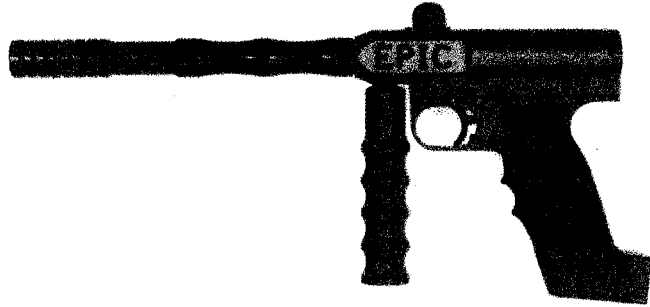


# **Epic™**

**Owner's Manual (version 1.01)**



**READ THIS OWNER'S MANUAL ENTIRELY  
BEFORE PRESSURIZING, LOADING,  
OR OPERATING THE EPIC™ MARKER.**

**WARNING:**

**THIS MANUAL MUST ACCOMPANY THE MARKER AT ANY SALE OR TRANSFER OF OWNERSHIP OF THE MARKER. ADDITIONAL COPIES MAY BE OBTAINED BY CONTACTING INSIGHT COMPONENT ENGINEERING AT THE ADDRESS LISTED WITHIN.**

**THE EPIC™ PAINTBALL MARKER IS NOT A TOY. MISUSE MAY CAUSE SERIOUS INJURY, INCLUDING BLINDNESS, OR EVEN DEATH. EYE PROTECTION DESIGNED FOR PAINTBALL USE MUST BE WORN BY THE USER AND ANY PERSON WITHIN RANGE. THIS MARKER MAY BE DANGEROUS UP TO 100 YARDS (91 METERS).**

## **SAFETY WARNINGS**

Read this owner's manual entirely before pressurizing, loading, or operating the Epic™ paintball marker.

Paintball markers may be dangerous up to 100 yards.

Operate a paintball marker only in areas where it is safe and lawful to do so.

This marker is intended for sale to adults. Adult supervision is recommended whenever a minor is handling this marker in any manner.

Do not insert any body part (fingers, etc.) into any area of the marker when pressurized.

Misuse of a paintball marker can result in criminal penalties including incarceration.

Always wear protective goggles and headgear specifically designed for paintball when shooting any marker.

Every person within range of an area where a paintball marker is in use must wear protective goggles and headgear specifically designed for paintball.

Disengage the safety only when on a playing field or in an authorized shooting area.

Never point a paintball marker—charged or uncharged, loaded or unloaded, with safety on or off—at or near anything you do not intend to mark.

Never aim or shoot a paintball marker toward any person who is not wearing protective goggles and headgear specifically designed for paintball.

Never shoot at domestic animals or wildlife.

## **SAFETY WARNINGS**

- ✓ Never mark objects outside the confines of the game or authorized shooting areas.
- ✓ Play paintball only where the rules of safe paintball play are followed.
- ✓ During game play, follow referees' instructions and all field safety rules.
- ✓ Avoid shooting at a player's head, neck, or groin area.
- ✓ All paintball markers must be chronographed regularly. Adjust the marker to shoot paintballs at a velocity that is less than 300 feet per second (fps). Never exceed the velocity limit set by the paintball area where the marker is in use. Chronograph the marker at regular intervals during the day, as well as any time the power source is refilled or changed, any time the barrel or any part in the power system is changed, and upon request of any player or game official.
- ✓ This paintball marker is operated using CO<sub>2</sub>, compressed air or nitrogen at pressures ranging up to 800 PSI. Follow safety procedures when handling compressed gas or air. All filling of compressed gas or air cylinders must be done by qualified persons. Never attach an air source to your Epic™ marker if you are unsure of the condition of the air source.
- ✓ Follow the rules of safe marker handling: Keep your finger off the trigger until ready to shoot, and keep muzzle pointed in a safe direction. In addition, firmly insert a barrel plug into the muzzle and push the mechanical safety in the "no shoot" position when the marker is not in use and when in any non-shooting area.
- ✓ Never look down the barrel of the marker.
- ✓ Do not attempt to alter or repair a marker without qualified supervision.

- ✓ Before disassembly, storage, or transport of the marker, remove all paintballs from the marker, the barrel, and the loader; remove power source; and remove all gas or air from the power system. Insert barrel plug and put mechanical safety in "no shoot" position.
- ✓ Always carry your marker in a case or sturdy bag when in public.
- ✓ Safely and securely store marker to prevent access to it by unauthorized persons.

**American Society for Testing and Materials**

Safety standards information is available from the American Society for Testing and Materials, 100 Harbor Drive, West Conshohocken, PA 19428-2950, phone (610) 832-9500; [www.astm.org](http://www.astm.org). "Standard Practice for Paintball Field Operation" is publication F1777-97, and "Standard Specification for Eye Protective Devices for Paintball Sports" is publication F1776-97; inquire about additional publications which may be available at the time request is made.

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**SECTION 1**

**The Basics of the Epic™**

Welcome to the Epic™. Its unique design features and increased reliability set it apart from traditional paintball markers. Because the Epic™ has no bolt, no mechanical action is ever applied to the paintball. A thin dividing plate called a Trap Door™ is used to isolate a paintball as it loads into the breech. When the marker is fired, only air acts to propel the ball, so in essence, it acts as a blowgun. This design virtually eliminates ball breakage in the marker. The Epic™ incorporates an opposed-piston, venting regulator in the grip frame, which provides optimum performance and precise velocity adjustment, a feature that greatly reduces the possibility of “hot-shots” and ensures that the marker’s velocity is consistent regardless of the power source: compressed air, nitrogen, or CO2. The Epic™ is extremely small, light weight, and has very little reciprocating mass, making it both stable and durable.

**Modular Design**

The Epic’s™ modular design allows for easy upgrading of the marker as technological advances take place and upgrade parts become available. It also allows for easy diagnosis and repair of any malfunctioning assembly in the marker.

**Accuracy**

The Epic™ is extremely accurate due to the composite Trap Door™ and lightweight actuating rod, which allow the Epic™ to have the lowest reciprocating mass of any paintball marker currently available. This feature allows the Epic™ to remain extremely stable and stay on target ball after ball without the marker movement associated with “bolt designs.”

## **Reliability**

The Epic™ is reliable due to the optimal use of high-pressure, shaft to o-ring seals unlike standard paintball marker designs that use contaminant-trapping flat face and cup seal designs that are prone to leakage.

## **Low Maintenance**

The Epic™ marker has very few moving parts. The only external moving part of the Epic™ is the trigger. No dirt can enter the marker unless it enters through the Air System Adapter, ball drop, or barrel. The only maintenance necessary, other than keeping the assemblies clean, is to keep them lubricated.

## **Durability and Dependability**

Your Epic™ Marker was manufactured using the finest materials and equipment available. It was designed to be durable, reliable and to provide many years of dependable service and pleasurable paintball play.

The Epic's modular design, low reciprocating mass, proper use of high performance materials, use of urethane o-rings and advanced designed Quad-ring seals allow for great reliability, extended life, and easy diagnosis and replacement of malfunctioning components.

Also, due to the Trap Door™, no mechanical force is ever applied to the paintball; only air acts on the ball to propel it down the barrel. Because of this, ball breaks should not occur in the marker itself.

## **Air System/Input Adapter**

The input adapter has a standard CO2 thread and is tapped and ready to accept a stock or any other standard "bottom line" accessory. The marker accepts multiple air systems: CO2, compressed air, or nitrogen.



## **SECTION 2**

### **Standard Maintenance**

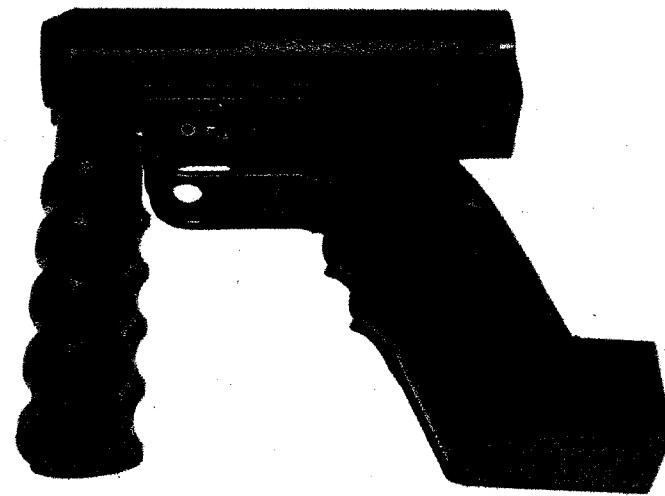


FIG. 2.1

#### **2.1 Cleaning**

Always keep your Epic™ Marker clean and free of debris.

Wipe down your Epic™ Marker immediately after play. Chemicals used in the manufacture of some paintballs and exposure to the outdoor environment may cause your marker to stain, fade, or discolor.

Use of water and a mild detergent may be necessary to clean your marker properly. However, never use harsh detergents or chemicals to clean your marker and its internal components.

All parts, with the exception of the Trap Door™ and trap door slide area, should be kept lightly oiled.

## 2.2 Lubrication

Proper lubrication is important to gain optimal performance from your Epic™ Marker. All of the parts in the Epic™ are designed for trouble free operation if properly maintained. The parts only require a light oiling before play. 100% synthetic oils designed for use with paintball equipment are recommended because they do not easily wear off or “gum up” when exposed to cold. The following lubrication procedure should be performed before and after each day of play.

**Note:** The marker should not be charged and no air system should be attached during the following steps in this process until instructed to do so. Be sure to empty all paintballs from the marker and remove the barrel from the marker before starting this procedure.

1. To access the Trap Door™, remove the two screws in the loader plate, and slide the loader plate out of the groove in the body of the marker.
2. Slide the trap door and the attached actuating rod to the forward position, and place one drop of oil on the rear of the exposed trap door shaft. Move the door and rod forward and back a few times to spread the oil along the full length of the shaft. Remove any excess oil or residue that has collected in the trap door slide area or on the trap door itself. Replace the trap door and the loader plate, and install the screws.
3. Install the barrel and insert a barrel plug.
4. Place two or three drops of oil into the Air System Adapter (A.S.A.).
5. Attach air system and charge marker.
6. Point the marker in a safe direction.
7. Fire the marker 5 to 10 times to ensure that the oil has been distributed throughout the system.

8. Remove the air source and remove and clean any oil residue from the barrel. Inspect the marker and remove any excess oil that has collected in the breech area or trap door slide area.

## 2.3 Trap Door Maintenance

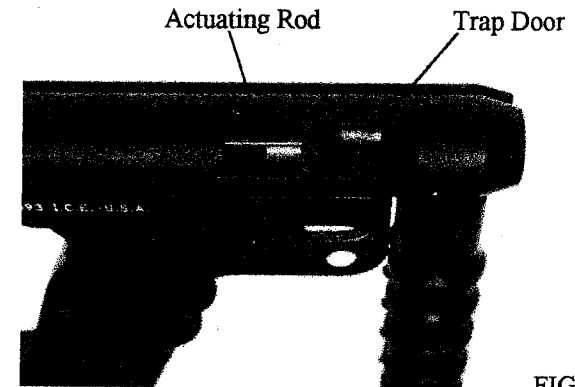


FIG 2.3

The Trap Door™ is made out of a material known as Delrin, a self-lubricating compound intended for wear applications. The only required maintenance of the trap door itself is cleaning. Cleaning is necessary to ensure that dirt and oil do not build up and limit the intended movement of the door. Do not oil the Trap Door™ or slide area.

The following procedure describes cleaning and oiling of the Trap Door™ assembly. The Trap Door Actuating Rod, the thing that moves the Trap Door™, is the only part of the Trap Door™ that requires oiling.

**Note:** The marker should not be charged and no air system should be attached during the following steps in this process until instructed to do so. Be sure to empty all paintballs from the marker and remove the barrel from the marker before starting this procedure.

1. To access the Trap Door™, remove the two screws in the loader plate, and slide the loader plate out of the cavity in the body of the marker.

2. Remove the Trap Door™ by lifting the it up, straight off the rod or by turning the marker upside down so that the trap door can fall out.
3. Note the actuating rod's position. The notch in the rod will be facing up. If the rod becomes twisted while the Trap Door™ is off, simply twist the rod back to the original position. Be gentle when moving the rod; very little force is necessary.
4. Clean the Trap Door™ and slide area with a soft cloth and, if necessary, soap and water to remove all residue.
5. Before reinserting the Trap Door™, check that the actuating rod has the notch facing upward.
6. Replace the door by putting the trap door pull-tab over the notch in the rod.
7. To ensure proper movement and lubrication, slide the Trap Door™ and the attached rod forward to the closed position and place one drop of oil on the rear of the exposed rod.
8. Move the Trap Door™ and rod back and forth a few times to spread the oil along the rod.

**Note:** Do not let the oil contaminate the trap door or slide area. If this occurs, remove any oil on the trap door or in the slide area with a soft cloth. The remaining oil should be sufficient to lubricate the rod.

**Tip:** Periodic oiling of the rod is necessary to achieve optimal performance.

9. Replace the loader plate and install the screws.

## 2.4 Chronographing and Adjusting the Velocity



FIG 2.4

Velocity Adjustment Hole

Never adjust your marker to shoot over 300 fps (feet per second). The marker should be adjusted to the appropriate field limit before any games are played and re-chronographed regularly throughout the day to adjust for changes due to weather and varying air system pressures. Always chronograph your marker after any air system fill or alteration or after any component of the marker has been changed.

The velocity of the Epic™ is determined by the operating pressure and is set by adjusting the main spring of the regulator.

1. In order to adjust the velocity of an Epic™ Marker, insert an 1/8<sup>th</sup> inch Allen wrench into the adjusting hole and the screw located at the bottom of the A.S.A. Turn the velocity adjusting screw fully counter clockwise (to the left) until it stops. Then turn it in the clockwise direction (to the right) four turns.

**Note:** Always allow three to five shots after adjusting for the marker to “settle” and reach its set operating velocity.

2. To increase velocity, insert an 1/8<sup>th</sup> inch Allen wrench into the adjusting hole located at the bottom of the A.S.A., and turn it clockwise (to the right). Refer to FIG 2.4.
3. To decrease velocity, insert an 1/8<sup>th</sup> inch Allen wrench into the adjusting hole located at the bottom of the grip frame, and turn it counter-clockwise (to the left). Refer to FIG 2.4.

**Tip:** Adjustments of ¼ turn should result in velocity changes of approximately 20 to 30 feet per second.



## SECTION 3

### Advanced Maintenance

#### 3.1 Separating Main Body from Grip Frame

**Note:** The marker should not be charged, and no air system should be attached during the following steps in this process until instructed to do so. Be sure to empty all paintballs from the marker and remove the barrel from the marker before starting this procedure.

#### BASIC PARTS

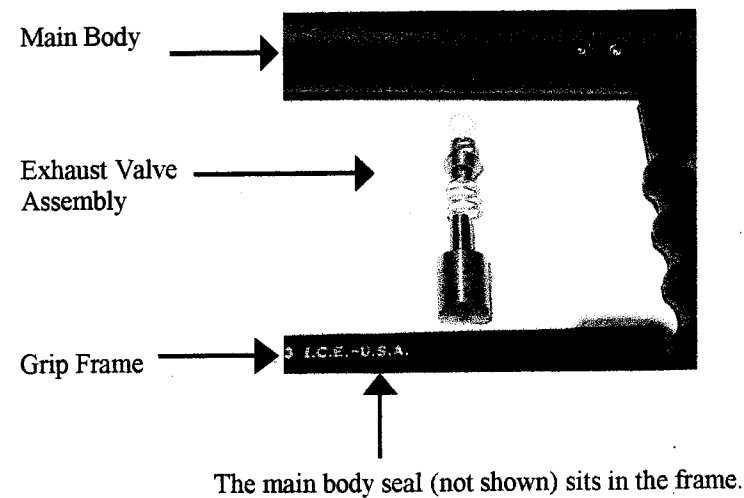


FIG 3.1



### 3.1A Disassembly

In order to perform some advanced maintenance procedures, the main body will have to be separated from the grip frame. In order to do this, follow the steps described below.

1. Using an 1/8th inch Allen wrench, remove the front and rear screws holding the main body to the grip frame.
2. Hold the grip frame in one hand, and with the other hand carefully lift the main body straight up out of the grip frame.

**Note:** The exhaust valve components: exhaust valve, exhaust valve spring and jet will usually remain in the grip frame when the main body is separated from the grip frame. The exhaust o-ring will be retained in the cavity in the main body.

3. Once the main body and grip frame are separated, the exhaust valve and the main body seal will be exposed (See FIG. 3.1). The main body seal is a small o-ring located behind the trigger cavity and must be in place to seal the air that transfers from the grip to the main body. Make sure this seal is in place when reassembling these parts.

### 3.1B Reassembly

1. To reassemble, in one hand, hold the grip with the stacked exhaust valve components and main body seals. Place the main body tube containing the main valve o-ring over the stacked and aligned exhaust valve components.

**Note:** If exhaust valve components become separated or unaligned, see section 3.2B.

**Note:** Make sure that the jet, spring, and main valve remain aligned and together while the main body and grip frame are joined.

2. Install the front and rear screws using an 1/8" Allen wrench.
3. While the marker is uncharged, pull the trigger to check for proper movement.

### 3.2 Exhaust Valve

The exhaust valve, the jet, the jet spring and the exhaust valve o-ring are within a cavity located between the two halves of the marker. Maintenance on this valve assembly includes cleaning the main body cavity, grip cavity, the exhaust valve and jet; inspecting the jet spring; and replacing or just oiling the exhaust o-ring.

#### EXHAUST VALVE ASSEMBLY

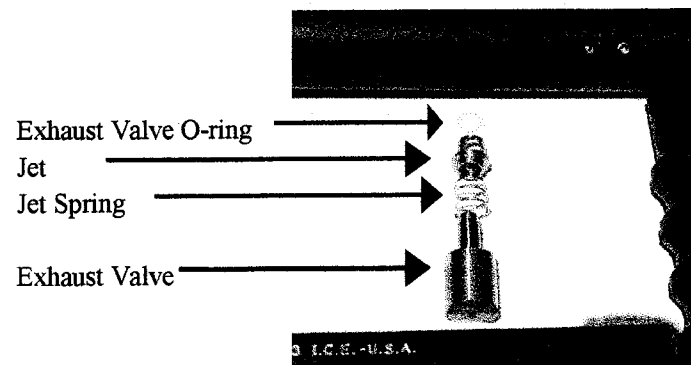


FIG 3.2

### 3.2A Disassembly

**Note:** The marker should not be charged, and no air system should be attached during the following steps in this process until instructed to do so. Be sure to empty all paintballs from the marker and remove the barrel from the marker before starting this procedure.

To access the exhaust valve and its components, the main body tube must be separated from the grip frame.

1. Separate the main body from the grip frame according to instructions in Section 3.1A.

**Note:** The exhaust valve components: exhaust valve, exhaust valve spring and jet will usually remain in the grip frame when the main body is separated from the grip frame. The exhaust o-ring will be retained in the cavity in the main body.

2. Remove the o-ring found at the top of the exhaust valve cavity in the main body.
3. Inspect and clean the cavity in the main body where the exhaust o-ring was removed.
4. Inspect the o-ring for obvious wear and minor abrasions. Replace it if necessary.

**Tip:** Although a dental pick, bent paper clip, or bent piece of wire can be used to remove the seal(s), this must be done with caution. Do not scratch any surrounding area with the wire instrument when removing the seal. Any scratches can permanently damage the marker and are not covered under warranty.

### 3.2B Assembly

1. Lightly oil the o-ring, place a drop of oil in the main body cavity, and then insert the o-ring.

**Tip:** Seat the o-ring by inserting the brass jet, long end first, into the cavity and pushing to the bottom. Remember to remove

the jet after the o-ring seal is in position.

2. Clean the exhaust valve and jet by wiping them with a soft cloth to ensure that they are free of dirt, debris, and old oil residue.
3. Clean the cavity in the grip frame where the trigger moves and the exhaust valve sets.
4. Place the cleaned exhaust valve into the grip. Index the valve so that the small, off-center hole in the top is facing the rear of the grip.
5. Place the spring on the valve. One of the pins on the spring should be inserted into the small hole in the valve.
6. Place the jet on the spring, the exhaust hole side facing forward. Place the other spring pin through the small hole in the jet.
7. Reassemble according to Section 3.1B

### 3.3 Trap Door Actuating Rod Removal and Seal Replacement

The actuating rod is the part within the Epic™ that moves the trap door. There is a seal stack utilizing an o-ring and a quad ring in order to seal the rod. To replace these seals, follow the steps described below.

### 3.3A Disassembly

**Note:** The marker should not be charged and no air system should be attached during the following steps in this process until instructed to do so. Be sure to empty all paintballs from the marker and remove the barrel from the marker before starting this procedure.

1. To access the Trap Door™, remove the two screws in the loader plate, and slide the loader plate out of the cavity in the body of the marker.
2. Remove the rear screw that attaches the back cap to the frame. This screw is located at the top rear of the grip frame.
3. Remove the back cap from the end of the marker by pulling it out.

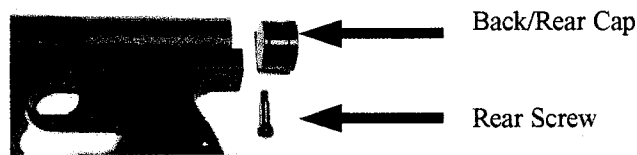


FIG 3.31

**Note:** The rear cap may be difficult to remove. It pulls straight out of the cavity. Avoid using excessive force or tools that may scratch the marker. Instead, work the cap by twisting while pulling until it loosens.

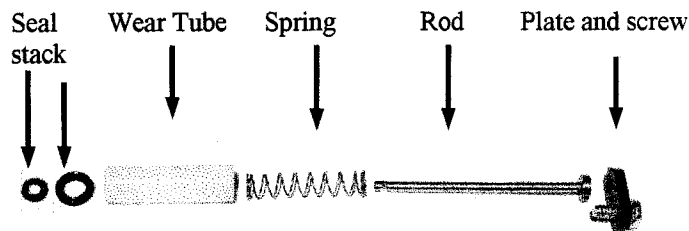


FIG. 3.32

4. In the rear chamber, there is an oval plate with a screw through it. Remove the screw and plate.
5. From the trap door slide area, push the rod into the back position.
6. From the rear chamber, using needle-nose pliers, carefully remove the rod and spring being sure not to scratch or damage anything in the area.
7. Remove the wear tube located in the cavity surrounding the rod.

**Tip:** Insert the tips of the needle-nose pliers into the center of the wear tube and let them open/expand into the wear tube. Pull gently, and the tube should pull out on the outside of the pliers as they are removed.

8. Remove the seal stack, which is located at the bottom of the cavity in the main body housing.

**Tip:** Although a dental pick, bent paper clip, or bent piece of wire can be used to remove the seal(s), this must be done with caution. Do not scratch any surrounding area with the wire instrument when removing the seal. Any scratches can permanently damage the marker and are not covered under warranty.

9. Measure the trap door spring. If it is shorter than 1.000 inches, replace it with a new spring.
10. Inspect all the other parts. Replace any worn or damaged components, and reinstall following the reassembly procedure.
11. Lightly oil all parts prior to reassembling.

### 3.3B Reassembly

1. Lightly oil and place the quad ring at the bottom of the trap door cavity.

**Tip:** Use the wear tube alone as a tool to push the quad-ring seal to the bottom of the cavity. Remember to remove the wear tube once the seal is in place.

2. Place the spring on the actuating rod.
3. Insert the assembled actuating rod and spring into the wear tube.
4. Place the small o-ring on the end of the rod that emerges from the wear tube, and slide the o-ring towards the wear tube so that it creates one assembly.
5. Insert the entire assembly into the main body trap door cavity.
6. Push the assembly down firmly at the last 1/8 inch in order to seat the seals. When this is done, the o-ring should seat into the Quad ring and the back of the wear tube should be level with the plate indent.
7. Reattach the oval plate and screw. The plate should fit flush with the rear of the back cap cavity.
8. Inspect the rear cap o-ring, and replace if damaged. Lightly oil the o-ring. Place a drop of oil on your finger and spread along the inside of the rear cap cavity in the main body where the o-ring will rub.
9. Slide the cap into the main body cavity and adjust it by twisting to allow the rear screw to be inserted.
10. Install the rear screw and fully tighten.
11. Replace Trap Door™ and loader plate and install the screws.

### 3.4 Transfer Valve

The job of the transfer valve is to control the flow of air from the regulator to the storage chamber. Within the transfer valve, there are two active seals. A quad ring is located directly behind the trigger at the bottom of the transfer valve cavity. If this seal fails, air leaks from the chamber through the trigger and a hissing sound may be heard coming from or behind the trigger area.

The second active seal is an o-ring and is housed in the end of the transfer valve itself. If this seal fails, the marker will allow air to flow when the trigger is held back. This will be indicated by a hissing sound or small continuous pops heard coming down the barrel while the trigger is held in the back position.

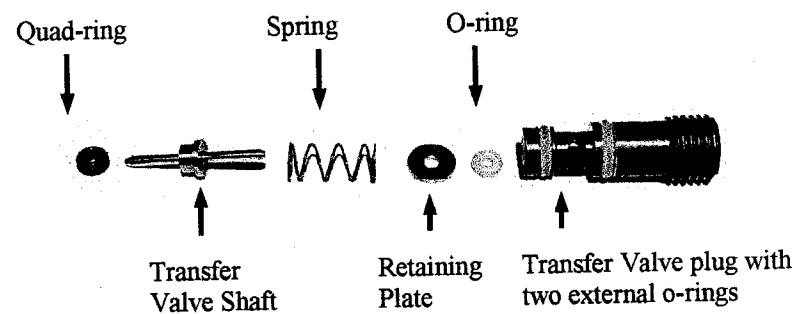


FIG. 3.4

#### 3.4A Disassembly

In order to replace either of these seals, follow the steps described below.

**Note:** The marker should not be charged and no air system should be attached during the following steps in this process until instructed to do so. Be sure to empty all paintballs from the marker and remove the barrel from the marker before starting this procedure.

1. Using an 1/8th inch Allen wrench, unscrew and remove the transfer valve from the rear of the grip.
2. From the cavity, remove the retaining plate, spring, and shaft. Use a thin pair of needle nose pliers to remove the shaft.
3. Remove the quad-ring from the bottom of the cavity.

**Tip:** Although a dental pick, bent paper clip, or bent piece of wire can be used to remove the seal(s), this must be done with caution. Do not scratch any surrounding area with the wire instrument when removing the seal. Any scratches can permanently damage the marker and are not covered under warranty.

4. Inspect the quad ring and replace it if necessary.

### **3.4B Reassembly**

1. Oil the quad ring and insert it. Push the quad ring to the bottom of the cavity.
2. Reinsert the shaft by using a thin pair of needle nose pliers to place the shaft through the quad ring. Make sure that the shaft is completely inserted into the quad ring. To check proper placement, push down on the shaft and pull back on the trigger. The shaft should move back and forth with the trigger.
3. Place spring into the cavity.
4. Place the retaining plate into the cavity.
5. Inspect and if necessary replace the two outer seals on the transfer valve and the o-ring in the end of the transfer valve.
6. Oil all seals before installing them.

7. Reinsert and screw in the transfer valve making sure that the rear of the transfer valve is aligned with the rear surface of the grip when fully installed. The transfer valve should not protrude beyond the rear of the grip. Once fully screwed in, loosen the transfer valve 1/8-1/4 of a turn to allow proper valve alignment.

### **3.5 Trigger Adjust**

The Epic™ marker has two trigger adjustments in order to modify the length of trigger pull. The trigger pull is set at the factory and usually will not require any modification; however, it may be adjusted so the trigger pull can be as short as .085 inches or as long as .150 inches.

**Note:** The marker should not be charged, and no air system should be attached during the following steps in this process until instructed to do so. Be sure to empty all paintballs from the marker before starting this procedure.

#### **3.5A Trigger Adjust Number One**

The first adjustment that can be made to the trigger pull is the point of fire. This is done with the set-screw at the bottom of the trigger guard.

1. Install the barrel, and insert a barrel plug.
2. Point the marker in a safe direction.
3. Carefully air up the marker and adjust the screw clockwise (to the right) to the point where the marker will no longer fire.
4. While holding the trigger back, slowly adjust the screw out until the marker fires.
5. After reaching the point where the marker fires, continue to adjust the screw out an additional ¼ of a turn. This will ensure that the exhaust valve will not bind. In some

cases, the screw may need to be adjusted out more than ¼ of a turn. If more over travel is desired, the screw can continue to be adjusted counter clockwise (to the left) until the desired effect is achieved. If less travel is desired, adjust the screw clockwise (to the right). Be careful not to adjust the screw too far in to the point where valve bind occurs and the marker will not cycle properly.

**Note:** A thread-locking compound was applied to this set-screw at the factory. After any adjustment, it may be necessary to reapply a thread-locking compound to make sure that the screw does not loosen or readjust. Lock Tite® 242 or equivalent is recommended.

### **3.5B Trigger Adjust Number Two**

The second adjustment that can be made to the trigger is trigger return (forward) movement. This is done by adjusting the set-screw at the top of the trigger.

1. In order to access this screw, the top of the marker must be separated from the grip frame. See Section 3.X for instructions on this procedure.
2. Adjusting the set screw counter clockwise (left) will allow for more forward trigger movement and result in a longer trigger pull.
3. Adjusting clockwise (right) will reduce the length of forward trigger movement and result in a shorter trigger pull.

**Tip:** Setting the trigger return too short will cause in a shoot-down effect (reduction in velocity of subsequent fired balls) during rapid fire conditions. To alleviate or eliminate a shutdown effect, adjust the screw out, counter clockwise, until the problem is remedied.

**Note:** A thread-locking compound was applied to this set-screw at the factory. After any adjustment, it may be necessary to reapply a thread-locking compound to make sure that the screw does not

loosen or readjust. Lock Tite® 242 or equivalent is recommended.

### **3.6 Trigger Replacement**

**CAUTION: DO NOT ATTEMPT TO REPLACE THE TRIGGER UNLESS FULLY QUALIFIED.**

This procedure should only be preformed by qualified persons with the proper equipment so as not to damage the grip frame or trigger components. To replace the trigger, remove only the front pin. The pin should be pressed out, not hammered out, to ensure no damage occurs to the grip frame, trigger bearing, or any of the trigger components. All trigger components, except the rear bearing, can be removed without removing the rear pin. After replacing all necessary components, carefully press in the front pin.

### **3.7 Safety**

The Epic™ has a push-type safety. When pushed, an indent ring is exposed on the opposite side, indicating that the marker is ready to fire. The safety may be changed from right hand operation to left-hand operation so that left handed players don't accidentally activate the safety while playing. (The factory installation of the safety is for right-hand operation.)

You can change the safety from-right handed to left-handed operation with the following procedure:

**Note:** The marker should not be charged, and no air system should be attached during the following steps in this process until instructed to do so. Be sure to empty all paintballs from the marker and remove the barrel from the marker before starting this procedure.

To access the safety and its components, the main body must be separated from the grip frame. See Section 3.1A for instructions on this procedure.

1. Remove the small set screw located directly above the safety shaft by turning counter clockwise.

**Warning:** When this screw is removed, the small spring and ball bearing can fall out easily.

2. Remove the spring and small ball bearing found below the set screw by turning the marker upside down. Be careful not to lose or damage these small parts.
3. Remove the safety shaft by sliding it out one side of the grip-frame, and rotate it 180 degrees before reinserting it.
4. Reinstall the ball bearing, spring and set screw into the opposite hole on top of the grip.
5. Adjust the screw inward, clockwise (to the right) while moving the safety shaft back and forth to ensure proper movement and feel.
6. Finally, check the trigger for proper movement and safety operation.
7. Reassemble the main body and grip frame according to Section 3.1B

### 3.8A Air System Adapter Disassembly

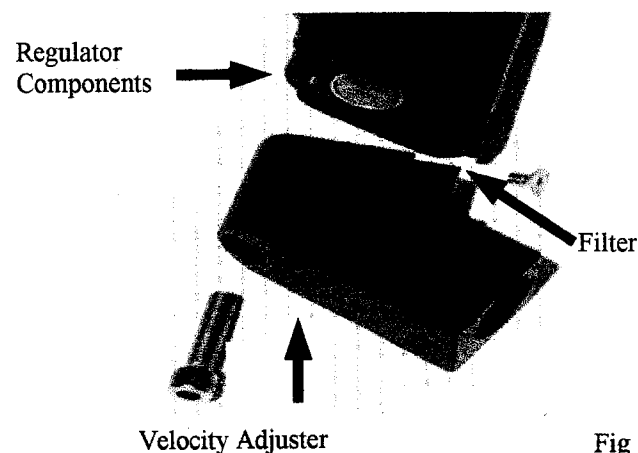


Fig 3.8

**Note:** The marker should not be charged, and no air system should be attached during the following steps in this process until instructed to do so. Be sure to empty all paintballs from the marker and remove the barrel from the marker before starting this procedure.

**Important:** The first step must be completed before removing the A.S.A. to ensure that the regulator spring tension is relieved and the marker and its components are not damaged.

1. The velocity adjuster is located on the bottom of the grip of the marker. Insert an 1/8th inch Allen wrench. Turn the velocity adjuster counterclockwise until it completely stops.
2. Using an 3/32 inch Allen wrench remove the small flat head screw at the bottom rear of the grip frame.

3. Using an 3/16 inch Allen wrench turn the marker upside down. Loosen and remove the large screw at the bottom of the grip.
4. While still holding the marker upside down, lift off the Air System Adapter. You have now exposed the regulator and filter components.

**Note:** After removing the A.S.A., if you turn the marker over, components of the regulator may fall out. If these parts become separated from the grip frame of the marker, carefully clean them with a soft rag to remove all oil and debris. Be careful not to drop or damage any regulator components that become separated from the marker while the A.S.A. is removed. Lightly oil all components and reassemble them in reverse order or according to Section 3.10.

**Tip:** Put the regulator components aside until you are ready to reassemble the Air System Adapter. This ensures that the components will not fall out again.

### **3.8B Air System Adapter Reassembly**

**Note:** The marker should not be charged, and no air system should be attached during the following steps in this process until instructed to do so. Be sure to empty all paintballs from the marker and remove the barrel from the marker before starting this procedure.

1. Make sure all regulator and filter components are properly assembled and installed.
2. Replace the large screw at the bottom of the grip.

**Tip:** Do not fully tighten the bottom grip screw until the rear screw is started or binding of the rear screw may occur.

3. Replace the small flat head screw at the bottom, rear of the grip.
4. Fully tighten both screws.
5. Turn the velocity adjuster clockwise (to the right) approximately four rotations. This should be a good starting point for chronographing.

### **3.9 Filter**

The Epic™ contains a sintered metal filter, which must always remain in place to ensure that the internal components remain free from debris. This filter can be replaced by following the steps listed below.

1. Remove the A.S.A. from the grip body. See Section 3.8
2. The filter is in the cavity at the base of the grip frame below the o-ring. It can be extracted after removing the o-ring that seals between the A.S.A. and the grip frame.
3. The filter is in the cavity at the base of the grip frame below the o-ring. It can be extracted after removing the o-ring that seals between the A.S.A. and the grip frame.
4. There is a second o-ring at the bottom of the filter cavity. If leakage occurs between the grip frame and the A.S.A., this o-ring may need to be replaced. This o-ring helps maintain proper tension on the sealing system of the A.S.A.

**Tip:** Although a dental pick, bent paper clip, or bent piece of wire can be used to remove the seal(s), this must be done with caution. Do not scratch any surrounding area with the wire instrument when removing the seal. Any scratches can permanently damage the marker and are not covered under warranty.

5. Inspect the filter and o-rings, and replace any if necessary.



**Tip:** If reinstalling a previously used filter, make sure to install the dirty side facing out so as not to have the trapped debris previously contained in the filter enter the marker.

6. After inspecting and replacing any necessary components, install one o-ring, the filter, and then the other o-ring into the filter cavity.

**Note:** Ensure that the filter, o-rings, and regulator components are in place before attaching the A.S.A. is to the grip frame.

7. Reattach A.S.A. according to Section 3.8B.

### 3.10 Regulator

The Epic™ regulator contains advanced, custom-designed seals that can be easily damaged once removed from the marker if handled improperly. We recommend this portion of the marker be disassembled carefully and if possible either by or under the supervision of a factory-certified Epic™ air smith. Contact the factory if a factory certified Epic™ air smith is not available. If parts are disassembled, clean them with a soft cloth, lightly oil then reassemble in reverse order or according to the following section.

**Note:** The marker should not be charged and no air system should be attached during the following steps in this process until instructed to do so. Be sure to empty all paintballs from the marker and remove the barrel from the marker before starting this procedure.

#### 3.10A Disassembly

1. Remove A.S.A. (Refer to Section 3.8A)
2. Remove regulator retaining screw.
3. Remove regulator cap, main spring, output housing and output piston by inverting the marker. If the output housing does not fall out, simply insert your finger in the cavity and pull the assemble out on the tip of your finger. (Note: The heart may come out as part of the housing assembly)

4. Using needle nose pliers and being careful not to scratch or otherwise damage any components or seals, pull the regulator heart and input seal housing assembly straight out of the cavity by the regulator input shaft located in the center of the cavity.
5. Carefully inspect all components and replace any that show excessive wear, are damaged in any way, or are not functioning properly.

### Input Housing Seal Replacement

#### **External O-ring**

1. Carefully remove the old o-ring using a dental pick.
2. Remove any old oil or debris from the groove.
3. Lightly oil and re-install a new o-ring into the groove.

#### **Regulator Input Seal**

1. Using tweezers or retaining ring pliers, carefully remove the retaining ring while holding in the spring and input shaft.
2. Remove the spring and shaft.
3. Using a small needle or straight pin, insert it into each of the small holes at the bottom of the input housing shaft cavity, and push to extract the seal.

**Tip:** Once the seal has been removed from the regulator input housing, it should not be re-used. The seal must be replaced with a new one to ensure proper operation.

4. Install the new input seal with the open side (exposed spring) facing inward, toward the gland. Be careful not to

damage the seal when installing it. To install the seal, place it spring side up on a smooth flat surface. Place the regulator input housing with the gland centered over the seal and gently press down to seat the seal into its gland.

5. Insert the input shaft and spring. Then carefully re-install the retaining ring.

**Note:** If the retaining ring becomes bent or stretched during removal or installation, it must be replaced in order to properly retain the input housing components.

### **Regulator Heart Seal Replacement**

#### **External O-Ring**

1. Carefully remove the old o-ring using a dental pick.
2. Remove any old oil or debris from the groove.
3. Lightly oil and re-install a new o-ring into the groove.

#### **Regulator Output Seal**

**Warning:** Never use metal tools to remove this seal. Wooden or plastic tools should be used carefully because damage to the housing can occur if the tools are used improperly.

1. Lightly apply pressure to the lip on the inner diameter of the seal in the upward direction to pry the seal from its gland. It may be necessary to rotate the housing and work the seal up from its gland at three or more places around the inner diameter of the seal.

**Tip:** Once the seal has been removed from the regulator heart housing, it should not be re-used. The seal must be replaced with a new one to ensure proper operation.

2. Install the new input seal with the open side (exposed spring)

facing inward, toward the gland. Be careful not to damage the seal when installing it. To install the seal, place it spring side up on a smooth flat surface. Place the regulator input housing with the gland centered over the seal and gently press down to seat the seal into its gland.

### **3.10B Reassembly**

1. Clean all old oil and debris from the regulator cavity in the grip frame.
2. Lightly oil all surfaces of the cavity before inserting the regulator components.
3. Lightly oil the input housing external o-ring and place a drop of oil into the input housing directly on the top of the input shaft.
4. Install the input housing, by holding it by the exposed input shaft, and lowering it into its cavity.
5. Lightly oil the regulator heart external o-ring, and then insert the heart regulator, small hole inward and large hole outward, into the cavity.
6. Using the output housing alone as a tool, insert it into the cavity, smaller hole inward, on top of the regulator heart, and then slowly push the components to the bottom of the cavity. The output housing edge should be flush with the bottom of the grip frame.
7. Lightly oil the entire surface of the output piston, and install it, small end inward, into the installed output housing.
8. Install the spring and cap into the output housing and push down on the cap to set the output piston into the seal.
9. Install the regulator retaining screw into the bottom of the grip.
10. Inspect the filter and filter o-rings, and replace as necessary according to Section 3.8.
11. Reinstall the A.S.A. according to section 3.7B

### 3.11 Ball Stop

The Epic™ Marker has two ball stops which suspend the paintball in the proper position before firing. There is one front and one rear. The rear ball stop does not move; it simply keeps the ball in position. The front ball stop's movement is controlled by a spring.

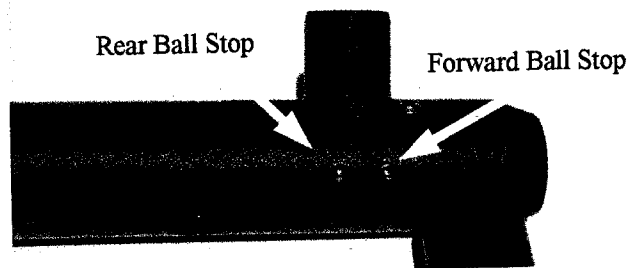


FIG. 3.11

**IMPORTANT:** This ball stop has been set at the factory and should not need to be adjusted.

If the ball stop is adjusted too high (where it will not retract to a position that is level with the bore), ball breakage may occur in the barrel.

If the ball stop is adjusted too low (where it can compress to a position that is below level with the bore), it may stick in a down position, allowing double feeds and ball trapping that could result in balls breaking in the elbow of the loader.

**Tip:** Always be careful when adjusting the ball stop.

If necessary, the front ball stop can be adjusted by moving the set screw directly below it in the main body clockwise or counter clockwise. The ball stop must be exactly level with the bore when fully compressed.

### 3.12 Grip

The wrap around grip can be removed by loosening and removing the screws on either side of the grip and sliding the grip forward off the grip frame. There is nothing to adjust or disassemble under the grip.

### 3.13 Fore-grip

The fore-grip is not a working component of the marker and can be removed. The inside diameter of the fore-grip is .680 and allows the player to store a barrel plug in the fore-grip during play.

To remove the fore-grip, remove the screw found inside the grip using an long 5/32 inch Allen wrench.

### 3.14 Barrel

The Epic™ Marker is threaded for Worr Game Products' Autococker™ threaded barrels; however any after-market, Autococker™ threaded barrels should fit. Regardless of the barrel used, make sure that it is screwed tightly into the marker. If the barrel becomes loose, ball breaks may occur in the barrel.

**Tip:** Use of tight bore barrels with large paint or large bore barrels with small paint balls may result in excessive ball breakage in the barrel. Testing of different brands of paint to achieve optimal performance may be necessary.



## SECTION 4

### TROUBLESHOOTING

#### 4.1 Low Velocity

- |  |  |
|--|--|
| 1. Regulator set too low.                          | Turn up velocity.<br>See Section 2.9           |
| 2. Regulator output seal leaking.                  | Replace regulator Seal.<br>See Section 3.9     |
| 3. Regulator spring worn out/out of specification. | Replace regulator main spring. See Section 3.9 |
| 4. Input filter is clogged.                        | Replace filter.<br>See Section 3.8             |

#### 4.2 Velocity Drops During Rapid Firing

- |  |                                    |
|--|------------------------------------|
| 1. Trigger forward adjustment set too short. | Adjust trigger<br>See Section 3.4  |
| 2. Input filter clogged                      | Replace filter.<br>See Section 3.8 |

##### Using CO2

- |                                       |                                    |
|---------------------------------------|------------------------------------|
| 3. CO2 bottle low or bottle is frozen | Replace bottle or fill air source. |
|---------------------------------------|------------------------------------|

##### Using Compressed Air/Nitrogen

- |                                 |   |
|---------------------------------|---|
| 1. Bottle low                   | Fill air bottle.                        |
| 2. Bottle regulator set too low | Increase input pressure<br>500-800 PSI. |

#### 4.3 Balls Not Feeding into Breech

- |  |  |
|--|--|
| 1. Paint too large or out of round.                | Try other paint.                             |
| Trap door NOT attached to actuating rod.           | Reattach trap door<br>See Section 2.3        |
| 2. Trap door not fully returning to open position. | Oil actuating rod<br>See Section 2.3         |
|  | Replace trap door spring.<br>See Section 2.3 |
|  | Clean debris from Trap Door™ and slide area. |

#### 4.4 Balls Double Feeding

- |  |                                      |
|--|--------------------------------------|
| 1. Paint too small                       | Try other paint                      |
| 2. Front ball stop not properly adjusted | Adjust ball stop<br>See Section 3.10 |

#### 4.5 Balls Break In Loader/Elbow

- |  |   |
|--|---|
| 1. Weak or old paint                     | Try other paint.  |
| 2. Front ball stop not properly adjusted | Adjust ball stop.<br>See Section 3.10                               |
| 3. Trap door not closing properly        | Clean and check operation of trap door and rod.<br>See Section 3.10 |
| 4. Bottle empty                          | Fill bottle   |

#### 4.6 Air Continues to Vent from Regulator

1. Regulator input seal set leaking
  - a. Replace regulator input seal. See Section 3.9
  - b. Replace regulator input housing o-ring. See Section 3.9
2. Regulator output seal set leaking.
  - a. Replace regulator output seal. See Section 3.9
  - b. Replace regulator housing o-ring. See Section 3.9

#### 4.7 Diagnosing Air Leaks in the EPIC™

**Disclaimer: Insight Component Engineering is not responsible nor will it cover under warranty any component damaged by water, chemicals, or improper cleaning and storage of any marker or component.**

Always wear approved paintball goggles while marker is under pressure (pressurized). Paintballs should be removed from the marker, and remove the barrel before beginning to diagnose a air leak.

1. Remove loader plate and trap door.
2. Remove rubber grip.
3. Disconnect and fully remove any electronic hardware (sights, gauges etc.) from your marker before submersion in water.
4. Fill a large plastic tub with cold water. The tub should be plastic for safety and should be large enough that the marker and air source or adapter can be completely submerged.

**CAUTION: Water must NOT be warm or hot.** Warm or hot water can cause a rapid expansion of the contained gas that may create a hazard. Always use water at or below the ambient temperature of the room and bottle. Water should never be above 76° F (25° C).

5. Attach an air system and pressurize the marker.
6. Fully submerge the marker and identify the area where the bubbles are escaping. It may be necessary to move the marker or turn it over to detect exactly where the marker is leaking.
7. Once you have determined where the marker is leaking, carefully remove it from the water bath and dry off the marker.
8. Carefully dry fire the marker to expel water that may have entered it while submerged.
9. De-pressurize the marker, replace leaking seals, and then re-test.
10. Fully dry and oil all components to ensure no contamination has entered, formed on, or formed within the marker.

**Note:** After testing, oil all components. Always store your marker in a cool dry place.

AREA OF LEAKAGE	REPLACE
From the breech area	Exhaust main valve o-ring
From the rear cap	Rear cap o-ring
Between main body and grip	Body to grip o-ring
From trap door rod	Trap door o-rings set
Behind trigger	Transfer valve quad ring
From transfer valve screw	Transfer valve external (large)
From rear of A.S.A. to grip joint	Filter o-rings
From regulator vent hole or adjuster hole	Regulator seal/seals See Section 4.6



## SECTION 5

### RECOMMENDATIONS

Always use fresh, high-quality paint for optimal performance.

Use of an "agitating" loader may be necessary to ensure feeding of balls when shooting at high rates of fire.

Always use anti-siphon style CO2 cylinders to limit the possibility of liquid CO2 entering the system.

If ball breaks occur in the barrel, immediately clean the barrel to ensure the residue does not affect other balls.

Use of compressed air or nitrogen will enhance performance over CO2 in cold climates.

Regulated CO2, compressed air, or nitrogen systems should be set to a minimum of 500 PSI and a maximum of 800 PSI. Input pressure to the marker will be determined by the flow necessary to ensure no reduction in velocity occurs while rapid firing. Enhanced performance will not be gained by setting input pressure higher than necessary to provide adequate flow without velocity drop.

Changing to after-market barrels should be approached with caution. Use of barrels with a bore that is too tight or of barrels of unusual length may increase the possibility of balls breaking in the barrel.



## SECTION 6

### SPECIFICATIONS

Action	Boltless semi automatic
Fire position	Closed breech
Recharge rate	100 ms
Cycle rate	9 Balls per Second
Timing	Internally set and self compensating
Regulator	Opposed Piston, over pressure venting
Filter	15 Micron
Exhaust port configuration	7 hole balanced flow
Power source	CO2, regulated compressed air or nitrogen
Maximum input pressure	800 PSI
Operating Pressure	350 – 450 PSI
Velocity Range	100 – 300 fps
Barrel	10" ported Autococker™ style thread

Feed port	7/8 in. OD, accepts standard elbows
Feed port configuration	Left and right side feed models available
Grip	45 style, wrap-around, contoured rubber grip
Safety	Mechanical push button style
Lubrication	100% Synthetic oils designed for paintball markers
External moving parts	Trigger
User adjustments	Velocity, trigger movement
Weight (including barrel and fore-grip).	2.3 lbs.
Length (no barrel or air source attached)	7.375 inches
Width (diameter of main body)	1.375 inches
Height (base to top feed port)	7.500 inches
Accessories included	Removable fore-grip
Accessories available	Sight rail, input and output pressure gauges, cycle counter, drop forward/cradle adapter



## SECTION 7

### WARRANTY

Insight Component Engineering warrants the replacement of any original part due to a defect in materials and/or workmanship of this marker. This warranty will be in effect for twelve (12) months for parts and twelve (12) months for labor following the original purchase. Such warranty service will be provided only if the warranty registration page included with this manual is filled out completely and on file at Insight Component Engineering. All other service will be duly charged for.

Insight Component Engineering will replace without charge any original part determined by Insight Component Engineering to be defective under the terms of this warranty. However, shipping charges are not covered hereunder. Failure due to accident, abuse, neglect, modification, normal wear; maintenance by other than an authorized Insight Component Engineering dealer, or use of parts inconsistent with the use originally intended for the marker as sold is not covered by this warranty.

There are no other warranties or guarantees, expressed or implied, made by Insight Component Engineering on this marker. The sole and exclusive liability of Insight Component Engineering and/or its authorized dealers, affiliates, or agents pursuant to this warranty will be for repair or replacement of the defective part. Incidental or consequential damages are expressly excluded hereunder.

Insight Component Engineering, its authorized dealers,

affiliates, or agents will not be liable under this warranty, nor under any state or federal law or the common law or otherwise for any damage or failure, including personal injury, resulting from such use and/or alteration. This warranty gives an individual a specific legal right. That individual may also have other rights, which may vary from state to state.

For warranty parts, service, or information, contact a dealer or Insight Component Engineering directly at:

Insight Component Engineering  
3429 Pomona Blvd, # P  
Pomona, California 91768-3262  
or  
<http://www.icepaintball.com>



## SECTION 8

### STATEMENT OF LIABILITY

Insight Component Engineering's markers are delivered by Insight Component Engineering with the understanding that Insight Component Engineering assumes no responsibility for its resale or safe handling. Markers can be considered dangerous weapons if mishandled, abused, or safety instructions are ignored. Insight Component Engineering assumes no responsibility for physical injury or property damage resulting from a marker's use or misuse.

Insight Component Engineering makes no warranties with respect to this documentation and disclaims any implied warranties of merchantability or fitness for a particular purpose. The information in all documentation is subject to change without notice. Insight Component Engineering assumes no responsibility for any errors that may appear in any documentation.

Insight Component Engineering's markers are not toys. The markers are to be used on safety certified fields only. Obey all local, state, and federal laws. Follows the rules of safe handling for paintball markers.

Read all instructions before use.



