

135-TRC-04-002

**SAFETY COMPLIANCE TESTING FOR FMVSS 135
Passenger Car Brake Systems**

DaimlerChrysler Corporation
2004 Chrysler Pacifica, 5-Door MPV
NHTSA No. C40301

TRANSPORTATION RESEARCH CENTER INC.

10820 State Route 347
East Liberty, Ohio 43319



Final Report Completed: December 26, 2003

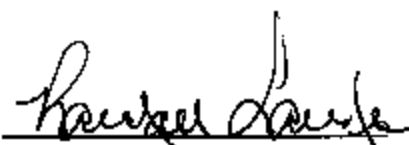
FINAL REPORT

Prepared Under Contract No.: DTNH22-01-C-21025

**U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Assurance
Office of Vehicle Safety Compliance
400 Seventh Street, SW
Room 6115 (NVS-221)
Washington, DC 20590**

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

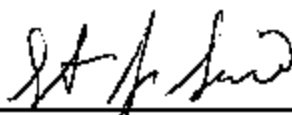
This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products of manufacturers.

Prepared By 

Approved By 

Approval Date: 12/29/03

Final Report Acceptance By OVSC:


Contract Technical Manager, Office of
Vehicle Safety Compliance

1/07/04
Acceptance Date

1. REPORT NUMBER: 135-TRC-04-002		2. GOVERNMENT ACCESSION NO.:		3. RECIPIENTS CATALOG NO.:	
4. TITLE AND SUBTITLE: Final report of FMVSS 135 Compliance Testing of a 2004 Chrysler Pacifica, 5-Door MPV, NHTSA No. C40301				5. REPORT DATE: December 26, 2003	
				6. PERFORMING ORGANIZATION CODE: TRC 20000113/4351	
7. AUTHOR(S): Project Manager: WALTER DUDEK Project Engineer: RANDALL A. LANDES				8. PERFORMING ORGANIZATION REPORT NO.: TRC-DOT-135-047	
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-21023	
12. SPONSORING AGENCY NAME AND ADDRESS: U.S. Department of Transportation National Highway Traffic Safety Administration Safety Assurance Office of Vehicle Safety Compliance (NVS-221) 400 Seventh Street, SW, Room 6115 Washington, DC 20590				13. TYPE OF REPORT AND PERIOD COVERED: Final test report Tested: 11/10/03 to 12/10/03	
				14. SPONSORING AGENCY CODE: NVS-221	
15. SUPPLEMENTARY NOTES:					
16. ABSTRACT: Compliance tests were conducted on the subject 2004 Chrysler Pacifica, 5-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.					
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	
19. SECURITY CLASSIF. (OF THIS REPORT): Unclassified	20. SECURITY CLASSIF. (OF THIS PAGE): Unclassified		21. NO. OF PAGES: 70		22. PRICE:

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 6	8
6.0	Photographs	33
7.0	Instrumentation and Daily Calibrations	49
Appendix A	Copy of Manufacturer's Sticker	53
Appendix B	Discussion on Data	55
Appendix C	Contractor's Comments Procedure Modifications and Test Facility	57
Appendix D	Notice of Possible Non-Compliance	65

1.0 INTRODUCTION

Tests were conducted on a 2004 Chrysler Pacifica, 5-dr. MPV, manufactured by DaimlerChrysler Corporation, 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 1.03 (Skid Pad) and 0.92 (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: C40301
Mfr: DAIMLER-CHRYSLER CORPORATION	GVWR (Kg): 2586.0
Make: CHRYSLER	GAWR Front(Kg): 1281.9
Model: PACIFICA	GAWR Rear(Kg): 1315.0
Body Style: 5-DR. MPV	Wheelbase (mm): 2959.1
Mfr. Date: 9-03	Odometer: Start:81 MI. End:606 MI.
VIN: 2C4GM68404R539386	

BUSES ONLY

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

Engine Type: GASOLINE,V6,24 VALVE,MPI,SOHC,PISTON.	
Displacement: 3.5 LITER	Tire Size: P235/65R17
Engine Hapwr: N/A	Tire Type: 103H,ENERGY,RADIAL XSE,MXV4 P
Idle Speed(rpm): 716	Tire Mfr.: MICHELIN
Transmission Type: AUTO.4-SPD.(AUTOSTICK)	GVWR Front Press.(kpa): 227.53
No. of Axles: 2	GVWR Rear Press.(kpa): 227.53

BRAKE APPLY SYSTEM

Brake Series: Front:DISC Rear:DISC	Power Assist Unit: YES
Brake Actuation	Pwr Unit w/Accumulator: NO
(Hydr. Circuit Split): DIAGONAL	Pwr Asst./Pwr Unit w/Backup: NO
Power Unit: VACUUM	Variable Prop. System: NO
Anti-Skid unit Mfr: CONTINENTAL TEVIS	Anti-Skid Device: YES
Parking Mechanism: YES	
Type of Parking Unit: AUTOMATIC TRANSMISSION WITH PARK DETENT.	
Mstr Cylinder Dia(mm): 25.43	Pedal Ratio: 3.38: 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): 318.19	LF Drum Dia. RESET(mm): 0.00
Fr Disc Thickness(mm): 28.04	RF Drum Dia. RESET(mm): 0.00
Lining Construction: Bonded	
FRONT BRAKE COMPONENT DIMENSIONS AND CODES:	
Inboard (Leading)	Outboard (Trailing)
Width(mm): 52.15	Width(mm): 52.15
Length(mm): 153.67	Length(mm): 153.67
Thickness(mm): 9.93	Thickness(mm): 10.06
Lining Code/Color: AK NS174H FF	Lining Code/Color: AK NS174H FF
Hyd. Piston Dia.(mm): 47.85 (x2)	

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: INTEGRAL CAST	RR Drum Shoe Cage Dia.(mm): 0.00
Lining Construction: BONDED	LR Drum Dia. RESET(mm): 0.00
Rear Brake Dia.(mm): 312.06	RR Drum Dia. RESET(mm): 0.00
Rr Disc Thickness(mm): 14.17	

REAR BRAKE COMPONENT DIMENSIONS AND CODES:

Inboard (Leading)	Outboard (Trailing)
Width(mm): 35.46	Width (mm): 35.46
Length(mm): 116.61	Length (mm): 116.43
Thickness(mm): 9.12	Thickness (mm): 9.09
Lining Code/Color: AK NS174H FF	Lining Code/Color: AK NS174H FF
Hyd Piston Dia (mm): 41.94	

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: 12/29/03

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				184.5 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					ABS Equipped			NA				
Adhesion Utilization w/o ABS	GVWR				Rear axle adhesion utilization curve below specified value	ABS Equipped			NA				
Cold Effectiveness	GVWR					100	85	500	70	5	489.3	49.5	Pass
High Speed Effectiveness	GVWR					147.8	85	500	spd. depend.-160.7	5	498.2	102.3	Pass
Stops with Engine Off	GVWR	100	85	500	70	5	472.1	48.1	Pass				
Cold Effectiveness	LLVW	100	85	500	70	5	464.1	44.9	Pass				
High Speed Effectiveness	LLVW	147.8	85	500	spd. depend.-160.7	5	465.2	94.5	Pass				
Failed Antilock	LLVW	100	85	500	85	5	288.0	53.1	Pass				
Failed Proportioning Valve	LLVW	100	85	500	110	5	NA	NA	NA				
Failed Hydraulic Circuit #1	LLVW	100	85	500	168	5	387.1	88.8	Pass				
Failed Hydraulic Circuit #2	LLVW	100	85	500	168	5	994.8	91.8	Pass				
Failed Hydraulic Circuit #1	GVWR	100	85	500	168	5	461.0	98.6	Pass				
Failed Hydraulic Circuit #2	GVWR	100	85	500	168	5	489.1	93.3	Pass				
Failed Antilock	GVWR	100	85	500	85	5	280.8	57.8	Pass				
Failed Proportioning Valve	GVWR	100	85	500	110	5	NA	NA	NA				
Power Brake Unit Failure	GVWR	100	85	500	168	5	484.2	168.3	Pass				
Parking Brake - Uphill	GVWR	-	-	500	Hold for 5 min.?	NA	483.5	Yes-Holds	Pass				
Parking Brake - Downhill	GVWR	-	-	500	Hold for 5 min.?	NA	500.3	Yes-Holds	Pass				
Heating Snubs	GVWR	120-80	NA	NA	15 Snubs- 3.0 mpsps	5	40 Via. Avg.	NA	NA				
Hot Performance Stop #1	GVWR	100	85	400 avg.	74.7	5	272.6 (216.1)	50.7	Pass				
Hot Performance Stop #2	GVWR	100	85	500	80	5	463.0	48.0	Pass				
Brake Cooling	GVWR	50	NA	NA	4 Stops - 3.0 mpsps	5	38 Via. Avg.	NA	NA				
Recovery Performance Stop #1	GVWR	100	85	400 avg.	One of the two stops between 85.5 and 85.8 meters	5	380.9 (272.2)	48.2	Pass				
Recovery Performance Stop #2	GVWR	100	85	400 avg.		5	475.3 (318.6)	47.4					
Final Inspection-Brake Integrity	Check components for detachment, fracture or lubricants.					No detachments or fractures-normal appear. &			Pass				
Final Inspection-Reservoir/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.

DATA SHEET 3 - VEHICLE WEIGHT

VEHICLE: 2004 CHRYSLER PACIFICA

NHTSA No. C40301 Date: 11/10/03

Tire Pressure(cold): Front (kpa) 228 Rear (kpa) 228

Odometer: Start 81 MI. End 606 MI.

Scale(s) Used: TRC Toledo Platform Scale

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

GVWR/GAWR INFORMATION
(From Veh. Certification Label)

GVWR(Kg): 2586
GAWR Front(Kg): 1282
GAWR Rear(Kg): 1315

UNLOADED VEHICLE WEIGHT(UVW)

L Front(Kg): 560 L Rear(Kg): 464
R Front(Kg): 566 R Rear(Kg): 424
T Front(Kg): 1125 T Rear(Kg): 888
Total UVW(Kg): 2013

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): 608 L Rear(Kg): 506
R Front(Kg): 616 R Rear(Kg): 467
T Front(Kg): 1223 T Rear(Kg): 973
Total LLVW(Kg): 2196

L Front(Kg): 608 L Rear(Kg): 511
R Front(Kg): 616 R Rear(Kg): 461
T Front(Kg): 1223 T Rear(Kg): 972
Total Actual Test LLVW(Kg): 2195

Load: Driver/Observer 73(Kg) + Instru. 41(Kg) + Ballast 68(Kg) = 182(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): 616 L Rear(Kg): 681
R Front(Kg): 660 R Rear(Kg): 628
T Front(Kg): 1276 T Rear(Kg): 1310
Total Fully Loaded GVWR(Kg): 2586

Load: Driver/Observer 73(Kg) + Instru. 41(Kg) + Ballast 459(Kg) = 573(kg)

Technician:

KAREN EASTERDAY

Date:

12/29/03

Quality Assurance:

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? YES

Describe: METAL TAB EMITS HIGH FREQUENCY SQUEAL WHEN WORN.

(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:

12/29/03

Quality Assurance:

Ken Webster
KEN WEBSTER

DATA SHEET 5 - VEHICLE MAX SPEED

VEHICLE: 2004 CHRYSLER PACIFICA

NHTSA No. C40301 Date: 11/10/03

Ambient Temperature: 51.00°F

Wind Velocity: 11.00(MPH)

Road PFC: 0.98

Wind Direction: 152°

Odometer: Start 97(mi) End 112(mi)

TEST WEIGHT: Total (Kg): 2195

Front (Kg): 1223

Rear (Kg): 972

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	184.51	184.6	10.76
Run No. 2	North	184.25	184.3	10.67

AVERAGE = 184.4 km/h

COMMENTS: INV DATA, Section 0001, 11/10/03, 14:28:37

Tester/Technician:

Karen Easterday
KAREN EASTERDAY

Date:

12/29/03

Quality Assurance:

Ken Webster
KEN WEBSTER

Vehicle: 2004 DAIMLER-CHRYSLER METRA NUMBER: C8801
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: 5-DR. MPV
 Front Cold Tire Pressure: 325 (Kpa)
 Rear Cold Tire Pressure: 225 (Kpa)

Transportation Research Center, Inc.
 10820 State Route 347
 West Liberty, Ohio 43319
 (937) 666-2811 www.trcpg.com

Date Tested: 11/18/03

DATA SHEET 6 - BURNISH AT GVWR

Testing Conditions: INT DATA, Section 6602, 11/10/03, 15:23:33

Weather Conditions: 44°F Wind: 5 mph 131°

Start Odo.: 317 End Odo.: 285

Schedule:

Initial Brake Temperature Less Than 100°C
 Initial Speed 25 km/h to zero
 200 stops with transmission in gear

Performance Requirements:

Interval between runs: Time necessary to reduce 1ST 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 and above 15 km/h
 Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (km/h)	LEFT FRONT TBT (°C)	RIGHT FRONT TBT (°C)	LEFT REAR TBT (°C)	RIGHT REAR TBT (°C)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	AVG. DECEL (m/sec ²)
1	81.10	82	98	67	60	57.88	18.94	0.70
10	79.78	84	94	78	75	56.10	47.85	1.12
20	80.21	86	85	77	77	58.06	38.06	1.81
30	79.58	89	98	78	78	57.69	38.89	2.91
40	79.88	88	86	78	78	54.66	36.18	2.93
50	81.32	101	85	78	77	55.95	43.74	2.72
60	77.88	101	88	72	72	59.89	45.16	2.70
70	79.28	91	86	75	76	52.32	41.03	2.92
80	78.48	100	84	74	78	45.97	38.03	2.70
90	79.81	93	84	73	76	38.87	48.87	2.86
100	78.57	100	90	72	76	52.84	41.52	2.61
110	79.22	108	94	76	79	53.91	41.37	2.85
120	80.33	98	95	77	78	52.88	40.23	2.88
130	79.53	100	86	77	81	48.02	38.18	2.66
140	79.71	98	97	78	77	45.08	32.24	2.71
150	78.97	98	98	78	80	52.43	34.43	2.74
160	80.42	97	97	79	78	51.82	39.21	2.72
170	77.98	94	98	78	77	55.80	36.43	2.88
180	79.97	85	97	77	80	50.84	41.78	2.69
190	78.77	83	98	77	77	58.04	41.56	2.82
200	79.28	90	94	74	78	58.49	46.28	2.81

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

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENNINGS

Date: 12/12/03

Approving Laboratory Official: KEN MERTON

Date: 12/30/03

Vehicle: 2004 DAIMLER-CHRYSLER EXTRA NUMBER: Q40101
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: S-DR. MPV
 Front Cold Tire Pressure: 228 (Kpa)
 Rear Cold Tire Pressure: 228 (Kpa)

Transportation Research Center, Inc.
 10420 State Route 347
 East Liberty, Ohio 43319
 (937) 666-1011 www.trcpg.com

Date Tested: 11/14/03

DATA SHEET 11 - COLD EFFECTIVENESS AT GVWR

Testing Conditions: INV DATA, Section 0018, 11/14/03, 11:21:09

Weather Conditions: 38°F Wind: 11 mph 248° Start Odo.: 377 End Odo.: 384

Procedure:

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

Performance Requirements:

One Stop with:
 Stopping Distance less than 10m
 Pedal force between 55N and 500N
 No Lock-Up allowed longer than 0.1 sec above 18 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)	(meter)	(meter)	(N)	(N)	(m/sec²)	(m/sec²)
1	99.79	70	67	44	48	51.2	51.5	480.42	355.84	13.48	7.05
2	99.54	75	75	52	58	38.7	51.2	481.78	387.12	14.42	7.19
3	99.29	72	68	47	50	48.8	49.8	499.25	399.96	14.36	7.12
4	99.93	73	73	52	58	58.2	50.3	515.77	375.79	14.55	7.27
5	99.63	75	78	56	59	58.1	50.8	527.36	356.55	14.26	7.19
6	100.26	82	79	64	58	88.6	50.4	666.14	364.02	13.08	7.50

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 (1) NO (1)

Driver: LARRY BASTENBAY Observer: NONE
 Recorded Data Processed by: CHUCK JURELIS Date: 12/12/03
 Approving Laboratory Official: KIM WEBSTER Date: 12/28/03

Vehicle: 2004 DAIMLER-CHRYSLER METRA WORKER: C48101

Make: CHRYSLER

Model: PACIFICA

Body Style: 5-DR. MPV

Front Cold Tire Pressure: 220 (Kpa)

Rear Cold Tire Pressure: 220 (Kpa)

Transportation Research Center, Inc.

18020 State Route 347

East Liberty, Ohio 43319

(937)466-2011 www.trcpg.com

Date Tested: 11/14/03

DATA SHEET 12 - HIGH SPEED EFFECTIVENESS AT GVWE

Testing Conditions: INV DATA, Section 0020, 11/14/03, 13:26:11

Weather Conditions: 42°F Wind: 16 mph 248°

Start Ddd: 180

End Ddd: 402

Schedule:

Initial Brake Temperature: 65-100°C

Initial Speed: 80± max km/h, not greater than 100km/h

6 stops with transmission in gear

Performance Requirements:

One Stop with:

Stopping Distance less than: 160.7 meters

pedal force between 63N and 80N

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	149.05	63	82	54	48	104.6	104.7	411.89	381.10	13.91	7.83
2	149.82	63	88	54	59	103.4	104.9	380.42	370.72	15.19	7.82
3	149.56	88	86	52	63	102.9	102.2	498.19	387.76	14.81	8.02
4	147.94	82	79	50	50	129.2	131.3	281.61	189.87	15.63	7.04
5	147.88	88	86	54	52	102.1	103.9	480.78	321.32	14.37	7.99
6	148.00	78	74	46	44	100.1	101.7	381.49	337.61	18.61	8.10

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 HASTEDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 12/12/03

Approving Laboratory Official: KEN WEBSTER

Date: 12/30/03

Vehicle: 2004 DAINLER-CHRYSLER HYPER NUMBER: C40381
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: 5-DR. MPV
 Front Cold Tire Pressure: 228 (kpa)
 Rear Cold Tire Pressure: 228 (kpa)

Transportation Research Center, Inc.
 10820 State Route 347
 East Liberty, Ohio 43319
 (614) 885-2012 www.trcpg.com

Date Tested: 11/14/03

DATA SHEET 13 - STOPS WITH ENGINE OFF AT GWR

Testing Conditions: INV DATA, Section 9025, 11/14/03, 14:58:21

Weather Conditions: 41°F Wind: 12 mph 351° Start Odo.: 404 End Odo.: 410

Schedule:

Initial Brake Temperature: 65-100°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 16 km/h
 Vehicle must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT T° (°C)	RIGHT FRONT T° (°C)	LEFT REAR T° (°C)	RIGHT REAR T° (°C)	ACTUAL DISTANCE (meters)	CORRECTED DISTANCE (EAN 298)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DRCEL (m/sec²)	AVG. DRCEL (m/sec²)
1	99.97	66	60	49	46	49.0	42.0	498.34	380.41	14.67	7.27
2	99.60	72	77	46	46	46.9	47.1	519.42	374.47	14.53	8.26
3	99.92	76	83	52	56	49.2	49.2	493.37	311.85	15.35	7.45
4	100.52	82	84	54	59	48.6	48.1	472.89	357.80	13.82	7.71
5	100.44	80	80	50	56	49.1	48.7	467.92	366.47	14.15	8.80
6	99.97	86	83	66	61	47.6	47.6	443.48	386.17	14.87	9.14

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 EASTERDAY Observer: MONK
 Recorded Data Processed by: CHUCK JENNINS Date: 12/12/03
 Approving Laboratory Official: KIM WENSTER Date: 12/28/03

Vehicle: 2004 DAIMLER-CHRYSLER MYTRA NUMBER: C40351
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: 5-DR. MPV
 Front Cold Tire Pressure: 220 (Kpa)
 Rear Cold Tire Pressure: 220 (Kpa)

Transportation Research Center, Inc.
 10020 State Route 147
 East Liberty, Ohio 43319
 (937) 666-2011 www.trcopp.com

Date Tested: 11/17/03

DATA SHEET 14 - COLD EFFECTIVENESS AT LLW

Testing Conditions: INV DATA, Section 0030, 11/17/03, 10:37:37

Weather Conditions: 52°F Wind: S wph 160° Start Odo.: 426 End Odo.: 431

Schedule:

Initial Brake Temperature: 65-105°C
 Initial Speed 100 km/h to zero
 6 stops with transmission in Neutral

Performance Requirements:

One Stop with:
 Stopping Distance less than 75m
 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)	CORRECTED DISTANCE (GAS 300) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	100.09	80	98	61	66	45.6	45.6	559.22	265.64	15.82	7.77
2	99.14	80	98	56	59	46.1	46.1	483.19	277.08	14.76	6.71
3	100.48	81	93	53	57	45.3	44.8	464.10	267.91	15.12	8.52
4	99.42	86	87	48	54	54.6	55.2	333.33	87.77	11.29	3.68
5	101.14	84	83	48	50	56.3	57.0	288.83	158.08	14.48	7.91
6	99.72	80	88	47	51	46.1	46.6	278.13	171.68	13.84	7.60

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

Comments: Stop# 4 - GAS continued to Log Reducing average Values.

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
 Recorded Data Processed by: CHUCK YENKINS Date: 12/12/03
 Approving Laboratory Official: KEN WEBSTER Date: 12/20/03

Vehicle: 2004 DAIWALK-CHRYSLER NHTSA NUMBER: C40281
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: 5-DR. MPV
 Front Cold Tire Pressure: 228 (Kpa)
 Rear Cold Tire Pressure: 228 (Kpa)

Transportation Research Center, Inc.
 10820 State Route 347
 East Liberty, Ohio 43319
 (637) 466-2021 www.trcpg.com

Date Tested: 11/17/03

DATA SHEET 15 - HIGH SPEED EFFECTIVENESS AT LLVH

Testing Conditions: INV DATA, Section 0033, 11/17/03, 11:45:28

Weather Conditions: 53°F Wind: 8 mph 179° Start Odo.: 437 End Odo.: 448

Schedule:

Initial Brake Temperature: 61-100°C
 Initial Speed: 90± max km/h
 5 stops with transmission in gear

Performance Requirements:

One Stop with:
 Stopping Distance less than 160.7 meters
 Pedal force between 65N and 800N
 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
#	(km/h)	(°C)	(°C)	(°C)	(°C)	(meters)	(meters)	(N)	(N)	(m/sec²)	(m/sec²)
1	148.80	77	79	47	48	98.1	98.5	144.65	153.74	15.87	8.37
2	150.17	92	93	52	49	95.8	94.5	465.18	330.11	18.44	8.39
3	150.31	93	93	49	49	98.7	97.3	369.84	188.13	15.33	8.29
4	149.79	88	88	47	51	98.5	98.6	501.07	361.96	15.58	8.37
5	148.92	87	87	53	60	96.5	94.8	479.48	142.00	13.09	8.00
6	148.97	82	90	63	70	98.4	98.6	508.42	372.33	14.31	8.20

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: EAREN BASTEDAY Observer: MUNE
 Recorded Data Processed by: CHUCK JEWINS Date: 12/12/03
 Approving Laboratory Official: KEV MURPHY Date: 12/20/03

Vehicle: 2004 DAIWLER-CRYSTAL METRA NUMBER: C4E201
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: 5-DR. MPV
 Front Cold Tire Pressure: 228 (Kpa)
 Rear Cold Tire Pressure: 228 (Kpa)

Transportation Research Center, Inc.
 19822 State Route 347
 East Liberty, Ohio 43019
 (937) 666-1011 www.trcprg.com

Date Tested: 11/17/03

DATA SHEET 16 - ANTILOCK FUNCTIONAL FAILURE AT LIVE

Testing Conditions: INV DATA, Section 0040, 11/17/03, 13:25:28

Weather Conditions: 55°F Wind: 14 mph 160° Start Odo.: 432 End Odo.: 439

Schedule:

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

Performance Requirements:

One Stop with:
 Stopping Distance less than 88m
 Pedal force between 65N and 800N
 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 INT (°C)	RIGHT FRONT INT (°C)	LEFT REAR INT (°C)	RIGHT REAR INT (°C)	ACTUAL DISTANCE (meters)	CORRECTED DISTANCE (meters)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.17	62	74	56	53	53.2	54.1	187.18	151.25	12.29	7.08
2	99.33	61	62	56	64	62.8	63.1	287.58	146.83	11.83	6.95
3	98.71	63	93	62	63	52.1	53.5	173.65	126.13	10.10	5.77
4	100.25	64	84	56	61	49.8	49.3	180.74	142.36	11.32	7.11
5	99.42	66	65	43	45	50.1	50.7	186.88	150.09	12.20	7.58
6	99.17	63	74	53	54	57.8	58.6	248.92	128.24	9.87	6.59

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	-	REF-REF	SOUTH	YES
5	-	REF-REF	SOUTH	YES
6	-	NOX	SOUTH	YES

How was the ABS failure induced: REMOVED 40 AMP FUSE FROM UNDER HOOD OF LEFT SIDE BESIDE BATTERY.

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

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

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN HASTERDAY Observer: MOON
 Recorded Data Processed by: CHUCK JENKINS Date: 12/12/03
 Approving Laboratory Official: KEN WEBSTER Date: 12/20/03

Vehicle: 2004 DAIMLER-CHRYSLER HMTA NUMBER: C40301
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: S-DR, MPV
 Front Cold Tire Pressure: 228 (Kpa)
 Rear Cold Tire Pressure: 228 (Kpa)

Transportation Research Center, Inc.
 10620 State Route 347
 East Liberty, Ohio 43319
 (937) 466-1011 www.trcpg.com

Date Tested: 11/19/03

DATA SHEET 18 - HYDRAULIC CIRCUIT FAILURE #1 AT L/LV

Testing Conditions: INV DATA, Section 0088, 11/19/03, 13:51:57

Weather Conditions: 54°F Wind: 17 mph 309° Start Odo.: 480 End Odo.: 486

Method of Simulating Failure: Disconnected Brake Line @ M/C Front Port

System Portion Failed: LF & RR

Schedule:

Initial Brake Temperature: 85-100°C
 Initial Speed 100 km/h to zero
 4 stops with transmission in neutral

Performance Requirements:

One stop with:
 Stopping Distance less than 155m
 Pedal force between 45N and 508N
 No Lock-Up allowed longer than 0.1 sec above 15 km/h
 Vehicle must stay in lane of 3.5m

STOP #	INIT SPD	LEFT FRONT	RIGHT FRONT	LEFT REAR	RIGHT REAR	ACTUAL DISTANCE	CONNECTED DISTANCE	MAX. PEDAL FORCE	AVG. PEDAL FORCE	MAX. DECEL	AVG. DECEL
	(Kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(SAM 299) (meter)	(N)	(N)	(m/sec²)	(m/sec²)
1	99.31	21	75	52	26	99.0	100.4	238.83	172.02	8.48	4.08
2	99.78	21	84	49	23	93.9	94.3	303.83	308.28	8.87	4.00
3	101.77	19	79	58	28	93.0	89.8	387.13	260.78	9.17	4.16
4	99.28	20	90	58	28	92.8	93.8	347.44	254.65	8.39	4.39

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

Force Needed to Activate Brake Failure Lamp (N): N/A
 Fluid Removed (mL) to Activate Brake Failure Lamp: 105

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

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN KANTERDAY Observer: NONE
 Recorded Data Processed by: CHUCK JENKINS Date: 12/12/03
 Approving Laboratory Official: INE WEBSTER Date: 12/20/03

Vehicle: 2004 DAIMLER-CHRYSLER HYDRA-MAXX: C48201
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: S-DR. MPV
 Front Cold Tire Pressure: 220 (Kpa)
 Rear Cold Tire Pressure: 220 (Kpa)

Transportation Research Center, Inc.
 10420 State Route 347
 East Liberty, Ohio 42219
 (937) 466-2011 www.cropps.com

Date Tested: 11/19/03

DATA SHEET 19 - HYDRAULIC CIRCUIT FAILURE #2 AT LIVE

Testing Conditions: IMV DATA, Section 4055, 11/19/03, 15:17:40

Weather Conditions: 54°F Wind: 18 mph 296° Start Odo.: 489 End Odo.: 496

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

System Portion Failed: RT & RR

Procedure:

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 160m
 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 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT	RIGHT FRONT	LEFT REAR	RIGHT REAR	ACTUAL DISTANCE (meters)	CONNECTED DISTANCE (EAS 298) (meters)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec ²)	AVG. DECEL (m/sec ²)
		IST (°C)	IST (°C)	IST (°C)	IST (°C)						
1	98.92	78	26	24	63	92.5	94.5	512.01	309.64	8.75	3.98
2	100.13	84	24	23	67	93.5	93.2	343.55	227.15	6.30	4.03
3	99.24	89	21	23	73	90.3	91.6	334.60	208.11	8.23	3.83
4	98.71	86	13	23	78	89.5	92.2	262.71	202.96	9.30	4.85

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

Force Needed to Activate Brake Failure Lamp (N): N/A
 Fluid Removed (mL) to Activate Brake Failure Lamp: 200

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

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: IANEM EASTWORTHY Observer: NONE
 Recorded Data Processed by: CHUCK JENKINS Date: 12/12/03
 Approving Laboratory Official: IAN WEBSTER Date: 12/20/03

Vehicle: 2004 DAIMLER-CHRYSLER NHTSA NUMBER: C40361
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: S-DR. MPV
 Front Cold Tire Pressure: 232 (Kpa)
 Rear Cold Tire Pressure: 228 (Kpa)

Transportation Research Center, Inc.
 10820 State Route 347
 East Liberty, Ohio 43325
 (937) 466-2011 www.trcpg.com

Date Tested: 11/20/03

DATA SHEET 20 - HYDRAULIC CIRCUIT FAILURE #1 AT GVWR

Testing Conditions: INV DATA, Section 0068, 11/20/03, 11:06:56

Weather Conditions: 51°F Wind: 16 mph 210° Start Odo.: 511 End Odo.: 515

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

System Portion Failed: LF & RR

Procedure:

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 168M
 Pedal force between 65N and 800N
 No Lock-Up allowed longer than 0.1 sec above 15 km/h
 Vehicle must stay in lane of 3.5m

STOP #	INIT SPD	LEFT FRONT	RIGHT FRONT	LEFT REAR	RIGHT REAR	ACTUAL DISTANCE	CORRECTED DISTANCE	MAX. PEDAL FORCE	AVG. PEDAL FORCE	MAX. DECEL	AVG. DECEL
	(km/h)	(°C)	(°C)	(°C)	(°C)	(meters)	(meters)	(N)	(N)	(m/sec²)	(m/sec²)
1	99.95	23	82	54	24	100.4	100.5	471.19	406.08	7.68	4.24
2	99.44	26	76	53	19	99.8	100.6	483.37	428.20	8.87	4.36
3	100.46	21	71	41	18	99.4	98.8	481.02	419.98	7.83	4.42
4	99.48	19	68	40	17	98.8	99.0	486.11	403.50	8.54	3.89

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: CHUCK OWKINS Date: 12/13/03
 Approving Laboratory Official: IAN WEBSTER Date: 12/20/03

Vehicle: 2004 DAIHLER-CHRYSLER HPTGA FUNKER: C40391
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: 5-DR. MPV
 Front Cold Tire Pressure: 328 (Kpa)
 Rear Cold Tire Pressure: 328 (Kpa)

Transportation Research Center, Inc.
 18820 State Route 347
 East Liberty, Ohio 43319
 (637) 666-2011 www.trcpg.com

Date Tested: 12/20/03

DATA SHEET 21 - HYDRAULIC CIRCUIT FAILURE #2 AT GVWR

Testing Conditions: INV DATA, Section 0665, 12/20/03, 09:28:54

Weather Conditions: 47°F Wind: 12 mph 240° Start Odo.: 563 End Odo.: 567

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

System Portion Failed: RF & LR

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 168m
 Pedal force between 65N and 800N
 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 INT (°C)	RIGHT FRONT INT (°C)	LEFT REAR INT (°C)	RIGHT REAR INT (°C)	ACTUAL DISTANCE (meters)	CORRECTED DISTANCE (NAN 100) (meters)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.41	86	11	16	55	97.1	98.3	468.02	377.51	8.67	4.47
2	100.09	93	13	14	63	94.9	94.7	486.29	412.09	8.33	4.47
3	99.89	68	17	14	43	98.1	99.2	484.16	379.37	8.66	3.88
4	99.99	87	18	18	50	93.3	93.2	489.07	408.47	7.92	4.48

STOP

DRIVER VEHICLE STOP COMMENTS

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

STOP	1	2	3	4
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 INDICATOR COMPLIANCE: YES (X) NO ()

Driver: KAREN BASTEDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 12/23/03

Approving Laboratory Official: KIM WEAVER

Date: 12/20/03

Vehicle: 2004 DAIMLER-CHRYSLER MYTRA NUMBER: C40341

Make: CHRYSLER

Model: PACIFICA

Body Style: 5-DR. MPV

Front Cold Tire Pressure: 228 (Kpa)

Rear Cold Tire Pressure: 228 (Kpa)

Transportation Research Center, Inc.

10020 State Route 347

East Liberty, Ohio 43319

(937)466-2011 www.trcpg.com

Date Tested: 11/20/03

DATA SHEET 22 - ANTILOCK FUNCTIONAL FAILURE AT GVWR

Testing Conditions: INV DATA, Section 0870, 11/20/03, 11:01:40

Weather Conditions: 56°F Wind: 10 mph 212°

Start Odo.: 518

End Odo.: 524

Schedule:

Initial Brake Temperature 65-100°C

Initial Speed 100 km/h to zero

6 stops with transmission in neutral

Performance Requirements:

One Stop with:

Stopping Distance less than 15m

Pedal force between 40N and 800N

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 INT (°C)	RIGHT FRONT INT (°C)	LEFT REAR INT (°C)	RIGHT REAR INT (°C)	ACTUAL DISTANCE (meters)	CORRECTED DISTANCE (meters)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.50	64	63	59	49	64.0	64.6	295.95	136.67	8.49	6.19
2	100.15	75	92	58	54	64.8	63.8	395.93	133.64	8.74	6.19
3	99.76	77	93	53	51	57.3	57.6	260.82	152.78	9.98	6.52
4	100.24	66	96	54	52	60.5	60.2	254.76	144.43	9.11	6.03
5	100.51	71	91	49	48	60.8	60.2	320.81	138.41	9.39	6.16
6	99.76	66	93	52	52	61.7	62.6	264.81	120.48	9.17	6.21

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

How was the ABS failure induced: REMOVED 40 AMP FUSE FROM UNDER HOOD ON LEFT SIDE NEARBY BATTERY.

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 RASTYDAY

Observer: NONE

Recorded Data Processed by: CATCH JENKINS

Date: 12/12/03

Approving Laboratory Official: KEN WEBSTER

Date: 12/29/03

Vehicle: 2004 DAIMLER-CHRYSLER METRA NUMBER: C48361
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: S-DR. MPV
 Front Cold Tire Pressure: 126 (Kpa)
 Rear Cold Tire Pressure: 228 (Kpa)

Transportation Research Center, Inc.
 10620 State Route 347
 West Liberty, Ohio 43319
 (937) 666-2811 www.trcnp.org

Date Tested: 11/20/03

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

Testing Conditions: INV DATA, Section 0080, 11/20/03, 13:48:11

Weather Conditions: 52°F Wind: 17 mph 191° Start Odo.: 825 End Odo.: 872

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
 4 stops with transmission in neutral

Performance Requirements:

One Stop with:
 Stopping Distance less than 160m
 Pedal force between 63N and 340N
 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	(SAE 2992)	PEDAL	PEDAL	DECEL	DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec²)	(m/sec²)
1	99.96	68	71	33	38	185.6	188.2	498.77	465.67	5.91	2.17
2	99.46	79	88	34	34	178.9	177.8	502.22	471.04	4.04	2.29
3	99.32	82	91	37	37	178.8	177.8	494.80	468.26	3.42	2.38
4	98.57	73	79	32	33	170.5	175.4	502.28	475.94	3.54	2.32
5	100.03	76	83	37	33	162.6	162.6	511.82	481.94	3.75	2.38
6	99.24	75	83	34	37	169.4	172.0	500.36	465.81	2.70	2.30
7	99.92	74	86	31	30	175.3	175.6	508.89	471.44	3.78	2.25
8	98.74	72	83	34	37	176.0	180.8	498.61	471.13	3.82	2.22
9	99.36	74	83	31	34	169.9	172.1	490.19	468.31	3.65	2.48
10	99.07	71	80	48	64	166.8	169.9	505.45	469.50	3.62	2.31
11	100.30	71	74	48	49	151.7	158.5	513.94	483.08	3.73	2.14
12	99.83	71	82	47	49	156.4	155.9	618.13	480.93	4.38	2.43
13	102.13	59	63	40	43	217.4	208.3	502.16	432.47	3.46	2.10
14	98.84	64	72	48	53	177.6	181.8	496.53	465.92	3.64	2.33
15	98.40	72	83	56	54	163.2	168.8	508.44	476.38	3.83	2.47
16	99.18	78	84	51	30	170.1	172.8	498.53	469.06	4.02	2.48
17	99.34	71	82	51	68	164.1	166.3	494.20	467.88	5.02	2.55

STOP # DELIVER 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	NORTH
4	-	NOX	NORTH
5	-	NOX	NORTH
6	-	NOX	NORTH
7	-	NOX	NORTH
8	-	NOX	NORTH
9	-	NOX	NORTH
10	-	NOX	NORTH
11	-	NOX	SOUTH
12	-	NOX	NORTH
13	-	NOX	NORTH
14	-	NOX	NORTH
15	-	NOX	NORTH
16	-	NOX	NORTH
17	-	NOX	NORTH

DATA INDICATES COMPLIANCE: YES (X) NO ()

Comments: See Appendix C.

Driver: KAREN HASTHEDAY Observer: NOME

Recorded Data Processed by: CHUCK JUNKING Date: 12/12/03
 Approving Laboratory Official: KEN MEASER Date: 12/20/03

Is the brake system indicator lamp activated: YES () NO (X) 20

Vehicle: 2004 DAIMLER-CHRYSLER NHTSA NUMBER: C40201
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: S-DR. MPV
 Front Cold Tire Pressure: 220 (Kpa)
 Rear Cold Tire Pressure: 220 (Kpa)

Transportation Research Center, Inc.
 10020 State Route 147
 East Liberty, Ohio 43119
 (614) 668-2011 www.trcogg.com

Date Tested: 12/03/03

DATA SHEET 25 - PARKING BRAKE AT GVWR

Testing Conditions: INV DATA, Section 0045, 12/02/03, 10:46:33

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

Service type: N/A

Weather Conditions: 25°F Wind: 10 mph Hd°

Start Odo.: 578

End Odo.: 578

Test Weight: Total: 2586kg

Front: 1275kg

Rear: 1310kg

Schedule:

Initial Brake Temperature <100°C or Ambient temp.

(if non-service brake type material)

Loading to GVWR with transmission in Neutral

Drive onto 20% 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.

	MAX SERVICE	MAX P-BRAKE	LEFT REAR	RIGHT REAR	AVG REAR		DRIVER VEHICLE STOP COMMENTS			
APPLY	FORCE	FORCE	1ST	1ST	1ST		(Direction of Stop (Up/Down) = Brake holds/fails)			
#	(N)	(N)	(°C)	(°C)	(°C)					
1	109.8	483.5	30	37	37.5	-	0 REAPPLY	UPHILL	HOLD	200
2	102.7	508.1	21	21	22.2	-	0 REAPPLY	DOWNHILL	HOLD	200

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

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: TAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CRUCK JENKINS

Date: 12/12/03

Approving Laboratory Official: IAN HARTSHORN

Date: 12/20/03

Vehicle: 2004 DODGE-CHRYSLER NHTSA NUMBER: C60241

Name: CHRYSLER

Model: PACIFICA

Body Style: S-DR. MPV

Front Cold Tire Pressure: 228 (kpa)

Rear Cold Tire Pressure: 228 (kpa)

Transportation Research Center, Inc.

18610 State Route 347

East Liberty, Ohio 43319

(337)664-2011 www.trcpg.com

Date Tested: 12/03/03

DATA SHEET 26 - HEATING SNUBS AT GVWR

Testing Conditions: INV DATA, Section 9090, 12/03/03, 11:31:08

Schedule:

Conduct 15 snubs 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 snubs is 45 seconds and NOT to initial speed.

Performance Requirements:

Initial IHT for first snub is 85-85°C
Maintain 1.0 m/s/s deceleration
Vehicle must stay in lane of 2.5m

SNUB	AVG. DECEL (m/sec²)	Time Between Snubs (seconds)	AVG. PEDAL FORCE (N)	LEFT FRONT IHT (°C)	RIGHT FRONT IHT (°C)	LEFT REAR IHT (°C)	RIGHT REAR IHT (°C)	INIT SPD (kph)
1	3.08	45	54.13	82	88	37	34	119.24
2	2.85	45	57.86	88	97	43	38	117.79
3	2.83	45	45.92	118	134	90	81	120.54
4	2.83	45	28.17	140	160	109	103	119.08
5	2.90	45	39.55	189	179	124	122	121.66
6	3.07	46	36.09	176	194	134	139	118.88
7	2.96	44	38.81	184	207	154	153	121.07
8	3.17	46	37.40	204	221	178	163	120.69
9	2.84	43	36.27	214	232	194	173	121.71
10	2.88	46	35.47	221	243	209	176	121.67
11	2.79	45	28.49	227	252	228	182	120.66
12	2.84	44	32.73	236	258	226	185	117.77
13	2.80	45	28.01	237	260	222	187	120.08
14	3.23	46	39.61	233	257	216	183	118.93
15	2.78	45	34.63	248	261	213	202	122.04

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

SNUB	WHEEL LOCK-UP	DIRECTION OF STOP	STAY IN LANE
1	-	NOX	NORTH YES
2	-	NOX	EAST YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES
5	-	NOX	SOUTH YES
6	-	NOX	SOUTH YES
7	-	NOX	WEST YES
8	-	NOX	NORTH YES
9	-	NOX	NORTH YES
10	-	NOX	NORTH YES
11	-	NOX	EAST YES
12	-	NOX	EAST YES
13	-	NOX	SOUTH YES
14	-	NOX	SOUTH YES
15	-	NOX	SOUTH YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: MARK HASTEDAY Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 12/12/03

Approving Laboratory Official: KEN WENSTER

Date: 12/29/03

Vehicle: 2004 DAIMLER-CHRYSLER MYRA NUMBER: C46301

Make: CHRYSLER

Model: PACIFICA

Body Style: S-DR. MPV

Front Cold Tire Pressure: 218 (Kpa)

Rear Cold Tire Pressure: 218 (Kpa)

Transportation Research Center, Inc.

10820 State Route 347

East Liberty, Ohio 43319

(927)666-2011 www.tropg.com

Date Tested: 12/03/03

DATA SHEET 27 - HOT PERFORMANCE AT GVWR

Testing Conditions: INV DATA, Section 009H, 12/03/03, 11:42:10

Schedule:

Make 2 stops from 100 mph

Pedal Force: 1st stop is done with an average force

not greater than the average recorded in the shortest GVWR Cold Effectiveness stop.

2nd stop is done with a force not greater than 800 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: 3

Initial speed of stop: 98.38 (mph)

Actual distance of stop: 48.8 (meter)

Average pedal force: 400.0 (N)

Performance Requirements:

Stop Number 1 must be equal or less than: 74.7 (meter)

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

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	(mph)	FRONT	FRONT	REAR	REAR	DISTANCE	(SAE 299)	PEDAL	PEDAL	DECEL	DECEL
		(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec ²)	(m/sec ²)
1	99.07	254	263	213	208	49.8	50.7	272.88	215.10	14.72	8.34
2	99.78	263	276	223	219	47.7	48.8	463.00	333.68	12.75	7.29

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

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN BASTARDAY

Observer: NUNE

Recorded Data Processed by: CHUCK JENKINS

Date: 12/13/03

Approving Laboratory Official: INV WEBSTER

Date: 12/20/03

Vehicle: 2004 DAIMLER-CHRYSLER XRT0A NUMBER: C40201
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: S-DR. MPV
 Front Cold Tire Pressure: 225 (Kpa)
 Rear Cold Tire Pressure: 228 (Kpa)

Transportation Research Center, Inc.
 10820 State Route 347
 East Liberty, Ohio 43219
 (614) 465-2811 www.trcgg.com

Date Tested: 12/03/03

DATA SHEET 28 - BRAKE COOLING STOPS AT GVWR

Testing Conditions: INV DATA, Section 0160, 12/03/03, 11:48:06

Schedule:

Initial Brake Temperature:
 Achieved on completing Hot Performance
 Initial Speed 30 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

STOP #	INIT	AVG.	AVG.	LEFT	RIGHT	LEFT	RIGHT
	SPD (km/h)	DECEL (m/sec ²)	PEDAL FORCE (N)	FRONT TST (°C)	FRONT TST (°C)	REAR TST (°C)	REAR TST (°C)
1	33.17	2.30	34.11	233	246	214	193
2	46.56	2.51	41.15	186	199	179	151
3	50.76	2.75	38.25	147	163	150	120
4	50.16	2.77	42.87	120	137	131	99

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

DATA INDICATES COMPLIANCE: YES (1) NO ()

Driver: KAREN MASTREDAY Observer: NONE
 Recorded Data Processed By: CHUCK JENKINS Date: 12/12/03
 Approving Laboratory Official: KEN WENSTER Date: 12/20/03

Vehicle: 2004 DAIMLER-CHRYSLER METRA NUMBER: C40301
 Make: CHRYSLER
 Model: PACIFICA
 Body Style: S-DR. MPV
 Front Cold Tire Pressure: 226 (Kpa)
 Rear Cold Tire Pressure: 225 (Kpa)

Transportation Research Center, Inc.
 18820 State Route 347
 East Liberty, Ohio 43319
 (637)666-2011 www.trcny.com

Date Tested: 12/03/03

DATA SHEET 29 - RECOVERY PERFORMANCE AT GVWR

Testing Conditions: INV DATA, Section 0105, 12/03/03, 11:52:21

Weather Conditions: 32°F Wind: 11 mph 194° Start Odo.: 581 End Odo.: 589

Schedule:

Make 2 stops from 100 kph

Pedal Force: Both stops are performed with an average force not greater 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: 68.6 (meter)

Lower limit of corrected stopping distance: 33.6 (meter)

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: Stop3

Initial speed of stop: 99.39 (kph)

Actual distance of stop: 48.6 (meter)

Average pedal force: 408.0 (N)

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 (MAX 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.40	104	123	116	95	47.6	48.2	390.90	272.21	18.82	7.41
2	99.94	122	142	125	106	47.4	47.4	478.30	518.58	16.00	7.57

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

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN HASTEDAY Operator: NONE
 Recorded Data Processed by: CHUCK JENTINA Date: 12/12/03
 Approving Laboratory Official: KEV WENSTER Date: 12/20/03

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

VEHICLE: 2004 Chrysler Pacifica NHTSA NO.: C40301 DATE: 12/09/03

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 (\$7.17)

VEHICLE: 2004 Chrysler Pacifica: NHTSA NO.: C40301: GVWR: 2586 kg
MASTER CYLINDER RESERVOIR:

DATE	12/05/03	Requirements	Pass	Fail
Reservoir Compartments (85.4.1)				
(1) Does master cylinder have a reservoir compartment for each brake subsystem?	☒ Yes ☐ No	Master cylinder shall have a reservoir compartment for each subsystem.	X	
(2) Does loss of fluid in one compartment result in complete loss from another compartment?	☐ Yes ☒ No	Loss of fluid from one compartment shall not cause complete loss from another compartment.	X	
Reservoir Capacity (85.4.2)				
Shall conform to requirements (1) or (2), state unit:				
(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)	385 mi	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)	206.1 mi*			
*Value calculated from Data Sheet 31				

Comments: None

DATA SHEET 30 (Part 3 of 5)
TEST COMPLETION INSPECTION (\$7.18)

VEHICLE: 2004 Chrysler Pacifica; NHTSA NO.: C40301; GVWR: 2586 kg

MASTER CYLINDER RESERVOIR:

DATE	12/06/03	Requirements	Pass	Fail
Master Cylinder Piston Displacement (\$6.4.2) (If Common Reservoir Supply - continued from previous page)				
Fluid displaced by three strokes of master cylinder piston for Primary (Subsystem No. 1)	28 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)	30 ml			
Fluid displaced per stroke, Primary	9.7 ml			
Fluid displaced per stroke, Secondary	10.0 ml			
Fluid available in partial compartment Subsystem No. 1	72 ml		X	
Fluid available in partial compartment Subsystem No. 2	66 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 48 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. Additionally, partially on master cylinder reservoir cap in contrasting colors.</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	
	<u>Yes</u>			

Comments: None

Technician: K. Easterday

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

VEHICLE: 2004 Chrysler Pacifica; NHTSA NO.: C40301; DATE: 12/05/03
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>Upper right 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 is 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		X	
C. Application of the parking brake.	Yes			
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? Audible warning - continuous or flashing?	Yes-Cont. Yes - Flag			

Comments: When Parking Brake activated, audible chime occurs once.
 Technician: K. Easterday

DATA SHEET 30 (Part 5 of 5)
TEST COMPLETION INSPECTION (\$7.18)

VEHICLE: 2004 Chrysler Pacifica; NHTSA NO.: C40301; DATE: 12/05/03

BRAKE SYSTEM WARNING INDICATOR LABELING (\$5.5.5)

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 <u>3.2 mm</u>	Yes	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 \$5.5.1(a)(1), does indicator say "Brake Fluid"? NOTE: not required for mineral oil system Record wording _____	NA	X	
2. Gross pressure loss per \$5.5.1(a)(2), does indicator say "Brake Pressure"? Record wording _____	NA		
3. Electrical functional failure in antilock or variable proportioning system per \$5.6.1(b), letters and background contrasting colors one of which is yellow? Record colors <u>Lens - Black, Letters - Yellow (or Amber)</u>	Yes		
Does indicator say "Antilock" or "ABS" or "Brake Proportioning"? Record wording <u>"ABS" within a symbol</u>	Yes		
4. Parking brake per \$5.5.1(c), does indicator say "Park" or "Parking Brake"? Record wording _____	NA		
5. Brake lining wear-out per \$5.5.1(d), does indicator say "Brake Wear"? Record wording _____	NA		
6. For any other function? If yes, Record _____	NA		

Comments: Vehicle also possesses a "Message Center" in the middle of the instrument cluster that indicates some specific brake conditions.

Technician: K. Easterday

DATA SHEET 31 (Part 1 of 2)

CALCULATION OF MINIMUM RESERVOIR VOLUME REQUIREMENTS

VEHICLE: 2004 Chrysler Pacifica; NHTSA NO.: C40301; DATE: 12/09/02

BRAKE		LINING		
LOCATION	TYPE	DESCRIPTION	MINIMUM THICKNESS	THICKNESS TO FULLY WORN (1) mm*
Left Front	Drum	Leading	Pre-test 9.93 mm	0
		Primary	Post Test 9.55 mm	
		Inboard X	Δ 0.38 mm	
	Disc X	Trailing	Pre-test 10.08 mm	0
		Secondary	Post Test 9.50 mm	
		Outboard X	Δ 0.55 mm	
LINING CLEARANCE: Diametrical (2): N/A		Inboard - Approx 0 mm	Outboard - Approx. 0 mm	
WHEEL CYLINDER DIAMETER (3): N/A		CALIPER PISTON DIAMETER (3): 47.85 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 11.88 mm	0
		Primary	Post Test 11.51 mm	
		Inboard X	Δ 0.15 mm	
	Disc X	Trailing	Pre-test 11.83 mm	0
		Secondary	Post Test 11.30 mm	
		Outboard X	Δ 0.33 mm	
LINING CLEARANCE: Diametrical (2) - N/A		Inboard - Approx. 0 mm	Outboard - Approx. 0	
WHEEL CYLINDER DIAMETER (3): N/A		CALIPER PISTON DIAMETER (3): 41.94 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 - X	LR	RF	RR - X
CIRCUIT #2 CONSISTS OF:	LF	LR - X	RF - X	RR
(1) MFRS. RECOMMENDATIONS - Not Available. Default to zero.				
(2) REAR - TOP OF RIVET HEADS - N/A. FRONT - 1/32 INCH - N/A. MFRS. DATA - Not Available.				
(2) DRUM BRAKES, MEASURED AT HORIZONTAL CENTERLINE: N/A				
(3) MFRS. DATA: Not Available.				
(4) RESET POSITION: N/A				

Comments: Manufacturer's new lining thickness: Not Available.

Technician: K. Easterday

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

Vehicle: 2004 Chrysler Pacifica;

NHTSA No.: C40301;

Date: 12/21/03

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)

$$V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times \frac{\pi d^2}{4}$$
$$\Delta t_i = 9.93 \text{ mm}$$
$$\Delta t_o = 10.06 \text{ mm}$$
$$t_{ic} + t_{oc} = 0 \text{ mm}$$
$$d = 47.85 \text{ mm}$$
$$V_r = (9.93 + 0 + 10.06 + 0) \frac{\pi (47.85)^2}{4}$$
$$= 19.99 (1798.27)$$
$$= 35947.3 \text{ mm}^3 = 35.9 \text{ ml (x2 pistons)} = 71.8 \text{ ml}$$

Disc Brake:
(Rear)

$$V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times \frac{\pi d^2}{4}$$
$$\Delta t_i = 11.66 \text{ mm}$$
$$\Delta t_o = 11.63 \text{ mm}$$
$$t_{ic} + t_{oc} = 0 \text{ mm}$$
$$d = 41.94 \text{ mm}$$
$$V_r = (11.66 + 0 + 11.63 + 0) \frac{\pi (41.93)^2}{4}$$
$$= 23.29 (1380.8)$$
$$= 32158.8 \text{ mm}^3 = 32.2 \text{ ml}$$

For System 1 (LF, RR)

$$V_{r1} = 71894.6 \text{ mm}^3 + 32158.8 \text{ mm}^3$$

$$V_{r1} = 104053.4 \text{ mm}^3 = (104.1 \text{ ml})$$

For System 2 (RF, LR)

$$V_{r2} = V_{r1}$$

$$V_{r2} = 104053.4 \text{ mm}^3 = (104.1 \text{ ml})$$

$$\text{TOTAL VOLUME REQUIRED} = V_t = V_{r1} + V_{r2} = 208106.8 \text{ mm}^3 = 208.1 \text{ ml}^*$$

SECTION 6.9

Photographs

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

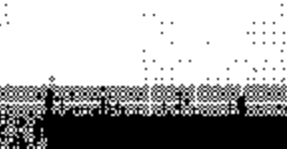
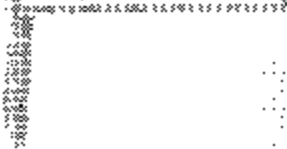
THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE

THE
OF
THE



1. THE FIRST

2. THE SECOND

3. THE THIRD

4. THE FOURTH

5. THE FIFTH

6. THE SIXTH

7. THE SEVENTH

8. THE EIGHTH

9. THE NINTH

10. THE TENTH

11. THE ELEVENTH

12. THE TWELFTH

13. THE THIRTEENTH

14. THE FOURTEENTH

15. THE FIFTEENTH

16. THE SIXTEENTH

17. THE SEVENTEENTH

18. THE EIGHTEENTH

19. THE NINETEENTH

20. THE TWENTIETH

21. THE TWENTY-FIRST

22. THE TWENTY-SECOND

23. THE TWENTY-THIRD

24. THE TWENTY-FOURTH

25. THE TWENTY-FIFTH

26. THE TWENTY-SIXTH

27. THE TWENTY-SEVENTH

28. THE TWENTY-EIGHTH

29. THE TWENTY-NINTH

30. THE THirtiETH

31. THE THIRTY-FIRST

32. THE THIRTY-SECOND

33. THE THIRTY-THIRD

34. THE THIRTY-FOURTH

35. THE THIRTY-FIFTH

36. THE THIRTY-SIXTH

37. THE THIRTY-SEVENTH

38. THE THIRTY-EIGHTH

39. THE THIRTY-NINTH

40. THE THIRTY-THIRD

41. THE THIRTY-FOURTH

42. THE THIRTY-FIFTH

43. THE THIRTY-SIXTH

44. THE THIRTY-SEVENTH

45. THE THIRTY-EIGHTH

46. THE THIRTY-NINTH

47. THE THIRTY-THIRD

48. THE THIRTY-FOURTH

49. THE THIRTY-FIFTH

50. THE THIRTY-SIXTH

51. THE THIRTY-SEVENTH

52. THE THIRTY-EIGHTH

53. THE THIRTY-NINTH

54. THE THIRTY-THIRD

55. THE THIRTY-FOURTH

56. THE THIRTY-FIFTH

57. THE THIRTY-SIXTH

58. THE THIRTY-SEVENTH

59. THE THIRTY-EIGHTH

60. THE THIRTY-NINTH

61. THE THIRTY-THIRD

62. THE THIRTY-FOURTH

63. THE THIRTY-FIFTH

64. THE THIRTY-SIXTH

65. THE THIRTY-SEVENTH

66. THE THIRTY-EIGHTH

67. THE THIRTY-NINTH

68. THE THIRTY-THIRD

69. THE THIRTY-FOURTH

70. THE THIRTY-FIFTH

71. THE THIRTY-SIXTH

72. THE THIRTY-SEVENTH

73. THE THIRTY-EIGHTH

74. THE THIRTY-NINTH

75. THE THIRTY-THIRD

76. THE THIRTY-FOURTH

77. THE THIRTY-FIFTH

78. THE THIRTY-SIXTH

79. THE THIRTY-SEVENTH

80. THE THIRTY-EIGHTH

81. THE THIRTY-NINTH

82. THE THIRTY-THIRD

83. THE THIRTY-FOURTH

84. THE THIRTY-FIFTH

85. THE THIRTY-SIXTH

86. THE THIRTY-SEVENTH

87. THE THIRTY-EIGHTH

88. THE THIRTY-NINTH

89. THE THIRTY-THIRD

90. THE THIRTY-FOURTH

91. THE THIRTY-FIFTH

92. THE THIRTY-SIXTH

93. THE THIRTY-SEVENTH

94. THE THIRTY-EIGHTH

95. THE THIRTY-NINTH

96. THE THIRTY-THIRD

97. THE THIRTY-FOURTH

98. THE THIRTY-FIFTH

99. THE THIRTY-SIXTH

100. THE THIRTY-SEVENTH

101. THE THIRTY-EIGHTH

102. THE THIRTY-NINTH

103. THE THIRTY-THIRD

104. THE THIRTY-FOURTH

105. THE THIRTY-FIFTH

106. THE THIRTY-SIXTH

107. THE THIRTY-SEVENTH

108. THE THIRTY-EIGHTH

109. THE THIRTY-NINTH

110. THE THIRTY-THIRD

111. THE THIRTY-FOURTH

112. THE THIRTY-FIFTH

113. THE THIRTY-SIXTH

114. THE THIRTY-SEVENTH

115. THE THIRTY-EIGHTH

116. THE THIRTY-NINTH

117. THE THIRTY-THIRD

118. THE THIRTY-FOURTH

119. THE THIRTY-FIFTH

120. THE THIRTY-SIXTH

121. THE THIRTY-SEVENTH

122. THE THIRTY-EIGHTH

123. THE THIRTY-NINTH

124. THE THIRTY-THIRD

125. THE THIRTY-FOURTH

126. THE THIRTY-FIFTH

127. THE THIRTY-SIXTH

128. THE THIRTY-SEVENTH

129. THE THIRTY-EIGHTH

130. THE THIRTY-NINTH

131. THE THIRTY-THIRD

132. THE THIRTY-FOURTH

133. THE THIRTY-FIFTH

134. THE THIRTY-SIXTH

135. THE THIRTY-SEVENTH

136. THE THIRTY-EIGHTH

137. THE THIRTY-NINTH

138. THE THIRTY-THIRD

139. THE THIRTY-FOURTH

140. THE THIRTY-FIFTH

141. THE THIRTY-SIXTH

142. THE THIRTY-SEVENTH

143. THE THIRTY-EIGHTH

144. THE THIRTY-NINTH

145. THE THIRTY-THIRD

146. THE THIRTY-FOURTH

147. THE THIRTY-FIFTH

148. THE THIRTY-SIXTH

149. THE THIRTY-SEVENTH

150. THE THIRTY-EIGHTH

151. THE THIRTY-NINTH

152. THE THIRTY-THIRD

153. THE THIRTY-FOURTH

154. THE THIRTY-FIFTH

155. THE THIRTY-SIXTH

156. THE THIRTY-SEVENTH

157. THE THIRTY-EIGHTH

158. THE THIRTY-NINTH

159. THE THIRTY-THIRD

160. THE THIRTY-FOURTH

161. THE THIRTY-FIFTH

162. THE THIRTY-SIXTH

163. THE THIRTY-SEVENTH

164. THE THIRTY-EIGHTH

165. THE THIRTY-NINTH

166. THE THIRTY-THIRD

167. THE THIRTY-FOURTH

168. THE THIRTY-FIFTH

169. THE THIRTY-SIXTH

170. THE THIRTY-SEVENTH

171. THE THIRTY-EIGHTH

172. THE THIRTY-NINTH

173. THE THIRTY-THIRD

174. THE THIRTY-FOURTH

175. THE THIRTY-FIFTH

176. THE THIRTY-SIXTH

177. THE THIRTY-SEVENTH

178. THE THIRTY-EIGHTH

179. THE THIRTY-NINTH

180. THE THIRTY-THIRD

181. THE THIRTY-FOURTH

182. THE THIRTY-FIFTH

183. THE THIRTY-SIXTH

184. THE THIRTY-SEVENTH

185. THE THIRTY-EIGHTH

186. THE THIRTY-NINTH

187. THE THIRTY-THIRD

188. THE THIRTY-FOURTH

189. THE THIRTY-FIFTH

190. THE THIRTY-SIXTH

191. THE THIRTY-SEVENTH

192. THE THIRTY-EIGHTH

193. THE THIRTY-NINTH

194. THE THIRTY-THIRD

195. THE THIRTY-FOURTH

196. THE THIRTY-FIFTH

197. THE THIRTY-SIXTH

198. THE THIRTY-SEVENTH

199. THE THIRTY-EIGHTH

200. THE THIRTY-NINTH

201. THE THIRTY-THIRD

202. THE THIRTY-FOURTH

203. THE THIRTY-FIFTH

204. THE THIRTY-SIXTH

205. THE THIRTY-SEVENTH

206. THE THIRTY-EIGHTH

207. THE THIRTY-NINTH

208. THE THIRTY-THIRD

209. THE THIRTY-FOURTH

210. THE THIRTY-FIFTH

211. THE THIRTY-SIXTH

212. THE THIRTY-SEVENTH

213. THE THIRTY-EIGHTH

214. THE THIRTY-NINTH

215. THE THIRTY-THIRD

216. THE THIRTY-FOURTH

217. THE THIRTY-FIFTH

218. THE THIRTY-SIXTH

219. THE THIRTY-SEVENTH

220. THE THIRTY-EIGHTH

221. THE THIRTY-NINTH

222. THE THIRTY-THIRD

223. THE THIRTY-FOURTH

224. THE THIRTY-FIFTH

225. THE THIRTY-SIXTH

226. THE THIRTY-SEVENTH

227. THE THIRTY-EIGHTH

228. THE THIRTY-NINTH

229. THE THIRTY-THIRD

230. THE THIRTY-FOURTH

231. THE THIRTY-FIFTH

232. THE THIRTY-SIXTH

233. THE THIRTY-SEVENTH

234. THE THIRTY-EIGHTH

235. THE THIRTY-NINTH

236. THE THIRTY-THIRD

237. THE THIRTY-FOURTH

238. THE THIRTY-FIFTH

239. THE THIRTY-SIXTH

240. THE THIRTY-SEVENTH

241. THE THIRTY-EIGHTH

242. THE THIRTY-NINTH

243. THE THIRTY-THIRD

244. THE THIRTY-FOURTH

245. THE THIRTY-FIFTH

246. THE THIRTY-SIXTH

247. THE THIRTY-SEVENTH

248. THE THIRTY-EIGHTH

249. THE THIRTY-NINTH

250. THE THIRTY-THIRD

251. THE THIRTY-FOURTH

252. THE THIRTY-FIFTH

253. THE THIRTY-SIXTH

254. THE THIRTY-SEVENTH

255. THE THIRTY-EIGHTH

256. THE THIRTY-NINTH

257. THE THIRTY-THIRD

258. THE THIRTY-FOURTH

259. THE THIRTY-FIFTH

260. THE THIRTY-SIXTH

261. THE THIRTY-SEVENTH

262. THE THIRTY-EIGHTH

263. THE THIRTY-NINTH

264. THE THIRTY-THIRD

265. THE THIRTY-FOURTH

266. THE THIRTY-FIFTH

267. THE THIRTY-SIXTH

268. THE THIRTY-SEVENTH

269. THE THIRTY-EIGHTH

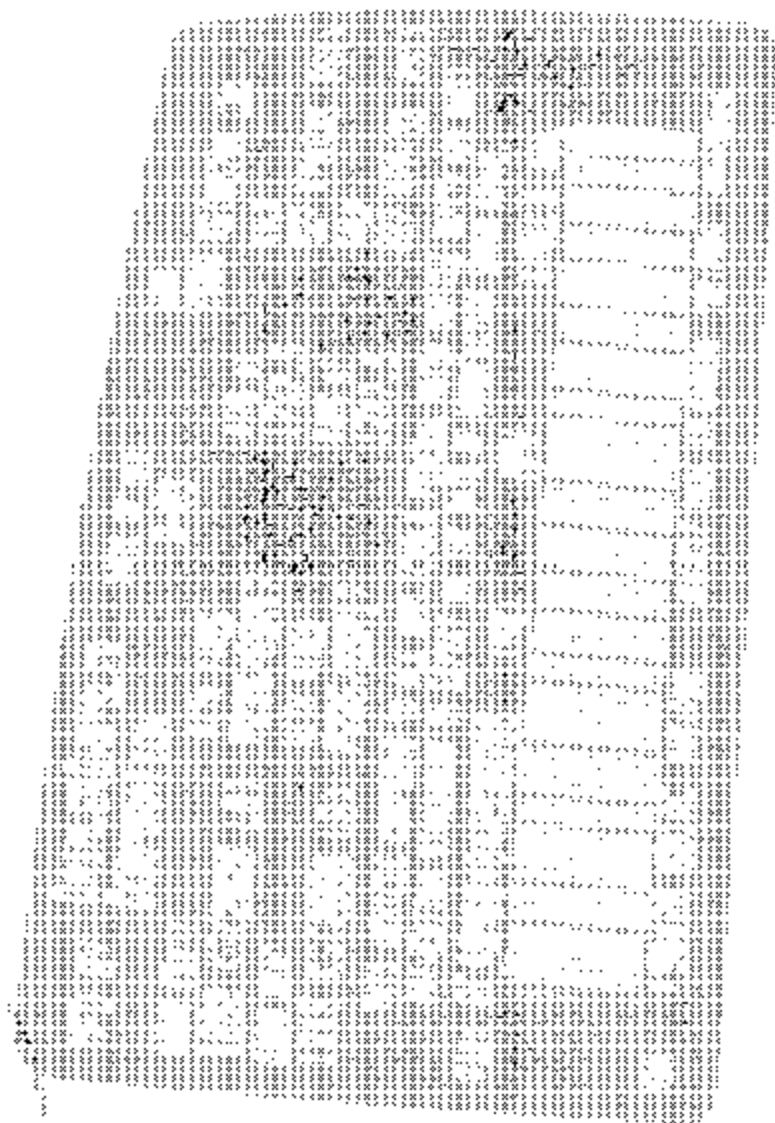
270. THE THIRTY-NINTH

271. THE THIRTY-THIRD

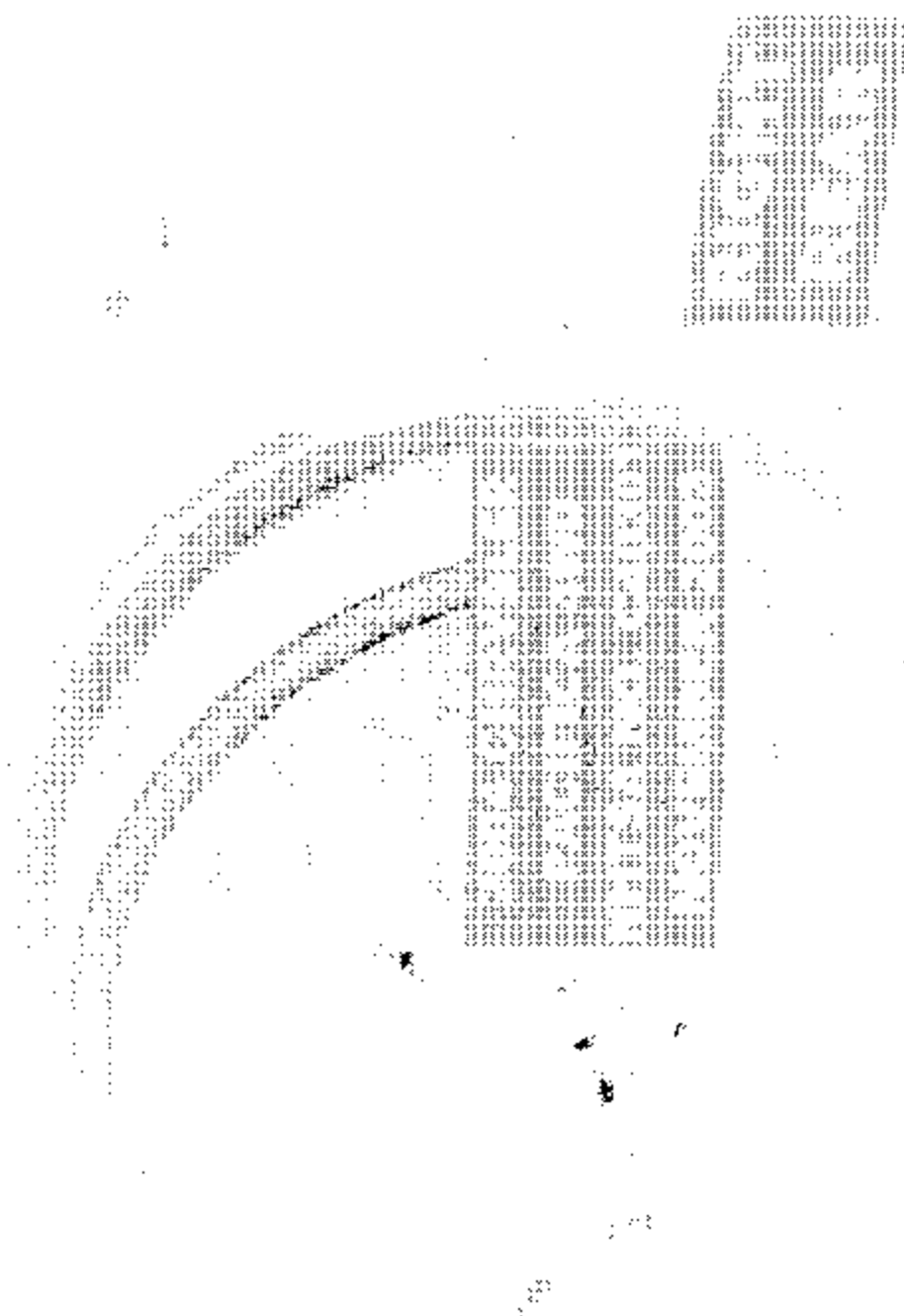
272. THE THIRTY-FOURTH

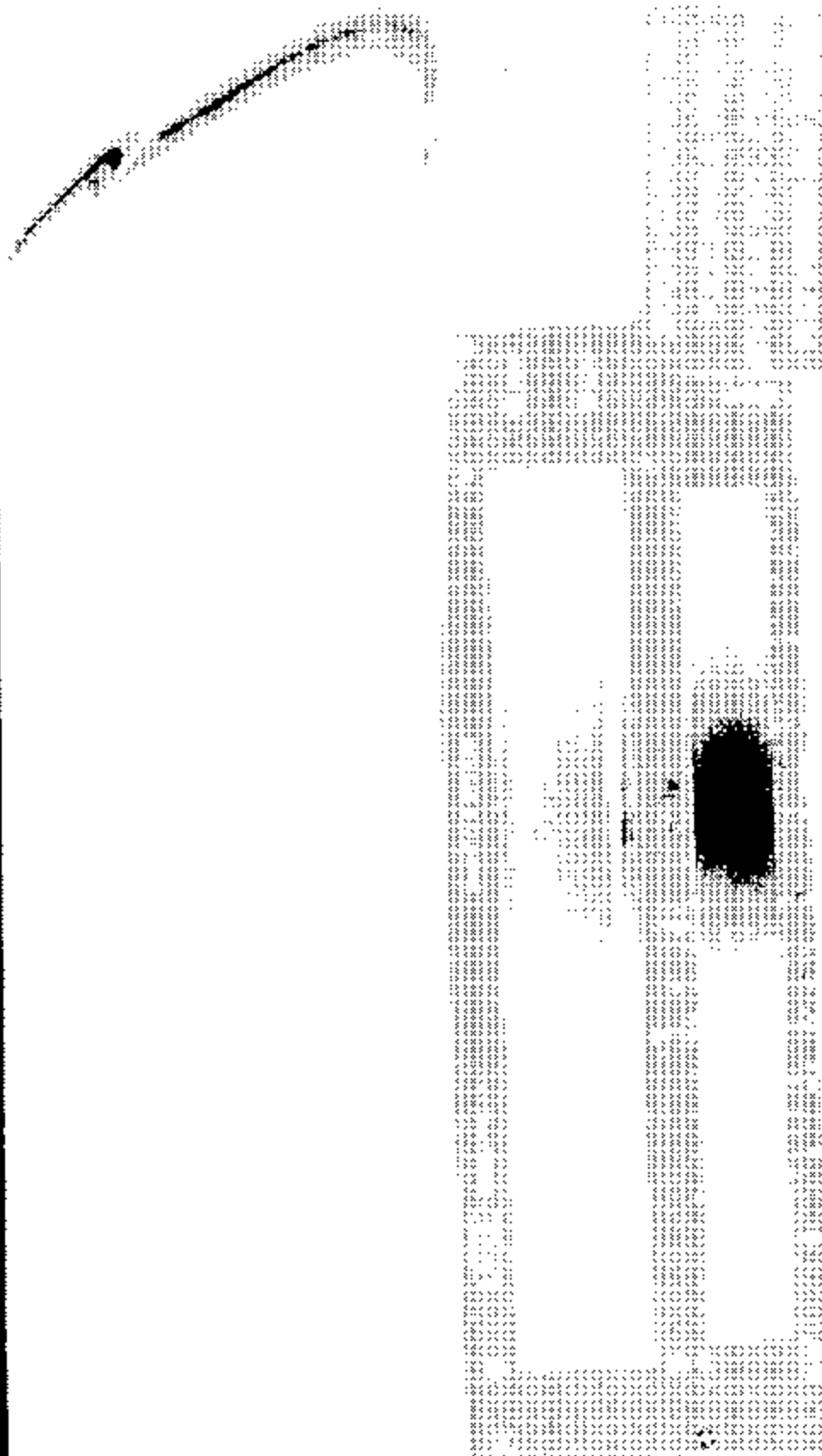
273. THE THIRTY-FIFTH

274. THE THIRTY



2004 CHRYSLER
PACIFICA 4WD
NHTSA NO. C483
NOVEMBER 2003









2004
CHRYSLER
PACIFICA
NHTSA NO.
C40301
NOVEMBER
2003

2004 CHRYSLER
PACIFICA FWD
MYTSA NO. C40301
NOVEMBER 2003



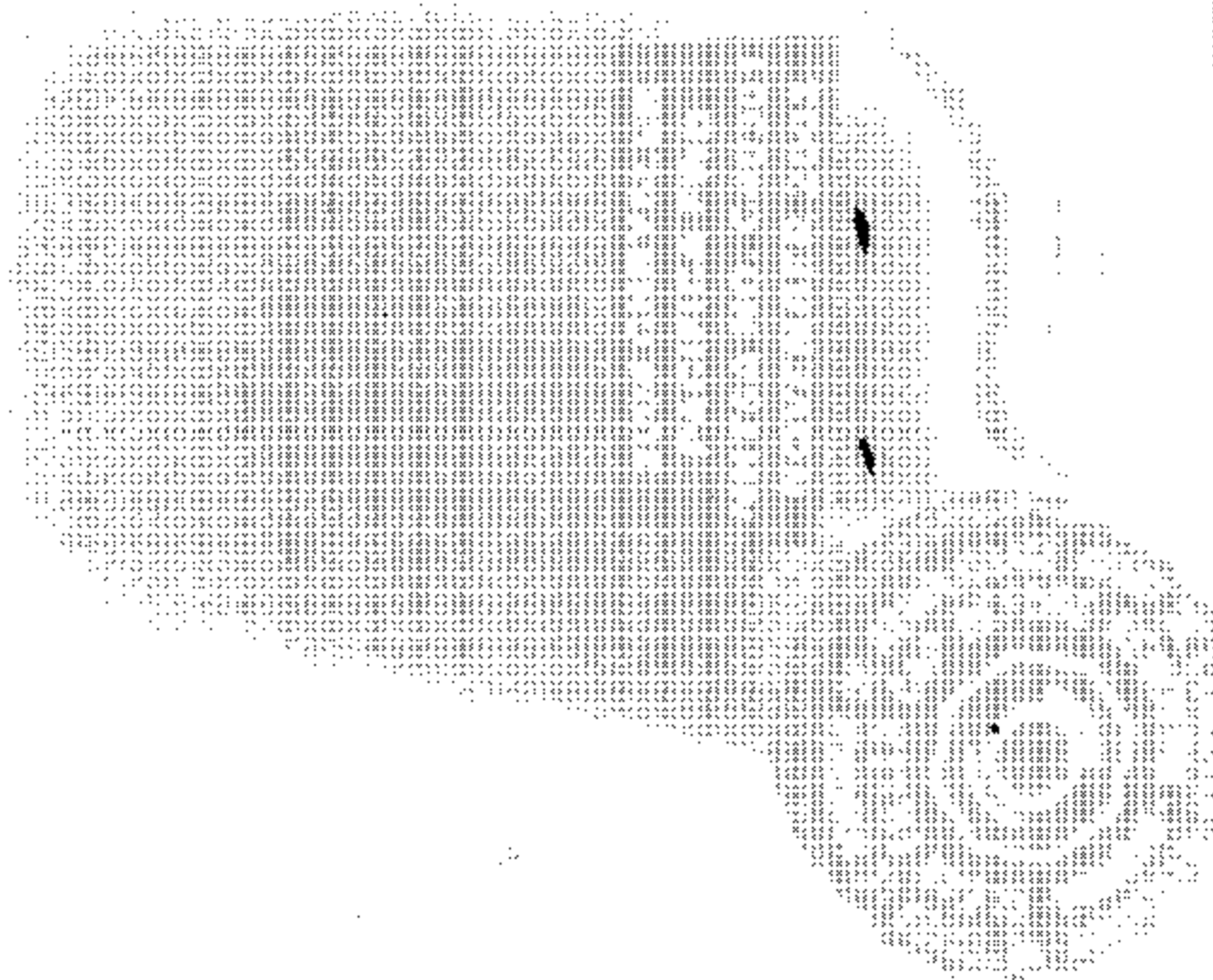


2004 CHRYSLER

PACIFICA FWD

NHTSA NO. C40301

NOVEMBER 2003



7.0 INSTRUMENT CALIBRATION (12 MONTH MAXIMUM INTERVAL)
VEHICLE: 2004 Chrysler Pacifica; NHTSA NO.: C40301; DATE: 12/09/03

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	WXB308193A	09/15/03	09/15/04
Ambient Temp. Gage - Davis Model 6320	WXB308193A	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	10/26/03	01/26/04

QUALITY ASSURANCE

[Signature]

DAILY CALIBRATIONS (1 of 3)

Vehicle: 2004 Chrysler Pacifica

NHTSA No.: C40301

Deceleration Calibration Data for Unit 4351

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"
11/10/2003	11:28:46	0.05	9.81
11/14/2003	10:48:44	-0.02	9.76
11/14/2003	15:29:38	-0.01	9.82
11/17/2003	9:18:14	-0.01	9.82
11/17/2003	15:32:25	0.00	9.82
11/19/2003	13:42:40	0.00	9.80
11/19/2003	15:39:42	0.01	9.80
11/20/2003	9:17:00	0.03	9.84
11/20/2003	15:17:41	0.01	9.79
11/21/2003	9:48:41	0.03	9.82
12/2/2003	11:29:26	-0.02	9.79
12/3/2003	9:33:07	-0.03	9.82
12/3/2003	12:03:44	0.02	9.80
12/3/2003	13:28:53	0.02	9.84

PRE-TEST CAL

POST-TEST CAL

Pre-Test Linearity Check 11/10/03

Actual (m/s/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 12/03/03

Actual (m/s/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 4351

Desired full scale value is: 1000 m

Allowed deviation is: 3 m

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

"Date"	"Time"	Distance for
"stp"	"stp"	1000 meters
11/10/2003	14:14:45	1000.4
11/14/2003	10:48:43	1001.0
11/14/2003	15:34:55	998.3
11/17/2003	9:12:25	1000.3
11/17/2003	15:39:53	998.3
11/19/2003	13:37:18	998.5
11/19/2003	15:48:31	998.5
11/20/2003	9:12:30	997.9
11/20/2003	15:25:39	996.7
11/21/2003	9:45:35	997.9
12/3/2003	10:39:27	997.8
12/3/2003	12:09:02	998.6

PRE-TEST CAL

DAILY CALIBRATIONS CONTINUED (2 of 3)

VEHICLE: 2004 Chrysler Pacifica

NHTSA No.: C40301

Wheel Tachometer Calibrations for Unit 4351

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

Wheel lock
detector

While at a
standstill,
check zeros.
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
11/14/2003	11:01:32	-0.1	17.0	0.0	16.4	0.0	17.1	-2.5	17.6
11/14/2003	15:30:47	0.0	16.3	0.0	15.8	0.0	16.4	0.0	17.8
11/17/2003	9:14:29	-0.1	16.3	0.0	16.0	-0.1	16.6	-3.4	15.2
11/17/2003	15:42:07	0.0	16.6	0.0	15.5	0.0	16.2	-1.2	16.7
11/19/2003	13:40:06	0.0	16.7	0.0	15.4	0.0	15.8	0.0	17.8
11/19/2003	15:44:40	0.0	17.0	0.0	15.3	0.0	15.9	0.0	17.7
11/20/2003	9:14:30	-0.1	16.8	0.0	15.7	0.0	16.6	-0.8	18.0
11/20/2003	15:24:22	0.0	17.6	0.0	16.1	-0.1	16.7	0.0	18.4
11/21/2003	9:47:35	-0.1	17.2	-0.1	16.1	0.0	16.6	-0.1	18.4
12/3/2003	10:35:30	0.0	17.9	0.0	16.6	-0.1	16.9	0.0	18.4
12/3/2003	12:06:04	0.0	16.8	0.0	15.9	0.0	16.4	0.0	17.8

When driven over 15 km/hr and the wheel tach generators are shunted to zero volts, do all four wheel lock indicators align?: X Yes, No.

Pedal Force Meter Calibration for Unit 4351

Target shunt calibration is 387 N

Desired recorded value is: 387 N

Desired recorded calibration value is: 500 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
11/10/2003	11:34:47	-2.2	499.6
11/14/2003	10:39:50	-0.6	387.9
11/14/2003	15:28:43	-1.0	386.9
11/17/2003	9:08:12	-1.8	387.1
11/17/2003	15:30:11	-1.9	386.4
11/19/2003	13:24:10	-2.1	386.7
11/19/2003	15:43:18	-0.7	386.2
11/20/2003	9:08:53	-0.9	386.5
11/20/2003	15:20:51	-1.1	386.4
11/21/2003	8:46:15	-1.4	500.5
11/21/2003	9:41:44	-1.0	386.7
12/2/2003	11:31:33	-0.6	386.4
12/3/2003	9:37:13	-2.1	387.2
12/3/2003	12:02:32	-0.3	386.8
12/5/2003	8:21:15	-0.9	498.9

PRE-TEST CAL.

RECALIBRATION CHECK

POST-TEST CAL.

Pre-Test Linearity Check - 11/10/03

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

Post-Test Linearity Check - 12/03/03

Actual	Recorded
Force (N)	Force (N)
0	0
222	223
445	445
498	498

DAILY CALIBRATIONS CONTINUED (3 of 3)

VEHICLE: 2004 Chrysler Pacifica

NHTSA No. C40301

Dynamic Speed Calibration for Unit 4351

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

"Date"	"Time"	"Speed"	"Time"
stp	stp	km/h	sec
11/10/2003	14:17:47	99.9	36.00
11/14/2003	10:43:28	99.8	35.59
11/14/2003	15:32:49	100.7	36.03
11/17/2003	9:10:20	100.6	36.12
11/17/2003	15:44:38	99.4	35.90
11/19/2003	13:32:57	100.4	36.15
11/19/2003	15:46:43	100.8	36.43
11/20/2003	9:10:41	100.8	35.87
11/20/2003	15:22:36	100.4	36.06
11/21/2003	9:43:25	100.3	36.15
12/3/2003	10:33:49	100.2	36.00
12/3/2003	12:06:32	100.7	35.68

PRE-TEST CAL

APPENDIX A

Copy of Manufacturer's Sticker

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 C40301.

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 slightly less than the required/target deceleration values.

For Data Sheets 20 and 21 – Hydraulic Circuit Failure at GVWR:

Due to the difficulty and complexity of accessing the master cylinder, these two data sheets were performed in reverse order.

For Data Sheet 24 – Brake Power Unit or Power Assist Unit Inoperative at GVWR:

Initially, the vehicle did not comply regarding the total stopping distance versus the maximum allowable pedal force. It was believed a driver performance issue might be the cause of the non-compliance. Therefore, per the Standard's Technical Engineer, additional test runs were performed with another driver and performed driving in the opposite (than customary) direction. The vehicle complied once the other became familiar with the vehicle. For stops 1 through 11 – K. Easterday, driver. For stops 12 through 18 – R. Landes, driver.

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

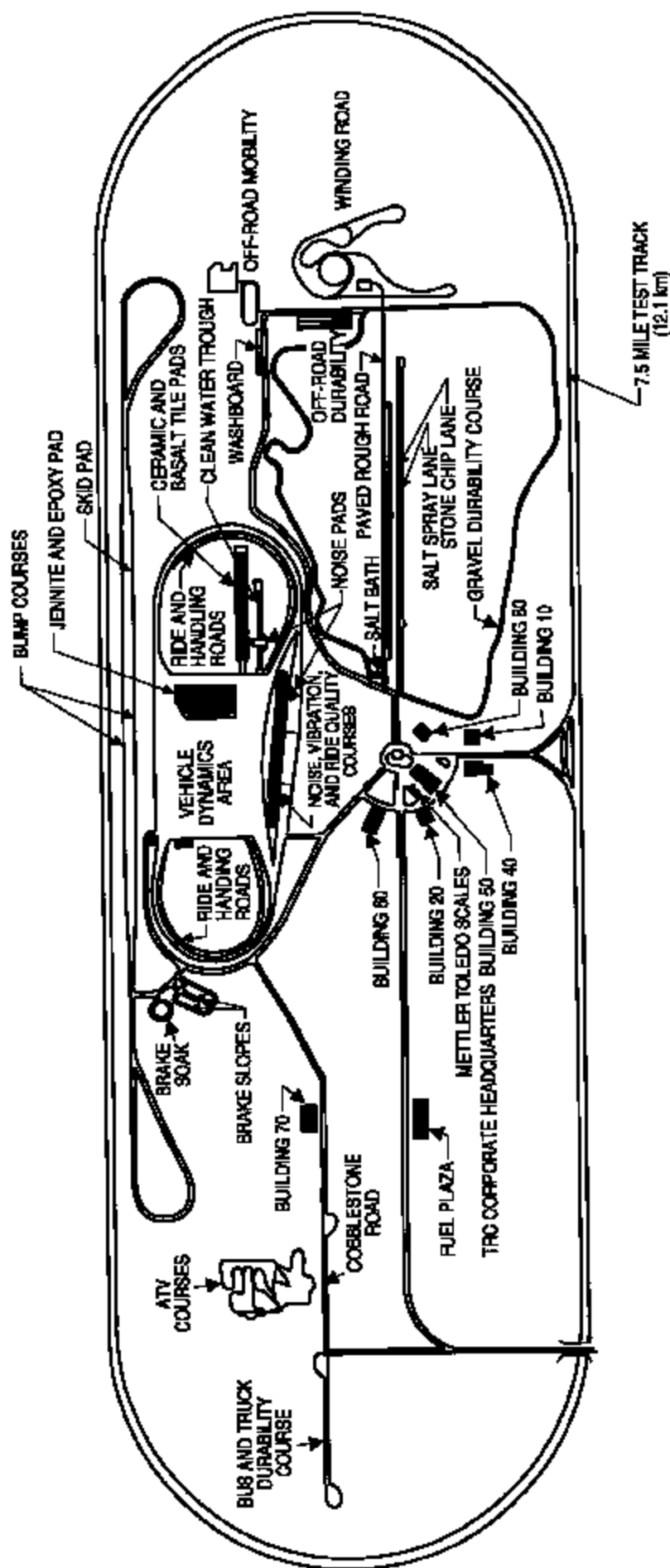
The Skid Pad is a test facility which is utilized primarily for the evaluation of tire and brake systems.

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

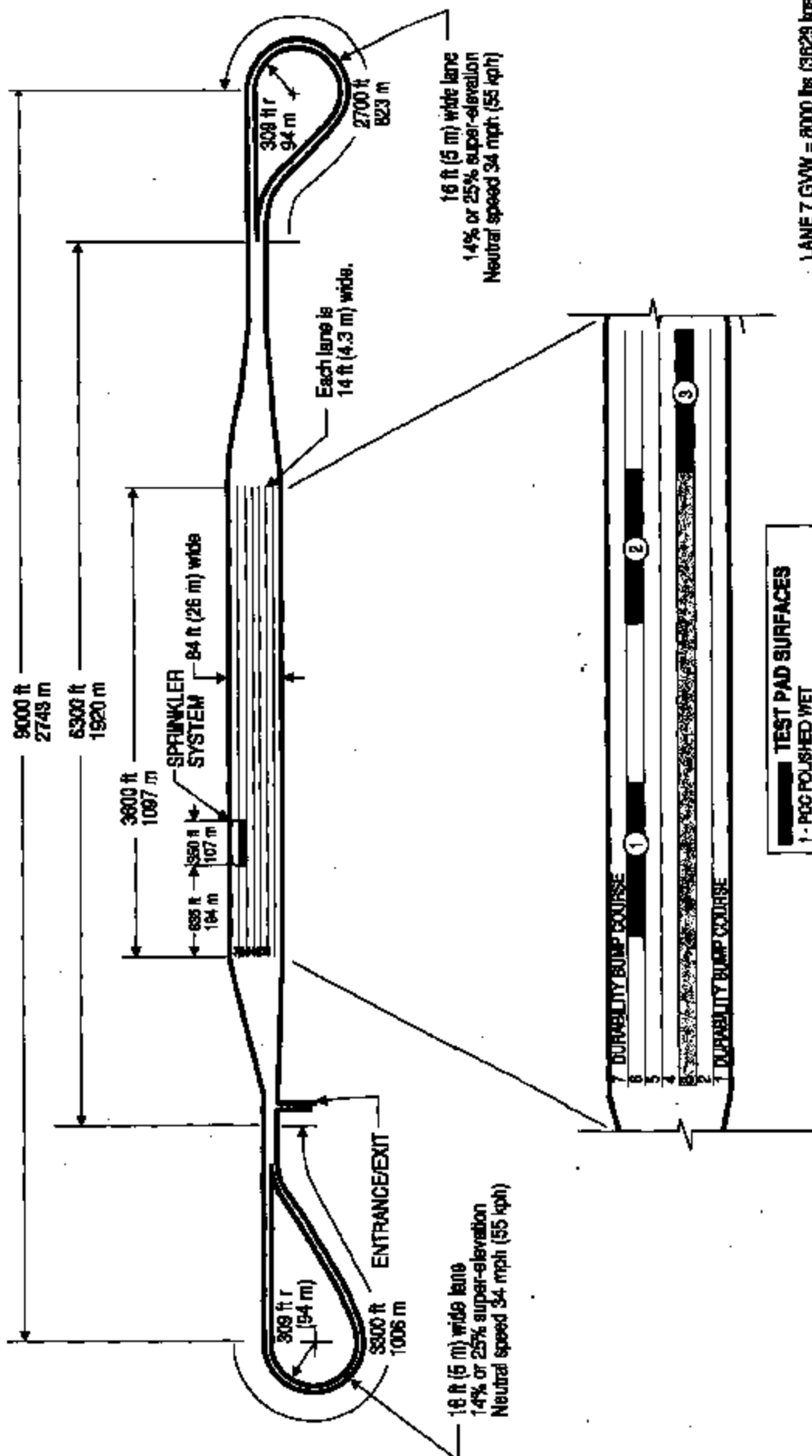
TEST FACILITY DETAIL



TRANSPORTATION RESEARCH CENTER INC.
EAST LIBERTY, OHIO 43018-0267

RS-00001

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



LANE 7 GVW = 8000 lbs (3629 kg)
GVW = 80,000 LBS (36,298 kg)

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

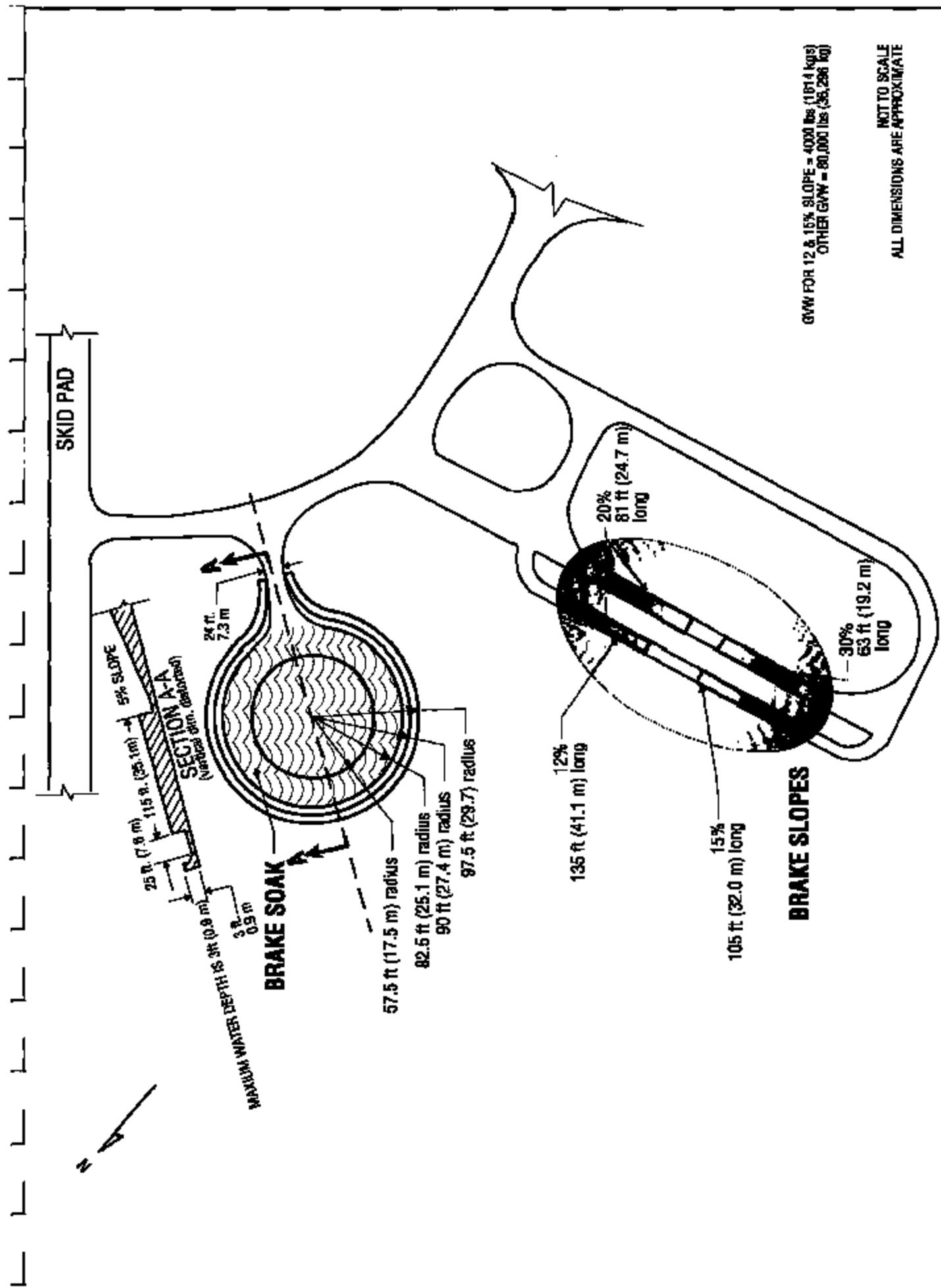
Not to scale
All dimensions are approximate

SKID PAD

TRC

TRANSPORTATION RESEARCH CENTER INC.
EAST LIBERTY, OHIO 43019-0387

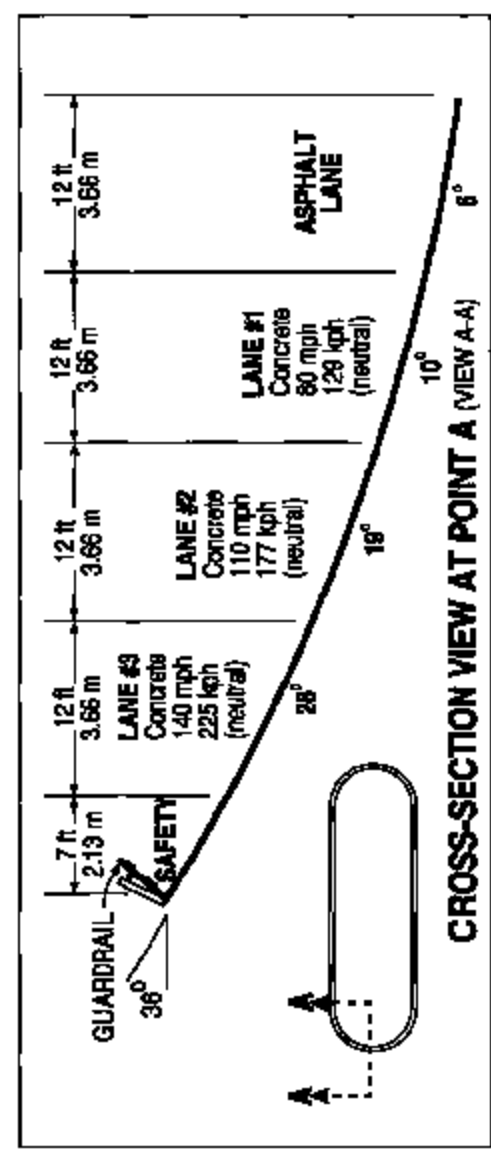
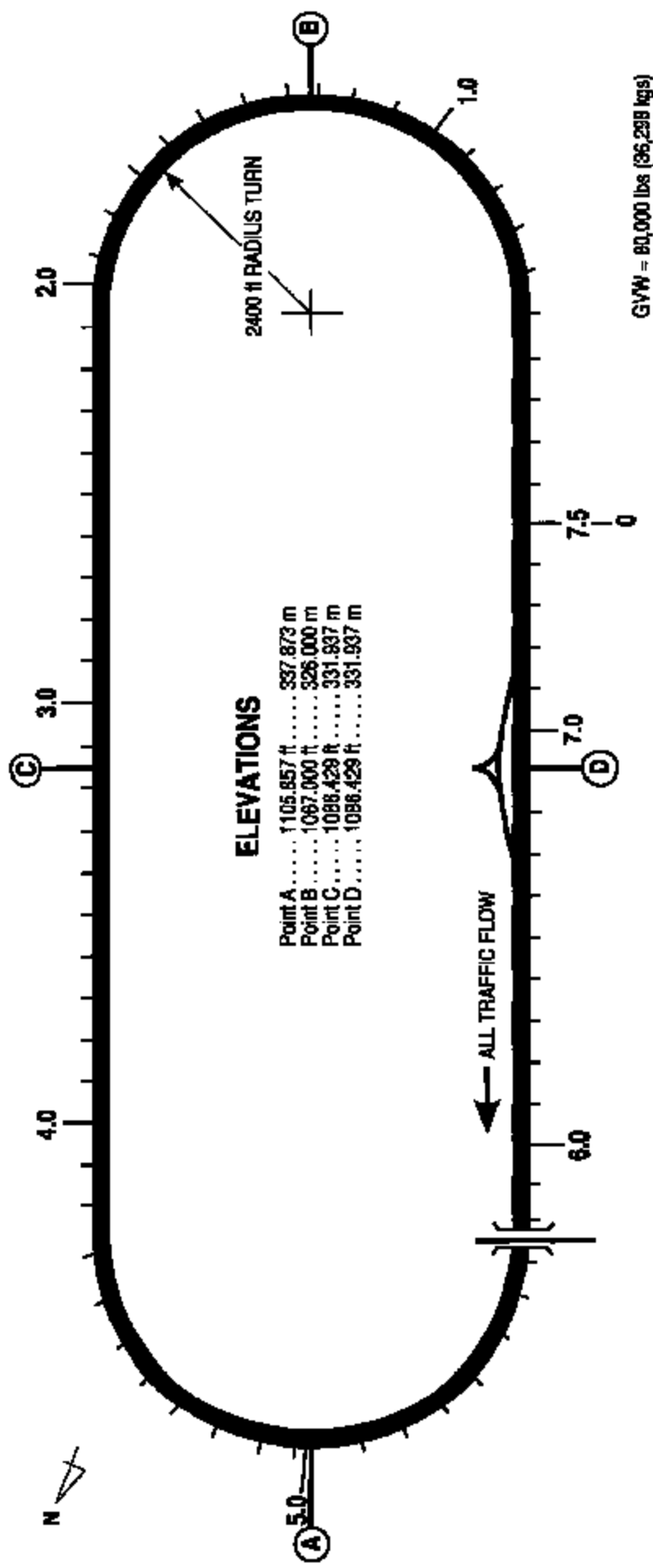
F-15 0099



GVW FOR 12 & 15% SLOPE = 4000 lbs (1814 kgs)
OTHER GVW = 80,000 lbs (36,296 kg)

NOT TO SCALE
ALL DIMENSIONS ARE APPROXIMATE

BRAKE SOAK and BRAKE SLOPES



DISTANCES

Lane 3	7.538 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	3.338 mi	5.364 km
Point C to Point D	.947 mi	1.524 km

NOT TO SCALE

APPENDIX D
Notice of Possible Non-Compliance

This vehicle (C40301) met the requirements of the FMVSS 135 standard.