REPORT NO. 207-KAR-06-005

INDICANT TESTING FOR FMVSS 207

SEATING SYSTEMS

2006 FORD RANGER
2-DOOR EXTRA CAB TRUCK

NHTSA NO. C60207

PREPARED BY:
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October 17, 2006

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ASSURANCE
OFFICE OF VEHICLE SAFETY INDICANT
ROOM 6115 (NSA-31)
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Technical Report Documentation Page

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16. *Abstract* Indicant tests were conducted on the subject 2006 Ford Ranger 2-Door Extra Cab Truck in accordance with the specifications of the Office of Vehicle Safety Indicant Test Procedure No. TP-207-09 for the determination of FMVSS 207 Indicant. The tests also collected indicant test data for a new FMVSS 210 force application device. Test failures identified were as follows: None.			
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SECTION 1

PURPOSE OF INDICANT TEST

1. PURPOSE OF INDICANT TEST

Tests were conducted on a 2006 Ford Ranger 2-Door Extra Cab Truck, manufactured by Ford Motor Corporation to determine FMVSS 207, “Seating Systems” indicant data. The purpose of this standard is to reduce the number of deaths and injuries that may be caused by the failure of seats, their attachment hardware, and their installation when said failure results from the forces on the seat in a vehicle impact.

This project also collected indicant FMVSS 210 data and utilized the advancements made in the field of anthropomorphic dummies, a new test device that can be used to transfer loads between hydraulic cylinders and the seat belts installed in an automotive vehicle for the purpose of testing the seat belt anchorages. The new test device is intended to add a greater degree of realism to the current FMVSS 210 test methods and increase the repeatability of the test setup procedures.

All tests were conducted based on the current National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Indicant (OVSC) Laboratory Procedures, TP-207-09, dated June 18, 1992, and corresponding KARCO Engineering, LLC test procedure KTP-207, dated August 2, 2002. Detailed procedures for receiving, inspecting, testing and reporting of test results are described in the test procedures and are not repeated in this report.

This report is organized in sections containing pertinent test information and data tables as follows:

Section 2	-	Indicant Test Procedure and Data Summary
Section 3	-	Indicant Test Data
Section 4	-	No Indicant Data (if applicable)
Appendix A	-	Photographs
Appendix B	-	Data Plots
Appendix C	-	Test Equipment List and Calibration Information

SECTION 2

INDICANT TEST PROCEDURE and DATA SUMMARY

2. INDICANT TEST PROCEDURE AND DATA SUMMARY

A 2006 Ford Ranger 2-Door Extra Cab Truck was subjected to FMVSS 207 Indicant testing on October 11 thru October 17, 2006. All tests were conducted at KARCO Engineering, LLC in Adelanto, California. Summary data is shown on Data Sheet No. 2. The following tests were performed:

- Receiving inspection
- Aft moment tests on front seat backs
- Aft load tests on front seat frames and adjusters
- Forward load tests on front seat frames and adjusters
- Forward load tests on front seat frames and adjusters, including FMVSS 210 Loads

The tests were conducted per the FMVSS 207 test procedure. The significant aspects of the test procedure are described in the following paragraphs.

2.1 Test Vehicle Inspection. The test vehicle was inspected to verify that all seat, restraint systems and seat belt assembly anchorage systems are complete and the seat adjusting mechanisms are working properly.

2.2 Test Vehicle Preparation and Pre-test Measurements. The test vehicle was securely mounted to the test fixture and connected to the appropriate number of hydraulic actuators. Lateral spacing of the individual seat anchorages were measured and all other angular and dimensional measurements were verified to be in Indicant with the requirements of the subject safety standards. The components were weighed and their centers of gravity determined.

2.3 Static Load Tests-General Performance Requirements.

When tested in accordance with S5, each occupant seat, other than a side-facing seat or a passenger seat on a bus, shall withstand the following forces:

(a) In any position to which it can be adjusted — 20 times the weight of the seat applied in a forward longitudinal direction;

2. (Continued)

(b) In any position to which it can be adjusted — 20 times the weight of the seat applied in a rearward longitudinal direction;

(c) For a seat belt assembly attached to the seat — the force specified in subparagraph (a), if it is a forward facing seat, or subparagraph (b), if it is a rearward facing seat, in each case applied simultaneously with the forces imposed on the seat by the seat belt assembly when it is loaded in accordance with section S4.2 of Federal Motor Vehicle Safety Standard No. 210; and

(d) In its rearmost position — a force that produces a 3,300 inch-pound moment about the seating reference point (SRP) for each designated seating position (DSP) that the seat provides, applied to the upper cross-member of the seat back or the upper seat back, in a rearward longitudinal direction for forward-facing seats and in a forward longitudinal direction for rearward-facing seats.

(e) To meet FMVSS 210 requirements, the anchorages, attachment hardware, and attachment bolts for all Type 2 and automatic seat belt assemblies that are installed to comply with Standard No. 208 (49 CFR 571.208) shall withstand 3,000 pound forces when tested in accordance with S5.2.

SECTION 3

INDICANT TEST DATA

3. INDICANT TEST DATA

The results of FMVSS 207 Indicant tests that were conducted on the 2006 Ford Ranger 2-Door Extra Cab Truck on October 11 thru October 17, 2006, to determine Indicant with FMVSS 207, “Seating Systems” are presented in this section. No performance failures were identified with the vehicle tested.

DATA SHEET NO. 1

TEST VEHICLE RECEIVING INSPECTION

VEHICLE			
YEAR	**2006**	MAKE	**Ford**
MODEL	**Ranger**	BODY STYLE	**2-Door Extra Cab Truck**
NHTSA NO.	**C60207**	VIN	**1FTYR14U56PA17744**
BUILD DATE	**09/05**	TEST DATE	**10/11/06 – 10/17/06**
TEST LABORATORY		**KARCO Engineering, LLC.**	

1. First Indicant test by laboratory for this vehicle is S207 test.

   ____ Yes **X** No (Go to item 2)

*	1.1	Label test vehicle with NHTSA Number
*	1.2	Verify all options on the "window sticker" are present on the vehicle
*	1.3	Verify tires and wheel rims are new and the same as listed
*	1.4	Verify there are no dents or other interior or exterior flaws
*	1.5	Verify the glove box contains an owner's manual, warranty document, consumer information, and extra keys
*	1.6	Verify the vehicle is equipped with the proper fuel filler cap
*	1.7	If the vehicle has been delivered from the dealer, verify the vehicle has been properly prepared and is in running condition

2. Verify seat adjusters are working

   X Yes ____ No

3. Verify there is a seat belt at each seating position

   X Yes ____ No

4. Without disturbing the integrity of each seat belt and anchorage, verify that each seat belt is attached to the anchorage. For seat belts that are attached to the seat, also verify the seats are attached to the seat anchors and the seat anchors are attached to the vehicle.

   X Yes ____ No

RESULTS OR RECEIVING INSPECTION:

PASS - - **X**

FAIL - - ____

CONDITIONAL - - ____

REMARKS:

* Vehicle had previously been tested to FMVSS 124.

RECORDED BY: **RUPESH B. PATEL** DATE: **10/17/06**

APPROVED BY: **MATTHEW A. IVORY** DATE: **10/17/06**

DATA SHEET NO. 2

SEATING SYSTEM TEST RESULTS

VEHICLE			
YEAR	**2006**	MAKE	**Ford**
MODEL	**Ranger**	BODY STYLE	**2-Door Extra Cab Truck**
NHTSA NO.	**C60207**	VIN	**1FTYR14U56PA17744**
BUILD DATE	**09/05**	TEST DATE	**10/11/06 – 10/17/06**
TEST LABORATORY		**KARCO Engineering, LLC.**	

LEGEND: Wa - Weight of Seat Assembly

Wb - Weight of Seat Back

Wc - Weight of Seat Cushion

Z - Distance from Seat SRP to Uppermost Crossmember = 16.0 "

FOR FRONT BUCKET SEATS - - LEFT SIDE

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Seat Back	Forward	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Seat Assy.	Forward	Wa = **60**	20 x Wa = **1200**	**1188.7**	**N/A**	**PASS**
	Rearward	Wa =**60**	20 x Wa = **1200**	**1197.5**	**N/A**	**PASS**
Seat Back Moment	Rearward	**N/A**	3275 in-lb/Z	**203.5**	**3256.0**	**PASS**

FOR FRONT BUCKET SEATS - - RIGHT SIDE

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Seat Back	Forward	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Seat Assy.	Forward	Wa = **46**	20 x Wa = **920**	**916**	**N/A**	**PASS**
	Rearward	Wa = **46**	20 x Wa = **920**	**917.1**	**N/A**	**PASS**
Seat Back Moment	Rearward	**N/A**	3275 in-lb/Z	**204.1**	**3265.6**	**PASS**

DATA SHEET NO. 2 (Continued)

FOR FRONT BUCKET SEATS - - COMBINED

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	ATTACHMENT (PASS/FAIL)
Driver Lap Belt	Forward	**N/A**	3,000 lbs, +0, -50	**2937.2**	**PASS**
Driver Shoulder Belt	Forward	**N/A**	3,000 lbs, +0, -50	**2946.8**	**PASS**
Center Lap Belt	Forward	**N/A**	5,000 lbs, +0, -50	**4982.9**	**PASS**
Passenger Lap Belt	Forward	**N/A**	3,000 lbs, +0, -50	**3001.9**	**PASS**
Passenger Shoulder Belt	Forward	**N/A**	3,000 lbs, +0, -50	**2993.6**	**PASS**
Driver Seat Assembly	Forward	Wa = **60**	20 x Wa = 1200	**1219.2**	**PASS**
Passenger Seat Assembly	Forward	Wa = **46**	20 x Wa = 920	**914.0**	**PASS**

COMMENTS: - None

RECORDED BY: **RUPESH B. PATEL** DATE: **10/17/06**

APPROVED BY: **MATTHEW A. IVORY** DATE: **10/17/06**

DATA SHEET NO. 3

SEAT BACK ANGLES

VEHICLE			
YEAR	**2006**	MAKE	**Ford**
MODEL	**Ranger**	BODY STYLE	**2-Door Extra Cab Truck**
NHTSA NO.	**C60207**	VIN	**1FTYR14U56PA17744**
BUILD DATE	**09/05**	TEST DATE	**10/11/06 – 10/17/06**
TEST LABORATORY		**KARCO Engineering, LLC.**	

LAP BELT ANCHORAGES:

SEAT	SEATING POSITION	SPECIFIED ANGLE RANGE ABOVE HORIZONTAL	MEASURED ANGLE		DOES BELT SECURELY FIT ON PELVIS?
			I/B	**O/B**	
FRONT	Left	30 to 75 degrees	**47**	**45**	**YES**
	Center	30 to 75 degrees	**46**	**45**	**YES**
	Right	30 to 75 degrees	**48**	**48**	**YES**
REAR	Left	30 to 75 degrees	**N/A**	**N/A**	**N/A**
	Center	30 to 75 degrees	**N/A**	**N/A**	**N/A**
	Right	30 to 75 degrees	**N/A**	**N/A**	**N/A**

SHOULDER BELT ANCHORAGES:

SEAT	SEATING POSITION	SPECIFIED ANGLE RANGE ABOVE OR BELOW HORIZONTAL	MEASURED ANGLE
FRONT	Left	0 – 80 degrees above	**30º**
		0 – 40 degrees below	**N/A**
	Right	0 – 80 degrees above	**N/A**
		0 – 40 degrees below	**30º**
REAR	Left	0 – 80 degrees above	**N/A**
		0 – 40 degrees below	**N/A**
	Center	0 – 80 degrees above	**N/A**
		0 – 40 degrees below	**N/A**
	Right	0 – 80 degrees above	**N/A**
		0 – 40 degrees below	**N/A**

RECORDED BY: **RUPESH B. PATEL** DATE: **10/17/06**

APPROVED BY: **MATTHEW A. IVORY** DATE: **10/17/06**

DATA SHEET NO. 4

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

The following vehicle has been subjected to Indicant testing for FMVSS No. **207**

VEHICLE			
NHTSA NO.	**C60207**	TEST DATE	**10/11/06 – 10/17/06**
CONTRACT NO.	**DTNH22-01-C-31025**	VIN	**1FTYR14U56PA17744**
SEAT CONFIGURATION			
VEHICLE OR SEAT MANUFACTURER		**Ford Motor Corporation**	
TEST LABORATORY		**KARCO Engineering, LLC.**	

The vehicle was inspected upon arrival at the laboratory for the test and found to contain all of the equipment listed below. All variances have been reported within 2 working days of vehicle arrival, by letter, to the NHTSA Industrial Property Manager (NAD-30), with a copy to the OVSC COTR. The vehicle is again inspected, after the above test has been conducted, and all changes are noted below. The final condition of the vehicle is also noted in detail.

TEST VEHICLE INFORMATION			
Manufacturer	**Ford Motor Corporation**	VIN	**1FTYR14U56PA17744**
Manufacturing Date	**09/05**	Delivery Date	**09/25/06**
Dealer	**John Nolan Ford**	NHTSA No.	**C60207**
Odometer Reading (mi.)	**262**	Fuel Type	**GAS**
Engine Displacement	**3.6 Liter**	Cylinders	**V6**
Transmission	**3-Speed Automatic**	Final Drive	**Rear**
Engine Placement	**Longitudinal**	Color	**Yellow**
Tire Press./Max. Cap. Front	**44 PSI**	Cold Tire Press. Front	**30 PSI**
Tire Press./Max. Cap. Rear	**44 PSI**	Cold Tire Press. Rear	**30 PSI**
Recommend Tire Size	**P235/70R16**	Type of Spare	**P235/70R16**
Tire Size on Vehicle	**P235/70R16**	Manufacturer	**Continental**
GVWR	**2600 Kg.**	Cargo Capacity	**625**
GAWR Front	**1139 Kg.**	GAWR Rear	**1179 Kg.**
Air Conditioning	**YES**	Power Steering	**YES**
Power Brakes	**YES**	AM/FM/Cassette	**YES**
Disc Brakes (Front)	**YES**	Disc Brakes (Rear)	**NO**
Power Windows	**NO**	Tilt Steering	**YES**
Anti-lock Brakes (ABS)	**YES**	Power Seats	**NO**
Driver Airbag	**YES**	Passenger Airbag	**YES**

Test Vehicle Condition at the end of testing: **FRONT OF VEHICLE WAS REMOVED, SEATS WERE TESTED.**

RECORDED BY: **RUPESH B. PATEL** DATE: **10/17/06**

APPROVED BY: **MATTHEW A. IVORY** DATE: **10/17/06**

APPENDIX A

PHOTOGRAPHS

FIGURE 1. Left Front ¾ View, As Received

FIGURE 2. Left Side, As Received

FIGURE 3. Right Rear ¾ View, As Received

FIGURE 4. Right Side, As Received

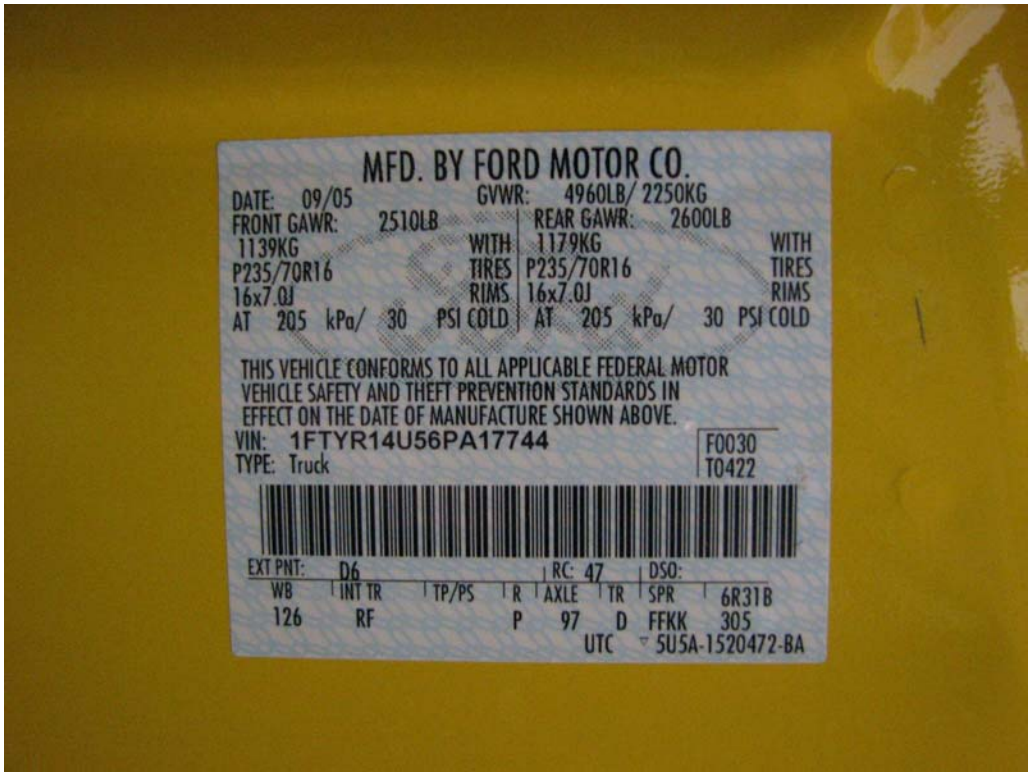


FIGURE 5. Manufacturer's Label

FIGURE 6. Vehicle Tire Placard

FIGURE 7. Vehicle Mounted in Test Fixture

FIGURE 8. Vehicle Mounted in Test Fixture

FIGURE 9. Vehicle Mounted in Test Fixture

FIGURE 10. Vehicle Mounted in Test Fixture

FIGURE 11. Aft Moment on Seat Back, P1, Pre-Test

FIGURE 12. Aft Moment on Seat Back, P1, Post-Test

FIGURE 13. Aft Moment on Seat Back, P2, Pre-Test

FIGURE 14. Aft Moment on Seat Back, P2, Post-Test

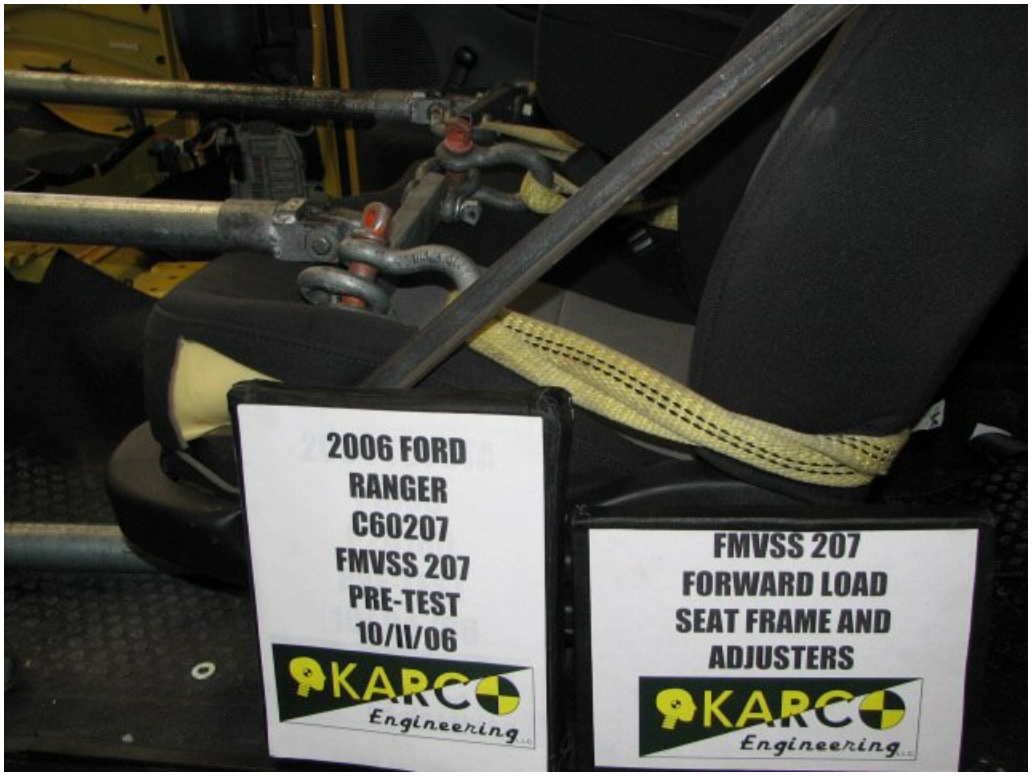


FIGURE 15. Forward Load on Seat Frame and Adjusters, P1, Pre-Test

FIGURE 16. Forward Load on Seat Frame and Adjusters, P1, Post-Test

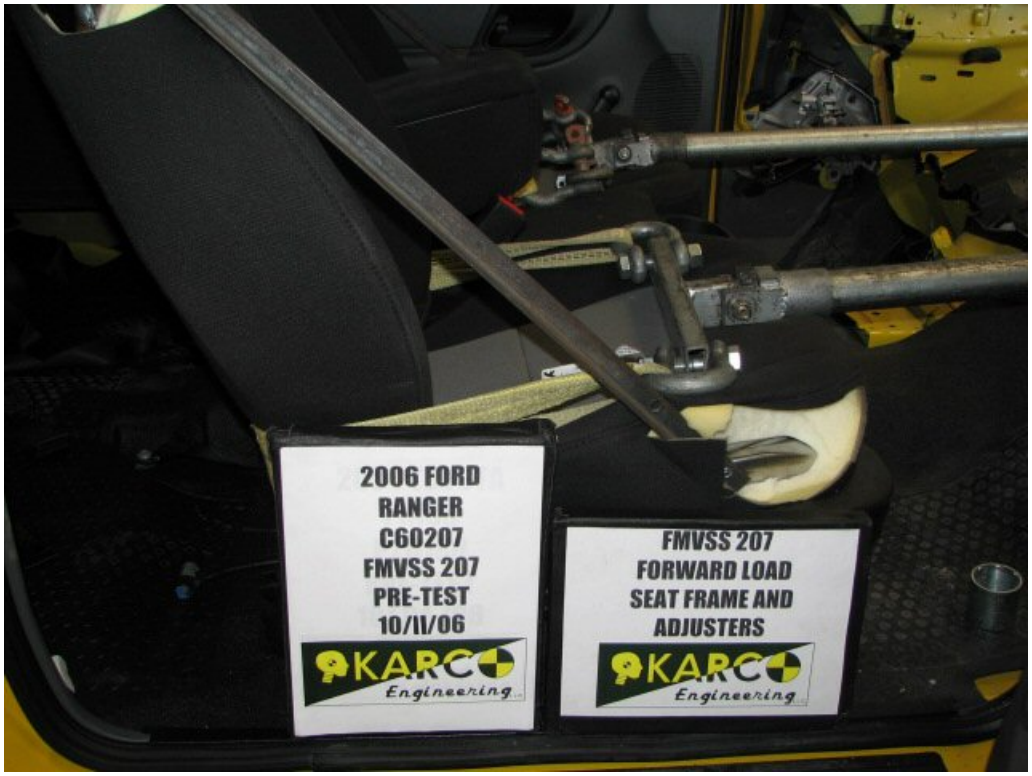


FIGURE 17. Forward Load on Seat Frame and Adjusters, P2, Pre-Test

FIGURE 18. Forward Load on Seat Frame and Adjusters, P2, Post-Test

FIGURE 19. Aft Load on Seat Frame and Adjusters, P1, Pre-Test

FIGURE 20. Aft Load on Seat Frame and Adjusters, P1, Post-Test

FIGURE 21. Aft Load on Seat Frame and Adjusters, P2, Pre-Test

FIGURE 22. Aft Load on Seat Frame and Adjusters, P2, Post-Test

FIGURE 23. 207/210 Forward Load on Seat Frame and Adjusters, P1, Pre-Test

FIGURE 24. 207/210 Forward Load on Seat Frame and Adjusters, P1, Post-Test

FIGURE 25. 207/210 Forward Load on Seat Frame and Adjusters, P2, Pre-Test

FIGURE 26. 207/210 Forward Load on Seat Frame and Adjusters, P2, Post-Test

FIGURE 27. Floor Pan Anchors, P1 Overall, Pre-Test

FIGURE 28. Floor Pan Anchors, P1 Overall, Post-Test

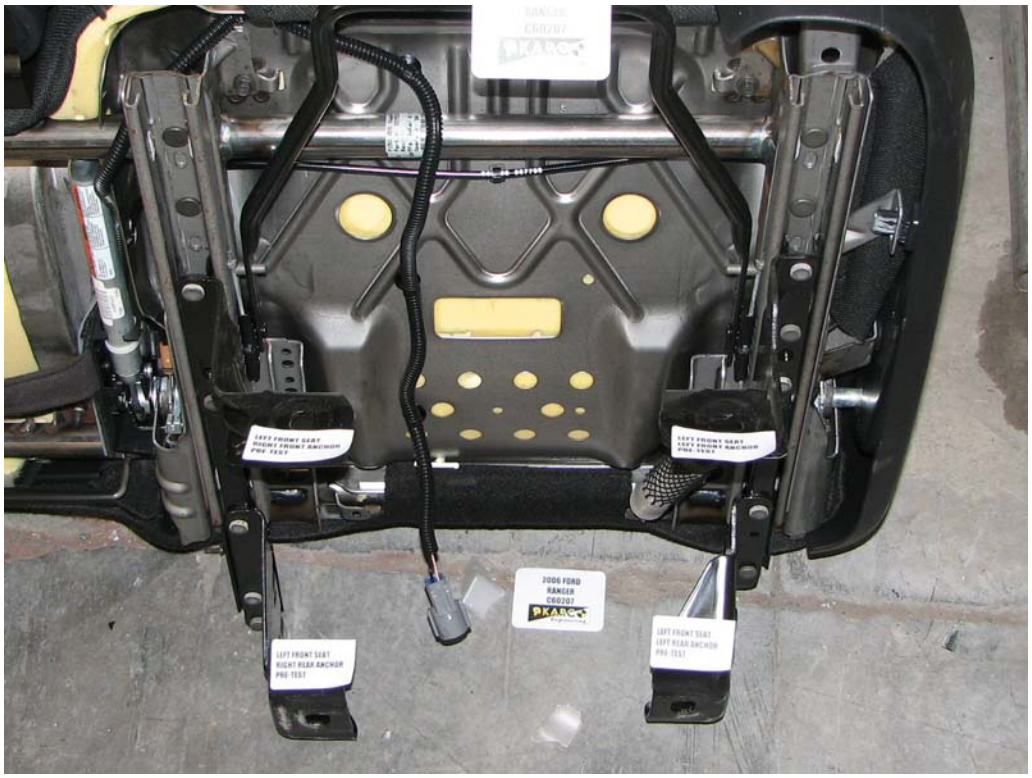


FIGURE 29. Seat Anchors, P1 Overall, Pre-Test

FIGURE 30. Seat Anchors, P1 Overall, Post-Test

FIGURE 31. Floor Pan Anchor, P1, Pre-Test

FIGURE 32. Floor Pan Anchor, P1, Post-Test

FIGURE 33. Seat Anchor, P1, Pre-Test

FIGURE 34. Seat Anchor, P1, Post-Test

FIGURE 35. Floor Pan Anchor, P1, Pre-Test

FIGURE 36. Floor Pan Anchor, P1, Post-Test

FIGURE 37. Seat Anchor, P1, Pre-Test

FIGURE 38. Seat Anchor, P1, Post-Test

FIGURE 39. Floor Pan Anchor, P1, Pre-Test

FIGURE 40. Floor Pan Anchor, P1, Post-Test

FIGURE 41. Seat Anchor, P1, Pre-Test

FIGURE 42. Seat Anchor, P1, Post-Test

FIGURE 43. Floor Pan Anchor, P1, Pre-Test

FIGURE 44. Floor Pan Anchor, P1, Post-Test

FIGURE 45. Seat Anchor, P1, Pre-Test

FIGURE 46. Seat Anchor, P1, Post-Test

FIGURE 47. Shoulder Belt Anchor, P1, Pre-Test

FIGURE 48. Shoulder Belt Anchor, P1, Post-Test

FIGURE 49. Shoulder Belt Anchor, P1, Pre-Test

FIGURE 50. Shoulder Belt Anchor, P1, Post-Test

FIGURE 51. Belt Anchor, P1, Pre-Test

FIGURE 52. Belt Anchor, P1, Post-Test

FIGURE 53. Belt Anchor, P1, Pre-Test

FIGURE 54. Belt Anchor, P1, Post-Test

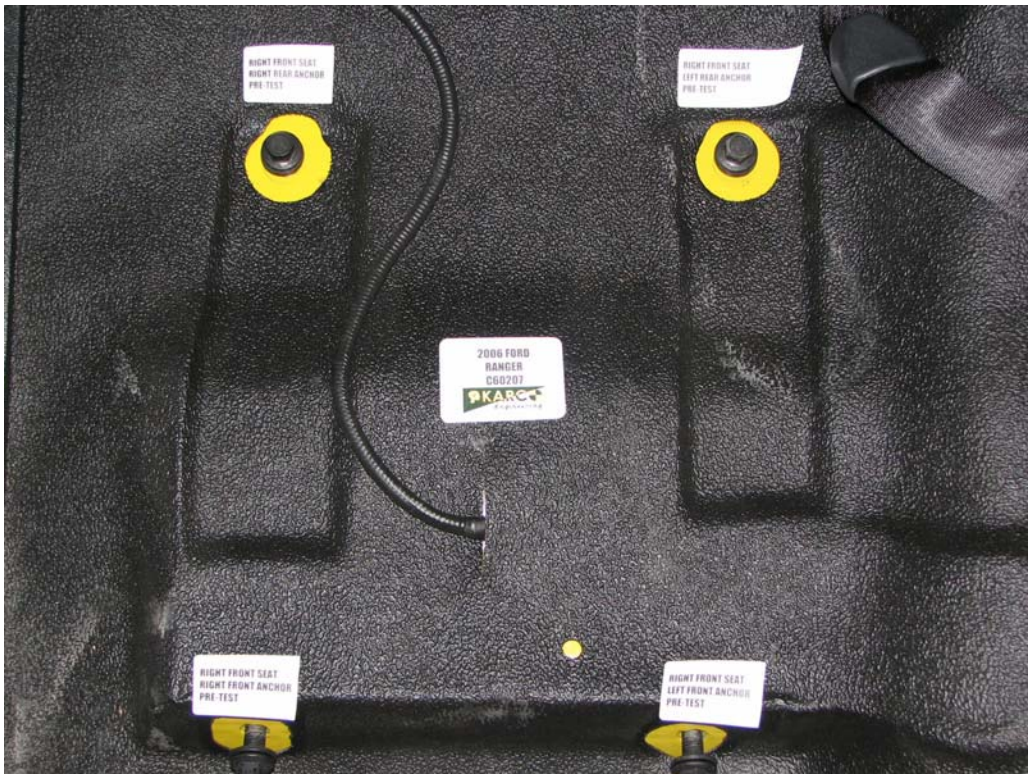


FIGURE 55. Floor Pan Anchors, P2 Overall, Pre-Test

FIGURE 56. Floor Pan Anchors, P2 Overall, Post-Test

FIGURE 57. Seat Anchors, P2 Overall, Pre-Test

FIGURE 58. Seat Anchors, P2 Overall, Post-Test

FIGURE 59. Floor Pan Anchor, P2, Pre-Test

FIGURE 60. Floor Pan Anchor, P2, Post-Test

FIGURE 61. Seat Anchor, P2, Pre-Test

FIGURE 62. Seat Anchor, P2, Post-Test

FIGURE 63. Floor Pan Anchor, P2, Pre-Test

FIGURE 64. Floor Pan Anchor, P2, Post-Test

FIGURE 65. Seat Anchor, P2, Pre-Test

FIGURE 66. Seat Anchor, P2, Post-Tes

FIGURE 67. Floor Pan Anchor, P2, Pre-Test

FIGURE 68. Floor Pan Anchor, P2, Post-Test

FIGURE 69. Seat Anchor, P2, Pre-Test

FIGURE 70. Seat Anchor, P2, Post-Test

FIGURE 71. Floor Pan Anchor, P2, Pre-Test

FIGURE 72. Floor Pan Anchor, P2, Post-Test

FIGURE 73. Seat Anchor, P2, Pre-Test

FIGURE 74. Seat Anchors, P2, Post-Test

FIGURE 75. Shoulder Belt Anchor, P2, Pre-Test

FIGURE 76. Shoulder Belt Anchor, P2, Post-Test

FIGURE 77. Shoulder Belt Anchor, P2, Pre-Test

FIGURE 78. Shoulder Belt Anchor, P2, Post-Test

FIGURE 79. Belt Anchor, P2, Pre-Test

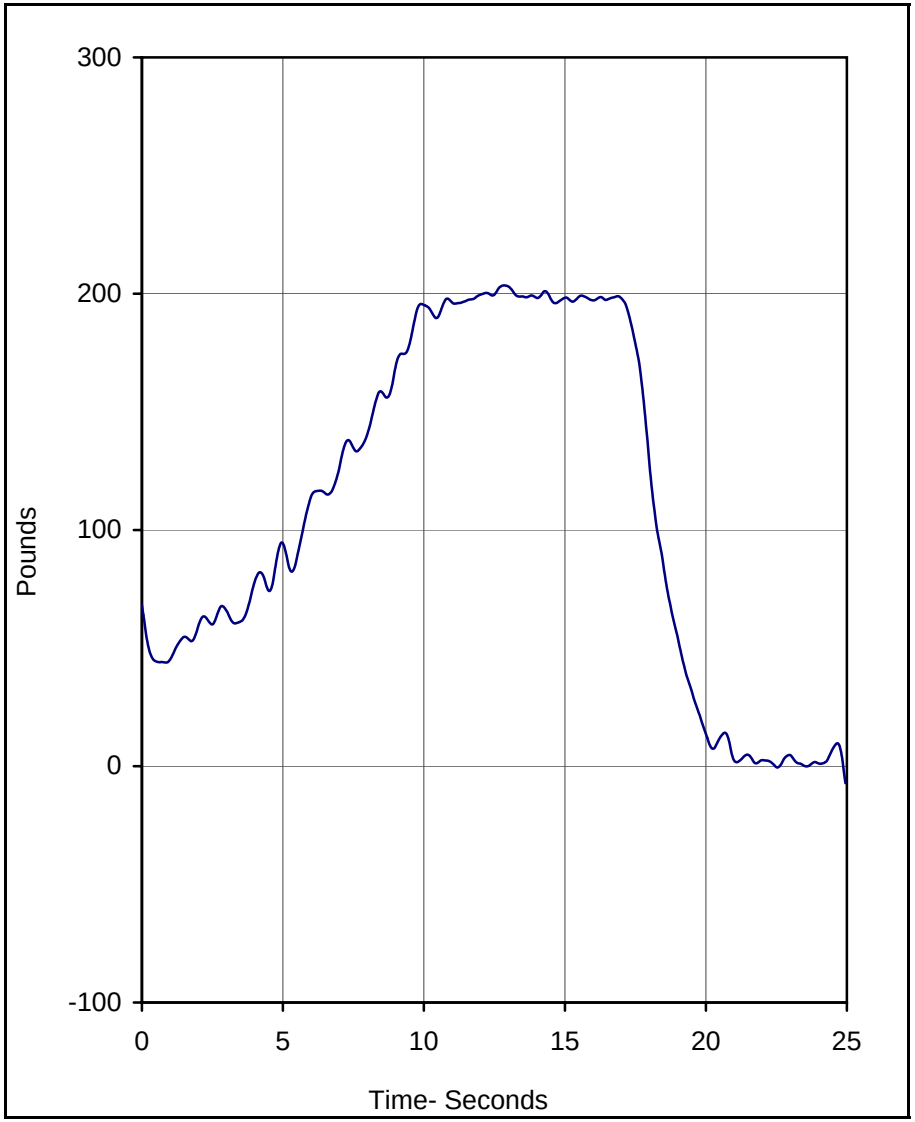
FIGURE 80. Belt Anchor, P2, Post-Test

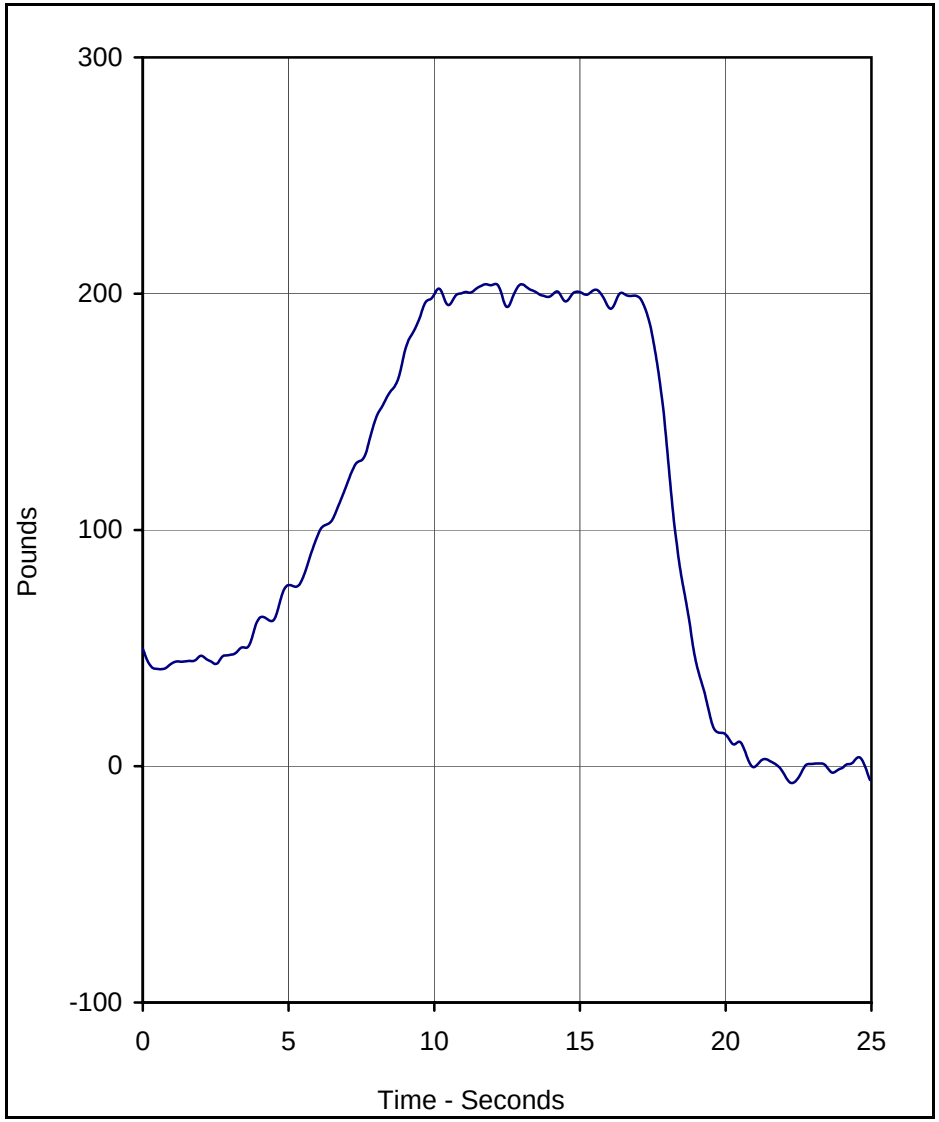
FIGURE 81. Belt Anchor, P2, Pre-Test

FIGURE 82. Belt Anchor, P2, Post-Test

APPENDIX B

DATA PLOTS





Curve Description	CURNO	Type
Driver Seat	001	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	203.5	12.9	-7.2	25.0	1

Curve Description	CURNO	Type
Pass. Seat	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	204.1	12.1	-7.1	22.3	1

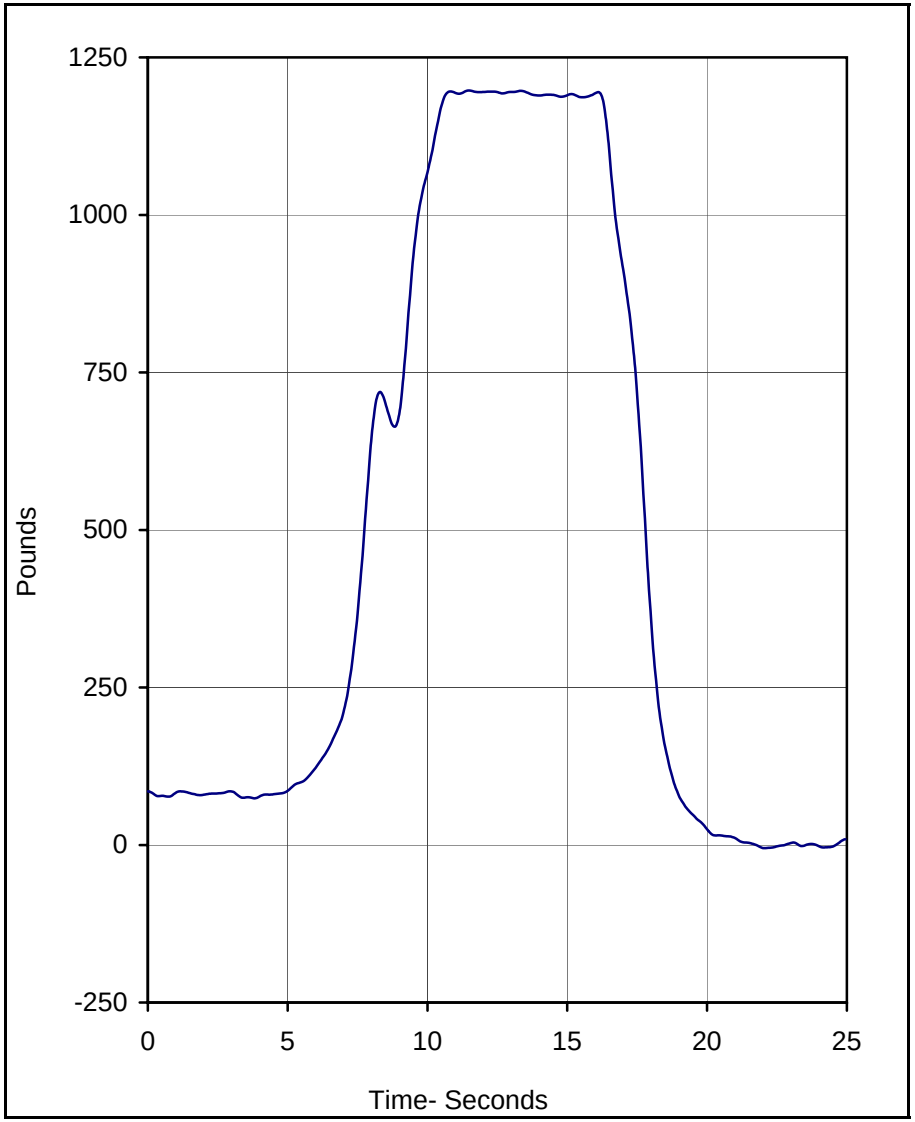
Test Program: FMVSS 207 Aft Moment (Front)

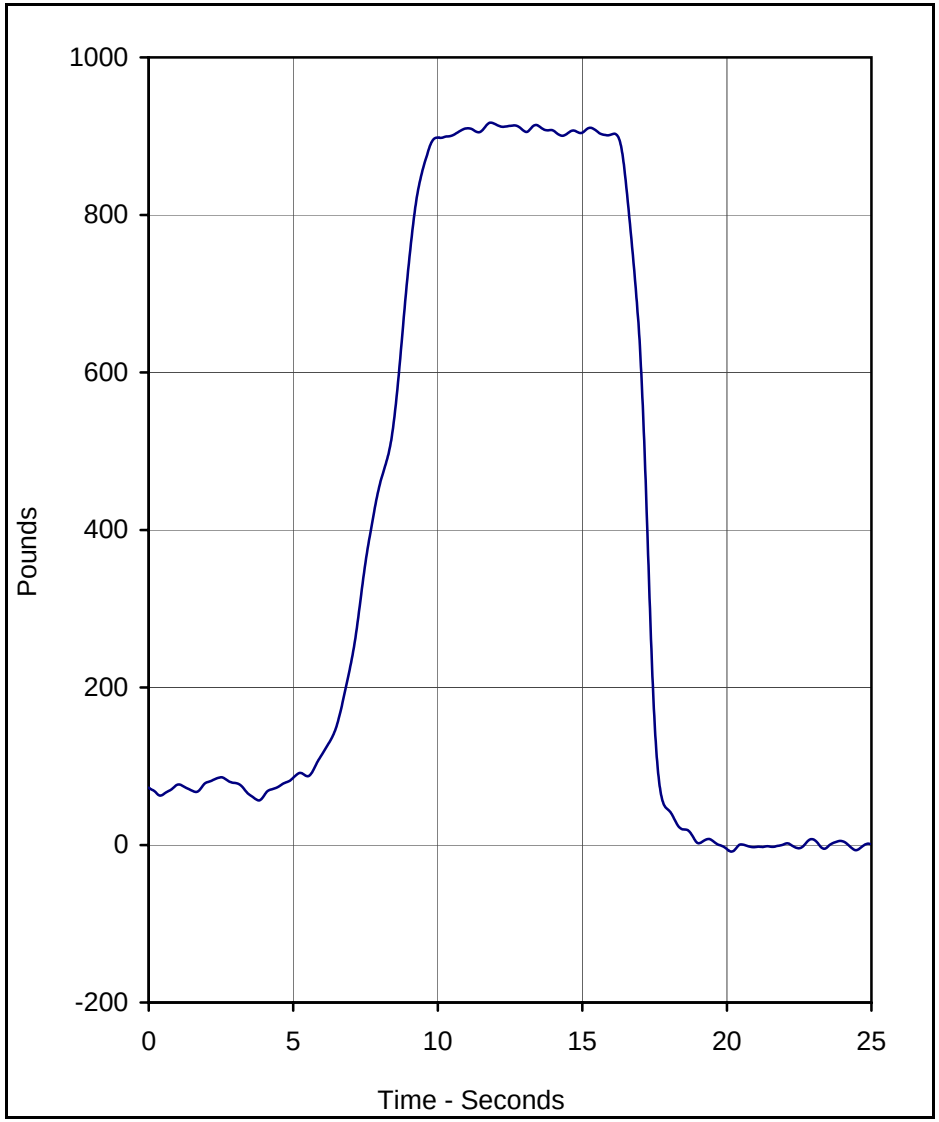
Test Vehicle: 2006 Ford Ranger 2-Door Extra Cab Truck

Test Date: 10/11/06

Project No.: C60207

KARCO Engineering





Curve Description	CURNO	Type
Driver Seat	001	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	1197.5	11.5	-5.0	22.1	1

Curve Description	CURNO	Type
Pass. Seat	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	917.1	11.9	-8.4	20.2	1

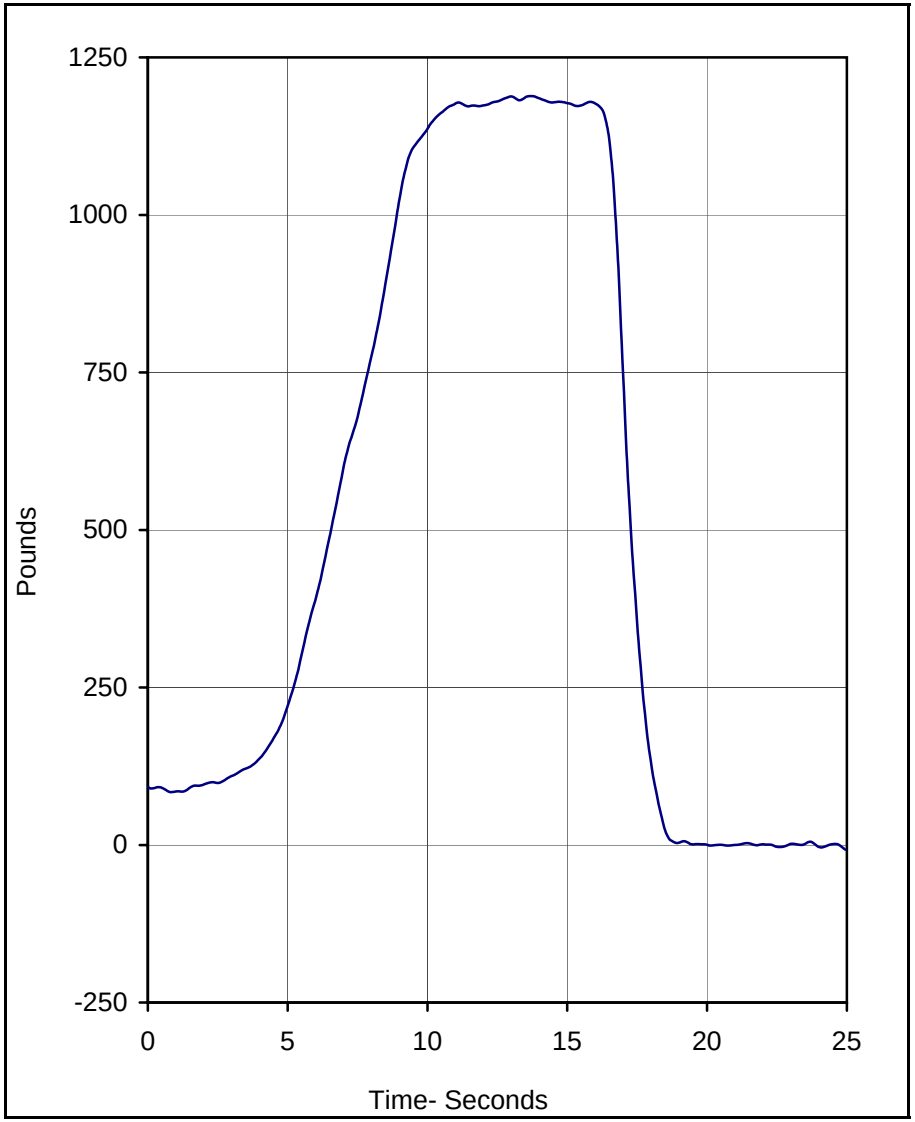
Test Program: FMVSS 207 Aft Seat Frame and Adj. (Front)

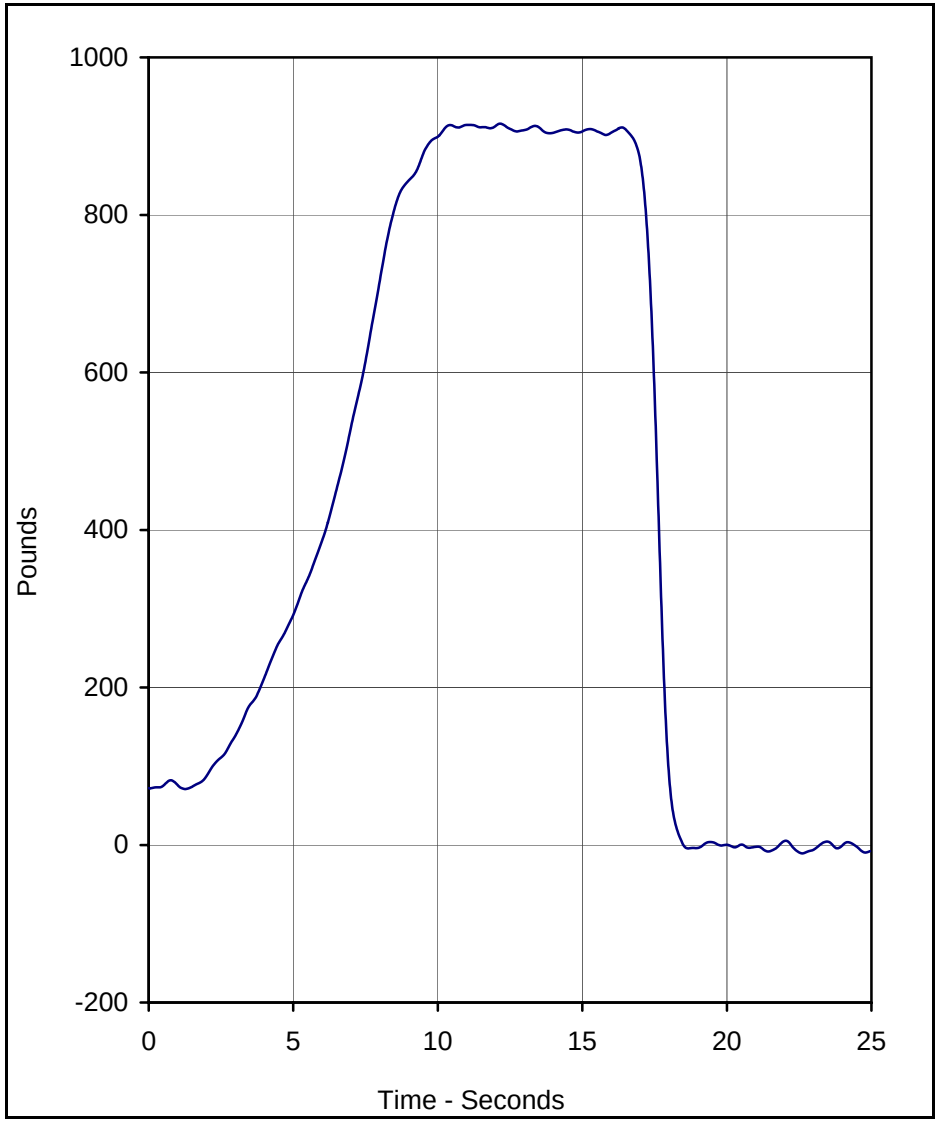
Test Vehicle: 2006 Ford Ranger 2-Door Extra Cab Truck

Test Date: 10/11/06

Project No.: C60207

KARCO Engineering





Curve Description	CURNO	Type
Driver Seat	001	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	1188.7	13.7	-7.5	25.0	1

Curve Description	CURNO	Type
Pass. Seat	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	916.0	12.2	-10.7	22.6	1

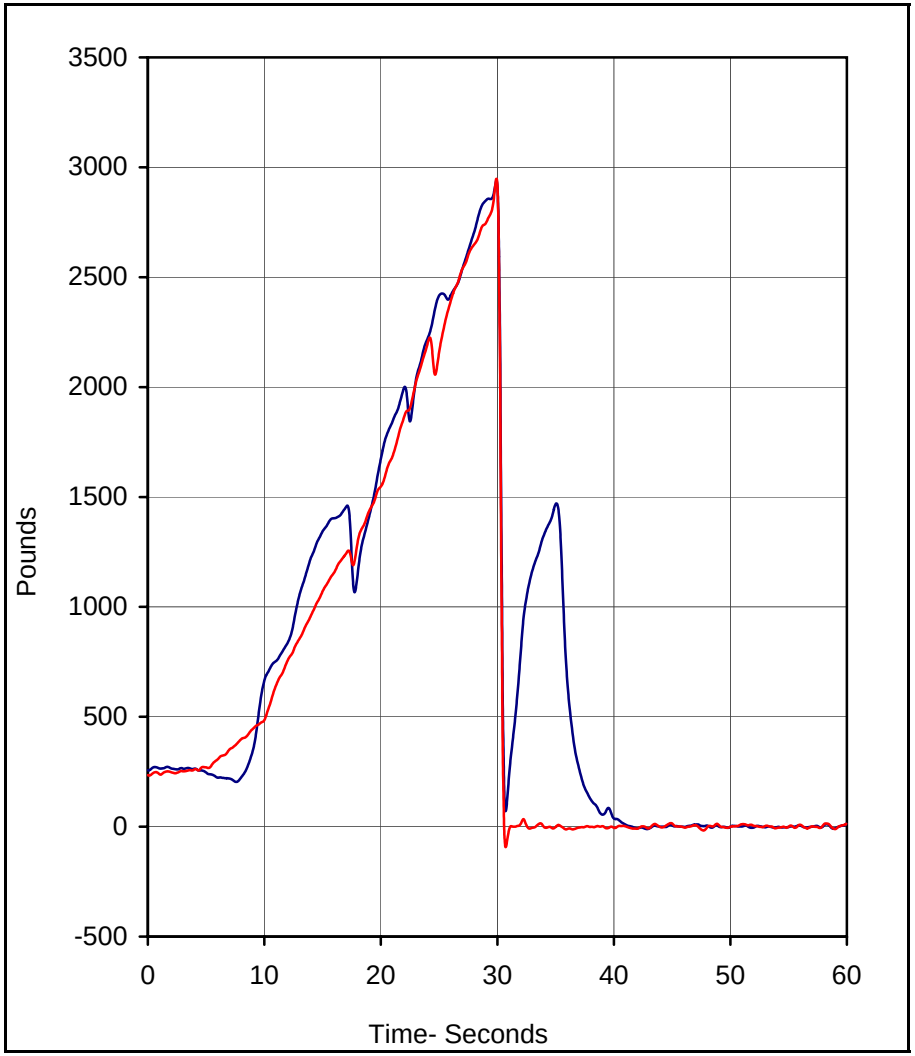
Test Program: FMVSS 207 Fwd Seat Frame and Adj. (Front)

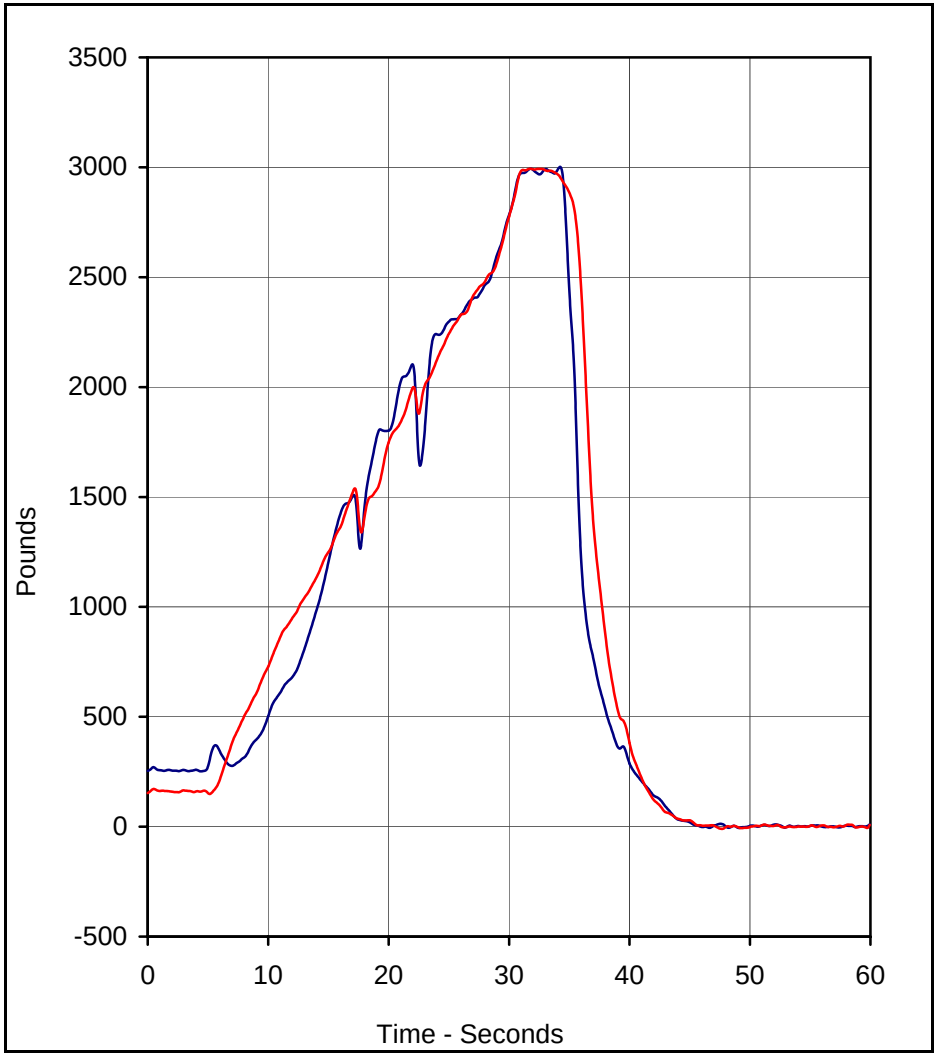
Test Vehicle: 2006 Ford Ranger 2-Door Extra Cab Truck

Test Date: 10/11/06

Project No.: C60207

KARCO Engineering





Curve Description	CURNO	Type
Driver Lap Force	001	FIL
Driver Shoulder Force	002	FIL

Curve Description	CURNO	Type
Passenger Lap Force	004	FIL
Passenger Shoulder Force	005	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	2937.2	29.9	-11.0	42.9	1
Pounds	2946.8	29.9	-92.3	30.7	1

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	3001.9	34.3	-5.8	49.1	1
Pounds	2993.6	31.8	-9.9	47.7	1

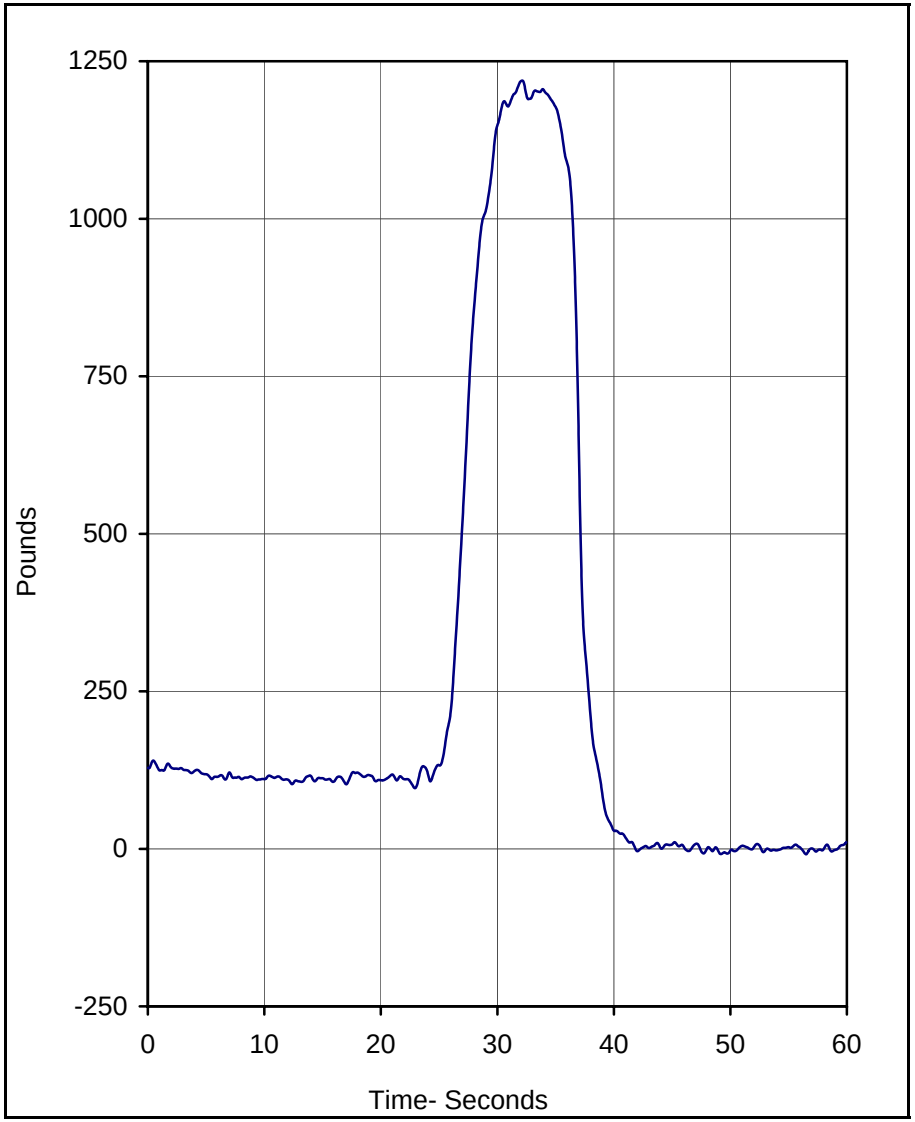
Test Program: FMVSS 207/210 Front Seats

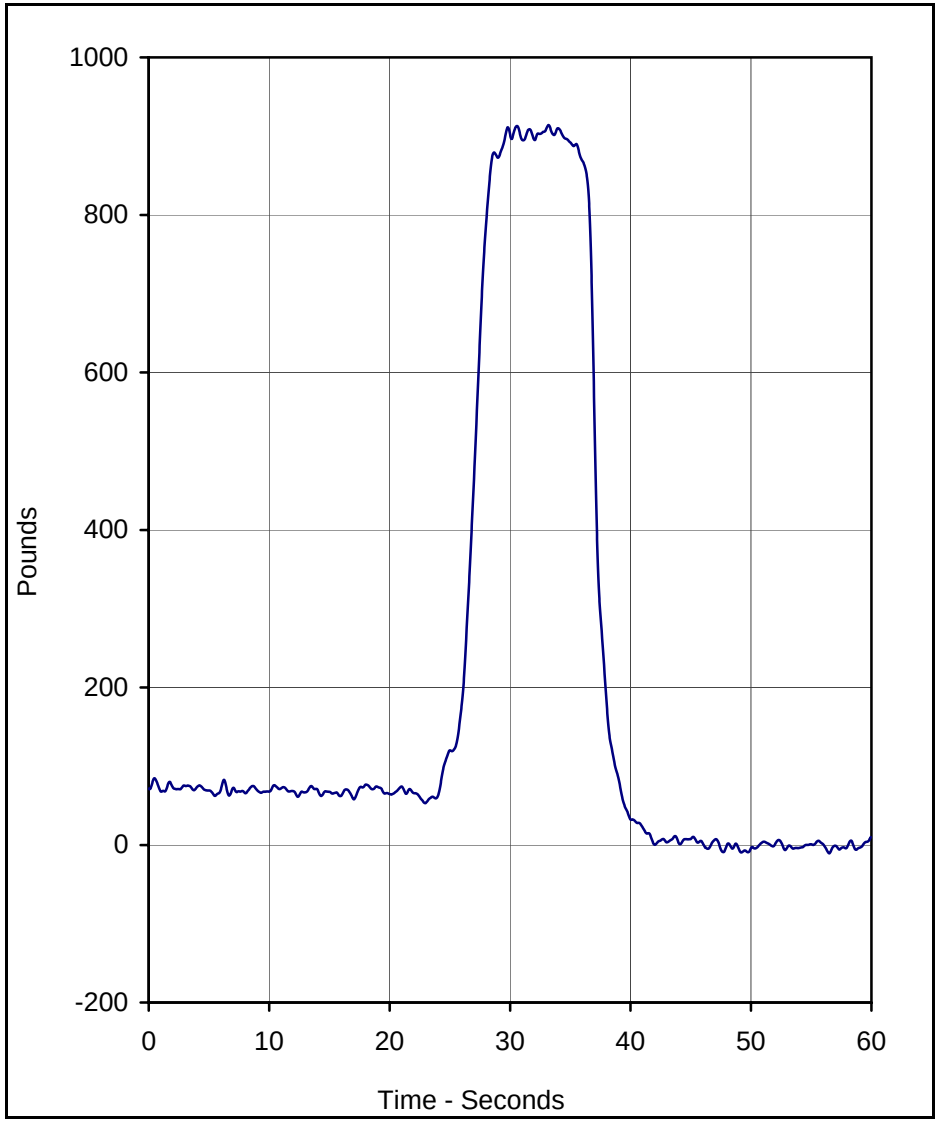
Test Vehicle: 2006 Ford Ranger 2-Door Extra Cab Truck

Test Date: 10/17/06

Project No.: C60207

KARCO Engineering





Curve Description	CURNO	Type
Driver Seat Force	003	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	1219.2	32.2	-8.7	56.5	1

Curve Description	CURNO	Type
Passenger Seat Force	006	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	914.0	33.2	-10.6	56.5	1

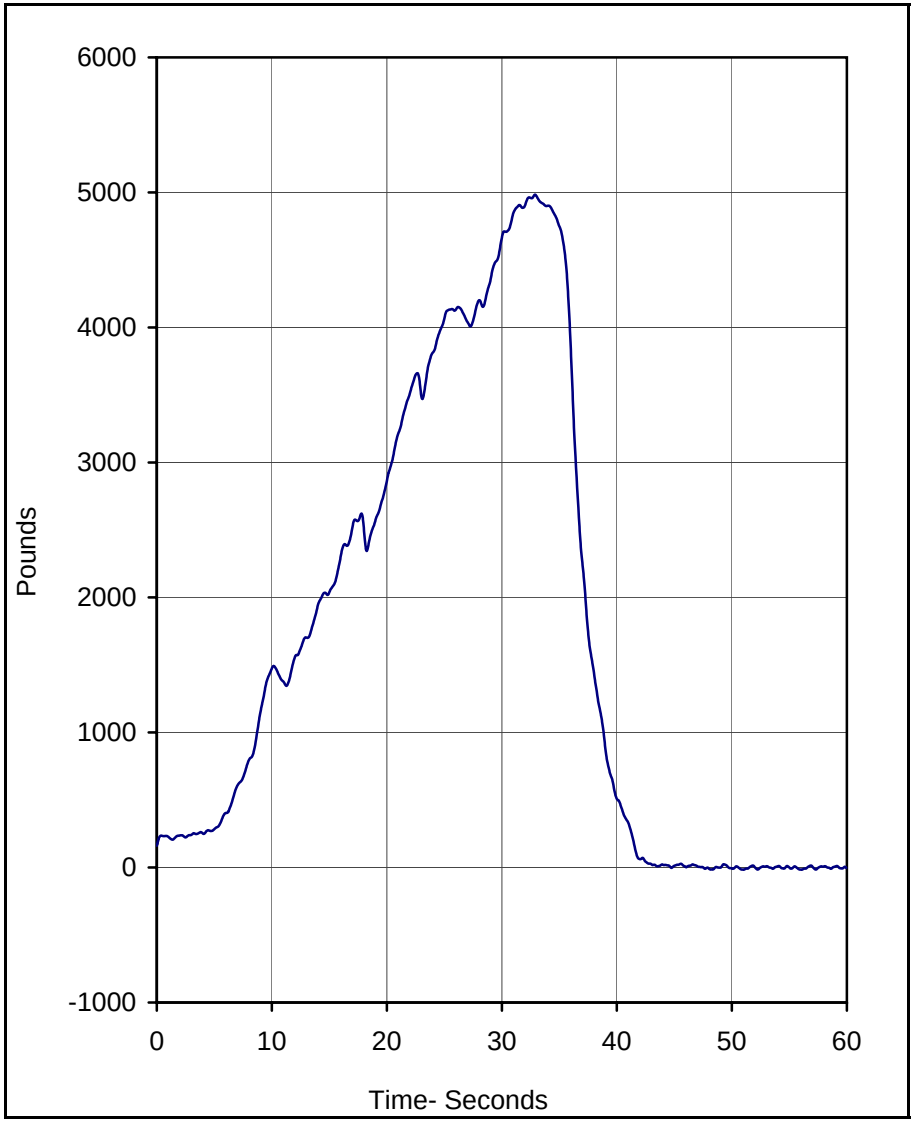
Test Program: FMVSS 207/210 Front Seats

Test Vehicle: 2006 Ford Ranger 2-Door Extra Cab Truck

Test Date: 10/17/06

Project No.: C60207

KARCO Engineering



Curve Description	CURNO	Type
Center Lap Force	007	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	4982.9	32.9	-16.3	51.0	1

Test Program: FMVSS 207/210 Front Seats

Test Vehicle: 2006 Ford Ranger 2-Door Extra Cab Truck

Test Date: 10/17/06

Project No.: C60207

APPENDIX C

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

FMVSS 207

Test Equipment List

10/11/06

2006 Ford Ranger 2-Door Extra Cab Truck

Description	Manufacturer	Model No.	Serial No.	Limit	Accuracy	Cal. Date	Due Cal.
Hydraulic Pump	Lincoln	T-3825-C	2460952	8 gpm @ 2700 psi			
Computer	Panasonic	CF-71	8IMAA01852	N/A	N/A	N/A	N/A
TDAS	DTS	TDAS	DM0103	N/A	SAE J211	11/14/05	11/14/06
Load Cell	Interface	1220-FS	50k1	50K	± 1.0%	5/20/06	11/18/06
Load Cell	Interface	1220-FS	50k2	50K	± 1.0%	5/20/06	11/18/06
Load Cell	BLH	U3G1	49296	3K	± 1.0%	5/22/06	11/20/06
Load Cell	BLH	U-1C	N873	6K	± 1.0%	5/20/06	11/18/06
Load Cell	BLH	U-1C	11139	12K	± 1.0%	5/20/06	11/18/06
Load Cell	Alinco	342-E	22438-B	10K	± 1.0%	5/22/06	11/20/06
Load Cell	Alinco	342-E	22440-A	10K	± 1.0%	5/22/06	11/20/06
Load Cell	BLH	U3G1	81711A	10K	± 1.0%	5/22/06	11/20/06