



T1V2

OWNER'S MANUAL



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3. Battery Replacement and Life Indicator

The TM-7 requires a single 9-volt battery as the electronic power source. The use of long life batteries is recommended. The battery is installed by sliding the battery door open and replacing the 9 volt battery.



The TM-7 also has a Battery Life indicator. If in standard operation and the LED flashes with a Green color then the battery is good, if the LED is Orange the battery is fairly depleted and you should change battery soon, or if the LED is Red then the battery should be replaced immediately.

Notes:

- Make sure you follow the polarity marking on the battery door.
- Some rechargeable batteries might be too large for the TM-7 battery compartment. If they do not fit, please do not force them as this may damage the TM-7.

4. Compressed Air/Nitrogen Supply

The TM-7 is designed to work with Compressed Air/Nitrogen Only. Do Not use CO₂, as it will damage your TM-7

Consult the place where you purchased your TM-7, or a recognized and competent air smith, for instruction in the safe handling of compressed-air cylinders before purchasing or connecting one to your TM-7.

The TM-7 utilizes a fully functional regulator at the bottom of the grip

frame that doubles as an ASA (Air Source Adapter) or Receiver for a standard threaded pre-set output compressed air system. It is strongly recommended that a very high-flow "low pressure" (350-450 psi) fixed-output system is utilized as an air source for your TM-7. Using a "high pressure" output compressed air tank is acceptable. If you are using an adjustable output regulator system, the output pressure should be between 350-450 psi.

Before pressurizing your TM-7:

- Check to make sure that you and anyone within range are wearing eye protection designed specifically for paintball.
- Double check that all screws are tightened and no parts are loose before installing your tank.
- Ensure you have a barrel plug, barrel sock or other specifically designed barrel-blocking device in place.
- Make sure there are no paintballs in the marker.
- The Power should be OFF and the Selector switch should be set to the Safety position.

Air can now be applied, the marker will become pressurized.

Notes:

- Remember compressed air or nitrogen systems can be extremely dangerous if misused or improperly handled. Use only cylinders meeting D.O.T. or regionally defined specifications.
- Never disassemble your tank or tank regulator. Only a qualified and trained technician should perform work on your tank and tank regulator.
- Never add any lubricants or greases into the fill adapter on your tank regulator or into the TM-7 regulator.



5. Basic Operation

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

- Do not install compressed air or load paintballs into your TM-7 until you feel completely confident with your ability to handle your TM-7 safely.
- Keep your finger out of the trigger guard and away from the trigger; point the muzzle of the marker in a safe direction at all times. Keep the marker turned OFF until ready to operate. The TM-7 uses an ON/OFF switch and a selector switch for its safety devices.
- Always keep your TM-7 pointed in a safe direction. Always use a barrel plug or barrel blocking device. Always use ASTM approved paintball specific eye protection in any areas where paintball markers may be discharged. Remember that the ultimate safety device is you, the operator.

Barrel Installation

Make sure marker is degassed, hopper removed, no paintballs in the feed elbow or breech and the TM-7 is turned off.

- While pointing marker in a safe direction, place the threaded end of the barrel into the front opening of the marker body.
- Turn the barrel clockwise until it stops (do not over tighten).
- Install a barrel blocking device. This can be a barrel plug or other such device that prevents the accidental discharge of a paintball.

Switching On your TM-7

To switch the TM-7 ON, set the Selector Switch to the Safety position. Locate the Power Button on the left side of the marker. Push and hold the

button for 2 seconds and the LED light will turn Green and then to Red. Release button and the LED will remain RED.

The TM-7 will now be ON and in the Safety Position. To make the TM-7 Live, move the Selector Switch to the desired Firing Mode.



Switching OFF your TM-7

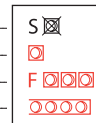
Move the Selector Switch to the Safety Position, push and hold the Power Button for 2 seconds and the LED will turn from Red to Green. Release button and the TM-7 will switch OFF.

Selector Switch

The TM-7 comes equipped with a 4 position Selector switch. The TM-7 comes factory set in the recreational firing mode setting. Simply move the selector from Position (0) Safety, to Positions (1-3) to change to a Firing Mode.

Selector Positions

- 0 = Safety
- 1 = Semi Auto
- 2 = 3 NXL Full Auto
- 3 = PSP Burst



Automatic OFF feature

The TM-7 also has an "Automatic OFF" feature. If you accidentally leave your TM-7 powered up, it will shut itself OFF after approximately 1 hour of inactivity.



Eye Function

The TM-7 board is pre-programmed to activate the eye system each time the marker is powered up. See Section 7 (Break beam Eyes Operation) for more details.

Installing a Loader and Paintballs

The TM-7 comes equipped to accept 1.03" (outer dimension) standard-gravity feed loaders as well as most agitating and force-feed loaders. Fit the loader directly into the feed elbow. It might be necessary to adjust the feed elbow pinch bolt to your loader.

The TM-7 uses .68 Caliber, water-soluble paintballs, readily available at paintball pro-shops, commercial playing fields, and many sporting goods stores. The paintballs are feed from the loader through the feed elbow and into the breech of the marker.

Notes:

- The shell of TM-7 is designed so you can install the Empire Magna transmitter kit.



Stock Adjustment

The TM-7 Stock can be adjusted by pushing the stock adjustment lever to the left. Adjust the stocks length by pulling or pushing on the back of the stock. Make sure the lever springs back to the right to lock it in position.



Foregrip Adjustment

The TM-7 foregrip can be adjusted in two ways.

- To slide the foregrip, remove the foregrip retention screw and then slide it to the desired position and then reinstall and tighten the retention screw.

- To tilt the foregrip back simply press the tilt button located on the left side of the foregrip.

6. Firing the TM-7

Keep your finger out of the trigger guard and away from the trigger, point the barrel of your marker in a safe direction at all times during this process. Be sure your goggles are securely in place and make sure the TM-7 marker is OFF. Push the Power button and hold for 2 seconds until the LED light changes from Green to Red

Warning: Always keep your TM-7 pointed in a safe direction! Everyone within firing range should always use paintball approved eye and face protection in the presence of live paintball markers.

- Place the empty loader onto the marker.
- Be sure that it is securely mounted in place.
- Apply the compressed gas, pressurizing the marker.
- Put the paintballs into the loader.
- Remove the barrel plug, sock or barrel-blocking device.
- Aim the TM-7 in a safe direction.
- Turn the TM-7 ON.
- Move the selector switch to the desired firing mode.
- Aim the TM-7 at the target.
- Place your finger on the trigger.
- Pull the trigger with a smooth squeezing motion.

7. Break beam Eyes Operation

The TM-7 uses a break beam eye system to determine the absence or presence of a ball for the purposes of reduced paint breakage and optimum rates of fire. The TM-7 board is pre-programmed to activate the eye system each time the marker is powered up.



To turn the eyes OFF, ensure that there are no paintballs in the TM-7 breech or feed elbow, make sure the marker is switched OFF, and while pulling and holding the trigger, turn the marker ON. A quick double blinking Green LED will indicate that the eye system has been deactivated. To turn the eyes back ON, simply tap the power button one time quickly.

Notes:

- A slow consistent single flashing Green LED indicates that the eyes are ON with no ball in the breech and a rapid flashing Green LED indicates that there is a ball in the breech.
- For optimal performance of the TM-7 eyes, keep the inside of the TM-7 breech clean and clear of broken paint, paint residue, or other debris.
- Although the eyes can be cleaned via cleaning the breech of the TM-7 marker, if the eyes need to be accessed please follow the steps outlined in the Disassembly/ Assembly section of this manual.

8. Unloading the TM-7

Always keep your TM-7 pointed in a safe direction and always keep your protective eye, face and ear wear on until marker is completely unloaded.

- Be sure your finger is away from the trigger area.
- Place the barrel plug, sock, or barrel blocking device into the end of the barrel.
- Move the Selector switch to the safety position (0).
- Turn the TM-7 OFF by pressing and holding the Power button. The LED will turn from RED to GREEN. Observe the light to make sure it is no longer lit.
- Remove your pressurized gas source by slowly and carefully unscrewing it.

- If you are using an electronic loader make sure loader is completely turned OFF.
- Slightly tilt the marker so that the loader is lower than the body.
- Remove the loader by spinning it in a clockwise direction and gently pulling it.
- Read the pressure gauge and make sure the pressure reads 0 PSI.
- DO NOT look down the barrel but look down the feed neck to make sure there are no paintballs in the breech.
- Remove the barrel from the marker.
- Make sure there are no more paintballs remaining in the barrel.

Note: Always keep your TM-7 pointed in a safe direction!

9. TM-7 Regulator and Velocity Adjustment

The TM-7 utilizes a fully functional TM-7 Bottom-line Regulator at the bottom of the grip frame that doubles as an ASA Adapter/Receiver for a standard threaded pre-set output compressed air systems. This unique regulator system channels air through the air transfer tube, eliminating the need for external macro line and fittings. The TM-7 Bottom-line Regulator controls the amount of air pressure going from your compressed air system into the marker itself.

The TM-7 regulator should be factory pre-set at 200 PSI as this is the best operating pressure for firing the marker. However, if over time you do need to adjust the pressure only use the Regulator Adjuster Screw on the front of your TM-7 Bottom-line Regulator.



Regulator Adjustment

If adjustments are needed use a 3/16" Allen key and insert it into the regulator adjustment screw. This is located in the front of the regulator.

To Increase Output Pressure- Turn the regulator's adjustment screw clockwise.

To Decrease Output Pressure- Turn the regulator's adjustment screw counter-clockwise.

Notes:

- Always watch the gauge as you are adjusting the pressure.
- The Bottom-line regulator should not be disassembled.
- Never set the regulator above 200 psi.

Adjusting Velocity

At the back of the TM-7 main body is the Bolt Guide Cap. The holes in the bolt guide cap serve as your velocity adjuster. Confirm that the pressure on your TM-7 Bottom-line Regulator is at 200 PSI. You can access the velocity adjuster thru the bottom of the shell, just in front of the battery door. Then you can increase or decrease the velocity on your TM-7 by tightening or loosening the velocity adjustment screw, with a 7/64" inch Allen wrench.



To Increase Velocity- Unscrew or loosen the velocity adjustment screw by turning it toward the left side of the marker(counter clockwise). Rotate the velocity adjustment screw counter-clockwise in small increments, stopping between slight turns to test velocity, until desired velocity is achieved.

Do not back the adjuster out too far. Stop if you hear an air leak, and adjust back in a 1/4 turn. A paintball specific radar chronograph should be used to accurately measure your velocity.

To Decrease Velocity- tighten or screw-in the velocity adjustment screw by turning it toward the right side of the body (clockwise). Rotate the velocity adjustment screw clockwise in small increments (1/4 turn or less), stopping between slight turns to test velocity, until desired velocity is achieved. A paintball specific radar chronograph should be used to accurately measure your velocity.

Notes:

- This marker was designed with safety and safety standards in mind. If you attempt to shoot paintballs at a higher velocity than established safety standards, the marker may not function properly.
- This marker is not designed to shoot above the safety limits established by industry standards but under certain conditions it may. It is therefore important to check the velocity each time before playing with your TM-7.

10. Programming

Note: In this section, you will see the phrase "Cycle the Selector Switch". To Cycle the Selector Switch, move the Selector Switch from Position (0) to Position (3) and then back to Position (0), stopping briefly at each middle position to observe the color change of the LED.

Tournament Lock On/OFF

The TM-7 comes with a Tournament Lock which will lock your TM-7 into the firing mode currently selected. The Tournament lock button is accessed thru a small hole at the top of the trigger. The TM-7 must be turned OFF to change the Tournament Lock setting. Use a





small Allen wrench and gently press the tournament lock button, and the LED will blink to show the current status. If the LED blinks RED, the tournament lock is currently OFF. If the LED blinks GREEN, the tournament lock is currently ON. To change the tournament status, press the button once to display the status, then press again within 1 second and the LED will blink the new status.

To Enter Programming Mode- The TM-7 must be OFF and the tournament lock must be OFF to begin managing the functions. While the TM-7 is OFF, with the selector switch in the "0" position, press and hold the Power Button, cycle the Selector Switch, then release the Power Button to enter programming mode. If done correctly the LED will change to a Solid RED, which is the Firing Mode Function.

Once in programming mode, with selector switch in the "0" position, each time the Power Button is pushed you will cycle to the next Function and the LED will change to a specific color per the descriptions below.

Function's current value- To view a Function's current value, cycle to the Function using the power button, then simply pull the trigger once, and observe the number of flashes.

Function	LED Color	Default Value	Range
1 Firing Mode	Solid Red	5	1-5
2 ROF (rate of fire)	Solid Green	4	1-20
3 Dwell	Solid Orange	28	1-45
4 BIP (ball in place)	Flashing Red	10	1-40
5 Ramping Point	Flashing Green	4	3-9
6 Burst Shots	Flashing Orange	3	3-9

Changing a Function's Value- Once you have selected the Function you wish to change, move the Selector Switch to Position (1) or (2) to change the value up or down, then each time the Trigger is pulled it will Increase or Decrease the Function value by 1. If the Selector Switch is in Position (3), a single trigger pull will return a Function value to its default setting. Once the value is changed, move

Selector Switch Position in Programming Mode	
0	Cycle to Next Function / Read a Current Value
1	Increase a Function's Value
2	Decrease a Function's Value
3	Returns a Function to Factory Default

the Selector switch to Position(0) then simply pull the trigger once and the LED will flash the new value. At this point you can select a different Function to change or exit Programming mode.

To Exit Programming Mode- push and hold the Power Button, Cycle the Selector Switch and then release the Power Button.

11. Setting Functions

Firing Modes will be indicated by a solid red color

Firing Modes		
Value	Selector Position	Mode
1	1	Semi-Auto/NPPL
	2	Semi-Auto/NPPL
	3	Semi-Auto/NPPL
2	1	PSP Ramping
	2	PSP Ramping
	3	PSP Ramping
3	1	NXL Auto
	2	NXL Auto
	3	NXL Auto
4	1	Millennium Ramping
	2	Millennium Ramping
	3	Millennium Ramping
5	1	Semi-Auto
	2	PSP Burst
	3	NXL Full-Auto



Note: Selector position (0) is used as a Safety in all Modes.

Value 1 - Semi-Auto/NPPL – One shot per trigger pull. Max ROF capped at 20 BPS.

Value 2 - Ramping/PSP – The TM-7 will operate in Semi-Auto mode for the first 3 safety shots; then if player maintains at least one pull per second, the TM-7 will fire 'X' number of shots per pull and release of the trigger as defined by function 6 (burst shots) at the rate of fire defined by function 2. No trigger pull within one second of the last pull will reset the mode and the user must fire 3 more safety shots to continue burst shots.

Value 3 - Full-Auto/NXL – The TM-7 will operate in Semi-Auto mode for the first 3 safety shots; then pull and hold trigger on the 4th shot, and the TM-7 will fire full-auto at the Rate of Fire value in Function 2, which is defaulted to 13 shots per second for this mode.

Value 4 - Ramping/Millennium – The TM-7 will operate in Semi-Auto mode until player achieves the minimum trigger pull as defined by the Ramping Point value in Function 5, which is defaulted to 6 trigger pulls per second for this mode. At that point, and as long as 6 trigger pulls per second are maintained, the TM-7 will ramp to the Rate of Fire value in Function 2, which is defaulted to 12 shots-per-second for this mode.

Value 5 - Recreational Mode - Selector Switch Position (1) - Standard Semi-automatic- Max ROF capped at 20 BPS.

Selector Switch Position (2) - See Value 2 - Ramping/PSP.

Selector Switch Position (3) - The TM-7 will operate in Semi-Auto mode for the first 3 safety shots; then pull and hold trigger on the 4th shot, and the TM-7 will fire NXL full-auto at the Rate of Fire value in Function 2.

Note: If you activate the Tournament Lock on your TM-7 while in Recreational mode, all of the Selector Switch positions will still be live.

Note: After modes 2 through 4 are selected, it is possible to raise or lower both the Rate of Fire and Ramping Point values in case the tournament rules change.

Max Rate of Fire (ROF) will be indicated by a solid GREEN LED.
The default Max ROF is 4 flashes (12 BPS).

Flashes/ROF	Flashes/ROF	Flashes/ROF
1 Flash = 10.5 BPS	8 Flash = 14 BPS	15 Flash = 17.5 BPS
2 Flash = 11 BPS	9 Flash = 14.5 BPS	16 Flash = 18 BPS
3 Flash = 11.5 BPS	10 Flash = 15 BPS	17 Flash = 18.5 BPS
4 Flash = 12 BPS	11 Flash = 15.5 BPS	18 Flash = 19 BPS
5 Flash = 12.5 BPS	12 Flash = 16 BPS	19 Flash = 19.5 BPS
6 Flash = 13 BPS	13 Flash = 16.5 BPS	20 Flash = 20 BPS
7 Flash = 13.5 BPS	14 Flash = 17 BPS	

Note: The easy way to know your rate of fire: number of flashes divided by two then add ten. Example: 15 flashes / 2 = 7.5, 7.5 + 10 = 17.5 BPS

Dwell Setting will be indicated by a solid ORANGE LED

The Dwell setting determines how long the Slip Stream(TM) Solenoid is open. The Dwell is defaulted at setting 28 and is adjustable from 1 to 45.

Note: If the Dwell Setting is adjusted too high or low, the TM-7 will not function correctly.

Ball in Place Delay (BIP) will be indicated by a flashing RED LED.

The BIP is defaulted at 10ms (each Flash = 1 millisecond). BIP is adjustable from 1 to 40 milliseconds.

Note: If you are not using a force-feed loader, it is recommended that you use a higher BIP setting.



Ramping Point will be indicated by a flashing GREEN LED.

The default ramping point is 4 (4.5 BPS). Ramping Point is adjustable from (4 to 9.5 BPS). Please see chart for corresponding flashes and BPS settings.

Burst Shots will be indicated by a flashing ORANGE LED.

Ramping Point Flashes/PTR (Pulls to Ramp)
3 Flash = 4 BPS
4 Flash = 4.5 BPS
5 Flash = 5.5 BPS
6 Flash = 6.5 BPS
7 Flash = 7.5 BPS
8 Flash = 8.5 BPS
9 Flash = 9.5 BPS

The Burst shot value is defaulted to 3 and is adjustable from (3-9).

Programming Example: If you are in the Default Recreational Firing mode and want to go to Semi-Auto/NPPL. Push and hold the Power Button, cycle the Selector Switch, then release the Power Button and the LED will be RED. Move the Selector Switch to position (2) and pull the trigger 4 times and then move the Selector switch back to position (0) and pull the trigger once. The LED will now flash 1 time, to show that the Firing mode has been changed to Semi-Auto/NPPL.

Factory Board Reset

To reset all the Functions to the defaults, turn OFF your TM-7, then press and hold the Tournament Lock button in for 5 seconds. The LED will blink AMBER to confirm the reset.

12. Trigger Adjustments

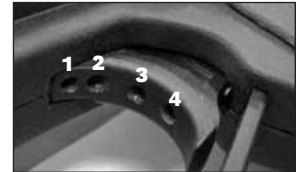
The TM-7 features a Hall Effect Sensor Trigger. There is no trigger switch

to worry about, clog with paint, or break. The TM-7 trigger can be adjusted by the four set screws in the trigger.

When a trigger pull is recognized, the LED will quickly flash a dim Red for each trigger pull. If no trigger pull is recognized, the LED flashes normally based on the status of the eyes and battery power level.

Before making any trigger adjustments, De-Gas the TM-7, make sure the gauge reads 0 psi, then switch On the TM-7 with eyes turned OFF to easily monitor the current activation point.

You will notice four (4) set screws in your trigger. These can be adjusted with a 1/16" Allen key. Make small adjustments and check that the trigger is activating the solenoid.



- The (1) First set screw adjusts the trigger activation point. For best results, the activation point should be set right in the middle of the total trigger movement from front to back.
- The (2) Second set screw adjusts forward movement, and stop point.
- The (3) Third set adjusts the trigger return spring tension.
- The (4) Fourth set screw adjusts the rear movement range, and stop point.

Notes:

- If any of the set screws are over adjusted in any direction the TM-7 may not fire.
- If the trigger travel is adjusted too short, the TM-7 may fire on its own, repeatedly and/or uncontrollably.



13. General Maintenance

CAUTION: Before attempting to perform any maintenance operations, make sure that all paintballs and propellant sources have been removed from the marker and that the regulator gauge reads 0 psi. Install a barrel blocking device, move the Selector switch to the OFF position and push Power button and hold for over 2 seconds until the LED light changes from Red to Green, and keep the TM-7 power OFF.

Keep your TM-7 clean and lubricated to eliminate the friction that would prevent reliable operation. Clean and lube the marker before each use, and do not put it away dirty. Do not use oils made for paintball markers, real firearms or pneumatic tools, do not use oils at all. Do not use petroleum-based lubricants in the lubrication of this marker. Teflon or silicon (NON-spray only) lubricants designed for use on o-rings may be used for lubrication for the bolt, bolt guide and poppet area only. Only use grease supplied with your TM-7.

The outer plastic shell can be rinsed with warm water once all the internals have been removed. Make sure it is fully dry before reassembling the TM-7.

Notes:

- Do not rinse the Tm-7 Shell under water without fully disassembling the marker, as you will damage the electronics.
- Do Not work on your TM-7 until the Air source is removed and it is verified that the regulator gauge reads 0 psi and no air is trapped in the TM-7.

14. TM-7 Assembly/Disassembly

CAUTION: Before attempting to perform any marker disassembly, make sure that all paintballs and propellant sources have been removed from the marker and that the regulator gauge reads 0 psi. Install a barrel blocking device, move the Selector switch to the Safety position and push Power button and hold for 2 seconds until the LED light changes from Red to Green, and keep the TM-7 power OFF.

Disassembly Tips

- Make sure you have a clean area to work on your marker.
- Do not remove the Air Transfer tube from the body and regulator; these parts are assembled tightly at the factory to prevent leaks.
- When separating the Shell for the first time, locate the Selector shaft and Trigger, notice their position for easy reassembly.
- Make sure the Main spring is installed correctly on the Bolt, as it needs to be installed in the right direction.
- Install the Stock lock and Stock at the same time. Install the Stock lock into the Stock arms and place them in the shell at the same time.
- After reassembling the TM-7 recheck your trigger activation settings.

Visit PaintballSolutions.com for additional information.

Barrel

It is recommended that the barrel be removed before and other maintenance or disassembly is performed. Simply turn the barrel counter-clock wise to remove. Use warm water and a barrel cleaning device to keep the Barrel in top condition.

Rear Sight

The rear sight rail can be removed by loosening the screw with a 1/8" Allen wrench and then lift the rear sight off.

Feed Elbow

To remove the feed elbow, push the release button on the left side of the feed elbow and slide it forward about 1 inch and lift it off. The Feed elbow does not slide off the front of the rail.



TM7

Note: Make sure when the feed elbow is reinstalled, it lines up with the hole on the right side of the shell.

Foregrip

Using a 7/64" Allen wrench, remove the socket head screw and slide the foregrip forward and off of the body.

Selector Arm

It is not necessary to remove the selector arm when disassembling the TM-7. Using a 1/16" Allen wrench, remove the flat head screw which holds the selector arm to the selector shaft.

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

Grips

Using a 5/64" Allen wrench, remove the four 6-32 button head screws holding the grips in place. Notice that the lower screws are longer than the top grip screws.

Separating Shell

Once the parts above have been removed the shell can now be separated. The shell is separated by loosening the shell screws.

- Using a 7/64" Allen key loosen the 7 socket head screws, located on the left side shell.
- Also remove the 2 flat head screws, located above the regulator with a 5/64" Allen wrench.
- The left side shell can now be separated from the right, by lifting it off.

Notes:

- It is not necessary to remove the picatinny side rails to separate the shells.

- Once the left shell has been removed, there are several components which will be loose. These include the battery door, trigger, trigger guard, trigger spring, and stock assembly. Make sure you do not lose any of these parts.

Trigger

The trigger can be removed by simply lifting it out of the right side shell. When reinstalling it, make sure the trigger spring is seated correctly. See the picture below for correct installation.

Trigger spring

The trigger spring serves as a dual purpose spring. It holds the selector switch in position and gives the trigger a spring return. See the picture below for correct installation.

Selector Shaft

The selector shaft sits in the right side shell and connects to the selector switch arm, when fully assembled. You will notice, on one side of the shaft 4 keys that sit into the trigger spring. Make sure these keys line up before putting the shell back together. See the picture below for correct installation.



Stock and Stock Lock

The stock assembly and stock lock assembly can be easily removed once the outer shell is separated. If you decide not to use the stock, the TM-7 also comes with a cover plate for the back of the shell.



Note: Notice how the stock lock sits in the shell before removing it, so it's easier to reinstall.

Removing the Body from the Shell

Note: Before removing the body assembly from the shell, it will be necessary to unplug the battery harness and lift the wiring harness guide.



- Separate the shells as described, remove the stock lock and stock assemblies.
- Disconnect the the battery harness and lift the wiring harness guide.
- Lift the body assembly from the right side shell

Removal, Installation and Cleaning of Ball Detents

- Using a 5/64" Allen key, insert Allen key into detent cover and turn counter-clockwise.
- Clean the detents with a damp cloth and apply a small amount of supplied grease to the outer sides of the detents if sticking is an issue.
- Installation is the reverse of the removal. Do not over tighten the Ball Detent covers!

Note: Be careful not to lose any of the detent parts as they are small.

Removal of Bolt Guide Assembly

Caution: Make sure the TM-7 is completely empty of air before removing the Bolt Guide Assembly.

- Using a 1/8" Allen key, insert it into the rear retention screw, turn the Allen key counter-clockwise and completely remove the screw.
- This will allow you to pull out the Bolt and Bolt Guide Assembly. If assembly does not easily slide out, insert a barrel swab into the front of the body and push out the Bolt and Bolt Guide Assembly.



Maintenance of Bolt and Bolt Guide

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

Maintenance of Poppet

Note: Notice how far the Bolt Guide Cap is into the Bolt Guide. When reinstalling the Bolt Guide Cap make sure it is at about the same location.

- Use a 7/64" Allen key and insert it into the side of the Bolt Guide Cap. Turn counter clockwise until Bolt Guide Cap is completely removed.
- Remove the Poppet Spring, being careful not to lose it.
- Use 1/8" Allen key and carefully insert it into the front of the Bolt Guide. Push the Poppet out the back of the Bolt Guide. Be careful not to damage the Poppet front sealing face.
- Inspect and lubricate Poppet O-ring and be careful not to lubricate the front Poppet Seal.

Re-Installation of Poppet and Bolt Guide Cap

- Place Poppet into the back of the Bolt Guide and gently push forward. If installed properly the Poppet will be all the way forward resting on the bolt guide internal face.
- Install the Poppet spring back into the back of the Poppet.
- Using the 7/64" Allen key, screw the Bolt guide cap clockwise back into the Bolt Guide. Screw the Bolt Guide Cap all the way in to help seat the poppet and then turn it out one turn. Further adjustment over a





chronograph will be needed to achieve desired velocity.

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

- Slide the Main Spring onto Bolt, and then the Bolt onto Bolt Guide, so it is one assembly. You will notice, one end of the spring is smaller and will lock onto the bolt.
- Insert Bolt Assembly back into the body.
- Line up the alignment hole on the guide with the alignment pin on the body and slide the bolt assembly fully forward to the body.
- Holding the bolt assembly tight into the back of the body with one hand, reinstall the Bolt Guide retention screw and tighten using the 1/8" Allen key.



Circuit Board Removal

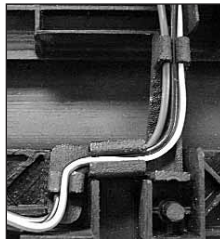
The Circuit Board should only need to be removed to clean the break beam eyes.

- Remove the Body Assembly from the shell.
- Using a 5/64" Allen key, remove the two Circuit Board screws and gently remove the Circuit Board.

Wiring Harness Removal

Note: The wiring harness should only need to be removed if you are washing the right shell of the TM-7.

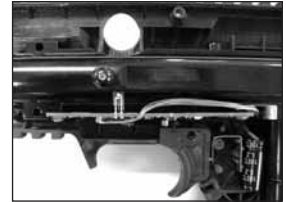
- Carefully pull the 2 battery spring tabs out of the right side shell, using needle nose pliers. Be careful not to break the wires from the battery tabs.



- Then lift the wiring harness guide OFF, and remove harness.

Re-Installation of Wiring Harness

Make sure the wire harness is routed through the circuit board and along the body above the circuit board as shown and not through the trigger area. Failure to route the wires properly will result in destruction of the wires during re-installation of the shell, and can result in an electrical fire when the battery is installed. Destruction of the wire harness is not covered under warranty.



Regulator Hex Adjustment

The Regulator has 2 Hex spacers which hold the shell together and the grips on. If they need adjusting, simply insert an Allen key and push it thru the shell and hex. This will align the hex spacers and the screw will go in easily.

15. Storage and Transportation

IMPORTANT: Never carry your TM-7 uncased when not on a playing field. The non-playing public and law enforcement personnel may not be able to distinguish between a paintball marker and firearm. For your own safety and to protect the image of the sport, always carry your TM-7 in a suitable marker case or in the box in which it was shipped.

- Your TM-7 must be clear of all paint and propellant when not being used.
- Make sure the TM-7 marker is OFF. Push the Power button and hold for 2 seconds until the LED light changes from Red to Green.
- Put the barrel blocking device in its place. Make sure the marker is clean.
- Store your TM-7 in a clean, cool, dry place.



- Keep your TM-7 away from unauthorized and unsafe users.
- It may be a good idea to remove the battery when storing your TM-7 to prevent unauthorized use. This is not a toy. Misuse may cause serious injury or death. Eye Protection designed specifically for paintball must be worn by the user and persons within range. Recommend 18 years of age or older to purchase. Persons under 18 years of age must have adult supervision.

Your TM-7 must be clear of all paint and any source of propellant during transportation to and from the playing field. Keep your barrel blocking device in place. Keep the TM-7 Marker switched OFF. Protect your TM-7 from excessive heat during transportation. Observe and obey all local, state and federal laws concerning the transportation of paintball markers. For information concerning any of the laws in your area, contact your nearby law enforcement agency.

If you must ship your TM-7 for any reason, the box in which you purchased the marker should be used to protect your marker against rough handling during transport.

Never ship charged CO₂ or pressurized gas cylinders!

16. Trouble Shooting Guide

Note: If you are experiencing any problems and you are using any aftermarket parts, it is necessary to re-install the factory parts and re-test before attempting any troubleshooting, as non-factory aftermarket parts are not designed by BT Paintball to work in the TM-7, and they may be the cause of the problems. Do not contact BT Paintball until you have returned the TM-7 to factory stock condition and tested.

Does not turn on	Make sure you have a fresh battery.	If you have tried several different batteries, check to make sure the battery harness is plugged in to the board properly. If it is, unplug the battery from the harness for 5 minutes, then plug back in and try again.
Does not fire	Make sure marker is turned on.	Check the LED light on the back of the foregrip. The LED should be rapidly blinking green when a paintball is present.
	Make sure you have a paintball in the chamber.	The anti-chop eye system prevents the marker from firing unless a ball is present. Never put anything other than a paintball down the feed neck of the TM7.
	Trigger may need to be adjusted.	Check the LED light on the back of the foregrip. While holding in the trigger, the LED should stay red in the background, and not be red when the trigger is released. If it is not that way, then the trigger may need to be adjusted. See the "Adjusting your trigger" section earlier in the manual.
Does not fire with eyes turned OFF	Trigger may need to be adjusted.	Check the LED light on the back of the foregrip. While holding in the trigger, the LED should stay red in the background, and not be red when the trigger is released. If it is not that way, then the trigger may need to be adjusted. See the "Adjusting your trigger" section earlier in the manual.
	Solenoid may not be connected properly.	Check to make sure the solenoid is connected properly to the sensor board. If it is, the solenoid may need to be reset.
	Solenoid may need to be reset.	To reset the solenoid, with the eyes OFF, pull the trigger repeatedly until the solenoid makes a loud clicking sound again with each trigger pull, but do not pull the trigger more than 10 times, as this can damage the solenoid. If after 10 pulls the solenoid still doesn't click, it may need to be serviced.



Leaks constantly through the chamber	Solenoid may need to be reset.	To reset the solenoid, with the eyes OFF, pull the trigger repeatedly until the solenoid makes a clicking sound again with each trigger pull, but do not pull the trigger more than 10 times, as this can damage the solenoid. If after 10 pulls the solenoid still doesn't click, it may need to be replaced.
Multiple balls fired from only one shot	Ball detents may be sticking open.	Remove both ball detent covers and clean the ball detents with a cloth. You may also add some grease to the outer surface of the detents to make sure they are not sticking within the covers.
	Loader forcing paintballs too hard into marker.	Try a different loader, such as the Empire Magna Drive Loader. If using a Halo series or Empire Reloader B series loader, try installing an Empire Magna Clutch Upgrade Kit.
Shoots more than once from one trigger pull	Battery may be low.	Replace battery with a fresh Duracell or Energizer brand alkaline 9-volt.
	Trigger may need to be adjusted.	Make sure the trigger has plenty of travel both before and after the activation point.
Regulator leaks from bottom plug	Adjust over-pressurization relief valve.	The plug on the underside of the regulator is an over-pressurization relief. If it is leaking, most likely the regulator is set to too high of a pressure and needs to be lowered. If the regulator is set to 200 psi or less and the over-pressurization relief is still leaking, it is possible to turn the plug cap just a small amount in the clockwise direction, until the leak stops.
Regulator is slow to recharge	Air tank is not screwed all the way into the TM7's regulator ASA.	If during rapid firing the first ball comes out of the barrel at full velocity and following shots decrease substantially, watch the gauge on the TM7 regulator to see if the needle drops down significantly and is slow to come back to the set pressure. This is typically the result of not screwing your air tank in enough. When screwing your air tank into the TM7's regulator ASA, it is important to not stop as soon as the marker pressurizes, but to continue turning until the air tank stops. It is also acceptable to install the air tank when it is empty, then have it filled by a professional while it is installed. This will ensure that you get the maximum air flow from your air tank.

Regulator pressure spikes	Regulator adjusted too high.	If the needle on the regulator's gauge climbs well over 200 psi when attempting to install the air tank, first remove the brass adjustment screw in the front of the regulator and try again to install the air tank. If the needle reads 0, reinstall the adjustment screw and turn in until the needle reads 200 psi.
Breaks paint in chamber	Eyes are turned off.	Only fire paintballs with the marker's eyes on.
	Low quality or brittle paintballs.	Do a paintball drop test. On a level and smooth, hard, outdoor surface, such as concrete or asphalt pavement, drop ten paintballs one at a time from about 5 feet high. Don't toss them up or throw them at the ground, just drop them straight down. If more than 3 paintballs out of 10 break, the paintballs are bad and should not be used in the TM7. In the case of higher-end tournament-grade paintballs, it may be possible to tune the TM7 to successfully fire brittle paintballs. Since all conditions are different, it is best to ask for help with this from your local pro shop.
	Loader pushing too hard.	Try a different loader, such as the Empire Magna Drive Loader. If using a Halo series or Empire Reloader B series loader, try installing an Empire Magna Clutch Upgrade Kit.
	Bolt or bolt guide o-rings may be worn.	Air blowing past worn o-rings can easily break paintballs in the feed neck. Replace the bolt o-rings and the smaller 3 bolt guide O-rings and apply fresh grease.
	Bolt front seal may be missing.	Make sure the bolt front seal is in place and has a light application of grease to reduce friction.
	Check valve may be missing.	Make sure the check valve is in place. Without the check valve, the forward force on the bolt is too great and can be too hard on the paintballs.



Breaks paint in chamber	Ball detents may be dirty or worn.	Clean the ball detents. If necessary, apply a small amount of grease around the outer surface to reduce friction inside the ball detent covers. Replace if tips are worn down.
	Regulator pressure may be set too high.	Lower regulator pressure.
Cycles very slowly	Bolt or bolt guide o-rings may need grease.	Clean off old grease from the bolt and bolt guide o-rings, as well as the bolt front seal, and apply fresh grease.
	Rate-of-fire setting may be adjusted too low.	Raise Rate of Fire setting.
	Loader may not be feeding fast.	Check your loader's batteries or use a faster loader.
Inconsistent velocity	Pressure may be set too low.	Low pressures have difficulty supplying enough volume to maintain a constant velocity. Do not lower your TM7's regulator pressure below 180 psi.
	Marker may need to be greased.	Clean old grease from the poppet, the bolt and bolt guide o-rings and apply fresh grease. Do not use too much, as it will prevent the moving parts from cycling smoothly.
	Dwell may be set too low or too high.	Reset the dwell setting to the factory default.
	Check valve may be missing.	Make sure the check valve is in place.

Inconsistent velocity	Battery may be low.	Replace battery with a fresh Duracell or Energizer brand alkaline 9-volt.
	Poppet o-ring may be worn.	Replace poppet o-ring and apply fresh grease.
Velocity drops off when firing multiple shots	Air tank is not screwed all the way into the TM7's regulator ASA.	If during rapid firing the first ball comes out of the barrel at full velocity and following shots decrease substantially, watch the gauge on the TM7 regulator to see if the needle drops down significantly and is slow to come back to the set pressure. This is typically the result of not screwing your air tank in enough. When screwing your air tank into the TM7's regulator ASA, it is important to not stop as soon as the marker pressurizes, but to continue turning until the air tank stops. It is also acceptable to install the air tank when it is empty, then have it filled by a professional while it is installed. This will ensure that you get the maximum air flow from your air tank.
Scratches on bolt	Spring may be damaged.	This can cause negative performance. The main spring should be repaired by a trained technician or it can just be replaced.
Leaks at times while shooting multiple shots	Poppet may be sticking open.	Clean the old grease from the poppet o-ring and apply fresh grease. If that doesn't help, replace the poppet o-ring and apply fresh grease.
	Battery may be low.	Replace battery with a fresh Duracell or Energizer brand alkaline 9-volt.
	Solenoid may be sticking open.	If the solenoid is sticking open occasionally, the regulator pressure may be set too high. If the pressure is set to 200 psi or less, then the solenoid may be filled with dirt and/or grease. See Maintenance section for instructions on how to clean the solenoid.
Selector switch not working	Selector may be installed incorrectly	Check to be certain that the selector switch is installed with keys facing down toward the trigger spring.

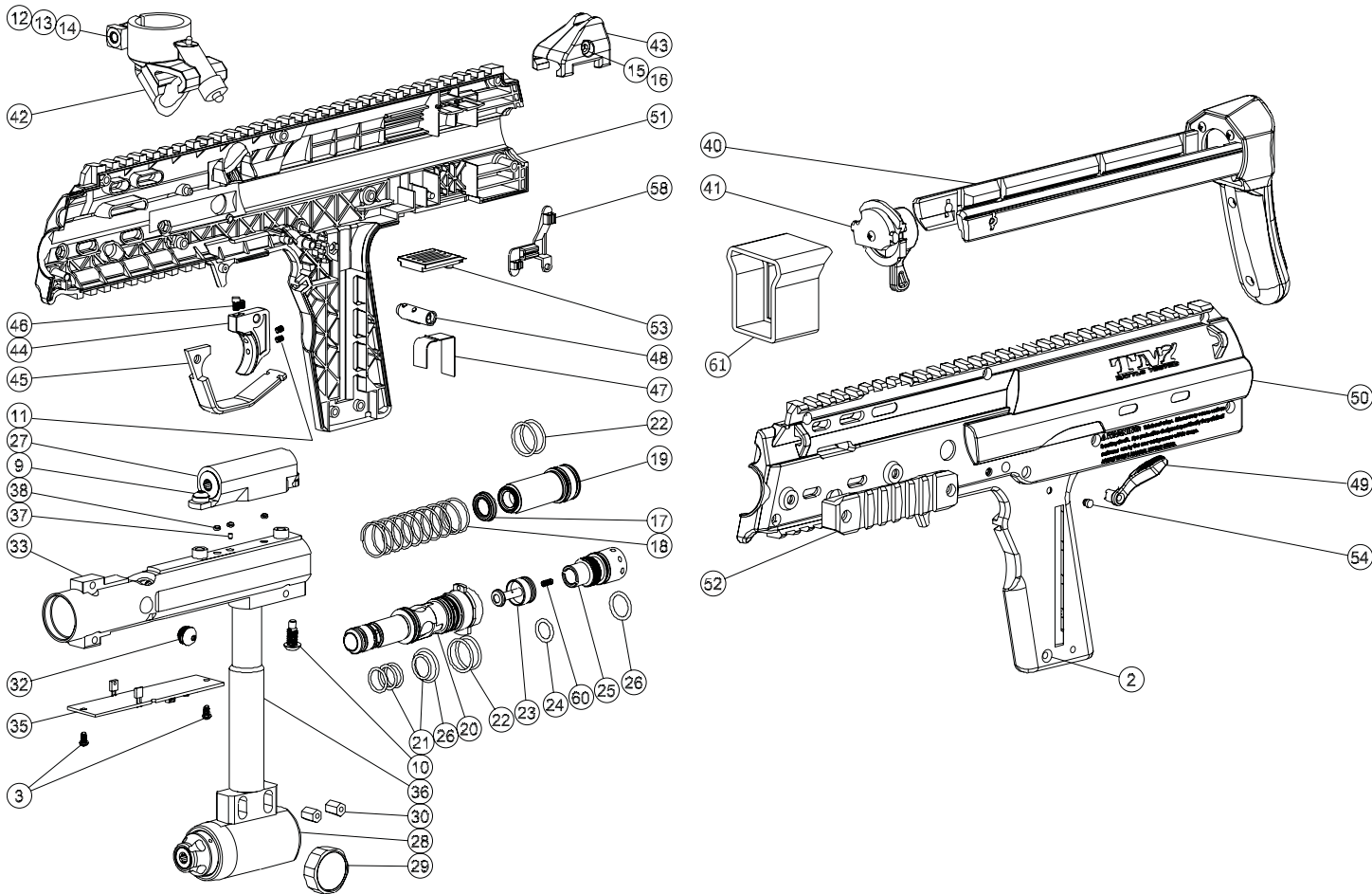
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Schematic #	Description	SKU#
1	SELECTOR SCREW (flat head 4-40 x .5)	17650
2	FRAME SCREW (flat head 6-32 x .313)	17651
3	CIRCUIT BOARD SCREW (button head 6-32 x .157)	17652
4	GRIP SCREW-TOP (button head 6-32 x .250)	17653
5	GRIP SCREW-BOTTOM (button head 6-32 x .438)	17654
6	SHORT SHELL SCREW (socket head 6-32 x .5)	17655
7	LONG SHELL SCREW (socket head 6-32 x 1.0)	17656
8	SHELL HEX NUT (6-32 .25 wide x .092 thick)	17657
9	SOLENOID SCREW (button head 10-24 x .250)	17658
10	BOLT GUIDE RETENTION SCREW (custom)	17659
11	TRIGGER SET SCREW (6-32 x .250 flat point)	17602
12	FEED ELBOW WASHER (.257 ID, .438 OD, .032 Thk)	19422
13	FEED ELBOW BOLT (socket head 1/4-20 x 1.0)	19420
14	FEED ELBOW NUT (1/4-20 .438 wide x .235 thick)	19421
15	REAR SIGHT SCREW (socket head 10-32 x .656)	19413
16	REAR SIGHT NUT (10-32 .375 wide x .130 thick)	19415
17	BOLT RUBBER TIP	17533
18	SPRING MAIN	17535
19	BOLT	17661
20	BOLT GUIDE	17662
21	BOLT GUIDE SMALL O-RING	17537
22	BOLT / BOLT GUIDE LARGE O-RING	17534
23	POPPET (with spring)	17539
24	POPPET O-RING	17540
25	BOLT GUIDE CAP	17664
26	BOLT GUIDE CAP O-RING	17538
27	SOLENOID ASSEMBLY (complete)	17665
28	REGULATOR ASSEMBLY (complete)	17671
29	REGULATOR GAUGE (plain 300 psi)	17672
30	HEX BRASS (6-32 internal threads)	17673

Schematic #	Description	SKU#
31	REGULATOR OPP ASSEMBLY (complete)	17597
32	BALL DETENT ASSEMBLY (complete)	17541
33	MAIN BODY	17677
34	BARREL	17678
35	CIRCUIT BOARD	17679
36	AIR TRANSFER TUBE	17680
37	CHECK VALVE (air restrictor)	17531
38	SOLENOID AIR TRANSFER ORINGS	17682
39	FORE-GRIP ASSEMBLY	17683
40	STOCK ASSEMBLY	17689
41	STOCK LOCK ASSEMBLY	17695
42	FEED ELBOW ASSEMBLY	19385
43	REAR SIGHT ASSEMBLY	17700
44	SINGLE TRIGGER ASSEMBLY	17702
45	TRIGGER GUARD SINGLE	19399
46	TRIGGER ACTIVATION SET SCREW w/magnet	17564
47	TRIGGER SPRING	17704
48	SELECTOR SWITCH SHAFT (complete w/magnets)	17705
49	SELECTOR SWITCH ARM	17706
50	SHELL LEFT SIDE	17707
51	SHELL RIGHT SIDE	17708
52	PICATINNY SIDE RAIL	17709
53	BATTERY DOOR	17711
54	POWER BUTTON	17712
55	STOCK COVER PLATE	17713
56	CIRCUIT BOARD HARNESS (Not shown)	17714
57	BATTERY HARNESS (Not shown)	17715
58	WIRING HARNESS GUIDE	17716
59	GRIPS	17717
60	Poppet Spring	17623
61	Stock Block	17718



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18. Warranty Information

TM-7 LIMITED WARRANTY

BT Paintball warrants the replacement of any original part due to defect in materials and/or workmanship of this marker. This warranty will be in effect for twelve (24) months for parts and twelve (24) months for labor following the original date of purchase for the original purchaser. Warranty is only retained if the marker is purchased as new; markers purchased used are not covered by warranty. Such warranty service will be provided only if the warranty registration card included with this manual is filled in completely and a copy of the original receipt is on file at BT Paintball. All other services will be duly charged by over the phone credit card and shipped UPS.

BT Paintball will replace, without charge, any original part that is determined by BT Paintball to be defective under the terms of this warranty. However, shipping charges are not covered hereunder. Failure due to an accident, abuse, neglect, modification, loss, normal wear, operator error, maintenance by other than an authorized BT Paintball dealer, or use of parts inconsistent with the use originally intended for the marker as sold, is not covered by this warranty. This warranty does not apply to wearable parts such as o-rings, screws, poppet seal, ball detents, etc.

There are no other warranties or guarantees, expressed or implied, made by BT Paintball on this marker. The sole and exclusive liability of BT Paintball 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.

Removing or disassembly of the original regulator voids all warranties, unless replaced with another TM-7 Bottomline Regulator produced by BT Paintball.

If marker is to be sent in for repair, the marker must consist of all factory stock parts. Markers with aftermarket parts will not be warranted.

For warranty parts, service or information contact:
Paintball Solutions
www.paintballsolutions.com
55 Howard Ave.
Des Plaines, IL 60018
1-800-220-3222



TM-7 Instruction Manual Version 1.0



1. Rules for Safe Marker Handling

IMPORTANT: Never carry your TM-7 uncased when not on a playing field. The non-playing public and law enforcement personnel may not be able to distinguish between a paintball marker and firearm. For your own safety and to protect the image of the sport, always carry your TM-7 in a suitable marker case or in the box in which it was shipped.

- Treat every marker as if it were loaded.
- Never look down the barrel of a paintball marker.
- Keep your finger OFF the trigger until ready to shoot.
- Never point the marker at anything you don't wish to shoot.
- Keep the marker on "safe" until ready to shoot.
- Keep the barrel blocking device in/ on the marker's barrel when not shooting.
- Always remove paintballs and propellant source before disassembly.
- After removing air source, point marker in safe direction and discharge until Marker is degassed.
- Store the marker unloaded and degassed in a secure place.
- Follow warnings listed on the air source for handling and storage.
- Do not shoot at fragile objects such as windows.
- Every person within range must wear eye, face and ear protection designed specifically to stop paintballs and meeting ASTM standard F1776.
- Always measure your marker's velocity before playing paintball and never shoot at velocities in excess of 91.44 meters (300 feet-per-second).

READ OWNERS MANUAL BEFORE USING.

2. Introduction and Specifications

Congratulations on your selection of the TM-7 paintball marker. The TM-7 is made to provide you with many years of reliable performance. We are honored that you have chosen the TM-7 as your marker of choice and hope you enjoy using this high quality product.

The patented Valve design, Slip Stream™ Solenoid, Hall Effect Sensor

Trigger, Four Position Selector Switch, set new standards for marker technology. The TM-7 is precision engineered from Aircraft grade Aluminum and Composite, to meet the demands of the most competitive players, teams, and climates. The ultimate intent of the TM-7 is to exceed your expectations.

We expect you to play hard and play frequently and thus the TM-7 was built with this in mind. All internal parts, wear, and contact surfaces have been heat treated or hard anodized. The toughest and most resilient materials and components have been used in the construction of this marker.

The TM-7 operates on Low-Pressure. The main operating pressure is 180-200 PSI. The pressure can be nominally adjusted and monitored visually via the gauge on the bottom-line regulator. There is no secondary regulator to worry about.

TM-7 Specifications

Model- TM-7
Barrel- 9" Ported Barrel
Caliber-68
Action- Semi Auto, Ramping, and Full Auto
Air source- Compressed Air
Battery- One 9 Volt
Cycle Rate- 20 BPS
Shell Material- Composite
Main Body material- Aluminum
Accuracy Range- 150ft +
Weight- 2.5 lbs

Included with your TM-7

- 9" Barrel (.691 bore)
- Allen Keys
- Spare Parts
- Barrel Blocking Device
- One 9 Volt Battery



TTVZ

