



**EMPIRE**<sup>®</sup>  
BATTLE TESTED

# **DIFENDER**

**USER MANUAL**



# D\*FENDER MANUAL 1.0

1. INTRODUCTION.....	2
2. SAFE MARKER HANDLING.....	3
3. BASIC OPERATION.....	3
4. FIRING YOUR MARKER.....	6
5. MARKER ADJUSTMENTS.....	7
6. ELECTRONIC SETTINGS.....	9
7. UNLOADING YOUR MARKER.....	13
8. DISASSEMBLY AND MAINTENANCE.....	14
9. STORAGE AND TRANSPORTATION.....	17
10. TROUBLESHOOTING.....	18
11. DIAGRAMS/PARTS LIST.....	20
12. WARRANTY INFO.....	26

## Included with your D\*Fender:

- Standard Flip Lid
- Quick Load Lid
- Ported 12" Aluminum Barrel (takes Super Freak™ insert)
- 14.75" Apex2 Barrel (takes Super Freak™ insert)
- 3 Super Freak Barrel Inserts (.680", .685", .690")
- Front Hand Grip
- Single Point Sling Adapter
- Hex Wrenches
- Spare Parts Kit
- Barrel Blocking Cover
- 6 AA Alkaline Batteries
- Quick Start Guide
- CD Manual

## D\*Fender Specifications:

- Available Modes: Semi Auto, Burst, Ramping, Full Auto, and Select Fire
- Air source: HPA/Compressed Air (400-900 psi output) No CO<sub>2</sub>
- Battery: 6 AA batteries (Alkaline or Lithium Disposable batteries only)
- Cycle Rate: Up to 20 BPS (Semi Only)
- Shell Material: Magnesium Alloy
- Main Body Material: Aluminum
- Accuracy Range: 150ft +
- Weight: 6lb 10oz (with Alkaline Batteries)
- Paintball Capacity: 235+/- paintballs



## WARNING! PAINTBALL GUNS AND PAINTBALL GUN ACCESSORIES ARE NOT TOYS!

- Careless use or misuse may result in serious bodily injury or death!
- Eye protection designed for paintball must be worn by the user and all persons within range.
- Not for sale to persons under 18 years of age.
- Must be 18 years of age or older to operate or handle any paintball gun and paintball gun accessories without adult or parental supervision.
- Read and understand all cautions, warnings, and operating manuals before using any paintball gun or paintball gun accessory.
- Do not aim paintball gun at eyes or head of people or at animals.
- Paintball guns are to be used with Paintballs only.
- To prevent fire or shock hazard, do not expose unit to rain or moisture.
- To prevent fire or shock hazard, do not immerse unit in liquids.
- To prevent fire or shock hazard, do not disassemble any electronic paintball device.
- The disposal of the battery used to power this product may be regulated in your area.
- Please conform to all local or state regulations with regard to battery disposal.
- Use common sense and have fun.

Any tampering with the unit voids your warranty. There are no consumer serviceable parts inside the unit. The use of non factory authorized components within this product may cause a critical failure, fire or shock hazard.

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM ANY DEFECTIVE PRODUCT OR THE USE OF ANY PRODUCT.

WARNING: This product contains one or more chemicals that are known to the State of California to cause cancer and birth defects or other reproductive harm. *Wash hands after handling.* You must be at least 18 years of age to purchase this product. This product may be mistaken for a firearm by law enforcement officers or others. Altering the color of the product or brandishing the product in public may be considered a crime.

*Designed for Paintball use only.*



## 1. INTRODUCTION

Congratulations on your selection of the Empire D\*Fender paintball marker. The D\*Fender marker has an integrated loader which eliminates the need for any additional loading device. The D\*Fender marker is designed to provide you with many years of reliable performance. We are honored that you have chosen the D\*Fender as your marker of choice and hope you enjoy using this high quality product.

The D\*Fender is precision engineered from magnesium alloy, aircraft grade aluminum and various composite materials. We expect you to play hard and play frequently and thus the D\*Fender was built with this in mind.

The D\*Fender operates on Low-Pressure Compressed Air with the main operating pressure between 180-200 PSI (12.4-13.8 BAR). The pressure can be nominally adjusted and monitored visually via the gauge on the bottom-line regulator. There is no secondary regulator that adjusts the input pressure.

## 2. SAFE MARKER HANDLING

**WARNING:** Never carry your paintball marker uncased when not on a playing field. The non-playing public and law enforcement personnel may not be able to distinguish between a paintball marker and a firearm. For your own safety and to protect the image of the sport, always carry your marker in a suitable marker case or in the box in which it was shipped.

- Treat every marker as if it were loaded.
- Never look down the barrel of a paintball marker.
- Keep the marker in "Safe Mode" until ready to shoot, power Off and barrel blocking device installed in/on the marker's Barrel.
- Keep your finger off the Trigger until ready to shoot.
- Never point the marker at anything you don't wish to shoot.
- Keep the barrel blocking device in/on the marker's Barrel when not shooting.
- Always remove paintballs and the air source before disassembly.

- After removing the air source, point marker in safe direction and discharge until marker is degassed.
- Store the marker unloaded and degassed in a secure place.
- Follow warnings listed on the air source for handling and storage.
- Do not shoot at fragile objects such as windows.
- Every person within range must wear eye, face and ear protection designed specifically to stop paintballs and meeting ASTM standard F1776.
- Always measure your marker's velocity before playing paintball and never shoot at velocities in excess of 300 feet-per-second (91.44 meters-per-second).
- Read this entire manual before loading, attaching a propellant source or in any way attempting to operate the Empire D\*Fender marker.

*Note: Eye protective devices designed specifically for paintball use must be worn by the operator and anyone within range.*

## 3. BASIC OPERATION

Safety and safe marker handling are the most important aspects of paintball sports. Please practice each of the following steps with an unloaded marker before attempting to operate your marker with an air source and paintballs.

- Do not install an air source or load paintballs into your marker until you have completely read and understood this manual and feel completely confident with your ability to handle your marker safely.
- Always use ASTM approved paintball specific eye protection. Always wear eye protection when handling a paintball marker and in any areas where paintball markers may be discharged. Make sure any other persons in the area also wear ASTM approved paintball eye protection.
- Keep your finger out of the Trigger Guard and away from the Trigger; point the muzzle of the marker in a safe direction at all times. Keep the marker in Safe Mode.
- Always use a barrel blocking device. This can be the supplied Barrel Cover or any approved device that prevents the accidental discharge of a paintball.
- Remember that the ultimate safety device is you, the operator.

### 3. BASIC OPERATION (Cont'd)

**CAUTION:** Paintballs may remain in the feed tube system after the loader section is empty. Always check for paintballs in the feed tube and breech to prevent accidental discharge!

#### Safety and Safe Mode:

There is no true push-button “Safety” on the D\*Fender marker, instead there is the On/Off Power Button (Fig 3.1). In this manual, you will see the term “Safe Mode”. In “Safe Mode”, the marker’s selector should be set to “safe” (white, Fig 3.2), the marker should be powered Off, and a barrel blocking device should be installed. Make sure your marker is in “Safe Mode” when the marker is not being fired or when indicated to do so.

#### Battery Installation:

The D\*Fender requires 6 AA sized alkaline or lithium disposable batteries as the electronic power source. The use of name-brand, long-life alkaline batteries is recommended. The batteries are installed by removing the Battery Door (Fig 3.3) and then the battery pack.

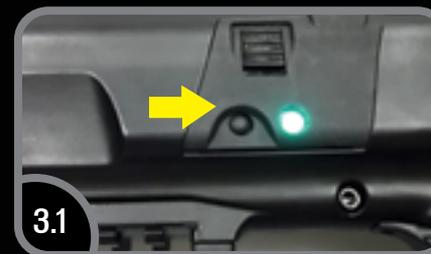
Remove the Battery Door by pressing in the two quick release buttons on either side of the door simultaneously and sliding the door rearward until it is removed.

Remove the battery pack and install six AA batteries following the polarity markings shown on the pack and reinstall the pack into the marker making sure it’s facing the correct way (Fig 3.4).

Slide the Battery Door back into position, making sure the Quick Release Buttons are securely locked into place.

#### Barrel Installation:

- Check barrel to make sure it is clear of paintballs or debris.
- Make sure marker is degassed, clear of all paintballs (in the loader, feed ramp, and breech) and the marker is in “Safe Mode”, power Off.
- While pointing marker in a safe direction, slide the barrel into the front opening of the marker body.
- Then thread the barrel clockwise until it stops (do not over tighten).
- For the Apex2 barrel, make sure the adjuster slide is in your desired position. The neutral position is completely towards the rear of the marker.
- Install the barrel blocking device.



## 3. BASIC OPERATION (Cont'd)

### Compressed Air/Nitrogen Supply:

The D\*Fender is designed to work with High Pressure Air (HPA)/Compressed Air only. Do NOT use CO<sub>2</sub>, as it will damage your D\*Fender marker.

Consult the place where you purchased your D\*Fender, or a recognized and competent air smith, for instruction in the safe handling of compressed-air cylinders before purchasing or connecting one to your D\*Fender marker.

The D\*Fender utilizes a fully functional regulator at the bottom of the grip frame that doubles as an ASA (Air Source Adapter) for a standard threaded pre-set output compressed air system. If you are using an adjustable *output tank regulator system*, the recommended output pressure should be between 400-500 psi.

### WARNING:

- Remember compressed air and nitrogen systems cylinders can be extremely dangerous if misused or improperly handled. Use only cylinders meeting D.O.T., TC or regionally defined specifications.
- Never disassemble your tank or tank regulator. Only a qualified and trained technician should perform work on your tank and tank regulator.
- Never add any lubricants or greases into the fill adapter on your tank regulator.

### Compressed Air Tank Installation:

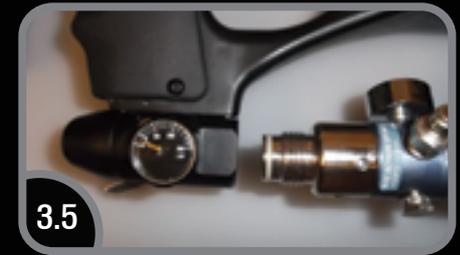
#### Before Installing Tank

- Check to make sure that you and anyone within range are wearing eye protection designed specifically for paintball.
- Double check that all screws are tightened and no parts are loose before installing your tank.

- Confirm that the marker is fully assembled.
- Ensure you have a specifically designed barrel-blocking device in place.
- Make sure there are no paintballs in the marker.
- The marker should be set to Safe Mode.

#### Installing Tank

- While pointing the marker in a safe direction, locate the ASA (air source adapter). The D\*Fender's ASA is located on the bottom of the grip frame.
- Move the On/Off lever to the forward position.
- Insert the threaded end of the air cylinder into the ASA (Fig 3.5).
- Without pushing, twist the cylinder clockwise and allow the threads to draw the cylinder into the marker's ASA until it stops.
- Flip the On/Off lever to the back position.
- Your marker is now pressurized.



#### Loading Paintballs:

The D\*Fender uses .68 caliber paintballs, readily available at paintball pro-shops, commercial playing fields, and many sporting goods stores. The paintballs are fed from the loader area, through the internal feed ramp, and into the breech of the marker.

- Make sure the marker is set to "Safe Mode", power Off and barrel blocking device on.
- Put on an eye protective device designed specifically for paintball and make sure that anyone within range of the marker does the same.

### 3. BASIC OPERATION (Cont'd)

- Open the Lid and load quality Empire .68 caliber paintballs (leave some room for paintballs to move about, inside marker).
- Close the Lid
- Your marker is now loaded.

#### Loader Operations:

The D\*Fender uses three sensors to operate the loading of paintballs: The trigger activation, the Breech Sensor and the infrared gear sensor. When the Trigger is pulled the loader will spin to load paintballs. If the Breech Sensor is activated and working properly the loader will stop spinning once a ball is loaded into the breech. If the Breech Sensor is not active the loader uses the infrared gear sensor to control speed and stop the loader.

### 4. FIRING YOUR MARKER

**WARNING:** Before switching your D\*Fender marker On. Make sure it is pointed in a safe direction. Everyone within firing range should always use paintball approved eye and face protection in the presence of live paintball markers. Make sure the marker is set to "Safe Mode", before following the steps below. Always use a barrel plug or barrel blocking device. Remember that the ultimate safety device is you, the operator.



#### Powering On and Off Normal (Live) Mode:

- The Selector Switch must be in the Safe position (white) to turn the marker On (Fig 4.1). The Selector Switch is located on the left side of the marker above the Trigger.
- To turn marker On, press the Power Button and hold for 1 second. The LED will glow Green (or Blue if the battery is low) indicating the marker is powered On and in Safe Mode. The marker will not fire when in Safe Mode.
- To turn marker Off press and hold the Power Button until the LED turns white. The Selector Switch position is not important for turning the marker Off.

*Note: Make sure Trigger is not pressed when turning board On. This will put the marker in the Settings Mode. For more info on settings mode see the Settings Mode section below.*

#### LED Indication in Normal (Live) Mode:

The LED uses a combination of colors and flashing to indicate information about your battery status and the Breech Sensor status. The Battery level is only indicated when the selector is in the Safe Position and the light will not blink. In all other positions the frequency of the blinking as explained below will indicate the break beam eye status. "Flicker" blinks the LED at a higher rate than "Flash".

FLASH FREQUENCY	BREECH SENSOR STATUS
Solid Glow	Breech Sensor is ON, Ball is sensed
Slow Flash	Breech Sensor is ON, No Ball is sensed
Fast Flash	Breech Sensor is turned OFF
Flicker	Breech Sensor is malfunctioning/eyes dirty

LED SAFE COLOR	BATTERY LEVEL
Green	Battery level is good
Blue	Replace battery



## 4. FIRING YOUR MARKER (Cont'd)

### Selector Switch Operation:

The Selector Switch can be used to quickly switch between firing modes on the fly (when the marker is set to Select Fire mode). The Selector Switch has 4 positions; Safe, position 1, position 2 and position 3. It can also be disabled so that the marker is tournament legal.

- The first position on the Selector Switch is the Safe Position (white). While in Safe Mode, the Trigger is not active, the marker will not fire. The LED will either glow solid Green if the battery is good. If the batteries need replacing the LED will glow solid Blue and should be replaced. The switch must be in this position in order to turn the marker On.
- When the Selector Switch is moved, the light will change colors depending on the firing mode and begin blinking to the Eye status.
- In "Select Fire" Firing Mode positions 1-3 on the selector correspond to different firing modes and each will be a different color. This is for when the firing mode in settings is set to "Select Fire" mode only. Burst, Ramping and Full Auto will have Semi-Auto shots prior to initiation of the Fire Mode shot characteristics. The number of Semi-Auto shots is adjustable and defaults at 3 shots.
- In all other firing modes Positions 1-3 the light will be Red and each position will be the same firing mode corresponding to you current settings.

### Break Beam Breech Sensor Operation:

POSITION	LED COLOR	FIRING MODE
Safe	Green or Blue	Safe
1	Red	Semi-Auto
2	Amber	Burst
3	Purple	Full-Auto

The break beam Breech Sensor monitors the breech to minimize ball breakage and maximize rate of fire. It is also used for feedback to the loader system.

- When the Breech Sensor is turned On the marker will not fire unless the Breech Sensor detects a paintball.
- By default, when the marker is turned On the Breech Sensor is turned On.
- To toggle the Breech Sensor On/Off press and release the Power Button once quickly. The LED status will indicate whether the Breech Sensor is On or Off.
- If the Breech Sensor becomes dirty either from broken paintball or debris, or malfunctions, the maximum rate of fire will be slowed down to 8 bps to prevent ball breakage. Switch the Breech Sensor Off if you would like to continue to fire at the set max rate of fire.

### Automatic Off Feature:

The D\*Fender also has an "Automatic Off" feature. If you accidentally leave your D\*Fender powered up, it will turn off after approximately 1 hour of inactivity.

## 5. MARKER ADJUSTMENTS

Always check the velocity of the marker prior to playing paintball. Different playing fields may have different maximum velocity limits. At no time should you shoot at velocities above 300 feet-per-second (91.44 meters-per-second).

Your D\*Fender marker was thoroughly inspected and test-fired at the factory and should only require verifying the velocity adjustment with a chronograph before use. After extended use and under varying conditions, your D\*Fender marker may require some adjustment.

When performing any adjustments on the marker, check for and remove any paintballs in the barrel, marker and loader, and make sure it is fully de-gassed. Again, if you are not certain of your skills, have any adjustments performed by a qualified technician. Any damage caused by improper adjustment is not covered under warranty.

## 5. MARKER ADJUSTMENTS (Cont'd)

### Checking Velocity:

- Put on an eye protective device designed specifically for paintball and make sure that anyone within range of the marker does the same.
- While pointing the marker in a safe direction, remove the barrel blocking device.
- Point the marker over a chronograph that will measure the velocity of the paintballs discharged by the marker.
- Turn marker On and move the selector to Semi Auto (1st red selection).
- Fire the marker, checking the reading on the chronograph.

### Adjusting Velocity:

**WARNING:** Check the velocity every time prior to using your D\*Fender marker. The velocity can be adjusted via the Velocity Adjuster (fig 5.1) which is accessible through either side of the marker. Adjust the velocity with a 3/32" hex wrench by inserting it into the adjuster holes and rotating.

- To increase (+) velocity from left side of marker, rotate the adjuster down in small increments, stopping between slight turns to test velocity, until desired velocity is achieved. A paintball specific radar chronograph should be used to accurately measure your velocity.



- To decrease (-) velocity from left side of marker, rotate the adjuster up in small increments, stopping between slight turns to test velocity, until desired velocity is achieved. A paintball specific radar chronograph should be used to accurately measure your velocity.

- If you are adjusting from the right side of the marker, rotating up will increase (+) the velocity and rotating down will decrease (-) the velocity.

*Note: Approximately 3/4 to 1 full turn out (from all the way in) should achieve a playable velocity. If the markers needs adjusted beyond this point, you may need to clean and re-lube the marker internals (bolt, bolt guide, poppet).*

### Regulator Adjustment:

- The D\*Fender is factory set to about 200 psi. You can adjust the input pressure by turning the adjustment screw located in the front of the ASA.
- Using a 3/32" hex wrench, turn the adjustment screw to adjust the input pressure into the marker (Fig 5.2).
- Turn the wrench inward or clockwise to increase the input pressure, and outward or counterclockwise to decrease the input pressure.



**WARNING:** Do not increase regulator pressure over 200psi or it will damage the marker.

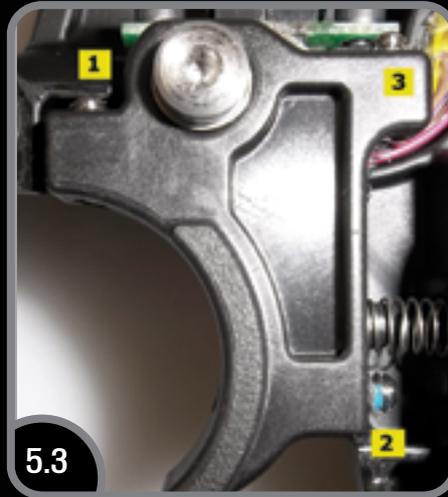
### Trigger Adjustment:

The D\*Fender Trigger can be adjusted by the three set screws in the Trigger (Fig 5.3). The third activation adjustment set screw can only be adjusted while the Internal Assembly is removed.

Before making any Trigger adjustments, de-gas the D\*Fender, make sure the gauge reads 0 psi, then switch the power On and turn the eyes turned Off to easily monitor the current activation point. These can be adjusted with a 1/16" hex wrench. Make small adjustments and check that the Trigger is activating the Trigger Switch.

## 5. MARKER ADJUSTMENTS (Cont'd)

- The (1) first set screw adjusts forward movement, and forward stop point.
- The (2) second set screw adjusts the rear movement range, and rear stop point.
- The (3) third set screw adjusts the Trigger activation point. For best results, the activation point should be set right in the middle of the total Trigger movement from front to back.



### Notes:

- If any of the set screws are over adjusted in any direction the D\*Fender may not fire.
- If the Trigger travel is adjusted too short, the D\*Fender may fire on its own, repeatedly and/or uncontrollably.

### APEX<sup>2</sup> Barrel Adjustment:

#### Setting the Apex<sup>2</sup> Barrel Ramp

1. Start with the Ramp in the OFF position (fully toward the back of barrel, Fig 5.4).
2. Follow all safety and paintball loading instruction for safe use.
3. Go to your fields shooting range or other approved firing area.



4. While firing, gradually adjust the Ramp forward until you see the balls start to change their trajectory. The further you move the Ramp forward; the balls will have higher degree of curve.

### Adjusting Direction of Shots

1. Adjust the shot direction of the APEX<sup>2</sup> by turning the tip.
2. Be careful not to unscrew the barrel when turning the tip in a counter-clockwise direction.
3. Rotating the tip to the right will give your shot a right hook curve.
4. Rotating it left will give you a left hook.
5. Rotating it 180 degrees will give you a drop shot.
6. The standard position will give you a longer shot with the ramp engaged.

*Note: It will be necessary to adjust the Ramp setting on the APEX<sup>2</sup> barrel to the paint you are using. Different brands/types of paintballs will slightly vary in size and will affect the amount of curve you get. Too much ramping may cause paintballs to break.*

## 6. ELECTRONIC SETTINGS

The board allows users to change the following settings: Firing Mode, Max ROF, Dwell, De-Bounce, Ball in Place, Ramp Start, Ramp Sustain and also to recalibrate the Selector Switch.

### Activating Settings Mode:

- Marker must be powered Off before you can adjust any settings.
- To activate the Settings Mode, press and hold the Trigger while also pressing and holding the Power Button. The LED will cycle through an array of colors and stop on Red to indicate Settings Mode is active once the Trigger and Power Button are released.
- To exit Settings Mode press and hold Power Button until the LED turns off.

## 6. ELECTRONIC SETTINGS (Cont'd)

### Settings Mode LEDs:

LED	SETTING
Solid Red	Firing Mode
Solid Green	Max Rate of Fire
Solid Blue	Dwell
Solid Amber	Trigger De-bounce
Solid Aqua	Ball In Place Time
Solid Purple	Ramp Start
Solid White	Ramp Sustain
Flickering Red	Burst Shot Count
Flickering Green	Calibrate Selector

### Navigating Through Settings:

The Trigger is used for all navigation and modification of the settings in Settings Mode. To cycle through the settings press and release the Trigger.

### Modifying Settings:

- Navigate to the desired setting to be modified (see chart above for LED/Setting )
- Press and hold the Trigger until the LED starts blinking. The LED will blink the number of times equal to the current setting value.
- Once the LED is done blinking you can press and release the Trigger the number of times equal to the new setting value. To leave settings unchanged do not press the Trigger.
- When done entering the new value release the Trigger and wait approximately 3 seconds. After this time the LED's will cycle through an array of colors indicating the setting has been saved.

### Explanation of Settings:

**Firing Mode (Solid Red):** Default: 5 blinks = Select Fire Mode

There are 5 firing modes available: Semi Automatic, Burst Mode, Ramp Mode, Full Auto Mode and Select Fire Mode.

# OF BLINKS	FIRING MODE
1	Semi Auto
2	Burst
3	Ramp
4	Full Auto
5	Select Fire

**Semi Auto** - The marker will fire 1 time each time the Trigger is pulled.

**Burst** - The marker will start in Semi Auto mode. When the marker is fired the amount of times equal to the Ramp Start Setting, the marker will fire a burst of paintballs at a rate of the Max Rate of Fire Setting. The amount of shots that come out with each burst is equal to the Burst Shot Count setting. If the Trigger is idle for 1 second the shot count resets and the marker will shoot in Semi Auto again.

**Ramp** - The marker will start in Semi Auto mode. When the marker is fired the amount of times equal to the Ramp Start Setting at a rate greater than or equal to Ramp Sustain setting, the marker will then fire multiple shots per Trigger pull at the rate of the Max Rate of Fire Setting. If the Trigger is idle for 1 second or the Trigger is pulled at a rate of less than the Ramp Sustain setting, the marker will shoot in Semi Auto again.

**Full Auto** - The marker will start in Semi Auto mode. When the marker is fired the amount of times equal to the Ramp Start Setting, the marker will fire continuously at a rate equal to the Max Rate of Fire setting as long as the Trigger is held down. If the Trigger is idle for 1 second, the shot count starts over and the marker will shoot in Semi Auto again.

## 6. ELECTRONIC SETTINGS (Cont'd)

**Select Fire Mode - (DEFAULT)** Select Fire mode allows the user to change the firing mode by using the Selector Switch on the left side of the marker. In the Safe position the marker will not fire. In position 1 the marker will fire in Semi Auto mode. When in position 2 the marker will fire in Burst mode. When in position 3 the marker will fire in Full Auto. Below is the LED color corresponding to the firing mode when Select Fire mode is active.

POSITION	LED COLOR	FIRING MODE
Safe	Green or Blue	Safe
1	Red	Semi-Auto
2	Amber	Burst
3	Purple	Full-Auto

**Max Rate-Of-Fire (ROF, Solid Green):** Default 15 blinks = 15bps

This setting controls the maximum rate of fire the marker is allowed to fire; setting can be varied from 8 to 20 balls per second (bps) in .5bps intervals.

*Note: The maximum Rate of Fire is capped at 15.0 BPS for all modes other than Semi-Auto per ASTM requirements. Semi-Auto has a maximum ROF of 20 BPS.*

# OF BLINKS	BPS VALUE	# OF BLINKS	BPS VALUE
1	8.0	8	11.5
2	8.5	9	12.0
3	9.0	10	12.5
4	9.5	11	13.0
5	10.0	12	13.5
6	10.5	13	14.0
7	11.0	14	14.5

# OF BLINKS	BPS VALUE	# OF BLINKS	BPS VALUE
15	15.0	21	18.0
16	15.5	22	18.5
17	16.0	23	19.0
18	16.5	24	19.5
19	17.0	25	20.0
20	17.5		

**Dwell Setting (Solid Blue):** Default 11 blinks = 8ms

This setting controls the amount of time the solenoid valve is left open. A setting too high will waste excess gas and affect efficiency. A setting too low will prevent marker from operating properly. It is not recommended to change this setting unless you are an experienced user. Minimum dwell time is 3.0ms and is increased in .5ms increments up to 10ms. The Dwell is adjustable from 1-15 blinks.

**Dwell Equation:** Dwell in ms = .5 x Blinks + 2.5ms

# OF BLINKS	DWELL IN MS	# OF BLINKS	DWELL IN MS
1	3.0	9	7.0
2	3.5	10	7.5
3	4.0	11	8.0
4	4.5	12	8.5
5	5.0	13	9.0
6	5.5	14	9.5
7	6.0	15	10.0
8	6.5		

## 6. ELECTRONIC SETTINGS (Cont'd)

**Trigger De-Bounce (Solid Amber):** Default 5 blinks = 5ms

This setting helps to minimize Trigger “bounce” that may cause unwanted shots/ Trigger pulls. A higher setting will reduce the bounce. A lower setting will allow for more bounce. 1 blink corresponds to 1ms of De-Bounce time. De-Bounce is adjustable from 1-15ms.

**Ball In Place Delay (Solid Aqua):** Default 5 blinks = 5ms

This setting controls how long after the Break Beam Eye system detects an object that the marker will wait before it is allowed to fire. A lower setting can help achieve higher rates of fire. A higher setting is recommended to prevent ball breakage. 1 blink corresponds to 1ms of delay. BIP is adjustable from 1-40 blinks (1-40ms).

**Ramp Start (Solid Purple):** Default 3 blinks = 3 shots

This setting controls the amount of semi-automatic shots must be fired before ramping will start. If the marker is not fired for 1 second, the count will reset. 1 blink corresponds to 1 shot. Ramp Start can be varied from 3- 12 blinks (3-12 shots).

**Ramp Sustain (Solid White):** Default 3 blinks = 3tps

This setting controls the amount of Trigger pulls per second (TPS) that must be achieved and sustained for ramp to kick in. 1 blink corresponds for 1 Trigger pull per second. Ramp Sustain can be varied from 1-12 blinks (1-12tps).

*Note: This setting affects only Ramp Firing Mode.*

**Burst Shots Count (Flickering Red):** Default 3 blinks = 3 shots per Trigger pull

This setting controls the amount of shots that are fired on each Trigger pull when the Burst Firing Mode is being used. 1 blink corresponds to 1 shot. The Burst Shot Count can be varied from 2 to 6 shots.

*Note: This setting only affects Burst Firing Mode.*

**Calibrate Sensor (Flickering Green):** Default Not Applicable

Selecting this will put the electronics in a mode to calibrate the mode Selector Switch sensor. Each mode Selector Switch is calibrated from the factory. Should the user switch circuit boards or if the mode Selector Switch is not working properly the Selector Switch may need to be calibrated.

**How To Calibrate:** When calibrate sensor mode is activated the LED will shine Aqua.

Step 1. Move Selector to Safe Position.

Step 2. Press and release Trigger, the LED will turn Green indicating a reading is being taken.

Step 3. When the LED turns Aqua, move the selector to position (red) 1.

Step 4. Press and release Trigger, the LED will turn Green indicating a reading is being taken.

Step 5. When the LED turns Aqua again, move the selector to position (red) 2.

Step 6. Press and release Trigger, the LED will turn Green indicating a reading is being taken.

Step 7. When the LED turns Aqua again, move the selector to position (red) 3.

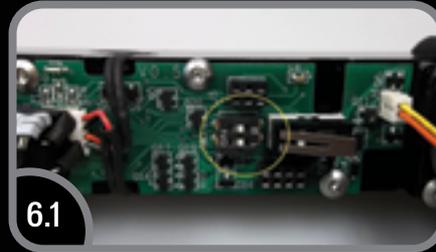
Step 8. Press and release Trigger, the LED will turn Green indicating a reading is being taken.

If the board blinks Red at the end of taking all 4 readings it means that there was an error and calibration should be attempted again. Otherwise the board will shut down and the LED's will turn off.

## 6. ELECTRONIC SETTINGS (Cont'd)

### Tournament Lock:

Tournament Lock is a feature that allows the user to lock the settings mode, which allows the marker to be legal for use in tournaments.



- Tournament Lock is activated by Dip Switch 1 located on the circuit board (Fig 6.1).
- Turn Dip Switch 1 On to activate Tournament Lock. When Tournament Lock is On, this will prevent users from activating settings mode.
- Turn Dip Switch 1 Off to deactivate Tournament Lock. When Tournament Lock is Off this will allow users to activate settings mode.

## 7. UNLOADING YOUR MARKER

**WARNING:** Once you are done using your D\*Fender it is extremely important that you fully unload the marker of all paintballs and compressed air. Never look down the barrel unless it's removed from the marker.

### Before Unloading Marker:

- Check to make sure that you and anyone within range are wearing eye protection designed specifically for paintball.
- Ensure you have a specifically designed barrel-blocking device in place.
- The marker should be de-gassed, powered Off, and set to Safe Mode.

### Removing Air Cylinder:

- While pointing the marker in a safe direction, remove the air cylinder, by flipping the ASA On/Off lever forward venting the air and turning the air cylinder counter-clockwise until it's removed.
- The marker is now ready to be cleaned and put away for future use.

### Unloading Paintballs:

- Open the marker's lid and remove all paintballs from the rear loader area.
- Remove Top Rail by pushing the two Quick Release Buttons, slide it back and lift off.
- Turn the D\*Fender upside down so the paintballs are able to fall out of the marker's breech and the Feed Ramp areas.
- Visually confirm that all paintballs have been removed from the marker.
- Re-install the top rail assembly and place a barrel blocking device on marker.

**CAUTION:** Paintballs may remain in the feed tube system after the loader section is empty. Always check for paintballs in the feed tube and breech to prevent accidental discharge!

## 8. DISASSEMBLY AND MAINTENANCE

**WARNING:** Before attempting to perform any disassembly or maintenance on your D\*Fender marker, make sure that all paintballs and air sources have been removed from the marker and that the regulator gauge reads 0 psi. Install a barrel blocking device, move the Selector Switch to the Safe position and power the marker Off.

Keep your D\*Fender clean and lubricated to eliminate the friction that would prevent reliable operation. It is recommended that you clean and lube the marker before each use.

Do not use oil or petroleum-based lubricants in the lubrication of this marker. Teflon or silicon (NON-spray only) lubricants designed for use on O-Rings may be used for lubrication for the Bolt O-rings, Bolt guide O-rings and Poppet O-ring area only. Dow 33 or the included grease is recommended.

### External Cleaning:

Use a clean cloth, dampened with water to clean the outside of the D\*Fender. Do not use any chemicals, as you may damage the protective finish.

**WARNING:** Do not rinse the D\*Fender under water, as you may damage the marker's electronics.

### Disassembly Tips:

- Make sure you have a clean area to work on your marker.
- When removing parts for the first time, do so carefully, so you do not lose any.
- Make sure the Main Spring is installed correctly on the Bolt, as it needs to be installed in the right direction.
- Visit [PaintballSolutions.com](http://PaintballSolutions.com) for additional information.

### Barrel:

Turn the Barrel counter-clock wise to unthread from the internal assembly and remove by sliding out from the front. Use warm water and a barrel cleaning device to keep the barrel in top condition.

### Battery Door:

Press in the two Quick Release Buttons and slide the Battery Door assembly off. Make sure the Battery Pack is re-installed correctly.

### Side Covers:

**WARNING:** Once the Side covers are removed the Eyes and Detents may be loose and can fall out of the internal assembly.

Push down the quick release latch on the side of the cover and remove it by tilting the top away from the shells.

*Note: The Eyes and Ball Detents are covered with electrical tape from the factory to ensure they stay in position. While not necessary, the tape is very helpful when re-installing the Side Cover.*

### Detents:

Once the Side Cover is removed, you can access the Ball Detents. Inspect the Ball Detents for any damage and replace if necessary. Be sure that the Detents are securely in place when re-installing the Side Cover.

### Top Rail:

Press and hold in the two Quick Release Buttons and slide the Top Rail toward the rear of the marker about an inch (2.5 cm) and lift completely free (Fig 8.1).



## 8. DISASSEMBLY AND MAINTENANCE (Cont'd)

### Quick Release Pins:

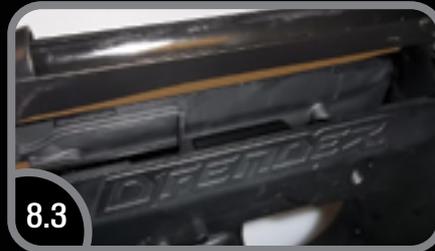
**WARNING:** Before removing the Quick Strip Pins from marker. Confirm the marker is degassed and the gauge reads 0 psi.

Push the pins with finger or hex wrench from the right side of the marker and remove (Fig 8.2).



### Feed Ramp:

Once the Quick Strip Pins are removed, the Feed Ramp will lift out of the shells. When re-installing the Feed Ramp, make sure the curved end plugs correctly into the feed tube from the loader section and that the front sections mates correctly with the Body. If installed correctly, the holes for the Quick Strip Pins will align easily (Fig 8.3).



### Internal Assembly:

#### WARNING:

- Before the Internal Assembly can be removed, the Side Covers, Top Rail, Quick Strip Pins, Barrel, and Feed Ramp must be removed first.
- Before removing the Internal Assembly, make sure the Eyes are still properly within the Body to prevent damaging the eye harness.

- Using two hands place one finger in the Breech and one on the back of the Internal Assembly and slowly lift the entire Internal Assembly from the shells (Fig 8.4).



### Removal of Bolt Guide Assembly

- Push and hold in the Bolt guide release while the rear of the marker is facing a safe direction.
- While holding the button in, turn the Bolt guide clockwise until it stops.
- The Bolt guide assembly should spring back and stop, if it does not; pull it back until it stops.
- Next, push the Bolt guide assembly slightly forward and then turn it counter clockwise and remove.
- If the Bolt and spring do not come out with the Bolt guide, use a barrel swab to push them out from the front of the marker.

### Maintenance of Bolt and Bolt Guide

- Inspect the O-rings on both the Bolt and Bolt guide for any wear or damage. Replace damaged or worn O-rings if necessary.
- Lubricate all O-rings on Bolt and Bolt guide with the supplied grease or Dow 33. Only a small amount of grease is needed.

### Maintenance of Poppet

Make notice how far the Bolt Guide Cap is positioned within the Bolt Guide. When reinstalling the Bolt Guide Cap make sure it is replaced to the same location. This will help keep your velocity settings close to its previous setting. Make sure to chronograph the D\*Fender before using.

## 8. DISASSEMBLY AND MAINTENANCE (Cont'd)

- Use a 3/32" hex wrench and insert it into the side of the Bolt Guide Cap. Turn counterclockwise until the Bolt Guide Cap is completely removed.
- Remove the Poppet Spring, being careful not to lose the spring.
- Use a non-metallic item that will not scratch the Bolt Guide internal surfaces and cause leaking. Push the Poppet out the back of the Bolt Guide. Be careful not to damage the Poppet front sealing face.
- Inspect and lubricate Poppet O-ring and be careful not to lubricate the front Poppet Seal.

### Replacing the Poppet Seal

If there is a slight air leak evident coming through the Bolt area, the Poppet Seal may be worn and need to be replaced. With the Poppet removed, grab the Poppet Seal with pliers and unscrew the Poppet by hand from the Poppet Seal. Do not grab the Poppet with pliers or put in a vice as it may damage the brass. Install the new Poppet Seal by hand. Once tightened by hand, the Poppet will hold the Poppet Seal in place and it should not come apart during operation.

### Re-Installation of Poppet and Bolt Guide Cap

- Place Poppet into the back of the Bolt Guide and gently push forward. If installed properly, the Poppet will be all the way forward resting on the Bolt guide internal face.
- Install the Poppet spring back into the back of the Poppet.
- Using the 3/32" hex wrench, screw the Bolt Guide Cap clockwise back into the Bolt Guide. Screw the Bolt Guide Cap all the way in to help seat the Poppet and then turn it out one turn. Further adjustment over a chronograph will be needed to achieve desired velocity.

### Re-Installation of Main Spring, Bolt and Bolt Guide Assembly

- Slide the Main Spring onto Bolt, and then the Bolt onto Bolt Guide, so it is one assembly. You will notice, one end of the spring is smaller and will lock onto the Bolt.
- Insert Bolt guide assembly back into the Body making sure it is locked into place.

### Lid Assembly:

The Lid can be removed and changed without separating the shells. Remove the screw holding the Lid onto the shell with a 7/64" hex wrench and then the Lid Retainer. Reverse the process for Lid installation.

### Grips:

Using a 5/64" hex wrench, remove the four screws holding the grips in place. Over tightening these screws can damage the rubber grips.

### Front Grip:

Using a 7/64" hex wrench, remove the four screws and the Foregrip will separate for removal or adjustment.

### Separating Shells:

**WARNING: The Internal Assembly must be removed prior to splitting the shells. See page 15 for removal instructions.**

Once the parts above have been removed the shell can now be separated. The shells are separated by loosening/removing all the shell screws.

- Using a 7/64" hex wrench; remove all the socket head screws in the left side shell.
- Remove the 3 flat head screws, located under the grips with a 5/64" hex wrench.
- The left side shell can now be slowly separated from the right, by lifting it free of the right shell.

*Note: It is not necessary to remove the Picatinny side rails to separate the shells.*

## 8. DISASSEMBLY AND MAINTENANCE (Cont'd)

### Trigger:

The Trigger assembly is attached to the right side shell and should only be removed for maintenance or cleaning.

### Regulator:

Once the shells are separated, the regulator assembly can be lifted out.

### Loader:

Once the shells are separated, the loader assembly can be lifted out. Make sure to carefully disconnect the two wiring connectors before removing for cleaning or maintenance.

### Selector Arm:

It is not necessary to remove the selector arm when disassembling the D\*Fender. It is removed with a 1/16" hex wrench.

*Note: The selector arm is keyed into the selector shaft. Make sure they are aligned before reinstalling the selector arm screw.*

### Sling Adapter:

Using a 1/8" hex wrench, remove the one screw which holds the sling adapter in place.

The sling adapter can be placed in four locations or removed completely. The four holes are 10-32 threaded to accept most sling mounting adapters.

## 9. STORAGE AND TRANSPORTATION

### WARNING:

Never carry your Marker uncased when not on a playing field. The non-playing public and law enforcement personnel may not be able to distinguish between a paintball marker and firearm. For your own safety and to protect the image of the sport, always carry your Marker in a suitable marker case or in the box in which it was shipped. When you are finished using your Marker it is important that you prepare it for storage. This will not only serve to increase the life of the marker, but will assure optimum performance on your next outing.

- The marker must be clear of all paint and air sources when not being used.
- Be sure to have marker in "Safe Mode" when not in use.
- Make sure a barrel blocking device is in place.
- Store your Marker and propellant in cool dry place.
- Keep your Marker away from unsupervised children.
- Your Marker must be free of all paint and not attached to a propellant source while being transported to and from the playing field.
- Observe and obey all local, state and federal laws concerning the transportation of paint ball markers. For information concerning any of the laws in your area, contact your local law enforcement.
- Always store the marker in a secure location when not in use so as to prevent access by unauthorized persons.

**CAUTION:** Paintballs may remain in the feed tube system after the loader section is empty. Always check for paintballs in the feed tube and breech to prevent accidental discharge!

## 10. TROUBLESHOOTING

*Note: if you are experiencing any problems and you are using any aftermarket parts, it is necessary to re-install the factory parts and re-test before attempting any troubleshooting, as non-factory aftermarket parts are not designed by Empire Paintball to work in the D\*Fender, and they may be the cause of the problems. Do not contact Empire Paintball until you have returned the D\*Fender to factory stock condition and tested the problem again.*

### General Issues:

#### Marker Does Not Turn On

- Check that selector switch is in Safe Position. It must be in the Safe Position for the marker to turn on.
- Change batteries.
- Calibrate selector switch.
- Check that pins on connector boards inside body are straight and making contact with main board sockets.

#### Batteries Get Drained While Marker is Stored

- Open the body shell and check that the motor leads are not shorted to the motor body. This may cause battery drain.

#### Select Fire Switch Does Not Respond to Each Position

- Calibrate selector switch, instruction in Electronics section.

#### Marker Doesn't Fire

- Make sure there is a paintball in the chamber. Pulling the trigger while in a live firing mode will run the loader to make the paintball load. Check trigger adjustment, the trigger may not be activating the microswitch. Lastly check the solenoid connection.

### Leaks:

#### Leak Down the Barrel on Outside of the Bolt

- Change outside of bolt O-rings and large bolt guide O-rings.

#### Leak Down the Barrel on Inside of the Bolt

- For a small leak change poppet seal and check for damage on bolt guide where poppet seal touches. Replace bolt guide if damage found. For a large gushing leak solenoid may need to be reset. To do this remove the gas supply and turn the marker on. Toggle the eyes off and pull the trigger several times to cycle the solenoid.

#### Gush of Air During Firing Down the Barrel

- Solenoid may be sticking open due to pressure or battery level. Change batteries, lubricate poppet O-ring. If necessary clean inside solenoid.

#### Leak in Grip Frame Area

- Change female air transfer tube O-ring.

#### Leak Out of Bottom of Regulator / Lever Area

- Drop paintball marker oil on tank depression pin in regulator in case the pin is becoming bound up. Change tank depression pin O-ring and O-ring around brass 1/2 in. nut in regulator if oil does not work.

### Velocity Issues:

#### Velocity is Low

- Pressure should be set near 200psi. Assure fresh batteries are being used. Lubricate poppet O-ring. Use marker back cap to adjust marker to the proper velocity.

#### Velocity Drops During Rapid Fire

- Assure fresh batteries are being used. To pin point if it is a regulator issue during rapid fire watch the regulator gauge to see if the pressure does not recover to the set level for each shot. If it does not recover try a new tank regulator. If this doesn't fix it your regulator will need to be serviced. Contact [paintballsolutions.com](http://paintballsolutions.com) for instructions. If the regulator is okay, lubricate the poppet O-ring and replace the 3 small bolt guide O-rings.

## 10. TROUBLESHOOTING (Cont'd)

### Velocity Is Inconsistent

- Assure fresh batteries are being used. Lubricate and/or replace the poppet O-ring. Set pressure near 200psi. Replace small bolt guide O-rings.

### ROF / Feeding Issues:

#### ROF is Very Slow, Around 8 BPS

- Your breech sensor (eyes) may be dirty or malfunctioning. Clean the eyes and breech of the marker. Tapping the power button can toggle the eyes off if they cannot be cleaned immediately. Check if there is paint in the feed ramp or loader area. Replace the battery if cleaning the eyes doesn't work.

#### ROF is Slightly Slow

- Bolt may not be cycling fast enough. Remove bolt system and clean and lubricate bolt and bolt guide.

#### Loader is Spinning Very Fast and Stopping Quickly

- The batteries may be low. Try changing the batteries. If not the loader gear sensor may be dirty or disconnected. Split the body shells in half to check the connection and sensor.

#### Loader is Not Feeding Balls Fast Enough

- The batteries may be low, change the batteries.

#### The Marker Sometimes Fires 2 Balls at Once / Double Feeding

- Your ball detents may be damaged or missing. Check them for damage and replace if necessary.

### Other Issues:

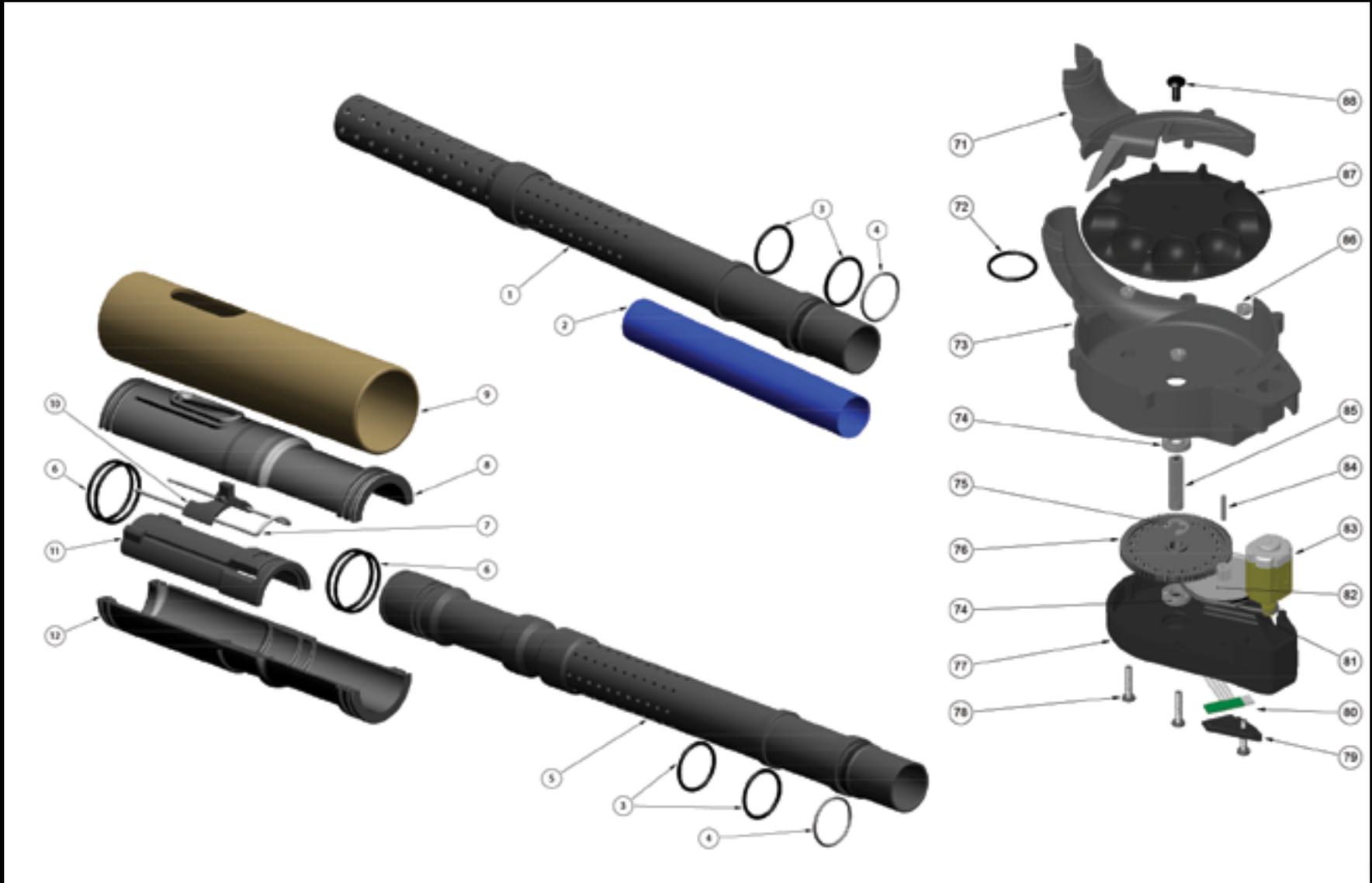
#### The Marker Has Inefficient Gas Use

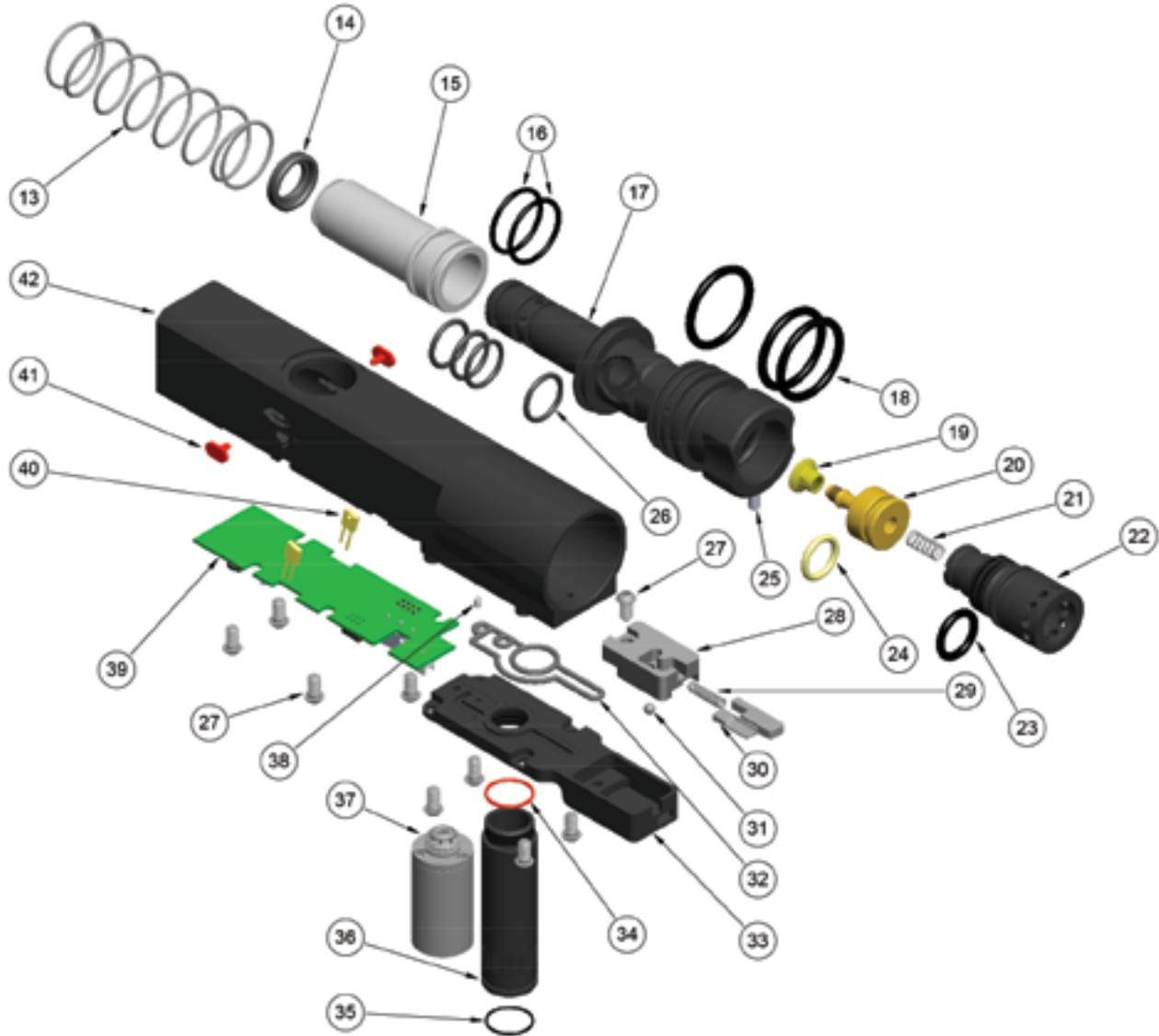
- The paint barrel match may be incorrect. Check that a suitable bore insert is installed. The check valve may be missing. Remove the air transfer plate to inspect.

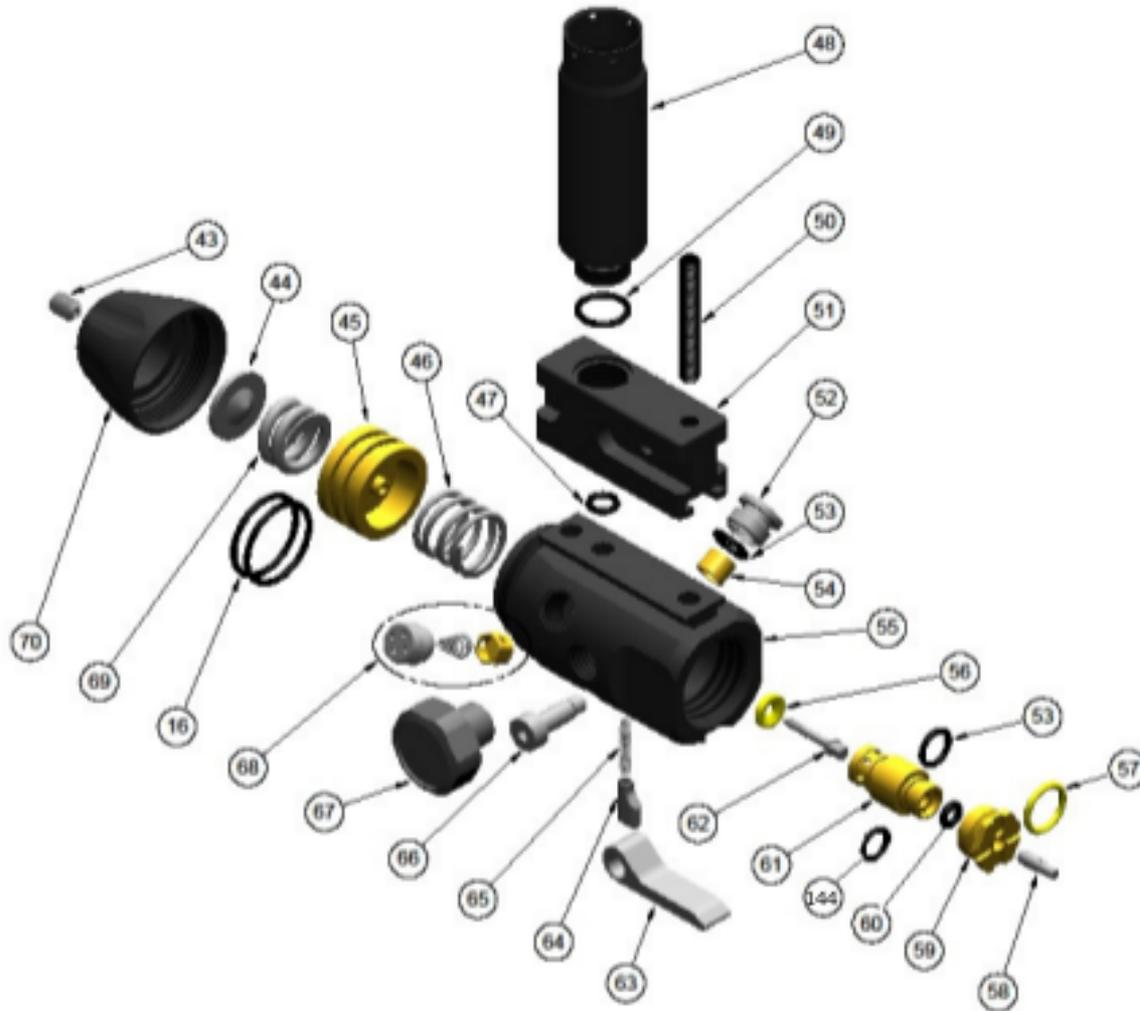
#### The Marker is Breaking Paint in the Breech

- The ball detents may be damaged or missing. Check for the ball detents and replace if necessary. The rubber bolt tip may be damaged or missing, remove the firing system to check. The check valve may be missing. Remove the air transfer plate to inspect.

# 11. DIAGRAMS/PARTS LIST







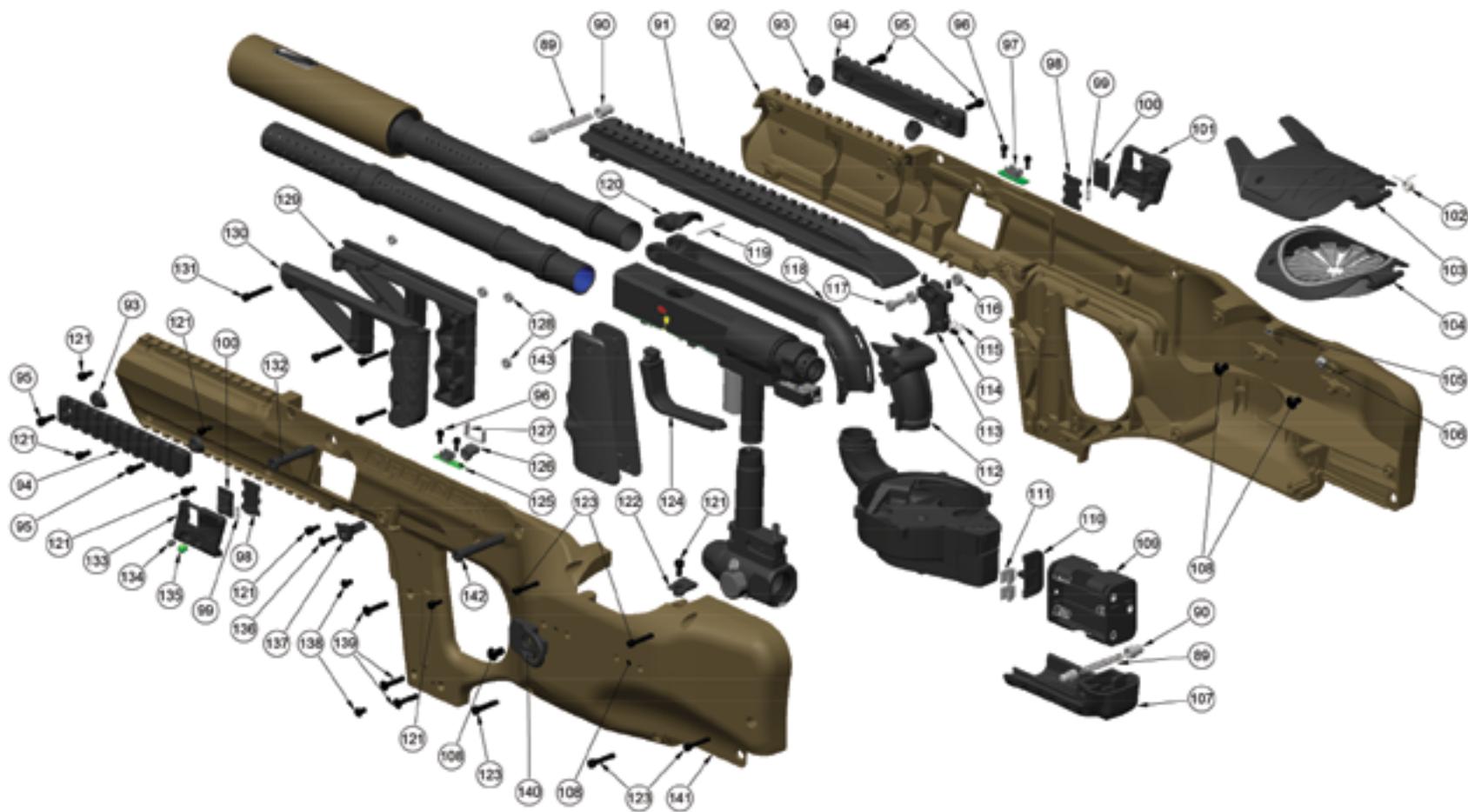




DIAGRAM #	PART DESCRIPTION	SKU
1	STANDARD ALU BARREL	72720
2	ALU BARREL INSERT- SIZE .690	11523
2	ALU BARREL INSERT- SIZE .685	11522
2	ALU BARREL INSERT- SIZE .680	11521
3	O-RING BUNA-N70 DUR-018 (.739 ID)	72508
4	O-RING BUNA-N 70 DUR 1MM CS X 19.5MM ID	72488
5	APEX BARREL	72721
6	O-RING BUNA-N 70 DUR -021 (.926 ID)	11506
7	APEX WIRE SPRING	11504
8	APEX BODY INSERT TOP	11500
9	APEX HOUSING TUBE	11502
10	APEX ADJUSTER	11505
11	APEX DEFLECTOR	11503
12	APEX BODY INSERT BOTTOM	11501
13	MAIN SPRING	17535
14	BOLT RUBBER TIP	17533
15	BOLT	17532
16	O-RING BUNA-N 70 DUR -017 (.676 ID)	17534
17	BOLT GUIDE	72722
18	O-RING BUNA-N 70 DUR 2.5MM CS X 23.0MM ID	72340
19	POPPET SEAL	17629
20	POPPET ASSEMBLY WITH SPRING	17539
21	POPPET SPRING	17623
22	VELOCITY ADJUSTER	72723
23	O-RING BUNA-N 70 DUR 2.4MM CS X 10.80MM ID	17538
24	O-RING URETHANE 90 DUR 2MM CS X 10MM ID	17540
25	DOWEL PIN .125 DIA X .375	72724
26	O-RING BUNA-N 70 DUR 1.5MM CS X 12MM ID	17537
27	SCREW BHCS 6-32 X .250 (SMALL HEAD)	17652
28	RELEASE BLOCK	72725
29	SPRING .1200D X 0.50FL .020WD RATE 18.LB/IN	72584
30	RELEASE BUTTON	72726
31	BEARING BALL 1/8 DIA	72585
32	AIR TRANSFER GASKET	17530
33	MANIFOLD	72727
34	O-RING BUNA-N 70 DUR 1MM CS X 13.0MM ID	17552

35	O-RING BUNA-N 70 DUR 0.8MM CS X 12.0MM ID	17553
36	AIR TRANSFER TUBE MALE	17551
37	SOLENOID	17528
38	CHECK VALVE	17531
39	MAIN CURCUIT BOARD	72728
40	EYE HARNESS	72729
41	BALL DETENT	72577
42	BODY	72730
43	SCREW SET 10-32 X .375 CP	72654
44	REGULATOR DISK	17591
45	REGULATOR PISTON	72360
46	REGULATOR PISTON RETURN SPRING	72395
47	O-RING BUNA-N 70 DUR -008 (.176 ID)	10761
48	TUBE LOWER	72731
49	O-RING BUNA-N 70 DUR -012 (.364 ID)	72490
50	SCREW SET 10-32 X 1.250 CUP POINT	72732
51	REGULATOR MOUNT	72733
52	REGULATOR FILTER COVER	72359
53	O-RING BUNA-N 70 DUR 1.5MM CS X 6.5MM ID	72509
54	REGULATOR FILTER	72358
55	REGULATOR BODY	72734
56	REGULATOR SEAL	72364
57	O-RING URETHANE 70 DUR -012 (.364 ID)	10257
58	REGULATOR ON/OFF PIN	72372
59	REGULATOR NUT	72599
60	O-RING BUNA-N 70 DUR -006 (.114 ID)	72489
61	REGULATOR SEAL RETAINER	72652
62	PIN REGULATOR	72363
63	REGULATOR LEVER	72613
64	PIN WEDGE	72614
65	REGULATOR CAM SPRING	72369
66	SCREW SHSS 3/16 DIA 3/8 LG 8-32 x .250	72512
67	300PSI EMPIRE GAUGE	72375
68	REGULATOR OPP COMPLETE	17597
69	MAIN REGULATOR SPRING	72608
70	REGULATOR CAP	72615
71	ANTI JAM	72735
72	O-RING BUNA-N 70 DUR -020 (.864 ID)	40920



73	CATCH CUP	72736
74	BEARING .250 ID X .500 OD X .125 THK	38803
75	E-RING	38823
76	SPROCKET	31074
77	GEAR BOX COVER	38496
78	SCREW PHCS 4-40 X .625	38827
79	SENSOR COVER	38497
80	DRIVE SENSOR	72737
81	O-RING BUNA-N 70 DUR -.028 (1.375 ID)	38820
82	PULLEY GEAR	38837
83	MOTOR WITH WIRING HARNESS	72738
84	GEAR PIN - DOWEL PIN .078 DIA X .500	38828
85	DRIVE SHAFT	72739
86	NUT HEX 4-40	38805
87	CARRIER	72740
88	SCREW THCS 6-32 X .375	38982
89	SPRING .1800D X 1.500FL .026WD RATE 8.0LB/IN	72741
90	BUTTON RELEASE	72742
91	TOP RAIL	72743
92	RIGHT SHELL	72744
93	SIDE RAIL ADAPTER	72745
94	SIDE RAIL	72746
95	SCREW SHCS 6-32 X .4375	72747
96	SCREW SHCS 4-40 X .250	72748
97	HARNESS CIRCUIT BOARD (COMPLETE)	72749
98	DOOR RETAINER	38938
99	SPRING .1140D X .31FL .014WD RATE 9.6LB/IN	38939
100	DOOR SWITCH	38937
101	RIGHT SIDE COVER	72750
102	LID SPRING	31025
103	STANDARD LID	72751
104	QUICK LOAD LID	72752
105	MAGNET 8MM DIA X 4MM	31009
106	MAGNET 8MM DIA X 6MM	38475
107	BATTERY DOOR	72753
108	SCREW BHCS 10-32 X .3125	72754
109	HOLDER BATTERY AA	38804

110	BATTERY HARNESS HOLDER	17823
111	BATTERY HARNESS	17715
112	FEED RAMP BACK	72755
113	TRIGGER	72756
114	SCREW SET 6-32 X .250 FLAT POINT	17523
115	SPRING .1800D X .310FL .012WD RATE 3.0LB/IN	72757
116	BEARING .156 ID X .3125 OD X .1555	72381
117	SCREW SHSS 5/32 DIA 5/16 LG 6-32 X .138	72758
118	FEED RAMP FRONT	72759
119	SPRING PIN .0625 DIA X 1.000	72760
120	FEED RAMP TOP	72761
121	SCREW SHCS 6-32 X .3125	72762
122	LID RETAINER	72763
123	SCREW SHCS 6-32 X .750	17815
124	TRIGGER GUARD	72764
125	SELECTOR CIRCUIT BOARD	72765
126	SWITCH SHAFT INNER WITH MAGNET	72766
127	SELECTOR SPRING	72767
128	NUT HEX 6-32 .25 WIDE x .092 THK	72768
129	FOREGRIP RH	72769
130	FOREGRIP LH	72770
131	SCREW SHCS 6-32 x .875	72771
132	COMPLETE SHELL SPRING PIN (SHORT)	72772
133	LEFT SIDE COVER	72773
134	POWER BUTTON	17712
135	LIGHT PIPE	17710
136	SCREW FHCS 4-40 X .500	17650
137	SELECTOR SWITCH OUTER	72774
138	SCREW BHCS 6-32 X .250	17653
139	SCREW FHCS 6-32 X .750	72775
140	SLING MOUNT	72776
141	LEFT SHELL	72777
142	COMPLETE SHELL SPRING PIN (LONG)	71933
143	RUBBER GRIP	17717
144	O-RING BUNA-N 70 DUR 1.0mm CSx6.0mm ID	72546



## 12. WARRANTY INFORMATION

Empire Paintball  
11723 Lime Kiln Rd.  
Neosho, MO 64850  
www.empirepaintball.com  
Empire Paintball is a brand of KEE Action Sports, LLC.

**PATENT(S):** See [www.paintballsolutions.com/patents](http://www.paintballsolutions.com/patents) © 2013 KEE Action Sports. All rights reserved. This KEE Action Sports product is protected by one or more United States patents. KEE Action Sports Trademarks, Designs and Copyrights are protected by one or more United States patents and International Law. For more information contact KEE Action Sports at [info@keeactionsports.com](mailto:info@keeactionsports.com)

### LIMITED LIFETIME WARRANTY INFORMATION (ORIGINAL PURCHASE RECEIPT REQUIRED)

KEE Action Sports (“KEE”) warrants that this product is free from defects in materials and workmanship for as long as it is owned by the original purchaser, subject to the terms and conditions set forth below. KEE Action Sports will repair or replace with the same or equivalent model, without charge, any of its products that have failed in normal use because of a defect in material or workmanship.

KEE Action Sports is dedicated to providing you with products of the highest quality and the industry’s best product support available for satisfactory play.

Purchaser should register product to activate warranty. Register your product by:

1. Online at [www.paintballsolutions.com](http://www.paintballsolutions.com)
2. Complete the product registration card (if applicable) and mail along with a copy of your receipt to Paintball Solutions, 11723 Lime Kiln Rd., Neosho, MO 64850.



### WHAT THIS WARRANTY DOES NOT COVER

This warranty does not cover problems resulting from abuse, the unauthorized modification or alteration of our product, problems resulting from the addition of aftermarket products and scratches or minor superficial imperfections. Due to the nature of paintball products it is important that the product be maintained by the user as indicated in the product manual to remain in good operating condition. Your Limited Lifetime Warranty will be void if you fail to maintain the product as recommended in the product instruction manual. In addition, certain parts of a product may be subject to wear through regular usage. Replacement and repair of such parts is the responsibility of the user throughout the life of the product. These parts are not covered under the Limited Warranty. Examples of this type of part include (but are not limited to) goggle lens, straps, O-Ring seals, cup seals, springs, ball détentes, batteries, hoses, drive belts, gears and any part of a product subject to continuous impact from paintballs. Hydrotesting of air cylinders is not covered under this warranty.

The Limited Lifetime Warranty also does not cover incidental or consequential damages. This warranty is the sole written warranty on KEE’s product and limits any implied warranty to the period that the product is owned by the original purchaser. Some states, provinces and nations do not allow the limitation of implied warranties or of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state, province to province, nation to nation. If you should encounter any problems with your product and you have added aftermarket parts on your product, please test it with the original stock parts before sending it in. Always unload and remove air supply before shipping markers. Do not ship your air supply tank if it is not completely empty. Shipping a pressurized air supply tank is unsafe and unlawful. Remove all batteries from products prior to shipping. This Limited Warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow the exclusion of incidental or consequential damages.

For Warranty parts, service, information or manuals in other languages, (where applicable) go to Paintball Solutions: [www.paintballsolutions.com](http://www.paintballsolutions.com)  
E-Mail: [tech@paintballsolutions.com](mailto:tech@paintballsolutions.com)  
US: 1-800-220-3222  
Canada: 866-685-0030  
11723 Lime Kiln Rd., Neosho, MO 64850





**EMPIREPAINTBALL.COM**  
**11723 Lime Kiln Rd, Neosho, MO 64850**  
**800-220-3222**

Empire Paintball is a brand of KEE Action Sports, LLC.