Beginner's Guide to Security Pins

"A beginner's guide to security pins" or "Beyond the mastered Masters"

Written by: /u/tumbl3r

Converted by: /u/Mr_Guy_Fawkes

So you are picking Master padlocks with ease. Your friends think you're a magician, but deep down you know this is just the beginning. There are much more challenging locks out there and you want to start taking a crack at them. This article will hopefully give you the tools you need to start approaching locks that contain security pins.

Prerequisites:
You can greatly enhance your enjoyment and speed up the learning process by first making sure you are really prepared for the next step. Be honest with yourself and if you find that you are not, don't feel badly. We all start somewhere and a few simple tips will quickly help you polish up the required skills.

Single Pin Picking (SPP):
It can be very satisfying to rake a lock open, but you will quickly find that methods depending on statistics over surgical precision will succeed less and less as the locks become increasingly difficult. If you find yourself frequently raking or bitchpicking, stop, grab a hook or a diamond and spend some time really getting a feel for setting single pins.

Usually done with a hook, Single Pin Picking is the process of tensioning the cylinder and consciously setting each pin one-by-one until the lock opens. When mastered, the plug will not surprise you when it turns. You will be able to predict it because you know with confidence that you have set all but the last pin.

Tools:
Up until now, you have probably been using a standard tension wrench, bent windshield wiper blade, or one of the other countless devices that slip into the bottom of the keyway and tension the cylinder as pressure is applied. It's time to get a new tension tool. One that applies rotational force from the top of keyway.

There are a few reasons for this: First it will give you more room in the bottom of the keyway for your pick. Secondly, many of the more secure cylinders, Americans in particular, will bind up if tension is applied from the bottom. Finally, it provides a very direct connection to the cylinder, giving you a dramatically increased sense of feel for what is going on inside.

So what do you buy? Usually these are called “Pry Bars” or “Flat Tension Bars”. Most of the places that sell picks also sell them, and of course, they can be made. You may be tempted to buy a big set of them but it’s best to resist this urge. The 0.050 model will fit the majority of what you will be working on for the time being. Grab a 0.040 too if you want to be prepared for most anything.

Finally, you will need a hook. Your pick set probably came with one or more of them. Don’t obsess too much about its shape or depth; the main thing is that you can reach into the lock and press up on the individual pins. A diamond is also fine, but most accomplished pickers tend to use hooks almost exclusively.

Discipline:
Things will be getting more challenging, and you are going to need to take a more structured approach to your work. Again, you should be confidently Single Pin Picking locks with a stack of four to five standard pins. Before moving on to security pins, it is a also a good idea to practice with your new pry bar tension tool on locks you already know how to pick. Light tension is THE secret to most security pin picking, so practice using the absolute lightest tension you can while still feeling the individual pins set.

Last, while not strictly a prerequisite, it’s also a good time to start learning how to gut locks. A good way to do this is to purchase one of the “Challenge Locks” or “Practice Locks” that are available. These have allen screws that retain the drivers (top pins) making them both easy to rekey and prevent you from locking yourself out by accidentally mixing up the key pins. Alternatively, you can start with cheap locks that you don’t care about. Plan to make some mistakes and bend up some springs along the way. Having extra parts on hand will keep you in business as you learn.

Once you are cutting through Medecos and Mul-T-Locks nobody will believe that you ACTUALLY picked it unless you pick it and immediately gut it ON CAMERA. The lock must stay in frame at all times, so the ability to gut easily will become a very important skill down the road. The technique for doing this is easier shown than explained, so taking a look at some of the many videos on rekeying will be invaluable. You will see people using “plug followers” and you probably won’t have a set at first. They are a good tool to have, but in the meantime batteries will work just fine.

Locks:
You may be tempted to run out and grab an American 1100 series padlock and go to work on it. These are great locks and a joy to work on, but jumping to a core full of five security pins directly from a Master lock with four standard pins is a pretty big leap. At this point there are a couple of options available to ease the learning process.

If you invested in a “Practice Lock” you can simply pin it up with three standard pins and one security pin. I would suggest starting with a serrated pin. Similarly, if you have learned how to gut locks, you can start with an American 1100 series and remove three of the five pins. Again, remove the spools, leaving only

serrated pins to start with. Either way, once you can pick the lock quickly and reliably, add more security pins one at a time until you are able to pick five of them in a variety of configurations.

If you don't care to take up the gutting / locksmithing activities yet, you can use the following locks as incremental steps with increasing difficulty.

Thanks bosnianbill for these suggestions:

Master 140: 4 pins, 2 spools
Master 150: 5 pins, 3 spools
Master 570: Dead core, 5 pins, 4 spools, 1 standard
American 1100 series: 5 pins, mixture of serrated and spools

Technique:
So you have your hook, your pry bar and your lock and you are ready to go. Each type of security pin is handled differently, so I will break them down into their own section. You may notice that I suggest starting with serrated pins, while many others suggest beginning with spools. I do this because serrated pins are always the first ones you will need to pick in any lock before moving onto spools and mushrooms. Also, they are most sensitive when it comes to tension control.

Tension control:
When working with high security locks, tension control is one of the biggest factors that determine success or failure. Light tension is the key, but it is difficult to define exactly what that is. Not only is every lock a little different, but the word "light" is very subjective.

What "light" tension means to us is that you are using just enough rotational force to bind a single pin in the stack. If you put your pick in to the lock and find that more than one pin is bound, you are using too much. If none of them are bound and they all feel springy, you are using too little. As you set the first bound pin into position, the plug will rotate imperceptibly and bind the next one. Set that one and another one will bind and so on. This is referred to as "binding order".

Unless you are picking a spool or mushroom do not vary your tension as you move from one pin to the next.

You can really help yourself learn tension control by working with a lock like the Master 570 which has a "dead core". This is a core that rotates freely without any opposing spring tension. When working with padlocks, even those with dead cores, the actuator is often spring loaded, so locking up the core without closing the shackle can be a big help. This assumes, of course, that your padlock is not key retaining.

Serrated pins:
These are pins with horizontal groves cut into them that make it feel as if you have set a pin as the serration passes the sheer line. You can easily identity them by continuing to push up on a pin that you have previously clicked into position. If it clicks again, it's a serrated pin.

The trick here is tension control. When a serrated pin is set at the proper tension, it will not push up any further. The correct tension is that which allows the pin to click up past the serrations, but not past the sheer. Experiment by finding a bound pin that you know is serrated. Put just enough tension on the plug to bind the pin and begin pushing up. Do not vary the tension or pick pressure at all. When it clicks into a serration, continue upward pressure on the pick and it will click again. Keep going using the same upward pressure until you find that it will not click again. This is the sheer line and the pin has been set.

If you find that consistent upward pressure oversets the pin you are using too little tension. Conversely, if you are having trouble clicking through the serrations, your tension is too great. Keep practicing with a limited number of serrated pins until you are setting pins with confidence and accurately predicting when the lock will open.

Spools:
These are pins that wide at the top and bottom, but skinny in the middle. As you apply tension and push them up they click and bind at an angle as the plug turns a few degrees as if to open. You will first celebrate then quickly realize that the plug only turns so far. This is called the "false set".

The pin binds at an angle because the diameter of the skinny portion is less than that of the chamber. Once the wider top portion of the pin passes the sheer line, the reduced diameter in the middle allows the plug to turn until the pin is wedged into place. Take a moment to think about the circumstances that are required to get us to this point and what it tells us about the state of the lock. You will realize that, while the lock is not yet open, your initial celebration was well founded. The lock cannot fall into a false set until all the standard or serrated pins have first been set. Since those do not decrease in diameter, there is no free space in the chamber to allow it. You are well on your way to opening the lock.

So how do we pick them? The first step is to get a good, deep false set. Once this happens, you can be confident that you are past the standard / serrated pins and onto the spools and mushrooms. Check the pin stack for any remaining springy pins. You probably won't find any, and all the pins should feel pretty solidly bound. Choose a binder and use very light tension as you press up on the pin, feeling for counterrotation on your tension tool. When you feel the tension bar press back against your finger, you know you are on a spool. Continue putting smooth upward pressure on the pin and let the plug counterrotate until the wider bottom portion of the spool passes sheer and the plug rotates back into the false set. Repeat with the other pins until it opens.

You may need to go back and re-pick a few of the serrated pins or even spools as they can sometimes drop as you bring the spool past sheer. In this case, the plug may not fall back into a false set. Don't be discouraged by this; it's a sign of progress. Your memory of where the pins should be will be fresh, so just go back to the previously set pins and put some upward pressure on them to see what happens. Usually you will quickly get your false set back. As always, if you think you have overset a pin, reset and start again, using what you have learned about the binding order.

Mushrooms:
These are pins that are identical to a spool on one end, but taper back to their full diameter at the other. Imagine the bottom of the taper as the base of an actual mushroom and the spool end as the mushroom cap. They can be chambered with the cap facing both up or down which affects how they feel, but not really how they are picked.

You can think of mushroom almost exactly as you do a spools. The method of picking them is nearly identical and they often feel very similar, especially if the cap is oriented upward. The counterrotation feedback will be identical to a spool and once the base of the mushroom passes sheer, the pin is set.

If the mushroom is oriented with its cap facing down, the plug will not fall into an abrupt false set. Rather, it will slowly rotate into one as you push the pin upward. It is my personal experience that the plug will not counterrotate as dramatically as spools when the mushrooms are in this orientation, but others say they can’t tell the difference. Regardless, pick them using exactly the same technique as you do spool and you will emerge victorious.