



**JP EZ Trigger™**

**Installation and Setup Procedure**

ver. 2010.6.16

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[www.jprifles.com](http://www.jprifles.com)

## **Package Contents**

### **Trigger**

- JP EZ Trigger
- Two (2) 4-40 x 3/8" overtravel set screw (one spare)
- JP EZ Disconnecter
- 4-40 x 1/4" disconnecter adjustment set screw
- Disconnecter spring
- Reduced power trigger spring

### **Hammer**

- JP Speed Hammer
- Competition reduced power hammer spring (yellow)
- Tactical reduced power hammer spring (red)

### **Safety**

- JPFC-S safety drum
- Safety lever
- 8-32 x 3/8" flat head cap screw
- 8-32 x 1/4" flat head cap screw
- 8-32 x 5/16" dog point set screw
- 8-32 x 3/16" brass set screw

### **Pins**

- Two (2) JP Anti-Walk Pins
- Four (4) 4-40 x 3/16" buttonhead cap screws

### **Tools**

- Two (2) 1/16" hex key
- .050 hex key
- Thread locker
- Instructional DVD

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JP high performance firearm components represent the state of the art in their respective product categories. However, be aware that any change to the original design of the firearm may yield performance improvement in one area but usually at the expense of something else. It is your responsibility to determine if any aftermarket component is suited to your application. When in doubt, call our technical support line for guidance: 651-426-9196

All JP Fire Control components are designed and intended for semi-automatic use only and will not function in a full-auto application. Attempting to use these components in a full-auto application will place you in violation of federal law.

### **NOTICE**

No liability is expressed or implied for damage, injury or death resulting from the improper installation or use/misuse of this product.

Like skydiving or rock climbing, the handling and use of firearms carries with it certain unavoidable risks. In you are not willing to accept the responsibility for your own actions, firearm ownership is not for you.

The use of any custom parts or modifications may void the warranty from the manufacturer of your firearm.

We strongly recommend that a qualified gunsmith check the safety and function of your modified firearm.

Before performing any work or modification on your firearm, make sure it is clear. Remove any magazines, open the action and visually check the chamber to ensure that your firearm is completely unloaded.

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## **Introduction**

Thank you for purchasing the **JP EZ Trigger™** for your gas gun application. The installation of this fire control system can be performed by almost anyone, takes only about five minutes, and avoids any troublesome gunsmith fitting and the danger of ruining parts. The design intent was to make it possible for even those with limited tools or mechanical knowledge to achieve a successful, expert trigger installation. The **JP EZ Trigger™** combines the versatility of our proven component parts with the convenience of a modular trigger. It really is the best of all worlds—a superb trigger job on par with our own professional in-house installation, the speed and ease of a module and the versatility of a components trigger.

Before beginning the installation, read these instructions thoroughly and review the instructional DVD video included in the packaging (and also available on our website at [www.jp Rifles.com/4.1.php](http://www.jp Rifles.com/4.1.php)). This video details our professional in-house installation procedure as a visual aid for the process.

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To perform the installation, you will need to provide the following items:

- padded vice
- plastic mallet
- drift pin / slave pin
- 5/64 hex key
- quality gun grease (such as Rydol®)
- lacquer thinner or acetone
- compressed air
- protective eyewear

### ***Using Thread Locker***

The ***JP EZ Trigger™*** and adjustable disconnecter include adjustment set screws in order to optimize function for the particular receiver. If these adjustments are set properly the first time, they should not have to be readjusted or tuned. To complete the final setup, thread locker must be used and will never loosen once cured unless heat is applied to the screw collars. Do not use Loctite® 242 (blue) or substitute products like nail polish.

When using the included thread locker, be aware that you will have somewhere between a few minutes to an hour of working time, depending on humidity and heat. Because of

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this, make sure to practice the adjustment steps at least once before committing to the thread locker. If it sets before you obtain the correct setting, you will have to apply heat to the set screw collar to degrade the thread locker and remove the set screw, then clean the screw and collar for another run. Make sure also not to apply excess thread locker. If the thread locker bleeds into the pin bearings or between the trigger and the receiver, it will lock up the entire mechanism.

### ***Spring Selection***

The final pull weight of the ***JP EZ Trigger™*** is determined primarily by the spring setup and will range from three to five pounds depending on the choice of hammer spring. For recreational or competition applications where absolute reliability is not a necessity, we recommend using the yellow competition hammer spring, which will yield a final pull of 3-3.5 pounds. Be aware that this spring setup may not yield full ignition reliability with military primers.

Alternately, the red tactical spring will yield a pull of 3.5-4 pounds and full ignition with all primers. The red tactical hammer spring must be used if you are installing the ***JP EZ Trigger™*** in a .308 rifle, which requires a heavier pull weight in order to prevent the “finger bounce” doubling effect. Any rifle that will be used for military/police duty or home defense must also use this spring to ensure full ignition reliability.

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If you wish to achieve a 4.5-lb. trigger for service rifle high-power competition, use your original trigger return spring and hammer spring rather than those supplied. Be aware that it may be necessary to increase the tension on the trigger return spring to achieve the 4.5-lb. weight due to the minimal hammer camming effect from our improved sear geometry. You can do this by bending the two legs of the spring further down about 20° to 25° (as shown) to apply more return tension. By “tuning” the trigger return spring and slightly increasing engagement, you should be able to accurately tune the finished trigger weight to meet your requirement. If you would like an extra set of springs pre-balanced for the 4.5-lb. weight, you can order one from JP.



### ***Dry Firing***

When you’ve finished the installation of the ***JP EZ Trigger™***, we recommend that you or any operator of the rifle practice dry-firing it prior to using live ammunition in order to become acquainted with the feel and function of the new trigger. We recommend our hammer blocking device (part # JPFC-HS), which is ideal for repeated dry-firing without damage either to the receiver or your thumb.



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## ***Preparation***

Terms of orientation in these instructions—such as the right/left side of the rifle—assume the perspective of the operator handling the rifle as normal with the muzzle facing away.

***1. Remove the magazine from the rifle and verify that the chamber is clear before proceeding***

***2. Separate the upper and lower receiver assemblies***

First, push out the rear takedown pin until it comes to a positive stop. Pivot the upper assembly down and away from the lower assembly. Then, press out the front pivot pin in the same way as the rear takedown pin. Separate the assemblies and lay the upper assembly aside.

***3. Secure the lower assembly in a padded vice***

There are several options for clampable vice blocks that insert into the magazine well, but you can also clamp the receiver itself between wooden blocks around the outside of the magazine well. In either case, be sure you have access to the top opening in the receiver, the trigger and

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hammer pin holes, and the grip, trigger and safety area. Clamp the receiver just tight enough that it is secure but do not over tighten and thereby distort the receiver.

#### **4. Degrease components with lacquer thinner or acetone**

To ensure that the thread locker holds to the surfaces, degrease the safety drum, the threads in the screw boss of the trigger, the disconnecter, the anti-walk pins, and all included screws **EXCEPT** the 4-40 x 3/16" buttonhead cap screws for the anti-walk pins. These screws come with a blue thread locker coating already applied and should not be cleaned.

It is important that all screw threads are thoroughly cleaned; simply soaking the parts in solvent will loosen the oils but may not carry them out of the threads. Follow the soaking with a blasting of compressed air. A can of aerosol brake cleaner may be employed to this end, but be sure to wear eye protection during use.

#### **5. Install a single screw in each anti-walk pin**

Apply a very small amount of thread locker to two of the 6-32 x 3/16" buttonhead cap screw and install one screw tightly into each of the anti-walk pins. Make sure that excess thread locker does not overflow the pin once the screw is installed.

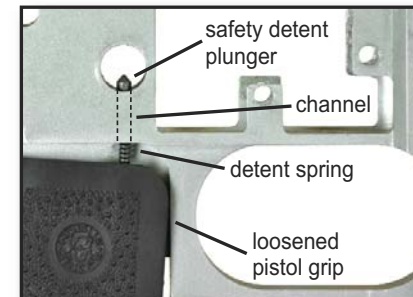
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#### **6. Remove the existing fire control components**

Using the plastic mallet and drift pin, carefully tap the existing trigger pins out of the lower receiver. First remove the hammer pin and hammer followed by the trigger pin, trigger and disconnecter.

#### **7. Remove the existing safety selector**

Begin by loosening the grip screw so that the pistol grip can be slightly pulled away from the receiver without having to be removed. This will relieve tension on the detent plunger, which will descend the channel and allow you to remove the existing selector from the receiver. Take care not to lose the safety detent and spring.



#### **8. Clean out the fire control cavity as needed**

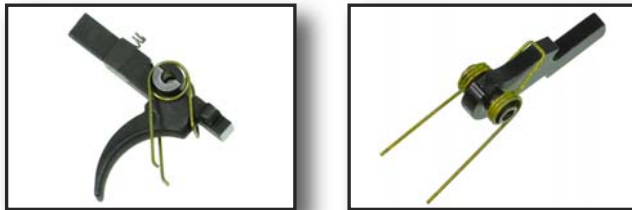
Make sure there is no debris or dirt in the bottom of the fire control cavity that may interfere with the mechanism, particularly the overtravel adjustment screw of the trigger.

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## Component Installation

### 1. Install the appropriate springs onto the trigger and hammer as shown

If you haven't already, refer to the Spring Selection section on page 5 of this manual.



### 2. Temporarily assemble the safety selector drum

Install the safety lever using the 8-32 x 3/8" flat head screw into the safety drum on the side with the detent groove as shown. This assembly is temporary, so **DO NOT** apply thread locker to the flat head screw at this time.



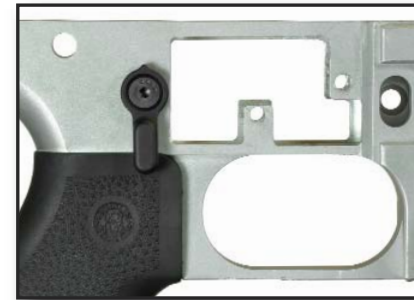
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### 3. Apply a small amount of gun grease to the detent groove of the safety drum

Take care that the threaded screw holes of the safety drum remain free of grease.

### 4. Insert the safety drum into the receiver as shown

At this time, the safety lever should be on the right side of the rifle such that the detent groove is located above the detent plunger. If desired, the safety lever may be switched to the left side of the rifle at a later point.



### 5. Return the pistol grip and detent to their former positions

Slide the grip back in place making sure the detent spring is not pinched. Retighten the grip screw.

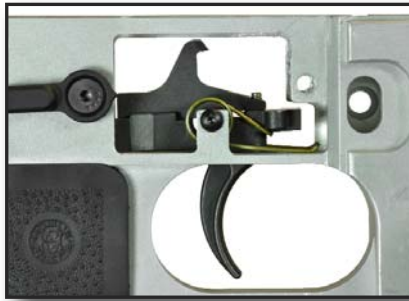
### 6. Insert the trigger and disconnecter into the receiver

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Insert the disconnecter in the trigger slot, and place them into the trigger cavity with the tail of trigger underneath the safety selector.

**7. Insert an anti-walk pin through the trigger and disconnecter to secure them in the receiver**

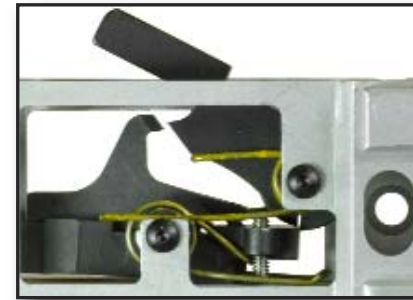
If you are having trouble aligning the disconnecter and trigger in order to slide the anti-walk pin through both the trigger and disconnecter, insert your drift pin or a smaller standard trigger pin first, using it as a slave pin. Then, press it out with the anti-walk pin. The JP pin is sized to be a tight fit into the holes in the receiver and may require a bit of gentle force to install. If you have to tap the pin in, use a plastic mallet on the protected the end of the pin with the button head screw installed.



**8. Install the hammer with the hammer spring oriented as shown**

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As with the trigger it may be easier to install first with the original standard sized pins and then push it out with the anti-walk pin.



**9. Test the trigger and hammer function**

Let the hammer forward by pulling the trigger and easing the hammer up with your thumb. If the hammer is hooked by the disconnecter, you must first press down on the tail of the disconnecter until it releases.



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## ***Adjustments***

The following steps will require the use of thread locker to finalize the installation. It is recommended that you practice the adjustments at least once to familiarize yourself with the steps before performing them with the thread locker.

### ***Disconnecter***

#### ***1. Install the disconnecter adjustment screw in the disconnecter***

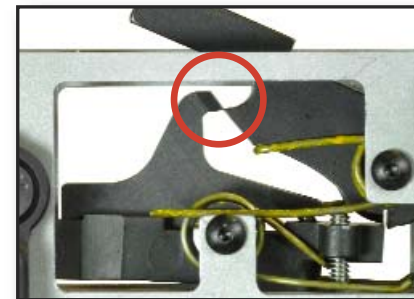
Place the 4-40 x 1/4" set screw on the included .050 hex key and apply a small drop of thread locker to the screw threads only. Insert the screw into the threaded hole at the front of the disconnecter. Thread the set screw in until it reaches bottom and the disconnecter just starts to move. Then, turn it 1 ½ turns further. If you place your thumb on top of the disconnecter while turning in the screw, you should be able to feel it start to move.

#### ***2. Adjust the disconnecter screw until the disconnecter tip just touches (interferes with) the spur of the hammer.***

When you pull the hammer back at this point, it should not be retained by the disconnecter. If this is the case, pulling the trigger will release hammer, so be careful not to let the hammer fall and strike the receiver.

If the hammer is retained by the disconnecter at this point, you will have to release it by pressing down on the tail of the disconnecter and then turning the set screw in another half turn. The hammer must be forward for you to adjust the screw. Once the hammer is not being held by the disconnecter, you can begin to fine-tune the adjustment until it is set right at the point of release.

Back the set screw out gradually testing the fit each time by cocking the hammer until the tip of the disconnecter just touches the disconnecter spur of the hammer but will not retain it. Referencing the installation video for this adjustment will be very useful.



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### **3. Verify the disconnecter setting**

Cock the hammer while keeping the trigger pulled. The hammer should be retained by the disconnecter. When you slowly release the trigger, the hammer should release from the disconnecter with an audible click and reset to the sear face of the trigger. If it does not release, you may have to turn the screw back in by a small amount.

**Note:** It is best to allow the thread locker on the disconnecter adjustment screw to set before proceeding further.

#### ***Overtravel***

The overtravel adjustment is optional and not a necessity for a functional trigger, but the most refined feel with the shortest gate from fire to reset is achieved with a tight overtravel setting as described. However, if you prefer to bias towards a higher fouling tolerance in a duty rifle used in adverse conditions, a more conservative setting or the elimination of the overtravel set screw is an option.

### **1. With the hammer fully forward (un-cocked), install the overtravel screw in the trigger**

Place the 4-40 x 3/8" set screw on the included .050 hex key and apply a small drop of thread locker to the screw threads only. Insert the screw into the screw boss at the

front right side of the trigger. Thread the screw in until it reaches the bottom of the receiver, and then back it out half a turn.

### **2. Verify the trigger mechanism's function with the overtravel setting**

With the trigger pulled, you should be able to pull the hammer back with no interference until the hammer touches the disconnecter. In other words, you do not want the hammer to drag on the trigger as you cock the hammer.

With the trigger released, cock the hammer normally. With your thumb ready to catch the hammer as it falls forward, slowly pull the trigger. The trigger should release cleanly and have a very slight amount of overtravel after the trigger releases. The trigger should not touch the hammer at all as it is lowered forward provided you keep the trigger pulled.

#### ***Safety Selector***

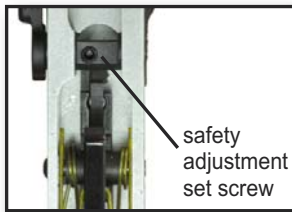
The following steps outline the setup of the JP adjustable safety selector. Be aware that until the safety set screw is installed and locked, the safety may not function, and the rifle may be fired with the lever in either position if the trigger is pulled.

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**1. Cock the hammer and then turn the safety lever to the SAFE position**

**2. Install the safety adjustment set screw into the safety drum**

Place the 8-32 x 5/16" dog point set screw on your 5/64" hex key and apply a small drop of thread locker to the screw threads only. Insert the screw into the vertical hole in the safety drum. Thread the screw in until it just touches the trigger, then back it out 1/8 of a turn.



safety  
adjustment  
set screw



brass  
set screw

**3. Test the function of the safety**

With the hammer cocked and the safety on, the trigger should have just the smallest amount of movement possible. It should not be able to fire, but it should also not bind up. When you rotate the safety to FIRE, the trigger should again release the hammer when pulled.

**4. Install the brass locking screw into the safety drum**

Place the 8-32 x 3/16" brass set screw on your 5/64" hex key and apply a small drop of thread locker to the screw threads only. Insert the screw into the threaded hole on the safety drum. Thread the screw in until it contacts the dog point set screw and tension it hand-tight.

**5. Remove the safety lever and install it as desired**

Once removed from the safety drum, the safety lever and 8-32 x 3/8" flat head screw can be installed into the drum on the left side (for right-handed shooters) or right side (for left-handed shooters) with a drop of thread locker on the threads of the screw.

**6. If you do not desire an ambidextrous safety, install the remaining flat head screw in the open side of the safety drum**

Apply thread locker to the threads of the 8-32 x 1/4" flat head screw and insert it into the open side of the safety.

If you would prefer an ambidextrous safety, you will need the extra safety lever available from JP (part # JPFC-SL1), which can be installed as outlined in step 5 above. Be aware that if you choose to install the second lever at a later date, you will need to apply heat with a blow torch to break the thread locker holding the 8-32 x 1/4" screw installed in this step.

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## **Finalization and Verification**

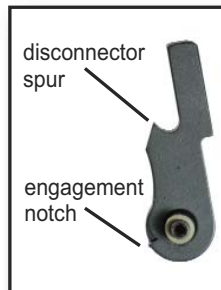
If you encounter difficulties installing the **JP EZ Trigger™** in your receiver or cannot verify the success of the installation as outlined below, call JP Technical Support at 651-426-9196. Do not attempt to use your rifle with a potentially faulty trigger mechanism.

### **1. Install the remaining buttonhead screws into the anti-walk pins**



Apply a very small amount of thread locker to the two remaining 6-32 x 3/16" buttonhead cap screws and install them tightly into each of the anti-walk pins. Use the two 1/16" hex key provided to firmly tighten the screws into the threaded holes of the pins.

### **2. Apply a dab gun grease to the engagement notch and disconnector notch of the hammer**



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### **3. Reassemble the upper and lower receivers**

### **4. Verify function of the trigger mechanism as follows:**

1. Turn the safety to FIRE position
2. Cycle the bolt with the charging handle
3. Squeeze the trigger but do not release it
4. Cycle the action again while still holding the trigger back
5. Release the trigger while listening for the click of the hammer reconnecting
6. Repeat this process several times

### **5. Verify the function of the safety as follows:**

1. Turn the safety to the SAFE position
2. Pull the trigger to make sure the hammer does not fall
3. Release the trigger
4. Turn the safety to the FIRE position and verify that the hammer does not fall
5. Repeat this process several times

### **6. Allow the thread locker to set up for at least 24 hours prior to firing the rifle**

### **7. Test the tightness of the anti-walk pin screws**

After the thread locker has set, use the two 1/16" hex keys

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to verify the tightness of the anti-walk pin screws. With one wrench in each of the screws on either side of the receiver, apply light counterclockwise force to the screws of each pin, which should not move. If the thread locker breaks under light force, remove the screws, degrease the components, and reinstall with thread locker.

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## ***Using Your Rifle***

Before firing or allowing anyone else to fire your rifle, the user should dry-fire it first to get accustomed to the refined trigger. (See page 6) While using your firearm, always remember the following rules:

1. ***Handle all guns as if they were always loaded.***
2. ***Never sweep yourself or anyone else with the muzzle.***
3. ***Keep your finger out of the trigger guard until ready to fire.***
4. ***Be certain of your backstop and your target.***

As a firearm operator, you must take responsibility for your own actions. JP Enterprises will not be responsible for any injury, death or property damage resulting from the use or misuse of these parts.

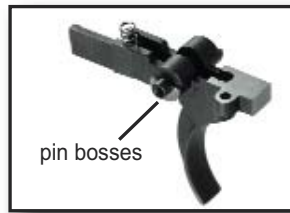
Also, during operation of the rifle, take care never to engage the safety selector if the hammer is in the FIRE position. This may cause damage to the hammer/sear interface and possibly crack the trigger. A properly fitted trigger/safety selector relationship will not allow the selector to be engaged (with hammer down) without forcing it.

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## ***Troubleshooting***

**Problem:** The trigger will not even fit into lower receiver.

**Solution:** The trigger is slightly too wide for your lower. Remove a little material from the sides of the trigger pin bosses until the trigger will slide into the lower with no resistance.



**Problem:** Rifle occasionally “doubles” (fires more than one round with a single trigger pull) under live-fire conditions.

**Solution:** This is a potentially dangerous problem and must be solved before further use of the rifle. It may also get you in trouble with the authorities. More than a few people have been prosecuted for attempting to “manufacture” a machine gun.

There are several causes of doubling in live fire. The first is mechanical. If you have just completed the installation and the rifle is malfunctioning, you have not achieved proper disconnecter timing.

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What is actually happening is a “fire on release” situation. Specifically, the weapon fires when the trigger is pulled and fires again when the trigger is released because the hammer is released by the disconnecter before the sear is there to receive it. If the rifle has worked properly for some period of time and suddenly develops this problem, your disconnecter has probably worn back at the tip and should be replaced. All M15-type rifles will develop this problem given enough use. Still, a properly timed disconnecter will last many thousands of cycles before failure.

The second common cause of doubling is the “finger bounce” effect. There are even devices on the market specifically designed to enhance this effect resulting in mock full-auto fire. This problem can be caused by a combination of improper trigger control technique and a trigger release weight that is too light. As the rifle moves in and out from your shoulder under the recoil impulse, the trigger is bouncing against your finger. If the trigger weight is too light, your finger will trip the sear under the recoil impulse resulting in multiple shots. This technique is not appropriate with self-loading rifles. For a demonstration of proper trigger control technique as it relates to semi-automatic rifles,

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watch the DVD **GasGunBasics™** produced by JP Enterprise, Inc. It has a wealth of information regarding all aspects of use, maintenance, loading, optics selection and proper bench technique including trigger control.

The doubling effect is also most common when the finished weight of the trigger is below 3 lbs. Weigh the trigger with a weight or spring gauge to verify that your finished trigger weight is at least 3.0 to 3.5 lbs. If it is much below 3 lbs., you should increase the pull weight. This can be done without redoing the set screws by increasing the hammer and/or trigger spring tension, assuming that you have proper engagement setting in the first place. People who are accustomed to shooting bolt guns with very light triggers and use “bench rest” techniques are particularly prone to experiencing this condition, as they have a very light grasp of the rifle and feather the trigger. This is not an appropriate technique for a self-loader. Additionally, rifles not equipped with a muzzle brake—short-barreled carbines in particular—require a heavier trigger setup to avoid the finger bounce problem. Remove the JP trigger spring and replace it with the original. This will add about six ounces to the pull weight. If that is insufficient, bend the legs down about 25° (see page 6) to further increase the

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trigger reset tension. If you approach 3.5 lbs. and still experience the problem, you may have some other problem that needs professional attention, which we can help to diagnose.

The final cause of firing more than one round per pull of the trigger is the “slam-fire” effect. This is caused by the firing pin striking the primer as the bolt carrier assembly comes forward into battery at high velocity. The inertia is imparted to the firing pin, and as the bolt closes, the firing pin continues forward at speed to strike the primer. You will notice that, when unloaded, the last round in the chamber will always show a firing pin witness mark due to this effect. If the primer is sufficiently sensitive and the firing pin velocity high enough, you may have a slam fire. Always use appropriate primers (small rifle or small rifle magnum) for a semi-auto rifle. Use of certain operating system components that speed up the bolt velocity or over-gassed operating system can exacerbate this problem. If the double occurs so fast that it is almost indistinguishable, then it is probably a slam fire. The sure fix for a constantly slam firing rifle is to switch to a titanium firing pin. The lower mass of the titanium firing pin makes it impossible for the pin to transfer enough kinetic energy to cause ignition.

**Problem:** Repeated ignition failures are occurring.

**Solution:** Our custom springs (color-coded yellow) are balanced to give a 3- to 3.5-lb. pull weight and give reliable ignition using domestic (US-manufactured) ammunition and primers for recreational or competitive shooting use. If your rifle's intended use is for military, police or home defense, or if you intend to use foreign-manufactured ammunition, you must use a full power Mil-spec hammer spring. This will solve any ignition problems and give "duty" ignition reliability, which should be the criterion if lives may depend on the function of the weapon. If you are using reloaded ammo, you may also have high primers. Box the ammo with the case head up and examine the primers making sure that all primers are below flush.



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System**



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- Quality
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- Ergonomics

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