INDIVIDUAL INNOVATOR, EDMUND GREENWOOD

a customs seal across the container doors - that must be broken, to gain access to the cargo space

the challenge

In 2005, as a response to the World Trade Centre terrorist attack in New York, European Ministers of Transport met at a conference titled " Container Transport Across Modes ". The meeting was called to address security, as it was feared a container could be used to deliver a bomb.

In the meeting's Overview and Analysis, Section 2 titled : Securing Container Integrity it says, "However it should be stressed that the vast majority of seals only indicate whether the seal itself has not been tampered with - not that the containers integrity has been compromised".

My conclusions are therefore:

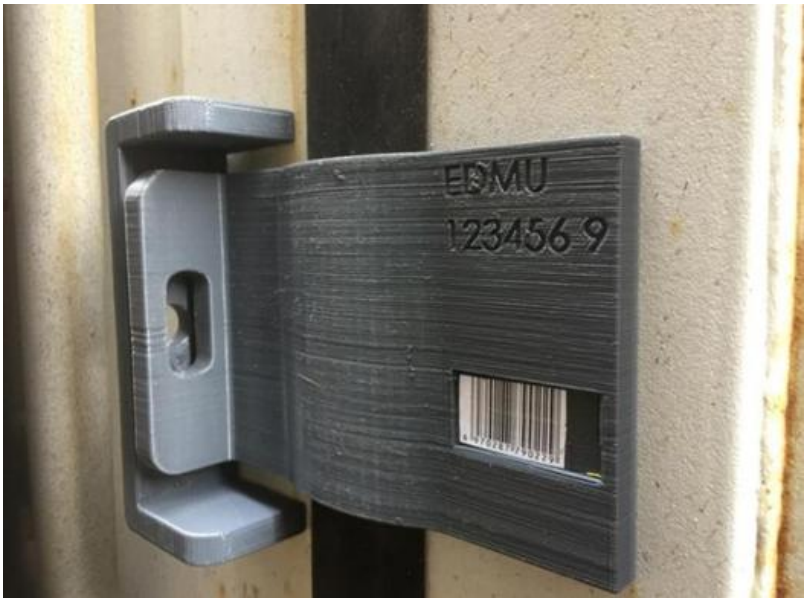
- the customs seal fastening point is in the wrong place, it does not block entry
- advances in door design and configuration have improved manufacturing, but have been less successful from a security perspective and a security rethink is required

Unfortunately though, even after the advent of the "SecuraCam", at the bottom of the right hand side door inner lock rod, covert theft and smuggling continue.

These crimes rely on the fact - as revealed in the quote above - that twenty years later, the Customs seal still does not block entry. It can be side stepped, left intact and untouched - to be displayed after the crime as a "red herring".

the innovation

A customs seal across the container doors - that must be broken to gain access to the cargo space. The example shown is a 3-d print of the prototype.



The Customs seal fastening point, above, will bring about real change in the global supply chain, where criminal activity will have to be accounted for and responsibilities met, at the source of the problem.

The device replaces the much tampered right hand side door overlap plate, also known as the TIR plate. It also makes the use of an internal TIR plate redundant and stops door hardware fastener tamper.

The invention would be a component of the welded construction, and as such, it has the lost permanence of first generation containers, that is essential to security.

If adopted the device would become a conclusive focal point for security agencies or Customs examination and as such “any tampering will be clearly visible”, as demanded by TIR regulation.

Alpha-numerically identified with the container fleet number and prefix on display. The device enables one-shot, close up photographic evidence of the fastened Customs seal after cargo loading. Recording the seal number, its type and colour as well as the pre-trip condition of the mountings with container number.

The photo could be made available on the internet for verification anywhere in the global supply chain.

Bar code identified, when used in combination with bar coded Customs seals it would enable scanned gate movements at automated ports.

Definitive control of both doors provides the ideal e-seal fastening point.

how it was implemented

The device, commonly termed a ‘Customs sealing TIR plate’, features industry tried and tested anti-racking engineering.

When a container is being transported, the doors alternately move vertically in opposite directions. The device has clearance to accommodate this movement and anti-racking design to limit it. This safely ensures that a fastened Customs seal has no impingement or shearing forces exerted upon it.

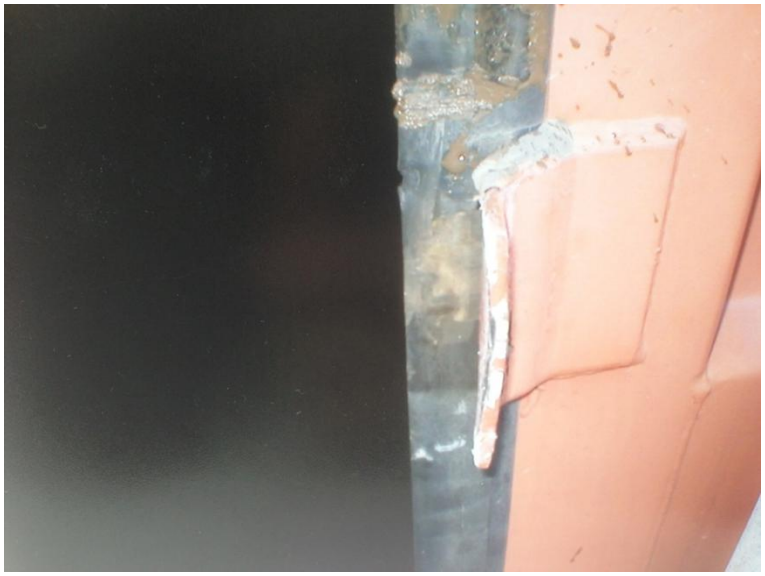
The device would be located in the lower quarter of the doors to aid fastening of a Customs seal when the container is on a trailer and to aid check-point inspections.

The Customs seal fastening points are both components of the welded construction, which is the preferred method of attachment of Customs seal fastening points in the TIR convention.

The invention is still yet to be implemented. It was designed to protect the left hand side door and put an end to door hardware fastener tamper.

It can also to help to avoid the scenario where - arguably - the Customs seals signpost the way for criminal access by the left hand side door.

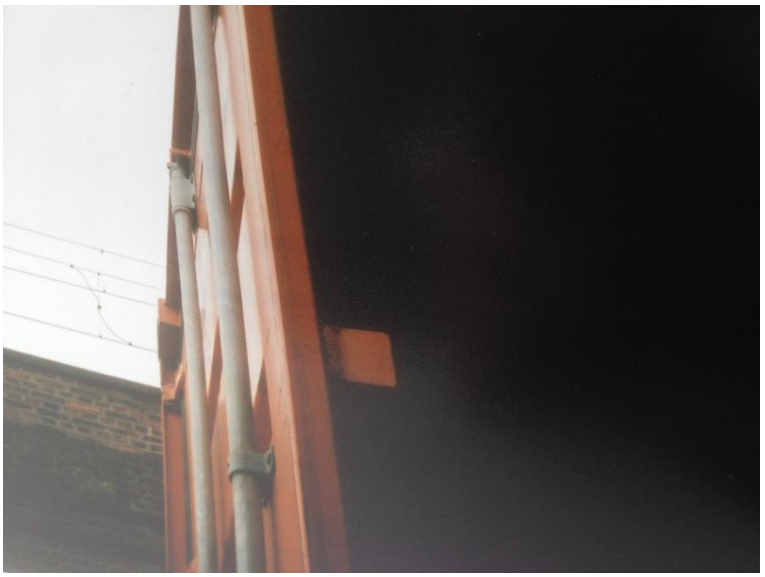
It can also prevent the bending of the external TIR plate and then re-straightening to cover criminal acts such as theft or smuggling.



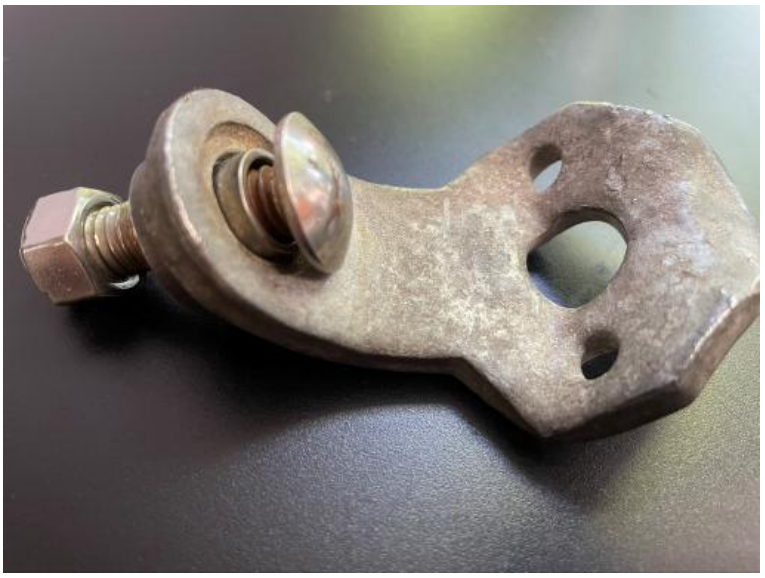
This picture shows an external TIR plate in a state of half tamper. It will be straightened again, after theft or smuggling is completed via the generally unsealed left hand side door

This picture shows the internal TIR plate or Customs plate in state of tamper. It cannot be seen from the outside when the doors are closed.

I would argue that the implementation of this design goes against TIR regulations 1.2.1 in the TIR Handbook.

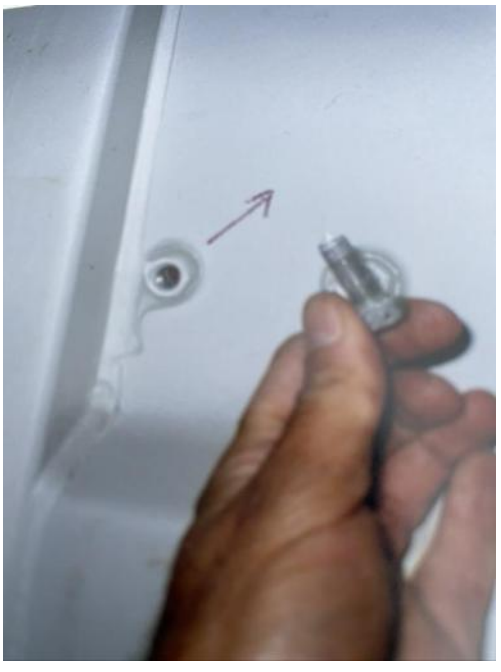


This picture shows the type of external look-a-like fastener that may be used in tampers which break the approved lock bolts. The nut is sealed on to the inside of the door before closure. Door hardware can then be refitted, while in the closed position, with the original, intact Customs seal still attached.



Finally, this picture shows how interior sealing of doors at manufacture could introduce a vulnerability to tampering. This hardware bolt was unscrewed with the nut left on the inside of the door, ready for refitting.

These are some examples of how door hardware fastener tampering has been affected by criminal actors.



conclusion

The ”SecuraCam” is **reliant** upon door hardware fasteners and mainly nuts and bolts for a significant part of its security. Bad actors have been found to have removed door fastener hardware quickly with little to no visible sign of entry.

The e-seal investment into RFID tracking, port systems etc. can also provide a great step forward for cargo security. That is, if the e-seal is mounted upon welded terminals on each door and has to broken to gain access to the cargo space.

The invention is a component of the welded construction and painted with the door, it has the permanence of first generation container manufacturing that is fundamental for security.

If adopted the device would become a conclusive focal point for security agencies or Customs examination, and as such, as demanded by International Law “any tampering will be clearly visible” (TIR January 2025). Which can be confirmed by photographic verification.

This Customs Seal Fastening Point could bring about real change in the global supply chain. Helping to ensure that criminal activity will be accounted for and responsibilities met, at the source of the problem.

This innovation is protected by UK and Chinese patents. For more information please contact: edmund.greenwood@icloud.com

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