

LSS+ MASTER EXHIBIT LISTING

LOCKS, SAFES, AND SECURITY

LSS+ Version 5.0

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LSS101: Interview with Jeremy Bramah



Alfred Hobbs was able to bypass the Bramah lock. Courtesy of Hans Mejlshede.



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Data back for documentation of images. Courtesy of Hans Mejlshede.



Photographic equipment requirements. Courtesy of Hans Mejlshede.



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LSS201: Procedure for making keys with a clay mold. Courtesy of MSC.



LSS201: Making keys by silicone impression, Courtesy of MSC



LSS202: Kaba-Ilco Quattrocode key machine, Courtesy of Steve Fish.



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Figure LSS+1615 The status of driver and bottom pins in the locked and plug rotating unlocked position.



The use of a pin tray or setup tray is required for forensic disassembly of a lock. Courtesy of Hans Mejlshede.



Producing pins for cylinders. Courtesy of Hans Mejlshede.



Forensic issues regarding the bypass of security and mushroom tumblers. Courtesy of Hans Mejlshede.



Decoding the Best removable core lock for the control key, courtesy of Harry Sher.



LSS101: Ikon factory, Berlin, Germany: How locks are made.



LSS204: Brian Chan on positive and negative locking.



LSS204: Brian Chan discussing balanced drivers

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Abloy master keying theory, Courtesy of Hans Mejlshede.



Forced entry of Abloy locks, and forensic indications, Courtesy of Hans Mejlshede.



The Peter Field (Medeco) patent for a security tumbler. Courtesy of Hans Mejlshede.



Forensic analysis of the Medeco cam lock. Courtesy of Hans Mejlshede.

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- Figure 23-12 Push button lock
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Figure LSS+2328 Rotary registered mail lock produced by the U.S. Postal Service



Discussion of transponder theft. Courtesy of Hans Mejlshede.



Bypass of push button locks. Courtesy of Don Shiles.



Discussion of Simplex push button lock, by Harry Sher



Use of tryout keys, courtesy of Harry Sher.



LSS202: Ross Anderson on smart card technology

Chapter 24 Investigation and Evidence Involving Locks and Keys

No Exhibits



A forensic investigation involving the theft of a BMW automobile. Courtesy Hans Mejlshede.



Doing research on different bypass techniques is important for the forensic investigator. Courtesy of Don Shiles.



Analysis of a case involving forensics. Courtesy of Don Shiles.



Case example, burglary investigation. Courtesy of Don Shiles



Case example of hotel lock bypass. Courtesy of Don Shiles.



Case example, Courtesy of Hans Mejlshede.



Analysis of a case involving forensic locksmithing. Courtesy of Don Shiles.



Mail slot bypass device. Courtesy of Hans Mejlshede.



Keys can be copied by taking a 1:1 image using a copier machine. Courtesy of Hans Mejlshede.



Master key records. Courtesy of Hans Mejlshede.



Investigative clues that develop during a case. Courtesy Jim Bickers.



Pickability or ease with which a lock can be picked. Courtesy of Hans Mejlshede.

Chapter 25 Forensic Examination: Specifications, Operations, and Security

Figure 25-1 Partially picked axial pin tumbler lock
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Figure LSS+2502 Forensic evidence log-in report by Hans Mejlshede
Figure LSS+2503 Sample forensic analysis form by Hans Mejlshede

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Art Paholke is the father of modern forensic locksmithing. Courtesy of Hans Mejlshede.



Many car thefts are simulated for insurance claims. Courtesy of Hans Mejlshede.



It is essential to save the pins from a lock that has been the subject of a burglary attack. Courtesy of Hans Mejlshede.



Pressure will often be applied to the forensic locksmith during the course of an investigation to change the results of a report. Courtesy of Hans Mejlshede.



A clean work area for the forensic locksmith is a necessity. Courtesy of Hans Mejlshede.



Care must be exercised in cleaning of components. Courtesy of Hans Mejlshede.



The Forensic locksmith is often called upon to investigative covert entry. Courtesy of Hans Mejlshede.



The forensic investigator must prepare detailed reports. Courtesy of Hans Mejlshede.



Evidence in car theft investigations. Courtesy of Don Shiles.



Analysis of vehicle locks. Courtesy of Hans Mejlshede.



Analysis of vehicle theft cases. Courtesy of Hans Mejlshede.



Simulation of vehicle theft. Comments on investigation. Courtesy of Hans Mejlshede.



Investigations involving vehicle fires. Courtesy of Hans Mejlshede.



Analysis of marks produced by a slim jim bypass tool. Courtesy of Hans Mejlshede.



Use of rubber or silicone-coated tweezers. Courtesy of Hans Mejlshede.



Discussion regarding microscopes for use in forensic analysis. Courtesy of Hans Mejlshede.



Issues regarding crime scene sketches. Courtesy of Don Shiles.



Evidence handling techniques. Courtesy of Don Shiles.



Methods of forensic analysis. Courtesy of Don Shiles.



The investigative locksmith as a witness. Courtesy of Don Shiles.



Required background of the forensic locksmith and investigator. Courtesy of Don Shiles.



Definition of a forensic locksmith.



Use of photograph. Courtesy of Don Shiles



What is an investigative locksmith? Courtesy of Don Shiles.



An introduction and summary of forensic locksmithing. Courtesy of Hans Mejlshede.

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-  Forensic locksmithing history and the role of Art Paholke. Courtesy of Hans Mejlshede.
-  Was the lock picked? Courtesy of Don Shiles.
-  Macro lens, Courtesy of Hans Mejlshede.
-  Data back for documentation of images. Courtesy of Hans Mejlshede.
-  Photographic equipment requirements. Courtesy of Hans Mejlshede.
-  Ring strobe is a necessity for forensic photography. Courtesy of Hans Mejlshede.
-  Use of plastic tweezers. Courtesy of Hans Mejlshede.
-  Recovering stamped numbers from keys and locks. Courtesy of Hans Mejlshede.
-  Opinions of examiner, and certainty of their opinions. Courtesy of Hans Mejlshede.
-  Logging receipt of evidence. Courtesy of Hans Mejlshede.
-  Issues regarding investigative reports. Courtesy of Hans Mejlshede.
-  It is difficult to bypass laser track locks through the use of jiggle keys. Courtesy of Hans Mejlshede.
-  Definition of an Investigative locksmith. Courtesy of Don Shiles.
-  Forensic marks and their observation with proper lighting. Courtesy of Don Shiles.
-  The investigative locksmith gets involved in insurance fraud cases. Courtesy of Hans Mejlshede.
-  Marks on the back of the lock from bypass. Courtesy of Hans Mejlshede.
-  Use of WD-40 to clean and lubricate. Courtesy of Hans Mejlshede.
-  Oxidation and dating of marks in a forensic examination. Courtesy of Don Shiles.
-  Forensic implications of using a shim to open a lock prior to analysis. Courtesy of Hans Mejlshede.
-  An attempt may be made to mask pick marks so that the perpetrator is not identified. Courtesy of Hans Mejlshede.
-  Obtaining all keys that fit a particular cylinder. Courtesy of Hans Mejlshede.
-  Removal of cylinder and its analysis must be done correctly. Courtesy of Hans Mejlshede.
-  Changing or removal of top pins. Courtesy of Hans Mejlshede.
-  Preliminary issues in the examination of a lock. Courtesy of Don Shiles.
-  Examination of a lock and disassembly. Courtesy of Don Shiles.
-  Examination of a lock and marks that are visible. Courtesy of Don Shiles.



Information during a forensic investigation. Courtesy of Don Shiles.



Opening a lock using a blank key and a shim. Courtesy of Don Shiles.



LSS202: Forensic investigation and the locksmith, by Don Shiles

Chapter 26 Forensic Examination: Tool Marks and Trace Evidence

Figure 26-1a Cutting plugs

Figure 26-1b Examining cut plugs

Figure 26-2 Irregular marks on the inter-chamber area

Figure 26-3 Corrosion within the plug

Figure 26-4 Normal keyway striations

Figure 26-5 Normal marks on bottom of pin tumblers

Figure 26-6 Curved pick marks

Figure 26-7 Mechanical snap pick gun marks

Figure 26-8 Rake pick marks

Figure 26-9 Electric vibrating pick marks

Figure 26-10 Conventional curved pick marks

Figure 26-11 Rake pick marks

Figure 26-12 Electric vibrating pick marks

Figure 26-13 Comb pick marks

Figure 26-14 Scoring within the cylinder wall

Figure LSS+2601 Cutaway view of plug, showing location of pick and tension wrench marks

Figure LSS+2602 A cylinder that has been picked and raked (left) and picked, then a forced entry tool was utilized.

Figure LSS+2603 An electric pick gun was utilized to open the lock on the left; impressing and picking was utilized to open the lock on the left.

Figure LSS+2604 Impression, rake picking marks in plug

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Figure LSS+2607 Forensic marks on, normal pin from the factory

Figure LSS+2608 Forensic marks on pin from electric pick gun

Figure LSS+2609 Forensic marks on pin caused by impact tool such as pick gun

Figure LSS+2610 Forensic picking marks caused by a manual pick on surface of pin

Figure LSS+2611 Forensic marks on pin from pick gun and a rake pick

Figure LSS+2612 Forensic marks on pin caused by use of a key, a pick, and electric pick gun

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Figure LSS+2615 Forensic marking on pin from a 999 key or bump key

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Figure LSS+2617 SEM photograph of pick tracks within lock, 220x magnification

Figure LSS+2618 SEM photograph of pick tracks within lock, 1000x magnification

Figure LSS+2619 SEM photograph of pick tracks within plug, 400x magnification

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Figure LSS+2621 SEM photograph of pick marks on pin at 1000x magnification

Figure LSS+2622 SEM photograph of pick marks on plug

Figure LSS+2623 SEM photograph of surface of pick at 50x magnification

Figure LSS+2624 SEM photograph of surface of pick at 50x and 500x magnification

Figure LSS+2625 SEM photograph of surface of pick at 100x magnification



LSS101: Scanning electron microscope Part I: Michael Platek



LSS101: Scanning electron microscope Part II: Michael Platek



LSS101: Scanning electron microscope Part III: Michael Platek

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-  LSS203: The forensic investigation of locks and keys, by Hans Mejlshede.
-  Marks produced by methods of entry, courtesy of Harry Sher.
-  Forensic indication of the use of a ""999"" or "bump" key, Courtesy Hans Mejlshede
-  The age of picking marks can sometimes be determined through the analysis of corrosion within the lock. Courtesy of Mejlshede.
-  Destructive analysis of locks is often required in an investigation. Courtesy of Hans Mejlshede.
-  Analysis of marks within the plug after it has been cut apart. Courtesy of Hans Mejlshede.
-  Marks left from a turning wrench. Courtesy of Don Shiles.
-  Use of a scanning electron microscope (SEM). Courtesy of Hans Mejlshede.
-  The use of pick guns with profile locks. Courtesy of Hans Mejlshede.
-  Forensic analysis of pick gun marks. Courtesy of Hans Mejlshede.
-  Pick gun marks and order of picking. Courtesy of Hans Mejlshede.
-  Dust motes, visible in forensic analysis. Courtesy of Don Shiles.
-  Marks on wafers from picking. Courtesy of Hans Mejlshede.
-  Pick marks may appear on surface of wafers. Courtesy of Hans Mejlshede.
-  Analysis of presence of grease on wafers in forensic investigation. Courtesy of Hans Mejlshede.
-  Marks produced from turning wrenches are identifiable. Courtesy of Don Shiles.
-  Forensic indications of the use of an electric pick gun. Courtesy of Hans Mejlshede.
-  Cylinders may be opened by rapping them. Courtesy of Hans Mejlshede.
-  A forensic examination takes five minutes or less. Courtesy of Hans Mejlshede.
-  Forensic investigations involving locks that have been impressioned. Courtesy of Hans Mejlshede.
-  Forensic analysis of gang, jiggle, or tryout keys. Courtesy of Hans Mejlshede.
-  Marks on Ford wafer locks produced by gang, jiggle, or tryout keys. Courtesy of Hans Mejlshede.
-  Wear information and tests on pins. Courtesy of Hans Mejlshede.
-  Wear marks on pins. Courtesy of Hans Mejlshede.
-  Markings on components by manufacturers. Courtesy of Don Shiles.

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Milling marks on pins during manufacture. Courtesy of Don Shiles.



Forensic marks and their observation with proper lighting. Courtesy of Don Shiles.



Bypass techniques must be known to the forensic investigator. Courtesy of Hans Mejlshede.



An analysis of latches and bolts may be required. Courtesy of Hans Mejlshede.



Loids may be utilized to bypass latches and bolts. Courtesy of Hans Mejlshede.



Virgin areas of the plug will provide an indication that the locks was picked. Courtesy of Hans Mejlshede.



Normal appearance of pins and what type of marks appear. Courtesy of Hans Mejlshede.



Forensic marks from the use of a lock pick. Courtesy of Hans Mejlshede.



Pickability or ease with which a lock can be picked. Courtesy of Hans Mejlshede.



Turning wrench or torque wrench will leave identifiable tool marks. Courtesy of Hans Mejlshede.



Tool mark comparison. Courtesy of Hans Mejlshede.



Picking marks on wafers from vehicle locks. Courtesy of Hans Mejlshede.



Marks produced by raking. Courtesy of Don Shiles.



Marks produced from keys making contact with pins. Courtesy of Don Shills.



Different marks are created from various lock picks. Courtesy of Don Shiles.

Chapter 27 Forensic Examination of Keys

Figure 27-1 Key cut by code vs. key cut by hand

Figure 27-2a Cutting wheels

Figure 27-2b Patterns for cutting teeth

Figure 27-3 Factory original code cut keys and duplicates

Figure 27-4 Tool marks from tracing stylus

Figure 27-5 Speed and design of cutting wheel

Figure 27-6 The bitting of a key can be disguised

Figure LSS+2701 Schlage 922 wafer lock diagram and photograph

Figure LSS+2702 A milled blank is made to fit a restricted keyway



Bypass of a Schlage 922 series wafer lock. Courtesy of Don Shiles.



Metal filings at the scene of a safe burglary. Courtesy of Don Shiles.



Investigations may require a determination of whether a key has been copied. Courtesy of Hans Mejlshede.



Marks from key duplication. Courtesy of Don Shiles.

Chapter 28 General Introduction to Bypass

No Exhibits

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Discussion of different bypass techniques. Courtesy of Don Shiles.



Bypass of an American Padlock Series 700. Courtesy of Don Shiles.



Forensic analysis of gang, jiggle, or tryout keys. Courtesy of Hans Mejlshede.



Marks on Ford wafer locks produced by gang, jiggle, or tryout keys. Courtesy of Hans Mejlshede.



External bypass of a solenoid using a magnetic field. Courtesy of Don Shiles.



LSS303: Analysis of bypass techniques, by John Falle



LSS204: Brian Chan on the disassembly of a lock and derivation of the TMK

Chapter 29 Picking

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Figure 29-2 Double Detainer Locking theory

Figure 29-3 Tolerance errors

Figure 29-4 Rake picks

Figure 29-5 Rocker picks

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Figure 29-6b Wire snap pick

Figure 29-7a Electric pick guns

Figure 29-7b Early vibrating pick gun

Figure 29-8 Comb pick

Figure 29-9 Security tumblers

Figure 29-10 Professional pick set

Figure 29-11 HPC stainless steel pick set

Figure 29-12 Ball picks

Figure 29-13 Diamond and half-diamond picks

Figure 29-14 Hook and deep hook picks

Figure 29-15 "999" key

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Figure 29-19 Round spring loaded tension wrench

Figure 29-20 HPC tension wrench

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Figure 29-22 Rake picks for double-bitted wafer locks

Figure 29-23 SEA laser track key

Figure 29-24 Two-in-one picking tool

Figure 29-25 Two-in-one picks for lever locks

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Figure 29-28 Brush pick

Figure 29-29 Bypassing ASSA sidebar locks

Figure 29-30 Decoding tool for Medeco sidebar lock

Figure 29-31 Decoder for Chicago tubar pin tumbler lock

Figure 29-32 Early bypass tools

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Figure 29-34a Custom tools for bypassing complex locking systems

Figure 29-34b Specialized bypass tools

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Figure LSS+2902 HPC Flip-it tool, proper use

Figure LSS+2903 Insertion of pick into the lock

Figure LSS+2904 Comb pick by John Falle

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Figure LSS+2925, Diagram showing order of picking, and the misalignment of the five chambers.
Figure LSS+2926 Plug partially picked.
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The theory behind the use of the 999 key, Courtesy of Hans Mejlshede.



The proper technique for the use of the 999 or bump key, Courtesy of Hans Mejlshede.



Residue may be present when a dimple lock has been bypassed. Courtesy of Hans Mejlshede.



Order of picking. Courtesy of Hans Mejlshede.



The use of pick guns and forensic analysis of locks. Courtesy of Hans Mejlshede.



Use of a pick gun requires skill. It also leaves forensic indications. Courtesy of Hans Mejlshede.



LSS201: MSC Assortment of tension wrenches, courtesy of Mahmud Abu Shanab



LSS201: MSC "Sputnik" bypass tool, courtesy of MSC.



LSS202: The use of the "bump key" or "999" key, by Hans Mejlshede.

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Use of a bump key, by Harry Sher



Procedure to open a lever lock with the "drill and pick" technique. Courtesy of Harry Sher.



Picking Medeco locks. A discussion by Harry Sher.



A discussion regarding the impact pick gun, by Harry Sher.



How does impact picking work? Courtesy of Harry Sher.



Feel-picking individual pins, courtesy of Harry Sher.



Use of a plug spinner, courtesy of Harry Sher.



LSS203: Demonstration of the MSC cross pick on a lock with four rows of tumblers



LSS203: Demonstration of the MSC electropick on a profile cylinder



LSS203: MSC Acoustic picking tool demonstration



LSS204: Owe Bengtsson on picking lever locks and utilizing markings on the levers.



LSS204: Owe Bengtsson on picking the Kromer Convar lock



LSS204: Owe Bengtsson on picking the Kromer Novum lever lock



LSS204: Owe Bengtsson on picking the Stuv lever lock.



LSS204: Owe Bengtsson on opening the Rosengrens ABN1 lever lock.



LSS204: Owe Bengtsson on opening the Rosengrens RKL10 high security lever lock



LSS204: MSC Sputnik II with audio probe

Chapter 30 Impressioning

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Figure 30-2 HPC vice grips tool for impressioning

Figure 30-3 Original impressioning tool

Figure 30-4 Round holding tool

Figure 30-5 Impressioning with parallel striations

Figure 30-6 Preparing surface of key for impressioning

Figure 30-7 Quality of impressioning marks

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Figure 30-9 Bates impressioning system

Figure 30-10 Martin composite key for impressioning

Figure 30-11 Martin impressioning system

Figure 30-12 Composite lead and brass key

Figure 30-12a Foil impressioning system

Figure 30-12b Falle foil impressioning system

Figure 30-13a Falle foil impressioning system

Figure 30-13b Foil-covered die

Figure LSS+3001 The impressioning light box allows viewing of keys during covert operations

Figure LSS+3002 Use of a pippin file for impressioning

Figure LSS+3003 John Falle self-impressioning system for lever locks

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Figure LSS+3004 Falle foil impressing system for specific dimple locks
Figure LSS+3005 Foil impressing system for dimple locks by John Falle
Figure LSS+3006 Special dies for the Foil dimple impressing system



A clever device for impressing lever locks has been developed in Bulgaria. Courtesy of Hans Mejlshede.



The usefulness of the impressing technique. Courtesy of Hans Mejlshede.



How does impressing work? A discussion by Harry Sher.



A discussion about impressing, by Harry Sher.



LSS301: Foil impressing system, by John Falle



LSS304: DOM Dimple foil impressing system, by John Falle

Chapter 31 The Decoding of Locks: Theory, Procedures, and Technologies

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Figure 31-22 Decoders for the Abloy Disklock
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Figure 31-27 Falle decoder system for laser-track locking mechanisms in automobiles
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Figure 31-28b Pin Lock Decoder
Figure 31-29 Medeco cam lock configuration tryout keys
Figure 31-30 Falle decoding system for Medeco sidebar locks
Figure 31-31 Falle BiLock system
Figure 31-32 HPC picking and decoding tool for axial locks

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Discussion of endoscope and borescope. Courtesy of Hans Mejlshede.



The John Falle lever decoder system. Courtesy of Hans Mejlshede.



Bypass of laser track or sidewinder locks. Courtesy of Hans Mejlshede.



Master key records. Courtesy of Hans Mejlshede.



A discussion of reading the belly of a lever. Courtesy of Hans Mejlshede.



Forensic implications of the bypass of lever locks. Courtesy of Hans Mejlshede.



Forensic implications of picking or decoding the Abloy lock. Courtesy of Hans Mejlshede.



The A-1 GM 10 cut pick system, courtesy of Harry Sher.



Pick tools for the sidebar lock, courtesy of Harry Sher.



Reading a Chrysler lock with an EZ Reader tool, by Harry Sher



Decoding of keys, courtesy of Harry Sher.



The Peterson PRO-1 tool, courtesy of Harry Sher.



LSS301: Abus decoder, by John Falle



LSS301: European lever lock decoder, by John Falle



LSS301: Ford Galaxy decoding system, by John Falle



LSS302: Medeco lock decoding system, by John Falle

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-  LSS302: Axira lock decoding system, by John Falle
-  LSS302: BMW lock decoder system, by John Falle
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Figure LSS+3207 External - Right hand inward opening timber door with standard Yale type lock; Internal - Left hand inward opening steel gate in confined area armed with single deadlock. Courtesy Ian Bauchop.



Figure LSS+3208 External - Left hand outward opening solid timber door with two locks; Internal - Left hand inward opening steel grille. Confined space with one deadlock and two sliding bolts



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Figure LSS+3210 Right hand inward opening solid timber door with multipoint locking system



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Cylinders can be forcibly removed by applying torque and destroying internal setscrews. The setscrews can also be removed during business hours to allow the cylinder to be unscrewed at a later time. Courtesy of Don Shiles.



A wrench attack on cylinders can be very effective. Courtesy of Don Shiles.

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Cylinders can be forcibly removed by applying torque and destroying internal setscrews. The setscrews can also be removed during business hours to allow the cylinder to be unscrewed at a later time. Courtesy of Don Shiles.

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Sigma analysis of the Kibb interlocking strike plate, with Ian Bauchop.



Demonstration of different forced entry techniques on doors utilizing the Kibb interlocking strike plate design.



A wrench attack on cylinders can be very effective. Courtesy of Don Shiles.



Forensic evidence of forced entry. Courtesy of Hans Mejlshede.



Opening a padlock by bouncing the locking dog. Courtesy of Don Shiles.



A discussion of covert entry by Harry Sher



A discussion of GSA containers and covert entry, by Harry Sher



A discussion of surreptitious entry and government containers, by Harry Sher



The use of the nose puller, courtesy of Harry Sher.



LSS201: MSC Lock Force tool, courtesy of MSC



LSS201: Forced entry tools produced by Sigma. Courtesy of Ian Bauchop.



LSS202: Broco Thermic lance description and use, by Tom Joos.



LSS203: Demonstration of the use of a loid, by MSC

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LSS101: Discussion of safe design by Bill Sherlock.

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Damon's Patent Lock
Day and Newell Parautoptic Safe Key
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W.B. Dodds
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Hall's Premier (mid-size)
Hall's Crescent
Hall's Crescent
Hall's Safe Lock
Hall's Single Dial Premier (mid-size) with Consolidated Time Lock
Herring, Farrel, and Sherman Double Dial
Herring Grasshopper Key Lock
H.C. Jones Patent Combination Lock
"Hobnail" (Early American) Safe Key
Lillie (attributed) Click Lock with Key
Lillie (attributed) Dial Lock w/Knob
Lillie (Lewis) "Click Lock" Safe Key
Miller Combination Lock Patent Model
Rosengrens Safe Lock
Safe-Deposit Lock-1
Sargent's Magnetic Lock #2 (early)
Sargent & Greenleaf #3 Fire Proof Lock
Sargent & Greenleaf #1 Vault Door Lock
T. J. Sullivan
Yale Double Dial Bank Lock Earliest pat. Date-July 14, 1857
Yale Double Dial Split-Bolt Vault Lock
Yale Pin Dial Time Lock (56 hour, 2 movement)
Yale 101-1/2 Double Dial
Yale Quadruplex Safe Key



LSS101: Discussion of the X-07 and X-08 with Joe Cortie
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3563-1819 Proficiency in burglarizing types of safes



LSS201: A primer on the burglary of safes, Courtesy of Bill Sherlock.



LSS201: Forensics and locks, Courtesy of Bill Sherlock.



LSS202: Steve Mattoon on the use of explosives to gain entry.



Use of the change-key hole for reading wheels, by Harry Sher



LSS204: Owe Bengtsson on opening safes



LSS204: Owe Bengtsson introduction to opening safes



LSS204: Owe Bengtsson on the forced entry opening of safes



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2963-42 The use of robot dialers



Use of ultra violet to determine which keys have been depressed on a keypad. Courtesy of Don Shiles.



LSS201: Mark Bates on Manipulation



LSS201: Mark Bates on the Soft Drill



A discussion of Mas-Hamilton and the Soft Drill, by Harry Sher



Background on Mas-Hamilton and the development of the Soft Drill, by Harry Sher

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LSS202: Ross Anderson on security engineering

Chapter 39 Security: Physical Protective Measures

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Hinges and forensic evidence. Courtesy Don Shiles.



Case example: removal of sliding glass door. Courtesy of Don Shiles.



LSS202: Ross Anderson on biometrics

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LSS401: E Field protection



LSS401: Buried Cable sensors



LSS401: Fence alarm system



LSS401: Microwave sensor systems



LSS401: Outside passive infrared sensors



LSS401: Photoelectric sensors



LSS401: Thermal imaging and sensing



LSS401: Video logging and capture systems



LSS401: Alarm contact devices, including magnetic switches



LSS401: Discussion regarding pressure mats



LSS401: Embedded screen wires



LSS401: Alarm foil



LSS401: Grid wires in alarm systems



LSS401: Ribbon switch material as a sensor



LSS402: Shock sensors for glass break detection



LSS402: Other types of shock detection sensors



LSS402: Trip wires in alarm systems



LSS402: Alarm monitoring systems



LSS402 Defeat techniques for different sensor technologies



LSS402: Glass break sensors and how they work



LSS402: Issues with microwave sensors

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LSS402: Alarm sounders and notification devices



LSS402: Ultrasonic alarm sensors



LSS402: Proximity sensor technology



LSS402: Alarm defeat methods for dual technology devices



LSS402: Passive infrared sensor technology



LSS403: Fiber optic fence sensors



LSS403: Shock sensors utilized to protect fences



LSS403: Magnetic point sensors



LSS403: Dual technology devices utilized in outside environments



LSS403: Ross Anderson on alarm system monitoring



LSS403: Magnasphere technology



LSS403: DOE on perimeter sensors and their defeat



LSS403: DOE on alarm assessment



LSS403: DOE on sensor technology



LSS403: DOE on layers exterior protection



LSS403: DOE on a typical plan of attack on a facility



LSS403: Defeat of magnetic switches, including BMS