

High Standard Magazines

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There is a lot of interest in the High Standard shooting community concerning how to adjust High Standard magazines and aftermarket magazines to make them feed reliably. Most of the interest deals with problems with Triple K magazines or Houston HS magazines. There has been a good deal of information on the various High Standard enthusiast web sites, periodicals, and the Houston High Standard web page on how to modify and adjust the feed lips to get the magazines to work. I decided to study this issue from the standpoint of examining magazines and taking some measurements of various military grip magazines to see if I could make some determinations. I had on hand several examples of magazines from various manufacturers and time periods. I made a visual examination of the construction of the various components of the magazines, including the foot, body, spring, follower, and follower button. I then weighed the magazines, measured the lip thickness, and the spring strength. The magazines were weighed on an RCBS Powder Pro Digital Scale (0-100 gram range). I used an NSK 6 inch dial caliper (0.001 inch resolution) to measure the front lip thickness of the magazines. For the spring tension, I used a Zebco Deliar Model 108 spring scale (0 to 8 pounds range) and a length of waxed nylon string. The string was tied at the end to make a loop about ten inches long when hooked to the spring scale on one end and looped around the follower button on the side of the magazine. To make the measurement as consistent as possible with this fairly simple apparatus, I made the spring tension measurement by pulling the follower down into the magazine until the lower edge of the button reached the upper part of the disassembly cutout hole in the slot at the base of the magazine. This point allows for a fairly easy point for measurement, since most of the non-original magazines do not have cartridge counter markings on the sides of the magazines. The button was pulled down the magazine slot with care taken to keep the string parallel to the slot and as close to the magazine as possible to ensure a straight pull of the follower to eliminate binding or side loading. While a spring scale is not as accurate as other measuring tools, it is good enough for this test to obtain relative differences in spring tension between the magazines.

The following magazines were tested:

Six High Standard new old stock (NOS) magazines from the 1970s.

Three High Standard well used magazines from the 1970s.

Three High Standard red-bottom used magazines.

Two Triple K magazines that I call the "old style". These magazines were sold about 15 or so years ago. These magazines have a very dark green follower and a smaller diameter follower button than the HS originals.

Two Triple K magazines of the current style. These magazines feature a bright lime green follower, and a follower button that is same diameter as the HS originals.

One Houston HS magazine with a nickel colored foot and blue body. The follower is the same color as HS originals (pale green).

One Houston HS magazine with a red plastic foot. Otherwise the magazine is the same as above. Both of these were purchased from Brownells.

One Houston HS magazine with a red plastic foot, welds on the body that look similar to basting stitches (a series of long narrow welds along each side of the magazine body). There are cartridge counter markings for 5 and 10 rounds on the side of the body. I think this type magazine was shipped with Houston guns the first couple of years of production.

Two Mitchell stainless steel red-bottom magazines.

One Wolff magazine spring was installed into a Houston magazine body to determine the spring tension of replacement springs. This spring was marked as 5% extra power.

High Standard Magazines - General Features

All of the magazines are made generally in the same manner. The magazine is constructed by spot welding two u-shaped pieces of sheet metal together to form the magazine body. The rear section fits around the front section. The rear half of the magazine has a slot stamped into it down the length of the right side. The slot is typically about 0.140" wide and about 4.450" long. The slot is used to allow the magazine follower button to move up and down the body. There is a round area at the bottom of the slot about 0.280" in diameter. This is used to allow the follower button to be pulled out of the follower and magazine, when the follower is pushed down far enough for the button to line up with the hole. The front portion of the magazine forms the front feed lips and the rear section forms the rear feed lips. When the two body pieces are mated together, the rear edges of the front section do not fit all the way to the back section. There is a small gap purposely left between the rear edge and the inside area of the rear section. This gap is to allow the cartridge rims to slide up and down inside the magazine, thus ensuring the cartridges are kept in proper alignment as they move up and down the body of the magazine. All of the magazines have a rectangular hole punched into the left side of the rear section near the top. The front section is not punched, so the final appearance is of a rectangular depression on the side of the magazine. This hole is intended as a magazine catch hole for some of the older High Standard guns (e.g., Duramatic). This is a carryover from the slant grip magazines. The foot of the magazine is spot welded to the body of the magazine (or pinned, in the case of the plastic feet of the aftermarket magazines). After the magazines are spot-welded, the original magazines are sanded on the sides to remove protruding weld material and smooth the sides to fit the guns better. The Triple K and Houston HS magazines are not sanded (except for the early Houston style). The bodies are blued prior to final assembly (except the stainless steel ones). The feed spring is installed in the magazine, the plastic follower is inserted, and the follower is pushed down into the body so that the follower button can be installed. Most original HS magazines had cartridge counter markings stamped onto the right side of the body to the rear of the slot. The markings were 5- and 10-. These markings are not found on the Triple K, Mitchell, or Houston HS magazines, except for the older model Houston magazines.

High Standard Magazines

Red-Bottom Magazines

The first type of High Standard magazine used in the military grip frame guns was a modified slant grip magazine. The modifications entailed cutting off the front portion of the magazine

base plate about 0.2 inch, drilling a couple of holes in the base plate, and affixing a red plastic foot to the bottom of the magazine. The bottom of the foot was marked "HIGH STANDARD" in white letters. The plastic follower is pale green in color, which is the same as found in all of the military grip High Standard magazines.

Metal Magazines

The more commonly encountered High Standard magazine has a metal foot spot-welded to the body. This foot replaced the red plastic foot and base plate in the red-bottom magazine. The one piece foot has an elongated wedge-shaped hole through it, and a notch at the front of the foot for the magazine catch roller to fit into, when the magazine is inserted into the gun. The body of the magazine is commonly seen with two spot welds on the rear section of the body and four spot-welds on the front section. There are usually 2 spot welds holding the foot into the magazine. The spot welds on the body are often somewhat oval in shape. The welds holding the foot on are more rounded. The bottom of the foot is not stamped with the manufacturers name.

Triple K Magazines

Old Style Triple K Magazines

The old style Triple K magazines were made several years ago. These magazines have spot welds only on the front length of the body and to hold on the foot. The welds are round in appearance and about 0.125" in diameter. There are about 5 welds on the body along with two to hold the foot on. The foot has a distinctive plum color to the bluing, and has a mold line running from front to back along the middle of the bottom of the foot. The follower is very dark green plastic (almost black looking). The slot on the side of the magazine is narrower than the other magazines by about 0.020". The follower button diameter is smaller than the others at 0.250". The others are about 0.312". The sides of the body have not been sanded and are smooth. The body metal is thinner than the new style, and the metal is soft and easily bent. There are no cartridge counter markings.

New Style Triple K Magazines

The new style Triple K magazine has spot welds on the front and rear sides of the body. The welds are also round and about the same diameter as the old style. The follower is a bright lime green color. The foot is black and there is no mold mark on the bottom. The follower button is larger in diameter (0.312") and the follower slot is wider (0.140"). The body is not sanded and is smooth. The Triple K magazines do not have cartridge counter markings.

Houston (TX) High Standard Magazines

Older Style Houston Magazines

The older style magazine appears to be well made. These are easily recognizable by the long narrow welds on the sides of the bodies. On the right side there are four welds on the front area, and four welds on the rear area of the body. The left side has three welds on the front area and three on the rear area. These welds are slightly under one-half inch long and 0.050" wide. These look like basting stitches. The follower is the same as the original High Standard magazines in

color. Even the mold marks are the same. The foot is red plastic that is the same shape as the metal foot on the original metal feet. The foot is pinned to the body with two small roll pins. There are no markings on the bottom of the foot. There are often cartridge counter markings of 5- and 10- on the side of the body

Current Style Houston Magazines

Metal base

This magazine has spot welds on the front and rear sides of the body. The welds are round and about 0.125" in diameter. The follower is a pale green color. The foot is nickel colored metal and there is no mold mark on the bottom. The bottom of the foot is not marked. The follower button is 0.312" in diameter, and the follower slot is 0.140" wide. The body is not sanded and is smooth. The magazine does not have cartridge counter markings.

Red plastic base

This magazine has spot welds on the front and rear sides of the body. The welds are round and about 0.125" in diameter. The follower is a pale green color. The foot is red plastic. The bottom of the foot is marked HIGH STANDARD in white letters. The follower button is 0.312" in diameter, and the follower slot is 0.140" wide. The body is not sanded and is smooth. The magazine does not have cartridge counter markings.

Mitchell Arms Magazines (Stainless Steel)

These stainless steel magazines have spot welds only along the front length of the body. The welds are round in appearance and about 0.125" in diameter. There are about 6 welds on the body. The foot is red plastic and is affixed to the magazine body by the use of two small roll pins. The bottom of the foot is marked Mitchell Arms in white letters. The follower is lime green plastic. The sides of the body have not been sanded and are smooth. The body metal is thinner than original magazines, and the metal is soft and easily bent. There are no cartridge counter markings.

Results of measurements

Type	Weight (gm) (+ or - 0.1 gm)	Lip Thickness (in.) (+ or - 0.001 in.)	Spring Tension (lb.) (+ or - 0.25 lb.)
HS New Magazine			
1	82.3	0.027	4.0
2	82.6	0.027	4.0
3	81.6	0.027	4.0
4	82.0	0.027	4.0
5	82.4	0.027	4.0
6	82.8	0.027	4.0
HS Used Magazine			
1	82.4	0.027	4.0
2	83.7	0.027	4.0
3	83.7	0.028	4.0
HS Used Red Bottom			
1	73.0	0.027	4.0
2	73.7	0.027	4.0
3	71.4	0.027	4.0
Triple K Old Model			
1	73.5	0.022	3.0
2	74.1	0.022	2.5
Triple K Current Model			
1	79.4	0.024	3.25
2	80.6	0.023	3.25
TX HS Metal	73.3	0.024	3.25
TX HS Red Bottom	57.1	0.024	3.25
TX HS Old Red Bot.	67.8	0.028	3.75
Mitchell Arms Stainless Steel			
1	59.7	0.023	3.0
2	63.6	0.028	3.25
Wolff spring installed in Houston HS body			4.0

Other Observations and Conclusions

1. The High Standard military grip magazines are very consistent in lip thickness (average 0.027 in.) and spring tension (average 4.0 lbs.). Used magazines do not show a decrease in spring tension compared to new magazines.
2. Currently produced Triple K magazines and Houston (TX) HS magazines are similar in lip thickness and spring tension.
3. From visual comparison and the measurements, it appears that currently made Houston (TX) HS magazine bodies, springs, feet, and follower buttons are made by Triple K. The magazine followers in the Houston magazines may be old stock from the original HS production, or made by the same vendor as the originals. It is likely that current Houston HS magazines are manufactured by Triple K, and the followers are provided by Houston for Triple K to assemble, or the followers are assembled into the magazines at the Houston facility.
4. The old model Triple K magazines should not be used, since the metal is too thin and soft to allow adjustments to last very long.
5. Mitchell magazines were probably made by Triple K using the old style Triple K magazine body manufacturing process. The follower buttons are similar to the current Triple K magazines, and the followers look exactly like the current Triple K magazine followers (color, mold marks). The plastic bases look very similar to the Houston HS bases. The mold marks are very similar and located in the same places.
6. The early Houston (TX) HS magazines were made by some other manufacturer than Triple K.
7. The springs in Triple K and Houston (TX) magazines should be replaced with Wolff springs to increase the spring tension to be equivalent to the HS originals.
8. There is a rumor that Houston High Standard is going to produce and sell new improved magazines. Time will tell if that happens and if they are really improved.
9. While feed lip modifications and adjustments, and spring replacement may allow the currently manufactured Triple K and Houston HS magazines to function, it is probably more cost effective to find and purchase original HS magazines for use in the original HS guns. While original HS magazines cost more than Triple K magazines and about the same as Brownells' price for Houston HS magazines, the extra cost of replacement springs and the time it takes to modify and test the magazines, plus the aggravation of dealing with it all, makes the original magazines a better overall choice for shooters.

Notes on the photos:

By comparing the photos of the various magazines, one can observe that the shape of the magazine pieces near the lips shows a difference between the original HS magazines and the aftermarket ones. The shape of the metal pieces is similar between the Triple K magazines and the new model Houston HS magazines. The old model Triple K and the Mitchell magazine look similar.

The spot welds on the original HS magazines are quite different than the aftermarket magazines. This is one of the easiest ways to tell an original magazine from an aftermarket one.

The follower buttons on the original HS magazines are obviously different in shape and length than the Triple K and Houston buttons.

The followers look the same between the original HS magazines and the Houston HS followers.
The Triple K followers are the same as the Mitchell followers.



Figure 1

From left to right: Mitchell, New Triple K, Old Triple K, Nickel base Texas HS, Second model red base Texas HS, First model red base Texas HS, NOS Conn. HS, Used Conn. HS, Red base Conn. HS



Figure 2

From left to right: Mitchell, Old Triple K, New Triple K, Nickel base Texas HS, Second model red base Texas HS, First model red base Texas HS, NOS Conn. HS, Used Conn. HS, , Red base Conn. HS

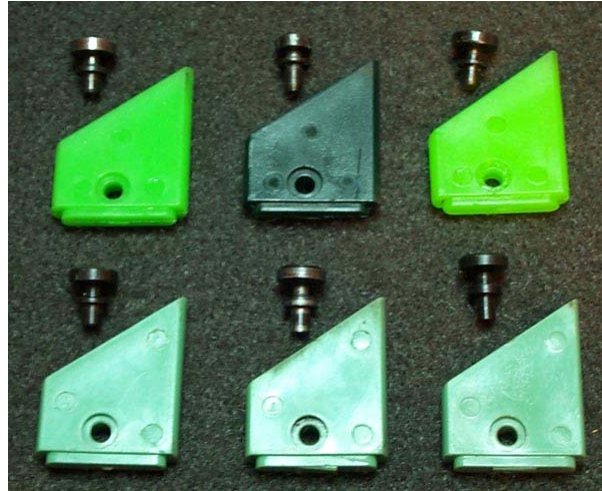


Figure 3 Right side view of followers
Top row left to right: Mitchell, Old Triple K, New Triple K
Bottom row left to right: Texas HS, Used Conn. HS, NOS Conn. HS



Figure 4 Bottom view of followers
From left to right: New Triple K, Texas HS, , Red base Conn. HS



Figure 5 left side view of magazines
From top to bottom: Old Triple K, New Triple K, Mitchell



Figure 6 right side view of magazines
From top to bottom: Old Triple K, New Triple K, Mitchell



Figure 7 left side view of magazines
From top to bottom: Red base Conn. HS, NOS Conn. HS, Used Conn. HS



Figure 8 right side view of magazines
From top to bottom: Red base Conn. HS, NOS Conn. HS, Used Conn. HS



Figure 9 right side view of magazines
From top to bottom: Texas HS first model, Texas HS second model, Texas HS nickel base



Figure 10
From top to bottom: Texas HS first model, Texas HS second model, Texas HS nickel base