



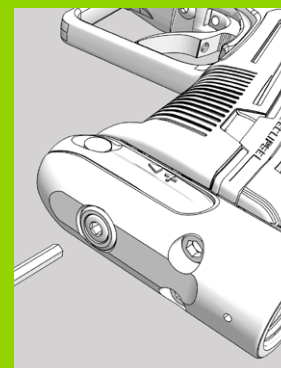
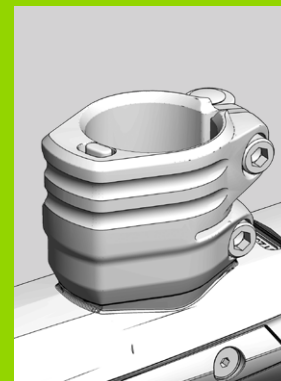
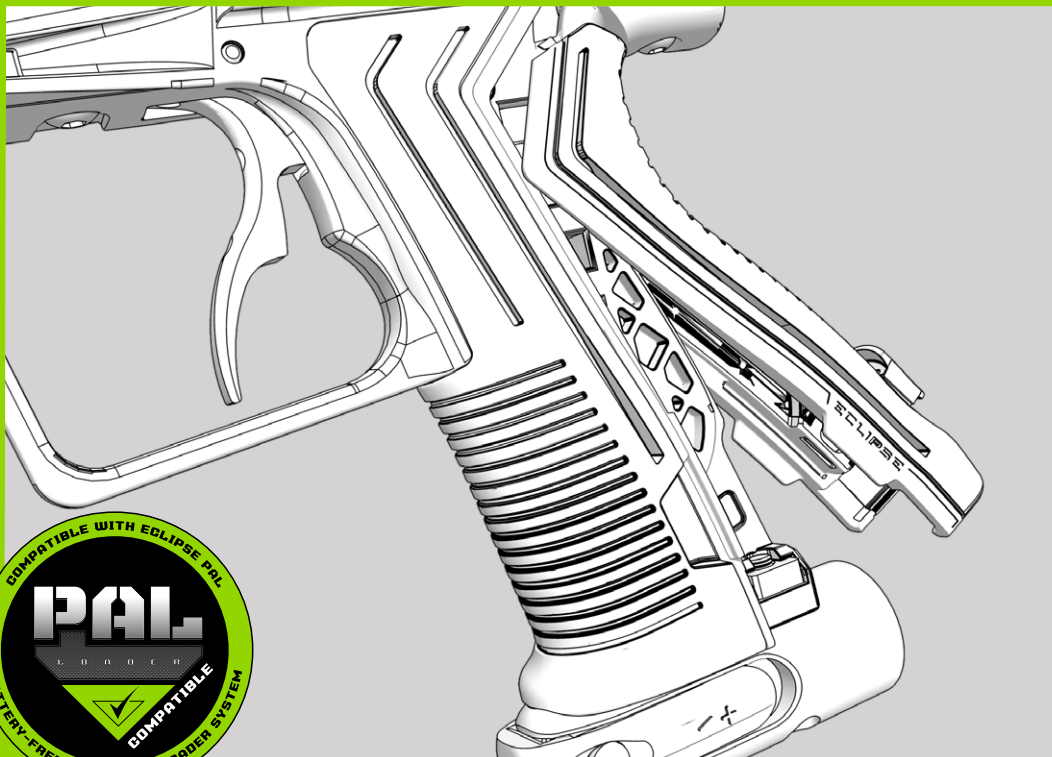
PLANET ECLIPSE: ETHA2 PAL

USER MANUAL / ENGLISH

ETHA [E]

.68 CAL










THE ETHA
EVOLVED




WARNINGS


READ CAREFULLY BEFORE USE


THE PLANET ECLIPSE ETHA2 IS NOT A TOY. PAINTBALL SAFETY RULES MUST BE FOLLOWED AT ALL TIMES.


-  Careless or improper use of the ETHA2, including failure to follow instructions and warnings within this User Manual could cause serious injury or death.
-  Do not remove or deface any warnings attached to the ETHA2.
-  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.
-  Hearing protection should be worn.
-  Never shoot at a person who is not wearing proper protection.
-  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 ETHA2 whilst the marker is switched on and able to fire.
-  Keep the ETHA2 switched off until ready to shoot.
-  Treat every marker as if it is loaded and ready to fire.
-  The electronic On/Off button is the marker's disabling device, also known as a safety. Always switch off the marker when not in use.


 Always fit a barrel-blocking device to the ETHA2 when not in use.


 Always remove paintballs from the ETHA2 when not in use.


 Do not field strip or remove any parts while the marker is pressurised.


 Do not pressurise the ETHA2 without all the components of the marker correctly installed, as high-pressure gas may be emitted.


 Do not fire the ETHA2 without the bolt correctly installed.

 Never put your finger or any foreign objects into the paintball feed tube of the ETHA2.


 Never allow pressurised gas to come into contact with any part of your body.

 Always remove the first stage regulator and relieve all residual gas pressure from the ETHA2 before disassembly.

 Always remove the first stage regulator and relieve all residual gas pressure from the ETHA2 for transport and storage.

 Always follow guidelines given with your first stage regulator for safe transportation and storage.

 Always store the ETHA2 in a secure place.

 Observe all local and national laws, regulations and guidelines.



WARNINGS

READ CAREFULLY BEFORE USE

- ⚠ Persons under 18 years of age must have adult supervision when using or handling the ETHA2.
- ⚠ Use only professional paintball fields where codes of safety are strictly enforced.
- ⚠ Use compressed air/nitrogen only. Do not use any other compressed gas or pressurised liquid including CO2.
- ⚠ Always follow instructions, warnings and guidelines given with any first stage regulator you use with the ETHA2.
- ⚠ Use 0.68 inch calibre paintballs only.
- ⚠ Always measure your marker's velocity before playing paintball, using a suitable chronograph.
- ⚠ Never shoot at velocities in excess of 300 feet (91.44 metres) per second, or at velocities greater than local or national laws allow.
- ⚠ Any installations, modifications or repairs should be carried out by a qualified individual at a licensed and insured paintball facility.

WARNING!

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.



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 mode d'emploi, demandez conseil à un expert.



Este manual de usuarios (operarios)

Usuarios 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.

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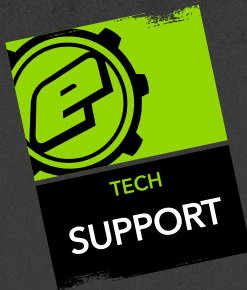
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PLEASE NOTE

Most ETHA2 diagrams throughout this manual show the standard ETHA2 feed neck and not the PAL feed neck. This does not affect any specific instructions.



WE GOT YOUR BACK!!!

OUR ARMY OF PLANET ECLIPSE PRO TECHS ATTEND PAINTBALL EVENTS ALL OVER THE WORLD TO MAKE SURE THAT YOU AND YOUR ECLIPSE MARKER ARE FIRING ON ALL CYLINDERS, AT ALL TIMES, IN ALL GAME SCENARIOS.



FOLLOW OUR OFFICIAL PLANET ECLIPSE SOCIAL MEDIA CHANNELS TO KEEP UP TO DATE WITH OUR TECH SUPPORT EVENTS CALENDAR.

QUICK START

SETTING UP THE ETHA2

FIG-1

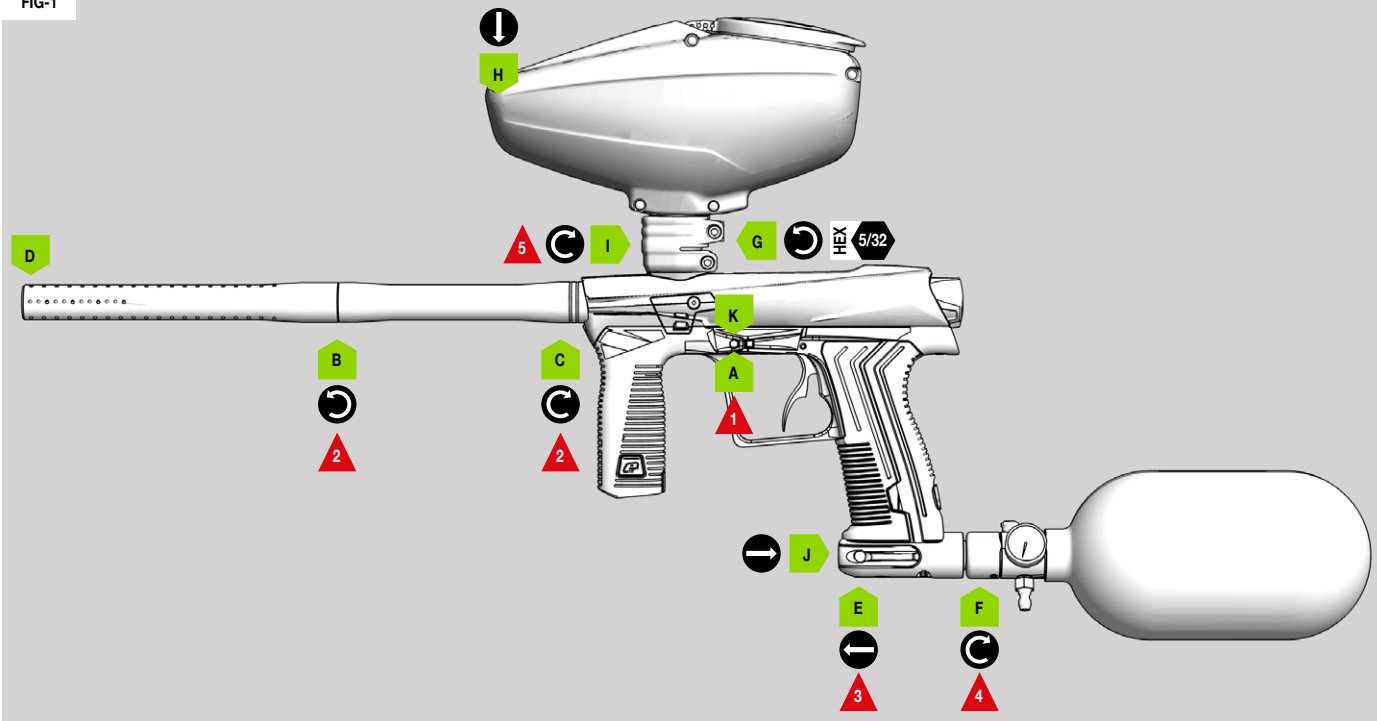


FIG-1

- A Ensure the marker is switched off before you begin.**
- B Screw both ends of the barrel together.**
Screw the barrel tip counter-clockwise onto the barrel back.
- C Screw the complete barrel to the marker.**
The barrel back screws clockwise into the marker body.
- D Attach barrel blocking device for safety.**
- E Ensure the marker is de-gassed.**
Push and hold the POPS button and pull the POPS switch away from the POPS body.
- F Attach the preset air system.**
Screw the air system clockwise into the POPS body.
- G Loosen the PAL clamping feed neck.**
Open the feed neck lever away from the feed neck.
Unscrew the feed neck lever screw counter-clockwise.
- H Attach the loader.**
If the feed neck is too tight, loosen the clamping feed neck more.
- I Secure the loader.**
Close the feed neck lever to secure.
Screw the feed neck lever screw clockwise to tighten.
- J Gas the marker.**
Push the POPS switch into the POPS body until it engages.
- K Switch on the ETHA2.**

- 1 IMPORTANT!** To switch On/Off see page 8.
- 2 DO NOT** over-tighten the barrel.
- 3 IMPORTANT!** Always ensure marker is de-gassed when setting up.
- 4 NEVER** use CO2. Only use compressed air or Nitrogen.
- 5 DO NOT** over-tighten the feed neck. This may damage the ETHA2.

WARNING!



Always make sure that the marker is off with a barrel blocking device installed and that no paintballs are in the ETHA2 or loader before installing an air system.

Compressed air and nitrogen systems can be extremely dangerous if handled or used incorrectly.

Only attach an air system certified for use within the country of use.

Never add lubricants or grease into the fill adaptor 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 ETHA2 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 ETHA2 until you feel confident with your ability to handle the marker safely and responsibly.

08

QUICK START SWITCHING THE ETHA2 ON/OFF

The frame **A** houses the On/Off button **B** and the status indicator **C**. Use the On/Off button to switch the ETHA2 On/Off.

FIG-1

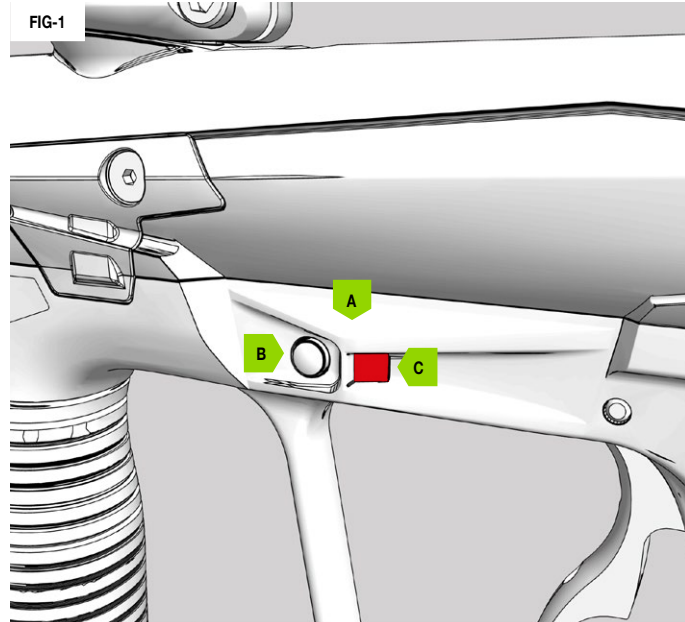
To switch the ETHA2 on press and hold the On/Off button. Release the On/Off button when the status indicator lights up.

On power up, if the ETHA2 is unable to load its previous settings it will restore the factory settings. If this happens, the LED will flash RED (error), then BLUE factory reset).

To switch the ETHA2 off press and hold the On/Off button. Release the On/Off button when the status indicator turns red. The ETHA2 will now switch off.

Firing the ETHA2

Pull the trigger to fire the ETHA2. If the marker is able to fire then it will do so.



QUICK START

STATUS INDICATOR

FIG-1

The status indicator is visible on each side of the ETHA2 and is used to indicate a number of different things.

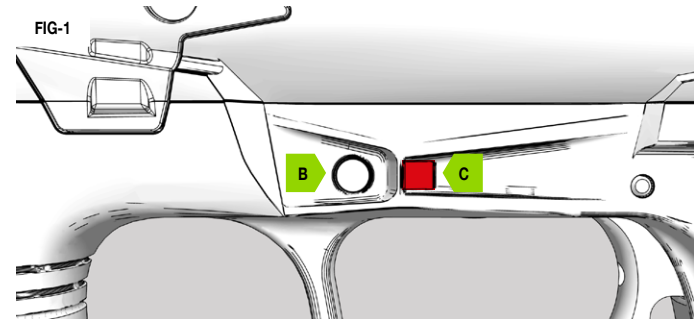
Breach sensor status

After power up the ETHA2's status indicator **C** will display the status of the breach sensor (BS). The breach sensor (BS) is used to detect paintballs in the breach of the marker.

To switch the BS on/off hold the On/Off button **B** for a second (when the marker is switched on) until the status indicator **C** changes colour.

The table below shows each LED colour and its relevant BS status.

LED COLOUR	BREACH SENSOR (BS) STATUS
FLASHING YELLOW	BS enabled. NO paintball detected. Marker WILL NOT fire.
FLASHING LIGHT BLUE	BS enabled. Paintball detected. Marker WILL fire.
FLASHING PURPLE (SLOW)	BS disabled. Marker WILL fire.
FLASHING PURPLE (FAST)	Blockage detected. BS disabled. Marker WILL fire.
RED	Replace battery. Marker may or may not fire.



Battery status

- 1 Tap the On/Off button **B**.
- 2 The status indicator **C** will indicate the status of the battery for 2 seconds (see the table below for battery status colour information).

LED COLOUR	BATTERY STATUS
GREEN	Battery level is good.
YELLOW	Battery level is low.
RED	Replace the battery.
FLASHING RED	Insufficient energy, replace battery immediately.

The status indicator also indicates the various marker parameter settings. See pages 16-17.

WARNING!



When the battery indicator is being displayed the marker is still on and will fire if the trigger is pulled - depending on the BS status.

Do not dry fire/shoot the marker without paintballs. Prolonged dry firing may lead to damage/wear of the internal components of the marker.

10 QUICK START

VELOCITY ADJUSTMENT

FIG-1

Insert a 1/8 hex key **A** into the velocity adjuster screw **B** to alter the velocity of the ETHA2.

- 1 Turn the hex key clockwise to reduce velocity.
- 2 Turn the hex key counter-clockwise to increase velocity.
- 3 Fire two clearing shots after each velocity adjustment for an accurate velocity reading.

1 **DO NOT** turn the adjuster screw in too far. This will prevent the ETHA2 from firing.

WARNING!

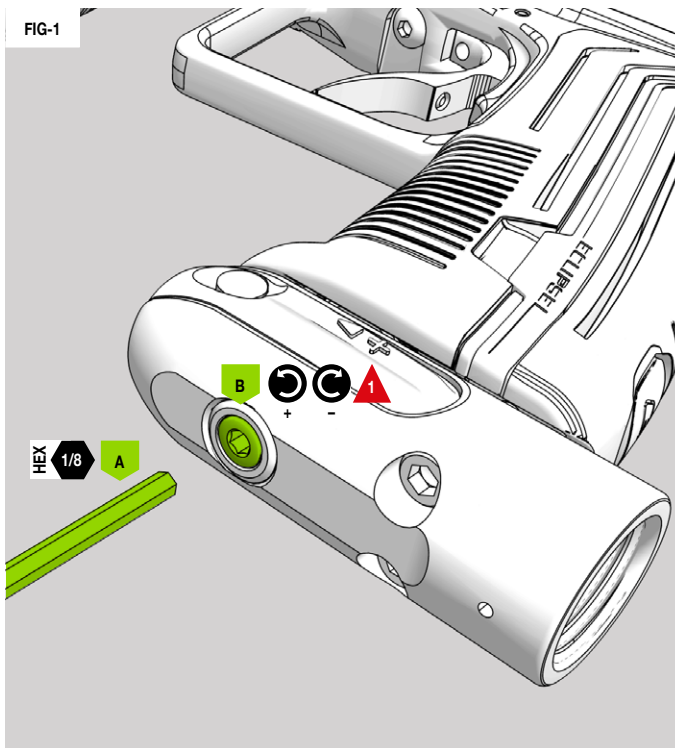


DO NOT exceed 300FPS.

ALWAYS wear correct protective equipment when firing your marker.

NEVER point your marker in the direction of other people when not on the field.

ALWAYS be aware of where the barrel is facing when adjusting the velocity.



QUICK START

TRIGGER ADJUSTMENT

FIG-1

The pre-travel screw **A** adjusts the distance the trigger travels before the microswitch is actuated. Clockwise reduces the amount of travel (shortening the trigger), counter-clockwise increases the trigger pre-travel distance.

The trigger spring screw **B** adjusts the spring strength of the trigger return. Clockwise increases the spring strength, counter-clockwise reduces the spring strength.

The post-travel screw **C** adjusts the distance the trigger travels once the microswitch has been actuated. Clockwise reduces the amount of travel (shortening the trigger), counter-clockwise increases the trigger post-travel distance.

WARNING!

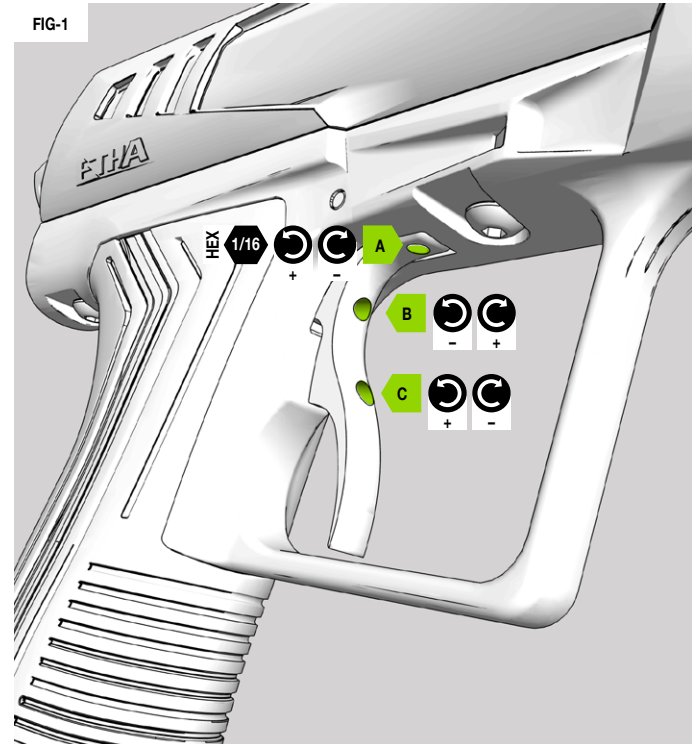


Always make sure the marker is OFF and de-gassed with a barrel blocking device installed and that no paintballs are in the ETHA2 or loader before adjusting the trigger.

Do not wind the screws in too far as this may prevent the ETHA2 from firing or even damage the marker.

If the pre-travel screw is wound in too far this could cause the ETHA2 to fire unintentionally.

FIG-1



QUICK START

UNLOADING THE ETHA2

FIG-1

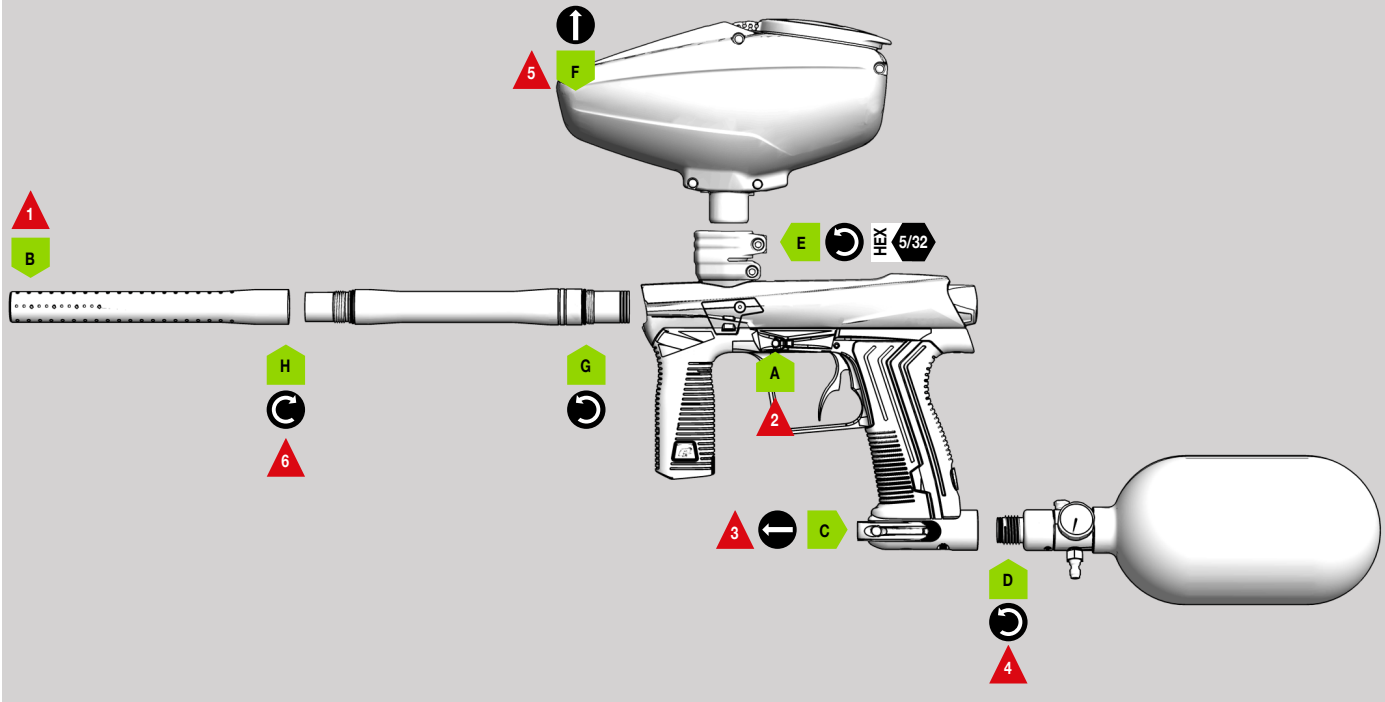


FIG-1

A Switch the marker off.

B Ensure that a barrel blocking device is fitted for safety.

C De-gas the marker.

Push and hold the POPS button and pull the POPS switch away from the POPS body.

D Remove the Preset air system.

Unscrew the air system counter-clockwise from the POPS body.

E Loosen the PAL clamping feed neck.

Open the feed neck lever away from the feed neck.
Unscrew the feed neck lever screw counter-clockwise.

F Remove the loader.

If the feed neck is too tight, loosen the clamping feed neck more.

G Remove the barrel from the marker body.

Unscrew counter-clockwise to remove.

H Remove the barrel tip from barrel back.

Unscrew clockwise to remove.

1 IMPORTANT! Take extra precaution to avoid injury.

2 IMPORTANT! To switch On/Off, see page 8.

3 IMPORTANT! Always de-gas before unloading.

4 IMPORTANT! Always remove air system before unloading.

5 IMPORTANT! Always remove any paintballs from the breech of the marker once the loader has been removed.

6 IMPORTANT! Unscrew the barrel tip CLOCKWISE from the back.

WARNING!



Always make sure that the marker is off with a barrel blocking device installed and that no paintballs are in the ETHA2 or loader before unloading.

Compressed air and nitrogen systems can be extremely dangerous if handled or used incorrectly.

NEVER leave the ETHA2 gassed up when unloading.

NEVER point your marker in the direction of other people when not on the field.

Remove any paintballs from the breech before storing your ETHA2.

QUICK START

STORAGE AND TRANSPORTATION

- 1 Your ETHA2 must be clear of all paint and propellant during transportation or storage.
- 2 Make sure that the ETHA2 marker is switched off.
- 3 Remove the barrel from the marker.
- 4 Make sure the marker is clean of any paint residue, dirt and moisture.
- 5 Store your ETHA2 in a clean, cool, dry place.
- 6 Keep your ETHA2 away from any unauthorized or unsafe users.
- 7 Remove the battery when storing your ETHA2 to prevent unauthorized use.
- 8 Protect your ETHA2 from excessive heat during transportation.
- 9 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.
- 10 Observe and obey all local and national laws concerning the transportation of paintball markers.
- 11 Use the box in which the marker was originally supplied to protect the marker against rough handling during transport.

WARNING!

Never carry your ETHA2 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 ETHA2 (or any other paintball marker) in a suitable marker case such as the one in which it was supplied.



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MAINTENANCE ONLINE MAINTENANCE VIDEOS

To help demonstrate how to maintain and service essential parts of the ETHA2 we've created a collection of dedicated marker maintenance videos to guide the user.

From basic to more advanced parts of the ETHA2, **We Got Your Back!**

Head over to our official Planet Eclipse YouTube Channel and check out our **Eclipse Tech Hub** playlist for more.

> youtube.com/planeteclipse



16 **ELECTRONICS** THE SET-UP MODE

To modify the ETHA2 control parameters you must first enter the set-up mode:

- 1 Fully depress and hold the trigger.
- 2 Switch on the ETHA2.
- 3 The status indicator should flash WHITE.
- 4 Release the trigger.

If the status indicator flashes RED then access to set-up is denied because the tournament lock is still on. Turn off the tournament lock (page 31) and try again.

Once in set-up mode, use the trigger to cycle through the parameters, indicated by the colour of the status indicator (see table below). Quickly press the On/Off button to display the current parameter value.

LED COLOUR	PARAMETER	RANGE
RED	Preset	1 to 4
GREEN	Maximum ROF with BS on (capped modes only)	4.0 to 15.0 bps
BLUE	Maximum ROF with BS off	4.0 to 15.0 bps
PURPLE	Dwell	18 to 28
LIGHT BLUE	Debounce	1 to 10

A long LED flash indicates the unit, whilst a short LED flash indicates the tenth. E.g., 5 long flashes and 3 short flashes would indicate 5.3.

Modifying a parameter:

- 1 Enter the set-up mode.
- 2 Select a parameter using the trigger.
- 3 Push and hold On/Off button for 1 second to select.
- 4 The LED will go off.
- 5 Increase the unit value using the trigger, one pull per unit.¹
- 6 Push the On/Off button to switch to tenths values.²
- 7 Increase the tenths value using the trigger, one pull per tenth. Do not pull the trigger if the value should be 0.
- 8 Push the On/Off button to confirm. The status indicator will flash 3 times: GREEN if the value is accepted, RED if the value is invalid. If the status indicator was red then try again.
- 9 Push and hold the On/Off button until the status indicator turns BLUE to exit set-up mode.

To reset all of the parameters to their factory-set default values press and hold the tournament lock button for 2 seconds while in set-up mode. The status indicator will flash BLUE when the parameters have been reset.

- 1 The settings will return to their previous saved values if you do not pull the trigger for 5 seconds.
- 2 If a parameter does not support tenths, this will be skipped.

The Preset parameter is used to quickly set up the ETHA2 to operate within the rules of the most common paintball leagues. Simply set the Preset parameter to the required value as shown in the table below.

VALUE	MODE	DESCRIPTION
1	SEMI ∞	Uncapped Semi-Automatic: one shot per trigger pull with no rate of fire cap.
2	SEMI 15.0	Capped Semi-Automatic: one shot per trigger pull with a 15.0 bps cap.
3	WPBO	WPBO / NXL / Millennium Series compliant ramping* with a 10.2 bps cap.
4	PSP	PSP compliant ramping with a 10.2 bps cap.

*NOTE: At the time of writing, the WPBO preset covers both the NXL and Millennium Series leagues.

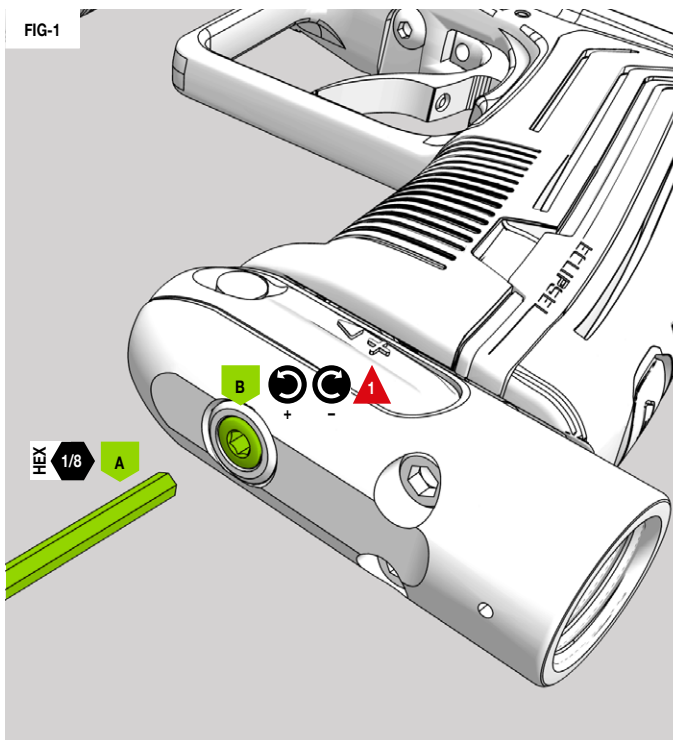
The rate of fire caps used by the presets are safe values to allow for variations in rate of fire measuring equipment. To change the rate of fire, first set the preset parameter and then set the two maximum ROF parameters (GREEN and BLUE).

It is important that the ETHA2 is set-up as per factory standards before use. To restore to factory settings, follow these steps.

FIG-1

- 1 Enter set-up mode (see page 16). Reset all of the parameters to their factory-set default values by pressing and holding the tournament lock button for 2 seconds (see page 31). The status indicator will flash BLUE when the parameters have been reset.
- 2 Using the 1/8 hex key **A** turn the inline regulator screw **B** 4 turns clockwise from it's fully screwed-out position.

⚠ DO NOT turn the adjuster screw in too far. This will prevent the ETHA2 from firing.



RESET

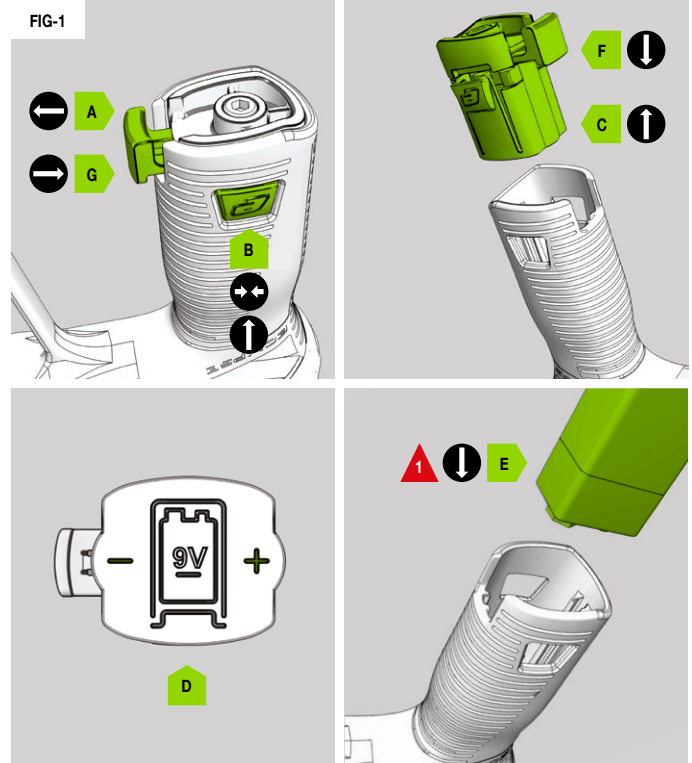
INSTALLING A 9V BATTERY

The ETHA2's lock n' load battery system is located in the foregrip and makes changing your battery easy.

FIG-1

- 1 Pull out the bottom locking tab **A**.
- 2 Push and hold the side locking tabs **B**.
- 3 With the side locking tabs held firmly, pull the battery base **C** out of the bottom of the foregrip and remove.
- 4 The battery base has a positional diagram **D** to show the correct orientation of the battery and terminals.
- 5 Install your 9V battery ensuring the terminal position is correct **E**.
- 6 Replace the battery base **F**, ensuring the side tabs click and lock into place.
- 7 Push the bottom locking tab **G** back in place to lock the unit.

1 **DO NOT** use rechargeable or poor quality batteries.



FAULT FINDING

FAULT FINDING TABLES

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Although a fresh battery has been fitted, the ETHA2 will not switch on.	The battery has drained on the shelf.	Replace with another battery.
	The battery is inserted the wrong way into the battery housing.	Remove the battery and check the polarisation of the battery and terminals using the indicators on the battery and the battery housing plug.
The battery does not seem to last very long.	The battery type is of a low quality.	Use an alkaline or lithium battery. Do not use a low quality or rechargeable battery.
The ETHA2 leaks from the solenoid.	The gasket between the solenoid body and gun body, o-ring on air transfer pipe or the gasket under the solenoid plate are damaged or dirty.	Ensure the gasket is seated correctly. Replace the gaskets if damaged using ETHA2 parts kit. Check condition of the air transfer pipe 010 NBR70 o-ring.
	Solenoid valve is over-pressurised.	Check the output pressure of the inline regulator and adjust accordingly. Clean and inspect the inline regulator assembly paying particular attention to the piston tip and regulator seal. Replace damaged components as necessary.
	Damaged or incorrect seals on the solenoid spool.	Replace and/or lubricate solenoid spool seals.
	Damaged ETHA2 SMC solenoid pilot valve.	Replace the ETHA2 SMC solenoid pilot valve.
The ETHA2 leaks down the barrel.	Dirty or damaged can o-rings.	Clean and lubricate or replace 020 NBR70 and 017 NBR o-rings on the front of the can.
	Dirty or damaged o-rings on the spool.	Clean and lubricate or replace the 011 NBR70 and 012 NBR70 o-rings on the main spool.
	Dirty or damaged bolt o-rings.	Clean and lubricate or replace 14x2 NBR70 o-ring on the back of the bolt.
	Dirty or damaged rear bolt guide o-ring.	Clean and lubricate or replace 14x2 NBR70 o-ring towards the back of the bolt guide.



FAULT FINDING

FAULT FINDING TABLES

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Low rate of fire/rate of fire not reaching the ROF cap.	The force setting of the loader is too low.	Adjust the loader force feed setting.
	The breech sensor is defaulting and reducing the ROF.	Check the position and condition of the breech sensors. Clean or replace the breech sensor light pipes as required.
The marker is breaking paintballs in the barrel or breech.	The ball detents are damaged or missing.	Replace the ball detents.
	The force setting of the loader is too high.	Reduce the loader force feed setting.
	The paint is poor quality.	Try a higher grade of paint.
	The breech sensor is switched off.	Switch on the breech sensor.
	The bolt and/or breech sensor is dirty	Clean the bolt and breech sensor/light pipes.
	The velocity is set too high.	Check and adjust the velocity of the ETHA2.
The ETHA2 does not fire.	The ETHA2 is not powered on.	Power up the ETHA2 using the On/Of button.
	The POPS is not fully engaged.	Push in the POPS switch until it engages.
	The battery quality or charge level is very low.	Install new high quality alkaline or lithium battery.
	The battery is flat.	Replace the battery.
	The DWELL parameter is set too low.	Increase the DWELL parameter.
	The trigger is set-up incorrectly.	Adjust trigger correctly to fully open and close the microswitch.
	The solenoid is not plugged into the ETHA2 PCB.	Plug solenoid wire into port on the ETHA2 PCB.
	The breech sensor is enabled but there is no paint in the breech.	Fill loader with paint. Ensure loader is feeding paintballs into the breech.
	The PCB is damaged.	Replace PCB.
The solenoid pilot valve is damaged.	Replace solenoid pilot valve.	

FAULT FINDING

FAULT FINDING TABLES

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Low constant velocity.	The inline regulator output pressure set too low.	Increase the output pressure of the inline regulator.
High velocity first shot.	The inline regulator pressure is creeping.	Strip and clean the inline regulator replacing the regulator seal inside the regulator adjuster assembly.
Velocity drop-off during rapid fire.	The battery quality or charge level is low.	Install a new high quality alkaline or lithium battery.
	Air system regulator does not have high enough flow.	Try another air system.
	Dirty/partially blocked inline regulator.	Strip, clean, lubricate and rebuild the inline regulator.
The trigger is very "bouncy".	Incorrect filter settings.	Check that your DEBOUNCE settings suit your trigger set-up.
	The trigger pull is too short and the return strength is too low.	Refer to using the ETHA2 section for guidelines of how to adjust your ETHA2 trigger accordingly.
The breech sensor is not reading correctly.	The breech sensor light pipes are dirty.	Keep the breech sensor light pipes clean to ensure correct readings.
	One of the breech sensor covers is not fitted correctly.	Fit the breech sensor covers correctly.
	The breech sensors mounted on the main board are damaged or bent.	Check that the breech sensors are pointing outwards. Make sure breech sensor legs are not broken.
The breech sensor turns itself off after firing and the display shows that there is a fault with the breech sensor.	The sensor or light pipes are dirty.	Clean the breech sensor and light pipes.
	The sensors are faulty.	Replace the main board.
	The sensors are out of place.	Make sure the sensors are pointing outwards.



FAULT FINDING

FAULT FINDING TABLES

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Two or more balls are being fed into the breech.	Worn, damaged or missing ball detents.	Change the rubber ball detent.
	The feed force too high from loader.	Adjust loader settings/use lower force loader.
ETHA2 is inconsistent.	The inline regulator is dirty.	Strip and clean inline regulator, replace regulator seal.
	The Dwell is too low.	Increase the Dwell setting.
	Poor quality paintballs.	Use better quality paintballs.
	Poor paintball size to barrel bore match.	Use a closer paintball to barrel bore size.
ETHA2 is inefficient.	Inconsistent air supply from air system.	Service the air system.
	Poor paintball size to barrel bore match	Use a closer paintball to barrel bore size.
When the ETHA2 powers up the Status indicator flashes WHITE or RED.	The trigger is being pulled.	Release the trigger before powering on the ETHA2.
	Microswitch is permanently depressed by an incorrectly set trigger.	Adjust the trigger so that when the trigger is at rest the microswitch is not being activated.

If an issue with the ETHA2 cannot be solved using the fault finding guide, contact your nearest Eclipse Service Centre for assistance.

FIG-1

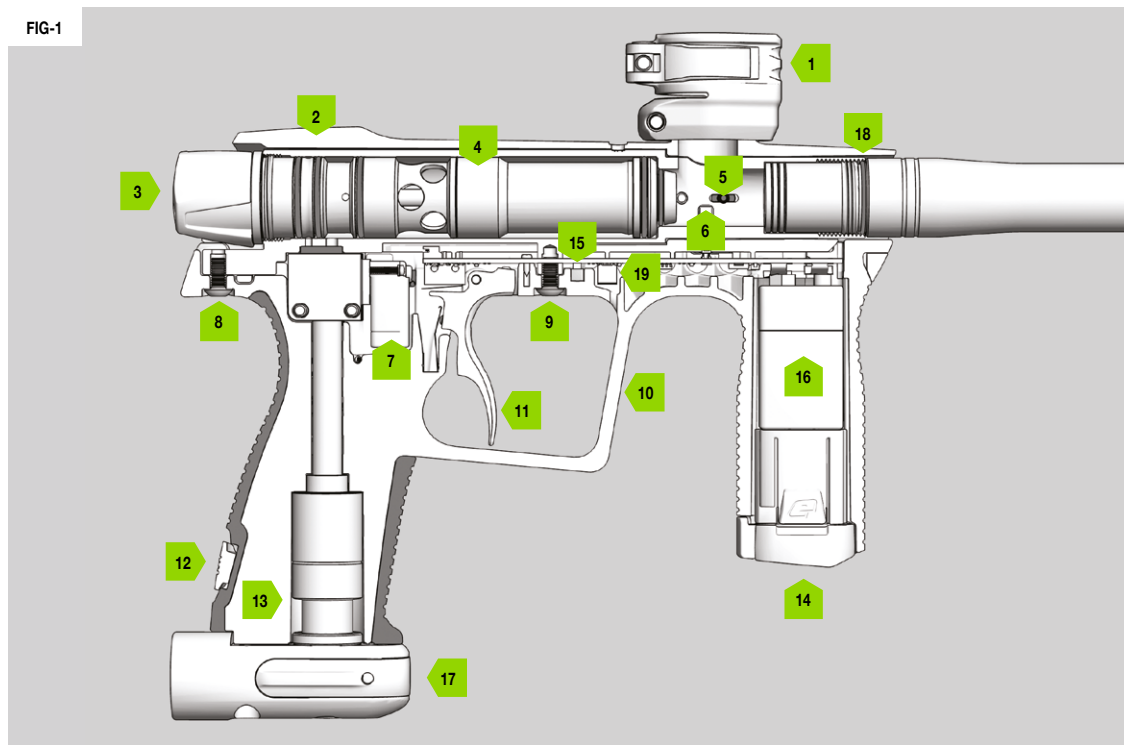
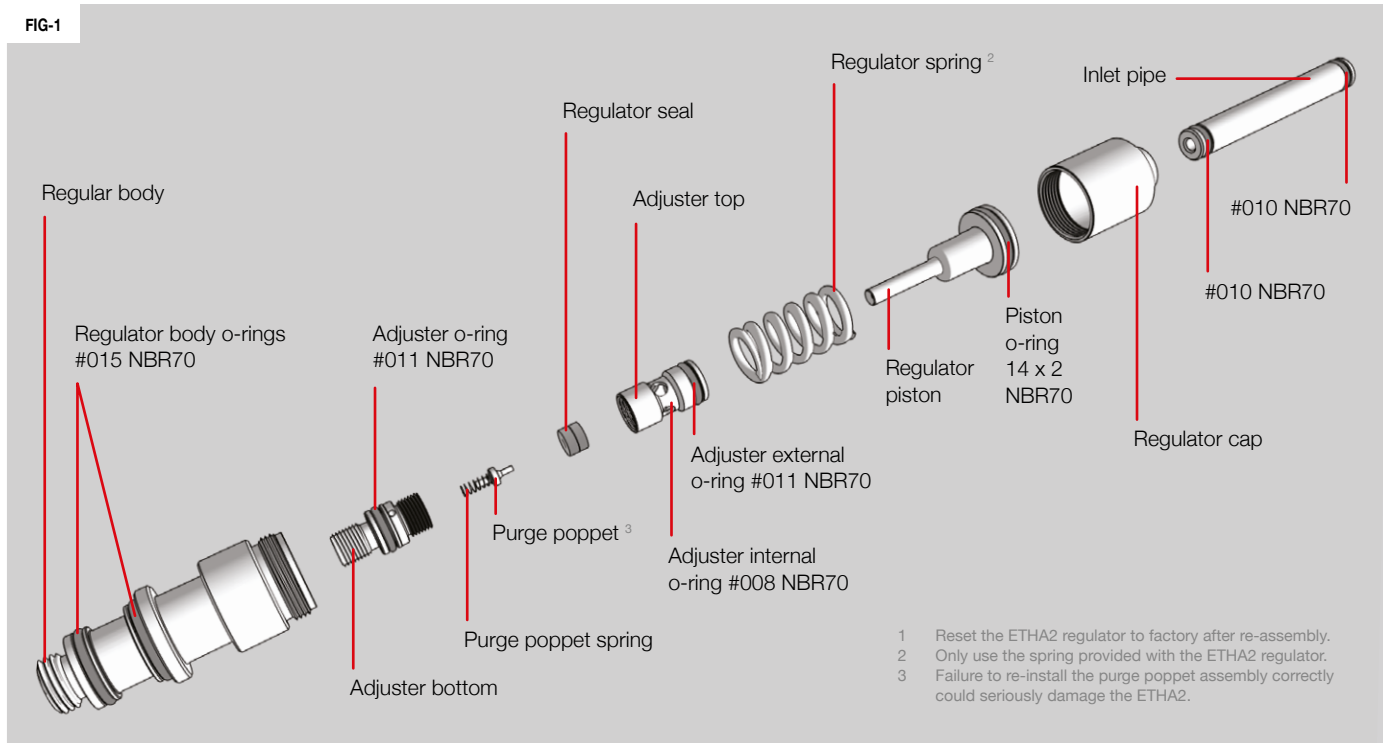


FIG-1

- 1 PAL clamping feed neck assembly
- 2 Marker body shell
- 3 Back cap
- 4 Gamma Core bolt assembly
- 5 Rubber detent
- 6 Breech sensor (BS) unit
- 7 Solenoid assembly
- 8 Rear frame screw
- 9 Front frame screw
- 10 Frame assembly
- 11 Trigger assembly
- 12 Grip retaining clip
- 13 ETHA2 regulator assembly
- 14 Lock n' load battery housing
- 15 LED prism
- 16 9V battery
- 17 POPS assembly
- 18 Barrel o-ring #016 NBR70
- 19 On/Off button (left side only)

FIG-1



TECHNICAL GAMMA CORE BOLT ASSEMBLY

FIG-1

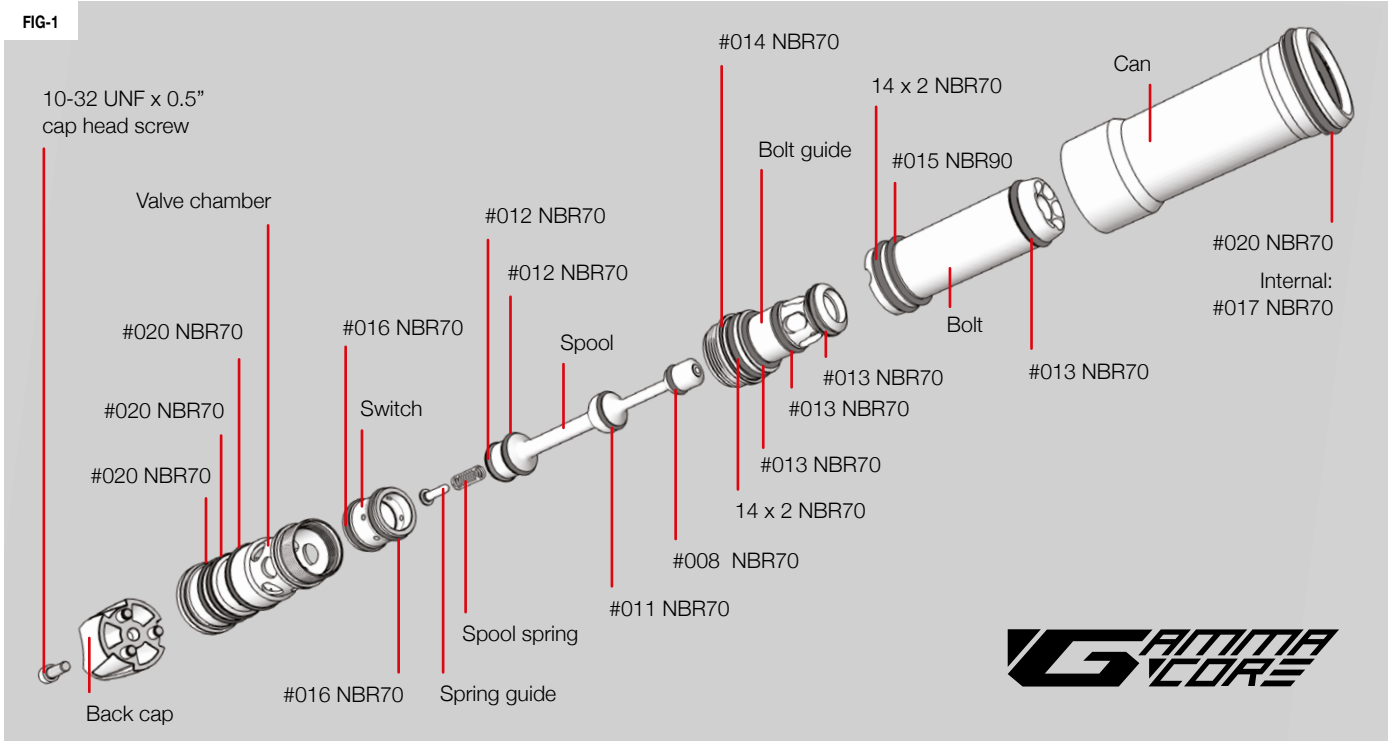
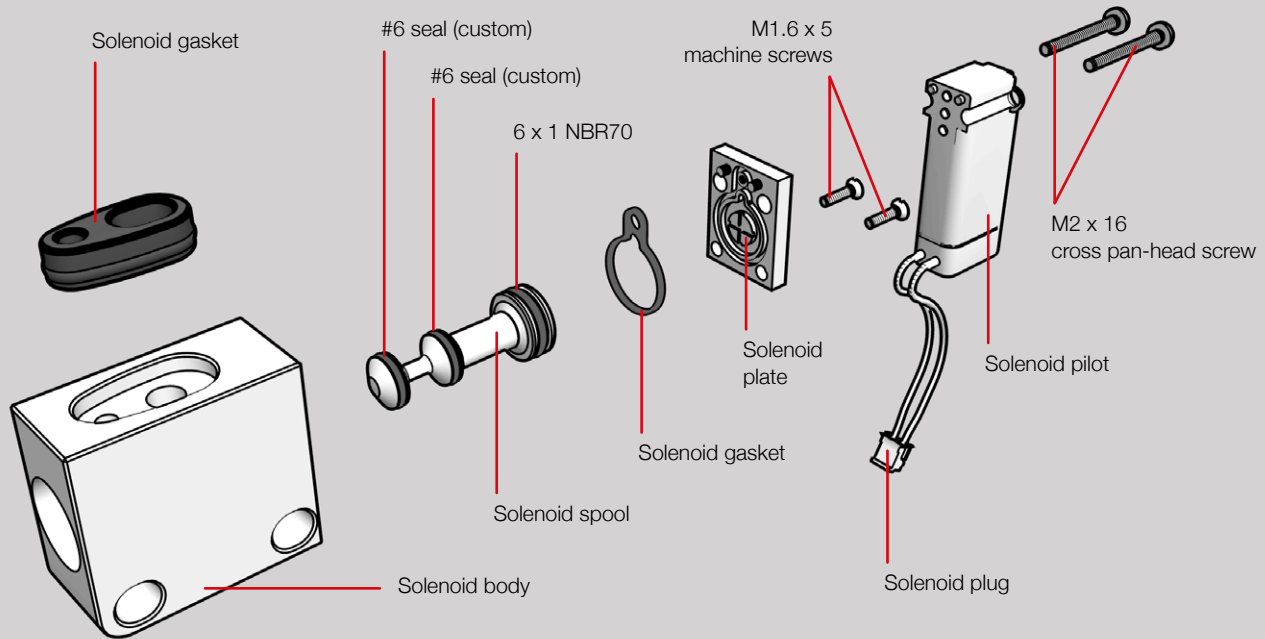
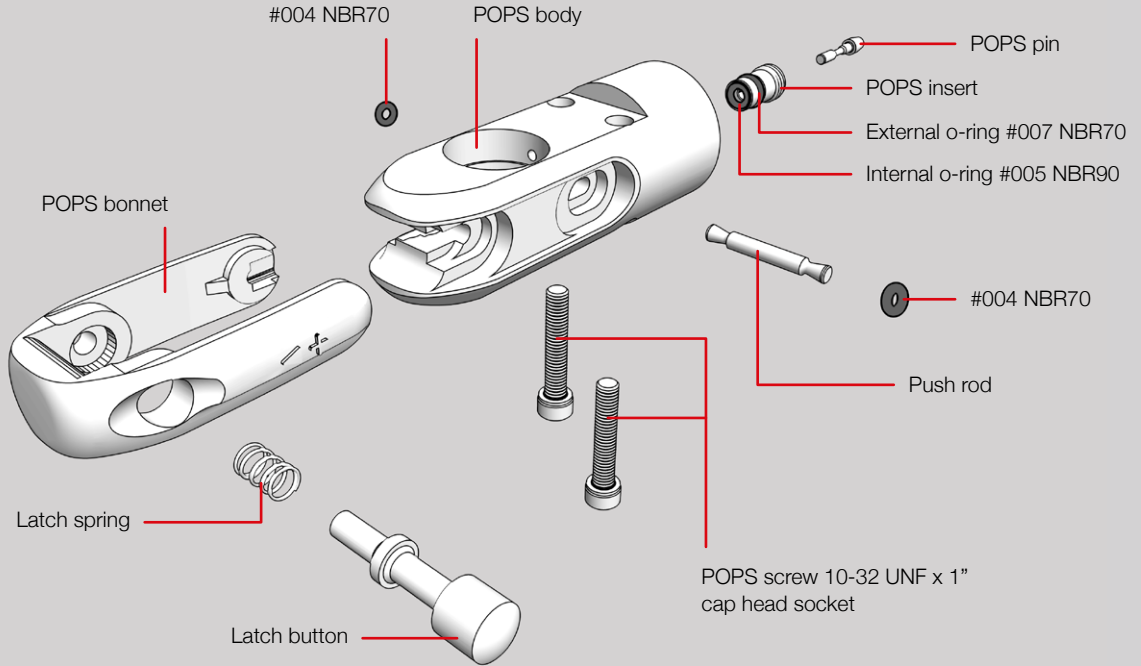


FIG-1



TECHNICAL PUSH ON PURGE SYSTEM (POPS) ASSEMBLY

FIG-1



TECHNICAL

BREECH SENSOR (BS) ASSEMBLY

FIG-1

Use a 5/64" (2mm) hex key **1** to remove the breech sensor screws **2** by unscrewing counter-clockwise. This will release the breech sensor covers (see Fig-2).

FIG-2

- 1** Breech cover screw
6-32UNC x 5/16
countersunk socket screws
- 2** Breech sensor cover
- 3** Breech sensor
- 4** Rubber detent
- 5** Light pipe

The elements within this diagram apply to both sides of the marker.

FIG-1

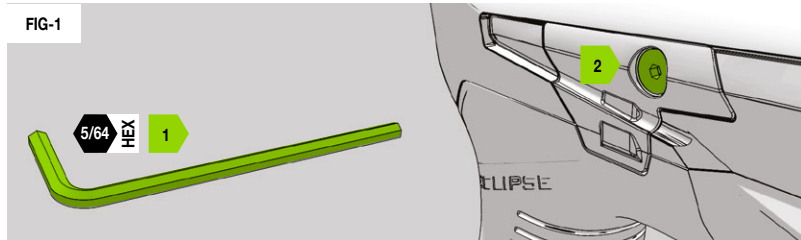
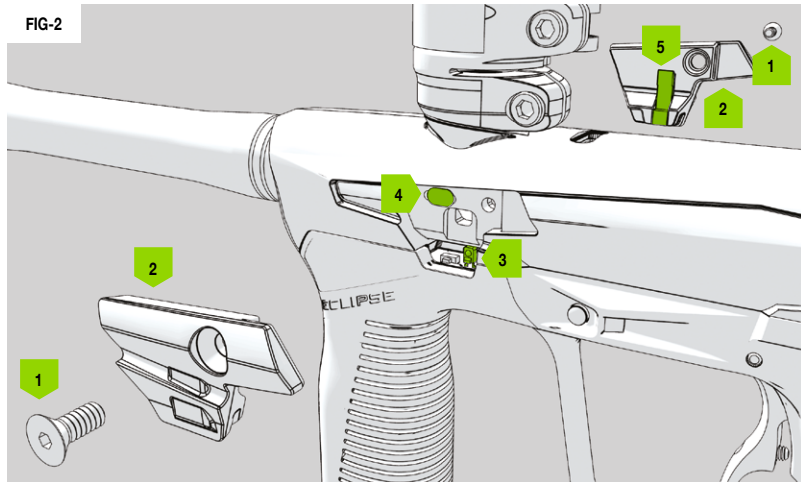


FIG-2



The tournament lock button **2** sits behind the breach sensor cover **1** on the left hand side of the ETHA2.

FIG-1

- 1** Breach sensor cover
- 2** Tournament lock button

To lock/unlock the ETHA2 press the tournament lock button once and you will be able to alter/lock the marker settings.

See pages 16-17 for parameter settings and status indicator.

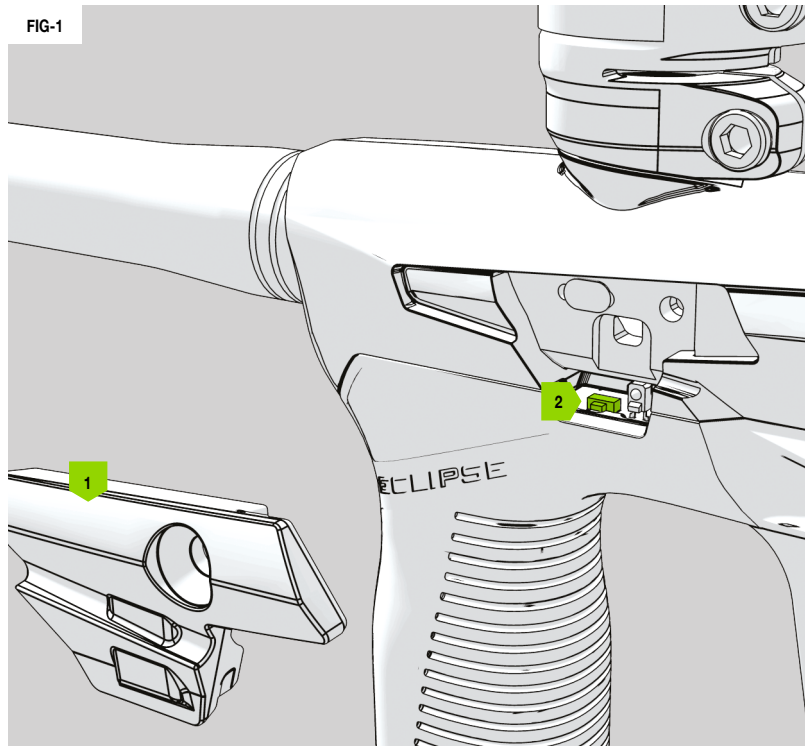


FIG-1

- 1 LED prism
- 2 Push button
- 3 3x1 NBR70 o-ring
- 4 Frame assembly
- 5 Solenoid body pins and 3x1 NBR70 o-ring
- 6 Front frame screw
- 7 Rear frame screw
- 8 POPS retaining nut
- 9 Trigger pin
- 10 Trigger assembly
- 11 Trigger spring
- 12 ETHA2 circuit board
- 13 Circuit board retaining screw

FIG-1

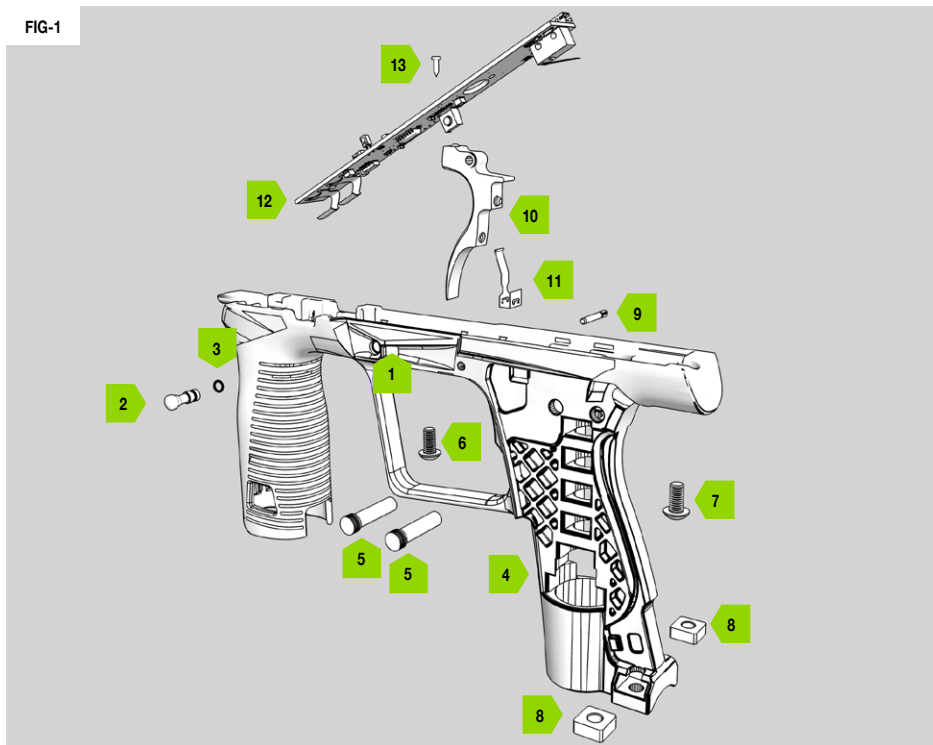


FIG-1 ETHA2 circuit board top

- 1 ETHA2 circuit board
- 2 Tournament lock button
- 3 Breech sensors
- 4 Solenoid connector

FIG-2 ETHA2 circuit board bottom

- 1 9V battery terminals
- 2 Push button switch
- 3 LED unit
- 4 Microswitch

FIG-1

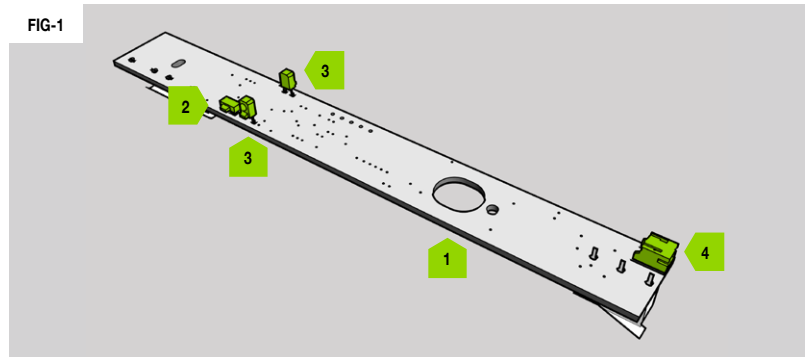
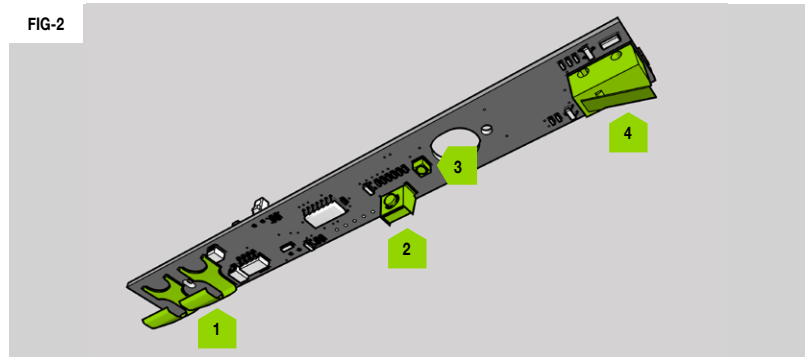


FIG-2

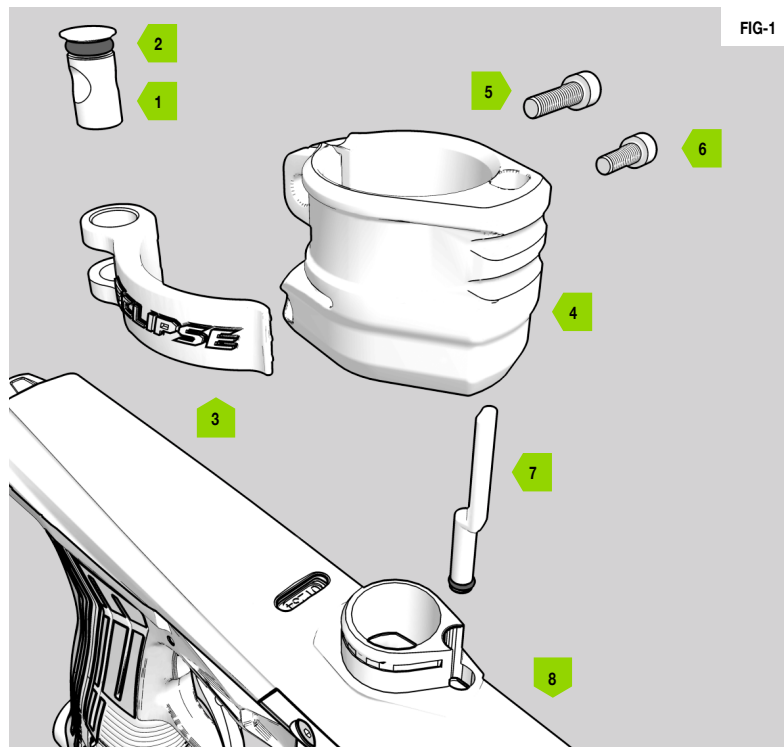


TECHNICAL

PAL CLAMPING FEED NECK ASSEMBLY

FIG-1

- 1 Feed swivel
- 2 Feed swivel o-ring
#006 NBR70
- 3 Feed lever
- 4 PAL feed tube
- 5 Long clamping feed screw
10-32 UNF x 5/8"
- 6 Short clamping feed screw
10-32 UNF x 1/2"
- 7 Plunger
- 8 Marker body



TECHNICAL

TWO-PIECE GRIPS

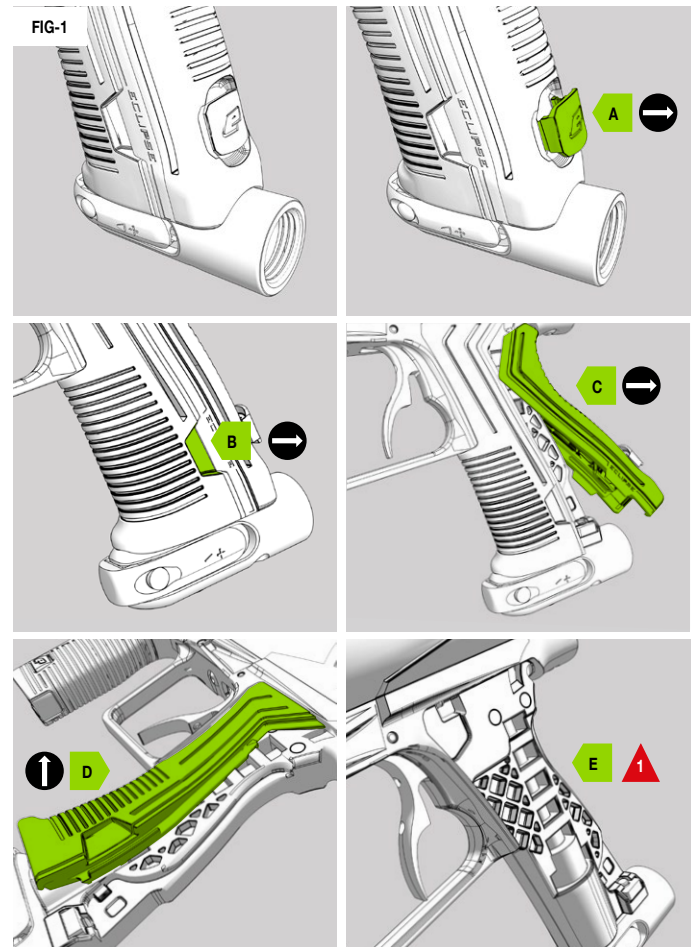
The ETHA2's tool-less two-piece grip system makes it incredibly easy to remove and clean the grips after a big day out in the field.

FIG-1

- A** Locate and pull back the rear grip locking tab.
- B** Use the finger recess to help release the rear grip section.
- C** Once released, fully remove the rear grip section from the frame.
- D** The front grip section can now be released and removed.
- E** You can now easily access the frame and separate grip elements for thorough cleaning.

Repeat the steps in reverse order to attach the grips to the frame.

⚠ BE CAREFUL when cleaning the frame, there are exposed operational elements that may be affected if wet.



TECHNICAL

ATTACHING THE PAL LOADER SYSTEM

FIG-1

When attaching the PAL loader system to the PAL enabled ETHA2, ensure the plunger **A** is aligned correctly and sits under the plunger receiver **B**. The PAL loader must be pushed fully into the feed neck.

FIG-2

To assist with alignment, the dimple at the rear of the PAL loader **A** should sit in the alignment notch at the rear of the PAL feed neck **B**.

1 **IMPORTANT!** If the PAL loader is too tight or too loose simply adjust the PAL clamping feed neck lever and/or feed tube screws to compensate.

2 **IMPORTANT!** If the PAL loader is not correctly aligned this could affect the efficiency of the PAL loader system.

PLEASE NOTE

The PAL feedneck has been specifically designed to give the player optimal battery-free performance when combined with a PAL Loader System.

The user can still attach and use ANY loader without any issues.

The PAL features WILL NOT enhance the performance of a non-PAL loader.

FIG-1

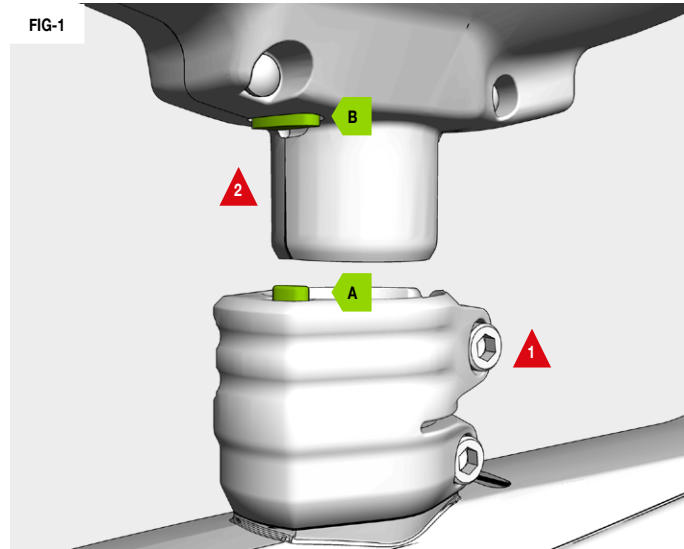
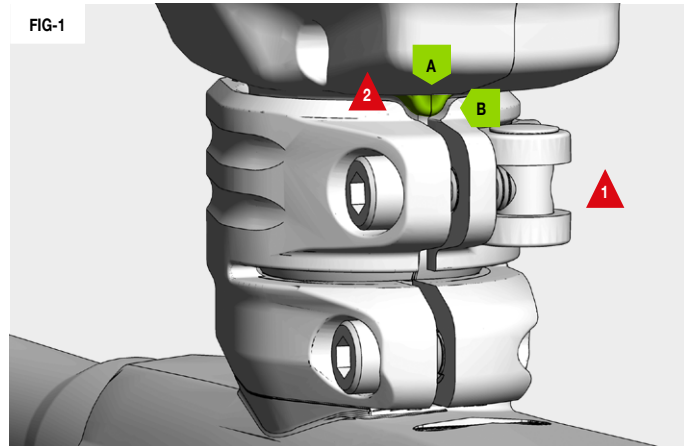


FIG-1



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38 SUPPORT INDEX

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YELLOW: **09**



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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

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