



High Insecurity Locks: What you Need to Know about Locks, Lies, and Liability

High Security locks may not provide the security that you require and may present vulnerabilities in high security or critical targets

Conventional Pin Tumbler Locks

- Minimal security against covert methods of entry and forced entry
- Bump open easily
- No standards for security, some grades of strength and endurance
- Not used for high security locations
- No secondary locking systems as in high security cylinders

What is a High Security Lock

- High tolerance
- Quality materials and workmanship
- Expensive: a form of insurance
- Extended testing for security
- Special distribution channels
- Many security enhancements
- Two or three separate parallel systems
- More difficult to compromise than conventional cylinders

Use of High Security Locks: When you need to be sure!

- High value targets
- Critical infrastructure
 - I-T, Command and Control Centers
 - High value business: banks, gems, drugs
 - Government Installations
 - White House, Pentagon, Nuclear security
 - Embassies, Critical Missions

Why We Need High Security Locks

Protect Against Special security vulnerabilities:

- Bumping
- Picking
- Replication of keys and key control
- Extrapolation of Top Level Master Keys

Standards: What they Mean

- High security lock standards:
 - Benchmarks for everyone to rely upon because most cannot test locks themselves
 - Facility specifications based on standards:
 - In U.S. UL/ANSI
 - In Germany: Vd.S
- How are locks tested and by whom
- Standards are inadequate for real world
- Case Example: Medeco® High Security Locks

High Security Locks: Primary Protection Criteria

- Forced Entry
- Covert Entry
- Key Control
- What is not covered: Common exploits
 - Bumping
 - Special forms of picking
 - Mechanical bypass
 - “Real World” Techniques
 - Bypass of key control

UL-437 Attack Resistance

(Door locks and Cylinders)

Picking	10 Minutes
Impressioning	10 Minutes
Forcing	5 Minutes
Drilling	5 Minutes
Sawing	5 Minutes
Prying	5 Minutes
Pulling	5 Minutes
Driving	5 Minutes

Standards (ANSI A156.5) Security Tests

- Impact
- Tension
- Torque
- Impact
- Sawing
- Pressure
- Tensile

In addition to the above requirements all cylinders must meet all DRILLING(5min) and PICKING(10min) requirements of UL-437

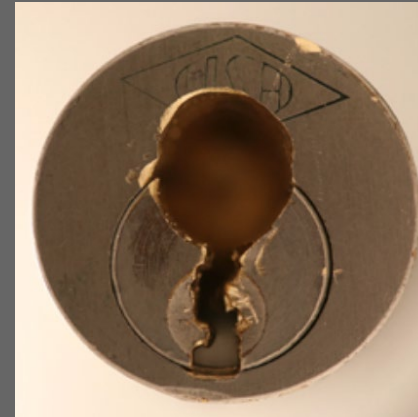
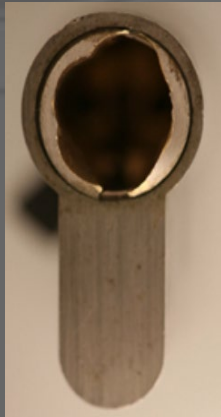
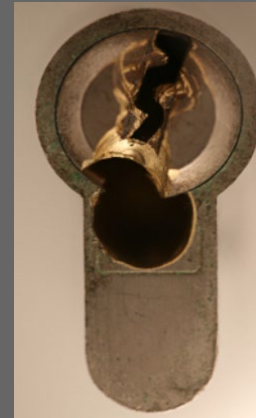
Security Against Forced Entry



Drills and End-Mills: A common attack



Forced Entry: Drilling Conventional Cylinders



UL-437 Tools used for Testing (Hand or Electric)

Forced Entry

- Pry bars(up to 3ft)
- Chisels
- Screwdrivers (max 15in)
- Hammers (max 3lbs)
- Wrenches
- Pliers
- Drills
- Saw blades
- Pulling tools

Covert Entry

- Picking
- Impressioning

Standards (ANSI A156.30)

High Security Cylinders

- Key Control (ratings are cumulative)
 - C - Manufacturer restricted blanks
 - B - Blanks protected by law
 - A - Authorization required
- Forced Entry
 - Test for different methods of attack
- Pick Resistance
 - Fifteen minutes

Covert Entry - Picking



Mechanical Bypass: Another Method of Entry

- Wires and shims
- Vibration, shock, bumping
- Air pressure
- Magnetism
- Breaking of internal components
- Radio Frequency energy
- Temperature

Mechanical Bypass: May not be Covered

- Defeating locks in less than a minute
- Often not included in standards
 - May be forced or covert entry
- Many certified locks can be compromised
- Public is misled into a false sense of security

Manufacturers: What they Know and will Disclose

- Great R&D
- Some have a poor understanding of methods of bypass
- Cannot Make secure if don't know how to break
- Failure of Imagination
- Misrepresentations of security:
 - Know and will not disclose
 - Don't know, negligent misrepresentation

What You Need to Know about High Security Locks

- Manufacturer may not know or tell you
- Manufacturer may not fix: Its about \$
- Criminals may know and exploit problems
- Mechanical bypass often simple
- Medeco® deadbolt: Secure for 20 years
- Tobias attack: Secure for 40 years

Representations by Manufacturers

- Locks are secure
- Implied representations
- Know or should have known of problems
- Meet specifications?
- Need truth in packaging and advertising
- Design issues and failures
- Bypass methods not contemplated

“A Failure of Imagination”

Are Locks Vulnerable?

- Mechanical bypass
- Forced entry techniques
- Covert entry techniques
- Key control compromise
 - Manufacturers cannot find the vulnerabilities
 - Why we need White Hat hackers

Design Issues

- Failure of imagination
- Design engineer problem
- Key never unlocks the lock
- Moshe Dyan problem: Design issues can create a two-way path

Design Defects

- Failure to understand laws of physics
- Failure to understand methods of entry
- Failure to imagine
 - Generally simple design failures
 - Directly affect the security of the lock
 - Affect any security ratings
 - Mislead the consumer