UNITED NATIONS **E**

Economic and Social

Distr.
RESTRICTED

Informal document No. 25 (2001)
16 October 2001

ENGLISH ONLY

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE
Working Party on Customs Questions
Affecting transport
(Ninety-ninth session, 23-26 October 2001,
agenda item 8)

PREVENTION OF THE ABUSE OF CUSTOMS TRANSIT SYSTEMS BY SMUGGLERS

Seals for multiple use

Transmitted by the Government of Sweden

Note[?]: The secretariat reproduces below a communication transmitted by the Government of Sweden.

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1. Seals for multiple use are allowed in the common-/Community transit procedure though they are thus far not common.

[?] Mention of firm names and commercial products does not imply endorsement by the United Nations.

2. Nevertheless, it might be useful to study whether seals for multiple use - in a construction complying with the TIR-Convention - could increase security and reliability comparing with today's plastic or metal seals. It might perhaps even be a useful piece of equipment to prevent smuggling within the TIR-system.

3. The OEM Group LTD in London, Great Britain, produces the seal for multiple use that we have obtained (SecuReSeal/SecuReLoc). There can, however, be other producers of whom we are unaware.

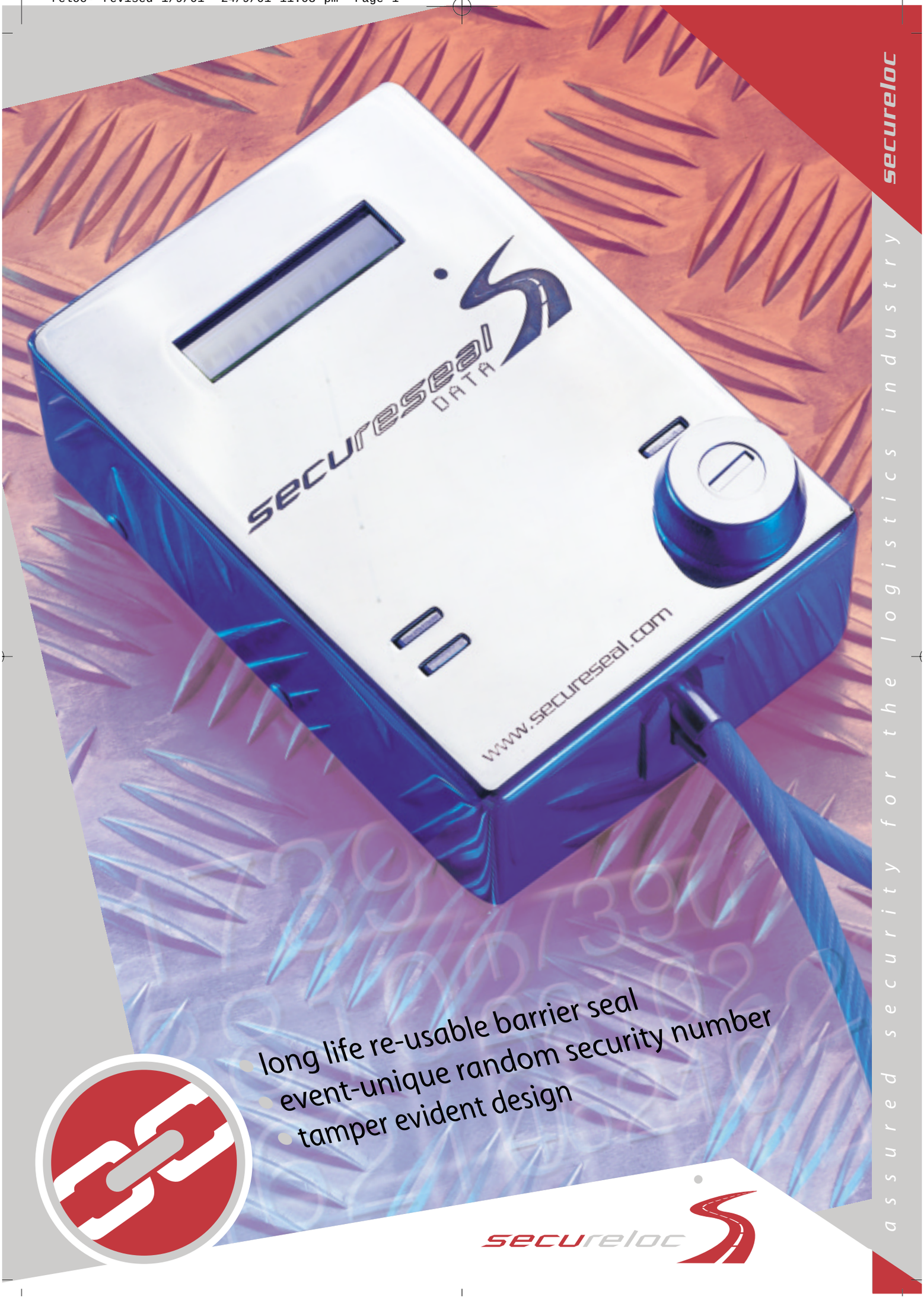
4. The SecuReSeal body is made of stainless steel. The actual seal/cable is made of a wire seal enclosed in plastic. There is an enclosure with a locking mechanism attached to the seal body. To close the seal the free end of the "cable" attached to the seal body - should be inserted into a slot in the seal body after securing the load compartment. This particular kind of seal comes in several dimensions of the "cable". Moreover, the seal comes with or without an extra lock with a key as an extra security measure for the operator who has a possibility to add a small lock or an extra private seal.

5. A random number code of five digits is mechanically generated when the cable is inserted in the slot and the seal is closed. The generated number is shown in a display window on the front of the seal. The number will remain until the seal is opened. The moment the seal is opened the number is destroyed and the digits will be unsystematically placed in the window. A new number will be generated when the seal subsequently next is closed. According to received information the chance of the same number being generated when closing the seal is 1 in 100 000. That is to be compared with that the seal is developed to last more than 50 000 operations.

6. The idea is that the generated random number should be written in the transport or transit document. If the number in the window of the seal corresponds to the number in the transport/transit document on arrival to the destination it should be a confirmation that no one has been inside the load compartment.

7. According to received information the seal is today mainly used by operators performing national transports carrying high-value goods. It is a way to secure the load compartment as well as a way for the driver to verify that no one has been inside of the vehicle.

8. The seal should be fastened from the inside of the back door of the vehicle. The position of the seal should be such that it does not interfere with the operation of the locking mechanism or the opening of the door. When the compartment is closed and sealed it should also be impossible to undo the seal itself from the vehicle.



securelock

assured security for the logistics industry

- long life re-usable barrier seal
- event-unique random security number
- tamper evident design

securelock

Description

A re-usable, barrier seal, with event-unique random security number generation and integrated lock, for cargo doors of goods vehicles.

securelock

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Principle

- The seal mechanism secures a multi-strand steel cable threaded through the door catch mechanism, preventing door opening without opening the seal.
- The seal may only be opened by use of allocated key.
- Closing the seal automatically locks it and generates a new random 5 digit security number, displayed through a window in the seal housing.
- Opening the seal scrambles this number to an unreadable condition.
- The security number displayed after seal closure at despatch is recorded on the load manifest and should still correspond at delivery.
  Any deviation from the recorded number indicates unauthorised opening of the seal.

Construction

- Case dimensions and Mounting
- The seal mechanism - cable plunger, integrated stainless steel 7-pin radial camlock and random number display - is housed in a stainless steel case measuring:-
  135mm. high x 93mm. wide x 45mm. deep.
- The assembly is bolted, using a stainless steel 4-stud mounting kit, to the exterior of the cargo door.
- It may be mounted onto Roller Shutter, Thermal Insulated or Dry Goods doors.
- The seal mechanism is positioned on the door so that, with the cable threaded through the door catch mechanism and the seal closed, the door, catch or handle cannot be moved sufficiently to permit door opening.

Structure and Approvals

- The seal casing is formed from AISI 316 grade stainless steel, resistant to salt mist.
- The casing encloses the seal mechanism to IPX 6 - resists water ingress under pressure - and conforms to BSEN 60529.
- The casing meets Ministry of Defense standard 07-55DI for infiltration of sand and dust particles.
- The seal mechanism has an operating temperature range of -40° C to + 85°C and is approved to IEC 68 to withstand:-

Dry Heat	IEC 68-2-2	85° C for 16 hours
Cold	IEC 68-2-1	- 40° C for 16 hours
Damp Heat Cycle	IEC 68-2-28	Condensation test
Bump	IEC 68-2-29	40g's for 6 m/secs.
Vibration	IEC 68-2-36	3Hz - 500Hz
		+ 1mm/ 10g's

The wheels of the security number display are moulded from Acetal Copolymer C9021L510 / 1569.

They are resistant to UV radiation.

The numbers on the display wheels are 5mm. high.
They are supplied Black figures on Yellow ground.

The security number is viewed through a window 8mm. x 44mm. formed from UV stable polycarbonate approximately 1.75 mm. thick, formed into a cylindrical convex lens. When viewed through this window, the numbers appear to be 5.5 mm. high.

The standard securing cable assembly is a 750mm. length of 7 x 19 strand stainless steel cable (i.e. 7 bundles of 19 strands). The cable is 3 mm. in diameter, encased in a protective sleeve formed from Nylon 11, giving an overall diameter of 5 mm.
The cable has a minimum breaking strain of 510 Kgs.

A cylindrical stop-end made from grade 316 stainless steel is swaged onto each end to engage the plunger keyway.

These fittings give a minimum efficiency of 90% of the breaking strain of the cable - approximately 460 Kgs.
An alternative heavy duty cable consists of 6 mm. diameter galvanised steel of 6 x 19 construction, encased in Nylon 12 to give an overall diameter of 9.5 mm.
The nylon sleeve is recessed into the stop-ends to further reduce the risk of corrosion.

In standard form, one end of the cable is held permanently in the plunger keyway by a roll pin.

The roll pin may be driven out of the plunger, either to replace a damaged cable, to substitute an optional looped-end cable or to use more than one cable.

The complete seal mechanism weighs approximately 1. 05 Kg.

Operation

Opening the Seal

Inserting the key into the lock, located at the bottom right of the seal casing, and turning it anti-clockwise through 90° pushes the cable plunger out from the bottom of the seal casing. This allows the free cable stop-end to be pulled from the plunger keyway.

Turning the key also spins the security number display wheels to half-way, unreadable positions.

After opening, the key should be removed from the lock.

Closing the seal

With the free end of the cable passed through or around the appropriate door catch mechanism, the stop-end is inserted into the plunger keyway.

The plunger is pushed firmly up into the seal casing, locking the seal mechanism automatically. The key is not required.

The closing action spins the security number display wheels to a new, random, 5 digit number.

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DOCK

- event-unique random security number
- high reliability low cost design
- ideal for rental applications

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