

AIRPORT SECURITY! S01 - E008

BREAKING INTO YOUR BAGGAGE

Héctor Cuevas Cruz

Physical Security Village – DEFCON 33

PHYSICAL SECURITY VILLAGE

$whoami

- Mexican – Pentester||DFIR||TH
- Senior Managing Security consultant
- Pwntacles Founder



@hecky

BISHOPFOX

DEFCON

WILD WEST HACKIN' FEST

8.8

PWNTACLES

EKOPARTY SINCE 2001

SUMMERCON

PWNTACLES

- Mexican HackerSpace
  - Students
- Research, PoCs & Fun







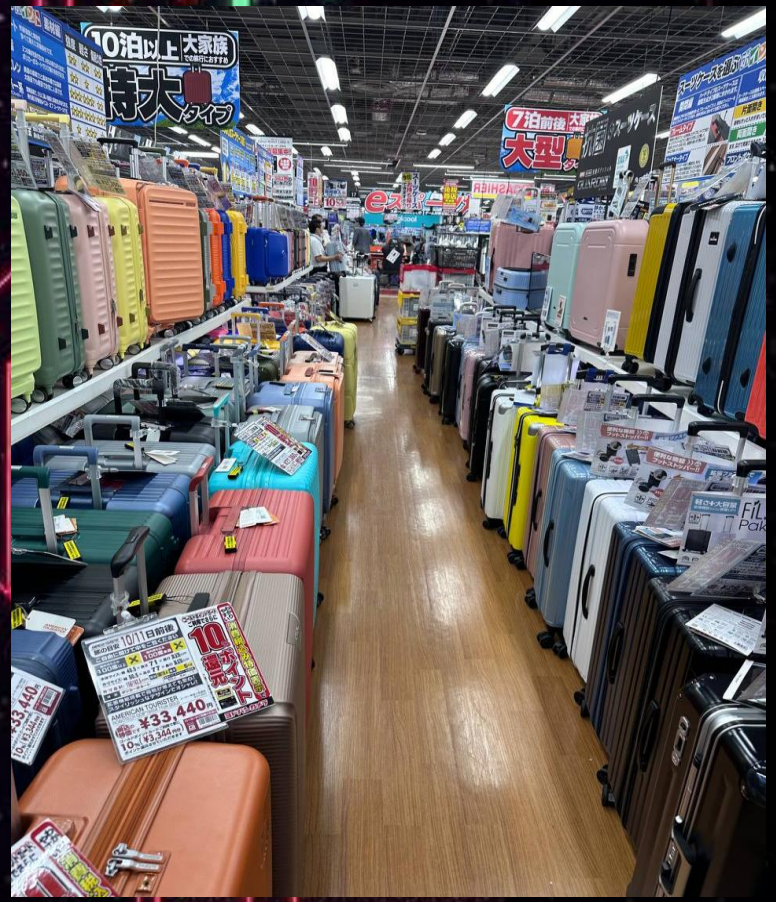
EKOPARTY 20

DOJOCONF
CONFERENCIA DE CIBERSEGURIDAD Y TECNOLOGÍA

BUGCON
safety is just a myth...

BSIDES CDMX

Secure Baggage





Locks!!!



TRAVEL SENTRY

TSA != TSA Travel Sentry

TSA: Transportation Security Administration

Travel Sentry: Luggage locks approved by TSA (over 500 companies authorized to manufacture)

Type of Locks on suitcases







Padlock

- Key - Combination

Built-in

- TSA Travel Sentry/Combination

Combination (3-4 digit)

- Padlock
- Built-in
- Retractable cable

Smart

- Fingerprint
- BLE / Wi-Fi

Proximity

- NFC / BLE

Key

- May or May not be TSA approved





TSA approved locks





TSA001 – TSA008

- Padlock (Key)
- Padlock (Key + Combination)
- Built-in (Key + Combination)
- Built-in (Key + Combination + Smart)













TSA001-008 Lock Types

TSA	Lock Type
TSA001	Pin tumbler
TSA002	Wafer lock
TSA003	Wafer lock
TSA004	CCL creation
TSA005	Pin tumbler
TSA006	Dimple
TSA007	Wafer lock
TSA008	Disc Detainer / Rotating Disks



Why so many?

Over Manufacturers

YiF / JYL

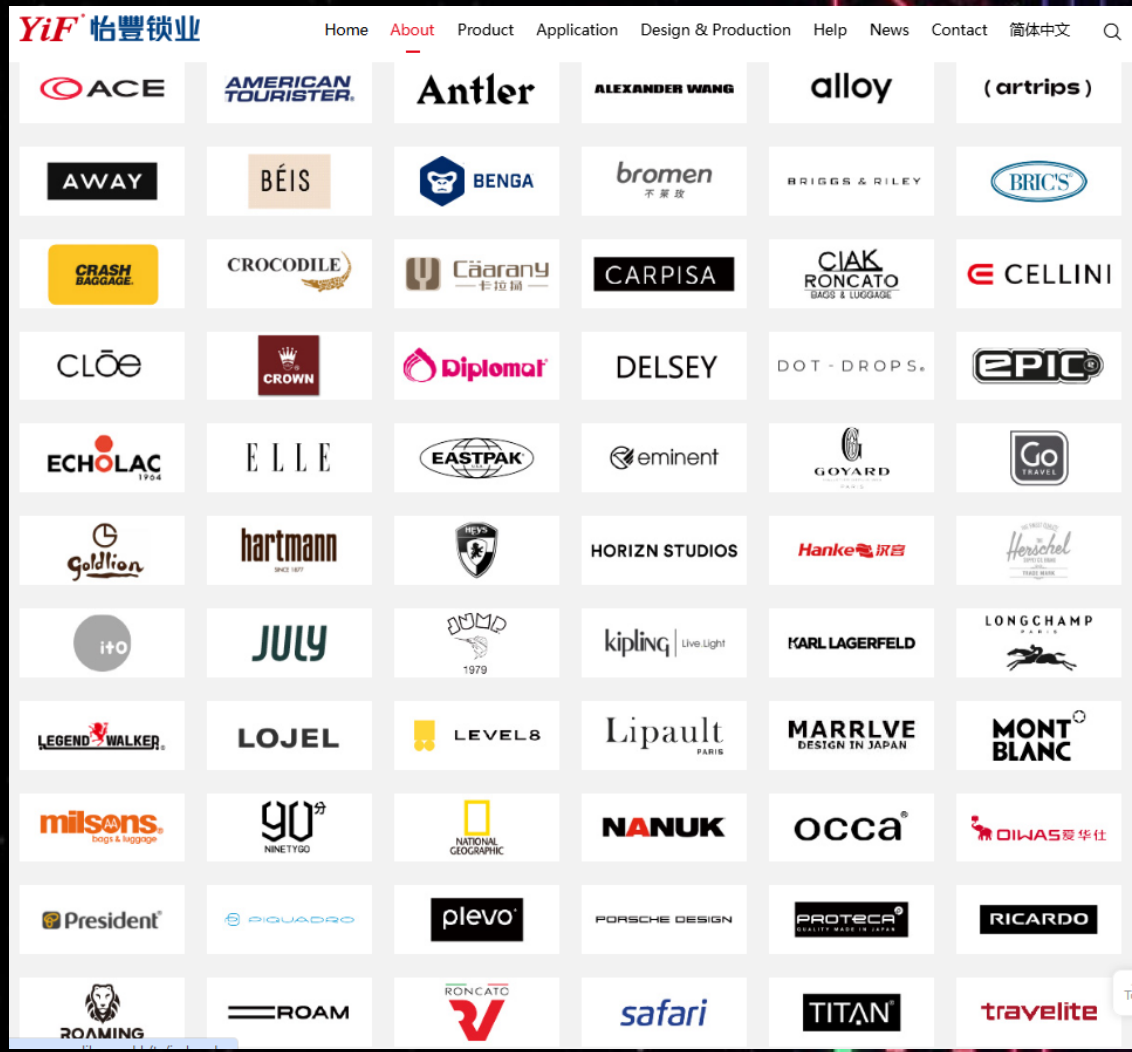
Corbin Cabinet Lock

Name	Corbin Cabinet Lock
Headquarters	Wheeling, Illinois (USA)
Founded	1882
Founder(s)	Phillip Corbin









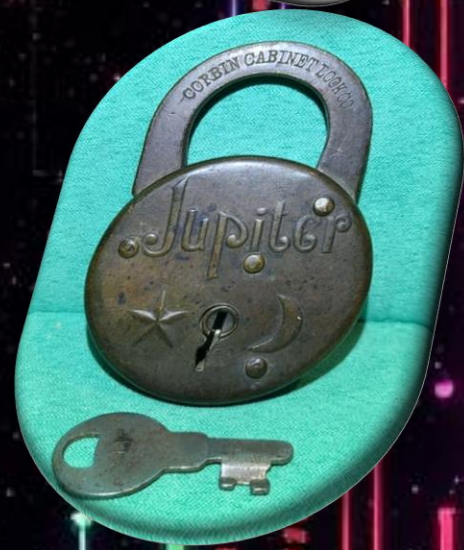
CCL – TSA004

Corbin Cabinet Lock	
Name	Corbin Cabinet Lock
Headquarters	Wheeling, Illinois (USA)
Founded	1882
Founder(s)	Phillip Corbin









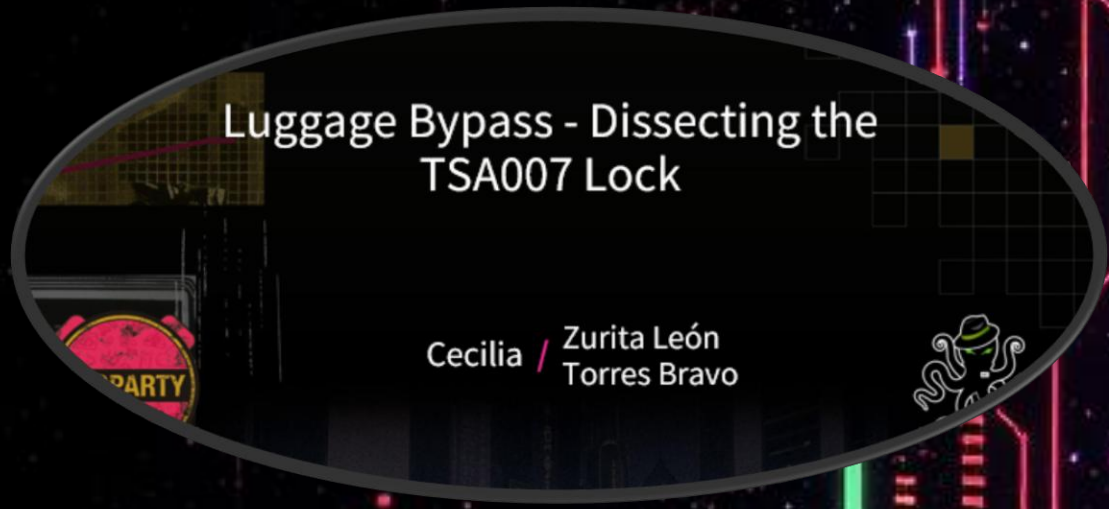
Not a new Research

Amazing Researchers:

- Adrian Crenshaw (Irongeek)
- Devian Ollant (Toool)
- DarkSim905, Johnny Xmas, Nite0wl (Eleventh HOPE)

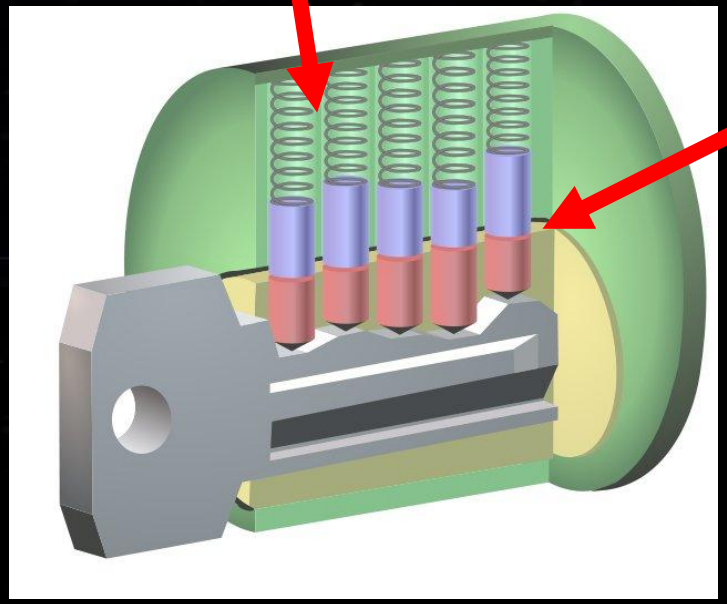
- Marco Sanchez
- Cecilia Zurita
- Cecilia Torres
- Renata Camarena
- Rodrigo Zacatelco



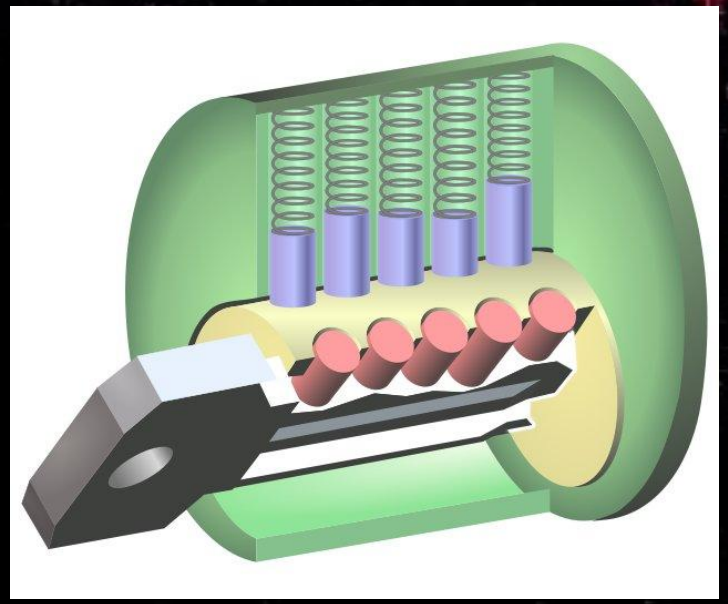


Pin tumbler

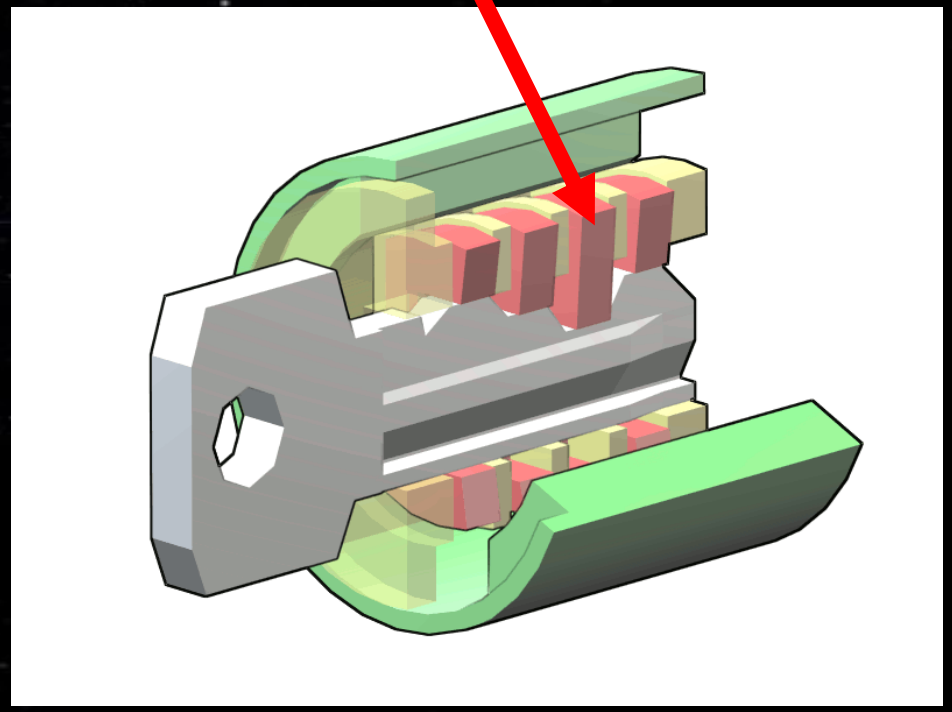
Springs



Key/Driver Pins

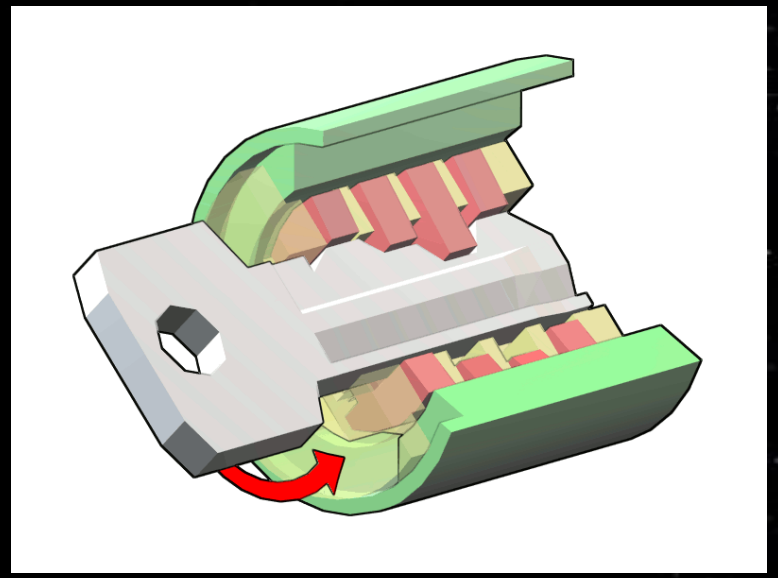


Wafer

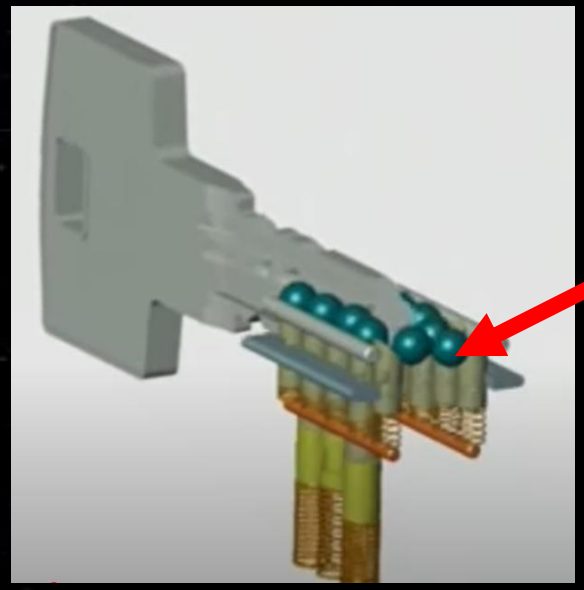








Dimple





Disc Detainer



Attacking TSA approved Locks

1. Impressioning
2. Lock picking
3. Decoding
4. Shiving







Impressioning

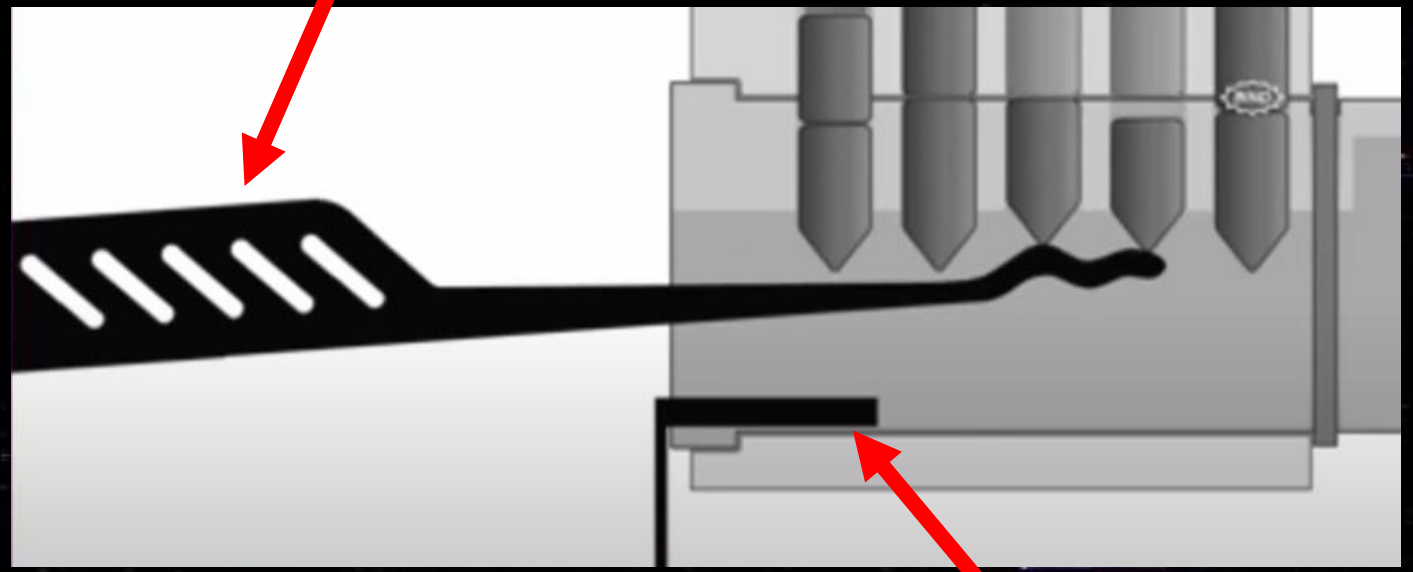
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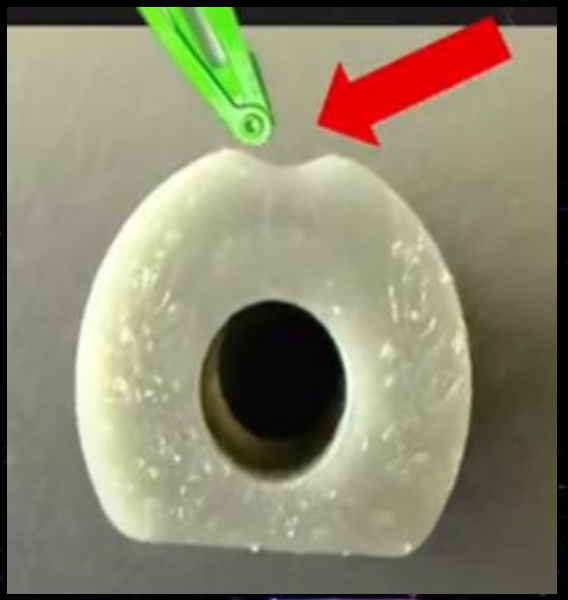
(Lock) Picking





Decoding





Bypass / Shiving

Bypass a lock mechanism by sliding "something"
between the locking parts,



TSA leaked



LICENSE.md	Added License & Updated README
README.md	ey
TSA001.stl	
TSA001_stubby.stl	
TSA002.stl	back
TSA002_stubby.stl	back
TSA003.stl	
TSA003_stubby.stl	
TSA004.stl	4's
TSA004_stubby.stl	Increased Height of 004's
TSA005.stl	Increased 005's X & Y by 165%
TSA005_stubby.stl	Increased 005's X & Y by 165%
TSA006.stl	Fixed a face
TSA006_stubby.stl	Stubby versions updated for 3/6
TSA007.stl	Enlarged 157%, courtesy JohnnyXmas
TSA007_stubby.stl	Enlarged 157%, courtesy JohnnyXmas



TSA – 3D printed



Master Keys



$311 USD



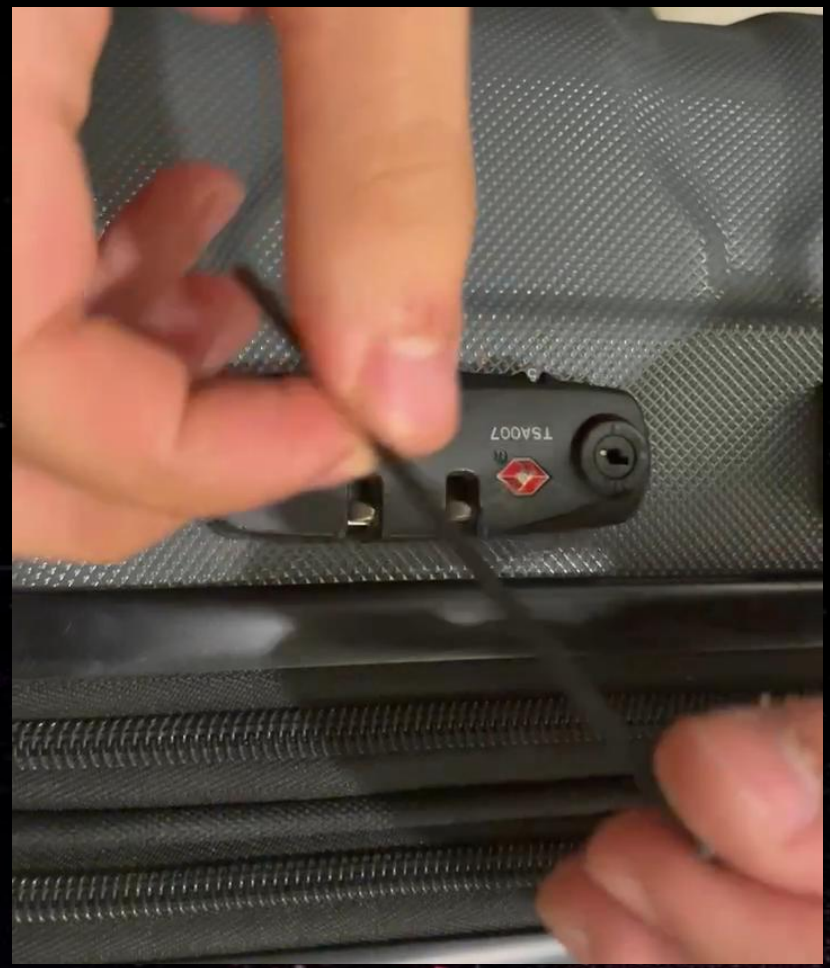
Specific attacks



TSA007 – Wafer Bypass



TSA007 – Wafer Bypass



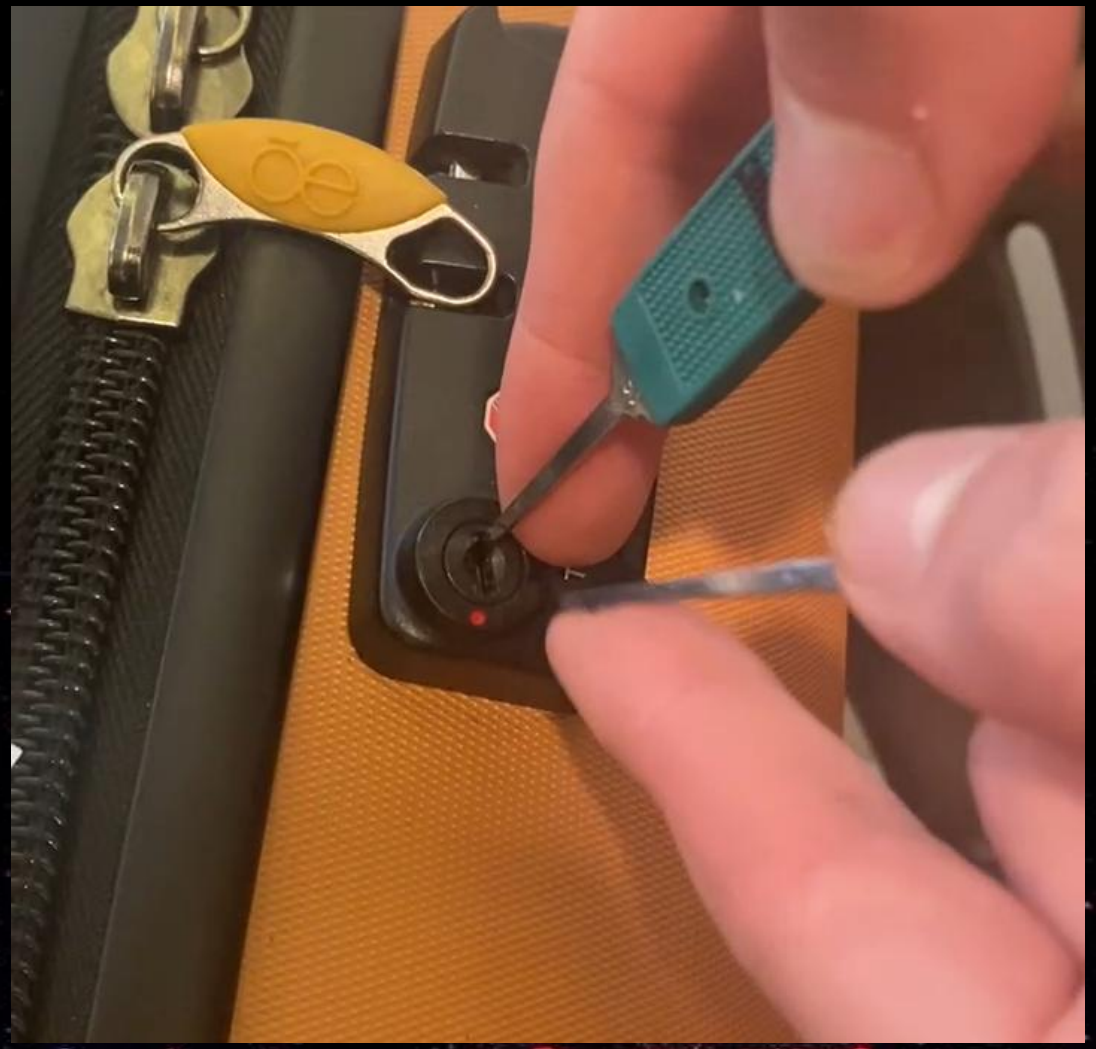
TSA007 – Wafer Bypass (Unusual tools)



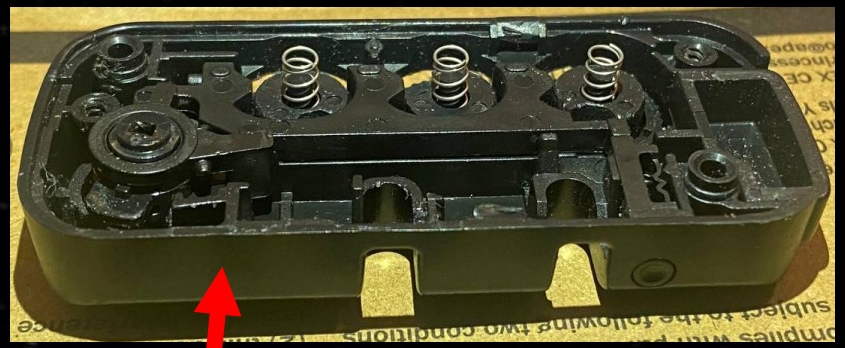




TSA002 – Wafer Bypass



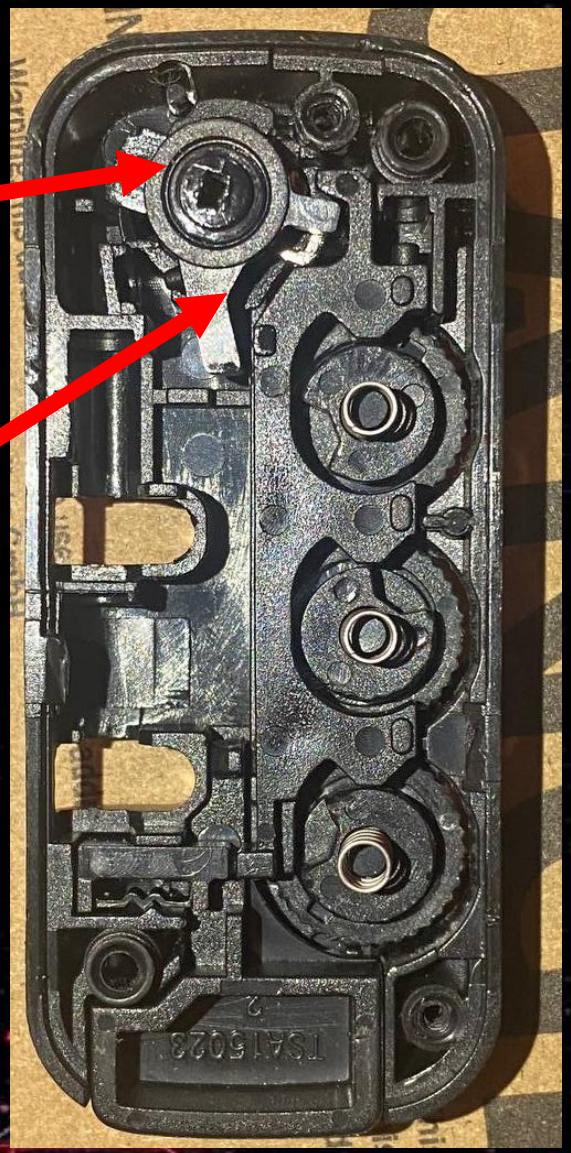
TSA007 – Enclosure / Housing Anatomy



Housing

Cam

Restrictor



TSA007 – Enclosure / Housing Anatomy

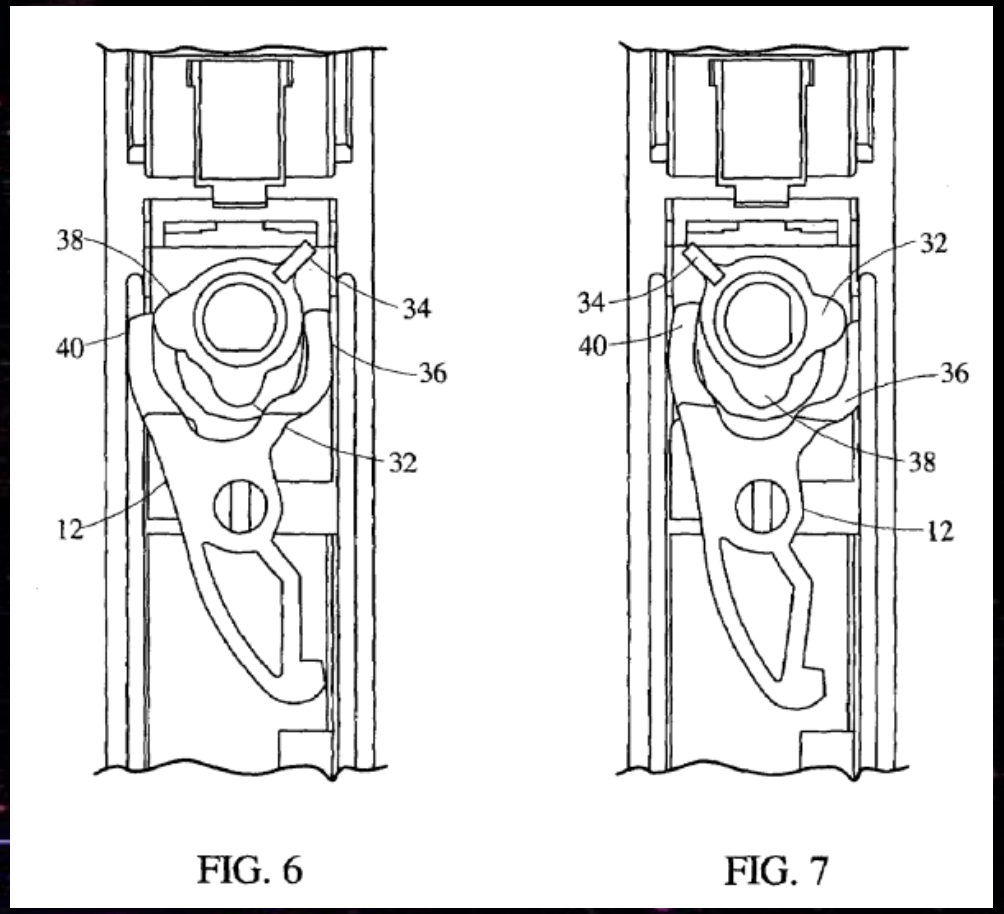


FIG. 6 FIG. 7

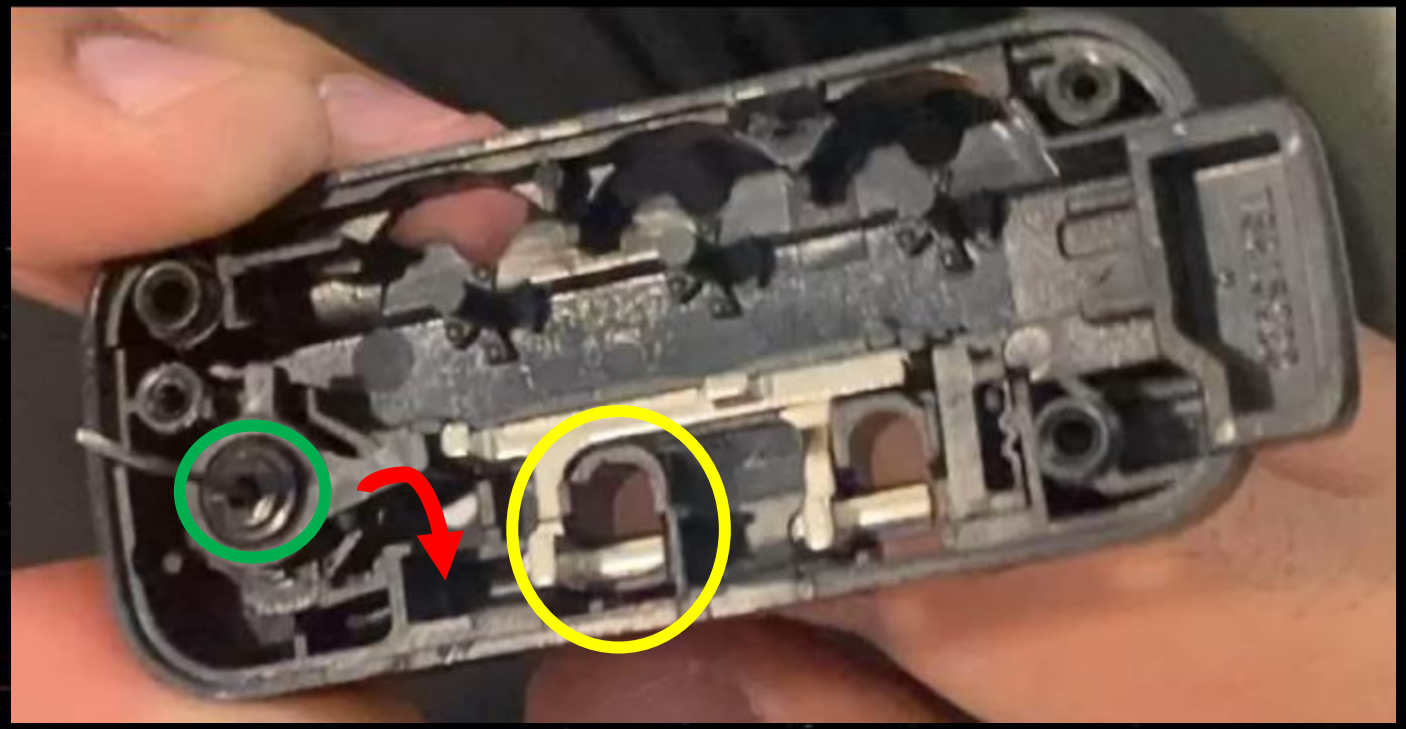
Pivot Arm



TSA007 – Enclosure / Housing operation



Housing Bypass / Shiving



From closest (1) latch space to the (2) cam, reach and pull (3) restrictor

Housing Bypass / Shiving

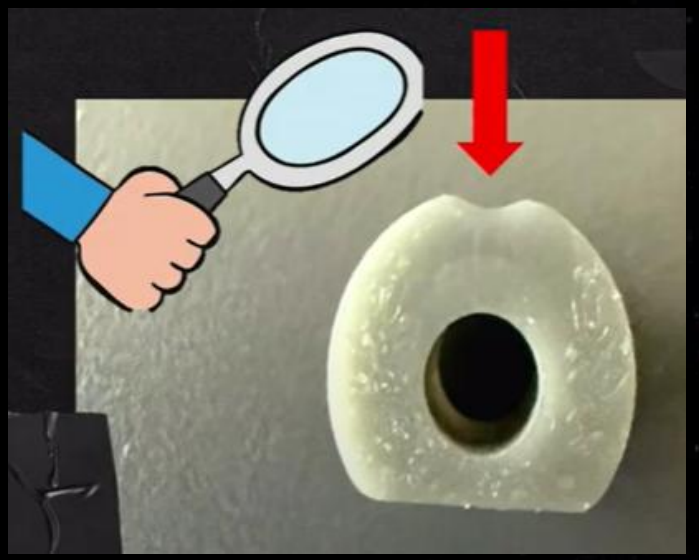


TSA007 & TSA002 & TSA005 - Housing Bypass / Shiving



TSA007 & TSA002 (built-in) - Decoding

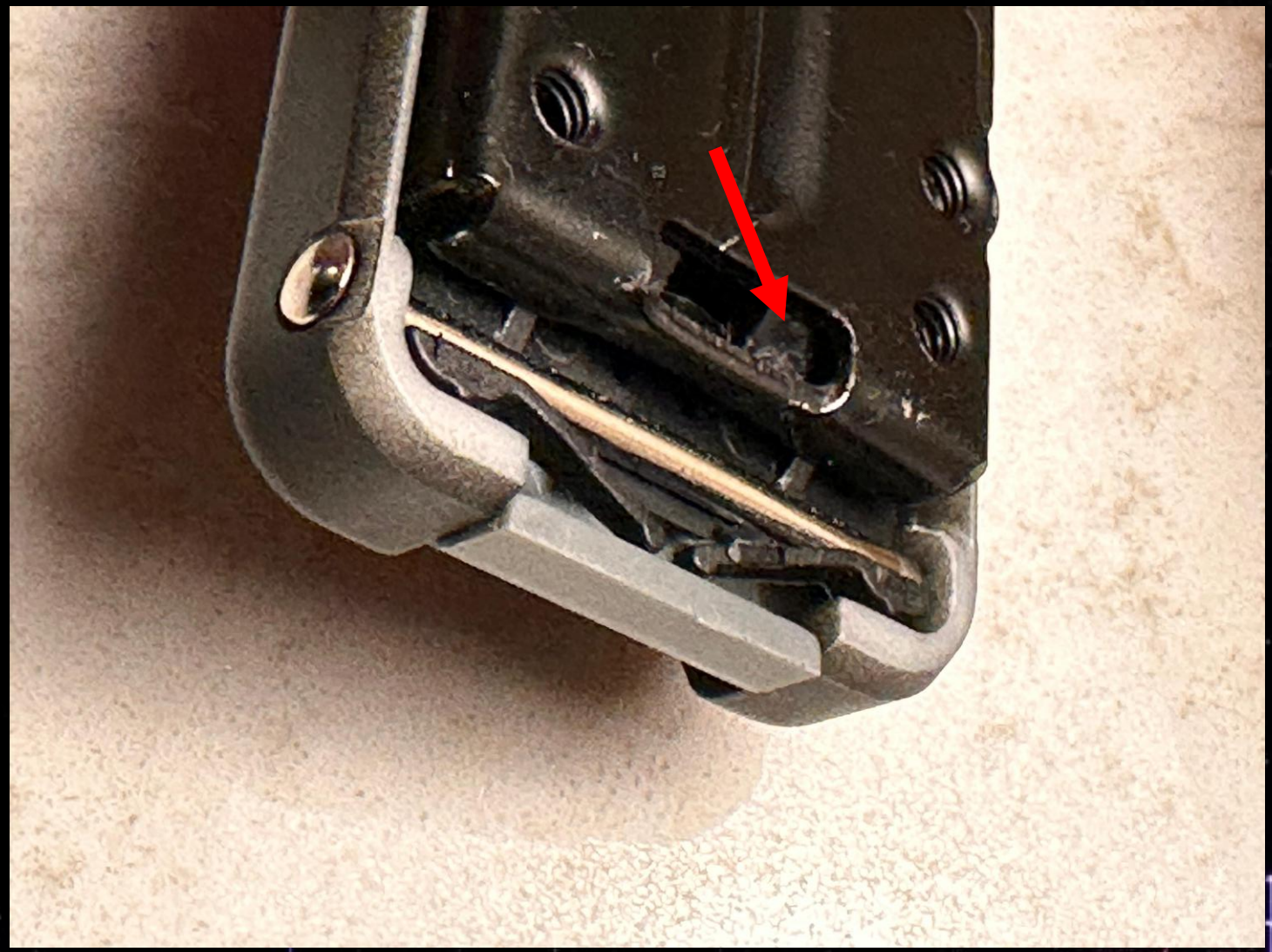




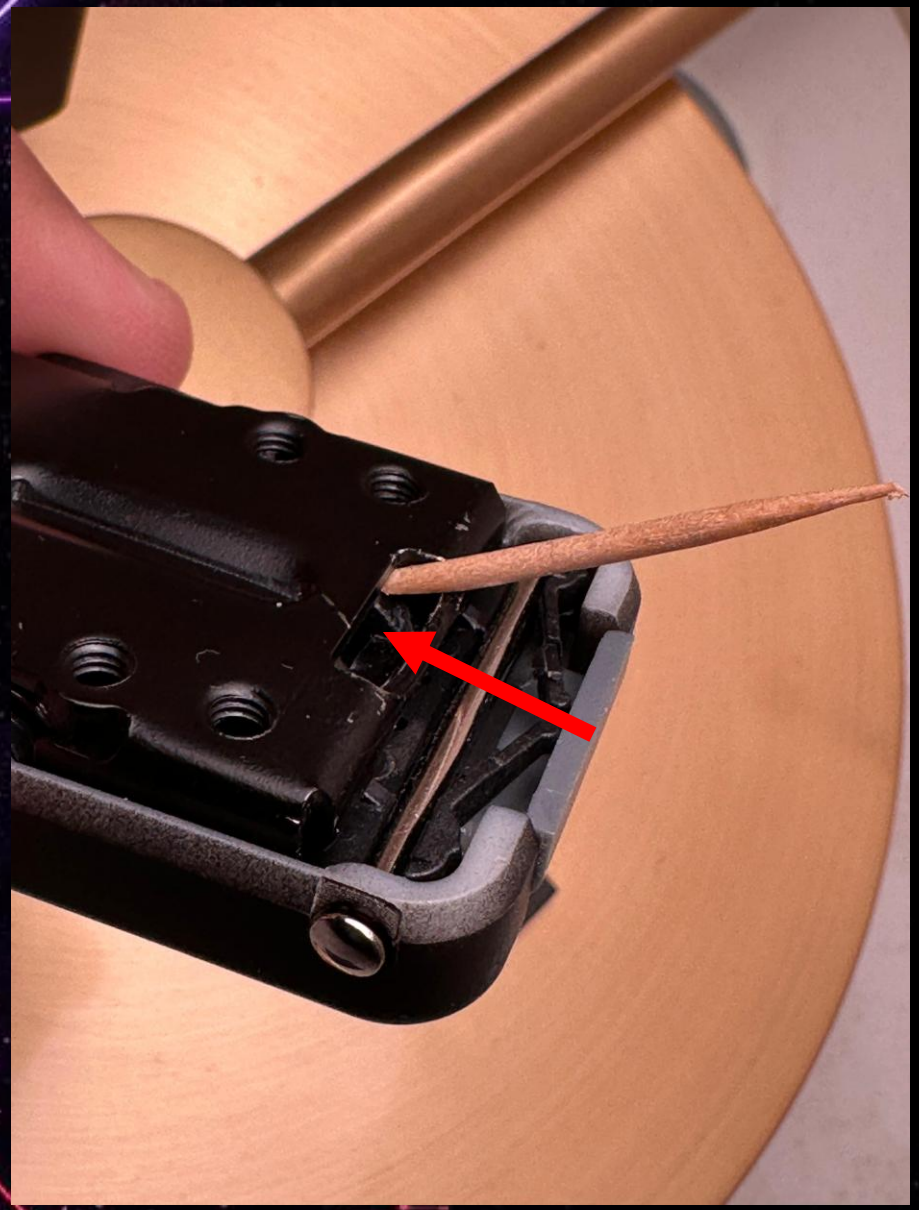


TSA006 (built-in) – Enclosure



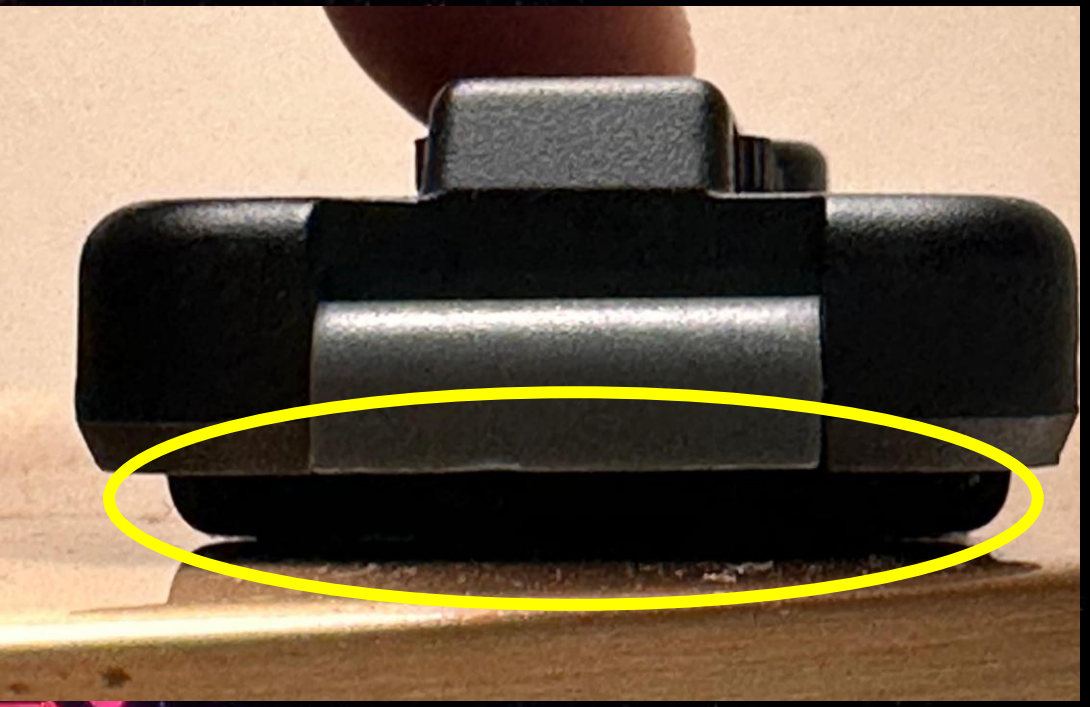


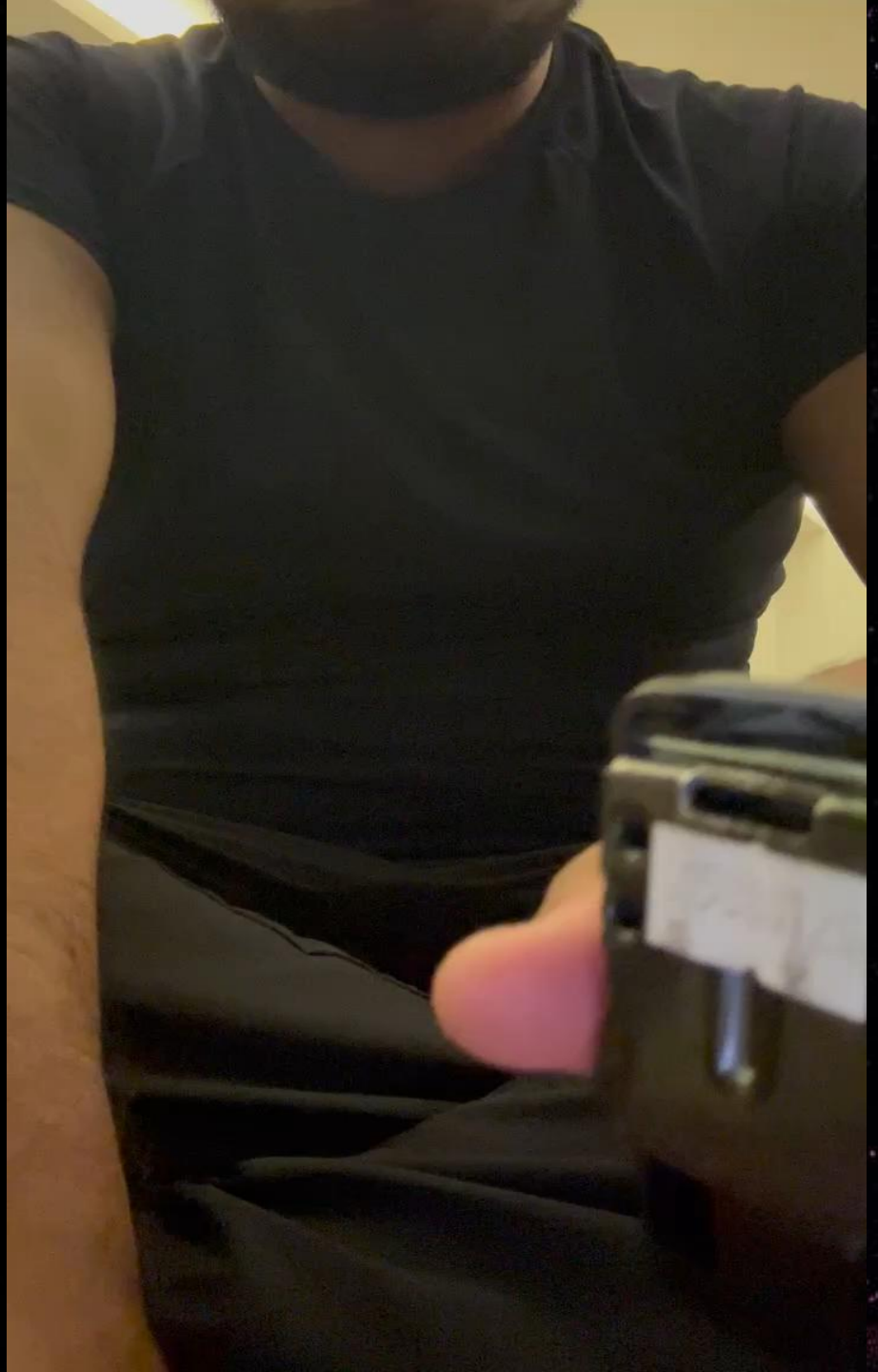
TSA006 – Enclosure Bypass



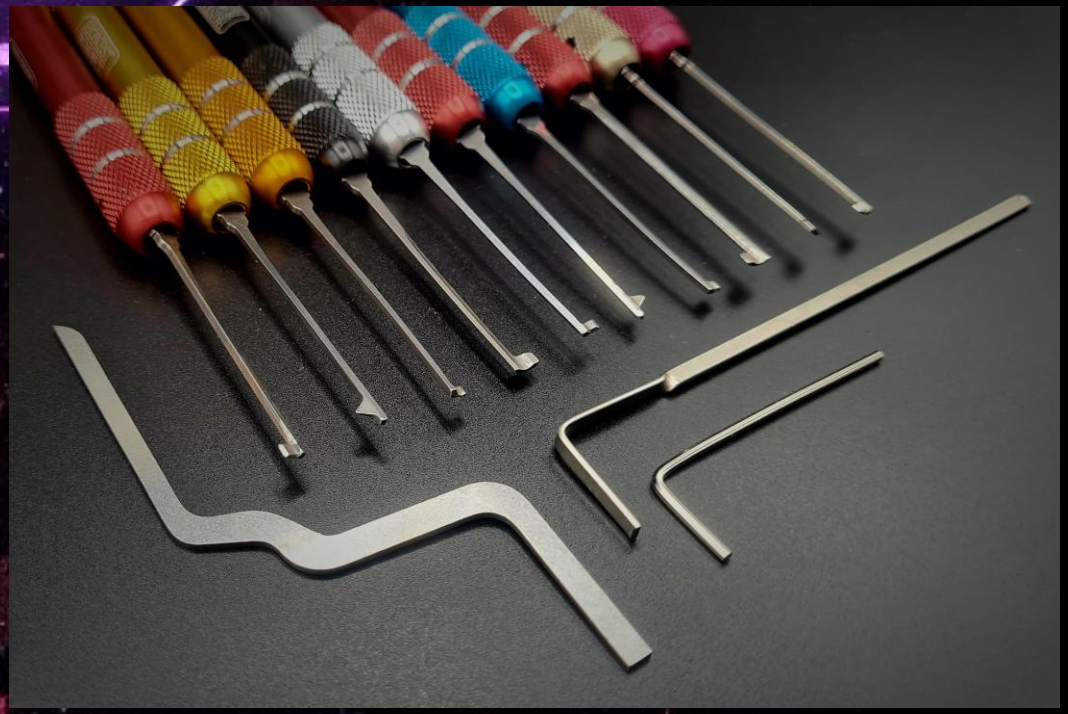


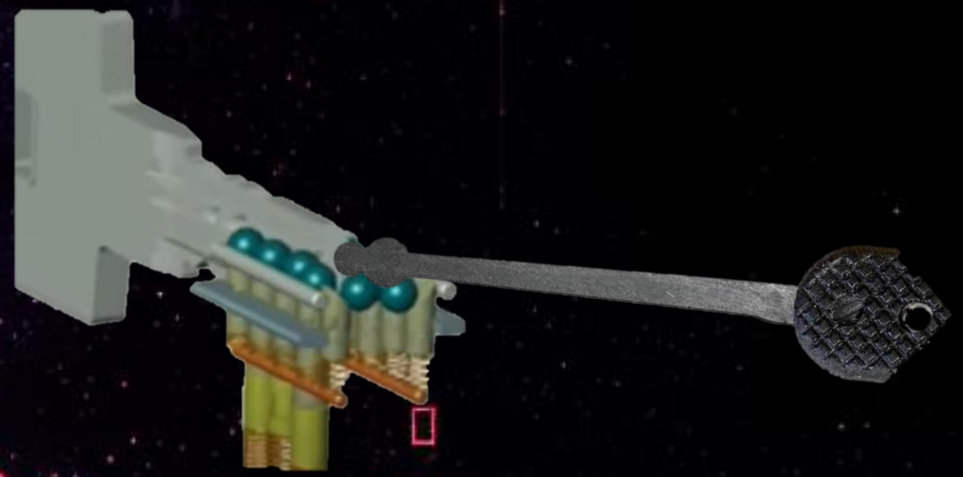
TSA006 – Enclosure Bypass





TSA006 – Dimple Picking



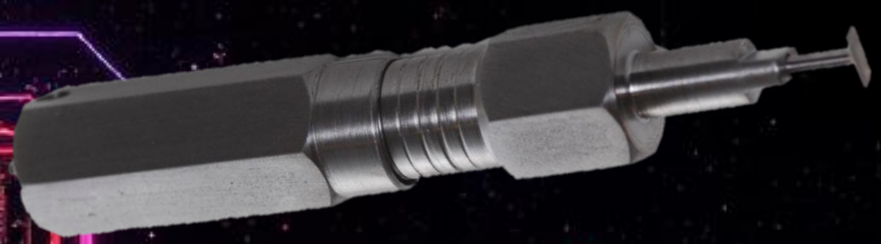




TSA008 – Disc detainers









TSA008 (built-in) – Enclosure Bypass







Wrap-up

TSA	Lock Type	Pickable	Master Key Leaked	Decodable	Enclosure Bypass / Shiving
TSA001	Pin tumbler				
TSA002	Wafer lock				
TSA003	Wafer lock				
TSA004	CCL creation				
TSA005	Pin tumbler				
TSA006	Dimple				
TSA007	Wafer lock				
TSA008	Disc Detainer / Rotating Disks				

Conclusion

- There are a bunch of methods to open your baggage
- These Physical Security mechanisms are the perfect example of:
  - "**Security through obscurity**"
- Look out for your belongings

A bunch of students with a little support can hack hard.

"Travel safe on your way back home from DEFCON 33"

References

- **Locksport journey with Abloy disc detainer locks -** (Idanhurja)
- **TSA Keys Leak: Government Backdoors and the Dangers of Security Theater -** The Eleventh HOPE (2016)
- **TSA Luggage Lock Duplication -** (Adrian Crenshaw)
- **No Keys? No Problem! Lockpicking 101 - Ekoparty 2024 -** (Rodrigo Zacatelco & Renata Camarena)
- **Luggage Bypass - Dissecting the TSA007 Lock - Ekoparty 2024 -** (Cecilia Zurita Leon & Cecilia Torres)



Q&A