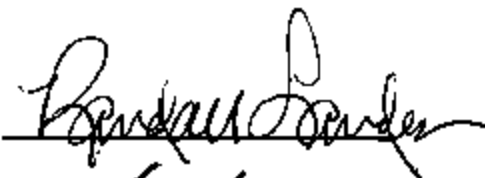


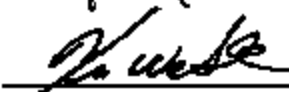
Prepared for the Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-01-C-21025.

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Prepared By



Approved By



Approval Date:

5/10/04

Final Report Acceptance By OVSC:


Contract Technical Manager, Office of
Vehicle Safety Compliance

Acceptance Date

 5/14/04

1. REPORT NUMBER: 135-TRC-04-006		2. GOVERNMENT ACCESSION NO.:		3. RECIPIENTS CATALOG NO.:	
4. TITLE AND SUBTITLE: Final report of FMVSS 135 Compliance Testing of a 2004 Ford E-150 XL Wagon, 6-Door MPV, NHTSA No. C40208				5. REPORT DATE: May 6, 2004	
				6. PERFORMING ORGANIZATION CODE: TRC 20000113/4357	
7. AUTHOR(S): Project Manager: WALTER DUDEK Project Engineer: RANDALL A. LANDES				8. PERFORMING ORGANIZATION REPORT NO.: TRC-DOT-135-051	
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Transportation Research Center Inc. 10820 State Route 347 East Liberty, Ohio 43319				10. WORK UNIT NUMBER:	
				11. CONTRACT OR GRANT NO.: DTNH22-01-C-21025	
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15. SUPPLEMENTARY NOTES:					
16. ABSTRACT: Compliance tests were conducted on the subject 2004 Ford E-150 XL Wagon, 6-Door MPV, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-135-00 for the determination of FMVSS 135 compliance. Test failures identified were as follows: None, (Label - See Appendix C).					
17. KEY WORDS: Compliance Testing Safety Engineering FMVSS 135				18. DISTRIBUTION STATEMENT: Copies of this report are available from: NHTSA Technical Reference Division Mail Code: NAD-40 400 Seventh Street, SW, Rm. 5108 Washington, DC 20590 Telephone No. (202) 366-4949	
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TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
	Notice	i
	Table of Contents	iii
1.0	Introduction/Purpose of Compliance Test	1
2.0	Vehicle Information Sheet - Data Sheet 1	2
3.0	Test Summary	4
4.0	Vehicle Weight - Data Sheet 3	5
5.0	Test Data - Data Sheet 10	8
6.0	Photographs	33
7.0	Instrumentation and Daily Calibrations	50
Appendix A	Copy of Manufacturer's Sticker	54
Appendix B	Discussion on Data	56
Appendix C	Contractor's Comments Procedure Modifications and Test Facility	58
Appendix D	Notice of Possible Non-Compliance	66

1.0 INTRODUCTION

Tests were conducted on a 2004 Ford E-150 XL Wagon, 6-dr. MPV, manufactured by Ford Motor Company, to determine compliance with FMVSS 135 "Passenger Car Brake Systems." All tests were conducted in accordance with the U.S. D.O.T., NHTSA Laboratory Procedure TP 135-00 and/or the corresponding TRC Inc. test procedure that was submitted to NHTSA for their approval. The test procedure was clearly described in the submitted document and has not been repeated in this report.

All stops were performed manually.

All tests were conducted by TRC Inc. personnel using the following TRC facilities:

7.5-Mile Test Track

Vehicle Maximum Speed

Burnish

Heating Snubs and Hot Performance Stops

Brake Cooling and Recovery Stops

Skid Pad

Cold Effectiveness Stops

High Speed Effectiveness Stops

Stops with Engine Off

Failed Antilocks

Failed Variable Proportioning Valve (if applicable)

Failed Hydraulic Circuits

Brake Power Assist Unit Failures

Brake Slope

Parking Brake

Average PFC during the test period was 0.95 (Skid Pad) and 0.93 (Test Track) utilizing the ASTM E1337 w/E1336 tire method.

The test vehicle was ABS equipped. Therefore, the Wheel Lock Sequence and Adhesion Utilization Tests were not performed.

This vehicle met the requirements of FMVSS 135.

DATA SHEET 1 - VEHICLE INFORMATION

VEHICLE SPECS

Year: 2004	NHTSA No: C40208
Mfr: FORD MOTOR CO.	GVWR (Kg): 3175.2
Make: FORD	GAWR Front(Kg): 1633.0
Model: E150 XL WAGON	GAWR Rear(Kg): 1723.7
Body Style: 6-DR MPV	Wheelbase (mm): 3505.2
Mfr. Date: 11/03	Odometer: Start: 154 MI. End: 611 MI.
VIN: 1FMRE11W94	

BUSES ONLY

Chassis Mfg.: N/A
Serial No.: N/A
No. of Seats: N/A
Manufacture Date: N/A

Engine Type: GASOLINE, V8, EFI, PISTON.	Tire Size: P235/70R16
Displacement: 4.6 LITER	Tire Type: LTX, M/S, RADIAL X, TUBELESS.
Engine Hspwr: N/A	Tire Mfr.: MICHELIN
Idle Speed(rpm): 68.5916	GVWR Front Press.(kpa): 282.69
Transmission Type: AUTO. 4-SPD. W/DR. SEL. O/D	GVWR Rear Press.(kpa): 282.69
No. of Axles: 2	

BRAKE APPLY SYSTEM

Brake Series: Front: DISC Rear: DISC	Power Assist Unit: YES
Brake Actuation	Pwr Unit w/Accumulator: NO
(Hydr. Circuit Split): FRONT/REAR	Pwr Asst./Pwr Unit w/Backup: NO
Power Unit: VACUUM	Variable Prop. System: YES
Anti-Skid unit Mfr: KELSEY HAYES	Anti-Skid Device: YES
Parking Mechanism: YES	
Type of Parking Unit: AUTOMATIC TRANSMISSION WITH PARK DETENT.	
Mstr Cylinder Dia(mm): 31.60	Pedal Ratio: 4.2 : 1

FRONT SYSTEM BRAKE COMPONENT MATERIALS AND CONSTRUCTION:

BRAKE TYPE: DISC	Material: CAST
Drum Construction: N/A	LF Drum Shoe Cage Dia.(mm): 0.00
Disc Construction: INTEGRAL CAST, VENTED	RF Drum Shoe Cage Dia.(mm): 0.00
Front Brake Dia.(mm): 326.24	LF Drum Dia. RESET(mm): 0.00
Fr Disc Thickness(mm): 31.57	RF Drum Dia. RESET(mm): 0.00
Lining Construction: Bonded	
FRONT BRAKE COMPONENT DIMENSIONS AND CODES:	
Inboard (Leading)	Outboard (Trailing)
Width(mm): 49.71	Width(mm): 49.73
Length(mm): 130.18	Length(mm): 130.20
Thickness(mm): 10.16	Thickness(mm): 10.11
Lining Code/Color: FM2129FE	Lining Code/Color: FM2129FE
Hyd. Piston Dia.(mm): 53.85	

DATA SHEET 1 - (CONTINUED)

REAR SYSTEM BRAKE COMPONENT MATERIALS AND CONSTRUCTION:

BRAKE TYPE: DISC	Material: CAST IRON
Drum Construction: N/A	LR Drum Shoe Cage Dia.(mm): 0.00
Disc Construction: INTGRL CST, VENT	RR Drum Shoe Cage Dia.(mm): 0.00
Lining Construction: BONDED	LR Drum Dia. RESET(mm): 0.00
Rear Brake Dia.(mm): 331.09	RR Drum Dia. RESET(mm): 0.00
Rr Disc Thickness(mm): 22.05	

REAR BRAKE COMPONENT DIMENSIONS AND CODES:

Inboard (Leading)	Outboard (Trailing)
Width(mm): 40.61	Width (mm): 40.67
Length(mm): 81.33	Length (mm): 81.31
Thickness(mm): 10.67	Thickness (mm): 10.72
Lining Code/Color: FM2129FE	Lining Code/Color: FM2129FE
Hyd Piston Dia (mm): 30.99	

OTHER COMPONENT INFORMATION:

Friction-type Park Brake: N/A
Non-Service Brake Type
Parking Brake: FOOT-OPERATED

NOTE: If at any time after the test series has begun, any brake system part requires replacement or the brake system requires adjustments other than permitted in burnish and reburnish procedures, discontinue testing and notify the COTR immediately.

Technician:

Karen Easterday
KAREN EASTERDAY

Date:

5-10-04

Quality Assurance:

Ken Webster
KEN WEBSTER

3.0 SUMMARY OF TESTING

		Specification and Limit				TEST RESULTS (in compliance if one stop meets requirement)			
TEST	Loading Condition	Speed (km/h)	Min. Pedal Force (N)	Max. Pedal Force (N)	Stopping Distance Requirement (m)	Shortest Stop Min. Pedal Force (N)***	Shortest Stop Max. Pedal Force Newtons (Average - N)	Shortest Stop Stopping Distance (m) (Corrected)	PASS/Fail
Equipment Requirements					Specified Equipment	Vehicle contains specified equipment			Pass
Vehicle Maximum Speed	LLVW	NA				146.1 km/h avg.			NA
Burnish	GVWR	80				200, 80 - 0 km/h stops @ 3.0 mpsps			NA
Wheel Lockup Sequence w/o ABS	GVWR				Lockup of front wheels prior to rear	ABS Equipped			NA
Wheel Lockup Sequence w/o ABS	LLVW					ABS Equipped			NA
Adhesion Utilization w/o ABS	LLVW				Rear axle adhesion utilization curve below specified value	ABS Equipped			NA
Adhesion Utilization w/o ABS	GVWR					ABS Equipped			NA
Cold Effectiveness	GVWR	100	65	500	70	5	473.2	66.3	Pass
High Speed Effectiveness	GVWR	116.9	65	500	spd. depend. - 103.2	5	471.1	75.0	Pass
Stops with Engine Off	GVWR	100	65	500	70	5	447.4	54.7	Pass
Cold Effectiveness	LLVW	100	65	500	70	5	456.5	53.7	Pass
High Speed Effectiveness	LLVW	116.9	65	500	spd. depend. - 103.2	5	492.5	68.4	Pass
Failed Antilock	LLVW	100	65	500	85	5	229.9	80.5	Pass
Failed Proportioning Valve	LLVW	100	65	500	110	5	NA	NA	NA
Failed Hydraulic Circuit #1	LLVW	100	65	500	168	5	411.2	69.6	Pass
Failed Hydraulic Circuit #2	LLVW	100	65	500	168	5	473.3	135.3	Pass
Failed Hydraulic Circuit #1	GVWR	100	65	500	168	5	457.1	78.2	Pass
Failed Hydraulic Circuit #2	GVWR	100	65	500	168	5	470.5	127.5	Pass
Failed Antilock	GVWR	100	65	500	85	5	264.6	57.7	Pass
Failed Proportioning Valve	GVWR	100	65	500	110	5	NA	NA	NA
Power Brake Unit Failure	GVWR	100	65	500	168	5	467.3	146.5	Pass
Parking Brake - Uphill	GVWR	-	-	500	Hold for 5 min.?	NA	332.0	Yes-Holds	Pass*
Parking Brake - Downhill	GVWR	-	-	500	Hold for 5 min.?	NA	399.0	Yes-Holds	Pass*
Heating Struts	GVWR	120-60	NA	NA	15 Struts- 3.0 mpsps	6	51 Vis. Avg.	NA	NA
Hot Performance Stop #1	GVWR	100	65	375 ^{kg}	65.7	6	395.1 (302.1)	60.7	Pass
Hot Performance Stop #2	GVWR	100	65	500	88	6	455.0	58.7	Pass
Brake Cooling	GVWR	50	NA	NA	4 Stops - 3.0 mpsps	6	52 Vis. Avg.	NA	NA
Recovery Performance Stop #1	GVWR	100	65	375 ^{kg}	One of the two stops between 74.9 and 40.2 meters	5	389.6 (286.2)	55.8	Pass
Recovery Performance Stop #2	GVWR	100	65	375 ^{kg}		6	464.1 (316.7)	56.2	
Final Inspection-Brake Integrity	Check components for detachment, fracture or lubricants.					No detachments or fractures-normal appear. & color.			Pass
Final Inspection-Reservoirs/Warning Indicators	Master cylinder or brake power reservoir shall meet the volume and label requirements of S5.4.2 and S5.4.3.					Brake system has sufficient capacity and indicators are in compliance.			Pass*

*** Note: The Shortest Stop Minimum Pedal Force represents the minimum force value required to engage the data acquisition's recording mode. *See Appendix C.

DATA SHEET 3 - VEHICLE WEIGHT

VEHICLE: 2004 FORD E150 XL WAGON

NHTSA No. C40208 Date: 04/01/04

Tire Pressure(cold): Front (kpa) 283 Rear (kpa) 283

Odometer: Start 154 MI. End 611 MI.

Scale(s) Used: TRC Scales

NOTE: GVWR, LLVW and axle weights to be measured within +0% and -1%.

GVWR/GAWR INFORMATION
(From Veh. Certification Label)

UNLOADED VEHICLE WEIGHT(UVW)

GVWR(Kg): 3175
GAWR Front(Kg): 1633
GAWR Rear(Kg): 1724

L Front(Kg): 638 L Rear(Kg): 545
R Front(Kg): 654 R Rear(Kg): 533
T Front(Kg): 1292 T Rear(Kg): 1077
Total UVW(Kg): 2370

TARGET LIGHT LOADED WEIGHT(LLVW):

ACTUAL LIGHT LOADED WEIGHT(LLVW):

NOTE 1: LLVW = UVW+181.4Kg

NOTE 2: Weight distributed in front passenger seat area.

NOTE 3: Neither axle load at LLVW less than at UVW; ballast as required.

L Front(Kg): 702 L Rear(Kg): 572
R Front(Kg): 719 R Rear(Kg): 560
T Front(Kg): 1420 T Rear(Kg): 1132
Total LLVW(Kg): 2552

L Front(Kg): 708 L Rear(Kg): 562
R Front(Kg): 712 R Rear(Kg): 567
T Front(Kg): 1420 T Rear(Kg): 1129
Total Actual Test LLVW(Kg): 2549

Load: Driver/Observer 73(Kg) + Instru. 41(Kg) + Ballast 67(Kg) = 181(Kg)

FULLY LOADED TEST WEIGHT (ACTUAL GVWR)

NOTE 1: Vehicle loaded so axle loads proportional to GAWR shown previously.

NOTE 2: But no axle weight to be less than at LLVW.

NOTE 3: If weight on any axle at LLVW exceeds the axle's proportional share of the GVWR, the load required to reach GVWR is placed so that the weight on that axle remains the same as at LLVW.

L Front(Kg): 771 L Rear(Kg): 816
R Front(Kg): 771 R Rear(Kg): 816
T Front(Kg): 1542 T Rear(Kg): 1633
Total Fully Loaded GVWR(Kg): 3175

Load: Driver/Observer 73(Kg) + Instru. 41(Kg) + Ballast 691(Kg) = 805(kg)

Technician:

Karen Easterday
KAREN EASTERDAY

Date:

5-10-04

Quality Assurance:

Ken Webster
KEN WEBSTER

DATA SHEET 4 - EQUIPMENT REQUIREMENTS (S5)

SERVICE BRAKE SYSTEM (S5.1)

Vehicle equipped with a service brake system acting on all wheels? YES

Wear Adjustment (S5.1.1):

Service Brakes are compensated for wear by means of a system of automatic adjustment? YES

Describe: DISC-AUTOMATIC CLEARANCE TAKE-UP.

Wear Status (S5.1.2):

Wear status of service brakes is indicated by:

(A) Acoustic or optical device? NO

Describe: NOT APPLICABLE.

(B) Visual check outside or under vehicle? YES

Describe: FRONT&REAR:LOOK THROUGH CALIPER.

PARKING BRAKE SYSTEM (S5.2)

Vehicle equipped with a parking brake system of a friction type with solely mechanical means to retain engagement: YES

CONTROLS (S5.3)

(A) Service brakes activated by means of a foot control? YES

(B) Parking brake control is independent of the service brake control? YES

(C) Parking brake control is hand or foot operated? YES

(D) ABS, if equipped, cannot be manually disabled? YES

DATA INDICATES COMPLIANCE: YES

COMMENTS: NONE.

Tester/Technician:

Karen Easterday
KAREN EASTERDAY

Date:

5-10-04

Quality Assurance:

Ken Webster
KEN WEBSTER

DATA SHEET 5 - VEHICLE MAX SPEED

VEHICLE: 2004 FORD E150 XL WAGON

NHTSA No. C40208

Date: 04/01/04

Ambient Temperature: 38°F

Wind Velocity: 17(MPH)

Road PFC: 94

Wind Direction: 322°

Odometer: Start 166(mi) End 196(mi)

TEST WEIGHT: Total (Kg): 2549

Front (Kg): 1420

Rear (Kg): 1129

ESTABLISH VEHICLE MAXIMUM SPEED

VEHICLE LOAD: LLVW

IBT: N/A

GEAR: Drive

DECEL RATE: N/A

PEDAL FORCE: N/A

WHEEL LOCKUP: N/A

TEST SPEED: Maximum attainable from

INTERVAL: N/A

a standing start in 3.2 km.

1. Ballast Vehicle to LLVW
2. Accelerate at a maximum rate from a standing start for a distance of 3.2 km on a level surface.
3. Repeat in opposite direction.
4. Record speed attained in each direction and use the average of the two runs.

	DIRECTION	MAX SPEED (km/h)		Time 0 - 100 KPH (seconds)
		Visual	Recorded	
Run No. 1	South	147.2 kph	147.3	13.06
Run No. 2	North	144.9 kph	144.9	13.31

AVERAGE = 146.1 km/h

COMMENTS: INV DATA, Section 0001, 04/01/04, 11:40:05

Tester/Technician:

Karen Easterday
KAREN EASTERDAY

Date:

5-10-04

Quality Assurance:

Ken Webster
KEN WEBSTER

Vehicle: 2004 FORD MOTOR CO. EX76A NUMBER: U40382
 Make: FORD
 Model: ELISE XL WAGON
 Body Style: 5-DR MPV
 Front Cold Tire Pressure: 283 (kpa)
 Rear Cold Tire Pressure: 283 (kpa)

Transportation Research Center, Inc.
 10828 Santa Rosa 347
 East Liberty, Ohio 43118
 (614) 666-2011 www.trcpg.com

Date Tested: 04/01/04

DATA SHEET 6 - BURNISH AT GVWR

Testing Conditions: INV DATA, Section 0802, 04/01/04, 15:29:22

Weather Conditions: 48°F Wind: 2 mph 156°

Start Odo.: 127 End Odo.: 457

Schedule:

Initial Brake Temperature Less Than 100°C
 Initial Speed 80 km/h to zero
 200 stops with transmission in gear

Performance Requirements:

Interval between runs: Time necessary to reduce IBT to 100 °C or 2 km distance, whichever occurs first.
 Constant decel rate: 3.0 m/s²
 Pedal force adjusted to maintain constant decel.
 No lock-up allowed longer than 0.1 sec above 15 km/h
 Vehicle must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	AVG. DECEL (m/sec ²)
1	80.35	31	40	24	21	86.80	57.56	2.18
15	75.48	110	153	78	76	78.83	55.13	2.50
20	75.73	120	163	83	79	70.80	50.76	2.43
30	70.86	126	159	79	79	60.92	45.86	2.32
40	70.65	115	141	69	70	62.09	50.73	2.56
50	64.26	127	133	74	76	71.87	43.89	2.15
60	54.99	131	153	76	73	63.28	44.82	2.38
70	70.83	138	136	77	77	68.18	46.66	2.46
80	73.45	124	147	72	73	63.13	48.57	2.51
90	78.25	111	138	63	63	66.43	45.96	3.33
100	73.41	129	188	63	56	58.16	47.10	2.21
110	80.69	148	168	73	76	66.86	55.78	2.74
120	78.42	146	162	78	77	66.83	53.28	2.83
130	81.83	146	161	82	77	67.87	53.10	2.76
140	79.79	146	159	79	79	64.83	51.71	2.85
150	79.78	137	153	79	77	69.48	52.44	2.93
160	79.93	133	152	73	75	63.92	50.57	2.74
170	81.07	138	156	74	75	61.22	50.64	2.67
180	77.85	134	186	73	72	63.92	48.40	2.78
190	75.26	149	168	75	77	67.13	50.45	2.91
200	75.21	139	159	78	74	63.07	51.84	2.82

COMMENTS: THIS VEHICLE WAS EQUIPPED. DATA SHEETS 7-10 NOT INCLUDED.

BRAKE ADJUSTMENT

Schedule:

Adjust service brakes; record procedure and amount adjusted.

Left Front: DISC DISC BRAKE NO ADJUSTMENT REQUIRED
 Right Front: DISC DISC BRAKE NO ADJUSTMENT REQUIRED
 Left Rear: DISC DRUM BRAKE NO ADJUSTMENT REQUIRED.
 Right Rear: DISC DRUM BRAKE NO ADJUSTMENT REQUIRED.
 DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN BARTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENNINS

Date: 5/7/04

Approving Laboratory Official: KEN WELSTER

Date: 5/18/04

Vehicle: 2004 FORD MOTOR CO.
 Make: FORD
 Model: E150 XL WAGON
 Body Style: 6-DR MPV
 Front Cold Tire Pressure: 283 (kpa)
 Rear Cold Tire Pressure: 283 (kpa)

NHTSA NUMBER: C40208

Transportation Research Center, Inc.
 10830 State Route 347
 East Liberty, Ohio 43118
 (937) 666-2011 www.trcpg.com

Date Tested: 04/07/04

DATA SHEET 11 - COLD EFFECTIVENESS AT GVNE

Testing Conditions: IMV DATA, Section 0015, 04/07/04, 08:30:51

Weather Conditions: 50°F Wind: 3 mph 356° Start Odc.: 478 End Odc.: 477

Schedule:

Initial Brake Temperature 55 - 100 C
 Initial Speed 100 km/h to zero
 6 stops with transmission in neutral

Performance Requirements:

One stop with:
 Stopping Distance less than 70M
 Pedal force between 65N and 500N
 No Lock-Up allowed longer than 0.1 sec above 15 km/h
 Vehicle must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	DISTANCE	PEDAL	PEDAL	DECEL	DECEL
#	(kph)	(°C)	(°C)	(°C)	(°C)	(meters)	(meters)	(N)	(N)	(m/sec²)	(m/sec²)
1	100.15	82	81	47	47	68.9	60.7	418.12	110.40	31.08	5.14
2	99.36	92	88	45	43	60.0	60.7	508.61	158.68	9.90	5.77
3	99.74	96	97	50	47	57.7	58.1	508.11	167.18	10.19	5.77
4	99.58	73	78	39	39	57.0	57.4	444.27	148.04	11.12	6.10
5	99.86	89	99	54	51	35.4	56.3	473.20	178.01	10.48	6.23
6	100.50	83	94	54	53	57.3	56.7	503.71	161.03	10.56	5.85

STOP	DRIVER VEHICLE STOP COMMENTS		
#	(Wheel Lock up - Direction of Stop - Stay in lane)		
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES
5	-	NOX	SOUTH YES
6	-	NOX	SOUTH YES

Corrected Distances are used to determine shortest stopping distance.

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTHEDAY Observer: NUNE
 Recorded Data Processed by: CHUCK JENNINS Date: 3/7/04
 Approving Laboratory Official: KIM WEBSTER Date: 3/18/04

Vehicle: 2004 FORD MOTOR CO. FETA NUMBER: C48208

Make: FORD

Model: F150 XL WAGON

Body Style: 6-DR HVB

Front Cold Tire Pressure: 283 (Kpa)

Rear Cold Tire Pressure: 283 (Kpa)

Transportation Research Center, Inc.

10820 State Route 147

East Liberty, Ohio 43119

(614) 446-2011 www.trcpg.com

Date Tested: 04/07/04

DATA SHEET 12 - HIGH SPEED EFFECTIVENESS AT GVWR

Testing Conditions: INV DATA, Section 8020, 04/07/04, 09:42:46

Weather Conditions: 53°F Wind: 8 mph 20°

Start Odo: 478

End Odo: 486

Schedule:

Initial Brake Temperature: 55-100°C

Initial Speed: 80% max km/h, not greater than 160km/h

6 stops with transmission in gear

Performance Requirements:

One Stop with:

Stopping Distance less than: 102.2 meter

Pedal force between 45N and 500N

No Lock-Up allowed longer than 0.1 sec above 15 km/h

Vehicle must stay in lane of 3.8m

STOP	INIT SPD (kph)	LEFT FRONT 1ST (°C)	RIGHT FRONT 1ST (°C)	LEFT REAR 1ST (°C)	RIGHT REAR 1ST (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SEE 199) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	115.49	72	78	41	38	75.3	77.0	450.13	328.68	10.25	6.25
2	116.88	88	93	52	49	75.5	75.8	468.71	386.42	10.46	6.22
3	116.80	80	88	48	43	76.0	76.9	475.14	366.98	10.43	6.09
4	117.16	81	89	48	43	75.3	76.9	505.21	374.15	11.39	6.41
5	117.28	84	97	46	44	74.4	73.9	512.09	347.88	10.11	6.41
6	117.92	82	95	50	46	75.9	75.0	471.11	354.91	11.47	6.27

STOP DRIVER VEHICLE STOP COMMENTS
(Wheel Lock up - Direction of Stop - Stay in Lane)

STOP	WHEEL LOCK UP	DIRECTION OF STOP	STAY IN LANE
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES
5	-	NOX	SOUTH YES
6	-	NOX	SOUTH YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN BARTHELEMY

Observer: NONE

Recorded Data Processed by: CHUCK JENNINS

Date: 5/7/04

Approving Laboratory Official: KEN WEBSTER

Date: 5/10/04

Vehicle: 2004 FORD MOTOR CO.
 Make: FORD
 Model: F150 XL WAGON
 Body Style: 6-DR SUV
 Front Cold Tire Pressure: 283 (kpa)
 Rear Cold Tire Pressure: 283 (kpa)

NETSA NUMBER: C68290

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Date Tested: 04/07/04

DATA SHEET 13 - STOPS WITH ENGINE OFF AT GYRE

Testing Conditions: INV DATA, Section 0025, 04/07/04, 10:36:24

Weather Conditions: 58°F Wind: 6 mph 10° Start Ode.: 487 End Ode.: 494

Schedule:

Initial Brake Temperature: 55-100°C
 Initial Speed 100 km/h to zero
 6 stops with transmission in neutral

Performance Requirements:

One Stop with:
 Stopping Distance less than 70m
 Pedal Force between 65N and 500N
 No Lock-Up allowed longer than 0.1 sec above 15 km/h
 Vehicle must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT TST (°C)	RIGHT FRONT TST (°C)	LEFT REAR TST (°C)	RIGHT REAR TST (°C)	ACTUAL DISTANCE (meter)	CONNECTED DISTANCE (SAM 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.90	84	91	47	46	55.9	56.0	360.14	231.26	11.94	6.24
2	100.67	83	88	46	43	55.4	54.7	447.41	347.43	11.43	6.21
3	100.68	87	88	46	43	56.9	55.1	403.30	301.63	11.92	6.15
4	99.98	81	91	49	47	55.3	55.5	486.38	320.81	12.41	6.22
5	100.38	81	93	47	47	55.5	55.8	431.88	324.84	11.28	6.84
6	100.16	86	93	48	48	56.8	56.3	475.11	372.47	10.28	4.68

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	RTXINITHANKEND	YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN KATHROBAT Observer: NONE
 Recorded Data Processed by: CHUCK JERREIN Date: 5/7/04
 Approving Laboratory Official: KEN WEBSTER Date: 5/18/04

Vehicle: 2004 FORD MOTOR CO. TESTA NUMBER: C44206

Make: FORD

Model: N150 XL X350M

Body Style: 6-DR MPV

Front Cold Tire Pressure: 293 (kpa)

Rear Cold Tire Pressure: 293 (kpa)

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Date Tested: 04/07/04

DATA SHEET 14 - COLD EFFECTIVENESS AT LLVM

Testing Conditions: INV DATA, Section 0028, 04/07/04, 13:39:17

Weather Conditions: 59°F Wind: 6 mph SE

Start Odo.: 497 End Odo.: 502

Schedule:

Initial Brake Temperature: 85-100°C

Initial Speed 100 km/h to zero

5 stops with transmission in manual

Performance Requirements:

One Stop with:

Stopping Distance less than 30m

Pedal force between 45N and 550N

No lock-up allowed longer than 0.1 sec above 16 km/h

Vehicle must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT	RIGHT FRONT	LEFT REAR	RIGHT REAR	ACTUAL DISTANCE (meters)	CORRECTED DISTANCE (SEE 289)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
		IN7 (°C)	IN7 (°C)	IN7 (°C)	IN7 (°C)						
1	99.21	82	76	45	44	54.8	55.7	402.98	287.65	12.25	6.48
2	100.22	78	88	43	43	54.1	53.9	420.17	318.81	12.61	6.59
3	99.60	79	94	40	42	54.5	55.0	456.92	343.21	12.84	6.24
4	99.28	81	88	37	40	54.7	55.3	469.98	348.41	12.26	6.04
5	99.99	78	86	38	38	53.7	53.7	456.83	342.97	12.56	6.42
6	100.02	82	94	39	39	54.4	54.3	489.07	382.34	13.00	6.17

STOP # DRIVER VEHICLE STOP COMMENTS
(Wheel Lock-Up - Direction of Stop - Stay in Lane)

STOP #	DRIVER VEHICLE STOP COMMENTS
1	NOX SOUTH YES
2	NOX SOUTH YES
3	NOX SOUTH YES
4	NOX SOUTH YES
5	NOX SOUTH YES
6	NOX SOUTH YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 5/7/04

Approving Laboratory Official: KIM WENSTER

Date: 5/10/04

Vehicle: 2004 FORD MOTOR CO. FRTSA NUMBER: C40288
 Make: FORD
 Model: F150 XL WAGON
 Body Style: 6-DR XUV
 Front Cold Tire Pressure: 283 (Kpa)
 Rear Cold Tire Pressure: 283 (Kpa)

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Date Tested: 04/08/04

DATA SHEET 15 - HIGH SPEED EFFECTIVENESS AT LLYN

Testing Conditions: INT DATA, Section 0035, 04/08/04, 07:49:04

Weather Conditions: 50°F Wind: 10 mph 171° Start Odo.: 512 End Odo.: 519

Schedule:

Initial Brake Temperature: 58-100°C
 Initial Speed: 80 wpm km/h
 5 stops with transmission in gear

Performance Requirements:

One stop with:
 Stopping Distance less than 187.2m
 Pedal force between 45N and 500N
 No Look-Up allowed longer than 0.1 sec above 15 km/h
 Vehicle Must stay in lane of 2.5m

STOP #	INIT SPD (kph)	LEFT FRONT TBT (°C)	RIGHT FRONT TBT (°C)	LEFT REAR TBT (°C)	RIGHT REAR TBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SEE 289) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	115.71	59	51	42	44	69.9	70.8	460.91	402.42	12.04	7.89
2	115.76	73	72	14	33	70.0	71.3	516.60	382.62	12.26	6.48
3	115.61	81	86	33	34	68.9	69.9	500.07	346.80	12.62	6.78
4	116.78	80	82	31	31	68.4	69.8	491.91	349.94	12.38	6.72
5	116.12	81	81	31	31	68.8	70.7	479.79	348.76	12.48	6.97
6	115.60	88	88	32	33	67.8	69.4	492.88	349.94	11.73	6.62

STOP #	DRIVER VEHICLE STOP COMMENTS			
	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTHURDAY Observer: NONE
 Recorded Data Processed by: CHUCK JENKINS Date: 5/7/04
 Approving Laboratory Official: BEN WEBSTER Date: 5/10/04

Vehicle: 2004 FORD MONTEGO CO. TEST NUMBER: C40198
 Make: FORD
 Model: NISSA XL WAGON
 Body Style: 4-DR MPV
 Front Cold Tire Pressure: 283 (kpa)
 Rear Cold Tire Pressure: 283 (kpa)

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Date Tested: 04/06/04

DATA SHEET 16 - ANTILOCK FUNCTIONAL FAILURE AT LLVM

Testing Conditions: INV DATA, Section 0040, 04/06/04, 18:32:56

Weather Conditions: 63°F Wind: 17 mph 280° Start Odo.: 824 End Odo.: 139

Schedule:

Initial Brake Temperature: 55-100°C
 Initial Speed 100 km/h to zero
 6 stops with transmission in Neutral

Performance Requirements:

One Stop with:
 Stopping Distance less than 85m
 Pedal force between 85N and 500N
 No Lock-Up allowed longer than 0.1 sec above 15 km/h
 Vehicle must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(FAR 299)	PEDAL	PEDAL	DECEL	DECEL
#	(km/h)	(°C)	(°C)	(°C)	(°C)	(meters)	(meters)	[N]	[N]	(m/sec²)	(m/sec²)
1	96.22	72	75	46	49	61.5	63.7	243.35	96.82	8.42	5.71
2	94.45	86	97	52	53	63.4	64.1	250.28	94.86	7.96	5.69
3	99.83	78	87	43	41	62.2	62.8	245.97	94.46	8.57	5.71
4	99.69	82	88	42	42	63.8	64.2	205.05	97.85	10.49	5.82
5	99.58	81	86	42	41	60.0	60.2	237.75	102.96	8.48	6.04
6	98.81	85	96	47	46	66.7	68.3	250.34	94.86	8.54	5.52

STOP DRIVER VEHICLE STOP COMMENTS
 # (Wheel Lock-Up - Direction of Stop - Stay in Lane)

STOP	DRIVER	VEHICLE	STOP	COMMENTS
#	LOCK-UP	DIRECTION	STAY IN LANE	
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

How was the ABS failure induced: REMOVED 2 AMP FUSE FROM BOX UNDER DASH ON DRIVER'S SIDE.

Is brake system indicator lamp activated: YES (X) NO ()

Vehicle not equipped with variable proportioning valve. Data Sheet 17 not included.

DATA INDICATED COMPLIANCE: YES (X) NO ()

Driver: KAREN BASTARDY Observer: NONE
 Recorded Data Processed by: CRUCK JENKINS Date: 5/7/04
 Approving Laboratory Official: IAN WHESTER Date: 5/10/04

Vehicle: 2004 FORD MOTOR CO. NHTSA NUMBER: C48204
 Make: FORD
 Model: ELSD XL WAGON
 Body Style: 4-DR MPV
 Front Cold Tire Pressure: 283 (Kpa)
 Rear Cold Tire Pressure: 283 (Kpa)

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Date Tested: 04/08/04

DATA SHEET 18 - HYDRAULIC CIRCUIT FAILURE #1 AT L1VW

Testing Conditions: INV DATA, Section 0050, 04/08/04, 12:44:04

Weather Conditions: 42°F Wind: 22 mph 280° Start Odo.: 513 End Odo.: 516

Method of simulating failure: Disconnected Brake Line a W/C FRONT FORT

System Portion Failed: LH & RR

Schedule:

Initial Brake Temperature: 65-100°C
 Initial Speed 140 km/h to zero
 4 stops with transmission in neutral

Performance Requirements:

One Stop with:
 Stopping Distance less than 140m
 Pedal force between 65N and 500N
 No Lock-Up allowed longer than 0.1 sec above 15 km/h
 Vehicle must stay in lane of 1.5m

STOP	INIT SPD (kph)	LEFT FRONT TMT (°C)	RIGHT FRONT TMT (°C)	LEFT REAR TMT (°C)	RIGHT REAR TMT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAF 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECCEL (m/sec²)	AVG. DECCEL (m/sec²)
1	99.59	63	71	25	23	69.2	69.6	411.21	347.70	9.10	4.92
2	99.58	74	88	22	22	69.9	70.5	430.86	334.00	9.25	5.07
3	98.96	78	80	21	22	72.1	73.6	430.58	321.77	8.54	4.83
4	99.52	78	86	20	22	72.7	73.0	440.49	340.95	8.97	4.94

STOP	DRIVER VEHICLE STOP COMMENTS		
0	(Wheel Lock-Up - Direction of Stop - Stay in Lane)		
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES

Force Needed to Activate Brake Failure Lamp (N): N/A
 Fluid Removed (mL) to Activate Brake Failure Lamp: 207

Is brake system indicator lamp activated: YES (X) NO ()

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN BAUTERDAY Observer: NONE
 Recorded Data Processed by: CRUCK JENKINS Date: 5/7/04
 Approving Laboratory Official: KEN WEBSTER Date: 5/18/04

Vehicle: 2004 FORD MOTOR CO. NHTSA NUMBER: C42429
 Make: FORD
 Model: F150 XL MAGNUM
 Body Style: 6-DR MPV
 Front Cold Tire Pressure: 283 (Kpa)
 Rear Cold Tire Pressure: 283 (Kpa)

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Date Tested: 04/08/04

DATA SHEET 19 - HYDRAULIC CIRCUIT FAILURE #2 AT LIVE

Testing Conditions: IFV DATA, Section 0055, 04/08/04, 14:21:52

Weather Conditions: 60°F Wind: 25 mph 301° Start Odo.: 539 End Odo.: 543

Method of simulating failure: Disconnected Brake Line @ E/C Rear Port

System Portion Failed: RR & LL

Schedule:

Initial Brake Temperature 65-100°C
 Initial Speed 100 km/h to zero
 4 stops with transmission in neutral

Performance Requirements:

One Stop with:
 Stopping Distance less than 140m
 Pedal force between 65N and 500N
 No Lock-Up allowed longer than 0.1 sec above 15 km/h
 Vehicle must stay in lane of 3.5m

STOP	INIT SPD {kph}	LEFT FRONT TFT {°C}	RIGHT FRONT TFT {°C}	LEFT REAR TFT {°C}	RIGHT REAR TFT {°C}	ACTUAL DISTANCE {meter}	CONNECTED DISTANCE {meter}	MAX. PEDAL FORCE {N}	AVG. PEDAL FORCE {N}	MAX. DECEL {m/sec²}	AVG. DECEL {m/sec²}
1	99.58	41	46	75	75	147.2	148.4	479.41	419.49	6.04	2.61
2	100.38	36	46	72	71	140.6	139.8	484.31	419.00	7.68	2.71
3	99.85	28	39	72	76	140.2	140.6	488.28	378.70	7.21	2.68
4	99.81	28	38	75	84	134.8	135.3	472.28	400.10	8.22	2.71

STOP DRIVER VEHICLE STOP COMMENTS
 0 (Wheel Lock-Up - Direction of Stop - Stay in Lane)

STOP	WHEEL LOCK-UP	DIRECTION OF STOP	STAY IN LANE
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES

Force Needed to Activate Brake Failure Lamp (N): N/A
 Fluid Removed (mL) to Activate Brake Failure Lamp: 207

Is brake system indicator lamp activated: YES (X) NO ()

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN HARTENHAY Observer: NOMB
 Recorded Data Processed by: CHUCK JENNINS Date: 3/7/04
 Approving Laboratory Official: KEN WEBSTER Date: 3/10/04

Vehicle: 1994 FORD MOTOR CO. NETSA NUMBER: C40288
 Make: FORD
 Model: E150 XL WAGON
 Body Style: 4-DR WPV
 Front Cold Tire Pressure: 283 (Kpa)
 Rear Cold Tire Pressure: 263 (Kpa)

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Date Tested: 04/09/04

DATA SHEET 20 - HYDRAULIC CIRCUIT FAILURE #1 AT GVWR

Testing Conditions: ISV DATA, Section 0350, 04/09/04, 11:00:20

Weather Conditions: 52°F Wind: 9 mph 331° Start Odo.: 958 End Odo.: 961

Method of simulating failure: Disconnected Brake Line @ W/C Front Fork

System Portion Failed: LR & RR

Schedule:

Initial Brake Temperature 65-100°C
 Initial Speed 100 km/h to zero
 4 stops with transmission in neutral

Performance Requirements:

One Stop with:
 Stopping distance less than 16m
 Pedal force between 45N and 500N
 No Lock-Up allowed longer than 0.1 sec above 15 km/h
 Vehicle must stay in lane of 3.9m

STOP #	INIT SPD (kph)	LEFT FRONT INT (°C)	RIGHT FRONT INT (°C)	LEFT REAR INT (°C)	RIGHT REAR INT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SEE 299)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.25	66	68	28	27	79.0	80.0	456.46	327.17	7.26	4.14
2	89.89	80	84	23	23	78.3	78.4	463.83	266.44	7.61	4.48
3	89.87	89	91	20	21	79.8	80.0	488.04	357.89	7.26	4.45
4	89.94	37	98	19	20	78.1	78.2	457.08	279.33	7.16	4.40

STOP

DRIVER VEHICLE STOP COMMENTS

#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)
1	NOX SOUTH YES
2	NOX SOUTH YES
3	NOX SOUTH YES
4	NOX SOUTH YES

Is brake system indicator lamp activated: YES (X) NO ()

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CRUCE JENKINS

Date: 5/7/04

Approving Laboratory Official: KEN WEBSTER

Date: 5/18/04

Vehicle: 2004 FORD MOTOR CO.
 Make: FORD
 Model: E160 EL WAGON
 Body Style: 5-DR MPV
 Front Cold Tire Pressure: 283 [Kpa]
 Rear Cold Tire Pressure: 283 [Kpa]

EXTRA NUMBER: C40203

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Date Tested: 04/09/04

DATA SHEET 21 - HYDRAULIC CIRCUIT FAILURE #2 AT GVWR

Testing Conditions: INV DATA, Section 0055, 04/09/04, 08:26:12

Weather Conditions: 48°F Wind: 8 mph 325° Start Odo.: 552 End Odo.: 555

Method of simulating failure: Disconnected Brake Line @ R/C Rear Port

System Portion Failed: LF & RF

Schedule:

Initial Brake Temperature 48-100°C
 Initial Speed 100 km/h to zero
 4 stops with transmission in neutral

Performance Requirements:

One Stop with:
 Stopping Distance less than 1.68m
 Pedal force between 65N and 900N
 No Lock-Up allowed longer than 0.1 sec above 10 km/h
 Vehicle must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT INT (°C)	RIGHT FRONT INT (°C)	LEFT REAR INT (°C)	RIGHT REAR INT (°C)	ACTUAL DISTANCE (meters)	CORRECTED DISTANCE (BASE 299) (meters)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.84	22	33	76	82	132.8	134.0	464.85	420.35	4.21	2.87
2	99.71	21	24	86	92	130.7	131.4	467.99	416.45	4.21	2.93
3	99.57	21	18	89	94	128.8	130.1	477.68	481.58	4.39	2.97
4	99.18	23	16	77	78	125.4	127.8	470.52	398.71	4.64	2.93

STOP # DRIVER VEHICLE STOP COMMENTS
 (Wheel Lock-Up - Direction of Stop - Stay in Lane)

STOP #	DRIVER	VEHICLE	STOP COMMENTS
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES

Is brake system indicator lamp activated: YES (X) NO ()

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTRDAY Observer: NONE
 Recorded Data Processed By: CHUCK JENKINS Date: 5/7/04
 Approving Laboratory Official: IAN WEBSTER Date: 5/10/04

Vehicle: 2004 FORD MOTOR CO. NHTSA NUMBER: C48206
 Make: FORD
 Model: ELIS XL WAGON
 Body Style: 4-DR MPV
 Front Cold Tire Pressure: 283 (Kpa)
 Rear Cold Tire Pressure: 283 (Kpa)

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Date Tested: 04/09/04

DATA SHEET 22 - ANTILOCK FUNCTIONAL FAILURE AT GVWR

Testing Conditions: INV DATA, Section 0070, 04/09/04, 12:52:47

Weather Conditions: 55°F Wind: E mph 176° Start Odo.: 566 End Odo.: 171

Schedule:

Initial Brake Temperature 45-180°C
 Initial Speed 100 km/h to zero
 6 stops with transmission in neutral

Performance Requirements:

One Stop with:
 Stopping Distance less than 85m
 Pedal Force between 65N and 850N
 No Lock-Up allowed longer than 0.1 sec above 15 km/h
 Vehicle must stay in lane of 3.3m

STOP	INIT	LEFT FRONT	RIGHT FRONT	LEFT REAR	RIGHT REAR	ACTUAL DISTANCE	CORRECTED DISTANCE	MAX. PEDAL FORCE	AVG. PEDAL FORCE	MAX. DECEL	AVG. DECEL
#	(mph)	(°C)	(°C)	(°C)	(°C)	(meters)	(meters)	(N)	(N)	(m/sec²)	(m/sec²)
1	100.14	69	72	37	40	67.9	67.7	264.61	185.86	7.57	8.72
2	98.91	87	98	49	52	67.8	67.8	249.56	116.68	8.84	9.82
3	99.25	81	87	45	49	68.7	67.8	110.29	95.86	7.83	8.59
4	99.47	88	81	43	51	67.9	68.4	219.32	104.46	7.76	8.42
5	99.98	80	91	52	56	68.4	68.4	220.39	103.93	8.52	8.12
6	99.42	86	91	51	52	76.1	78.7	191.35	93.49	6.82	4.67

STOP #	DRIVER VEHICLE STOP COMMENTS
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)
1	NOX SOUTH YES
2	HYX-INIT SOUTH YES
3	HUX SOUTH YES
4	HUX SOUTH YES
5	HUX SOUTH YES
6	NOX SOUTH YES

How was the ABS failure induced: REMOVED 5 AMP FUSE FROM BOX UNDER DASH ON DRIVER'S SIDE.

Is brake system indicator lamp activated: YES (X) NO ()

Vehicle not equipped with variable proportioning valve. Data sheet 23 not included.

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTRDAY Observer: NONE
 Recorded Data Processed by: CHECK JENKINS Date: 5/7/04
 Approving Laboratory Official: IAN MEISTER Date: 5/16/04

Vehicle: 2004 FORD MOTOR CO. NHTSA NUMBER: C48200

Make: FORD

Model: E150 EL WAGON

Body Style: 6-SE NV

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Front Cold Tire Pressure: 283 (Kpa)

Rear Cold Tire Pressure: 263 (Kpa)

Date Tested: 04/09/04

DATA SHEET 24 - BRAKE POWER UNIT OR PWR ASSIST UNIT IN/OP AT GVWR

Testing Conditions: INV DATA, Section 0080, 04/09/04, 13:55:02

Weather Conditions: 56°F Wind: 5 mph 347°

Start Odo.: 572

End Odo.: 578

Failure Simulation: Disconnect primary source of power.

Method of rendering inoperative: Removed Engine Vacuum Hose at Booster

Schedule:

Initial Brake Temperature 65-100°C

Initial Speed 100 km/h to zero

5 stops with transmission in neutral

Performance Requirements:

One Stop with:

Stopping distance less than 141m

Pedal force between 65N and 500N

No Lock-Up allowed longer than 2.1 sec above 16 km/h

Vehicle must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(GAS 259)	PEDAL	PEDAL	DECEL	DECEL
#	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec²)	(m/sec²)
1	100.25	24	90	49	48	165.6	168.8	494.66	458.37	3.90	2.24
2	100.11	77	87	45	49	164.8	164.1	498.33	456.21	4.08	2.35
3	100.51	77	87	43	46	158.4	153.8	498.81	463.04	3.53	2.45
4	99.51	75	92	45	47	160.8	162.1	496.87	456.61	3.47	2.47
5	99.30	76	97	44	46	149.8	151.7	494.38	462.64	3.67	2.54
6	99.95	87	96	48	49	146.7	146.8	497.49	450.86	3.85	2.55

STOP

DRIVER VEHICLE STOP COMMENTS

(Wheel Lock-Up - Direction of Stop - Stay in Lane)

STOP	WHEEL LOCK-UP	DIRECTION OF STOP	STAY IN LANE
1	-	NOX	SOUTH
2	-	NOX	SOUTH
3	-	NOX	SOUTH
4	-	NOX	SOUTH
5	-	NOX	SOUTH
6	-	NOX	SOUTH

Is the Brake system indicator lamp activated: YES () NO (X)

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: MARK BASTHEDAY

Observer: NONE

Recorded Data Processed by: CRUCK JENNINS

Date: 5/7/04

Approving Laboratory Official: KEN WENSTEN

Date: 5/10/04

Vehicle: 2004 FORD MOTOR CO.
Make: FORD
Model: 2130 XL WAGON
Body Style: 6-DR MPV
Front Cold Tire Pressure: 293 (kpa)
Rear Cold Tire Pressure: 293 (kpa)

NTSA NUMBER: C40288

Transportation Research Center, Inc.
10820 State Route 147
East Liberty, Ohio 43329
(937)666-2011 www.trcnp.org

Date Tested: 06/12/04

DATA SHEET 25 - PARKING BRAKE AT GVWR

Testing Conditions: IMV DATA, Section 0085, 06/12/04, 07:22:45

Parking brake: AUTOMATIC TR Non-service type: FOOT-OPERATED

Service type: N/A

Weather Conditions: 35°F

Wind: 10 mph

1°

Start Odo.: 586

End Odo.: 586

Test Weight: Total: 3178kg

Front: 1542kg

Rear: 1633kg

Schedule:

Initial Brake Temperature <100°C or (Ambient temp.

if non-service brake type materials)

Loaded to GVWR with transmission in neutral

Drive onto 2% slope in forward and reverse directions.

Performance Requirements:

Up to Three Applies in each direction:

Parking brake must hold the vehicle stationary in both directions for 5 minutes each.

Pedal force: Hand control: <400 N

Foot control: <500 N

NOTE: For vehicles with parking brake systems not utilizing the service brake friction elements, the friction elements of such systems are to be burnished prior to parking brake tests according to the manufacturer's published recommendation as furnished to the purchaser. If no recommendations are furnished, test the system in an unburnished condition. If recommendations are furnished, record method used.

APPLY	MAX SERVICE	MAX P-BRAKE	LEFT REAR	RIGHT REAR	AVG REAR	DRIVER VEHICLE STOP COMMENTS [Direction of Stop (Up/Down) - Brake holds/fails]			
	FORCE (N)	FORCE (N)	INT (°C)	INT (°C)	INT (°C)				
1	101.6	332.0	41	40	40.5	0 RAPIDLY	UPHILL	HOLDS	200
2	99.2	396.0	31	27	28.9	0 RAPIDLY	DOWNHILL	HOLDS	200

Is brake system indicator lamp activated: YES (X) NO ()

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN HASTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 5/7/04

Approving Laboratory Official: KIM WEBSTER

Date: 3/19/04

Vehicle: 2004 FORD MOTOR CO. MMSA NUMBER: C49200
 Make: FORD
 Model: E150 XL WAGON
 Body Style: 5-DR MPV
 Front Cold Tire Pressure: 283 (Kpa)
 Rear Cold Tire Pressure: 283 (Kpa)

Transportation Research Center, Inc.
 10220 State Route 349
 East Liberty, Ohio 43319
 (614) 566-2611 www.trcpg.com

Date Tested: 04/12/04

DATA SHEET 26 - HEATING SHUBS AT GVWR

Testing Conditions: INV DATA, Section 0058, 04/12/04, 08:45:21

Schedule:

Conduct 15 shubs from 120 Km/h or 80 Vmax, whichever is slower, to 1/2 of initial speed.
 Attain required decel in 1 second and maintain that decel.
 Interval between shubs is 45 seconds and NOT to initial speed.

Performance Requirements:

Initial IRT for first shub is 55-65°C
 Maintain 3.0 m/s/s deceleration
 Vehicle must stay in lane of 3.5m

SHUB	AVG. DECEL	Time Between Shubs	AVG. PEDAL FORCE	LEFT FRONT IRT	RIGHT FRONT IRT	LEFT REAR IRT	RIGHT REAR IRT	INIT SPD
#	(m/sec²)	(seconds)	(N)	(°C)	(°C)	(°C)	(°C)	(kph)
1	2.80	--NA--	83.11	31	37	17	17	118.48
2	2.86	47	88.85	98	122	59	81	120.64
3	2.77	45	47.62	145	178	95	58	121.77
4	2.80	45	84.27	179	215	126	131	121.08
5	3.02	45	84.13	213	253	188	141	120.14
6	2.94	45	57.20	243	282	192	188	119.51
7	2.71	45	67.90	285	308	215	212	119.86
8	2.73	44	49.53	282	326	236	218	118.79
9	3.04	45	56.88	290	337	250	240	118.36
10	3.15	45	46.88	308	344	263	248	118.29
11	3.04	46	52.27	304	354	278	256	119.08
12	2.83	45	49.62	308	362	285	284	120.21
13	2.73	44	49.71	320	371	298	273	120.84
14	2.70	45	48.80	328	383	309	284	120.18
15	2.93	46	53.12	334	392	315	274	121.71

STOP

DRIVER VEHICLE SHUB COMMENTS

(Wheel Lock-Up - Direction of Stop - Stay in Lane)

STOP #	WHEEL LOCK-UP	DIRECTION OF STOP	STAY IN LANE
1	-	NOR	YES
2	-	NOR	YES
3	-	NOR	YES
4	-	NOR	YES
5	-	NOR	YES
6	-	NOR	YES
7	-	NOR	YES
8	-	NOR	YES
9	-	NOR	YES
10	-	NOR	YES
11	-	NOR	YES
12	-	NOR	YES
13	-	NOR	YES
14	-	NOR	YES
15	-	NOR	YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTENDAY Observer: NONE
 Recorded Data Processed by: CHUCK JENKINS Date: 5/7/04
 Approving Laboratory Official: KIM WEBSTER Date: 5/18/04

Vehicle: 2004 FORD MOTOR CO. EXTRA NUMBER: C40298

Make: FORD

Model: F150 XL WAGON

Body Style: 6-DR MPV

Front Cold Tire Pressure: 283 (kpa)

Rear Cold Tire Pressure: 283 (kpa)

Transportation Research Center, Inc.

10820 State Route 347

East Liberty, Ohio 43115

(917) 666-2011 www.krapp.com

Date Tested: 04/12/04

DATA SHEET 27 - HOT PERFORMANCE AT GVWR

Testing Conditions: INV DATA, Section 0035, 04/12/04, 09:00:38

Schedule:

Make 2 stops from 100 kph

Pedal Force: 1st stop is done with an average force less than the average recorded in the shortest GVWR Cold Effectiveness stop.
2nd stop is done with a force less than 500 N.

No Lock-Up allowed longer than 0.1 sec above 15 km/h.

Distance requirements are based on the following:

shortest stop in Data Sheet 11 is: 1

Initial speed of stop: 95.24 (kph)

Actual distance of stop: 58.6 (meter)

Average pedal force: 375.8 (N)

Performance Requirements:

Stop Number 1 must be less than: 28.7 (meter)

In addition the stopping distance for at least one of the of the two hot stops must be less than: 89 (meter)

STOP #	INIT SPD (kph)	LEFT FRONT INP (°C)	RIGHT FRONT INP (°C)	LEFT REAR INP (°C)	RIGHT REAR INP (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SEE 289) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.86	167	125	152	131	59.6	60.7	395.05	302.06	9.41	6.14
2	100.23	194	143	164	142	59.0	58.7	457.98	321.25	9.28	6.10

STOP

DRIVER VEHICLE STOP COMMENTS

#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)
1	-
2	-

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CRUCE JEFFREY

Date: 5/7/04

Approving Laboratory Official: KEN WEBSTER

Date: 5/10/04

Vehicle: 2004 FORD MOTOR CO. NHTSA NUMBER: C40206

Make: FORD

Model: F150 XL WAGON

Body Style: 6-DR MPV

Front Cold Tire Pressure: 293 (Kpa)

Rear Cold Tire Pressure: 293 (Kpa)

Transportation Research Center, Inc.

10820 State Route 147

East Liberty, Ohio 43319

(617) 666-2011 www.trcrg.com

Date Tested: 04/12/04

DATA SHEET 28 - BRAKE COOLING STOPS AT GVWR

Testing Conditions: INV DATA, Section 0100, 04/12/04, 09:03:40

Schedule:

Initial Brake Temperature:

Achieved on completing Hot Performance

Initial Speed 50 km/h to zero

4 stops with transmission in gear

Performance Requirements:

Constant Decel rate: 2.0 m/s/s

Pedal force adjusted as necessary

No Lock-Up allowed longer than 0.1 sec above 15 km/h

Vehicle Must stay in lane of 3.5m

	INIT	AVG.	AVG.	LEFT	RIGHT	LEFT	RIGHT
	SPD	DECEL	PEDAL	FRONT	FRONT	REAR	REAR
STOP	#	(km/h)	(m/sec ²)	FORCE	1ST	1ST	1ST
			(N)	(°C)	(°C)	(°C)	(°C)
1	50.07	3.23	62.48	323	369	277	283
2	49.80	2.58	47.93	265	303	224	211
3	49.87	2.98	47.48	214	235	173	187
4	49.65	2.78	48.70	172	202	149	131

STOP	DRIVER VEHICLE STOP COMMENTS		
#	(Wheel Lock up - Direction of Stop - Stay in Lane)		
1	-	NOX	WAST
2	-	NOX	WASTE
3	-	NOX	WASTE
4	-	NOX	WASTE

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN KASTNERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 5/7/04

Approving Laboratory Official: KEN WEBSTER

Date: 5/18/04

Vehicle: 2004 FORD MOTOR CO. MYRA MOWBR: C40203
 Make: FORD
 Model: F150 XL WAGON
 Body Style: 5-DR WTV
 Front Cold Tire Pressure: 283 (Kpa)
 Rear Cold Tire Pressure: 283 (Kpa)

Transportation Research Center, Inc.
 19825 State Route 347
 East Liberty, Ohio 43319
 (937) 666-2011 www.trcpg.com

Date Tested: 04/12/04

DATA SHEET 29 - RECOVERY PERFORMANCE AT GVWR

Testing Conditions: INV DATA, Section 0105, 04/12/04, 09:11:15

Weather Conditions: 37°F Wind: 11 mph 1" Start Odo.: 187 End Odo.: 484

Schedule:

Make 2 stops from 100 kph

Pedal Force: Both stops are performed with an average force less than the average recorded in the shortest GVWR Cold Effectiveness stop.

Performance Requirements:

One of the two stops must be within the following limits:
 Upper limit of corrected stopping distance: 74.8 (meter)
 Lower limit of corrected stopping distance: 49.2 (meter)

No Lock-Up allowed longer than 0.1 sec above 15 km/h.

Distance Requirements are based on the following:

Shortest stop Data Sheet 11 is: Stop 5

Initial speed of stop: 99.26 (kph)

Actual distance of stop: 55.4 (meter)

Average pedal force: 375.0 (N)

STOP	LEFT		RIGHT		LEFT		RIGHT		CORRECTED DISTANCE (SAE 199) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
	INIT SPD (kph)	FRONT 1ST [°C]	FRONT 1ST [°C]	REAR 1ST [°C]	REAR 1ST [°C]	INIT SPD (kph)	FRONT 1ST [°C]	REAR 1ST [°C]					
1	100.40	188	181	137	119	99.26	208	167	59.2	369.61	246.18	11.42	6.46
2	99.76	208	251	167	149	56.0			56.2	464.08	316.72	11.92	6.27

STOP	DRIVER VEHICLE STOP COMMENTS			
	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	EAST	YES
2	-	NOX	EAST	YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTRDAY Observer: TOME
 Recorded Data Processed by: CHUCK JENKINS Date: 5/7/04
 Approving Laboratory Official: BEN MERTER Date: 5/18/04

DATA SHEET 30 (Part 1 of 5)
6.0 Test Completion Inspection (7.17)

VEHICLE: 2004 Ford E-150 XL Wagon NHTSA NO.: C40208 DATE: 04/16/04

System Integrity (S5.6)

Each vehicle shall meet the complete performance requirements of this standard without:

(a) Detachment or fracture of any component of the braking system such as brake springs and brake shoes or disc pad facings, other than minor cracks, that do not impair attachment of the friction facings. All mechanical components of the braking system shall be intact and functional. Friction facing tearout (complete detachment of lining) shall not exceed 10 percent of the lining on any single frictional element.

(b) Any visible brake fluid or lubricant on the friction surface of the brake or leakage at the master cylinder or brake power unit reservoir cover, seal, and filler openings.

Friction Material Condition: Primary/Inner		Friction Material Condition: Secondary/Outer	
LF	Normal Appearance & Color	LF	Normal Appearance & Color
RF	Normal Appearance & Color	RF	Normal Appearance & Color
LR	Normal Appearance & Color	LF	Normal Appearance & Color
RR	Normal Appearance & Color	RR	Normal Appearance & Color
Drum (or Rotor) Condition:		Brake Fluid/Lubricant Inside Brakes:	
LF	Normal Appearance & Color	LF	None
RF	Normal Appearance & Color	RF	None
LR	Normal Appearance & Color	LR	None
RR	Normal Appearance & Color	RR	None
Hydraulic Component Condition:		Mechanical Component Condition:	
LF	Good	Brk/Pedal	Good
RF	Good	Power Brk	Good
LR	Good	Stop/Lamp	Good
RR	Good	Linkage	Good
M/Cyl	Good	Other	NA

COMPLIANCE: Yes X No _____
 Comments: None.

Technician: K. Easterday

DATA SHEET 30 (Part 2 of 5)
TEST COMPLETION INSPECTION (S7.17)

VEHICLE: 2004 Ford E-150 XL Wagon; NHTSA NO.: C40208; GVWR: 3175 kg
MASTER CYLINDER RESERVOIR:

DATE	04/14/04	Requirements	Pass	Fail
Reservoir Compartments (85.4.1)				
(1) Does master cylinder have a reservoir compartment for each brake subsystem?	Yes	Master cylinder shall have a reservoir compartment for each subsystem.	X	
	No			
(2) Does loss of fluid in one compartment result in complete loss from another compartment?	Yes	Loss of fluid from one compartment shall not cause complete loss from another compartment.	X	
	No			
Reservoir Capacity (85.4.2)				
Shall conform to requirements (1) or (2), state units: (1) For reservoirs having completely separate compartments for each subsystem (two separate, independent reservoirs):				
Subsystem 1 Subsystem reservoir capacity		Each compartment (reservoir) shall have a minimum capacity equivalent to the fluid displacement resulting when all wheel cylinders or caliper pistons serviced by that independent compartment/reservoir moves from a new lining, fully retracted position to a fully worn, properly adjusted, fully applied position. (Use Data Sheet 31 and Appendix 1A)	NA	NA
Subsystem 1 Fluid displaced from new to worn lining				
Subsystem 2 Subsystem reservoir capacity			NA	NA
Subsystem 2 Fluid displaced from new to worn lining				
2) For reservoirs utilizing a portion of the reservoir for a common supply to two or more subsystems:				
Total minimum capacity for the entire master cylinder reservoir (includes individual compartment reservoirs)	496 ml	Shall have total minimum capacity for entire reservoir for displacement resulting from all subsystem wheel cylinders or caliper pistons moving from new lining to full worn condition as above.	X	
Fluid displaced from new to worn linings (ALL linings)	303.9 ml*			
*Value calculated from Data Sheet 31				

Comments: None

DATA SHEET 30 (Part 3 of 5)

TEST COMPLETION INSPECTION (\$7.18)

VEHICLE: 2004 Ford E-150 XL Wagon; NHTSA NO.: C40208; GVWR: 3175 kg

MASTER CYLINDER RESERVOIR:

DATE	04/14/04	Requirements	Pass	Fail
Master Cylinder Piston Displacement(\$5.4.2) [If Common Reservoir Supply - continued from previous page]				
Fluid displaced by three strokes of master cylinder piston for Primary (Subsystem No. 1)	37 ml	Individual partial compartments of reservoir shall each have a minimum of fluid equal to at least the volume displaced by the master cylinder piston servicing the subsystem during a <u>full stroke</u> of the piston. NOTE: Procedure uses three strokes to ensure an accurate measurement.		
Fluid displaced by three strokes of master cylinder piston for Secondary (Subsystem No. 2)	64 ml			
Fluid displaced per stroke, Primary	12.3 ml			
Fluid displaced per stroke, Secondary	21.3 ml			
Fluid available in partial compartment Subsystem No. 1	125 ml		X	
Fluid available in partial compartment Subsystem No. 2	110 ml		X	
Brake Power Unit Reservoir (\$5.4.2)				
Volume displaced in charging system piston or accumulator to normal operating pressure plus wheel cylinder or caliper piston displacement.		Shall have a capacity at least equal to fluid displacement required to charge the system pistons or accumulators to normal operating pressure <u>plus</u> displacement when wheel cylinders or caliper pistons move from new lining to full worn condition as above.	NA	
Reservoir Labeling (\$5.4.3)				
Exact copy of reservoir label: On master cylinder reservoir cap: <u>WARNING, CLEAN FILLER CAP BEFORE REMOVING, USE ONLY DOT 3 BRAKE FLUID FROM A SEALED CONTAINER.</u>		Label shall read: "Warning, clean filler cap before removing; use only * fluid from a sealed container". * Fluid type specified in 49 CFR 571.118	X	
Measure letter height	3.2 mm	Letters shall be at least 3.2 mm/ 0.125" high	X	
Describe label attachment method and location. <u>Embossed on the top of the master cylinder reservoir filler cap.</u>		Lettering shall be permanently affixed, engraved or embossed and located so as to be visible by direct view either on or within 100 mm/3.94 inches of the brake fluid reservoir filler plug or cap.	X	
Does the lettering contrast with the background?	Yes	If label is not engraved or embossed, letters shall be of a color that contrasts with the background	NA	
	No			

Comments: None

Technician: K. Easterday

DATA SHEET 30 (Part 4 of 5)
TEST COMPLETION INSPECTION (S7.18)

VEHICLE: 2004 Ford E-150 XL Wagon; NHTSA NO.: C40208; DATE: 04/14/04
BRAKE SYSTEM WARNING INDICATOR (S5.5)

CONDITION	ANSWER	REQUIREMENTS	PASS	FAIL
Brake Systems Indicator Lamp Function Check (S5.5.2) (Bulb and systems check)				
Describe location of brake indicator lamp: <u>Lower left quadrant of the instrument cluster.</u>	NA	Shall be in front, and in clear view, of driver.	X	
Does lamp light with ignition (start) switch at ON/RUN?	Yes	Automatic activation when ignition switch is "on" when engine not running, or ignition between "on" and "start" if manufacturer check position- OR -single manual action by driver	X	
Does lamp light with ignition between ON and Start?	Yes			
Brake check description in owner's manual?	Yes	Manufacturer shall explain the brake check function test procedure in the owner's manual.	X	
Brake System Warning Indicator ACTIVATION (S5.5.1) DURATION (S5.5.3) FUNCTION (S5.5.4)				
CONDITION	Light ON?	REQUIREMENT	PASS	FAIL
A. In event of hydraulic leak (1) On or before appearance of pressure differential of 218 psi (split system)	NA	When ignition (Start) switch is ON, lamp must light whenever (A), (B), (C), or (D) occurs. In addition, if service brake system is not a split system, audible warning must be activated when any condition in (A) exists. Visual warning indicator for non-split systems must be flashing.	X	
(2) If any reservoir falls below either "safe" level or 25% of capacity, whichever is greater.	Yes			
(3) On or before supply pressure to brake power unit falls to 50%	NA			
B. Electrical functional failure in an antilock or variable brake proportioning system.	Yes			
C. Application of the parking brake.	Yes		X	
D. Brake lining wear-out if optical warning	NA			
Must have Audible alarm if <u>not split system</u> and a condition in (a) above exists?	NA			
If condition (A) (2) above does not exist, then fluid reservoir must be transparent for fluid check without the need for reservoir to be opened? (S5.4.4)	NA			
Indicator lamps remain activated as long as condition exists - ignition "on", and engine on or off? (S5.5.3 DURATION)	Yes			
Visual warning - continuous or flashing?	Yes-Cont.			
Audible warning - continuous or flashing?	NA			

Comments: None.

Technician: K. Easterday

DATA SHEET 30 (Part 5 of 5)
TEST COMPLETION INSPECTION (S7.18)

VEHICLE: 2004 Ford E-150 XL Wagon; NHTSA NO.: C40208; DATE: 04/14/04

BRAKE SYSTEM WARNING INDICATOR LABELING (S5.5.5)

CONDITION AND REQUIREMENT	ANSWER NOTE: Standard requires that the answer to questions be YES	PASS	FAIL
Are visual indicators legible to driver in daylight and nighttime conditions when activated?	Yes	X	
Are visual indicator words 3.2 mm (.125") high minimum? Record Height: "Brake" - <u>3.2 mm</u> ; "ABS" - <u>2.4 mm</u> .	No		X
Visual indicator words and background contrasting colors, one of which is red. Record colors: <u>Letters - red, Lens - Black</u>	Yes	X	
If split system, is there one brake indicator? If yes, does it say the word "Brake"? <u>"BRAKE" w/one symbol.</u>	Yes	X	
If not split system, is there a separate indicator for loss of fluid or fluid pressure? Does this indicator say "Stop-Brake Failure"? Are the letters black and not less than 6.4 mm (.25") in height? Record letter height <u>NA</u>	NA		
If separate indicator for: 1. Low brake fluid per S5.5.1(a)(1), does indicator say "Brake Fluid"? NOTE: not required for mineral oil system Record wording <u>NA</u> 2. Gross pressure loss per S5.5.1(a)(2), does indicator say "Brake Pressure"? Record wording <u>NA</u> 3. Electrical functional failure in antilock or variable proportioning system per S5.5.1(b), letters and background contrasting colors one of which is yellow? Record colors: <u>Lens - Black, Letters - Amber or yellow</u> Does indicator say "Antilock" or "ABS" or "Brake Proportioning"? Record wording <u>"ABS" within symbol.</u> 4. Parking brake per S5.5.1(c), does indicator say "Park" or "Parking Brake"? Record wording <u>NA</u> 5. Brake lining wear-out per S5.5.1(d), does indicator say "Brake Wear"? Record wording <u>NA</u> 6. For any other function? If yes, Record <u>NA</u>	NA NA Yes Yes NA NA NA	X	

Comments: None.

Technician: K. Easterday

DATA SHEET 31 (Part 1 of 2)
CALCULATION OF MINIMUM RESERVOIR VOLUME REQUIREMENTS
VEHICLE: 2004 Ford E-150 XL Wagon; NHTSA NO.: C40208; DATE: 04/14/04

BRAKE		LINING		
LOCATION	TYPE	DESCRIPTION	MINIMUM THICKNESS	THICKNESS TO FULLY WORN (1) mm*
Left Front	Drum	Leading	Pre-test 10.16 mm	2.0
		Primary	Post Test 10.01 mm	
		Inboard X	Δ 0.15 mm	
	Disc X	Trailing	Pre-test 10.11 mm	2.0
		Secondary	Post Test 10.01 mm	
		Outboard X	Δ 0.10 mm	
LINING CLEARANCE:		Diametrical (2): N/A	Inboard - 1.85 mm	Outboard - 1.85 mm
WHEEL CYLINDER DIAMETER (3): N/A		CALIPER PISTON DIAMETER (3): 53.85 mm (x2 pistons)		
SHOE CAGE DIAMETER (4): N/A ; CENTER POINT OF BRAKE ASSY TO CENTER POINT OF W.C.: N/A				
Right Rear	Drum	Leading	Pre-test 10.67 mm	2.0
		Primary	Post Test 10.44 mm	
		Inboard X	Δ 0.23 mm	
	Disc X	Trailing	Pre-test 10.72 mm	2.0
		Secondary	Post Test 10.46 mm	
		Outboard X	Δ 0.26 mm	
LINING CLEARANCE:		Diametrical (2) - N/A	Inboard - 1.85 mm	Outboard - 1.85 mm
WHEEL CYLINDER DIAMETER (3): N/A		CALIPER PISTON DIAMETER (3): 53.85 mm		
SHOE CAGE DIAMETER (4): N/A		CENTER POINT OF BRAKE ASSY TO CENTER PT. OF W.C.: N/A		
CIRCUIT #1 CONSISTS OF:	LF	LR - X	RF	RR - X
CIRCUIT #2 CONSISTS OF:	LF - X	LR	RF - X	RR
(1) MFRS. RECOMMENDATIONS - 2 mm front and rear.				
(2) REAR - TOP OF RIVET HEADS - N/A. FRONT - 1/32 INCH - N/A. MFRS. DATA - N/A.				
(2) DRUM BRAKES, MEASURED AT HORIZONTAL CENTERLINE: N/A				
(3) MFRS. DATA: Frt.: 64 mm; Rear: 54 mm.				
(4) RESET POSITION: N/A				

Comments: Manufacturer's new lining thickness: Frt. - 10.96 mm; Rears - 11.7 mm.
 Technician: K. Easterday

DATA SHEET 31 – SECTION CONTINUED (Part 2 of 2)

Vehicle: 2004 Ford E-150 XL Wagon;

NHTSA No.: C40208;

Date: 05/05/04

Procedure and Example for Determining Master Cylinder Volume Requirement

The procedure followed for determining the minimum volume requirements is outlined in the example shown below. The required data is taken from the previous page.

DISC BRAKES

Volume Required, $V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times [\pi (D^2)/4]$, where –

- V_r = Volume required per wheel
- Δt = Change in thickness (average)
- i = Inboard
- o = Outboard
- D = Caliper cylinder diameter
- c = Average clearance

Using the above equations, the volume requirements for Subsystem No. 1 (LF, RR) and Subsystem No. 2 (RF, LR) were calculated utilizing measured and manufacturer's provided data to create the greatest displacement, as shown below:

Disc Brake:
(Front)

$$V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times \frac{\pi D^2}{4}$$
$$\Delta t_i = 8.96 \text{ mm}$$
$$\Delta t_o = 8.96 \text{ mm}$$
$$t_{ic} + t_{oc} = 3.70 \text{ mm}$$
$$D = 54 \text{ mm}$$
$$V_r = (8.96 + 1.85 + 8.96 + 1.85) \frac{\pi (54)^2}{4}$$
$$= 21.62 (2290.22)$$
$$= 49514.6 \text{ mm}^3 (\text{x two pistons}) = 99029.2 \text{ mm}^3 = 99.0 \text{ ml}$$

Disc Brake:
(Rear)

$$V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times \frac{\pi D^2}{4}$$
$$\Delta t_i = 9.7 \text{ mm}$$
$$\Delta t_o = 9.7 \text{ mm}$$
$$t_{ic} + t_{oc} = 3.70 \text{ mm}$$
$$D = 54 \text{ mm}$$
$$V_r = (9.7 + 1.85 + 9.7 + 1.85) \frac{\pi (54)^2}{4}$$
$$= 23.1 (2290.22)$$
$$= 52904.1 \text{ mm}^3 = 52.9 \text{ ml}$$

For System 1 (LR, RR)

$$V_{r1} = 52904.1 \text{ mm}^3 + 52904.1 \text{ mm}^3 = 105808.2 \text{ mm}^3$$

$$V_{r1} = 105808.2 \text{ mm}^3 = (105.8 \text{ ml})$$

For System 2 (RF, LF)

$$V_{r2} = 99029.2 \text{ mm}^3 + 99029.2 \text{ mm}^3$$

$$V_{r2} = 198058.4 \text{ mm}^3 = (198.1 \text{ ml})$$

$$\text{TOTAL VOLUME REQUIRED} = V_t = V_{r1} + V_{r2} = 303866.6 \text{ mm}^3 = 303.9 \text{ ml}^*$$

SECTION 6.0

Photographs



2004 FORD
E150 WAGON
NHTSA NO.
C 40208
MARCH 2004

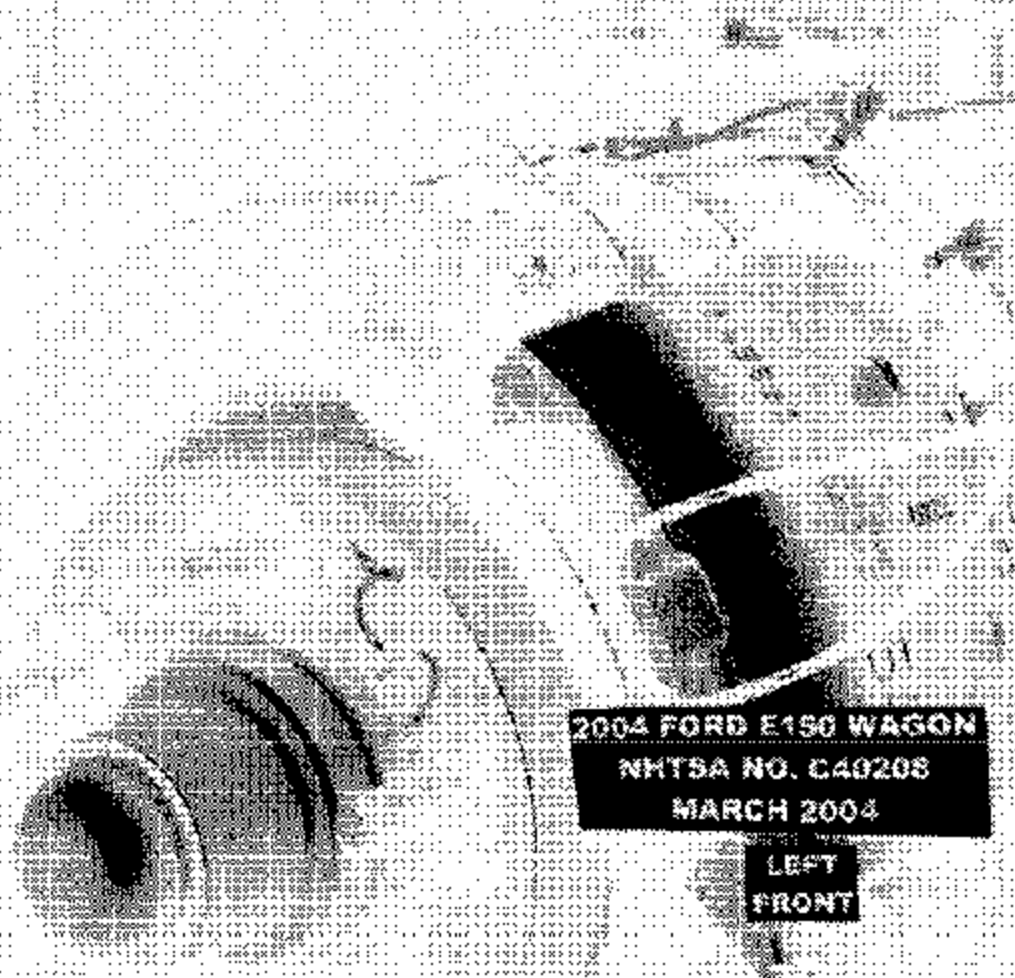
BUILT BY FORD MOTOR CO.
 FRONT GAWR: 3600LB 1632KG
 WITH P235/70R16 TIRES
 16X7.0J RIMS
 AT 280 kPa/41 PSI COLD
 DATE: 11/03
 REAR GAWR: 3800LB 1723KG
 WITH P235/70R16 TIRES
 16X7.0J RIMS
 AT 280 kPa/41 PSI COLD
 THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE
 SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
 VIN: TFMRE11V94 [REDACTED] TYPE: MPV

EXT PNT: N
 RC: 44 DSO
 138 C AE 7 19 U ZC
 MADE IN U.S.A. ULC
 F0214
 T0584
 2U5A-3520472-AA

2004 FORD E150 WAGON

NHTSA NO. C40208

MARCH 2004

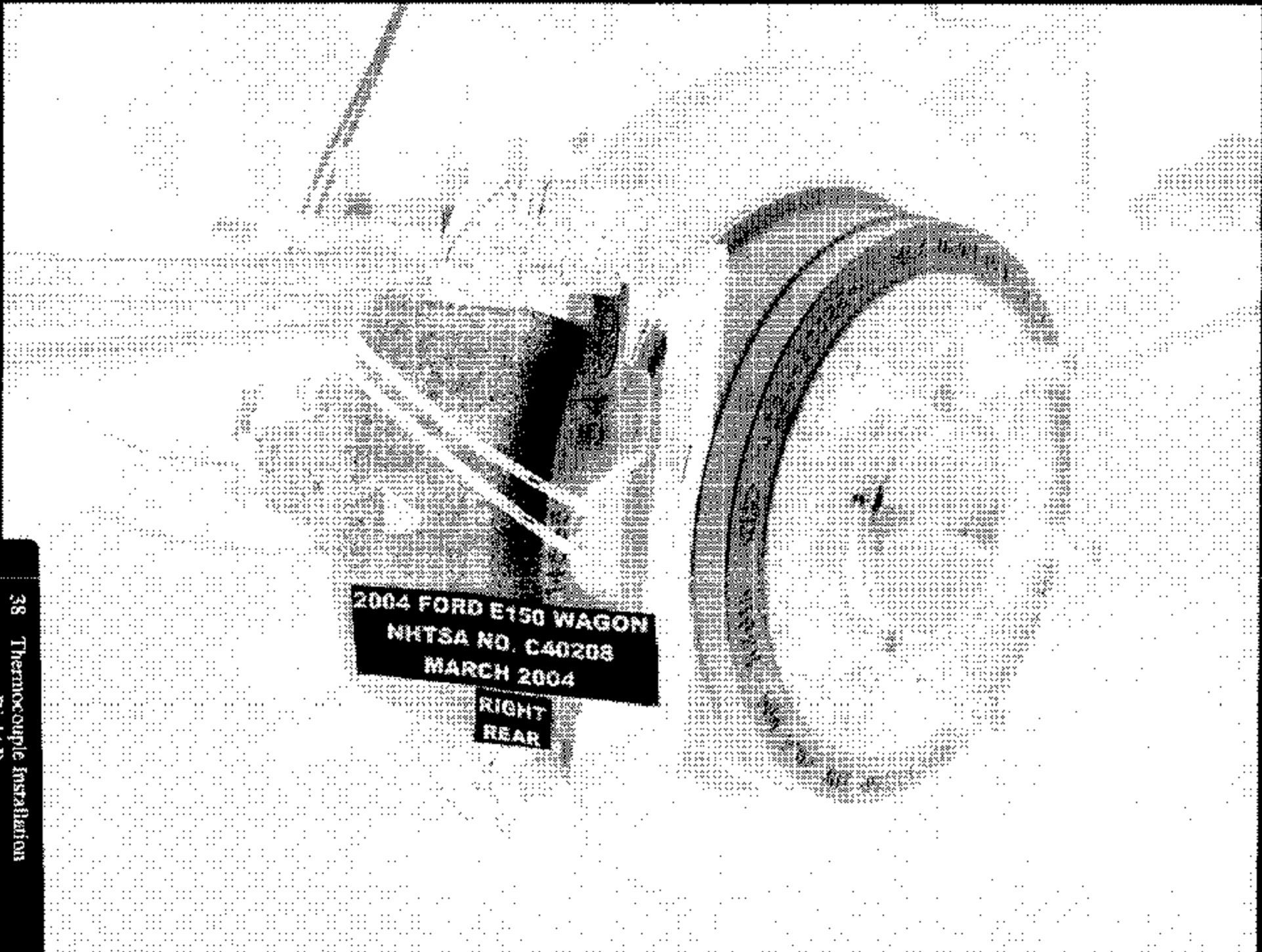


2004 FORD E150 WAGON

NHTSA NO. C40208

MARCH 2004

LEFT
FRONT



2004 FORD E150 WAGON
NHTSA NO. C40208
MARCH 2004

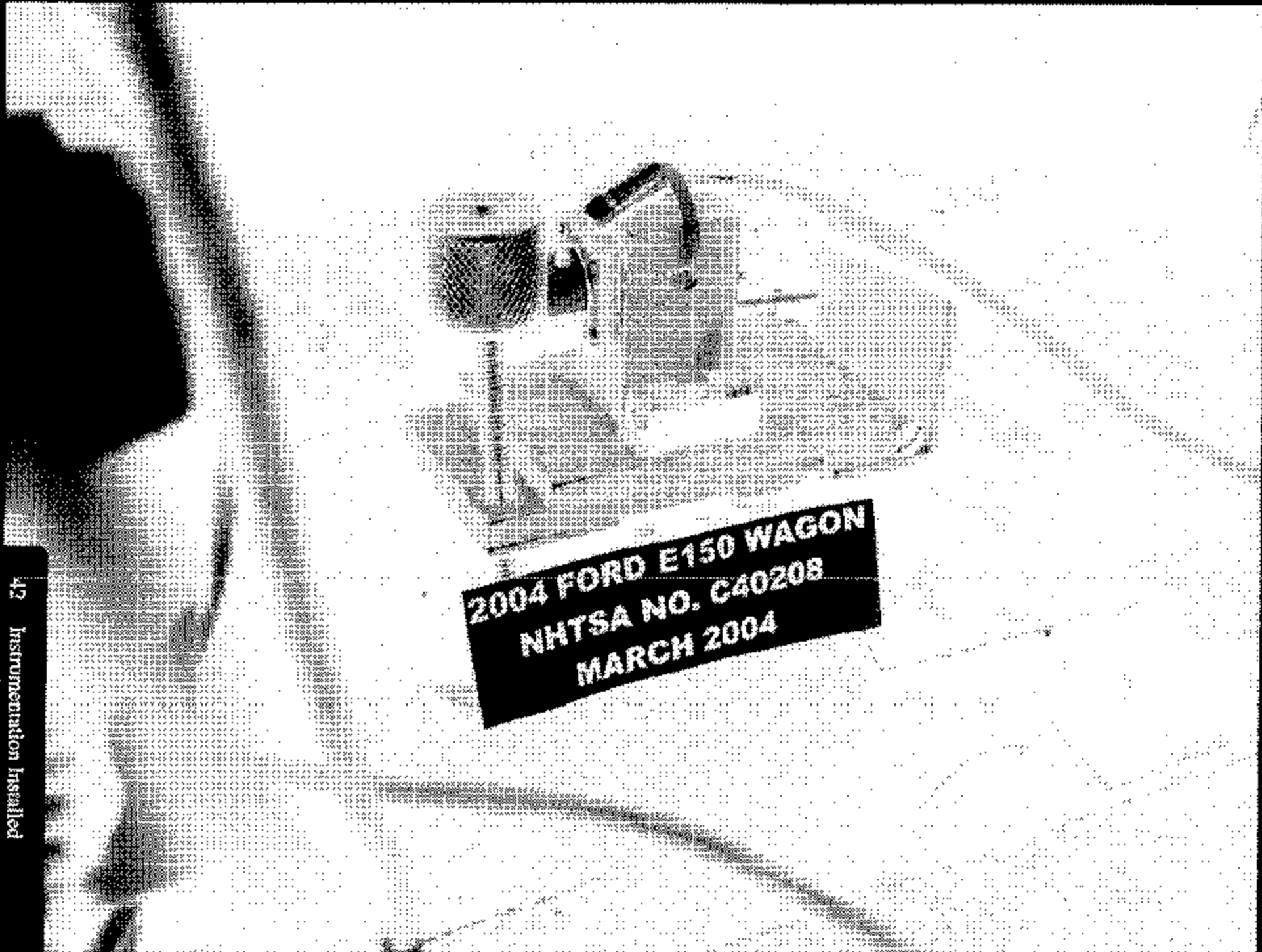
RIGHT
REAR



2004 FORD E150 WAGON
NHTSA NO. C40208
MARCH 2004



2004 FORD E150 WAGON
NHTSA NO. C40208
MARCH 2004



2004 FORD E150 WAGON
NHTSA NO. C40208
MARCH 2004

2004 FORD E150 WAGON
NHTSA NO. C40208
MARCH 2004



2001 FORD F150
WAGON
MTRSA NO. C40256
MARCH 2004

2004 FORD E150 WAGON
NHTSA NO. C40208
MARCH 2004

2004 FORD E150
WAGON
NHTSA NO. C40208
MARCH 2004



BRAKE
(P)



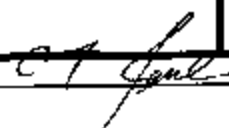
2004 FORD E150 WAGON
NHTSA NO. C40208
MARCH 2004



7.0 INSTRUMENT CALIBRATION (12 MONTH MAXIMUM INTERVAL)

VEHICLE: 2004 Ford E-150 XL Wagon; NHTSA NO.: C40208; DATE: 04/15/04

INSTRUMENT	SERIAL NUMBER	CALIBRATION DATE	NEXT CALIBRATION
Data Acquisition System - Link DAS 2030	975016	10/23/03	10/23/04
Computer - Dell Latitude/Link Engrg.	TRC-43207	Not Applicable	Not Applicable
Software - Link Engrg. Rev Data	TRC Propr.	NA	NA
LF Torque Wheel	Not Utilized		
RF Torque Wheel	Not Utilized		
LR Torque Wheel	Not Utilized		
RR Torque Wheel	Not Utilized		
Stopwatch - Accusplit	SW ST03	04/08/03	04/08/04
Tire Pressure Gauge - Ashcroft	AG-05	11/25/03	11/25/04
Voltage Multimeter - Dana 4300	M-108639	11/25/03	11/25/04
Pedal Force Transducer - Sensor Devel.	LC-169755	Each Test	Each Test
Asst. Pipe-Handle Steel Weights - Ohaus	LB-0002	05/12/03	05/12/04
Park Brake Force Transducer - Interface	41721	Each Test	Each Test
LF Hydraulic Pressure Transducer	Not Utilized		
RF Hydraulic Pressure Transducer	Not Utilized		
LR Hydraulic Pressure Transducer	Not Utilized		
RR Hydraulic Pressure Transducer	Not Utilized		
Accelerometer - Setra (+ or - 15 g) 141A	A-1055763	Each Test	Each Test
Fifth Wheel - ADAT DSR-06 Radar	140.0119	Each Test	Each Test
Wind Velocity/Direct. - Davis Model 6410	WXB300193A	09/15/03	09/15/04
Ambient Temp. Gage - Davis Model 6320	WXB300193A	09/15/03	09/15/04
LF Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
RF Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
LR Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
RR Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
Lock-up Detection System	TRC Propr.	Each Test	Each Test
Vehicle Weight - Toledo/Mettler	7561RD4011 SN 5225831-5JC	01/29/04	04/29/04

QUALITY ASSURANCE 

DAILY CALIBRATIONS (1 of 3)

Vehicle: 2004 Ford Econoline E-150 XL

NHTSA No.: C40208

Deceleration Calibration Data for Unit 4357

Desired full scale value is: 9.81 m/s/s

Allowed deviation is: + or - 0.15 m/s/s

Accelerometer Level to zero, then tilt to full scale

"Date"	"Time"	Zero	Cal
"stp"	"stp"	"Decel"	"Decel"
4/1/2004	8:45:06	0.00	9.79
4/1/2004	11:19:38	-0.03	9.89
4/7/2004	8:13:33	-0.01	9.81
4/7/2004	14:31:18	0.01	9.82
4/8/2004	7:45:27	0.01	9.83
4/8/2004	15:02:44	-0.02	9.83
4/9/2004	8:24:31	-0.01	9.82
4/9/2004	14:59:15	0.00	9.81
4/12/2004	7:12:17	0.04	9.80
4/12/2004	9:21:12	-0.02	9.77
4/12/2004	10:17:48	-0.01	9.80

PRE-TEST CAL.

POST-TEST CAL.

Pre-Test Linearity Check 04/01/04

Actual (m/s)	Rec. (m/s/s)
0.0	0.0
3.0	3.0
6.1	6.1
9.8	9.8

Post-Test Linearity Check 04/12/04

Actual (m/s)	Rec. (m/s/s)
0.0	0.0
3.0	3.0
6.1	6.1
9.8	9.8

Distance Calibration Data for Unit 4357

Desired full scale value is: 1000 m

Allowed deviation is: 3 m

Light beam distance sensor Drive from 0 to 100 to 0 km/h on a measured kilometer

"Date"	"Time"	Distance for 1000 meters
"stp"	"stp"	
4/1/2004	11:11:22	1000.3
4/7/2004	8:09:33	999.6
4/7/2004	14:37:50	998.3
4/8/2004	7:43:03	999.0
4/8/2004	15:09:11	998.5
4/9/2004	8:22:03	999.8
4/9/2004	15:04:54	998.5
4/12/2004	7:16:59	999.4
4/12/2004	9:29:26	999.8

PRE-TEST CAL.

POST-TEST CAL.

DAILY CALIBRATIONS CONTINUED (2 of 3)

VEHICLE: 2004 Ford Econoline E-150 XL

NHTSA No.: C40208

Wheel Tachometer Calibrations for Unit 4357

Wheel tachometer calibrations: all wheel speeds should be 15 km/h

Wheel lock
detector

While at a
standstill,
check zeroes.
Drive vehicle
at approx.
15 km/h and
engage zero
speed switch
for each
wheel

"Date"	"Time"	Zero	@ 15km/h	Zero	@ 15km/h	Zero	@ 15km/h	Zero	@ 15km/h
stp	stp	LF	LF	RF	RF	LR	LR	RR	RR
04/07/2004	8:16:56	0.0	17.8	0.0	16.9	-0.1	24.2	-1.0	16.8
04/07/2004	14:38:33	0.0	22.8	0.0	17.5	0.0	18.2	-5.7	12.8
04/08/2004	7:41:47	0.0	19.8	0.0	17.9	0.0	18.7	0.0	17.8
04/08/2004	15:08:32	-0.1	20.7	-0.1	17.8	-0.1	20.0	0.0	18.1
04/09/2004	8:20:39	-0.1	20.4	0.0	18.2	-0.1	18.1	0.0	18.0
04/09/2004	15:00:47	0.0	21.9	0.0	20.8	-0.1	23.5	0.0	20.5
04/12/2004	7:15:58	0.0	22.8	0.0	19.3	-0.1	24.1	-0.8	19.6
4/12/2004	9:28:10	0.0	22.9	0.0	20.9	0.0	23.1	0.0	24.1

PRE-TEST CAL

POST-TEST CAL

When driven over 15 km/hr and the wheel tach generators are shunted to zero volts, does the graphical screen indicate wheel lock at each wheel position?: ☒ Yes, ☐ No.

Pedal Force Meter Calibration for Unit 4357

Target shunt calibration is 390 N

Desired recorded value is: 390 N

Desired recorded calibration value is: 600 N

Allowed deviation is: 6.5 N

Service brk.
pedal effort

Driver
engages a
fixed shunt
cal switch.

"Date"	"Time"	Zero	Cal Val
stp	stp	Force	Force lb
4/1/2004	8:51:54	-0.3	601.8
4/1/2004	11:15:31	-0.5	390.6
4/7/2004	8:12:01	-0.2	390.6
4/7/2004	14:30:29	-0.4	390.4
4/8/2004	7:38:41	-0.1	390.9
4/8/2004	15:03:30	-1.3	390.8
4/9/2004	8:17:26	-0.1	390.5
4/9/2004	14:58:18	-0.5	390.4
4/12/2004	7:11:32	-0.5	390.8
4/12/2004	9:20:27	-0.5	390.8
4/12/2004	14:07:36	-0.6	600.4

PRE-TEST CAL

POST-TEST CAL

Pre-Test Linearity Check - 04/01/04

Actual	Recorded
Force (N)	Force (N)
0	0
222	222
443	445
498	498

Post-Test Linearity Check - 04/12/04

Actual	Recorded
Force (N)	Force (N)
0	0
222	223
443	446
498	499

DAILY CALIBRATIONS CONTINUED (3 of 3)

VEHICLE: 2004 Ford Econoline E-150 XL

NHTSA No. C40208

Dynamic Speed Calibration for Unit 4357

Desired speed value is: 100 km/h

Allowed deviation is: 1.6 km/h

Desired time value is: 36 seconds

Allowed deviation is: + or - 0.6 seconds

Light beam
speed sensor

Drive vehicle
at a steady
100 km/h
through a
kilometer.

"Date"	"Time"	"Speed"	"Time"
stp	stp	km/h	sec
4/1/2004	11:22:17	100.5	36.12
4/7/2004	8:17:52	100.2	35.93
4/7/2004	14:34:30	100.1	36.03
4/8/2004	7:40:21	100.1	35.87
4/8/2004	15:07:46	100.5	35.93
4/9/2004	8:18:54	100.3	36.37
4/9/2004	15:02:48	100.4	35.96
4/12/2004	7:13:54	100.7	35.84
4/12/2004	8:24:20	100.3	35.96

PRE-TEST CAL.

POST-TEST CAL.

APPENDIX A

Copy of Manufacturer's Sticker

Ford

VEHICLE DESCRIPTION

E-SERIES

2004 F150 XL WAGON
CUSTOM 8-PASSENGER
4.6L EFI V8 ENGINE
ELECTRONIC AUTO O/D TRANS

VIN 1FMRE11W94H

A29971

EXTERIOR
DARK TORREADOR RED CC MET
INTERIOR
MEDIUM FLINT VINYL

STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE

EXTERIOR

- INTERVAL WIPERS
- HINGED SIDE CARGO DOOR
- SWING OUT SIDE/FIXED REAR DOOR GLASS
- P225/70R16 BSW A/S TIRES
- BRIGHT HUBCAPS
- MANUAL MIRRORS
- HALOGEN HEADLAMPS

INTERIOR

- 11.1 STEERING WHEEL
- TAC COMETER
- AIR CONDITIONING
- FULL LENGTH VINYL FLR COV
- CLOTH SEATBELT
- 8 PASS VINYL SEATING
- DUAL FRONT BUCKET SEATS
- QUICK RELEASE BENCH SEAT
- AM/FM STEREO W/ CLOCK
- MED FLINT TRIM PANELS

FUNCTIONAL

- POWER STEERING/ BRAKES
- WIN-LEAM INDEPENDENT FRONT SUSPENSION
- 35 GALLON FUEL TANK
- 10 ALTERNATOR/130 BATTERY
- LANDING PACKAGE
- GAS FILLED SHOCK ABSORBERS

SAFETY/SECURITY

- DRIVER/PASSENGER AIR BAGS
- 4 WHEEL ANTI-LOCK BRAKES
- PRETENSIONING FW SEATBELTS
- SIDE IMPACT DOOR BEAMS

WARRANTY

- 24 HR ROADSIDE ASSISTANCE
- 35 / 36 BUMPER TO BUMPER

PRICE INFORMATION

(Manufacturer's Suggested Retail Price)

STANDARD VEHICLE PRICE

\$24,520.00

OPTIONAL EQUIPMENT

- 156 INCH REEFER
- PREFERRED EQUIPMENT PKB.700A
- XL 1518
- \$155 RATIO REGULAR AXLE
- FRONT LICENSE PLATE BRACKET
- 50 STATE EMISSIONS

NO CHARGE
NO CHARGE
NO CHARGE

TOTAL VEHICLE & OPTIONS
DESTINATION & DELIVERY

24,520.00
735.00

CITY MPG

15

Actual mileage will vary with option, driving conditions, driving habits and vehicle's condition. Results reported to EPA indicate that the majority of vehicles with these estimates will achieve between

13 and 18 mpg in the city and between 16 and 22 mpg on the highway.

Fuel Economy Information



For more information see
WWW.FUELECONOMY.GOV

2004 F150 CLUB WAGON 2WD,
4.6 LITER ENGINE
(FEEDBACK FUEL SYSTEM),
5 CYLINDERS, FUEL INJECTION,
CATALYST, 4 SPEED AUTO TRANS

Estimated Annual Fuel Cost: \$1367

HIGHWAY MPG

19

For Comparison Shopping
all vehicles classified as
VAN

have been tested mileage ratings
ranging from 13 to 34 mpg city
and 16 to 21 mpg highway.

TROPHY CASE

**Best-Selling Full-Size Van
24 Years in a Row**

TOTAL MSRP

\$25,255.00

1FMRE11W94HA29971



1 and Extended Service Plan is the ONLY service contract backed by Ford Motor Company and honored by over 5,300 Ford and Lincoln Mercury Dealers. Ask your dealer for prices and additional details or see our website at www.FordESP.com.

BOLD TO
Ed Mulkin's Ford Inc

Amherst OH 44001

1FMRE11W94HA29971

44J 577

LORAIN

SHIP TO (IF DIFFERENT FROM BOLD TO)

CONVOY CC45

SHIP THROUGH

ITEM#: 44-3593 O/T 2

3L171 N RD 2X 415 001862 11 17 03

APPENDIX B
Discussion on Data

DISCUSSION ON DATA

Symbols for Brake Components

4	-	4 Wheel	G	-	Groan	DL	-	Deceleration (State FPSPS)
X	-	Skid	SQ	-	Squeal	PF	-	Pedal on Floor
L	-	Left	SQK	-	Squeak	SCP	-	Shoe Scrape
R	-	Right	PO	-	Pinchout	RB	-	Rubber Banding
R	-	Rear	P	-	Pull	O	-	Odor
F	-	Front	R	-	Shudder	NOX	-	No Skid
B	-	Both	M	-	Momentary			

INT or INIT	-	Initial Part of Stop
MID	-	Middle of Stop
END	-	End of Stop

All stops were made manually.

APPENDIX C

Contractor's Comments Procedure Modifications and Test Facility

Comments for vehicle C40208.

For all recorded decelerations:

The recorded *average* deceleration values for the tests are slightly lower than that which is required or targeted for certain test sections. However, in all cases and in reality, the driver maintained the correct required/target deceleration values for the majority of time for each of those stops. The recorded deceleration is acquired from the moment the service brake pedal is moved until the vehicle reaches zero speed. Therefore, the time needed to achieve the target deceleration (rise time) and the time the vehicle goes from the target deceleration to zero (fall time) is included in the average deceleration calculation. The rise and fall times were added to the entire length of the stops. Hence the recorded average deceleration values were generally and slightly less than the required/target deceleration values.

For Data Sheets 16/17 and 22/23 – Antilock and Variable Proportioning Failures:

Electronically failing the ABS also disables the electronic variable proportioning. There was no apparent way to independently fail the variable proportioning system. Therefore, this test was not performed.

For Data Sheet 23 – Parking Brake at GVWR:

The foot operated parking brake was allowed a maximum application force of 500 N. However, the pedal “bottomed” or ran out of travel at the forces recorded on the data sheet. The forces were well below 500 N.

For Data Sheets 20 & 21 – Hydraulic Circuit Failure #1 and #2 at GVWR:

Due to the difficult accessibility and resultant complexity of accessing the master cylinder output ports, these two test sequences were performed in reverse order; #21 first, #20 second.

Regarding the Technical Documentation Page and Data Sheet 30 – Test Completion Inspection, the height of the letters for the “ABS” warning indicator were less than the required 3.2 mm. The Standard’s Engineer was notified via telephone. However, per the Standard’s Engineer, no notice of failure document was required as Ford has acknowledged that this letter height issue was apparent with a previous compliance test and is known to exist across several of their model lines. NHTSA understands that Ford is correcting the issue.

7.5-MILE TEST TRACK

The 7.5-mile test track encloses a 1,600-acre area, one mile wide and 3.5 miles long.

The track has a downward grade, north to south, of 0.228 percent and a cross slope in the straightaways of 3/16 inch per foot. The 1.88 mile long straightaways flow into transition areas 2,300 feet in length and then into 5,275-foot long curves with a constant radius of 2,400 feet. The 36-foot wide straightaways and the 42-foot wide curves provide three test lanes. Paved berms, 12 feet in width, border the straightaways and the inside of the curves.

As a vehicle moves toward the outside of the track in the curves, it encounters a progressively steeper bank. The inside lane (or "slow" lane) has a bank of 10 degrees allowing a neutral speed of 80 mph with no side forces. In the center lane, the slope increases to 19 degrees resulting in a neutral speed of 110 mph. The outside lane's 28-degree bank allows a 140 mph neutral speed. Rimming the outer lane is a seven-foot safety lane culminating in a 36-degree slope at the guardrail.

The facility is paved with Portland cement concrete. It carries a maximum single axle load of 36,000 pounds and a maximum tandem axle load weight of 48,000 pounds. Special provisions can be made for heavier weight loads.

With 22.5 lane miles, our track will accommodate many vehicles simultaneously. Research which utilizes the track includes component performance and durability studies, brake tests, aerodynamic studies, fuel economy studies, drive line efficiency tests, and the determination of vehicular acceleration and cruise characteristics. In addition, it supports maximum speed determination, road load power, noise and emission measurements and tire durability test programs.

The 7.5-mile test track can be used in conjunction with other facilities at TRC. It provides an excellent area for pre-test conditioning of equipment such as brake burnishing, tire break-in, and vehicle warm-up.

TRC SKID PAD

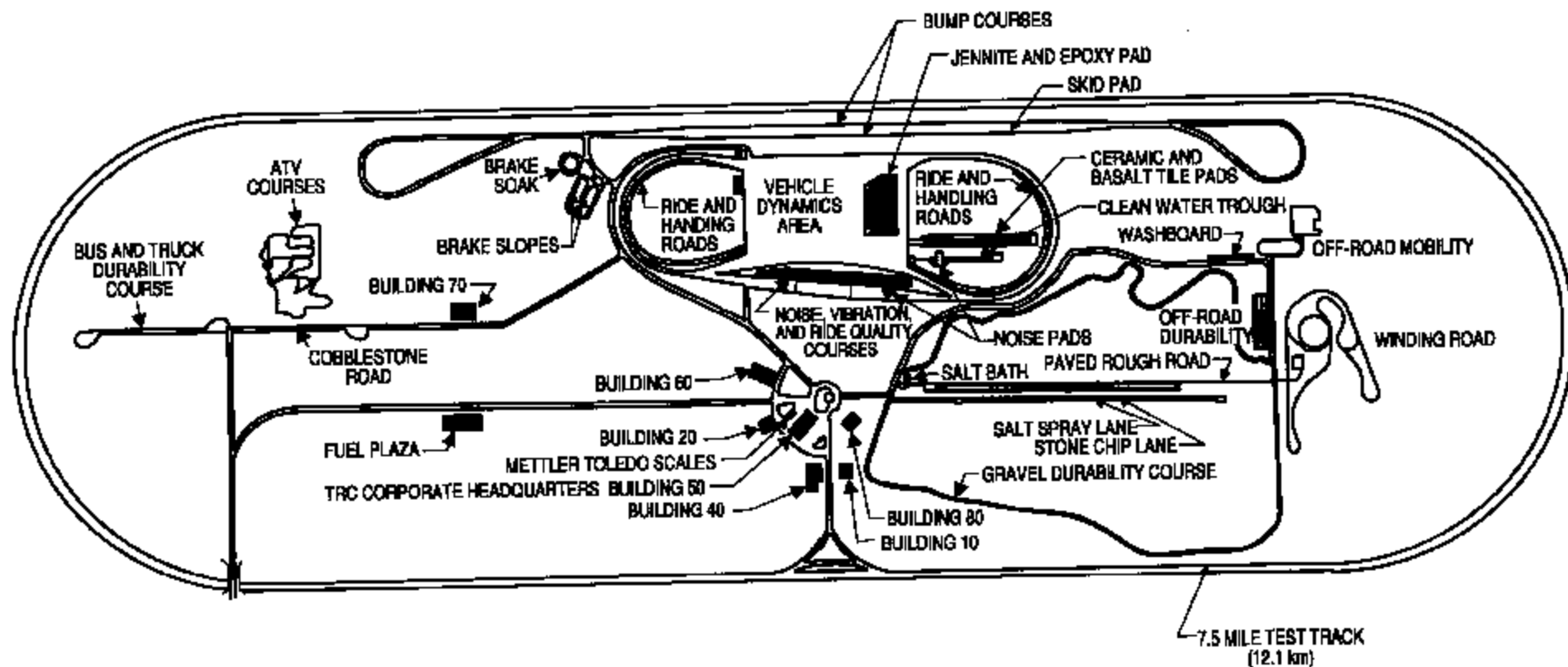
The Skid Pad is a test facility which is utilized primarily for the evaluation of tire and brake systems.

The overall dimensions of the pad are 9,000 feet by 84 feet with loops on the north and south ends. Both turnaround loops have a 309-foot radius and are 16 feet wide with a 25 percent super elevation. They will accommodate speeds of 45 mph with zero side force and 60 mph with .5 g's lateral acceleration. The acceleration/deceleration lanes at each end are 3,280 feet in length.

A test area of 210,000 square feet is situated in the center of the skid pad containing several test pads with varying surface textures. Skid numbers in this area range from 30 (wet) to 80 (dry).

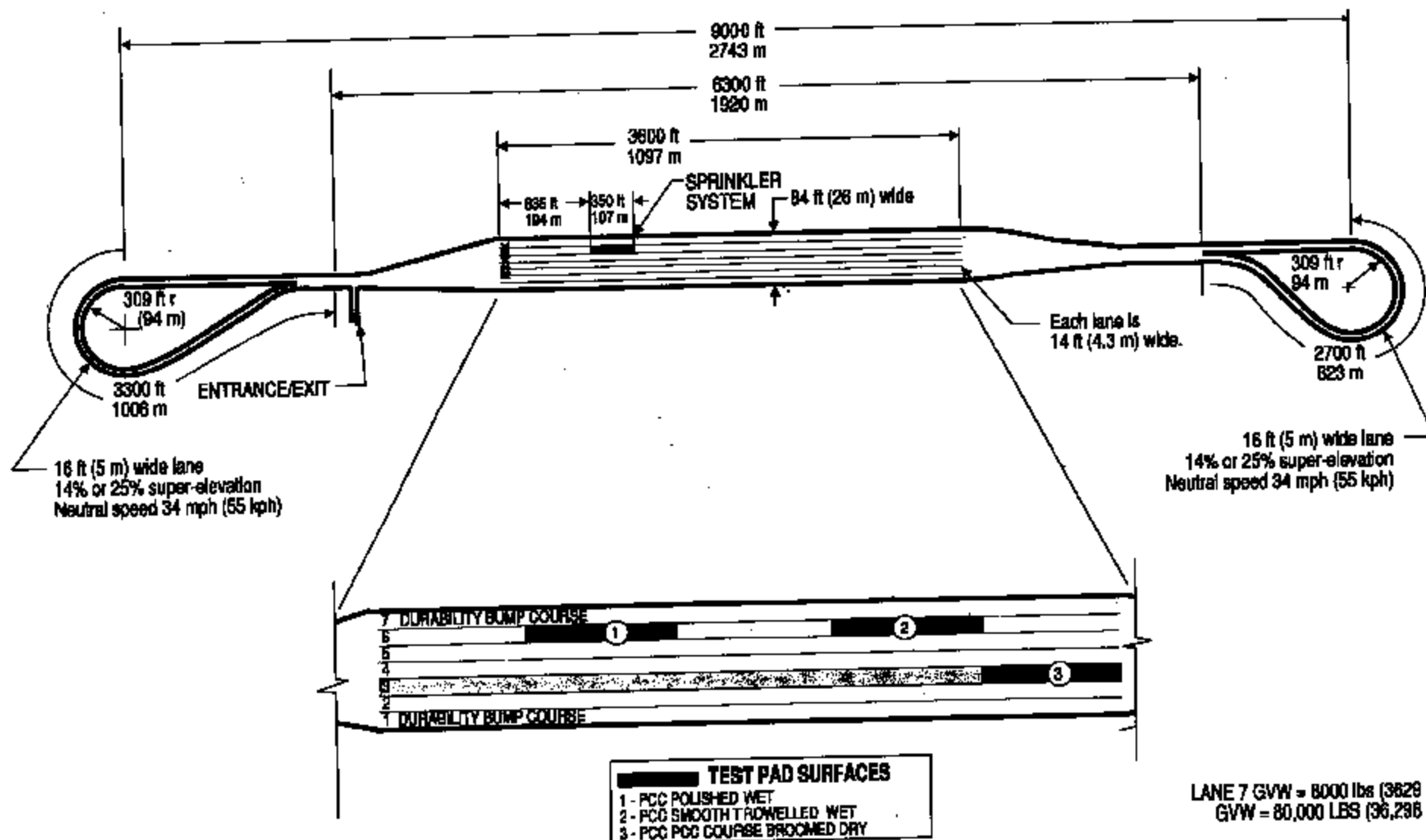
The skid pad is paved with Portland cement. The load capacity of the skid pad is 36,000 pounds maximum single axle weight and 48,000 pounds maximum tandem axle weight.

Varying surface textures in the main test area are ideal for testing tire and/or brake system performance on different surfaces as characterized by "skid numbers." The skid pad is also used for acceleration studies, aerodynamics, rolling resistance, noise testing, and vehicle top speed determination.



NOT TO SCALE

ALL CONCRETE BROOMED SURFACE
1 LAP = APPROXIMATELY 4 MILES (6.4 KILOMETERS)



NOTE: BUMP COURSES PARALLEL THE PERIMETERS OF LANES 1 AND 7.

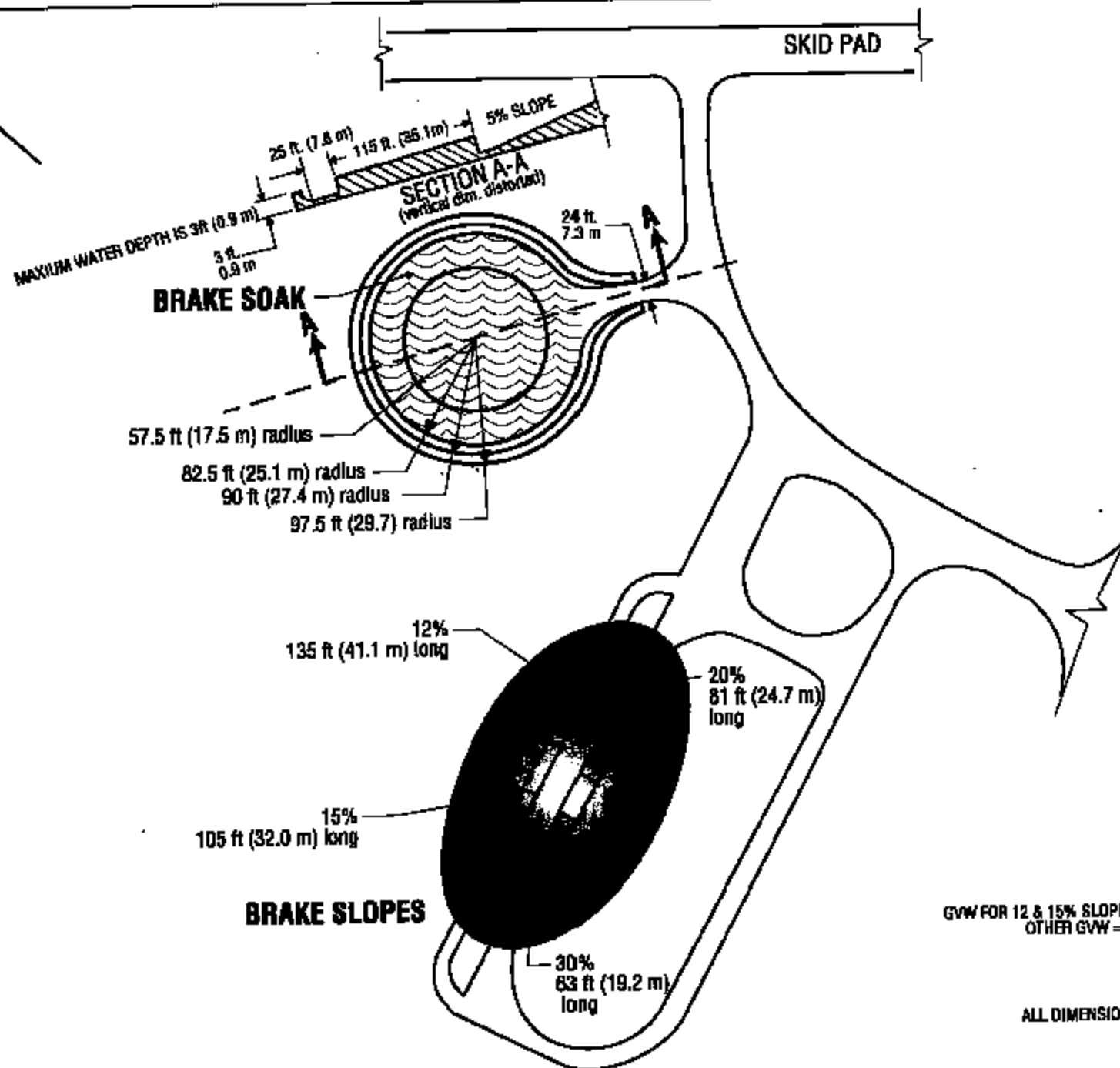
Not to scale
All dimensions are approximate

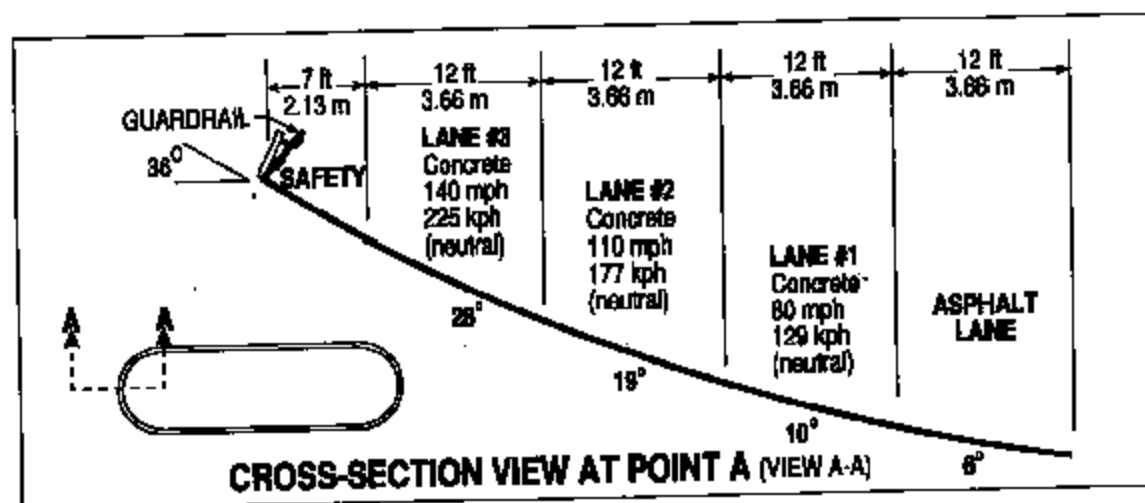
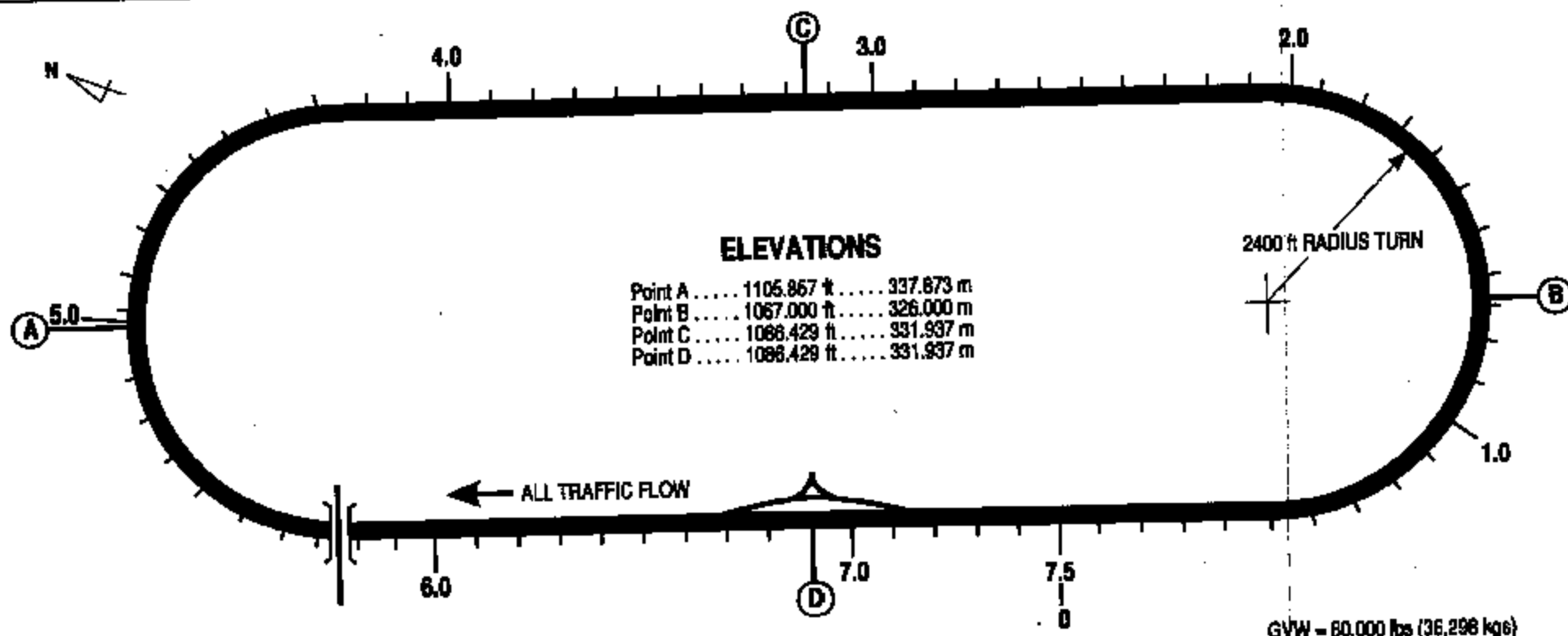
SKID PAD

TRC

TRANSPORTATION RESEARCH CENTER INC.
EAST LIBERTY, OHIO 43319-0387

F-12 0089





DISTANCES	
Lane 3	 7.539 mi 12.133 km
Lane 2	 7.521 mi 12.104 km
Lane 1	 7.507 mi 12.081 km
Point A to Point B	 3.333 mi 5.364 km
Point C to Point D	947 mi 1.524 km

NOT TO SCALE

7.5-MILE TEST TRACK

TRE

TRANSPORTATION RESEARCH CENTER INC.
EAST LIBERTY, OHIO 43015-0067

F-10 0485

APPENDIX D
Notice of Possible Non-Compliance

This vehicle (C40208) met the requirements of the FMVSS 135 standard. (Label – see Appendix C)