

Status of EDR Technology
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EDR - Event Data Recorder Update

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NHTSA R&D - Truck & Bus EDRWG Mtg #3WG #3 2/16/2001 1



Pandora's Box -- ???

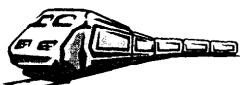
Automotive News

Safety experts cautiously open automotive black box

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Transportation Recorders

- Aviation 
- Railroad 
- Marine 
- Pipeline 
- Highway 

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Flight Data Recorders

- First regulation calling for FDR, 1940
- Rescinded in 1944 due to lack of suitable recorder
- First commercially available FDR 1953

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Rail Data Recorder

- Onboard and wayside locations
- Records engineer action & train condition
- Records rail & environmental condition
- Remote testing & predictive maintenance
- Field based & office based tools
- Integrated office & field alarm reporting and management system

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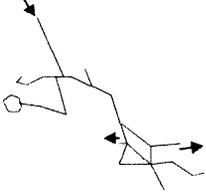
Voyage Data Recorder

- NTSB promoted use of event recorders since 1970's.
- Voyage data recorders provide accident data and serve as a management tool.
- 95% of world's trade, in weight, travels by sea.

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Oil & Gas Pipeline Data Recorders

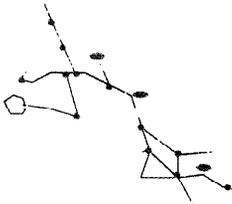


- Large geographical area
- Wellhead to distribution
- Nationwide grid
- Continuous monitoring
- Environmental
- Strategic movement
- Regulatory data

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Transmission System Components

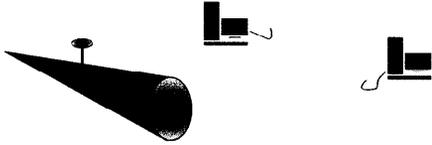


- Pipeline
- Valves
- Compressors
- Storage

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Pipeline Data

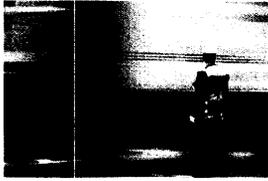


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Technology Advance

- Computer on wheels.
- Elimination of mechanical linkage.
 - Throttle-by-wire.
 - Steer-by-wire.
 - Brake-by-wire.
 - Shift-by-wire.



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EDR Technologies

- Tachographs
 - Traditional
 - Electronic
- On Board Computer
 - Engine data
 - Trip
- EDR -- Event Data Recorder

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Ford Type I EDR Event Data Recorder



- Ford EDR
- 2000 Taurus
- 2000 Sable
- 2000 F-150

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Tachograph Technology

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Tachograph Analysis

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Electronic Tachograph

Start	End	Date	Time
07:05	07:15	07/15	08:25:00

Vehicle: FORD SCORPION X Driving 8:01:45 Telling 8:08:14 Avg. Speed 40

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ARSO Ambulance Graph Deceleration Analysis

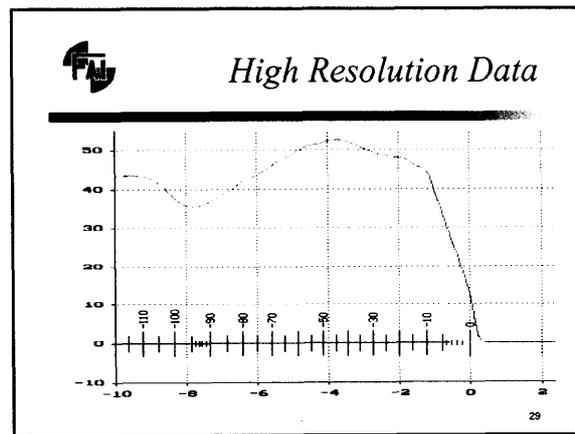
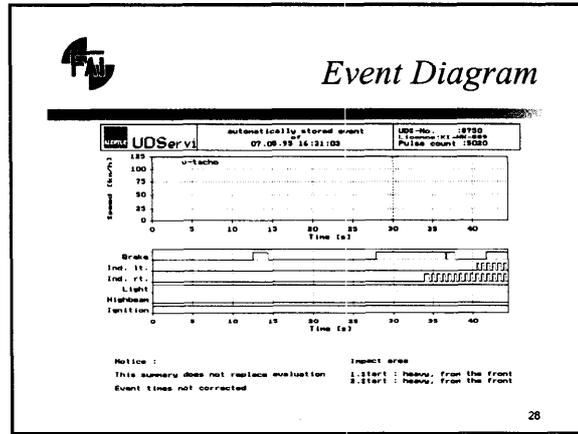
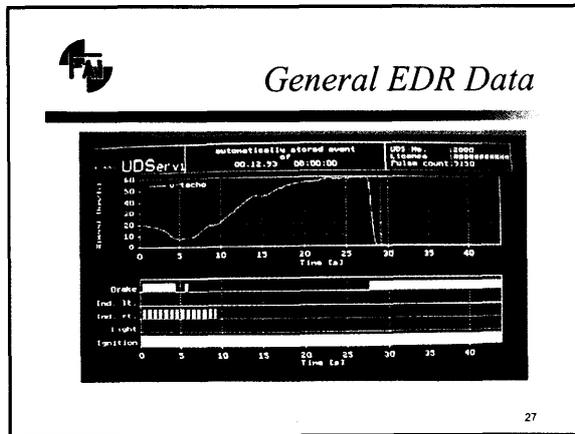
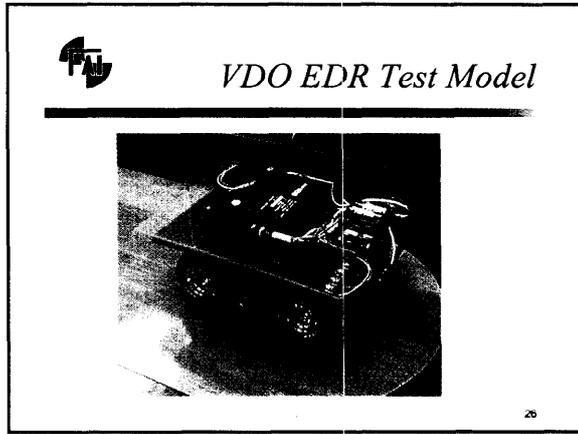
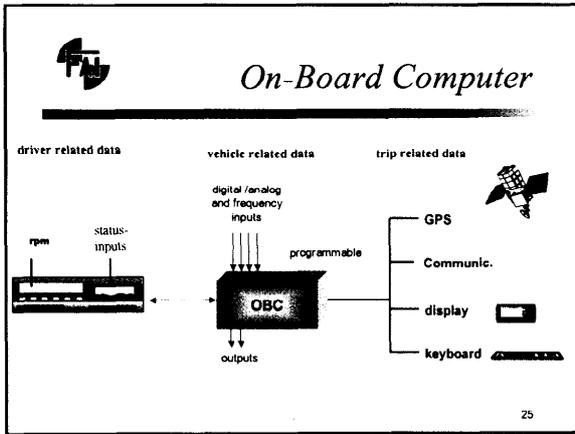
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ARSO Ambulance Graph Deceleration Analysis

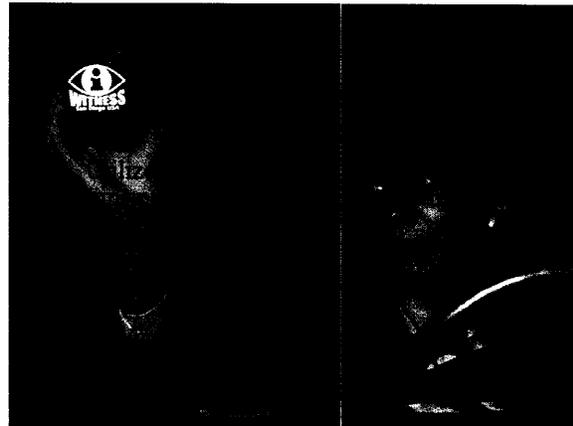
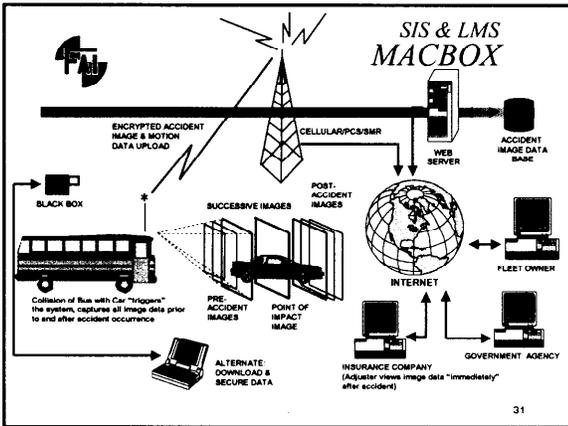
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Pre-Collision, Area Of Impact (AOI), & Point Of Rest (POR) Diagram

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- ### Safety Intelligence Systems LMS, Inc.
- EDR with video.
 - Wireless encrypted transmission.
 - ISO database event data storage.
 - Collision data for OEM's & Safety.
 - Reduce fraudulent insurance claims.
 - Legal & liability privacy concerns.
 - Automatic collision notification.



FAL *Eyewitness Drive-Cam*

- Driver's eye video
- 10 seconds before
- 10 seconds after
- Auto & Manual events
- Simple installation

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FAL *EVICAM*

- "Evidence Camera"
- VEDR- Video event data recorder
- Multiple events
- Multiple cameras
- Time frame – pre & post 1 minute

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FAL *Cosworth*

- Prototype system
- Colorado based

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FAL *Smith Industries*

- Aviation EDR.
- Automotive EDR physical protection.

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Independent Witness

- EDR
- 3 Axis accelerometer
- Self contained
- Crash pulse

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North American Crash Analysis Center

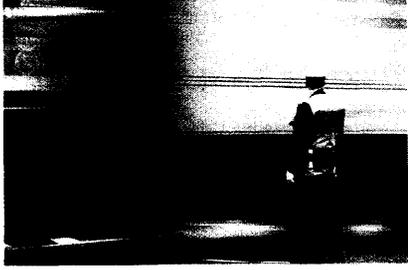


- FAI selected in 1998 by Tier 1 Supplier VDO to provide EDR analysis for:
 - United States
 - Canada
 - Mexico
- World Wide Analysis Network

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EDR Update – Today's Pathway to Tomorrow



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