

# C BEGINNER'S CORNER

by  
Tyler Thomas

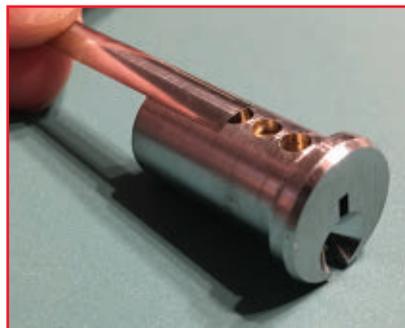
## Removing a lock core without an operating key.

Locksmiths are usually lucky enough to have the current, soon to be old, keys available when rekeying locks. That's not always the case, however, and there are times when we are expected to rekey pin tumbler cylinders, known hereafter as cylinders, that don't have keys. Keys or no keys, the cylinder(s) must first be removed from the lock to continue the rekeying process. Once the cylinder is removed from the lock and in hand, we must next find a way to rotate the plug so that it may be removed from the rest of the cylinder. Picking is one option. Another option, that can be faster than picking depending on the circumstances, is known as shimming.

Shimming is the process of using a very thin strip of metal, known as a shim, to separate a cylinder's pins at the shearline, (*photo 1*). The shim moves along the top of the cylinder's plug (*photo 2*), intersecting each pin stack, and prevents the springs and top pins, and sometimes master pins in master keyed cylinders, from entering the plug. Once all pin stacks have been shimmed the plug can then be rotated and the rekeying process can continue.



**1. Shims.**



**2. Shims move along cylinder's plug, intersecting each pin stack.**



**3. Lock picks or key blanks can be used to aid in shimming.**

In addition to a shim, you will also need either a key blank that corresponds to the plug's keyway or a lock pick, (*photo 3*). Whether you are using a key blank or lock pick their purpose

in the shimming process is the same: to move the pin stack closest to the shim up and down to allow the shim to pass between pins at the shearline. Shimming is relatively straight forward and with enough practice you will become very proficient at it. Like lock picking it requires an acquired feel, a light touch, and practice.

### The Shimming Process

Before we cover the shimming process it is important to note that, depending on how it was keyed, a cylinder typically uses either 5 or 6 pin stacks. If you are using a lock pick this isn't an issue, but if you're using a key blank it can be. You can't use an SC1 key blank, for example, to shim a cylinder with 6 pin stacks; the tip of the key blank won't be able to reach the stack furthest from the key blank's shoulder. Avoid this hassle by using the longest key blank available in the key bitting specification utilized by the cylinder's manufacturer. For this article, we're going to use a key blank to describe the process.

1. Start by removing the cylinder's cam or tail piece to access the back of the cylinder's plug in order to insert the shim.

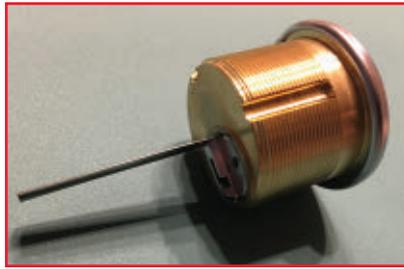
Then insert the key blank all the way into the plug. Or place your pick on the furthest or last pin stack.

2. Insert the shim into the rear of the cylinder, in line with each pin stack and chamber, (photo 4).

Remember, we're trying to slide the shim between the pins. Align the shim so that its center splits the pin stack's center. You don't want a shim to barely grab a pin stack or drift away from the pin stacks as it moves further into cylinder. The shim should be inserted until it contacts the first pin stack.

3. While applying light pressure to the rear of the shim (the exposed end), begin moving the key blank in and out slightly, (photo 5).

The key blank doesn't have to be inserted/removed very much. You can only shim one



**4. Insert the shim into the rear of the cylinder, in line with each pin stack and chamber.**



**5. While applying light pressure to the rear of the shim (the exposed end), begin moving the key and blank in and out slightly.**

pin stack at a time so we only need to focus on moving that pin stack. By using the tip of the key blank, you are able to raise any bottom pin, no matter the depth, to the shearline.



**6. If using a pick, apply light pressure to the rear of the shim and lift and lower the pin stack you're shimming.**

4. Once a pin stack is shimmed, withdraw the key blank or pick slightly and begin shimming the next pin stack, (photo 6).

You will be able to tell when a pin stack is shimmed in two ways. Visually, the shim will move further into the cylinder. You will also feel a shimmed pin stack in the key as well. There won't be feedback from the spring and you won't be able to insert the key as much as you once were. This is because the bottom pin is making contact with the shim. It's important to

**ALL-NEW**

# MAGNETIC PADLOCK

**WEATHERPROOF  
TAMPER-RESISTANT  
SECURE**

**ci** CAPITOL INDUSTRIES INC.

1.800.567.0451 #392  
info@capitolindustriesinc.com  
capitolindustriesinc.com

Since 1969



7. A bent distorted shim.

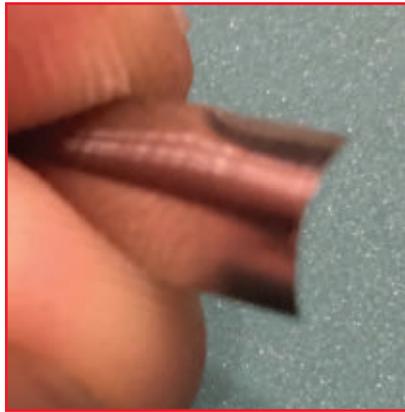
learn this feeling so that you know when you have your key blank in contact with the right pin stack.

5. Continue this process for each pin stack until all pin stacks are shimmed.

### Tips

Always lubricate cylinders before shimming them. A cylinder without keys more than likely hasn't been utilized recently. Lubricating the cylinder will help free things up and allow for better movement of the pins and shim.

Over time a shim will lose its "edge." You can regain that edge by cleaning the shim up on a



8. The shim can be fixed by applying light pressure along its bevel to regain its original shape.

bench grinder. Hold the shim at about a 45-degree angle with the apex of the shim's curve to the wheel. Lightly press the shim against wheel while rotating the shim along its bevel; left to right, one pass. This will clean up the shim nicely and prolong its use. Shims can also bend if you apply too much pressure, (photo 7). You can fix the bent shims by applying light pressure along

its bevel to regain its original shape, (photo 8).

Shimming locks with mushroom and spool top pins can be a bit tricky. A good indication that these security top pins are present in the cylinder is that the shim will move slightly but not enough. The pin stack with the security top pins will feel "set" but won't actually be. Additionally, you won't be able to feel the next pin stack on the shim as it moves. Try setting the bottom pin as high as possible with your key blank or pick and lowering it very slowly. You should be able to catch the end of the security pin before the narrow portion.

If you're having a hard time on a cylinder, put it in the vise. That means you and your hands will have one less responsibility: holding the cylinder. Don't over tighten the vise; a snug fit is sufficient. Protect the threads

From tried and true strikes to new releases,



**NOW IN STOCK!**

1500 Series

1600 Series



**SOUTHERN LOCK EAS**  
Electronic Access Specialists

**hes**  
ASSA ABLOY

Your HES Headquarters!



**5000 Series**

For low profile openings

**1006 Series**

Strongest, most versatile electric strike available!



**7000 Series**

The pre-load solution for high traffic openings



**8300 Series**

Fire-rated and concealed

**9400 Series**

Slim-line, completely surface mounted



**800-282-2837**

**www.SouthernLock.com**

ELSC 07/2017

of a mortise cylinder by wrapping the cylinder with rubber or similar material.

There is one time where you might wish to over tighten a cylinder in a vise while shimming, however. If you are shimming a key-in-knob (KIK) /key-in-ever (KIL) cylinder and the space between the cylinder's plug and bible is extremely tight you can slightly over tighten the cylinder in a vise to create more space between the cylinder's bible and plug. How does that work? Think about what happens when you press a tennis ball between your hands. The sides not being pressed on bulge outward. Same principle here. We're causing the upper portion of the cylinder, the portion at the shearline, to move up and away from the plug. I cannot stress that you must be extremely careful when doing this. You don't want to permanently deform and damage a cylinder. A bit beyond snug is usually all you'll need.

Shimming lock cylinders is a fast and easy way to remove the core. The lock can also be picked and rotated to remove the core, however, shimming is a handy technique to learn and one you will use often once you get a feel for the process.

TNL

**The National Locksmith®**

**CERTIFICATION PROGRAM**

- Designed and written by locksmiths, for locksmiths.
- Test wherever you want, whenever you want.
- The *only* certification program of its type carrying The National Locksmith's Seal of Approval.
- The most cost effective way to show your customers the industry recognition you have earned.

Since 1929, The National Locksmith has been known as The Ultimate Technical resource for the locksmith. It is that expertise we deliver to you in this exclusive certification program.

Details available at [www.TheNationalLocksmith.com](http://www.TheNationalLocksmith.com)  
630-837-2044

OID 0911

*"Innovation distinguishes between Leaders and Followers"*

-Steve Jobs



PLUG-IN WIRING HARNESS  
Easier Installation



ON-BOARD PROGRAM BUTTONS  
Faster detector set-up



SMALL SIZE Mounts on door frames

## Camden Introduces 'the' PIR Request to Exit Detector

Camden Door Controls started with all the features of the bestselling REX detectors on the market, and then added design innovations never seen in the industry before. The result is a next generation REX detector that can be mounted in more locations, is easier to wire and can be programmed with the press of a button. Best of all, the CM-RQE70 offers this remarkable innovation at a remarkably competitive price!

- Secondary device activation for additional security
- (4) factory default operating modes, with the ability to customize mode attributes
- (2) form 'C' contacts (DPDT)
- Momentary and latching relay modes
- Card/key, door position switch and REX switch inputs
- Adjustable sounder
- Tamper switch
- Black and white models



CM-RQE70BK

UL LISTED

**Camden**  
DOOR CONTROLS

DISCOVER THE BEST IN DOOR  
ACTIVATING AND LOCKING PRODUCTS!

TOLL FREE: 1.877.226.3369 • TEL: 905.366.3377 • FAX: 905.366.3378  
info@camdencontrols.com • [www.camdencontrols.com/rexdetector](http://www.camdencontrols.com/rexdetector)