

Instructions For

# PRECISION FIT STOCK

Welcome To The New World Of Shooting!



Expect To Win!

# TABLE OF CONTENTS

1. Measure your existing stock and record your data below .....	Page 1
2. Remove existing stock .....	Page 1
3. Install new Precision Fit grip .....	Page 1
4. Install Absorber Unit into Grip .....	Page 3
5. Adjust the new stock .....	Page 3
A. Setting the Length of Pull .....	Page 3
B. Set Proper Comb Height .....	Page 5
C. Set Comb Cast Off / Cast On .....	Page 6
D. Set Comb Rotation and Position .....	Page 7
E. Adjust Butt Pad Positioning .....	Page 8
F. Adjusting the Felt Recoil Mechanism .....	Page 9
G. Split Ring Up - Split Ring Down .....	Page 10
6. Point of Impact Adjustment .....	Page 12
7. <b>Safety</b> .....	Page 12
8. Tech Stuff .....	Page 13
9. Locknut / Recoil Reduction Device .....	Page 15
10. Pitch Spacers .....	Page 15
Parts Identification Drawing .....	Page 17

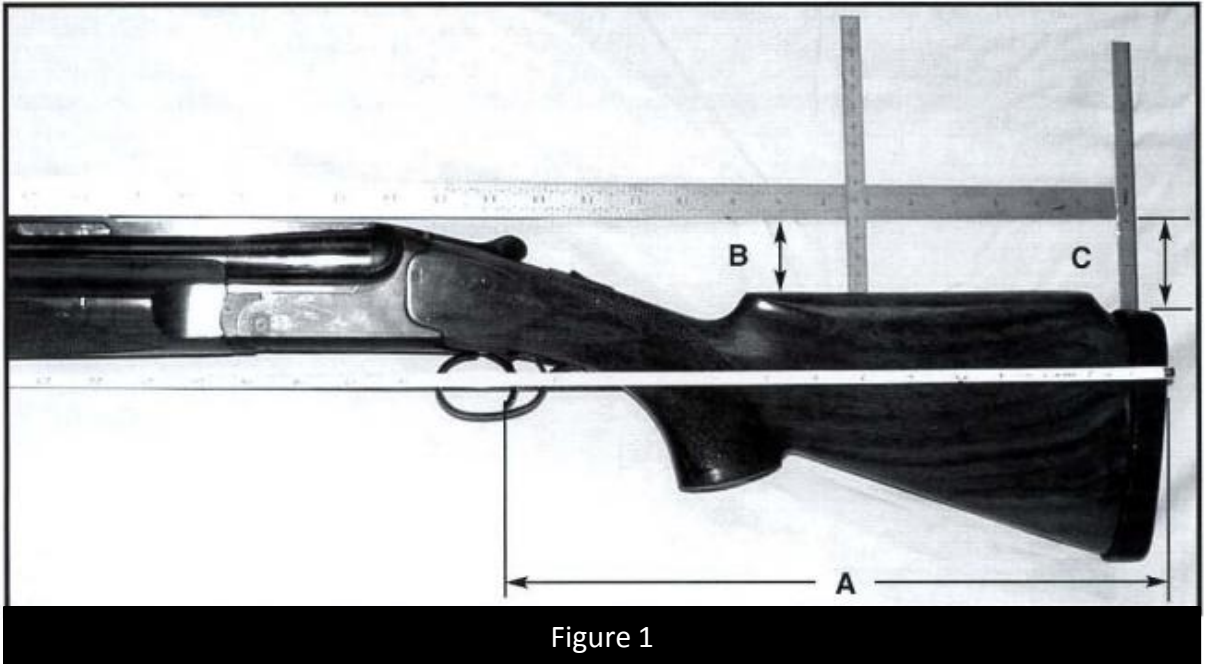
**PLEASE READ  
SAFETY INSTRUCTIONS  
Page 12  
CAREFULLY**

# Precision Fit Stock

## Instructions and Installation

### 1. Measure your existing stock and record your data below. (Figure 1)

- A. Length of pull \_\_\_\_\_ inches
- B. Height of comb (front and back) \_\_\_\_\_ inches
- C. Height of heel \_\_\_\_\_ inches

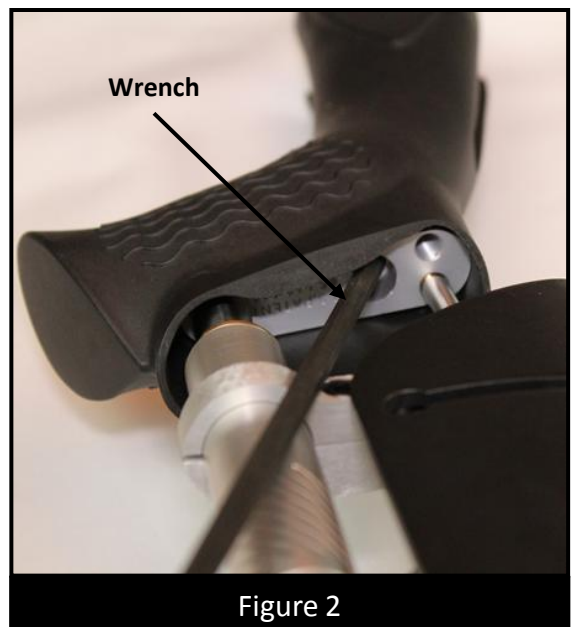


### 2. Remove Existing Stock

### 3. Install New Precision Fit Grip

- A. Remove new “absorber unit” from grip [Ident.1] using the provided “T” handle tool to extract the ¼” socket head cap screw [Ident. C] (Figure 2)

*Note: The “T” handle wrench has a special “ball” end so it can engage the screw at an angle. The ¼” screw can thus be accessed from the left or right of the butt pad.*



- B. Slide the new grip onto the rear of your receiver as far as possible.
- C. Place the grip attachment socket head or slotted screw [Indent. A](see table below for size) into the counter-bored hole in the rear of the grip. Tighten with your stock tool. If you have a slotted grip (marked\* in the table below), squeeze the front of the grip together while you are tightening to ensure that it seats properly on the receiver. (Figure 3)

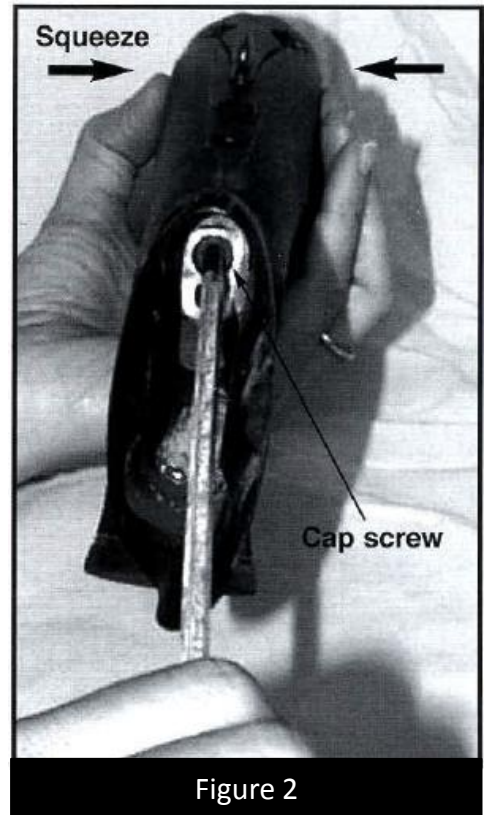


Figure 2

Gun	Thread	Length
*Beretta 680,682,686,687 No side plate models	6 MM	40 MM
*Browning BT99	7 MM	25 MM
*Browning Citori	7 MM	45 MM
*Caesar Guerini	6 MM	50 MM
*Kreigoff K-80, K-32	6 MM	22 MM
*Krieghoff KX5, KSX	6 MM	25 MM
*Kolar	¼- 20	7/8 IN
Ljutic Mono	¼ - 20	7/8 IN
*Perazzi Single Frame (TM1/TMX Old Style)	6 MM	14 MM
*Perazzi Double Frame	6 MM	14 MM
Seitz/Silver Seitz	¼-28	1 3/4 IN

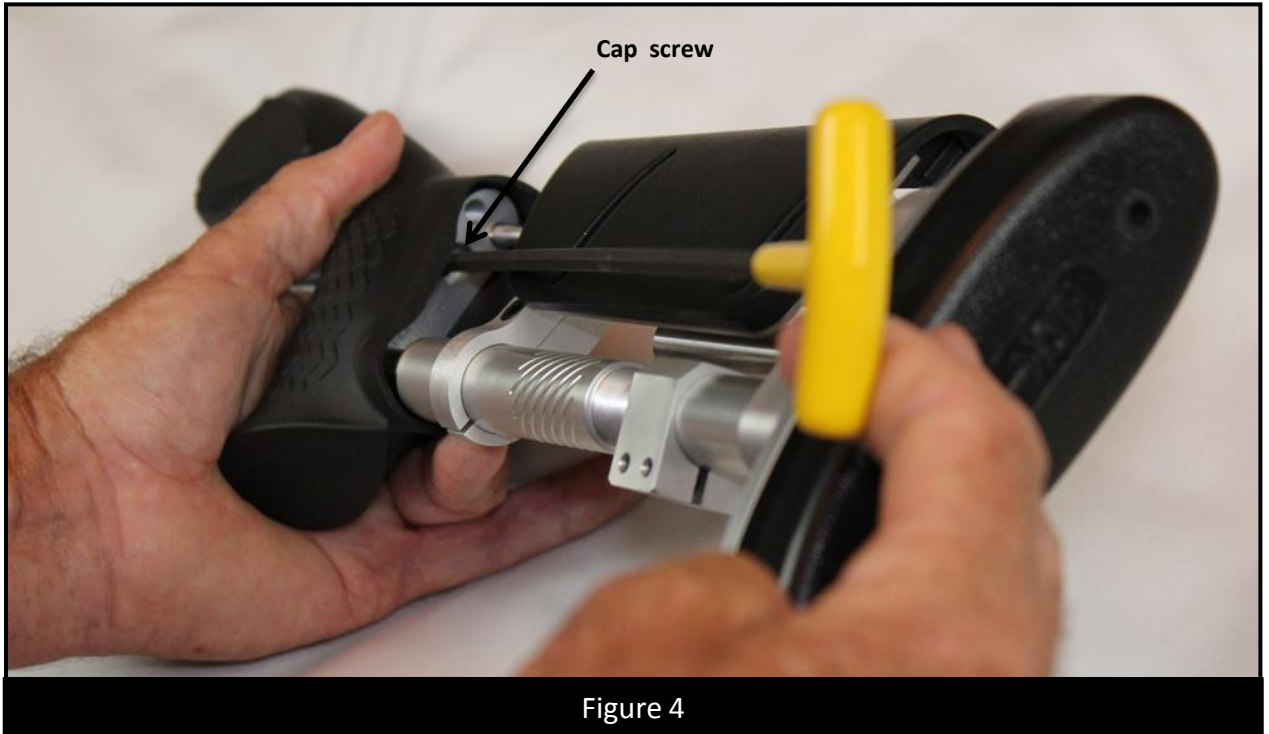
\*Squeeze the front of these grips together while you are tightening to ensure that it seats properly.

- D. Retighten the grip mount screw after every 100 rounds for the first 400 rounds to insure that the new grip seats itself.

#### 4. Install Absorber Unit into Grip.

##### A. Slide the absorber unit into the grip.

B. Tighten the 1/4 - 28 X 1 3/8" long socket head cap screw [Ident. C] with the provided T-Handle tool. Tighten securely. (Figure 4)

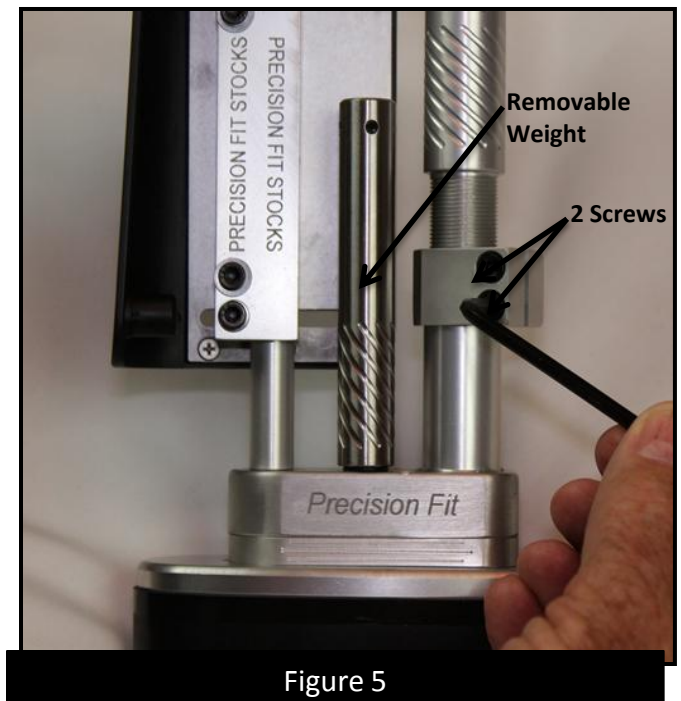


#### 5. Adjust the new stock.

##### A. Setting the Length of Pull

1. Check the length of pull and decide what changes you wish to make.
2. Loosen the screws in the Length Of Pull adjustment lock ring [Ident.14]. (See arrows pointing to screws in Figure 5).

Note: If your stock has the aligner bracket please remove it during the fitting process. Reinstall when finished.



3. Push down on top of the absorber unit to compress it slightly and turn the absorber tube [Ident. 2) clockwise to shorten or counter-clockwise to lengthen it. *(Figure 6)*
4. Tighten screws in the Length Of Pull adjustment lock ring when you are satisfied with the "length of pull" measurement. *(Figure 5)* Make sure the screws in the lock ring are tightened securely.
5. Fully compress the absorber unit and check to ensure that the comb and it's supports do not touch the grip when bottomed out.

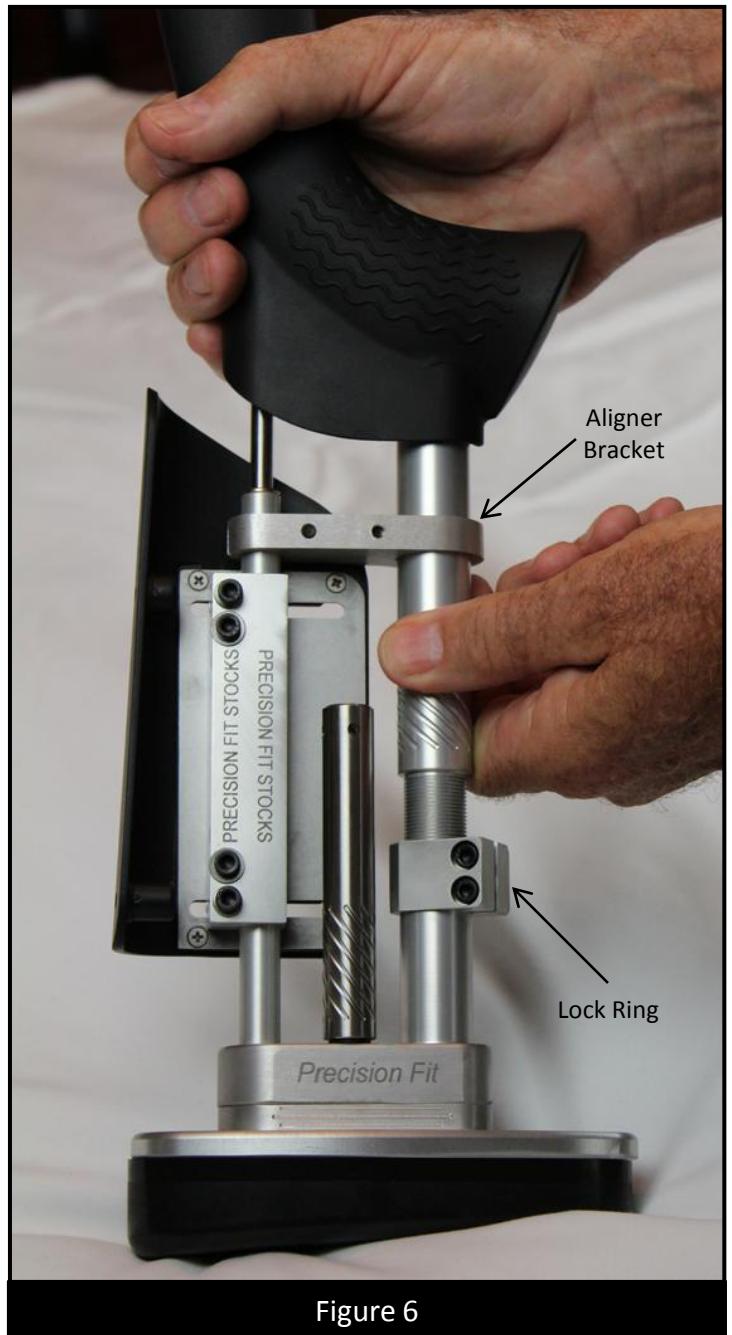


Figure 6

## B. Set Proper Comb Height

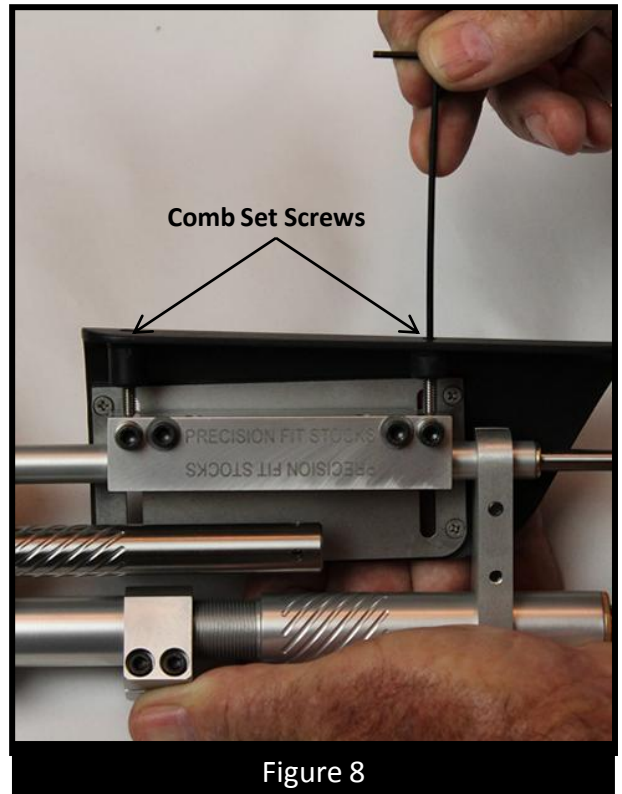
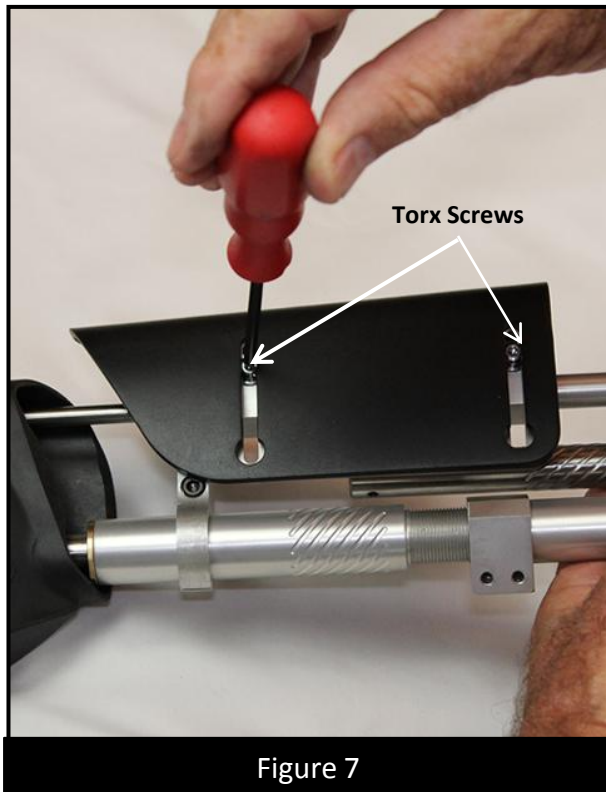
1. Loosen both of the Torx comb screws [Ident. I] with the provided Torx tool. *(Figure 7)*
2. Loosen both Torx screws then raise or lower the comb set screws [Ident. G,H] with your 5/64" Allen wrench. *(Figure 8)*

*Note: We have provided different lengths offset screws with your stock. The comb height you require will determine which set screw length you should use.*

3. Retighten both of the Torx comb screws after proper comb height has been set. (If you do not *have* enough range of comb adjustment see Section G Split Ring Up - Split Ring Down below or contact the factory.)

*Note: When tightening , do not force. Make Sure there is no binding or resistance.*

4. Fully compress the absorber unit and check to ensure that the comb and it's supports do not touch the grip when bottomed out.



### C. Set Comb Cast Off/Cast On.

1. Remove Torx comb screws [Ident. **G**] to remove comb [Ident. 5] (Leave the loose screws in the slots.) This will allow access to cast off/cast on spacers [Ident. 11]. **(Figure 9)**
2. Loosen both the outer and inner pinch screw only in the comb mounting split ring. *(The one that locks the cast off spacer [Ident. 11] by screwing into the back side of it.)* **(See Arrows Figure 9)** This will allow the cast off/cast on slotted spacer to be screwed in or out.

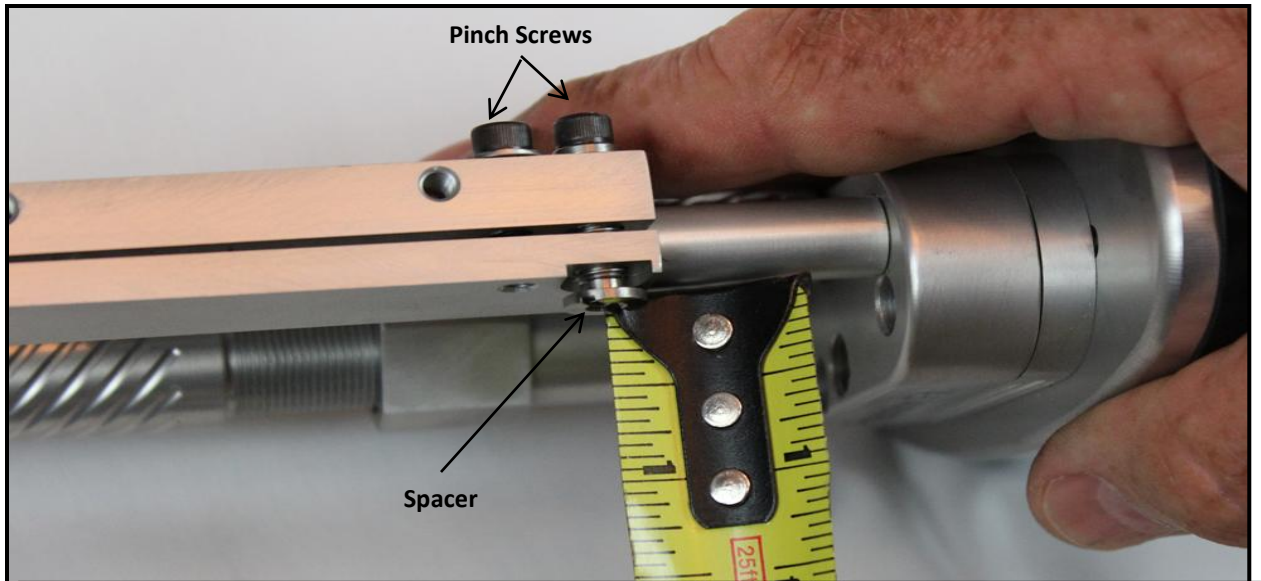


Figure 9

3. Adjust spacer to desired position.

*Note: There are 4 different lengths of black pinch screws (3/8, 1/2", 5/8" & 3/4"). if the spacer was screwed all the way in, i.e. flush with the split ring, you would use the 3/8" screw, 1/8 to 1/4" away from split ring (use 1/2" screw), 1/4 to 3/8 or more away from split ring use 5/8" screw" 3/8 or more away from split ring use 3/4" screw.*

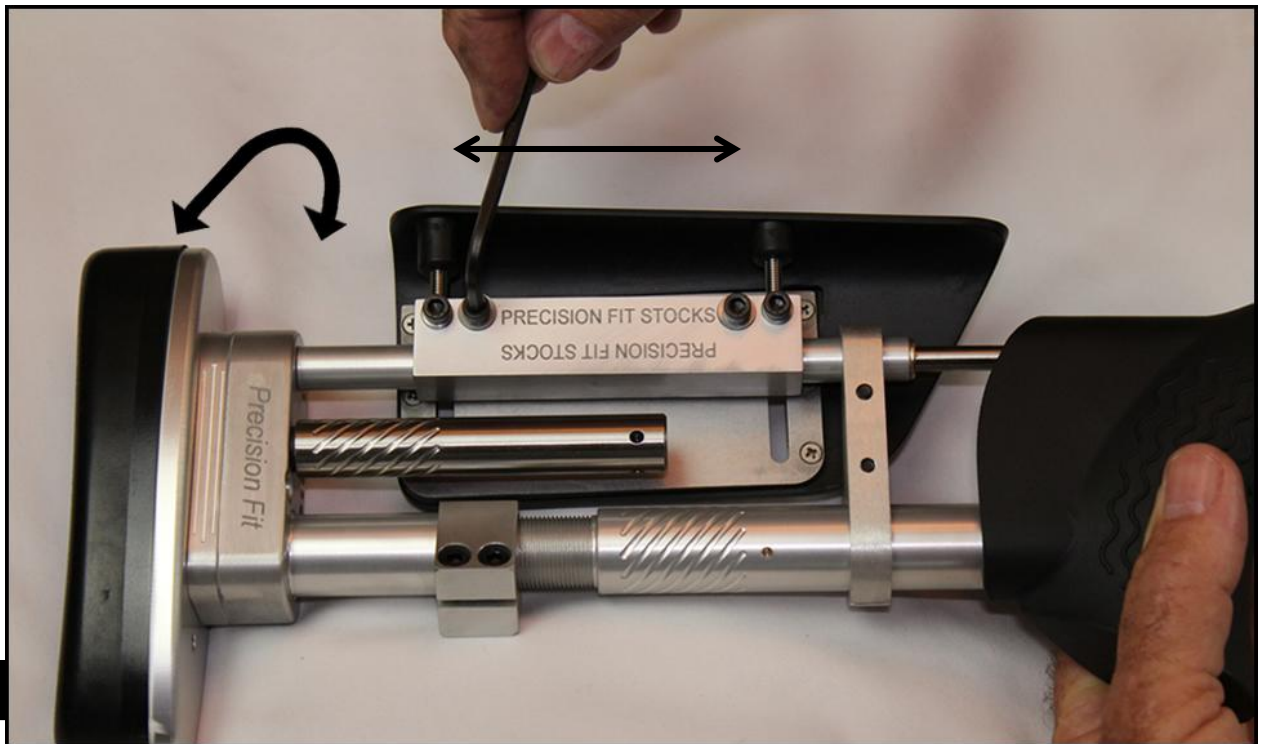
4. Spacers must be adjusted so they are the same height in front and rear. Measure with a ruler. **(Figure 9)**
5. Note: Loosen both outer black pinch screws when adjusting spacer. Tighten spacers by tightening the outer black pinch screws with wrench provided. *Note: Hold spacer with your fingers and tighten the black pinch screws.*
6. Reinstall comb. Tighten Torx comb screws accordingly. Mount the gun and check for fit. Are you looking down the center of the rib? Don't rush this adjustment. Fit for comfort and ease of mount.



7. Fully compress the absorber unit and check to ensure that the comb and it's supports do not touch the grip when bottomed out.

#### D. Set Comb Rotation and Position

1. Loosen all four pinch screws on comb mounting split ring.  
(Figure 10) [Ident. 4 & I]
2. Comb can rotate left or right, and/or, slide forward or back to center the comb on your face. (see Arrows Figure 10)



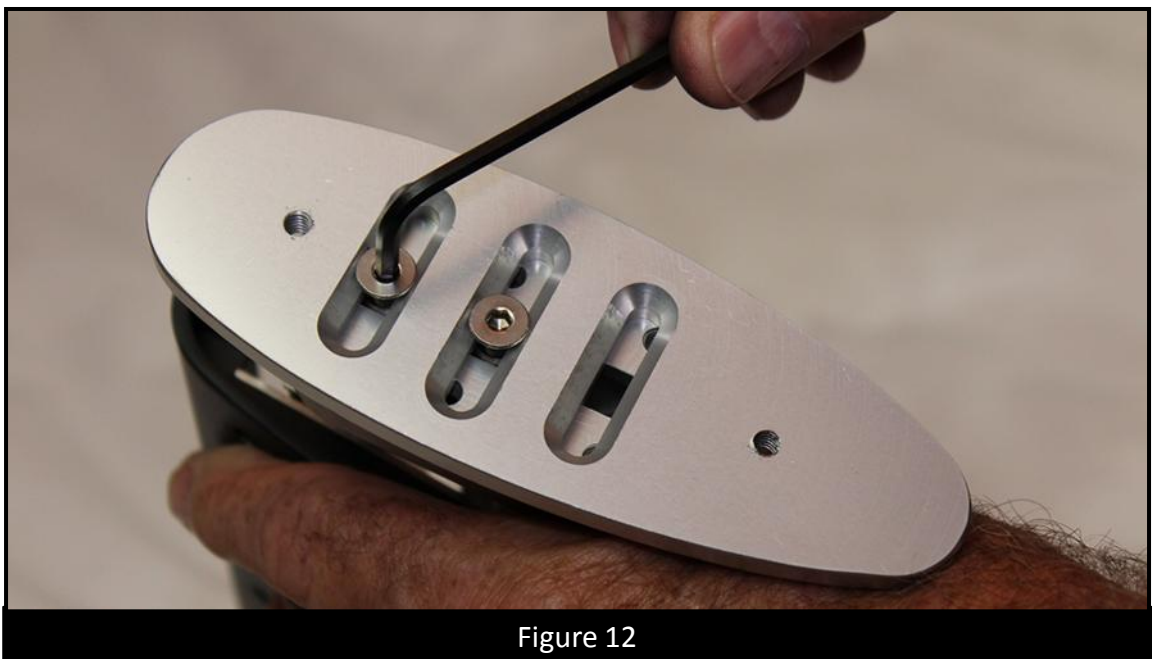
3. Tighten all four pinch screws.
4. Check all screws to insure they are all tightened.
5. Fully compress the absorber unit and check to ensure that the comb and it's supports do not touch the grip when bottomed out..

## E. Adjust Butt Pad Positioning

1. Remove butt pad screws [Ident. F] with provided 5/32 Allen wrench. This will expose adjustment mechanism. (*Figure 11*).



2. Using the provided 1/8" Allen wrench loosen the flat head screws [Ident. E] that lock the butt pad position. Adjust pad to the position of choice. The screws may be moved from slot to slot to enable a greater range of vertical travel. Retighten the flat head screws. (*Figure 12*)



## F. Adjusting the Felt Recoil Mechanism.

*Note: This adjustment controls the pressure required to compress the absorber unit. You may set it very soft or stiff according to your individual preference. We preset the recoil setting to completely solid like a wood stock and then back it off 10 complete turns. **This is a good starting point for most people.** Shoot the shotgun then make final adjustments. Note: If absorber is set too soft the gun will move and will jump around. The stiffer the absorber is set the less movement you will have.*

1. Remove butt pad adjustment unit by removing both socket head screws [Ident. D] from the counter bored holes in the base assembly [Ident. 6] with the 5/32" Allen wrench provided in your tool kit. **(Figure 13)**  
*(Note: you do not lose the adjustment of your butt pad when removing it this way.)*

2. With the butt pad unit removed, insert the 1/4" kit into the Allen wrench socket [Ident. 13] located in the hole in the lower tube absorber unit. **(Figure 14)**

*Note: increase tension by turning the wrench clockwise or turn Counter clockwise to decrease tension. This is a very sensitive adjustment and should be done in small increments. Turn the wrench*

*no more than 2 to3 complete turns between trials. When done adjusting, reassemble and try it out. Somewhere between very soft and stiff there is an area that*

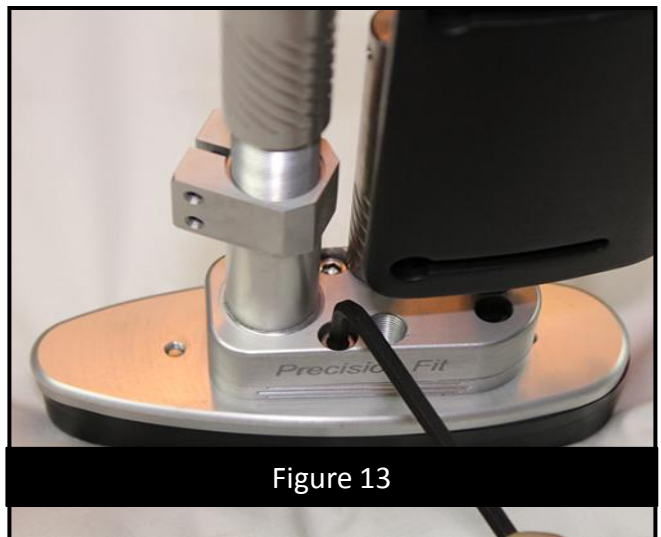


Figure 13

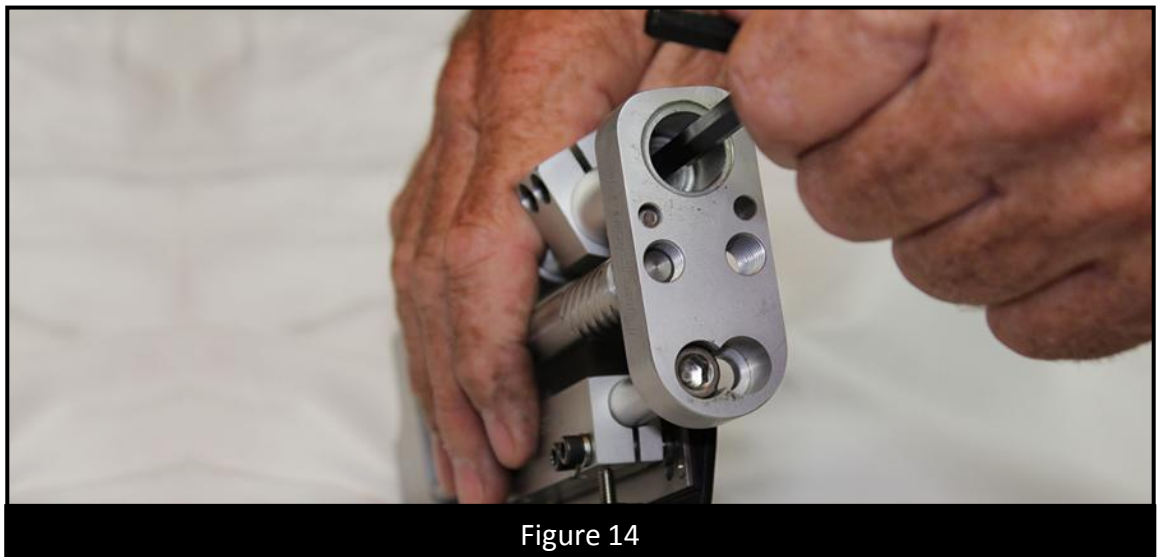


Figure 14

*will maximize the reduction of felt recoil for you. When the tension is correct, if the gun is fired the barrel tip will come straight back with almost no vertical lift. Do Not Remove the Adjustment Screw From Mechanism. This could damage the unit and will require non-warranty factory repair.*

3. Reinstall butt pad adjustment unit.

- G. Split Ring Up - Split Ring Down  
(Maximize & Minimize Comb Height Adjustment)

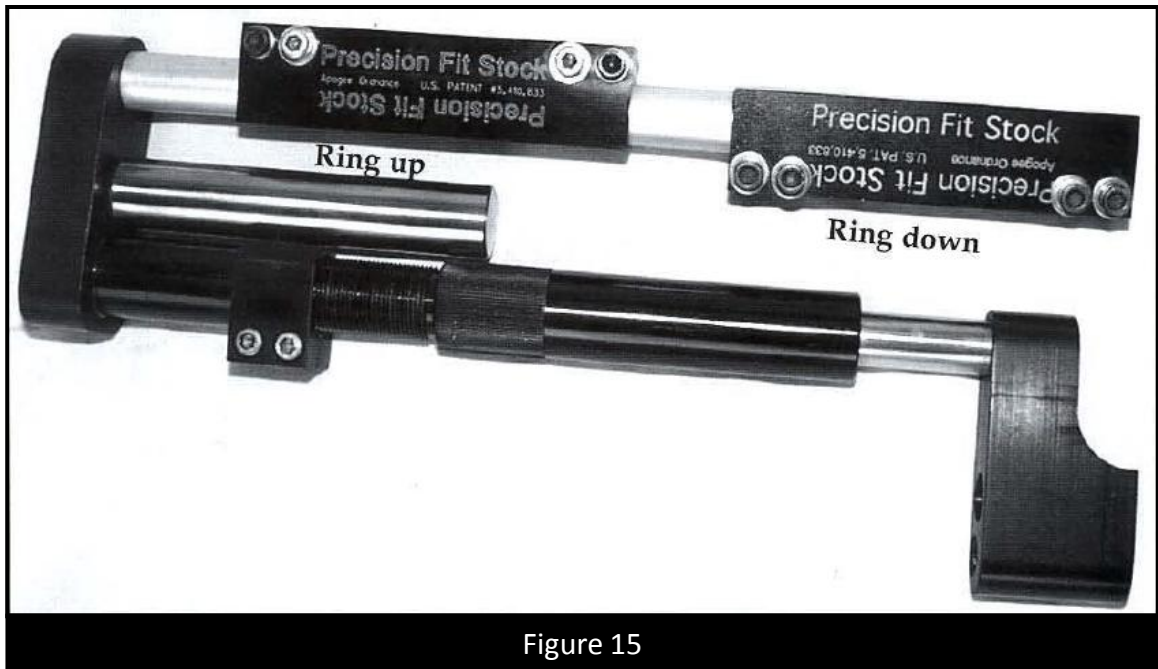


Figure 15

See (Figure 15) Left Unit Ring Up - Right Unit Ring Down

Whether the rings are in the up or down position is normally determined by the rib height on your particular shotgun. There are exceptions to these norms and the following instructions will explain how to change the rings if required.  
change the rings if required.

1. Remove the comb.
2. Remove the stock assembly (absorber unit) from the grip.

3. Loosen the jam set screw [Ident. B] that locks the upper rod with the "T" handle or the 1/8" allen wrench on the newer models. [Ident. 3] **(Figure 16)**
4. Unscrew the upper rod with your fingers. **(Figure 17)**
5. Measure and record the position of the rear cast off/on spacer. **(Figure 18)** See Arrows.
6. Remove the aligner bracket.
7. Untighten all four split rings pinch screws. Slide the split ring off the upper rear tube. Keeping the cast off spacer tops facing you, turn the split ring over 180 degrees. Then reinstall the ring in the desired position. **(Figure 18)**
8. Reassemble the mechanism in reverse order.



Figure 16

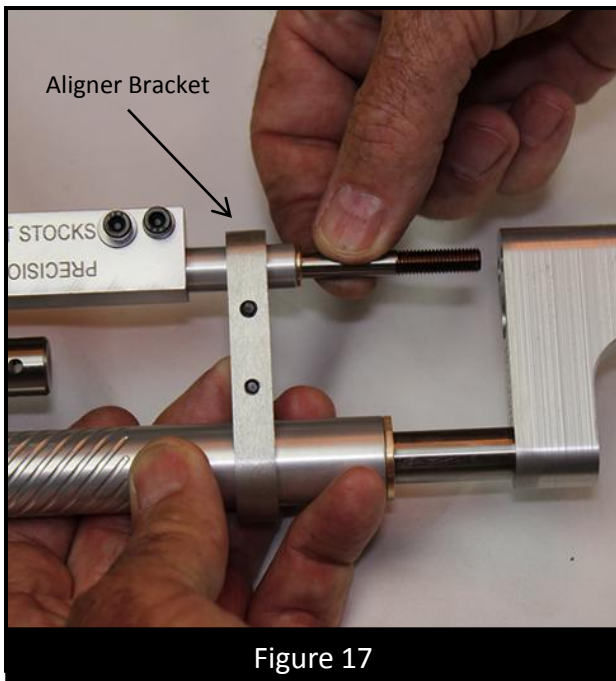


Figure 17



Figure 18

#### 4. Point of Impact Adjustment (*Tweaking it in / Fine Tuning*)

- A. Making the shotgun shoot where you are looking. This is a huge part of the game.
- B. Lowering or raising the comb will effect point of impact (center of pattern placement). One complete turn of the comb set screws (see *Figure 8*) raises or lowers the comb 1/32". This raises or lowers the center of the pattern approximately 1" at forty (40) yards. Don't just take for granted the shotgun is shooting where you are looking. When you break a target, watch the clay target pieces. If the pieces initially go up, you're shooting under the target. Conversely if the pieces go (blow) down, you're shooting slightly over the clay target. When you "smoke" a clay target you are utilizing the center of your pattern. When your point of impact is optimized you will "smoke" more targets as opposed to chipping them. This procedure takes time but once you have the shotgun shooting where you are looking you are on your way to more consistent and better scores regardless of weather conditions. Once you've established your correct point of impact and proper fit, additional changes should be carefully considered, and if pursued, done in small increments. Once you have something that works well for you, concentrate on relaxation and shooting one target at a time.

## 7. ***Safety: Please Read This Section Thoroughly!***

- A. **Always check all screws for tightness after any and all adjustments.**
- B. **Keep all your body parts out of mechanism when shooting.** The grip closes toward the absorber unit and comb with a fair force (the recoil energy of the gun). Anything caught between them will be pinched hard. Keep your fingers, palm, cheek etc. out of the pinch area.
- C. **After any adjustments, fully compress the absorber unit and check to ensure that the comb** and it's supports do not touch the grip when bottomed out. *Note: This condition could occur when length of pull is being shortened or the comb is being rotated or moved forward. Rotate or move the comb accordingly or readjust length of pull to obtain clearance. Clearance at full compression between the grip and the comb and it's supports must be maintained.*
- D. **Safety on and off the line should always be an important part of your shooting.**

## 8. Tech Stuff...Answers to Common Questions.

### A. What's Inside?

What is inside is several hundred "belleville" washers. A "belleville" is a washer with a slight dish (cone) shape to it, made of spring steel. These washers are stacked in "duplex" sets. (several face one way, then several the other, then the first way then the second, ..... etc. The stack is then loaded into the absorber unit. This is why we don't want you to remove the adjust screw Ident. 13]. If the washers fall out, you are not likely to find them all, nor get them cleaned and back in the right order.

### B. How does it "absorb" recoil?

If we put a conventional spring in the stock, so it compressed when fired, it would reduce only "felt recoil". The energy would act over a longer time, thus the force (*felt recoil*) during that time would be less. However the gun returning to "battery" (*returning to the extended position*) will continue to push against you. When it's all over the total energy deposited in your shoulder is the same as with no absorber. The "duplex" bellevilles, on the other hand, when nested together, slide slightly against each other when compressed. The friction of this sliding causes heat to be generated, taking energy out of the system and your shoulder. Tech types call this loss "hysteresis" when they're trying to get people to stop asking questions. Hyster whatever is what makes hydraulic and pneumatic recoil absorbers so effective when they do work at all. The trouble with them is they all leak sooner or later and they change characteristics with temperature variations. The mechanical hysteresis is one of the many patented features of the stock.

### C. Why do I have to adjust it?

Many things effect the way you take recoil: the weight of the gun, the center of gravity (*3D balance point*) relative to the center line of the barrel (*barrel being shot in O.U's.*), the drop at the toe, the weight of shot, the size of the powder charge, the speed of the powder, and the choke. These start an incomplete list of "hardware only" things that significantly effect felt recoil. Then there are the factors of the body behind and (*hopefully*) in control of the gun: weight, build, height, stance, how tightly muscled, how tense, gun mount, how tightly pulled into the shoulder, cheek position, firing technique, clothing, ..... this list goes on and on. To shorten an already long story, **ONE SIZE DOES NOT FIT ALL**. For a person who has

shot a ridged (and *often ill fitting*) stock for a long time, the motion in the hands of any- true recoil reducing stock can take some getting use to. Most people start out wanting the absorber stiff" This stiff spring reduces the movement (*telescoping*) of the front of the gun "into" the stock. This gives a more familiar feel to the gun, but is harder on the shoulder. If you're used to pulling the gun hard into the shoulder you may have to start out with a stiff setting to keep from collapsing the stock before" the shot is fired. We find most shooters learn to relax their grip and the spring as their body becomes accustomed to progressively less punishment. With softer spring settings the absorber travel increases. This increased travel makes the recoil cycle longer, reducing felt recoil, as well as removing more energy through hyster stuff. (*And yes, it is still fast enough for doubles.*) Properly set up the gun recoils virtually straight back with minimal muzzle climb. But... you do have to adjust it to your gun, your load, and yourself.

#### **D. Can I Go To Soft?**

Yes. If the motion in your hands is distracting or uncomfortable, then it is not stiff enough. If the absorber unit bottoms out when you shoot, it's too soft. We designed the unit with more travel than most people could possibly get used to. As you set tension in the stock and get used to it you should find your personal area of maximum comfortable recoil reduction. Watch your barrel, or have a friend watch your barrel when you shoot. Your barrel should come straight back horizontally with little or no vertical muzzle jump. If your barrel is bouncing or jumping and your mechanism is adjusted soft. Try increasing the tension in the recoil mechanism by 2 or 3 turns and try it again. Tune the mechanism to your particular style.

#### **E. How Much Recoil Does It Absorb?**

It depends on how much motion you can get used to, but we believe it reduces recoil by 50% or greater when adjusted and fit properly.

#### **F. What About Maintenance?**

The stock is made of composite plastic, anodized aircraft grade aluminum, and stainless steel. The hardware pieces that are not stainless are easily replaceable screws that require more strength than stainless has. Some of the early models had self lube bushings (black in color) and required no oiling. The newer models have brassy colored bushings and require a small amount of synthetic oil occasionally.



## 9. Locknut / Recoil Reduction Device

You will find a 1/2" long stainless steel socket set screw in your tool kit. We refer to this as a locknut. It is 1/2" long and is threaded on the exterior. This unit goes into the same hole where you make the adjustment on the recoil tension ... the one where you use your 1/4" allen wrench to either tighten. or loosen the tension on the recoil reduction device. (see *Figure 14* page 9). Screw the locknut into the same hole until it just touches the adjuster (don't over-tighten) just let it touch the recoil adjuster screw. This acts like a stop and keeps the recoil adjuster from changing its setting once you have it adjusted. If you have to readjust the device at some later date the locknut that you installed may be a little tight when you try and remove it (you must remove it prior to changing the adjustment) but it will come loose with a little coaxing. Remove it completely and then readjust the recoil reduction device as required.

Note: If your tool kit has a ball bearing in it drop bearing in the hole then install the locknut over the top & tighten.

## 10. Pitch Spacers

There are two (2) Pitch Spacers provided with your PFS. These are tapered wedges (thick at one end and thinner at the other). These can be used under the butt pad to adjust the pitch of the shotgun. If the spacer is installed with the thick portion toward the top of the butt pad, you would be adding down-pitch and if it were thin at the top, it would be up-pitch. When you are considering a pitch change, what you are trying to do is match the angle of the butt pad to the angle of your shoulder "when you have the gun mounted". Proper "pitch" can stabilize muzzle jump and further enhance felt recoil reduction. These spacers will have to be ground to fit the butt pad.

Any Questions? Please don't hesitate to contact us:  
Phone (719)-547-4432

Welcome to the New World of Shooting!

**"Expect to Win"**

