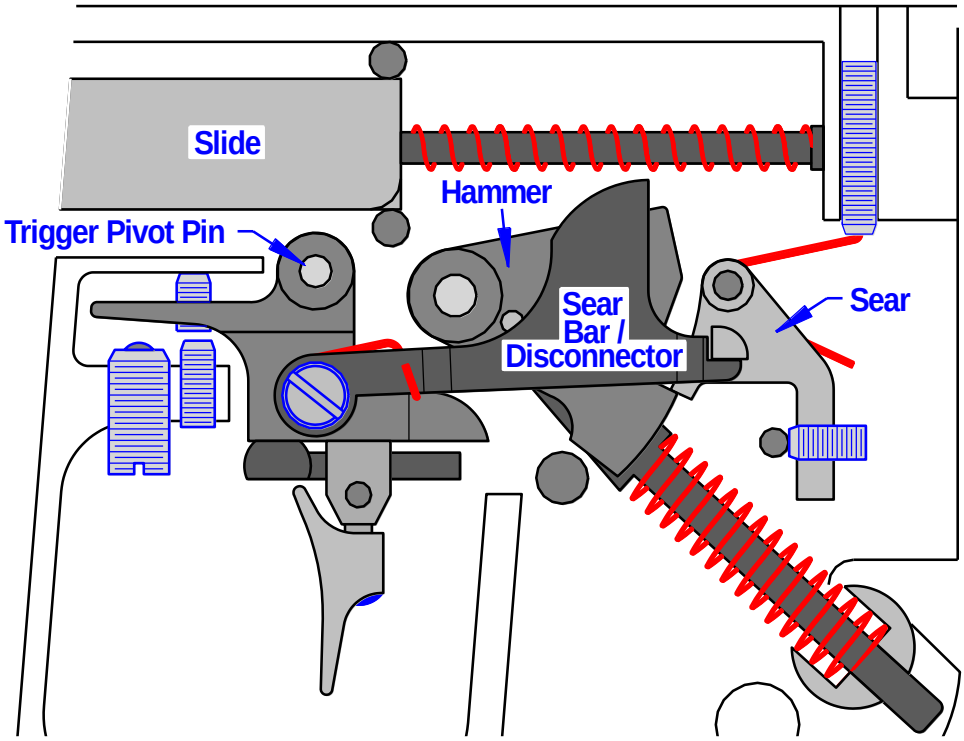
ADJUSTING THE PARDINI SP/HP TRIGGER

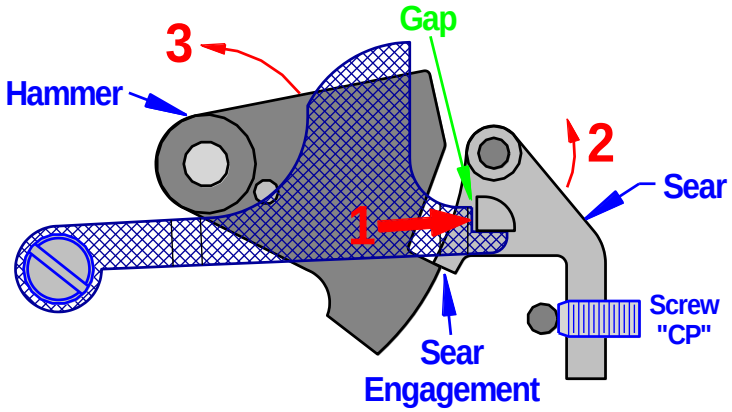
Doug White

The Pardini trigger design is extremely flexible, and can be adjusted for a wide range of options. It can be configured for a crisp "breaking" trigger, or a 2-stage "rollover" style. The take-up (slack), 1st stage and 2nd stage lengths are all adjustable, as is over travel. The weight of the stages can be independently adjusted as well. The downside is that with all that adjustability, it is possible to configure the trigger so that it won't fire at all, and some of the adjustments require a fairly fine touch. Keeping notes as you go along, and understanding the way the mechanism works should help keep you out of trouble and allow backtracking if things go awry.

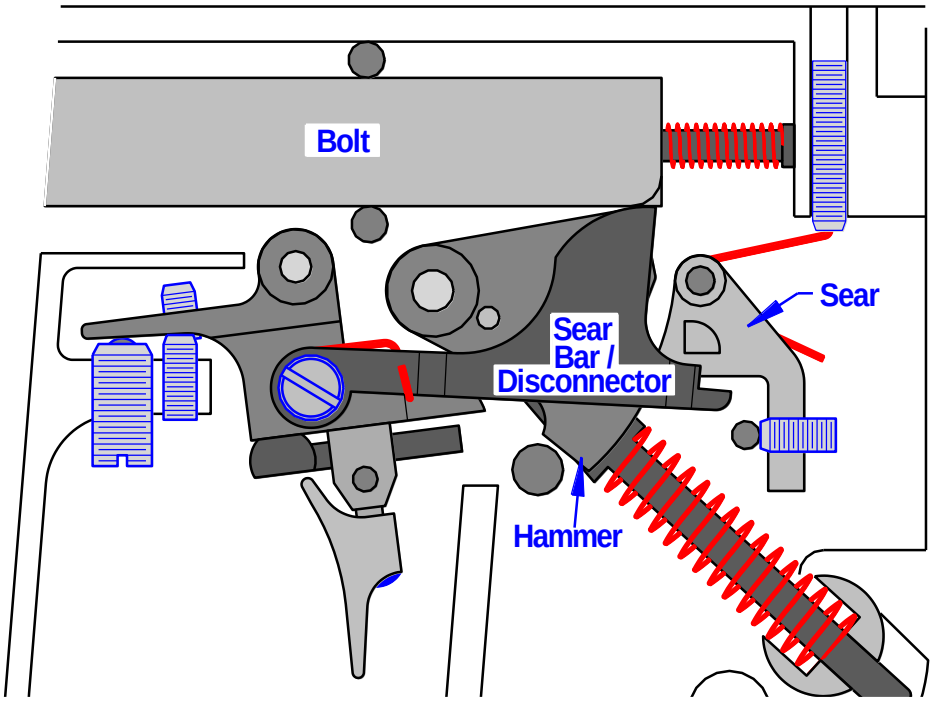
How it Works: It is best to start with an understanding of what all the pieces do. Here is a picture of the mechanism cocked and ready to fire:



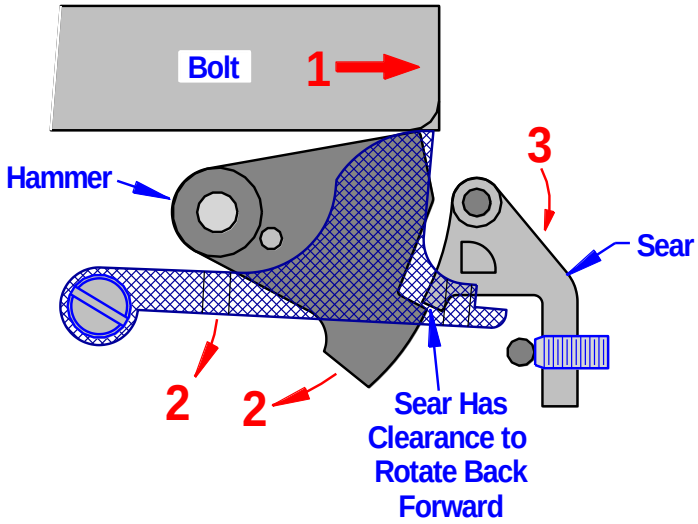
The figure below shows how the hammer is released. As the trigger is pulled to the rear, it pivots on the trigger pin, and the sear bar moves back. There is some initial “slack” in the trigger pull while the sear bar closes the small (but critical!) gap before the notch at the rear of the sear bar hits the projection ("ear") on the left side of the sear (**1**). The sear bar continues reward, forcing the sear to rotate counterclockwise (**2**). This decreases the sear engagement until the hammer is released and rotates upward (**3**). The amount of initial sear engagement (and overall sear travel) is controlled by the screw "CP", which presses against a cross pin in the frame.



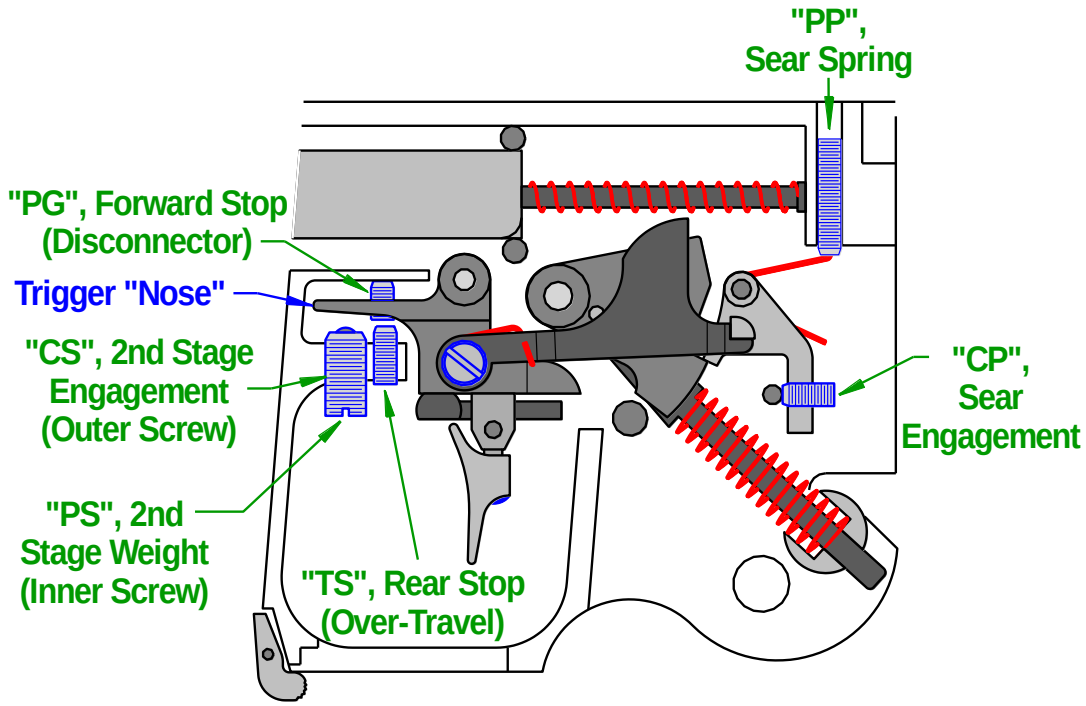
When the pistol fires, it has to cock the hammer, and reset the trigger. The bolt comes back, pushing both the hammer and the sear bar down (see figure below). The large bump on top of the sear bar provides the "disconnector" function that allows the sear to re-engage the hammer, and prevents the hammer from falling again until the trigger is allowed to move forward.



The figure below shows the details of the reset process. The bolt recoils to the rear (1), and pushes both the hammer and the sear bar down simultaneously (2). Once the sear bar/disconnector is pushed down out of contact with the "ear" on the sear, the sear is free to rotate clockwise under spring pressure (3). As the bolt closes, the hammer rotates upward until it is caught by the sear. When the trigger pressure is reduced sufficiently by the shooter, the trigger and sear bar move forward until the rear notch of the sear bar can snap back up in front of the "ear" on the sear. At that point, the trigger mechanism is fully reset and is ready to fire again.



Adjustment Screws: Before going into the details of the adjustment process, here is a list of the various screws and what they do. The diagram below shows all the various screws, along with the two-letter designations used by Pardini:



Screw "CP": As described earlier, this controls the amount of sear engagement. Turning the screw in (clockwise) reduces the sear engagement, which shortens the overall trigger pull length. One revolution of this screw shortens the trigger pull by approximately 0.7 mm (~ 0.028").

Screw "PP": This varies the spring force on the sear. Combined with the friction of the sear against the hammer, this adjusts the weight of the 1st stage of the trigger pull. One full revolution clockwise will increase the 1st stage weight roughly 48 grams (1.7 oz).

Screw "PG": On the surface, this screw looks like you can just turn it in to shorten the length of the trigger pull. This is NOT how it works, and it tends to get people in trouble. "PG" does adjust the fully forward trigger position, but this also affects the amount of "slack" before the notch in the sear bar first hits the "ear" on the sear. This "slack" is required to allow the sear bar to pop up in front of the sear during the reset process. If "PG" is screwed in too far, the sear bar can't reset, and the trigger won't function. (Note: In some versions of the Pardini manual, screw "PG" is only described in the Italian instructions, and is omitted in other languages.) One revolution clockwise reduces the length of the slack by about 0.7 mm (0.028")

Screw "TS": This is a conventional trigger stop that limits the amount of rearward travel after the sear releases the hammer. Some people like to set this so the trigger stops moving immediately after firing, but if the trigger stop is adjusted too finely, the trigger weight may become erratic and produce intermittent firing. Others like their trigger to continue moving freely for some distance after the sear releases, and "TS" can be backed out (counterclockwise) to achieve this.

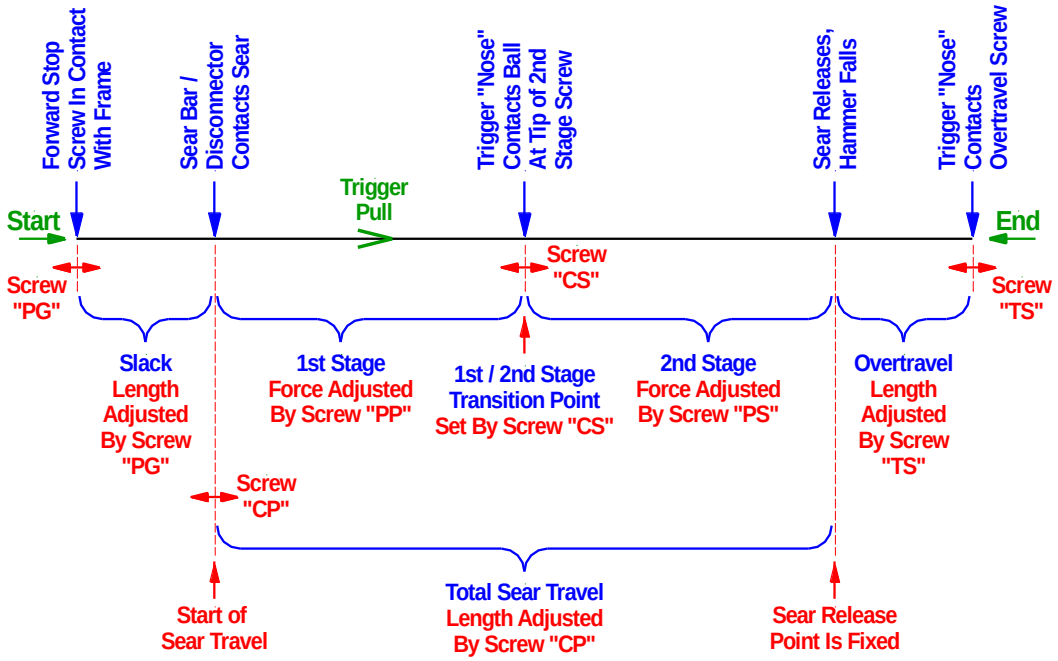
Screw "CS": This adjusts when the 2nd stage starts. There is small spring-loaded ball in the top of the screw, and when the forward projecting "nose" of the trigger touches the ball, the 2nd stage begins. If this contact occurs just before the sear releases, you can create a "breaking" trigger, where the trigger pull weight jumps as it hits the ball, and then a small amount of additional rearward motion releases the sear. If you want a true single stage trigger that just moves smoothly until it fires, you can back this out (counterclockwise) so that the sear releases before the ball on top

of screw “CS” ever comes into play. That may not provide adequate trigger weight, in which case you may be able to screw “CS” in so that the ball is always engaged (I haven’t tried this). The position of the onset of the 2nd stage moves roughly 0.8 mm (~ 0.03”) of trigger motion per revolution of the screw.

Screw "PS": The final firing force (i.e. “trigger pull”) is the sum of the 1st stage weight, and the additional force required to compress the ball in the tip of screw “CS.” Screw “PS” controls the spring force on the ball. One revolution clockwise will increase the 2nd stage weight by about 130 grams (4.5 oz).

Note: The changes in trigger position or weight given above for the adjustments are very approximate. They are based on measurements made on just a couple pistols, and should only be used as a rough guide.

Trigger Pull Sequence: The diagram below shows the progression of events from when you first touch the trigger until the trigger motion is halted by the trigger stop. The lengths are not to scale. For example, a typical “breaking trigger” setup would have an extremely short 2nd stage.



The actions of the adjustment screws are indicated in red. Screw “CS” locates the transition point between the 1st & 2nd stages, so increasing the length of one will decrease the other. All the remaining stage length adjustments affect only one end of the associated stage. The location of the sear release is fixed mechanically, and the lengths of the total sear travel and overtravel are both relative to that point. The slack and the 1st + 2nd stage lengths are both tied to the starting point of the total sear travel.

Making Adjustments: Screw "PP" is accessed through a hole in the top of the frame, near the left side and just in front of the rear sight. Screw "CP" is only accessible from the back of the frame, which requires removing the grip. All the other adjustments are made though a cutout in the bottom of the trigger guard:

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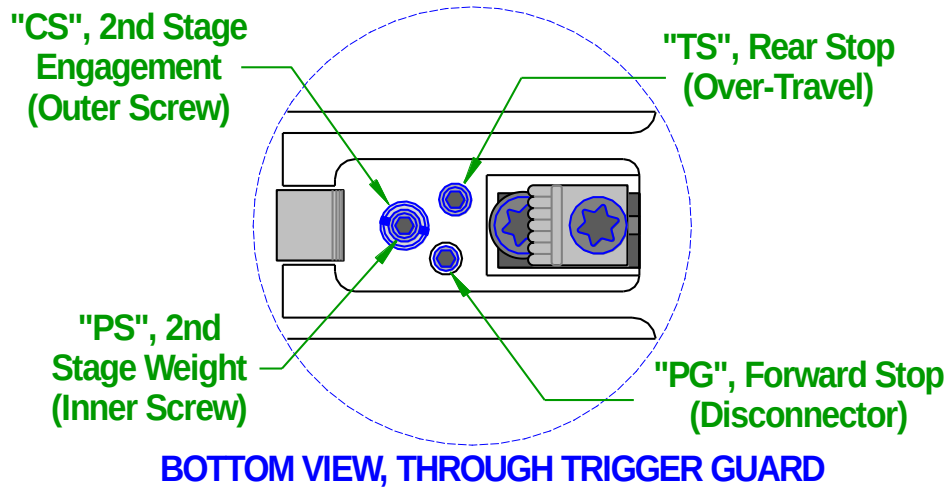

All of the set screws require a 1.5mm hex key. Screw "CS" requires a flat bladed screw driver. The factory supplied tool pouch has the appropriate hex key, but Pardini does not supply a suitable screwdriver for screw "CS". The blade needs to be about 4.5 - 5 mm wide and ~ 1 mm thick. The one other tool that is needed is some sort of trigger pull gauge. I highly recommend the Lyman Digital Gauge, which costs around $50.

You can observe the action of the forward screws though holes in the sides of the frame. Until you are familiar with how everything works, I strongly suggest taking the grip off so you can also view the interaction of the sear components. You will need to do that anyway if you need to adjust the sear engagement (screw "CP").

Resetting the Trigger: If you've messed up the adjustments badly, the late Don Nygord had a process for getting back to a working trigger, and then adjusting it to suit your needs. I've copied the steps below, with a bit of re-ordering and additional comments on what is going on:

1. Back out screw "TS" counterclockwise about 2 turns. This is the trigger overtravel stop, and just ensures that it's not set so tight that firing becomes either erratic, or impossible.
2. Back out screw "PG" counterclockwise about 2 turns. At this point you should have plenty of play (initial "slack") between the trigger bar/disconnector and the "ear" on the side of the sear.
3. Back out screw "CP" counterclockwise about 2 turns. This increases the sear engagement to ensure that the trigger is safe. It will also increase the length of the overall trigger travel (1st stage plus 2nd stage), while reducing the amount of initial slack. You may or may not have two stages to the trigger pull at this point. If this reduces the slack to zero, you will want to back off screw "PG" some more (revisit Step 2).
4. Back out "PS" counterclockwise about 2 turns. This reduces the 2nd stage weight.
5. Back out "CS" a couple of turns. That should eliminate the 2nd stage entirely by ensuring that the sear releases before the trigger ever touches the spring-loaded ball of the 2nd stage adjustment screw assembly. At this point, you should have a long continuous creepy pull with lots of initial slack. It won't be good for shooting, but at least it will fire reliably.

Adjusting the Trigger: At this point, you can begin to set up the trigger pull to your liking. The notes below assume you have followed the "Reset" procedure above, but they also provide guidance on how to fine-tune a working trigger. Again, this is mostly copied from Nygord's notes, with additional edits & comments where I felt it might be helpful.

1. Turn "CS" in clockwise until you feel the "2nd stage" appear about at the end of the pull. This occurs when the trigger "nose" contacts the spring-loaded ball bearing inside the top end of screw "CS". You can observe this though the frame cutouts above the trigger. You can fine-tune the length of this "2nd stage" by tiny adjustments in "CS" until you get the kind of feel you like. Most shooters want this to be "crisp" or in other

words a short 2nd stage (the part you squeeze off at the end of the pull). Don't try to set it too fine. A little bit of wear or dirt can eliminate the 2nd stage entirely.

2. There are two parts to the "front" part of the pull. The initial part takes up the gap between the notch in the trigger bar and the ear of the sear ("slack"). The other part is the "1st stage" and in this pistol design you are sliding the sear most of the way out of the hammer notch during this stage. YOU MUST HAVE SOME OF THIS "1st STAGE"!! The most common error in trying to customize the feel of the trigger on this gun is to "dial out" all the 1st stage and make the trigger like a S&W Model 41. This is what makes the gun "double" and not hold. etc. The sear engagement and thus the "1st stage" is controlled with screw "CP".

   Turn in screw "CP" so you have some definite 1st stage travel (after the free play/take-up. i.e. "slack"). Leave as much of this travel in as you can tolerate. At the end of this 1st stage travel and before the hammer falls, the front of the trigger "nose" should contact the spring-loaded ball bearing and be at the 2nd stage - which is short and crisp. If not, go back to "Reset" Step #4 and "Adjustment" Step #1 and play around until you do.

3. Now turn in screw "PG" to reduce the gap between the notch in the sear bar and the sear. This minimizes the initial slack. DON'T try to eliminate the slack entirely! Make sure that the sear/disconnector bar will go up into position after the gun is cycled and the trigger released. Then leave just a tiny bit more for reliability. Setting this too fine will prevent the sear/disconnector bar from reliably catching the sear, and the pistol will not fire.

4. Now you are ready to adjust the weight of the total trigger pull. This has to be 2 lbs. for NRA rules and 1000 grams for ISSF rules (2¼ lbs). The weight of the 1st stage is controlled by the sear spring, and the force applied to the sear is adjusted by screw "PP". The weight of the 2nd stage is controlled by screw "PS" which is inside screw "CS". The total weight is usually divided up equally between the 1st stage and the 2nd stage. This makes the pull "self-calibrating". When you are in a match, the arousal level often creates deceptive sensory input and one day the trigger will feel very heavy and another day very light. With this kind of set-up at least you know that when you take up the 1st stage you have applied half the required pressure. This can be very comforting in a major match where you don't want to be too conservative on the trigger and lose time and yet also don't want to put a round in the dirt while at the 45° ready position. Turn the appropriate screws ("PP" for 1st stage, "PS" for 2nd stage) until you get the balance of weights on the two stages you prefer.

5. The last step is to adjust the over-travel of the trigger after the hammer falls. This is done with screw "TS". Turn it in until you have the amount of over-travel you prefer. If you want the trigger to stop immediately after the shot breaks, you can screw it in until the trigger won't fire. Then hold the trigger to the rear and back out the screw slowly until the hammer falls. You need a bit of margin, so backing it out at least an additional 1/8th of turn should permit it to function reliably.

Acknowledgements: As has been mentioned, a lot of the adjustment information (especially how to reset things if you get in trouble) relied heavily on Don Nygord's notes. Dave Sutter proof read a couple draft versions, and made some valuable suggestions to improve some of the text and drawings, especially the stage diagram.