IZH-46M Repair: Breech Block Lever Won't Stay Up

M.I.T. Sport Pistol Club
Doug White, 12/26/13

We have a couple of pistols that have exhibited the same issue to one degree or another. Once you've completed the forward cocking stroke and begin the pump stroke towards the rear, the Breech Block Lever (#57) would flop forward. With one particular pistol, the valve wouldn't stay closed when this occurred, and the pump stroke would just vent out the top of the action. If you manually held the lever vertical long enough to build up some pressure, it would stay up and the rest of the cocking process would complete normally.

Figure 1 shows the various parts involved. When the breech block lever swings up towards its vertical position, the lower front corner of the lever cams the Plunger (#17) forward, closing the Valve (#9). The Valve Spring (#13) holds the plunger against the bottom of the breech block lever (which is now vertical). As long as there is enough rearward force on the corner of the lever, the plunger should prevent the lever from rotating forward.

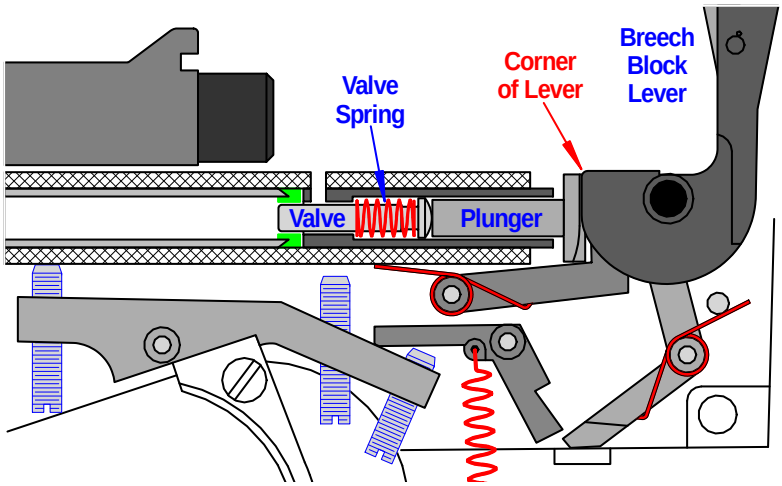

Figure 1: Geometry of valve, spring, plunger and breech block lever

The symptoms suggested the force being applied to the breech block lever by the plunger was inadequate. A weak valve spring would do this, or it might be caused by the plunger sticking, due to dirt or corrosion. Given that the breech block lever would stay up if some air pressure could be built up on the valve, it seemed unlikely that the plunger was binding badly.

I disassembled and clean all the parts, and then compared the valve spring with a new one from our spare parts collection. The old spring and a new one are quite different (see Figure 2).

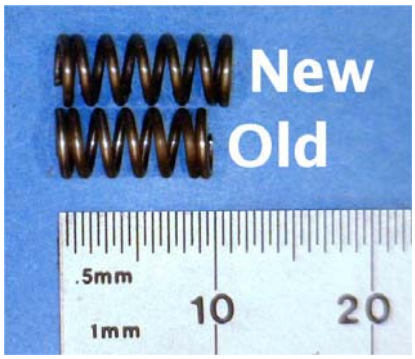

Figure 2: Old and new valve springs

The old spring is considerably shorter than a new one, and there is also a small bit of wear that would weaken it further. The wire size and number of turns appear to be identical, so it is quite possible that the old spring started out life as long as the new ones. The pistol certainly didn't have a problem with the breech block flopping down when it was new.

Apparently the spring has shortened over time. This may be the result of improper heat treating, but it is likely that the problem is aggravated by the way the pistols are stored. They are kept in racks with the actions fully open (breech block lever vertical), which means the springs are kept almost fully compressed. This could cause them to slowly take a "set" over time, and to end up in the shortened condition seen here. We have about fifteen IZH's, and only a couple have developed this issue, so there are clearly some other variables at work.

Replacing the spring with a new one restored the pistol to normal operation. It's likely that stretching the old spring back to it's nominal length would also do the trick. We will have to modify our storage procedures to require lowering (but not closing) the breech block lever, and then releasing the trigger. This will ensure that the valve spring is stored in a relaxed condition.

The one remaining mystery is why the pistol would leak if the breech block lever flipped down as the cocking stroke was initiated. Ordinarily, once the breech block lever has been fully vertical, the valve sear holds the valve closed, even if the lever drops down. It's possible that with a weaker valve spring, the jolt from the lever dropping down was enough to trip the sear. Once the valve spring was replaced, attempts to recreate this symptom manually were unsuccessful.