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- This operators and users manual is in English.
- It contains important safety guidelines and instructions.
- Should you be unsure at any stage, or unable to understand the contents within this manual you must seek expert advice.



- Le mode d'emploi est en anglais.
- Il contient des instructions et mesures de sécurité importantes.
- En cas de doute, ou s'il vous est impossible de comprendre le contenu du mode d'emploi, demandez conseil à un expert.



- Este manual de (operarios y) usuarios está en inglés
- Contiene importantes normas de seguridad e instrucciones.
- Si no esta seguro de algún punto o no entiende los contenidos de este manual debe consultar con un experto.



- Diese Bedienungs- und Benutzeranleitung ist in Englisch.
- Sie enthält wichtige Sicherheitsrichtlinien und -bestimmungen.
- Sollten Sie sich in irgendeiner Weise unsicher sein, oder den Inhalt dieses Heftes nicht verstehen, lassen Sie sich bitte von einem Experten beraten.

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# WARNINGS

## IMPORTANT SAFETY INSTRUCTIONS & GUIDELINES

### WARNINGS FOR SAFE ANGEL iR3™ HANDLING

- The ANGEL iR3™ is not a toy.
- Careless or improper use, including failure to follow instructions and warnings within this Operator's Manual and attached to the ANGEL iR3™, could cause death or serious injury.
- Do not remove or deface any warnings attached to the ANGEL iR3™.
- Paintball industry standard eye/face/ear and head protection designed specifically to stop paintballs and meeting ASTM standard F1776 ( USA) or CE standard (Europe) must be worn by user and any person within range.
- Must be at least 18 years of age to purchase the ANGEL iR3™.
- Persons under 18 years of age must have adult supervision when using or handling the ANGEL iR3™.
- Observe all local and national laws, regulations and guidelines.
- Use only on professional paintball fields where codes of safety are strictly enforced.
- Use compressed air/nitrogen gas only. Do not use CO2
- Do not exceed 1200 psi (82 bar) input pressure.
- Always follow instructions, warnings and guidelines given with any first stage regulator you use with the ANGEL iR3™.
- Use 0.68 calibre paintballs only.
- Keep the ANGEL iR3™ switched off until ready to shoot.
- Treat every marker as if it is loaded.
- Never point the Angel iR3™ at anything you do not intend to shoot.
- Do not shoot at persons at close range
- Do not shoot at fragile objects such as windows.
- Always measure your markers velocity before playing paintball, using a suitable chronograph.
- Never shoot at velocities in excess of 300 feet (91.44 meters) per second, or at velocities greater than local or national laws allow
- Do not fire the ANGEL iR3™ with the breech open or without the bolt in the breech, as high pressure gas will be admitted.
- Do not fire the ANGEL iR3™ with the pull knob in the unlocked position.
- Never look into the barrel or breech area of the ANGEL iR3™, whilst the marker is switched on and able to fire.
- Never put your finger or any foreign objects into the paintball feed tube of the ANGEL iR3™.
- Never allow pressurised gas to come into contact with any part of your body.
- Always switch off the ANGEL iR3™ when not in use.
- Always fit a barrel blocking device to your ANGEL iR3™ when not in use on the field of play.
- Always remove all paintballs from the Angel iR3 when not in use on the field of play.
- The Gated Feed is designed to retain a number of paintballs in the feed tube and breech area of the ANGEL iR3™. Always ensure that these paintballs are removed from the ANGEL iR3™ when it is not in use on the field of play.
- Always remove the first stage regulator and relieve all residual gas pressure from the ANGEL iR3™ before disassembly.
- The ANGEL iR3™ can hold a small residual charge of gas, typically 2 shots, with the first stage regulator removed. Always discharge the marker in a safe direction to relieve this residual gas pressure.
- Always remove first stage regulator and all residual gas pressure from the ANGEL iR3™ for transport and storage.
- Always follow warnings and guidelines given with your first stage regulator for safe transport and storage.
- Only charge the ANGEL iR3™ using the charger supplied.
- Only use 12Volt negative earth vehicles as a power supply for the charger.
- Do not leave the ANGEL iR3™ unattended whilst charging.
- Always store the ANGEL iR3™ in a secure place.
- THIS OPERATOR'S MANUAL MUST ALWAYS ACCOMPANY THE PRODUCT IN THE EVENT OF RESALE OR NEW OWNERSHIP.
- SHOULD YOU BE UNSURE AT ANY STAGE YOU MUST SEEK EXPERT ADVICE.

## OPERATING INSTRUCTIONS

### SWITCHING ON YOUR ANGEL iR3™

#### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Ensure a barrel blocking device is fitted to the ANGEL iR3™
- Ensure the hopper is removed from the ANGEL iR3™
- Ensure that there are no paintballs in the ANGEL iR3™
- Paintball industry standard eye/face/ear and head protection designed specifically to stop paintballs and meeting ASTM standard F1776 ( USA ) or CE standard (Europe) must be worn by user and any person within range.

- To switch on your ANGEL iR3™ ensure the battery is charged and the isolator switch is in the ON position. The display will now read "SAFE". The LED on the rear of the frame will show GREEN.
- Press and hold the RED button for 2 seconds and the display will show "LIVE". The LED on the rear of the frame will show RED. **(fig.1, page 5).**

### LED INDICATOR

The LED on the rear of the grip frame will indicate the state of the ANGEL iR3™, the states indicated are:

- |                      |  |
|----------------------|--|
| NO LED               | = No charge present or isolator switch is OFF. |
| GREEN constantly on  | = SAFE mode.                                   |
| RED constantly on    | = LIVE mode.                                   |
| RED slow flashing    | = With C.O.P.S.™ on and in LIVE mode.          |
| RED rapidly flashing | = LIVE mode with C.O.P.S.™ menu access gained. |

### CHARGING

#### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- This charger will become hot during use.
- Do not cover.
- Do not leave unattended.
- Do not exceed 14.5 Volts input.
- Do not immerse in water.
- Do not use this charger for any purpose other than charging the Angel iR3™ paintball marker.
- Check your vehicle handbook for voltage and current capabilities prior to use.
- Use only this charger for charging the Angel iR3™

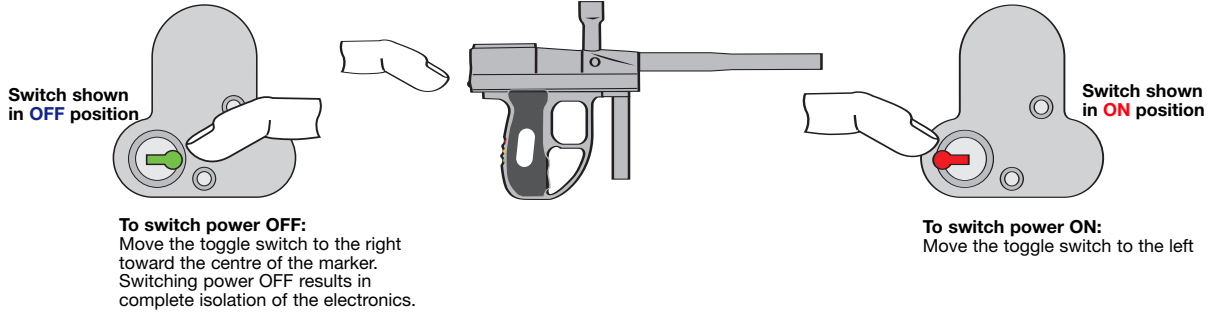
Before initial use of the ANGEL iR3™ it is necessary to give the power pack a full charging cycle of 4 hours prior to use as this will ensure a long life for the power pack.

Subsequent charges will be in the region of 3 hours for a full charge, the electronics will control the charging cycle and ensure that your battery is fully charged.

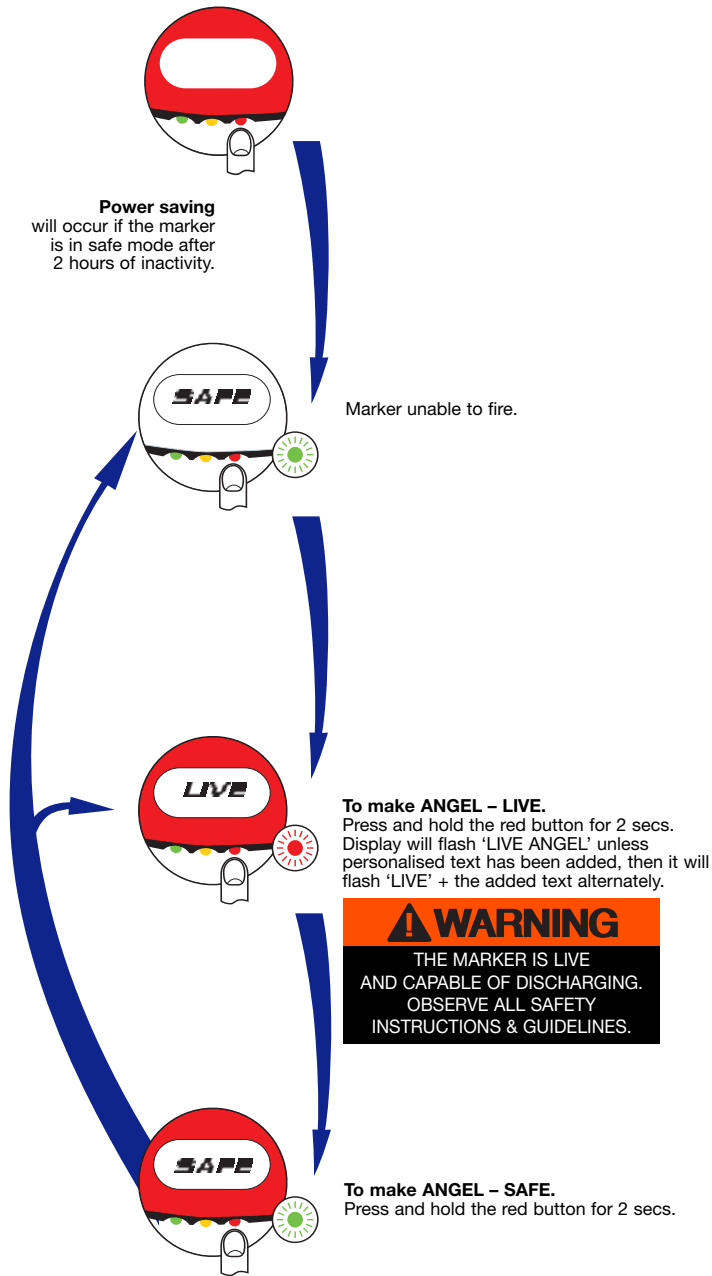
*Note: Supply voltage must be minimum 12V DC, maximum 14.5V DC, negative earth.*

- The ANGEL iR3™ may be left charging for prolonged periods without damage occurring to the battery pack.
- A full charge will give sufficient power for approximately 350,000 consecutive shots with the hopper also being powered.

### On/off transit mode



### On/off power saving mode



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- A 1-hour charge at 12.5V DC will give sufficient power for approximately 16,000 consecutive shots with the hopper also being powered.
- The ANGEL iR3™ will continue to use power even when in power saving sleep mode and the battery will discharge in approximately 288 hours even if the marker is not being used. To save the charge the isolator switch must be switched OFF to isolate the battery. We recommend the isolating switch be placed in the off position when the ANGEL iR3™ is in storage, transit or not in use.

### Stage 1

Insert cigar lighter adaptor into a negative earth socket as found in most motor vehicles (red light on charger will illuminate to indicate that power is present).

### Stage 2

Ensure the isolator switch is in the ON position at the rear panel of the ANGEL iR3™. No charging can occur until the switch is in the ON position.

### Stage 3

Insert remote plug from charger into the socket on the rear of the ANGEL iR3™. The socket is located on the rear of the grip frame under a rubber protection grommet.

### CAUTION:

Care must be shown with the charger to ensure the remote plug is not pulled or twisted by the lead. Shorting this lead can result in damage to the electronics in your ANGEL iR3™.

### Stage 4

- The LCD on the ANGEL iR3™ will indicate the status of the charging cycle.
- The 4 bar segment will cascade and the display will read 'CHARGE' to indicate charge is being taken.
- When a full charge has been taken ALL 4 segments will be illuminated and the display will remain constant.
- Removal of the charger before a full charge cycle has been completed will result in a short charge. The indicator may show all segments illuminated when the charger is removed but it will indicate the  $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{1}{4}$ , status more quickly due to the battery not being fully charged.

### Notes:

*The charge cycle cannot operate under the following conditions and a warning will be given on the LCD display. If the display shows "PWRON" this is advising you of one or more of the following:*

- *The isolator switch on the back of the ANGEL iR3™ is not switched to the ON position.*
- *The battery is not plugged into the circuit board.*

*The insertion of the charger will change the mode of the ANGEL iR3™ from 'LIVE' to 'SAFE'.*

### Stage 5

Unplug the charger from the ANGEL iR3™ and replace the rubber grommet cover on the rear of the grip frame to prevent the entry of dirt.

## PROPELLANT AIR/NITROGEN SUPPLY

### **WARNING**

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Ensure a barrel blocking device is fitted to the Angel iR3™.
- Ensure the hopper is removed from the Angel iR3™.
- Ensure there are no paintballs in the Angel iR3™.
- Ensure the Angel iR3™ is switched off via the isolating switch at the rear of the marker prior to fitting your first stage regulator.
- Paintball industry standard eye/face/ear and head protection designed specifically to stop paintballs and meeting ASTM standard F1776 ( USA ) or CE standard (Europe) must be worn by user and any person within range.
- Always follow instructions, warnings and guidelines given with any first stage regulator you use with the Angel iR3™.
- Use compressed air/nitrogen gas only DO NOT USE CO2
- Only use a paintball regulator that has been designed for air or nitrogen gas.
- Do not exceed 1200 psi (82 bar) input pressure to the Angel iR3™.
- Take suitable precautions when using sharp cutting instruments.
- The Macro Line hose must be cut back cleanly and square prior to attachment or re-attachment to ensure secure fitment
- SHOULD YOU BE UNSURE AT ANY STAGE YOU MUST SEEK EXPERT ADVICE.

The ANGEL iR3™ is designed to operate on air/nitrogen gas. This needs to be supplied to the ANGEL iR3™ at a regulated pressure of 700 psi (48 BAR) using a suitable first stage paintball regulator, such as the ANGEL A.I.R.

*NOTE: If you are using a regulator other than the ANGEL A.I.R., refer to the regulator manufacturers operating instructions and guidelines regarding output pressure.*

Connect the first stage regulator gas outlet to the second stage regulator gas inlet using the Macro Line and 1/8 NPT connectors supplied.

### MACRO LINE HOSE/CONNECTOR ATTACHMENT

- Connect the Macro Line connector to your first stage regulator outlet port using a suitable wrench or spanner
- If necessary shorten the Macro Line hose using a sharp knife to the required length to suit your Angel iR3™ and first stage regulator set up.
- Push the free end of the hose firmly into the Macro Line connector attached to the Angel iR3™ second stage regulator.

### MACRO LINE HOSE REMOVAL AND RE-ATTACHMENT

#### **WARNING**

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- All gas pressure must be relieved from the Angel iR3™ and second stage regulator prior to the Macro Line hose removal.
- The Angel iR3™ can hold a small residual charge of gas, typically 2 shots with the first stage regulator removed. Always discharge the marker in a safe direction to relieve this residual gas pressure.
- The Macro Line hose must be cut back cleanly and square prior to reattachment to ensure secure fitment

- The Macro line hose may be removed from the Macro Line connectors to facilitate maintenance.
- Pull back the collet on the connector and keep the collect depressed.
- Pull the Macro Line hose out of the connector firmly.
- Cut back the Macro Line hose cleanly and square.
- Push the hose firmly into the Macro Line connector to re-attach.



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## FITTING THE HOPPER INTELLIFEED™ (OPTIONAL EXTRA)

### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Ensure the ANGEL iR3™ is switched off via the isolating switch on the rear of the marker
- Ensure a barrel blocking device is fitted to the ANGEL iR3™
- Ensure the hopper is removed from the ANGEL iR3™
- Ensure that there are no paintballs in the ANGEL iR3™

The ANGEL iR3™ has the ability to power motorized hoppers with the agitation and electrical supply coming directly from the ANGEL iR3™. This Intellifeed™ system monitors your fire rate and switches on the agitator as necessary. (See general assembly and wiring diagrams.)

- Remove the existing sight rail using suitable metric Allen key.
- Remove the breech block pull knob by opening the breech, then unscrewing the pull knob while it is retracted.
- Remove the 2-countersunk Allen screws with suitable metric Allen key from the back plate.

**CAUTION:** A spring is located under the back plate.

- Remove the left-hand side grip cheek and unplug the battery and 14-way solenoid.
- Remove the grip frame screws and remove the frame.

**CAUTION:** Care must be shown as the trigger return spring is located under the frame.

- Insert the replacement sight rail and wiring loom, feeding the wire and white plug through the body to exit at the underside by the other plugs.
- Refit the frame.

**CAUTION:** Care must be shown to ensure the spring is located correctly.

- Insert all plugs in their relevant sockets.

**CAUTION:** Care must be shown to ensure wires do not snag on the trigger mechanism.

- Refit grip cheek cover, rear back plate, breech block pull knob and the sight rail.
- The flying lead has a mating plug that fits to the socket on the sight rail, this should be soldered directly to the hopper motor. All other electronics within the hopper must be removed prior to fitting this lead. Each lead may be soldered to either of the motor connections.

*NOTE: The hopper circuit has over current protection to sense a locked or jammed paddle. Should a jam occur the hopper drive circuit will shut down until the jam is cleared. Ensure the the hopper motor is free running and the gear box is fully operational as this can result in slow running speeds.*

## OPTO BOARD™

### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Do not attempt to modify the OPTO board™ assembly in any way as this will invalidate your warranty and could lead to safety concerns.

The iR3™ incorporates the OPTO board™. This is the latest development in trigger sensing function. When used in conjunction with the 3Styla™ trigger it achieves unsurpassed advancements in trigger repeatability and sensitivity, its non-mechanical switching results in faster, shorter and lighter trigger strokes that give the user higher prolonged achievable rates of fire.

#### NOTES:

- When accessing the Internal Tournament LCD menus the OPTO board™ should not be exposed to direct sunlight or strong external sources of light without the grip cheek fitted as this light will induce a safety feature, that will prevent the Angel iR3™ from firing whilst it remains exposed to the strong external light.
- The correct function of the OPTO board™ can be verified by the LCD display whilst the Angel iR3™ is at rest in safe mode the display will display "SAFE".
- With trigger pulled and held the display will show the firing mode eg "SEMI".
- The OPTO board™ is a non-mechanical switch that is silent in its operation and no audible "click" is present.



## BOLT REMOVAL ROTOR BREECH™

### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Do not fire the ANGEL iR3™ with the breech open or without the bolt in the breech, as high pressure gas will be admitted.
- Do not fire the ANGEL iR3™ with the pull knob in the unlocked position.

- Ensure the ANGEL iR3™ is in “SAFE” mode or the isolator switch is in the OFF position.
- Pull the ‘Pull knob’ and rotate 90 degrees so that the knob remains in the unlocked position.
- Swing out the Rotor Breech block so that the bolt is exposed. The breech will not open if the bolt is in the forward position. Ensure it is retracted by either: momentarily gassing the ANGEL iR3™ or pushing the bolt back with a squeegee.
- Extract the bolt by pulling rearwards.
- To replace the bolt. Follow stages in reverse order.

## VELOCITY ADJUSTMENT

### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- The ANGEL iR3™ is live and capable of discharging.
- Paintball industry standard eye/face/ear and head protection designed specifically to stop paintballs and meeting ASTM standard F1776 ( USA) or CE standard (Europe) must be worn by user and any person within range.
- Always measure your markers velocity before playing paintball, using a suitable chronograph.
- Never shoot at velocities in excess of 300ft (91.44meters) per second, or at velocities greater than local or national laws allow.

### Decreasing velocity

- The velocity adjusting screw is located on the lower portion of the front grip.
- To decrease the velocity, insert 3mm A/F Allen key and rotate CLOCKWISE.

**CAUTION:** When reducing velocity, allow four shots for the complete system to be at the new regulated pressure.

### Increasing velocity

- The velocity adjusting screw is located on the lower portion of the front grip.
- To increase the velocity insert 3.0mm A/F Allen key and rotate COUNTER CLOCKWISE.

## GATED FEED™ FEATURE

### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- The Gated Feed™ is designed to retain a number of paintballs in the feed tube and breech area of the Angel iR3™. Always ensure that these paintballs are removed from the ANGEL iR3™ when it is not in use on the field of play.

The Gated Feed™ is a feature that retains the paintballs in the breech to prevent them rolling back into the hopper. The Gated Feed™ uses a retention system that offers minimal resistance to a paintball as it travels into the breech and maximum resistance to a paintball returning up the feed tube. The retainer is a removable item that may be replaced if it becomes damaged (see general assembly diagram p. 26/27 for strip down).

## EXTERNAL ELECTRONIC LCD MENUS WHILST IN SAFE



### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Ensure a barrel blocking device is fitted to the ANGEL iR3™
- Ensure the hopper is removed from the ANGEL iR3™
- Ensure that there are no paintballs in the ANGEL iR3™

The ANGEL iR3™ has a number of features that can be adjusted to suit your individual needs. These features are designed to enhance your play and also to supply you with a wealth of information. These are accessible via the external menu list (See external menu diagrams fig.2 p 13, fig.3 p 14-15, fig.4 p 16). You may also view certain critical settings that have been set via the internal menu list.

- You can only access the main menus when the marker is in “SAFE” mode with the isolator switch in the ON position.
- Follow the external menu list diagrams for relevant settings.
- Should you wish to return to factory settings the ANGEL iR3™ has a unique feature that allows you to return to the factory defaults. See internal menu diagram for instructions.

The ANGEL iR3™ also ensures any settings that you enter are stored in an E.D.S. (encrypted data storage) memory to give added protection against data loss.

### Back-light feature

This enables you to switch the back-lighting on your display ON or OFF . (See external menu diagram fig.3 p14-15).

### Temperature feature

This allows you to set the temperature display between Fahrenheit and Centigrade. This feature is useful in determining the ambient temperature, allowing you to select your accessories for the climatic conditions in the format you prefer. (See external menu diagram fig.3 p14-15).

### Cycles (total shots) feature

This is a chronological record of the total number of shots fired by your ANGEL iR3™. The user cannot reset this. (See external menu diagram fig.3 p14-15).

### Trip (shot counter) feature

This allows you to record the number of shots fired at any stage e.g: Per game, per event or per day. It may be reset at any time you require. (See external menu diagram fig.3 p14-15).

### ROF (rate of fire) feature

This records the highest rate of fire you actually achieved over a 1-second period. The data will be constantly updated should the new reading exceed the previous reading. You can zero the ROF feature at any time. (See external menu diagram fig.3 p14-15).

### MROF feature (maximum rate of fire limit with C.O.P.S.™ option OFF)

This allows you to tune your maximum rate of fire to your style of play and feed system. Certain modes are capped or non-adjustable. The rate of fire should not be set greater than your feed system is capable of delivering. This cannot be changed by the external menu (See internal menu diagram fig.6 p21). See table on Modes for maximum allowable settings (p 21).

**CMROF feature (maximum rate of fire limit with C.O.P.S.™ option ON)**

This allows you to tune your maximum rate of fire to your style of play and feed system when the C.O.P.S.™ option is selected. Certain modes are capped or non-adjustable. The rate of fire should not be set greater than your feed system is capable of delivering. This cannot be changed by the external menu (See internal menu diagram fig.6 p21). See table on Modes for maximum allowable settings (p 21).

**Game timer with 3 interactive alarms (fig.2 page 13)**

The “vibes” timer incorporates 3 independent alarms that take the stress out of game play. It will also allow you to play set moves in unison with your team mates. The timer can be set in 30 second increments from 0 to 30 minutes. The timer is started with your first shot, which allows you to concentrate on your game play. The 3 alarms can be individually set in 30 second increments. (See internal menu diagram fig.3 p 14-15)

**Vibes game alarm feature (fig.3 page 14-15)**

This feature allows you to switch the vibrator alarm ON or OFF. The vibes alarm is independent of the game timer functions. (See external menu diagrams for setting.)

**Dwell feature (fig.3 page 14-15)**

Dwell controls the valve opening time. Longer dwell uses more gas and generates more noise but allows the marker a greater tolerance to paint, temperature and pressure variables. Shorter dwell uses less gas and reduces noise, but is less tolerant of poor quality paint.

**CAUTION:**

Adjustment is only recommended if you wish to fine-tune your marker to specific accessories.

**Mode feature**

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- In certain countries local applicable laws or industry standards may mean certain modes may not be enabled or allowed. Check with law enforcement office, or local professional paintball venue.

The current mode selected will be displayed. 26 modes of shooting may be selected, including 5 modes that you may program yourself using the ANGEL INFRA RED LINK. (See Internal Tournament LCD adjustments and diagrams for setting.)

**Battery Status feature**

The battery status is indicated at all times by the 4-segment display. Power is drawn whilst the ANGEL iR3™ has power connected. A battery will last approximately 280 hours until it is discharged. To prevent this discharge ensure the isolator switch is in the OFF position at the end of the day or event. The last segment indicates that you have approximately 16,000 shots left with a hopper being powered.

**Hopper T (Timer)**

This allows the user to set the duration that the hopper motor is activated for. It can be set between 0.1- 2.0 seconds.

**Hopper A (Activation)**

This allows the user to set the activation point of the hopper. It can be set to activate on the ROF level that you achieve. It can be set to the following parameters.

A1 = Activates on every shot.

A2 = Activates on a ROF of 2 shots or greater.

A3 = Activates on a ROF of 3 shots or greater.

A4 = Activates on a ROF of 4 shots or greater.

**Infra Red Menu**

This allows the user to select which menu to transmit to another Angel iR3™.

IR M1 = All text messages.

IR M2 = All game timer settings and vibes ON.

IR M3 = All game timer settings, vibes ON and Reset trip counter.

IR M4 = All game timer settings.

**Send (Infra Red)**

This allows the user to switch the infra Red transmitter ON or OFF. The transmitter will only transmit for a 30 second period, if it does not receive a fetch confirmation signature then it will default to OFF.

Notes:

- The Angel iR3™ that is to receive the data must be selected into the Fetch menu with the Fetch switched ON.
- Whilst the Angel iR3™ is in send mode the Infra Red icon will flash.

**Fetch (Infra Red)**

This allows the user to switch the infra Red receiver ON or OFF.

The receiver will only receive for a 30 second period if it does not receive a send confirmation signature then it will default to OFF.

Note:

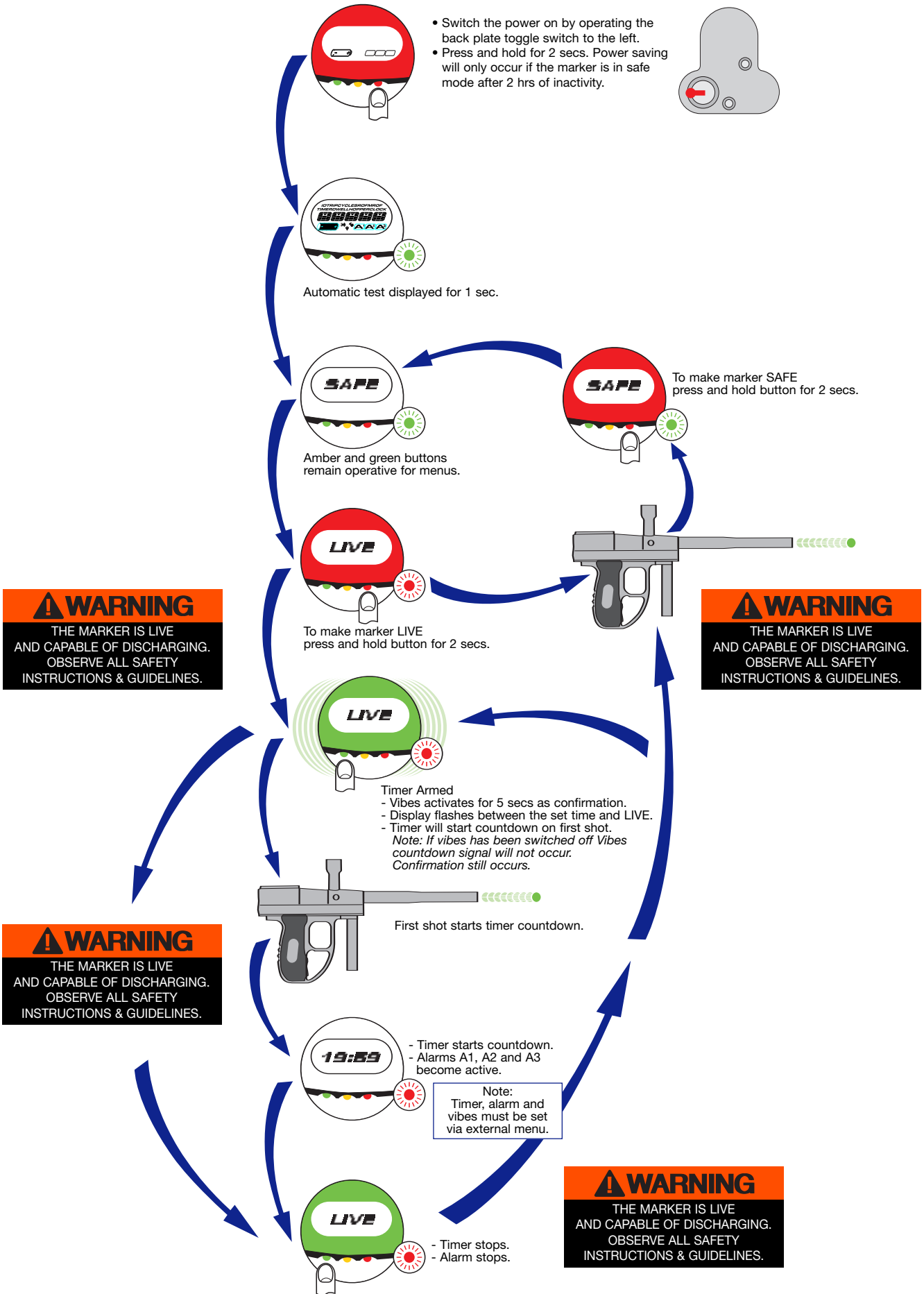
- The Angel iR3™ that is transmitting the data must be selected into the Send menu with the send switched ON.
- Whilst the Angel iR3™ is in fetch mode the Infra Red icon will flash.

**PIN number locking /unlocking (fig4. Page 16)**

This feature can be used to add another level of security to your Angel iR3™. After setting your PIN number (fig7. Page 23) the PIN number can be locked when the marker is not in use. In this locked state the marker will be restricted SAFE mode until the correct PIN number is entered.

New menu order as it appears on the iR3's LCD screen to aid ease of operation for Palm interface.

**Fetch (infra-red)**  
**Infrared menu**  
**Send (infra-red)**  
**Back light feature**  
**Cycles (total shots) feature**  
**Trip (shot counter) feature**  
**ID (unique identification number)**  
**ROF (rate of fire actually achieved by user feature)**  
**MROF (maximum rate of fire feature with C.O.P.S off)**  
**CMROF (maximum rate of fire feature with C.O.P.S on)**  
**Game timer feature**  
**Vibes (vibrator alarm feature)**  
**Mode feature (style of shooting)**  
**Dwell feature**  
**Hopper T (timer)**  
**Hopper A (activation)**  
**Temperature feature**  
**T.C.O.P.S. C.O.P.S. (test feature)**  
**HUD**



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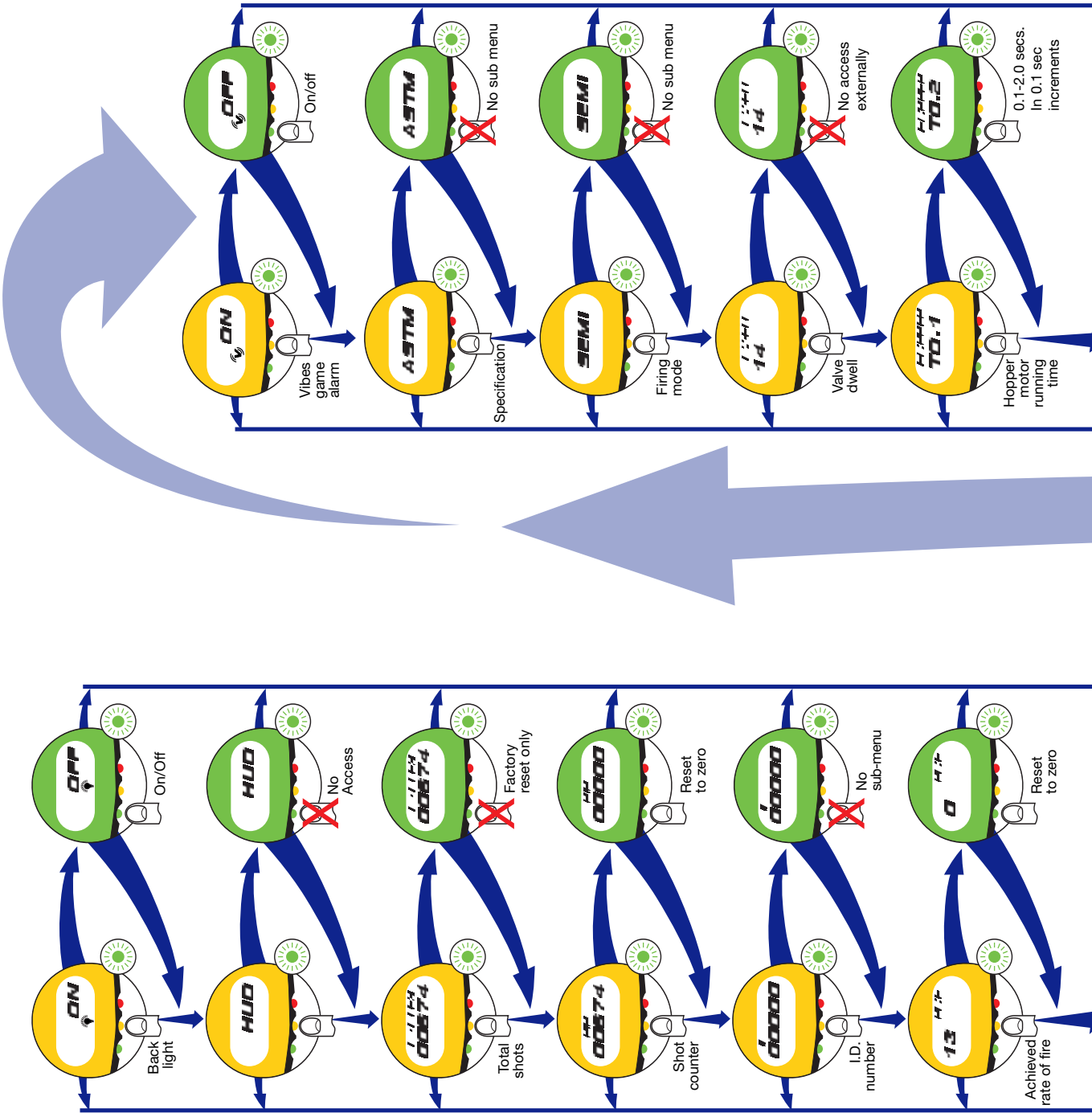
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**Note:**  
 Access is not granted if:-  
 Power is not on or marker  
 is live, ready to fire.



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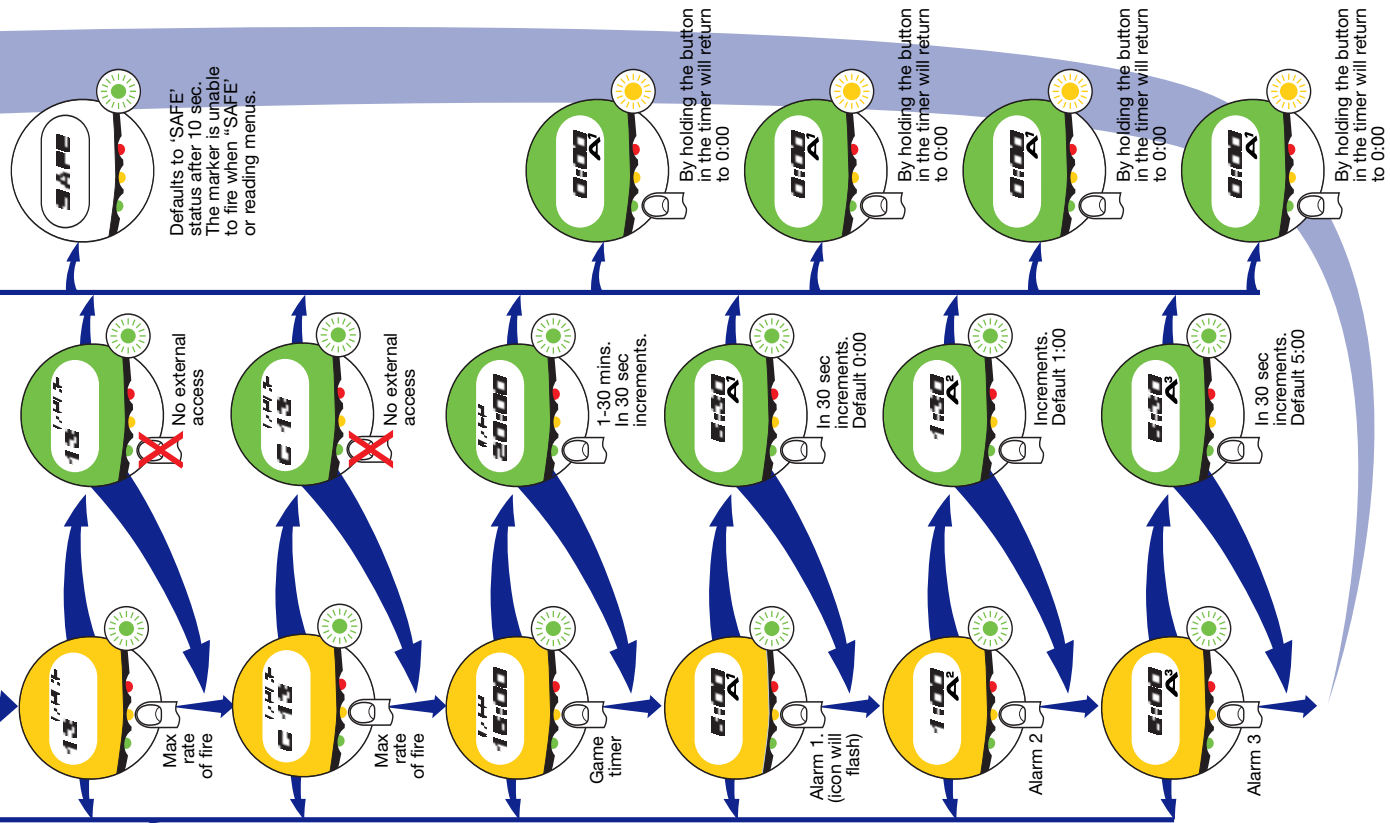
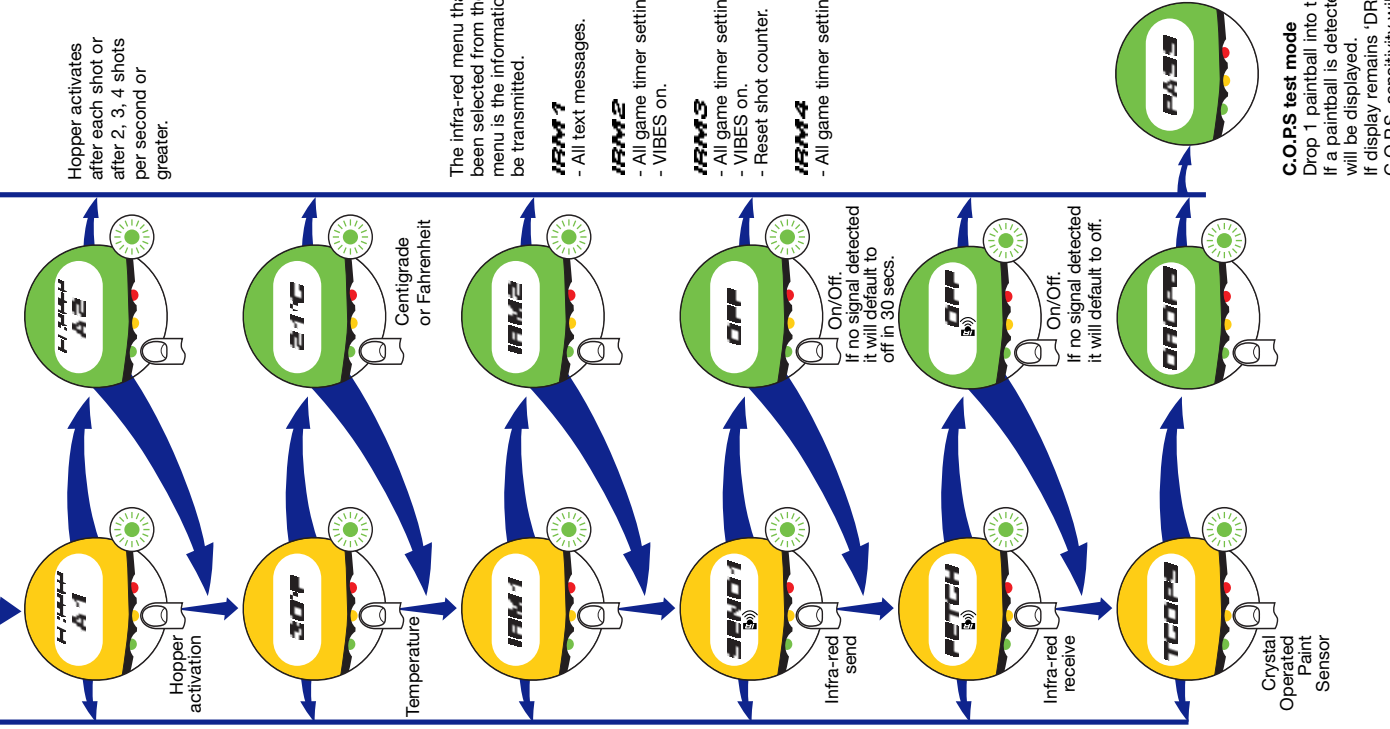
your ANGEL iR3™

Hopper activates after each shot or after 2, 3, 4 shots per second or greater.

The infra-red menu that has been selected from the internal menu is the information that will be transmitted.

- IRM1** - All text messages.
- IRM2** - All game timer settings. - VIBES on.
- IRM3** - All game timer settings. - VIBES on. - Reset shot counter.
- IRM4** - All game timer settings.

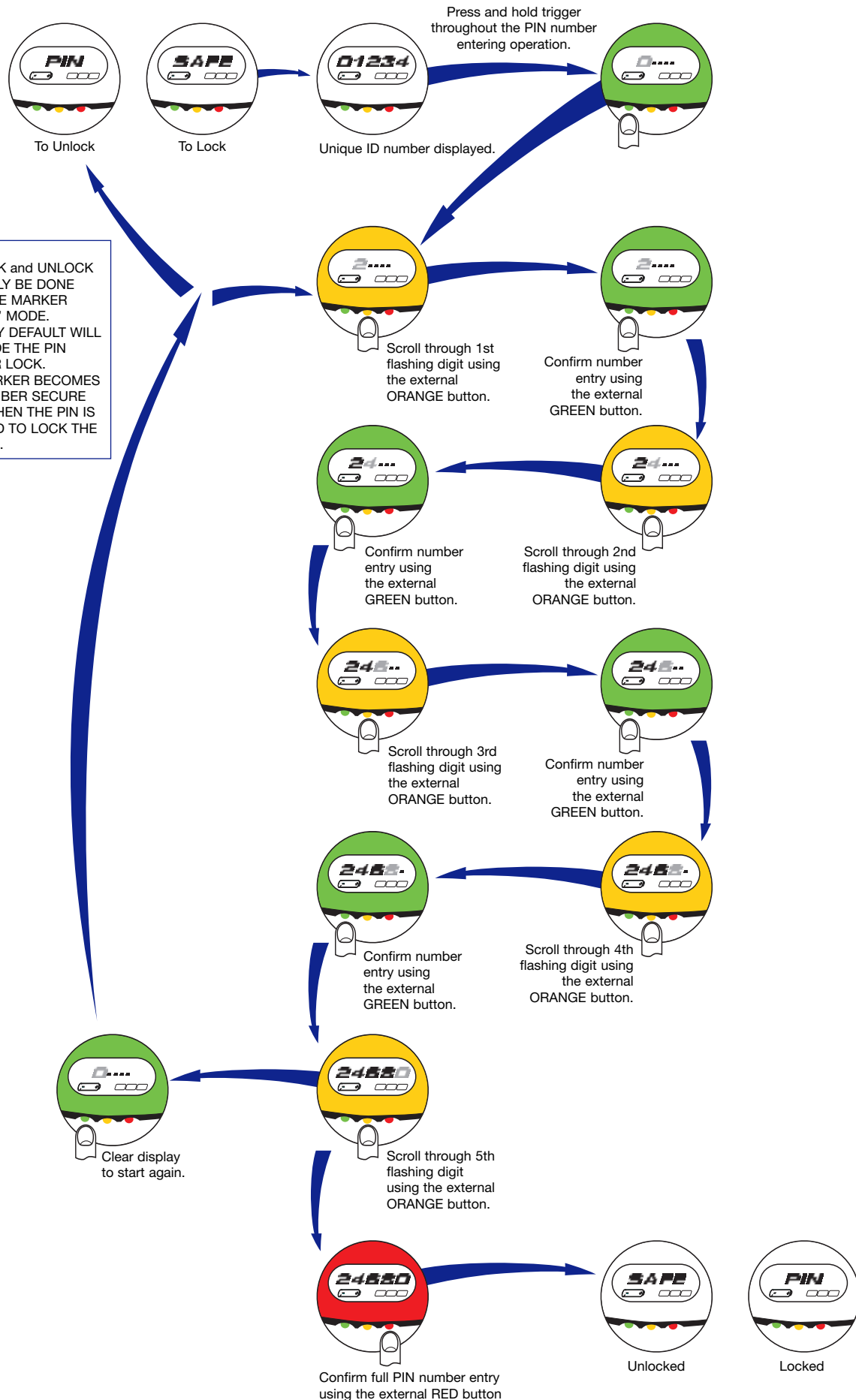
**C.O.P.S test mode**  
Drop 1 paintball into the breach. If a paintball is detected 'PASS' will be displayed. If no signal detected it will default to off.  
If display remains 'DROPB' the C.O.P.S. sensitivity will need adjusting (see C.O.P.S.™ menu).



Defaults to 'SAFE' status after 10 sec. The marker is unable to fire when 'SAFE' or reading menus. Amber and green buttons remain operative for menus.

NOTE:

- PIN LOCK and UNLOCK CAN ONLY BE DONE WITH THE MARKER IN 'SAFE' MODE.
- FACTORY DEFAULT WILL OVERRIDE THE PIN NUMBER LOCK.
- THE MARKER BECOMES PIN NUMBER SECURE ONLY WHEN THE PIN IS ENTERED TO LOCK THE MARKER.



# ANGEL iR3 OPERATOR'S MANUAL ADDENDUMS RELATING TO MEM 6 & MEM 6A OPTO™ BOARDS. Pages 17 - 18.

Instructions to the following areas have changed in the user manual. See text below.

## External Electronics LCD C.O.P.S menu whilst live.



### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- THIS MENU IS ONLY SETTABLE WHILST THE ANGEL iR3™ IS LIVE AND CAPABLE OF DISCHARGING.
- Paintball industry standard eye/face/ear and head protection designed specifically to stop paintballs and meeting ASTM standard F1776 ( USA) or CE standard (Europe) must be worn by user and any person within range.
- Never point the Angel iR3™ at anything you do not intend to shoot.

The ANGEL iR3 has the C.O.P.S (crystal operated paintball sensor) feature that can be adjusted to suit your individual needs. This feature is designed to enhance your play by allowing you to minimise the likelihood of a paintball breaking in the breech during rapid fire. This menu is accessible via the external buttons. You can also read the settings that have been set via the external live menu list. The menu can only be accessed when the marker is in "LIVE" mode with the isolator switch in the ON position.

The LED on the rear of the ANGEL iR3 will show the following states:

GREEN constantly on	= SAFE mode
RED constantly on	= LIVE mode
RED slow flashing	= C.O.P.S on and in LIVE mod
RED rapidly flashing	= C.O.P.S menu access gained and in LIVE mode

### SENS (sensitivity Level)

The Angel iR3 will fire at the rate of fire that you pull the trigger and will also reduce the firing cycle speed should a paintball not be present in the breech. This reduction in rate of fire is dependant on your hoppers capability to feed paintballs. If you shoot your marker at speeds in excess of your hoppers capability the C.O.P.S feature will activate once the SENS has been correctly set.

To set your SENS correctly follow these guidelines

1. Ensure C.O.P.S is switched on.
2. Set SENS level to 12.
3. Set BAS level to 20.
4. Ensure no paint is present in the ANGEL iR3.
5. Fire the Angel iR3 (the marker should fire rapidly SENS level too sensitive).
6. Reduce the SENS level until the marker starts to shoot slower at the BAS speed 20) note the SENS level eg level 9.
7. Fill your hopper with paintballs and ensure the hopper functions correctly.
8. Attach your hopper to the ANGEL iR3.
9. Shoot your ANGEL iR3 rapidly.
10. Minor adjustments may be done at this stage by increasing or reducing the SENS by 1 level at a time. Verify your settings by switching your hopper off and the rate of fire must reduce. If this does not occur adjust the SENS level down eg 8.

### BAS (Base level of shots)

In the instance where a paintball has not fallen fully into the breech, this feature allows the user to set the window of opportunity that occurs after the trigger is pulled before the iR3 will complete its firing cycle.

This feature will only activate if a paintball is not present in the breech when the trigger is pulled and can result in a pause in the ANGEL iR3 firing cycle when set at the higher levels of its adjustment range. Once a paintball has been detected the rate of fire will return to the CMROF setting as set in the internal menu. There are 20 levels of adjustment to suit your shooting style, the default level is 7.

Prior to fine tuning the BAS ensure you have followed the SENS procedure as above.

#### Level 1

The smaller the window of opportunity.  
The larger the risk of a chopped paintball.

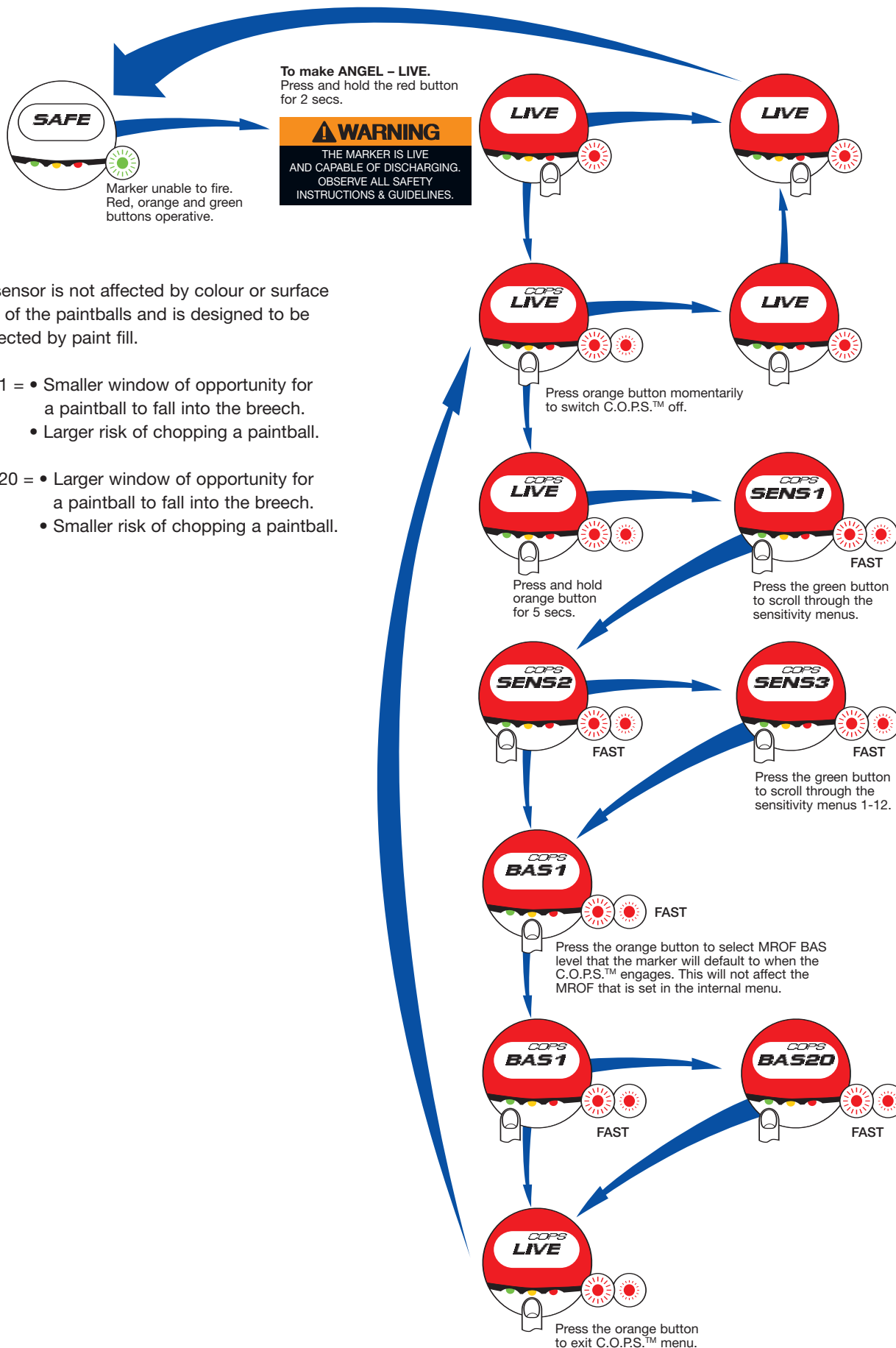
#### Level 20

The larger the window of opportunity.  
The smaller the risk of a chopped paintball.

# ANGEL iR3 OPERATOR'S MANUAL ADDENDUMS RELATING TO MEM 6 & MEM 6A OPTO™ BOARDS.

Pages 17 - 18.

Instructions to the following areas have changed in the user manual. See text below.



The sensor is not affected by colour or surface finish of the paintballs and is designed to be unaffected by paint fill.

BAS 1 =

- Smaller window of opportunity for a paintball to fall into the breach.
- Larger risk of chopping a paintball.

BAS 20 =

- Larger window of opportunity for a paintball to fall into the breach.
- Smaller risk of chopping a paintball.

## INTERNAL TOURNAMENT LCD MENUS



### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Ensure a barrel blocking device is fitted to the ANGEL iR3™
- Ensure the hopper is removed from the ANGEL iR3™
- Ensure that there are no paintballs in the ANGEL iR3™

- The ANGEL iR3™ has a number of features that can be adjusted to suit your individual needs (**fig. 6 page 21**). These features that can change the performance of the gun are only accessible via the internal menu list. This is to ensure that they pass tournament and field operator requirements.
- The menus can only be accessed when the marker is in “SAFE” mode and the isolator switch is in the ON position.
- Remove left hand grip cover screws to expose the circuit board.
- Follow the internal menu list diagrams for relevant settings.  
Should you wish to return to factory settings the ANGEL iR3™ has the unique feature that allows you to return to the factory defaults. (See internal menu diagram for instructions.)
- The ANGEL iR3™ also has the unique feature that ensures any settings that you enter are stored in an E.D.S. (encrypted data storage) memory to give added protection against data loss.

### Mode feature



### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

In certain countries local applicable laws or industry standards may mean certain modes may not be enabled or allowed. Check with law enforcement office, or local professional paintball venue.

Where applicable 26 modes of shooting may be selected. The firing modes listed below are programmed in the ANGEL iR3™. Including 5 modes that you may program yourself using the ANGEL IR LINK.

ASTM = TRUE SEMI Max of 20/sec (ALL OTHER MODES ARE DISABLED)

EXTRA = ALL MODES ARE ENABLED

- AUTO = Full Auto to a max 20/sec
- 2SHOT = 2 shot burst variable rate to a Max of 20/sec
- 3SHOT = 3 shot burst variable rate to a Max of 20/sec
- 4SHOT = 4 shot burst variable rate to a Max of 20/sec
- 5SHOT = 5 shot burst variable rate to a Max of 20/sec
- 6SHOT = 6 shot burst variable rate to a Max of 20/sec
- 7SHOT = 7 shot burst variable rate to a Max of 20/sec
- 8SHOT = 8 shot burst variable rate to a Max of 20/sec
- 2ZIP = 2 shot ZIP fixed rate of 8.75/sec
- 3ZIP = 3 shot ZIP fixed rate of 8.75/sec
- 4ZIP = 4 shot ZIP fixed rate of 8.75/sec
- 5ZIP = 5 shot ZIP fixed rate of 8.75/sec
- 6ZIP = 6 shot ZIP fixed rate of 8.75/sec
- 7ZIP = 7 shot ZIP fixed rate of 8.75/sec
- 8ZIP = 8 shot ZIP fixed rate of 8.75/sec
- RAMP1 = 10 ms reduction between shots ramp Max rate of 13/sec
- RAMP2 = 20 ms reduction between shots ramp Max rate of 13/sec
- RAMP3 = 40 ms reduction between shots ramp Max rate of 13/sec

- PROG1 = Programmable mode via IR link Max rate of 20/sec
- PROG2 = Programmable mode via IR link Max rate of 20/sec
- PROG3 = Programmable mode via IR link Max rate of 20/sec
- PROG4 = Programmable mode via IR link Max rate of 20/sec
- PROG5 = Programmable mode via IR link Max rate of 20/sec
- MULTI = Multiplier
- TT = TT multiplier

#### **Dwell feature (fig.6 page 21)**

Dwell controls the valve opening time. Longer dwell time uses more gas and generates more noise but allows the marker a greater tolerance to paint, temperature and pressure variables. Shorter dwell time uses less gas and reduces noise but is less tolerant of poor paint and pressure variables. Adjustment is only recommended if you wish to fine-tune your marker to specific accessories.

Adjustment ranges 10 milliseconds to 24 milliseconds.

#### **MROF maximum rate of fire limit with C.O.P.S.™ option OFF (fig.6 page 21)**

This allows you to tune your maximum rate of fire when C.O.P.S. option is OFF to your style of play and feed system. Certain modes are capped or non-adjustable. The rate of fire should not be set to greater than your feed system is capable of delivering. See table on Modes for maximum allowable settings p21.

#### **CMROF maximum rate of fire limit with C.O.P.S.™ option ON (fig.6 page 21)**

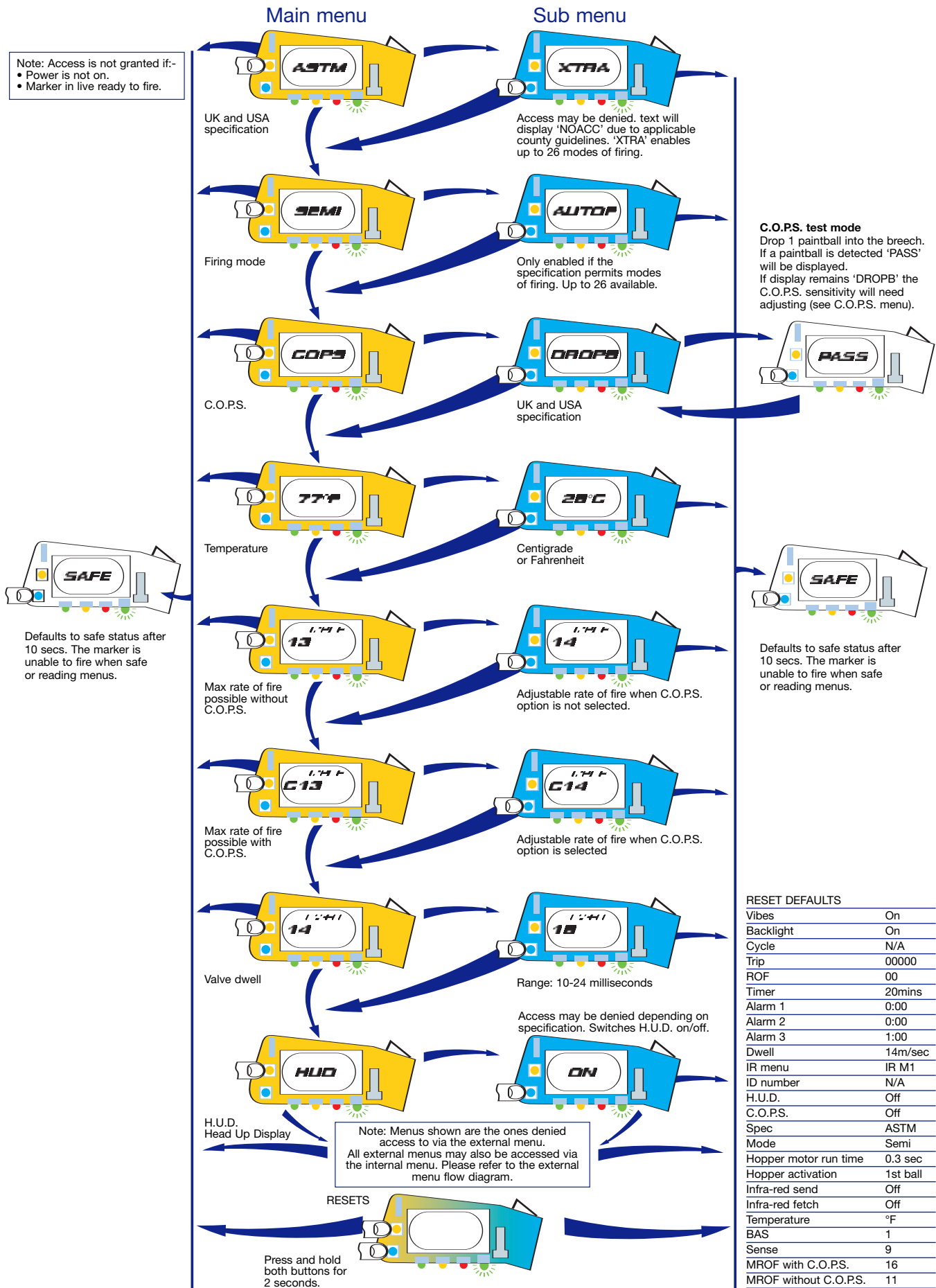
This allows you to tune your maximum rate of fire when C.O.P.S.™ option is ON to your style of play and feed system. Certain modes are capped or non-adjustable. The rate of fire should not be set to greater than your feed system is capable of delivering. See table on Modes for maximum allowable settings p21.

#### **Temperature feature (fig.6 page 21)**

This allows you to set the temperature display between Fahrenheit and centigrade. This feature is useful in determining the ambient temperature to allow you to select your accessories for the climatic conditions in the format you prefer.

Note: Access is not granted if:-

- Power is not on.
- Marker in live ready to fire.



**C.O.P.S. test mode**  
 Drop 1 paintball into the breach. If a paintball is detected 'PASS' will be displayed. If display remains 'DROPB' the C.O.P.S. sensitivity will need adjusting (see C.O.P.S. menu).

RESET DEFAULTS	
Vibes	On
Backlight	On
Cycle	N/A
Trip	00000
ROF	00
Timer	20mins
Alarm 1	0:00
Alarm 2	0:00
Alarm 3	1:00
Dwell	14m/sec
IR menu	IR M1
ID number	N/A
H.U.D.	Off
C.O.P.S.	Off
Spec	ASTM
Mode	Semi
Hopper motor run time	0.3 sec
Hopper activation	1st ball
Infra-red send	Off
Infra-red fetch	Off
Temperature	°F
BAS	1
Sense	9
MROF with C.O.P.S.	16
MROF without C.O.P.S.	11

Note: Menus shown are the ones denied access to via the external menu. All external menus may also be accessed via the internal menu. Please refer to the external menu flow diagram.

**RESETS**

Press and hold both buttons for 2 seconds.



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**T.C.O.P.S. (C.O.P.S.™ Test Feature) (fig.6 page 21)****! WARNING**

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Paintball industry standard eye/face/ear and head protection designed specifically to stop paintballs and meeting ASTM standard F1776 ( USA) or CE standard (Europe) must be worn by user and any person within range.
- Ensure a barrel blocking device is fitted to the ANGEL iR3™
- Ensure the hopper is removed from the ANGEL iR3™
- Ensure that there are no paintballs in the ANGEL iR3™

The T.C.O.P.S. feature is the Crystal Operated Paint Sensor test mode. This allows the user to drop a paintball into the breech to verify that the sensor is operating correctly.

*NOTE: The C.O.P.S.™ feature is designed to reduce the rate of fire when a paintball is not present in the breech.*

To test the sensor:

- Remove Gated Feed™ for easier access.
- Select the sub menu and the message DROPB is displayed.
- Drop a paintball into the breech.
- When a paintball is detected the message PASS is displayed.
- Failure to obtain a PASS message may mean that the C.O.P.S.™ sensitivity will need adjustment (see C.O.P.S.™ menu) or that the sensor is fouled or has been damaged.

**CAUTION:**

- Remove paintballs used for testing C.O.P.S.™.
- Do not press the black actuator located in the bottom of the breech with sharp objects as damage will occur to the sensor.
- Do not use after market bolts that are not designed to be used with the C.O.P.S. feature.

**Pin number setting feature (fig.7 page 23)**

This allows you to set your own 5 digit personal pin number for added security. When the pin number is enabled the ANGEL iR3™ is locked and incapable of firing to prevent unauthorized use.

We recommend you use this security feature to protect your ANGEL iR3™ from misuse.

(See PIN number locking and unlocking fig. 4 page 16)

**CAUTION:**

- Once the pin number is set should you forget your pin code, and cannot unlock the ANGEL iR3™ you need to return the ANGEL iR3™ to its original factory setting by using the factory default procedure. (See Pin number menu diagram fig.7 p 23).

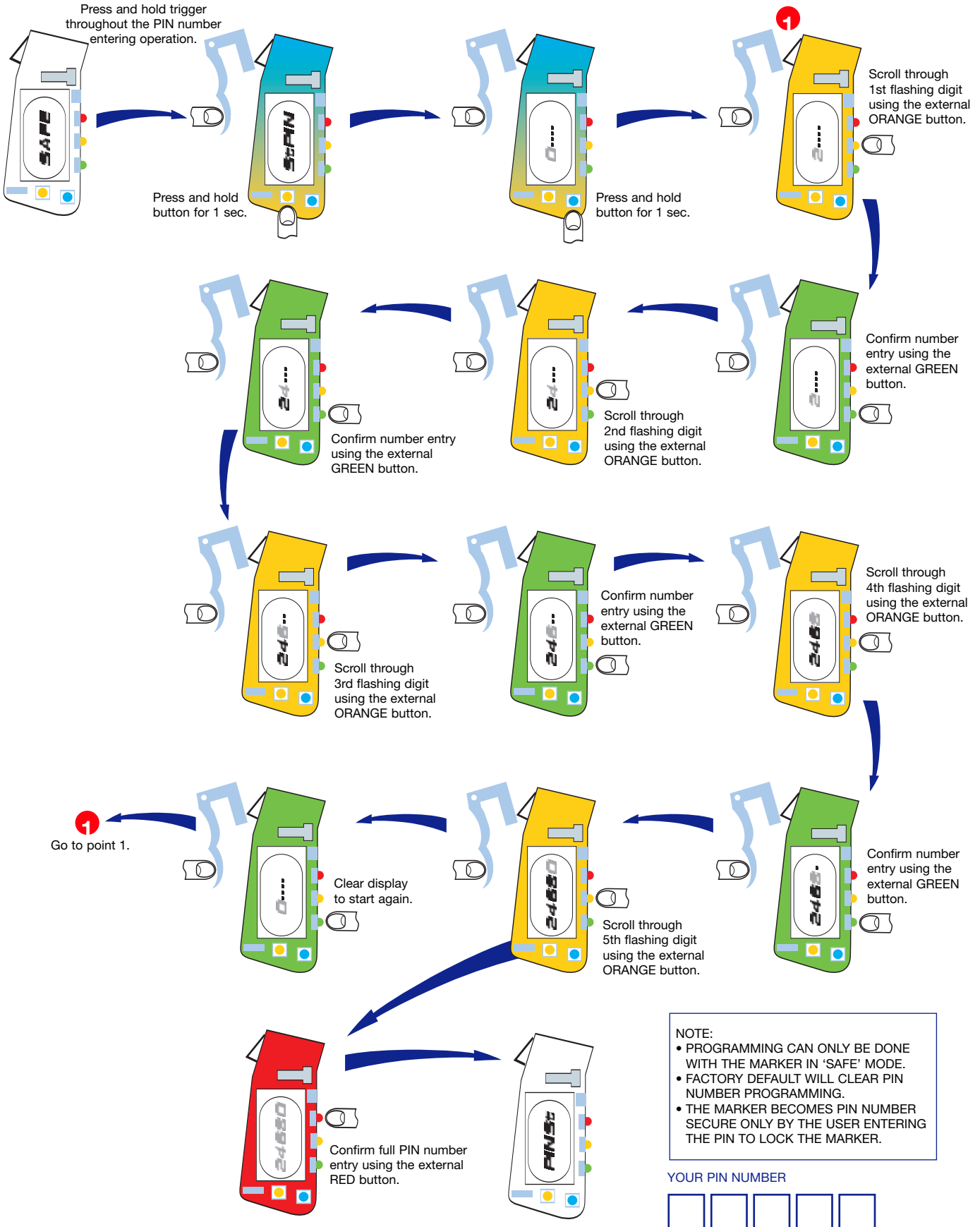
**Text setting feature (fig.8 page 24)****! WARNING**

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

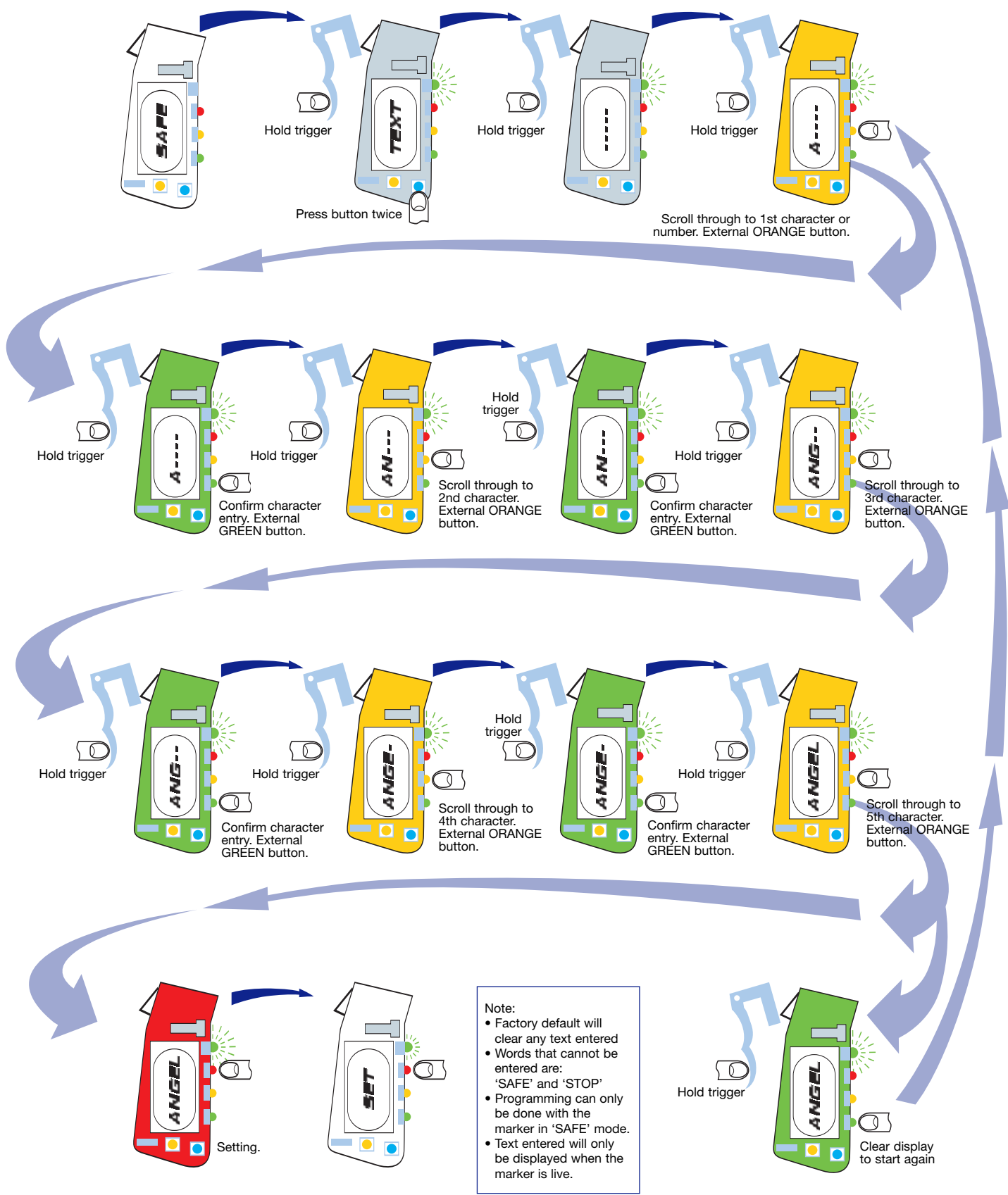
- Factory resetting will clear any text message that you have entered into the ANGEL iR3™
- Do not enter any text that may cause confusion to the indicated live status of the ANGEL iR3™, eg: "SAFE, STOP, OFF" etc.

This allows you to set your own personal text to enhance and personalize your ANGEL iR3™.

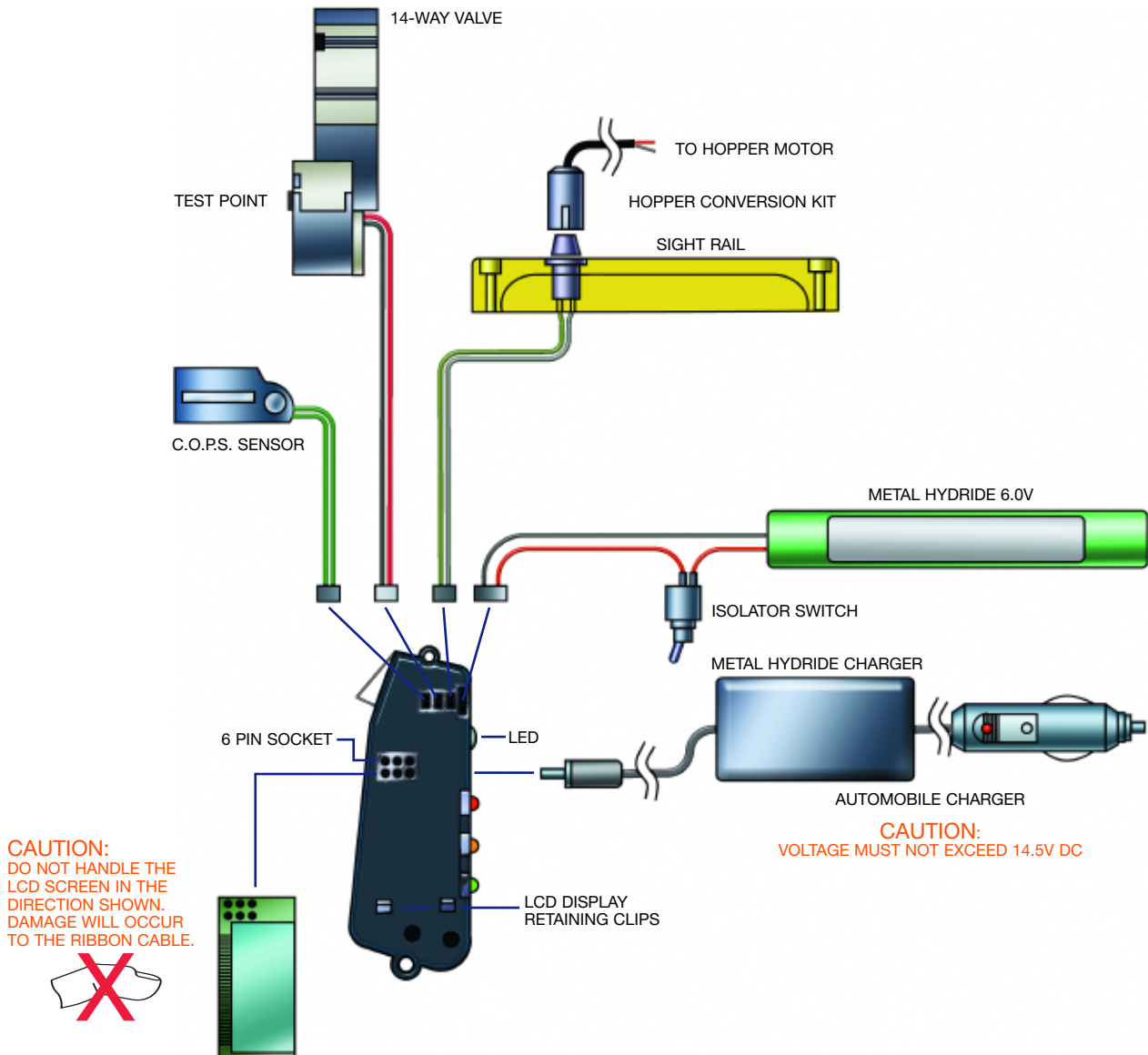
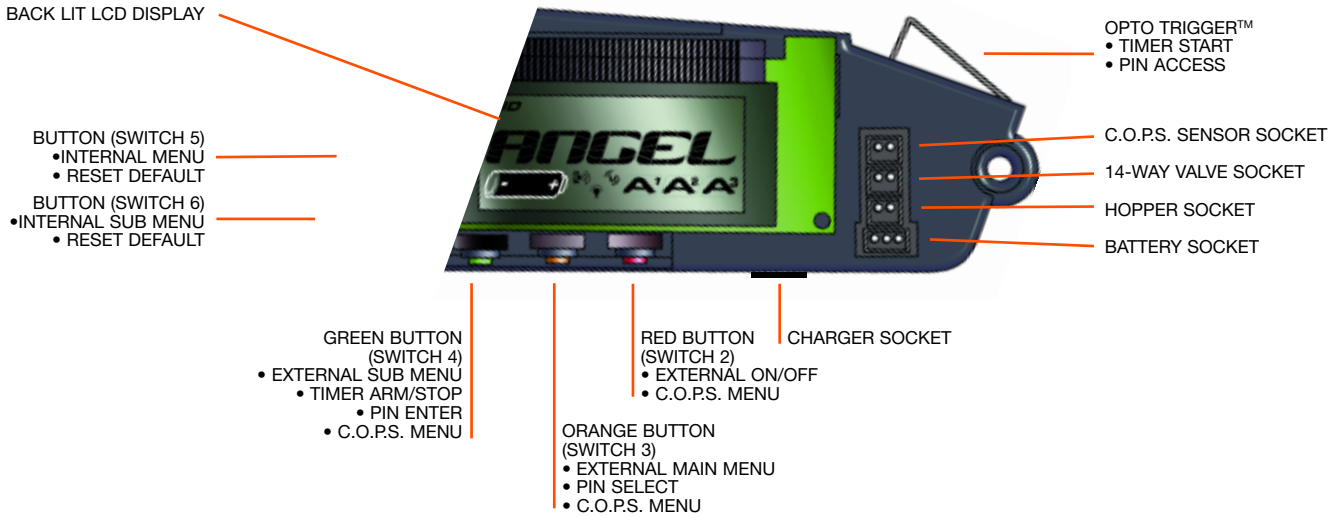
This text will appear in conjunction with the live message and appear as a scrolling message only when the ANGEL iR3™ is live. You may enter a maximum of 5 characters.



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Internal tournament LCD menus - text programming (fig.8)



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BOLT

FEED TUBE COLLAR

GATED FEED

ANTI DOUBLE BALL

FEED TUBE NECK

VALVE GUIDE

VALVE STEM

VALVE SPRING

LPR ASSEMBLY

END CAP

GUIDE LOCK PIN

LPR LOCK PIN

BUTTON M5 x 16mm

MANIFOLD SEALS  
FLASH TANK MANIFOLD

FLASH TANK

CAP M5 x 18mm

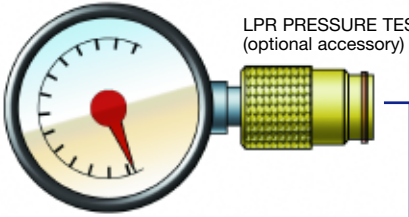
BUTTON M5 x 12mm

DIVERTER SEALS  
DIVERTER PLATE

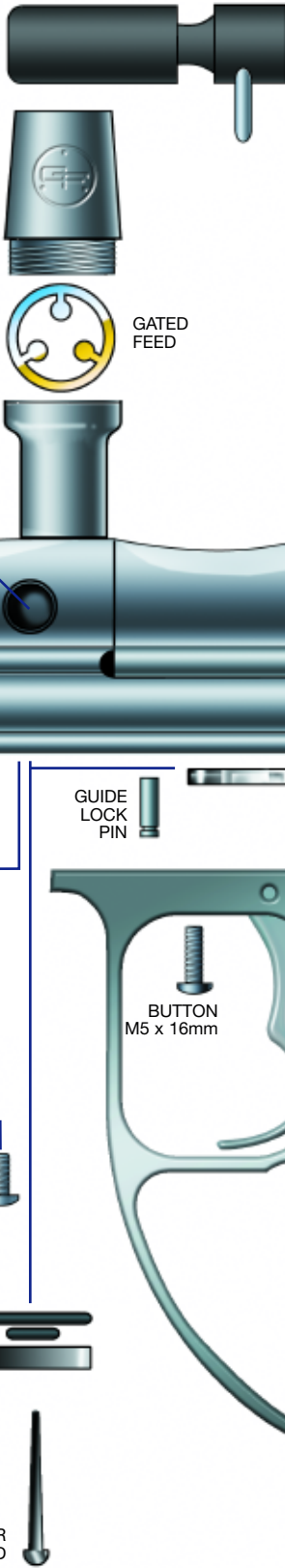
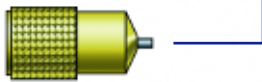
MINI REGULATOR

ACTIVATOR ROD

LPR PRESSURE TESTER.  
(optional accessory)



PISTON EXTRACTOR  
(optional accessory)



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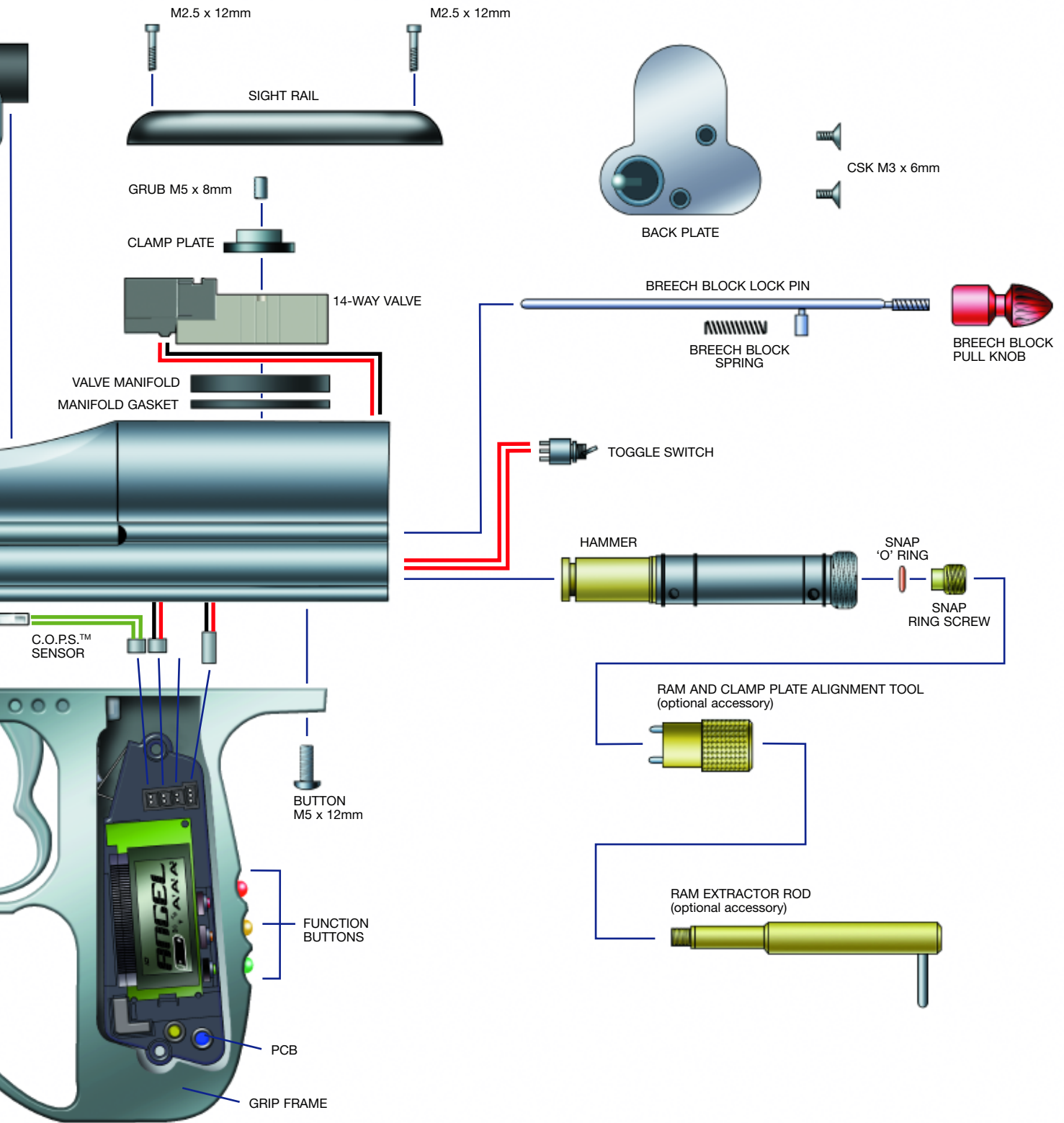
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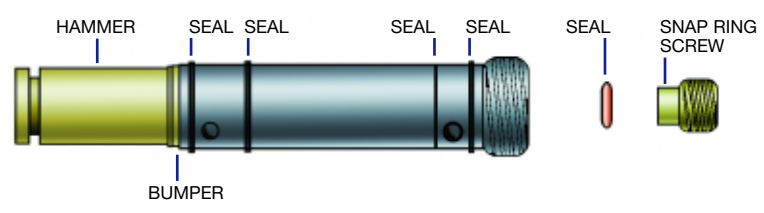




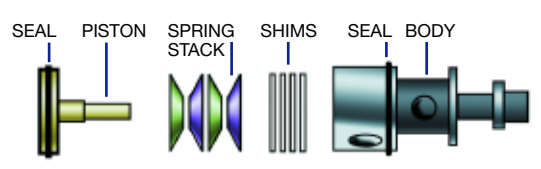
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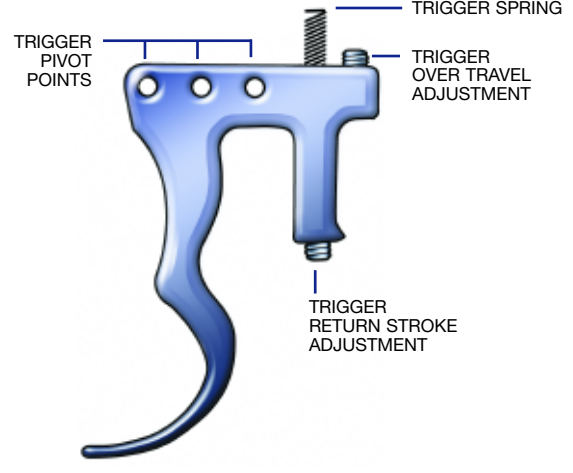
### SUPA-GLIDE RAM assembly



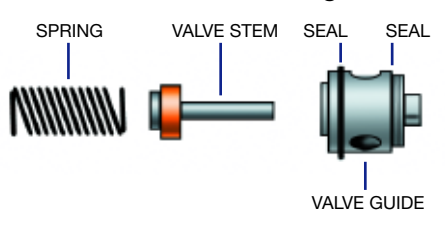
### LPR assembly



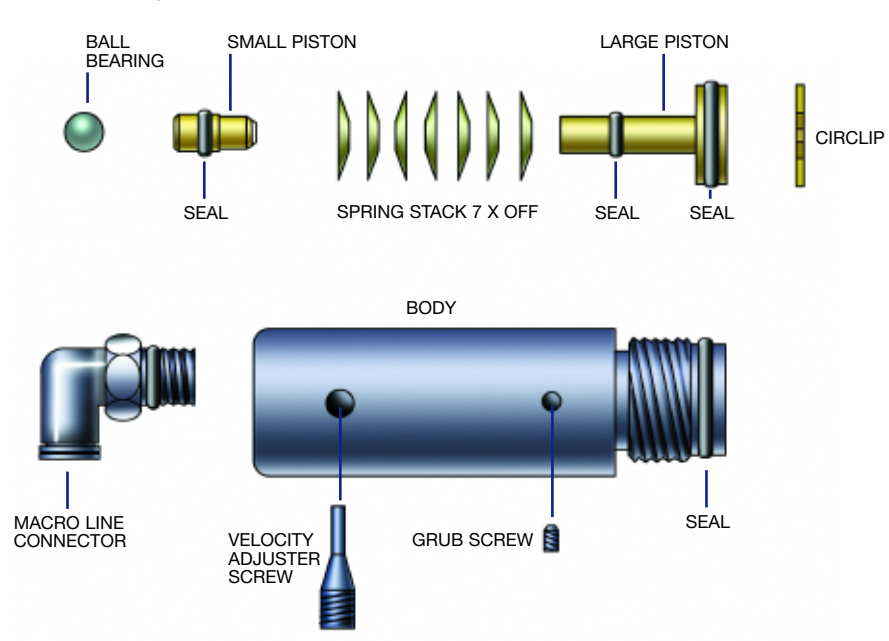
### 3STYLA™ Trigger assembly



### Exhaust valve stem and guide assembly



### Mini regulator assembly





## MAINTENANCE

### **WARNING**

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Always wear industrial standard eye protection when performing any maintenance on the ANGEL iR3™ .

## GENERAL CARE AND CLEANING

### **WARNING**

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Ensure a barrel blocking device is fitted to the ANGEL iR3™
- Ensure the hopper is removed from the ANGEL iR3™
- Ensure that there are no paintballs in the ANGEL iR3™
- Always remove the first stage regulator and relieve all residual gas pressure from the ANGEL iR3™ before disassembly.
- The ANGEL iR3™ can hold a small residual charge of gas, typically 2 shots, with the first stage regulator removed. Always discharge the marker in a safe direction to relieve this residual gas pressure.

The ANGEL iR3™ is fitted with a unique MAS (Maintenance Advice System) which monitors the operating conditions of the ANGEL iR3™ and advises the user of the service requirements for lubrication. The ANGEL iR3™ should be cleaned externally using a synthetic oil moistened cloth only. Under no circumstances should you use hydrocarbon based oils, as these will cause irrevocable damage to the internal seals, e.g: WD40, Vaseline, Duck oil, Engine oil, Plus gas, 3 in 1.

A suitable oil is **LOVE JUICE OIL**.

**CAUTION:** No solvents or abrasive cleaning products should be used. All external and internal accessible moving parts should be lubricated using light synthetic oil only.

The ram shaft and internal parts that are accessible during disassembly and reassembly should be lubricated with **LOVE JUICE EXTREME GREASE**. The frequency of lubrication should be at least every event or 8000 shots for an oil lubrication and 20,000 shots for a grease lubrication. This may occur sooner depending on the environment of use and the advice given by the MAS on the LCD display. The ANGEL iR3™ should never be immersed into water otherwise damage may occur to the electronics. The electronics are moisture/damp proof to IP65. Ensure correct tools are used.

**CAUTION:** All threads are metric except gun accessory mountings onto the grip frame, which is industry standard 10/32 UNF at centres 0.75 inches. The screw thread length must not exceed 0.375 inches (10mm) into the bottom of the frame otherwise damage will occur to the electronics. We recommend that you remove the left-hand cheek cover and ensure the screws do not project into the circuit board cavity when fitting.

## LOW PRESSURE REGULATOR (LPR) ADJUSTMENT

### **WARNING**

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Ensure a barrel blocking device is fitted to the ANGEL iR3™
- Ensure the hopper is removed from the ANGEL iR3™
- Ensure that there are no paintballs in the ANGEL iR3™
- Always remove the first stage regulator and relieve all residual gas pressure from the ANGEL iR3™ before disassembly.
- The ANGEL iR3™ can hold a small residual charge of gas, typically 2 shots, with the first stage regulator removed. Always discharge the marker in a safe direction to relieve this residual gas pressure.

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The low-pressure regulator controls the pneumatic cycle of the ANGEL iR3™ and is located in the left-hand chamber at the front of the ANGEL iR3™ body. The pressure needs to be at 95 psi (6.6) output at a pressure of 500 psi at the second stage regulator.

LPR adjustment is achieved by the removal of shims. Each shim equals approximately 3.5 PSI/0.2 BAR. We recommend the use of the optional service tools and lubrication of parts with LOVE JUICE EXTREME GREASE only (see general assembly diagram).

- Ensure the ANGEL iR3™ is degassed and in SAFE mode
- Remove the left end cap using suitable metric 4.0 A/F Allen key
- Insert the optional pressure gauge adaptor into the hole that the end cap was removed from.
- Re-Gas the ANGEL iR3™ and switch the ANGEL iR3™ to LIVE.

## WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- The ANGEL iR3™ is live and capable of discharging.

Fire 6 shots with no paintballs present to stabilize the LPR pressure.

*Note the pressure reading. Should the reading be high or low proceed to the next stage.*

## WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Always remove the first stage regulator and relieve all residual gas pressure from the ANGEL iR3™ before disassembly.
- The ANGEL iR3™ can hold a small residual charge of gas, typically 2 shots, with the first stage regulator removed. Always discharge the marker in a safe direction to relieve this residual gas pressure.

- Ensure the ANGEL iR3™ is degassed and in SAFE mode
- Remove the pressure gauge adaptor and insert M 2.5mm or piston extracting tool (optional extra) into the brass piston and withdraw slowly.

### CAUTION:

- Ensure the springs or shims are not lost (see LPR assembly). Insert/remove shims as necessary. Each shim equals approximately 3.5PSI/0.2BAR.

- Replace springs in correct order onto the piston (see LPR assembly).
- Re-insert the piston ensuring that it is located correctly.
- Verify the LPR pressure, following the procedure described above.

## WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- The ANGEL iR3™ is live and capable of discharging.

Once the desired pressure has been achieved proceed to the next stage.

## WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Always remove the first stage regulator and relieve all residual gas pressure from the ANGEL iR3™ before disassembly.
- The ANGEL iR3™ can hold a small residual charge of gas, typically 2 shots, with the first stage regulator removed. Always discharge the marker in a safe direction to relieve this residual gas pressure.

- Ensure the ANGEL iR3™ is degassed and in SAFE mode
- Remove the pressure gauge adaptor & replace the end cap.

## EXHAUST VALVE REMOVAL

### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Ensure a barrel blocking device is fitted to the ANGEL iR3™
- Ensure the hopper is removed from the ANGEL iR3™
- Ensure that there are no paintballs in the ANGEL iR3™
- Always remove the first stage regulator and relieve all residual gas pressure from the ANGEL iR3™ before disassembly.
- The ANGEL iR3™ can hold a small residual charge of gas, typically 2 shots, with the first stage regulator removed. Always discharge the marker in a safe direction to relieve this residual gas pressure.

- Remove the left end cap using suitable metric 4.0mm A/F Allen key. Unscrew the mini reg.
- Remove the flash tank by inserting a 4mm A/F Allen key into the cap head screw located in the flash tank.  
**CAUTION:** There is 1 'O' ring located on the top of the flash tank.
- Remove the flash tank manifold by inserting a 3mm A/F Allen key into the button head screw located on the manifold.  
**CAUTION:** There are 2 'O' rings located on this manifold.
- Pull out the LPR retaining pin.
- Remove the LPR piston. Use the LPR piston extraction tool (optional accessory). Ensure the springs and shims are also removed.
- Using a suitable blunt hooked pick slowly retract LPR by inserting the pick into the LPR piston hole.  
**CAUTION:** Care must be taken so that the bore is not scored or the seals damaged.
- Remove the valve spring and exhaust valve stem.

### **IMPORTANT NOTES: for re-assembly of components.**

- Ensure exhaust valve is located in exhaust body within the ANGEL iR3™.
- Ensure the spring is located onto the LPR body.
- Ensure the hole in the LPR body is in the correct orientation to the LPR lock pinhole in the main body prior to refitting.
- Slowly insert the LPR pushing it down with your thumb, when the holes line up insert the lock pin into the hole.
- Ensure the shims have been replaced.
- Ensure the springs are in the right order on the LPR piston.
- Ensure the 'O' rings are present on the manifold prior to its replacement.
- Ensure the 'O' ring is present on the flash tank prior to its replacement.

## RAM STROKE ADJUSTMENT

### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- The ANGEL iR3™ is live and capable of discharging.
- Ensure a barrel blocking device is fitted to the ANGEL iR3™
- Ensure the hopper is removed from the ANGEL iR3™
- Ensure that there are no paintballs in the ANGEL iR3™

- Ensure the Angel iR3 is gassed and in SAFE mode
- Ensure bolt is fully retracted. Remove the breech block pull knob by gently pulling and unscrewing counterclockwise.
- Remove the countersunk screws holding the back plate, using a suitable metric Allen key.
- Carefully lift the back plate off.

**CAUTION:** There are wires attached to the back plate and a spring is located under the back plate. Care must be taken so that the wires are not pulled or trapped during maintenance.

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- Retract breech block lock pin and spring.
- Using circlip pliers or the ram location tool (optional accessory) rotate ram assembly clockwise until slight resistance is felt in opening the breech block. If rotated too far the breech will not open so rotate counterclockwise and repeat operation. Note: The ram must always be rotated clockwise when setting.
- Replace the breech block lock pin, spring, back plate and breech block pull knob.

**CAUTION:** Ensure that no wires become trapped.

## RAM SNAP RING ADJUSTMENT/REPLACEMENT

### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Ensure a barrel blocking device is fitted to the ANGEL iR3™
- Ensure the hopper is removed from the ANGEL iR3™
- Ensure that there are no paintballs in the ANGEL iR3™
- Always remove the first stage regulator and relieve all residual gas pressure from the ANGEL iR3™ before disassembly.
- The ANGEL iR3™ can hold a small residual charge of gas, typically 2 shots, with the first stage regulator removed. Always discharge the marker in a safe direction to relieve this residual gas pressure.

- Remove snap ring nut using suitable metric Allen key. Ensure that the ram does not rotate by holding it in place with circlip pliers or the ram alignment tool (optional accessory)
- Remove the snap ring 'O' ring with a suitable pick if worn or damaged and replace with a new replacement.
- Apply a small amount of low strength Loctite to the snap ring screw. Replace the ram snap ring nut ensuring the Ram assembly does not rotate by using circlip pliers or the ram alignment tool (optional accessory) until slight resistance is felt.
- Gas up the ANGEL iR3™ and switch the ANGEL iR3™ ON.

### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- The ANGEL iR3™ is live and capable of discharging.

- Fire the ANGEL iR3™ whilst rotating the snap ring screw clockwise until the ANGEL iR3™ ceases to fire, now rotate the snap ring screw counterclockwise  $\frac{1}{4}$  of a turn. Ensure the ANGEL iR3™ fires.

NOTE:

Should the RAM have been moved whilst replacing the snap ring follow RAM stroke adjustment procedure.

**CAUTION:** Ensure no wires become trapped.

## 3 STYLA™ TRIGGER ADJUSTMENT

### WARNING

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- Ensure a barrel blocking device is fitted to the ANGEL iR3™
- Ensure the hopper is removed from the ANGEL iR3™
- Ensure that there are no paintballs in the ANGEL iR3™
- Always remove the first stage regulator and relieve all residual gas pressure from the ANGEL iR3™ before disassembly.
- The ANGEL iR3™ can hold a small residual charge of gas, typically 2 shots, with the first stage regulator removed. Always discharge the marker in a safe direction to relieve this residual gas pressure.
- Never adjust your trigger so fine that accidental discharge can occur due to shock loads or vibration.
- Do not delete or omit the 3Styla™ trigger spring.

The trigger has three aspects of adjustment:

- Pivot point.
- Return stroke.
- Over travel.

These adjustments should be carried out in the order shown and will enable the user to have total adjustment on the tactile feel and trigger movement.

**NOTE:**

- The OPTO board™ is a non-mechanical switch that is silent in its operation and no audible “click” is present
- Ensure the ANGEL iR3™ is degassed and switched off via the isolating switch on the rear of the marker.
- Remove the left-hand side grip cheek cover by removing the 3 screws using a suitable metric Allen key.
- Unplug the battery and solenoid plugs.
- Remove the 2 grip frame screws holding the frame to the body using a suitable metric Allen key.
- Remove the frame from the body. Remove the trigger return spring from the top of the trigger. You now have access to the trigger adjustment screws and trigger pivot and lock screw.
- Remove the trigger pivot lock screw using a suitable imperial Allen key
- Remove the trigger pivot pin using a suitable punch on the opposite side that the pivot lock screw was removed from.
- Back off all the adjustment screws
- Select the required pivot point and re-insert the pivot pin and the pivot pin lock screw
- When adjusting the trigger stroke screws, we recommend removing the screws and apply a small amount of Loctite low strength thread lock to prevent movement due to vibration.
- The screw nearest to finger location that projects above the trigger controls the over travel. Using a suitable metric Allen key adjust to suit. Counter clockwise reduces the over travel.

**CAUTION:** There must be sufficient over travel to activate the OPTO board™, otherwise the opto trigger will not operate correctly

- The screw that is recessed into the trigger below the return spring controls the return stroke. Using a suitable metric Allen key adjust to suit. Clockwise reduces the return stroke.

**CAUTION:** There must be sufficient return stroke to reset the OPTO board™ otherwise the opto trigger will not operate correctly.

- Replace the trigger spring and plug the solenoid and battery connectors into the pcb

**CAUTION:** The OPTO board™ should not be exposed to direct sunlight or external strong sources of light without the grip cheek fitted as this light will induce a safety feature, that will prevent the Angel iR3 from firing whilst it remains exposed to the external strong light.

- Switch the ANGEL iR3™ on.
- Offer the frame to the body and ensure that the trigger operates by pulling the trigger and holding down.
- The display should show ‘SAFE’ when the trigger is released. Should this not happen see note (a) below.
- Pull and hold the trigger. The display should show the mode and serial number. e.g ‘SEMI’, ‘12345’. Should this not happen see note (b).

**Notes:**

- (a). The trigger is incorrectly adjusted. Re-adjust the return stroke screw by repeating the procedures above.
- (b). The trigger is incorrectly adjusted. Re-adjust the over travel screw by repeating the procedures above.

- Replace grip frame screws and remaining wiring connections into the PCB.

**CAUTION:** Do not trap any wiring or damage could occur to the wiring resulting in a fault developing.

- Verify the trigger is functioning correctly
- Replace grip cheek cover screws using a suitable metric Allen key.

## TESTING PNEUMATICS/ELECTRONICS

### **WARNING**

ADHERE STRICTLY TO THESE AND ALL OTHER SAFETY INSTRUCTIONS AND GUIDELINES

- The ANGEL iR3™ is live and capable of discharging.
- Ensure a barrel blocking device is fitted to the ANGEL iR3™
- Ensure the hopper is removed from the ANGEL iR3™
- Ensure that there are no paintballs in the ANGEL iR3™

The design of the ANGEL iR3™ can be divided into two elements, which enable you to evaluate where a problem may have occurred. To evaluate the pneumatics follow the procedure listed.  
(See wiring connections diagram Page 25.)

- Ensure the ANGEL iR3™ is 'LIVE' and gassed up.
- Remove the 2 fixing screws that hold the sight rail on using suitable metric Allen key.
- Gently lift off the sight rail.
- Using a pencil, press and hold the orange button on top of the 14-way valve. The pneumatics will now operate as all electronics are bypassed. The ANGEL iR3™ should fire a shot with the bolt remaining in the forward position.
- On removing the pencil the pneumatics will reset with the bolt returning to its rest position.  
This shows that the pneumatics have functioned correctly.
- Should the pneumatics not operate this indicates that there is a pneumatics problem.
- Should the ANGEL iR3™ not fire when the trigger is pulled prior to this test, this indicates an electronic problem.

## FAULT FINDING

### ANGEL WILL NOT FIRE?

IS THERE AIR OR NITROGEN PRESENT	See gassing up the ANGEL iR3™.
IS THE BATTERY PACK CHARGED?	See charging the ANGEL iR3™.
THE BATTERY ISN'T CHARGING.	Check vehicle voltage.
IS THE ANGEL IN 'SAFE'?	See switching the ANGEL iR3™ On.
IS THE ISOLATOR SWITCHED OFF?	See switching the ANGEL iR3™ On.
IS THE TRIGGER NOT CLOSING THE SWITCH?	See trigger adjustment.
IS THE TRIGGER NOT RELEASING THE SWITCH?	See trigger adjustment.
IS THE BOLT JAMMED FORWARD?	Clear blockage from breech.
IS THE RAM SNAP RING TOO TIGHT?	See ram snap ring adjustment.
IS THE LPR SET CORRECTLY?	See LPR adjustment.
ARE THE PNEUMATICS WORKING?	See testing pneumatics.
IS THE OPTO TRIGGER™ FUNCTIONING?	See OPTO trigger™ adjustment
IS THE CIRCUIT BOARD WORKING?	See testing electronics.
ARE THE CONNECTORS PLUGGED IN CORRECTLY?	See circuit board layout.

### VELOCITY TOO LOW/HIGH?

IS THE HIGH PRESSURE REGULATOR SET CORRECTLY?	See gas source.
IS THE VELOCITY ADJUSTER SCREW SET CORRECTLY?	See velocity adjustment.
IS THE BOLT STICKING?	Check anti-double ball.
IS THE LPR SET CORRECTLY?	See LPR adjustment.
IS THE VALVE DWELL SET CORRECTLY?	See dwell adjustment.
IS THE RAM SET CORRECTLY?	See ram stroke adjustment.
IS THE SNAP RING SET CORRECTLY?	See ram snap ring adjustment.

### CHOPPING PAINTBALLS?

IS A SUITABLE WORKING HOPPER FITTED?	See accessories.
IS THE C.O.P.S.™ ON?	See C.O.P.S.™ adjustment.
IS THE RATE OF FIRE SET TOO HIGH?	See MROF adjustment.
IS THE ANTI-DOUBLE BALL PRESENT?	Clean or replace.

### FIRING TOO SLOW?

IS THE RATE OF FIRE SET CORRECTLY?	See MROF adjustment.
IS C.O.P.S.™ FUNCTIONING CORRECTLY?	See C.O.P.S.™ adjustment.

### EXCESSIVE NOISE/GAS CONSUMPTION

IS THE VALVE DWELL SET CORRECTLY?	See valve dwell adjustment.
IS THE LPR PRESSURE SET CORRECTLY?	See LPR adjustment.
IS THE EXHAUST VALVE WORN?	See exhaust valve replacement.

### GAS LEAKING?

FROM BACK COVER?	See testing pneumatics/electronics.
FROM GAS JOINTS?	Check all fittings.
FROM EXHAUST VALVE?	See exhaust valve removal.
FROM RAM?	See testing pneumatic.



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## USEFUL CONVERSIONS

Listed are some useful conversions relating to pressure, velocity, mass and distance.

### PRESSURE

---

1 atm = 1.01325 bar

---

1 atm = 14.6959 psi

---

1 bar = 14.5038 psi

---

1 psi = 0.0689476 bar

### VELOCITY

---

1 Ft/s = 0.3048 m/s

---

1 Ft/s = 0.6818180 Mph

---

1 m/s = 3.28084 Ft/s

---

1 m/s = 2.23694 Mph

---

1 m/s = 3.6 Kph

### MASS

---

1 g = 0.05274 oz

---

1 Kg = 2.20462 lb

---

1 oz = 0.0283495 Kg

### DISTANCE

---

1 mm = 0.0393701 Inch

---

1 Inch = 25.4mm

---

1 thou = 25.4 micron

---

1 micron = 0.0393701thou

### FORMULA TO CONVERT FEET PER SECOND (Ft/s) TO FOOT lbs (Force)

---

1 foot lbs (force) = 1.35582 Joules

---

1 Joule = 0.737562 foot lbs (force)

---

1 Gram = 15.4324 Grains

---

1 Grain = 0.000142857 lb

---

1 lb = 7000 Grains

$$\frac{\text{Velocity squared} \times \text{Projectile weight}}{456300}$$

VELOCITY= Ft/s (feet per second)

PROJECTILE WEIGHT= GRAINS

Therefore a paintball @ 3.2grams @ 300Ft/s= 9.7 foot lbs

## TERMS OF WARRANTY EEC/R.O.W. EXCLUDING USA and CANADA

Subject to the conditions set out below WDP Ltd warrants that the ANGEL iR3™ will correspond to its specification at the time of delivery and will be free from defects in materials and workmanship for a period of six months from the date of purchase.

### WDP Ltd gives this warranty subject to the following conditions:

- Proof of purchase is required in all warranty claims.
- Warranty is not transferable.
- The company shall be under no liability in respect of any defect arising from fair wear and tear.
- Seals, batteries, wiring, circuit boards, LCD displays and exhaust valves are not covered by this warranty. Wilful damage, negligence, abnormal working conditions, weather, accident, tampering, failure to follow manufacturer's instructions (whether oral or in writing), misuse or alteration or repair of the ANGEL iR3™ without the company's written approval will invalidate this warranty and the company shall be under no obligation whatsoever to the purchaser in respect of any of the above breaches of this warranty.
- The above warranty does not extend to parts, materials or equipment not manufactured by the company, in respect of which the purchaser shall only be entitled to the benefit of any such warranty or guarantee as given by the manufacturer to the company.

This warranty does not cover the following:

- Repairs, alterations or replacements not authorised by the manufacturer.
- The gradual reduction in performance linked to the age of the ANGEL iR3™ or usage.
- Anything caused directly or indirectly by vandalism or theft.
- Any damage to parts which are recalled by the Manufacturer.
- Any loss, damage or failure, which a qualified engineer appointed by the Manufacturer, believes could have been avoided or was totally or partly caused by a lack of maintenance.

Subject as expressly provided in these conditions and except where the goods are sold to a person dealing as a consumer (within the meaning of the Unfair Contract Terms Act 1977) all warranties, conditions or other terms implied by statute or common law are excluded to the fullest extent permitted by law.

Where the goods are sold under a consumer transaction (as defined by the Unfair Terms in Consumer Contracts Regulations 1994 S13159) the statutory rights of the purchaser are not affected by these conditions. Carriage charges in relation to warranty claims shall be borne by the customer.

Where any valid claim in respect of the ANGEL iR3™ is based in the quality or condition of the ANGEL iR3™ or its failure to meet specification, and such valid claim is notified to the company in writing and is in accordance with the company's standard terms and conditions of sale, the company shall be entitled to repair or replace the goods or the part in question free of charge or, at the company's sole discretion, refund to the purchaser the price of the goods (or a proportionate part of the price) but the company shall have no further liability to the purchaser.

Except in respect of death or personal injury caused by the company's negligence, the company shall not be liable to the purchaser by reason of any representation, or any implied warranty, condition or other term, or any duty at common law, or under the express terms of this guarantee, for any direct or indirect, special or consequential loss or damage, whether to persons or property, costs, expenses or other claims for compensation or damages whatsoever (whether caused by the negligence of the company, its employees or agents or otherwise) which arise out of or in connection with the supply of the ANGEL iR3™ its use, or misuse, or resale by the purchaser, or any individual, and the entire liability of the company under or in connection with the purchase or use or misuse of the ANGEL iR3™ shall not exceed the purchase price of the ANGEL iR3™. Purchaser agrees to adhere strictly to all warnings and safety procedures and the contents of the Operator's Manual.

The laws of England shall govern this warranty and the purchaser agrees to submit to the non-exclusive jurisdiction of the English courts.

The supply and purchase of the ANGEL iR3™ is subject to the company's standard terms and conditions of sale, a copy of which is available on request. ANGEL iR3™ patents applied for, design rights and all rights reserved. The ANGEL iR3™ is marketed and distributed by WDP Ltda company registered in England No. 2114341.

No warranty is given to parts not manufactured by the Manufacturer and all liability for loss damage or injury is excluded.

This warranty must be construed and read in conjunction with the products terms and conditions of sale.

To make a warranty claim, buyer must first contact the nearest authorised ANGEL iR3™ Service Centre for instructions. A list of authorised ANGEL iR3™ Service Centres may be obtained through WDP Ltd website [wdp-paintball.com](http://wdp-paintball.com), or by contacting WDP by mail at WDP Ltd., Metro Triangle, 221 Mount Street, Nechells, Birmingham, England, B7 5QT, or by fax at +(44) (0)121 327 3967, or by calling +(44) (0)121 328 2228.

## WDP LIMITED EXPRESS WARRANTY USA/CANADA ONLY

### 1. General Express Warranties.

WDP warrants to the buyer who is purchasing to place into use ("Buyer") only, that the ANGEL iR3™ ("Product") shall be free from material manufacturing defects in materials and workmanship for six months from the date of purchase, subject to the requirements, disclaimers and limitations of this Warranty. This is not a Warranty of performance, but a limited Warranty as to the condition of the Product at the beginning of the Warranty period, this Warranty is only against such defects and not against any other failures such as, but not limited to, those due to wear and tear, exposure to the elements, unusual operating environments, misuse, negligence, accident, alteration or repair in any respect which, in the judgement of WDP, adversely affects the condition or operation of the Product. Normal maintenance and perishable items such as seals, batteries, wiring, indicator lamps and exhaust valves are excluded from this limited Warranty against defects. This Warranty is not transferable and it may not be waived or expanded except in writing signed by WDP. The terms and limitations of this Warranty shall also apply to any additional goods or information, which may be distributed by WDP relating to the ANGEL iR3™.

### 2. Disclaimer and Limitation of Express and Implied Warranties.

There are no express Warranties other than those contained in this Warranty. Whether or not the Product is to be used exclusively by Buyer, there shall be no third party beneficiaries to this Warranty herein. NO WARRANTY IS PROVIDED TO DISTRIBUTORS OR DEALERS EXCEPT AS MAY BE EXPRESSLY PROVIDED IN A SEPARATE AGREEMENT OF SALE. All descriptions, illustrations of the Product and other information in catalogues, brochures and price lists or otherwise provided by WDP or others are intended for general information only. WDP is not responsible for any errors or omissions therein or for any loss or damage resulting from reliance on them. WDP does not warrant that the Product is in compliance with any law or industry standards, guidelines or procedures. WDP Ltd standard terms and conditions of sale also apply if Buyer is a direct purchaser from WDP. WDP DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, BUT NOT LIMITED TO, THOSE OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY.

### 3. Remedy and Limitation of WDP liability.

Defective or non-conforming Product or parts thereof discovered and returned to WDP, freight prepaid, with proof of purchase, during the Warranty period shall be repaired or replaced by WDP without any additional charge and shipped to Buyer, FOB WDP. In lieu of repair or replacement, if WDP elects, WDP may, upon return of such product and making a determination of non-conformity or defect, keep the product and refund the purchase price paid by Buyer. Buyer's remedies shall be limited (even in the event of WDP default of its Warranty obligations) exclusively to those provided in this Warranty. UNDER NO CIRCUMSTANCES SHALL WDP OR ANY SUPPLIER, DISTRIBUTOR, DEALER, OR OTHER PERSON BE LIABLE FOR EXEMPLARY, PUNITIVE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, NOR FOR ANY AMOUNT IN EXCESS OF THE BUYER'S PURCHASE PRICE. Buyer waives any causes of action or theories of liability including, but not limited to, those arising under contract, tort, strict liability, Product liability, statutes, or otherwise, except as to those specifically provided by the Uniform Commercial Code (as adopted in Michigan) as excluded, modified and limited in this warranty.

#### 4. Additional Consumer Protection.

The products are offered for sale for end use in supervised commercial establishments where professional safety codes are enforced, and not for personal, family or household use. Nevertheless, if the Product is determined in a transaction to be a customer Product under applicable law, the following provisions shall become applicable:

- (a) THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS OF THE PRODUCT FOR A PARTICULAR PURPOSE THAT CANNOT BE DISCLAIMED ARE LIMITED IN DURATION TO THE INITIAL EXPRESS WARRANTY PERIOD.
- (b) Some states do not allow limitations on how long an implied Warranty lasts, so the above limitation in (a) may not apply.
- (c) Some states do not allow the exclusion or limitation of incidental or consequential damages, so such limitations may not apply.
- (d) And this Warranty gives buyer specific legal rights, and buyer may also have other rights provided for by law.

#### 5. Parts, Service and Training performed by WDP.

All Warranty and non-Warranty parts, labour and service, if any, provided by WDP related to the product are subject to all limitations and disclaimers of warranties and remedies provided in this Warranty. The replacement or repair of a product by WDP does not give rise to any new Warranty except the Warranty period provided for herein shall be extended by the length of any period in which defective or non-conforming product is in possession of WDP. WDP may have access to the Product after purchase of the Product. WDP is not under any duty to inspect the product for any defects or any improper use or modification of the Product, nor to correct or advise anyone of any such condition, use or modification, which is observed. Any notification, which may be given, is voluntary and subject to all limitations and disclaimers in this Warranty.

#### 6. User's Responsibility for Safety and Indemnification

It is Buyer's or other user's responsibility to obtain all training and means that may be necessary to effectively protect all individuals and property from damage and bodily injury, which otherwise may result from the use or maintenance of the Product, and to use the Product in accordance with operating instructions and due care. If operating instructions are not provided with the Product or have been lost, a copy will be provided by WDP without cost on request. Buyer shall use and shall require all others to use all safety devices and guards furnished with or intended to be used with the Product, and to follow proper safe operating procedures in accordance with general industry standards and as set forth in manuals and instruction information furnished by WDP. If Buyer fails to comply with the obligations set forth in this section, the buyer shall defend and indemnify WDP harmless from any claim, liability or obligation incurred by WDP or its suppliers, distributors, or dealers to persons injured directly or indirectly in connection with the use of the product contrary to this Warranty or any warning or instruction from WDP.

#### 7. Law and Jurisdiction.

This Warranty shall be governed by the laws of Michigan, and Buyer irrevocably submits to the non-exclusive jurisdiction of courts sitting in Michigan to resolve all disputes arising from or related to this warranty or use of the Product.

#### 8. Claims and information procedure.

To make a warranty claim, Buyer must first contact the nearest authorised ANGEL iR3™ Service Centre for instructions. A list of authorised ANGEL iR3™ Service Centres may be obtained through WDP Ltd website [wdp-paintball.com](http://wdp-paintball.com), or by contacting WDP by mail at WDP Ltd, Metro Triangle, 221 Mount Street, Nechells, Birmingham, England, B7 5QT, or by fax at 011 44 121 327 3967, or by calling 011 44 121 328 2228.

#### UPDATES

The specification and photographs in this material are for general guidance purposes only. Our products are continuously updated and changes may be made to specifications, design, or appearance from time to time. For the latest specification, virtual products and on line technical support we recommend that you visit our website [wdp-paintball.com](http://wdp-paintball.com).