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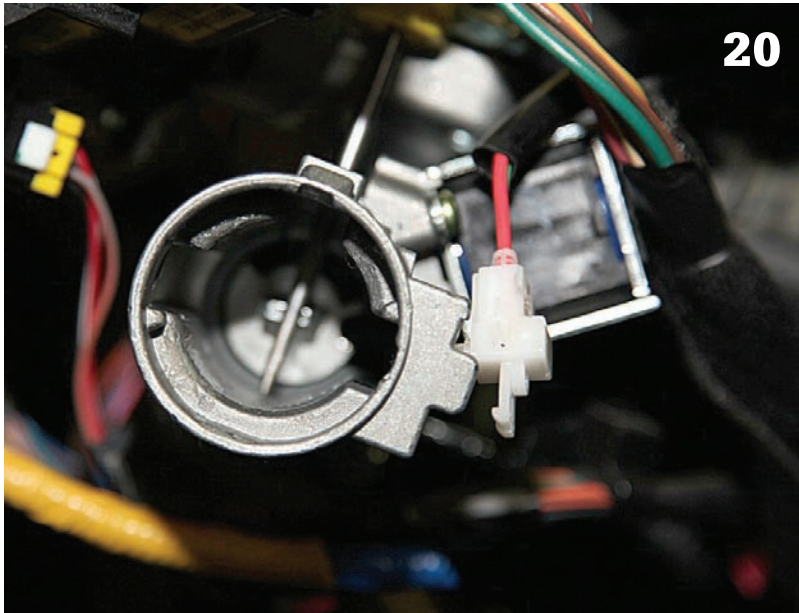
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Mission Statement: The mission of the ALOA Security Professionals Association, Inc., as dedicated members of the security industry, is to ensure professional excellence and ethics; create a public demand for professional locksmith services; represent and speak for the locksmith industry; and expand the exchange of trade information and knowledge with other security-related organizations to preserve and enhance the security industry.

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"If your business is anything like mine, it has taken off since the first of the year. I hope this is a sign that security projects still need to be completed, and that money is starting to flow again."

A Promising Start to 2013

We just finished our first ALOA Latino show in Guadalajara, Mexico, and it was a huge success, with more than 500 Latin American locksmiths in attendance. Our ACE educational seminars were sold out daily, with standing room only in the rear. It was good to see so many Latino locksmiths enjoying an ALOA event in their country. We hope that ALOA Latino continues to grow, and we are looking at other southern countries to host our second show. There were a number of ALOA members from around the world who attended this conference to show their support.

If your business is anything like mine, it has taken off since the first of the year. I am getting deposit checks on projects I quoted three and four months ago. I hope this is a good sign for locksmiths everywhere — a sign that security projects still need to be completed, and that money is starting to flow again.

To be honest, I don't do automotive or residential, so the past couple of years have been slow to steady and forced me to work smarter. One thing I did was sign up and attended seminars to keep myself up on the latest in locksmithing. This year I promised myself that I'd learn everything I could about web-based CCTV. This excites me because I don't want to pull wiring, since pulling wires requires laborers.

I plan to take classes at SAFETECH in Lexington, KY, and sharpen my manipulation skills. Now that I'm old, I have more patience to sit still. In the past, being a Type A personality and having as much energy as a cat on a hot tin roof, I couldn't sit still for more than 10 minutes. I hope to see many of you in Lexington.

ALOA — yes, we still call our association ALOA — is off to a great start, with membership up in all divisions, and many more specialty classes being offered to our members.

I'd like to end this message with a big "thank you" to executive director Mary May and her professional staff for all of the hard work they put in late year to make this year run so smoothly.

Best regards,

Tom Demont, AHC, CAI, CFDI, CFL, CMIL, CML, CPS, ARL



“It doesn’t cost a thing to tell an employee how much he means to your business, and it can go a long way in making him feel appreciated by you, and fulfilled by his work.”

Management Made Easy

IF YOU’RE LIKE MANY LOCKSMITHS AND SECURITY PROFESSIONALS, MANAGING EMPLOYEES isn’t something you ever really aspired to do; it’s more like something you’ve just wound up having to do. In fact, you’d probably rather spend your time working on locks, safes, autos, doors — anything except playing the difficult role of manager.

Thankfully, management doesn’t have to be as difficult as it’s often made out to be. And it certainly doesn’t require a Harvard degree or years of executive management training. All it really takes is treating people right.

When an employee makes a request that doesn’t line up with company policy, be flexible. After all, as the manager, you’re the one with the power to change the policy. Even if you don’t end up bending the rules for him, at least he’ll feel like you really listened to and considered his request instead of just dismissing him.

Like many shops, yours may not have enough money to offer the raises that your employees undoubtedly want. However, you can make sure they feel valued. It doesn’t cost a thing to tell an employee how much he means to your business, and it can go a long way in making him feel appreciated by you, and fulfilled by his work.

You can also make employees feel valuable by, well, making them more valuable. Look for ways to keep improving their industry education and skills, whether it’s subscribing to industry publications that you share with them, letting them take online webinars, having them attend industry events, or allowing them to participate in online discussions during work hours.

The same goes for you, by the way. As a manager, you need to set an example for your staff by constantly stretching yourself, trying new ways of doing things — and, yes, even failing sometimes, if that’s what it takes to keep moving forward, improving, and becoming the best manager you can be.

Mary A. May

Mary A. May
Executive Director

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Paying Tribute to Ray D'Adamo

RAYMOND J. D'ADAMO, A LONGTIME LOCKSMITH, INSTRUCTOR and member of ALOA SPAI, died Jan. 27 in Fort Collins, Colo. He was 62. Here, several industry members pay their respects to D'Adamo.

"I don't believe I've known anybody in the industry who was more widely known than Ray. To say he will be missed is a huge understatement." — *J. Casey Camper, CML, CPS*

"I don't have a 'first' memory of Ray; it seems like he was always there. Anytime Ray was in a room, you knew he was there — his presence was always welcome. It seemed like any time there was an education seminar, Ray was instructing there. If a student needed extra help, Ray was there. If an instructor needed an assistant, Ray was there, ready to help.

"The industry has lost a great man, and I'm sad to know that Ray will no longer be there in person. But Ray will always be there in the minds of all the students he taught, and with all the people Ray came in contact with. I'm proud to say I'm one of the thousands of people able to have shared some time on this earth with Ray while he was here."

— *Greg Perry, CML, CPS*

"ALOA and the industry as a whole has lost a very caring, giving and wonderful person. Ray would readily share his knowledge with anyone that asked and would motivate you to learn more and strive to be successful and keep you laughing the entire time you were around him. He was an excellent instructor, a staunch supporter of the profession he loved, a family man and, to anyone who met him, a friend."

— *ALOA SPAI education manager Jim Hancock, CML, CMST*

"As an instructor, former board member, and present Ambassador for ALOA, I have met and have been around Ray many times, all over this country. Being around him was always a pleasure. He always had this way of making you feel special, even though he was friends to many. He was an instructor's instructor and the type of person that every association depends on. He was a great role model for his students and all who knew him.



Ray D'Adamo was a two-time recipient of the Ace Award, which is presented to the outstanding Ace instructor of the year. He also received the 2004 *Keynotes* Author of the Year award.

"I wanted at first to say that the world is a smaller place without him, but that is not quite true. One can see the evidence of his presence in the many skilled locksmiths that he helped build. Ray built people and good ones at that. One cannot ask for a better legacy.

"Goodbye, Ray. I hope to see you on the other side."

— *C.D. Lipscomb, CML, CPS, CAL, CIL*

D'Adamo was born Oct. 29, 1950 in Hoboken, N.J. A 1973 graduate of Rutgers University, D'Adamo began locksmithing in Boulder, Colo., in 1977. He began writing locksmithing technical articles for locksmith publications and, as an active member of ALOA since 1978, began teaching locksmith courses at trade association meetings and conventions.

He moved with his wife, Tina Woodcox D'Adamo, to Colorado in 1983 and opened Fort Security Center in Fort Collins. He eventually opened two more stores — one in Loveland and the other in Greeley. The business evolved and now is called Tri-City Security.

D'Adamo was a two-time recipient of the Ace Award, which is presented to the outstanding Ace instructor of the year, having received the honor in 1991 and 2002. He also received the 2004 *Keynotes* Author of the Year award.

ALOA SPAI Announces New Online Store

THANKS TO A PARTNERSHIP WITH LogoDogz, a leading supplier in the embroidery, screen printing and promotional products industries, members now can get ALOA SPAI-logoed apparel and other items — all custom-made and shipped within seven days.



The new ALOA Apparel and Specialty Store offers pullover Polo-type shirts, button-ups, uniform-style shirts, jackets, laptop cases and more. Members can even order items with your certification logo, such as CML. For more information, visit <http://aloa.logodogz.net/store/index.asp>.

NEWS BRIEFS

- » **China Lock Industry Expo 2013** will take place March 29-31, 2013, in Poly World Trade Expo Center at Pazhou, which is next to the China Import & Export Fair Pazhou Complex.
- » **The Iowa Chapter ALOA** members meeting is slated for 6 p.m. to 7 p.m., Friday, April 12, 2013, at the Holiday Inn Airport in Des Moines, IA. The board meeting is scheduled for 7 p.m. to 8:30 p.m. For more information, contact Nola Deets at (641) 424-3647 or iowa-locksmith@hotmail.com. (For information about classes held that same weekend, see *Calendar*, p. 11).

Scholarship Honors Father's Memory

WHEN LONGTIME ALOA MEMBER Leonard Miller passed away in February 2012, a key was put on his headstone. "He owned a hardware store for many years — that was really his business — but to me, his passion was locksmithing," says daughter Sari Miller Wancket.

As the trustee of her father's estate, Wancket — on behalf of herself and her three siblings — has decided to sponsor a \$2,000 scholarship as part of ALOA's Student Sponsorship Program, which will fund a week of education for a student at the ALOA resident school, the national convention, or a local conference that's offering an ALOA-certified education program. A portion of the funds is available for travel, accommodations, and food. The Leonard Miller Trust will also fund scholarships for at least two more years.

Wancket hopes the recipients can develop the same passion her father had for the profession. "He always wanted to pass on the knowledge that he had to other people," she remembers.

Miller, a World War II veteran, owned



A \$2,000 ALOA scholarship was established in honor of ALOA member Leonard Miller, who passed away in February 2012.

Miller's Pro Hardware in Detroit for more than three decades. During those years, he closed the store one day a week to go on the road and perform locksmith services. After

selling the shop, he worked for locksmith Ray Sinai on a part-time basis for a dozen years. His specialties were key blank identification, residential hardware and automotive locksmithing, according to Sinai.

Because locksmithing was "one of the most important things to him," says Wancket, the scholarship is a way to honor his memory and help someone else get a leg up in the field Miller loved so much.

"Education was very important to my dad," Wancket says. "I hope that other people will consider [funding a scholarship] to honor someone that they know whose profession was as a locksmith."

Key Craze Launches New Line

Key Craze, a wholesale key company specializing in key blanks and accessories, recently started carrying its own line of replacement car remote shells.

Car remote shells tend to have a short life span, with replacements costing up to \$100, according to the company. Key

Craze offers a more affordable solution with their 15 replacement car remote shells for seven car makes, including Chrysler, Nissan and Honda. The shells are crafted to fit the battery and wires perfectly and they snap together securely, according to the company.

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These applicants are scheduled for clearance as members of ALOA. The names are published for member review and for comment within 30 days of this Keynotes issue date, respectively, to ensure applicants meet the standards of ALOA's Code of Ethics. Protests, if any, must be addressed to the ALOA membership department, signed and submitted via e-mail to membership@aloe.org or via fax to 214-819-9736.

We Need Your Help

Attention, ALOA members: Help us eliminate the ongoing industry problem of scammers by screening the new applicants listed on these pages. If you have questions or concerns about any of the applicants, please contact Kevin Wesley, membership coordinator, at (214) 819-9733, ext. 219, or email kevin@aloe.org.

CALENDAR

MARCH 2013**Feb. 27-Mar. 2****ALOA Latino**

Guadalajara, Mexico

Mar. 7-9**IML Expo**

Intermountain Lock & Security Supply

Universal City Hilton, Los Angeles, CA

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Mar. 8-10

ACE: Large-Format Interchangeable Core; Small-Format Interchangeable Core; Keyless Mechanical Lock

Servicing

Alabama Locksmiths Association

Barbara McGowin, RL, 205-338-1150

locksmithala@gmail.com**Mar. 15-17****ACE: Life Safety Codes**

ALOA Training Center

Dallas, TX

ALOA Education, (800) 532-2562, ext. 204

education@aloe.org**Mar. 21-23****IDN 2013 Trade Show and Security Conference**

Sheraton Detroit Novi Hotel, Novi, MI

Ronald Weston, (734) 293-0082

Mar. 23-24**ACE: Certified Hardware Installer Training**

ALOA Training Center

Dallas, TX

ALOA Education, (800) 532-2562, ext. 204

education@aloe.org**Mar. 23-24****ACE: LLSSA Education Weekend and CLL Test Sitting**

LLSSA Headquarters

Lafayette, LA

ALOA Education, (800) 532-2562, ext. 204

education@aloe.org**Mar. 30****ACE: Detention Locks**

ALOA Training Center

Dallas, Texas

ALOA Education, (800) 532-2562, ext. 204

education@aloe.org**APRIL 2013****Apr. 5-7****ACE: Modern Automotive Key Generation**

ALOA Training Center

Dallas, TX

ALOA Education, (800) 532-2562, ext. 204

education@aloe.org**Apr. 13****Life Safety Codes**

Iowa Chapter ALOA; Holiday Inn Airport

Des Moines, IA

Nola Deets, (641) 424-3647

iowa-locksmith@hotmail.com**Apr. 14****PRP Sitting**

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For a complete calendar of events, visit www.aloe.org.



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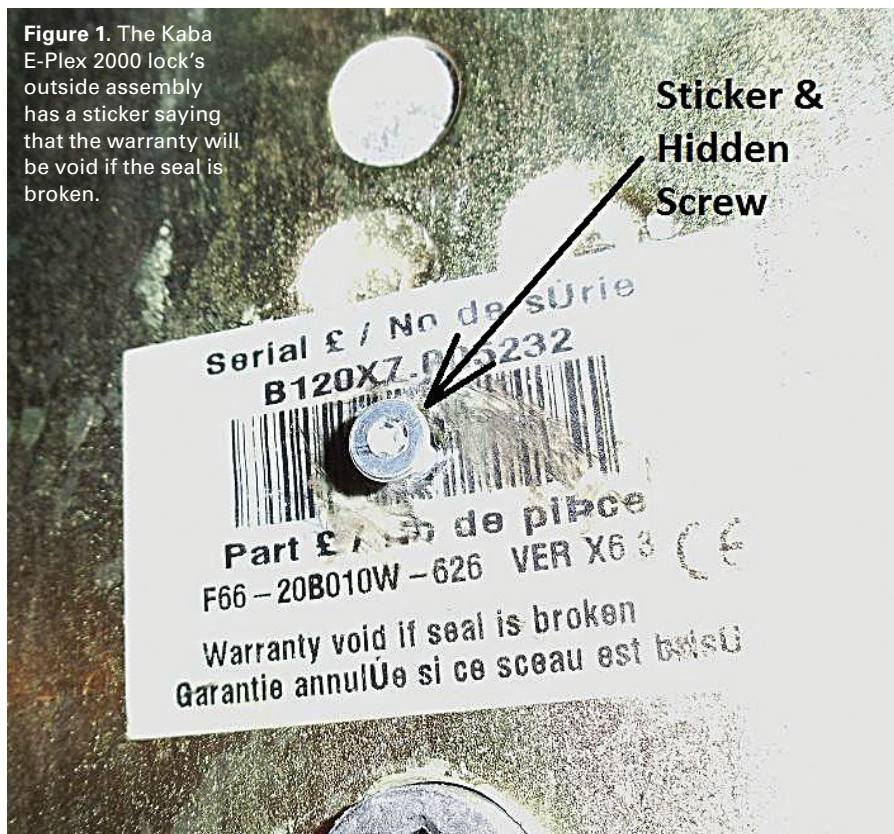
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Figure 1. The Kaba E-Plex 2000 lock's outside assembly has a sticker saying that the warranty will be void if the seal is broken.



Fun with the Kaba E-Plex 2000 Lock

Try this simple fix that uses a piece of wire you can easily fashion yourself.

By Mark "Thor" Caudill, CRL

HAD A JOB WHERE THE CUSTOMER SAID the lock's keypad was lighting up, but the lock would only open with the key. I found out that you could enter the code, and it would make a sound like it was opening up, but it was still locked up. I started to take the lock off and apart to find out what in the world was going on.

I wanted to make sure I knew all about the inside of the Kaba E-Plex 2000 lock, so I went to my computer and brought up the breakdown drawing that I had downloaded awhile back. Guess what I found? The part of the lock that I really needed was not to be found. The main outside assembly of the lock has a sticker that tells you the warranty will be void if you take it apart (*see Figure 1*).

When taking apart the lock, remember that the Torx-type screws can be removed with a $\frac{1}{16}$ " Allen wrench like the ones that we get with Lori deadbolts. They work really well for this. There are five screws that need to be removed to take off the back plate (*Figure 2*).

After you take off the back cover, you'll see an electric motor; a nylon worm-type of gear on the end of the motor shaft; a curve-shaped nylon glide; and a spring steel wire on the end of the glide (*Figure 3*).

In *Figure 3*, the broken wire has been removed and replaced with a new one that



Figure 2. Remove these five screws to take off the back plate.

I made from spring steel wire from ESP. It comes in a plastic tube that you can buy from most locksmith supply houses.

The way the lock should work is that when the electric motor turns, the gear will turn. When the gear turns, the wire will run down the gear — and in turn, this will pivot the nylon glide. If you take a good look at *Figure 3*, you'll see that this also will pivot another nylon part that's shaped kind of like a hammer. When this nylon part pivots into a clutch-type part, the lock can open.

Take note that in *Figure 3*, not all of the parts are back in place at the handle spindle area. On the curved glide, the wire has two dogleg 90-degree bends, which go into holes at the end of the glide. Before you take one apart, make sure you don't hear the sound of the motor working the gear. If the wire is broken, you won't hear anything; if it's not, you'll hear the wire working on the gear.

Putting it Back Together

Now that you have the wire working right on the gear (*Figures 4 and 5*), you can start putting it all back together. In *Figure 3*, you see how the wire, gear and two nylon parts go back in place. There's a notch in the part at the spindle that the tab on the hammer-shaped part" (*Figures 3, 6 and 7*) has to fit in. If it's not in place, the handle won't work when the combo is entered. Put the clutching assembly back in place.

Figure 6 shows you the parts of the clutching assembly. It's made up of a return spring, a pressure plate and the handle spindle.

Figure 7 shows the parts in place; now you're ready to put the back cover back on. After doing so, insert the spindle shaft in the center hole. You're ready to put it all back on the door (*Figure 8*).

Test the lock a few times and make sure it's working. If you did everything the way I've been telling you, it will work. If you study my photos, you'll see the micro switch that tells the lock that it's open.

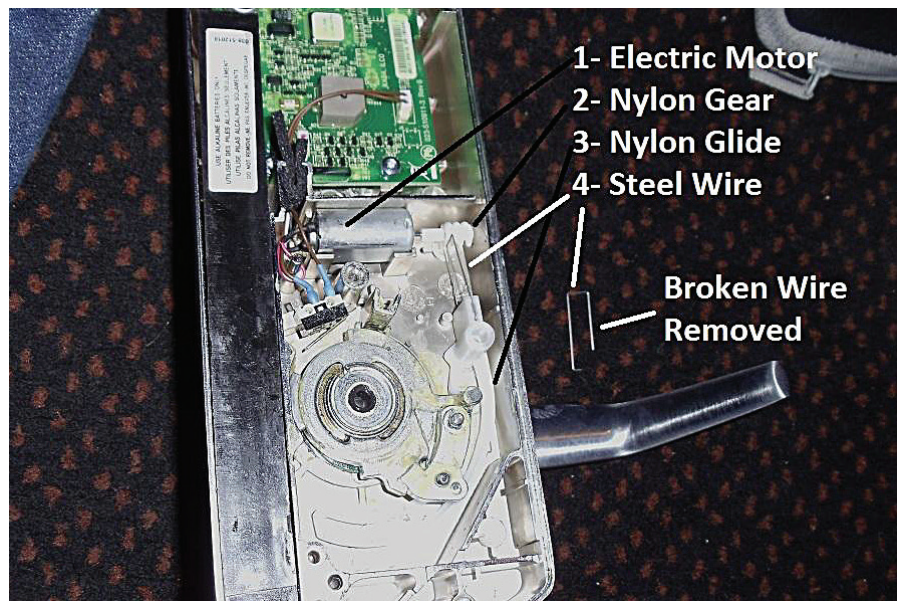
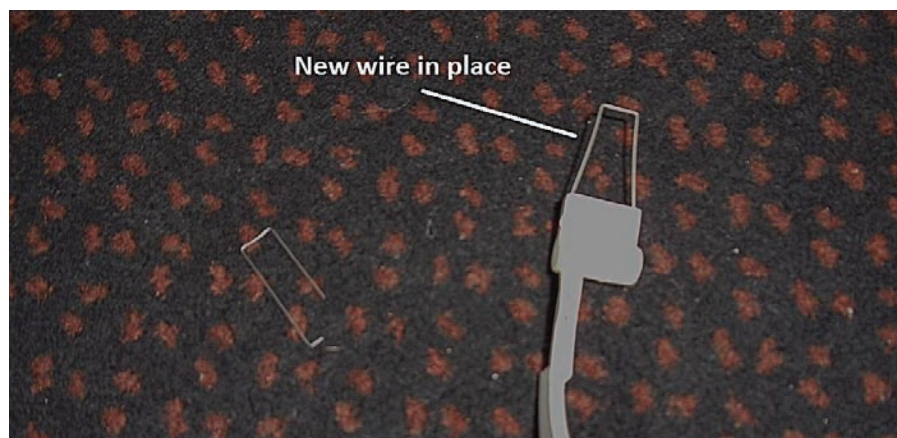
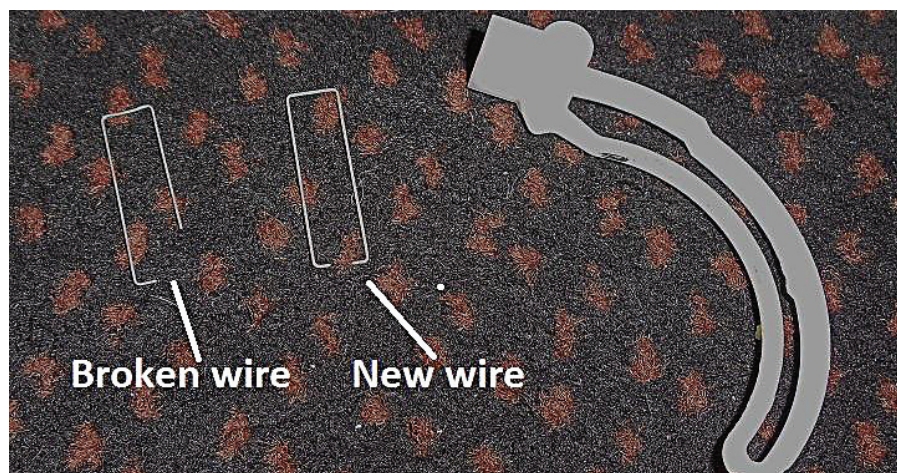


Figure 3. With the back cover removed, you can see an electric motor; a nylon worm-type of gear on the end of the motor shaft; a curve-shaped nylon glide; and a spring steel wire on the end of the glide.



Figures 4 and 5. The author fashioned a new wire to replace the gear's broken one.



Figure 6. This image shows the clutching assembly's parts: a return spring, a pressure plate and the handle spindle.



Figures 7 and 8. Once the parts are in place, the unit can be put back on the door.

Sometimes it may need to be bent some so it can talk to the lock, just like with Detex alarms. Other problems can happen like broken electrical wires or bad batteries — you know the kind of things you find in electrical locks.

Parting Thoughts

This may not be true, but I think Kaba doesn't want us to know how to fix this. If they did, they would have a list and a drawing of the part of this lock that I've shown you. This is why I keep a lot of metal in a lot shapes and sizes on my truck — You never know when this stuff will come in

handy. The wire part was really easy to make, and Kaba doesn't show this part at all in their drawing.

Also, why would you want to have to wait on parts when you can make it in less than a couple of minutes? I use the spring steel wire all the time — it's a must-have on your truck.

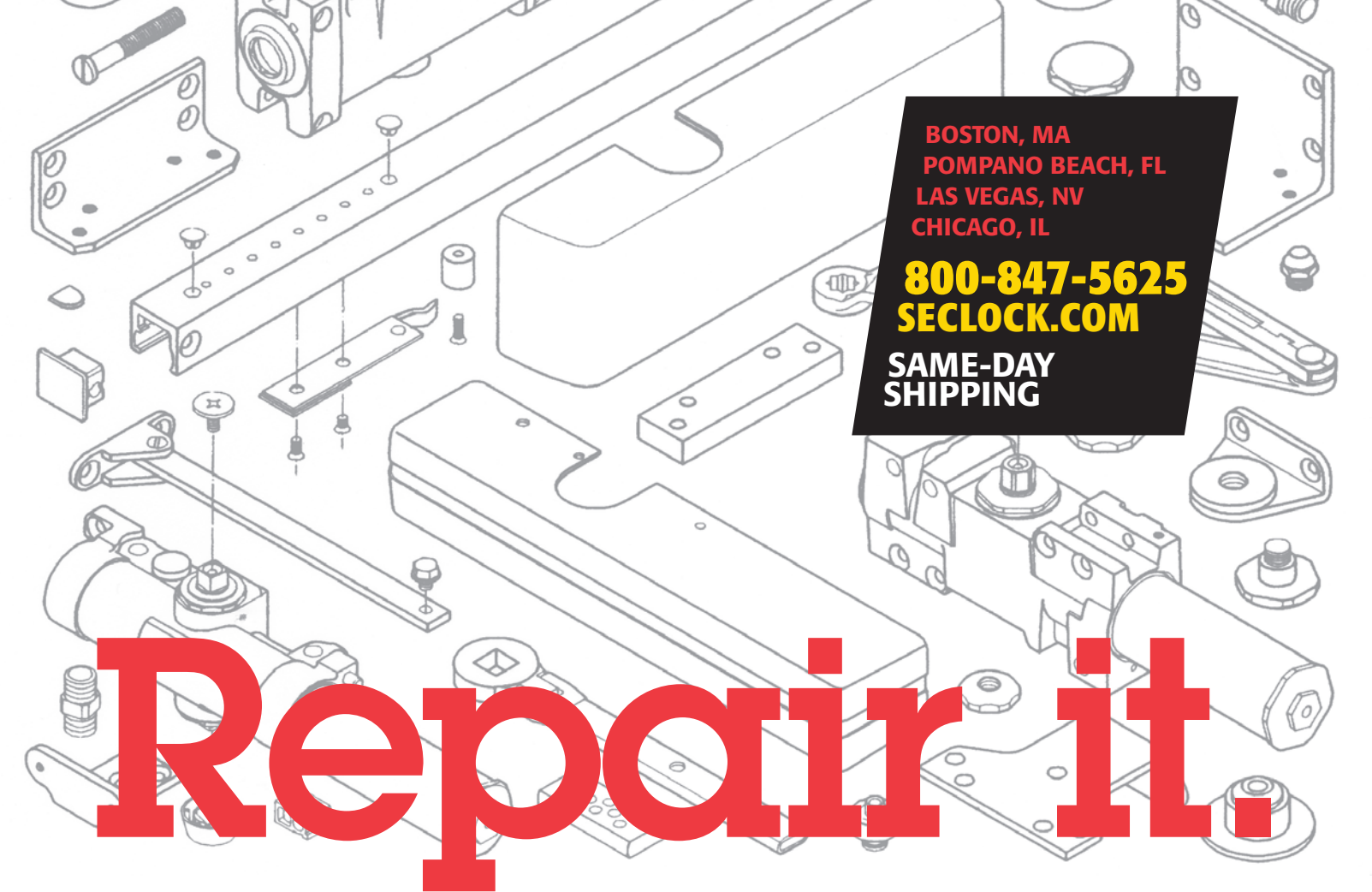
But if a company is willing to make a drawing of part of a lock, why not do so for the rest of it? Let's say you had a call to work on this lock, and the part of it that I've shown had come apart. If you'd never seen this part of it before, you may not know how to put it back together. If we're going

to sell a lock with this many parts, we need more info.

Now don't get me wrong. I like almost all of the Kaba line, and I have a lot of friends that work for Kaba. What I am saying is about *all* of the industry, not just Kaba. ☺



Mark "Thor" Caudill, CRL, has been in the locksmith industry for more than three decades, working in all facets of the field, including automotive and vaults. He is currently an instructor for the Associated Locksmiths of North Texas, for which he also served two terms as education director, vice president and president.



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Fact or Fiction?

Learn the truth about key insertion and evidence spoliation.

By Jeff Lange, PE, CFL

ONE OF THE MOST HOTLY CONTESTED ISSUES IN THE FIELD OF FORENSIC AUTOMOTIVE lock analysis is the decision to insert a key into a lock as part of the analysis process. In general, the forensic locksmith industry has accepted the practice of key insertion into a lock in question if a number of guidelines are followed. The guidelines include:

1. The key to be inserted is first determined to be a known operational key for the lock.
2. The key, prior to insertion, has been proven, by examination, to have no defect or anomaly that may alter the interior of the lock, or otherwise change the internal character.
3. Examination of the key's contact surfaces reveals no markings associated with its use as a master in the duplication process.
4. Examination by otoscope or ophthalmoscope reveals no evidence of the inser-

tion of an object other than a regular use key. That object may include a pick, rake or modified key used to manipulate the tumblers within.

Limited insertion of a key into a lock under investigation has been shown to have no identifiable effect on the contact surfaces within the lock except for some very unusual circumstances. This finding has been established during independent testing and polling of the forensic locksmiths who, when questioned, have overwhelmingly dismissed key insertion as a destructive test under the proper conditions. There is also a logic associated with this position based on the design of the lock, intended life expectancy, and nature of the materials from which the lock is made.

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Wear and Tear

The failure of any mechanical device can often be directly attributed to wear. Wear is the direct result of contact, pressure and movement. Wear in locks occurs when the key contacts the spring-loaded tumblers and forces them out of its way and into a position associated with the cut depth on the key. Additional wear develops as a result of the movement of the key within the lock while the vehicle is in operation.

The wear is exacerbated by the additional weight placed on the key by dangling keys, key chains and other items often linked to the vehicle's ignition key. However, most vehicles never require replacement of the ignition lock or key due to wear during its entire service life. This is because the ignition and door locks to an automobile are designed to last the life of the vehicle.

Typically, the automotive industry accepts that to be approximately 100K miles of operation. If a driver drives the average distance per year, now accepted to be 12K to 15K miles per year, one could suggest that the vehicle's operational life expectancy is at least six to seven years. Although there are no published criteria on insertion ratios (the number of key insertions relative to vehicle mileage), it would be reasonable to assume that the average driver would insert the key into the ignition multiple times per day — let's say for this example, 4 times per day.

If the operator inserts a key in the ignition four times per day, 250 days a year, the ignition key is inserted in an ignition lock 6,000 to 7,000 times over the vehicle's life. If during this time, the lock components wear so little that they survive this span (and typically beyond), then it would be reasonable to say that from a wear perspective, one, two, three or even four insertions of the key (typical during testing) would have no identifiable effect on the contact surfaces within the lock.

“From a wear perspective, one, two, three or even four insertions of the key (typical during testing) would have no identifiable effect on the contact surfaces within the lock.”

Making Their Mark

Vehicles are stolen by one of two methods: driving or towing. In most cases the latter does not require a key. In addition, the circumstances and examination of the recovered vehicle (if recovered) would reveal indicators that would support theft by towing.

If the stolen vehicle was driven, the thief must have bypassed the anti-theft/theft deterrent systems or had a working key. Indicators of system by-pass are often also revealed during post recovery examination. If the thief had a key, then that key was made from a code or using a known key as a master. This “new” key will likely have a different shape or contour than the routinely used key, and will often have burrs, which may or may not have been removed following cutting.

Assuming the “new” key is metal, the potential (albeit limited) of marking the interior of the lock exists. However, due to difference in the character of the new key, any markings on the tumblers associated with that “new” key would be in a different location on the contact surfaces. Such markings are generally identifiable during otoscope examination.

If such markings were identified during otoscope examination, the technician would normally elect not to insert the key unless other testing (that requires key insertion) is deemed essential. Regardless, post-recovery insertion of a supplied working key will not strike the tumblers in the same fashion (and

location) as the “new” key; therefore, it will not alter or otherwise obliterate markings left by that “new” key.

When one considers this and the limited number of times a thief may insert a key into the lock of a stolen vehicle, it can be concluded that potential for altering the interior of a lock by insertion of a known operational, previously used key, is little to none especially if the guidelines are followed.

Transponder Immobilizer Systems

With the development and implementation of sophisticated transponder immobilizer theft deterrent systems, the importance of the mechanical locking systems has diminished to the point that many vehicle manufacturers no longer include mechanical anti-theft/theft deterrent devices requiring a traditional key. In fact, General Motors' vehicles equipped with a transponder immobilizer system no longer have a steering wheel position locking mechanism.

In the coming years, more and more vehicle manufacturers will be doing away with the mechanical theft deterrent systems in favor of fully electronic security. One can conclude that the vehicle manufacturers no longer consider the mechanical theft deterrent systems the primary security device, leaving the transponder immobilizer system as the more important anti-theft system.

However, to properly assess the transponder immobilizer system, a technician must operate the ignition and position the key in proper proximity to the antenna/inductor ring surrounding the entry to the lock cylinder. The antenna/inductor ring serves two purposes: It emits, by nature of its inductive properties, an electromagnetic pulse used to power the transponder device in the key, and it receives the radio frequency signal emitted by the powered key.

The antenna/inductor ring is the communication link between the key and the car, as the outside antenna is the link be-

tween the radio station and vehicle's radio. To power the key and receive the emitted signal, the key must be in proper proximity to the lock while the ignition is turned on. As such, testing of the system requires the key to be in the ignition. This is where a compromise must be reached. If the technician chooses not to insert the key, he may be accused of not performing the proper testing and is now subject to more substantive accusations that leave his opinions open to successful challenge.

Since testing has established that limited insertion of a known operational, worn-from-regular-use key does not alter the interior of the lock (with few exceptions), then choosing to insert the key to test the more important theft deterrent system (transponder immobilizer) is an educated choice that will not, if the guidelines are followed, constitute evidence spoliation.

Thus, accusing a forensic locksmith of evidence spoliation because a key was inserted in a lock is like accusing a medical examiner of spoliation because an incision was made during an autopsy. There are essential elements to a proper forensic analysis of an automotive ignition lock, and thus some compromises must be made. Proper procedures and protocols consider and account for such compromises, as does the experience and education of the technician, who can weigh each on its own merit.

In conclusion, the insertion of a known operational, regular use key into the ignition lock should not, if precautions are taken, alter the interior of the lock. Therefore, such insertion should not constitute evidence spoliation. Based on the materials used in lock component construction, relative hardnesses of keys and locks, the effects of limited

key insertions would not be identifiable. In fact, it may be argued that proper testing of what now has become the primary theft deterrent system, the transponder immobilizer, dictates key insertion as a necessary part of the process.

In the end, evidence spoliation is the decision of the judge — not the expert, not the advocates. Scientific evidence, use of recognized protocol and unbiased logic can assist the trier of fact in making such a decision — and protect the forensic locksmith from unfounded accusations of impropriety. ☞



Jeff Lange, PE, CFL, is president of the International Association of Investigative Locksmiths, a Certified Forensic Locksmith and Licensed Professional Engineer. He can be reached for questions or comments at Jeff.Lange@LangeTech.net.



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It's easier than you might think to open new markets with high-security automotive work. Auto expert **David Taylor** gets you started with a look at the 2012 Kia Sorento ignition.

KIA BEGAN INSTALLING HIGH-SECURITY LOCKS ON THE Sorento in 2011. Models come with either a regular ignition lock or a proximity system. Vehicles with a regular ignition have a high-security-type key without a transponder chip. Other than using a factory key blank, locksmiths can copy or originate with a Lexus LXP90-P or TOY48-type blank. In a pinch, one could use the transponder versions since the car isn't scanning for a transponder chip.

Having taught the high-security class at PUREAUTO, I've learned that few locksmiths originate or even copy high-security type keys. The profit potential of high-security automotive work is many times over that of non-high-security. The only real difference between the two is the type of machine used to cut the key. Armed with the proper machine, key blanks and a little bit of knowledge, you can open a new market.

A FEW SIMPLE STEPS



Figure 1. This image shows the lower half of the ignition column shroud with three screw holes. There are two Phillips screws hidden behind the steering wheel and one Phillips screw on the bottom toward the front of the car.

Figure 2. Here you can see the screw by the ignition lock. You must turn the steering wheel to access the screw on the left. Then the wheel must be turned to a different position to access the screw on the right. After removing all three screws, pull off the lower shroud. At this point, the upper shroud will be free to move out of the way.

Figure 3. This white electrical plug is a key reminder buzzer switch. If the key is left in the ignition and the door is opened, there will be a warning sound to remind the driver to remove the key. This is intended to help reduce lockouts.

On the bottom of the plug, there's a hook that keeps the switch on the lock housing. Gently pry the hook toward the dash while pushing up. The switch should move easily. Excessive force will break the hook. In colder temperatures, the owner might need to be informed of possible breakage of small plastic parts, even though the chances of this actually happening are rare.

If the ignition lock is malfunctioning, you won't be able to reach the two screws behind the wheel. At this point, the airbag and steering wheel will need to be removed. To remove a malfunctioning ignition, drill either below the retainer from the front or from the side. Drilling from the front will destroy the lock; drilling from the side will require that the lock housing be removed from the car.

Two bolts on top hold the housing to the column, and two Phillips screws hold the ignition switch to the housing. Once removed, drill under the retainer to remove the material from the plug. Once the material has been removed, the retainer will push in enough to allow removal.

Figure 1



Figure 2



Figure 3

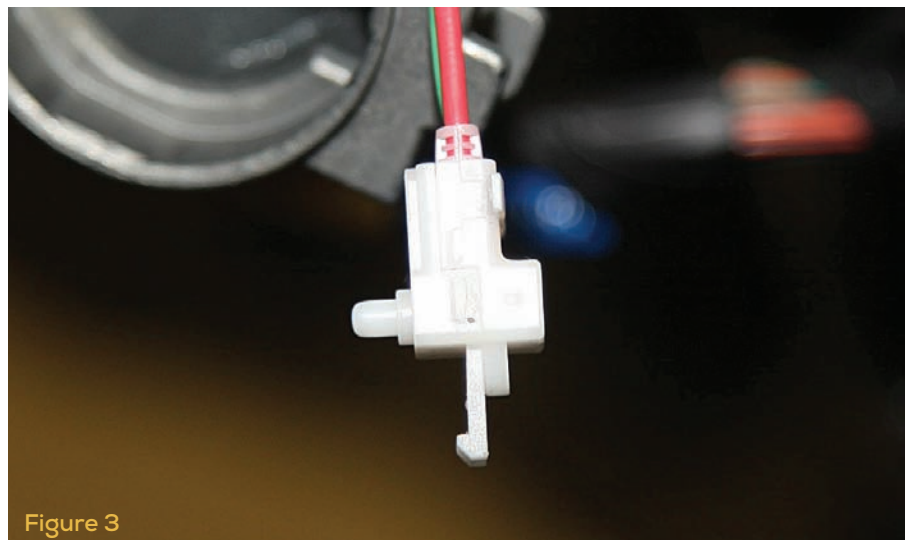


Figure 4



Figure 5

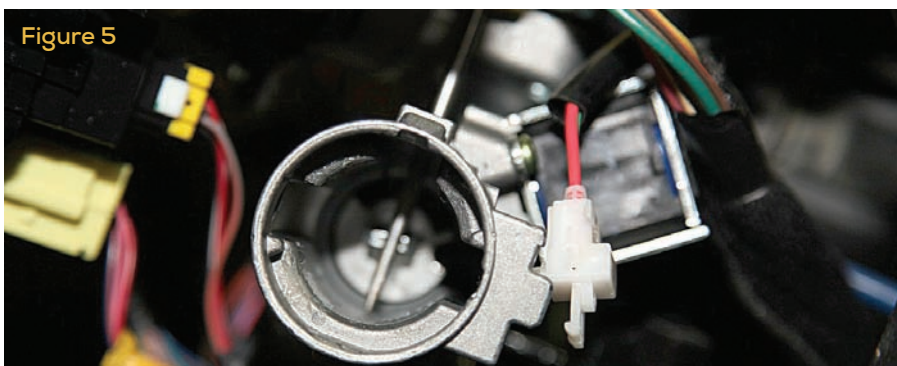


Figure 6

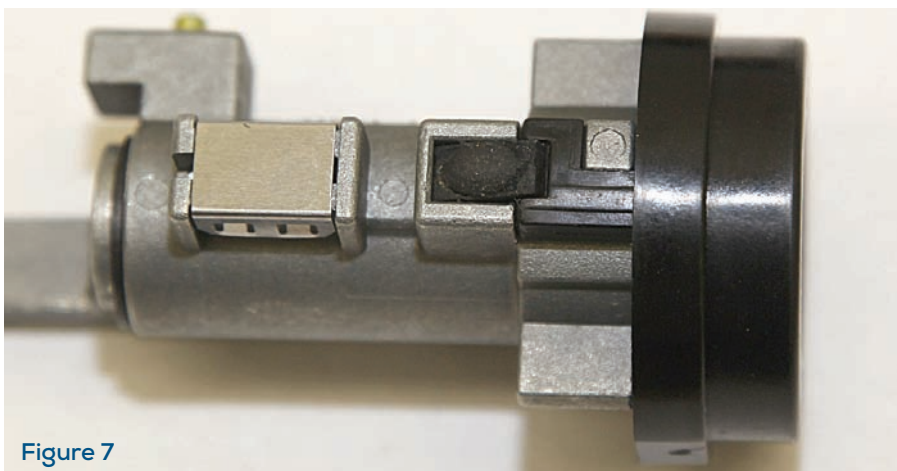
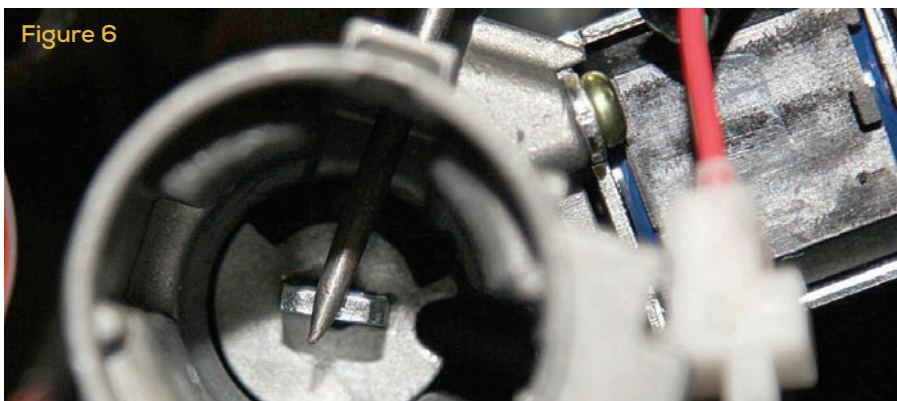


Figure 7



Figure 4. If the lock is functioning, turn the key to the accessory position and use an ice pick to push the retainer down while pulling the key. This image shows an ice pick in the poke hole to the left of the screw.

Figure 5. A close-up of the ice pick extending through the poke hole and also the white buzzer switch on the right.

Figure 6. Another shot of the ice pick. Also visible is the correct timing of the switch actuator that mates with the rear of the lock plug. Timing must be correct for the lock to be reinserted into the housing.

Figure 7. Once the lock is removed, you can see the rubber face cap retainer.

ADDITIONAL INFO

- Code series for this vehicle is G0001-2500.
- 12 spaces total, six on each track.
- Four depths.
- There are no codes stamped on any locks.
- Both the door and ignition have all tumblers.
- There are only three locks on the car.
- Tumblers are stamped with their depth number.
- The glove box only has a few tumblers, so it's not worth removing for key generation.



"If the ignition lock is malfunctioning, you won't be able to reach the two screws behind the wheel. At this point, the airbag and steering wheel will need to be removed."

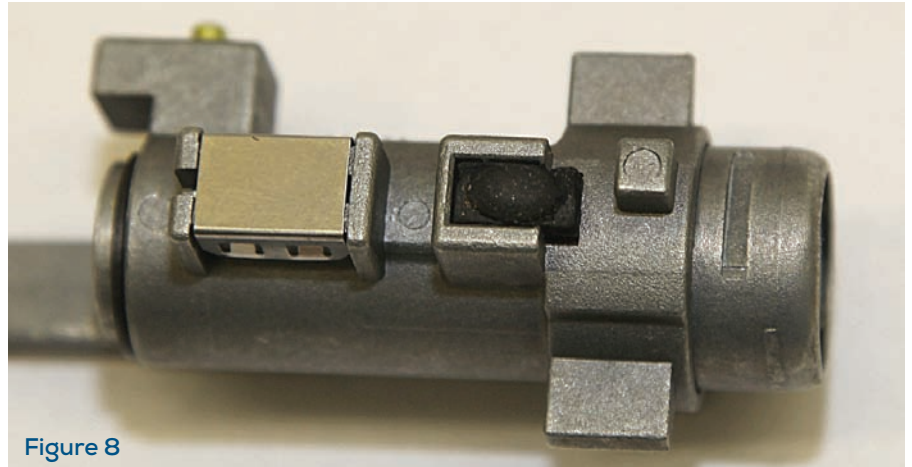


Figure 8

Figure 8. The same view, but with the face cap removed. The rubber plug must be removed before the face cap can be rotated.

Figure 9. An image of the rubber retainer and a small spring cap to the left. This cap and two other parts below must be removed before the plug can be pushed out of the housing.

Figure 10. All of the ignition lock's parts are shown here. Notice the three parts below the face cap. They are the spring cap, spring, and another small silver piece of metal.

Normal removal of the key involves a push-and-turn motion. As with most Asian vehicles, turning the key CCW will stop at a point where the engine is off but the column is not yet locked. That's the purpose of the small silver piece of metal; it interacts with the plug and doesn't allow CCW turning until the plug is pushed in enough to clear. Once the key is pulled from the lock, the column locking bolt will slide into the locked position.

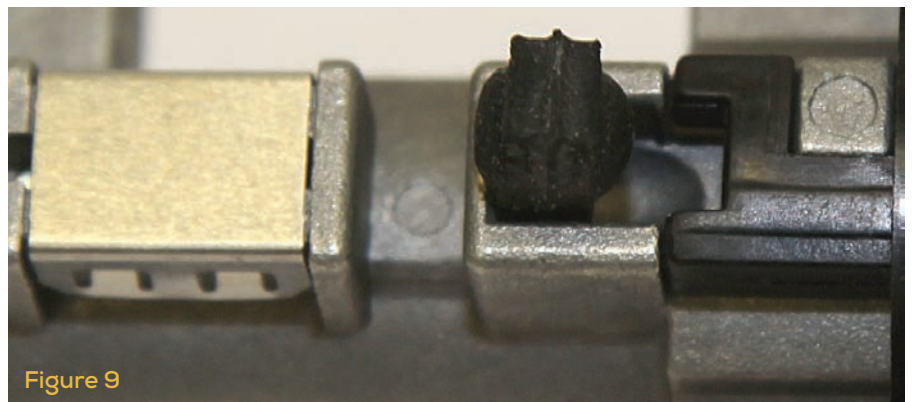


Figure 9

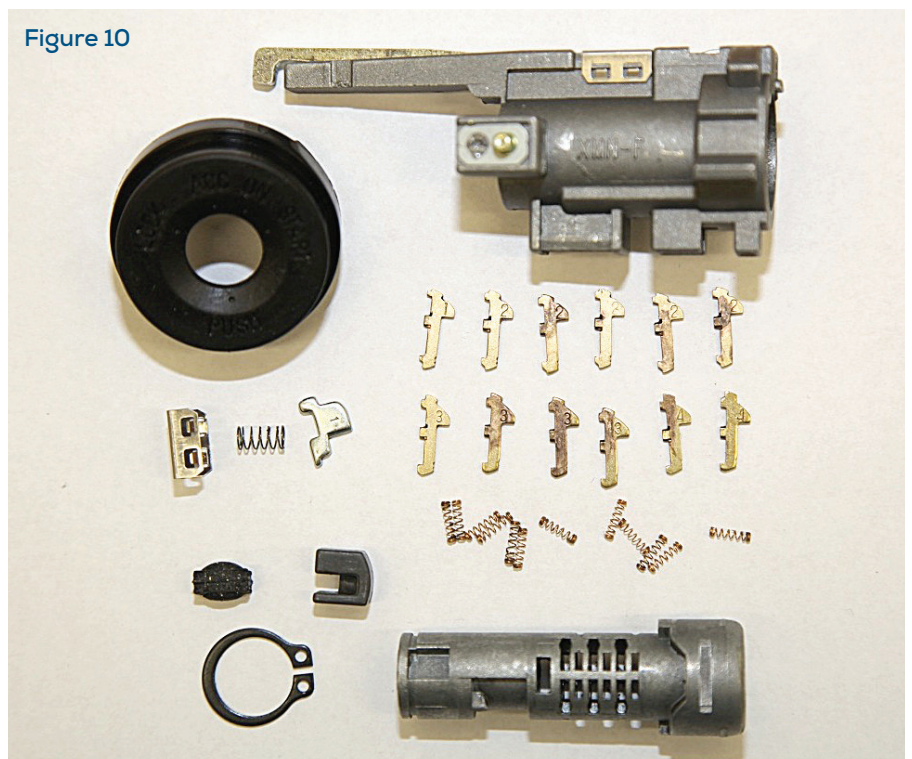


Figure 10



David Taylor has a background in all aspects of locksmithing, but enjoys the unique challenges of automotive work. He has been a full-time locksmith for more than 30 years and a PUREAUTO instructor for more than 10 years. He owns a family business that has been in operation in

Oklahoma since 1935.

Protecting our Schools from Attack

How you can help reduce the risk of potentially deadly incidents.

By Don OShall

AS I WRITE THIS, ALL ACROSS THE country, institutions of all sorts are asking the question, “How can we prevent a similar incident here?” in response to the media flurry over the shooting in Connecticut. This is a familiar territory for me, having been hired partially in response to an incident at Lehigh University many years ago, and also having served as a key systems analyst following incidents at other institutions across the country. I am also on the Institutional Locksmiths Association committee to prepare a set of best practices for their members

to use as a guideline.

For the purposes of this article, I will use the term “attack” to describe any attempt to violate anything related to the institution or its occupants, from petty theft to a spree murder attack. I’ll use the term “attacker” to describe any individual or group whose goal it is to cause such an attack to occur. Remember that our attacker might not be an intruder but someone already authorized to be within the institution, or even someone charged with its protection. And I will use the word “threat” to describe anything related to a specific or general risk factor.

Ever-Present Risk

The simple facts are that there will be other incidents in the future regardless of what we do, but that we can reduce the likelihood of it occurring at any specific institution — and we can reduce the likely severity of the incident. Those should be our governing goals.

Face it: Even the most unimaginable atrocity could occur. For example, it’s highly unlikely that someone will hijack a tractor trailer and drive it full speed through the walls of an institution, but it could occur. Nevertheless, its likelihood is so small, and the costs of preventing it so large, that it be-



cks

comes impractical to even consider it. There will always be possible weaknesses in our defenses. What one person can design, another person can destroy.

And sometimes, in spite of our best efforts, a well-designed system might turn out to be vulnerable by an attack so simple that no one ever thought of it, and thus did not defend against it. The attack on a reasonably secure padlock using a simple disposable pen body, for example, showed us that sophisticated devices might be compromised by simple means. Today we try to find more of those, but the fact is that none of us is equipped to find every possible weakness.

Instead, we attempt to determine what we're trying to protect, what we're trying to protect it against, and where to focus our protections. Our defense strategies will then be governed by the five D principles of security: Deter, Delay, Deny, Detect, Determine.

Deter. We first attempt to deter an attack — to harden the institution's defenses to a

point where a reasonable attacker (whether his intent is to obtain property, cause harm to property, or cause harm to an individual or a group of individuals) might decide that this is not the best way, best time or best place, and will either move on to another target or put off the attack for the time being.

Delay. Assuming that fails, our next goal is to delay them. The longer it takes for them to be in a position to accomplish their goals, the longer the personnel inside the institution have to recognize that they're under some form of attack and think about the appropriate response. Also, if the delay occurs on the exterior of the building, a passerby might observe the attack and notify authorities.

We want to consider adding delay tactics at every opportunity, throughout the institution. Yet we must make these delays transparent to the regular, everyday user of the facility wherever possible, and we must not interfere with fire regulations.

The simple fact is that the odds of per-

Author's Note

This article does not involve itself in external factors beyond the scope of the institution or a locksmith to control. It may make use of crime statistics, evolution of prior incidents, and similar facts in order to determine the likely effectiveness of the recommendations. But it does not involve itself in factors such as gun control, pro or con (other than considering armed response capability within the institution), nor with mental health procedures in society at large (although it may make recommendations relating to procedures within the institution where appropriate).

It will not involve itself in the prevention of incidents beyond the perimeter of the buildings, other than to recommend that areas outside the building be free of hiding spaces, well lit and monitored. — DO

sons or property being damaged by fire are astronomically higher than the likelihood of them being damaged in a concentrated attack. There have been fewer than 40 school-related shootings in the past 10 years, for example, out of tens of thousands of institutions (perhaps even hundreds of thousands of institutions), yet fires occur quite frequently. Because we defend our institutions with good fire-related policies and materials, most are minor. We do not wish to change that to overcome the much slimmer possibility of a school shooting, if at all possible.

Detect. Once the would-be attacker is past our defense against deter and delay tactics, our next goal is to detect his activity. We ideally would like to do that in a twofold pattern. First, we want to make certain that authorities within the institution are aware of a violation having occurred. Secondly, we'd like to be able to track the person who caused the violation, if possible.

Deny. Our next goal is to deny them access to the most crucial of areas, if possible. We want to create safe zones, where the target is hardened more than would otherwise seem reasonable, where persons can be safer, or where high risk property can be stored, even if only in the event of a situation.

Determine. Finally, the goal becomes to determine the level of appropriate response. You don't call out the National Guard to stop a graffiti artist, but you don't want to send an untrained person into the line of fire to try to reason with a heavily armed and potentially unstable individual. Ideally, there should be a way of determining what the actual incident consists of.

There are a number of factors to be considered, each affecting the final recommendations. As described above, we attempt to determine what we're trying to protect, what we're trying to protect it against, who we're trying to protect it against, and where to focus our protections.

There is a major difference between fac-

“There will always be possible weaknesses in our defenses. What one person can design, another person can destroy.”

tors at a K1-12 school, a college or university academic building, a college or university residence hall, and an administration or services building. A healthcare facility won't have the same options available to it as any of those education or administrative types of occupancy. Each type must be addressed individually.

This article focuses on primary and secondary schools. These could be defined as an educational facility intended to provide education for primary and secondary school-age children, and would include all kindergarten to high school facilities, public or private.

Threat Types

We need to define the type of threats to be considered. Procedures differ between a threat from an intruder and that of an individual intended to have been protected within the institution who has now become a threat. Further, the type of individual, especially regarding age and status, will affect the situation. An armed guard who becomes a threat, for example, is likely to be a different level of threat from a seven-year-old with a revolver, even though both may be armed equally.

There is a vast array of possible threats, and the seriousness of each threat affects recommendations. The goal of this article is to permit a valid assessment of the factors as to likelihood, severity and potential for flashback. The term “flashback” as used

herein refers to situations that, while technically falling lower on the risk spectrum, have more dire consequences that move them up the ladder. The term is borrowed from fire safety, where the simple opening of a door or window can provide oxygen to turn a smoldering fire into an inferno.

The likelihood of a school-related shooting, as stated above, is relatively low. Yet because the victims are young, the flashback factor makes them a very high priority in the minds of most people. They must be evaluated in terms of that perceived effect rather than as merely a low statistical likelihood.

Threat Levels

The highest threat level is one in which the potential threat primarily focuses on loss of human life. The next highest level involves the potential threat of loss of life to pets, farm animals, etc., primarily for the purpose of instilling fear in humans associated with the animals.

The next level involves a threat that's likely to cause individuals to be hospitalized, possibly with some risk of death or permanent injury. The next level involves a threat intended to cause major damage to a structure or its contents, with or without the potential for injury or death of unknown and unexpected occupants.

Then we have a threat intended to cause minor damage, primarily to the contents of an area. The lowest level of serious threat involves the potential loss of property of value to the institution.

The lowest levels of threat include one of the following four situations:

1. The potential loss of personal property of individuals within the institution.
2. The risk of a single individual or small number of individuals being injured, such as during a fistfight.
3. Emotional or psychological threats aimed at individuals or groups.
4. The potential for an individual or group of individuals to enter an area where their

safety or health could be at risk.

Types of Attackers

Different attacker types affect the level of the threat and the appropriate level of response. Factors to be considered include but are not limited to:

- The age of the attacker
- Are there weapons involved?
- Are there tools involved?
- Are there explosives involved?
- Are they insiders or intruders?
- Is the attacker communicative?
- Is this a spree, an assault or a targeted attack?

All of these factors change the physical environment of the threat.

Age and weapons. A young attacker, for example, is less likely to be as effective with a weapon than an older, potentially trained and practiced attacker might be.

Tools. Tools might permit the bypass of devices intended solely for ballistic protection.

Explosives. These most certainly change the possible attack methods.

Insider or intruder. An insider might have had access to keys and almost certainly will be familiar with the layout of the institution and its defenses, while an intruder is less likely to.

Communication. A communicative attacker might be reasoned with to some degree, but an uncommunicative one is less likely to be persuaded.

Spree, assault, or targeted attack. A spree is a mass attack, picking victims seemingly at random. It may have brief cool-down periods, but it is unlikely they will be for very long. It may change locales but is more likely to be geographically focused on one building or area.

An assault is an attack intended to cause harm to an individual or group, but with an obvious willingness to cause harm to anyone who attempts to, or seems to, interfere with that goal.

“No matter how much you charge an individual, you can’t forever keep him from becoming careless with his keys.”

A targeted attack is intended to only reach and cause harm to a specific individual or group, and the only way anyone else is harmed is if they pose a perceived threat to the attacker(s).

Obviously, these factors all affect the possible deterrents, and the possible solutions.

Best Practices

With all that in mind, some of the recommendations of best practices include the following.

Create a mantrap inside the main front door. You can do this by using windowless metal inside foyer doors with remote lock/unlock from the office and no trim on the exterior side. The majority of these institutions are ideally designed for this, already having a set of typically non-locking doors forming a wind barrier.

During the hours when students and others are permitted entry, these would be non-locking. When school is in classroom mode, the doors would be locked against entry. Barrier trim should be installed to prevent bypass through the door gap.

Alarm the exterior door during certain hours. Do this unless it’s bypassed from the remote office. This alarm should be silent at the door but annunciated in an area normally occupied by administrative personnel during hour of operation, and with the capability to use a remote dialer to access the police department if not acknowledged in a reasonable amount of time.

Use ballistic window film. Install this film inside and outside on all first-floor windows and door lights. Security screens are another alternative for windows, and in an ideal situation, both would be employed.

It should be acknowledged that most experts have stated some limitations on the use of ballistic window film. These include that its effectiveness is far more limited on standard window glass than on minimum ½-inch thick glass, which is normally used in testing and demonstrations. Further, even bullet-resistant glass is limited, and these limits vary by product.

Most film will stop the spread of a hole from a handgun at even close range. Most will eventually permit a hole to be created large enough to pass a hand through and activate the lock from inside. Only some film will prevent a high-powered rifle or shotgun from penetration at close range; most will resist it from a distance of 20 yards.

Most will not resist the creation of a hole to pass the arm through and activate the lock after three closely placed shots at most. Still, that’s at least three less shots available to the attacker for use against individuals, a delay of several seconds and an increased noise to warn inside personnel.

Do not use exterior trim on unnecessary exterior doors. Frequently, every exterior door has operable keyed trim, which can be accessed in a picking, impressioning, bumping or acquired key attack. If entry is not generally needed, there should be no trim.

Note: Screwing a blank push plate over the existing lock trim openings is not generally considered an acceptable security practice and should be discouraged as a method of achieving this. If, however, it is employed, the plates should be made from stainless steel of a suitable thickness to resist prying, and installed using proprietary head screws (preferably not torx or spanner head because tools for both are readily accessible) to fasten the plate in place. Through bolting is encouraged. Additional use of an adhe-

sive is considered a good practice, but use of adhesive alone is not.

Use a proprietary key control by patent key system. This point is absolutely considered one of the highest priorities of best practices. Depending on risk and budget, this can range from simple proprietary patented keys to full high-security keys. Simple restricted keys are of course better than standard commercially available keys, but generally they can't really compare favorably with patented or high-security key systems.

Maintain key management software and procedures. This is vital to every system. It includes key inventory of issued keys once per semester; identifiable key labeling by individual assigned (sequential or blind coded-unique to each issue); procedures for reporting of lost or stolen or misplaced keys with no penalty for reporting promptly; implementation a change of keys when key losses are reported; and penalties for non-reporting.

(No matter how much you charge an individual, you can't forever keep him from becoming careless with his keys. But penalties for reporting will discourage proper reporting and encourage silence "to look for them," during which time the institution is exposed to a risk far greater than the costs associated with rekeying — especially if in-house locksmiths are employed. After all, they represent soft money — money that's spent whether it's used well or not.)

Hire a dedicated institutional locksmith. If the school district doesn't one, it should consider hiring one or more. If this isn't considered feasible, the next best action is to assign the position as a primary duty to an existing employee, even if all that person does is interact with a local commercial locksmith. The person should also have an assigned alternate person to handle it if the primary person is unavailable for any reason. Ideally, a third backup is a good practice, but this is not always reasonable.

Consider card access on at least exterior

“Too often these are keyed to a key that also operates all the classroom exteriors, or even to the master key only, which is then given out like candy to all teachers, substitutes and workers.”

doors. But once again, consider some form of blocking barrier to prevent exterior bypass of the inside of the exit device or lockset. Motion sensors can be bypassed by a flag or balloon. Exit bars can be activated by U-shaped rods. Some resistance to these without interfering with proper operation should ideally be employed.

Use CRM double-sided classroom function hardware on classroom doors. The inside cylinder should be keyed unique to each individual room, and the key should be maintained in a keybox locked by dual-key lock, pushbutton lock or card-swipe lock. Too often these are keyed to a key that also operates all the classroom exteriors, or even to the master key only, which is then given out like candy to all teachers, substitutes and workers.

These keys are often left lying on a desk or table or in an unlocked drawer and they're accessible to individuals within the space who are often unsupervised. This permits the keys to be stolen, a mold of them made, or even to be taken out and duplicated and then returned without the key issue being aware it has happened. This puts everyone at risk.

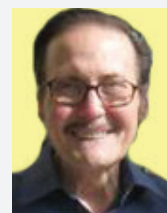
Making the inside unique to the individ-

ual room is a best practice, and because it does not operate the entry side of the lock, it poses less of a threat if compromised. Nonetheless, ideally a key retaining system should be employed to protect it. Because it is a key that will be rarely used, even a pushbutton lock might be sufficient to secure it, because it won't be used regularly enough to make a viewing attack easy.

Use 1-inch thick ballistic-resistant glass. This will generally provide a fairly reasonable level of security for a safe zone, while still permitting the occupants to observe events around them. However, this may not be desirable in some cases. In those cases, such glass can be used to supplement existing walls or doors in the safe zone.

One caveat regarding safe zones, however, is that no one should expose themselves to excessive risks merely to relocate to a safe zone. This needs to be a convenience- and decision- based move. If the closet in the back of the room is a safe zone, it's likely to be a simple move and should probably be done in the event of a serious threat. But no one should leave a locked room and expose himself to current danger unless there are no other acceptable alternatives.

As the article initially stated, even with all of these steps initiated, absolute security can't be guaranteed. Additionally, there may be other possible recommendations as well. This list should not be considered comprehensive. However, the more of the above best practices that are implemented, the better the resistance — and the less the likely severity of any incident. Remember the five Ds. ☺



Don O'Shall, CPL, CMIL, CMKS, is the author of many books for locksmiths, including *Institutional Locksmith Shop Management* (available in the ALOA Bookstore). He has taught the trade for more than 40 years. He has run an exceptionally well-regarded institutional lock shop for more than 25 years.

Obsolete But Not Forgotten

A look at 27
locksmithing items
that made their mark
on the industry before
falling by the wayside.

**By William M. Lynk,
CML, CPS**

THOSE OF US WHO HAVE BEEN in locksmithing and security for decades have seen many products come and go. Some stayed while others vanished, moving down the narrowing, old-fashioned path of outdatedness.

The Merriam-Webster Dictionary defines “obsolete” as “*ob-so-lete* - adjective \äb-sə-'lēt, 'äb-sə- \ no longer in use or no longer useful.” Yet some things have found a reincarnation of sorts, a redesign to make them better or more useful, avoiding the graveyard of obsolescence.

This article addresses only 27 of the vast array of products and items that have fallen by the wayside. For old-timers, it will be a memory jogger. For newer locksmiths, it will be an introduction that may help you identify, service and possibly work with items that can't be found on Google.

As I approach 40 years in the business, it is sometimes fun to take a walk down Memory Lane and reminisce. For young and old alike, I hope you enjoy the stroll.

Figure 1a

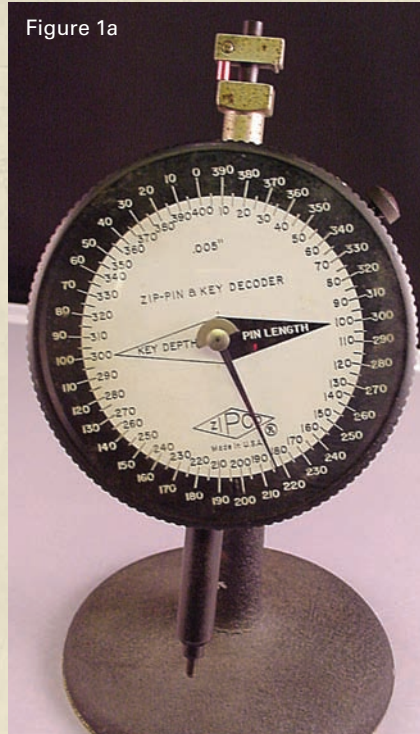
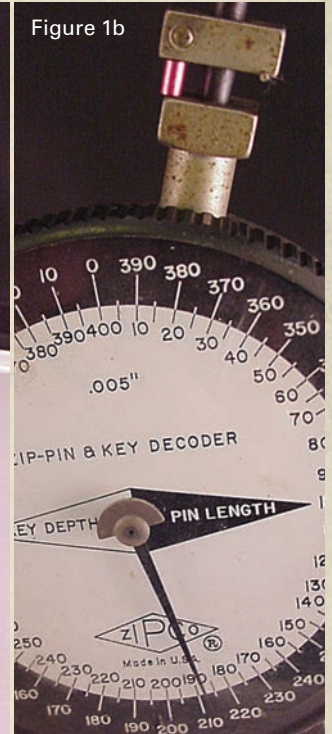


Figure 1b



Zipf Pin and Key Decoder Dial

This oldie but goodie was manufactured by Zipf Lock Company in Columbus, Ohio (see Figure 1a). Incidentally, Master Lock Company created the color-coded pin tumbler, and Bill Zipf initially licensed them from Master, according to locksmithing expert Jerome V. Andrews, CML. Colored pins are now manufactured by LAB Pins and others.

As you can see from Figure 1b, a tumbler pin (red .187" wafer pin, in this example) can be placed between the upper bars and the dial, and it will indicate its depth by marked increments of .005". At the bottom of the dial, the extended pin can be pushed upward until it meets flush with the root of the key cut. Two rings of increments can denote the key cut depth or the pin depth. There's also a turn button that allows for calibration adjustments. It is held by a sturdy iron base, and the dial can swivel to any desired angle.

This was a Christmas gift from John Ulaszek, owner of Ultra Security. Even though it is obsolete, it still works great.

Figure 2a



Skate Keys

These vintage keys were once used to tighten and adjust aluminum roller skates (Figure 2a). Old-school skaters would glide around until the cows came home and then use the skate key to unlock. Many people consider these keys good luck. They're a reminder of good times past where the key to everything was simplicity.

The first recorded use of roller skates was during a London stage performance in 1783. Throughout the 1880s, roller skates were mass produced in America. The Henley skates were the first skate with adjustable tension via a screw — thus the use of the skate key (Figure 2b).

Figure 2b



BEST Dake Original Capping Press

This original version of the BEST Capping Press was manufactured by the Dake Company, out of Grand Haven, Michigan (Figure 3). Founded in 1887, Dake was the first company to build the BEST Capping Press. Colored light green, it was smaller than the subsequent, larger red press manufactured by Famco Machine Company out of Kenosha, Wisconsin. The weight of the newer press is heavier, giving it more stability. Both presses provide $\frac{3}{4}$ -ton pressure when capping SFICs.



Figure 3

Eagle SFIC

"The Eagle Has Landed!" was a marketing phrase used by the now-defunct Eagle Lock & Security Company. Originally located in Mamaroneck, New York, before moving to Elmsford, New York — and not to be confused with famed Eagle Lock Company of Terryville, Connecticut (also departed) — Eagle Security Systems manufactured the SFIC of their name in the 1980s through the mid-1990s (Figure 4).

The core was a basic, non-descript SFIC. Their line of products sold through distributors to locksmiths included SFIC pin kits for A2, A3 and A4 increment systems, capping blocks, capping pins, ejector pins and a key punch. In those days, Eagle was only competing with a handful of SFIC manufacturers, but oddly enough, they just vanished from the face of the earth. The Eagle finally took off to unknown lands.

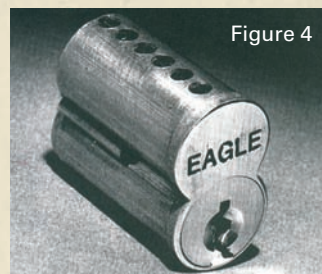


Figure 4

Sargent 5100 Removable Core

Since its early beginnings in 1854, Sargent has manufactured a wide variety of locking devices. Now obsolete are the strange "square pin" locks, their master ring cylinders and the beautiful Sargent Union Locks, still in use in the historic Fisher Building in downtown Detroit. I was in awe when I recently saw them in person.

Added to the list of obsolete locks is the 5100 Series removable core, originally produced in the mid-1960s (Figure 5). Rob Shanley of Sargent Lock indicated that because of mechanical problems often occurring when environmental debris gets pushed to the back of the core, the last chamber control lug may prove inoperable. Sargent replaced this core with the current 6300 Series LFIC, using control chambers in positions three and four. The 5100 is still available — however, only as a retrofit for existing systems where it is used.

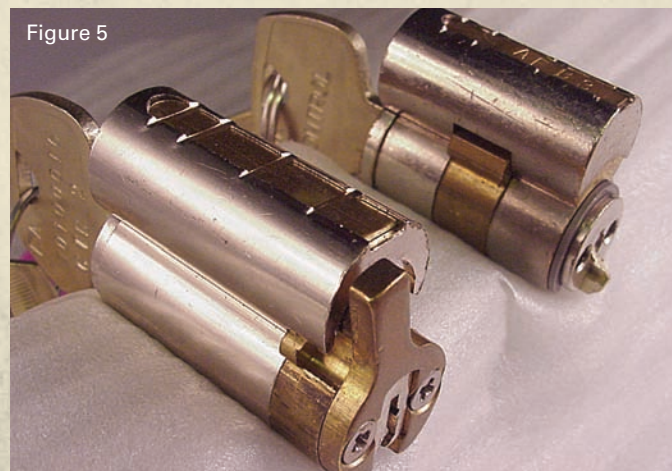


Figure 5

Figure 6a

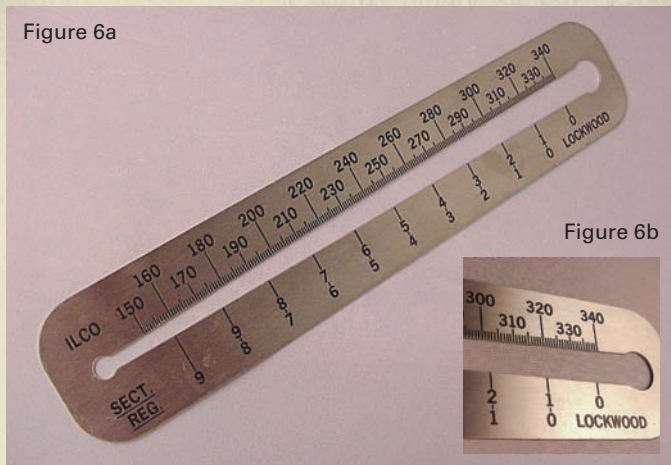


Figure 6b



Figure 6c

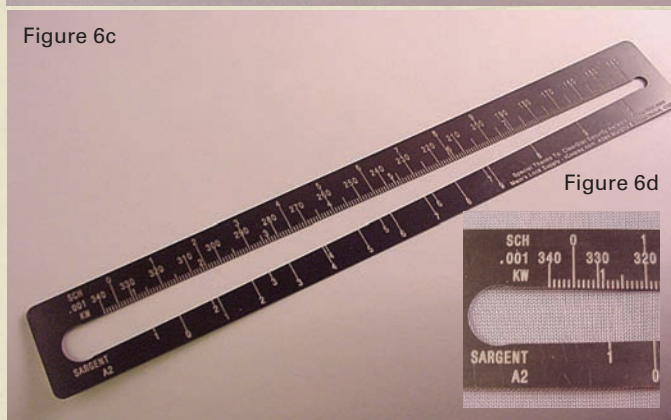
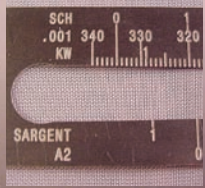


Figure 6d



ILCO Universal Key Gauge

Manufacturers have created dozens and dozens of assorted key gauges over the decades. Some are designed in the “go-no go” format with small step-like cutouts. Others are of a wedge design to allow the key to stop wherever it may. Differing increment systems call for different key gauges. Manufacturers such as Corbin, Russwin, Yale, BEST, etc. have individual gauges for specific increment systems, or double markings on the same gauge.

Many years ago Kaba-ILCO chose to create what many call the ILCO Universal Key Gauge (Figure 6a). It shows key depths for regular Lockwood keys, as well as sectional Lockwood keys. The beauty of this particular gauge is that it is also calibrated from .150” to .340” by increments of .001”, so any key from most any manufacturer could be gauged by true depth measurements (Figure 6b).

A re-embodiment of this tool was recently accomplished as a joint effort by Clearstarians John Hubel, CML, Allen Murphy and Randy Main. This universal gauge was constructed of a thinner material so that the laser etching could be more accurate (Figure 6c). It’s calibrated from .140” to .340” and also has markings .001” apart. Conveniently it has reference points for SFIC A2, Kwikset, Schlage and Sargent (Figure 6d). It was devised as a fundraiser for ClearStar and as a service to member locksmiths.

Mul-T-Lock SFIC

Mul-T-Lock, an Israeli company, has developed over the years a wide assortment of locking devices that tend to be compatible with locksets across Europe and the Middle East. Since there are virtually no interchangeable cores in that part of the world, Mul-T-Lock did not originally create any. Eventually they did enter the U.S. market and developed the LFIC Schlage and LFIC Yale retrofits, still available today.

The problem that existed with the SFIC is that because the Mul-T-Lock key is so large compared to a standard SFIC key, one complete throw pin would need to be eliminated in existing SFIC mortise and rim housings. That was a task almost impossible for many locksmiths to bear with large SFIC facilities. Unfortunately, due to both design and mechanical problems, the short-lived SFIC (just like DOM) was scrapped (Figure 7).

Figure 7



Impressioning Key

Originally manufactured by a Canadian company, the example pictured here uses a Schlage aftermarket blank that was cut down to its deepest cuts (Figures 8a and 8b). That area was then filled in with a solder that could be easily filed away for impressioning work.

Thanks to Bob Noble, CML, CPS for offering this key to me for study. Additionally, Dave McOmie also offered some dimple key blanks that he hollowed out and filled with wax. They were intended for opening Kaba and other dimple key locks.

Figure 8a



Figure 8b



Downie Pin

Few younger locksmiths remember or even know of the “downie pin” (Figure 9), which has multiple uses for the locksmith. Scribing, probing, etching, prying, moving, piercing, shifting — the possibilities are endless. It is similar to a turkey skewer, but thicker and more stable. It was discovered and popularized for use by locksmiths and safemen by (Downie) D.W Dowless. This type of pin is used especially by people in the leather and upholstery field but still applicable in the locksmith arena.

Figure 9



Figure 10



Falcon Old SFIC

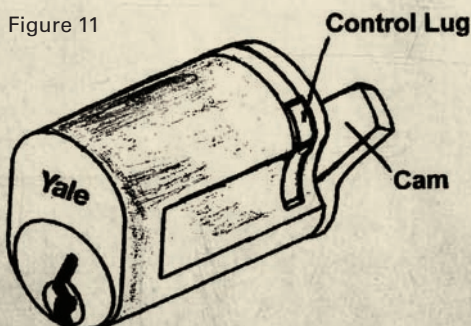
One can only wonder what was running through the minds of the designers and engineers when at the old Falcon plant in Brea, California, the original Falcon SFICs had the keyway stamped on the face of the plug (Figure 10). This would tell anyone at a quick glance what keyway was being used — not a desirable feature. Also, the tolerances on these cores were not tight, as they were loose in fit and shook like a couple of tin cans rattling in the night. Luckily, IR/Schlage redesigned these cores to tight tolerances and the Schlage high standard of quality. The logo and entire look is now new and fresh — and with no keyway indicated. Obsolescence has its value.

Yale Old Removable Core

This may be one of the first emergences of the original removable core (Figure 11). Not only obsolete, but a rare collector's item. Lori Brown, cylinder specialist extraordinaire at Yale, told me there's not even one left at the factory. It is still on my Christmas wish list.

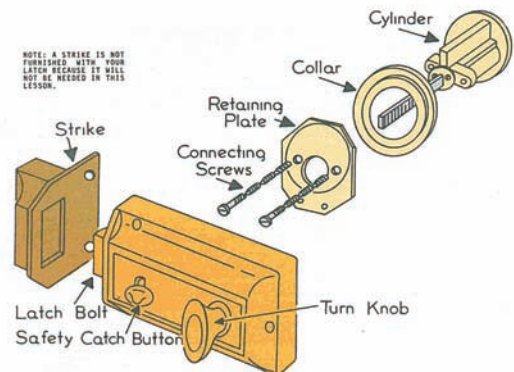
Notice from the image that its mortise cam is attached to the rear of the core, directly operating the locking mechanism. Also, the shape is different than most removable or interchangeable cores — it's ovular instead of the traditional figure eight. It was discontinued in favor of the standard Yale LFIC, which began manufacture in 1959.

Figure 11



LOCKSMITHING INSTITUTE • LITTLE FALLS, NEW JERSEY 07424

In the supply envelope you will find a complete rim night latch. The following illustration shows the various names of the parts of this lock.



At the present time we will be concerned with the housing only. Take a screwdriver, and remove the small single screw that you will find on the back cover of the housing. Take off the cover and study the inside mechanism very carefully.

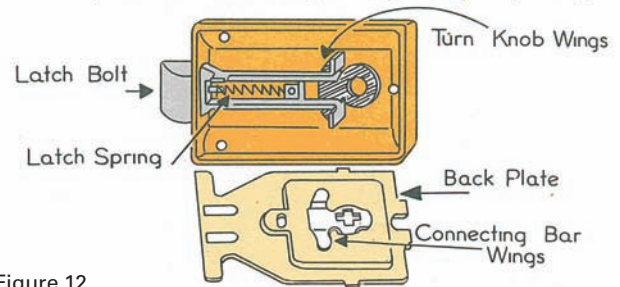


Figure 12

Locksmith Institute

The defunct Locksmithing Institute of New Jersey, started by the late Leonard Singer (master keying expert) was a successful home study locksmithing course. This course was the start for many locksmiths across the country and contained a high-quality curriculum. Locks were sent out to the student each week, and the student would read the study material and pin, fix, open, etc. the lock or safe parts as directed, return them and then be graded on the work.

The example here shows part of a lesson about rim night latches (Figure 12). Looking back over my materials, the course promo has a quote from graduate Billy B. Edwards Jr., CML: "I obtained a job as a locksmith in 1969 and have been earning a living as one ever since. I have learned things from the course that some locksmiths haven't learned in 10 to 15 years of locksmithing. The course gives you a good, sound, basic knowledge of locksmithing which, if used, can enable you to cope with practically any problem which may arise."

How true. When I took the course as a teenager in 1974, the cost was \$270. Included was an ILCO key duplicator, 200 colored automotive blanks, a standard key blank assortment, files, follower, plug holder, depth gauge, key blank catalog, scribe (downie pin), turning wrench, extractors, spacer keys, pin tray and tweezers. Unfortunately, the program went out of business in the early 1980s.

Corbin Russwin Old Round Interchangeable Core

Disguised to look like a traditional mortise cylinder, this core had its control sleeve contained around the last (fifth or sixth) chamber (Figure 13). It was interchangeable with both mortise and rim cylinders of the same pin configuration. The "Old Round" was manufactured by both Corbin and Russwin between 1964 and 1971, but was superseded by the standard large-format interchangeable core in 1971, which contains four control chambers in positions two through five. The Russwin core pictured here was a gift to me from Casey Camper, CML, CPS.



Figure 13

Caliper/Micrometer to Digital

For many in the security field, manual micrometers and manual calipers have gone the way of the dinosaur. Digital calipers are relatively inexpensive, easy to use and extremely accurate. I purchased my first micrometer in 1974 for a whopping twelve dollars — yes, \$12! I still have it to this day. It is a Mitutoyo, a Japanese brand, which is very accurate to 0.0005" (Figure 14a). It is excellent for key depths, but lacks a firm base for reading pins.

My General brand caliper (Figure 14b), made in the USA, is small, but also requires a twisting rotation movement to gauge keys or pins. Now enter Tesa, auto on/off digital caliper, manufactured in Switzerland (Figure 14c). I believe I purchased it through Travers' Tool Supply for about \$65. It uses one CR2032 battery and can gauge both tumbler pins and key depths. It reads to a tolerance of 0.0005", or DIN 862 — very nice, and works like a charm.



Figure 14a

Figure 14b

Figure 14c

Schlage Wafer Locks

It is perhaps the most well-known lock system in the U.S using positional masker keying: the quasi-obsolete Schlage Wafer Lock (Figure 15). This includes both key-in-knob design and padlocks. Thanks to Monte Salway, CML, of Schlage Lock Company for getting me additional information on this line many years ago.

This lock-type was researched for years and then marketed for the first time by Schlage Lock Company of San Francisco in 1927. It was widespread globally and extremely popular through the 1970s. Oddly enough, today it is an extremely popular lock for new construction in South America, according to key systems expert Clyde Roberson, CML, AHC, CPP.

There were a total of six key blanks manufactured for the Schlage wafer locks, though four of them have been discontinued. Because it is still in use throughout the U.S., it behooves locksmiths to understand its construction so servicing can occur when necessary.



Figure 15

BEST A3 System

When BEST Lock Company first designed the A3 increment system, they were ecstatic with joy. Now a single step system (as opposed to a double step as in A2) could be used to generate more than 279,000 different key changes in a 7-pin system. This dwarfed the A2 systems' mere 16,384 key bittings. But, unbeknownst to their engineers, they would subsequently discover two very bad things: key interchange and core failure.

Because the smallest master wafer was only .018", it tended to tip within the cylinder causing lockouts. Again due to the unsuitability of this small increment, massive key interchange occurred — that's when one key operates a cylinder that it wasn't intended to operate. Thus, it was discontinued and is only maintained today in existing larger systems (Figure 16).

Interestingly, Jerome Andrews discovered in the original A3 patent documentation that Walter Best then claimed the A4 system was impossible to achieve. Regardless, the single step A4 system was created with success, allowing for more than 78,000 key changes in a single 7-pin system.

A3 SFIC System*		
KEY BITTING AND PIN SPECIFICATIONS		
Single-Step Progression - .018" Increment (Discontinued)		
Key Depth:	Bottom Pin Length:	Coded Number:
.318"	.110"	0C
.300"	.128"	1C
.282"	.146"	2C
.264"	.164"	3C
.246"	.182"	4C
.228"	.200"	5C
.210"	.218"	6C
	Wafer Pin Length:	Coded Number:
	.018"	1D
	.036"	2D
	.054"	3D
	.072"	4D
	.090"	5D
	.108"	6D
	.126"	7D
	.144"	8D
	.162"	9D
	.180"	10D
	.198"	11D
	.216"	12D
	.234"	13D

*Pin Stock Tolerances: .0005" - .0010" Pin Diameter ± .0005" - .0010" Coded Pin Length ± .0005"
 Depending on Code: 1C - Code of Key Pin - 1C10, Key Code, 1C11 to Pin - 1C12, Pin Code - 1C13, Key Code
 1C14, Key Code - 1C15, Key Code - 1C16, Key Code - 1C17, Key Code - 1C18, Key Code - 1C19, Key Code - 1C20, Key Code
 1C21, Key Code - 1C22, Key Code - 1C23, Key Code - 1C24, Key Code - 1C25, Key Code - 1C26, Key Code - 1C27, Key Code - 1C28, Key Code - 1C29, Key Code - 1C30, Key Code - 1C31, Key Code - 1C32, Key Code - 1C33, Key Code - 1C34, Key Code - 1C35, Key Code - 1C36, Key Code - 1C37, Key Code - 1C38, Key Code - 1C39, Key Code - 1C40, Key Code - 1C41, Key Code - 1C42, Key Code - 1C43, Key Code - 1C44, Key Code - 1C45, Key Code - 1C46, Key Code - 1C47, Key Code - 1C48, Key Code - 1C49, Key Code - 1C50, Key Code - 1C51, Key Code - 1C52, Key Code - 1C53, Key Code - 1C54, Key Code - 1C55, Key Code - 1C56, Key Code - 1C57, Key Code - 1C58, Key Code - 1C59, Key Code - 1C60, Key Code - 1C61, Key Code - 1C62, Key Code - 1C63, Key Code - 1C64, Key Code - 1C65, Key Code - 1C66, Key Code - 1C67, Key Code - 1C68, Key Code - 1C69, Key Code - 1C70, Key Code - 1C71, Key Code - 1C72, Key Code - 1C73, Key Code - 1C74, Key Code - 1C75, Key Code - 1C76, Key Code - 1C77, Key Code - 1C78, Key Code - 1C79, Key Code - 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Lockwood SFIC & LFIC

Lockwood, an illustrious lock manufacturer from South Norwalk, Connecticut, was incorporated in May of 1888. It began as an offshoot of Lockwood & Lester Co., a manufacturer of small toys that began 10 years earlier. The Lockwood Manufacturing Company produced mortise locks and brass door knobs in its early years, but expanded over time to include a complete line of builder's hardware, especially for new building construction, and including both small-format interchangeable cores in A2 pinning increment (*Figure 17a*) and large-format removable cores for institutional use (*Figure 17b*), especially in Veteran Administration hospitals.

Henry Lockwood, one of the founders and presidents died in 1927. Five years later Lockwood was bought by Ilco in 1932, moving the company to Fitchburg, Massachusetts. The Lockwood SFIC was manufactured through ILCO, though the Lockwood brand name was not stamped on its face. (Thanks go to Tom Ripp for the SFIC sample I now possess).

The large-format core, however, did have the Lockwood logo, as well as the Craftmaster logo on its face as used by the Sears department stores. Lockwood supplied the hardware in 1950 for the United Nations Building in New York City, and its locks can still be found in residential and commercial buildings throughout North America and Australia. The large-format cores were introduced in the early 1960s and were discontinued a decade later. The entire Lockwood line ceased operations at ILCO in 1973, but is still a major brand in Australia.



Figure 17a



Figure 17b

DOM SFIC

The DOM SFIC was a little-known, short-lived product that spanned less than six years in the U.S. market. DOM is a well-respected European high-security lock manufacturer that uses dimples in lieu of conventional key cuts. Their SFIC version created in the 1990s required both throw members in a SFIC mortise to be removed in order to be retrofitted (*Figure 18*). BEST customers didn't take kindly to that requirement. Also its master keying capabilities were limited,

and for those reasons it did not live a very happy, extended life. In the picture, one can see the double-chamber control sleeve, though from outward appearance it looks as if there's only a single-chamber. The core is now obsolete and somewhat of a collector's item.



Figure 18

Schlage "G" Lock Removable Core

The Schlage Lock Company began its corporate roots in San Francisco, but its true origination was in Thuringia, Germany, in the late 1800s. In a small town in central Germany, Walter Reinhold Schlage was known as "the lock wizard," a young man with a passion for inventions, adventure and mechanics. Fast-forward to 1973, when the Schlage Company introduced the G-Lock (Interconnected Lockset) Removable Core (19). This core was discontinued in the early 1990s, though its replacement was developed several years earlier, as the Schlage LFIC evolved in 1984.

With some minor alterations, the Schlage Classic FSIC, as we know it today, was born in 1991. Subtle changes with the cap pin and the FSIC housings took place subsequently as Primus was developed. Prior to 1986, the G-Lock removable core was Schlage's first foray into the idea of a key-removable core. One can identify this modified "key-in-knob" core by its circular faceplate encircling the plug. The control lug was held in place within a steel housing located be-

hind the escutcheon and operated by one chamber only — the sixth. The G-Lock Core is obsolete but takes credit as the forerunner to the Schlage Full Size IC.

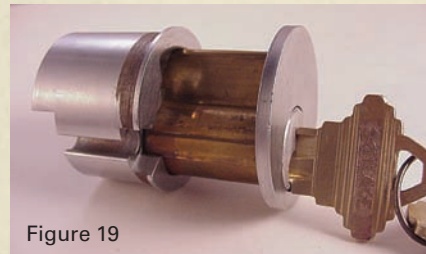


Figure 19

ILCO Hotel Function Key Bypass Core

This core is an odd creature with respect to non-SFICs. Since it only fits into one type of housing, it can truly be called a removable core. Its distinguishing feature: It contains two control lugs (*Figure 20*). The Ilco key Bypass Core was created by Ilco-Canada in 1992 for use only in Canadian hotel electronic locks, exclusively as a concealed mechanical key bypass. The core was also marketed to hotels in the U.S. as the Ilco hotel locks and is still sold in the U.S. today. It is dimensionally similar to the Dominion core (Ilco-Canada), although constructed only as a 7-pin core with one added feature — two separate control lugs. Thus, it's the only type of core of this nature.

The two independent control lugs were developed to assure pick-resistance. They're located in chambers #2 and #3 (from the face of the core) and in chamber #7 as well. The core is inserted into the bottom of the escutcheon on the electronic access unit. To access the core with its operating or control key, it's necessary to shave off a portion of the key's bow to have enough clearance next to the door, so that you can turn the plug or remove the core.



Figure 20

Figure 21



Dominion Large-Format IC

The Dominion large-format interchangeable core has been around for many years (Figure 21). Dominion Lock Company, Ltd. of Montréal, Canada, once manufactured it but, as many are aware, Ilco-Unican bought Dominion Lock. In May 1991, ILCO ceased production of key blanks and then, in February 1992, resumed production.

The Dominion large-format IC is not unlike the old Sargent 5100 Series removable core in basic concept. In both situations, a rear mechanism acts as a control area. In the Dominion core (a six-chamber core), there's a control ring in the last chamber that has a control lug attached to it. This lug, when in its relaxed state (extended), keeps the core within its housing. When the control key activates the control ring, the lug turns to the left (counterclockwise) and recesses into the core assembly, allowing the IC to be removed from its housing.

Within the Dominion core, the sixth chamber can also be used for operating key bittings. This is not the case with the Sargent 5100 Series core. As you may presume, bittings are then limited, and care must be taken when combining the control chamber. This is a negative factor that helped lead to its demise.

The control key could easily be created by a non-authorized individual. If the TMK bitting were known, all that was necessary was one blank. One could copy cuts #1 through #5 on the key blank, leaving cut #6 as a zero-bitting. Begin by testing that key. If a no-go, make a #1 cut and try again. Repeat until the control depth is reached, and the key becomes a control key.

It becomes obvious to many that the two major downsides of the Dominion core — too few bittings, and lack of core security — were issues that helped direct this product onto that path of obsolescence. Today, the Dominion large-format IC is only obtainable as a retrofit for the Kaba-ILCO 1000 Series Simplex units requiring a Dominion Key Bypass Core. However, if one should have the experience of working with a Dominion LFIC system, with the great variety of large-format cores readily available today, selecting a replacement should not be a difficult task.

BEST OLD Red Combinator

BEST's workhorse for many decades, the combinator (Figure 22a) went the way of the stagecoach in favor of the "new" combinator. Made exclusively for BEST by Rytan, you can see that the completely redesigned key punch looks nothing like its predecessor (Figure 22b). Its new design is touted by many (including me) to be more ergonomic and easier to use. Even though the original red combinator could punch more than 400,000 keys with a single die and was virtually trouble-free, BEST chose to scrap it. A-1 Manufacturing decided to re-make the original combinator and, viola, the Mean Green Machine was born.

Figure 22a



Figure 22b



Assa-Arrow LFIC

Always experimenting and improving, back in the 1990s, Assa created its first LFIC, now often referred to as "old style." It was designed with a control ring/lug that encircled the second and third chambers. The core was combined in the control chambers in a similar fashion to a Medeco 3200 core. Soon after, the core was redesigned with a saddle-type control lug that spanned the first four chambers and was combined in the control chambers similar to a BEST core, for added security.

In the picture, you'll see a strange version of this old style core courtesy of Tom Demont, CML — the Arrow imprint on the key bow (Figure 23).



Figure 23

Schlage Original LFIC/FSIC Design

Owing its birth to its granddaddy, the Schlage G lock, the Schlage full-size interchangeable core has had a few design changes since its inception. In its first phase in 1987, the full-size (that's Schlage's term for large-format) core had more washers and shields than necessary (Figure 24). It was discovered that the combined movement caused the end cap to come unscrewed, allowing the plug to be pulled out of the core — not a great thing. It was redesigned to prevent this in its current version.

Figure 24

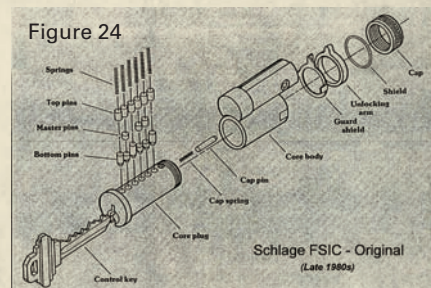




Figure 25

BEST Old 6C Core

This SFIC was created by BEST for a major department store to work in conjunction with their 4S sliding glass door lock. You're familiar with it whenever you enter a jewelry store with glass display cases. The key is inserted and the core is moved slightly out of its housing so the glass panel can slide. It is either key retained or key released, depending on the specific housing. This was a strange situation, in that the control key was acting as the operating key, and the plug shear line had no function in this core.

The older version of the 6C had a small set screw near the top of the chamber farthest to the back of the core. This prevented the core from completely leaving the housing. If the core needed to be removed for servicing, the set screw would have to be removed with a small Allen wrench.

In the strictest sense, this core was not an interchangeable core, in that another tool was needed to remove it from its housing along with a key. This inconvenience led to the design of the new BEST 6C core. Again, the function of both shear lines was juxtaposed. The operating shear line moves an attached cam, which allows the core to be removed from its housing. The control shear line is used in this case for the "operating key" to permit the core to be moved in and out for daily use. The control lug is reduced in length to allow for this motion. The picture compares both cores (Figure 25).

Parting Thoughts

There are many, many more tools, locks, hardware and other items that could be described, including Schlage D lever, Medeco D-10 dropbolt, BEST 2, 3, 4 and 5-pin cores, Schlage K mortise lock, Arrow K lock, Kiel Jimmy-Proof lock, Schlage B500 deadbolt, A-1 Yankee key machine, pin stock, Mono Locks, Taylor foreign keys, Luster Line Products — and the list goes on and on.

I hope this venture into the past has stirred up some old memories for a few, and provided new information for others. Regardless, knowledge is a powerful tool, and one that can help us all avoid our own obsolescence. ☞

Author's note: My heartfelt thanks is extended to Billy B. Edwards Jr., CML, and Jerome V. Andrews, CML, for their assistance in preparing this article.

Aluminum Colored Keys of the 1970s

These lightweight home, auto and commercial key blanks were big in the 1970s (Figure 26). Because of the use of aluminum, they were a breeze to cut on key machines, adding to the life of the cutting wheels. Billy B. Edwards Jr., CML, performed torque tests on these aluminum keys versus brass and nickel-silver versions of the same section, and the aluminum keys were always stronger. The cons were that the keys themselves did not last as long as a brass or nickel silver blank. Also, they bent easily when sat upon.

They were available in a variety of colors that were quite attractive to homeowners of that era, as they could quickly identify their house and car keys by color. Believe it or not, there has been resurgence for these keys, now called "Titanium." However, the term is only a marketing ploy, as they obviously contain no titanium in their composition.



Figure 26

Segal LFIC

Segal Lock Company was founded in 1916 by Samuel Segal, a former New York City policeman who noticed that most burglaries were committed by people prying open the door. His invention, The Segal Jimmy-Proof Lock, is still manufactured today, though now a division of Medeco, owned by Assa-Abloy Group. Prior to the sale to Assa-Abloy, engineers at the Connecticut factory revealed that they never actually manufactured the Segal large-format core (Figures 27a and 27b), as many believed to be the case. They were manufactured in Canada, subcontracted to Dominion Lock and allowed the use of their logo. The core is now obsolete.



Figure 27a



Figure 27b



William M. Lynk, CML, CPS, has been a locksmith since 1975 and is the owner of www.ICLSglobal.com. Bill is an IC specialist, an industry author, the subject matter expert on IC for ALOA, and an ALOA ACE instructor, teaching classes on interchangeable cores and master keying across the country. He has originated SFIC Technical Manuals for both national and international lock manufacturers, and maintains a working relationship with the major lock and security manufacturers throughout the world.

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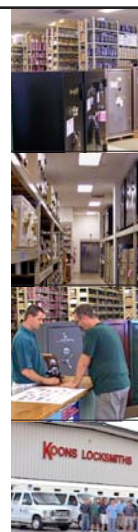
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Figure 1. You'll need a basic lock-pick set, a pin kit and pinning equipment (especially tweezers), and several pin tumbler cylinders from different manufacturers.

trouble is, this business isn't what the public thinks it is. Unless you do lockouts and only lockouts, you won't be running around picking locks and cracking safes all day.

In sports, for example, much more time is devoted to practice than to the actual game. No athlete or coach would allow the game to be the only practice. Also, a lot of time is spent practicing the sport's basics. There's really no other way to do it. This article will give you a simple, effective way to enhance your picking skills.

Getting Prepared

Besides a basic knowledge of lock picking, you'll also need a basic lock-pick set, a pin kit and pinning equipment (especially tweezers), and several pin tumbler cylinders from different manufacturers (see Figure 1). It's also helpful to have one or two rekeyable padlocks, as well as several different cut keys available for each cylinder; however, you can get by without them if you have to.

You should also have a vise handy to hold the cylinders as you practice. Here's why: You want this practice to be as close to real life as you can get. In most cases, any knob or deadbolt you'd be working on would be installed on a door, not in your hand. The

Improve Your Picking Skills

Try this simple, time-tested method for pin tumbler lock-picking.

By Tony Wiersielis, CPL, CFDI

THIS MONTH I'LL EXPLAIN A METHOD THAT BEGINNING LOCKSMITHS CAN USE TO improve their pin tumbler lock-picking skills. I'd like to say I thought of it, but I didn't. I remember seeing it in an old locksmith correspondence course in the late 1970s. The information is as relevant today as it was then.

Picking locks is like any other skill: The more you practice it, the better you'll be. The



Figure 2. Common picks include (from the left) a hook or "feeler" pick, a rake, a half-diamond and a ball pick.

vise mimics that. Just make sure you don't over-tighten it and crush anything, especially knob cylinders.

With padlocks, however, a majority of your practice picking should be with the cylinder in your hand. The reasoning here is the padlock would most likely be hanging on a hasp while you work on it. This type of picking can be quite awkward, but it will be less so if you practice it. If you don't have someplace in your shop to install a practice hasp, mount one on a piece of scrap wood and hold that in your vise, or use a large eye screw.

There are many types of picks, but *Figure 2* shows a close-up several of the most common. From the left, there's a hook or "feeler" pick, a rake, a half-diamond and a ball pick. This article focuses on the feeler pick, because it requires the highest degree of skill of the four picks.

The rake pick is extremely popular and is the tool many locksmiths reach for first when picking. The raking motion used with it isn't as precise as feeling for the pins, but it's still quite effective. The half-diamond and ball picks are usually used on wafer tumbler locks.

The First Step

Start by taking apart one of the cylinders. Dump out all of the pins, both top and bottom, and make sure you got all the springs out as well. Take any random pin, and re-pin the cylinder in the third chamber only (*Figure 3*). This, incidentally, is why you want a good set of tweezers. Replacing the top pin and spring without them is not fun.

Next, mount the cylinder in the vise. Using your feeler pick, attempt to raise the pin to the shear line and pick the cylinder. Use a light touch on the tension wrench. This should pick pretty easily. Now try picking it to the opposite direction.

After you've picked it a number of times, take the cylinder apart and add another pin to the fifth chamber. Reassemble the cylinder and practice picking with your feeler

pick, again in both directions. When you feel confident about your skills, disassemble the cylinder again and add another pin to the first chamber (*Figure 4*).

Continue practice picking the cylinder with three pins until it seems easy; then start adding pins to the second and fourth chambers as you gain proficiency. The point of this exercise is to help you learn to raise each pin to the shear line and hold it there while you raise the next one.

The Next Level

When you can pick the lock with pins in all five chambers, take another cylinder from a different manufacturer and repeat the process. You can probably start with pins in the first, third and fifth chamber this time. Work your way through cylinders from three or four companies. This will help you develop a feel for how each one picks and how close their tolerances are.

Once you've reached this point, you can continue honing your skills by changing the pins in all of your practice cylinders and starting again. You can start with new pins in all five or six chambers, and see how it goes. If you find it difficult, remove pins from a few chambers and work your way up. This is where several cut keys for each manufacturer come in handy — you just rekey the cylinders to them.

You'll also want to practice picking a pin combination that has a long pin immediately in front of a short pin. If you pick the long pin to the shear line, you'll find it difficult to manipulate the shorter pin behind it. Key up a cylinder this way, and work on reaching the short pin. Consider buying some picks with a more pronounced hook to help you get around the longer pin.

While you're practicing with your hook pick, make sure to practice with your rake pick as well. Whenever I have to pick a pin tumbler cylinder, I always use a rake for my first attempt. A lot of cylinders will turn quickly when raked rapidly.



Figure 3. Take any random pin, and re-pin the cylinder in the third chamber only.



Figure 4. When you feel confident about your skills, disassemble the cylinder again and add another pin to the first chamber.

Tension Wrench Tips

When we talk about picking, we tend to focus on the picks and not so much on the tension wrenches. The tension wrench is as important as the picks, in that you can't use one tool without the other.

Use a light touch on the wrench when picking. Too much turning pressure makes it more difficult to raise the top pins above the shear line. You're binding the pins between the cylinder and the plug as you try to raise them. You wind up fighting your own efforts — and if you're also heavy-handed with the picks, you'll bend them out of shape.

So what's a light touch? Start with the least amount of turning pressure needed to keep the wrench in the plug and still apply a small amount of rotational force. Once you master that, you can up the pressure if needed. Depending on where you place the wrench, this can be a challenge.

Although the vise mimics the cylinder being on the door, it can't duplicate the situation exactly. For example, you can stand anywhere in front of the vise, but that's not likely to be the case on an actual door. Another difference: the doorframe's location in relation



Figures 5 and 6. In the top image, the wrench is positioned to turn left. In the bottom image, the wrench is on the other side of the cylinder, but it's still positioned to turn left.

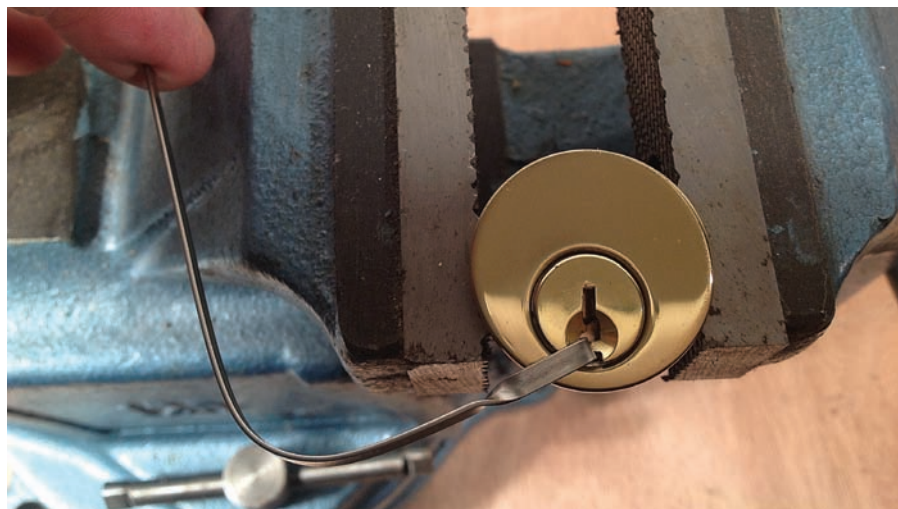


Figure 7. A tension wrench is easy to bend on the spot.

to which direction you're picking, and if a wall butts against it. Finally, whether you're right- or left-handed can also make it harder.

Imagine this scenario: You pick with your right hand. The door is at the end of a hall, and the left side of the frame butts up against a perpendicular wall. The door is right hand, so the lock is on the left side of the door. You need to pick it to the left.

Here's the result: The wall won't let you get centered on the lock, so you can't go straight in with the pick in your right hand. The frame interferes with the wrench. Unless you can pick left handed, this won't be easy.

Here are a few things that you can do beforehand. When you practice picking, spend a little time with you weaker hand. Always have a plug spinner in your pick set, and know how to use it, so it won't matter which way you pick. Cut several tension wrenches short and keep them with you — less chance of frame interference.

When practicing, work with different wrench positions and get used to them. In *Figures 5 and 6*, you'll see an example of what I mean. In *Figure 5*, the wrench is positioned to turn left. In *Figure 6*, the wrench is on the other side of the cylinder, but it's still positioned to turn left. Notice that the same hand is still holding the wrench.

The wrench in *Figure 6* isn't all the way into the plug. It can't be without hitting the pins; this is the challenge I mentioned earlier. Practice holding the wrench like this with light pressure. It'll fall out a lot, but you'll get better at it and have a way around frame interference. *Figure 7* shows a bent tension wrench. This is something you can do on the spot, since the tool is easy to bend. ☞



Tony Wiersielis, CPL, CFDI, has more than a quarter century of experience, having worked in most phases of the trade throughout the New York metropolitan area.

Repurposed Rooms with a Purpose

ALOA SPAI's new installation classroom means new training opportunities.

By Jim Hancock, CML, CMST

THE ALOA SPAI EDUCATION DEPARTMENT SPENT THE DAYS LEADING UP TO THE Christmas holidays doing a little bit of renovating in preparation for the new year and a new class. Two of the offices on the first floor of the headquarters in Dallas Texas, formerly occupied by the education manager and assistant education manager, have been transformed into the new installation classroom.

After removing the wall between the two rooms, three training stations were installed in the room. They'll be used to teach technicians the proper tools and methods of installing locks using cylindrical preps and mortise preps. The mounts will also be used for teaching the proper methods of replacing hinges, and replacing and adjusting door closers and exit devices. These units were graciously donated to ALOA education by one of our major Partners in Education, ASSA Abloy.

The new installation training room is adjacent to the existing classroom, making it very easy to have classroom time learning about the proper tools and methods, followed by putting the classroom training into action in the installation room.

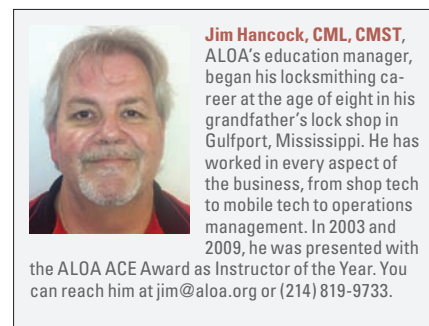
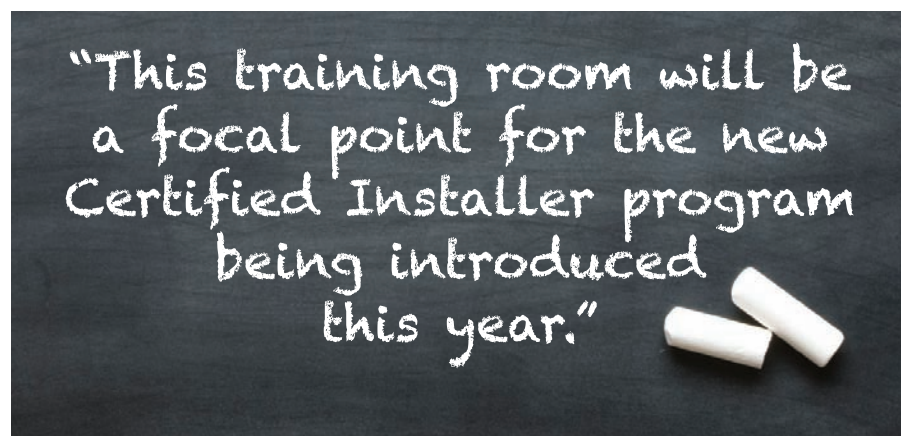
This room will also be a focal point for the new Certified Installer program being intro-



duced in 2013 — a portion of the certification will require hands-on installation, as well as a traditional written exam. We also hope as 2013 progresses to add aluminum storefront door service mounts to the room, thus allowing attendees to learn the proper way to service existing locks and perform fresh installs on these popular commercial door types.

Along with these two traditional door lock programs, we hope to add training stations that will allow for practice on installing desk locks, cam locks and similar auxiliary lock types, as these are a large part of our industry and can sometimes prove a challenge to beginners and veterans alike.

We're excited about this new classroom and hope you keep watching your emails and *Keynotes* for announcements concerning the new installation classes and the new certification. ☺



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www.mul-t-lockusa.com

Mail Boss Locking Security Mailboxes
Phone: 425-284-0880
www.mailboss.net

Master Lock Company LLC
Phone: 800-558-5528
www.masterlock.com; www.americanlock.com

Medeco Security Locks
Phone: 540-380-5000
www.medeco.com

Minute Key Inc
Phone: 800-539-7571
www.minutekey.com

National Auto Lock Service Inc
Phone: 650-875-0125
www.laserkey.com

Olympus Lock Inc
Phone: 206-362-3290
www.olympus-lock.com

Onlyda Technology (Hong Kong) Co. Ltd.
Phone: 867-552-8193719
www.onlyda.com

Original Safe & Vault Inc
Phone: 855-977-7233
www.originalsafe.com

Pacific Lock Company
Phone: 888-562-5565
www.paclock.com

Paxton Access
Phone: 877-438-7298
www.paxton-access.com

Peterson Manufacturing
Phone: 585-264-1199

ROFU International Corp
Phone: 800-255-7638
www.rofu.com

Rutherford Controls Int'l Co
Phone: 800-265-6630
www.rutherfordcontrols.com

SECO-LARM USA INC
Phone: 949-261-2999
www.seco-larm.com

STRATTEC Security Corp.
Phone: 414-247-3333
http://aftermarket.strattec.com

Safeco Safe Company
Phone: 877-648-8037
safecosafes.com

Sargent & Greenleaf, Inc.
Phone: 859-885-9411
www.sargentandgreenleaf.com

Securifort Inc
Phone: 819-359-2226
www.securifort.com

Securitech Group Inc
Phone: 718-392-9000
www.securitech.com

Securiton Magnalock Corp.
Phone: 775-355-5625
www.securiton.com

Security Door Controls
Phone: 805-494-0622
www.sdscsecurity.com

Security Solutions
Phone: 405-376-1600
www.securitysolutions-usa.com

SimpliciKey LLC
Phone: 703-904-5010
www.simplicikey.com

Smart Key Inc
Phone: 905-820-2404

Stack-On Products Co
Phone: 847-526-1611
www.stack-on.com

Stanley Security Solutions Inc
Phone: 317-849-2250
www.stanleysecuritysolutions.com

The Delaney Co
Phone: 800-952-4430
www.delaneyinc.com

Townsteel, Inc.
Phone: 626-964-1887
www.townsteel.com

Trine Access Technology
Phone: 718-829-2332
www.trineonline.com

SERVICE ORGANIZATIONS

Allstate Insurance Company
Phone: 847-402-4879
www.allstate.com

Allstate Roadside Services
Phone: 469-734-6632
www.allstateroadsideservices.com

Chubb A UTC Fire & Security Co
Phone: 405-787-8444
www.chubbfs.com

KEY PRO WEB L.L.C.
Phone: 210-386-9912
www.keypro.com

Lockmasters Security Institute
Phone: 859-887-9633

Vocalize Mobile
Phone: 877-698-6225x703
www.vocalizemobile.com

WEBLEASE USA/Button Mobile
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webleaseusa.com

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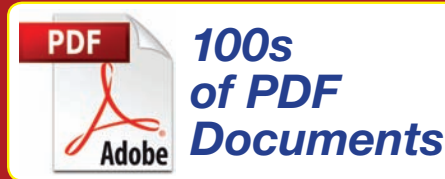
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EMPLOYMENT

Help Wanted

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info@firstsecuritysafe.com. <3/13>

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Classified advertising space is provided free of charge to ALOA members and for a fee of \$2 per word, with a \$40 minimum for nonmembers. Classified ads may be used to advertise used merchandise and overstocked items for sale, "wanted to buy" items, business opportunities, employment opportunities/positions wanted and the like. Members or nonmembers wishing to advertise services or new merchandise for sale may purchase a "Commercial Classified Ad" for a fee of \$4 per word with a minimum of \$100.

Each ad will run for three consecutive issues. For blind boxes, there is a \$10 charge for members and nonmembers. All ads must be submitted in a word document format and emailed to adsales@aloe.org by the 15th of the month two months prior to issue date. ALOA reserves the right to refuse any classified advertisement that it deems inappropriate according to the stated purpose of the classified advertising section.

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American Safe & Lock Co.

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Mr. Milton Wolferseder - (401) 331-3013

Advertiser	Ad Location	Web Site	Phone Number
A&B Safe Corporation	page 37	www.a-bsafecorp.com	(800) 253-1267
Allstate Insurance Company	inside front cover	www.allstate.com	(847) 551-2181
ALOA SPAI	pages 18, 44	www.aloa.org	(214) 819-9733
Big Red Safe Locks	page 37	www.bigredsafelocks.com	(877) 423-8073
CCL Security Products	page 7	www.cclsecurity.com	(800) 733-8588
ClearStar	page 43	www.clearstar.com/aloa	
Fort Knox	page 37	www.ftknox.com	(800) 821-5216
H L Flake Co.	inside back cover	www.hflake.com	(800) 231-4105
Jet Hardware Mfg. Co.	back cover	www.jetkeys.com	(718) 257-9600
John Koons Locksmiths	page 37	www.koonslocksmiths.com	(800) 282-8458
Key Craze	page 19	www.keycraze.com	(800) 490-7539
LockPicks	page 37	www.lockpicks.com	(800) Key-Blank
McDonald Dash	page 37	www.mcdonaldsdash.com	(800) 238-7541
Nissan	page 11		
Professional Business Products	page 37	www.pbp2000.com	(800) 355-6322
Security Lock Distributors	pages 3, 15	www.seclock.com	(800) 847-5625
Technical Services, Inc.	page 37		(724) 969-2595
Turn 10 Wholesale	page 1, 43	www.turnten.com	(800) 848-9790
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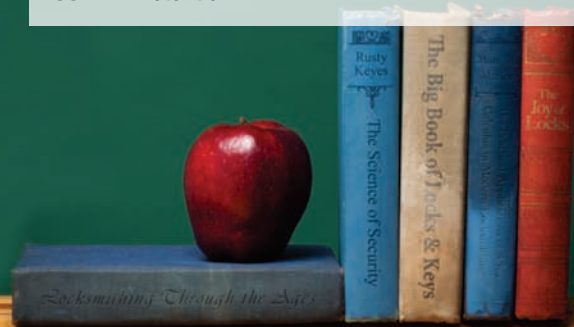
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