

Desert FOX™

INSTRUCTION MANUAL Version 1.2

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This air gun is not a toy. It is to be used by adults only. It is to be used on safety certified fields only. Obey all local, state and federal laws. Follow the rules of safe paintball gun handling. Read all instructions before use.

Desert FOX OVERVIEW

The *Desert FOX* is a quality marking instrument specially designed to meet the needs of the professional style tournament player. The *Desert FOX* is a semi-automatic, open bolt, *blowforward*-type marking device. The major components of the *Desert FOX* are machined from solid, aircraft-grade aluminum, then hard anodized per military specifications. No castings or extrusions are used in the construction of the *Desert FOX*. No welds or epoxies are used to fill or block holes, thereby providing the end user with a high-quality, precision-engineered marking instrument.

Semi-automatics take a great pounding. Indian Creek Design, Inc., has built the *Desert FOX* with this in mind. There are no hot welds to distort or cold welds to crack along joints and air lines. All internal parts, wear and contact surfaces have been heat treated or hard anodized. The hardest and most resilient materials have been used in the design of this instrument. But keep in mind: even jack hammers need care and maintenance.

The *Desert FOX* does not need tools in order to field-strip it. Removing the field-strip screw for the regulator enables the removal of the entire regulator/bolt assembly.

The *Desert FOX* offers the ultimate in gas efficiency and usage. Gas usage is controlled through an internal regulator. This is the only means of adjustment. The unique feature of this gun is the regulator adjustment. This allows precise adjustment for the velocity control of the gun and for gas efficiency.

The *Desert FOX* comes with a removable barrel system. This feature allows the user to select a barrel that is most suitable for the playing conditions. All barrels are mirror-honed with a muzzle break, and stock length is 10".

OPERATION

Read the entire manual before you prepare your *Desert FOX* for firing. Safety and safe gun handling are the most important aspects of paintball sports. Please practice each of the following steps with an **unloaded** gun before attempting to charge your gun with CO₂, nitrogen, or compressed air and paint pellets. Do not load CO₂, nitrogen, or compressed air and paint pellets into your *Desert FOX* until you feel

completely confident with your ability to handle your *Desert FOX* safely.

Keep your finger out of the trigger guard and away from the trigger; point the muzzle of the gun in a safe direction at all times. Keep the gun in "SAFE" mode until ready to operate. Push the safety button into the safe position. This will prevent the trigger from traveling its full range. *Never* depend entirely upon your mechanical safety! *Always keep your Desert FOX pointed in a safe direction. Always use a barrel plug.*

CO2, Nitrogen or Compressed Air Usage

The *Desert FOX* comes set up to use industry standard CO2 bottles or cartridge adaptors. The type of propellant is your choice. The *Desert FOX* can be set up to use a nitrogen or compressed-air system. Consult the place where you purchased your *Desert FOX*, or a recognized and competent airsmith, for instruction in the safe handling of CO2 or nitrogen or compressed-air cylinders before purchasing or connecting one to your *Desert FOX*.

REMEMBER: CO2 or compressed-air or nitrogen systems can be extremely dangerous if misused or improperly handled. Use only D.O.T. certified tanks.

Before pressurizing your *Desert FOX*, check to make sure that you have a barrel plug in place and there is no paint in the gun. A CO2 tank can now be threaded into the tank adaptor. After screwing in the CO2 bottle, the gun will become pressurized and ready to be immediately fired! To depressurize, unscrew the CO2 bottle from the gun.

Paintball and Loader Usage

The *Desert FOX* comes equipped to accept 7/8" OD, standard-gravity feed loaders and elbows. Fit the elbow over the direct feed. Always twist it down in a CLOCKWISE direction. Always twist it off in a CLOCKWISE direction as well. The *Desert FOX* uses .68 caliber, water-soluble paint pellets. The pellets are gravity fed from the loader through the direct-feed nipple and into the breech of the gun. Incorporated into the direct feed is what has become known as a POWER FEED. Thanks to *AIRGUN DESIGNS* for originating the use of this type of device.

Rate of Fire

How fast *you* actuate the trigger is what will determine the rate of fire. Unlike some institutions, we did not go out and find someone with a fast trigger finger and a stop watch. We build test stands with motors, cams and variable speed pods with encoders giving us exact revolutions per second. The only thing we time is how long the unit will go on the test stand at this specific rate. The *Desert FOX* functions flawlessly at eight (8) cycles per second on the test stand for well over five (5) minutes. (We got tired of listening to it!) It cycles incredibly fast.

Firing the *Desert FOX*

Keep your finger out of the trigger guard and away from the trigger; point the muzzle of your gun in a safe direction at all times during this process. Be sure your goggles are securely in place. Push the safety button into the safe position.

Always keep your Desert FOX pointed in a safe direction!

1. Place the empty loader and elbow onto the gun. Be sure that it is securely mounted in place.
2. Screw the CO2 bottle into place, pressurizing the gun.
3. Put the paintballs into the loader.
4. Remove the barrel plug.
5. Aim the gun at the target.
6. Remove the safety by pushing the "push to fire" button.
7. Place your finger on the trigger.
8. Pull the trigger with a smooth squeezing motion. **BANG. . . .**

UNLOADING THE *Desert FOX*

Keep your finger out of the trigger guard and away from the trigger; point the muzzle of your gun in a safe direction during this entire process. *Always keep your Desert FOX pointed in a safe direction!*

1. Push the safety button into the safe position.
2. Place the barrel plug into the end of the barrel.
3. Remove the CO2 bottle by unscrewing it carefully.
4. Tilt the gun so that the loader is lower than the body of the gun.
5. Remove the paintball loader from the direct-feed tube, turning the elbow in a

- clockwise direction.
6. Inspect the inside of the direct-feed tube to be sure that a ball does not remain inside the breech.

MAINTENANCE

CAUTION: Before attempting to perform any maintenance operations or any gun disassembly, make sure that *all* paint pellets and sources of propellants have been removed from the gun. Insert a barrel plug, push the safety button to the safe position and keep the gun in its "SAFE" mode.

Simple Maintenance

Keep your *Desert FOX* clean and lubricated to eliminate the friction that would prevent reliable operation. Clean and lube the gun before each use, and do not put it away dirty. Do *not* use petroleum-based lubricants in the lubrication of this gun. Teflon or silicon spray lubricants are the recommended types for the lubrication of the *Desert FOX*. The main housing and piston slide tube areas may need to be lubricated every 700-1000 cycles.

Cleaning Paint from the Barrel

Unscrew the barrel with approximately one and one half (1-1/2) revolutions to remove the barrel for swabbing/cleaning. Keep the barrel clean to insure the continued accuracy of the *Desert FOX*. Gelatin from the paintballs has a tendency to build up in the barrel. As part of your cleaning ritual, wash out the barrel with hot soapy water and rinse it well.

Removing the Bolt Assembly (Field Stripping)

Remove the paint and CO2 or pressurized gas from the gun. *The gun cannot be field stripped while it is pressurized.*

1. Unscrew and remove the large knurled screw that holds the regulator in place.
2. Pull the regulator back.
3. Point the barrel upward, and pull the regulator and bolt assembly out of the back of the gun.

Once the regulator/bolt assembly is removed, it is possible to clean the entire upper receiver of the gun, including the breech and feed tube area. Lubricate the rear section of the bolt and the regulator/bolt chamber with a light synthetic liquid or spray lubricant before re-installing the regulator. Do *not* use petroleum/oil-based lubricants; *do* use Teflon or silicon-based lubricants.

1. Point the barrel downward and slide the regulator in until it stops, being careful not to damage the small O'ring gasket between the regulator body and the grip frame.
2. Apply pressure on the back of the regulator and insert the large, knurled screw that holds the regulator in place.

STORAGE AND TRANSPORTATION

- Your *Desert FOX* must be clear of all paint and CO2 when not being used.
- Keep the safety on.
- Put the barrel plug in place.
- Make sure the gun is clean.
- Store your *Desert FOX* in a clean, cool, dry place.
- Keep your *Desert FOX* away from children.

This air gun is not a toy! To be used by adults only!

Your *Desert FOX* must be clear of all paint and CO2 during transportation to and from the playing field. Keep your barrel plug in place. Keep the safety on. Protect your *Desert FOX* from excessive heat during transportation. Observe and obey all local, state and federal laws concerning the transportation of paintball guns. For information concerning any of the laws in your area, contact the IPPA or your nearby friendly law enforcement agency.

IMPORTANT: Never carry your *Desert FOX* uncased when not on a playing field. The non-playing public and law enforcement personnel may not be able to distinguish between a paint marking device and firearm. For your own safety and to protect the image of the sport, always carry your *Desert FOX* in a suitable gun case

or in the box in which it was shipped.

If you must ship your *Desert FOX* for any reason, the box in which you purchased the gun is acceptable to all major carriers. Never ship charged CO2 or pressurized gas containers.

***Desert FOX* TUNING GUIDE**

Version 1.1

The *Desert FOX* has a totally new and innovative system. This gun does not use pressurized gas to do anything except shoot a projectile. The pressurized gas is regulated internally. The pressure regulator is externally adjustable via the screw with the slot in the back of the gun. A cap for this screw has been provided to keep access to this screw restricted. To increase the pressure, thus increasing the velocity of your projectile, remove the cap. Using a wide screw driver, insert the driver into the slot and turn clockwise.

NOTE: Only slight turns are needed to accomplish changes in the pressure used to shoot the paintball, thus changes in the velocity at which it is propelled.

To decrease the velocity of your shots, turn the screw counter-clockwise. You must take a "clearing" shot before the change in the decreasing direction can be registered.

A pressure gauge has been installed into the regulator body to indicate the exact operating pressure of the marker. This gauge is extremely useful. At the factory we set the regulator gauge to 400-420 PSI with an input pressure of 700 PSI using CO2 gas as the base propellant. Under normal circumstances these settings will produce paintball velocities at approximately 280-300 fps using CO2. Using nitrogen or compressed air you may find it necessary to set the marker regulator to 460-480 PSI. The input pressure from your tank should be set at 600-650 PSI. Higher input pressures will not provide increased performance.

This gun was designed with safety and safety standards in mind. If you attempt to shoot paintballs higher than established safety standards, the gun will not function properly.

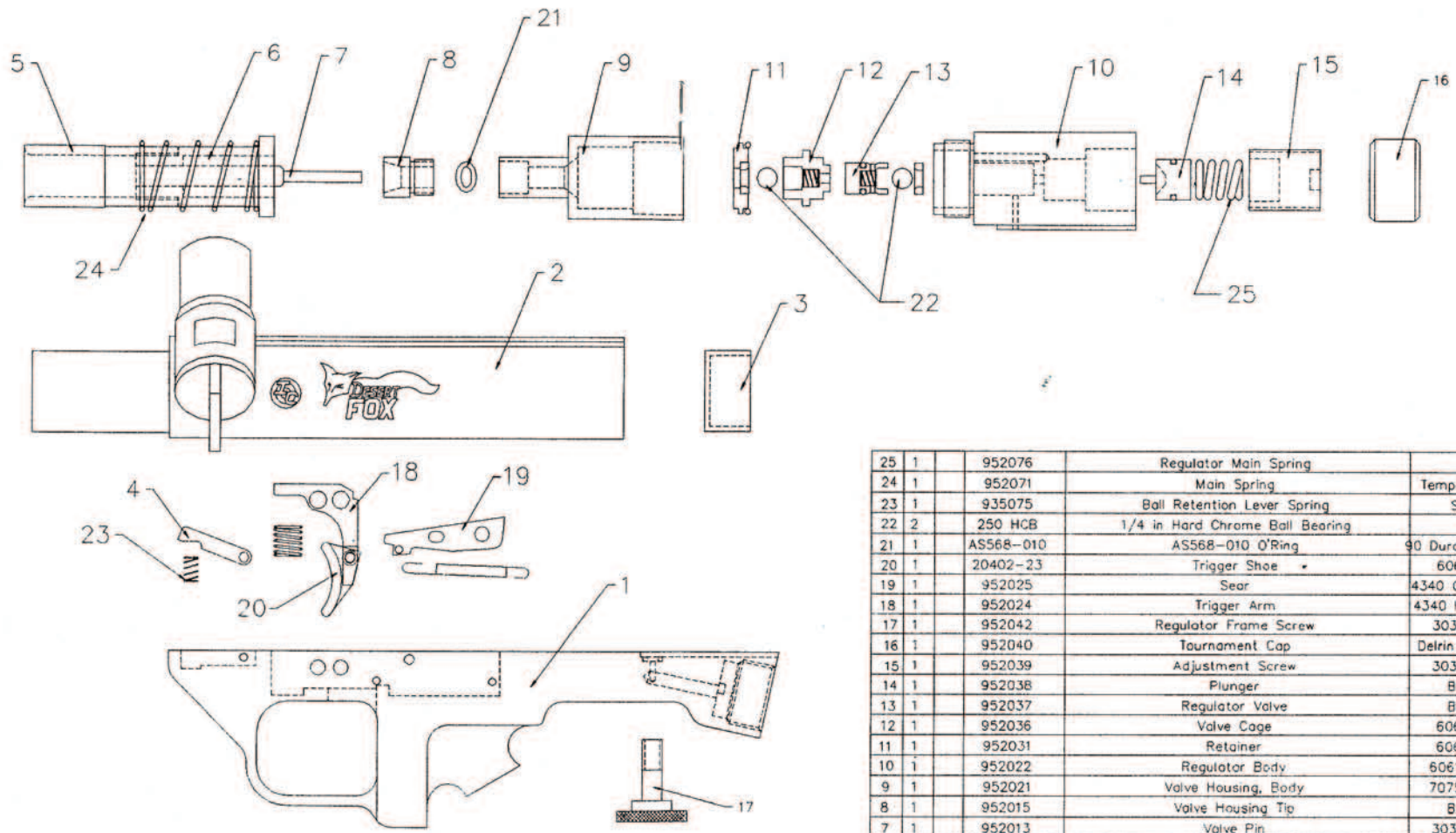
GETTING STARTED

Start with a full tank of CO2 or compressed gas, a chronograph, and the paintball of your choice, and of course your goggles on your face, then:

1. Before installing the paintballs or the tank, push the safety button in to lock the trigger. Be sure that a barrel plug is in place and your goggles are on your face.
 2. Remove the "tournament cap."
 3. With the gun pointed in a safe direction, follow the tank insertion guidelines in the CO2/pressurized gas usage section of this manual and screw the tank into the adaptor.
 4. Drop one (1) paintball into the feed tube.
 5. Aim the gun over the chronograph.
 6. Remove the safety by pushing the fire button.
 7. Pull the trigger to shoot the paintball and check the velocity. **To decrease the velocity**, turn the regulator screw counterclockwise in small increments. Take a "clearing shot," then check the velocity again. The regulator and valving system hold the prior pressure until the pressure is relieved. **To increase the velocity**, turn the regulator screw clockwise in small turn increments. Repeat Steps 4 thru 7 until the desired velocity is reached.
- Under normal circumstances, using CO2, the regulator should read 400-420 PSI. If nitrogen or compressed air is your preference, then, set your input pressure from the tank to 600-650 PSI and the marker regulator to 460-480 PSI. These settings should get you in the range of approximately 280-300 FPS.*
8. Push the safety button in to lock the trigger and place your paintball feed system onto the feed tube.

NOTE 1. This gun was not designed to be a jack-hammer. The regulator screw adjusts internal pressure. This gun is not designed to operate on high internal

ECO NO.	REV.	DESCRIPTION	DATE	APPROVED



QTY	ECO	PART	DESCRIPTION	MTL
25	1	952076	Regulator Main Spring	
24	1	952071	Main Spring	Tempered MW
23	1	935075	Ball Retention Lever Spring	SSTL
22	2	250 HCB	1/4 in Hard Chrome Ball Bearing	
21	1	AS568-010	AS568-010 O'Ring	90 Duro Urethane
20	1	20402-23	Trigger Shoe	6061-T6
19	1	952025	Sear	4340 Carburized
18	1	952024	Trigger Arm	4340 Ht 54 Rc
17	1	952042	Regulator Frame Screw	303 CRES
16	1	952040	Tournament Cap	Delrin Acetate
15	1	952039	Adjustment Screw	303 CRES
14	1	952038	Plunger	Brass
13	1	952037	Regulator Valve	Brass
12	1	952036	Valve Cage	6061-T6
11	1	952031	Retainer	6061-T6
10	1	952022	Regulator Body	6061-T651
9	1	952021	Valve Housing, Body	7075-T651
8	1	952015	Valve Housing Tip	Brass
7	1	952013	Valve Pin	303 CRES
6	1	952012	Piston	4340 HT 54 Rc
5	1	952009	Bolt Tip, Clover chamber	Delrin acetate
4	1	935007	Ball Retention Lever	6061-T6
3	1	952004	Spring Case	Delrin Acetate
2	1	952003	Upper Receiver	6061-T651
1	1	952001	Lower Receiver Frame	6061-T651

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pressures. High pressures created from the regulator screw being screwed in will result in the premature deterioration of the gun, poor performance and efficiency, and a very disappointing day.

NOTE 2. You may notice that if you attempt to operate the gun at extremely high velocities, the internal piston will not function properly!

NOTE 3. This gun is not designed to shoot above the safety limits established by industry standards.

GENERAL NOTES

Theory

This gun has a “*blowforward*” type of mechanism. The mainspring and sear hold the piston with its piston valve pin in place, in turn holding a bearing driven valve open, allowing pressurized gas to come from the regulator into a forward chamber. When the trigger is pulled, the sear releases the piston and allows it to move forward to shoot the paintball. The main spring compresses and the bearing-driven valve closes, preventing the further expulsion of compressed gas. The main spring then decompresses and the piston is moved back behind the sear. The bearing is displaced, opening the valve once again.

Extreme internal pressures will result in the premature deterioration of the gun, poor performance and efficiency, and a very disappointing day.

Remember: you are shooting gelatin capsules filled with paint—not shattering concrete or driving 16-penny nails!

If opening the regulator all the way is the only way that you can make the gun function, something is wrong! Call **Indian Creek Design, Inc.**, at (208)468-0446 before proceeding further.

TROUBLE SHOOTING

Shooting Related Problems

1. **The gun does not shoot when you pull the trigger; it shoots low velocity and sticks backward.**
 - a. The pressure in the tank is low.
 - b. Needs lubrication in the piston slide chamber or on the piston valve pin.
 - c. The regulator has been backed off and needs to be re-adjusted. *Be sure your tank is at the proper pressure before increasing the regulator pressure.*
2. **The gun does not shoot when the trigger is pulled.**
 - a. The trigger adjustment screw may be set too short.
 - b. Needs lubrication in the piston slide chamber or on the piston valve pin.
 - c. The regulator has been backed off and needs to be re-adjusted. *Be sure your tank is at the proper pressure before increasing the regulator pressure.*
3. **The gun does shoot. But when you pull the trigger, it shoots and bounces (double fires) before recocking (breaks paintballs in the breach and sends paint back up into the feed tube).**
 - a. Too much gas is being expelled through the regulator. Re-adjust the regulator.
 - b. If it is only the first shot, a contaminant may have settled on the regulator seal surface.
 - c. Piston and/or sear contact points have worn and need replacing.
 - d. If you are using CO₂, you may have had liquid induced into the system.
 - e. The trigger adjustment screw may be adjusted to short not allowing the trigger sear contact points to clear properly. Back off the trigger adjustment screw ½ turn.

Leak Related Problems

1. **The *Desert FOX* has a leak down the barrel. Reason: gas is leaking through or around the piston valvepin O'ring area.**
 - a. Can you hear the leak when the CO2 is removed? Yes? There is no leak. You hear the ocean.
 - b. The O'ring seal (part #21) is marred/scratched or worn out or dirt has gotten to it. Replace it. Size -010 urethane 90.
2. **The *Desert FOX* has a leak around the regulator seam. Reason: the seal between the regulator body and the lower receiver is bad.**
 - a. Tighten the regulator screw.
 - b. Check and/or replace the small O'ring. The size is 1/4 OD-1/8 ID, or -006.
3. **The *Desert FOX* has a leak around the regulator seam. Reason: the seal between the regulator body and valve housing is bad or the housing has loosened up.**
 - a. Tighten the valve housing to the regulator body.
 - b. Check and/or replace the O'ring gasket. Sized -018.

Ball Breakage Problems

1. **The paintballs break in the barrel, about 2 inches in.**
 - a. Change paintballs. The gelatin that paintballs are made from can lose its elasticity with age, making the shell of the paintball brittle and not able to withstand the shock of the blast of CO2 when shot.
 - b. Change paintballs. Paintballs with thick seams and thin polar shells are not good paintballs. If you could measure the paintball shell at its polar areas, it should measure a minimum thickness of .006-.008".
 - c. Check the ball retention lever. Be sure the ball retention lever moves up and down smoothly.
2. **The ball breaks in the breech.**
 - a. The balls in your loader can bind, messing up your trigger timing.

- Note the ball drop through your elbow, or use an agitated loader.
- b. As you run and shoot, you actually unweigh the gravity-fed balls in your loader. This can cause a ball to hesitate in its drop. This affects your trigger timing.
 - c. If the ball retention arm does not move freely, the paintballs will crush against it or it may have stuck in the depressed position allowing double feeding. Check its tension regularly and keep this area as clean as possible.
 - d. If the ball retention arm is too sloppy, the ball will not be held in the proper position. This may allow the next ball to enter the path of the bolt, subjecting it to impact cracking or shearing. Verify the spring tension.

Regulator Related Problems

1. **The gauge reads correctly when charged, but climbs in pressure after a few moments.**
 - a. The regulator seal has been contaminated. Disassemble the regulator, and clean the seal with a "Q-tip" and alcohol. If you need assistance in the disassembly of the regulator, please call (208)468-0446.
2. **The gauge reads correctly when charged, but drops in pressure after a few shots.**
 - a. The regulator may not be adjusted correctly. Remove all pressurized gas, and back-off the regulator adjustment screw 3 turns. Pressurize the system and adjust the pressure back up to the desired pressure.
3. **The gauge reads correctly when charged, but drops in pressure after a few shots, and is slow to climb back to normal pressure.**
 - a. The recovery side of the regulator is sluggish and may need cleaning and lubrication. If you need assistance in the disassembly of the regulator, please call (208)468-0446.

If your gun is out of tune and just will not do anything but break paint, stutter and chatter, go back to "GETTING STARTED," Steps 1 through 4, or call (208)468-0446 for assistance.