The Official Publication of ALOA—An International Association of Security Professionals

Keynotes

November 2003

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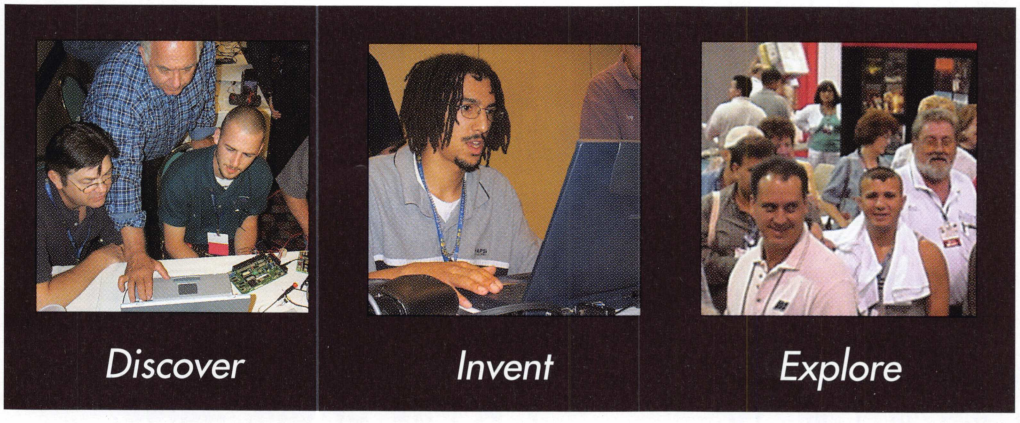

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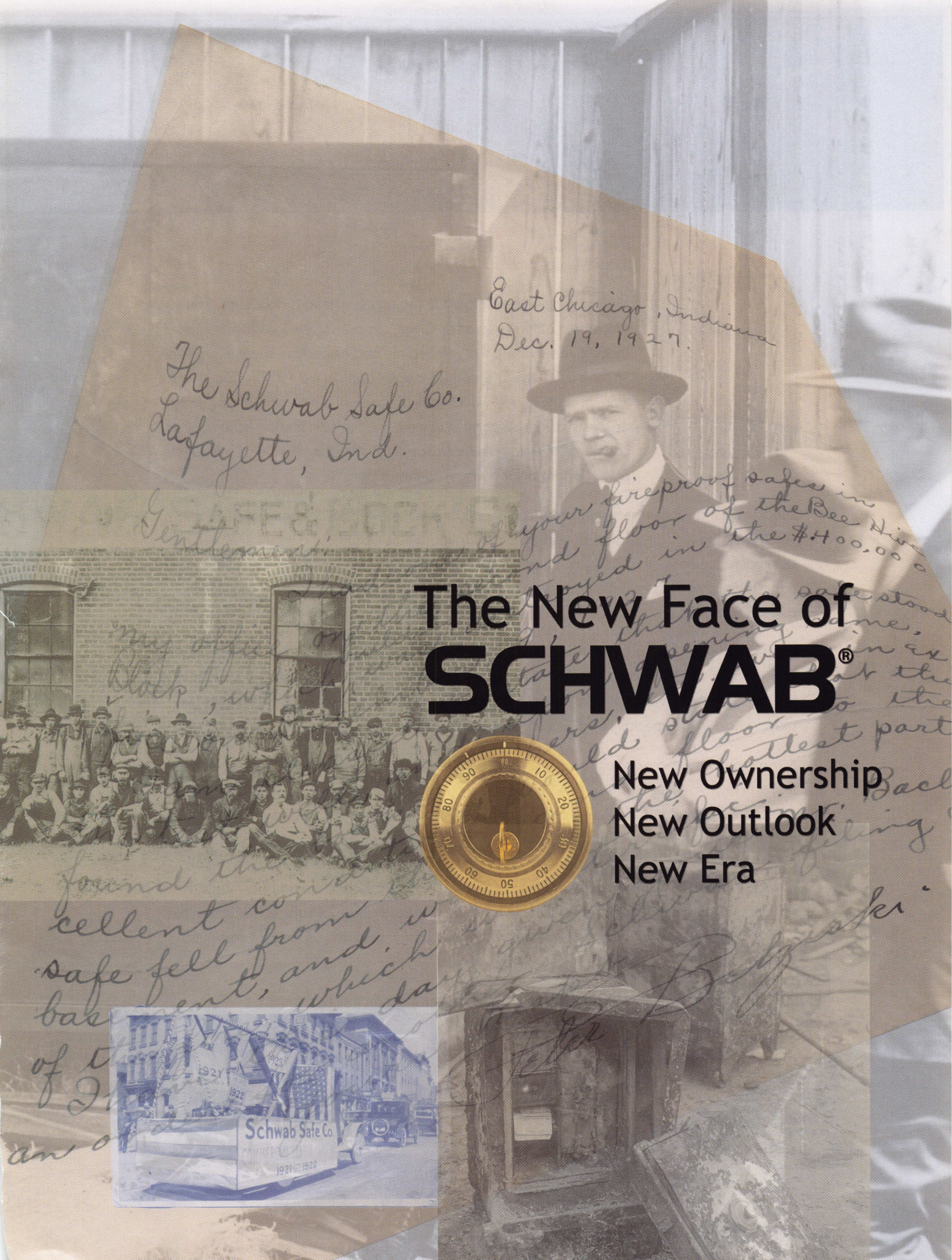

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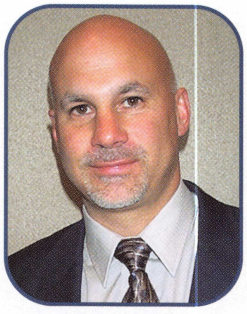


Dear Members,

An automotive issue in a trade magazine is always dear to my heart, because, I am (among other things), an automotive locksmith. I think back fondly to those that inspired me and helped me become proficient in the trade. Don O'Shall had a great book in the 1970s, "Simplified Foreign Auto Locks," which took the mystery out of foreign cars. Jerry Levine and Tom Seroogy taught me the domestic models. Hank Spicer taught me how to "File for Dollars." Patrick Sullivan taught me how to professionally unlock cars. And the list goes on …

Automotive manufacturers have increasingly tried to make their vehicle locking systems dealer serviceable only. This has only succeeded in generating greater resolve in a new generation of automotive experts in the locksmith industry. Don't tell us we can't do something – we'll find a way! The manufacturers make more secure locks, and we make better tools! We'll pick them, decode them and program new keys. The more secure the vehicle, the more lucrative the job.

For those of you who have dropped out of the automotive lock service business, I encourage you to partake of the educational opportunities that are out there in this area. ALOA is actively pursuing passage of the Motor Vehicle Owner's Right to Repair Act, which will once again level the playing field in this specialty field. Don't pass up an opportunity to add profits to your business!

Moving on to another specialty area, I attended my first SAVTA board meeting. For those of you that don't know, ALOA owns SAVTA but the two are operated separately. The ALOA board constitutes the shareholders of SAVTA, and as such, we elect that board. It is always a difficult task because there is a glut of talented and qualified candidates. This year was no exception. Skip Eckert, CML, will once again lead SAVTA as president, with a strong board consisting of Ron Snively, CML, CPS, Ron Jewell, John Greenan, CML, CPS, Owe Bengsston, and Tim Abner. SAVTA continues to grow in numbers, and puts on the premier trade show for safe technicians in the world. My congratulations to the SAVTA board and my best wishes and support for continued success.

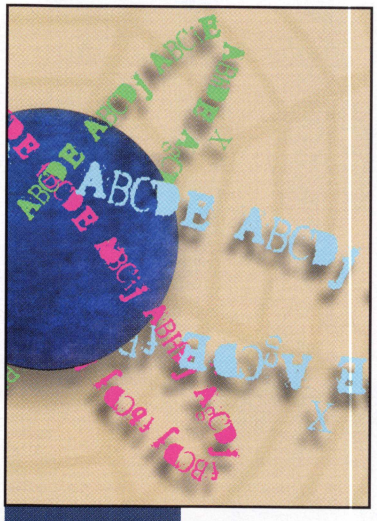
I am off to chair my first ALOA board meeting. I'll be reporting on that next month.

Sincerely,

William L. Young

William L. Young, CML

features



departments

THE AUTO ISSUE

executive

Volume 49, Issue 10

Additional contact information for the ALOA Board and most Keynotes authors is available through "Locksmith Search'" on the ALOA Web site– www.aloa.org or by contacting the ALOA office at 3003 Live Oak Street; Dallas, TX 75204; (800)532-2562; FAX (214)827-1810; e-mail aloa@aloa.org.

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Mission Statement: The Associated Locksmiths of America, Inc. is dedicated to enhancing the professionalism, education and ethics among locksmiths and those in related sectors of the physical security industry. With approximately 10,000 members in the United States, Canada and the freeworld, ALOA is poised to help members obtain the knowledge, the strength, and the confidence to perform their role in the physical security field with pride and dignity. But it is only through active involvement and participation that ALOA can fully achieve its potential—and can help members to achieve theirs.

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Payment will not be offered for articles submitted by ALOA employees or members of the ALOA Board of Directors (unless material is of a technical nature), nor for articles submitted by a company that promote that company's products or services. ALOA reserves the right not to pay for articles submitted by an individual(s) that promote a particular company's products or services.

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applicants for membership

AKL

Florence
James D. Peebles Jr
Sponsor: John P. Luhrs CRL

Jackson
Larry Smith
Sponsor: Bruce J. Tarbet CML, CPS

New Market
Ken Harris
Sponsor: Ernest W. Wright

CA

Benicia
Deborah R. Skau

CO

Fort Collins
Tom Martinez
Sponsor: Wayne Younger CML

CT

Enfield
Stephen G. Munz
Sponsor: Richard W. Shaw

Waterford
Peter Doherty

FL

Crestview
Derl Justice
Sponsor: Bruce J. Tarbet CML, CPS

Loxahatchee
John W. Potts
Sponsor: Vincent L. Formon CML, CPS

GA

East Ellijay
Bruce N. Reagin
Sponsor: John C. Elliott Jr, CML, CPS

IA

Reinbeck
Robert F. Gutknecht
Sponsor: Rick W. Barrett

IL

Chicago
Jose M. Hernandez Jr

Countryside
Robert F. Mance

Steger
Ronald E. Urzendowski
Sponsor: William T. Beranek

KS

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Charles E. Wendt CRL
Sponsor: Clifford D. Lipscomb CML, CPS

Overland Park
David J. Moore
Sponsor: Clifford D. Lipscomb CML, CPS

LA

Houma
John D. LeBlanc
Sponsor: Bruce J. Tarbet CML, CPS

Natchitoches
Craig Bumgardner
Sponsor: Bruce J. Tarbet CML, CPS

Walker
Eric E. Jones
Sponsor: Randall R. Jones CRL

ME

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Jeffrey S. Truman CRL

MI

Alpena
Michael F. Agius

MO

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Frank L. Goetzfridt
Sponsor: Rollin R. Gilliland CPL, CPS

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Glenn Rivet
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OR

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John F. Shinkowsky

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John Yates
Sponsor: Curtis L. Clanton

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WV

Martinsburg
Ian A. Edwards
Sponsor: Max A. Mosse
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Alvin Dorder

Penetany, ON
Sean W. Baxter

Thornton, ON
William A. Rawn

England

Nottingham
Martin Pink
Sponsor: Ken Dale

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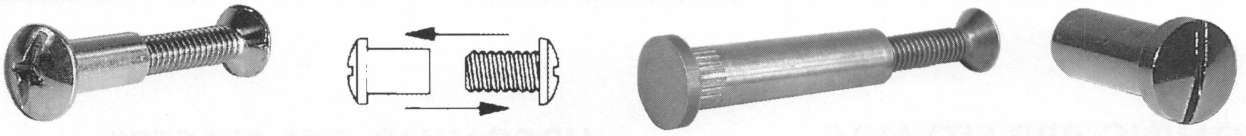

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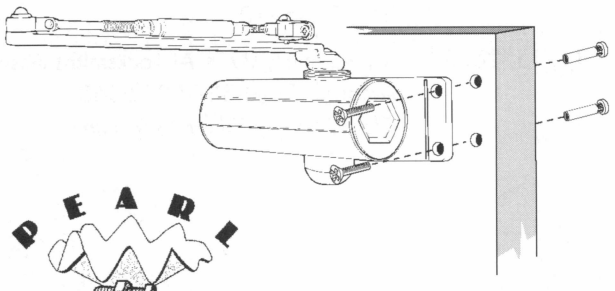

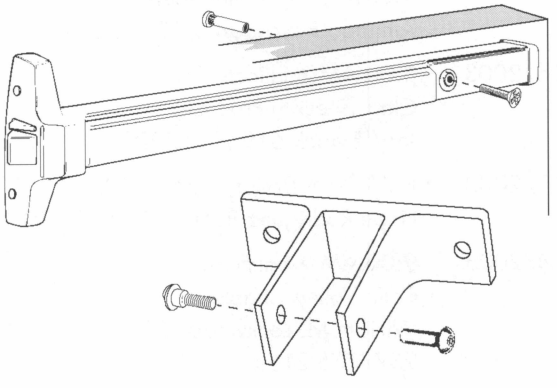

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upcoming events

NOV	5 Minnesota Chapter Regular Meeting Dave Nissen mnchapternews@aol.com	5 Ohio Valley Chapter of ALOA Membership Meeting 7pm Ryan's Steak House Middletown, OH (off exit 32) Mehdi Zahedi (937) 294-4241
DEC	3 Minnesota Chapter Regular Meeting Dave Nissen mnchapternews@aol.com	3 Ohio Valley Chapter of ALOA Membership Meeting 7pm Middletown, OH (off exit 32) Mehdi Zahedi (937) 294-4241
JAN	7 Minnesota Chapter Regular Meeting Dave Nissen mnchapternews@aol.com	

UPCOMING PRP SITTINGS

11/8/2003 Detroit, MI
Locksmiths Security Association
Maurice Horne, CML
313-550-5810

11/13/2003 8:00AM • Dallas, TX • ALOA
Hope Rodriguez 800/532-2562 X30

11/16/2003 TBD • Montgomery, AL
Alabama Locksmiths Assn.
Amanda Boyd 334/793-5060

11/16/2003 8:00 AM • Ellicott City, MD
Clark Security Products
Joan Emrick 619/718-7308

12/11/2003 8:00AM • Dallas, TX • ALOA
Hope Rodriguez 800/532-2562 X30

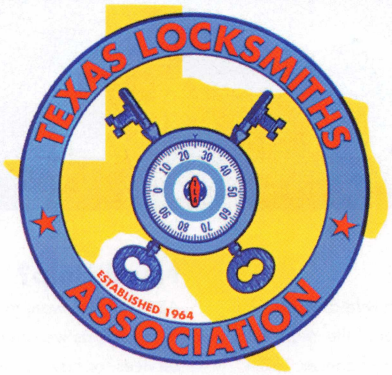
12/14/2003 9:00 AM • Fairborn, OH
Ohio Valley Chapter
William M. Lockwood, CRL
937/775-2154

UPCOMING ACE CLASSES

11/1/2003 Randolph, MA
The Flying Locksmiths, Inc.
Barry McMenimon, CRL
781-963-5080

11/1/2003 Detroit, MI
Locksmiths Security Association
Life Safety Codes and the ADA
Maurice Horne, CML
313-550-5810

11/15/2003 Montgomery, AL • AL Locksmiths Assn.
Amanda Floyd 334-793-5060
Closed Circuit TV for Locksmiths



41ST ANNUAL CONVENTION & TRADE SHOW
IN THE HISTORIC MARKET DISTRICT ON GALVESTON ISLAND
FEBRUARY 24 – 29, 2004

ALOA ACE CLASSES

Wednesday, February 25, 2004:

Investigative Locksmithing I
Automotive Key Generation
Electronic Safe Lock Servicing & Troubleshooting Small Format IC • P-38

Thursday, February 26, 2004:

Investigative Locksmithing II
Advanced Transponders
Combination Lock Servicing & Troubleshooting Large format IC • P-39

Friday, February 27, 2004:

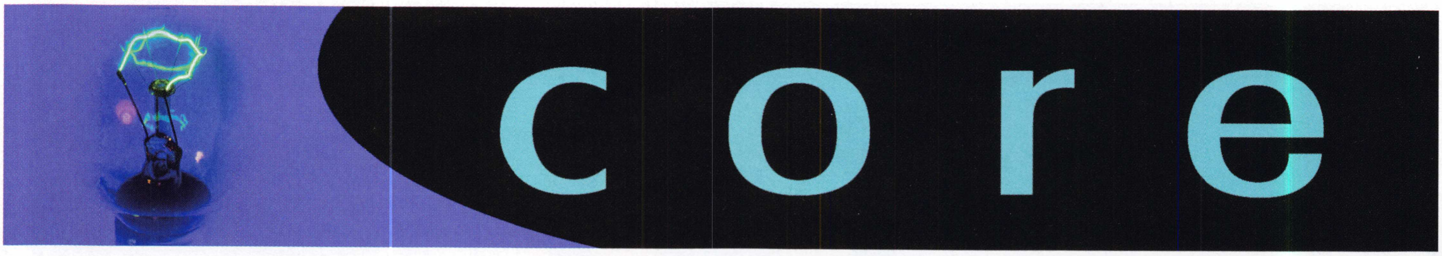
Investigative Locksmithing III
Remotes & Automotive Update
Safe Deposit Locks
Motorcycle Locksmithing • P-22
Basic Safe Penetration
Tubular Key Locks • P-12

"P-#" indicates PRP certified classes

- FREE CLINICS
- FREE SEMINARS
- GENERAL MEMBERSHIP MEETING
- ELECTION & INSTALLATION OF NEW OFFICERS
- PRODUCT EXHIBIT
- SCHOLARSHIP RAFFLE
- BANQUET DINNER, CASINO PARTY

FOR MORE INFORMATION CONTACT:

Butch Titus, Secretary • P.O. Box 142 • Adkins, TX 78101 • 210-649-2166



In Memory

The ALOA community has recently lost a wonderful member. The wife of ALOA Lifetime of Outstanding Achievement Award and Keynotes Author of the Year recipient Dan Graffeo, CRL, CMST – has died tragically of a rare form of cancer. Lois Graffeo, CRL, an ALOA member, passed away this summer. On behalf of everyone at ALOA, we wish to extend our deepest sympathies to the Graffeo family.

ALOA Code of Ethics

All members of the ALOA by acceptance and continuance therein, shall be deemed to have subscribed to the following Code of Ethics:

That the dignity of our chosen profession may be perpetuated, it is the duty of all members of the ALOA.

- To practice their profession in the spirit of fairness to their clients, with fidelity to security in conformance with appropriateness, and with high ideals of personal honor;
- To properly and impartially analyze security problems, and to advance the best possible solution for the protection of their clients;
- To conduct themselves in a dignified manner;
- To abide by applicable licensing and business regulations;
- To abstain from using improper or questionable methods of soliciting patronage, and to decline to accept such incompatible patronage;
- To refrain from associating themselves with or allowing the use of their names by any enterprise of questionable character, or in any manner countenancing misrepresentation;
- To cooperate in advancing the best interest of the locksmithing industry by interchange of general information and experience with fellow locksmiths;
- To encourage and promote loyalty to the profession, always ready to apply their special knowledge, skill and training for the use and betterment of our industry.

Let Us Know!

If you have an opinion to offer on ALOA, the state of the industry, or life in general, we want to know about it! Submissions to the "Mailbox" section of Keynotes are printed on a space-available basis. Write to: "Letters to the Editor"; ALOA; 3003 Live Oak Street; Dallas, TX, 75240; FAX 214/827-1810; e-mail: editor@aloa.org.

Need Help?

At ALOA, we want to make sure you are getting as much bang for your membership dues buck as we are able to give you. If you have had problems getting membership services, or have a question regarding member services, please contact Bill Gibson, exectuve director, at 800/532-2562, or e-mail: charlie@aloa.org.

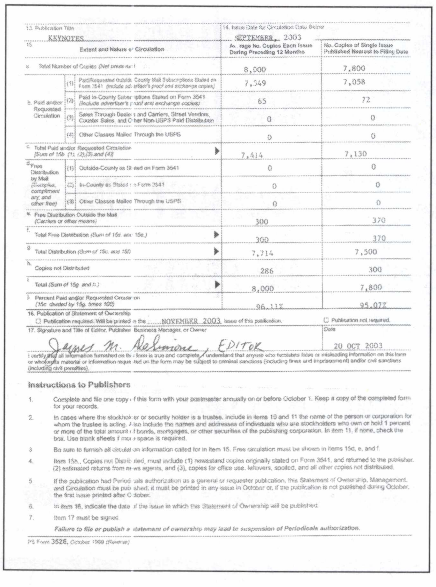
ALOA'S NEW CLEARSTAR OFFER!!

Starting in January 2004, all ALOA members who renew for the year will receive a $15 discount off of ClearStar membership (currently $45). This includes new and renewal memberships with ClearStar. Application must be made through ClearStar: www.security @clearstar.com

ALOA's POSITIVE ID POLICY:

- ALOA locksmiths are instructed to use the following positive identification policy when servicing lockouts:
- Notify Caller. When a call comes in to request lockout services, ask the caller if he/she has identification and authority to open the lock.
- Complete Form. Upon arrival at the job site, the locksmith should complete an Authorization Form that asks for the name, address, phone number, identification number and property description from the customer.
- Verify I.D. Verify the customer's photo-identification card and compare it to the information provided by the customer. If no photo-ID card is available, ask for some other reasonable form of ID.
- Verify Authority. The locksmith should inquire as to what authority the customer has to open the lock, and request to see any reasonable and appropriate evidence that could verify the authority. This may be impossible in some cases.
- Ask for Signature. Ask the customer to sign the Authorization Form, which should contain a statement that (a) the information given by the customer is correct, (b) the customer has the authority to open the lock, and (c) the customer shall identify and hold harmless the locksmith against liability.
- Optional Last Resort. If you have any suspicions that the customer is giving false information or does not have authority to open the lock, say that you will be happy to open the lock provided a law enforcement officer is present. If the customer agrees, call the police; if not, leave.

File the Form. Keep the Authorization Form on file for a reasonable period of time.



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b. Paid and/or Requested Circulation (1) Paid/Requested Outside-County Mail Subscriptions Stated on Form 3541 (Include advertiser's proof and exchange copies)	7,349	7,058
(2) Paid In-County Subscriptions Stated on Form 3541 (Include advertiser's proof and exchange copies)	65	72
(3) Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Non-USPS Paid Distribution	0	0
(4) Other Classes Mailed Through the USPS	0	0
c. Total Paid and/or Requested Circulation (Sum of 15b. (1), (2),(3),and (4))	7,414	7,130
d. Free Distribution by Mail (Samples, compliment ary, and other free) (1) Outside-County as Stated on Form 3541	0	0
(2) In-County as Stated on Form 3541	0	0
(3) Other Classes Mailed Through the USPS	0	0
e. Free Distribution Outside the Mail (Carriers or other means)	300	370
f. Total Free Distribution (Sum of 15d. and 15e.)	300	370
g. Total Distribution (Sum of 15c. and 15f)	7,714	7,500
h. Copies not Distributed	286	300
i. Total (Sum of 15g. and h.)	8,000	7,800
j. Percent Paid and/or Requested Circulation (15c. divided by 15g. times 100)	96.11%	95.07%

16. Publication of Statement of Ownership
☐ Publication required. Will be printed in the NOVEMBER 2003 issue of this publication. ☐ Publication not required.

17. Signature and Title of Editor, Publisher, Business Manager, or Owner: James M. DeSimone, EDITOR — Date: 20 OCT 2003

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6. In item 16, indicate the date of the issue in which this Statement of Ownership will be published.
7. Item 17 must be signed.

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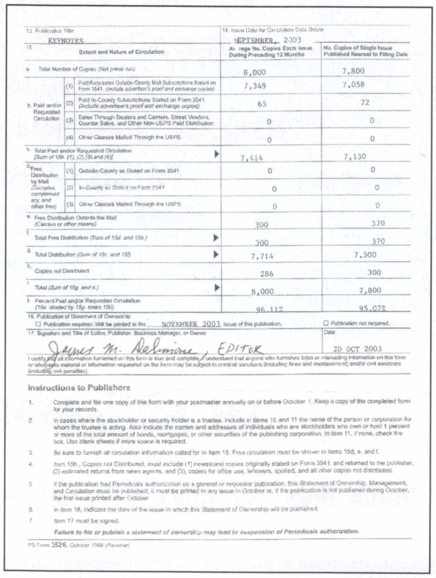
PS Form 3526, October 1999 (Reverse)



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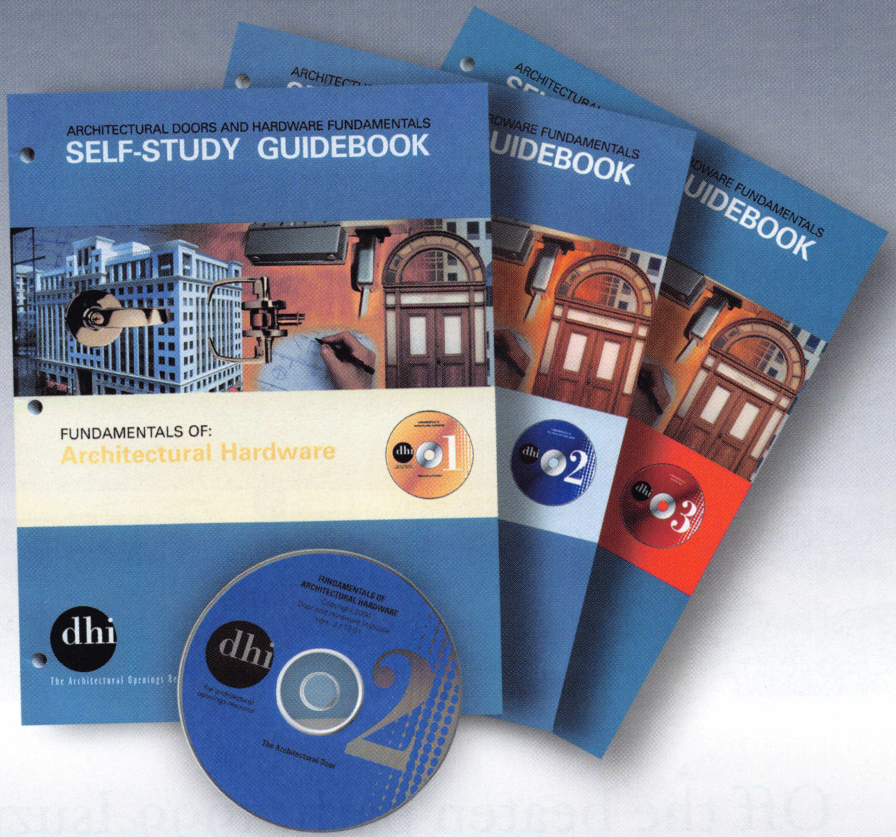

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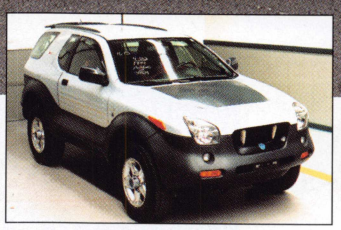
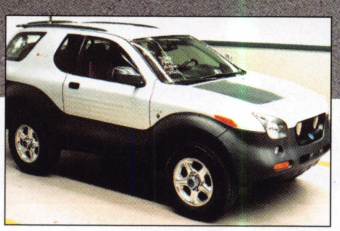


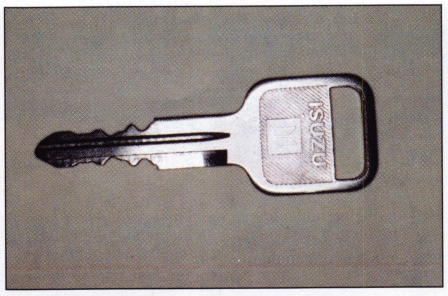


Off the beaten path: 1999 Isuzu Vehi-Cross

(Code Series N5001-N7000)

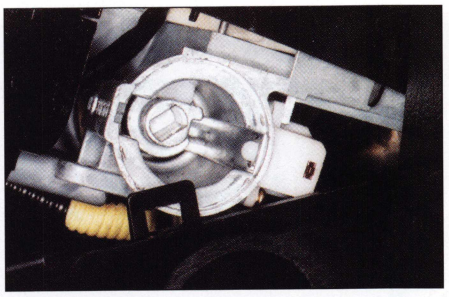
by Jeff Trepanier, RL

The VehiCROSS was first shown as a concept Vehicle in 1993 at the Tokyo Motor Show where it garnered quite a reaction. It has been available in its home market for a few years and won Japan's "Car of the Year" award in 1997. Advanced features include a spare tire that resides inside the rear tailgate and a roof-end spoiler that works as an air-deflector to keep the rear window free of water and dirt. Zinc-plated steel is used for the body with the lower section covered by a tough, recyclable polypropylene. Composite bumpers and under-body moldings complete the body design. It's an off-the-beaten-track sort of vehicle, any way you slice it. As long as you approach it the right way, it should make you some easy money should it ever cross your path.

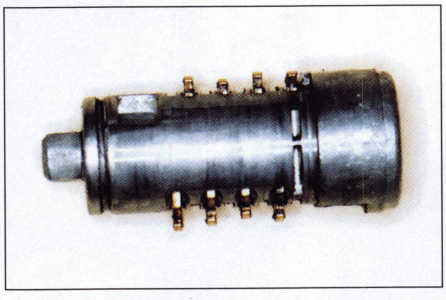


1. The non-transponder key.

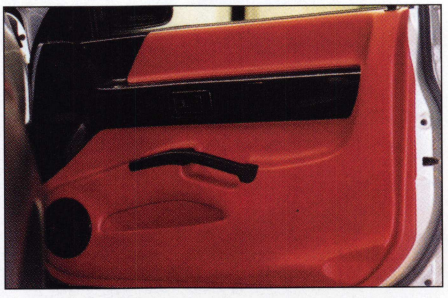
2. Right side view of the steering column with the ignition cylinder look, off, acc, on, start. To remove the ignition, turn the cylinder to the off position (using a key) and push in on the active retainer about 1 Ω inches from the edge of the face 180 degrees opposite the key buzzer switch.



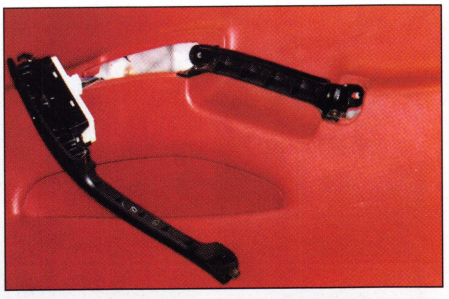
3. The ignition cylinder removed. To remove the lock plug, remove the retainer from the back and push the plug out toward the front.



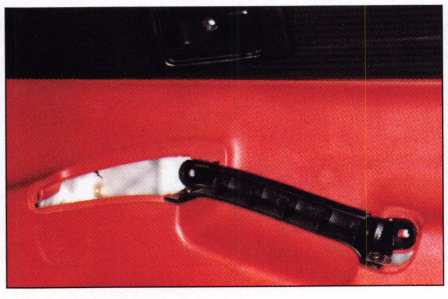
4. The lock plug with 8-wafers that are opposing.



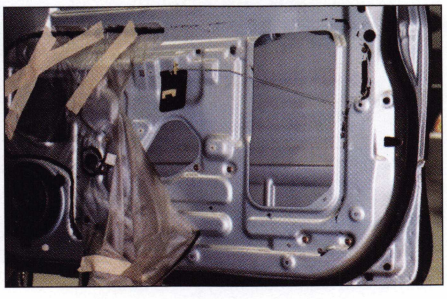
5. The passenger side door. To remove the panel, we will start by removing the door controls by gently pulling up at the front as it is hooked at the rear. Unplug the wires and then remove two Phillips screws from the left and right side of the door-pull cavity.



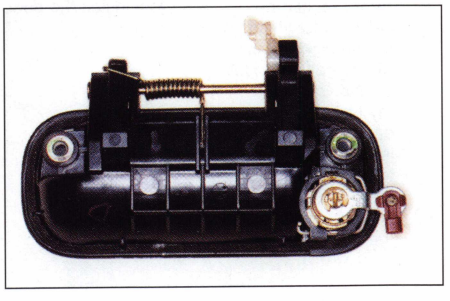
6. The controls and handle. You can see the clip at the front and how it would hook at the rear from the metal tab.



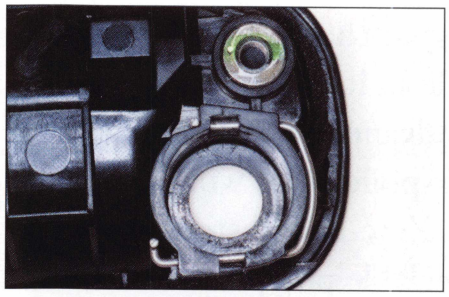
7. The door release handle. To remove the handle, just remove one Phillips screw. Now gently pull away the panel from the door. The door trim in the upper left corner may or may not be needed to be removed for door panel removal. I did not need to remove the trim.



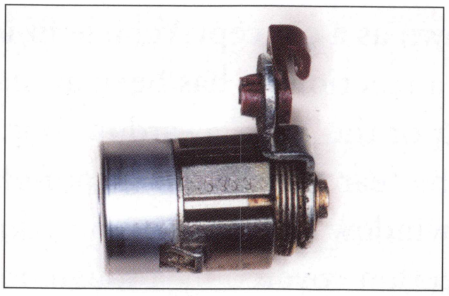
8. The door after the panel is removed.



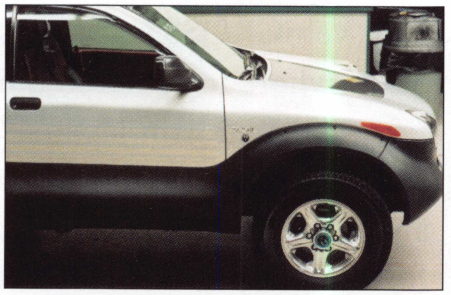
9. The back side of the door handle and the lock cylinder. It is not necessary to remove the handle to remove the lock. The handle was removed for photo purposes. To remove the lock, separate the spring retainer and pull the lock cylinder out. It is not necessary to completely remove the spring. When installing the lock, just push it back in, and it will snap back into place.



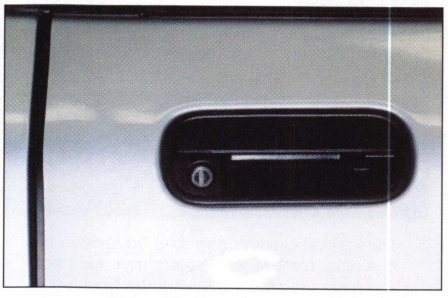
10. Close-up of the lock cylinder removed from the handle. Also seen here is a close-up of the lock retainer spring.



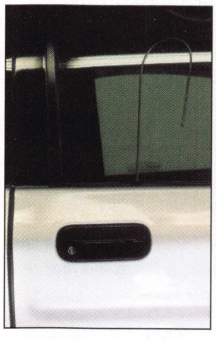
11. The door lock cylinder with the key stamped on it. Read the code carefully due to uneven stamping, etc. Know your code series when searching for the proper code so you don't read the code upside down, etc. The letter in front of the code is not completely stamped. The code is N6969.



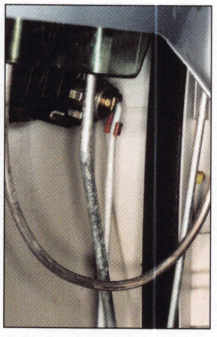
12. The passenger door and the front end of the vehicle.



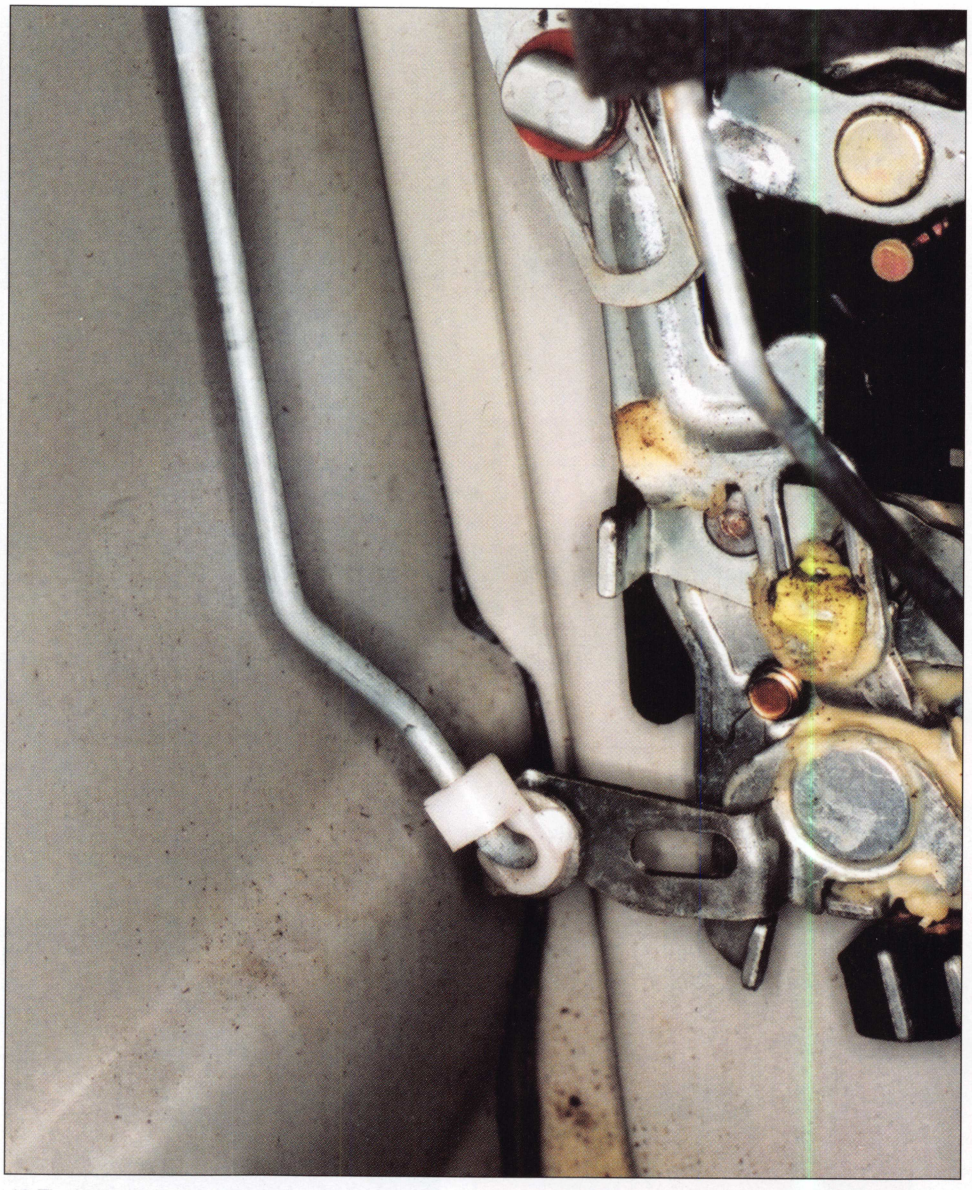
13. Close-up of the door handle. The opening tool is in position to open.



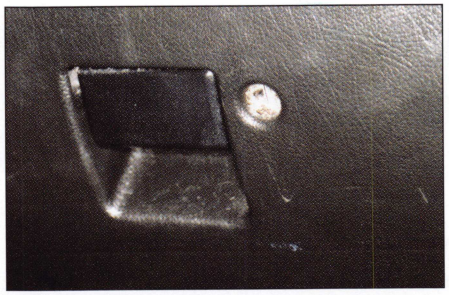
14. There are several types of opening tools that can be selected for lifting up the locking button by getting under it. This vehicle, in my opinion, is very easy to open. This is not the only way to unlock the door; there are other contact points in the door.



15. Close-up of the bottom of the opening tool inside the door.



16. The bell crank assembly in the door.

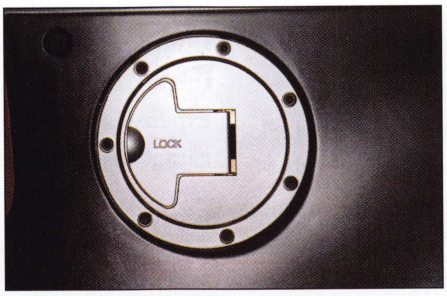


17. The glove box with a lock.

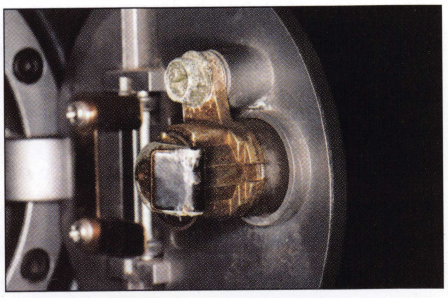
18. The rear of the vehicle and lock.

19. The rear lock.

20. A side view of the right side of the vehicle, and the aircraft-style gas flap.



21. Close-up of the locking gas flap.



22. To save time and guesswork, I recommend that when fitting a key to this model vehicle that you go straight for the passenger's door look and cut a key by the code number. This style lock system and code series are used on other models.

RATTail Personal Fault Code Reader

New opportunities for today's electronic automotive locksmith!

By Tom Seroogy

The advent of transponder technology and the proliferation of automotive electronics has brought with it a tidal wave of tools, technology and niche services. From transponder keys to remotes, the changes often leave the automotive locksmith drowning in a pool of possibilities with, sometimes, too few means for keeping afloat.

Among the newer and quickly growing niche services is vehicle diagnostics. While this service is not for every locksmith, those that do their fair share of transponder and remote programming may find this service not only simple, but one that can be added to the routine of their automotive services without much, if any, added expense.

What's vehicle diagnostics?

In short, from 1995 forward all vehicles sold and driven in the United States must meet OBDII standards. This EPA induced standard includes several requirements that allow a technician to scan a vehicle for reporting various problems in the car. Each problem is reported on the scan tool as a DTC, or Diagnostic Trouble Code.

For example, if a vehicle's EGR valve or injection system is suffering from problems or failures, one or more DTCs may be recorded to indicate the problem(s). A technician retrieving the codes, is able to quickly diagnosed and correct these problems.

Although the development and application of trouble codes is beyond the scope of this article; the fact that any technician with a diagnostic tool can retrieve these codes makes it possible for a locksmith with a scan tool to earn a few extra dollars in doing so. Thus, if you're using a scan tool to program transponder keys or remotes into vehicles, you already own all that is needed to retrieve a list of DTCs from the vehicles for which the tool is designed.

What markets are available?

Although any locksmith can benefit from offering diagnostic services, those doing work for the following markets stand to make the most from offering such a service:

- New and used car dealers
- Auctions
- Rental companies
- Tow and repo work
- States that require emissions tests

The first four customer bases on the list offer the most potential for a locksmith. To make money, speed in getting a car from the lot to the front line is critical. By offering a quick check of all incoming vehicles, the locksmith can help isolate problem vehicles before they hit the customer's front line. By identifying problems while the car is still in the lot, there is a savings of the customer's time and expense in shuffling the car back and forth between the lot, garage and front line. Currently, locksmiths performing this service charge an average of $20 to $50 per car.

As states move to using diagnostic tools to perform emissions tests, the potential for offering a quick pre-test scan is good. This service can be offered to customers whenever keys are made or duplicated for their cars. The average price is $20 to $35 per car.

What do I need?

If you are already doing transponder work and own original equipment diagnostic tools – i.e. NGS, Consult II, MUTII, etc. - the chances are you're already capable of providing this service.

Still, even without these tools there are many inexpensive aftermarket tools that available for performing simple OBDII related system diagnostics.

It should be noted, however, that whereas OE tools offer the technician a full array of DTC's on all vehicle systems, aftermarket tools are limited to emission related, OBDII DTCs.

One new tool, the Personal Fault Code Reader, dubbed RATTail, was recently tested by Lockmasters. (See photograph 1.)

Applications:

This tool is designed to interrogate, report and clear all OBDII diagnostic fault or trouble codes (DTC's) on all 1996+ North American vehicles falling under OBDII standards and using the following protocols:

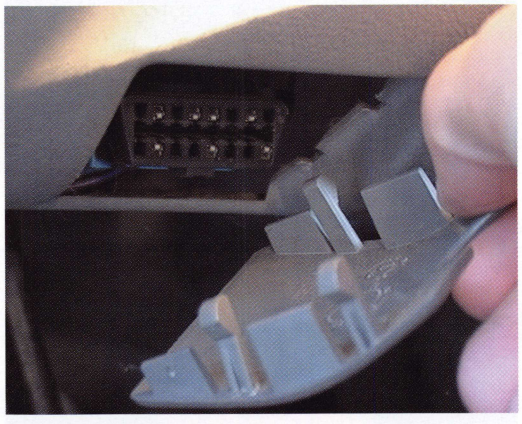
- ISO 9141
- J1850VPW
- J1850PWM
- KWP2000

Operation

2

For our trial, we worked on a 1996 Ford Explorer. This particular vehicle had been running for some time with the "CHECK ENGINE" light on. It was the perfect candidate for trying this new tool. (See photograph 2.)

3



4

1. Plug RATTail unit into vehicle's OBDII or Data Link Connector (DLC) port. (See photographs 3 and 4.)

1

NOTE: The RATTail does not work on North American vehicles using the newer CAN protocol.

Diagnostic Trouble Codes:

Anatomy

FIRST DIGIT
An alpha designation that indicates which control system triggered the code. Four letters are currently used:

- P – Powertrain
- B – Body
- C – Chassis
- U – Unidentified (for future applications)

SECOND DIGIT
a numeric value of 0 through 3.

- 0 – indicates a generic SAE defined code.
- 1 – an enhanced SAE code, or code that is defined by the Original Equipment Manufacturer.
- 2 or 3 – reserved for future use by SAE or Original Equipment Manufacturer.

THIRD DIGIT
Indicates the subsystem where the trouble or fault occurred. The definition of the digit is dependant on under which system, indicated by the first digit, the subsystem lies. For example, if the first digit is "P" – Powertrain, the available third digits may be:

- 1 - Fuel or Air Metering
- 2 - Fuel or Air Metering
- 3 - Ignition or Engine Misfire
- 4 - Auxiliary Emission Controls
- 5 - Vehicle or Idle Speed Controls
- 6 - Computer or Output Circuit
- 7 - Transmission Controls
- 8 - Transmission Controls
- 9 - SAE Reserved for future use
- 0 - SAE Reserved for future use

Fourth & Fifth Digits – Indicate specific conditions that caused the trouble code. "00" is non-specific and indicates a generic or general malfunction. Other numbers can indicate low or high voltage signal, slow response, or out-of-range signal.

5

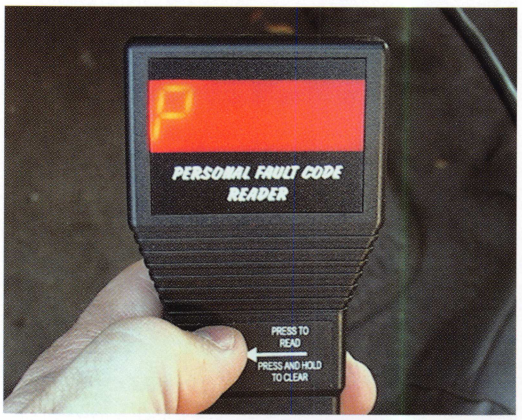
The RATTails or PCRs LED displays "PCR."(See photograph 5.)

2. Turn ignition lock to ON position. Make sure that all indicator lights in the dash area light. If errors occur in reading, make sure that the ignition is in the ON position and not the ACC or LOCK/OFF position.

6

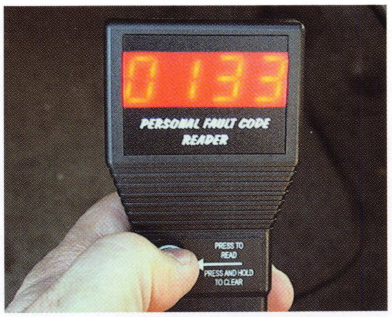
3. Begin by depressing the highlighted button on the PCR unit. If problems have been detected, the LED displays "CODE" to indicate that DTC's are present. (See photograph 6.)

7

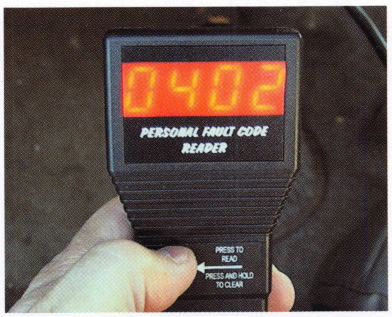


This is followed by a letter prefix – P, C, B, or U (see explanation below) – indicating the system with the reported problem(s). In the case of this vehicle a "P" is displayed, indicating that the trouble is originating in the Powertrain. (See photograph 7.)

8



9



10

4. Depress the check button on the PCR to see if any other DTC's are present. (See photograph 8.) Depress the check button until all DTCs have been read and recorded. (See photograph 9.) When the last DTC has been shown, the PCR displays "DONE." (See photograph 10.)

Write down all DTCs and report them to your customer.

11

5. The RATTail is also capable of clearing all visible DTCs as well. After making all repairs, simply press and hold the check button to clear DTCs and reset the vehicleís computer(s). "CLR" indicates that all codes have been cleared. (See photograph 11.)

Make all necessary repairs to vehicle and recheck vehicle for DTCs.

NOTE: In most instances, the vehicle must be operated and complete one or more "OBDII Cycles" before reporting a DTC. These cycles vary by year, manufacturer and model of the vehicle.

No Fault Codes Present

SEQUENCE	LED DISPLAY	STATUS/IDENTICATION
1	PCR	Introduction/Title message. Press button to proceed.
2	- - -	Logging onto vehicle system
3	CODE	Checking for fault codes
4	DONE	Operation complete/no codes found. Press button to re-test.

Fault Codes Present

SEQUENCE	LED DISPLAY	STATUS/IDENTICATION
1	PCR	Introduction/Title message. Press button to proceed.
2	- - -	Logging onto vehicle system
3	CODE	Checking for fault codes
4	P C B U	Display a single letter indicating trouble code type: **P**–Powertrain **B**–Body **C**–Chassis **U**–Unidentified (for future applications) This letter is followed by a four-digit trouble code.
5	NNNN	Four-digit fault number or trouble code. Press button to proceed to step through all present codes. *See sample list of trouble codes*
6	DONE	Operation complete. Press and hold button to clear codes
7	CLR	Clearing fault codes.
8	DONE	Operation complete. Press button to re-test.

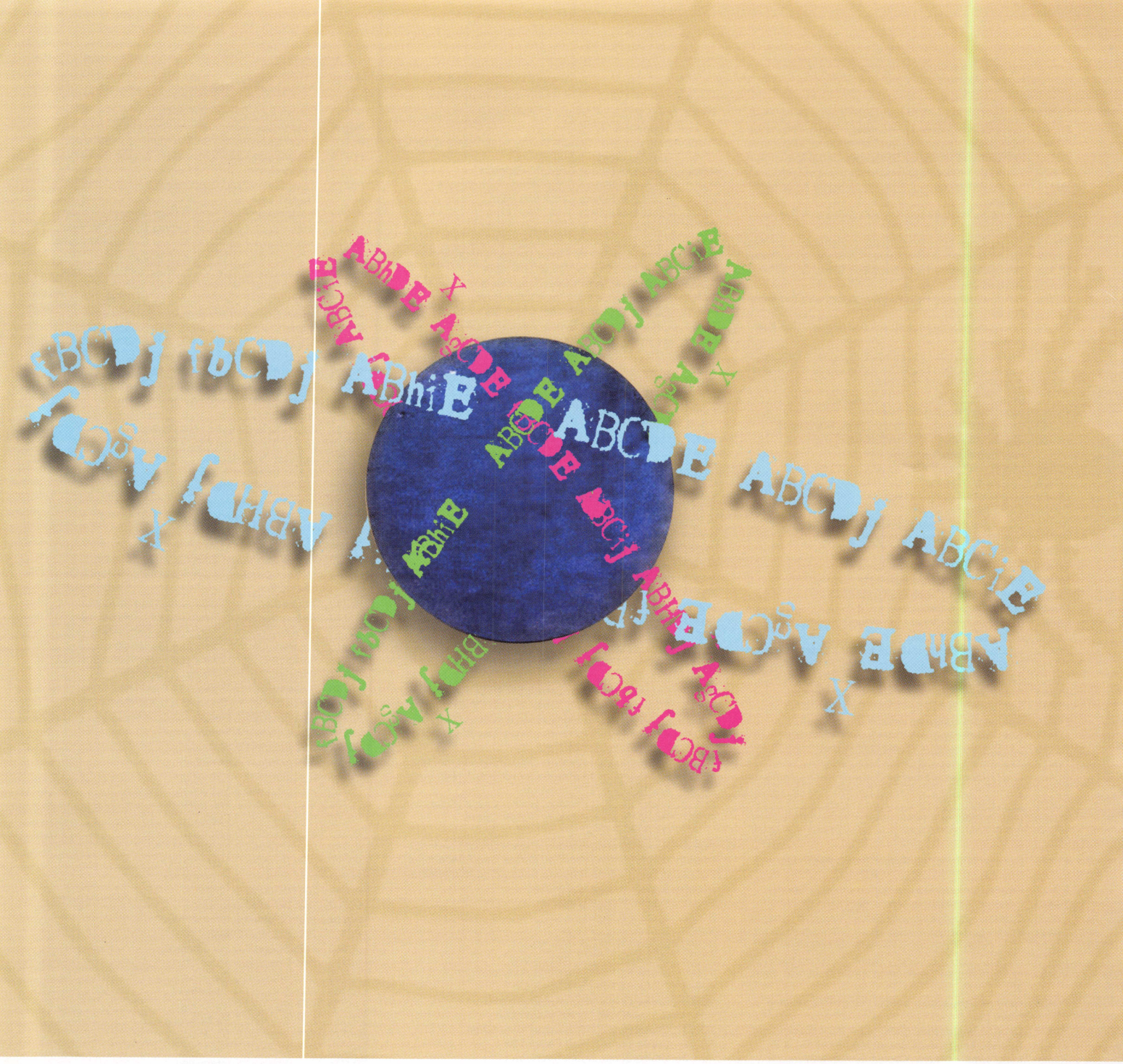
Error Troubleshooting Guide (use with code ERR)

No LED Displayed after plugging into vehicle's OBDII or Data Link Connector (DLC) port.	1. Make sure vehicle's battery is fully charged. 2. Make sure RATTail connector is firmly seated on vehicle's OBDII or DLC connector. 3. Make sure ignition lock is in ON position. ACC, LOCK or OFF position will not work. 4. Check fuses. In some instances, power to OBDII port is supplied through auxiliary fuses – i.e. cigarette lighter, etc. 5. If after performing steps 1 thru 3 the LED still does not display the DLC terminals that supply power may be damaged. Refer vehicle to dealer for service.
Receive constant "Err" message.	1. Make sure vehicle's battery is fully charged. 2. Make sure RATTail connector is firmly seated on vehicle's OBDII or DLC connector. 3. Make sure vehicle is OBDII compliant – required for 1996+ vehicles. 4. Make sure that the vehicle does not employ CAN technology (starting in some 2004+ vehicles). 5. Newly installed or introduced modules may require an initialization process before they are operational. Module initialization is required before the RATTail is able to communicate with the module. If a new or used module was installed, or if modifications were made to existing modules, see authorized dealer for proper initialization procedure.

Generic OBDII Diagnostic Codes

P0100 Mass Air Flow Circuit Malfunction
P0101 Mass Air Flow Circuit Range/Performance Problem
P0102 MAF Circuit Low Input
P0103 MAF Circuit High Input
P0104 MAF Circuit Intermittent
P0105 MAP/BP Circuit Malfunction
P0106 MAP/BP Sensor Range/Performance Problem
P0107 MAP/BP Sensor Low Input
P0108 MAP/BP Sensor High Input
P0109 MAP/BP Circuit Intermittent
P0110 IAT Circuit Malfunction
P0111 IAT Circuit Range/Performance Problem
P0112 IAT Circuit Low Input
P0113 IAT Circuit High Input
P0114 IAT Circuit Intermittent
P0115 ECT Circuit Malfunction
P0116 ECT Circuit Range/Performance Problem
P0117 ECT Circuit Low Input
P0118 ECT Circuit High Input
P0119 ECT Intermittent
P0120 TP Sensor A Circuit Malfunction
P0121 TP Sensor A Circuit Range/Performance Problem
P0122 TP Sensor A Circuit Low Input
P0123 TP Sensor A Circuit High Input
P0124 TP Sensor A Circuit Intermittent
P0125 Insufficient Coolant Temp For Closed Loop Fuel Control
P0126 Insufficient Coolant Temp For Stable Operation
P0128 Coolant Thermostat Malfunction
P0130 Heated O2 Sensor Circuit Malfunction (Bank 1, Sensor 1)
P0131 Heated O2 Circuit Low Voltage (Bank 1, Sensor 1)
P0132 Heated O2 Sensor Circuit High Voltage (Bank 1, Sensor 1)
P0133 Heated O2 Sensor Circuit Slow Response (Bank 1, Sensor 1)
P0134 Heated O2 Sensor Circuit No Activity Detected (Bank 1, Sensor 1)
P0135 Heated O2 Sensor Heater Circuit Malfunction (Bank 1, Sensor 1)
P0136 Heated O2 Sensor Circuit Malfunction (Bank 1, Sensor 2)
P0137 Heated O2 Sensor Circuit Low Voltage (Bank 1, Sensor 2)
P0138 Heated O2 Sensor Circuit High Voltage (Bank 1, Sensor 2)
P0139 Heated O2 Sensor Circuit Slow Response (Bank 1, Sensor 2)
P0140 Heated O2 Sensor Circuit No Activity Detected (Bank 1, Sensor 2)
P0141 Heated O2 Sensor Heater Circuit Malfunction (Bank 1, Sensor 2)
P0142 Heated O2 Sensor Circuit Malfunction (Bank 1, Sensor 3)
P0143 Heated O2 Sensor Circuit Low Voltage (Bank 1, Sensor 3)
P0144 Heated O2 Sensor Circuit High Voltage (Bank 1, Sensor 3)
P0145 Heated O2 Sensor Circuit Slow Response (Bank 1, Sensor 3)
P0146 Heated O2 Sensor Circuit No Activity Detected (Bank 1, Sensor 3)
P0147 Heated O2 Sensor Heater Circuit Malfunction (Bank 1, Sensor 3)
P0150 Heated O2 Sensor Circuit Malfunction (Bank 2, Sensor 1)
P0151 Heated O2 Sensor Circuit Low Voltage (Bank 2, Sensor 1)
P0152 Heated O2 Sensor Circuit High Voltage (Bank 2, Sensor 1)
P0153 Heated O2 Sensor Circuit Slow Response (Bank 2, Sensor 1)
P0154 Heated O2 Sensor Circuit No Activity Detected (Bank 2, Sensor 1)
P0155 Heated O2 Sensor Heater Circuit Malfunction (Bank 2, Sensor 1)
P0156 Heated O2 Sensor Circuit Malfunction (Bank 2, Sensor 1)
P0157 Heated O2 Sensor Circuit Low Voltage (Bank 2, Sensor 2)
P0158 Heated O2 Sensor Circuit High Voltage (Bank 2, Sensor 2)
P0159 Heated O2 Sensor Circuit Slow Response (Bank 2, Sensor 2)
P0160 Heated O2 Sensor Circuit No Activity Detected (Bank 2, Sensor 2)
P0161 Heated O2 Sensor Heater Circuit Malfunction (Bank 2, Sensor 2)
P0170 Fuel Trim Malfunction (Bank 1)
P0171 System Too Lean (Bank 1)
P0172 System Too Rich (Bank 1)
P0173 Fuel Trim Malfunction (Bank 2)
P0174 System Too Lean (Bank 2)
P0175 System Too Rich (Bank 2)
P0176 Fuel Composition Sensor Circuit Fault
P0177 Fuel Composition Sensor Circuit Range/Performance
P0178 Fuel Composition Sensor Circuit Low Input
P0179 Fuel Composition Sensor Circuit High Input
P0180 Fuel Temperature Sensor A Circuit Malfunction
P0181 Fuel Temperature Sensor A Circuit Range/Performance
P0182 Fuel Temperature Sensor A Circuit Low Input
P0183 Fuel Temperature Sensor A Circuit High Input
P0184 Fuel Temperature Sensor A Circuit Intermittent
P0185 Fuel Temperature Sensor B Circuit Malfunction
P0186 Fuel Temperature Sensor B Circuit Range/ Performance
P0187 Fuel Temperature Sensor B Circuit Low Input
P0188 Fuel Temperature Sensor B Circuit High Input
P0189 Fuel Temperature Sensor B Circuit Intermittent
P0190 Fuel Rail Pressure Sensor Circuit Malfunction
P0191 Fuel Rail Pressure Sensor Circuit Range/Performance
P0192 Fuel Rail Pressure Sensor Circuit Low Input
P0193 Fuel Rail Pressure Sensor Circuit High Input
P0195 Engine Oil Temperature Sensor Circuit Malfunction
P0196 Engine Oil Temperature Sensor Range/Performance
P0197 Engine Oil Temperature Sensor Low
P0198 Engine Oil Temperature Sensor High
P0199 Engine Oil Temperature Sensor Intermittent
P0200 Injector Circuit Malfunction
P0201 Injector Circuit Malfunction - Cylinder #1
P0202 Injector Circuit Malfunction - Cylinder #2
P0203 Injector Circuit Malfunction - Cylinder #3
P0204 Injector Circuit Malfunction - Cylinder #4
P0205 Injector Circuit Malfunction - Cylinder #5
P0206 Injector Circuit Malfunction - Cylinder #6
P0207 Injector Circuit Malfunction - Cylinder #7
P0208 Injector Circuit Malfunction - Cylinder #8
P0209 Injector Circuit Malfunction - Cylinder #9
P0210 Injector Circuit Malfunction - Cylinder #10
P0211 Injector Circuit Malfunction - Cylinder #11
P0212 Injector Circuit Malfunction - Cylinder #12
P0213 Cold Start Injector #1 Malfunction
P0214 Cold Start Injector #2 Malfunction
P0215 Engine Shutoff Solenoid Malfunction
P0216 Injection Timing Control Circuit Malfunction
P0217 Engine Overtemp Condition
P0218 Transmission Overtemp Condition
P0219 Engine Overspeed Condition
P0220 Throttle/Pedal Position Sensor/Switch B Circuit Malfunction
P0221 Throttle/Pedal Position Sensor/Switch B Performance Problem
P0222 Throttle Position Sensor B Circuit Low Input
P0223 Throttle Position Sensor B Circuit High Input
P0224 Throttle Position Sensor B Intermittent
P0225 Throttle Position Sensor C Circuit Malfunction
P0227 Throttle Position Sensor C Circuit Low Input
P0228 Throttle Position Sensor C Circuit High Input
P0229 Throttle Position Sensor C Intermittent
P0230 Fuel Pump Primary Circuit Malfunction
P0231 Fuel Pump Secondary Circuit Low
P0232 Fuel Pump Secondary Circuit High
P0233 Fuel Pump Secondary Circuit Intermittent
P0234 Engine Overboost Condition
P0235 Turbocharger Boost Sensor A Circuit Malfunction
P0236 Turbocharger Boost Sensor A Performance
P0237 Turbocharger Boost Sensor A Circuit Low
P0238 Turbocharger Boost Sensor A Circuit High
P0239 Turbocharger Boost Sensor B Circuit Malfunction
P0240 Turbocharger Boost Sensor B Circuit Range/Performance
P0241 Turbocharger Boost Sensor B Circuit Low
P0242 Turbocharger Boost Sensor B Circuit High
P0243 Wastegate Solenoid A Malfunction
P0244 Wastegate Solenoid A Range/Performance
P0245 Wastegate Solenoid A Low
P0246 Wastegate Solenoid A High
P0247 Wastegate Solenoid B Malfunction
P0248 Wastegate Solenoid B Range/Performance
P0249 Wastegate Solenoid B Low
P0250 Wastegate Solenoid B High
P0251 Injection Pump Fuel Metering Control A Malfunction
P0252 Injection Pump Fuel Metering Control A Range/Performance
P0253 Injection Pump Fuel Metering Control A Low
P0254 Injection Pump Fuel Metering Control A High
P0255 Injection Pump Fuel Metering Control A Intermittent
P0256 Injection Pump Fuel Metering Control B Malfunction
P0257 Injection Pump Fuel Metering Control B Range/Performance
P0258 Injection Pump Fuel Metering Control B Low
P0259 Injection Pump Fuel Metering Control B High
P0260 Injection Pump Fuel Metering Control B Intermittent
P0261 Injector Circuit Low - Cylinder #1
P0262 Injector Circuit High - Cylinder #1
P0263 Cylinder #1 Balance Fault
P0264 Injector Circuit Low - Cylinder #2
P0265 Injector Circuit High - Cylinder #2
P0266 Cylinder #2 Balance Fault
P0267 Injector Circuit Low - Cylinder #3
P0268 Injector Circuit High - Cylinder #3
P0269 Cylinder #3 Balance Fault
P0270 Injector Circuit Low - Cylinder #4
P0271 Injector Circuit High - Cylinder #4
P0272 Cylinder #4 Balance Fault
P0273 Injector Circuit Low - Cylinder #5
P0274 Injector Circuit High - Cylinder #5
P0275 Cylinder #5 Balance Fault
P0276 Injector Circuit Low - Cylinder #6
P0277 Injector Circuit High - Cylinder #6
P0278 Cylinder #6 Balance Fault
P0279 Injector Circuit Low - Cylinder #7
P0280 Injector Circuit High - Cylinder #7
P0281 Cylinder #7 Balance Fault
P0282 Injector Circuit Low - Cylinder #8
P0283 Injector Circuit High - Cylinder #8
P0284 Cylinder #8 Balance Fault
P0285 Injector Circuit Low - Cylinder #9
P0286 Injector Circuit High - Cylinder #9
P0287 Cylinder #9 Balance Fault
P0288 Injector Circuit Low - Cylinder #10
P0289 Injector Circuit High - Cylinder #10
P0290 Cylinder #10 Balance Fault
P0291 Injector Circuit Low - Cylinder #11
P0292 Injector Circuit High - Cylinder #11
P0293 Cylinder #11 Balance Fault
P0294 Injector Circuit Low - Cylinder #12
P0295 Injector Circuit High - Cylinder #12
P0296 Cylinder #12 Balance Fault
P0300 Random Misfire Detected
P0301 Cylinder #1 Misfire Detected
P0302 Cylinder #2 Misfire Detected
P0303 Cylinder #3 Misfire Detected
P0304 Cylinder #4 Misfire Detected
P0305 Cylinder #5 Misfire Detected
P0306 Cylinder #6 Misfire Detected
P0307 Cylinder #7 Misfire Detected
P0308 Cylinder #8 Misfire Detected
P0309 Cylinder #9 Misfire Detected
P0310 Cylinder #10 Misfire Detected
P0311 Cylinder #11 Misfire Detected
P0312 Cylinder #12 Misfire Detected
P0320 Ignition Engine Speed Input Circuit Malfunction
P0321 Ignition Engine Speed Input Circuit Range/Performance
P0322 Ignition Engine Speed Input Circuit No Signal
P0323 Ignition Engine Speed Input Circuit Intermittent
P0325 Knock Sensor 1 Circuit Malfunction
P0326 Knock Sensor 1 Circuit Range/Performance
P0327 Knock Sensor 1 Circuit Low Input
P0328 Knock Sensor 1 Circuit High Input
P0329 Knock Sensor 1 Circuit Intermittent
P0330 Knock Sensor 2 Circuit Malfunction
P0331 Knock Sensor 2 Circuit Range/Performance
P0332 Knock Sensor 2 Circuit Low Input
P0333 Knock Sensor 2 Circuit High Input
P0334 Knock Sensor 2 Circuit Intermittent
P0335 Crankshaft Position Sensor A Circuit Malfunction
P0336 Crankshaft Position Sensor A Circuit Range/Performance
P0337 Crankshaft Position Sensor A Circuit Low Input
P0338 Crankshaft Position Sensor A Circuit High Input
P0339 Crankshaft Position Sensor A Circuit Intermittent
P0340 Camshaft Position Sensor Circuit Malfunction
P0341 Camshaft Position Sensor Circuit Performance
P0342 Camshaft Position Sensor Circuit Low Input
P0343 Camshaft Position Sensor Circuit High Input
P0344 Camshaft Position Sensor Circuit Intermittent
P0350 Ignition Coil Primary / Secondary Circuit Malfunction
P0351 Ignition Coil Primary A / Secondary Circuit Malfunction
P0352 Ignition Coil Primary B / Secondary Circuit Malfunction
P0353 Ignition Coil Primary C / Secondary Circuit Malfunction
P0354 Ignition Coil Primary D / Secondary Circuit Malfunction
P0355 Ignition Coil Primary E / Secondary Circuit Malfunction
P0356 Ignition Coil Primary F / Secondary Circuit Malfunction
P0357 Ignition Coil Primary G / Secondary Circuit Malfunction
P0358 Ignition Coil Primary H / Secondary Circuit Malfunction

P0359 Ignition Coil Primary I / Secondary Circuit Malfunction
P0360 Ignition Coil Primary J / Secondary Circuit Malfunction
P0361 Ignition Coil Primary K / Secondary Circuit Malfunction
P0362 Ignition Coil Primary L / Secondary Circuit Malfunction
P0370 Timing Reference High Resolution Signal A Malfunction
P0371 Timing Reference High Resolution Signal A Too Many Pulses
P0372 Timing Reference High Resolution Signal A Too Few Pulses
P0373 Timing Reference High Resolution Signal A Intermittent
P0374 Timing Reference High Resolution Signal A No Pulses
P0375 Timing Reference High Resolution Signal B Malfunction
P0376 Timing Reference High Resolution Signal B Too Many Pulses
P0377 Timing Reference High Resolution Signal B Too Few Pulses
P0378 Timing Reference High Resolution Signal B Intermittent
P0379 Timing Reference High Resolution Signal B No Pulses
P0380 Glow Plug Circuit A Malfunction
P0381 Glow Plug Indicator Circuit Malfunction
P0382 Glow Plug Circuit B Malfunction
P0385 Crankshaft Position Sensor B Circuit Malfunction
P0386 Crankshaft Position Sensor B Circuit Range/Performance
P0387 Crankshaft Position Sensor B Circuit Low Input
P0388 Crankshaft Position Sensor B Circuit High Input
P0389 Crankshaft Position Sensor B Circuit Intermittent
P0400 EGR Flow Malfunction
P0401 EGR Flow Insufficient Detected
P0402 EGR Flow Excessive Detected
P0403 EGR Circuit Malfunction
P0404 EGR Circuit Range/Performance
P0405 EGR Sensor A Circuit Low Input
P0406 EGR Sensor A Circuit High Input
P0407 EGR Sensor B Circuit Low Input
P0408 EGR Sensor B Circuit High Input
P0410 SAI System Malfunction
P0411 SAI System Incorrect Upstream Flow Detected
P0412 SAI System Switching Valve A Circuit Malfunction
P0413 SAI System Switching Valve A Circuit Open
P0414 SAI System Switching Valve A Circuit Shorted
P0415 SAI System Switching Valve B Circuit Malfunction
P0416 SAI System Switching Valve B Circuit Open
P0417 SAI System Switching Valve B Circuit Shorted
P0418 SAI System Relay A Circuit Malfunction
P0419 SAI System Relay B Circuit Malfunction
P0420 Catalyst System Efficiency Below Threshold (Bank 1)
P0421 Warm Up Catalyst Efficiency Below Threshold (Bank 1)
P0422 Main Catalyst Efficiency Below Threshold (Bank 1)
P0423 Heated Catalyst Efficiency Below Threshold (Bank 1)
P0424 Heated Catalyst Temperature Below Threshold (Bank 1)
P0426 Catalyst Temperature Sensor Range/Performance (Bank 1)
P0427 Catalyst Temperature Sensor Low Input (Bank 1)
P0428 Catalyst Temperature Sensor High Input (Bank 1)
P0430 Catalyst System Efficiency Below Threshold (Bank 2)
P0431 Warm Up Catalyst Efficiency Below Threshold (Bank 2)
P0432 Main Catalyst Efficiency Below Threshold (Bank 2)
P0433 Heated Catalyst Efficiency Below Threshold (Bank 2)
P0434 Heated Catalyst Temperature Below Threshold (Bank 2)
P0436 Catalyst Temperature Sensor Range/Performance (Bank 2)
P0437 Catalyst Temperature Sensor Low Input (Bank 2)
P0438 Catalyst Temperature Sensor High Input (Bank 2)
P0440 Evaporative Emission Control System Malfunction
P0441 Evaporative Emission Control System Incorrect Purge Flow
P0442 Evaporative Emission Control System Leak Detected
P0443 Evap Emission Control System Purge Control Circuit Malf.
P0444 Evap Emission Control Sys Purge Control Valve Circuit Open
P0445 Evap Emission Control Sys Purge Control Valve Circuit Short
P0446 Evap Emission Control System Vent Malfunction
P0447 Evap Emission Control System Vent Circuit Open
P0448 Evap Emission Control System Vent Circuit Shorted
P0449 Evap Emission Control System Vent Circuit Intermittent
P0450 Evap Emission Control System Pressure Sensor Malfunction
P0451 Evap Emission Control System Pressure Sensor Performance
P0452 Evap Emission Control System Pressure Sensor Low Input
P0453 Evap Emission Control System Pressure Sensor High Input
P0454 Evap Emission Control System Pressure Sensor Intermittent
P0455 Evap Emission Control System Leak Detected (Gross Leak/No Flow)
P0460 Fuel Level Sensor Circuit Malfunction
P0461 Fuel Level Sensor Circuit Range/Performance
P0462 Fuel Level Sensor Circuit Low Input
P0463 Fuel Level Sensor Circuit High Input
P0464 Fuel Level Sensor Circuit Intermittent
P0465 Purge Flow Sensor Circuit Malfunction
P0466 Purge Flow Sensor Circuit Range/Performance
P0467 Purge Flow Sensor Circuit Low Input
P0468 Purge Flow Sensor Circuit High Input
P0469 Purge Flow Sensor Circuit Intermittent
P0470 Exhaust Pressure Sensor Circuit Malfunction
P0471 Exhaust Pressure Sensor Circuit Range/Performance
P0472 Exhaust Pressure Sensor Low
P0473 Exhaust Pressure Sensor High
P0474 Exhaust Pressure Sensor Intermittent
P0475 Exhaust Pressure Control Valve Malfunction
P0476 Exhaust Pressure Control Valve Performance
P0477 Exhaust Pressure Control Valve Low
P0478 Exhaust Pressure Control Valve High
P0479 Exhaust Pressure Control Valve Intermittent
P0480 Cooling Fan 1 Control Circuit Malfunction
P0481 Cooling Fan 2 Control Circuit Malfunction
P0482 Cooling Fan 3 Control Circuit Malfunction
P0483 Cooling Fan Rationality Check Malfunction
P0484 Cooling Fan Circuit Over Current
P0485 Cooling Fan Power/Ground Circuit Malfunction
P0500 Vehicle Speed Sensor Malfunction
P0501 Vehicle Speed Sensor Range/Performance
P0502 Vehicle Speed Sensor Low Input
P0503 Vehicle Speed Sensor Intermittent
P0505 Idle Air Control System Malfunction
P0506 Idle Air Control System RPM Lower Than Expected
P0507 Idle Air Control System RPM Higher Than Expected
P0510 Closed Throttle Position Switch Malfunction
P0520 Engine Oil Pressure Sensor/Switch Circuit Malfunction
P0521 Engine Oil Pressure Sensor/Switch Circuit Range/Performance
P0522 Engine Oil Pressure Sensor/Switch Circuit Low Input
P0523 Engine Oil Pressure Sensor/Switch Circuit High Input
P0530 A/C Refrigerant Pressure Sensor Circuit Malfunction
P0531 A/C Refrigerant Pressure Sensor Circuit Range/Performance
P0532 A/C Refrigerant Pressure Sensor Circuit Low Input
P0533 A/C Refrigerant Pressure Sensor Circuit High Input
P0534 A/C Refrigerant Charge Loss
P0550 Power Steering Pressure Sensor Circuit Malfunction
P0551 Power Steering Pressure Sensor Circuit Range/Performance
P0552 Power Steering Pressure Sensor Circuit Low Input
P0553 Power Steering Pressure Sensor Circuit High Input
P0554 Power Steering Pressure Sensor Circuit Intermittent
P0560 System Voltage Malfunction
P0561 System Voltage Unstable
P0562 System Voltage Low
P0563 System Voltage High
P0565 Cruise ON Signal Malfunction
P0566 Cruise OFF Signal Malfunction
P0567 Cruise RESUME Signal Malfunction
P0568 Cruise SET Signal Malfunction
P0569 Cruise COAST Signal Malfunction
P0570 Cruise ACCEL Signal Malfunction
P0571 Cruise Brake Switch Circuit Malfunction
P0572 Cruise Brake Switch Circuit Low
P0573 Cruise Brake Switch Circuit High
P0600 Serial Communications Link Malfunction
P0601 Internal Control Module Memory Check Sum Error
P0602 Control Module Programming Error
P0603 Powertrain Control Module KAM Test Error
P0604 Powertrain Control Module RAM Test Error
P0605 Powertrain Control Module ROM Test Error
P0606 PCM Processor Fault
P0608 PCM VSS Output A Malfunction
P0609 PCM VSS Output B Malfunction
P0620 Generator Control Circuit Malfunction
P0621 Generator Lamp "L" Control Circuit Malfunction
P0622 Generator Field "F" Control Circuit Malfunction
P0650 MIL Control Circuit Malfunction
P0700 Transmission Control System Malfunction
P0701 Transmission Control System Range/Performance
P0702 Transmission Control System Electrical
P0703 Brake Switch Input Malfunction
P0704 Clutch Switch Input Circuit Malfunction
P0705 Transmission Range Sensor Circuit Malfunction
P0706 Transmission Range Sensor Circuit Range/Performance
P0707 Transmission Range Sensor Circuit Low Input
P0708 Transmission Range Sensor Circuit High Input
P0709 Transmission Range Sensor Circuit Intermittent
P0710 Transmission Fluid Temperature Sensor Circuit Malfunction
P0711 Transmission Fluid Temperature Sensor Circuit Range/Perf
P0712 Transmission Fluid Temp Sensor Circuit Low Input
P0713 Transmission Fluid Temp Sensor Circuit High Input
P0714 Transmission Fluid Temp Sensor Circuit Intermittent
P0715 Turbine Speed Sensor Circuit Malfunction
P0716 Turbine Speed Sensor Circuit Range/Performance
P0717 Turbine Speed Sensor Circuit No Signal
P0718 Turbine Speed Sensor Circuit Intermittent
P0719 Torque Converter/Brake Switch B Circuit Low
P0720 Output Shaft Speed Sensor Circuit Malfunction
P0721 Output Shaft Speed Sensor No Performance
P0722 Output Shaft Speed Sensor No Signal
P0723 Output Shaft Speed Sensor Intermittent
P0724 Torque Converter/Brake Switch B Circuit High
P0725 Engine Speed Input Circuit Malfunction
P0726 Engine Speed Input Circuit Range/Performance
P0727 Engine Speed Input Circuit No Signal
P0728 Engine Speed Input Circuit Intermittent
P0730 Incorrect Gear Ratio
P0731 Gear 1 Incorrect Ratio
P0732 Gear 2 Incorrect Ratio
P0733 Gear 3 Incorrect Ratio
P0734 Gear 4 Incorrect Ratio
P0735 Gear 5 Incorrect Ratio
P0736 Reverse Incorrect Ratio
P0740 Torque Converter Clutch Circuit Malfunction
P0741 Torque Converter Clutch System Performance Or Stuck Off
P0742 Torque Converter Clutch Circuit Stuck On
P0743 Torque Converter Clutch System Electrical
P0744 Torque Converter Clutch Circuit Intermittent
P0745 Pressure Control Solenoid A Malfunction
P0746 Pressure Control Solenoid A Performance or Stuck Off
P0747 Pressure Control Solenoid A Stuck On
P0748 Pressure Control Solenoid A Electrical
P0749 Pressure Control Solenoid A Intermittent
P0750 Shift Solenoid A Malfunction
P0751 Shift Solenoid A Performance
P0752 Shift Solenoid A Stuck On
P0753 Shift Solenoid A Electrical
P0754 Shift Solenoid A Intermittent
P0755 Shift Solenoid B Malfunction
P0756 Shift Solenoid B Performance
P0757 Shift Solenoid B Stuck On
P0758 Shift Solenoid B Electrical
P0759 Shift Solenoid B Intermittent
P0760 Shift Solenoid C Malfunction
P0761 Shift Solenoid C Performance
P0762 Shift Solenoid C Stuck On
P0763 Shift Solenoid C Electrical
P0764 Shift Solenoid C Intermittent
P0765 Shift Solenoid D Malfunction
P0766 Shift Solenoid D Performance
P0767 Shift Solenoid D Stuck On
P0768 Shift Solenoid D Electrical
P0769 Shift Solenoid D Intermittent
P0770 Shift Solenoid E Malfunction
P0771 Shift Solenoid E Performance
P0772 Shift Solenoid E Stuck On
P0773 Shift Solenoid E Electrical
P0774 Shift Solenoid E Intermittent
P0775 Pressure Control Solenoid B Malfunction
P0776 Pressure Control Solenoid B Performance
P0777 Pressure Control Solenoid B Stuck On
P0778 Pressure Control Solenoid B Electrical
P0779 Pressure Control Solenoid B Intermittent
P0780 Shift Malfunction
P0781 1 - 2 Shift Error
P0782 2 - 3 Shift Error
P0783 3 - 4 Shift Error
P0784 4 - 5 Shift Error
P0785 Shift/Timing Solenoid Malfunction
P0786 Shift/Timing Solenoid Range/Performance
P0787 Shift/Timing Solenoid Low
P0788 Shift/Timing Solenoid High
P0789 Shift/Timing Solenoid Intermittent
P0790 Mode Switch Circuit Malfunction
P0801 Reverse Inhibit Control Circuit Malfunction
P0803 1 - 4 Upshift (Skip Shift) Solenoid Circuit Malfunction
P0804 1 - 4 Upshift (Skip Shift) Lamp Control Circuit Malfunction



The Magic of Spherical Master Keying

By Eric Costley, CRL

There are a few things about master keying that regularly tend to make me cringe. Customers often want certain areas cross keyed, which immediately puts a glitch in your mathematical progression. Cross keying normally requires you to either stack master pins in a chamber or leave certain pin chambers totally empty, and both of these methods wreak havoc on my gastrointestinal system. I despise either, and generally spend a great deal of time trying to explain to the end user that cross keying is, at best, not only difficult, but inadvisable. Even so, I occasionally find myself eventually succumbing to a customer's very specific desires.

The most common of these requests is that each key within the system work the exterior doors. I always advise against this, since any key in the system that might be lost or stolen becomes a compromise — not only to the exterior doors, but interior areas as well — and the entire system should be rekeyed in such an instance. A separate key, requiring most end users to carry two keys, is far more secure. Also, since most exterior doors open outward, end users have a tendency to use the key to pull the door open, causing undue stress on the cylinders and keys.

Were it not for the required master key, cross keying an exterior door is a simple maison problem. For instance, a five-pin cylinder with one master pin in each chamber yields 32 possible keys that operate the cylinder. The following chart illustrates this, and by using letters instead of numbers, allows you to plug in your own information. This will also help later on, as we begin to delve into master keying, and examine the "sphere" effect.

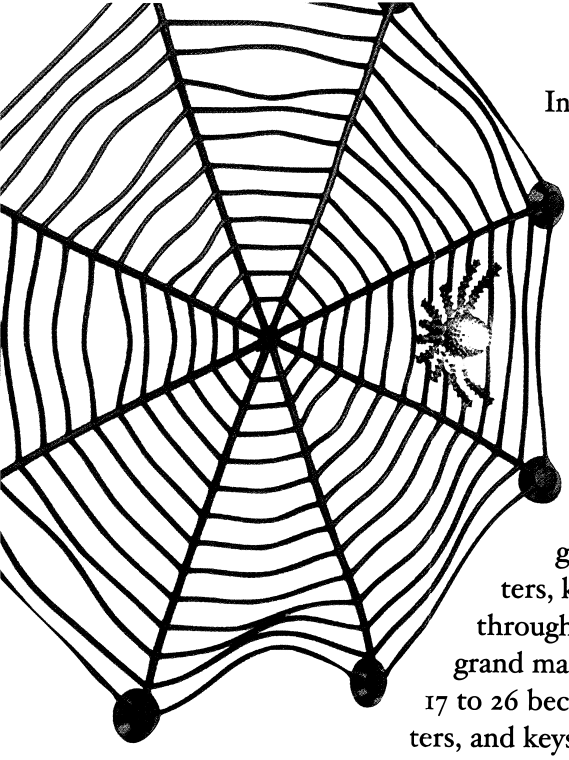
Our exterior cylinder is pinned to two distinct keys: ABCDE, and fghij. The resulting bottom pins are ABCDE, and the master pins fghij. The use of upper and lowercase letters will help illustrate a pattern that becomes immediately obvious. The 32 keys that operate this cylinder are listed in Chart A.

As you examine the 32 keys that we have generated, you'll notice the divided groupings represent the degree of variation from our original key, ABCDE. If we pin any given cylinder only to its individual bitting, no other key will operate it, yet all 32 keys will work in our exterior door cylinder, which only has one master pin in each chamber.

Now, let's add some spice to the recipe! I'm going to make ABCDE the master key in this system. If we pin all these locks so that ABCDE will fit, plus each individual key, we get 32 cylinders that fall into an interesting hierarchy. For instance, a cylinder pinned to key 32 and the master is our original cylinder, fit by all keys in the system. A cylinder pinned to key 11 and the master is now fit by keys 1, 3, 4, and 11. Extrapolating this further, we find that key 11 will now also fit cylinders pinned to keys 17, 20, 21, 27, 28, 31 and 32. Basically, with only two variables in any given pin chamber, we have created a maze of masters and cross keys. What we have here is a simple type of rotating constant master key system, limited in size, but incredibly flexible! For example, a cylinder pinned to key 30 can be operated by keys 22 and 24. But cylinders pinned to key 22 and 24 remain autonomous, so we have a built-in cross key! (Of course, the 30 cylinder could also be operated by keys 1,2,4,5,6,8,9,10, 14,15,16,25 and 26 — if you choose to use them.)

A

1. ABCDE
2. ABCDj
3. ABCiE
4. ABhDE
5. AgCDE
6. fBCDE
7. ABCij
8. ABhDj
9. AgCDj
10. fBCDj
11. ABhiE
12. AgCiE
13. fBCiE
14. AghDE
15. fBhDE
16. fgCDE
17. ABhij
18. AgCij
19. fBCij
20. AghiE
21. fBhiE
22. fghDE
23. fgCiE
24. fgCDj
25. fBhDj
26. AghDj
27. Aghij
28. fBhij
29. fgCij
30. fghDj
31. fghiE
32. fghij



In our theoretical system, key one becomes the great great grand master. Keys 2 through 6 become great grand masters, keys 7 through 16 become grand masters, keys 17 to 26 become masters, and keys 27 to 31 become the lowest level of change keys, which only operate their specific area and our number 32 cylinder, which is operated by all keys in the system. The fun in this system arises because cross keys, as well as master keys, arise simultaneously and sporadically in the hierarchy. Consequently, key 32 would operate only the exterior door.

A diagram of the interrelationships between the keys in this system yields a spherical hierarchy, with our master, ABCDE, at the north pole and our exterior door key, fghij, at the south pole.

Now, for the sake of complicating things further, let's look at the wildest extreme. With our existing master key, number 1, let's turn the whole thing upside down and create another master key from the other end of the system. Now key 32 is a second great great grand master. Under this system, keys 27 through 31 become great grand masters, keys 17 through 26 become grand masters, keys 7 through 16 become masters, and keys 2 through 6 become the pawns. What we have created here is a spherical system, with autonomous masterkeys at both poles and a veritable hornet's nest of submasters, interchanges, and still the option for any key in the system to operate our original exterior door cylinder.

By using both our original keys, (ABCDE and fghij,) as masterkeys we can create a system that has great grand masters at either end, and 2 groups of 10 keys whose variation from either pole of the sphere depends on how the cylinder is keyed. Herein is the beauty of the system: A cylinder keyed to ABhiE, (key 11,) can be set up in a variety of ways. We can key it to key 11 only, or master it to either key 1 or 32. If the cylinder is keyed only to key 11, it will still work our exterior door cylinder, yet it is no longer part of the master key system. Such a situation would be ideal for areas that require an outside agent, such as a delivery or utility service, to gain access to areas that no one else in the building is allowed. This process of turning off and on masterkeys is called "selective master keying." Using both ends of the sphere can also be useful in a situation where offices and manufacturing areas require separate access with limited interchange. For example, the office master key could be key 1, and the plant master key could be key 32. Certain areas can be cross-keyed so that the plant manager could have access to certain offices, while selected office staff could also gain access to particular areas in the manufacturing area. An owner would be required to carry only two keys to access all areas! Using both ends of the system is not recommended, however, since incidental interchange is rampant in this system. The use of both poles as masters is recommended only when the sphere (and master key system) is divided equally at the "equator," or halfway point.

I would love to be able to draw a nice diagram of this system for you, which would visually illustrate the complexity and relationships between keys and cylinders, but it is virtually impossible to do in two dimensions. At best, I am able to only list such information, which I will attempt later on in this article. What I really need to diagram this is one of those fancy sets of balls and sticks that you might remember from High School, which we used to diagram the construction of various molecules. (Yes, it really is that complex!)

"It is a spider web of cross keying done with no possibility of key interchange." A.J. Hoffman

Primarily, we will only tackle the sphere from the north pole down. The reason for this is that working from the south pole upwards requires different pinning for each of the respective cylinders, and it is unlikely and inadvisable that you would use both ends of the sphere simultaneously. It is enough to know that the possibility exists, should you desire to attempt it. In addition, the relationships are identical from either end of the pole, depending upon how any given cylinder is pinned.

There are, of course, severe limitations to this system. The system inherently can only accommodate 32 keys, and using even most of them is virtually impossible without creating an unintended interchange. If you were to expand this to a six-pin system, you double the size to 64 keys, which gives you at least a bit more room to maneuver. Primarily, this system is most useful when a limited number of keys and cylinders are needed. A system that I recently implemented needed only 7 keys and the master, and only 9 keying variations. The beauty of the system is that the exterior doors were no less secure than a full position progression, and all of the interior doors (including those that were cross keyed) had less than a full compliment of master pins!

Here is the listing of cylinders and the keys that fit them, from the north pole down. Hopefully, this will help you at some point in your attempt to satisfy a demanding customer, without compromising your own integrity as a professional.

One last note: I am indebted to Robert F. Thomas, CML, who initially sparked my interest in the possibility of such a system years ago by cutting all 32 keys that fit a cylinder keyed to two distinct keys. I have wrestled with this concept at various times since then, but only recently found a practical application for this theoretical system. It truly was a case of necessity being the mother of invention. I am also indebted to A. J. Hoffman, CML, Laurence Simon, CML, Jerome Andrews, CML, Bruce Cary, CML, and of course, my brother, Brian Costley, CML, CMST, for their review of my rough draft.

For those of you who might still be scratching your heads, perhaps instead of thinking in terms of letters, think of this as a binary system. In any given pin position, there are only two choices. What spherical keying boils down to is a mix of maison, rotating constant, and binary systems all neatly boiled down into a small package. A.J. Hoffman, CML, said it best, I think, when he struck a personal nerve: "It's a spider web of cross keying done with no possibility of key interchange." Thanks, A.J., for the spider reference. Bruce Carey, CML, also noted that "I should get this patented." My personal feeling about that is that I should share it, so that those of you in the field can satisfy a customer without a great deal of grief. All the credit I need is the fact that I help some poor guy who is trying to satisfy a demanding customer.

Anyone who desires a headache can extrapolate this to six or seven pin systems. My hope is that someone will take the time to carry this idea to its extreme. Perhaps some industry people who have access to computer programmers can make us a nice diagram of this, and make it feasible for all of us to use. I've done my best with the limited time and abilities I have. And so, then, to all of you: Happy spherical keying!

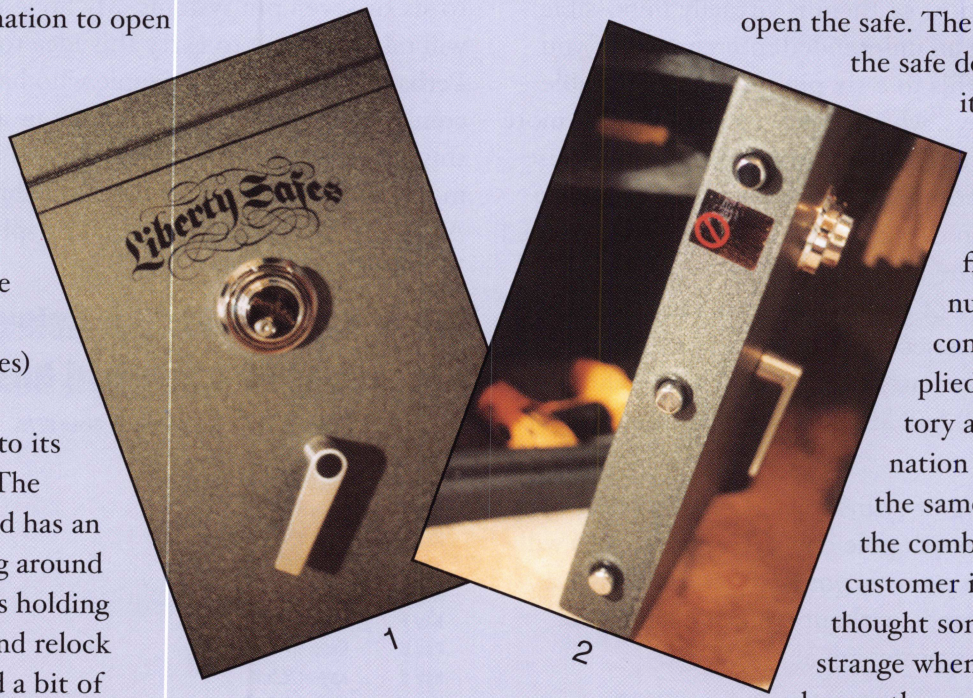
Now, without further delay, is the promised listing. Good luck!

A CYLINDER pinned to key 1: Is operated by these KEYS:	
Key 1	Key 1
Key 2	Keys 1,2
Key 3	Keys 1,3
Key 4	Keys 1,4
Key 5	Keys 1,5
Key 6	Keys 1,6
Key 7	Keys 1,2,3,7
Key 8	Keys 1,2,4,8
Key 9	Keys 1,2,5,9
Key 10	Keys 1,2,6,10
Key 11	Keys 1,3,4,11
Key 12	Keys 1,3,5,12
Key 13	Keys 1,3,6,13
Key 14	Keys 1,4,5,14
Key 15	Keys 1,4,6,15
Key 16	Keys 1,5,6,16
Key 17	Keys 1,2,3,4,7,8,11,17
Key 18	Keys 1,2,3,5,7,9,12,18
Key 19	Keys 1,2,3,6,7,10,13,19
Key 20	Keys 1,3,4,5,11,12,14,20
Key 21	Keys 1,3,4,6,11,13,15,21
Key 22	Keys 1,4,5,6,14,15,16,22
Key 23	Keys 1,3,5,6,12,13,16,23
Key 24	Keys 1,2,5,6,9,10,16,24
Key 25	Keys 1,2,4,6,8,10,15,25
Key 26	Keys 1,2,4,5,8,9,14,26
Key 27	Keys 1,2,3,4,5,7,8,9,11,12,14,17,18,20,26,27
Key 28	Keys 1,2,3,4,6,7,8,10,11,13,15,17,19,2125,28
Key 29	Keys 1,2,3,5,6,7,9,10,12,13,16,18,19,23,24,29
Key 30	Keys 1,2,4,5,6,8,9,10,14,15,16,22,24,25,26,30
Key 31	Keys 1,3,4,5,6,11,12,13,14,15,16,20,21,22,23,31
Key 32	All keys within the system.

A Pair of Gun Safes

By Greg Perry, CML, CPS

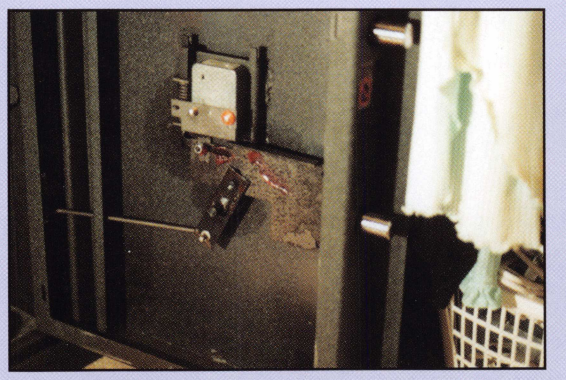
This month, we'll look at a couple of gun safes — one Liberty and one Amsec that looks more like a Sentry, especially inside. The pictures of the Liberty came during a combination change. It's not all that special, but it does have an interesting relock trip mechanism. The Amsec is their offering of an inexpensive gun safe. These pictures came after I used the process of elimination to open it.



Looking at the Liberty gun safe, you'll notice it's a handgun or home safe. It's only 30X24X20 (inches) deep. The basic design is similar to its larger brothers. The lock is a 6741, and has an interesting spring around one of the screws holding the back cover and relock plate to it. I used a bit of Locktite on the threads of both screws. It made me a little nervous to install the screw without any Locktite. The other one has a large plastic washer under the screw head. The spring of the relock is quite heavy, making it very difficult to lift from the outside. The location of the relock is 2 inches right of the lock centerline. Another interesting thing about this design is the bolt detent and hinge side locking. The door slips behind the frame as it is locked, and the frame has a plate that slips into the door to trip the bolt detent. Most manufacturers design the bolt detent rod to trip outside the door.

The second safe — an Amsec — is an inexpensive gun safe, model number 5924. Amsec gun safes traditionally have used a quality mechanical lock or electronic lock from one of the major lock manufacturers. This safe looks similar to a gun safe made by Sentry. I asked Bob Sallee from Amsec about the similarities; they import the formed steel body and the door from overseas. Once the raw body and door are at their factory, they paint and assemble the safes with a lock, which they also import. Amsec called us to open the safe. The customer had the safe delivered, locked it and the combination on the card was wrong. I verified the serial number to the combination supplied from the factory and the combination card both had the same numbers for the combination. The customer indicated he thought something seemed strange when the last number on the card (18) didn't match the number on the dial (35) before he locked it. I applied a little pressure on the wheel pack with the handle. Turning the dial revealed 10 gates (or should I say nine false gates and one real gate?). The number he remembered had a gate wider than the false gates. Using the number 35 as the last number, I started the process of elimination to open the safe. A short time later, the safe was open.

Let me explain the process of elimination. I first saw it explained by Dave McOmie in an article published in The National Locksmith. Start with a number, in this case I dialed right three times to zero for the first number, knowing this style of lock requires at least a 10 number difference I dialed left 2 times to 10. Next



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I turned back to 35 and tested the handle. Since this didn't work, I turned the dial left to 15 then back right to 35. I continued this process until I reached 90. Since none of these numbers opened the safe I incremented the first number to 5 and started the process over again. Since the last number was 35, I skipped testing the numbers 30, 35 and 40 for the second digit. (Remember all the numbers must be at least 10 digits apart.) This may seem like it takes a lot of time, but this time, the first number turned out to be 70, and only took about 20 minutes. Dialing all the possibilities might have taken 30 minutes, less time than drilling and repair. I spent more time removing the back cover, taking pictures and reassembling the safe.

Amsec recommended drilling the safe through the dial 7/8-inches down at 50. This allows you to dial the combination using the hole to look at the two wheels, and then the drive cam. This method requires you to turn the dial to a number, then move the dial back to line the hole in the dial up with the hole in the safe. A hole anywhere below the 2 1/2-inch diameter wheels would allow you to scope the combination.

The downside to drilling especially outside the dial ring is repair. Gun safes usually have nice paint jobs that are very difficult to match. Opening safes using the process of elimination saves time and, although it doesn't require any special skill, it makes you look like a magician to the customer.

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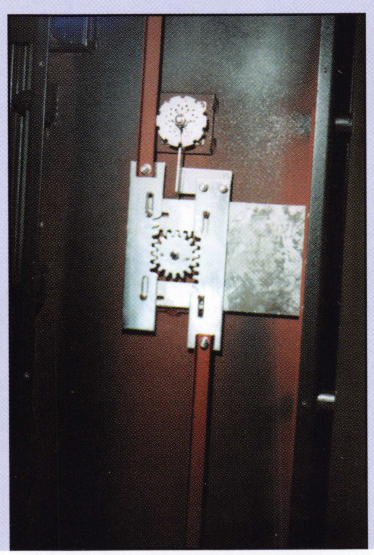

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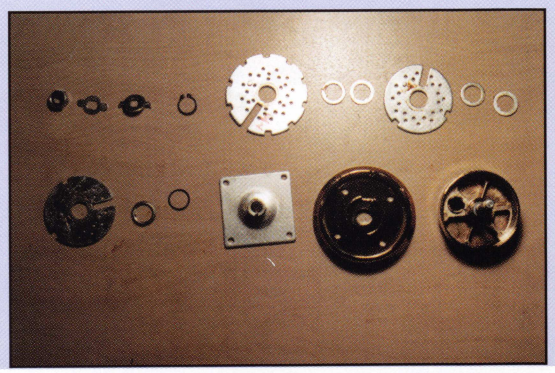

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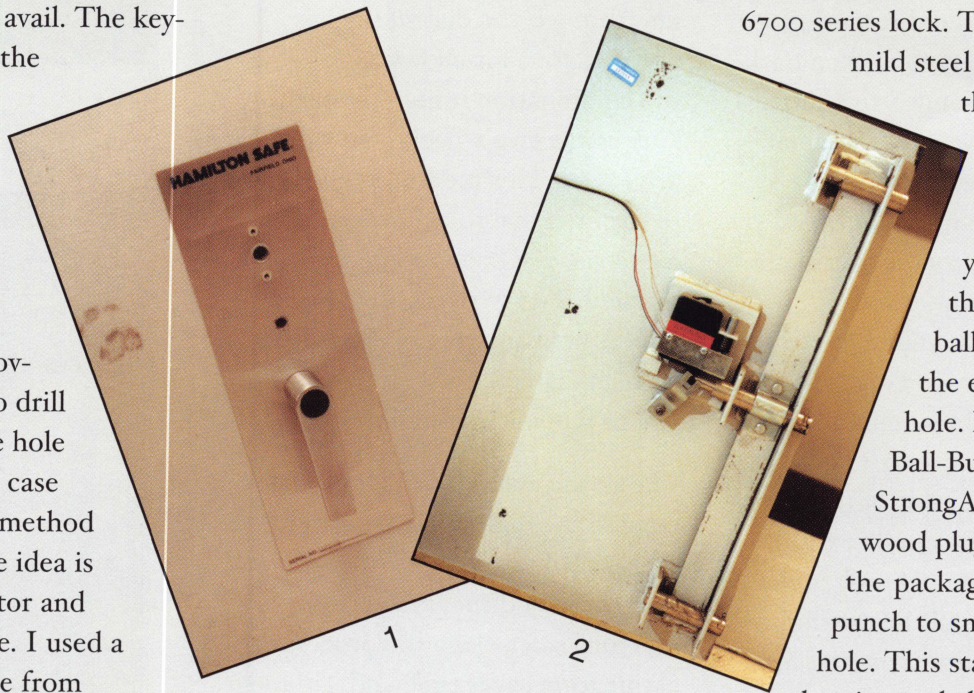
Hamilton Night Depository

By Greg Perry, CML, CPS

Safe openings come in all shapes and sizes. The vast majority of my openings are pretty easy. This one was not! Over two hours of drilling; first I had to get past a ball bearing and then a carbide mix that required a diamond-core drill. This call was a referral, one of their alarm technicians spent five hours on Monday trying to coax the S&G 6120 electronic lock open, to no avail. The keypad beeped, but the motor made no noises. They did not have a safecracker available, so the call came to me.



I started by removing the keypad to drill down the spindle hole through the lock case and motor. This method can be tricky; the idea is drill into the motor and spin the armature. I used a hole saw, available from Northwest Safe and Vault. The tricky part is to not drill too deep. In my case, I snagged a wire from the armature. Not a good idea; this kept the motor from turning. I could turn it about 45 degrees either direction, but not any further. I tried turning it for about 30 minutes before giving up and deciding to drill for the end of the bolt.

Using a Mini-Rig template from LA Safe & Vault for the Kaba Mas X-07 and X-08 lock, I selected hole "B," which is for the bolt. I've found that many templates have hole locations that are close or offer the same location for different locks that are useable for other locks. The same template, hole "C" can be used for a scope hole when drilling an S&G 6700 series lock. The 1 1/2-inch of mild steel drilled easily, then I hit my first obstacle, a ball bearing. This time, as you can see in the picture, the ball bearing is on the edge of the hole. Breaking out a Ball-Buster bit from StrongArm, I inserted a wood plug included in the package and used a punch to smash it into the hole. This stabilizes the ball bearing and allows the bit, which is a carbide burr to grind or "chew" the edge of the bearing. The technique to use with the Ball-Buster is to tighten the drill chuck snug, but not tight. The idea is to allow the bit to spin in the chuck if it grabs in the hole. This will prevent the bit from shattering. Once past the bearing, I tried to switch to a carbide bit. The bearing

MEMBERSHIP APPLICATION

Welcome to the Associated Locksmiths of America, Inc., an association for persons involved in the security industry as locksmiths, security consultants, educators, manufacturers and distributors.

To apply for membership, please complete this application and submit it with the dues for the current year, and your business card, company letterhead, or other suitable proof of employment.

All of the following questions MUST be answered before this application may be processed. Please type or print.

TYPE OF MEMBERSHIP

Please check only one.

❑ ACTIVE MEMBERSHIP
Individuals actively engaged in supplying, servicing, or installing security hardware for a period of not less than two years.

❑ APPRENTICE MEMBERSHIP
Individuals who are in initial training and meet all the requirements for Active Membership except for the length of time in the security industry.

❑ ALLIED MEMBERSHIP
Individuals whose position in the security industry relates to the aims, policies and promotion of the locksmith and his/her craft.

APPLICATION AND FEES

A $50 application fee, appropriate annual dues, and your business card, company letterhead, or suitable proof of employment must accompany this application. Your second year's dues will be prorated based on the date your application was received by ALOA.

FINAL CHECKLIST

	U.S. Dollars
❑ Application Fee	50.00
ANNUAL DUES STRUCTURE	
❑ Active/Allied Member U.S. + U.S. Territories (PR, VI, Guam)	155.00
❑ Active/Allied Member Non U.S. Resident or Non U.S. Territories	130.00
❑ Apprentice Member U.S. and International	80.00
OTHER FEES	
❑ Canadian Air Mail	20.00
❑ Overseas Air Mail	50.00
Total Enclosed	_____

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(214)827-1701

Revised 12/03

CANDIDATE (PLEASE TYPE OR PRINT)

Name ❑ Mr. ❑ Mrs. ❑ Ms.

Business Name

Mailing Address

City | State | Zip Code | Country

Work Phone | Home Phone | Fax

Email Address | Website

Date of Birth | Social Security Number

Directory Address (if different than mailing address)

City | State | Zip Code | Country

❑ **Do Not List in Directory**

PROFESSIONAL INFORMATION

1. Are you a...
❑ Sole Owner ❑ Corporate Officer
❑ Partner ❑ Employee ❑ Student

2. Are you currently employed in the security industry?
❑ no ❑ yes, years_____

3. How did you learn locksmithing or security work?

4. ALOA Sponsor

Sponsor's ALOA Number

Please note, if you are sponsored by an ALOA member, your application will be immediately processed with a 90-day probation period. Otherwise, final processing takes up to 120 days.

5. Names and addresses of two industry-related references (required):
Name
Address

Name
Address

6. IMPORTANT: Have you ever been convicted of a felony? ❑ No ❑ Yes
If yes, please give details on a separate sheet. All felonies are reported to the Membership Department for review.

METHOD OF PAYMENT

❑ Check ❑ MasterCard ❑ Visa ❑ Discover ❑ American Express

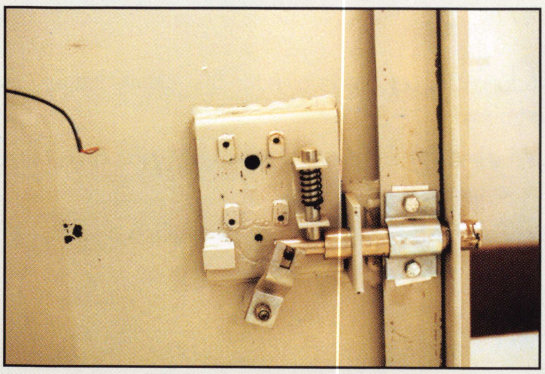
Card Number | Expiration Date

Please print name as it appears on card

Cardholder's Signature

I certify that all statements are true and, if accepted as a member, I agree to abide by the rules, regulations, and Bylaws of ALOA, and further agree to adopt the Code of Ethics of ALOA as my own, and adhere to it to the best of my ability. Should my membership be discontinued, I agree to return my membership card, and cease use of all ALOA insignia.

Signature | Date



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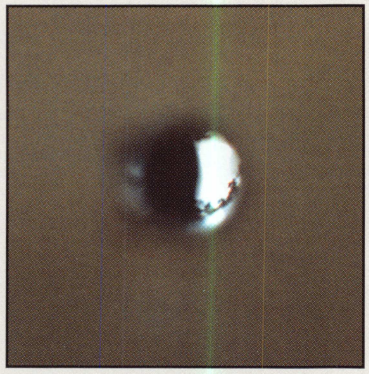

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would spin on the flutes of the bit and grab. I tried to insert another plug but the bearing kept spinning. I slowly made a little progress into the hardplate behind the ball bearing hardplate, then stopped. Looking in the hole with a scope, I could see a piece of carbide. I was now about an hour into drilling this safe. The Brinks driver was there for the pickup and the safe was still locked. Could he come back later?

I chucked up a diamond core drill and inserted it into the hole. The diamond would not go past the bearing. The Ball-Buster is slightly smaller than the diamond core drill. This meant the hole would need to be enlarged. I enlarged the outer hole to 5/16" and chucked the Ball-Buster snugly into my drill chuck. Slowly, I ground the edge of the bearing, enlarging the hole until I could get the diamond core drill past the bearing. Once I started drilling with the diamond core drill, it progressed quickly. Once the hole was though the hardplate, I removed the Mini-rig and plate. Reaching in with a probe, I lifted the bolt and turned the handle, somewhat anti-climatic. The Brinks driver showed up about 30 minutes after I got the safe open.

This safe opening presented more challenges than I normally face. I routinely open GSA Red label containers requiring diamond-core drilling, and occasionally have run into a ball bearing hardplate, but this was the first safe I've drilled requiring both. It wasn't easy. I would have preferred to not be under such a time crunch, but having the right equipment and training ahead paid off this time. Hamilton built one tough safe!

Renew or Apply for Membership ONLINE at www.aloa.org

LOCKSMITHS SECURE AMERICA

During times of crisis, unity is key. Right now, when you join ALOA (or renew your membership), you will receive, free of charge, this patriotic decal for your shop or van, which serves as a special reminder to you and your customers that it takes a spirited effort to strengthen the ties that bind us.

Decal dimensions 8½" x 5¼"

While Supplies Last!

Associations: Are They Working?

By Jim Hancock, CRL

Yes and no. That's the only answer that you could realistically give for this question. There is no black and white answer any longer, only shades of gray. For some organizations, it is working well. For others, it seems to be a lost battle.

One of the perks of teaching classes for ALOA and other organizations is the ability to travel around and see how things are going for the smaller state or regional organizations. What I have seen in the majority of these is a steady decline in membership as well as attendance at the classes. The obvious question is why? What is causing this and what can be done to stop the bleeding before the association bleeds out.

The why of this question is perhaps the easiest to answer and the toughest to solve. In many instances, the why is because of transgressions past. Many ex-members of these associations will say that the association became more of a social organization than a betterment of the profession organization. It became a forum for the seated board members to wield their power and impose their will on the membership. It became less about sharing knowledge, bonding together to halt bad legislation and keeping undesirables out of our industry and more about let's get together once or twice a year and partake of adult beverages and trash our competition and so on and so on. These same ex-members will say they quit renewing their membership because they had a personal grievance against a member or members of the board and chose not to support them. And more importantly, these ex-members would tell prospective new members all of the negatives about the association thereby persuading them not to join.

And perhaps the biggest part of the WHY can be summed up in a very elementary statement that I've heard more than a few times; What is being a member going to do for me? Do I need to pay an organization to socialize? No. Do I need to pay dues to trash talk and hold grudges? No. Is missing a day or two of work to attend a seminar, clinic or trade show going to be worth my time and possible loss of income?

There are other reasons that I've heard expressed as well. "There are never any classes close to me, they are always held across the state," "They never get anybody good to teach the classes, it's always old Bob and he's a locksmith just like me," "The classes are always so expensive." You get the picture. Truth be told, you and I helped paint the picture.

Any of this sound familiar? Ever said any of these things yourself? I have. I am as guilty of these professional sins as anyone. The only difference may be that I woke up and smelled the coffee and chickory (it's a Cajun thing). I have been a member off and on of several of the national and local associations for the better part of 37 years and each and every time I have let my membership lapse, it has been for one of the myriad of reasons stated above and many unstated.

So what is the answer? What is the solution to the dwindling membership and class attendance? What is the association going to do for me? What is going to bring me back to the fold and drag along a few people with me? The following are just my opinions on this, but it is maybe food for thought.

First, lets address the education issue. To me, this is perhaps the biggest and most important reason to belong. Without education, you will become stagnant in your business and be of little use to your clientele. Whether ALOA supplies an instructor, a manufacturer supplies an instructor or it's just "old Bill," there is always something to be learned. I understand the mentality because I have kids. When my son was growing up, I could give him advice until I was blue in the face and it never registered. Let a total stranger come along and tell him the exact same thing and he would run with it. The message was the same, just the delivery service was different. Give 'old Bill' a chance to give you some pointers and insight.

As for the clinics, classes and such being to far away or expensive, I can only tell you what we are trying to do in the Texas and Louisiana-Mississippi associations. First we are thinking about centralizing our yearly Convention and Trade Shows in a location not only geographically advantageous for all but in a location that allows easy air travel for prospective vendors and instructors. Consensus opinion seems to be that if you know where and when the big event is to be held every year, it will be easier to plan ahead enough to be able to attend. In Texas, TLA is setting pricing up for the classes at the convention to reflect membership. In other words, long time continuous members receive a price break over short time members who receive a break over non-members. We have started the package pricing idea of classes. Charging not per class but rather per day. (thank you ALOA) Take what you want on any given day, the price is the same. And the more days you take, the less expensive it becomes. We are also addressing those folks in the outlying areas of the state that can't attend for one reason or another. About every 6 weeks, we are putting on "road shows." We are putting on classes on a weekend in the remote parts of the state for members and non-members alike and the best part of this is we have received assistance from several distributors, whom I won't name here for fear they will get inundated with calls, in the form of sponsorship money and materials so that these road show classes are free or almost free to members. Sorry, non-members still pay a little more here as well. Perhaps an incentive to join. Because of this proactive approach to education, we feel our membership will increase because some of the nay-sayers will see that this is no longer the "good old boy association" that it may have once been.

Another page we have taken from the ALOA blueprint is offering incentives for members to recruit new members. These incentives can be anything from discounted education and dues to free tickets to the association banquet. Just a small spiff to say thanks and we appreciate your efforts.

> Without education, you will become stagnant in your business and be of little use to your clientele.

You may be saying "OK, it all sounds good and feasible, but what about licensing. How can my local association help me with something as powerful as my state's legislature and the lobbyists from the special interest groups that have their ears." Well first, licensing is inevitable. Get over that fact first and foremost. Those states which do not have it yet, will soon enough. The difference will be whether you let it get enacted with or without representation. ALOA tries its best to watchdog the different sessions in each state for pending legislation but it should be up to each state association to protect its own yard. You, as an individual, have very little chance of getting all the info needed and even less of a chance as a solo

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voice of being heard. Everyone is in concurrence that the driving force behind the legislation is the Alarm industry. If that is the case, do you think the one guy that owns AAA Alarm company went in by himself and had his state pass the law because it's what he wanted? Absolutely not. He went in with the entire State Burglar and Fire Alarm Association behind him to get it done. Regardless of whether it is money or favoritism that makes it happen, the bottom line is the number of members these groups have. Could any state organization or perhaps even ALOA match up with that type of backing? Probably not. And neither the state nor national association can match up when its membership roster continues to decline meaning that the money needed to fight bad laws isn't there. Also, once legislation does pass (and it will) who directs how the licensing will be instituted and administered? Who regulates the criteria for the license? Is it a fluff license all about money or will it actually mean something? Will there be testing and continuing education? Can you alone help make any of these decisions or affect any changes? Probably not. It will only be as part of a larger group that change may be effected. That larger group needs to be your local association and certainly ALOA.

Now, some of you in New Jersey or Philadelphia may be wondering how big a problem this is, getting people to show up and support their state organization. Lord love you guys because you always seem to have a full house at your conventions but let me give you a couple of examples of how bad it is. I made a 1400 mile round trip for a two-day interchangeable core class which was attended by 3 people. That was 3 people. Another organization had a spring board meeting and classes a year or so ago and could not even get a quorum of board members to hold the meeting. The class was attended by 5 people, 3 of which were board members.

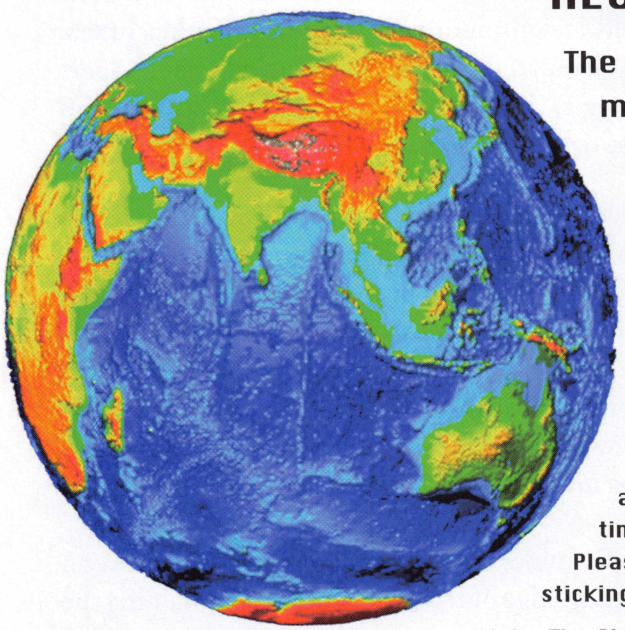
The time to stop the bleeding is now. It's time to stop procrastinating, get off your rear ends and help strengthen all of our trade associations by belonging, getting involved and getting others involved. So many times the complaint is that the same 8 or 10 people always seem to run the state organization year after year. Maybe it's because that's the only 8 or 10 people willing to give of themselves to help keep the local association going. If you aren't particularly fond of your current leadership or think you have a better idea, quit complaining and become part of the solution by getting on the local board. Don't be just another part of the problem.

And while you're at it, do not neglect ALOA. They could use your help and support as much as the local associations.

I've said my piece. If I have offended anyone, my apologies. But if I have offended you, perhaps it was you I was speaking to.

Prove You're a Pro '04

ALOA Rewards Its Members AGAIN!!



The ALOA Membership Campaign for 2004 features more member benefits than we've ever offered before. We're stuffing members full of great gifts!!

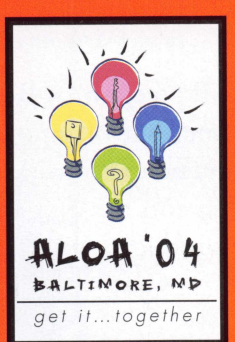
If you renew your commitment to your industry and help support ALOA, we will offer FREE membership dues to ANY CURRENT MEMBER who recruits one new member on or before January 1, 2004.

ALOA is excited about the vast legislative challenges that lie ahead, and we're waiting for our members to let us after those groups that are aiming to legislate locksmiths out of business, one bad bill at a time. We're ready to do our part for the prosperity of this industry. Please help yourselves by doing your part this year. Prove you're a pro by sticking with ALOA in 2004. You will be rewarded for it many times over.

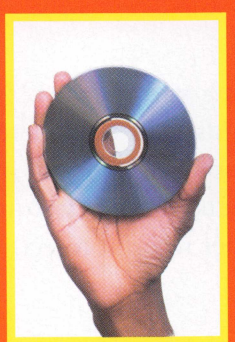
Note: The ALOA Board of Directors has enacted a $25 Legislative assessment to the regular ALOA dues for all active members in the USA (and territories) in 2004. If you live in the United States or its territories, you must pay the assessment to maintain your membership. The assessment will be payable during this year's dues billing, which mailed on Oct. 1, 2003. As directed specifically in writing by the ALOA Board, the proceeds from this assessment will be available for use ONLY in ALOA's legislative efforts.

All members who renew on or before January 1, 2004, will receive:

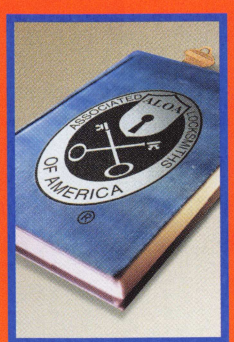
A complimentary set of 2 safe technical bulletins



Up to $300 savings on ALOA 2004 Convention registration



A complimentary copy of the ALOA Membership Directory (CD)



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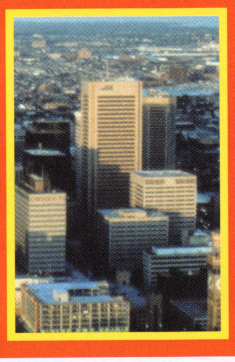

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800-532-ALOA (2562) • www.aloa.org

The New Face of SCHWAB®

Schwab Circa 1910

Founded in 1872 in Lafayette, Indiana, Schwab Safe Company is one of Indiana's oldest continuously operational manufacturers. The Schwab Safe Company's early credits include vault doors and safes, baby buggies and horse drawn carriages, as well as a wide range of castings.

Today, Schwab manufactures a complete line of fire resistant products which include: vault and file room doors, fireproof filing cabinets, contemporary media and record cabinets, and safes for the architectural, industrial and residential markets worldwide. Schwab continues to deliver high quality products that have made the Schwab name synonymous with the highest craftsmanship and dependability for more than 131 years.

Schwab, under new ownership strives to remain on the cutting edge of technology while maintaining the highest manufacturing standards. We are releasing revolutionary designs, and incorporating state-of-the-art manufacturing technology just 10 months after the acquisition, with many improvements in our product line as well as big plans for an exciting new year. With a solid foundation, Schwab Corp. is committed to maintain name recognition in the marketplace as the #1 fire protective equipment manufacturer in the world.

East Chicago, Indiana
Dec. 19, 1927.

e Schwab Safe Co.
afayette, Ind.

Gentlemen:

I had one of your fireproof safes in my office on the second floor of the Bee Hive Block, which building was destroyed in the #400,000 fire on December 9, 1927.

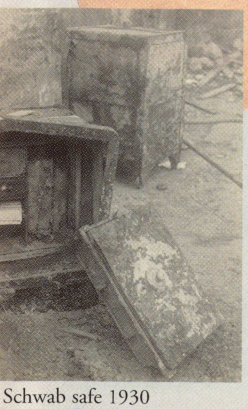
I am pleased to state that the safe stood the test well, and upon opening same, found the books, papers, etc. were in excellent condition. Would state that this safe fell from the second floor to the basement, and was in the hottest part of the fire, which was terrific.

I have this day given your Mr. Bachelor an order for another Schwab filing safe.

Yours Respt

Peter Belzeski

1927 Letter of Testimonial

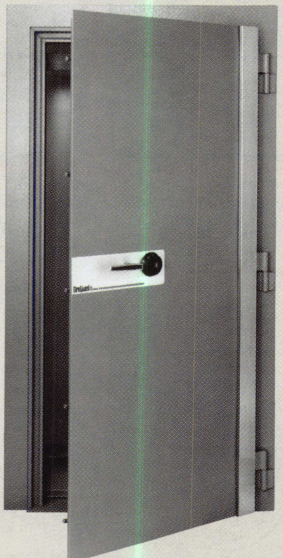


Schwab safe 1930

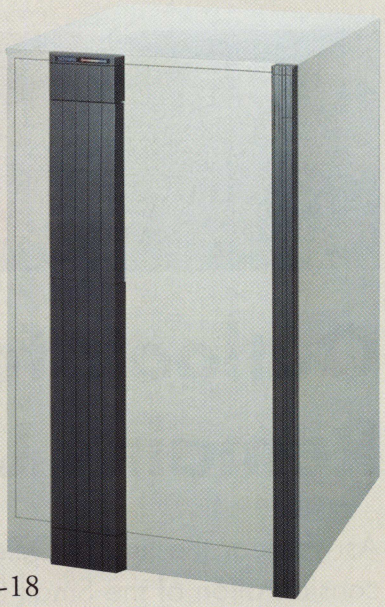
Schwab's leadership in manufacturing with NFPA 232- Protection of Records Standard and a UL Class 155 Standard ratings lends it to be on the forefront of innovative ideas and product design. With the computer age upon us, Schwab manufactures a wide variety of storage products that meet the stringent heat and humidity requirements of computer media protection as well as paper record protective products.

In 1921, Bill Kennedy made a decision that would influence the rest of his life. He decided to take a job at Schwab because the Company had the best baseball team in the commercial league. As the photograph indicates, they were called "The Bats". The team had won the championship in 1921 and 1922 and was looking forward to another victory in 1923.

Evidently baseball was not the only thing Bill Kennedy liked about Schwab, he remained employed at Schwab for the next 54 years, retiring on January 31, 1975.



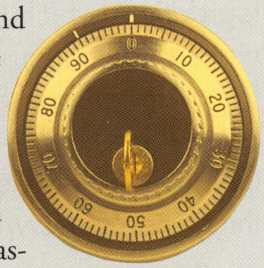
Schwab's Vault Door, available in variable fire resistant ratings up to 6 hours



Schwab's record cabinet carries a UL rating of 350-1 Hr. fire and impact resistance rating, with six models and an unlimited number of interior accessory options available. The media cabinet carries a UL 125-1 Hr. rating as to fire and impact resistance and humidity level not to exceed 80%, and also has many interior options available to suit your specific media storage needs. Schwab's media and record cabinet has all the protection of a safe with a stylish design, suitable for today's elegant and contemporary office or home office environment. With many interior options to choose from, the Schwab cabinet can be customized to suit any and all of one's storage needs while not detracting from the aesthetics of your environment. Please call 1-800-447-7233 or visit www.schwabcorp.com to request our most current literature.

Schwab Safe Models
4068 and 2532 CTS

Schwab's Vault and File Room Door, with up to Class 350-6 Hr. UL fire ratings, comes with two UL relocking devices and can be made to accomodate a range of walls 7-18 inches thick with easy non-grout installation and complies with NFPA Life Safety Code. Standard with a Group II Key Change combination lock, safe is also equipped with an inside escape mechanism. Schwab also has plans to reintroduce a Class 5-6 security door for additional protection.



On January 1, 2003, Schwab Corp. was acquired by two private investors. As a result of the acquisition, the Company has been recapitalized to allow for a period of growth. The new management team has a proven record in manufacturing and product design. We are very excited about the future of the Company and look forward to combining innovative ideas with a very experienced and devoted workforce. The rebirth of Schwab Corp. with focus on customer service and support, has prompted us to make communicating with us easier. Complete with extended hours and a toll free number devoted to technical service, Schwab is concentrating on making it a pleasure to do business with us. With our vast product line, we have introduced new sales tools, which include a Floor Plan Agreement, where the dealers may purchase a floor display model for their showrooms, with a delayed 0% interest payment option. Complete with a new website, new literature, and extended hours, we feel our sales force will soon be the best equipped in the marketplace.

We are committed to our customers, suppliers and associates to become the industry standard in providing the highest quality products and customer service. For a complete product listing visit our website, or contact us at the number below.

SCHWAB® CORP.

Fire protection for vital records.™

P.O. Box 5088 · Lafayette, IN 47903-5088
800-447-7233 · www.schwabcorp.com

4 stages of fire testing circa 1930. You will note the Schwab safe is still standing in picture 4.

"The Boys"-1930 before testing the safe (pictures left).

Outlook for AHP Legislation in Senate Remains Uncertain

As we near the end of October, the outlook for consideration of the Small Business Health Fairness Act of 2003 (S. 545) in the Senate remains highly uncertain. Since Congress reconvened after Labor Day, the primary focus of both the House and the Senate has been finalizing the 13 Appropriations bills that fund the federal budget for fiscal year 2004, Medicare prescription drug legislation, comprehensive energy legislation (which has become urgent in the wake of the August blackout), and the Iraq/Afghanistan Supplemental Appropriations bill. At this time, it is unclear how long Congress will remain in session this year, and thus what issues will receive consideration.

As Congress returned from its summer recess, President Bush promoted his support for the AHP legislation at a speech in Kansas City, Missouri in early September. The AHP legislation was included in the President's "Six Point Plan for the Economy" as an essential component of "Making Health Care Costs More Affordable and Predictable." Helping small and medium-sized businesses control their health care costs will allow those employers to create new jobs more quickly, and thus the President saw fit to include the AHP legislation in his economic package.

Senator Olympia Snowe (R-ME) issued a press release on September 9 calling on the Senate to take up and approve S. 545 as soon as possible. She cited new information on health premium increases provided by the Kaiser Family Foundationís 2003 "Annual Employer Health Benefits Survey" as evidence of the need for swift Senate action on AHPs. The Kaiser survey, which found double-digit health premium increases for the third consecutive year, clearly demonstrates the need for AHP legislation.

One development that may help to grab the Senateís attention on the AHP bill is the release of new numbers of uninsured Americans by the U.S. Census Bureau. In 2002, the number of uninsured reached 43.574 million persons, an increase of nearly 2.4 million persons from 2001. The number of people covered by employment-based coverage dropped from 62.6% in 2001 to 61.3% in 2002, and of course this erosion of coverage is most severe among small businesses. These disturbing numbers will hopefully help us convince undecided Senators that bold action, including the AHP, is needed to reverse the trend of declining coverage in America.

Both Senator Snowe and Senator Jim Talent (R-MO) issued press releases noting this disturbing

trend and urging the Senate to approve the AHP legislation in order to address this problem The AHP is currently pending before the Senate Health, Education, Labor and Pensions (HELP) Committee, which is chaired by Senator Judd Gregg (R-NH). Senator Gregg has not yet taken a position on the AHP legislation, and it will be necessary for him to be supportive if the committee is going to approve the bill and send it to the full Senate for a vote. According to his staff, Chairman Gregg has "serious policy concerns" with the AHP bill, including concerns with adverse selection and the potential impact on the insurance markets of small states like New Hampshire. Of the other members of the Senate HELP Committee, only Senator Kit Bond (R-MO) has cosponsored the bill.

Chairman Gregg's staff has indicated that he intends to hold one or more hearings on "health reform" issues sometime this fall. This would present a good opportunity to get greater consideration of the AHP bill by Senators on this key committee should any such hearing(s) be scheduled.

In order to impress upon key Senators, such as Chairman Gregg and Senate Majority Leader Bill Frist (R-TN), that the Senate needs to act on the AHP bill, it is critical to gain the support of more Senators (especially Senators on the HELP Committee). The best way to show progress in this regard is to get more Senators to cosponsor the bill.

Legislative Updates:

Small Business Health Fairness Act (Association Health Plans): Has passed the House (as it has done in previous legislative sessions) and is now awaiting a vote from the Senate. Senator Olympia Snowe (R-ME) is spearheading the charge and hopes to get the bill on the Senate floor shortly. ALOA & our Washington DC based coalition are monitoring the situation closely.

FCC Fax Regulations: The FCC has temporarily withdrawn all of the changes it had planned to implement. We are a member of a coalition run by the American Society of Association Executives (ASAE) and are working hard to make sure that the right changes are made during this time period

Motor Vehicles Right to Repair Act: HR 2735 is up to 69 Co-Sponsors! This bill is really gaining a lot of momentum. There is a strong chance it will come up for a vote soon.

State Houses: New legislative sessions are just a few months away. ALOA has begun targeting a few select states such as Tennessee and Connecticut as places where we will focus our proactive licensing efforts. We are confident that past hurdles in these areas can be cleared.

We are also closely monitoring regulation processes in Alabama, Texas and Louisiana to ensure that all definitions and interpretations are beneficial to locksmiths.

Paul Kanitra • Government Relations Manager

EMPLOYMENT

FKI SECURITY GROUP SEEKS QUALIFIED TECHNICIANS FOR NEW FIELD SERVICE DIVISION

In response to continuing and growing demand for field service, FKI Security Group has established the FKI Field Services division to support NKL Cash Handling products and is seeking qualified technicians in major metro markets. Technicians will support business development and new service contracts for NKL Cash Handling, which include electronic bill-counters or validators, dispensing safes and access control safes. Each field technician will be equipped with a state of the art communications system and all the necessary parts and tools to service all of FKIís security products.

The markets currently open are, Baltimore/ Washington DC, New Jersey/Metro New York, North/Central Ohio, Dallas, Houston, Orlando/Central Florida, Northern California, Sacramento/East Bay, Southern California, Phoenix

Highly competitive compensation and a complete benefits package including health, dental, and vision insurance, 401K plan, and fully paid expenses will be offered to qualified technicians. Technicians with the experience servicing safes, locks, ATMs or POS systems will be considered. This position can grow into a management position as the division expands.

Interested parties should contact Christina Lyell at 800-457-2424 or e-mail your resume to chrisl@fkisecuritygroup.com"

FKI SECURITY GROUP

NKL CASH HANDLING

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New Albany, IN 47150

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Original Schlage blanks in 5-pin EF keyway or 6-pin in CE, EF, FG or G keyway at $12.50 per box of 50. Contact George Thomas at 218-724-3416 or write to 825 Woodlandd Ave., Duluth MN 55812-2168

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BUSINESS FOR SALE

BUSINESS FOR SALE

A small, quite successful business for sale in south Orange County, California. Three Rytan machines, three HPC code machines, HPC code books, coding program, tools for "luxury" vehicle lockouts - all parts, tools and supplies to keep two trucks on the road full time. One truck on the road provides $10-11K per month. Truck, which is the Ford F250 van with advertising signage, built-in work areas and cabinetry - can be part of the package or purchased separately. Low operating costs after 10 years of building the business. Advertising expenses 10 years ago? $4K per month. Now we pay a fifth of that. This is a nice set-up for someone to step in and take over. Existing accounts (which bring in about $8200/month include three in property management and eight auto dealerships. We'll work to set you up with our existing accounts. All reasonable offers will be considered. Call 949/370-9619, or fax 949/458-1733.

MOBILE LOCKSMITH BUSINESS FOR SALE
Speedex duplicator, van, tools, code books, two HPC code machines (Blitz), inventory, some hardware. $6000 (firm). Call 601/916-6448.

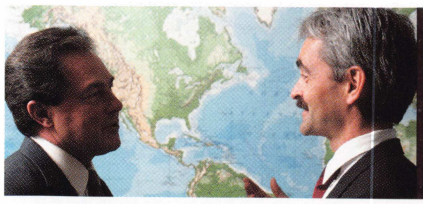
LOCKSMITH FRANCHISE AVAILABLE

Low cost, complete training, national Franchise call (925) 260-7373 www.SpeedyLocksmiths.com .

Business For Sale

Classified Advertising Policy

Classified advertising space is provided free of charge to ALOA members, and for a fee of $.60 per word, $15 minimum for non-members. 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 non-members wishing to advertise services or new merchandise for sale may purchase a "Commercial Classified Ad," for a fee of $1.30 per word, with a minimum of $40. Each ad will run for two issues. For blind boxes there is a $5 charge to members and non-members. All ads must be submitted in writing to the ALOA office by the fifteenth of the month, two months prior to issue date. Send to Keynotes Classifieds, 3003 Live Oak St., Dallas TX 75204-6186. ALOA reserves the right to refuse any classified advertisement that it deems inappropriate according to the stated purpose of the classified advertising section.



associate members

Distributor

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Phone: 631-692-1000
Fax: 631-692-3011

Accredited Lock Supply Co
Phone: 201-865-5015
Fax: 201-865-0030
www.acclock.com

Ace Lock & Security Supply
Phone: 908-688-7666
Fax: 908-688-2442
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Andrews Wholesale Lock Supply
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www.andrewslock.com

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Direct Security Supply, Inc.
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Fax: 888-329-3846

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Fax: 651-481-0166
www.elreinhardt.com

Ewert Wholesale Hardware
Phone: 800-451-0200
Fax: 708-597-0881

Fairway Supply, Inc.
Phone: 214-350-0021
Fax: 214-352-4299
www.fairwaysupply.com

Foley-Belsaw Company
Phone: 800-821-3452
Fax: 816-483-5010
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Fried Brothers Inc.
Phone: 800-523-2924
Fax: 215-592-1255
www.fbisecurity.com

H L Flake Co
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www.hlflake.com

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Hans Johnsen Company
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www.hjc.com

Hardware Agencies, Ltd.
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IDN Incorporated
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Intermountain Lock & Supply
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Jo Van Distributors
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Lockmasters, Inc.
Phone: 859-885-6041
Fax: 859-885-7093
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Locks Company
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Locksmith Ledger International
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M. Zion Company
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www.mzion.com

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RA-Lock Company
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S J Hope Products
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SNA Inc.
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Timemaster Inc
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Wilco Supply
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www.don-jo.com

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ESP Lock Products Inc.
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FireKing Security Products
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HES, Inc
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Fax: 623-582-4641
www.hesinnovations.com

HPC, Inc.
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www.hpcworld.com

HY-KO Products Co.
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Fax: 440-232-8227

Hongtai Lock Co Ltd
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Fax: 208-793-3856

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Fax: 321-724-0811
www.intellikey.com

Jet Hardware Mfg., Co.
Phone: 718-257-9600
Fax: 718-257-0973
www.jetkeys.com

KABA High Security Locks
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Fax: 860-621-9727
www.kabausa.com

KABA ILCO Corp.
Phone: 252-446-3321
Fax: 252-446-4702
www.kaba-ilco.com

KEY-BAK/West Coast Chain Mfg
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Fax: 909-923-0024
www.keybak.com

Keri Systems Inc
Phone: 408-451-2520
Fax: 408-441-0309
www.kerisys.com

Knaack Manufacturing Co.
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Fax: 815-459-9097
www.weatherguard.com

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LCN Closers/Div of Ingersoll
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About the Authors

Eric Costley, CRL, has been active in the locksmith industry since 1980. He has a bachelor's degree from Gardner-Webb University, and has worked in shops in Arizona, North Carolina, and New York. He is currently employed by Bill's Locksmithing in Elmira, New York. Eric's hobbies include music and raising tarantulas.

Jim Hancock, CRL, began his locksmithing career at the age of 8 in his grandfathers lock shop in Gulfport, Mississippi. He has been working as a locksmith since 1974. He currently is the manager of Cothron's Lock & Safe and the lead instructor of Cothron's School of Professional Locksmithing in Austin, Texas. Jim has taught for many regional associations and is an ALOA Certified Instructor who teaches at ALOA conventions and at ACE classes throughout the country.

Greg Perry, CML, CPS, has been in the locksmith industry for 20 years. He's spent half of that time as a field technician for Security Engineering in Ridgecrest, CA. Greg is also a past president of the Desert Counties Chapter of the California Locksmiths Association. He has also won the 2002 Keynotes Author of the Year Award. You can e-mail him at glmperry@iwvisp.com.

Tom Seroogy is in the new Automotive division of Lockmasters. He has been the Product Manager for BWD Automotive (formerly known as All Lock). His many years of technical expertise in the automotive field and as a contributor to automotive locksmith education have created a much sought after demand for his popular classes. Tom has developed the new Automotive Locksmithing I & II classes for ALOA to help prepare locksmiths for the PRP automotive electives.

Jeff Trepanier, RL, owns and operates Interstate Lock Masters in Racine, WI. He has been published in several trade magazines and is widely recognized as an automotive locksmithing guru.

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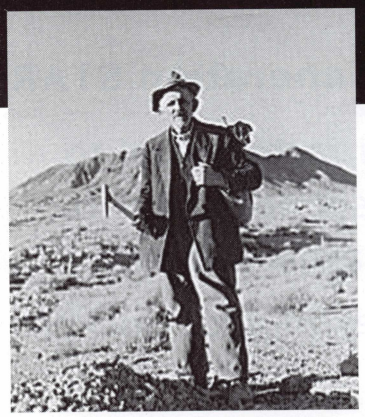

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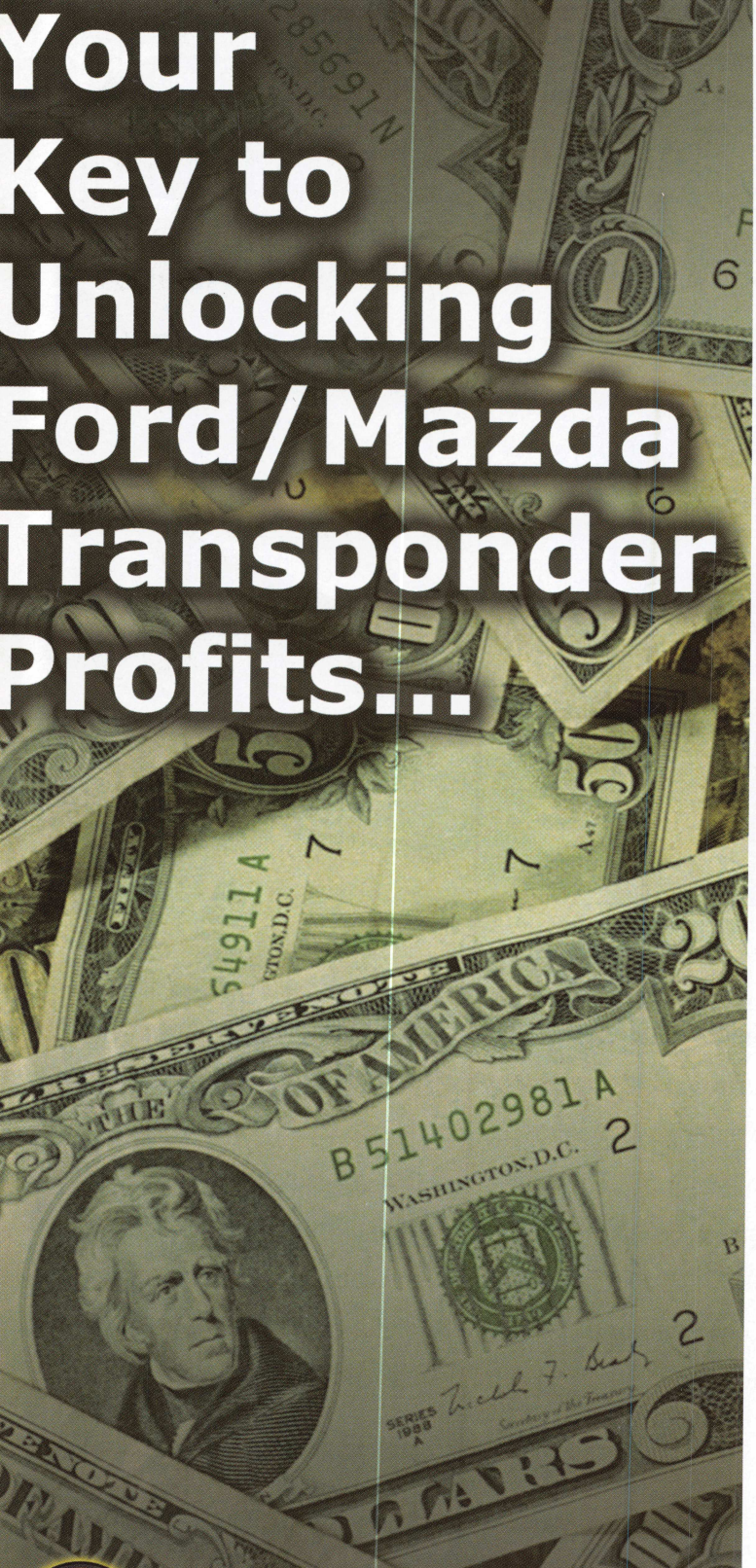

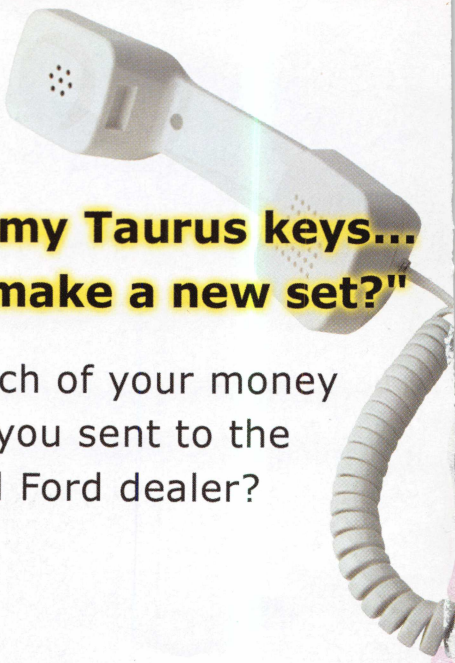

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