

# Stopper & Associates, LLC

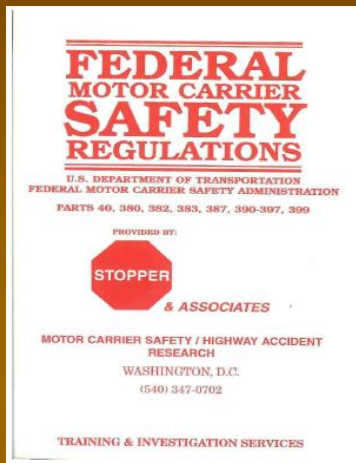
Motor Carrier Safety / Highway Collision Research & Reconstruction  
Nationwide Commercial Motor Vehicle / DOT Regulations / Truck & Bus Investigations  
3-D Forensic Mapping- "Black Box" Crash Data Retrieval- Mobile Forensic Lab-  
Forensic Truck Brake Examinations



# Stopper & Associates, LLC

## Truck & Bus Collision Reconstruction Investigations

Federal Motor Carrier Safety Regulation (FMCSR)  
& Commercial Drivers License (CDL) compliance analysis



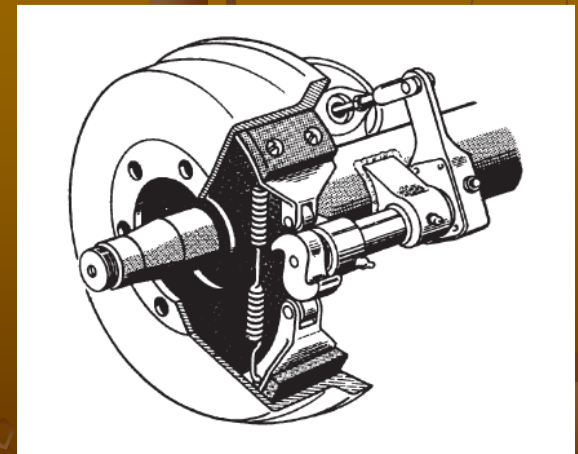
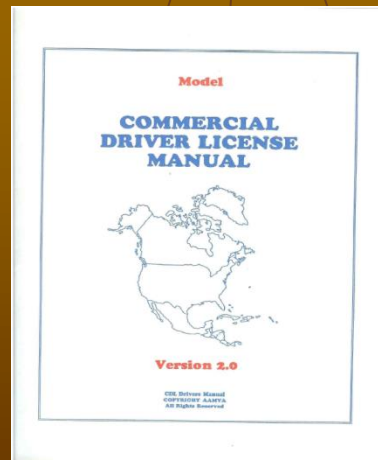
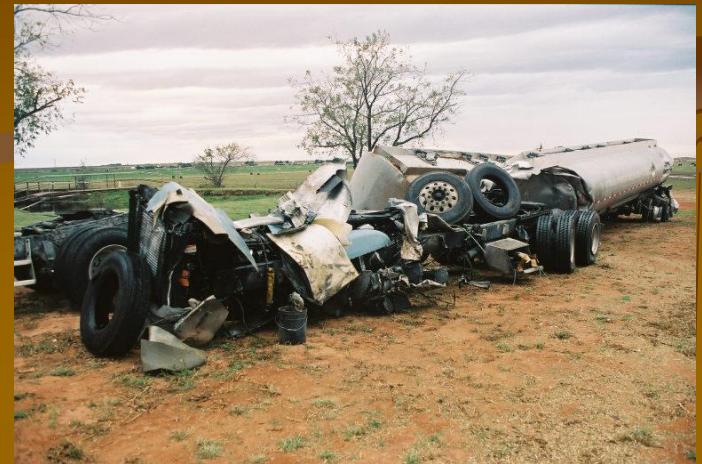
### 49 CFR §390.3 General applicability....

#### Knowledge of and compliance with the regulations.

(e)(1) Every employer shall be knowledgeable of and comply with all regulations contained in this subchapter which are applicable to that motor carrier's operations.

(e)(2) Every driver and employee shall be instructed regarding, and shall comply with, all applicable regulations contained in this subchapter.

(e)(3) All motor vehicle equipment and accessories required by this subchapter shall be maintained in compliance with all applicable performance and design criteria set forth in this subchapter.



# Mobile Forensic Lab & Incident Response Units



# Stopper & Associates Weight Data Collection Equipment

Weighing MC 306 Tanker

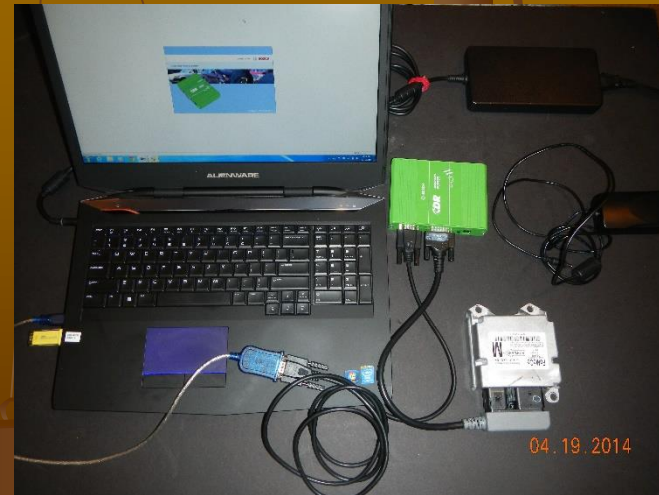
50,000# (+/- 10#) crane scale



20,000# (each)-Portable Scales (+/- 20#)



# Crash Data Retrieval (CDR) “Black Box” Data Imaging & Heavy Truck ECM–(Electronic Control Module) FLA (Forensic Link Adapter)



# Driver Log Analysis- Compared to ECM Data

Do Not Staple

Today's Date: 05 23 2011

Driver's Daily Log

ORIGINAL - Submit to carrier  
DUPLICATE - Retain in your possession for 8 days in U.S. and 18 days in Canada

RECAP Copy Yesterday's Rows 2 to 7 To Today's Rows 1 to 6

Starting Point: US  CD

Indicate the time of all border crossings between U.S. and Canada by filling in the box or boxes corresponding to the time of the border crossing(s).

1: OFF DUTY  
2: SLEEPER BERTH  
3: DRIVING  
4: ON DUTY (NOT DRIVING)

Remarks: PARK CITY KS PRE-CK UNLOAD / RESTART, TOPEKA KS, TOPEKA KS LOAD BILK, TONKAWA OK FUEL, HITCHHUIS TX POST-CK

Canadian Travel: Cycle (fill box):  70 Hour / 7 Day  120 Hour / 14 Day

Off Duty Deferral (fill box):  No Deferral  Day 1  Day 2

Beginning Odometer:  Ending Odometer:

TIME ZONE USED (fill box):  Eastern  Central  Mountain  Pacific  Atlantic

Daylight Savings (fill box):  Y  N

Driver's Daily Vehicle Inspection

JOINING THE PARTS AND ACCESSORIES NOTED BELOW:  TRACTOR: No Defects  TRAILER: No Defects

DATE: 05/23/2011 TIME: 0830

667 MILES  
AVERAGE  
66 MPH

DRIVER LOGGED  
10 HOURS  
DRIVING

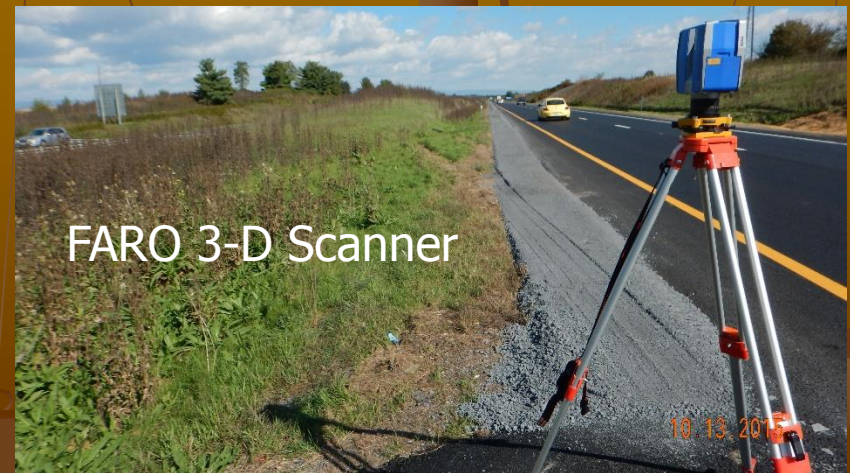
ECM RECORDED  
11 HOURS 18 MIN  
DRIVING

|                |                |
|----------------|----------------|
| Date:          | 05/23/2011     |
| Start Time:    | 06:39:25 (CST) |
| Odometer:      | 718733.8 mi    |
| Distance:      | 708.3 mi       |
| Fuel:          | 130.00 gal     |
| Fuel Economy:  | 5.45 mpg       |
| Average Speed: | 62.7 mph       |

| Total (hh:mm) | 11:18       | 01:16      | 11:26     |
|---------------|-------------|------------|-----------|
| Hour (CST)    | Drive (min) | Idle (min) | Off (min) |
| 00:00-02:00   | 0           | 0          | 120       |
| 02:00-04:00   | 0           | 0          | 120       |
| 04:00-06:00   | 0           | 0          | 120       |
| 06:00-08:00   | 6           | 17         | 97        |
| 08:00-10:00   | 89          | 8          | 23        |
| 10:00-12:00   | 83          | 26         | 11        |
| 12:00-14:00   | 93          | 17         | 10        |
| 14:00-16:00   | 116         | 1          | 3         |
| 16:00-18:00   | 105         | 0          | 15        |
| 18:00-20:00   | 120         | 0          | 0         |
| 20:00-22:00   | 66          | 7          | 47        |
| 22:00-24:00   | 0           | 0          | 120       |

# Forensic Crash Vehicle & Scene Mapping

FARO 3-D Scanner & Laser “Total Station” data collection. FARO 3-D & “Reflectorless Total Station” scanner units allow detailed scene diagramming without interference with normal traffic flow.



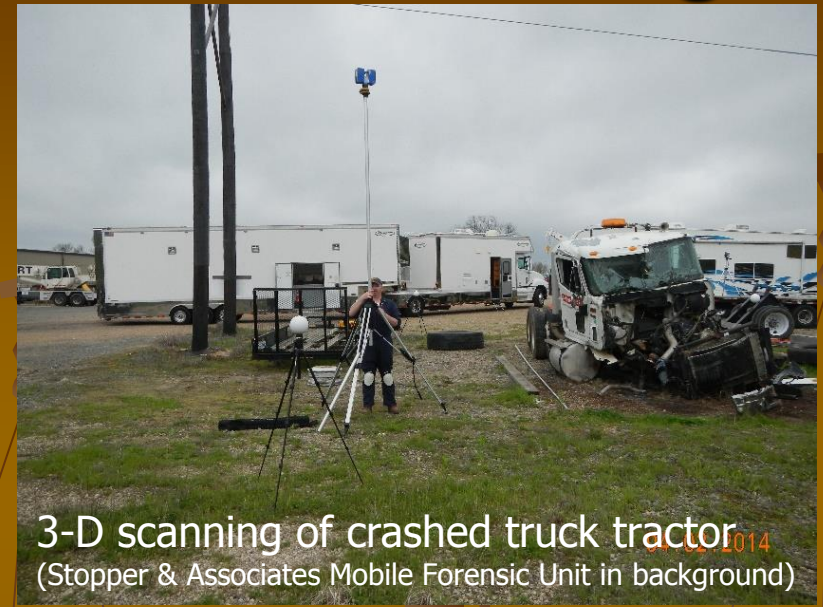
# FARO 3-D Scanning & Forensic Mapping Techniques





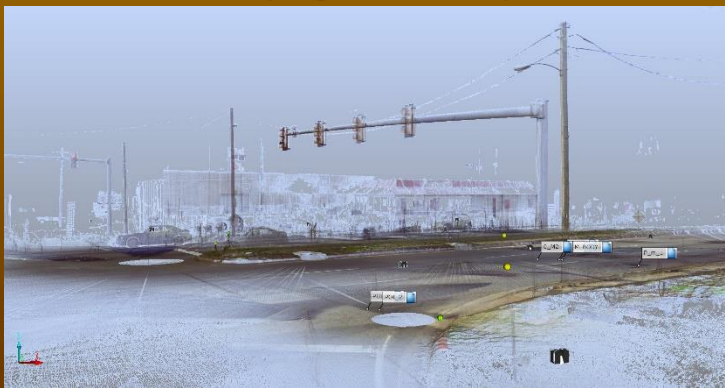
# FARO 3-D Forensic Scanning

Fatal truck / bicycle collision scene



3-D scanning of crashed truck tractor  
(Stopper & Associates Mobile Forensic Unit in background)

Faro 3-D Scan & reconstruction of collision scene  
Identifying evidence points



3-D scan of tractor trailer placed  
on collision site 3-D scan

# CONSPICUITY INVESTIGATIONS

David Stopper measuring retroreflective sheeting tape with Gamma Scientific Retroreflectometer



(Collision before sunrise)



Night collision  
Side under  
ride impact



Faded & worn vs. new  
retroreflective sheeting tape

Required pursuant to  
49 CFR §393.11 & FMVSS 108

11.12.2009

# Faded & Damaged Street Sign & Pavement Marking Retroreflective Evaluation



Faded & Damaged Street Sign Retroreflective  
Sheeting Assessment Evaluation



# Forensic Portable Performance Based Brake Testing\*

Vehicle weight, brake balance, air pressure and brake force testing

\*49 CFR 393.52(a)(4) approved test method –  
Stopper & Assoc., LLC's Mobile forensic lab & brake test PBBT



# PBBT Testing– Transportation Research Center (TRC) – East Liberty, OH



Stopper & Associates, LLC PBBT - Brake Testing –  
Bus Involved in Rollover – Multiple Fatalities  
New Brunswick, Canada

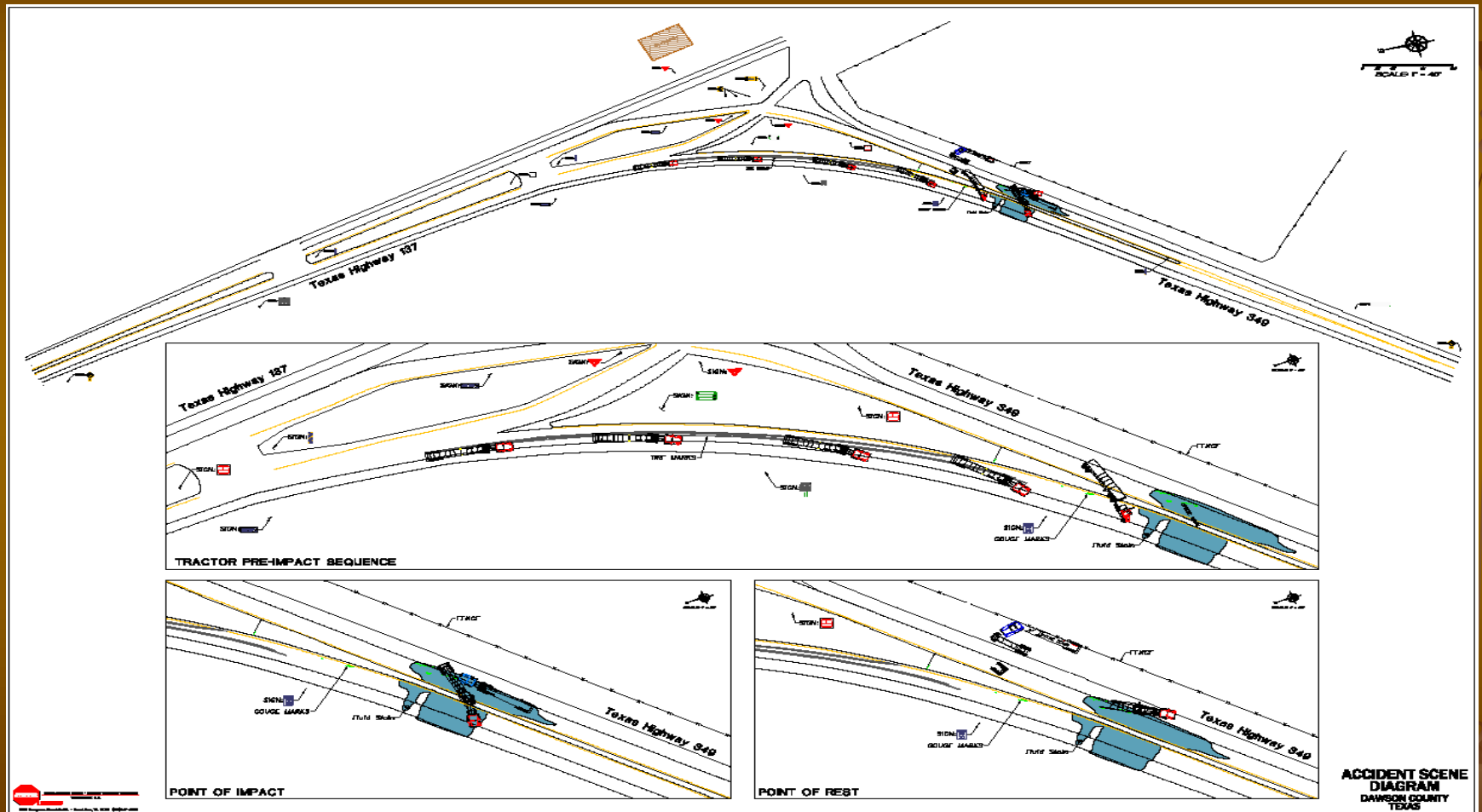


# Stopper & Associates, LLC - PBBT - Brake Dynamometer Fleet Safety & Law Enforcement- Brake Testing



# Forensic Map with Reconstruction Analysis

## Rollover – Fatality involving two fuel tankers





# Forensic mapping of School Bus - Refuse truck multiple fatal



# Forensic mapping of crash vehicle & exemplar vehicle with Total Station





# Reconstruction Analysis Forensic map / Satellite Photo Overlay of Crash Scene



# Heavy Vehicle Crash Reconstruction Training

Mr. Stopper currently lectures for the Northwestern University Center for Public Safety's Heavy Vehicle Crash Reconstruction courses. He has conducted hundreds of heavy Commercial Motor Vehicle brake & vehicle dynamics tests



# David A. Stopper - Training national & international law enforcement & collision reconstruction specialists since 1985



Houston-Webster, TX 11.15.2007



Ontario Provincial Police - Canada



Northwestern University CPS for the California Highway Patrol-M.A.I.T



Northwestern University CPS at the York Regional Police – Aurora, ON, CN

# Forensic examination of collision damaged air brake systems



# Forensic brake examination of burned truck





David Stopper holds and has held a Commercial Drivers License for all classes of Commercial Motor Vehicles and motorcycles.

Stopper & Associates, LLC operates and is registered with the Federal Motor Carrier Safety Administration as a USDOT Private Motor Carrier



# Forensic examination of damaged air brake systems



05.07.2014

# For more information:

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