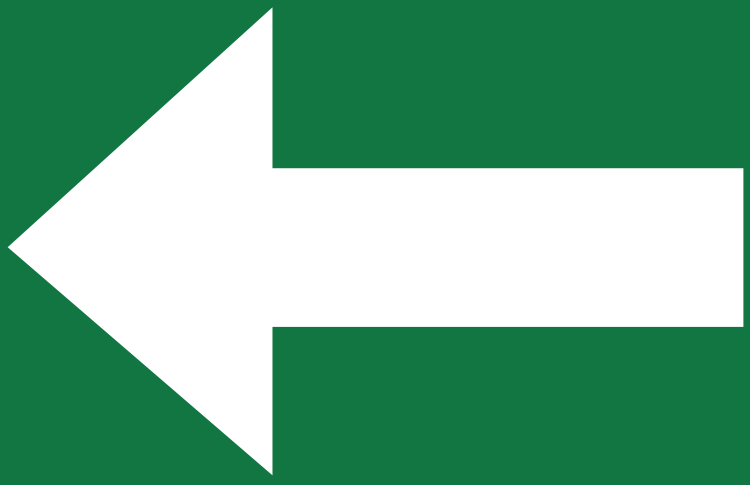
UNDER LOCK & CODE



Identify Kaba-Mas' ATM industry and government e-locks in this series' third installment.

BY RYAN TAYLOR

Figure 1
Cencon, Keypad Down

Figure 2
Cencon, Keypad Inverted

Figure 3
Cencon,
Keypad Up

If you do any banking or government safe work, then you're undoubtedly familiar with Kaba-Mas. The company has seen success in the banking and ATM industries with locks such as the Cencon and Auditcon and enjoys a virtual monopoly in the government sector with its X-0 series. Over the years the company has changed both its name and its line of electronic locks, the latter being particularly important to safe technicians.

From the original X-07's progression to today's X-09 on the government side and to the redesign of the Cencon's drive mechanisms and the introduction of the new Auditcon II series, Kaba-Mas has continued to revise its electronic locks in ways that alter programming, servicing, opening and even operating procedures. Learning to correctly spot these key changes and updates, as well as identify distinct Kaba-Mas lock models, is essential to being a well-versed, fully capable modern safe technician.

The Cencon

One of Kaba's most successful electronic offerings is the Cencon. This lock is used almost exclusively in ATM applications and is more of a locking system than a simple traditional safe lock. Cencon locks were first produced under Kaba-Mas's original company name of Mas-Hamilton and are used in conjunction with special software that generates unique one-time–use, or OTC, opening codes for each lock. The Cencon software is the heart of the system and controls access to each Cencon lock enrolled in the system, with the amount of individual locks often numbering in the thousands. Every user and each operator has a unique Dallas-key fob — from the first line maintenance and cash replenishment personnel that physically access the container to the dispatchers and supervisors who administer the Cencon system off-site via software.

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Like many Kaba products, Cencons feature PowerStar technology that allows the locks to generate their own power by rotating the dial, which eliminates the need for batteries or an external power supply. In addition to the black center dial, Cencons can be easily identified by the presence of an LCD readout, along with a numerical keypad and Dallas-key reader port situated on the side of the keypad housing. Three different keypad configurations are found on Cencon installations depending on the exact ATM application — keypad up, keypad down and keypad inverted (*see Figures 1, 2 and 3*). The standard "keypad up" configuration is by far the most common, but you may run into the other style keypads on machines such as the Diebold 1074.

From a servicing perspective, it's important to note that Kaba has used two different styles of dials with the Cencon keypad. Up until November of 2002, the dial was metal and attached to the spindle with two setscrews. Removal of this dial requires either pressing the dial off the spindle using a specialized puller or drilling down the dial center to remove ½-inch to ¾-inch of the spindle and walking the dial off

Figure 5 →
Auditcon 52
Vertical Keypad

↓ Figure 4
Slidebolt

↓ Figure 6
Auditcon 252-552
Round Keypad

↑ Figure 7
Auditcon 252-552
Vertical Keypad

with a set of Vise-Grips (my preferred method).

After November 2002 Kaba switched to a plastic dial that can be easily removed without damage by removing the center dial label and pulling out the center triangular retainer clip with a pair of needle-nose pliers.

Kaba has used two drastically different styles of Cencon lock bodies over the years. The original style was derived from the X-07 design and used a motor to control the movement of the drop lever. Newer style locks, initially referred to as Quick Start Cencons by Kaba, share the same lock case as the Auditcon deadbolt series and instead use a solenoid to control lever movement.

The two different designs can be distinguished through the spindle hole by the color of the lock case. Older, X-07 style locks have a black case, while the newer solenoid locks have a gold-colored Zamac case. Proper identification of old- and new-style Cencon locks can also be achieved without removing the keypad by rotating the dial and feeling for contact points. On older-style motorized locks, the drop lever does not contact the drive cam; therefore, no contact points are present. With newer style solenoid Cencons, the nose of the lever rides along the edge of the drive cam as the dial is rotated, and this results in contact points very similar to those found on mechanical locks.

The final procedure for distinguishing between old- and new-style Cencons requires the lock and keypad to be functioning. Start by rotating the dial left to power up the lock. Once "EC" appears in the LCD readout, press "#2" to retrieve the locks serial number. The keypad will then display "Sn" followed by the six-digit lock serial number in two digit segments. Generally speaking, serial numbers above "100000" are newer-style solenoid locks. This is the most inaccurate method for determining the type of Cencon lock because the "100000" serial number breakpoint is not definitive.

Later this year Kaba-Mas will be releasing a major revision to the Cencon series referred to as the Gen 2 lock. The specifics of this second generation of Cencon locks are beyond the scope of this article, but the updated firmware will ensure the Cencons continued success in the foreseeable future. Gen 2 locks will vary from their predecessors in appearance with a silver dial label that displays the Roman numeral "II" instead of the current black label. These next-generation locks will also power up to "G2" instead of "EC" to indicate the new firmware.

The Auditcon 2100

As a final note on identifying Kaba Cencon locks, it's worth mentioning the Auditcon 2100 lock, which also features an LCD readout and is, therefore, commonly mistaken for a Cencon. Although relatively uncommon and now discontinued by the manufacturer, the Auditcon 2100 can be distinguished from a keypad-up–style Cencon by its angled — rather than flat — numerical keypad.

Auditcon

Our look into Kaba-Mas's electronic safe locks continues with the Cencon's close cousin — the Auditcon. These locks also feature self-generated power, along with an audit trail that allows a history of each lock's recent activities to be retrieved and viewed with special computer software. The Auditcon series is certainly Kaba's most diverse product line, originally introduced with five basic models (the 50, 100, 200, 400 and 500), each available with three different styles of lock body (deadbolt, slidebolt and slambolt) and a choice of three different keypads (round, vertical and low-profile) (*Fig. 4*). Over the years Kaba has eliminated some of the more unpopular options and narrowed the list of available Auditcons to the current Auditcon II series available in three base models (the 52,

252 and 552) and no longer offers the slambolt or low-profile keypad options (*Fig. 5, 6 and 7*). The list of available functions and features varies greatly within the Auditcon series, starting with the simple, two-user 52 lock all the way up to the full-featured 552 with 99 users and fully programmable time windows that control the times and dates when each user is able to access the container. The programming procedures are also drastically different between various Auditcon models due to the large number of different standard features (*see Figure 8*).

To identify the Auditcon, follow these steps.

Step 1) Press "ENTER" or "#" then "1"

If keypad flashes GREEN, the lock model is 52.

If keypad flashes GREEN & RED, continue to Step 2.

Step 2) Press "ENTER" or "#" then "6."

If keypad flashes GREEN & RED once, the lock model is 552.

If keypad flashes RED several times, the lock model is 252.

Troubleshooting procedures, opening methods and drill points vary greatly between the deadbolt and slidebolt Auditcons, so correctly determining what type of lock body is installed is crucial. The quickest way to identify the lock type is by examining the keypad and looking for the presences of a red band at the 12 o'clock position above the dial. A red band indicates a deadbolt is installed inside the container. The purpose of the red band is to serve as an alignment mark for the tab on the dial prior to retracting the lock bolt on a deadbolt Auditcon.

On slidebolts the lock bolt is not manually retracted and is instead pushed into the lock case by the safe's boltwork as the handle is rotated. This eliminates the need for the red alignment mark on Auditcons using a slidebolt lock body design. In the complete absence of a keypad, as is common in attempted burglaries, it is still possible to identify a deadbolt Auditcon from a slidebolt by the presence of a square spindle.

The LC Locks

Kaba's slidebolt is also used on the next series of locks — the LC, also known as the B52 (*Fig. 9*). Kaba-Mas LC locks are available exclusively in a slidebolt configuration and are marketed toward the commercial and gun safe markets due to their relatively low cost and ease of use. These locks do not feature self-generated power and instead use a single 9V battery housed within the keypad to power the lock.

The only real option available on the LC models is a choice of keypads. Housings are available in either a Lexan or metal construction and produced in a variety of finishes (*Fig. 10 and 11*). Without the keypad, LC slidebolts can be readily distinguished from their Auditcon slidebolt siblings by the keypad cable. LC locks have a relatively thick keypad cable and resemble a large phone connector on the end that plugs into the keypad. From a programming and feature set standpoint, the LC series of locks are identical to the Auditcon 52 series with the exception of self-generated power.

The X-0 Locks

On the opposite end of the electronic safe lock spectrum in Kaba's product line are the X-0 locks. These locks are the only "Type 1F" UL-rated safe locks currently on the market and for nearly two decades have been the only locks to

Key Differences Between Auditcon Series Locks

	50/52	100	200	252	400	500	552
Code Length	6	6	8	8	8	8	8
Users	2	5	19	20	99	99	99
E-Key Port	No	No	Yes	Yes	Yes	Yes	Yes

↑ **Figure 8**

Figure 11 ↑
LC Metal
Chrome Keypad

Figure 9 →
B52

← **Figure 10**
LC Metal
Brass Keypad

meet the government's FF-L-2740 specification. The X-0 locks have seen three revisions over the years, starting with the original X-07, then progressing to the short-lived X-08 before moving on to the current X-09 model (*Fig. 12, 13 and 14*). These locks feature a dial, similar to a mechanical lock, that generates power when rotated and a top-mounted LCD display that reads out the combination as the dial is turned.

The easiest way to recognize the different vintages of X-0 locks is by simply noting the color and size of the dial and dial ring. X-07 and X-08 locks both have a black dial and dial ring, while the latest X-09 locks feature a gray dial. The difference between the black X-07 and X-08 is the X-07 has a lower profile dial ring, a smaller diameter dial (1 ¼-inch) and a center logo that reads "Mas-Hamilton Group." X-08 and X-09 locks have larger 2⅛-inch diameter dials.

Functionally, the three X-0 locks differ in several key ways, the largest being their dialing procedures. Both original X-07 and current X-09 locks use a conventional "left-right-left" dialing sequence, but the X-08 is powered up to the left then has each number dialed to the right. This unusual dialing procedure was the source of much frustration and confusion when the X-08 lock came to replace the X-07. Kaba chose not to repeat this mistake when they released their next revision, the X-09.

Another difference between the X-08 and the other X-0 models is the length of the time-out period for the LCD display. Once powered up an X-08's display will go blank if the dial is not rotated after 10 seconds. X-07 and X-09 locks, on the other hand, will go a full 40 seconds before powering down the LCD module.

To identify an X-0–series lock, follow these steps.

Step 1) Determine color of dial and dial ring.

If GRAY, the lock is X-09.

If BLACK, continue to Step 2.

Step 2) Rotate dial left until LCD display becomes active, then stop.

If LCD displays "E1>", the lock is X-08.

If LCD displays number, the lock is X-07.

Knowing Kaba-Mas

Kaba-Mas' rise to dominance in the safe lock industry has been truly remarkable. Since its establishment, the company has found success through innovation and advanced safe lock designs that have taken the industry in entirely new directions. Such success has led to Kaba's electronic locks being used in all segments of the security industry, which makes recognizing and identifying Kaba locks important to all safe technicians, whether they specialize in government, banking, commercial or residential work.

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↑ **Figure 12**
X-07

↓ **Figure 13**
X-08

↑ **Figure 14**
X-09