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DYE Precision, Inc. U.S. Patent # 5,613,483. OTHER U.S. AND INT'L PATENTS PENDING.
Covered by one or more of the following U.S. Patents, 5,613,483; 5,881,707;
5,967,133; 6,035,843 and 6,474,326.



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NT OWNER'S MANUAL

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INCLUDED WITH YOUR NT

- NT marker
- Marker case
- 1/4oz slick lube
- Parts kit
- DYE Multi-Tool set
- Shot chamber spacer kit
- Bolt flow insert
- Barrel sock
- Owners manual
- Warranty card

*DYE Precision, Inc. U.S. AND INT'L PATENTS PENDING.
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WARNING

IMPORTANT SAFETY INSTRUCTIONS AND GUIDELINES

- The NT marker is not a toy. Misuse may cause serious injury or death.
- Please read, understand and follow the directions in the NT 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.
- Recommend 18 years or older to purchase. Person under 18 must have adult supervision.
- Always treat the NT marker as if it were loaded and able to fire.
- Only use compressed air or nitrogen gas in the NT 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 NT.
- Always chronograph the NT marker before playing paintball.
- Never shoot the NT marker at velocities in excess of 300 feet per second, or at velocities greater than local or national laws allow.



WARNING

IMPORTANT SAFETY INSTRUCTIONS AND GUIDELINES

- Never look into the barrel or breech area of the NT when the marker is switched on and able to fire.
- Always fit a barrel blocking device to your NT 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 NT 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 NT without the Boost™ 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.

QUICK REFERENCE

USING YOUR MARKER

AIR SUPPLY

The NT should be operated using air/nitrogen gas only. This air needs to be supplied to the Hyper3™ in-line regulator at a regulated pressure of no more than 850 psi. The Hyper3™ in-line regulator comes factory preset at 130psi.

GASSING UP YOUR NT

Screw in your air system to the ON/OFF airport and rotate the side lever counter clockwise until the internal stop is reached.

TURNING ON YOUR NT

The NT's power is controlled by two buttons. The top button turns the marker on and off, while the bottom button turns the eyes 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.

- Blue:** - Boot sequence
- Red:** - Breech is clear, no ball (eyes on)
- Green:** - Ball in breech, ready to fire (eyes on)
- Blinking Red:** - Eyes are off
- Blinking Green:** - Eye failure (see page 36)
- Blinking Blue:** - Indicates a low battery, battery should be changed as soon as possible

HOPPER

To get the best performance out of your NT, it is recommended that you use a motorized loader, preferably the Rotor™ loader.

QUICK REFERENCE

USING YOUR MARKER

ADJUSTING VELOCITY

The velocity is adjusted through the Hyper3™ in-line regulator. The Hyper3™ in-line is preset from the factory at approximately 130 psi. This pressure setting should have the marker shooting at about 285fps. Your paint-to-barrel fit will also have a noticeable effect on your velocity. Make sure that the paintball fits into the barrel and does not drop through.

NOTE: For the Hyper3™, 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.

CHANGING THE BATTERY

The battery is housed on the right side of the grip frame. To access the battery, unhook the tool-less grips from the grip frame and open to expose the circuit board and battery. For detailed instructions on how to open the tool-less grips please see page 23. Carefully lift the battery out of the frame. When inserting a new battery, notice the + and - marks engraved on the gripframe. The positive lead of the 9V battery goes to the right. The battery should be inserted leads first and then the bottom of the battery pressed firmly into the frame.



- 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 NT's velocity, causing it to become inconsistent and/or low.

ULTRALITE AIRPORT - FEEDNECK



ON/OFF ULTRALITE AIRPORT

The NT comes equipped with an ON/OFF Ultralite Airport attached to the bottom of the frame. To turn on the gas supply, rotate the side lever counter clockwise until the internal stop is reached. To turn off the gas supply, rotate the side lever clockwise until the other stop is reached. As you rotate the side lever past the mid point, the residual gas between the Hyper3™ and the ON/OFF airport will vent. See page 33 for service information. To remove the UL Airport from the UL frame see page 26.



CAM LEVER FEED NECK

The Cam Lever Feedneck is adjustable to fit any standard loader. To adjust the cam locking system, lift the cam lever away from the feed collar, and rotate the lever clockwise to tighten or counterclockwise to loosen the grip on the loader. Once the cam lever is facing in the forward direction, press the cam lever down against the feed collar to secure the loader in the feedneck. To loosen the locking system and remove the loader, lift the cam lever away from the feed collar. Take care not to over-tighten the cam locking system. The lever should not be overly difficult to lower into the locked position.



NOTE: Even with the air supply removed the marker may have gas inside. Be sure to vent this gas. Make sure there are no paintballs in the breech and dry fire the marker in a safe direction.

NT BOARD

SETTINGS AND FUNCTIONS

TURNING THE NT ON AND OFF

To turn on the NT, press and hold the power button for 3 seconds (see figure 1) until the LED's turn blue. The blue light indicates board boot up. After the boot up sequence, the LED's will turn either RED (no ball) or GREEN (ball ready to fire). To turn the NT off, press and hold the power button until the LED's turn off.

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

FIRING THE NT

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

LED LIGHT INDICATOR

The NT uses two super bright LED's mounted on the circuit board inside the grip frame. These two lights are used to provide information to the user about the NT. They will always show the same information and it does not matter which LED you look at. One is mounted behind the NT logo on the left side of the grip panels. The other one can be seen by looking at the top left side of the grip frame while holding the NT in the position you would while playing a game.



FIGURE 1



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

NT BOARD

SETTINGS AND FUNCTIONS

BLUE



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

- Blue:** Boot sequence
- Red:** Breech is clear, no ball detected inside the NT (eye is on)
- Green:** Ball in breech, ready to fire (eye on)
- Blinking Red:** Eye is turned off
- Blinking Green:** Eye failure, eye is blocked or dirty (see NT Eye, page 36)
- Blinking Blue:** Indicates a low battery, battery should be changed as soon as possible

RED



To turn the eyes off, press and hold the lower button until the light begins flashing red.

To turn the eyes back on, hold the lower button until the LED turns either red or green.

GREEN



When servicing your marker:

- Make sure a barrel sock is fitted to the NT.
- Make sure your hopper is removed from the NT.
- Make sure there are no paintballs in the breech of the NT.
- Always remove the first stage regulator and relieve all residual gas pressure from the NT before disassembly.
- The NT can hold a small residual charge of gas, typically 2 shots, with the first stage regulator removed. Always discharge the marker in a safe direction to relieve this residual gas pressure.

NT BOARD

SETTINGS AND FUNCTIONS

FIGURE 1



BOARD SETTINGS AND CONFIGURATION MODE

There are four settings you can alter on the NT board with the DIP switches inside the grip frame (see figure 1):

- Trigger Sensitivity** - This setting adjusts the delay between two trigger pulls.
- Dwell** - This is the time the solenoid is activated for.
- ROF - Rate Of Fire** - When the eye is deactivated.
- Firing Mode** - This is the firing mode the NT uses.

There are two DIP switches mounted on the board of the NT (See figure 1). The first one is used for the factory reset and the second one is used to access the configuration mode, where changes to the four settings are made.

DIP switch 1 (factory settings reset) - When DIP switch 1 is down, settings will be reset to factory values outlined on pages 10 and 11 once the NT is turned on.

NOTE: User defined settings can't be saved if DIP switch 1 is in the down position even if the values are changed in configuration mode.



RESET SETTINGS



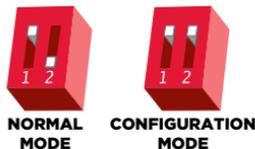
CUSTOMIZED SETTINGS

- The NT 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.

NT BOARD

SETTINGS AND FUNCTIONS

Configuration Mode -The following settings can only be modified in configuration mode and if dip switch one is in the ON (up) position. To activate configuration mode, turn your marker off and set DIP switch 2 to the ON position. Next, turn your marker on. The LEDs cycle 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 4 settings that can be changed.

Green - Trigger Sensitivity

Values 1 - 20 (factory default 3)

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 NT can register more trigger pulls than what was actually pulled. This can cause the NT to shoot full auto, even in semi-automatic mode. To fix this, adjust trigger sensitivity setting higher.



Red - Dwell

Values 0 - 20 (factory default 6)

Dwell is the amount of time that the solenoid will be activated during each shot.

- It is not recommended to adjust the Dwell.
- If you choose to adjust the Dwell and use too low of setting the NT will not cycle.
- If you choose to adjust the Dwell and use too high of setting the NT will begin to double fire.



NT BOARD

SETTINGS AND FUNCTIONS

Blue - Rate Of Fire (ROF)

Values 1 - 45 (factory default 12.5 bps)

The ROF setting is used to set the maximum rate of fire of the NT. The values do not correspond directly to a certain Balls Per Second.



The factory setting is **20 (12.5 bps)**.

1 9.80 BPS	13 11.11 BPS	25 13.33 BPS	37 15.87 BPS
2 9.90 BPS	14 11.62 BPS	26 13.51 BPS	38 16.12 BPS
3 10.0 BPS	15 11.76 BPS	27 13.69 BPS	39 16.39 BPS
4 10.10 BPS	16 11.90 BPS	28 13.88 BPS	40 16.66 BPS
5 10.20 BPS	17 12.04 BPS	29 14.08 BPS	41 20.0 BPS
6 10.30 BPS	18 12.19 BPS	30 14.28 BPS	42 22.22 BPS
7 10.41 BPS	19 12.34 BPS	31 14.49 BPS	43 25.0 BPS
8 10.52 BPS	20 12.50 BPS	32 14.70 BPS	44 28.57 BPS
9 10.63 BPS	21 12.65 BPS	33 14.92 BPS	45 33.33 BPS
10 10.75 BPS	22 12.82 BPS	34 15.15 BPS	
11 10.86 BPS	23 12.98 BPS	35 15.38 BPS	
12 10.98 BPS	24 13.15 BPS	36 15.62 BPS	

Yellow - Firing Mode

Values 1 - 4 (default 1)

This setting changes the firing mode of the NT. Default is semiautomatic. In the semiautomatic mode, one trigger pull shoots out one paintball. The PSP mode and the Millennium mode follow the rules of the paintball tournament series.

- Value 1** - Semiautomatic Mode
- Value 2** - Millennium Mode
- Value 3** - PSP Mode
- Value 4** - Full Auto



NT BOARD BATTERY

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.

TO CHANGE A VALUE OF A SETTING

1. While in the configuration mode and Dip switch number 1 is on, choose the color you wish to change by pulling the trigger.
2. When the LED indicates the color you wish to change, pull and hold the trigger until the LED starts to flash.
3. The LED will flash as many times as the previous setting was and it will then turn off. Now pull the trigger as many times as you wish the new setting to be.
4. When done, the LED will cycle through all the colors again to indicate setting was saved and turn back to green. You can now change another setting or quit the configuration mode.
5. To exit configuration mode, set DIP 2 to the OFF position.



BATTERY

Standard 9V batteries 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 not to use your marker for a long period of time (a month), it is recommended that you remove the battery from the marker. An intermittent blinking blue light indicates a low battery. A low battery can cause the marker to malfunction.



- 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 NT's velocity, causing it to become inconsistent and/or low.

BOOST BOLT ASSEMBLY AND MAINTENANCE



BOOST™ BOLT COMPONENTS

The NT bolt has five basic components:

1. Cylinder
2. Soft-tipped Bolt assembly
3. Plunger
4. Spool
5. Backcap/ Bleed assembly

BOOST™ BOLT OPERATION

To achieve top performance from your NT, it is important to have basic understanding of the patented NT bolt operation.

The design consists of three housing components threaded together and three floating components, two of which move when the bolt cycles.

Air is supplied to the Boost Bolt Kit at two points. The primary air supply is introduced to the bolt kit at the front of the Cylinder between the two **020 O-rings**. The primary air supply is responsible for three main operations: holding the bolt in the rear position, fill the shot chamber, and fill the spool dump chamber.

The secondary air supply is controlled by the solenoid. When the trigger is activated and the solenoid is energized, air is supplied between the two **020 O-rings** on the Plunger. The secondary air supply is responsible for driving the spool forward when the NT is fired. When the bolt is in the rear position, the primary air supply travels from the front of the bolt kit to the rear of the bolt kit filling the shot chamber. At the same time small transfer holes in the Plunger behind the **014 O-ring** allow the primary air supply to fill the spool dump chamber.



FORWARD POSITION



BACK POSITION

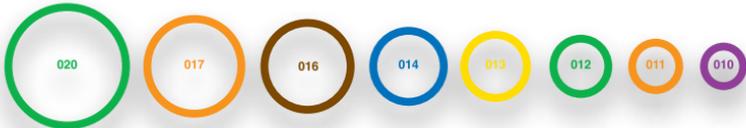
BOOST BOLT

ASSEMBLY AND MAINTENANCE

With the bolt in the rear “at rest” position, the primary air supply produces an imbalanced rearward dominant force, holding the bolt in the rear position. When the NT is fired the solenoid is energized and allows the secondary air supply to enter the Plunger between the two **020 O-rings**. The secondary air supply applies force on the back of the spool, driving it forward. As the spool moves forward the primary air supply is cut off to the spool, and the air in the spool dump chamber is transferred between the **012 O-ring** and **014 O-ring** on the outside of the plunger. This influx of air is enough to create a forward dominate force on the bolt, and begins to drive the bolt forward.

Because the primary air supply to the spool dump chamber is closed before the spool dump chamber is transferred only a set volume of air is used each cycle which ensures no air is wasted. When the bolt begins to move forward the **016 bolt sail O-ring** seals inside the cylinder, cutting off the primary air supply to the shot chamber. The bolt continues moving forward and drops off the **014 O-ring** on the Plunger, which creates a boost in forward force and greatly increases the speed on the bolt. As the bolt reaches it’s most forward position it drops off the **012 O-ring** on the Plunger, and releases the shot chamber down the bolt and fires the paintball. The self-closing valve is activated before all of the gas in the shot chamber is used, thus increasing efficiency.

As the shot chamber is released behind the ball the forward force drops and the rearward force created by the primary air supply quickly becomes the dominant force, and the bolt begins to return to the rear “at rest” position. At this time, with the spool dump chamber empty and the solenoid no longer delivering air to the back of the spool, the spool is returned to its rear position by the spool return spring. With the bolt and spool in the rear position the Boost Bolt Kit is ready to be cycled again.



BOOST BOLT

ASSEMBLY AND MAINTENANCE

BOLT MAINTENANCE

Regular Boost bolt maintenance is vital to the performance of the NT. Dirt or debris can reduce O-ring life and ultimately cause the NT to malfunction or leak. The NT will continue to function without lube for a short period of time, however the NT’s efficiency and performance may be affected, and o-ring life will be shortened.

Bolt maintenance should always be performed with the gun de-gassed.

STANDARD MAINTENANCE

Remove the bolt with a 1/4” Allen wrench. Only one and a half counterclockwise rotations are required so that the bolt kit can be pulled out. Check and remove any foreign debris, such as dirt. Check that there is a thin layer of lube coating all visible O-rings. Apply a small amount of DYE Slick Lube™ as necessary, excessive lube will not help the NT’s performance. It is also recommended to inspect the detents, eye pipe, and eye assembly. Make sure the eye pipe is clean of any dirt or broken paint that may cause the eyes to function improperly. Inspect the ball detents; look for any excessive wear that may prevent the detents from working as intended. See pages 18-19 for detailed information.



When servicing your marker:

- Make sure a barrel sock is fitted to the NT.
- Make sure your hopper is removed from the NT.
- Make sure there are no paintballs in the breach of the NT.
- Always remove the first stage regulator and relieve all residual gas pressure from the NT before disassembly.
- The NT can hold a small residual charge of gas, typically 2 shots, with the first stage regulator removed. Always discharge the marker in a safe direction to relieve this residual gas pressure.

BOOST BOLT

ASSEMBLY AND MAINTENANCE

BOLT MAINTENANCE TIMELINE

In addition to performing regular maintenance, it is a good idea to follow the following bolt maintenance timeline:

Shots	Corresponding cases of paint	Action
10000	5	Only standard maintenance required
20000	10	Only standard maintenance required
30000	15	Only standard maintenance required
40000	20	Only standard maintenance required
50000	25	Replace 111 Bolt Bumper O-Ring
60000	30	Only standard maintenance required
70000	35	Replace 016 Sail O-Ring, 012 and 014 Plunger O-rings
80000	40	Replace 017 Cylinder O-ring
90000	45	Replace 010 Spool O-rings
100000	50	Replace 111 Bolt Bumper O-Ring

There are seven static O-rings in the Boost Bolt Kit (5x 020, 2x 011) that should be replaced if the bolt kit is removed and installed frequently. During standard maintenance check these O-rings for damage, but for regular use these O-rings rarely need to be replaced.

After 150,000 shots (or 75 cases of paint) it is a good idea to remove all of the O-rings in the Boost Bolt Kit, and rinse bolt parts in warm water. Once the parts are dry, assemble the Boost Bolt Kit using all new O-rings. Apply a small amount of **DYE Slick Lube™** to all parts. At this time, it is important to check the spool bumpers as well as the Bolt Flow Insert for excessive wear.

BOOST BOLT

ASSEMBLY AND MAINTENANCE

COMPLETE BOLT DISASSEMBLY

To separate all Boost bolt parts begin by removing the Boost Bolt Kit with a 1/4" Allen wrench. Only one and a half counterclockwise rotations are required so that the bolt kit can be pulled out.

- Remove the **014 Bolt tip O-ring** with a pick supplied on the DYE Multi-Tool
- Unscrew the Cylinder from the Plunger by rotating it counter-clockwise and set aside
- Pull the bolt off the plunger
- Remove the Bolt Flow Insert, use a 1/4" Allen wrench or dowel to push the Bolt Flow Insert through the Bolt Soft Tip towards the back of the bolt
- Once the Bolt Flow Insert is removed, pull the soft bolt tip out the front of the bolt
- Separate the Plunger and Spacer Rod by using a 7/16" wrench One is included in the DYE Multi-Tool. Secure the Spacer Rod with the wrench, and unscrew the Plunger by hand, rotating the Plunger counter-clockwise. If the threads are locked together, a 5/64" Allen wrench can be inserted into the Solenoid air transfer holes on the Plunger, to get a better grip
- The Spool can be removed by pulling it from the Plunger with a pair of needle-nose pliers, or by inserting a long Allen wrench or dowel into the front of the Plunger. Simply shake or gently knock the Plunger against the table to remove the Spool Spring
- Remove the Backcap from the Spacer rod, use a 7/16" wrench to hold the Spacer Rod and insert a 1/4" Allen wrench into the Backcap. Rotate the Spacer Rod counter-clockwise until released from the Backcap
- The Bleed Button can be removed from the Spacer Rod with a pair of needle-nose pliers
- To separate the Backcap and Backcap Cover use a 3/32" Allen wrench, and unscrew the three retaining screws. This level of disassembly is not needed for any maintenance

BOOST BOLT

ASSEMBLY AND MAINTENANCE

ASSEMBLY

- Insert the Bleed Button into the Spacer Rod and screw the Spacer Rod into the Backcap using a 1/4" Allen wrench and 7/16" wrench to tighten snugly. Take care not to over-tighten the two pieces together. Excessive force may twist, warp, and ultimately break the Spacer Rod.
- Insert the Spool Spring and Spool into the Plunger. Make sure that the Spool is facing the correct direction (see page 19).
- Screw the Spacer Rod into the Plunger. It is only necessary to hand tighten the Spacer Rod and Plunger.
- Insert the Bolt Soft Tip into the front of the Bolt.
- Insert the Bolt Flow Insert from the back of the bolt, with the larger diameter of the insert facing rearward.
- Push the bolt onto the Plunger and screw on the Cylinder only hand tight. Replace the **014 Bolt tip O-ring**, and screw the Boost Bolt Kit back into the body using a 1/4" Allen wrench.

BACKCAP/ BLEED ASSEMBLY

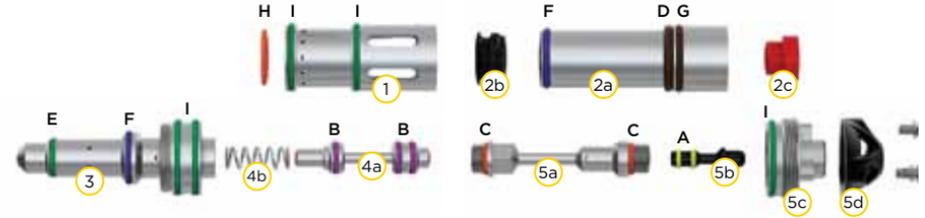
The Bleed assembly consists of the Spacer Rod, the Backcap, Backcap Cover, and Bleed Button. The purpose of the bleed assembly is to offer a way to de-gas your NT without having to fire a shot. It also acts as safety mechanism so that a tool cannot be used to unscrew the bolt kit while there is gas in the NT.

To completely de-gas the NT, simply deactivate the ON/OFF UL Airport located on the bottom of the gripframe and then press the Bleed Button until all gas is released.

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.

BOOST BOLT

ASSEMBLY AND MAINTENANCE



Component:	
1 Cylinder	4b Spool Spring
2a Bolt	5a Spacer Rod
2b Soft Bolt Tip	5b Bleed Button
2c Bolt Flow Insert	5c Backcap
3 Plunger	5d Backcap Cover
4a Spool	

O-rings:			
A.	005	F.	014
B.	010	G.	016
C.	011	H.	017
D.	111	I.	020
E.	012		

PERFORMANCE & EFFICIENCY TUNING



From the factory the DYE NT is tuned to give you a balance of efficiency, consistency, and shooting comfort. The NT comes with a shot chamber spacer kit and two bolt flow inserts to help you tune your NT to your specific requirements.

The NT with a stock shot chamber of 2.23 cubic inches has a standard operating pressure of about 130psi @ 285fps. A factory tuned NT will yield approximately 1500 shots off a 68ci/4500psi compressed air tank. Your air efficiency can easily be increased if your playing needs require it.

To increase air efficiency :

- 1 - Remove the bolt kit
- 2 - Start with mounting the spacer body onto the spacer rod
- 3 - Add as many spacers as you wish to achieve your desired performance level.
- 4 - If you choose to use more than the spacer body and one volume ring it is recommended to use the Blue bolt flow insert. (See pages 17-19 for details)
- 5 - Make sure the bolt kit is assembled properly before installing it into the body (See pages 17-19 for details)

As you reduce the air volume in the shot chamber the Hyper3 regulator pressure will need to be raised to maintain velocity. By doing so there will be a change in shooting comfort, the NT's recoil will increase, and it's sound signature will become modified.

As you tune your gun for increased air efficiency you may notice a small decrease in your velocity consistency. The less air that is used, the more ball to barrel fit, and paintball quality will affect your velocity. At this point the difference in barrel friction from ball to ball will result in a more noticeable fluctuation in velocity. Generally a tighter fitting ball to barrel match will give you a more consistent amount of friction and velocity.

Changing the flow insert will aid in increased efficiency and help maintain shooting comfort.

Note: If you intend on using the NT at velocities lower than 250fps it is recommended to use all four shot chamber spacer rings, and the blue Flow Insert in order to maintain sufficient forces in the bolt for proper function.

HYPER3™ IN-LINE REGULATOR ADJUSTMENTS AND MAINTENANCE



USAGE

Carefully connect the 1/4" macroline from the airport fitting into the Hyper3™ elbow fitting. The macroline should be cut straight with a sharp knife to prevent leaks.

ADJUSTMENTS

The Hyper3™ regulator is adjusted by using a 3/16" Allen wrench. With the seat retainer screwed completely clockwise, the Hyper3™ will be set to 20 psi. Each 180 degree turn counterclockwise will increase the pressure between 15-20 psi. The stock setting is 130 psi (about 3 complete 360 degree turns out), which should result in the NT shooting velocities of about 285fps.

MAINTENANCE

The Hyper3™ regulator requires little maintenance from regular use. The seat should be replaced every 6 months or 60,000 shots. Shooting the NT a few times between each small adjustment to the regulator, will lengthen the life of the seat. Also, O-rings and the seat may wear rapidly if excessive dirt or sand is allowed into the regulator, so the Hyper3™ should be kept clean.

HYPER3™ IN-LINE REGULATOR

ADJUSTMENTS AND MAINTENANCE

NOTE: For the Hyper3™, 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.

HYPER3™ REGULATOR DIS-ASSEMBLY INSTRUCTIONS

The rubber sleeve on the outside of the Hyper3™ does not need to be removed to disassemble the seat assembly, but may make the process easier. Begin by inserting a $\frac{3}{16}$ " Allen wrench into the topcap and a $\frac{5}{16}$ " Allen wrench into the bottom cap. Unscrew the bottom cap from the Hyper3™. If the topcap begins to unscrew, try tightening the regulator back together and unscrewing again. Sometimes it is necessary to use a vice to hold the Hyper3™ body to remove the bottom cap. The brass seat retainer and swivel can now be removed from the regulator. If the swivel is stuck, the elbow fitting may need to be removed.

To change the seat, remove the seat retainer from the regulator body. Use a dental pick or sharp object to remove the old seat from the retainer and replace it with a new one. Use a flat object to press it into place.

Any further disassembly should be performed by a trained tech. If you have any questions please call the DYE tech line.

REASSEMBLY

Grease the **010 O-ring** on the seat retainer and the two **013 O-rings** on the Hyper3™ body. Insert the seat retainer being careful to not screw it in too tightly. Slide the swivel gently back onto the body and screw on the bottom cap. If the elbow fitting was removed, use thread sealant and snugly screw it back into the swivel making sure that the swivel can rotate freely.



- The Hyper3™ 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.
- Improper stacking of shims will cause failure of the regulator and possible damage to the NT.
- Excessive dirt and debris can affect the Hyper3™'s performance and increase the need for service.

STICKY GRIP

GRIP REMOVAL



1. Pull the upper back corner of the grips away from the gripframe with your thumb. Allowing the rear tabs to clear the frame.



2. While pulling with your thumb, using your index finger, to push the grips toward you.



3. The top portion of the grips should be free from the gripframe.



4. Grab a hold of the inside of the grips with your fingers, using your palm on the outside surface of the grip.

STICKY GRIP GRIP REMOVAL



5. Push the grips toward the barrel tip.



6. In doing so, you will have released the last three locking tabs that are under the molded finger grooves.



7. Repeat instructions for reverse side and slide the grips off the frame.

INSTALL NT STICKY TOOL-LESS GRIPS

- Insert the bottom rear locking hook into the retaining hole at the bottom rear of the UL frame.
- Lock the hook into place by sliding the grip panel forward.
- Press the three locking tabs under the molded finger grooves into the corresponding slots on the frame's front strap.
- Pull the top of the grip panel back in order to allow the front top locking hook to drop into the frame.
- Push the top of the grip panel forward to lock the top front hook into place.
- Press down on the upper rear corner to seat the upper retaining post into position.

ULTRALITE FRAME

REMOVING ULTRALITE FRAME FROM THE NT

If there is ever a need to remove the Ultralite frame from the NT make sure to follow these steps.

- Unhook and open the right side of the tool-less grip to expose the circuit board.
- Disconnect the solenoid wire and the eye wire from their sockets by GENTLY pulling them out.
- Using a 3/32" Allen wrench, turn the front frame screw counterclockwise 2 full turns.
- Finally, using a 3/32" Allen wrench turn the rear frame screw completely out, by turning it counterclockwise. The frame can now be removed from the NT.

INSTALLING THE ULTRALITE FRAME ON THE NT

To reinstall the Ultralite grip frame on the NT make sure to follow these steps.

- Make sure the solenoid and eye wires are secured to the under side of the body by the two orange retaining clips. Route the eye wires under both clips. Route the solenoid wire over the top of the solenoid and under only the rear-retaining clip. This will help ensure the wires do not get pinched between the body and frame, and feed smoothly into the frame.
- Feed the eye and solenoid wires through the grip frame, and slide the gripframe into place. It may be necessary to slide the front frame screw into the frame if it has fallen out during frame removal.
- Push the back of the frame onto the body taking care not to pinch either the eye or solenoid wires between the gripframe and the body.
- Use a 3/32" Allen wrench to screw in the rear frame screw by turning it clockwise.
- Use a 3/32" Allen wrench tighten the front frame screw by turning it clockwise.



NOTE: For exploded view of UL Frame and parts list see page 40

ULTRALITE FRAME

INTEGRATED LOCKING DOVETAIL FEATURE

The Ultralite frame comes equipped with an integrated locking dovetail. There is a horizontal locking screw located on the bottom right side of the Ultralite frame. It can be accessed with a 1/8" Allen wrench through a hole in the grip panel. To unlock the UL Airport attached to the dovetail of the frame, turn the locking screw counterclockwise one full turn and slide the part off the rail. To attach a part to the rail, slide the part on and turn the locking screw clockwise until the part is firmly locked in place. If you choose to use a drop forward or other kind of airport mounting system there are standard 10-32 mounting screw holes located on the bottom of the UL frame. There is no reason to disassemble the dovetail locking system if you choose not to use it.

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.

NOTE: Be sure you do not pinch the wires between the frame and the body when reattaching the frame and body.

NOTE: The frame screws should not be overly difficult to screw into the body. If strong resistance is felt, stop, back the screw all the way out, and try again to avoid stripping either the threads or the head of the screw.

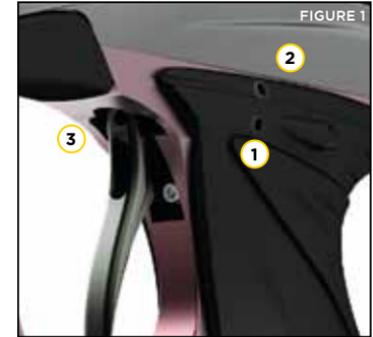
TRIGGER ADJUSTMENT

ADJUSTING YOUR TRIGGER

The trigger's forward and over travel, spring tension, and reach are fully adjustable so that you can fine-tune the trigger to your exact liking. You do not need to remove the frame or grip from the gun in order to adjust the trigger pull.

There are two adjustment screws located on the left side of the Ultralite frame and one adjustment screw behind the trigger. The two screws on the side of the frame adjust the travel of the trigger.

The one located behind the trigger is used to change the tension of the trigger spring.



TO ADJUST TRIGGER TRAVEL (SEE FIGURE 1)

Use a 5/64" Allen wrench to make the desired adjustments.

- The lower screw (1) controls the forward travel. Screwing it in will shorten the trigger's length of pull.

NOTE: If this screw is adjusted too far, the switch will be held down at all times and the marker will not fire.

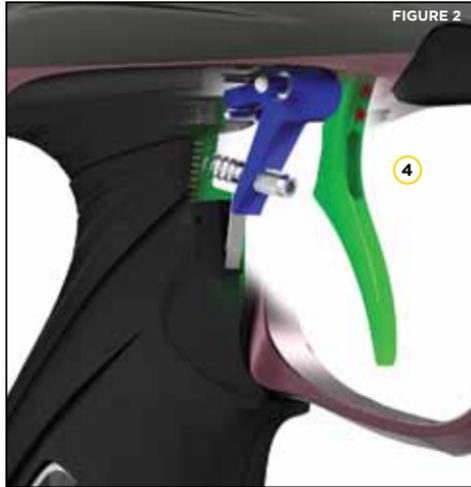
- The upper screw (2) controls the over travel. By turning this screw you can adjust how far the trigger will travel after it reaches the firing point.

NOTE: 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.

TO ADJUST SPRING TENSION (SEE FIGURE 1)

- Use a 5/64" Allen wrench to make the desired adjustment. The adjustment is made by pushing the Allen wrench through a hole in the trigger (3).
- To make the trigger pull stiffer, turn the Allen wrench clockwise, or in.
- To make the trigger pull lighter, turn the Allen wrench counterclockwise, or out.

TRIGGER ADJUSTMENT



ULTRALITE REACH TRIGGER

The NT has a new external reach adjustment for the Ultralite trigger.

This adjustment changes the angle that the trigger sits without the need to take off the gripframe or Sticky Grip.

TO ADJUST TRIGGER REACH (SEE FIGURES 1 AND 2)

To adjust, simply loosen the two 6-32 screws (4) using a 1/16" Allen wrench. You do not have to remove the screws from the trigger. Now the front of the trigger (shown in green) should rotate freely while the back of the trigger (shown in blue) remains relatively stationary. When the desired reach angle has been achieved, tighten the two 6-32 screws snugly. Be careful not to over tighten and strip the Allen wrench or screws.

NOTE: The spring tension adjustment (outlined on page 27) should be set while the trigger's reach is situated in either the rear position or the loose position so the spring tension adjust screw can be externally accessed.



- 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 may cause premature wear on the microswitch, resulting in failure.

CONTACT PADS & BUTTON COVER



CONTACT PAD, CONTACT GRIP AND BUTTON COVER

The front rubber Contact Pad and Contact Grip are mounted to the Ultralite frame. It is not necessary to remove the two contact pads when removing the frame from the body. The only reason to remove the contact points is for general cleaning of built up dirt or paint.

REMOVAL OF CONTACT PADS

- Remove frame from body. Follow frame removal instructions on page 25
- Use a 3/32 Allen wrench to remove the front contact pad
- Use a 1/16 Allen wrench to remove the contact grip

CONTACT PADS & BUTTON COVER

BUTTON COVER REMOVAL

It may become necessary to remove the button cover if the buttons get stuck due to built up paint or dirt.

- Unhook and open both sides of the tool-less sticky grips.
- Remove Hyper3™ regulator.
- Remove battery; use a small Phillips screwdriver. One can be found in the DYE Multi-Tool that is included with the NT.
- Unscrew the mounting screw found on the inside of the frame; use a Phillips screwdriver.
- To access the screw insert the screwdriver through the middle slot on the frame's front strap.
- Once the screw is removed it may be necessary to push the button cover out from the back. Apply force to the lower button. This will push the cover out from the center and help prevent binding.
- Take care not to lose the buttons as you remove the cover.
- Once removed, clean the button cover, buttons, and frame.
- When assembling the button retaining cover make sure the rounded ends of the buttons face outward.

ANTI CHOP EYES/BALL DETENTS MAINTENANCE AND CHANGING

ANTI CHOP EYES

The Anti Chop Eye (ACE) system will prevent the NT 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 light 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 there is a malfunction, the LED's on the board will start blinking green. This means that the receiver and the emitter do not see each other. If this is the case, there are normally two reasons. Either there is dirt, paint or grease blocking the beam, or the battery is so low there is not enough power to create a strong enough light beam.

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.

SELF CLEANING EYE FEATURE

The NT is equipped with a self cleaning eye feature. There is a clear poly-carbonate sleeve mounted inside the breech of the gun covering the eyes. When the bolt tip O-ring passes through the eye pipe, it sweeps off any dirt, grease or paint that could be blocking the eyes. Normally, it is enough to just fire the NT to clean anything blocking the eyes. If this does not clear the blockage, use a swab to clean the inside of the breech.

For a more thorough cleaning, pull the eye pipe with the ball detents out the front of the breech. With the eye pipe out, use a swab to clean the breech. This should be enough to clean the eye system. If the system needs further cleaning, pull out the eye carrier and eye wires through the feed neck. To prevent damaging the eye wires, it is best to remove the frame and disconnect the eye wires from the board. Use a soft rag and q-tips to clean off any built up paint or grease.

When re-assembling the eye pipe assembly, work backwards from disassembly. The eye pipe is keyed into the breech and can only go in one way.

ANTI CHOP EYES/BALL DETENTS

MAINTENANCE AND CHANGING

CHANGING BALL DETENTS

The ball detent system is clipped to the outside of the eye pipe. The ball detent system needs little or no maintenance. The detents should easily flex out of the way with little force, such as a paintball moving past. If you are experiencing double feeding or chopping, check the condition of your ball detents with your finger to make sure they are not broken and that they move in and out of the breech freely. If excessive broken paint or dirt has jammed your ball detents, remove the eye pipe/detent system from the front of the NT and unclip the detents for a thorough cleaning.

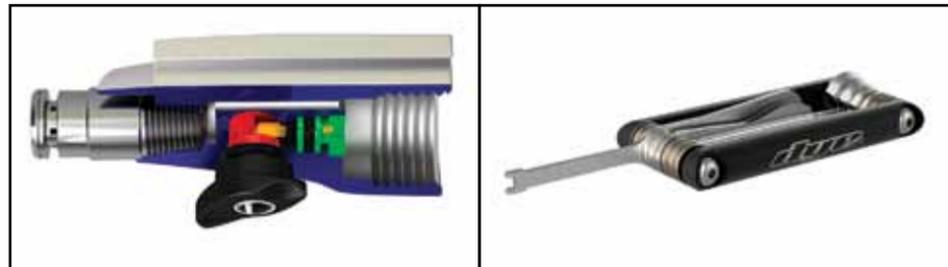
Reinstall the detents and eye pipe after you have sufficiently cleaned the detents and breech.

Be careful not to over-flex the detents when handling them. Excessive flexing could break or damage the detents.



NOTE: TAKE CARE WHEN REPLACING THE EYE PIPE. BE CAREFUL THAT THE DETENT CLIP IS FULLY SEATED ONTO THE EYE PIPE.

ON/OFF AIRPORT DETAIL



ON/OFF AIRPORT DISASSEMBLY AND ASSEMBLY

Remove Pin housing assembly

To disassemble the NT airport use the airport tool included on the DYE Multi-Tool included with the NT.

- Insert the airport tool into the Pin Housing and turn counterclockwise 3-4 revolutions. Note that the airport lever must be in the OFF position for the tool to grab the housing. Remove housing out of the airport body.
- The pin and **005 O-ring** may or may not come out with the housing, if necessary use a pair of needle-nosed pliers to pull the pin out and a dental pick to remove the **005 O-ring**.

Install Pin housing assembly

- Coat the **005 O-ring** in lube and drop it into the airport body. Use a 1/4" Allen wrench to fully seat the O-ring in place by pushing gently on it.
- Insert the Pin into the Pin Housing from the backside.
- Place the housing onto the airport tool and insert the housing into the airport body.
- Turn clockwise until the Pin Housing fits snugly into the airport body.

*If the airport tool is not available, a pair of needle-nose pliers can be used to unscrew the Pin Housing. Just take care to not scratch or damage the threads or Pin Housing.

ON/OFF AIRPORT DETAIL

Remove the airport lever and internal cam

- Remove the DYE sphere jewel located in the middle of the airport lever.
- Use a 1/16" Allen wrench to unscrew the retaining screw and remove the screw and lever.
- Insert a dental pick into the small slot to pull out the **O10 retaining O-ring**. If the Pin and Pin housing have been removed, the cam should come out with no resistance. If the Pin and Pin Housing are installed in the airport body, the cam must be in the ON position so it can be removed.

Install airport lever and cam

- Make sure that the Pin is not protruding into the area where the Cam sits.
- Use a dental pick or small Allen wrench to push the pin out of the bore if necessary.
- Drop the Cam into the airport body such that the slot face upwards and rotate it clockwise until it drops in place and hits the internal stop.
- Insert the **O10 retaining O-ring** into the groove and gently work it in place with a dental pick or small screwdriver.
- Push the Lever into the Cam slot so that the Lever is facing down, or in the OFF position.
- Install the retaining screw with a 1/16" Allen wrench and tighten firmly. Turn the Lever counter-clockwise until it hits the internal stop. Replace the jewel on the Retaining Screw so that the Dye sphere is correctly oriented.

NOTE: For exploded view of airport and parts list see page 41

TROUBLE SHOOTING GUIDE

AIR LEAKS

AIR LEAKING FROM THE BACK OF AIRPORT

- Check the O-ring on the Air system. If needed change the O-ring and try again. The O-ring normally used is **O15 O-ring** but some manufacturers might use a different size. Consult the manual of the air system you are using.

AIR LEAKING FROM THE FRONT OF AIRPORT

- Check that the hose connector is tight. Remove the hose from the connector by pushing towards the connector and pull out hose. Use a crescent wrench to tighten the fitting. If needed, remove and apply thread sealant to the thread and re-tighten. If unsure, consult expert advice.
- Check that the end of the hose is cut straight and is not worn out. If needed cut a small piece off the hose with a razor blade and re-insert the hose into the fitting. Make sure the hose goes all the way to the end.

AIR LEAKING FROM ON/OFF KNOB OR BLEED HOLE

- Make sure airport is in full on or off position.
- Check **O05 O-ring** behind pin housing.
- See page 33 for service details.

AIR LEAKING FROM THE HYPER3™ REGULATOR

- Locate the position of the leak.

- If the leak is coming from the bottom of the regulator you will need to dis-assemble the regulator and change the **O10 O-ring** and the seat on the brass seat retainer mounted inside the Hyper3™ regulator.
- If the leak is coming from the swivel piece where the hose connector mounts you will need to change the two **O13 O-rings** under the swivel piece or tighten the hose connector.
- If the leak comes from the small hole in the middle of the regulator there are two possible O-rings causing the problem, the **O15 O-ring** on the piston and the O07 urethane O-ring inside the body of the regulator. These O-rings should be replaced by a trained Tech.
- See page 21 for service details.

AIR LEAKING FROM THE ASA

- Change the **O11 O-ring** on the top cap of the Hyper3™ and apply a small amount of lube to the O-ring.

AIR LEAKING BETWEEN BODY AND FRAME

- Inspect the two **O20 O-rings** on the plunger, and the **O11 O-ring** at the front of the spacer rod. In addition to the leak the gun may fire upon degassing.
- If the leak begins after the NT is fired once change the rear most **O10 O-ring** on the spool. In addition, inspect the spool plungers for excessive wear.
- Check the two air transfer hole plug screws.
- See page 25-26 for details.

TROUBLE SHOOTING GUIDE

AIR LEAKING FROM BACK OF THE NT

If the leak is coming from around the bolt back cap:

- Check that the bolt kit is tightened all the way into the NT. If the bolt kit is loose, it will start to leak.
- Remove the bolt kit and change the **020 O-ring** on the rear cap. Lube well and re-insert the bolt kit into the NT. Check bolt kit detail on pages 13-19 for O-ring locations.

If the leak is coming from the bleed button:

- Make sure the gun is not out of air.
- Service the **005 O-rings** on the bleed button.
- Check **011 O-ring** on rear of spacer rod.
- See pages 13-19 for details.

AIR LEAKING FROM FRONT OF THE NT

Determine if air is leaking from inside of bolt or around bolt. Put your finger in breech and press against bolt face to feel if air pressure builds up behind your finger.

- If leak is coming from inside of bolt check the **014 O-ring** on plunger, and the front **010 O-ring** on the spool.
- If the leak is coming from around the bolt check the front **020 O-ring** and **017 O-Ring** on the cylinder.
- See page 13-19 for details.

LOW EFFICIENCY

- Inspect the rear **020 O-Ring** on the cylinder.
- Inspect the bolt seal **016 O-Ring** on the bolt.
- Inspect the **012 O-ring** on the plunger.
- See page 13-19 for details.

NT DOES NOT CYCLE

- The **012 O-ring** on the plunger may be damaged.
- The spool may be installed backwards.
- Front **010 O-ring** may be damaged.
- The dwell may be set too low.

NT DOUBLE FIRES

- Rear **020 O-ring** on cylinder may be damaged.
- The **014 O-ring** on plunger may be damaged.
- The dwell may be set too high.

PROBLEMS WITH ELECTRONICS

NT WON'T TURN ON

- Make sure battery is new and well charged.
- Make sure battery is inserted in the correct polarity.
- Make sure there is no dirt or debris blocking the button from being pressed.
- Make sure the buttons are able to activate the switches on the board.

NT WILL TURN ON / OFF BY ITSELF OR THE EYES WILL TURN ON / OFF BY THEMSELVES

- Both of these problems are caused because the button(s) are being held in the down position.
 - Remove the button cover and clean the area.
- See page 29 for service details.

MARKER SHOOTING SLOW WHEN EYE IS ON AND BLINKING GREEN

- The eyes are not working correctly. Clean the eyes. You'll know that they are clean if the LED turns red

TROUBLE SHOOTING GUIDE

when there is nothing inside the breech of the NT.

- Make sure the eye wires are not broken or pinched.
- The battery may be low. In this case, the battery should be changed as soon as possible.
- If nothing above helps contact a store or DYE Precision for eye replacement.

SOLENOID WILL NOT ACTIVATE / TRIGGER NOT WORKING

- Check that the trigger adjustment is not set so that the microswitch cannot activate. You should hear a small click when pulling the trigger.
- If the NT fires once when turned on but not after that, your trigger is set so that the microswitch is always activated. Re-adjust the trigger.
- Change the battery if not positive about it's charge.
- Check that the solenoid cable is attached to the board and to the correct connector (solenoid should be attached to the two prong connector).

TRIGGER BOUNCE / NT SHOOTING MORE THAN ONE BALL PER PULL IN SEMI-AUTOMATIC MODE

- Raise the trigger sensitivity level in the configuration mode.
- Check that the trigger is not adjusted too short.
- Make sure there is a trigger spring inside the frame.

ERRATIC VELOCITY/NT WON'T FIRE

NT FIRES BUT BALLS ARE DROPPING OFF OR NOT EVEN COMING OUT OF THE BARREL

- Make sure the battery is good.
- Raise the dwell to factory level (6).
- Make sure bolt is well lubed and moves well. If there is too much friction in the bolt it will cause the NT to shoot down. Replace O-rings causing this excess friction.
- Make sure air system is screwed in all the way.

FIRST SHOT IS TOO HIGH

- Change the seat inside the Hyper3™ Regulator
- See page 21 for service Details.

VELOCITY IS NOT CONSISTENT

- Make sure the paintballs you are using fit the barrel good and are consistent in size. The stock barrel with the NT is .688 size. You should be able to blow the paintball through the barrel but they should not roll through the barrel on their own.
- Remove the bolt kit and re-lube it. Change any O-rings causing a lot of friction. Make sure **014 O-ring** in bolt tip is in place and in good condition.
- Raise the dwell.
- Change the battery.
- Check that the Hyper3™ regulator is working correctly and that the pressure is consistent. A separate regulator testing tool is available for this. If needed, dis-assemble and change worn out O-rings and the regulator seat in the Hyper3™ regulator.

NT EXPLODED VIEW



NT EXPLODED VIEW



PARTS LIST

- 1 Clamping Feed Neck
- 2 Ball Detent Clip
- 3 Eye Seal
- 4 Eye Pipe
- 5 NT Body
- 6 Boost Bolt
- 7 Solenoid
- 8 Eye Wire
- 9 Hyper3™
- 10 Front Frame Mounting Screw
- 11 Rear Frame Mounting Screw
- 12 Sticky Grip
- 13 Ultralite Frame
- 14 ON/Off Airport
- 15 Macroline Fitting
- 16 Pin
- 17 Pin Housing
- 18 Cam
- 19 Lever