

# PACIFIC LOCK

*Introduces the World's First*

## Hockey-Pucks for SFIC's and KiK Cylinders

*by Gregory Waugh*

In this magazine precisely a year ago our company formally announced its transition from Federal Lock to the Pacific Lock Company. That article represented the rebirth of our family business ~ a business that wanted to do things differently than every other padlock manufacturer out there. In the year since that article published, our business has picked up many new customers. More importantly, we've listened to the locksmith community and have already introduced new products because of it. Our 100AX is the only aluminum padlock available that will accept standard door cylinders. We began manufacturing a small, aluminum IC Core padlock because the locksmiths wanted it. These are just a few examples of how we've listened and responded.

Throughout 2006 we were bombarded with requests for a Hockey-Puck padlock that would work with an IC Core and even Key in Knob (KiK) cylinders. Most said it was impossible ~ no other manufacturer had come up with a useable design. How would our family business outsmart the big guys and develop a truly innovative padlock? I don't know, but we did.

Pacific Lock Company is proud to announce yet another world's first ~ a Hockey-Puck padlock that works with Small Format Interchangeable Cores as well as KiK standard door cylinders.

Better yet, our IC Core implementation doesn't just "work with" IC Cores, the "400IC" accepts IC Cores like any other padlock or door housing on the market. You use the control key to insert/remove the Core while the end user locks/unlocks the Hockey-Puck with their operator key. No other padlock comes close!

Our KiK implementation of the Hockey-Puck, the "400X," handles similarly to any other standard door

cylinder padlock. Using a cylinder retaining plug, a driver, a stopper, and a screw you have the ability to leverage your Schlage Primus, Everest, Mul-T-Lock, Medeco, and any other Key in Knob (KiK) cylinder out there!



**Figure 1: The 400IC ~ SFIC Capable**

We realize that this may sound too good to be true. In fact, some of those in our family business are considering the marriage of a Hockey-Puck body with an SFIC/KiK like putting peanut butter with jelly. Or maybe it's more like the combination of a chocolate bar and peanut butter (remember the old Reese's Peanut Butter Cup commercials?). In any case, locksmiths everywhere will be wondering why in the world the big, corporate giant lock manufacturers didn't come up with our design years ago. Don't know ~ but what our small family

business does know is that we have a patent pending on our 400IC and 400X.

At the time that this article was written (late October), we only had our prototype of the 400IC padlock completed while the 400X prototype was being machined. Our expectation is that by the time this article publishes in January, our company will have the 400IC padlock in stock and available for shipping. The 400X will likely be available sometime in February.



**Figure 2: 400IC, KABA Peaks Installed**

The balance of this article will be broken down into three sections. The first section discusses a previous design attempt by the manufacturer who owned the patent on IC Cores and why that design failed to gain wide appeal. The second section briefly explains the genius of our design and why we believe these padlocks will become the staple for anyone who needs high security with a SFIC or KiK cylinder. Sections three and four go into details on the 400IC and 400X, respectively. The final section will finish up the article with some odds and ends.



**Figure 3: 400IC, Ready for SFIC Core**

## Section 1: Previous Attempt

According to sources who used to work for Best, the company developed and produced a Hockey-Puck that worked with SFIC's. And even though there seemed to be a demand for such a padlock, Best reportedly manufactured only one thousand of these padlocks and then pulled the plug. Why? Well no one that I talked to had a firm answer. What I will say, though, is that the reason must have been because the design had severe limitations.

To begin with, the padlock did not function with the standard hockey-puck hasps available on the market. The placement of the hidden shackle made it so that Best had to design and sell a unique hasp to accompany the padlock. Could you imagine having to convince your customers that not only do they have to buy and install the hockey-puck, but now they have to pay for and install a new hasp?

With that said, I don't believe that it was the special hasp that killed their padlock design. What likely put it on the chopping block was the fact that the hockey-puck implementation prevented you from inserting, removing, and operating the SFIC in the manner in which IC Cores were designed. It just didn't work right.

What I mean by this is that you simply didn't insert and secure the core into the hockey-puck with the control key. Instead, the locksmith would have had to have screwed on parts to the back of the IC core first (parts supplied with the padlock, I would presume). Then you would have to attach the shackle to the part just installed

on the IC core. With that done, you would then insert the core into the padlock and, using a very small hex wrench, loosen a hidden screw built into the padlock to keep the cylinder from sliding all of the way out. I'm sure you can appreciate the inherent complexity of just getting the cylinder to go into the hockey-puck.

With all of that done, the actual operation of the lock was peculiar. No, you didn't use the operator key to open and close the lock. The operator key was useless in this design. Rather, the locksmith would have to give the users the control key to open and close this padlock because it was the control key that would not only unlock the shackle, but unlock the side bar and allow the shackle to be dropped.

"Confusing" and "lacking in functionality" are the general themes from this design. But who really knows the official reasons for the short life of Best's IC core hockey-pucks? According to my source, about ten years ago Best made a thousand of them and then stopped. I was fortunate enough to be able to borrow one for comparison purposes.

## Section 2: PACLOCK's Design

Let me first begin by saying that our 400IC and 400X have none of the limitations described above. You can use the standard hasps. The control key inserts, locks into place, and removes the IC core as expected. The operator key manipulates the hidden shackles allowing the padlock to be locked into place or removed. What more could you ask for? That's how SFIC's are supposed to work.

Our 400X series uses a very similar approach as does the 400IC version. There are distinct differences that allow KiK's to be used versus the IC Cores. In both cases, the designs are simple and elegant. The 400IC version is literally ready for you right out of the box. While the 400X version requires the use of a driver (or "tailpiece") just as any other KiK style padlock out there today requires.



Figure 4: The 400IC Sleeve Assembly

The secret??? The short answer is that we developed a "sleeve" that acts as the go-between for the IC/KiK cylinders and the hockey-puck body. This sleeve and the hidden shackle truly are the genius of the design. The sleeve allows the IC or KiK to be ignorant of the fact that they are being inserted into a Hockey-Puck padlock. In the IC Core's case, the inside of the sleeve acts in a similar nature as our standard IC Core padlocks. Whereas in the KiK design, the modification is in how the driver interacts with the hidden shackle. Let me explain in more detail.

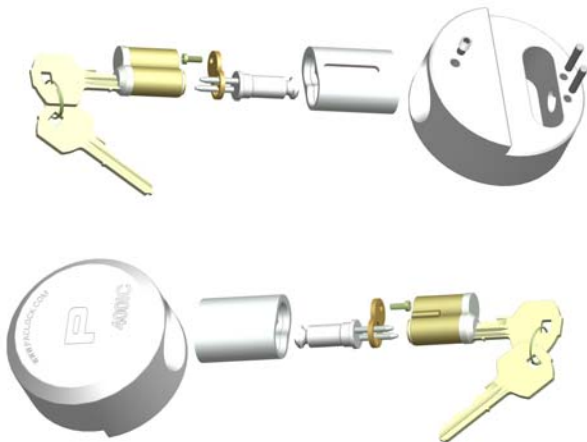
## Section 3: The "400IC"



Figure 5: IC Sleeve Assembly

If you were to look at the inside of the IC Sleeve it would be very comparable to what you'd expect any IC core receptacle to look like. It has the mating end to the locking sidebar for the core. It has two long forks sticking out positioned properly to receive the Core.

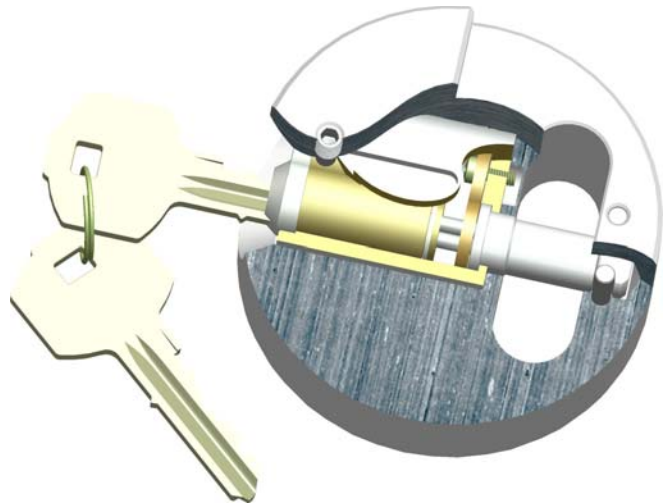
Insert your Core, turn the control key, and there you have the beginnings to a 400IC.



**Figure 6: 400IC, Exploded View**

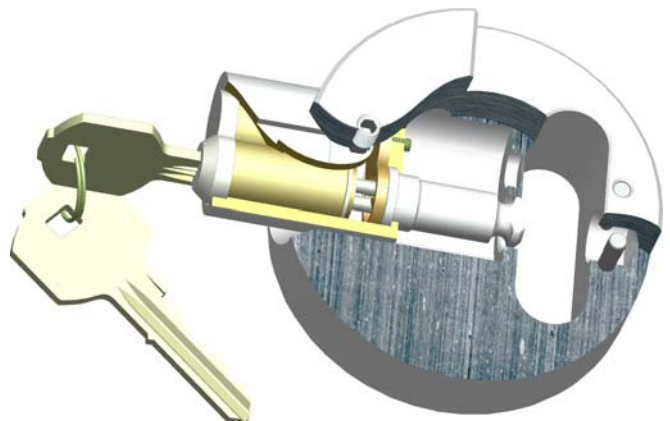
You'll notice from the exploded diagrams that the IC Shackle is separate from the IC Sleeve itself. Although the shackle and the sleeve are manufactured separately, they are affixed to one another by the Shackle Retainer and screw. Like our other IC padlock designs, we use a Shackle Retainer and screw to secure the forks. This prevents a regular padlock from falling apart (ball bearings dropping out) while in transit. In our 400IC hockey-puck design, we have used the same concept to securely attach the unique IC Shackle to the IC Sleeve.

The inside of the sleeve is the receptacle for the IC Core while the outside mates with the Hockey-Puck padlock. The outer dimensions are important even though they were very much driven by the size of the Core and the constraints of the Hockey-Puck body. The sleeve travels into and out of the Hockey-Puck much in the same fashion as a normal Hockey-Puck padlock and cylinder. The IC Sleeve has the special cut-out that interacts with the Retainer Screw on the back of the Hockey-Puck.



**Figure 7: Cutaway, 400IC Locked**

The Hockey-Puck and IC Sleeve Assembly will arrive at your door ready for you to insert your IC Core. It's as simple as that.



**Figure 8: Cutaway, 400IC Unlocked**

## Section 4: The "400X"

The implementation of our "X" series on the Hockey-Puck was slightly more challenging. When you consider that there are generally three different drivers (tailpieces) in use today supporting KiK's from Schlage, Medeco, and a host of other designs we had to think through the combinations and make sure a Hockey-Puck could support them all. What we found was that we had to

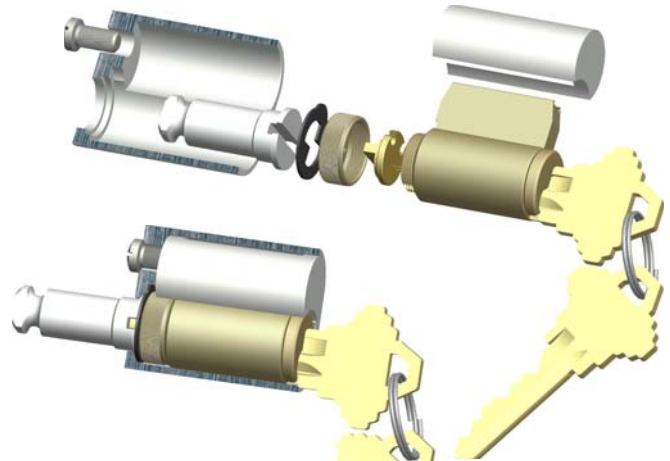
redesign the three drivers commonly used by most manufacturers today.

What we did was shrink the overall height of each driver as much as possible. We also rebuilt the top side of the driver. “Normal” drivers use a half/quarter moon shape to connect with and drive the opposing half/quarter moon shape of the padlock actuator. While we use these designs for our 100AX, 500X, and 550X padlocks, we’ve developed a bar-type shape for the top of the Hockey-Puck drivers. This bar shape has the complimentary cut-out on the end of the hidden shackle.



**Figure 9: Exploded View, 400X w/ Schlage**

Installing a KiK cylinder into our new 400X is relatively straight forward. Install the appropriate tail piece onto your cylinder. Slip the hardened steel barrel plug (yes, I said “hardened steel barrel plug”) over the bible of the cylinder. Drop the hidden shackle into the sleeve and hold it in place. With the sleeve held upside down, push the cylinder assembly (cylinder, driver, and barrel plug) into the sleeve. Using the supplied screw, screw the cylinder assembly firmly into the sleeve.



**Figure 10: Cutaway, 400X Schlage Sleeve Assembly**

With your cylinder now secured into the sleeve, insert the entire sleeve assembly into the Hockey-Puck. Using a 2.5mm hex wrench, screw down the Hockey-Puck screw thereby holding the sleeve assembly in place. Done. You can now use your Schlage Primus or Medeco keys to open your high security Hockey-Puck padlocks!

## Section 5: Odds and Ends

Some of you may not be aware, but Pacific Lock offers two version of the Hockey-Puck not generally offered elsewhere. We have a stainless steel version of the 400 that is called the “4070”. We also have a hardened steel version without the cut-out (or step) on the back called the “2170” which offers heightened security as compared to the standard Hockey-Puck. Over time we will offer both the IC and the “X” series versions for these style padlocks.

We are also intending on manufacturing a lower cost version of our Hockey-Pucks made out of anodized aluminum (the plan is to anodize them black). Again, we can build these padlocks in all three varieties ~ PACLOCK cylinder, IC Core, or KiK. And, “yes”, you can take advantage of our “Your Logo, Your Locks” program on these locks just like our hardened steel versions.

Please note that we do not sell either the IC Cores or the KiK cylinders. Instead, we recommend you call Randy at Main’s Lock Supply (800-352-1773) for your IC Core needs or Joe at All 5 Lock (800-243-8244) for your KiK needs.

We anticipate having the 400IC generally available in January with the 400X soon to follow. Please call your local distributor or PACLOCK directly at 888-562-5565 for pricing and availability. More importantly, please call me directly should you have a need or a preference for which version we manufacture next (the 2170IC, 2170X, 4070IC, 4070X, 400AIC, 400AX, 2170AIC, or the 2170AX).

My company and my family would like to extend a warm "Thank You" to all of those individuals and companies who have supported us ~ especially during 2006. We are very much looking forward to an exciting 2007 and hope and encourage locksmiths to call us or your local distributor should you be looking for a change in how padlock business is done.

Best regards,



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### 400IC Body



### IC Sleeve Assembly



IC Sleeve



IC Shackle



Shackle Retainer



Sleeve Screw