cover to expose the back of the Break Beam Sensor unit (SEE FIGURE 16B). Using a dry cotton bud, carefully remove any debris, paint or moisture from the back of the sensor unit and from inside the eye cover.

Lift the Break Beam Sensor unit free from the Geo3 body and using another dry cotton bud, remove any grease or debris build-up from the front of the sensor unit (SEE FIGURE 16C).

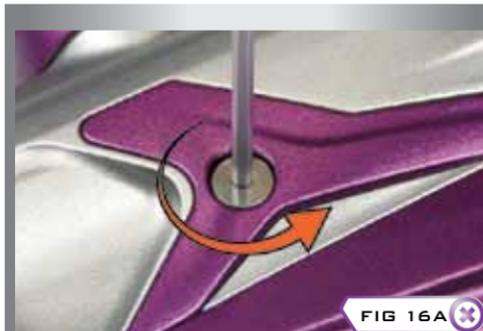


FIG 16A



FIG 16B



FIG 16C

(CONTINUED)

Remove the rubber Detent and using a dry cotton bud clean the Detent and its location point in the Geo3 body, replacing the Detent if it is damaged (SEE FIGURE 1 6D). Reinsert the Detent back into the Geo3 body and place the BBSS back into the designated slot in the body (SEE FIGURE 1 6E). Ensure that the sensor is face down in the body i.e. looking into the breach.¹

Replace the eye cover and using a 5/64" hex key, replace the Bream Beam Eye cover retaining screw to hold the eye cover in place (SEE FIGURE 1 6F).

Repeat the procedure for the opposite side of the Geo3.

You have now cleaned your Break Beam Sensor System.

¹Ensure that the receiver sensor (indicated by a red mark & red heat shrink) is located on the right-hand side of the marker body.

⚠ WARNING ⚠

WARNING: IF YOU ARE AT ALL UNSURE AT PERFORMING THE MAINTENANCE PROCEDURE PLEASE CONTACT YOUR NEAREST ECLIPSE SERVICE CENTRE. (SEE PAGE 75)



FIG 16D



FIG 16E

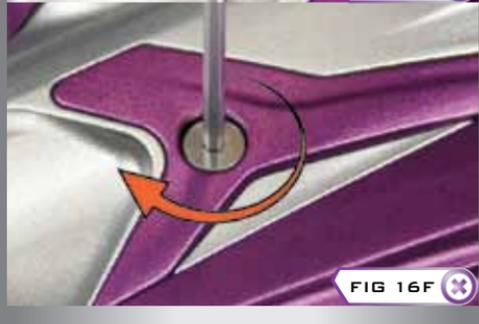


FIG 16F

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CLEANING THE INLINE REGULATOR

⚠ WARNING ⚠
DE-GAS YOUR MARKER, DISCHARGING ANY STORED GAS IN A SAFE DIRECTION, AND REMOVE THE BARREL, LOADER, AIR SYSTEM AND ANY PAINTBALLS TO MAKE THE MARKER EASIER AND SAFER TO WORK ON.

Disconnect the macroline hosing from your inline regulator allowing it to be unscrewed from the Front Regulator Mount (FRM) (SEE FIGURE 17A). Inspect the o-ring at the top of the threads on the FRM for damage. Replace and re-lubricate as necessary.¹

Turn the inline regulator upside down and carefully unscrew the bottom section from the top section (SEE FIGURE 17B).

Tip both the piston and spring out of the top of the inline regulator (SEE FIGURE 17C).

Insert a 1/8" hex key into the adjuster screw in the bottom section of the inline regulator, turn the adjuster screw clockwise through the top of the inline regulator bottom (SEE FIGURE 17D), and pull out of the inline regulator bottom when it will no longer turn upwards.²

Thoroughly clean the 011 NBR70 o-rings that sit on the outside of the adjuster assembly, then re-lubricate with Eclipse Grease (SEE OVERLEAF FIGURE 17E).¹

¹If any o-rings are damaged then replace them. Extra o-rings are available in parts kits available at www.planeteclipse.com

²The adjuster screw can only be removed by turning it upwards through the bottom section of the inline regulator. The regulator will be damaged if the adjuster screw is removed incorrectly.



FIG 17A

FIG 17B

FIG 17C

FIG 17D

Using a dry cotton bud, clean the internal 008 NBR70 o-ring that sits inside the top section of the adjuster top. Then using a small hex key gently apply Eclipse Grease to the o-ring (SEE FIGURE 17F).¹

At this point if you are maintaining the inline regulator to fix a supercharging issue, turn to page 56 to the 'ADVANCED SL3 INLINE REGULATOR MAINTENANCE' section. If you are not fixing a supercharging issue then there is no need to perform this advanced maintenance procedure.

Re-install the adjuster assembly into the bottom section of the inline regulator threaded end first. Apply light pressure to the top of the adjuster, while using a 1/8" hex turn the adjuster screw counter-clockwise until it stops at the base of the inline regulator (SEE FIGURE 17G).²

Take the piston, inspect for damage and clean the 016NBR70 o-ring at the top. Re-lubricate it with a light application of Eclipse Grease (SEE FIGURE 17H). Place the inline regulator spring over the piston, then insert the piston and spring into the top of the inline regulator top section (SEE FIGURE 17I).¹

With the top section of the inline regulator upside down, screw the top and bottom sections together. Re-attach the inline regulator to the Geo3 FRM (SEE FIGURE 17J), then re-connect the macroline hose to the fitting on the regulator swivel.

Basic cleaning of the SL3 inline regulator is complete.

¹If any o-rings are damaged then replace them. Extra o-rings are available in parts kits available at www.planeteclipse.com

²We recommend a starting position for the Adjuster Screw of 4^{1/2} turns in from flush with the bottom of the inline regulator.

⚠ WARNING ⚠

WARNING: IF YOU ARE AT ALL UNSURE AT PERFORMING THE MAINTENANCE PROCEDURE PLEASE CONTACT YOUR NEAREST ECLIPSE SERVICE CENTRE. (SEE PAGE 75)



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ADVANCED INLINE REGULATOR MAINTENANCE

⚠ WARNING ⚠
DE-GAS YOUR MARKER, DISCHARGING ANY STORED GAS IN A SAFE DIRECTION, AND REMOVE THE BARREL, LOADER, AIR SYSTEM AND ANY PAINTBALLS TO MAKE THE MARKER EASIER AND SAFER TO WORK ON.

This procedure is only required if you are fixing a supercharging SL3 inline regulator (common symptoms of supercharging are a very high velocity first shot and/or large variances in shot to shot consistency.)

Place 3/32" hex key through the adjuster top (SEE FIGURE 1BA), then insert a 1/8" hex key into the bottom of the adjuster screw and carefully turn it counter-clockwise until the two parts begin to unscrew freely (SEE FIGURE 1BB). With your fingers fully unscrew the two parts taking care not to lose any of the internal components (SEE FIGURE 1BC).

Inside the adjuster screw you will find a regulator seal, purge poppet and spring (purge poppet assembly) (SEE FIGURE 1BD). Inspect and clean the regulator seal, turning it over if one side appears excessively worn or damaged or replace if necessary. Inspect and clean the purge poppet or replace if necessary.¹

Place the purge poppet and attached spring in the central hole in the regulator seal, then insert these parts into the adjuster screw (SEE FIGURE 1BE).

With the regulator seal, purge valve and spring installed back into the adjuster screw, replace the adjuster top (SEE FIGURE 1BF). Screw the two parts tightly together using 1/8" and 3/32" hex keys (SEE FIGURE 1BB). Refer to the 'CLEANING THE SL3 INLINE REGULATOR' section on pages 54-55 to re-assemble the SL3 inline regulator.

¹If the purge poppet assembly is removed for maintenance ensure it is re-installed correctly, failure to do so may seriously damage the Geo3 solenoid.



FIG 1BA



FIG 1BB



FIG 1BC



FIG 1BD



FIG 1BE



FIG 1BF

CLEANING THE BODY FILTER

⚠ WARNING ⚠

DE-GAS YOUR MARKER, DISCHARGING ANY STORED GAS IN A SAFE DIRECTION, AND REMOVE THE BARREL, LOADER, AIR SYSTEM AND ANY PAINTBALLS TO MAKE THE MARKER EASIER AND SAFER TO WORK ON.

Remove the inline regulator as covered on page 54. Turn the Geo3 upside down to reveal the body filter inside the body (SEE FIGURE 19A).

Using a 5/64" hex key unscrew and remove the retaining screw (SEE FIGURE 19B).

Then remove the body filter (SEE FIGURE 19C).

Inspect and clean the body filter. If the filter is very dirty replace with a new filter.

Insert the filter into the FRM on the Geo3 body, ensuring the hole in the filter lines up with the threads in the body (SEE FIGURE 19D).

Using a 5/64" hex key, replace the retaining screw. DO NOT over tighten the retaining screw as this may result in the filter being crushed between the screw and Geo3 body (SEE FIGURE 19E).

Re-attach the inline regulator to the Geo3.

If after cleaning the Geo3 is still experiencing slow purge and low velocity issues the filter may need replacing.

⚠ WARNING ⚠

WARNING: IF YOU ARE AT ALL UNSURE AT PERFORMING THE MAINTENANCE PROCEDURE PLEASE CONTACT YOUR NEAREST ECLIPSE SERVICE CENTRE. (SEE PAGE 75)



FIG 19A



FIG 19B



FIG 19C



FIG 19D



FIG 19E

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MAINTAINING THE BOLT SYSTEM

⚠ WARNING ⚠
DE-GAS YOUR MARKER, DISCHARGING ANY STORED GAS IN A SAFE DIRECTION, AND REMOVE THE BARREL, LOADER, AIR SYSTEM AND ANY PAINTBALLS TO MAKE THE MARKER EASIER AND SAFER TO WORK ON.

Using a 1/4" hex key or fingers unscrew the prop shaft from the marker body (SEE FIGURE 20A). Once the threaded section is free from the threads in the marker body and turning freely, pull the prop shaft from the marker body.

Place a finger down the feed tube and push the bolt free from the bolt can inside the body by pushing it backwards (SEE FIGURE 20B). Once the bolt is free from the bolt can, insert a finger into the rear of the marker and remove the bolt completely (SEE FIGURE 20C).

By inserting a finger or an appropriately sized hex key into the rear of the marker body (SEE FIGURE 20D), hook onto one of the holes in the bolt can and extract it from the marker body (SEE FIGURE 20E).

You should now have removed the following parts from the marker body: the bolt can (A), the bolt (B) and the prop shaft (C) (SEE FIGURE 20F).

Take the bolt can and having cleaned off any old grease, paint or debris, apply a small amount of Eclipse Grease to the internal o-ring and the 2 external o-rings (SEE FIGURE 20G).¹

Smear a light coat of Eclipse Grease onto the smooth internal bore of the bolt can from the rear (SEE FIGURE 20H).

¹Remove any excess blobs of eclipse grease from the inside and outside of the bolt can.



(CONTINUED)

Take the prop shaft and having cleaned off any old grease, paint or debris, apply Eclipse Grease to the large rear o-ring and the threads (SEE FIGURE 20I) and also to the 14x2 o-ring near the front of the prop shaft (SEE FIGURE 20J).

Take the bolt and having cleaned off any old grease, paint or debris. Examine the rubber bolt tip for any signs of damage (SEE FIGURE 20K), replacing if necessary. Apply a light film of Eclipse Grease to cover the front end of the bolt and also the internal rear bore of the bolt (SEE FIGURE 20L). Apply a coat of Eclipse Grease to the 2 external Bolt o-rings near the centre of the bolt (SEE FIGURE 20M).

Remove excess Eclipse Grease by wiping off with finger. Aim to apply only a very thin film of grease to the components maintained, as excess grease bolt can cause poor performance.

Slide the bolt onto the prop shaft (SEE FIGURE 20N) and slide the bolt can over the bolt and push into place until the bolt can touches the prop shaft back cap (SEE FIGURE 20P).

Finally wipe any excess Eclipse Grease off the o-ring on the head of the bolt and insert the complete bolt assembly into the marker body (SEE FIGURE 20Q).

Either by hand or using a 1/4" hex key, screw the bolt assembly into the marker body (SEE FIGURE 20R).¹ If screwed in by hand the prop shaft and bolt, can be accessed and maintained by hand in future.

¹DO NOT over tighten the Bolt Assembly.

⚠ WARNING ⚠

WARNING: IF YOU ARE AT ALL UNSURE AT PERFORMING THE MAINTENANCE PROCEDURE PLEASE CONTACT YOUR NEAREST ECLIPSE SERVICE CENTRE. (SEE PAGE 75)



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ADVANCED BOLT SYSTEM MAINTENANCE

⚠ WARNING ⚠

DE-GAS YOUR MARKER, DISCHARGING ANY STORED GAS IN A SAFE DIRECTION, AND REMOVE THE BARREL, LOADER, AIR SYSTEM AND ANY PAINTBALLS TO MAKE THE MARKER EASIER AND SAFER TO WORK ON.

This procedure is only required if you are maintaining the rear prop shaft 14x2 o-ring, which if damaged or dirty will cause a leak around the back cap of the Geo3.

Insert an appropriately sized hex key or screw driver shaft into the hole in the middle of the prop shaft, take a 1/8" hex key and remove the retaining screw in the back of the prop shaft (SEE FIGURE 21A). Remove the prop shaft from the back cap, taking care not to lose the prop shaft spring. Check the 14x2 o-ring at the back of the prop shaft, and clean or replace then re-lubricate with Eclipse Grease as necessary (SEE FIGURE 21B).

Check the rear bumper for signs of wear, replace as necessary then re-install the spring (SEE FIGURE 21C). Replace the back cap over the rear of the prop shaft, then replace the retaining screw using a 1/8" hex key to reassemble to prop shaft (SEE FIGURES 21D & 21E).¹

¹If any o-rings or the bumper are damaged then replace them. Extra o-rings and bumpers are available in parts kits available at www.planeteclipse.com



FIG 21A



FIG 21B



FIG 21C



FIG 21D



FIG 21E

REMOVING THE FRAME

⚠ WARNING ⚠

DE-GAS YOUR MARKER, DISCHARGING ANY STORED GAS IN A SAFE DIRECTION, AND REMOVE THE BARREL, LOADER, AIR SYSTEM AND ANY PAINTBALLS TO MAKE THE MARKER EASIER AND SAFER TO WORK ON.

Removal of the frame is required for access to the solenoid assembly, trigger bearing carrier assembly and Break Beam Sensor System wires if maintenance on either is required.

Disconnect any hosing and unscrew the inline regulator from the Front Regulator Mount (FRM) as detailed in the 'CLEANING THE INLINE REGULATOR' section of this Maintenance Guide.

Using a 5/64" hex key, remove the six screws that attach the Geo3 rubber grips to the Geo3 frame (SEE FIGURE 22A).

Unplug the solenoid and the Break Beam Sensor System wiring harnesses from their respective ports on the Geo3 circuit board (SEE FIGURE 22B).

Using a 1/8" hex key, undo and remove the front frame screw (SEE FIGURE 22C). Using the short arm of a 1/8" hex key, loosen the rear frame screw a full turn (SEE FIGURE 22D). Slide the frame backwards approximately half an inch so that the rear frame screw disengages from the frame and remove the frame from the Geo3 body taking care not to damage any wires (SEE FIGURE 22E).

You have now removed your Geo3 frame from the Geo3 body.

⚠ WARNING ⚠

WARNING: IF YOU ARE AT ALL UNSURE AT PERFORMING THE MAINTENANCE PROCEDURE PLEASE CONTACT YOUR NEAREST ECLIPSE SERVICE CENTRE. (SEE PAGE 75)



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ATTACHING THE FRAME

⚠ WARNING ⚠
DE-GAS YOUR MARKER, DISCHARGING ANY STORED GAS IN A SAFE DIRECTION, AND REMOVE THE BARREL, LOADER, AIR SYSTEM AND ANY PAINTBALLS TO MAKE THE MARKER EASIER AND SAFER TO WORK ON.

To install the frame, firstly check the SFR seal is correctly located in the top of the frame (SEE FIGURE 23A), then carefully thread the solenoid and the Break Beam Sensor System wiring harnesses through the access hole in the top of the frame and line the frame up so that the rear frame screw sits in the access hole (SEE FIGURE 23B).

BE CAREFUL NOT TO TRAP OR PINCH THE BBSS OR SOLENOID WIRES BETWEEN THE BODY AND FRAME.

Slide the frame forward so that it sits completely flush with the Geo3 body and using the short arm of a 1/8" hex key, tighten the rear frame screw into place (SEE FIGURE 23C). Check that no wires are trapped before tightening down the two frame screws.

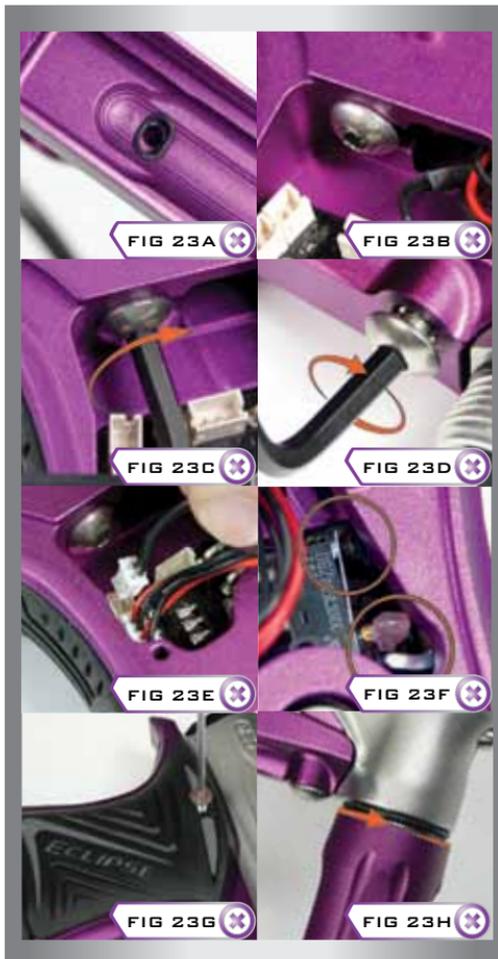
Insert the front frame screw into its designated position at the front of the frame and using a 1/8" hex key tighten it into place (SEE FIGURE 23D). Connect the solenoid and Break Beam Sensor System wiring harnesses to their respective ports on the Geo3 circuit board and (SEE FIGURE 23E).

Adjust the wires so that they sit neatly in the grip frame and ensure that the wires do not obstruct either the micro-switch or the Opto sensor (SEE FIGURE 23F).

Attach the Geo3 rubber grips to the frame using a 5/64" hex key to replace the 6 grip screws (SEE FIGURE 23G).

Screw the inline regulator back into the Front Regulator Mount and connect any hosing that was disconnected earlier (SEE FIGURE 23H).

You have now re-installed the frame onto the Geo3.



SFR & BLANKING PLUG

THE STAGES BELOW ON SFR MAINTENANCE DO NOT REQUIRE THE FRAME TO BE REMOVED, AND CAN BE FOLLOWED FOR SFR REMOVAL/ BLANKING PLUG INSTALLATION.

Using a small hex key push the SFR body out of the left side of the frame (SEE FIGURE 23I).

Inspect and clean the SFR body and o-rings, making sure the hole through the centre of the SFR body is free of paint or debris (SEE FIGURE 23J).

Lastly make sure the pocket in the frame that houses the SFR and the exhaust port below are clean (SEE FIGURE 23K).

Next, insert the SFR body into the frame as shown in FIGURE 23L. Make sure the dial sits flush with the surface of the frame (SEE FIGURE 23M).

THE LAST STAGE OF MAINTENANCE REQUIRES THE FRAME TO BE REMOVED. IT IS ONLY NEED IF THE SFR IS HAVING LITTLE OR NO EFFECT.

In the top of the frame locate and remove the SFR seal (SEE FIGURE 23N). Inspect and clean the seal, replacing if damaged or heavily worn.

Re insert the SFR seal into the top of the frame, making sure the contoured face is exposed (SEE FIGURE 23O).

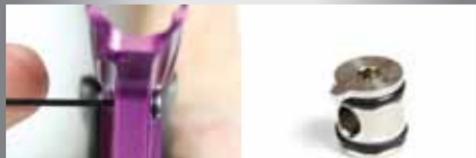


FIG 23I

FIG 23J



FIG 23K

FIG 23L



FIG 23M



FIG 23N

FIG 23O

⚠ WARNING ⚠

WARNING: IF YOU ARE AT ALL UNSURE AT PERFORMING THE MAINTENANCE PROCEDURE PLEASE CONTACT YOUR NEAREST ECLIPSE SERVICE CENTRE. (SEE PAGE 75)

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THE GEO3 SOLENOID ASSEMBLY

⚠ WARNING ⚠
DE-GAS YOUR MARKER, DISCHARGING ANY STORED GAS IN A SAFE DIRECTION, AND REMOVE THE BARREL, LOADER, AIR SYSTEM AND ANY PAINTBALLS TO MAKE THE MARKER EASIER AND SAFER TO WORK ON.

IMPORTANT

The Geo3 solenoid assembly contains two sub-assemblies, the Solenoid Valve and the Solenoid Solenoid Manifold. Removal of the Solenoid Valve is required to access the Solenoid Manifold for servicing. The **SOLENOID VALVE** itself (HIGHLIGHTED IN FIGURE 24A) is a **NON-SERVICEABLE** item. Any attempt to strip or service the Solenoid Valve will immediately void the Geo3 warranty. If you experience any issue with the Geo3 Solenoid Valve then please contact your Eclipse Service Centre. See page 75 for Eclipse Service Centre details.

With the frame separated from the Geo3 body and the solenoid and BBSS wires unplugged from the Circuit Board (see page 61) use a 5/64" hex key to undo and remove the two screws that hold the solenoid assembly onto the Geo3 body (SEE FIGURE 24B). Firstly remove the Solenoid Valve from the body, this will expose the Solenoid Manifold which sits partially inside the Geo3 body (SEE FIGURE 24C).

Carefully pull the Solenoid Manifold out from the Geo3 body, exposing the gas transfer holes which lead to the bolt assembly (SEE FIGURE 24D). The solenoid gasket may still be attached to the body, if this is the case, carefully peel the gasket off the body and place to one side.

With the solenoid assembly completely removed from the Geo3 body the bottom of the Geo3 body should now resemble FIGURE 24E. Ensure that the air transfer holes in the bottom of the body are free from contamination from any dirt, debris, paint or moisture and clear away any excess grease if it appears to be blocking any of the transfer holes.



(CONTINUED)

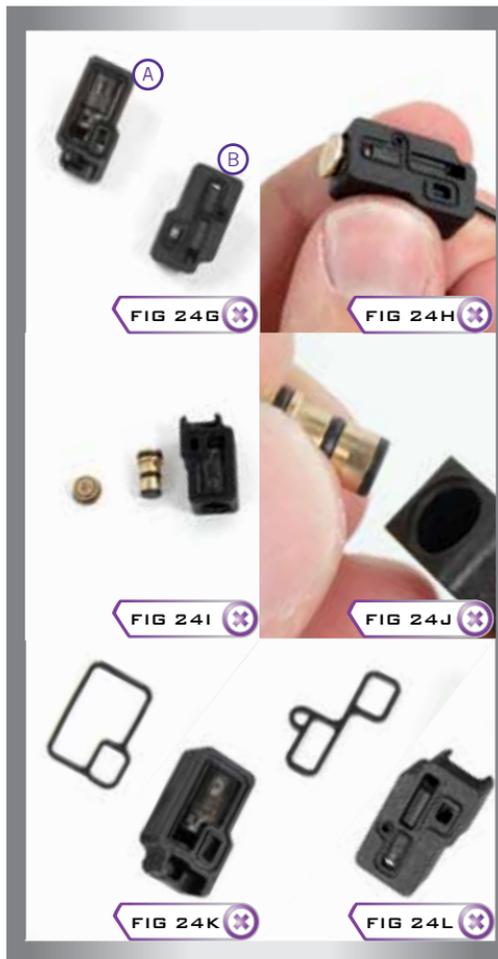
Check the underside of the Solenoid Valve to ensure that it is free from damage or debris (SEE FIGURE 24F).

The Solenoid Manifold has two gaskets, the top gasket **A** and the bottom gasket **B** as illustrated in figure 24G. Carefully remove both gaskets from the Solenoid Manifold. Inspect and clean the top and bottom gaskets and the Solenoid Manifold, replacing any damaged components.

Using a small size hex key or flat headed screw driver, gently push the poppet and cap out of the Solenoid Manifold (SEE FIGURE 24H). Inspect and clean the poppet, paying particular attention to the condition front face and o-ring (SEE FIGURE 24I). If either is damaged or worn, the poppet will need replacing.

Reinsert the poppet into the Solenoid Manifold in the orientation shown in FIGURE 24J. Then insert the cap, ensuring that it is firmly held in the Solenoid Manifold.

Replace the top and bottom gaskets into their respective grooves in the Solenoid Manifold as shown in FIGURES 24K AND 24L. Applying a small amount of Eclipse Grease to the surface of the Solenoid Manifold and gaskets.



¹If the Solenoid Manifold is damaged remember to remove the poppet and cap before disposing of the Solenoid Manifold.

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Lastly inspect and clean the large solenoid gasket, replacing if damaged (SEE FIGURE 24M).

Apply a small amount of grease to the outer most groove surrounding the Solenoid Manifold pocket in the Geo3 body. Then making sure the top Solenoid Manifold gasket lies flat in the Solenoid Manifold, insert the Solenoid Manifold back into the Geo3 body (SEE FIGURE 24N).

Next place the solenoid gasket over the Solenoid Manifold ensuring that the gasket is secure in its groove in the Geo3 body (SEE FIGURE 24O). Make sure that the Bottom Solenoid Manifold gasket is flat in its groove in the Solenoid Manifold.

Place the Solenoid Valve over the Solenoid Manifold (SEE FIGURE 24P), making sure the location holes line up with the threads in the Geo3 body (SEE FIGURE 24Q).

Replace the retaining screws which hold the solenoid onto the Geo3 using a 5/64" hex key (SEE FIGURE 24R). DO NOT over tighten screws in the Solenoid Assembly.

Maintenance of the solenoid assembly is complete

⚠ WARNING ⚠

WARNING: IF YOU ARE AT ALL UNSURE AT PERFORMING THE MAINTENANCE PROCEDURE PLEASE CONTACT YOUR NEAREST ECLIPSE SERVICE CENTRE. (SEE PAGE 75)



FIG 24M



FIG 24N



FIG 24O



FIG 24P



FIG 24Q



FIG 24R

THE GEO3 TRIGGER ASSEMBLY

⚠ WARNING ⚠

DE-GAS YOUR MARKER, DISCHARGING ANY STORED GAS IN A SAFE DIRECTION, AND REMOVE THE BARREL, LOADER, AIR SYSTEM AND ANY PAINTBALLS TO MAKE THE MARKER EASIER AND SAFER TO WORK ON.

Having removed the frame completely from the Geo3 body (see page 61). Unscrew the two M2.5x5 retaining screws which hold the bearing carrier in the frame. (SEE FIGURE 25A).

Remove the trigger spring from the bearing carrier, (SEE FIGURE 25B).

Gently lift the bearing carrier and trigger assembly free from the frame taking care not to damage the Micro-switch or the Opto sensors (SEE FIGURE 25C).

Using a 1/16" hex key, loosen the trigger pin retaining set screw from the back of the trigger (SEE FIGURE 25D).

Use a small hex key to push the trigger pin out of the bearing carrier from one side (SEE FIGURE 25E), then remove the bearing carrier from the trigger (SEE FIGURE 25F).

Clean the trigger, trigger spring and bearing carrier thoroughly and also clean the space within the frame that the trigger sits in.



FIG 25A



FIG 25B



FIG 25C



FIG 25D



FIG 25E



FIG 25F

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Position the trigger so that the hole through the trigger lines up with the holes in the bearing carrier, slide the trigger pin into place (SEE FIGURE 25G).

Gently lower the trigger assembly and bearing carrier into the frame, taking care not to damage the Micro-switch or the Opto sensor, and ensuring that the trigger is positioned correctly (SEE FIGURE 25H).

Using a 5/64" hex key screw the right side M2.5x5 retaining screw into place but do not fully tighten it into place (SEE FIGURE 25I).

Ensure the trigger moves freely within the frame, then using a 1/16" hex key tighten down the trigger pin retaining set screw.

Place the trigger spring over the bearing carrier in its designated groove, align the hole in the trigger spring with the front/left hole in the bearing carrier, then screw the retaining screw into the frame. Tighten both screws with a 5/64" hex key (SEE FIGURE 21 J).

DO NOT overtighten the retaining screws. Doing so may damage the trigger spring and threads in the frame.

You have now stripped and cleaned your Geo3 trigger Assembly.



FIG 25G



FIG 25H



FIG 25I



FIG 25J

⚠ WARNING ⚠

WARNING: IF YOU ARE AT ALL UNSURE AT PERFORMING THE MAINTENANCE PROCEDURE PLEASE CONTACT YOUR NEAREST ECLIPSE SERVICE CENTRE. (SEE PAGE 75)

THE PUSH ON/OFF PURGE SYSTEM (POPS)

⚠ WARNING ⚠

DE-GAS YOUR MARKER, DISCHARGING ANY STORED GAS IN A SAFE DIRECTION, AND REMOVE THE BARREL, LOADER, AIR SYSTEM AND ANY PAINTBALLS TO MAKE THE MARKER EASIER AND SAFER TO WORK ON.

Having disconnected the Macroline hose from the fitting on the POPS body, fully depress the Latch Button then slide the bonnet forward while continuing to depress Latch Button (SEE FIGURE 26A).

When the bonnet is in the forward position (SEE FIGURE 26B) remove the Latch Button and Spring from the bonnet (SEE FIGURE 26C) then slide the bonnet off the POPS body (SEE FIGURE 26D). Be careful not to lose the spring.

Carefully slide the Push Rod out from either side of the POPS body, taking care not to lose the two o-rings on the Push Rod (SEE FIGURE 26E).

Clean off any dirt, debris or moisture from the bonnet, the POPS body and the Latch Button (SEE FIGURE 26F).

Remove the POPS Insert Assembly using a 5/32" hex key (SEE FIGURE 26G). Remove the POPS Pin from the POPS Insert.

Clean and check the condition of the 007 NBR70 o-ring on the outside of the POPS Insert, replacing as necessary (SEE FIGURE 26H).



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Clean and check the condition of the single internal 005 NBR90 o-ring in the front of the POPS Insert, replace if necessary (SEE FIGURE 26I). Lubricate this o-ring liberally using Eclipse Grease.

Lubricate the narrow end of the POPS Pin with a smear of Eclipse Grease and push the Pin, narrow end first, into the POPS Insert so that it sits in the POPS Insert and pokes through to the front (SEE FIGURES 26J & 26K).

Screw the POPS Insert back into the POPS body ensuring that the o-ring end goes in first (SEE FIGURE 26G).

Replace the Push Rod into its designated slot (SEE FIGURE 26L), then slide a 004 NBR70 O-rings on both ends of the Push Rod. Make sure the Push Rod is centred in the POPS body (SEE FIGURE 26M).

Slide the bonnet over the POPS body and align the hole on the bonnet with the front hole on the POPS body (SEE FIGURE 26N).

Ensure the Latch Button and Spring are attached to each other then slide them both into the POPS body through the hole in the bonnet, spring end first, making sure the Latch Button pokes out the right side of the bonnet (SEE FIGURE 26O).

Push the Button down as far as it will go, then (while still holding down the Button) slide the bonnet back until the Button engages with the POPS body and cannot slide into the forward position (SEE FIGURE 26P). Reconnect the Macroline hose to the fitting on the POPS body.

You have now successfully cleaned and maintained your Push Operated Purge System.

⚠ WARNING ⚠

WARNING: IF YOU ARE AT ALL UNSURE AT PERFORMING THE MAINTENANCE PROCEDURE PLEASE CONTACT YOUR NEAREST ECLIPSE SERVICE CENTRE. (SEE PAGE 75)



FIG 26I



FIG 26J



FIG 26K



FIG 26L



FIG 26M



FIG 26N



FIG 26O



FIG 26P

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Although a fresh battery has been fitted, the Geo3 will not switch on.	The battery has been fitted incorrectly.	Fit the Battery correctly with the positive terminal nearest to the side of the frame.
	The battery terminals are not making proper contact with the battery.	Remove the Battery, gently bend the terminals towards where the Battery will sit and then replace the Battery.
The battery does not seem to last very long.	The battery type is of a low quality.	Use an alkaline or metal hydride battery. Do not use a low quality or rechargeable battery.
The Geo3 leaks from the solenoid Assembly.	Check that the 3 solenoid gaskets are intact and seated in their designated pockets both in and around the Solenoid Manifold.	Replace the solenoid gasket if damaged.
	Damaged Geo3 Solenoid Valve.	Replace Geo3 Solenoid Valve
	Geo3 Solenoid Assembly is over-pressurising.	Check the inline regulator output pressure and consequent velocity. Adjust accordingly.
	Debris on / damage to poppet.	The inline regulator is supercharging. Clean/Replace poppet.
Geo3 leaks down the barrel.	Main Prop Shaft 14 x2 NBR 70 o-ring is damaged, dirty or dry.	Replace, clean and lubricate 14 x 2 NBR 70 o-ring on Prop Shaft.
	Internal O17 NBR 70 o-ring and external O20 NBR 70 o-rings on Bolt Can are damaged, dry or dirty.	Replace, clean and lubricate O17 NBR 70 o-ring and O20 NBR 70 o-rings on Bolt Can.
Gas vents quickly down the barrel as soon as the Geo3 is gasses up	Bolt is stuck in a forward position.	Push Bolt backwards.
	Main Prop Shaft O14x2 o-ring is damaged or an incorrect size.	Replace with a O14x2 size o-ring.
The Geo3 is chopping or trapping paint.	Loader has too high a force setting or paint is poor quality.	Adjust loader setting and try another brand of paint.
	The Break Beam Sensor System is switched off.	Switch on the Break Beam Sensor System.
	The bolt is dirty causing the incorrect detection of paintballs.	Clean the bolt and breach

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7. FAULT FINDING

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SYMPTOM	POSSIBLE CAUSE	SOLUTION
	The Break Beam Sensor System is dirty causing the incorrect detection of paintballs. solenoid.	Clean the Break Beam Sensor System.
	Incorrectly seated rubber bolt tip.	Re-seat rubber bolt tip.
	Damaged rubber bolt tip.	Replace the rubber bolt tip.
The Geo3 does not fire.	POPS is not engaged.	Engage the POPS fully.
	Solenoid Flow Restrictor (SFR) set too low.	Increase the flow through the SFR.
	SFR assembly is blocked.	Strip and clean the SFR assembly.
	Battery quality or level of charge is very low, and does not provide sufficient power to drive the Solenoid Valve.	Install new high quality battery.
	Battery is flat.	Install new battery
	Training Mode is enabled.	Disable training mode.
	Trigger and trigger detection method are set up incorrectly.	Set up trigger correctly (refer to "Setting the trigger" section).
	Trigger detection system is blocked	Remove any wires or debris from the trigger detection system.
	Solenoid Assembly is not plugged into Geo3 PCB correctly.	Plug solenoid Assembly plug into its port on the Geo3 PCB.
	The Break Beam Sensor System is enabled but there is no paintball in the breech.	Fill loader with paint.
	The Micro-switch is not being activated.	Adjust Micro-switch activation screw accordingly.
	Micro-switch is damaged.	Replace circuit board.
PCB damaged .		
Solenoid Valve damaged	Replace Solenoid Valve	
Solenoid Valve wires damaged		

SYMPTOM	POSSIBLE CAUSE	SOLUTION
The Geo3 does not cycle fully.	Sticky or faulty poppet in Solenoid Manifold.	Check poppet, clean and replace as necessary.
	Bolt Assembly dirty or incorrectly lubricated.	Clean, re-lubricate and replace o-rings on Bolt as necessary.
	Dwell set too low.	Increase Dwell.
The Geo3 has low velocity on the first shot.	FSDO parameters are set too low to overcome o-ring stiction.	Adjust FSD COMP and FSD DLY parameters.
The Geo3 has high velocity on the first shot.	FSDO parameters are set too high.	Adjust FSD COMP and FSD DLY parameters.
	inline regulator pressure creeping.	Strip, clean and maintain inline regulator. Replace inline regulator Piston if necessary.
Geo3 has velocity drop-off during rapid fire.	Battery is poor quality or has insufficient power.	Use an Alkaline or metal hydride battery. Do not use a low quality or rechargeable battery.
	Solenoid Flow Restrictor (SFR) set too low.	Increase the flow through the SFR.
	Air system/regulator does not flow fast enough to keep up.	Try another air system/regulator and replace as necessary.
	Sticky o-rings in Bolt Assembly.	Clean, re-lubricate and replace o-rings on Bolt Assembly as necessary.
	Blocked body filter.	Clean/replace body filter as necessary.
	Poppet is sticking from debris or too much grease.	Clean and lightly grease Poppet.
	Poorly maintained inline regulator.	Strip, lubricate and rebuild inline regulator.
Geo3 trigger is very "bouncy".	Incorrect filter settings.	Check that your trigger filter and debounce settings suit your trigger set-up.
The Break Beam Sensor System does not appear to be reading correctly.	The Break Beam Sensor System is dirty.	Clean the Break Beam Sensor System.
The Break Beam Sensor System is not reading at all.	Break Beam Sensors are the wrong way around.	Check that the red receiver is on the right-hand side of the Breech.

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74. FAULT FINDING

SYMPTOM	POSSIBLE CAUSE	SOLUTION
The Break Beam Sensor System is not reading at all.	There is a broken wire or contact, or a short circuit on either of the Breech Sensor cables.	Check the plug of the cables. Check for cuts or pinches in the sensor cables.
	Either sensor is back to front.	Check that the sensors face each other when installed.
Two or more balls are being fed into the breech.	Detents are broken/missing	Change the rubber finger detents.
	Loader feed force is set too high	Reduce the feed force on the loader.
Geo3 is inconsistent.	Dwell parameter set too low.	Increase the Dwell parameter.
	Solenoid Flow Restrictor (SFR) set too low.	Increase the flow through the SFR.
	Poor quality paintball	Use better quality paintballs
	Poor paintball to barrel bore match.	Use a better paintball to barrel bore size match.
	inline regulator is supercharging.	Strip and clean inline regulator.
	Dirty body filter.	Strip and clean the body filter.
	Poor air supply into POPS	Use a good quality preset air system
Geo3 is ineffeicent	Dwell is excessively high.	Reduce the Dwell.
Break Beam Sensor System turns itself off after firing.	Eye is dirty.	Clean the eyes.
	Eye is faulty.	Replace the eyes.
	Eye is out of place.	Re-Install Eyes. Check alignment.
When the Geo3 powers up,, the right hand side of the screen is not displayed and the marker will not fire	The trigger is permanently depressed.	Adjust the trigger until the selected trigger detection method is activated when the trigger is released.
The Geo3 degasses very slowly.	The body filter is blocked / damaged	Clean the body filter and inspect for damage. Replace if damaged.
Geo3 has low rate of fire	Solenoid flow restrictor is set too low.	Increase the amount of flow on the SFR.

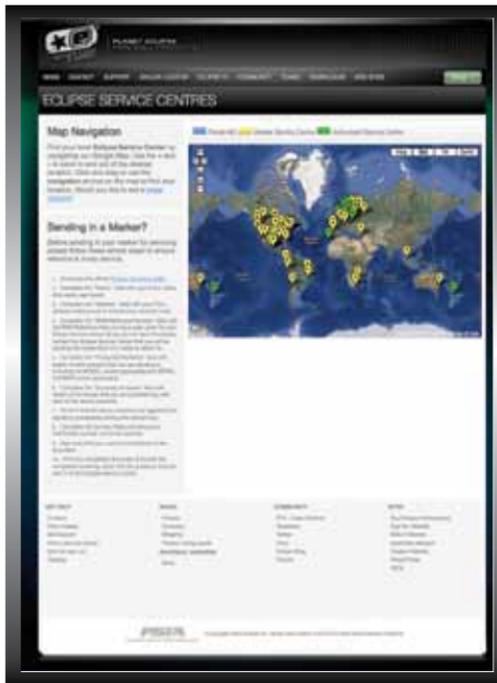
ECLIPSE CERTIFIED SERVICE CENTRES

Are you unsure of where to send your Geo3 to be repaired or serviced? If your local Eclipse dealer can't assist you, why not contact your nearest Certified Eclipse Service Centre and arrange to send it into them to undertake any work that you require.

A map listing all of our Service Centres and their contact details can be found in the SUPPORT section of the Planet Eclipse web site at

WWW.PLANETECLIPSE.COM/SITE/SERVICE-CENTRES

For any Technical Support or Customer Service enquiries please ensure that you have registered your product (where applicable) using the Warranty Card in this manual or online prior to contacting the appropriate representative in your region.



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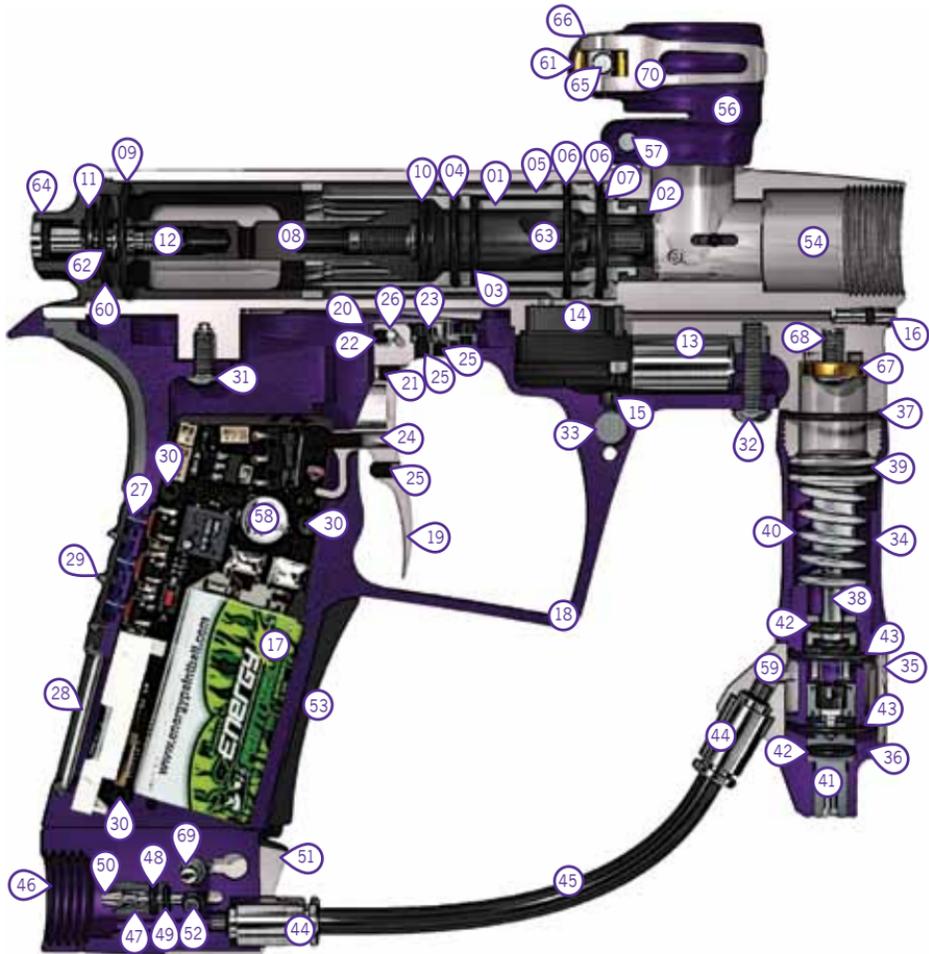
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- | | | |
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| 02 Bolt Tip | 28 Display Window | 55 Detent |
| 03 Bolt Bumper o-ring | 29 Navigation Console | 56 Clamping Feed Tube |
| 04 Bolt Rear o-ring | 30 PCB Retaining Screw | 57 Clamping Feed Tube Short Screw |
| 05 Bolt Can | 31 Rear Frame Screw | 58 Printed Circuit Board (PCB) |
| 06 External Bolt Can o-rings | 32 Front Frame Screw | 60 Prop Shaft Rear o-ring |
| 07 Bolt Can Inner o-ring | 33 Solenoid Flow Restrictor | 61 Clamping Feed Insert |
| 08 Prop Shaft | 34 Inline Regulator Top | 62 Prop Shaft Spring |
| 09 Prop Shaft Back Cap o-ring | 35 Inline Regulator Swivel Collar | 63 Prop Shaft Tip |
| 10 Prop Shaft Middle o-ring | 36 Inline Regulator Bottom | 64 Prop Shaft Back Cap |
| 11 Prop Shaft Rear Bumper | 37 Inline Regulator Top o-ring | 65 Clamping Feed Sprocket Screw |
| 12 Prop Shaft Screw Assembly | 38 Inline Regulator Piston | 66 Clamping Feed Swivel |
| 13 Solenoid Valve | 39 Inline Regulator Piston o-ring | 67 Body Filter |
| 14 Solenoid Manifold Assembly | 40 Inline Regulator Spring | 68 Body Filter Screw |
| 15 Solenoid Flow Restrictor Seal | 41 Inline Regulator Adjuster Assembly | 69 POPS Latch Button |
| 16 Body Plug | 42 Inline Regulator Adjuster o-ring | 70 Clamping Feed Lever |
| 17 9 Volt Battery | 43 Inline Regulator Bottom o-ring | |
| 18 Frame | 44 10-32UNF Macroline Fitting | |
| 19 Trigger | 45 1/4" Hose | |
| 20 Trigger Spring | 46 POPS Body | |
| 21 Trigger Spring Adjuster Set Screw | 47 POPS Insert | |
| 22 Trigger Pin Locking Set Screw | 48 External POPS Insert o-ring | |
| 23 Bearing Carrier Assembly
(inc Magnet) | 49 Internal POPS Insert o-ring | |
| 24 Micro-switch Activation Set Screw | 50 POPS Pin | |
| 25 Trigger Adjustment Screw | 51 POPS Bonnet | |
| 26 Trigger Pin | 52 POPS Push Rod | |
| | 53 Rubber Grip | |

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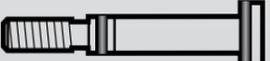
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SCREW	QTY	DESCRIPTION
	5	PCB SCREW (3), BEARING CARRIER SCREW (2) (M2.5 x5 CAP HEAD SOCKET)
	2	SOLENOID SCREW (2) (M2.5 x12 CAP HEAD SOCKET)
	6	RUBBER GRIP SCREW (4), BBSS COVER SCREW (2) (6-32UNC x5/16 COUNTERSUNK SOCKET)
	1	SHORT Feed tube SCREW (1 x10-32UNF x1/2 CAP HEAD SOCKET)
	1	CLAMPING FEED SPROCKET (CUSTOM MANUFACTURED)
	1	MICRO-SWITCH SCREW (6-32 UNC x1/2 SOCKET SET SCREW)
	1	TRIGGER PIN RETAINING SCREW (6-32 UNC x1/8 SOCKET SET SCREW)
	4	TRIGGER ADJUSTMENT SCREW (6-32 UNC x3/16 SOCKET SET SCREW)
	2	POPS SCREW (10-32 UNF x1/2 SOCKET SET SCREW)
	2	SHORT FRAME SCREW, BODY FILTER (10-32 UNF x3/8 SOCKET BUTTON HEAD)
	1	LONG FRAME SCREW (10-32 UNF x3/4 SOCKET BUTTON HEAD)
	1	BODY PLUG (CUSTOM MANUFACTURED)
	1	PROP SHAFT RETAINING SCREW (CUSTOM MANUFACTURED)

O-RING	LOCATION	O-RING	LOCATION
 20X2	Back Cap	 14X2	Prop Shaft Back (x2) Bolt Rear
 020	Bolt Can Outside (x2)	 011	SL3 Inline Reg Adjuster Outside
 017	Bolt Can Inside Geo3 body FRM	 009	Prop -Shaft Retaining Screw Rear
 016	SL3 Inline Reg Piston SL3 Inline Reg Bottom Shaft4 Back (Body End)	 008	POPS Insert Outside SL3 inline Reg Adjuster Inside
 015	Shaft4 Back (Tip End) Bolt Bumper (Middle) NBR90	 7X1	Prop -Shaft Tip
		 007	POPS Insert External
		 006	Body Plug POPS Insert Inside (NBR 90) Feed Tube Swivel
		 005	POPS Insert Internal (NBR 90)
		 5X1	Solenoid Flow Restrictor (x2)
		 004	POPS Push Rod
		 4X1	Prop -Shaft Retaining Screw Front
		ALL O-RINGS ARE NBR 70 DUROMETER UNLESS OTHERWISE STATED.	

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ECLIPSE GREASE

The recommended grease for use in all maintenance and servicing procedures that require grease.



ECLIPSE OIL

The recommended oil for use in all maintenance and servicing procedures that require oil.



ECLIPSE GEO3 TOOL TUBE

This handy little tool tube includes all of the hex key sizes that you will need to strip and maintain your Geo3.



GEO3 SERVICING & SPARES

Contact your nearest service centre for all your service and spares needs. See the service centre list or interactive map at www.planeteclipse.com.



BALL DETENTS

10 Replacement rubber Detents for your Geo3.



ECLIPSE SHAFT4 BARREL KITS

A 2-piece Barrel Bore kit (includes .685 & .693 Barrel Backs). *COLOURS SUBJECT TO AVAILABILITY.*



THE ECLIPSE E-PORTAL

⚠ WARNING ⚠

DE-GAS YOUR MARKER, DISCHARGING ANY STORED GAS IN A SAFE DIRECTION, AND REMOVE THE BARREL, LOADER, AIR SYSTEM AND ANY PAINTBALLS TO MAKE THE MARKER EASIER AND SAFER TO WORK ON.

The Geo3 is compatible with Eclipse E-Portal Software. This software is an upgrade to the Geo3 platform. The Eclipse E-Portal Software, USB cable and USB daughter board are sold as a kit, separate from the Geo3.¹

The Eclipse E-Portal allows you to connect the Eclipse Geo3 to a PC, where a number of operations can be performed.²

UPDATE THE MARKERS FIRMWARE - from time to time new firmware may be released by Planet Eclipse. You can now download and install the latest firmware using the Eclipse E-Portal.

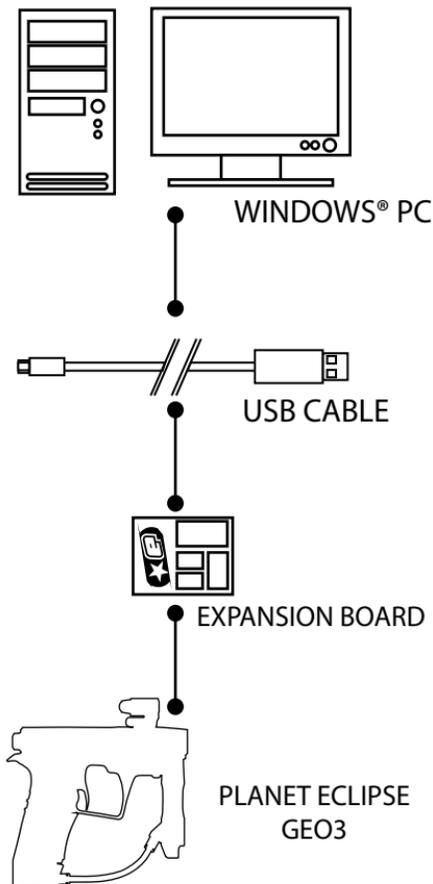
ALTER THE ELECTRONIC PARAMETERS - the Eclipse E-Portal will give you full access to all of the parameters on the Geo3 circuit board.

CUSTOMISE SCREEN GRAPHICS - Customise the boot up screen graphic.

¹If you already own an Eclipse E-portal kit (such as the kit included with the Eclipse SLS), this kit will be compatible with the Geo3.

²Minimum system requirements :

Monitor Resolution - 1024x768 or higher, CD-ROM drive, Keyboard, Mouse, USB socket, 5MB of hard disk space, 1GHz Processor, 384Mb RAM, Windows XP/Windows Vista/Windows 7, internet connection (required for software and firmware updates).



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This product is covered by and / or Licensed under one or more of the following patents;

G.B. Patents; 2,342,710; 2,345,953; 2,352,022; 2,391,292; 2,391,063;

U.S. Patents; 7,836,873; 7,603,995; 7,073,284; 8,104,463; 7,509,953; 7,921,839; 7,089,697; 7,866,307; 8,082,912; 7,076,906; 7,607,424; 7,980,238; 6,311,682; 6,748,938; 6,860,259; 6,941,693;
6,973,748; 5,881,707; 5,967,133; 6,035,843; 6,474,326; 6,637,421; 6,644,295; 6,810,871; 6,901,923; 7,121,272; 7,100,593; 7,610,908; 7,603,997; 7,946,285; 6,349,711; 7,044,119; 7,185,646;
7,461,646; 7,556,032; 7,591,262; 7,617,819; 7,617,820; 7,624,723; 7,640,925; 7,640,926; 7,866,308;

Application Numbers.

12/256,832; 12/613,958; 12/493,777; 11/654,721; 11/747,107; 12/503,504;
11/781,821; 60/832,548; 11/965,886; 10/280,115; 12/511,619; 13/182135;
13/334575; 13/165234

Additional U.S. and International Patents may be pending.