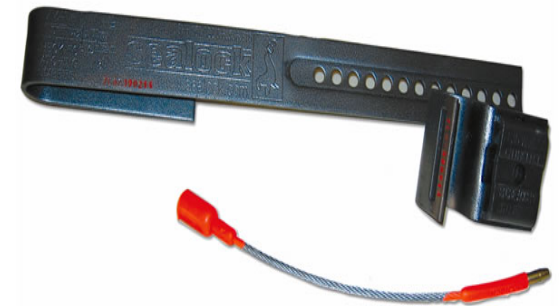




Seals Security & Best Practices



Presented by
Raymond Monzon
Supply Chain Security Specialist
Miami C-TPAT Field Office



U.S. Customs and
Border Protection



Field Operations



What Will Be Covered...

This presentation will cover:

- C-TPAT Criteria – ISO Seals
- Seal Affixing Procedures
- Detecting Altered Seals
- Technology Terminologies



U.S. Customs and
Border Protection



Field Operations



Seal Affixing Procedures...

Container



Container, Can, Reefer, etc.

Trailer



Trailer, Box, Ro-Ro, etc.



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C-TPAT Criteria...

Criteria

Container Security (Importer):

- Container integrity must be maintained to protect against the introduction of unauthorized material and/or persons.
- At point of stuffing, procedures must be in place to properly seal and maintain the integrity of the shipping containers.
- A high security seal must be affixed to all loaded containers bound for the U.S.
- All seals must meet or exceed the current ISO/PAS 17712 standards for “high security” seals.



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C-TPAT Criteria...

Criteria

Container Security (Highway Carrier):

- When transporting a container or trailer for a C-TPAT importer, a high security seal that meets or exceeds the current PAS ISO 17712 standards for high security seals must be utilized.

Trailer Seals (Highway Carrier):

- The sealing of trailers, to include continuous seal integrity, are crucial elements of a secure supply chain, and remains a critical part of a carrier's commitment to C-TPAT. A high security seal must be affixed to all loaded trailers bound for the U.S. All seals must meet or exceed the current PAS ISO 17712 standards for high security seals.



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C-TPAT Criteria...

Trailer Seals (Highway Carrier):

Criteria

Clearly defined written procedures must stipulate how seals in the highway carrier's possession are to be controlled during transit. These written procedures should be briefed to all drivers and there should be a mechanism to ensure that these procedures are understood and are being followed:

- Verifying that the seal is intact, and if it exhibits evidence of tampering along the route.
- Properly documenting the original and second seal numbers.
- Verify that the seal number and location of the seal is the same as stated by the shipper on the shipping documents.
- If the seal is removed in-transit to the border, even by government officials, a second seal must be placed on the trailer, and the seal change must be documented.
- The driver must immediately notify the dispatcher that the seal was broken, by whom; and the number of the second seal that is placed on the trailer.
- The carrier must make immediate notification to the shipper, the customs broker and/or the importer of the placement of the second seal.



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WHAT IS ISO/ PAS 17712...

Criteria

- The International Standards Organization (ISO) permits its technical committees to draft and vote on Publicly Available Specifications (PAS) as, in effect, a kind of interim International Standard.
- Published in 2003, the original ISO/ PAS 17712 was developed by a working group of users and manufacturers.
- It focused on the physical parameters of three levels of seal strength: indicative, security and high security.
- The strength of a seal is measured with tests based on impact, shear (cut), bend and tensile (pull) strength.



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WHAT IS ISO/ PAS 17712...

Criteria

- By 2006, it becomes increasingly clear that security-related practices by the seal manufacturer and distributors are as important as the physical strength of a seal.
- Whether through immature management practices or misuse, seal manufacturers and distributors could effectively compromise the security of a seal before it was shipped to their customers.



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WHAT IS ISO/ PAS 17712...

Criteria

- Published as ISO/ PAS 17712;2006, the working group produced a Normative annex for security-related management practices.
- The two most important features of the revision are:
 - Seals must show a mark to indicate their grade – “**H**” for high security, “**S**” for security and “**I**” for (tamper) indicative
 - Only manufacturers certified as compliant with the normative annex may put grade marks on seals; so ISO compliant seals can only come from ISO compliant sources



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So How Do We Know...

Criteria

- How can we tell the difference between those who comply with the ISO/ PAS 17712 standard for “high security” seals & those who don’t?
- Under ISO/ PAS 17712 mandates in order to comply and even submit product for testing the manufacturer must be ISO 9000:2001 certified (Quality Management System)
- There are two positive ways of knowing if the supplier and their products conform to the requirements of ISO/PAS 17712:
 - Ask for proof; request sight of conformance certificates relating to the product testing and the Normative annex
 - The certificates for the product testing should originate from an ISO/IEC 17025 independent test house. The test house would be accredited by a third party. Only two in the U.S.
 - **ACT Laboratories , Inc. (Hillsdale, MI)**
 - **Dayton T. Brown, Inc. (Bohemia, NY)**



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So How Do We Know...

ISO



THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

ACT LABORATORIES, INC.
Hillsdale, MI

for technical competence in the field of

Mechanical Testing

The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration Laboratories" and any additional program requirements in the identified field of testing.

Presented this 2nd day of August 2004.



Peter May
President
For the Accreditation Council
Certificate Number 143-01
Valid to March 31, 2006

For tests or types of tests to which this accreditation applies,
please refer to the laboratory's Mechanical Scope of Accreditation.



THE AMERICAN ASSOCIATION FOR
LABORATORY ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

DAYTON T. BROWN, INC.
Bohemia, NY

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 18 June 2005).

Presented this 27th day of March 2007.



Peter May
President
For the Accreditation Council
Certificate Number 0767.03
Valid to December 31, 2008

For the tests or types of tests to which this accreditation applies,
please refer to the laboratory's Mechanical Scope of Accreditation.



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So How Do We Know...

- Ask companies to request the lab report not just the certificate.

ISO

DANAK
TEST Reg. no. 53

OneSeal A/S
Vibe Alle 2
DK-2980 Kokkedal

DANISH TECHNOLOGICAL INSTITUTE
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Kongsvang Alle 29
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Fax +45 72 20 17 70
www.teknologisk.dk

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Enclosures -
Date 2006.08.04

TEST REPORT
DS/EN 10 204:2004 - 3.1

Specimen	Container seals	Project no.	1302213
Material	Metal and Plastic	Report no.	7885
Specimen mark	Seal 79 - T06 Flexibel	Received	2006.07.12
DTI mark	6 10066 E	Tested	2006.07.12
Test procedure	ISO/PAS 17712:2006	Tested by	Flemming Schandorff

Materials Testing

Flemming Schandorff
Flemming Schandorff
Consultant

Finn Dombrowsky
Finn Dombrowsky
Master of Science

The test is only valid for the specifically tested item(s).
Extracts of the test report can only be published legally with a written permission from the Danish Technological Institute.
Test items will be kept for 6 months from the date stated on the report.

Project no. 1302213
Report no. 7885
Page 2 of 3

DANISH TECHNOLOGICAL INSTITUTE

TENSILE TEST Section 6.2 **ISO/PAS 17712:2006**

Seal type	Requirements Load to failure	Result kN	Seal classification
Seal 79 - T06			
610066 1 D	10.0kN : High security seal 2.27kN : Security seal < 2.27kN: Indicative seal	11.03	High security seal ("H")
610066 2 D		10.54	
610066 3 D		11.57	

Tensile test has been carried out on a tensile testing machine No. 10.1 with adjusted jig for container seals. Apparatus calibrated 2005.09.27 (certificate No. D 34526).

SHEAR TEST Section 6.3 **ISO/PAS 17712:2006**

Seal type	Requirements Load to failure	Result kg	Seal classification
Seal 79 - T06			
610066 1 E	341kg: High security seal 227 Kg : Security seal < 227 Kg: Indicative seal	670	High security seal ("H")
610066 2 E		660	
610066 3 E		720	

Not according to accreditation No. 53

Shear test has been carried out on a tensile testing machine No. 10.1 with adjusted jig for container seals. Apparatus calibrated 2005.09.27 (certificate No. D 34526).

BENDING TEST Section 6.4 **ISO/PAS 17712:2006**

Seal type	Requirements Cycles to failure	Result Cycles	Seal classification
Seal 79 - T06			
610066 1 E	501: high security seal 251 : Security seal < 251: Indicative seal	>501	High security seal ("H")
610066 2 E		>501	
610066 3 E		>501	

Bending test has been carried out on a test apparatus for wire bending.



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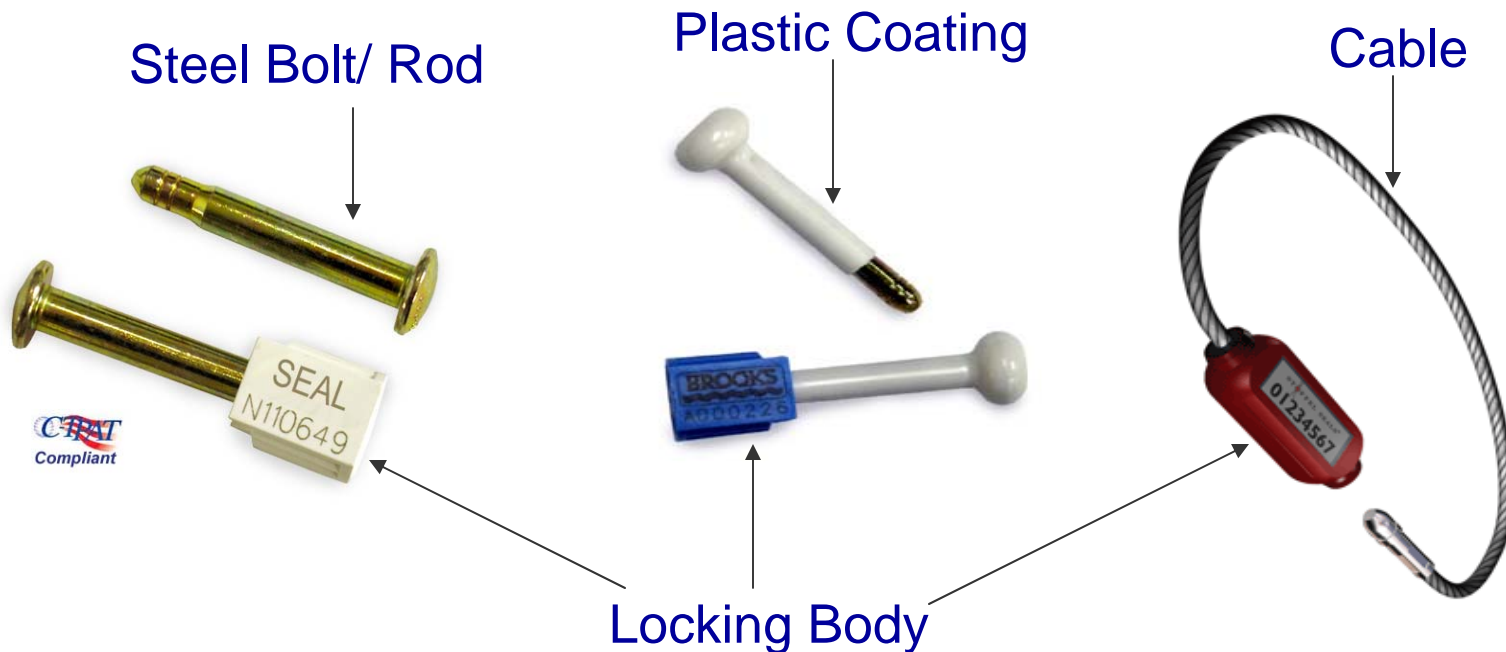
Field Operations



Seal Terminology...

- Seals relevant to C-TPAT are considered “Barrier Seals”
- Barrier seals require tools to remove - usually wire cutters or bolt croppers
- One time use - cable seals and bolt seals fall into this category

ISO



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Field Operations



So How Do We Know...

ISO

- Look for the “H” stamped on the seal:

Bottom of the locking body



Top of the steel bolt or rod



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Field Operations



C-TPAT Criteria...

Seal Affixing Process:

- Only designated, authorized employees must distribute and affix container seals for integrity purposes. The fewer people who have access to seal(s), the better!
- Unauthorized employees must never handle container seals!



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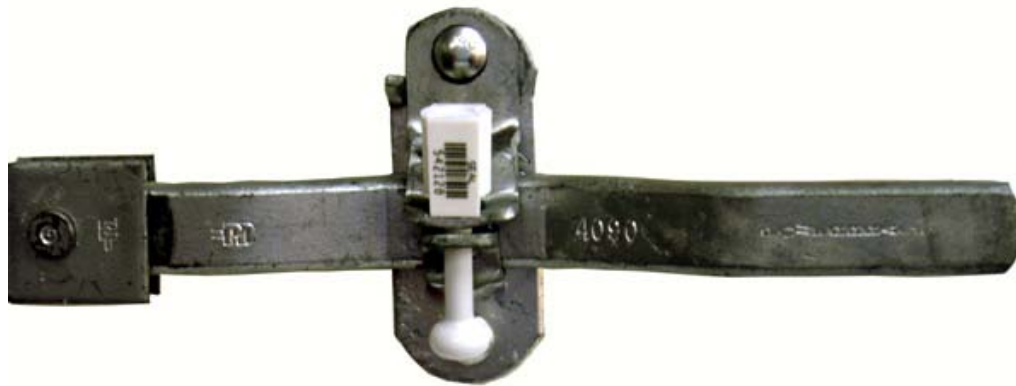
Criteria

Container/ Trailer Seals...

Seal Affixing Process:

- Seals should be affixed to the right door of the container/ trailer on the hasp that has the welded rivet. This practice will raise the level of security for the shipment.
- After the seal is affixed to the container, an authorized employee should make sure that the seal is secure by pulling down on it.

Affix
Seal



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Border Protection

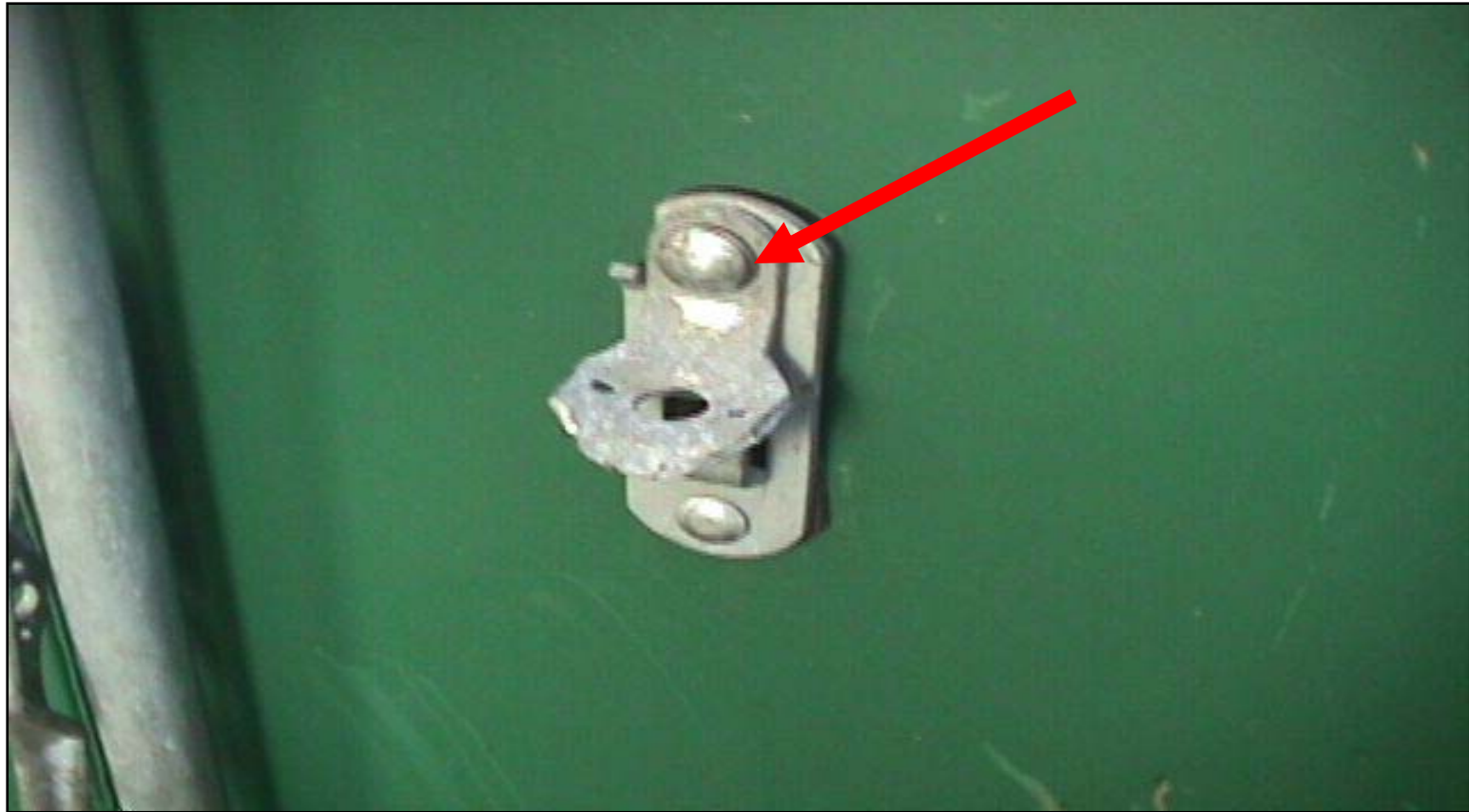


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Container/ Trailer Seals...

Seal Affixing Process:



Affix
Seal

Seals should be affixed to the right door
on the hasp that has the welded rivet



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Field Operations



Container/ Trailer Seals...

Outside Doors:



Affix
Seal

Detachable or loose bolts can allow access inside container



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Field Operations



Container/ Trailer Seals...

Inside Doors:



Affix
Seal

Non-manufacturer putty keeps bolts in place



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Field Operations



Container/ Trailer Seals...

Outside Doors:



Affix
Seal

Detachable or loose bolts can allow access inside container



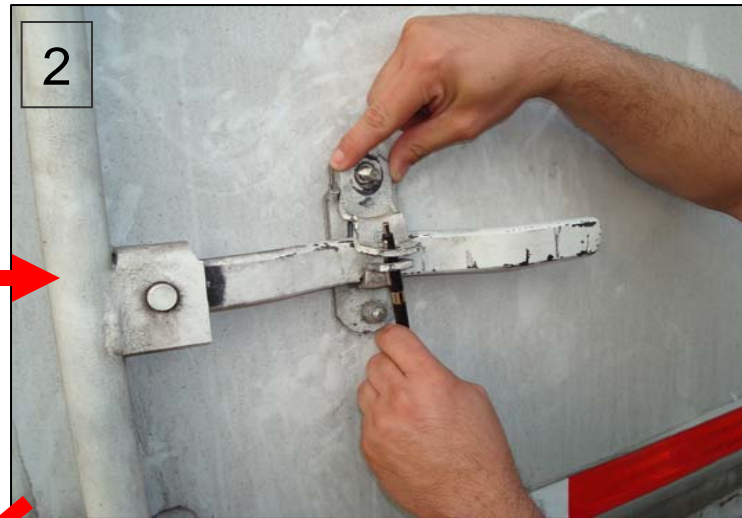
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Container/ Trailer Seals...



Affix
Seal



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Field Operations



Container/ Trailer Seals...



Affix
Seal



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Field Operations



Container/ Trailer Seals...

Seal Affixing Process:



Affix
Seal

Make sure seal is affixed properly; pull down on seal.



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Container/ Trailer Seals...

Seal Affixing Process:

- Not placing a seal on the left door of the container can still leave your shipment vulnerable to attack.
- Left door can be opened on some containers without tampering the seal on the right door!

Affix
Seal



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Border Protection



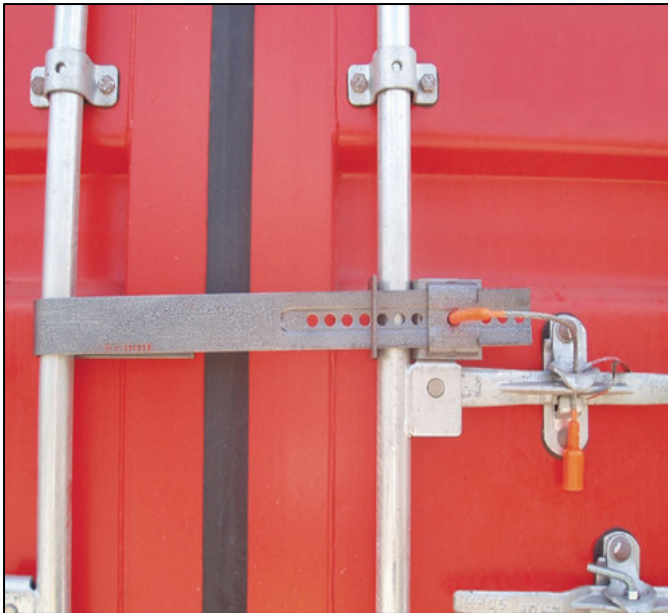
Field Operations



Conveyance Security Criteria...

Trailer Seals:

- Based on risk, a high security barrier bolt seal may be applied to the door handle and/or a cable seal must be applied to the two vertical bars on the trailer doors.



Carrier
Criteria



U.S. Customs and
Border Protection

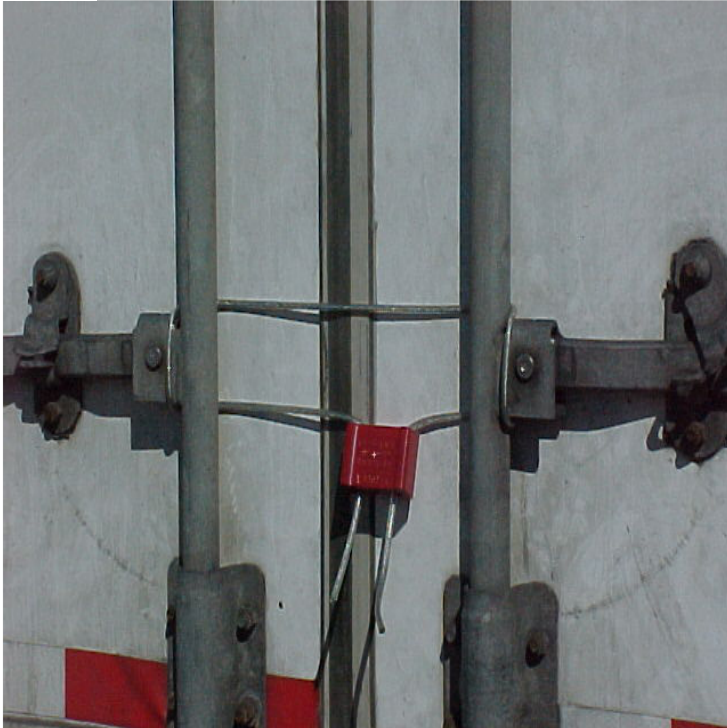


Field Operations



Conveyance Security Criteria...

Trailer Seals:



Proper Cable Sealing



Add Bolt Seal/Extra Security

Carrier
Criteria



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Field Operations



Conveyance Security Criteria...

Less-than Truck Load (LTL):

- LTL carriers must use a high security padlock or similarly appropriate locking device when picking up local freight in an international freight environment. LTL carriers must ensure strict controls to limit the access to keys or combinations that can open these padlocks.

Carrier
Criteria



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Field Operations



Conveyance Security Criteria...

Less-than Truck Load (LTL):

- In the LTL and non-LTL environment, procedures should also exist for recognizing and reporting compromised seals and/or trailers to U.S. Customs and Border Protection or the appropriate foreign authority.



Carrier
Criteria



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Border Protection



Field Operations



Policies and Procedures...

All containers and trailers arriving at your facility should have:

- Documentation verified
- Seal number verified and inspected for tampering



Procedures



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Border Protection



Field Operations



Seal Inspection...

Seal Verification and Inspection Process:

- A seal inspection process should be implemented throughout the supply chain. The **V.V.T.T.** Seal Inspection Process is a good example of one:

- V** – View seal & container locking mechanisms.
- V** – Verify seal number for accuracy.
- T** – Tug on seal to make sure it is affixed properly.
- T** – Twist & Turn seal to make sure it does not unscrew.

Procedures



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Field Operations



Seal Inspection...

Seal Verification and Inspection Process:

- **V**iew seal & container locking mechanisms. Excessive damage to the seal or locking mechanisms must be reported to a Supervisor before opening the container.



View
Seal



U.S. Customs and
Border Protection



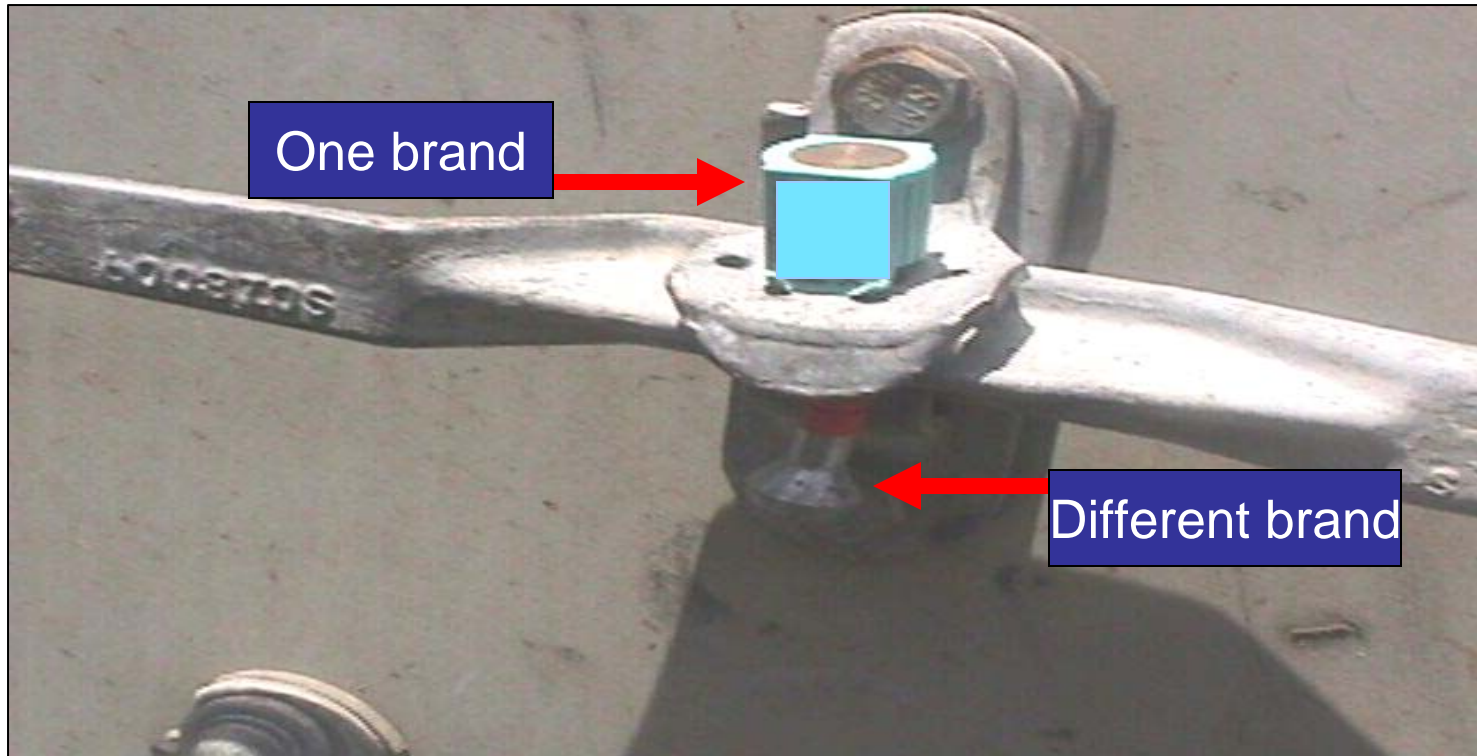
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Seal Inspection...

Seal Verification and Inspection Process:

- **V**iew seal & container locking mechanisms:



Different brands of seals attached together



U.S. Customs and
Border Protection



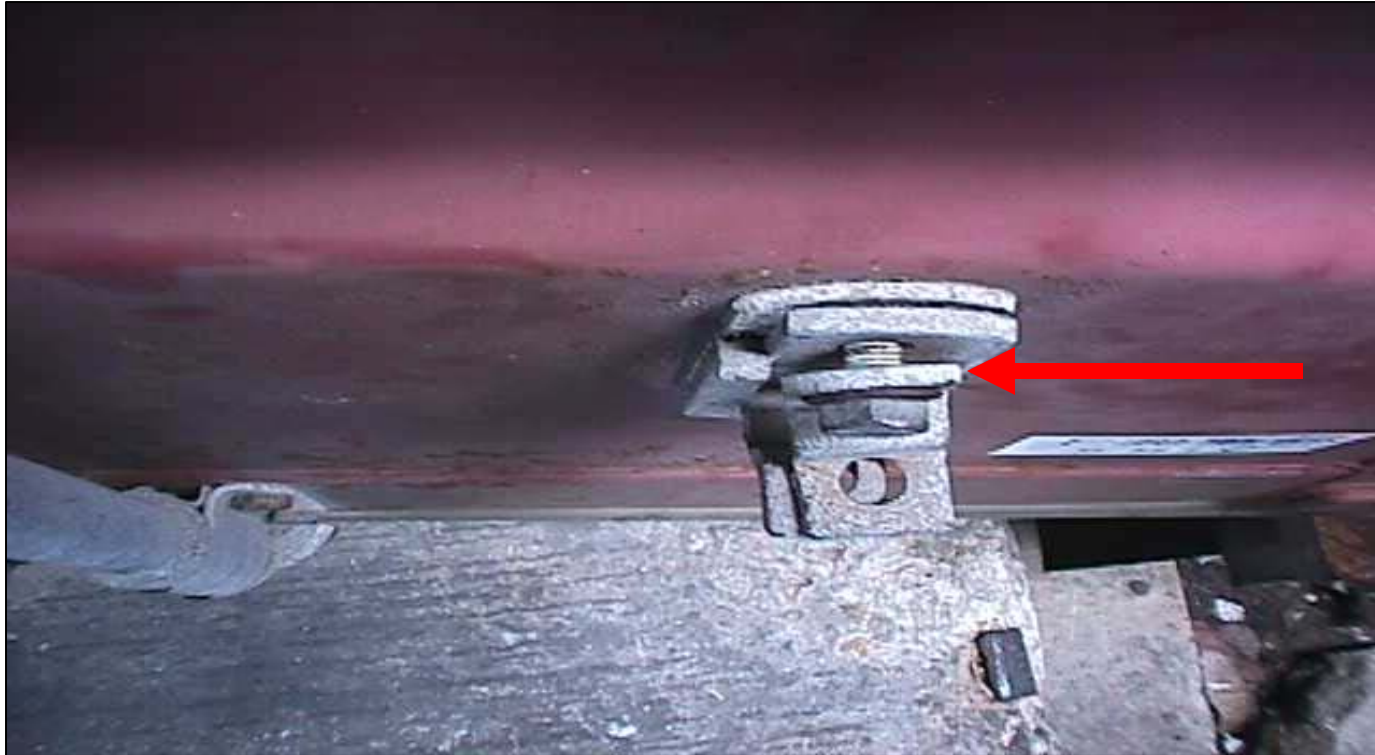
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Seal Inspection...

Seal Verification and Inspection Process:

- **V**iew seal & container locking mechanisms.



View
Seal

Look for loose bolt and hasp



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Field Operations



Seal Inspection...

Seal Verification and Inspection Process:

- **V**erify seal number for accuracy. Compare with shipping documents, and look for alterations to the seal numbers.



Verify
Seal



U.S. Customs and
Border Protection



Field Operations



Seal Inspection...

Seal Verification and Inspection Process:

- **V**erify seal number for accuracy.



Verify
Seal

Seal number manifested is correct.
Wrong seal brand normally used by company.



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Border Protection



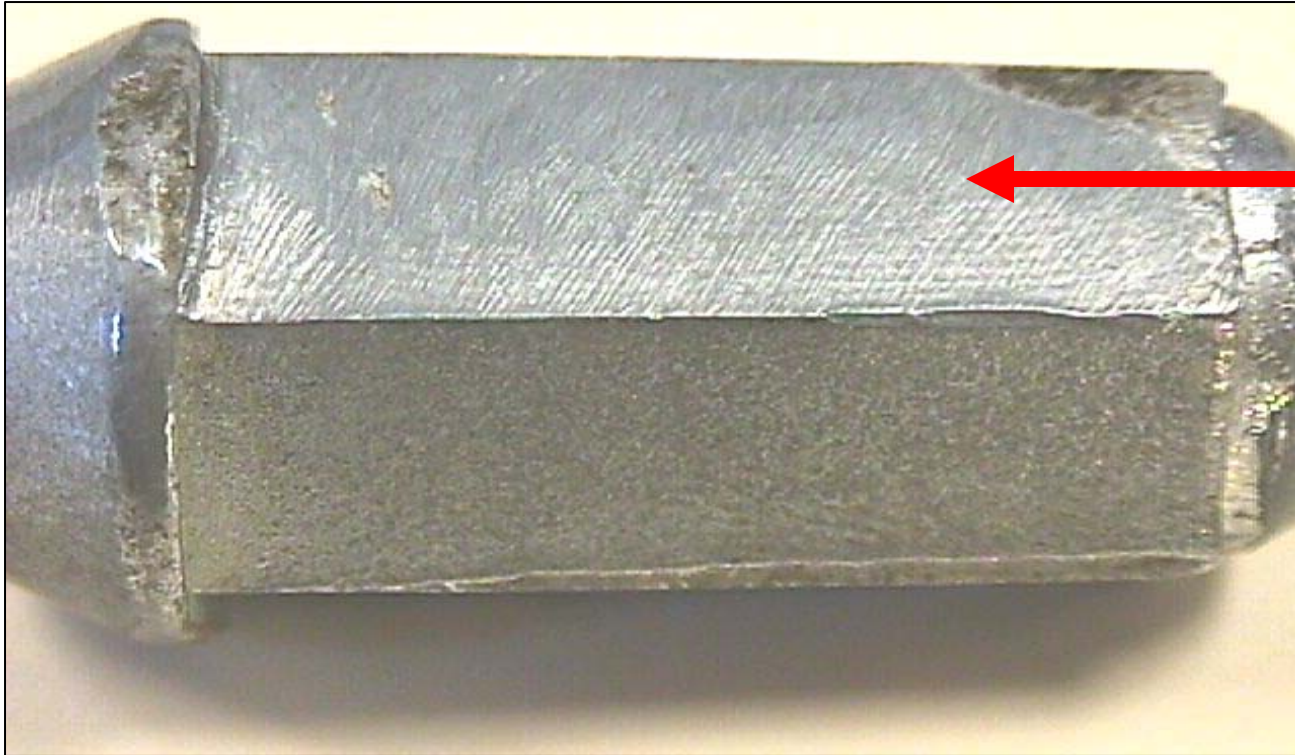
Field Operations



Seal Inspection...

Seal Verification and Inspection Process:

- **V**erify seal number for accuracy.



Verify
Seal

Original number sanded off.



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Border Protection



Field Operations



Seal Inspection...

Seal Verification and Inspection Process:

- **T**ug on seal to make sure it is affixed properly. Seals that come apart must be reported to a Supervisor before opening the container. Human error might cause this to happen, or the container might have contraband inside!



Tug
Seal



U.S. Customs and
Border Protection



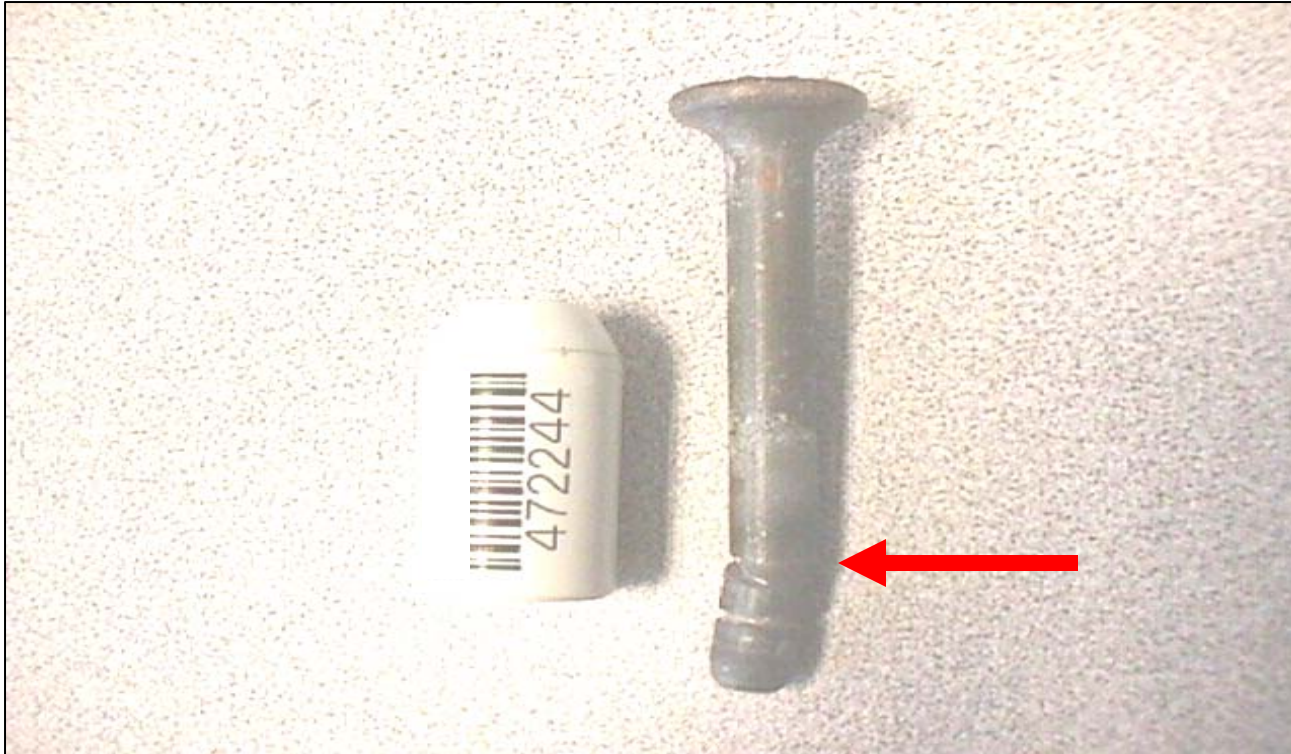
Field Operations



Seal Inspection...

Seal Verification and Inspection Process:

- **T**ug on seal to make sure it is affixed properly.



Tug
Seal

Seal stem is bent. Seal does not lock properly.



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Border Protection



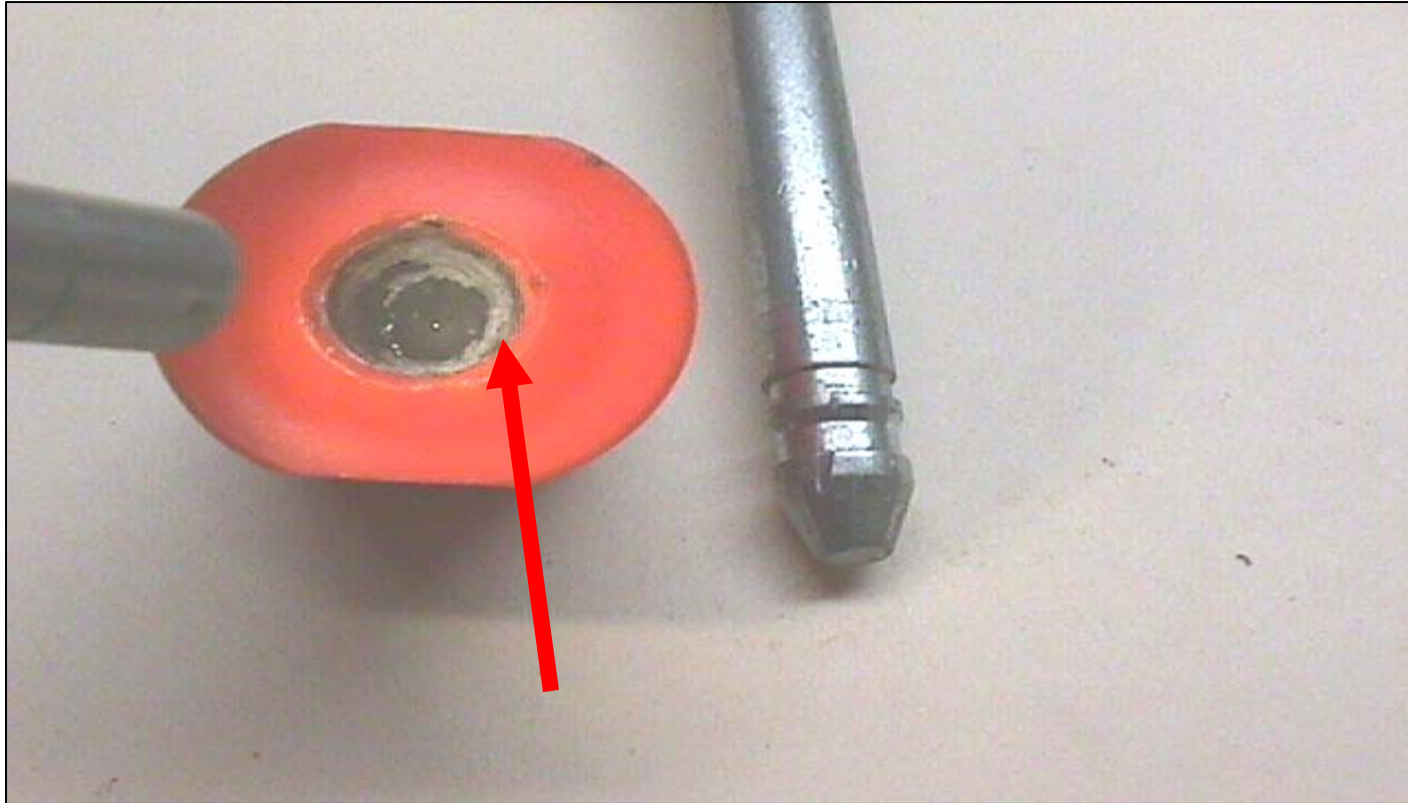
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Seal Inspection...

Seal Verification and Inspection Process:

- **T**ug on seal to make sure it is affixed properly.



Tug
Seal

Glue inside locking mechanism. Seal does not lock properly.



U.S. Customs and
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Field Operations



Seal Inspection...

Seal Verification and Inspection Process:

- **T**wist & **T**urn seal to make sure it does not come off. Seals are threaded, so they can be unscrewed.
- These altered seals are reusable throughout the supply chain for multiple attacks!



Twist
Seal



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Field Operations



Seal Inspection...

Seal Verification and Inspection Process:

- **T**wist & **T**urn seal to make sure it does not unscrew.



Twist
Seal

Twist counter-clockwise to unscrew.



U.S. Customs and
Border Protection



Field Operations



Seal Inspection...

Seal Verification and Inspection Process:

- **T**wist & **T**urn seal to make sure it does not unscrew.



Twist
Seal

Multiple tampered seals.



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Field Operations



Policies and Procedures...

Seal Verification and Inspection Process:

- After seal(s), container, tractor and trailer pass all inspections, the container/ trailer doors can be opened.
- Seals should be kept for investigative purposes.



Verify



U.S. Customs and
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Field Operations



Policies and Procedures...

Inspection of Cargo:

- A cursory inspection of cargo should be conducted when container/ trailer doors are opened.
- If contraband is encountered, close container/ trailer doors and contact a Supervisor. The Supervisor will contact the proper authorities (CBP).
- Overages or shortages of cargo should be documented and recorded.
- These records may be needed to conduct future investigations.



Verify



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Policies and Procedures...

Inspection processes should be conducted at key points throughout the supply chain:

- Container Storage Depot
- Manufacturer
- Service Provider
- Carrier
- Third Party Warehouse
- Distribution Center
- Customer



*

The more locations these inspection processes are conducted, the higher level of security the shipment will have.

Verify



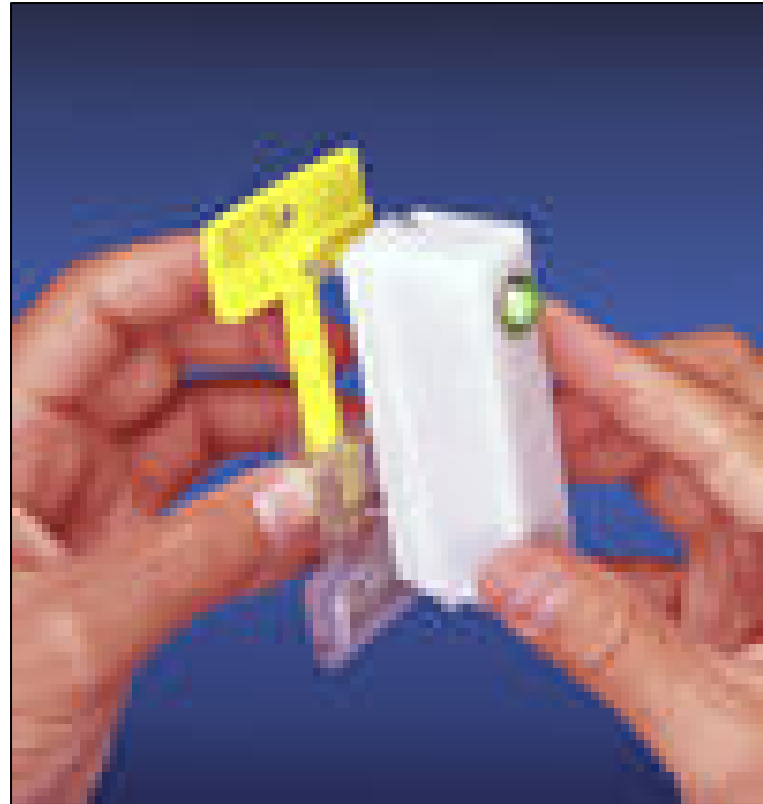
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Best Practices...



Best
Practices



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Field Operations



Best Practices...



Best
Practices



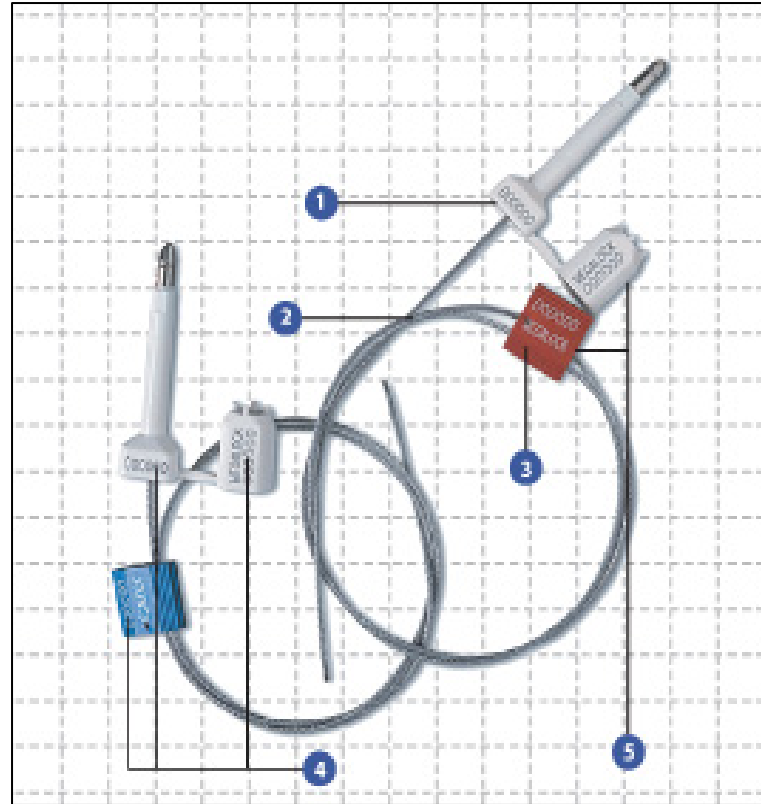
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Best Practices...



Best Practices



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2010 Northern Border Highway Corridor Conference
Buffalo, New York

Field Operations



Best Practices...



Proper Cable Sealing



Add Bolt Seal/ Extra Security

Best
Practices



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Best Practices...



Best
Practices



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Best Practices...



Best
Practices



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