



ECLIPSEBLADE®

OPERATING MANUAL

ABOUT THIS MANUAL

This manual contains the installation and operating instructions for the Eclipseblade E2 Electronic grip frame.

IMPORTANT: If you are installing the Eclipseblade E2 electronic grip frame yourself then please read at least the following sections before starting the installation:

SECTION 1 - ORIENTATION.

SECTION 2 - INSTALLATION.

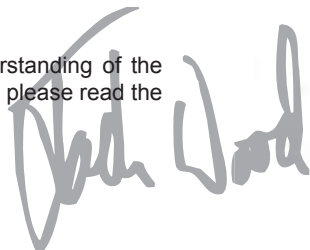
SECTION 3 - QUICK SET-UP.

If the Eclipseblade E2 electronic grip frame has been supplied already fitted to a marker, and you wish to get up and running quickly, then refer to the following sections:

SECTION 1 - ORIENTATION.

SECTION 3 - QUICK SET-UP.

However if you want to have a full understanding of the Eclipseblade E2 electronic grip frame then please read the whole manual.

A stylized, handwritten signature in grey ink that reads "John Wood".

INDEX



2

1. ORIENTATION

This section names the component parts of the Eclipseblade E2 electronic grip frame. **6-13**

2. INSTALLATION

This section explains how to fit the Eclipseblade E2 electronic grip frame to your marker. If the Eclipseblade E2 electronic grip frame has been supplied pre-fitted then you may wish to skip this section.

- Preparation **15**
- Tools needed to fit the Frame and Cocking Solenoid **15**
- Tools needed to fit the Reflective Breech Sensor **15**
- For Frame and Cocking Solenoid only **16**
- Fitting the Breech Sensor **17**
- Fitting the Cocking Solenoid **18-19**
- Fitting the Frame **20-23**
- Testing **24-25**

3. QUICK SET-UP

This section provides details on how to get up and running quickly with your Eclipseblade E2 electronic grip frame. This section is essential reading for everyone.

- Installing a Battery **27**
- Switching On the Eclipseblade E2 **28**
- Switching Off the Eclipseblade E2 **28**
- Firing the Eclipseblade E2 **28**
- Using the Reflective Breech Sensor **29**
- Adjusting the trigger **29**

4. USING THE ECLIPSEBLADE E2

This section provides more detailed information on how to interact with the Eclipseblade E2 electronic grip frame via its user interface.

- Switching On **31**
- Screen Layout **31**
- The Main Menu **32**
- The Display Menu **33**
- Using the Display Menu **33**
- Rate of Fire Option **34**
- Graphic Option **35**
- The Reflective Breech Sensor **35**
- The Sensitivity Parameter **36**
- Using the Sensitivity Parameter **37**
- The Game Timer Menu **38**
- Using the Game Timer Menu **39**
- Setting the Game Timer **39**
- Setting the Alarm Timer **39**
- Setting the start method of the Game Timer **40**
- Starting the Game Timer **40**
- The Mode Menu **41**
- Using the Mode Menu **42**
- The Information Menu **43**

5. ADVANCED SET-UP

This section contains more detailed information on setting up the Eclipseblade E2 electronic grip frame.

- Setting the Trigger **45-46**
- The Set-Up Menu **47**
- Timing the Eclipseblade E2 **48-49**
- The Timing Menu **50**
- Sear Solenoid On Time (SEAR ON) **51**
- Cocking Solenoid On Delay (C DELAY) **52**
- Cocking Solenoid On Time (C ON) **53**
- Cocking Solenoid Time-Out (C T/OUT) **54**
- Cocking Solenoid Off Time (C OFF) **55**
- The Filter Menu **56**
- Using the Breech Sensor Filter **57**
- Setting the Ball Detection Time (BALL) **57**
- Setting the Empty Breech Detection Time (EMPTY) **58**
- Using the Trigger Filtering **59**
- Setting the Trigger Pull Time (PULL) **59**
- Setting the Trigger Release Time (RELEASE) **60**
- Using the Trigger Transition Filtering **61**
- Setting up the TT Filter **62**
- The Breech Sensor Type **63**
- Selecting the Breech Sensor Type (BS TYPE) **63**
- The Power Menu **64**
- Using the Power Menu **64**
- Using the Back Light Menu **65**
- Selecting the Auto-Off Menu (AUT OFF) **66**
- The Factory Settings Parameter **67**
- Selecting a Factory Setting (FACTORY) **68**
- Menu Tree **69**

6. MAINTENANCE

This section acts as a guide to performing routine maintenance.

- Cleaning the Reflective Breech Sensor **71-72**
- Cleaning the Cocking Solenoid **73-77**
- Lubricating the Sear **78**

7. SETTINGS

This section provides space for you to record your most used Eclipseblade E2 Settings. **79**

8. FAULT FINDING

This section provides information on how to resolve any problems that might arise with your Eclipseblade E2 electronic grip frame. **80-83**

9. ECLIPSE® PRODUCTS

This section provides information on related products to enhance the performance of your Eclipseblade E2 electronic grip frame. **84-86**

WARRANTY CARD

Tear-out product registration card to be completed and returned to Planet Eclipse alternatively register online at www.planeteclipse.com (see Maintenance Section)

11. DRILLING TEMPLATE

At the back of the manual we have provided a drawing of a typical marker body that can be used as a drilling template. **88**

12. SERVICE CENTRES

This section provides information on the location of your nearest Eclipse Service Centre. **90**

FOR YOUR RECORDS

Please complete the details below to keep a permanent record of your purchase of an Eclipseblade E2 frame or marker. Please note, the form below is intended for your personal records only, and will not act as a suitable warranty card for your purchase. Please complete the warranty card provided in the manual or the online warranty form, which can be found at www.planeteclipse.com, to validate your Eclipse warranty.

Product Purchased	Colour
Date of Purchase	Purchased From
Purchase Price	Serial Number

Careless or improper use, including failure to follow instructions in the operators manual could cause serious injury or death. All persons using this product or within 200m of the products use, must wear eye and head protection specifically designed for paintball. Please read and understand all instruction manuals before use. Installation should be carried out by a qualified airsmith.



ORIENTATION



12 **BEBLADE®**

WHATS IN THE BOX

1. FRAME

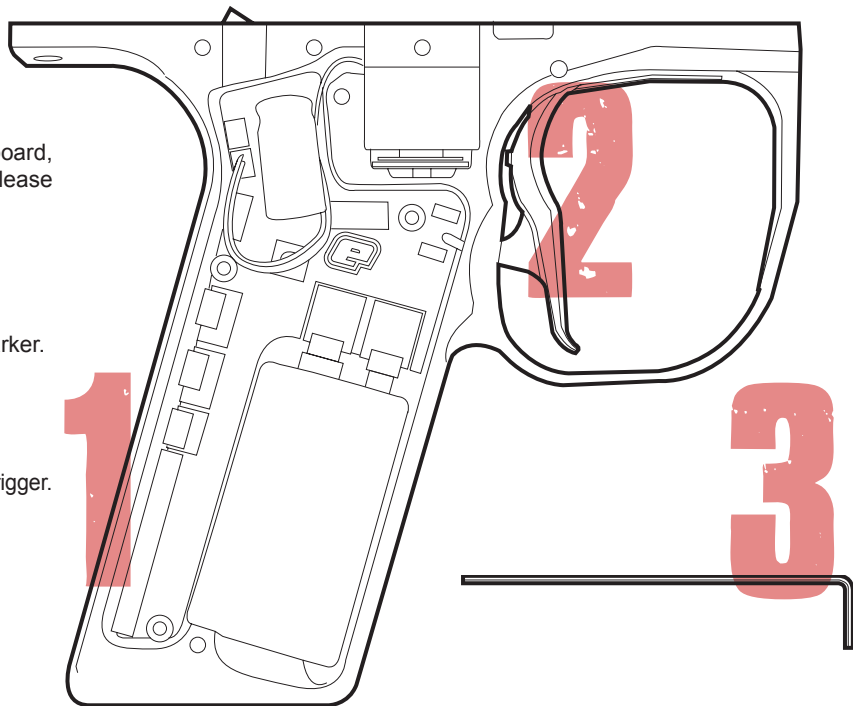
The frame houses the circuit board, the battery and the hammer release mechanism.

2. TRIGGER

The trigger is used to fire the marker.

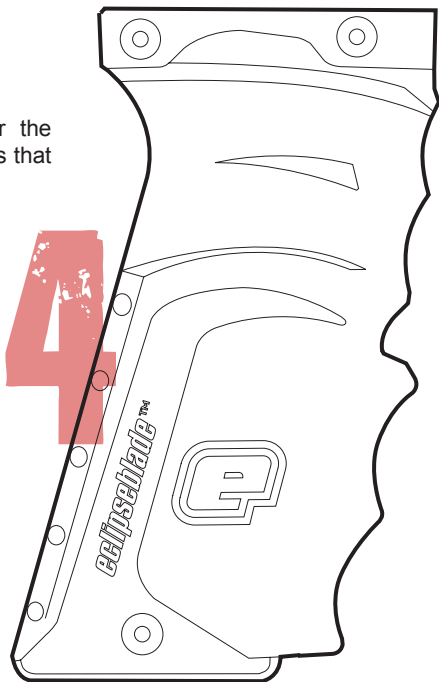
3. HEX KEY

This hex key is used to adjust the trigger.



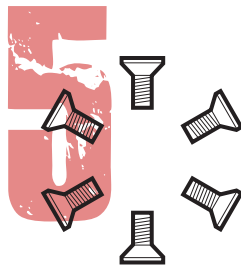
4. GRIPS

The wraps around grips cover the frame and protect the electronics that are housed within.



5. GRIP SCREWS

These screws are used to hold the grips onto the frame.



6. FRAME SCREWS

These screws are used to hold the frame onto a marker body.

ORIENTATION



7. BREECH SENSOR

The Reflective Breech Sensor fits through a hole in the side of the marker body and “looks” into the breech. The Breech Sensor incorporates a ribbon cable that runs vertically down the marker body and into a recess in the frame allowing it to be plugged into the printed circuit board.



9. BREECH SENSOR COVER RETAINING SCREW

This screw is used to hold the breech sensor cover to the marker body.

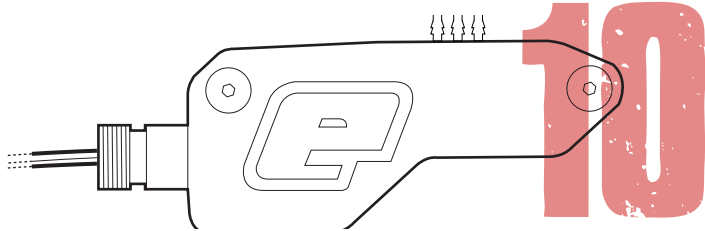
8. BREECH SENSOR COVER

This cover is used to protect both the breech sensor and the breech sensor ribbon cable.



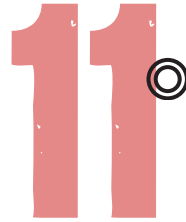
10. COCKING SOLENOID ASSEMBLY

This solenoid is used to control the cocking mechanism of the marker by switching the pneumatic supply to either side of the ram. Two electrical wires connect the cocking solenoid to the printed circuit board.



12. LOW PRESSURE HOSE

This hose is used to connect the cocking solenoid to the cocking pneumatics of the marker.



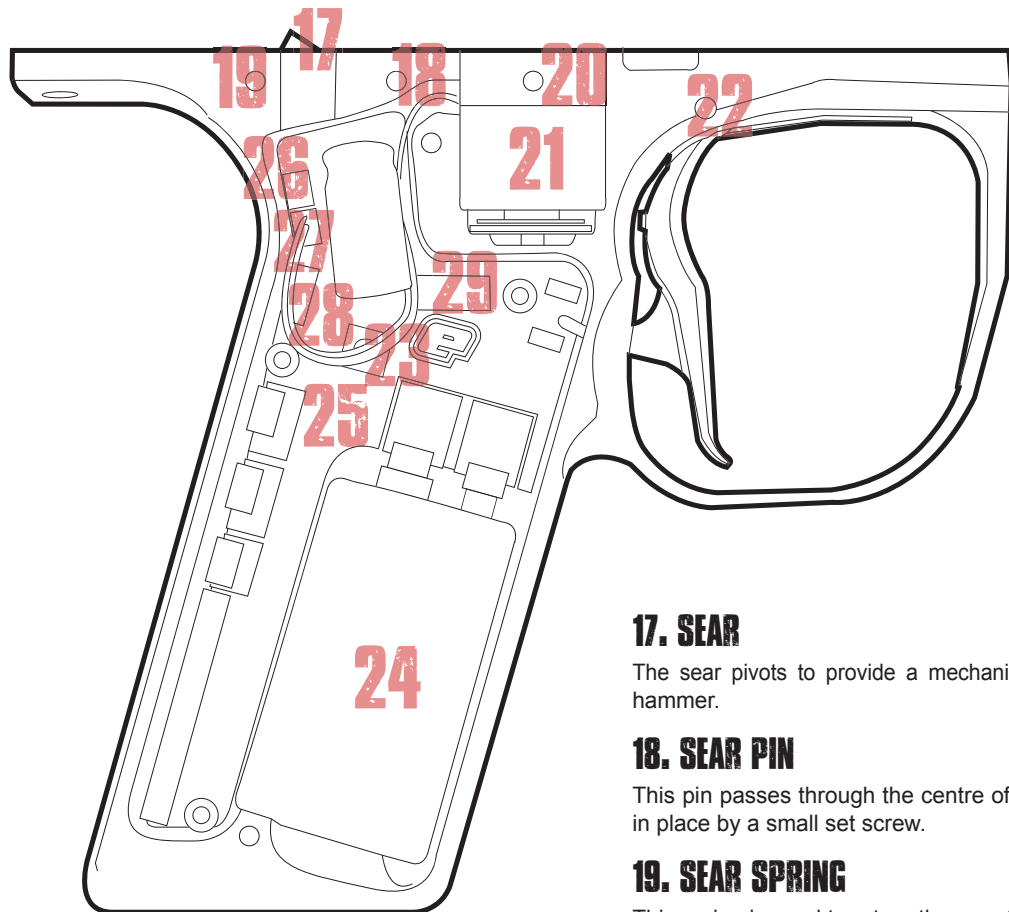
11. MANIFOLD O-RING

This o-ring is used to ensure a tight fit of the cocking solenoid assembly into the marker.



ORIENTATION

11



17. SEAR

The sear pivots to provide a mechanism for releasing the hammer.

18. SEAR PIN

This pin passes through the centre of the sear and is held in place by a small set screw.

19. SEAR SPRING

This spring is used to return the sear to its rest position.

20. SEAR SOLENOID RETAINER

The retainer prevents the sear solenoid from lifting out of the frame and also sets the height of the sear correctly.

21. SEAR SOLENOID.

This solenoid is used to control the firing mechanism of the marker, by moving the Sear when activated. Two electrical wires connect the Sear Solenoid to the Printed Circuit board.

22. TRIGGER PIN.

This pins passes through the top of the trigger and is held in place by a small set screw.

23. SET-UP PUSH BUTTON

This push button is used to access the set-up menu.

24. BATTERY

The battery provides the power for the electronics. The battery terminals are pushed against two spring connectors on the circuit board. A groove is machined into the frame below the battery to assist with battery removal.

25. PRINTED CIRCUIT BOARD

The PCB contains all of the electronics required to control the operation of the Eclipseblade E2 electronic grip frame.

26. COCKING SOLENOID CONNECTOR

This connector is used to connect the cocking solenoid wires to the printed circuit board.

27. SEAR SOLENOID CONNECTOR

This connector is used to connect the sear solenoid wires to the printed circuit board.

28. BREECH SENSOR CONNECTOR

This connector is used to connect the breech sensor cable to the printed circuit board.

29. PROGRAMMER CONNECTOR

This connector is used to connect the frame to a computer using the Eclipseblade E2 Programmer Kit (available separately).

ECLIPSEBLADE

ORIENTATION

12

30. RAISE PUSHBUTTON

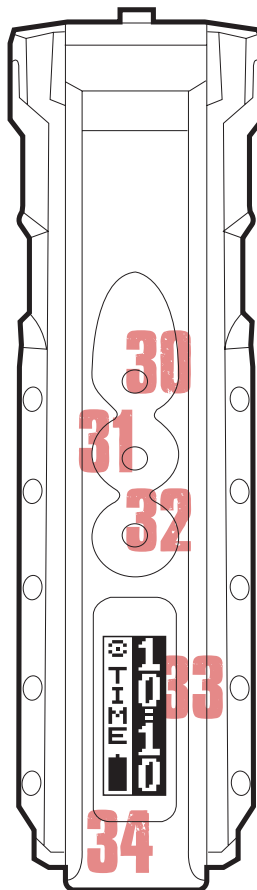
This pushbutton is used to turn the breech sensor on and off, to scroll up through menu options and to increase the values of parameters.

31. SELECT PUSHBUTTON

This pushbutton is used to turn the frame on and off, to activate the main menu and to select the displayed menu option or parameter value.

32. LOWER PUSHBUTTON

This pushbutton is used to reset the displayed option, to scroll down through menu options and to decrease the values of parameters.



33. LCD DISPLAY

This graphically capable LCD display is used to provide the user with visual information.

34. DISPLAY WINDOW

This window protects the LCD display from damage.

ECLIPSEBLADE®

INSTALLATION

E2

14

PREPARATION

You will need to prepare your marker ready to receive the Eclipseblade E2 electronic grip frame kit.

The Eclipseblade E2 electronic frame kit comprises of 3 main elements: the Frame, the Cocking Solenoid and the Breech Sensor.

The installation of the Frame and the Cocking Solenoid are essential to the operation of the Eclipseblade E2 electronic grip frame, whereas the Breech Sensor, though thoroughly recommended, is not essential to the basic operation of the kit.

The installation of the Frame and Cocking Solenoid can be carried out with just a little basic knowledge, however we recommend that the an Authorised Eclipse Service Centre carry out the installation of the Breech Sensor as this does require a small amount of machining to the body of the marker.

INSTALLATION

Installing the Eclipseblade E2 electronic grip frame is relatively straightforward, however if you are uncomfortable drilling holes into the body of your marker, then we recommend that you have the frame fitted by an Authorised Eclipse Service Centre, details of which can be found later in the manual or on the Planet Eclipse website: www.planeteclipse.com

TOOLS NEEDED TO FIT THE FRAME AND COCKING SOLENOID

- 1/8" Hex Key
- 1/16" Hex Key
- 5/64" Hex Key
- Adjustable wrench
- Loctite 638
- 9V Battery (PP3, 6LR61, MN1604)

TOOLS NEEDED TO FIT THE REFLECTIVE BREECH SENSOR

- Pillar Drill/Drill Press
- No.20 (0.1610", 4.1mm) Drill
- No.43 (0.089", 2.3mm) Drill
- No.4-40 UNC Tap
- Centre Punch
- Electrical Tape
- Pointed Nose Pliers
- De-burring Tool
- Wire Cutters



FIGURE 2.2

FOR FRAME AND COCKING SOLENOID ONLY

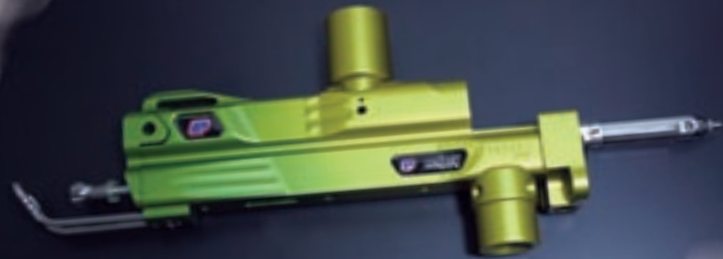


FIGURE 2.1

Remove gas source, paint, barrel and loader. Ensure that all gas is purged from the marker. If the marker is fitted with a fore-grip or vertically mounted regulator, remove these as well.

Remove the existing grip frame from the marker.

Remove all low pressure hosing from the ram, 3-way and low pressure regulator.

Carefully remove the low-pressure regulator. **Note:** You may need to remove the barb fitting from the regulator in order to turn it past the body of the 3-way. This will depend on the type of regulator fitted to your marker.

Remove the set screws from the 3-way coupling, and dis-engage the coupling from the 3-way shaft.

Remove the 3-way complete.

Remove the 3-way coupling and the 3-way actuating rod.

Your Semi-block should now only have the ram attached to it, with no hosing. There should be no grip frame on the marker as illustrated in **(Figure 2.1)**.

At this stage it is VERY important that you check the type and condition of the cocking lug (aka timing pin or hammer lug) inserted in the hammer. **(Figure 2.2)**.

It is **VITAL** to the correct operation of this kit that the coking lug is of the type:

1/4"-28 UNF or more typically known as a "fat" cocking lug, and that it is "square-cut" at the tip and polished. The lug **CANNOT** have either a chamfered, rounded or pointed end to the cocking lug. Lugs with anything other than a polished "square-cut" tip will severely impair the performance of the Eclipseblade E2 electronic grip frame.

If your cocking lug does not fit the above description then it is advisable to either change or modify it at this stage, before continuing with the installation of the Eclipseblade E2 electronic grip frame. Eclipse Hammer and Lug kits are available from www.planeteclipse.com

FITTING THE BREECH SENSOR

Note: These instructions are for a vertical feed body only.

Remove the bolt and Anti-Double Ball.

Remove the Cocking rod, Back-block, Semi Block and Anti-Tamper to aid with drilling.

Place the Breech Sensor Drilling Template (see page 88) over the body of the marker and secure in place using electrical tape.

Mark the centre of both holes using a Centre Punch, through the Template.

Remove the Template.

Clamp the body flat and level in a drill press vice.

Use a No.20 (0.1610", 4.1mm) drill **(Figure 2.3)** and a No.43 (0.089", 2.3mm) drill **(Figure 2.4)** in the locations indicated on the template.

Remove the body from the vice.

Use a 4-40 UNC tap to thread the No.43 (0.089", 2.3mm) hole for the Breech Sensor retaining screw.



FIGURE 2.3

Remove any metal cuttings from the breech and use a scraper or de-burring tool to carefully remove any burrs on the inside of the breech round the two new holes.

Replace the Cocking rod, Back-block, Semi-block and anti-tamper. Ensure that you fix the back-block the correct distance onto the pump rod, so that with the ram all the way forwards the back-block just touches the body.

Your marker is now ready to accept the Eclipseblade E2 electronic grip frame kit.



FIGURE 2.4



FIGURE 2.5

FITTING THE COCKING SOLENOID

The 5-way cocking solenoid valve comes pre-assembled with the cocking solenoid manifold, into the cocking solenoid manifold. There is no reason to remove the cocking solenoid and manifold from the manifold in order to install the manifold, so leave the cocking solenoid fitted into the manifold.

The cocking solenoid manifold attaches directly into the semi-block, in place of the conventional 3-way. *(Figure 2.5).*

Stretch the supplied o-ring over the threads of the manifold, so that it sits neatly in the groove behind the threads on the manifold.

Feed the cocking solenoid cable through the semi block and through the vertical reg-mount, if one is fitted. If fitting to a Mini-Cocker, simply feed cable through the semi-block.

Screw the manifold into the semi-block, being careful not to cross thread the manifold. Do not force into place if the threads appear tight.

The manifold may not line up when screwed in all the way into the semi-block. It may be necessary to back up so that the hose attachments are at the top.

Attach the low-pressure regulator back onto the semi-block. It may be necessary to remove the barb fitting of the regulator in order to screw the regulator past the new solenoid manifold. Use Hydraulic sealant or thread-lock (such as Loctite 638) to seal the threads of the regulator onto the semi-block. Use Hydraulic sealant or thread-lock (such as Loctite 638) to seal the threads of the barb fitting back into the regulator. Position the regulator so that the barb is pointed upwards towards the top of the manifold.

Attach a piece of low-pressure hose between the rear ram barb and the rear solenoid manifold barb.

Attach a piece of low-pressure hose between the low-pressure regulator barb and the centre solenoid manifold barb.

Attach a piece of low-pressure hose between the front ram barb and the front solenoid manifold barb.

The pneumatics of the marker have now been installed. **(Figure 2.6).**

FITTING THE COCKING SOLENOID (CONT)

FIGURE 2.6



FITTING THE FRAME

Completely remove the wrap-around rubber grips from the Eclipseblade E2 grip frame.

If the breech sensor is being fitted, place the breech sensor cable on the side of the marker and mark on the cable with a felt marker the position of the cable where it will pass into the frame. *[Figure 2.7].*



FIGURE 2.7

Now place the cable in the slot in the top of the frame, so that the cable exits the frame at the cut out in the top edge of the frame. Line up the mark previously made on the cable with the cut out in the frame. *[Figure 2.8].*

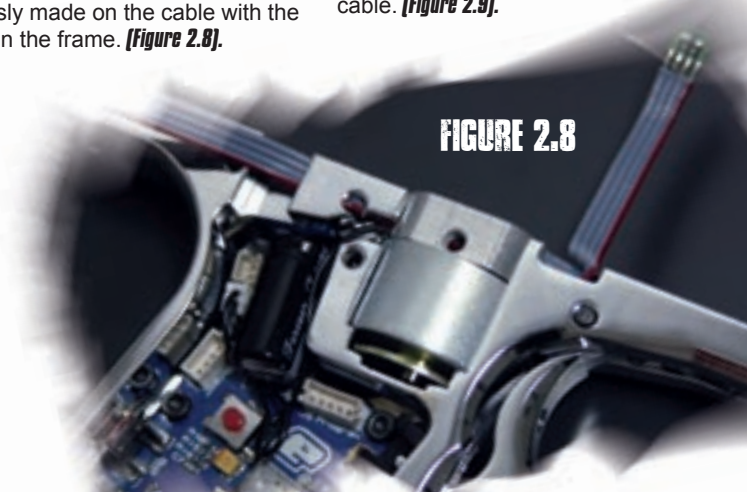


FIGURE 2.8

Place the cocking solenoid cable into the slot alongside the breech sensor cable. *[Figure 2.9].*

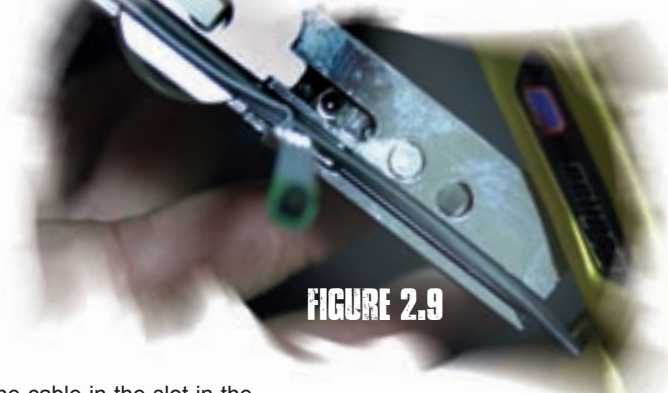


FIGURE 2.9

FITTING THE FRAME (CONT)

Bring the frame up to the bottom of the marker, and attach using the two 10-32 UNF x $\frac{1}{2}$ " Stainless button head screws. *[Figures 2.10 and 2.11]* Ensure that no wires are trapped between the top of the grip frame and the bottom of the marker body. Do not tighten the screws.



FIGURE 2.10

Place the breech sensor into its hole in the marker body *[Figure 2.12]* and check that the exposed cable is not too long. If it is too long then draw some of the cable back through the frame by gently pulling the back of the wire.



FIGURE 2.11

Plug the breech sensor cable into the relevant socket on the printed circuit board. This connector is polarised and will only fit one way round. *[Figure 2.13].*

Plug the cocking solenoid cable into the relevant socket on the printed circuit board. This connector is also polarised. *[Figure 2.14].*

Very carefully fold the wires into the frame ready to re-install the grips.



FIGURE 2.12

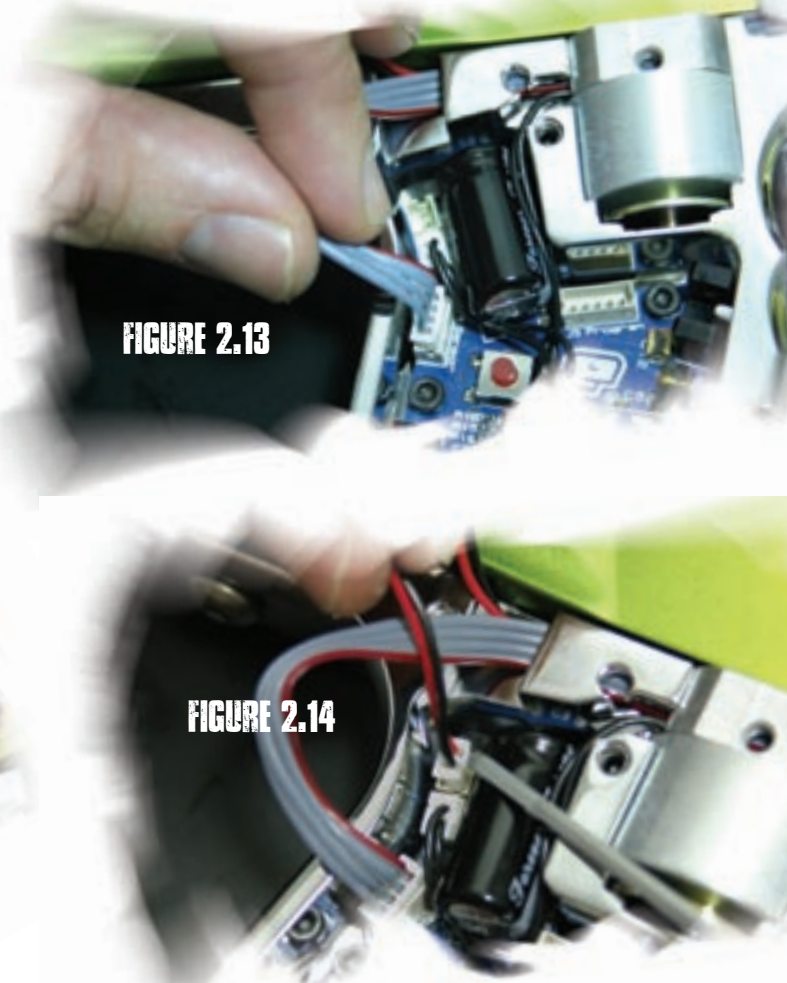


FIGURE 2.13

FIGURE 2.14

INSTALLATION

FITTING THE FRAME (CONT)

If the breech sensor is being fitted, then you will need to modify the breech sensor cover in order to locate it into the slot in the frame. Using a strong pair of pointed pliers, bend both wires away from each other and at 90° to the rubber cover (figure 2.15) then bend both wires towards the frame, at 90° to the vertical. [Figure 2.16].

Insert the wires into the slot in the frame (figure 2.17). If the wires are too long then trim as required, **DO NOT TRIM TOO MUCH OFF.** With the breech sensor cover in place and the breech sensor cable at the correct length, and ensuring that no wires are trapped between the top of the frame and the bottom of the marker body, tighten the two frame screws.

FIGURE 2.17



FIGURE 2.15

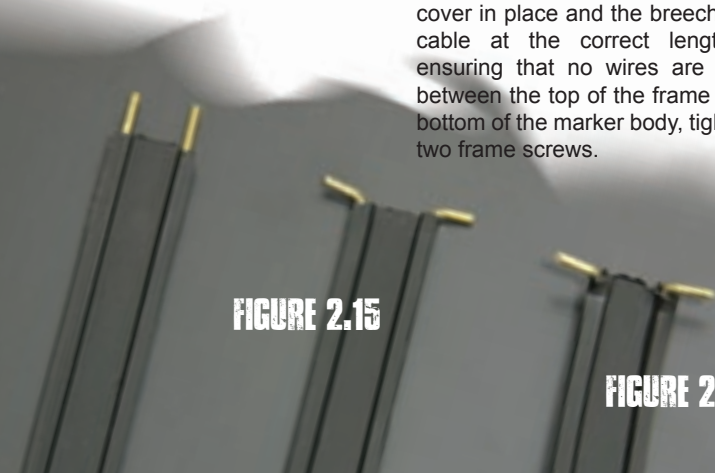


FIGURE 2.16

Attach the top end of the breech sensor cover to the side of the marker body, above the breech sensor, using the 4-40 UNC counter-sunk screw provided (figure 2-18).

FIGURE 2.18



TESTING

Before installing a 9V Battery and fitting the rubber grips, it is necessary to set the sear release mechanism:

Pull the back-block back by hand to manually cock the marker.

If the hammer lug does not catch on the sear, adjust the lug down until it does catch on the sear.

Use your finger or thumb to manually actuate the sear-release plunger on the sear solenoid. Pushing up on the plunger will cause the sear to actuate and release the hammer lug. **[Figure 2-19].**

Set the hammer lug so that the hammer is released at the very top of the plunger travel. This will increase the life of both the sear and the hammer lug. This will also lead to increased reliability of the sear release mechanism.

Insert a new battery into the frame (see Quick Set-Up section for battery installation guidelines), making sure that the positive terminal of the battery goes to the right hand side of the frame, and is in contact with the positively marked terminal on the PCB.

Replace the rubber grips.

Power up the Eclipseblade E2 electronic grip frame (see Quick Set-up section) and again manually cock the marker by pulling back the back-block by hand.

Pull the trigger to check that the sear release mechanism works. If it does not, then remove the rubber grips and set the lug again.

If the sear release mechanism still does not work, go to the Fault Finding section later on in the manual.

Installation of the Eclipseblade E2 electronic grip frame is now complete. You can now attach any regulators and the air system of your choice.

IMPORTANT: Make sure that there are no paintballs in the marker, and remove the loader and barrel.

Gas up your marker and power up the Eclipseblade E2 electronic grip frame (See Quick Set-up section).

Check the cocking pressure from the low-pressure regulator (LPR). Use a gauge if possible, and set the output pressure to around 80 psi if the breech sensor is being used. **DO NOT EXCEED 100 PSI**, as this will damage the cocking solenoid valve.



FIGURE 2.19

TESTING (CONT)

If the breech sensor is not being used, then set the LPR pressure lower in order to reduce the chance of chopping (as you would on a mechanical marker). The exact pressure will depend upon the types of mainspring and ram in use.

Check the cocking pressure by selecting Classic Mode from the Mode Menu (see Using the Mode Menu) and holding the trigger on. Whilst the trigger is held on, and the back-block is back, check that the back-block is all the way to the rear. If pulling on the bolt pin can retract the back-block further, then increase the cocking pressure coming from the LPR.

Test fire the marker to ensure that the marker is cycling correctly, i.e. the back-block is coming all the way back and the hammer lug is catching on the sear and that the sear is releasing the hammer lug fully.

QUICK SET-UP



E2

ECLIPSE

26

INSTALLING A BATTERY

Ensure that the Eclipseblade E2 electronic grip frame 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" hex wrench to remove the three countersunk screws that hold the rubber grip onto the frame (Note: a 2mm hex key can also be used). Peel the grip to the right to expose the electronics within the frame.

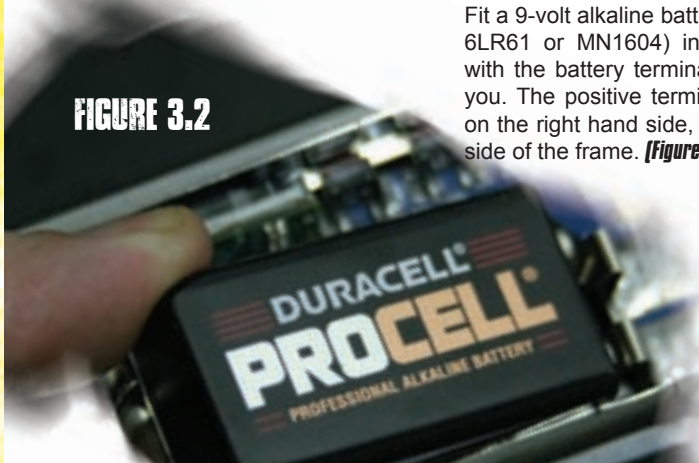


FIGURE 3.2

If present, remove the existing battery by sliding your thumb into the recess below the battery and levering the battery out of the frame. **[Figure 3.1].** 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 side of the frame. **[Figure 3.2].**



FIGURE 3.1

Rechargeable batteries can also be used in the E2 frame. We recommend Nickel Metal Hydride (NiMH) rechargeable that have a true voltage of 9.0 to 9.6 Volts. NOTE: Most commercially available NiMH batteries are only 8.4 Volts. However, it is important that no battery charge exceeds 9.6 Volt. Damage to the circuit board could result from using a Battery charged to more than 9.6 Volts.

Ensure that all of the wires are within the recess of the frame.

Replace the rubber grip and replace the three countersunk screws. Do not over-tighten the screws.

SWITCHING ON THE ECLIPSEBLADE E2

At the rear of the frame, are three recessed pushbuttons. Press and hold the centre pushbutton until the Eclipseblade E2 logo is displayed. Release the pushbutton and the display will revert to the designated run screen (Rate of Fire, Shot Counter, Game Timer or Graphic).

SWITCHING OFF THE ECLIPSEBLADE E2



Press and hold the centre pushbutton for 1 second. The display will read OFF. Release the centre pushbutton and re-press it to turn off the Eclipseblade E2 electronic grip frame.



FIRING THE ECLIPSEBLADE E2

Pull the trigger to fire the Eclipseblade E2 electronic grip frame. The marker will fire and cycle just like a standard marker, however the firing cycle is electronically controlled which means that, once the trigger has been pulled the entire firing cycle is handled automatically.

ECLIPSEBLADE®

USING THE REFLECTIVE BREECH SENSOR

To switch off the breech sensor, press and hold the top pushbutton for one second. The eye on icon  in the top left hand corner of the LCD screen will change to the eye off icon  indicating that the breech sensor has been disabled.

To switch the breech sensor back on, press and hold the top pushbutton for one second. The eye off icon  in the top left hand corner of the LCD screen will change to the eye on icon  indicating that the breech sensor has been enabled.

ADJUSTING THE TRIGGER

The trigger comes factory set and needs no adjustment for it to make the marker fire when pulled. However if you wish to adjust it, the following is a quick guide:

Using the hex wrench supplied with the Eclipseblade E2 electronic grip frame, turn each of the three trigger set screws counter clockwise to increase the overall travel of the trigger when pulled.

Pull the trigger and note the point at which the marker fires. Turn the set screw that passes through the back of the trigger clockwise to reduce the amount of travel after the firing point. It will help if you fire the marker after each small adjustment. Set the travel to your liking.

Again pull the trigger, and note the point at which the marker fires. Turn the set screw that passes through the top of the trigger, nearest to the front end of the trigger, clockwise to reduce the amount of travel before the firing point. It will help if you fire the marker after each small adjustment. Again set the travel to your liking.

USING E2 ECLIPSEBLADE

30

ECLIPSEBLADE

E2



SWITCHING ON

Pressing and holding the **Select** (middle) pushbutton will switch the frame on. The LCD display will show the Eclipseblade E2 logo. When the pushbutton is released, the LCD display will show the designated display screen.

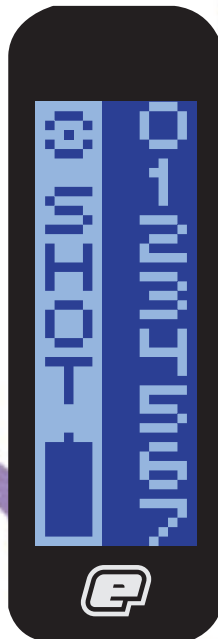
SCREEN LAYOUT

The standard layout of an Eclipseblade E2 display is as follows:

BREACH SENSOR INDICATOR

RUN SCREEN NAME

BATTERY LEVEL INDICATOR



THE MAIN MENU

To activate the Main Menu, press and hold the **Select** pushbutton. After one second OFF will be displayed, this is one of the options on the Main Menu, as shown below.

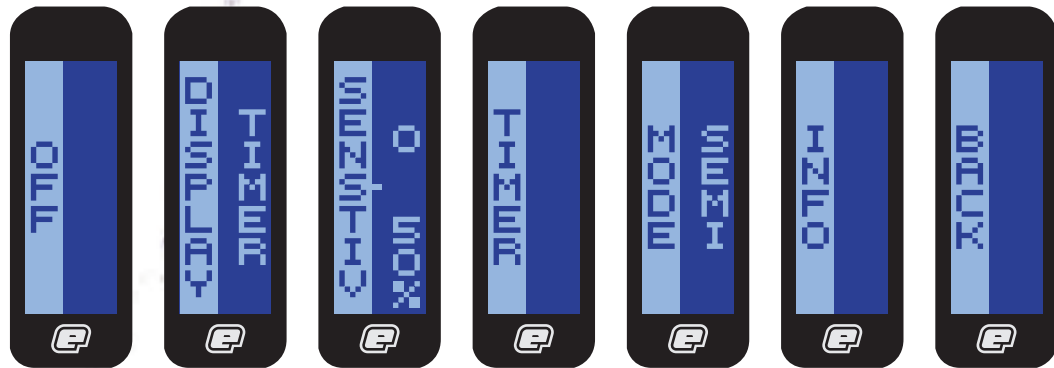
Press the **Lower** (bottom) pushbutton to scroll down through each of the options on the menu. Once the last option on the menu has been displayed, pressing the **Lower** pushbutton will cause the first option to be displayed.

Press the **Raise** (top) pushbutton to scroll up through each of the options on the menu. Once the first option on the menu has been displayed, pressing the **Raise** pushbutton will cause the last option to be displayed.

Press the **Select** pushbutton to select the displayed option.

Selecting the **Back** option will return the display to the display from which the main menu was selected.

Lower



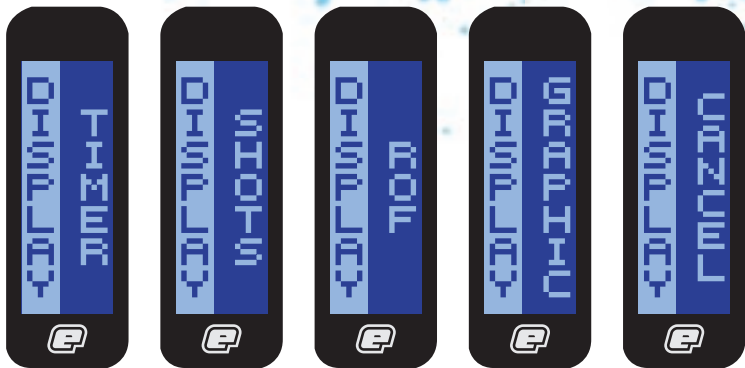
Raise

THE DISPLAY MENU

Scroll through the main menu until the **DISPLAY** option is displayed and then press **Select**. This has now activated the **DISPLAY** Menu.

The left hand side of the screen shows **DISPLAY**, the name of the option that you are currently in, whilst the right hand side of the screen can be changed by using the **Raise** and **Lower** pushbuttons to scroll through the different **DISPLAY** options as detailed below.

Lower →



← *Raise*

To display the Game Timer when the frame is in normal use, simply **Select** the **TIMER** option from the **DISPLAY** Menu.

To display the Shot Counter when the frame is in normal use, simply **Select** the **SHOTS** option from the **DISPLAY** Menu.

To display the Rate of Fire Indicator when the frame is in normal use, simply **Select** the **ROF** option from the **DISPLAY** Menu.

To display the Graphics Option when the frame is in normal use, simply **Select** the **GRAPHIC** option from the **DISPLAY** Menu.

To return to the Main Menu, scroll to the **CANCEL** option and press **Select**.

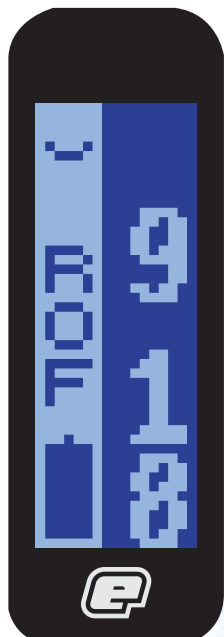
NOTE: The Option chosen in the **DISPLAY** Menu, will be the designated run screen when the E2 Frame is in normal use.

USING THE DISPLAY MENU

Both the **TIMER** and the **SHOTS** options from the **DISPLAY** Menu are covered in their respective sections in the following pages.

RATE OF FIRE OPTION

The *Rate of Fire (ROF)* option is a means by which you can monitor your rate of fire whilst using the Eclipseblade E2 electronic grip frame. The Rate of Fire screen looks like this:



BREECH SENSOR INDICATOR

SCREEN NAME

BATTERY LEVEL INDICATOR

With the breech sensor on (and no paint present), the rate of fire will be limited by your Cocking Time Out setting as it will determine the length of time the breech is held open waiting for a ball to fall into the breech.

To use the Rate of Fire screen without shooting paint, simply switch the breech sensor off using the *Raise* pushbutton.

The Rate of Fire Indicator records every pull and release of the trigger over a period of one second and calculates the number of valid shots that were fired during that period.

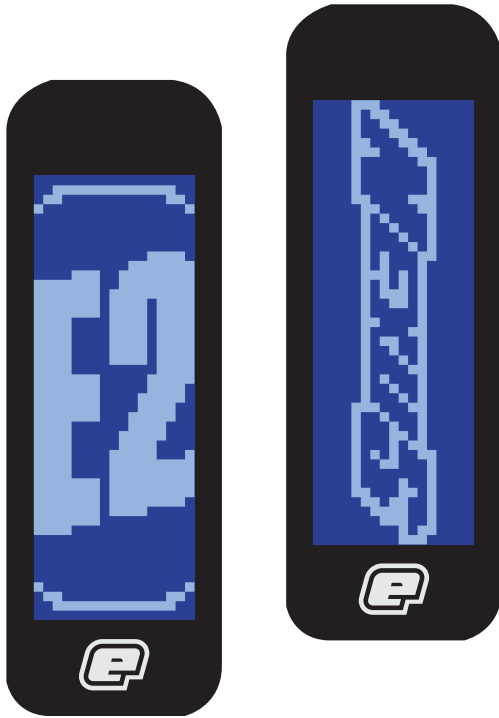
The current Rate of Fire is displayed in the top right hand corner.

The maximum Rate of Fire that has been achieved is displayed in the bottom right hand corner.

To reset the maximum Rate of Fire simply push and hold the *Lower* pushbutton for a 1 second period.

CURRENT RATE OF FIRE

MAXIMUM RATE OF FIRE ACHIEVED



GRAPHIC OPTION

The GRAPHIC option is a means by which you can display either the standard Eclipseblade E2 logo or a custom graphic of your choice that has been uploaded using the Eclipseblade E2 Programmer Kit (sold separately).

When GRAPHIC is chosen from the Display menu, it simply displays the graphic that you have chosen whilst the frame is in use.

REFLECTIVE BREECH SENSOR

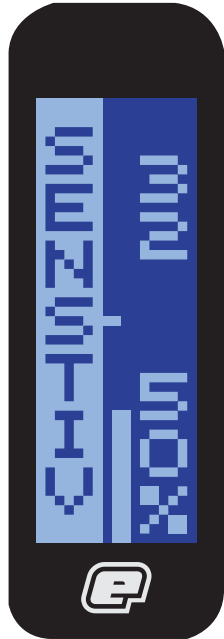
As standard the Eclipseblade E2 comes complete with a Reflective breach sensor. The breach sensor is an advanced anti-chop eye. When the breach sensor is on, the software will prevent the breach from closing until a ball is detected in the breach. In this way the Eclipseblade E2 electronic grip frame prevents the bolt from closing prematurely and chopping or trapping a paintball.

The Eclipseblade E2 is compatible with the Eclipseblade E2 Break-beam eye kit, available separately from www.planeteclipse.com

THE SENSITIVITY PARAMETER

Scroll through the Main Menu until the **SENSIV** option is displayed.

The Sensitivity screen looks like this:



The bottom right hand corner of the screen shows the level at which the breach sensor is currently set, displayed as a percentage value. This level is also displayed by the Set Point Indicator line in the middle of the screen (just to the right of the second S in SENSIV).

The top right hand corner shows the current reading of the breach sensor, also displayed as a percentage. This breach sensor reading is a percentage representation of the signal from the breach sensor. This number can be anywhere from 0 - 100%.

In the centre of the screen is a bar that acts as another visual indication of the current reading of the breach sensor.

When using the Reflective breach sensor, the higher the percentage, the more light is being reflected back to the sensor by an object in front of the sensor, such as the bolt or a paintball, and therefore the lower the Set Point of the breach sensor has to be. The lower the percentage, the less light is being reflected back to the sensor by the lack of an object in front of the sensor, such as an empty breach.

This screen can be used to determine whether or not your breach sensor is operating correctly by opening and closing the bolt and observing the value in the top right hand corner and the level of the central bar change. For example a shiny alloy bolt should give readings of 85% - 95% when in front of the breach sensor and Delrin bolts should give readings of 15% - 45% depending on their colour.

USING THE SENSITIVITY PARAMETER

Having scrolled to the **SENSIV** option on the main menu, use the **Select** pushbutton to enter the **SENSITIVITY** option.

Press and release the **Raise** pushbutton to increase the sensitivity level. Press and hold the **Raise** pushbutton to increase the sensitivity level more rapidly.

Press and release the **Lower** pushbutton to decrease the sensitivity level. Press and hold the **Lower** pushbutton to decrease the sensitivity level more rapidly.

Press **Select** to set the sensitivity level at the displayed level. If you now pressed either the **Raise** or **Lower** pushbuttons you would be able to continue navigating through the main menu.

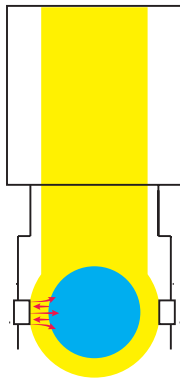
IMPORTANT: The sensitivity level must always be lower than the minimum reading given by the breech sensor display for any colour paintball being used.

The breech sensor sensitivity is factory set at 50%, which is suitable for the vast majority of paints.

Only paints with very dark shells or a non-reflective surface may require adjustment to the sensitivity level.



REFLECTIVE

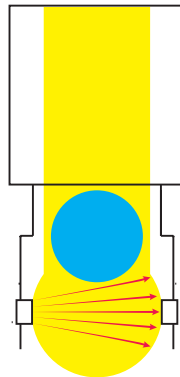


(Break Beam if fitted)

BREAK BEAM



REFLECTIVE



(Break Beam if fitted)

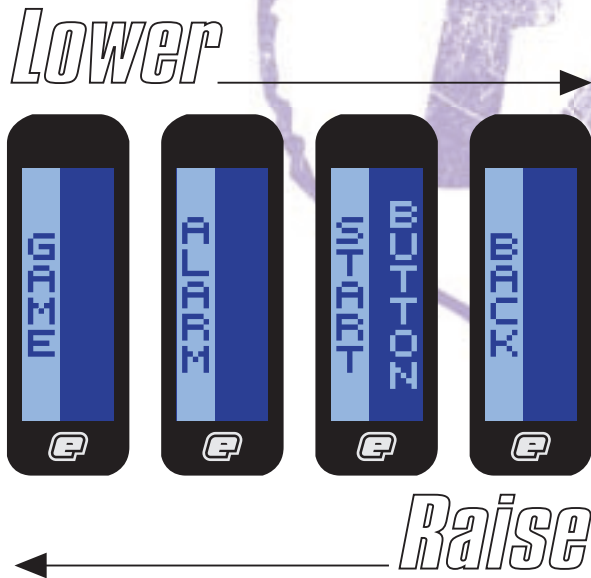
BREAK BEAM



THE GAME TIMER MENU

Scroll through the main menu until the **TIMER** option is displayed and then press **Select**. You have now entered the **GAME TIMER** Menu.

By using the **Raise** and **Lower** pushbuttons, you can scroll through the menu as illustrated below:



To set the game timer, simply **Select** the **GAME** option.

To set the alarm timer, simply **Select** the **ALARM** option.

To set the starting method of the game timer, simply **Select** the **START** option.

To return to the Main Menu, scroll to the **BACK** option and press **Select**.

USING THE GAME TIMER MENU

SETTING THE GAME TIMER

Once the **GAME** option has been selected from the **GAME TIMER** Menu, the preset game time will be displayed on the right hand side of the screen, the factory setting for which is 7 minutes and 10 seconds.

To increase the preset game time, repeatedly press and release the **Raise** pushbutton. Each time that the pushbutton is pressed, the game time will increase by 1 second. To increase the time more rapidly, press and hold the **Raise** pushbutton. The maximum preset game time is 99 minutes and 59 seconds, once this value has been exceeded the game timer will wrap around to 0 minutes and 0 seconds.

To decrease the preset game time, repeatedly press and release the **Lower** pushbutton. Each time that the pushbutton is pressed, the game time will decrease by 1 second. To decrease the time more rapidly, press and hold the **Lower** pushbutton. The minimum preset game time is 0 minutes and 0 seconds, once this value has been exceeded the game timer will wrap around to 99 minutes and 59 seconds.

Once you have set the game timer to the preset time that you require, press the **Select** pushbutton to save the value. The time will briefly flash, indicating that the time has been accepted.

SETTING THE ALARM TIMER

As well as a game timer we have added an **Alarm** feature that allows you to set a designated time during the game timer at which the **Alarm** feature will be activated. When the game timer reached the Alarm time the display will flash repeatedly for 5 seconds to indicate this.

Once the **ALARM** option has been selected from the **GAME TIMER** Menu, the preset alarm time will be displayed on the right hand side of the screen, the factory setting for which is 2 minutes and 0 seconds.

To increase the preset alarm time, repeatedly press and release the **Raise** pushbutton. Each time that the pushbutton is pressed, the alarm time will increase by 1 second. To increase the time more rapidly, press and hold the **Raise** pushbutton. The maximum preset alarm time is 9 minutes and 59 seconds, once this value has been exceeded the alarm timer will wrap around to 0 minutes and 0 seconds.

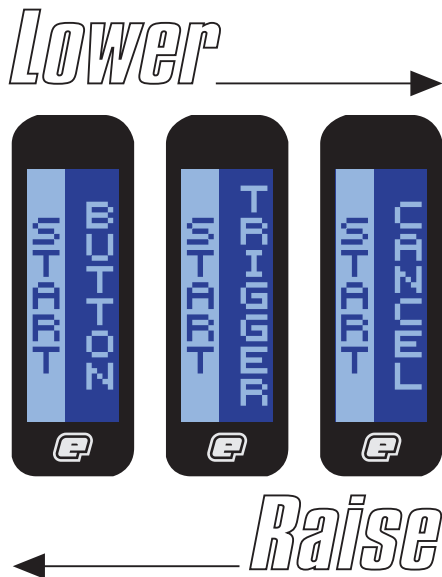
To decrease the preset alarm time, repeatedly press and release the **Lower** pushbutton. Each time that the pushbutton is pressed, the alarm time will decrease by 1 second. To decrease the time more rapidly, press and hold the **Lower** pushbutton. The minimum preset alarm time is 0 minutes and 0 seconds, once this value has been exceeded the alarm timer will wrap around to 9 minutes and 59 seconds.

Once you have set the alarm time to the preset time that you require, press the **Select** pushbutton to save the value. The time will briefly flash, indicating that the time has been accepted.

SETTING THE START METHOD OF THE GAME TIMER

Once the **START** option has been selected from the **GAME TIMER** Menu, the preset method of starting the game timer will be displayed on the right hand side of the screen, the factory setting for which is **BUTTON**.

To change the starting option for the Game Timer, simply use the **Raise** or **Lower** pushbuttons to scroll through the menu choices:



BUTTON means that pressing the Lower pushbutton will start the game timer (when displayed).

TRIGGER means that pulling the trigger will start the game timer (when displayed).

Selecting **CANCEL** returns to the **GAME TIMER** Menu.

STARTING THE GAME TIMER

When **TIMER** has been selected as the designated Display screen, the game timer will be displayed.

Starting the game timer depends on whether you have chosen **BUTTON** or **TRIGGER** in the **START** option of the **GAME TIMER** Menu (detailed above). By starting the game timer using your chosen method, the timer will start to count backwards, in seconds, towards zero.

To stop the game timer, push and release the **Lower** pushbutton. The game timer will pause at whatever time it had counted down to.

To reset the game timer, press and hold the **Lower** pushbutton for 1 second. The game timer will return to its preset value. The game timer will also be reset whenever the Eclipseblade E2 electronic grip frame is switched off.

THE MODE MENU

Scroll through the main menu until the **MODE** option is displayed and then press **Select**. You have now entered the **MODE** Menu.

The Eclipseblade E2 electronic grip frame has three different modes of operation: Semi-automatic mode, Classic mode and Training mode.

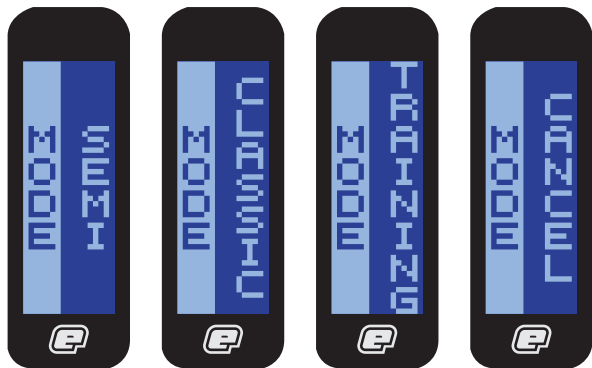
To select the Semi-automatic mode of operation, scroll to the **SEMI** option and press **Select**.

To select the Classic mode of operation, scroll to the **CLASSIC** option and press **Select**.

To select the Training mode of operation, scroll to the **TRAINING** option and press **Select**.

To return to the Main Menu, scroll to the **CANCEL** option and press **Select**.

Lower →



← *Raise*

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USING THE MODE MENU

In **SEMI** mode, depressing the trigger will start the firing cycle as follows:

The Sear solenoid is energised, which actuates the sear and causes the hammer to be released.

The Cocking solenoid is energised, which causes the cocking block to retract the bolt and open the breech.

If the breech sensor is active, then the cocking block remains retracted for a preset time (determined by your C T/OUT value) or until a paintball is detected in the breech. If the breech sensor is inactive then the cocking block will remain retracted for a preset time (determined by your C ON value).

The cocking solenoid is de-energised and the cocking block brings the bolt forward, closing the breech.

In **CLASSIC** mode, depressing the trigger will again start the firing cycle as follows:

The Sear solenoid is energised, which actuates the sear and causes the hammer to be released.

The Cocking solenoid is energised, which causes the cocking block to retract the bolt and open the breech.

If the breech sensor is active, then the cocking block remains retracted until the trigger is released, and either a ball is detected by the sensor or a preset time has elapsed without a ball being detected (determined by your C T/OUT value). If the breech sensor is inactive then the cocking block will remain retracted until the trigger is released, provided that the cocking block has been retracted for at least a preset time (determined by your C ON value).

The cocking solenoid is de-energised and the cocking block brings the bolt forward, closing the breech.

CLASSIC mode provides the feel of a classic mechanical marker, but without the possibility of “short stroking” the trigger.

In **TRAINING** mode, depressing the trigger will start the cocking cycle as follows:

The Cocking solenoid is energised, which causes the cocking block to retract the bolt and open the breech.

If the breech sensor is active, then the cocking block remains retracted for a preset time (determined by your C T/OUT value) or until a paintball is detected in the breech. If the breech sensor is inactive then the cocking block will remain retracted for a preset time (determined by your C ON value).

The cocking solenoid is de-energised and the cocking block brings the bolt forward, closing the breech.

In **TRAINING** mode the firing cycle does not activate. **Training** mode provides a way of using your Eclipseblade E2 electronic grip frame to increase your rate of fire and find a trigger set-up that suits your requirements, without the noise of the marker firing.



THE INFORMATION MENU

Scroll through the main menu until the **INFO** option is displayed and then press **Select**. You have now entered the Information menu.

By using the **Raise** and **Lower** pushbuttons, you can scroll through the **INFO** Menu as illustrated below:

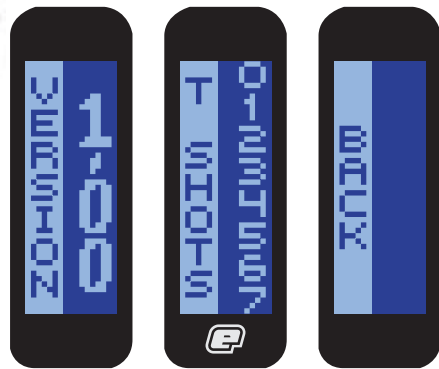
In the **INFO** Menu, the Eclipseblade E2 Electronic Grip Frame displays the current version of firmware that it has programmed into it, and the total number of shots that the frame has fired. There is no user interaction in the Information Menu; it is simply a way of finding out facts about your E2 frame.

To display the current Version of Firmware being used, scroll to the **VERSION** option.

To display the Total number of shots that your E2 has fired, scroll to the **T SHOTS** option.

To return to the main menu, scroll to the **BACK** option and press **Select**.

Lower →



← *Raise*

ECLIPSEBLADE®



ADVANCED SET-UP

ECLIPSEBLADE[®]

There are three adjustment points on the trigger - the **Front Stop Trigger Screw**, the **Rear Stop Trigger Screw** and the **Return Strength Trigger Screw**.

As standard each Eclipseblade E2 frame comes with a factory-set trigger travel of approximately 2mm in total length: one millimetre of travel before the firing point, and one millimetre of travel after the firing point.

SETTING THE TRIGGER

The **Front Stop Trigger 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 its firing point and the marker will not fire. Turn this screw counter clockwise to increase the amount of trigger travel **[see figure 5.1]**.

The **Rear Stop Trigger Screw** is used to set the amount of trigger 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 fire. Turn this screw counter clockwise to increase the amount of trigger travel **[see figure 5.2]**.



FIGURE 5.1



FIGURE 5.2

The **Return Strength Trigger Screw** is used to adjust the amount of force with which the trigger is returned to its rest position. Turn the screw clockwise to increase the amount of force [see figure 5.3]. Do not turn the screw too far or it will negate the position of the **Front Stop Trigger Screw**. Turn the screw counter clockwise to reduce the amount of force. Do not turn the screw too far or there will not be enough force to return the trigger.



FIGURE 5.3

Once you have set the trigger to your preference, refer to setting the **TT BAND** (see page 61), as it is very important that the **TT BAND** and trigger pull are set up correctly for the Trigger Transition Filtering to work correctly.

THE SET UP MENU

To activate the **SET-UP** Menu, first remove the three rubber grip screws from the right hand side of the frame and peel back the rubber grip to expose the PCB inside the frame. Press and hold the **Set-up** pushbutton, which is located on the PCB above the battery.

After one second, **TIMING** will be displayed - this is the first option on the **SET-UP** Menu as shown below:

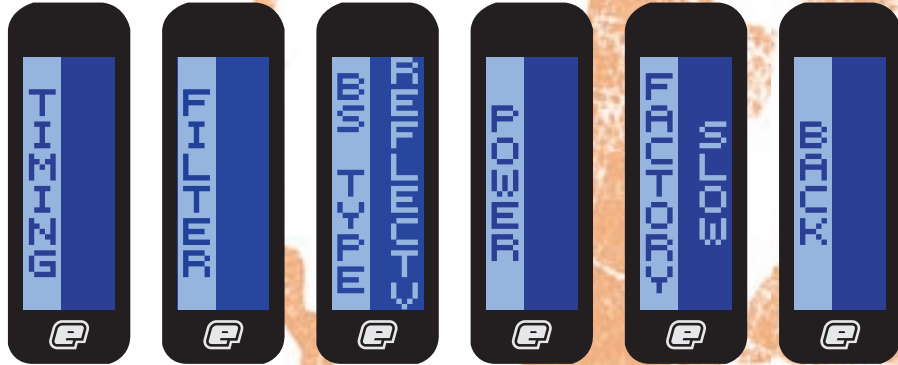
Press the **Lower** pushbutton to scroll down through each of the options on the menu. Once the last option has been displayed, pressing the **Lower** pushbutton will cause the first option to be displayed.

Press the **Raise** pushbutton to scroll up through each of the options on the menu. Once the first option has been displayed, pressing the **Raise** pushbutton will cause the last option to be displayed.

Press the **Select** pushbutton to select the displayed option.

Selecting **BACK** will return the display to the Run Screen from which the **SET-UP** Menu was selected.

Lower →



Raise ←

TIMING THE ECLIPSEBLADE E2

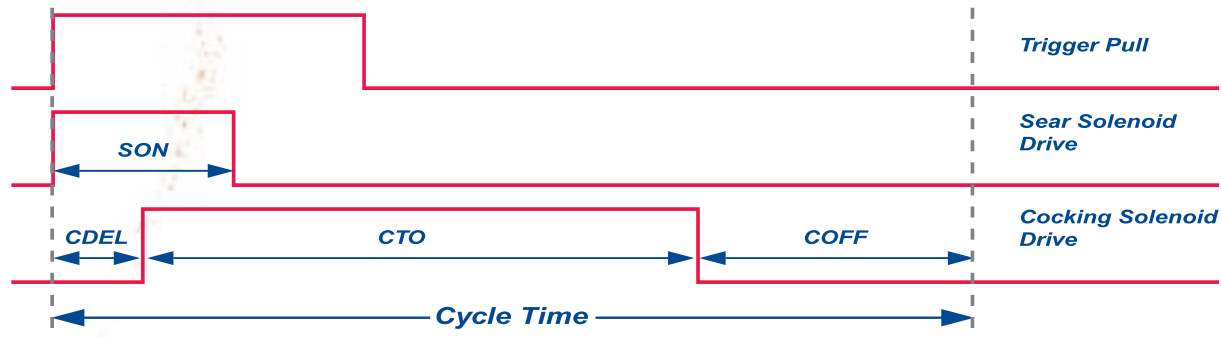
Apart from the setting of the hammer lug, the timing of the Eclipseblade E2 electronic grip frame is handled entirely by the electronics.

There are five parameters (**Sear Solenoid On Time**, **Cocking Delay**, **Cocking Solenoid On Time**, **Cocking Solenoid Timeout** and **Cocking Solenoid Off Time**) that have an effect on the timing and these parameters have to be understood in order to correctly set the timing of your marker.

Firstly we will look at how the Eclipseblade E2 Electronic Grip Frame operates when the breech sensor is disabled.

When the trigger is pulled, the sear solenoid is energised immediately, releasing the hammer and causing the marker to fire.

The amount of time for which the sear solenoid is energised is known as the **Sear Solenoid On Time (SEAR ON)**. This time should be set as short as possible, but has to be long enough to ensure that the hammer is actually released. On markers with heavy mainsprings or rough hammer lugs this value will be higher than on markers with light mainsprings and smooth lugs.



Some time after the sear solenoid has been energised, the cocking solenoid is energised. The delay between the two solenoids being energised is known as the **Cocking Solenoid On Delay (C DELAY)**. This is the time that would be affected by the 3-way on a stock marker, and controls the amount of time that is allowed for the hammer to open the valve before the marker starts to re-cock.

Energising the cocking solenoid causes the ram to push back the back block, retracting the bolt and allowing a paintball to drop into the breech. The cocking solenoid has to remain energised long enough for all of this to happen and that time is known as **Cocking Solenoid On Time (C ON)**.

After the cocking solenoid on time has expired, the cocking solenoid is de-energised causing the ram to pull forwards the back block, closing the bolt and cocking the marker. The amount of time that is allowed for the bolt to fully close is known as the **Cocking Solenoid Off Time (C OFF)**. Once this time has expired, the cycle is complete and the marker is allowed to fire again on the next trigger pull. The cycle time is therefore the amount of time from the trigger being pulled to the end of the **Cocking Solenoid Off Time** and is calculated as follows:

$$\text{Cycle time} = C \text{ DELAY} + C \text{ ON} + C \text{ OFF}$$

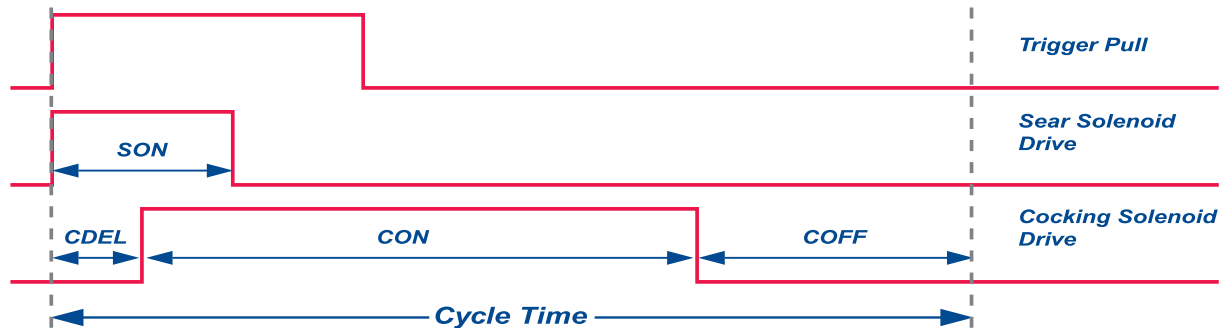
And the maximum rate of fire is calculated as follows:

$$\text{Maximum Rate of Fire} = 1000/\text{cycle time}$$

Timing the Eclipseblade E2 Electronic Grip Frame for use with either the reflective or break-beam breech sensor system enabled is almost exactly the same as for with the breech sensor disabled. However in this case the **Cocking Solenoid On Time (C ON)** is controlled automatically by the breech sensor system such that this time is terminated as soon as the sensor detects a paintball in the breech of the marker.

If no paintball is detected within a given time then the cocking solenoid will be disabled. This time is known as the **Cocking Solenoid Time-out (C T/OUT)**.

With the breech sensor enabled, it is not possible to calculate the maximum rate of fire, as this will depend on how fast the paintballs are fed into the breech by your choice of loader system.



THE TIMING MENU

Scroll through the **SET-UP** Menu until the **TIMING** option is displayed and then press **Select**. This will display **SEAR ON** the first parameter on the **TIMING** Menu.

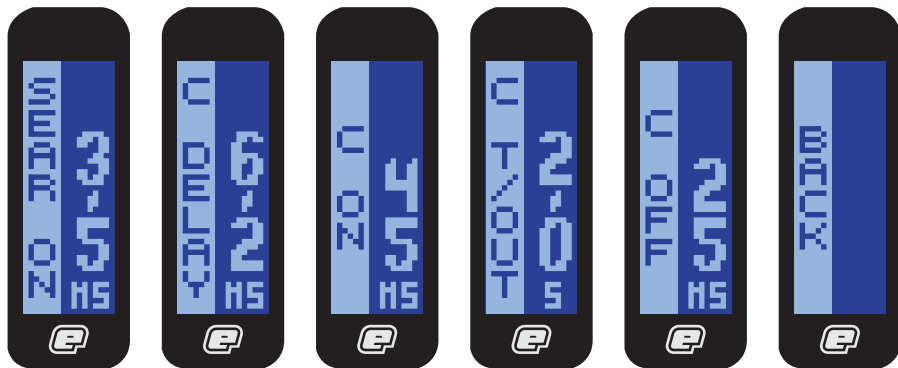
Press the **Lower** pushbutton to scroll down through each of the options on the **TIMING** Menu. Once the last option has been displayed, pressing the **Lower** pushbutton will cause the first option to be displayed.

Press the **Raise** pushbutton to scroll up through each of the options on the **TIMING** Menu. Once the first option has been displayed, pressing the **Raise** pushbutton will cause the last option to be displayed.

Press the **Select** pushbutton to select the displayed option.

Selecting **BACK** will return the display to the **SET-UP** Menu.

Lower →



← *Raise*

SEAR SOLENOID ON TIME (SEAR ON)

Scroll through the **TIMING** Menu until the **Sear Solenoid On Time (SEAR ON)** parameter is displayed.

The current value of the **Sear Solenoid On Time (SEAR ON)** is displayed in milliseconds on the right hand side of the display.

Press the **Select** pushbutton to enter the edit function and the edit indicator will appear on the display.

Press and release the **Raise** pushbutton to increase the **Sear Solenoid On Time (SEAR ON)** in 0.1 millisecond increments. Press and hold the **Raise** pushbutton to increase the **Sear Solenoid On Time (SEAR ON)** more rapidly.

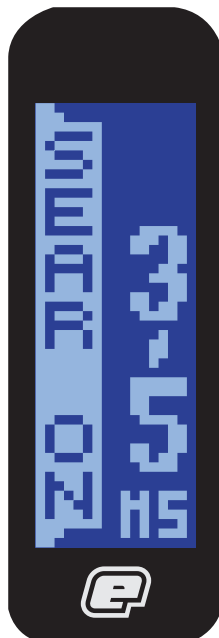
Press and release the **Lower** pushbutton to decrease the **Sear Solenoid On Time (SEAR ON)** in 0.1 millisecond increments. Press and hold the **Lower** pushbutton to decrease the **Sear Solenoid On Time (SEAR ON)** more rapidly.

Press **Select** to save the **Sear Solenoid On Time (SEAR ON)** and the edit indicator will disappear from the display to indicate that the value has been accepted.

EDIT INDICATOR



STANDARD



COCKING SOLENOID ON DELAY (C DELAY)

Scroll through the **TIMING** Menu until the **Cocking Solenoid On Delay [C DELAY]** parameter is displayed.

The current value of the cocking solenoid on delay is displayed on the right hand side of the display.

Press the **Select** pushbutton to enter the edit function and the edit indicator will appear on the display.

Press and release the **Raise** pushbutton to increase the **Cocking Solenoid On Delay [C DELAY]** time in 0.1 millisecond increments. Press and hold the **Raise** pushbutton to increase the **Cocking Solenoid On Delay [C DELAY]** time more rapidly.

Press and release the **Lower** pushbutton to decrease the **Cocking Solenoid On Delay [C DELAY]** time in 0.1 millisecond increments. Press and hold the **Lower** pushbutton to decrease the **Cocking Solenoid On Delay [C DELAY]** time more rapidly.

Press **Select** to save the **Cocking Solenoid On Delay [C DELAY]** time and the edit indicator will disappear from the display to indicate that the value has been accepted.



COCKING SOLENOID ON TIME (CON)

Scroll through the **TIMING** Menu until the **Cocking Solenoid On Time (CON)** option is displayed.

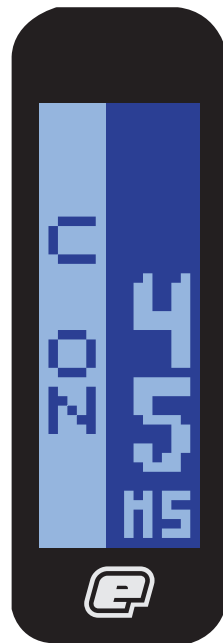
The current value of the **Cocking Solenoid On Time (CON)** is displayed on the right hand side of the display.

Press the **Select** pushbutton to enter the edit function and the edit indicator will appear on the display.

Press and release the **Raise** pushbutton to increase the **Cocking Solenoid On Time (CON)** in 1 millisecond increments. Press and hold the **Raise** pushbutton to increase the **Cocking Solenoid On Time (CON)** more rapidly.

Press and release the **Lower** pushbutton to decrease the **Cocking Solenoid On Time (CON)** in 1 millisecond increments. Press and hold the **Lower** pushbutton to decrease the **Cocking Solenoid On Time (CON)** more rapidly.

Press **Select** to save the **Cocking Solenoid On Time (CON)** and the edit indicator will disappear from the display to indicate that the value has been accepted.



COCKING SOLENOID TIME OUT (C T/OUT)

Scroll through the **TIMING** Menu until the **Cocking Solenoid Time Out (C T/OUT)** option is displayed.

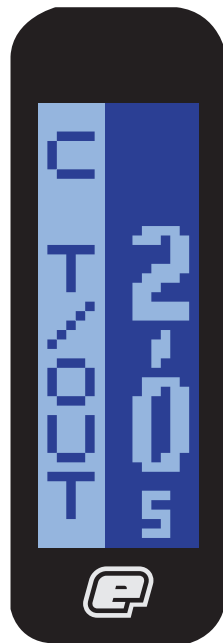
The current value of the **Cocking Solenoid Time Out (C T/OUT)** is displayed on the right hand side of the display.

Press the **Select** pushbutton to enter the edit function and the edit indicator will appear on the display.

Press and release the **Raise** pushbutton to increase the **Cocking Solenoid Time Out (C T/OUT)** in 0.1 second increments. Press and hold the **Raise** pushbutton to increase the **Cocking Solenoid Time Out (C T/OUT)** more rapidly.

Press and release the **Lower** pushbutton to decrease the **Cocking Solenoid Time Out (C T/OUT)** in 0.1 second increments. Press and hold the **Lower** pushbutton to decrease the **Cocking Solenoid Time Out (C T/OUT)** more rapidly.

Press **Select** to save the **Cocking Solenoid Time Out (C T/OUT)** setting and the edit indicator will disappear from the display to indicate that the value has been accepted.



COCKING SOLENOID OFF TIME (C OFF)

Scroll through the timing menu until the **Cocking Solenoid Off Time (C OFF)** option is displayed.

The current value of the **Cocking Solenoid Off Time (C OFF)** is displayed on the right hand side of the display.

Press the **Select** pushbutton to enter the edit function and the edit indicator will appear on the display.

Press and release the **Raise** pushbutton to increase the **Cocking Solenoid Off Time (C OFF)** in 1 millisecond increments. Press and hold the **Raise** pushbutton to increase the **Cocking Solenoid Off Time (C OFF)** more rapidly.

Press and release the **Lower** pushbutton to decrease the **Cocking Solenoid Off Time (C OFF)** in 1 millisecond increments. Press and hold the **Lower** pushbutton to decrease the **Cocking Solenoid Off Time (C OFF)** more rapidly.

Press **Select** to save the **Cocking Solenoid Off Time (C OFF)** time and the edit indicator will disappear from the display to indicate that the value has been accepted.



THE FILTER MENU

Scroll through the **SET-UP** Menu until the **FILTER** option is displayed and then press **Select**. This will display **BALL**, the first option on the **FILTER** Menu:

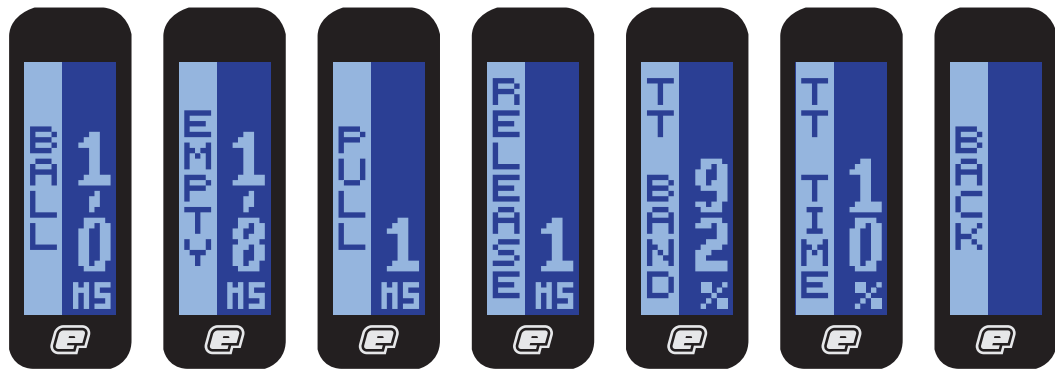
Press the **Lower** pushbutton to scroll down through each of the options on the **FILTER** Menu. Once the last option has been displayed, pressing the **Lower** pushbutton will cause the first option to be displayed.

Press the **Raise** pushbutton to scroll up through each of the options on the **FILTER** Menu. Once the first option has been displayed, pressing the **Raise** pushbutton will cause the last option to be displayed.

Press the **Select** pushbutton to select the displayed option.

Selecting **BACK** will return the display to the **SET-UP** Menu.

Lower



Raise

ADVANCED SET-UP

56

USING THE BREECH SENSOR FILTER

During the firing cycle, the breech sensor looks first for an empty breech and then for a paintball within the breech. Only when the sensor has detected both conditions will it allow the bolt to close. The breech sensor software filter allows you to fine tune the operation of the breech sensor by allowing you to specify how long the sensor has to see an “empty” breech for and how long it has to see a ball for.

SETTING THE BALL DETECTION TIME (BALL)

Scroll through the **FILTER** Menu until the **Ball Detection Time (BALL)** option is displayed.

The current value of the **Ball Detection Time (BALL)** is displayed on the right hand side of the display.

Press the **Select** pushbutton to enter the edit function and the edit indicator will appear on the display.

Press and release the **Raise** pushbutton to increase the **Ball Detection Time (BALL)** in 0.1 millisecond increments. Press and hold the **Raise** pushbutton to increase the **Ball Detection Time (BALL)** more rapidly.

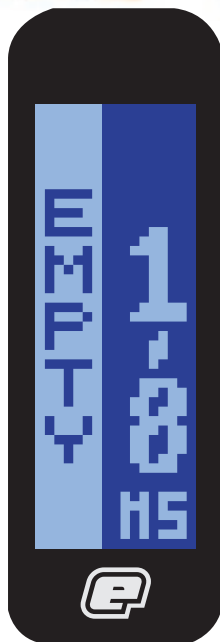
Press and release the **Lower** pushbutton to decrease the **Ball Detection Time (BALL)** in 0.1 millisecond increments. Press and hold the **Lower** pushbutton to decrease the **Ball Detection Time (BALL)** more rapidly.

Press **Select** to save the **Ball Detection Time (BALL)** and the edit indicator will disappear from the display to indicate that the value has been accepted.



ECLIPSEBLADE®

ADVANCED SET-UP



SETTING THE EMPTY BREECH DETECTION TIME ^(EMPTY)

Scroll through the **FILTER** Menu until the **Empty Breech Detection Time (EMPTY)** option is displayed.

The current value of the **Empty Breech Detection Time (EMPTY)** is displayed on the right hand side of the display.

Press the **Select** pushbutton to enter the edit function and the edit indicator will appear on the display.

Press and release the **Raise** pushbutton to increase the **Empty Breech Detection Time (EMPTY)** in 0.1 millisecond increments. Press and hold the **Raise** pushbutton to increase the **Empty Breech Detection Time (EMPTY)** more rapidly.

Press and release the **Lower** pushbutton to decrease the **Empty Breech Detection Time (EMPTY)** in 0.1 millisecond increments. Press and hold the **Lower** pushbutton to decrease the **Empty Breech Detection Time (EMPTY)** more rapidly.

Press **Select** to save the **Empty Breech Detection Time (EMPTY)** and the edit indicator will disappear from the display to indicate that the value has been accepted.

USING THE TRIGGER FILTERING

The trigger has to be pulled for a specific time in order for that trigger pull to be accepted as a valid trigger pull. The marker cannot be fired until it has had a valid trigger pull.

The trigger then has to be released for a specific time in order for that release to be accepted as a valid trigger release. The marker cannot be fired again until it has first had a valid trigger release (followed, of course, by another valid trigger pull).

With the addition of the **Trigger Transition** software filter (see page 61), you can minimise the amount of time for which the trigger has to be pulled and released in order to maintain high rates of fire whilst eliminating the risk of “bounce”

SETTING THE TRIGGER PULL TIME (PULL)

Scroll through the **FILTER** Menu until the **Trigger Pull Time (PULL)** option is displayed.

The current value of the **Trigger Pull Time (PULL)** is displayed on the right hand side of the display.

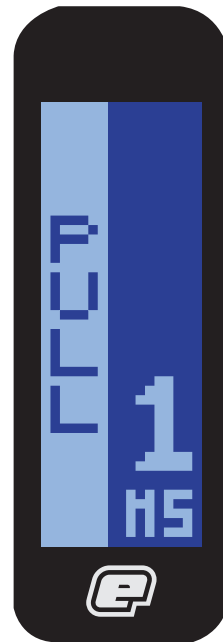
Press the **Select** pushbutton to enter the edit function and the edit indicator will appear on the display.

Press and release the **Raise** pushbutton to increase the **Trigger Pull Time (PULL)** in 1 millisecond increments. Press and hold the **Raise** pushbutton to increase the **Trigger Pull Time (PULL)** more rapidly.

Press and release the **Lower** pushbutton to decrease the **Trigger Pull Time (PULL)** in 1 millisecond increments. Press and hold the **Lower** pushbutton to decrease the **Trigger Pull Time (PULL)** more rapidly.

Press **Select** to save the **PULL** value and the edit indicator will disappear from the display to indicate that the value has been accepted.

Note: A **Trigger Pull Time (PULL)** of 1ms is recommended when using the additional TT filtering correctly.



SETTING THE TRIGGER RELEASE TIME (RELEASE)

Scroll through the **FILTER** Menu until the **Trigger Release Time (RELEASE)** option is displayed.

The current value of the **Trigger Release Time (RELEASE)** is displayed on the right hand side of the display.

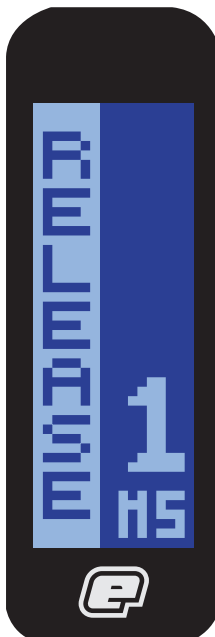
Press the **Select** pushbutton to enter the edit function and the edit indicator will appear on the display.

Press and release the **Raise** pushbutton to increase the **Trigger Release Time (RELEASE)** in 1 millisecond increments. Press and hold the **Raise** pushbutton to increase the **Trigger Release Time (RELEASE)** more rapidly.

Press and release the **Lower** pushbutton to decrease the **Trigger Release Time (RELEASE)** in 1 millisecond increments. Press and hold the **Lower** pushbutton to decrease the **Trigger Release Time (RELEASE)** more rapidly.

Press **Select** to save the **Trigger Release Time (RELEASE)** and the edit indicator will disappear from the display to indicate that the value has been accepted.

Note: A **Trigger Release Time (RELEASE)** of 1ms is recommended when using the additional TT filtering correctly.



USING THE TRIGGER TRANSITION FILTERING

The E2 incorporates an advanced debounce (anti-bounce) algorithm known as the Trigger Transition Filter (TT Filter), which is fully adjustable and can be used to completely eliminate trigger bounce. The TT Filter works by analysing each trigger pull and determining whether that trigger pull is a legitimate pull of the trigger by the user, or one that has been caused by the gun bouncing, in which case the algorithm will take steps to stop that bounce.

There are two adjustable parameters associated with the TT Filter -

TT BAND

This parameter defines the operating range of the TT Filter in terms of trigger movement. The larger the TT Band, the less the gun is able to bounce.

TT TOLERANCE

This parameter defines how strictly the TT Filter applies its debounce rules - the lower this value, the less the gun is able to bounce.



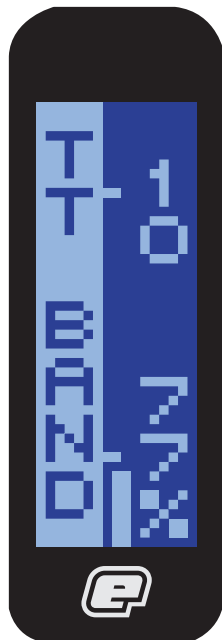
SETTING UP THE TT FILTER

In order to optimise the TT Filter it is necessary to have the **TT Band** parameter as high as possible and the TT Tolerance parameter as low as possible -

1. Select the **TT Band** parameter. Observe that the graphical bar rises and falls as the trigger is pulled and released. The actual value of the bar is displayed in the top right of the display.
2. Set the **Post-travel Trigger Stop** as required and ensure that the bar is as close to 100% as possible when the trigger is fully depressed against the set screw.
3. Set the **Pre-travel Trigger Set Screw** as required and ensure that the bar is as close to 0% as possible when the trigger is fully released against the set screw.
4. Set the **Trigger Return Force Set Screw** as required, making the return force as strong as possible without compromising the 'feel' of the pull.
5. Adjust the **TT Band** parameter, shown in the bottom right of the screen, and observe the movement of the two horizontal markers by the side of the bar. As the **TT Band** is decreased these markers move closer together, and as the **TT Band** is increased these markers move further apart. Set the **TT Band** such that when the trigger is fully depressed the bar settles above the upper marker and when the trigger is fully released the bar settles below the lower marker. This ensures that the **TT Band** operates across the full range of the trigger pull.
6. Select the **TT Tolerance** parameter. With the gun gassed up and preferably fitted with loader and firing paint, try to get the gun to bounce by pulling the trigger very slowly. If the gun does bounce then reduce the **TT Tolerance** until it no longer does so. If the gun does not bounce then increase the **TT Tolerance** until the gun does bounce and then reduce the **TT Tolerance** again until the bouncing stops

Whilst this set up should completely eliminate bounce, it may result in a trigger pull that is not ideally suited to the user, in which case it will be necessary to make adjustments to the trigger and then modify the TT Filter parameters accordingly.

Note: The fastest way to shoot an E2 is to walk the trigger with two or more fingers. Feathering (not fully releasing) the trigger will cause the TT Filter to reduce the rate of fire in order to eliminate what it perceives as trigger bounce.



THE BREECH SENSOR TYPE

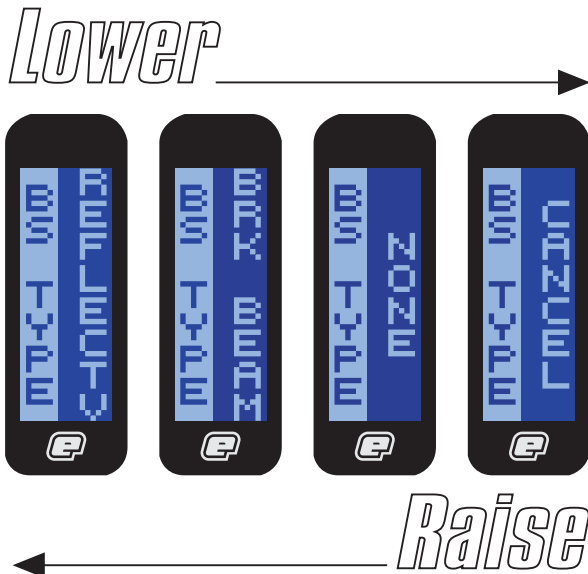
The **Breach Sensor Type** parameter defines which type of breach sensor is fitted to the marker.

REFLECTV refers to the standard Reflective Breach Sensor which is supplied with the Eclipseblade E2.

BRK BEAM refers to the Break-beam Breach Sensor system, sold separately.

NONE allows the Eclipseblade E2 to be used with no Breach Sensor fitted.

Note: When selecting **NONE**, the Eclipseblade E2 will power up with the breach sensor permanently disabled and the user will not be able to switch it on or off.



(BS TYPE) SELECTING THE BREECH SENSOR TYPE

Scroll through the **SET-UP** Menu until the **Breach Sensor Type (BS TYPE)** option is displayed. The current breach sensor choice is displayed. Pressing **Select** enters into the edit feature of the **Breach Sensor Type (BS TYPE)** Menu.

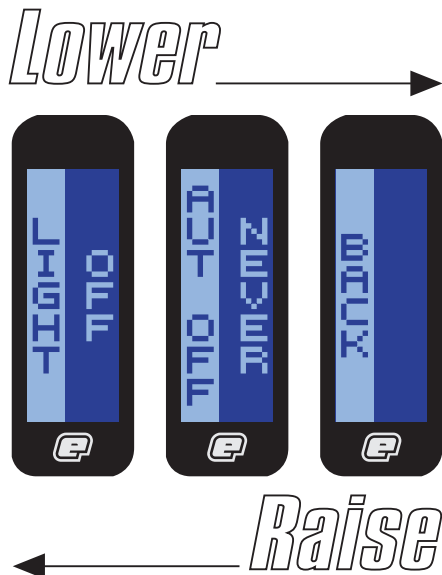
Press the **Lower** pushbutton to scroll down through each of the options on the **Breach Sensor Type (BS TYPE)** Menu. Once the last option has been displayed, pressing the **Lower** pushbutton will cause the first option to be displayed.

Press the **Raise** pushbutton to scroll up through each of the options on the **Breach Sensor Type (BS TYPE)** Menu. Once the first option has been displayed, pressing the **Raise** pushbutton will cause the last option to be displayed.

Press the **Select** pushbutton to select the displayed option. Selecting **BACK** will return the display to the **SET-UP** Menu.

THE POWER MENU

The **POWER** Menu gives the user options to adjust the power saving settings of their Eclipseblade E2 Electronic Grip Frame. It is possible to change the characteristics of both the LCD backlight and of the Auto-off feature using the **POWER** Menu.



USING THE POWER MENU

Scroll through the **SET-UP** Menu until the **POWER** option is displayed and then press **Select**. This will display **LIGHT**, the first option on the **POWER** Menu:

Press the **Lower** pushbutton to scroll down through each of the options on the **POWER** Menu. Once the last option has been displayed, pressing the **Lower** pushbutton will cause the first option to be displayed.

Press the **Raise** pushbutton to scroll up through each of the options on the **POWER** Menu. Once the first option has been displayed, pressing the **Raise** pushbutton will cause the last option to be displayed.

Press the **Select** pushbutton to select the displayed option. Selecting **BACK** will return the display to the **SET-UP** Menu.

Scroll through the **POWER** Menu until the **LIGHT** option is displayed and then press **Select**. This will display the current backlight option on the **Backlight (LIGHT)** Menu:

Press the **Lower** pushbutton to scroll down through each of the options on the **Backlight (LIGHT)** Menu. Once the last option has been displayed, pressing the **Lower** pushbutton will cause the first option to be displayed.

Lower



Raise

USING THE BACKLIGHT MENU

Press the **Raise** pushbutton to scroll up through each of the options on the **Backlight (LIGHT)** Menu. Once the first option has been displayed, pressing the **Raise** pushbutton will cause the last option to be displayed.

Press the **Select** pushbutton to select the displayed option.

To have the backlight permanently on, select the **ON** option.

To have the backlight permanently off, select the **OFF** option.

To activate the backlight every time the trigger is pulled, select the **TRIGGER** option.

To activate the backlight every time a push button is depressed, select the **BUTTON** option.

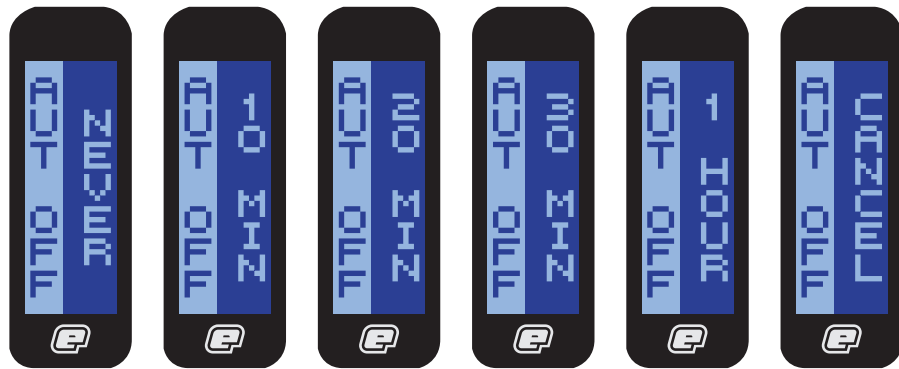
Selecting **CANCEL** will terminate the selection mode leaving the original choice unchanged.

SELECTING THE AUTO-OFF TIME ^(OUT OFF)

Lower

Scroll through the **POWER** Menu until the **Auto Off-time (OUT OFF)** option is displayed and then press **Select**. This will display the current Auto-off option on the **AAuto Off-time (OUT OFF)** Menu:

Press the **Lower** pushbutton to scroll down through each of the options on the **Auto Off-time (OUT OFF)** Menu. Once the last option has been displayed, pressing the **Lower** pushbutton will cause the first option to be displayed.



Raise

Press the **Raise** pushbutton to scroll up through each of the options on the **Auto Off-time (OUT OFF)** Menu. Once the first option has been displayed, pressing the **Raise** pushbutton will cause the last option to be displayed.

Press the **Select** pushbutton to select the displayed option.

To set the E2 frame to never power down after a period of inactivity, select the **NEVER** option.

To set the E2 frame to power down after ten minutes of inactivity, select the **10 MIN** option.

To set the E2 frame to power down after twenty minutes of inactivity, select the **20 MIN** option.

To set the E2 frame to power down after thirty minutes of inactivity, select the **30 MIN** option.

To set the E2 frame to power down after sixty minutes of inactivity, select the **1 HOUR** option.

Selecting **CANCEL** will terminate the selection mode leaving the original choice unchanged.

THE FACTORY SETTINGS PARAMETER

The Factory settings option gives the user a simple way of selecting a group of factory settings to suit their marker, without having to individually go through and adjust each parameter.

As a guideline, we would recommend that:

When using the Eclipseblade E2 on a standard autococker with standard pneumatics using a gravity fed loading device, the frame should be set at **Factory Slow**.

When using the Eclipseblade E2 on a mid-range autococker, such as an Eclipse Pro Series or Pro Series Plus marker using an electronic loading device, the frame should be set at **Factory Medium**.

When using the Eclipseblade E2 on a top of the line autococker, with heavily upgraded pneumatics (Nexus Ram and QEV's), such as the Nexus DC2 marker, the frame should be set at **Factory Fast**.

As an aside, if the user has chosen to deviate from the factory settings, **CUSTOM** will be displayed as the selected choice.

(FACTORY) SELECTING A FACTORY SETTING

Scroll through the **SET-UP** Menu until the **Factory Setting (FACTORY)** option is displayed and then press **Select**. This will display the current Factory option on the **Factory Setting (FACTORY)** Menu:

Press the **Lower** pushbutton to scroll down through each of the options on the **Factory Setting (FACTORY)** Menu. Once the last option has been displayed, pressing the **Lower** pushbutton will cause the first option to be displayed.

Press the **Raise** pushbutton to scroll up through each of the options on the **Factory Setting (FACTORY)** Menu. Once the first option has been displayed, pressing the **Raise** pushbutton will cause the last option to be displayed.

Press the **Select** pushbutton to select the displayed option.

To set the E2 frame to Factory Slow, select the **SLOW** option.

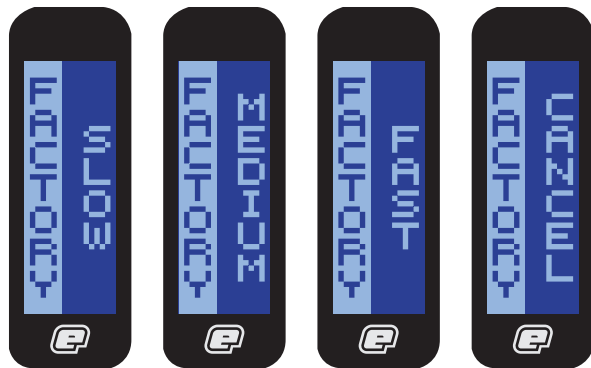
To set the E2 frame to Factory Medium, select the **MEDIUM** option.

To set the E2 frame to Factory Fast, select the **FAST** option.

It is not possible to select **CUSTOM** as an option from the **Factory Setting (FACTORY)** Menu, as this is only displayed when Factory Settings are not adhered to.

Selecting **CANCEL** will terminate the selection mode leaving the original choice unchanged.

Lower



Raise

MENU TREE

69

MAIN MENU

SET-UP MENU

OFF
DISPLAY

TIMER
SHOTS
ROF
GRAPHIC
CANCEL

Turn the Edipseblade E2 Off.
Go to the Display Menu
Display the Game Timer
Display the Shot Counter
Display the Rate of Fire
Display the Custom Graphic
Return to the Main Menu
Go to the breech sensor sensitivity screen
Go to the Timer menu
Adjust the Game Timer
Adjust the Alarm time.
Choose how to start the game timer
Return to the Main Menu
Go to the Mode menu
Set Semi-Auto mode
Set Classic mode
Set Training mode
Return to the Main Menu
Go to the Info menu
Display the current version of firmware.
Display the total number of shots.
Return to the Main Menu

SENSIV
TIMER

GAME
ALARM
START
BACK

MODE

SEMI
CLASSIC
TRAINING
CANCEL

INFO

VERSION
T SHOTS

BACK

TIMING

SEAR ON
C DELAY
C ON
C T/OUT
C OFF
BACK

Go to the Timing Menu
Set the Sear Solenoid On Time
Set the Cocking Solenoid On Delay
Set the Cocking Solenoid On Time
Set the Cocking Solenoid Time Out
Set the Cocking Solenoid Off Time
Return to the Setup Menu
Go to the Filter Menu
Set the Ball Detection Time
Set the Empty Breech Detection Time
Set the Trigger Pull Time
Set the Trigger Release Time
Set the Trigger Transition Band
Set the Trigger Transition Tolerance
Return to the Setup Menu
Go to the Breech Sensor Type Menu
Select Reflective Breech Sensor
Select Break Beam Breech Sensor System
Select No breech sensor system
Return to the Setup Menu

FILTER

BALL
EMPTY
PULL
RELEASE
TT BAND
TT TOL
BACK

BS TYPE

REFLECTV
BRK BEAM
NONE
CANCEL

POWER

LIGHT
AUTO OFF
BACK

FACTORY

SLOW
MEDIUM
FAST
CANCEL

Go to the Power Menu
Edit the Backlight settings
Edit the Auto-Off settings
Return to the Setup Menu
Go to the Factory Settings Menu
Set the factory preset settings for a Slow marker
Set the factory preset settings for a Medium marker
Set the factory preset settings for a Fast marker
Return to the Setup Menu
Return to the regular display mode.

BACK

MAINTENANCE



70

CLEANING THE REFLECTIVE BREECH SENSOR

De-gas your marker and remove the barrel and loader to make it easier to work on. Undo the retaining screw for the Breech Sensor Cover using a 1/16th hex key *[see figure 7.1]*.

FIGURE 7.1

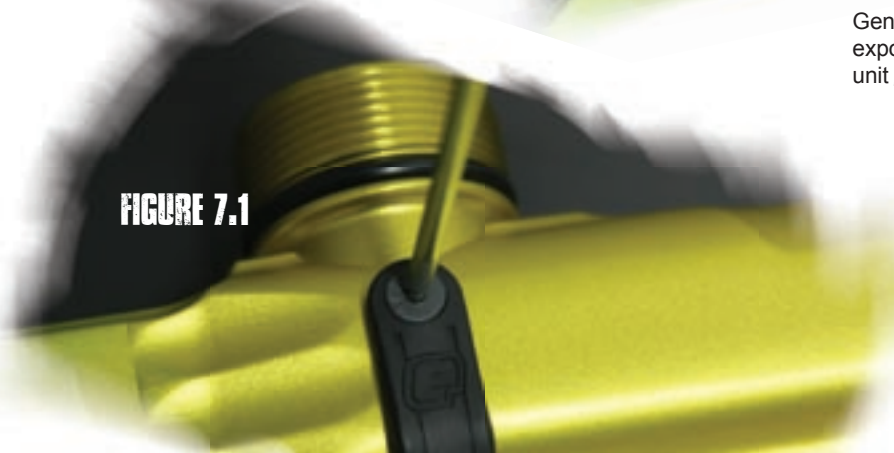



FIGURE 7.2



Gently lift the breech sensor cover to expose the back of the breech sensor unit *[see figure 7.2]*.





Using a dry Q-tip, carefully remove any debris, paint or moisture from the back of the breech sensor unit and from inside the breech sensor cover *(see figure 7.3)*.

Carefully ease the breech sensor out of the cocker body and using another dry Q-tip, remove any grease or debris build-up from the front of the breech sensor unit *(see figure 7.4)*.

Replace the breech sensor unit into the cocker body and replace the breech sensor cover. Using a 1/16th hex key, replace the breech sensor retaining screw to hold the breech sensor cover in place. Be careful not to cross-thread the screw. Do not over tighten the screw.



FIGURE 7.3

FIGURE 7.4

You have now cleaned your reflective breech sensor.

Note: To thoroughly clean breech sensor, remove unit from frame and soak over night in soapy water. Dry thoroughly and coat the rear of the breech sensor unit with a light coat of Liquid Electrical Tape (LET), clear acrylic or nail varnish to protect the contacts. Re-install cleaned breech sensor.

ECLIPSEBLADE

CLEANING THE COCKING SOLENOID

De-gas your marker and remove the screw that secure the right hand side of the rubber grip cover to the Eclipseblade E2 frame, using a 5/64th inch hex key *[see figure 7.5]*.

Carefully unplug the cocking solenoid lead from the top port on the Eclipseblade E2 printed circuit board *[see figure 7.6]*.

Remove the two grip frame screws using a 1/8th inch hex key and carefully free the cocking solenoid leads from the groove in the top of the grip frame *[see figure 7.7]*.

At this point you may wish to unplug the low pressure hosing from the three barb fittings of the cocking solenoid minifold.



FIGURE 7.5



FIGURE 7.6



FIGURE 7.7

FIGURE 7.8

On the right hand side of the cocking solenoid manifold, you will see that there are two screws holding the side of the manifold onto the main body *[see figure 7.8]*.

Using a 5/64th inch hex key remove the two screws to expose the cocking solenoid and minifold inside *[see figure 7.9]*.

Gently slide the cocking solenoid and minifold to the right, out of the groove in the manifold, and feed the cocking solenoid lead through the back of the manifold *[see figure 7.10]*.

FIGURE 7.10

FIGURE 7.9

ECLIPSEBLADE®

CLEANING THE COCKING SOLENOID (CONT)

Using the correct size Phillips head screwdriver, carefully remove the two screws that hold the manifold and gasket onto the top of the cocking solenoid *[see figure 7.11]*.

By removing the manifold you can now expose the captured gasket *[see figure 7.12]*. Remove the cocking solenoid gasket from the manifold and ensure that it is thoroughly clean and free of any debris *[see figure 7.13]*.

Holding the cocking solenoid with the smallest end facing you, use a small Phillips head screwdriver to remove the end cap. If you are in doubt which end this is, there is a small "A" printed on the top of the solenoid *[see figure 7.14]*. One end of the spool will now be exposed.

Turn the cocking solenoid around so that the grey end (a small "B" is printed on the top of the solenoid as well) is now facing you, use a small Phillips head screwdriver to remove the end cap *[see figure 7.15]*.

FIGURE 7.11



FIGURE 7.12



FIGURE 7.13



FIGURE 7.14



FIGURE 7.15



FIGURE 7.16



Another set of screws is now exposed. Remove these to expose the other end of the spool *[see figure 7.16]*.

Using a small tool carefully push the spool out of the solenoid body *[see figure 7.17]*.

FIGURE 7.17



Carefully inspect each of the spool o-rings to check that they are not damaged and lubricate well with Molycote Dow 33. If any of the spool o-rings are damaged please contact us and we will advise you on how best to proceed *[see figure 7.18]*.

FIGURE 7.18



Replace the spool into the solenoid body and reattach the small end cap onto the end marked "A", making sure that the notch in the end cap is at the bottom and that the SMC marked on the end cap reads the right way up when it is attached *[see figure 7.19]*.

FIGURE 7.19



Reattach the middle section to the end of the solenoid marked with a "B" and then reattach the grey end cap to the exposed end of the middle section that you have just attached *[see figure 7.20]*.

FIGURE 7.20



CLEANING THE COCKING SOLENOID (CONT)

Replace the gasket into the cocking solenoid minifold, making sure that the gasket sits correctly and that it does not obstruct any of the barb fittings in the minifold *[see figure 7.21 and figure 7.22]*.

Using the correct size Philips head screwdriver, attach the minifold and gasket to the top of the cocking solenoid using the two minifold screws *[see figure 7.23]*.

Carefully feed the cocking solenoid leads through the hole in the back of the manifold so that the cocking solenoid and minifold can be slid into the groove in the top of the manifold housing *[see figure 7.24]*.

Using a 5/64th inch hex key, reattach the two screws that secure the manifold plate onto the manifold body *[see figure 7-25]* and reattach the low pressure hosing (if previously disconnected).

FIGURE 7.21

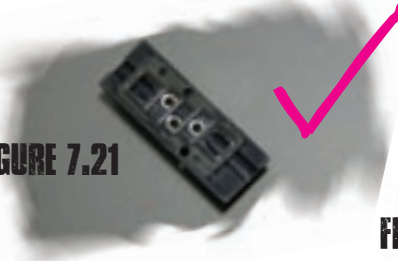


FIGURE 7.22



FIGURE 7.23



FIGURE 7.24



FIGURE 7.25



Carefully reposition the cocking solenoid leads and breech sensor and cover into their designated places at the top of the frame before tightening the frame screws and attaching your e-Blade frame back onto your cocker.

Plug your cocking solenoid connector into the top port of the PCB, and reattach the grip cover screws.

You have now cleaned your cocking solenoid.

LUBRICATING THE SEAR

FIGURE 7.26

De-gas your marker and remove the barrel and loader to make it easier to work on. Undo the retaining screw on the breech sensor cover using a 1/16th inch Allen key, and lift the breech sensor and cover clear of the marker body *[see figure 7.26]*.

Remove the two grip frame screws using a 1/8th inch Allen key and carefully free the frame from the body, exposing the sear *[see figure 7.27]*.

Using Wurth HHS 2000, highly adhesive, pressure resistant, synthetic grease, spray a light coating onto the polished rear face of the sear. Blow onto the HHS 2000 to dry it onto the sear and repeat the process so that a second coat is applied *(NOTE: Wurth HHS 2000 is the recommended lubricant, but any highly adhesive, pressure resistant lubricant should work)* *[see figure 7.28 and figure 7.29]*.

FIGURE 7.27

Reattach the grip frame to the marker, taking care not to damage the breech sensor or the cocking solenoid leads. Attach the two grip frame screws and the breech sensor cover screw.

You have now lubricated your sear.

FIGURE 7.29

FIGURE 7.28

SETTINGS

79

SETTINGS	FACTORY SLOW	FACTORY MEDIUM	FACTORY FAST	CUSTOM ONE	CUSTOM TWO	CUSTOM THREE
SEAR ON	4.0ms	4.0ms	4.0ms			
C DELAY	6.0ms	6.0ms	6.0ms			
C ON	75ms	65ms	55ms			
C T/OUT	1.0 _{SEC}	1.0 _{SEC}	1.0 _{SEC}			
C OFF	32ms	28ms	24ms			
BALL	1.0ms	1.0ms	1.0ms			
EMPTY	2.0ms	2.0ms	2.0ms			
PULL	1.0ms	1.0ms	1.0ms			
RELEASE	1.0ms	1.0ms	1.0ms			
TT BAND	75%	75%	75%			
TT TOL	12%	12%	12%			

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Although a fresh battery has been fitted, the Eclipseblade E2 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.
	If the Auto-Off function is disabled then the battery will drain more quickly than if it is enabled.	Enable the Auto-off feature and choose a setting to your liking.
	If the backlight for the LCD display is always on then the battery will drain more quickly than if the backlight turns off.	Adjust the backlight feature so that it powers off.
	If the hammer release is stiff then the sear solenoid will need more power to operate the sear.	Polish hammer lug.
Lubricate Back of sear (see page maintenance section).		
Use a lighter main spring.		

FAULT FINDING

81



SYMPTOM	POSSIBLE CAUSE	SOLUTION
The marker is cocking but not firing when shooting quickly.	The battery is getting low on charge.	Replace the battery.
	There is excess friction between the sear and hammer lug.	Polish hammer lug. Lubricate Back of sear (see page xx maintenance section)
	Check that the marker is not in Training mode.	Choose semi or Classic from the Mode menu.
Two or more balls are being fed into the breech.	If the Eclipseblade E2 is running in Classic mode with a Halo loader, it is possible that the loader is forcing balls past the ball detent.	Change the ball detent spring or finger.
The marker is chopping or trapping paint.	The breech sensor is switched off.	Switch on the breech sensor.
		Increase the breech open time.
	The bolt is dirty, causing the breech sensor to incorrectly detect a retracted bolt.	Clean the bolt.
	The breech sensor is dirty causing the incorrect detection of paintballs.	Clean the breech sensor.
	The sensitivity of the breech sensor has not been set correctly for the paint being used.	Adjust the sensitivity of the breech sensor.
	The hopper is feeding too slowly, causing balls to bounce in the breech.	Ensure that the hopper is working properly and that the hopper batteries are okay.
		Use a faster hopper.
Shoot slower!		
The incorrect Breech Sensor type has been selected	Choose the breech sensor type that refers to your current set-up	

FAULT FINDING

SYMPTOM	POSSIBLE CAUSE	SOLUTION
The Cocking solenoid is leaking	Is it leaking from the Barbs?	Check Hoses for cuts.
		Replace Minifold assembly if required.
The Cocking solenoid is leaking	Is it leaking from the cocking solenoid minifold?	Check Low Pressure Regulator (LPR) pressure first. This should not exceed 90 psi.
		Check minifold retaining screws are giving sufficient seal and that gasket is correct way round (see Maintenance section)
		If leak persists, fully strip, clean and lubricate the solenoid and gasket (see maintenance section)
My trigger is very "Bouncy", how can I reduce it?	Increase the trigger transition filter settings.	Check that your trigger pull is within the limits of your TT BAND setting and that your TT TOL suits your current setup.
	Reduce LPR pressure	Reduce the LPR pressure down to its minimum level to reduce the kick of the gun.
	Reduce the mass of the bolt system	Reducing the mass of the bolt, back-block and pump rod will reduce the kick of the gun and reduce trigger bounce.

SYMPTOM	POSSIBLE CAUSE	SOLUTION
How can I get the best performance out of my gun?	Check your set-up.	Using a force-fed loader (Halo B VL eVLution II) with the breech sensor installed will give the highest performance gains. Use a quick ram such (Nexus Ram) complete with QEVS and a light bolt to increase the cycle speed of the bolt system.
The Reflective Breech sensor does not appear to be reading correctly	The reflective eye should read around 15% -25% with the breech fully open (there should be no daylight or lighting allowed into the breech). With the breech closed, the reading will depend on the type and colour of bolt. A Shiny Alloy bolt will read 90% - 95%. A black Delrin bolt will read 20% -30%.	Keep the sensor clean to ensure correct readings (see maintenance section). It is irrelevant what reading the bolt gives. It has no function in the firing cycle. It is the paint sensing level that is important.
The sensor reading is 0% or 100% constantly.	There is a broken wire or contact, or a short circuit on the breech sensor ribbon cable.	Check the plug of the cable. Check for debris or moisture on the rear of the sensor. Check for cuts or pinches in the ribbon cable.

ECLIPSE® NEXUS UPGRADE KIT

All these Eclipse® parts have been created to work in perfect harmony with the Eclipseblade® or E2 frame, if you want your Cocker to consistently perform at the high rates of fire achievable with the Eclipseblade®, WorrBlade or E2 frame then you need to get hooked up with the best internals, there is no point in doing half a job.



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Increases gas efficiency and consistency producing an estimated 1650 shots from a 1.1ltr 4500psi tank.



Eclipse® Supercharger Valve

Eclipse® Rex Dialer Kit

Externally adjustable dialer with no need to remove your cocking rod



ECLIPSE® REX DIALER KIT

Includes Rex dialer unit, two main springs, Eclipse® hammer, lug and allen key. The Hammer has dual nylon inserts for hammer lug and cocking rod. Comes complete with polished fat hammer lug.

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Angled gas transfer port and bell shaped, open-faced outlet. Full Delrin Construction including Delrin Pin improving gas efficiency and performance.

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Manually or electronically operated, QEV's exhaust used air from your ram allowing your ram to move faster, increasing your cycling speed and rate of fire.

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Whether you are purchasing your first piece of paintball equipment or the latest DC2 Nexus Cocker, you will receive award winning support, advice and servicing from our technical and sales staff. We pride ourselves on our reputation within the industry for unsurpassed levels of customer support and service, something that we are unwilling to sacrifice - ever.

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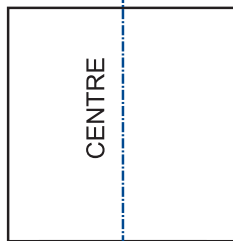


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DRILLING TEMPLATE

2.3mm Drill
Followed By
4-40 UNC



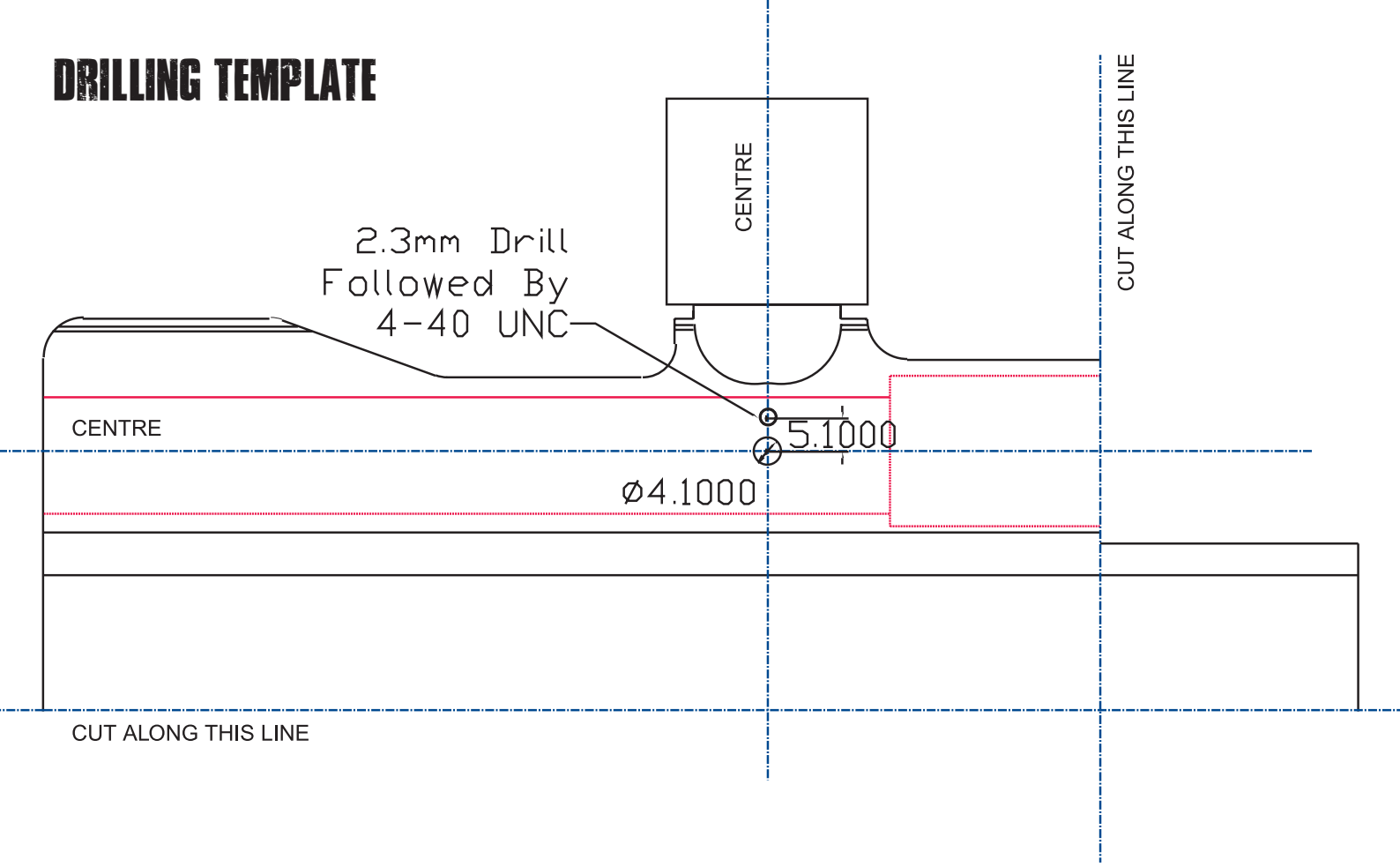
CUT ALONG THIS LINE

CENTRE

5.1000

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CERTIFIED ECLIPSE SERVICE CENTRES

Are you unsure of where to send your Eclipseblade® E2 Electronic Grip Frame or Eclipse® Cocker® 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 doing.



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SERVICE CENTRES

89



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