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**INCLUDED WITH YOUR MATRIX**
- MATRIX Marker
- Allen tool set including 1/16”, 5/64”, 3/32”, 1/8”, 5/32”, 3/16” and 1/4”
- 1 oz. Dye Slick Lubri™
- Parts Kit
- Barrel Sock
- Owner’s Manual
- Warrant Card

**ADDITIONAL RECOMMENDED TOOLS**
- 3/8” Allen wrench
- 5/16” Allen wrench
- Compressed Air
**WARNING**

**IMPORTANT SAFETY INSTRUCTIONS AND GUIDELINES**

- The MATRIX marker is not a toy. Misuse may cause serious injury or death.
- Please read, understand and follow the directions in the MATRIX owner's manual.
- Eye protection that is designed specifically for paintball and meets ASTM/CE standards must be worn by user and persons within range.
- Always treat the MATRIX marker as if it were loaded and able to fire.
- Only use compressed air or nitrogen gas in the MATRIX marker. DO NOT USE CO2.
- Do not exceed 850 psi input pressure.
- Ensure all air lines and fittings are tightened and secured before gassing up the MATRIX.
- Never shoot the MATRIX marker at velocities in excess of 300 feet per second, or at velocities greater than local or national laws allow.
- Always fit a barrel blocking device to your MATRIX when not in use on the field of play.
- The owner's manual should always accompany the product for reference or in the event of resale and new ownership.
- Do not point the MATRIX marker at anything that you do not intend to shoot.
- Do not shoot at people, animals, houses, cars or anything not related to the sport of paintball.
- Do not fire the MATRIX without the Fuse bolt screwed in completely.
- If you read these instructions and do not fully understand them or are unsure of your ability to make necessary adjustments properly, call DYE or your local pro shop for help.

**Air Supply** - The MATRIX should be operated using air/nitrogen gas only. This air needs to be supplied to the Hyper2™ in-line regulator at a regulated pressure of no more than 850 psi. The Hyper2™ in-line regulator comes factory preset at 185psi.

**Gassing Up Your MATRIX** - Screw in your air system to the on/off airport and turn the knob of the airport clockwise, all the way in.

**Turning On Your MATRIX** - The MATRIX's power is controlled by two buttons. The top button turns the marker on and off, while the bottom button turns the eye on and off. Hold the power button for 3 seconds to turn the marker on. The LED in the grip will illuminate during the boot sequence.

**NOTE:** If the eye is not working properly, try replacing the battery.

- **Orange** - Boot sequence
- **Red** - Breech is clear, no ball (eye on)
- **Blinking Orange** - Indicates a low battery, battery should be changed as soon as possible
- **Blinking Red** - Eye is off
- **Blinking Green** - Eye failure (see MATRIX Board, page 4)

**LPR** - The LPR is pre-set from the factory at approximately 75-80 psi and should need no adjustment out of the box. If fine tuning adjustment is desired or needed, you must be sure that you are adjusting the LPR correctly. See page 10 for detailed instructions. If the LPR is improperly adjusted, you could dramatically hinder the MATRIX's performance or prevent the marker from functioning at all.

**NOTE:** Turning the adjustment screw clockwise, or in, will lower the LPR's output pressure. Turning the adjustment screw counterclockwise, or out, will raise the LPR's output pressure.

**Hopper** - To get the best performance out of your MATRIX, it is recommended that you use a motorized loader. Preferably one that feeds paint really, really fast!

**Adjusting Velocity** - The velocity is adjusted through the Hyper2™ in-line regulator. The Hyper2™ in-line is preset from the factory at approximately 230 psi. This pressure setting should have the marker shooting at about 285fps. Your paint-to-barrel fit will also have a noticeable affect on your velocity. Make sure that the paintball fits into the barrel loosely but does not drop through.

**NOTE:** For the Hyper2™, turning the adjustment screw clockwise, or in, will lower the output pressure, decreasing the velocity. Turning the adjustment screw counterclockwise, or out, will raise the output pressure, increasing the velocity.

**NOTE:** If the battery is too low, it may not be able to power the solenoid correctly. This will affect your MATRIX's velocity, causing it to become inconsistent and/or low.
When servicing your marker:
• Make sure a barrel sock is fitted to the MATRIX.
• Make sure your hopper is removed from the MATRIX.
• Make sure there are no paintballs in the breech of the MATRIX.
• Always remove the first stage regulator and relieve all residual gas pressure from the MATRIX before disassembly.
• The MATRIX can hold a small residual charge of gas, typically 1 shot, with the first stage regulator removed. Always discharge the marker in a safe direction to relieve this residual gas pressure.

**WARNING**

• The MATRIX is not water resistant. Excess moisture can cause damage to electronic parts.
• Keep the board and all electrical components clean of dirt, paint, and moisture.
• To clean the board, use canned air. If a more aggressive cleaning method is needed, lightly scrub the components with a soft, dry brush. Heavy scrubbing will damage the board.

---

**TURNING THE MATRIX ON AND OFF**

To turn on the MATRIX, press and hold the upper button (see figure 1) until the LED light turns orange. The orange light indicates board bootup. After the bootup sequence, the LED will turn either RED (no ball) or GREEN (ball ready to fire). To turn the MATRIX off, press and hold the power button until the LED turns off.

**NOTE:** The MATRIX automatically switches off after 10 minutes of non-use.

---

**FI R I N G T H E M A T R I X**

As soon as the marker is turned on and the LED turns from orange to either red or green, the MATRIX is ready to fire. If there is no ball and the LED is RED, you need to hold the trigger for 1 second to force the MATRIX to fire once. If there is a paintball inside the breech and the LED is green, just press the trigger to fire the marker.

---

**L E D L I G H T I N D I C A T O R**

There is a LED light mounted on the back strap of the frame, under the two buttons. This light provides information to the user by the MATRIX. There are three colors on the LED light: red, green, and orange.

When you turn on the marker in normal operation mode with the power button, the light colors mean the following:

- **Orange:** Bootup sequence.
- **Red:** No ball detected inside the MATRIX (eye on).
- **Green:** Ball detected inside the MATRIX (eye on).
- **Blinking Red:** Eye function turned off. The MATRIX will fire even though there is no ball inside the breech.
- **Blinking Green:** Eye blocked. This means that your eyes are either dirty or there is a bad connection. The ROF (rate of fire) is automatically reduced to prevent chopping. If this happens during game play, you can turn the eye off to increase your ROF.
- **Blinking Orange:** Indicates a low battery. Battery should be changed as soon as possible.

**NOTE:** The eye is always activated when you turn the marker on.

---

**B O A R D S E T T I N G S A N D C O N F I G U R AT I O N M O D E**

There are four settings you can alter on the MATRIX board with the DIP switches inside the grip frame (see figure 2):

- **ABS**
- **Trigger Sensitivity**
- **Dwell**
- **ROF**

**Anti Bolt Stick**:
- When ABS is activated, the dwell is increased after 15 seconds of non-use for the next shot fired. This helps to prevent bolt-stick, but may result in higher velocity for the first shot.

---

**W A R N I N G**

• The MATRIX is not water resistant. Excess moisture can cause damage to electronic parts.
• Keep the board and all electrical components clean of dirt, paint and moisture.
• To clean the board, use canned air. If a more aggressive cleaning method is needed, lightly scrub the components with a soft, dry brush. Heavy scrubbing will damage the board.
TO CHANGE THE VALUE OF A SETTING:

While in configuration mode, pull the trigger and hold it for more than one second. The LED will flash to indicate the previous setting.

After that, you can set the new value with the trigger.

For example, if you want to change the trigger sensitivity to 7 units:

1. Cycle through menus by pulling and releasing the trigger until the LED light is GREEN (trigger sensitivity).
2. Pull and hold the trigger until the LED starts flashing (factory default for the trigger sensitivity setting is 5 units, so the LED will flash 5 times).
3. When the LED stops flashing, pull and release the trigger seven times in a fast pace. The new value is set after you haven't touched the trigger for one second. The LED will cycle through all colors to indicate that the new value is saved. All other configurations are changed the same way. Just as in part 2 above, change the mode to RED for "dwell" or ORANGE for "ROF when ACE is deactivated" to change the desired configurations.
4. To exit configuration mode, set DIP 2 to the off position.

NOTE: You cannot turn your marker off with the power button when the marker is in configuration mode. You must first set DIP switch 2 to the off position.

NOTE: When Anti Chop Eye (ACE) is deactivated:

- The ROF is unlimited by software when the eye is on. The only limiting factor is the loader feed rate. The marker pneumatic cycle rate is far faster than any loader on the market. You should set this setting to the constant feed rate of your loader. Setting this value higher than your loader is capable of feeding risks chopping a ball.
- Increase the dwell until you see no increase in the velocity. This is the optimal dwell setting to be used.
- With the dwell set at 12, start increasing the value until the marker begins to fire. When you reach the setting where the marker begins to fire, get some paint and a loader and go to a chronograph.
- Remove loader and any paintballs from the MATRIX marker.

FIREARMS ARE NOT TOYS.

To cycle through different settings, pull and release the trigger. Configuration mode has 3 settings that can be changed.

Configuration Mode -

The following settings can only be modified in configuration mode. To activate the configuration mode, turn your marker off and set DIP switch 2 to the off position. Next, turn your marker on. The Solaris LED cycles through all colors for one second to indicate that you have entered the configuration mode. To cycle through different settings, pull and release the trigger. Configuration mode has 3 settings that can be changed.

Green - Trigger Sensitivity
Values 1 - 20 (factory default 5)
Trigger sensitivity is the amount of time that the trigger has to be released before the next trigger pull is allowed. In some situations with too low of a value, the marker may begin to shoot full-auto.

Red - Dwell
Values 5 - 50 (factory default 18)
Dwell is the amount of time that the solenoid will be activated. Follow these steps for the best way to set you dwell:

- • Load the magazine and pull the trigger until the LED starts flashing.
- • With the dwell set at 12, start increasing the value until the marker begins to fire.
- • When you reach the setting where the marker begins to fire, get some paint and a loader and go to a chronograph.
- • Increase the dwell until you see no increase in the velocity. This is the optimal dwell setting to be used.

Orange - Rate Of Fire (ROF)
(When Anti Chop Eye (ACE) is deactivated)
Values 5 - 24 (factory default 24bps)
The ROF is unlimited by software when the eye is on. The only limiting factor is the loader feed rate. The marker pneumatic cycle rate is far faster than any loader on the market. You should set this setting to the constant feed rate of your loader. Setting this value higher than your loader is capable of feeding risks chopping a ball.

BATTERY

The 9V battery will last for about 40,000 shots. Please be aware that there are substantial differences in performance between different brands of batteries. Use of high quality alkaline or lithium ion batteries is recommended for maximum battery life. If you plan to use your marker for a long period of time (a month), it is recommended that you remove the battery from the marker. When the battery voltage starts to go too low, you will notice your velocity starts to decrease and the board can turn off. For tournament use, it is recommended to change the battery for each tournament. When changing your battery, take special care to ensure the wiring harness is not pinched under the battery (see figure 1).

CHANGING THE BATTERY

The battery is housed on the left side of the grip frame. To access the battery, remove the three screws holding the left side grip panel down. Use a 3/32” Allen wrench. Carefully lift the battery out of the frame, taking care not to damage the battery lead wires.

When inserting a new battery, make sure the solenoid and eye wires are pushed into the wire passage at the rear of the frame. This will ensure that the wires are not pinched or cut.

NOTE: IF THE MARKER WILL NOT FUNCTION WITH THE EYE ON, THERE IS A GOOD CHANCE THE BATTERY NEEDS TO BE CHANGED.

WARNING

• A low battery will not be able to power both the ACE eye and the trigger switch, causing ACE eye failure.
• If the battery is low, it may not be able to power the solenoid correctly. This will affect the MATRIX's velocity, causing it to become inconsistent and/or low.
• An intermittent blinking orange light indicates a low battery. A low battery can cause malfunctions to the marker. In this case the battery should be changed as soon as possible.

NOTE: IF THE MARKER WILL NOT FUNCTION WITH THE EYE ON, THERE IS A GOOD CHANCE THE BATTERY NEEDS TO BE CHANGED.
BOLT MAINTENANCE

Regular MATRIX Fuse™ bolt maintenance is vital to the performance of the MATRIX. If the Fuse™ bolt is not kept well-greased and the o-rings in good shape, the performance of the MATRIX will be greatly hindered.

To remove the bolt, you will need a 1/4” Allen wrench. Unscrew the bolt from the rear of the marker. It only takes one and one half revolutions to unscrew the bolt so that it can be pulled out. After the bolt has been cleaned and greased and is ready to be inserted into the body, be sure all bolt sleeve components are screwed together snugly. Slowly push the bolt into the body. Take care not to cut or nick the o-rings as they pass the threads.

GREASE THE MATRIX FUSE™ BOLT EVERY 10-15 THOUSAND SHOTS.

BEFORE INSTALLING THE BOLT INTO THE MARKER, BE SURE ALL BOLT SLEEVE COMPONENTS ARE SCREWED TOGETHER SNUGLY.

If you do not grease the bolt, you will run the risk of damaging o-rings. This will create excessive friction and drag on the bolt, ultimately resulting in breaking the bolt. When greasing the MATRIX Fuse™ bolt, pay special attention to all o-rings that are on the bolt and that ride on a surface of the bolt. The first seven o-rings listed below should be generously greased during maintenance.

FUSE™ BOLT O-RING LIST

1 Bolt tip (014 BN70)
2 Bolt sail (015 BN70)
3 Inside bolt stem (009 BN70)
4 Rear bolt stem (009 BN70)
5 Front wall internal (017 UR70)
6 Top hat (017 UR70)
7 Top hat (013)
8 Outer sleeve (020 BN70)
9 Front bumper (015 BN70)
10 Rear bumper (011 BN70)

NOTE: All remaining o-rings should have a thin coating of grease as well.

FUSE™ BOLT OPERATION

To achieve top performance from your MATRIX, it is important to understand the basic operation of the MATRIX’s patented FUSE™ bolt system.

This design consists of three sleeves threaded together to capture the only moving part of the system, the bolt.

The FUSE™ Bolt has four components:
1. Cylinder
2. Bolt
3. Top Hat
4. Rear Cap

Air is supplied to the bolt at two points. A high-pressure supply of air is routed to the back of the bolt into the supply chamber. This air source is responsible for propelling the ball. Low-pressure air is supplied from the LPR to the solenoid. From the solenoid, the air is routed through two small holes to the section of the bolt referred to as the cylinder.

When the MATRIX is aired up, air is transferred by the solenoid to the front of the cylinder. This air pushes against the bolt sail and the bolt is held in the back position. When the bolt is held back, the 013 o-ring in the top hat seals around the bolt and contains the air in the supply chamber.

When the marker is fired, the microswitch is pressed, telling the solenoid to switch the flow of air from the front of the cylinder to the rear of the cylinder. Air that enters the rear of the cylinder will push on the bolt sail, moving the bolt forward. The air in the front of the cylinder is vented.

As the bolt moves forward, the tapered stem passes through the top hat. Once the bolt stem can no longer seal against the 013 o-ring, the air contained in the supply chamber is released. The air passes through the venturi ports in the bolt and out the front of the bolt to propel the ball. When the bolt is in the forward position, the inside bolt stem o-ring prevents the flow of air from continuously flowing through the marker when the bolt is forward. This helps the marker shoot much more efficiently.

NOTE: LOW OR ERRATIC VELOCITY MAY BE DUE TO A LOW BATTERY NOT SUPPLYING AMPLE ELECTRICAL CURRENT TO THE SOLENOID. IN THIS CASE, CHANGE THE BATTERY.
LPR (LOW PRESSURE REGULATOR) - ADJUSTMENTS AND MAINTENANCE

When servicing your marker:
• Make sure your hopper is removed from the MATRIX.
• Make sure there are no paintballs in the breech of the MATRIX.
• Always remove the air supply and relieve all gas pressure in the MATRIX before disassembly.
• It is not recommended for the user to remove the LPR from the body and disassemble it.

LPR ASSEMBLY, CLEANING, TESTING AND CHANGING SEALS

The Low-Pressure Regulator (LPR) is located in the lower front of the MATRIX (see figure 1). The function of the LPR is to lower the air pressure supplied to the marker by the in-line, before it reaches the solenoid. This pressure is used to move the bolt forward and back. The factory setting is 75 PSI. You can fine tune your MATRIX to its minimum cycle pressure. This will reduce the amount of force of the bolt hitting the ball (reducing ball breaks) and help with efficiency. Too low of pressure will cause the bolt to not cycle, move sluggishly or not at all. If you experience dramatic shoot down during rapid fire, the LPR may be adjusted too low. Too high of pressure will cause the marker not to shoot as smoothly, potentially increase ball breakage and cause undue wear and fatigue on the bolt components.

It is important to keep the seat and piston face clean of all dirt and debris. Clean the seat and piston face and grease the retainer o-ring every six months or 60,000 shots.

The LPR Has five components and six seals
1. Piston large o-ring (012 BN70)
2. Piston small o-ring (006 UR90)
3. Piston spring
4. Body o-rings (3pcs, 012 BN70)
5. Body 6. Piston main seal (mounted in the seal retainer) 7. Seal retainer o-ring (010 BN70) 8. Seal retainer (functions as an adjustment screw also)

The only user-serviceable part in the LPR is the seal retainer. This seal needs to be changed in the unlikely case the LPR is creeping up.

CHANGING THE SEAL RETAINER
1. Screw out LPR cap in front of the marker using a 1/4” Allen wrench.
2. Screw out LPR seal assembly (brass) using a 3/16” Allen wrench.
4. Screw LPR cap in place securely.

If the user needs to replace the whole LPR assembly, follow these instructions (refer to figure 2):
1. Take frame off the marker.
2. Screw out LPR set screw using a 5/64” Allen wrench.
3. Screw out LPR cap using a 1/4” Allen wrench.
4. Pull out the LPR by screwing a rod with a 10/32 thread into the seal retainer (brass piece) inside the LPR and pulling it out.
5. Put everything back in reverse order. Be sure to grease the #012 o-rings, so as to prevent cutting them upon installation.
6. Tighten LPR cap securely.

The LPR pressure can be set quite accurately even without an LPR test tool. Screwing the adjustment screw (seal retainer) all the way in will set the LPR pressure to approximately 25 psi. Now turning out the adjusting screw 180 degrees will increase the pressure by approximately 5 psi. For example, turning the screw 5 complete turns out will set the pressure to approximately 75 psi. Use a 3/16” Allen wrench to make all adjustments to the LPR. Turning the adjustment screw clockwise, or in, will lower the LPR’s output pressure. Turning the adjustment screw counterclockwise, or out, will raise the LPR’s output pressure.

Figure 1

Figure 2

WARNING

When servicing your marker:
• Make sure your hopper is removed from the MATRIX.
• Make sure there are no paintballs in the breech of the MATRIX.
• Always remove the air supply and relieve all gas pressure in the MATRIX before disassembly.
• It is not recommended for the user to remove the LPR from the body and disassemble it.
HYPER2™ IN-LINE REGULATOR - ADJUSTMENTS AND MAINTENANCE

ANTI CHOP EYES/ BALL DETENTS - MAINTENANCE AND CHANGING

**WARNING**

- The Hyper2™ can hold a small residual charge of gas, typically 1 shot. Always discharge the marker in a safe direction to relieve this residual gas pressure.
- To ensure top performance from the Hyper2™, maintenance should be performed every six months or sooner, depending on the severity of playing conditions. Cold, wet weather will shorten the effective life of the grease. Heavy dust or fine sand can infiltrate the Hyper2™ and prevent the piston from moving smoothly and/or cut the o-rings.
- To avoid stripping the threads.

**ADJUSTMENTS**

The output pressure of the Hyper2™ In-Line is adjusted by turning the brass seat housing. The seat housing screw is located up inside the bottom of the reg. A 3/16" Allen wrench will be needed for this operation. By turning the housing counterclockwise, you will increase the output pressure of the regulator to the marker. By turning the housing clockwise, you will decrease the output pressure of the regulator.

After each adjustment of the output pressure of the Hyper2™ In-Line, you will need to cycle your marker a few times. This will allow your marker and air system to stabilize at their new operating pressure. The Hyper2™ will need a break-in period of about 2,500 shots to let its seat form to the piston and reach its optimum performance.

The Hyper2™ has eight components and six o-rings, as shown in Figure 2. All components are shown in their default assembled positions in Figure 3. To remove the eye cover, you will need a 1/16" Allen wrench.

**MAINTENANCE**

To ensure top performance from the Hyper2™, maintenance should be performed every six months or sooner, depending on the severity of playing conditions. Cold, wet weather will shorten the effective life of the grease. Heavy dust or fine sand can infiltrate the Hyper2™ and prevent the piston from moving smoothly and/or cut the o-rings.

1. Make sure the inlet and outlet ports and connecting fittings are free of all dirt and paint.
2. Examine all o-rings for nicks or cuts.
3. Carefully inspect the seat for excessive wear that might cause spiking and over-pressurizing.
4. Clean any accumulated dirt out of the air chambers and passages.
5. Keep the piston o-rings and spring pack generous amounts of fresh grease to allow smooth movement and prevent erratic velocity spikes and drop off.
6. Clean off all old grease that may be contaminated with dirt. Apply new grease to the piston and other necessary areas.
7. Be sure to reassemble the internal components and shim stack (as shown in Figure 2) in the proper order and direction.
8. See diagram for assistance.

**ANTI CHOP EYES**

The Anti-Chop Eye (ACE) system will prevent the MATRIX from chopping paint by not allowing the marker to fire until a ball is fully seated in front of the bolt. The eyes use a beam across the breech. On one side there is a transmitter, and on the opposite side a receiver. In order for the marker to fire with the eyes turned on, the signal between the two eyes must be broken after every shot, before the next ball drops in the breech, the eye transmitter and receiver must see each other. If the eyes are dirty and cannot see each other between shots, the LED on the board will start blinking green. This means that the eyes are dirty. This is an extremely reliable system as long as the eyes are kept clean. The most common reason for dirty eyes is broken paint. If the eyes become dirty the marker will default to a reduced rate of fire to prevent chopping. If this happens during gameplay, you can bypass this by turning the eyes off. Clean the eyes as soon as possible.

NOTE: IF THE BATTERY IS LOW, THE MARKER MAY ACT AS IF THE EYES ARE DIRTY OR NOT FIRE AT ALL. IN THIS CASE, REPLACE THE BATTERY.

**CLEANING THE ANTI CHOP EYES**

Quite often, just cleaning the breech out with a swab will clean the eyes well enough for them to read one another. For a thorough cleaning, the best method is to use air. Using an air hose or canned air (typically used for dusting keyboards) works best.

Blow the eyes clean from inside the breech. If you feel the eyes still need a more detailed cleaning, remove the eye cover to gain full access to the eyes.

To remove the eye cover, you will need a 1/16" Allen wrench.

NOTE: Regular eye cleaning is recommended even if no paint is broken. Clean the eyes every two months or 10,000 shots to eliminate any built up dirt. Excess grease from the front bolt o-ring can build up in front of the eyes. Remember to check for this after greasing the bolt and cycling the marker a few times.

**CHANGING BALL DETENTS**

The ball detents are also located under the eye cover. If you are experiencing double feeding or chopping, check the condition of the ball detents. They should come to a soft point. If they are flat or heavily rounded, they should be replaced. Ball detents should be replaced about every 40,000 shots.

NOTE: TAKE CARE WHEN REPLACING THE EYE COVER. OVER-TIGHTENING THE RETAINING SCREW COULD RESULT IN STRIPPING THE THREADS.
**W A R N I N G**

- Be sure the trigger is not adjusted to the point where it is too sensitive and may cause accidental discharge of the marker.
- Removing the trigger spring will cause premature wear on the microswitch, resulting in failure.
- Be sure you do not pinch the wires between the frame and body when reattaching the frame to the body.

### ADJUSTING YOUR TRIGGER

The trigger's forward travel and over travel are fully adjustable so that the user can fine-tune the trigger to his or her exact liking.

- Remove the grip frame from the body of the MATRIX.
- As you pull the frame away from the body, take care so as not to damage the wires running between the two parts. Be careful not to lose the trigger spring.
- The two adjustment screws are located at the top of the trigger in the grip frame (see figure 1).
- Use a 5/64" Allen wrench to make the desired adjustments.
- The screw toward the front of the trigger controls the forward travel. Screwing it in will shorten the trigger's length of pull.
- If this screw is adjusted too far, the switch will be held down at all times and the marker will not fire.
- The screw toward the rear of the trigger controls the over travel. By turning this screw you can adjust how far the trigger will travel after it reaches the firing point.
- If this screw is adjusted too far, the trigger will not be allowed to travel far enough to depress the switch and fire the marker.
- Be sure that all wires are laid properly in their appropriate cavities.

**NOTE:** Be sure that the frame and trigger assembly are kept clean. If there is excess dirt or paint build up around the trigger, the trigger will no longer move freely. In addition, paint and dirt can cause the microswitch to not function properly or fail.

### ON/OFF AIRPORT

The MATRIX comes equipped with an On/Off Airport attached to the bottom of the frame. To turn on the gas supply, twist the on/off knob clockwise, all the way in. To turn off the gas supply, twist the on/off knob counterclockwise, all the way out. As you turn the knob out, the residual gas between the Hyper2™ and the on/off airport is vented.

### REMOVING THE ON/OFF AIRPORT

1. Follow the instructions on page 7 to remove the battery from the frame.
2. Using a 3/32" allen key, turn the airport locking screw counterclockwise until the on/off airport is loosened.
3. Slide the on/off airport off of the frame.
4. To re-install the on/off airport, follow steps 1-3 in reverse order.
**Warranty**

DYE Precision, Inc.

Warrants for one year to the initial retail purchaser, from the initial date of purchase, that the paintball marker and regulator are free from defects in materials and workmanship, subject to the requirements, disclaimers and limitations of this warranty. Disposable parts, normal maintenance and standard wear and tear parts such as batteries, o-rings and seals are not warranted. The solenoid and electronic components on the markers are warranted for six months. This warranty does not cover scratches, nicks, improper disassembly, improper re-assembly, misuse, neglect or improper storage. Modification to the product will void the warranty. The only authorized lubricant for the marker is Stick Lube®. Use of any other lubricant will void your warranty. This warranty is limited to repair or replacement of defective parts with the customer to pay shipping costs. Warranty card and proof of purchase must be submitted to Dye Precision for warranty to be in effect. This warranty is not transferable. This warranty does not cover performance. Paintball markers are not covered by the warranty.

**Technical Support**

Our Technical Support Department is open Monday through Friday, from 9am to 5pm, PST, and can be reached at 858-536-5183. Additional support is available through our web site, www.protopaintball.com.

**Disclaimers**

The specifications & photographs in this material are for information and general guidance purposes only. Our products are continually updated and changes may be made to specification, design or appearance from time to time. These are subject to change without notice.


All rights will be strictly enforced.

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**TAIWAN**

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**Marking data**

**MARKER ISN'T WORKING THOUGH EYES ARE CLEAN AND ALL Wires ARE CONNECTED**

- Marker does work if eyes are covered

**AIR LEAK THROUGH THE BARREL (REFER TO PAGE 1)**

- There are three possible vents that cause this leak:
  - The barrel vent through the inside of the barrel
  - The input vent: change the #009 BN70 (3,4) o-ring on the back side of the bolt (see page 13)
  - The output vent: change the #013 BN70 (7) o-ring, the input pressure to the gun is then low

**AIR LEAK FROM THE LPR CAP (REFER TO PAGE 10)**

- If it comes from the small hole under the LPR, you need to replace the LPR. Take out the LPR, unscrew the back part of the bolt, and replace the #018 BN70 (11) o-ring.

**AIR LEAK FROM THE BACK HOLE OF THE BOLT**

- Make sure the bolt assembly is closed properly (see page 2, figure 2) and the output pressure is correct.

- If it comes from the small hole under the LPR, you need to replace the LPR. Take out the LPR, unscrew the back part of the bolt, and replace the #018 BN70 (11) o-ring.

- If that does not help, replace the #008 BN70 (2) o-ring on the back side of the bolt.

**HYPER2® TROUBLE SHOOTING (REFER TO PAGE 12)**

- Check to make sure the regulator is not leaking or diverting pressure from the marker.

- Check the LED light is red, the marker will not fire because there is no ball in the breech. Hold the trigger for 1 second and the marker should fire. If it does not fire after holding the trigger, or if there is a loud pop while firing the marker and air is rushing out from the front of the gun, it means:

- Piston o-ring #007 UR90 (6) may be damaged.
- Piston (10) or shim stack (9) may be binding due to excessive dirt or lack of lubricant.
- Dirty seat (5) or damaged piston face. Clean and inspect; if either is damaged, replace.

**OUTPUT PRESSURE CREEPS UP**

- Loaded new batteries. Make sure there are no broken solenoid wires.
- Make sure the trigger is adjusted properly and is actuating the microswitch (see page 14).
- Make sure dwell setting is at the stock value of 18 (see page 6).
- Make sure there are no broken solenoid wires.
- Make sure the trigger is adjusted properly and is actuating the microswitch (see page 14).
- Make sure the LED light is green and it will not fire:

- This is a safety bleed-off to help prevent over-pressurizing. De-gas the Hyper2™; be sure all air is vented out of the regulator. Supply air back to the regulator. The leak should stop. If the leak continues, replace the #013 BN70 (7) o-ring on the back of the bolt shaft.

- Piston o-rings #007 UR90 (6) and #018 BN70 (11) may be damaged. Inspect o-rings. Replace if any visible nicks or cuts are found.
- The #017 UR70 (5) inside the bolt cylinder or #020 BN70 (8) outside the bolt cylinder is leaking, if the #017 UR70 (5) inside the bolt cylinder is leaking, take out the bolt, unscrew the back part of the bolt and replace the #009 BN70 (3,4) o-ring on the back side of the bolt. If the #020 BN70 (8) outside the bolt cylinder is leaking, if the #020 BN70 (8) outside the bolt cylinder is leaking, check the LED light is green and it will not fire:

- If the cause is the #013 BN70 (7) o-ring, the input pressure to the gun is likely too high.
- The #017 UR70 (5) inside the bolt cylinder or #020 BN70 (8) outside the bolt cylinder is leaking.
- Piston o-ring #007 UR90 (6) may be damaged.
- Dirty seat (5) or damaged piston face. Clean and inspect; if either is damaged, replace.

**AIR LEAK FROM THE BACK HOLE OF THE BOLT**

- Make sure the bolt assembly is closed properly (see page 2, figure 2) and the output pressure is correct.

- If it comes from the small hole under the LPR, you need to replace the LPR. Take out the LPR, unscrew the back part of the bolt, and replace the #018 BN70 (11) o-ring.

- If that does not help, change the seal retainer (7) inside the LPR body. Refer to page 10 of the manual.

- If it comes from the small hole under the LPR, you need to replace the LPR. Take out the LPR, unscrew the back part of the bolt, and replace the #018 BN70 (11) o-ring.

- If you are having excessive trigger bounce when firing the gun, make sure you have an uncut spring behind the trigger. Adjust the trigger so that the firing point of the trigger pull is visible nicks or cuts are found.

- Make sure shim stack (9) is stacked properly (see page 12, figure 2).

- Make sure the trigger is adjusted properly and is actuating the microswitch (see page 14).
- Make sure dwell setting is at the stock value of 18 (see page 6).
- Make sure there are no broken solenoid wires.
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