

Looking at locks

Payphone locks are protecting a pretty important asset, so choose wisely

Your payphone business represents a major investment — financially, emotionally and in time and energy. Certainly, you'd do everything you can to protect that investment, right?

Since *Perspectives* last reported on locks and key management systems (see "Under Lock and Key" and "Electronic Lock Systems: We've Only Just Begun" in the November 1996 issue), a number of changes have occurred in the security side of the industry. While Abloy Security Inc. and Medeco Security Locks Inc. still dominate the security market, they and their fellow manufacturers have sought ways to enhance the reliability of their locks and make unauthorized key duplication nearly impossible. Lock manufacturers are well aware of the difficulties payphone service providers (PSPs) are facing, and they are determined to help their customers succeed.

"The current conditions in the payphone industry have driven lock manufacturers to develop more cost-effective options to help PSPs protect their property," says Don Gray, manager of payphone services for Independent Technologies Inc. in Omaha. "We've developed products that allow PSPs to wait until the maximum amount is in their cash box before pulling it; we're striving to provide a level of protection that allows PSPs to have that great level of confidence in their phones' security system."

Gray adds that there are three types of locks on the market today: purely mechanical, purely electronic and electronic-mechanical hybrids. Each provides a slightly different way of managing keys and security.

Popular mechanics

The majority of PSPs — particularly PSPs that manage smaller routes — rely on mechanical locks to protect their payphone property. Mechanical locks tend to be constructed from stainless steel and contain thin, rotating detainer disks that respond to the turn

of a standard, specially cut key.

As you're likely aware, payphones have two locks. The upper lock guards the upper housing and smart board; the lower housing lock protects collected coin. Payphone manufacturers, who aren't in the lock business, make all payphones with the same upper housing lock, which means that someone in the business in Ohio could conceivably access the upper housing of a competitor's payphones in California. Therefore, experts recommend that PSPs who pur-



chase new phones immediately rekey the upper housing. "If you have a smart phone, you need to consider that by refusing to spend \$6 to rekey the upper lock, you could lose a \$400 board," Gray notes.

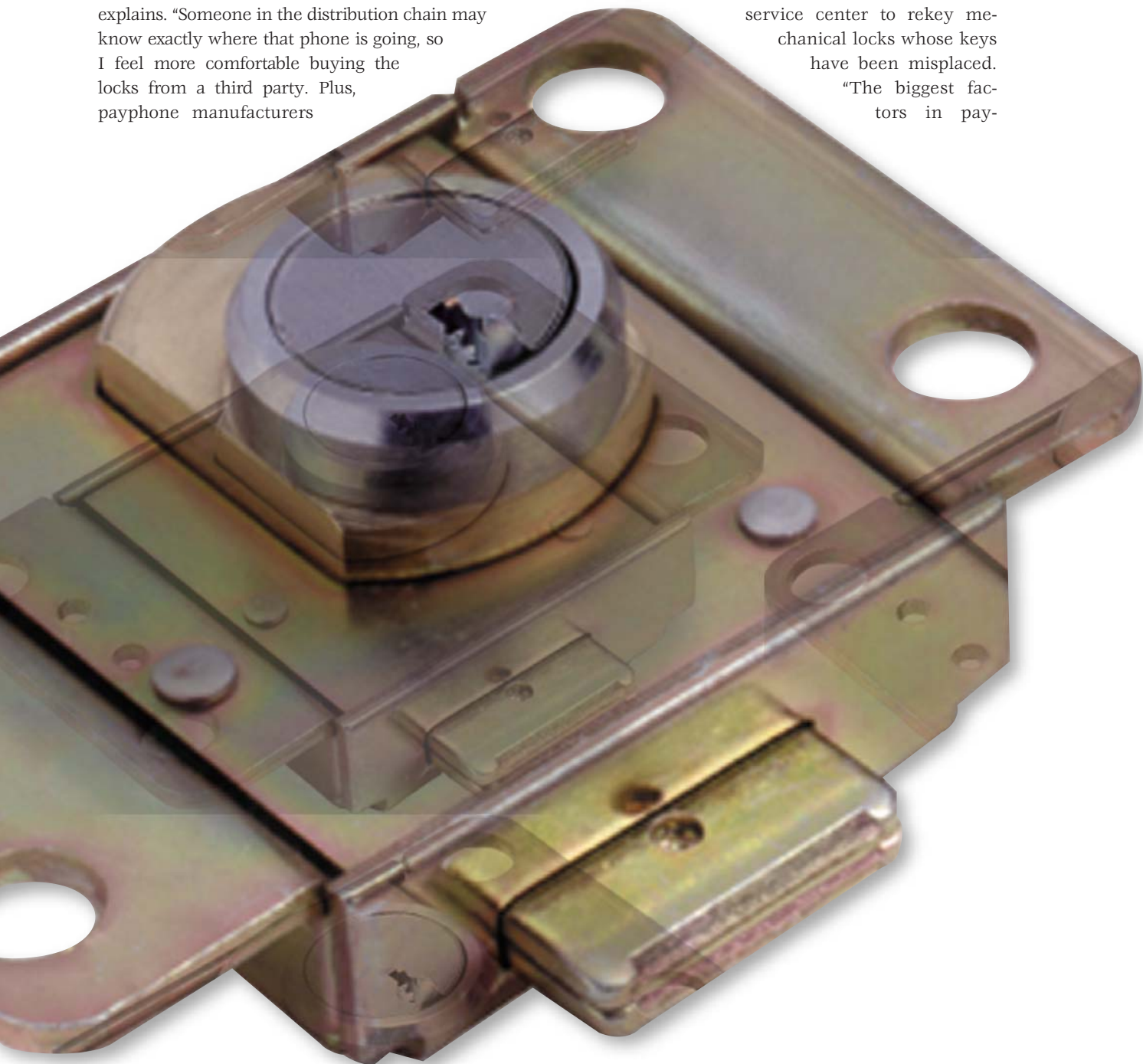
Pete Knappmann, president of Payphone Pete's in Troy, Mich., says he immediately takes new phones to his lock manufacturer's service center. "I always buy phones without locks and purchase locks separately. You have to install them yourself, but that's the easy part, and you know what you're getting," Knappmann explains. "Someone in the distribution chain may know exactly where that phone is going, so I feel more comfortable buying the locks from a third party. Plus, payphone manufacturers

aren't necessarily security experts; they're in the business to sell phones. Sometimes it's best to keep certain parts of the business separated from each other."

Of course, security extends beyond making certain you've chosen a good lock. Lost, stolen or duplicated keys can spell disaster. Bermang Cuadra, operations manager for Security Locking Systems in Las Vegas, which is one of four authorized service centers for Abloy locks in the United States, says

PSPs should rely on an authorized service center to rekey mechanical locks whose keys have been misplaced.

"The biggest factors in pay-





phone security are using good quality locks and maintaining excellent key control,” Cuadra advises. “PSPs should be wary of purchasing \$5 locks made in China or of buying cheap locks from very small companies. You really do get what you pay for, and those locks are easy to pick, and smaller companies can’t provide extra keys or new ones should you need them.

“By contrast,” Cuadra continues, “Abloy locks cost about \$20 each, but they can’t be picked. Abloy locks also are secure because keys can’t be duplicated physically by other centers; they need our proprietary key machine and key blanks. We keep track of who at your company is authorized to order locks and keys, and we give them a password. If a son calls and says he’s ordering extra keys for his dad’s business, but his name isn’t on the list and he doesn’t have a password, he can’t get the keys. We then call the owner, and let him know someone has called asking to have more keys made. Our customers don’t see this practice as inconvenient; they view it as extra protection. We’re keeping records about how many keys have been issued, to whom and when, and for which phones. We’re basically your backup key management system.”

Cuadra notes that with mechanical locks, a PSP could conceivably have a different key for each lock and that would be the most secure option. However, juggling even 100 keys for a 50-payphone route could be a hassle for a sole proprietor. “I’d say that about half of our customers key all their service locks the same then use a few different keys for the coin locks,” Cuadra says. “Having fewer keys saves

money and makes the key management a little easier. Some customers use the same key for both the upper and lower locks or for their entire routes; I personally don’t recommend either of those options. If you lose that key, your entire route is in jeopardy, and you’ll have the expense of rekeying everything.”

Combining codes with mechanics

To allow PSPs to avoid the expense of rekeying locks when a key is misplaced, Baton Security Products of Garden Grove, Calif., offers two models of code-changeable locks.

The 5000 Series High-Security Grooved Dimple Payphone Locks are made of machined brass and hardened steel inserts on both the housing and the barrel to prevent lock drilling. The lock features 9-pin tumbler protection and offers millions of different, custom key combinations. The accompanying key has the capability of turning either clockwise or counterclockwise (depending on the payphone model), and it can only be removed from the locked position.

The lock itself can be programmed with Baton’s five-code changeable system. Five keys can be purchased with the lock, and each key will feature a custom code. The PSP first opens the lock with Key #1. When he wants to change the code, he may insert the next key (Key #2), and the previous code will no longer open the lock. (If he misplaces Key #2 and uses Key #3 instead, he will not be able to use Key #2 if he does find it in the future since codes cannot be reversed.)

“Basically, it’s like getting five locks in one,” ex-



PHOTO COURTESY OF MEDECO SECURITY LOCKS

plains Peace Hsu, president of Baton Security Products. "In the past, if you lost a key, you had to drill out your lock. Now that is no longer necessary. You just go to the next key and code."

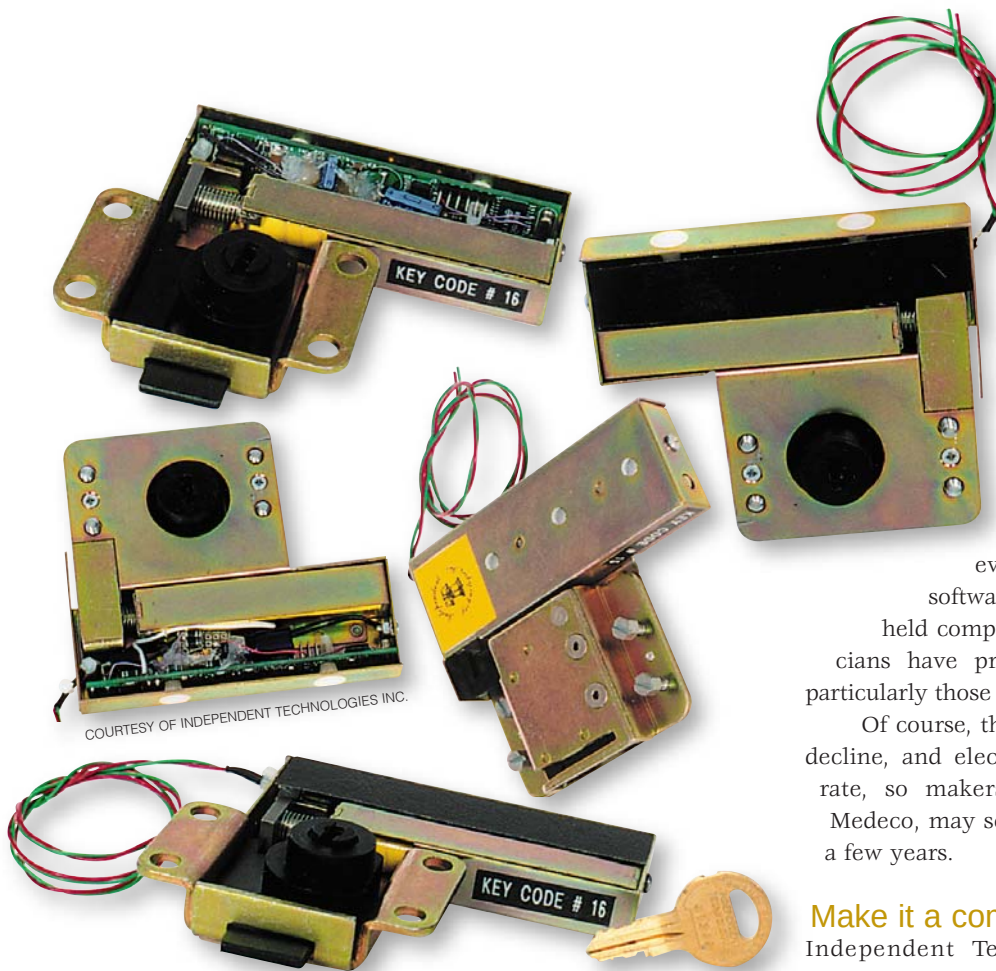
The Series 8800 12-Code Changeable High-Security Payphone Locks follow a similar philosophy and offer billions of different custom key combinations, according to the company. The 12 codes on these locks are designed to coincide with the numbers on a clock. All locks are preset at the 12 o'clock position with a customized code for that PSP, and 12 exclusive codes and the accompanying keys may be purchased. The PSP can change the code himself by inserting Baton's Green Change Key, a master key that allows one to change the code only, not open the lock. If the PSP removes the Green Change Key from the 3 o'clock position, technicians will now need to use Key #3 to open the lock. Codes can be used out of sequence and reused.

The five-code and 12-code lock sets sell for about \$35 to \$45. (Keys are purchased separately.) Volume discounts are available. The company says the locks fit all payphone housings, and the keys can be

turned clockwise or counter-clockwise, depending on the payphone model. The company also will purchase used lock and key sets that are still in good condition as part of a trade-in deal.

Jerry Stuart, president of One Lock, One Key in Arlington, Texas, and a consultant to Baton Security Products, says the product allows PSPs to operate their routes more ef-





ficiently since they're not juggling a large key ring. "On average, we've found that you can service 10 to 12 more phones a day," Stuart says. "In addition, we provide great security because if a technician leaves and takes the key with him, you can immediately re-code that route. If you don't have a code-changeable lock, you'll have to rekey or replace all of your locks, which is more expensive and time consuming."

Stuart also makes a few recommendations to PSPs: "Only a designated, bonded person should have access to the change key for the 8800 Series lock. Also, I wouldn't switch out all of the locks on an entire route or all of your routes at the same time. Do it gradually and depending on your present situation."

The electric avenue

Electronic locking systems are another option for PSPs, albeit a more expensive one. These systems are attractive because they can be programmed to open certain locks only at certain times on certain days, and they can keep track of collection activity. (That is, when a technician opens a coin box, the software incorporated into the phone's electronic locking system sends a message to the owner, relaying how much money was collected, at what time, by which password.)

Electronic locks eliminate the need to carry and manage keys since technicians simply enter their

password into a handheld computer aimed at the payphone. The computer transmits electronic pulses that open the lock. This lack of keys has made such systems popular with very large payphone providers like the regional Bell operating companies and the bigger local exchange carriers. However, the high costs of the associated software and the need to purchase handheld computers and battery packs for technicians have proved prohibitive for most PSPs, particularly those who do not operate large routes.

Of course, the price of handhelds continues to decline, and electronic advances occur at a rapid rate, so makers of electronic locks, including Medeco, may see increased interest from PSPs in a few years.

Make it a combo

Independent Technologies Inc. developed its WESROC lock, a mechanical-electronic hybrid, to address what it perceived as shortcomings of purely mechanical or purely electronic locks.

"For larger companies, using mechanical locks spread out over a large geographic area, they may spend two hours putting together groups of keys for collections — deciding which phones will be collected, gathering the keys and putting them on a ring, then shipping them," Gray says. "There's also the attendant problem of having to collect frequently. The coin box may be able to hold \$160, but they need to ship out the keys when it's holding \$85 to allow time for the keys to be delivered. There's a potential loss of efficiency. Also harming efficiency is the coding of the keys. With mechanical locks, you often have a code on a key that you have to match against a Dick Tracy decoder sheet to determine which phone it actually goes with, and that process can eat up time. Electronic locks have drawbacks, too. They're too expensive for smaller PSPs, and there have been reports of people using stun guns on them, which forces them open and destroys the lock and the electronics."

With WESROC, the phone's keypad is transformed into a combination lock. A host management software and interface system, which costs \$175 to \$325 per phone depending on the number of phones involved, acts as an interface between the PSP's main office and a smart, or even a dumb, phone. Each phone opens with a seven-digit code; the first three digits are unique to a particular customer. Before a route is col-



lected, the technician is given the last four digits for each phone he's collecting that day. (Codes work one time only.)

The technician places a mechanical key in the lock on the coin vault then enters the seven-digit code on the phone's keypad to open the coin box. When the vault opens, a box-out switch causes the electronics in the phone to seize the phone line and connect to the

main office's computer, saying how much money was collected and at what time, and what the next code will be.

The WESROC system also contains an audio option in the host computer so that if a technician needs to fix a jammed phone on a day when the phone isn't scheduled for a collection, he can call an 800 number, enter a 10-digit personal identification number

(PIN) and obtain the four-digit code for that phone. The system records every called-in PIN as well as the date and time of the call.

"WESROC gives PSPs the ease of managing just one key, but they get two means of security. People must have both a key and the code to open the boxes, and that code changes each time the box is opened," Gray reports.

In March the company introduced the WESROC SMART LOCK, which features new electronics that make the host management software and interface system unnecessary; it retails for \$100. "The electronics on the lock board itself randomly generate codes based on the lock's serial number," Gray explains. "It keeps track of which codes you've used.

"These products may seem expensive upfront," Gary continues, "but if you look at the attendant costs for mechanical locks — rekeying phones and replacing keys if a key is lost or stolen, having to ship keys throughout a region and the inefficiencies that can create — I think our products will save PSPs money in the long run. And the extra security that comes with every collection being recorded is invaluable."

Safe and sound

Deciding which type of locks to use for one's route can be a challenge. (See "All Keyed Up" on Page 20 to see which locks some PSPs have chosen and why.) Jerry Stuart of One Lock, One Key suggests that PSPs consider four things when making their decisions:

"First, you need to define and prioritize your security goals and objectives. Next, you should examine your current locking system for how well it meets those goals and objectives. Third, you need to look at your operating costs. Are you spending a lot of money to replace lost keys? Once you consider all of these factors, deciding which type of locking system will best meet your needs should be easier." P

Stacey L. Bell is a freelance writer who specializes in business and marketing issues.

Editor's note: Photos by Adame Photography (except where indicated)

by Stacey L. Bell

All keyed up

Here's the inside scoop on how several payphone providers manage their lock and key systems

“Just about any lock you buy will keep your phone safe from the average Joe,” says Pete Knappmann, president of Payphone Pete’s in Troy, Mich. Knappmann owns 21 payphones, manages another 200 and has been in the business for six years.

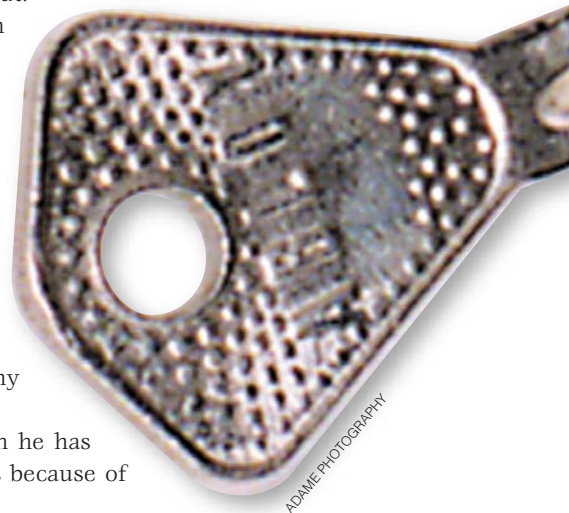
But it's not just the “average Joe” that Knappmann worries about. No payphone service provider (PSP) in today's business climate can afford to lose smart boards or collected revenues to thieves, so PSPs are carefully considering their options when deciding which locks to use and how to manage their keys.

Five PSPs recently talked with *Perspectives* about which locks they use, why and how they manage their keys.

Make mine mechanical

“Cheaper locks are easier to defeat,” Knappmann says. “You need to go to a better lock to ensure that thieves don't get your smart board, which is much more valuable than the cash box these days. So my first priority is having a great quality lock. A good portion of my locks are Abloy, and I have some Medeco locks.”

Knappmann uses only mechanical locks on his routes, although he has looked at other varieties. He ruled out multicode changeable locks because of



"the intricacy of the lock. There are so many little moving parts that I was afraid there would be a problem with repeated exposure to the elements."

He shied away from electronic locks since "relying on electronics to work a lock is just one more thing that can fail. Plus, it's programmed to open certain locks on certain days. If a phone jams, a technician has to go back to the shop to get a different handheld computer to open it unless he has all of the handhelds for all the phones with him, in which case, why bother? It would be much easier to carry keys."

It's been the relatively simple, straightforward mechanical locks that have helped him overcome the largest challenge he's faced with locks: "My biggest problem with locks has been accessing them myself after people stick glue, toothpicks, gum or whatever in them," Knappmann laments. "I've spent half an hour in the snow with a safety pin trying to clean out a lock. It's worth paying more for a lock if your phones are located in a harsh environment. They don't corrode, they still work well in the winter even when there's a lot of snow and ice, and they're easy to clean."

Knappmann uses a different service lock keyway (the slot into which a key is inserted) for each of his routes and different keys for each coin box. To limit the damage if a key ring is lost or stolen, he keeps just 50 to 60 keys on each. Knappmann carries one complete set of keys with him that are attached to a retractable cable that is 5 feet long; the keys are always chained to his belt so that they can't accidentally be left behind. When family members want to

help out and drive their mini-routes for coin collections, keys are secured on a key hasp, which requires another key to



open it so that none will inadvertently get lost. A second complete set of keys for Knappmann's route is kept in a wall safe, and a duplicate set for phones he is managing are held (usually in a safe) by the owners of those phones.

Among the suggestions he offers to fellow PSPs who are seeking to keep their routes as secure as possible:

- **Always upgrade.** "The locks that come standard with payphones aren't of the highest quality usually," Knappmann says. "I always purchase new phones without locks then install locks I have pre-purchased or order locks for those phones on the same day I order the phones, and they arrive at the same time."
- **Rely on service centers.** Abloy and Medeco lock keys can be duplicated only at authorized centers since they can be made only with a special cutter; a local locksmith can't duplicate the keys. "And service centers are very strict about who can have copies made. You need to know the original key code and verify it's your key, or it will be confiscated," Knappmann says.
- **Limit access to keys.** Keys shouldn't be left

lying around where anyone who comes into the office could pick them up. Only company officers and technicians should have access to keys.

- **Be vigilant.** "No matter how tired you are or how quickly you want to leave — maybe you're in a bad neighborhood, and you notice some people are watching you — make sure that hurriedness doesn't become your undoing. Always know where all of your keys are. Don't leave them in the vehicle overnight or leave them out in plain sight. I lock my keys up in a safe in my van during the day if I'm not using them," Knappmann says.
- **Prepare appropriate employment contracts.** Employment contracts (subject to any state law requirements) should include a clause that states that the employee's last paycheck will be withheld and used to pay for rekeying the route if all keys are not turned in upon resignation, Knappmann suggests.

Mine, too

Vince Maccaro Jr., vice president of Bethlene Enterprises in Wayne, N.J., owns about 1,000 pay-

phones, and all of them use mechanical locks. "We've been in business for about 15 years, and we've switched out some locks during that time and gone with Abloy because their keys seem to be sturdier," Maccaro says.

Bethlene Enterprises consists of several companies and several pay-phone routes; each company has its own designated service keyways, and each route may have two or three service keyways. "We've tried to make our system as secure as possible to limit damage if a key is lost or stolen," Maccaro explains. "We may have 200 phones in a city and use three different service locks. We use a separate key for each phone's cash box; no two phones use the same key. It makes for a lot of keys, but we number them according to a system. We have books numbered 1 to 1,000, and each morning the company's officers look in the books to see which phones need to be serviced and collected, and we oversee the handing out of the work orders. The techs pull coin box keys from one working set of cash-collection keys. (Three more copies of each key are locked in a safe.) They then pull the service keys they'll need for the day. It takes just a few minutes. At the end of the day, we log them back in."

Maccaro's advice to fellow PSPs:

- **Have a system.** By logging keys out in the morning and in at night, Maccaro knows immediately if one is missing and can take instant action to remedy the situation, whether that involves locating the key still at the payphone, switching out the locks or some other solution.
- **Have several keys.** "Using one key for both service and collecting cash is absurd. You have no security if someone loses a key," Maccaro says. He recommends having several service keys throughout each route and a separate key for each coin box. In addition, he advises keeping four sets of cash box keys on hand in case some are lost so that the PSP can get into the box one last time before replacing the lock.
- **Use a code.** "Don't label keys with location names for the simple reason that if it gets lost, anyone can access that phone," Maccaro warns. Maccaro uses a numeric system.
- **Maintain your locks.** Most locks should be treated with a graphite lubricant about once a year. "Not only does it bring stiff locks back to life, but



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lubricating also thwarts vandalism. Crazy Glue and gum won't stick to a lubricant," Maccaro says.

Mechanical locks for a mid-size route

Mechanical locks also have fit the bill for the 650 payphones owned by Commonwealth Telephone Inc. in Malden, Mass., about 10 miles north of Boston. "We now use Abloy and Medeco locks," says Paul Morley, service manager of Commonwealth Telephone. "In the past we'd tried a cheaper brand, one from an offshore company, but we had a lot of problems with jamming and the keys bending."

Since the switch, few problems have occurred. Morley recalls one situation that emphasizes the need for technicians to constantly be aware of their surroundings. "Ten years ago, a technician was purposely distracted while he was servicing a multi-phone account, and someone snatched away his keys," Morley notes. Now the technicians all wear their keys on chains that are attached to their belts so it's more difficult for keys to be removed or misplaced.

Like other PSPs, Morley recommends that service locks and coin box locks should always be keyed differently on the same phone. Commonwealth Telephone uses different keyways for its service locks and coin box locks throughout its route. For example, a few dozen phones in northern Boston might use one service lock keyway series and neigh-

boring phones in the western part of the city might use another. They would use different coin box keyways as well.

Morley says his company follows a number of safety practices, including:

- **Hire good people.** While many PSPs employ only family and friends, those who entrust their keys to hired strangers will need to verify the honesty of employees before handing over such a vital part of the business. (Check prospective employees' references and credit history and determine if they've ever been involved in any illegal activity or had financial difficulties.) "Keys are the lifeblood of your business; you want to make sure you trust someone before giving them access," Morley explains. "Even more important, that person will be carrying your money, not just your keys. It's essential to have committed, loyal, honest employees."

- **Use some common keys.** To save money, PSPs can use the same keyways on different routes that are far away geographically from one another.
- **Watch those keys.** "Stress to your employees that it's essential to know where their keys are at all times and to be aware of their surroundings," Morley cautions. "Our drivers are required to keep their vehicle key on the same chain as the phone keys to prevent them from leaving the phone keys at a location and driving away."

Accessing the code

For two years, Celtic Communications in Binghamton, N.Y., has relied on Baton Security Products' 8800 Series 12-Code Changeable Payphone Lock to protect its nearly 1,030 phones.

"I became sold on the product at an APCC trade show," recalls Tim Ward,

president of Celtic Communications. "One key opens both the upper and the lower housing. I liked that simplicity. If a key gets lost, I don't have to drill out my lock anymore. I just change its code. Over the last seven years, we've lost only one key ring. But the phones had their upper housings keyed alike, so they required the purchase of new locks and then having the ones we were replacing rekeyed. Using Baton pays for itself when you consider the costs of losing just one key ring."

Ward also raves about the lock's design. "It's like a vending key. There's no depth, so Crazy Glue can't be put in there to foil you, and insects can't pack it with mud. There's also no need for lubrication."

The product also has eased Celtic Communications' key management system. "Our tech carries one key for the entire route now. He can cross route lines and go into other territories if there's a sudden problem with a phone without having to waste time returning to the office to get different keys." Giving a technician all of the keys to all of one's phones requires great trust, and Ward notes that all but one of his employees are family members. "That makes a difference."

Ward offers the following suggestion:

- **Keep it simple.** "If you're a sole proprietor, it's foolish to have a big ring of keys to watch over," Ward says. "Make your life easier and rely on a master key that can change the codes on your phones' locks if one of them is compromised. Don't get so big that you can't keep track of your keys yourself."

Going high tech

Telecor Communications Inc. in Tulsa, Okla., has used electronic Medeco locks on its nearly 1,000 payphones for the past five years.

"When we were expanding into Oklahoma and putting phones all over the state, it became an issue of how do we manage keys throughout Oklahoma and the five other states that we have

phones in," remembers Jack Kendrick, president of Telecor. "How do we get keys to the techs most efficiently? We'd been in business since 1986, and it was difficult moving keys from state to state. They'd get lost; they seemed to be more likely to break."

The electronic locking system seemed the perfect solution. Handheld computers were programmed for each route and shipped to each tech. Workers in the main office could log into the system to learn when various coin boxes were opened and how much money was collected.

"We can control the parameters of the collection process," Kendrick explains. "If we want techs to be able to access cash boxes from 8 a.m. to 6 p.m. Monday through Thursday, that's how we program their particular unit."

Telecor uses electronic locks for the coin boxes on its phones; Medeco mechanical locks guard the upper housing. Each technician has his own service lock for his route.

Kendrick suggests that other PSPs:

- **Trust your techs.** "We've been fortunate not to have a big turnover in personnel, and we hire selectively," Kendrick notes. "You have to be able to give people access to their own routes and trust them to do their jobs."
- **Know your business.** "Electronic systems aren't for everyone," Kendrick adds. "In my opinion, the best candidates are somebody starting a new route of considerable size or a medium-sized company that's expanding into several geographic areas. The whole premise is that you want to avoid having to ship keys back and forth, and you want to have a better handle on when coin is collected. Good key control management systems can vary dramatically. What's right for a small company in a small area would be completely inappropriate for a large company with phones in several states."

Some final advice

Bermang Cuadra, operations manager for Security Locking Systems in Las

Vegas, offers a few final words of advice about key management to PSPs based on stories he's heard from customers over the past 15-plus years.

"Sometimes people are a little lackadaisical about their keys," Cuadra says. "They'll tell their techs not to worry if they misplace a key because they can just rekey the lock or change the code. That sends the wrong message, and people may become careless. Keys should be taken care of. Always know where they are, and don't be rough with them — jamming them into locks, trying to force them into a lock, etc."

Cuadra, like Maccaro, recommends coding keys with numbers, perhaps engraving them with a "U" for upper housing lock and "L" for lower housing lock along with the assigned number of a particular route and location.

Finally, when choosing which locks will be best for your business, Cuadra

suggests that PSPs may wish to take a few locks from different manufacturers to their local locksmith and ask him which ones would be easiest to drill.

"While you will pay a little more upfront for a good lock, it will more than pay off in the long run," Cuadra insists. "A \$5 lock can be drilled in just a few minutes, and it lacks key security. Purchase only a lock that you feel completely confident about because it's protecting more than your phones — it's protecting your livelihood." **P**

Stacey L. Bell is a freelance writer who specializes in business and marketing issues.

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