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135-TRC-03-005

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

General Motors Corporation
2003 Chevrolet Trailblazer LS 4WD, 4-Door MPV
NHTSA No. C30107

TRANSPORTATION RESEARCH CENTER INC.
10820 State Route 347
East Liberty, Ohio 43319



Final Report Completed: June 10, 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 (NSA-30)
Washington, DC 20590**

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

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Prepared By



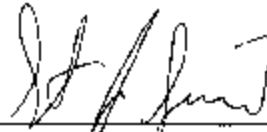
Approved By



Approval Date:

6/11/03

Final Report Acceptance By OVSC:



Contract Technical Manager, Office of
Vehicle Safety Compliance

6/16/03

Acceptance Date

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				6. PERFORMING ORGANIZATION CODE: TRC 20000113/3355	
7. AUTHOR(S): Project Manager: VIRGINIA WATTERS Project Engineer: RANDALL A. LANDES				8. PERFORMING ORGANIZATION REPORT NO.: TRC-DOT-135-042	
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16. ABSTRACT: Compliance tests were conducted on the subject 2003 Chevrolet Trailblazer LS 4WD, 4-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.					
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1.0 INTRODUCTION

Tests were conducted on a 2003 Chevrolet Trailblazer LS 4WD, 4-door MPV, manufactured by the General Motors 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

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

Heating Snubs and Hot Performance Stops

Brake Cooling and Recovery Stops

Brake Slope

Parking Brake

Average P/C during the test period was 0.99 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.

DATA SHEET 1 - VEHICLE INFORMATION

VEHICLE SPECS

Year: 2003	NHTSA No: C30107
Mfr: GENERAL MOTORS CORP.	GVWR (Kg): 2608.0
Make: CHEVROLET	GAWR Front(Kg): 1338.1
Model: TRAILBLAZER LS	GAWR Rear(Kg): 1451.5
Body Style: 4-DOOR, 4WD, MPV	Wheelbase (mm): 2876.6
Mfr. Date: 11/02	Odometer: Start: 284 MI End: 725 MI
VIN: 1GNDT13SX322138C8	

BUSES ONLY

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

Engine Type: GASOLINE, VORTEC 4200, IN-LINE 6 CYL., FUEL INJ., PISTON.	
Displacement: 4.2 LITER	Tire Size: P245/70R16, 106S
Engine Hspwr: N/A	Tire Type: OPEN TRAIL T/A, 106S, ALL SEASON
Idle Speed(rpm): 590	Tire Mfr : BF GOODRICH
Transmission Type: AUTO, 4-SPD, W/DD	GVWR Front Press.(kpa): 220.63
No. of Axles: 2	GVWR Rear Press.(kpa): 220.63

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: NO
Anti-Skid unit Mfr: KELSEY HAYES	Anti-Skid Device: YES
Parking Mechanism: YES	
Type of Parking Unit: AUTOMATIC TRANSMISSION WITH PARK DETENT	
Master Cylinder Dia(mm): 25.30	Pedal Ratio: 3.8 : 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): 304.83	LF Drum Dia. RESET(mm): 0.00
Fr Disc Thickness(mm): 29.34	RF Drum Dia. RESET(mm): 0.00
Lining Construction: Bonded	
FRONT BRAKE COMPONENT DIMENSIONS AND CODES:	
Inboard (Leading)	Outboard (Trailing)
Width(mm): 42.19	Width(mm): 42.21
Length(mm): 153.31	Length(mm): 153.11
Thickness(mm): 10.54	Thickness(mm): 10.64
Lining Code/Color: AK NS161H EF	Lining Code/Color: AK NS161H EF
Hyd. Piston Dia (mm): 44.96 (x 2 PISTONS)	

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: INT. CAST, VENTED	RR Drum Shoe Cage Dia. (mm): 0.00
Lining Construction: BONDED	LR Drum Dia. RESET (mm): 0.00
Rear Brake Dia (mm): 325.12	RR Drum Dia. RESET (mm): 0.00
Rr Disc Thickness (mm): 20.14	

REAR BRAKE COMPONENT DIMENSIONS AND CODES:

Inboard (Leading)	Outboard (Trailing)
Width (mm): 39.73	Width (mm): 39.73
Length (mm): 113.13	Length (mm): 113.11
Thickness (mm): 10.72	Thickness (mm): 10.72
Lining Code/Color: AK NS161H EF	Lining Code/Color: AK NS161H EF
Hyd Piston Dia (mm): 48.06	

OTHER COMPONENT INFORMATION:

Friction type Park Brake: N/A
Non-Service Brake Type
Parking Brake: HAND 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 Date: 6/4/03
KAREN EASTERDAY

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
Coulommet Requirements					Specified Equipment	Vehicle contains specified equipment			Pass
Vehicle Maximum Speed	LLVW	NA				174.2 km/h avg			NA
Gumish	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	480.8	53.2	Pass
High Speed Effectiveness	GVWR	139.4	65	500	spd. depend -144.1	5	479.4	95.5	Pass
Stops with Engine Off	GVWR	100	65	500	70	5	471.6	55.0	Pass
Cold Effectiveness	LLVW	100	65	500	70	6	490.1	48.5	Pass
High Speed Effectiveness	LLVW	139.4	65	500	spd. depend -144.1	5	393.0	91.1	Pass
Failed Antilock	LLVW	100	65	500	85	5	360.9	57.6	Pass
Failed Proportioning Valve	LLVW	100	85	500	110	5	NA	NA	NA
Failed Hydraulic Circuit #1	LLVW	100	65	500	168	5	332.4	62.8	Pass
Failed Hydraulic Circuit #2	LLVW	100	65	500	168	5	450.6	120.7	Pass
Failed Hydraulic Circuit #1	GVWR	100	65	500	168	5	421.9	72.8	Pass
Failed Hydraulic Circuit #2	GVWR	100	65	500	168	5	382.0	111.3	Pass
Failed Antilock	GVWR	100	65	500	65	5	307.5	60.6	Pass
Failed Proportioning Valve	GVWR	100	65	500	110	5	NA	NA	NA
Power Brake Unit Failure	GVWR	100	65	500	168	5	488.9	157.6	Pass
Parking Brake - Uphill	GVWR	-	-	400	Hold for 5 min.?	NA	382.6	Yes-Holds	Pass
Parking Brake - Downhill	GVWR	-	-	400	Hold for 5 min.?	NA	388.2	Yes-Holds	Pass
Heating Snubs	GVWR	120-6C	NA	NA	15 Snubs- 3.0 mpsps	6	63 Vls. Avg.	NA	NA
Hot Performance Stop #1	GVWR	100	65	314 avg	81.8	5	487.6 (248.2)	53.4	Pass
Hot Performance Stop #2	GVWR	100	65	500	69	5	518.7	51.5	*Pass
Brake Cooling	GVWR	5U	NA	NA	4 Stops - 3.0 mpsps	5	59 Vls. Avg.	NA	NA
Recovery Performance Stop #1	GVWR	100	65	314 avg	One of the two stops between 71.6 and 98.7 meters	5	288.4 (172.4)	53.2	Pass
Recovery Performance Stop #2	GVWR	100	65	500		6	437.0 (226.8)	48.4	
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: 2003 CHEVROLET TRAILBLAZER LS

NHTSA No. C30107 Date: 05/08/03

Tire Pressure(cold): Front (kpa) 221 Rear (kpa) 221

Odometer: Start 284 MI. End 725 MI.

Scale(s) Used: TRC Mettler/Toledo 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): 2608
GAWR Front(Kg): 1338
GAWR Rear(Kg): 1452

L Front(Kg): 567 L Rear(Kg): 485
R Front(Kg): 553 R Rear(Kg): 463
T Front(Kg): 1120 T Rear(Kg): 948
Total UVW(Kg): 2068

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): 612 L Rear(Kg): 531
R Front(Kg): 599 R Rear(Kg): 513
T Front(Kg): 1211 T Rear(Kg): 1043
Total LLVW(Kg): 2254

L Front(Kg): 612 L Rear(Kg): 526
R Front(Kg): 599 R Rear(Kg): 517
T Front(Kg): 1211 T Rear(Kg): 1043
Total Actual Test LLVW(Kg): 2254

Load: Driver/Observer 73(Kg) + Instru. 41(Kg) + Ballast 72(Kg) = 186(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): 612 L Rear(Kg): 680
R Front(Kg): 635 R Rear(Kg): 676
T Front(Kg): 1247 T Rear(Kg): 1356
Total Fully Loaded GVWR(Kg): 2604

Load: Driver/Observer 73(Kg) + Instru. 41(Kg) + Ballast 422(Kg)= 536(kg)

Technician: Waren Easterday
WARREN EASTERDAY

Date: 6/4/03

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? YES

Describe: METAL TAB EMITS HIGH FREQUENCY SQUEAL WHEN WORN.

(B) Visual check outside or under vehicle? YES

Describe: FRONT & REAR. LOOK THROUGH CALIPERS

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: 6/14/03

Quality Assurance:

Ken Webster
KEN WEBSTER

DATA SHEET 5 - VEHICLE MAX SPEED

VEHICLE: 2003 CHEVROLET TRAILBLAZER LS

NHTSA No. C30107

Date: 05/08/03

Ambient Temperature: 59 00°F

Wind Velocity: 6 00(MPH)

Road PFC 990

Wind Direction: 3°

Odometer: Start 299(mi) End 315(mi)

TEST WEIGHT: Total (Kg): 2254

Front (Kg): 1211

Rear (Kg): 1043

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	175.1km/h	175.1	10.56
Run No. 2	North	173.3km/h	173.3	10.30

AVERAGE = 174.2 km/h

COMMENTS: INV DATA, Section 0001, 05/08/03, 15:06:13

Tester/Technician:

Karen Easterday
KAREN EASTERDAY

Date:

6/4/03

Quality Assurance:

Ken Webster
KEN WEBSTER

Vehicle: 2003 GENERAL MOTORS XHTSA NUMBER: C30207
 Make: CHEVROLET
 Model: TRAILBLAZER LS
 Body Style: 4-DOOR, 4WD, MPV
 Front Cold Tire Pressure: 221 (Kpa)
 Rear Cold Tire Pressure: 221 (Kpa)

Transportation Research Center, Inc.
 10820 State Route 347
 East Liberty, Ohio 43319
 (937)666-2011 www.trcpcg.com

Date Tested: 05/08/03

DATA SHEET 6 - BURNISH AT GVWR

Testing Conditions: IMV DATA, Section 0002, 05/08/03, 16:21:09

Weather Conditions: 66°F Wind: 2 mph 47° Start Odc.: 325 End Odc.: 500

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 187 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	IBIT	LEPT	RIGHT	LEFT	RIGHT	MAX.	AVG.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	PEDAL	PEDAL	DECEL
#	(kph)	(°C)	(°C)	(°C)	(°C)	(N)	(N)	(m/sec ²)
1	80.84	104	120	107	107	78.40	63.53	2.64
10	80.03	95	109	114	107	79.92	54.22	2.73
20	80.91	98	116	119	117	69.28	50.93	2.75
30	79.98	94	109	117	113	69.74	49.00	2.81
40	79.96	92	106	117	114	67.92	49.19	2.83
50	80.13	97	106	114	118	78.17	51.42	2.73
60	79.98	88	99	111	112	65.25	50.10	2.85
70	79.54	88	98	111	109	65.01	46.16	2.79
80	80.57	96	110	116	121	65.27	48.43	2.77
90	80.50	98	98	114	121	73.14	46.35	2.78
100	80.13	89	98	113	126	63.04	44.91	2.80
110	80.03	88	97	112	116	63.42	45.41	2.81
120	77.75	90	96	109	115	61.90	50.93	2.70
130	79.79	87	94	112	115	67.62	41.40	2.80
140	79.42	84	101	113	117	65.46	44.50	2.82
150	79.79	84	88	108	114	70.68	49.91	2.63
160	80.09	85	75	110	116	67.77	51.08	2.75
170	80.36	87	94	112	118	65.23	50.36	2.67
180	80.03	87	91	111	118	70.23	45.41	2.75
190	80.21	86	88	109	117	46.83	46.20	2.64
200	79.95	87	92	110	117	78.68	47.11	2.90

COMMENTS: THIS VEHICLE ABS 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 JENNING Date: 05/08/03
 Approving Laboratory Official: KEN WEBSTER Date: 05/08/03

Vehicle: 2003 GENERAL MOTORS NHTSA NUMBER: C10107
 Make: CHEVROLET
 Model: TRAILBLAZER LS
 Body Style: 4-DOOR, 4WD, MPV
 Front Cold Tire Pressure: 271 (kpa)
 Rear Cold Tire Pressure: 271 (kpa)

Transportation Research Center, Inc.
 10820 State Route 147
 East Liberty, Ohio 43319
 (937) 666-2011 www.trcys.com

Date Tested: 05/13/03

DATA SHEET 11 - COLD EFFECTIVENESS AT GVWR

Testing Conditions: Inv DATA, Section 0015, 05/13/03, 08:48:24

Weather Conditions: 51°F Wind: 11 mph 289° Skt: 000: 591 Snd: 000: 595

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 15 km/h
 Vehicle must stay in lane of 3.5m

STOP	INLT SPD	LEFT FRONT IBT	RIGHT FRONT IBT	LEFT REAR IBT	RIGHT REAR IBT	ACTUAL DISTANCE	CORRECTED DISTANCE	MAX. PEDAL FORCE	AVG. PEDAL FORCE	MAX. DECEL	AVG. DECEL
#	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec²)	(m/sec²)
1	99.38	79	77	61	66	53.6	54.2	420.84	268.98	13.40	6.38
2	99.82	88	84	57	63	53.2	53.4	495.03	340.36	11.83	6.54
3	99.02	86	81	51	58	52.2	53.2	507.65	378.29	12.83	6.92
4	100.03	88	89	57	57	54.3	54.3	423.50	294.56	14.60	5.96
5	100.20	91	89	53	61	53.9	53.7	472.75	293.91	12.87	6.60
6	99.84	98	89	54	62	53.1	53.2	480.75	314.03	13.68	6.56

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

Corrected Distances are used to determine shortest stopping distance.

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTREDAY Observer: NDWE
 Recorded Data Processed by: CHUCK JENNINS Date: 05/30/03
 Approving Laboratory Official: KEN WRIGHT Date: 06/03/03

Vehicle: 2003 GENERAL MOTORS NHTSA NUMBER: C30107
 Make: CHEVROLET
 Model: TRAYBIDAZER LS
 Body Style: 4-DOOR, 4WD, MPV
 Front Cold Tire Pressure: 221 (Kpa)
 Rear Cold Tire Pressure: 221 (Kpa)

Transportation Research Center, Inc.
 10820 State Route 347
 East Liberty, Ohio 43318
 (937) 666-2011 www.trcpg.com

Date Tested: 05/13/03

DATA SHEET 12 - HIGH SPEED EFFECTIVENESS AT GVWR

Testing Conditions: INV DATA, Section 0020, 05/13/03, 09:45:55

Weather Conditions: 56°F Wind: 14 mph 308° Start Ode: 598 End Ode: 609

Schedule:

Initial Brake Temperature: 65-100°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: 144.1 meters
 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 FRONT	RIGHT FRONT	LEFT REAR	RIGHT REAR	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	Spd	IBT	IBT	IBT	IBT	DISTANCE	(CAR 200)	PEDAL	DECEL	DECEL	DECEL
	(km/h)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(M)	(m/sec²)	(m/sec²)
1	140.95	72	86	53	56	100.2	97.9	476.73	341.46	11.46	7.01
2	139.44	90	88	60	62	97.1	97.0	491.54	364.39	12.92	7.32
3	139.01	96	87	53	57	96.9	97.3	449.49	316.61	14.45	6.99
4	140.36	92	82	47	52	97.0	95.6	483.55	372.19	13.06	7.63
5	139.25	76	65	38	41	97.0	97.1	477.03	360.03	13.27	6.99
6	139.93	93	82	47	52	96.2	95.5	479.38	381.51	12.68	7.42

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 EASTRDAY Observer: NONE
 Recorded Data Processed by: CHUCK JENKINS Date: 05/30/03
 Approving Laboratory Official: JIM WEBSTER Date: 06/03/03

Vehicle: 2003 GENERAL MOTORS NHTSA NUMBER: C30107 Transportation Research Center, Inc.
 Make: CHEVROLET 10820 State Route 347
 Model: TRAILBLAZER LS East Liberty, Ohio 43319
 Body Style: 4-DOOR, 4WD, MPV (937)666-2011 www.trcpg.com
 Front Cold Tire Pressure: 221 (Kpa)
 Rear Cold Tire Pressure: 221 (Kpa) Date Tested: 05/13/03

DATA SHEET 13 - STOPS WITH ENGINE OFF AT GVWR

Testing Conditions: INV DATA, Section 8025, 05/13/03, 10:53:55

Weather Conditions: 58°F Wind: 22 mph 281° Start Odo.: 609 End Odo.: 615

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 60N and 500N
 No Lock-Up allowed longer than 0.1 sec above 35 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 (SAE 199) (meters)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
		IBT (°C)	IBT (°C)	IBT (°C)	IBT (°C)						
1	99.92	95	87	46	52	55.9	56.0	344.19	189.43	11.36	6.74
2	99.44	95	87	50	56	56.3	56.9	398.37	272.73	10.03	6.24
3	99.36	96	86	52	59	56.3	57.0	392.99	257.92	9.74	6.08
4	99.82	92	79	50	57	54.8	55.0	471.58	268.26	9.84	6.30
5	99.70	94	82	56	61	56.7	57.1	424.78	377.29	9.92	6.16
6	98.71	93	82	54	59	62.3	63.0	520.03	328.70	10.28	5.55

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 EASTBURY Observer: NONE
 Recorded Data Processed by: CHUCK JENKINS Date: 05/20/03
 Approving Laboratory Official: KEN WEBSTER Date: 06/03/03

Vehicle: 2003 GENERAL MOTORS
 Make: CHEVROLET
 Model: TRAILBLAZER LE
 Body Style: 4-DOOR, 4WD, MPV
 Front Cold Tire Pressure: 221 (kpa)
 Rear Cold Tire Pressure: 221 (kpa)

WHTSA NUMBER: C10107

Transportation Research Center, Inc.
 10820 State Route 347
 East Liberty, Ohio 43319
 (637) 666-2011 www.trcpg.com

Date Tested: 05/13/03

DATA SHEET 14 - COLD EFFECTIVENESS AT LHM

Testing Conditions: INV DATA, Section 0030, 05/13/03, 12:53:53

Weather Conditions: 60°F Wind: 21 mph 302° Start Odo.: 616 End Odo.: 623

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 10m
 Pedal Force between 65N and 500N
 No Lock-Up allowed longer than 0.2 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	99.33	71	76	62	63	49.7	50.3	372.42	218.97	12.33	7.57
2	100.20	84	84	51	56	49.1	48.9	425.12	240.26	10.17	6.63
3	100.26	84	76	42	47	48.7	48.5	490.10	304.71	11.51	6.87
4	99.74	93	95	47	50	50.2	50.5	511.78	330.63	10.83	7.01
5	100.62	94	89	44	48	49.4	48.8	385.57	268.11	14.57	7.12
6	99.82	93	80	42	47	49.8	50.0	506.70	373.44	13.64	7.41

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 BASTERDAY Observer: NONE
 Recorded Data Processed by: CHUCK JENKINS Date: 05/13/03
 Approving Laboratory Official: KEN WEBSTER Date: 06/03/03

Vehicle: 2003 GENERAL MOTORS NHTSA NUMBER: C36107
 Make: CHEVROLET
 Model: TRAILBLAZER LS
 Body Style: 4-DOOR, 4WD, MPV
 Front Cold Tire Pressure: 221 (kPa)
 Rear Cold Tire Pressure: 221 (kPa)

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 10820 State Route 347
 East Liberty, Ohio 43319
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Date Tested: 05/13/03

DATA SHEET 15 - HIGH SPEED EFFECTIVENESS AT LLVM

Testing Conditions: LMV DATA, Swellion 3035, 05/13/03, 13:40:33

Weather Conditions: 61°F Wind: 25 mph SW

Start Odo.: 627

End Odo.: 636

Schedule:

Initial Brake Temperature: 65-100°C
 Initial Speed: 80% max km/h
 6 stops with transmission in gear

Performance Requirements:

One Stop with:
 Stopping Distance less than 143.1m
 Wheel force between 65N and 600N
 No Lock-Up allowed longer than 0.1 sec above 15 km/h
 Vehicle must stay in lane of 3.5m

STOP	INIT	LEFT FRONT	RIGHT FRONT	LEFT REAR	RIGHT REAR	ACTUAL DISTANCE	CORRECTED DISTANCE (SAS 299)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
#	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec²)	(m/sec²)
1	140.79	73	72	50	52	93.7	91.3	466.80	292.02	12.72	7.61
2	140.43	83	82	49	53	98.3	96.8	462.07	329.91	13.01	7.36
3	140.00	79	79	46	50	94.1	93.3	496.82	354.23	13.39	7.10
4	138.79	82	79	47	51	94.0	94.7	490.90	360.09	14.73	7.46
5	139.39	78	76	52	56	93.9	93.9	439.60	312.44	14.74	7.56
6	140.19	86	88	46	56	92.2	91.1	392.96	241.17	14.17	7.93

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 (1) NO ()

Driver: KAREN EASTERDAY Observer: MCNE
 Recorded Data Processed by: CRUCK JENKINS Date: 05/30/03
 Approving Laboratory Official: KEN WEBSTER Date: 06/03/03

Vehicle: 2003 GENERAL MOTORS METSA NUMBER: C30107
 Make: CHEVROLET
 Model: TRAILBLAZER LS
 Body Style: 4-DOOR 4WD, MPV
 Front Cold Tire Pressure: 221 (kpa)
 Rear Cold Tire Pressure: 221 (kpa)

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 East Liberty, Ohio 43319
 (937) 666-2011 www.trcpg.com

Date Tested: 05/13/03

DATA SHEET 16 - ANTILOCK FUNCTIONAL FAILURE AT LLW

Testing Conditions: INV DATA, Section 0040, 05/13/03, 15:01:18

Weather Conditions: 63°F Wind: 26 mph 105° Start Odo.: 637 End Odo.: 642

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 85m
 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 TBT (°C)	RIGHT FRONT TBT (°C)	LEFT REAR TBT (°C)	RIGHT REAR TBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAS 199) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.76	93	87	40	49	57.4	57.6	350.86	125.60	10.21	6.15
2	100.76	96	88	48	54	59.9	59.0	261.91	127.12	8.94	6.09
3	100.27	96	88	51	58	63.5	63.1	206.12	135.56	8.43	5.98
4	99.32	90	87	53	64	60.2	60.4	355.10	124.73	9.48	5.96
5	99.29	95	84	53	63	60.7	61.5	253.03	117.46	8.58	6.00
6	99.25	98	114	57	66	69.9	71.0	394.62	111.09	9.41	5.44

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

How was the ABS failure induced: REMOVED 60 AMP FUSE FROM BOX UNDER THE HOOD ON THE LEFT SIDE.

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

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

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN BASTARDAY Observer: MOUR
 Recorded Data Processed by: CHUCK JENKINS Date: 05/30/03
 Approving Laboratory Official: KEW WEBSTER Date: 06/03/03

Vehicle: 2003 GENERAL MOTORS NHTSA NUMBER: C30107
 Make: CHEVROLET
 Model: TRAILBLAZER LS
 Body Style: 4-DOOR, 4WD, MPV
 Front Cold Tire Pressure: 221 (Kpa)
 Rear Cold Tire Pressure: 221 (Kpa)

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Date Tested: 05/14/03

DATA SHEET 18 - HYDRAULIC CIRCUIT FAILURE #1 AT LLVW

Testing Conditions: INV DATA, Section 0050, 05/14/03, 09:58.48

Weather Conditions: 61°F Wind: 5 mph 137° Start Odo.: 649 End Odo.: 653

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

System Portion Failed: LK & 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 166m
 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	RIGHT FRONT	LEFT REAR	RIGHT REAR	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAS 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
		IBT (°C)	IBT (°C)	IBT (°C)	IBT (°C)						
1	99.20	69	70	25	24	71.7	72.9	245.68	195.19	8.90	5.30
2	99.62	92	94	26	25	62.4	62.9	332.35	259.85	11.54	6.02
3	100.42	91	94	26	25	65.8	63.3	455.19	290.42	11.20	5.59
4	100.22	94	93	26	25	64.5	64.2	512.33	363.79	10.63	5.50

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

Force Needed to Activate Brake Failure Lamp (N): N/A
 Fluid Removed (ml) to Activate Brake Failure Lamp: 251

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

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTBROOK Observer: NONE
 Recorded Data Processed by: CHUCK JENKINS Date: 05/10/03
 Approving Laboratory Official: KEN WEBSTER Date: 06/03/03

Vehicle: 2003 GENERAL MOTORS METSA NUMBER: C30107
 Make: CHEVROLET
 Model: TRAILBLAZER LS
 Body Style: 4 DOOR, 4WD, MPV
 Front Cold Tire Pressure: 221 (Kpa)
 Rear Cold Tire Pressure: 221 (Kpa)

Transportation Research Center, Inc.
 10020 State Route 147
 East Liberty, Ohio 43319
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Date Tested: 05/14/03

DATA SHEET 19 - HYDRAULIC CIRCUIT FAILURE #2 AT LLVN

Testing Conditions: JMW DATA, Section 0055, 05/14/03, 13:53:14

Weather Conditions: 66°F Wind: 6 mph 21h* Start Odo.: 698 End Odo.: 664

Method of simulating failure: Disconnected Brake Line w/ M/C Rear Port

System Portion Failed: LP & RP

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 500N
 No Lock-Up allowed longer than 0.1 sec above 15 km/h
 Vehicle must stay in lane of 3.5m

		LEFT	RIGHT	LEFT	RIGHT							
	INIT	FRONT	FRONT	REAR	REAR	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.	
STOP	SPD	1ST	1ST	1ST	1ST	DISTANCE	(SAE 249)	PEDAL	PEDAL	ORCEL	ORCEL	
#	(km/h)	(°C)	(°C)	(°C)	(°C)	(meters)	(meters)	(N)	(N)	(N/sec)	(m/sec)	
1	98.96	39	38	92	91	120.4	125.1	451.63	352.30	5.99	2.96	
2	99.68	37	41	88	85	119.9	120.7	450.61	348.03	5.64	3.07	
3	100.37	33	37	72	69	129.1	128.4	439.41	341.44	5.63	2.96	
4	100.04	30	36	97	92	123.7	123.1	397.69	255.15	6.93	3.10	

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

STOP	LOCK-UP	DIR.	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: 451

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

DATA INDICATOR COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: BOME
 Recorded Data Processed by: CHUCK JESING Date: 05/30/03
 Approving Laboratory Official: KEW WEBSTER Date: 06/03/03

Vehicle: 2003 GENERAL MOTORS NHTSA NUMBER: C30107
 Make: CHEVROLET
 Model: TRAILBLAZER LS
 Body Style: 4-DOOR, 4WD, MPV
 Front Cold Tire Pressure: 221 (Kpa)
 Rear Cold Tire Pressure: 221 (Kpa)

Transportation Research Center, Inc.
 10820 State Route 347
 East Liberty, Ohio 43319
 (937) 666-2011 www.trcpg.com

Date Tested: 05/14/03

DATA SHEET 20 - HYDRAULIC CIRCUIT FAILURE #1 AT GVWR

Testing Conditions: IMV DATA, Section 0060, 05/14/03, 15:14:39

Weather Conditions: 65°F Wind: 9 mph 243° Start Odo.: 673 End Odo.: 677

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

System Portion Failed: LR & RR

Schedule:

Initial Brake Temperature 65-100°F
 Initial Speed 100 km/h LC 2470
 6 stops with transmission in neutral

Performance Requirements:

One Stop with
 Stopping Distance less than 35.0m
 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 2.5m

STOP #	INIT SPD	LEFT FRONT	RIGHT FRONT	LEFT REAR	RIGHT REAR	AUTUAL DISTANCE	CORRECTED DISTANCE	MAX. PEDAL FORCE	AVG. PEDAL FORCE	MAX. GRCAL	AVG. PWCED
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec²)	(m/sec²)
1	100.10	73	73	53	52	72.8	72.8	421.93	219.70	5.17	3.94
2	99.49	95	94	45	43	74.2	75.0	404.66	280.64	6.49	4.64
3	99.46	90	86	38	37	74.9	75.7	442.35	287.69	5.68	4.85
4	99.31	89	86	34	33	74.2	75.2	400.00	206.83	6.51	5.15

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

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

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observed: NONE
 Recorded Data Processed by: CHUCK JERKINS Date: 05/16/03
 Approving Laboratory Official: KEN WEBSTER Date: 05/03/03

Vehicle: 2003 GENERAL MOTORS NHTSA NUMBER: U30107
 Make: CHEVROLET
 Model: TRAILBLAZER LS
 Body Style: 4-DOOR, 4WD, SUV
 Front Cold Tire Pressure: 221 (Kpa)
 Rear Cold Tire Pressure: 223 (Kpa)

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 10320 State Route 347
 East Liberty, Ohio 43319
 (614) 666-2011 www.trcps.com

Date Tested: 05/14/03

DATA SHEET 21 - HYDRAULIC CIRCUIT FAILURE #2 AT GVWR

Testing Conditions: INV DATA, Section 0065, 05/14/03, 14:06:32

Weather Conditions: 66°F Wind: 9 mph 241° Start Odb: 667 End Odb: 670

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

System Portion Failed: LP & RV

Schedule:

Initial Brake Temperature 65-100°C
 Initial Speed 100 km/h to 150 km/h
 4 stops with transmission in neutral

Performance Requirements:

One Stop with:
 Stopping distance less than 368m
 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	LEFT FRONT	RIGHT FRONT	LEFT REAR	RIGHT REAR	ACTUAL DISTANCE	CORRECTED DISTANCE	MAX. PEDAL FORCE	AVG. PEDAL FORCE	MAX. DECEL	AVG. DECEL
		1ST	1ST	1ST	1ST						
#	(km/h)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec²)	(m/sec²)
1	100.20	37	36	75	71	118.4	117.9	496.21	326.25	6.25	3.12
2	100.38	37	38	88	82	112.2	111.3	382.81	297.84	6.00	3.42
3	99.77	34	33	83	76	115.2	115.8	393.90	290.53	6.04	3.06
4	100.61	34	33	91	89	121.3	119.8	464.58	347.92	5.73	3.18

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: EAREN EASTRIDGE Observer: NONE
 Recorded Data Processed by: CHICK JENKINS Date: 05/16/03
 Approving Laboratory Official: KEN WEBSTER Date: 05/03/03

Vehicle: 2001 GENERAL MOTORS MITSUBISHI CRUISER
 MAKE: CHRYSLER
 Model: TRAILBLAZER LE
 Body Style: 4-DOOR, 4WD, MPV
 Front Cold Tire Pressure: 221 (Kpa)
 Rear Cold Tire Pressure: 221 (Kpa)

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 10820 State Route 347
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Date Tested: 05/15/03

DATA SHEET 22 - ANTILOCK FUNCTIONAL FAILURE AT GVWR

Testing Conditions: INV DATA, Section D070, 05/15/03, 10:35:29

Weather Conditions: 59°F Wind: 9 mph 189° Start Udg.: 687 End Udg.: 691

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 8m
 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 1ST (°C)	RIGHT FRONT 1ST (°C)	LEFT REAR 1ST (°C)	RIGHT REAR 1ST (°C)	ACTUAL DISTANCE (m/sec)	COMMENTS (SLE 289) (m/sec)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (g/sec)	AVG. DECEL (m/sec)
1	95.78	84	84	68	66	62.0	62.3	320.50	147.82	8.72	5.97
2	95.19	88	88	69	66	64.6	65.7	348.50	133.08	10.46	5.57
3	100.77	88	88	70	66	66.7	66.5	283.80	125.96	8.70	5.60
4	100.09	89	87	68	64	61.1	61.2	285.60	130.88	9.04	5.70
5	96.76	92	91	57	52	60.5	60.8	313.02	157.83	8.98	6.38
6	99.05	92	92	71	68	59.4	60.6	300.57	147.88	9.50	6.00

STOP #	DRIVER VEHICLE STOP COMMENTS
1	(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 60 AMP FUSE FROM BOX UNDER THE HOOD ON THE LEFT 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 EASTERDAY Observer: NONE
 Recorded Data Processed by: CHUCK JENNINS Date: 05/30/03
 Approving Laboratory Official: TEN WEBSTER Date: 06/03/03

Vehicle: 2003 GENERAL MOTORS NHTSA NUMBER: C30107 Transportation Research Center, Inc.
 Make: CHEVROLET 10420 State Route 347
 Model: TRAILBLAZER LS East Liberty, Ohio 43315
 Body Style: 4 DOOR, 4WD, MPV (937)566-2011 www.trcpg.com
 Front Cold Tire Pressure: 221 (kpa)
 Rear Cold Tire Pressure: 221 (kpa) Date Tested: 05/15/03

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

Testing Conditions: INV DATA, Section 0080, 05/15/03, 11:20:27

Weather Conditions: 62°F Wind: 12 mph 208° Start Odo.: 692 End Odo.: 697

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
 6 stops with transmission in neutral

Performance Requirements:

One Stop with:
 Stopping Distance less than 168m
 Pedal force between 650 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	FBT	FBT	FBT	FBT	DISTANCE	(SAE 299)	PEDAL	PEDAL	DECEL	DECEL
#	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec²)	(m/sec²)
1	99.19	84	81	62	57	170.5	173.3	499.85	465.22	3.78	2.41
2	100.01	99	94	73	70	157.6	157.6	488.83	477.31	3.78	2.60
3	100.41	87	83	67	61	168.7	167.4	501.63	459.46	3.79	2.49
4	99.07	97	92	73	71	155.1	158.0	496.82	469.80	4.02	2.64
5	99.96	78	71	61	55	164.8	165.0	497.24	467.83	3.75	2.54
6	99.53	91	94	71	69	156.4	158.3	496.52	462.45	3.93	2.64

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

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

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
 Recorded Data Processed by: CHUCK JENKINS Date: 05/20/03
 Approving Laboratory Official: KEV WEBSTER Date: 06/03/03

Vehicle: 2003 GENERAL MOTORS NHTSA NUMBER: C30107
 Make: CHEVROLET
 Model: TRAILBLAZER LS
 Body Style: 4-DOOR, 4WD, MPV
 Front Cold Tire Pressure: 221 (Kpa)
 Rear Cold Tire Pressure: 221 (Kpa)

Transportation Research Center, Inc.
 10870 State Route 347
 East Liberty, Ohio 43119
 (614) 466-2017 www.trcpg.com

Date Tested: 05/15/03

DATA SHEET 25 - PARKING BRAKE AT GVWR

Testing Conditions: INV DATA, Section 0085, 05/15/03, 13:26:22

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

Service type: N/A

Weather Conditions: 64°F Wind: 5 mph 174°

Start Odo.: 700

End Odo.: 700

Test Weight: Total: 2604kg

Front: 1247kg

Rear: 1356kg

Schedule:

Initial Brake Temperature <100°C or (Ambient temp.
 if non-service brake type materials)
 Loaded 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 (N)	FORCE (N)	1ST (°C)	1ST (°C)	1ST (°C)		(Direction of Stop (Up/Down) - Brake holds/fails)			
1	101.0	382.6	34	36	34.7	-	0 REAPPLY	UPHILL	HOLDS	20%
2	99.7	389.2	32	34	33.3	-	2 REAPPLIES	DOWNHILL	HOLDS	20%

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

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTWOLD

Observer: NUNA

Recorded Data Processed by: CRUCE JENKINS

Date: 05/30/03

Approving Laboratory Official: KEN WEBSTER

Date: 06/03/03

Vehicle: 2003 GENERAL MOTORS NHTSA NUMBER: C30107
 Make: CHEVROLET
 Model: TRAILBLAZER LS
 Body Style: 4-DOOR, 4WD, MPV
 Front Cold Tire Pressure: 221 (kpa)
 Rear Cold Tire Pressure: 221 (kpa)

Transportation Research Center, Inc.
 10820 State Route 347
 East Liberty, Ohio 43319
 (614) 666-2011 www.trcpg.com

Date Tested: 05/15/03

DATA SHEET 26 - HEATING SNUBS AT GVWR

Testing Conditions: JMY DATA, Section 0090, 05/15/03, 14-13:24

Schedule:

Conduct 15 snubs from 120 km/h or 80% Vmax, whichever is slower, to 1/2 of initial speed.
 Attain required decel in 3 seconds and maintain that decel.
 Interval between snubs is 45 seconds and NOT to initial speed.

Performance Requirements:

Initial IBT for first snub is 85-85°C
 Maintain 3.0 m/s/s deceleration
 Vehicle must stay in lane of 3.5m

SNUB	AVG. DECEL (m/sec ²)	Time Between Snubs (seconds)	AVG. PEDAL FORCE (N)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	INIT SPD (kph)
1	3.15	45	65.40	58	57	49	50	119.36
2	3.07	46	53.09	103	107	91	93	110.87
3	2.85	45	53.39	142	148	128	133	119.63
4	2.96	46	48.09	169	184	157	161	118.42
5	2.86	43	54.26	196	216	184	186	119.75
6	2.78	46	51.19	217	239	207	206	119.43
7	2.67	45	46.87	229	258	225	224	119.65
8	2.91	45	49.53	246	272	241	242	120.02
9	2.93	46	55.74	257	283	252	256	120.75
10	3.10	44	50.70	270	292	263	269	120.32
11	2.93	45	50.47	280	302	269	282	119.74
12	3.48	48	55.06	285	305	278	292	118.86
13	2.91	42	52.23	294	315	289	303	120.67
14	2.93	46	55.02	296	325	298	306	119.85
15	3.17	45	54.64	298	316	305	305	117.82

STOP

DRIVER VEHICLE SNUB COMMENTS

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

1	-	NOX	NORTH	YES
2	-	NOX	EAST	YES
3	-	NOX	EAST	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	NORTH	YES
12	-	NOX	EAST	YES
13	-	NOX	SOUTH	YES
14	-	NOX	SOUTH	YES
15	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN BASTENDAY Observer: NONE
 Recorded Data Processed by: CHUCK JENKINS Date: 05/16/03
 Approving Laboratory Official: KEN WEBSTER Date: 06/03/03

Vehicle: 2003 GENERAL MOTORS NETSA NUMBER: C30107
 Make: CHEVROLET
 Model: TRAILBLAZER LS
 Body Style: 4-DOOR, 4WD, MPV
 Front Cold Tire Pressure: 221 (Kpa)
 Rear Cold Tire Pressure: 221 (Kpa)

Transportation Research Center, Inc.
 10820 State Route 347
 East Liberty, Ohio 43319
 (937)666-2011 www.trcpg.com

Date Tested: 05/15/03

DATA SHEET 27 - HOT PERFORMANCE AT GVWR

Testing Conditions: INV DATA, Section 0095, 05/16/01, 14:23:12

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.

Diagnostic Requirements are based on the following:

Shortest Stop on Data Sheet 11 is: 6
 Initial speed of stop: 99.89 (kph)
 Actual distance of stop: 53.1 (meter)
 Average pedal force: 314.0 (N)

Performance Requirements:

Stop Number 1 must be less than: 81.8 (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		RIGHT		ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 199) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec ²)	AVG. DECEL (m/sec ²)
		FRONT	REAR	FRONT	REAR						
1	99.65	307	340	316	310	53.1	53.4	467.61	248.20	11.17	6.91
2	99.59	328	358	317	311	51.1	51.5	518.72	264.80	12.72	6.87

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

COMMENTS: SEE APPENDIX C.

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
 Recorded Data Processed by: CHUCK JENNINGS Date: 05/30/03
 Approving Laboratory Official: KEW WEBSTER Date: 06/03/03

Vehicle: 2003 GENERAL MOTORS NHTSA NUMBER: C33107
 Make: CHEVROLET
 Model: TRAILBLAZER LS
 Body Style: 4-DOOR, 4WD, MPV
 Front Cold Tire Pressure: 321 (Kpa)
 Rear Cold Tire Pressure: 221 (Kpa)

Transportation Research Center, Inc.
 10820 State Route 347
 East Liberty, Ohio 43318
 (614) 666-2011 www.trc-py.com

Date Tested: 05/15/03

DATA SHEET 28 - BRAKE COOLING STOPS AT GVWR

Testing Conditions: INV DATA, Section B100, 05/15/03, 14:27:10

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: 3.0 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	DECEL	PEDAL	FRONT	FRONT	REAR	REAR
#	(km/h)	(m/sec ²)	(N)	(°C)	(°C)	(°C)	(°C)
1	50.41	2.65	52.44	283	308	273	268
2	50.42	2.53	51.16	227	246	231	225
3	50.50	2.51	51.31	193	200	190	195
4	50.86	2.96	55.77	170	165	162	173

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

DATA INDICATES COMPLIANCE: YES [X] NO []

Driver: KAREN EASTERDAY Observer: NONE
 Recorded Data Processed by: CHUCK JENKINS Date: 05/30/03
 Approving Laboratory Official: KEN WEBSTER Date: 06/02/03

Vehicle: 2003 GENERAL MOTORS NHTSA NUMBER: C30107
 Make: CHRYSLER
 Model: TRAILBLAZER LS
 Body Style: 4-DOOR, 4WD, MPV
 Front Cold Tire Pressure: 221 (Kpa)
 Rear Cold Tire Pressure: 221 (Kpa)

Transportation Research Center, Inc.
 10820 State Route 347
 East Liberty, Ohio 43019
 (937) 666-2011 www.trcpg.com

Date Tested: 05/15/03

DATA SHEET 29 - RECOVERY PERFORMANCE AT GVWR

Testing Conditions: INV DATA, Section 0105, 05/15/03, 14:34:24

Weather Conditions: 56°F Wind: 11 mph 195° Start Odo.: 707 End Odo.: 719

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: 71.6 (meter)
 Lower limit of corrected stopping distance: 38.7 (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: Stops
 Initial speed of stop: 99.84 (kph)
 Actual distance of stop: 53.1 (meter)
 Average pedal force: 174.0 (N)

STOP #	UNIT	LEFT FROM:	RIGHT FROM:	LEFT REAR	RIGHT REAR	ACTUAL DISTANCE (S&P 209) (meter)	CORRECTED DISTANCE (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
		1BT	1TC	1BT	1TC						
1	99.84	161	159	155	166	53.0	53.2	289.35	172.42	13.34	6.55
2	99.82	194	202	163	174	48.4	48.4	436.99	224.11	15.13	7.05

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

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
 Recorded DATA Processed by: CHUCK JENKINS Date: 05/30/03
 Approving Laboratory Official: KEM WEBSTER Date: 06/03/03

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

VEHICLE: 2003 Chevrolet Trailblazer LS 4WD NHTSA NO.: C30107 DATE: 05/22/03

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: Karen Easterday

DATA SHEET 30 (Part 2 of 5)
TEST COMPLETION INSPECTION (\$7.17)

VEHICLE: 2003 Chevrolet Trailblazer LS 4WD; NHTSA NO.: C30107; GVWR: 2608 kg
MASTER CYLINDER RESERVOIR:

DATE	05/19/03	Requirements	Pass	Fail
Reservoir Compartments (\$5.4.1)				
(1) Does master cylinder have a reservoir compartment for each brake subsystem?	<u>Yes</u>	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	
	<u>No</u>			
Reservoir Capacity (\$5.4.2)				
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)	448 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)	181.2 ml			
*Value calculated from Data Sheet 31				

Comments: None.

DATA SHEET 30 (Part 3 of 5)
TEST COMPLETION INSPECTION (S7.18)

VEHICLE: 2003 Chevrolet Trailblazer LS 4WD; NHTSA NO.: C30107; GVWR: 2608 kg

MASTER CYLINDER RESERVOIR:

DATE	05/19/03	Requirements	Pass	Fail
Master Cylinder Piston Displacement(S5.4.2) (If Common Reservoir Supply - continued from previous page)				
Fluid displaced by three strokes of master cylinder piston for Primary (Subsystem No. 1)	24 ml	Individual partial compartments of reservoir shall <u>each</u> 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)	36 ml			
Fluid displaced per stroke, Primary	8 ml			
Fluid displaced per stroke, Secondary	12 ml			
Fluid available in partial compartment Subsystem No. 1	37 ml		X	
Fluid available in partial compartment Subsystem No. 2	75 ml		X	
Brake Power Unit Reservoir (S5.4.2)				
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 on 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 (S5.4.3)				
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 571.116	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.</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: Karen Easterday

DATA SHEET 30 (Part 4 of 5)
TEST COMPLETION INSPECTION (\$7.18)

VEHICLE: 2003 Chevrolet Trailblazer LS 4WD; NHTSA NO.: C30107; DATE: 04/30/03
BRAKE SYSTEM WARNING INDICATOR (\$5.5)

CONDITION	ANSWER	REQUIREMENTS	PASS	FAIL
Brake Systems Indicator Lamp Function Check (\$5.5.2) (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 is manufacturer check position- OR -single manual action by driver	X	
Does lamp light with ignition between ON and Start?	No			
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 (\$5.5.1) DURATION (\$5.5.3) FUNCTION (\$5.5.4)				
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 not split system 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? (\$5.4.4)	NA			
Indicator lamps remain activated as long as condition exists - ignition "on", and engine on or off? _____ (\$5.5.3 DURATION)	Yes			
Visual warning - continuous or flashing? _____	Yes-Cont.			
Audible warning -continuous or flashing? _____	Yes-Flash			

Comments: Audible warning lasts for approx. 11 secs.

Technician: Karen Easterday

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

VEHICLE: 2003 Chevrolet Trailblazer LS 4WD; NHTSA NO.: C30107; DATE: 05/07/03

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"? Additionally, w/two symbols.	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 block 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 \$5.5.1(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: None

Technician: Karen Easterday

DATA SHEET 31 (Part 1 of 2)

CALCULATION OF MINIMUM RESERVOIR VOLUME REQUIREMENTS

VEHICLE: 2003 Chevrolet Trailblazer LS 4WD; NHTSA NO.: C30107; DATE: 05/07/03

BRAKE		LINING		
LOCATION	TYPE	DESCRIPTION	MINIMUM THICKNESS	THICKNESS TO FULLY WORN (1) mm*
Left Front	Drum	Leading	Pre-test 10.54 mm	2.1
		Primary	Post Test 10.16 mm	
		Inboard X	Δ 0.38 mm	
	Disc X	Trailing	Pre-test 10.64 mm	2.1
		Secondary	Post Test 10.26 mm	
		Outboard X	Δ 0.38 mm	
LINING CLEARANCE: Diametrical (2): N/A		Inboard - 0.127 mm	Outboard - 0.127 mm	
WHEEL CYLINDER DIAMETER (3): N/A		CALIPER PISTON DIAMETER (3): 44.96 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 10.72 mm	1.5
		Primary	Post Test 10.46 mm	
		Inboard X	Δ 0.26 mm	
	Disc X	Trailing	Pre-test 10.72 mm	1.5
		Secondary	Post Test 10.15 mm	
		Outboard X	Δ 0.57 mm	
LINING CLEARANCE: Diametrical (2) - N/A		Inboard - 0.127 mm	Outboard - 0.127 mm	
WHEEL CYLINDER DIAMETER (3): N/A		CALIPER PISTON DIAMETER (3): 48.06 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 - Fronts - 2.1 mm; Rears - 1.5 mm.				
(2) REAR - TOP OF RIVET HEADS - N/A, FRONT - 1/32 INCH - N/A.				
(2) DRUM BRAKES, MEASURED AT HORIZONTAL CENTERLINE: N/A				
(3) MFRS. DATA: Front: 45.1 mm; Rear: 48 mm.				
(4) RESET POSITION: N/A				

Comments: Manufacturer's new lining thickness: Frt.: 10.7 mm; Rear: 11 mm.
Technician: Karen Easterday

DATA SHEET 31 – SECTION CONTINUED (Part 2 of 2)Vehicle: 2003 Chevrolet Trailblazer LS 4WD;NHTSA No.: C30107;Date: 06/03/03**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)

$$V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times \frac{\pi d^2}{4}$$

$$\Delta t_i = 8.6 \text{ mm}$$

$$\Delta t_o = 8.6 \text{ mm}$$

$$t_{ic} + t_{oc} = 0.254 \text{ mm}$$

$$d = 45.1 \text{ mm}$$

$$V_r = (8.6 + 0.127 + 8.6 + 0.127) \frac{\pi (45.1)^2}{4}$$

$$= 17.454 (1597.5)$$

$$= 27882.9 \text{ mm}^3 (\times 2 \text{ pistons}) = 55765.8 \text{ mm}^3 = 55.8 \text{ ml}$$

Disc Brake:
 (Rear)

$$V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times \frac{\pi d^2}{4}$$

$$\Delta t_i = 9.5 \text{ mm}$$

$$\Delta t_o = 9.5 \text{ mm}$$

$$t_{ic} + t_{oc} = 0.254 \text{ mm}$$

$$d = 48 \text{ mm}$$

$$V_r = (9.5 + 0.127 + 9.5 + 0.127) \frac{\pi (48)^2}{4}$$

$$= 19.254 (1809.6)$$

$$= 34841.2 \text{ mm}^3 = 34.8 \text{ ml}$$

For System 1 (LR, RR)

$$V_{r1} = 34841.2 \text{ mm}^3 + 134841.2 \text{ mm}^3$$

$$V_{r1} = 69682.4 \text{ mm}^3 = (69.7 \text{ ml})$$

For System 2 (LF, RF)

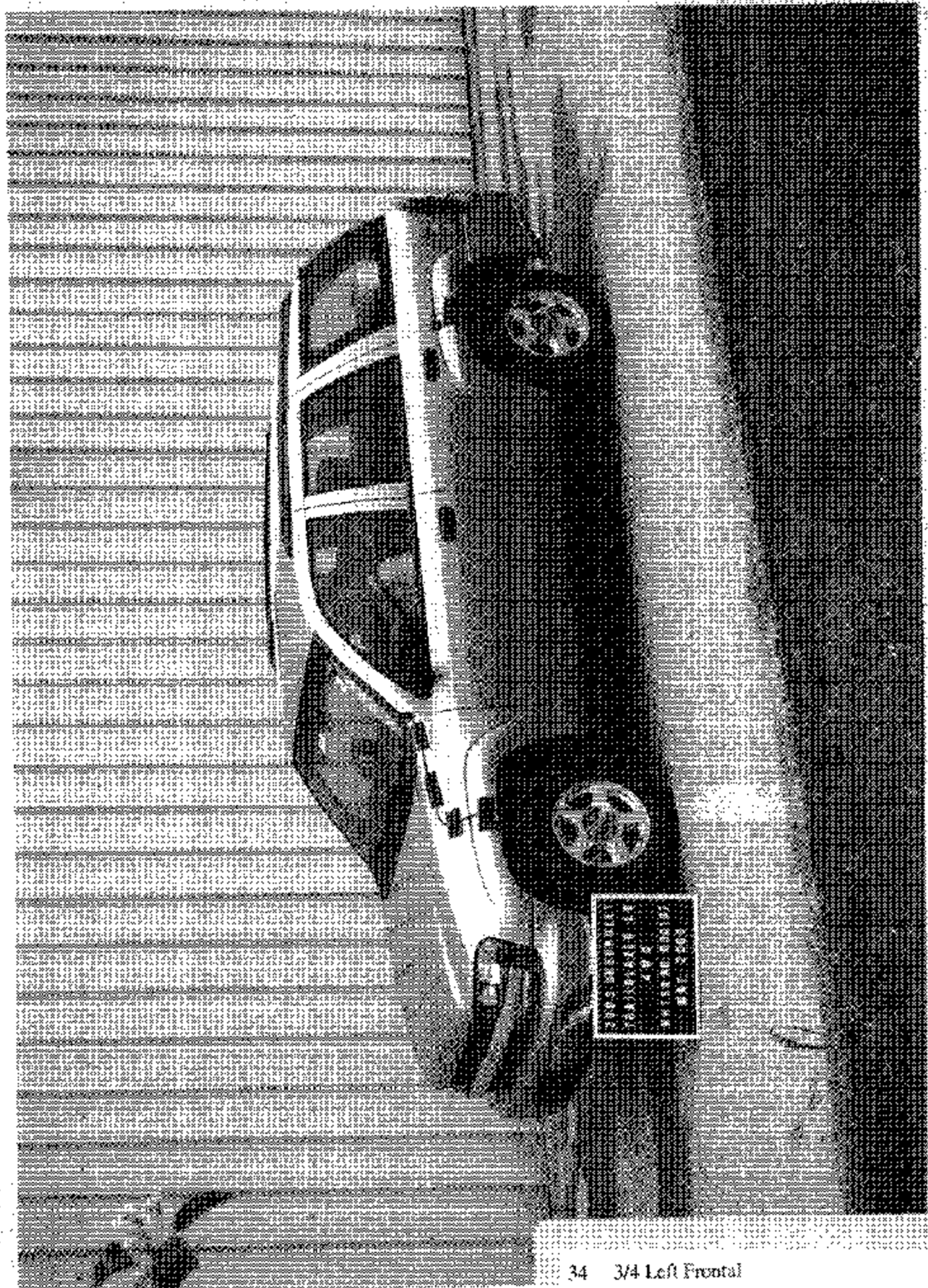
$$V_{r2} = 55765.8 \text{ mm}^3 + 55765.8 \text{ mm}^3$$

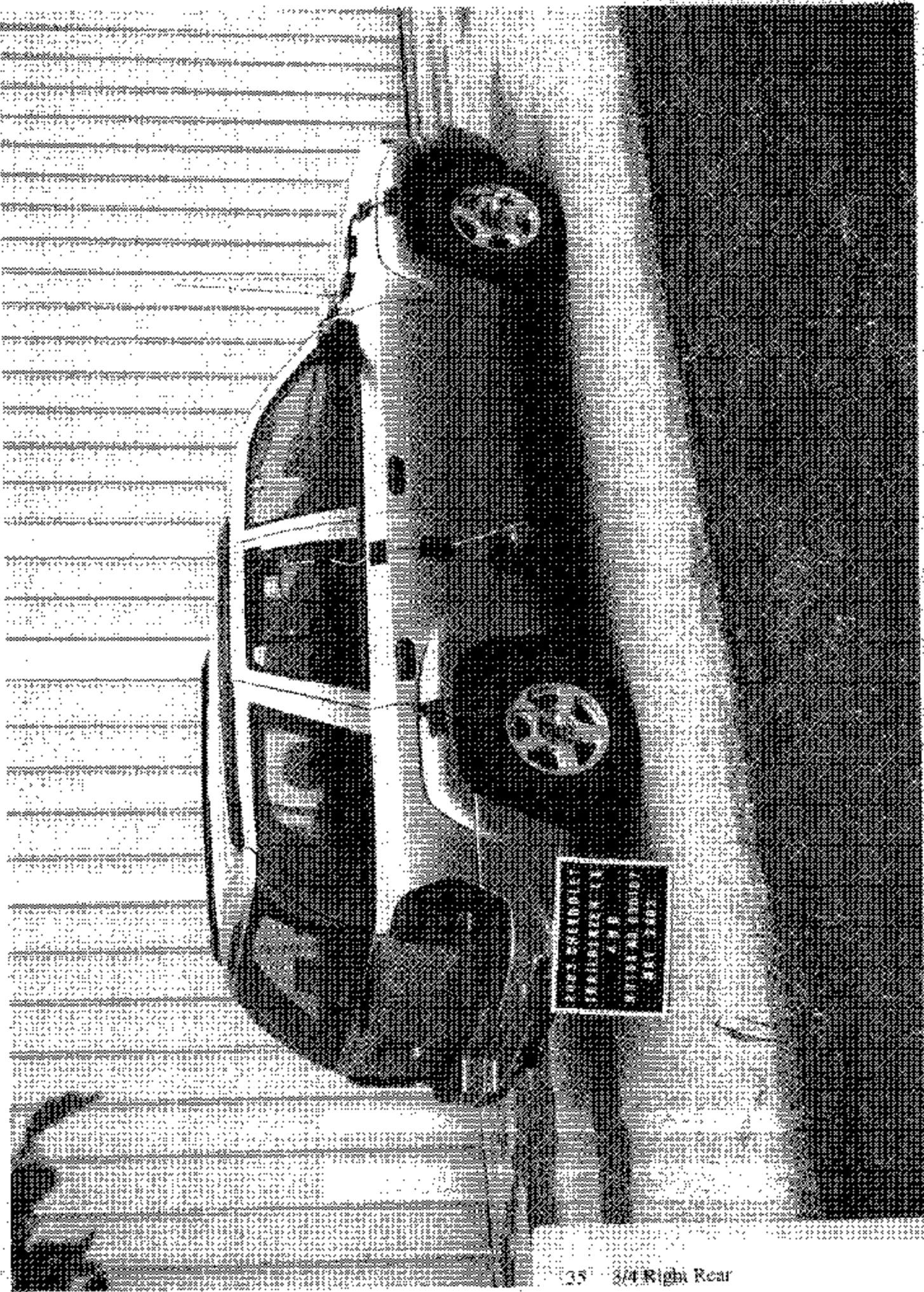
$$V_{r2} = 111531.6 \text{ mm}^3 = (111.5 \text{ ml})$$

$$\text{TOTAL VOLUME REQUIRED} = V_t = V_{r1} + V_{r2} = 181214 \text{ mm}^3 = 181.2 \text{ ml}^* \text{ (*see page 27)}$$

SECTION 6.0

Photographs







MFD BY GENERAL MOTORS CORP 11/02

GWR

GAWR FRT

GAWR RR

1452KG(3200LB)

2688KG(5950LB)

1338KG(2950LB)

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR
VEHICLE SAFETY AND THEFT PREVENTION STANDARDS IN EFFECT ON
THE DATE OF MANUFACTURE SHOWN ABOVE.

TYPE: M.P.V.

1GNDT13SX32213808

MODEL: T15006 PAYLOAD = 527KG(1162LB)

TPMS TIRE SIZE SPEED RTG RIM

FRT P245/70R16 S 16X7J

RR P245/70R16 S 16X7J

SPA P245/70R16 S 16X7J

SEE OWNER'S MANUAL FOR MORE INFORMATION.

COLD TIRE PRESSURE

220KPA(32PSI)

220KPA(32PSI)

240KPA(35PSI)

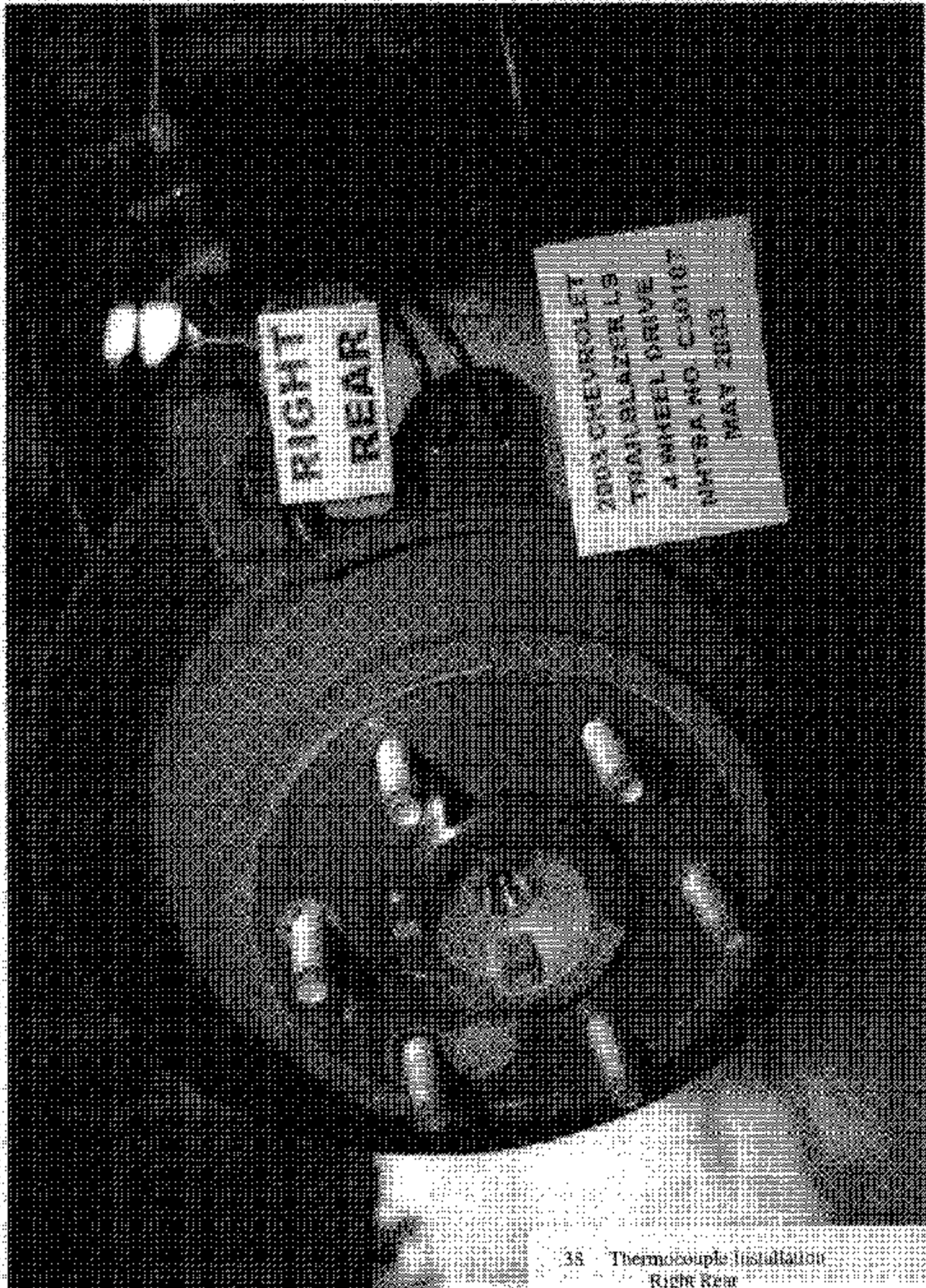
2003 CHEVROLET
TRAILBLAZER LS
4 WHEEL DRIVE

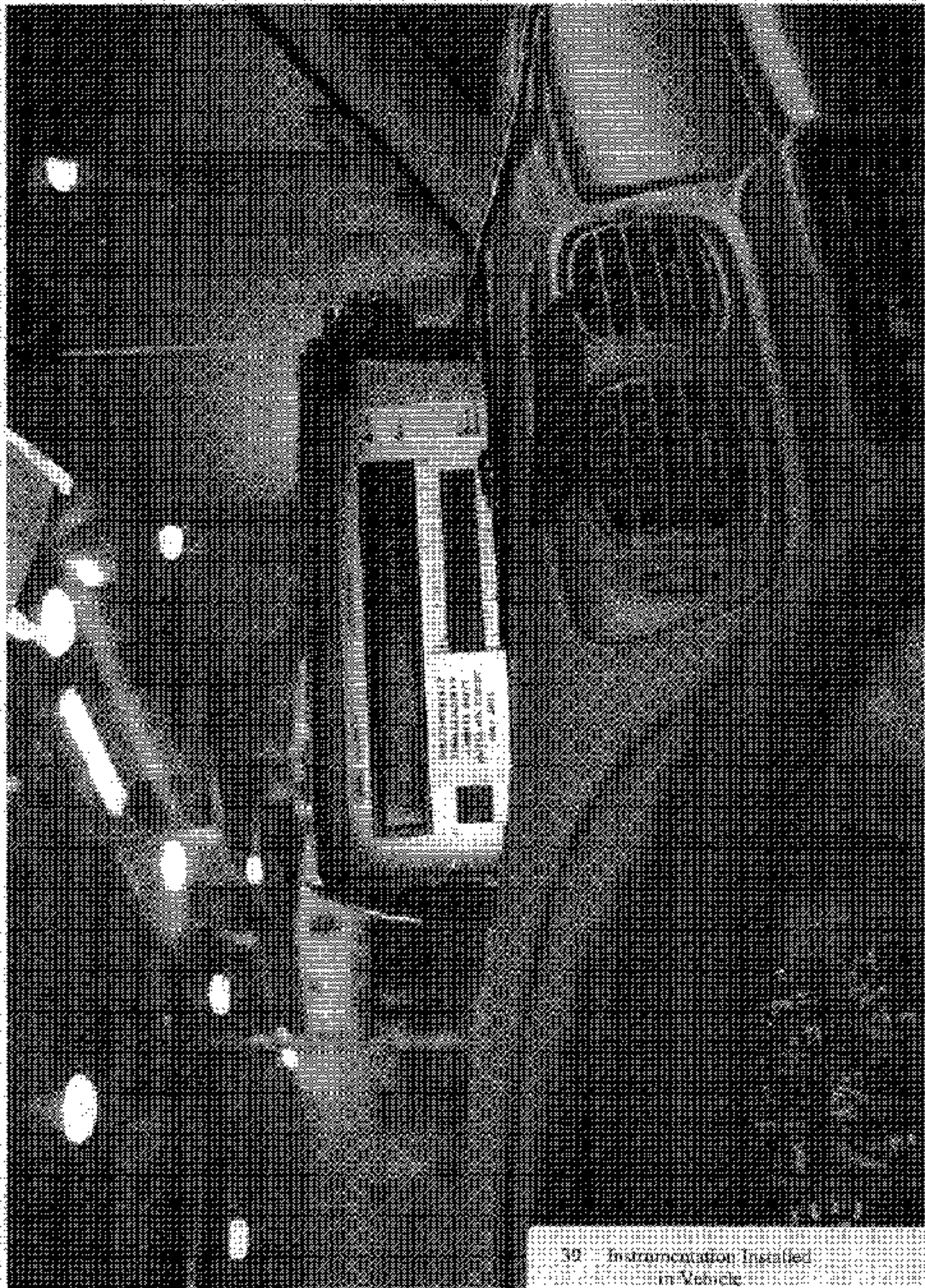
NHTSA NO. C30107

MAY 2003

LEFT
FRONT

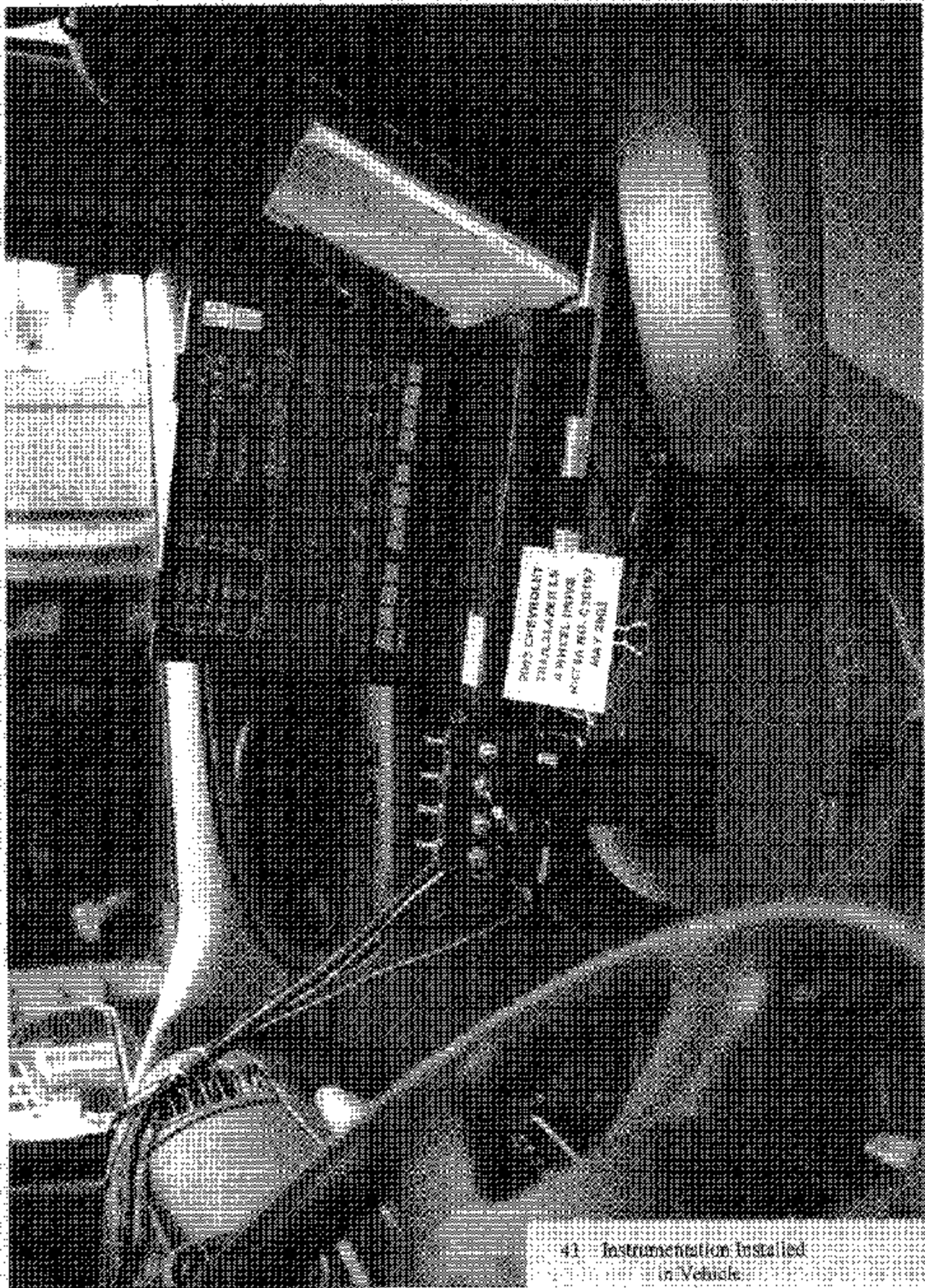
2003 CHEVROLET
TRAILBLAZER LS
4 WHEEL DRIVE
NHTSA NO. C30107
MAY 2003





2003 CHEVROLET
TRAILBLAZER LS
4 WHEEL DRIVE
NHTSA NO. C30107
MAY 2003

2003 CHEVROLET
TRAILBLAZER LS
4 WHEEL DRIVE
NHTSA NO. C30107
MAY 2003



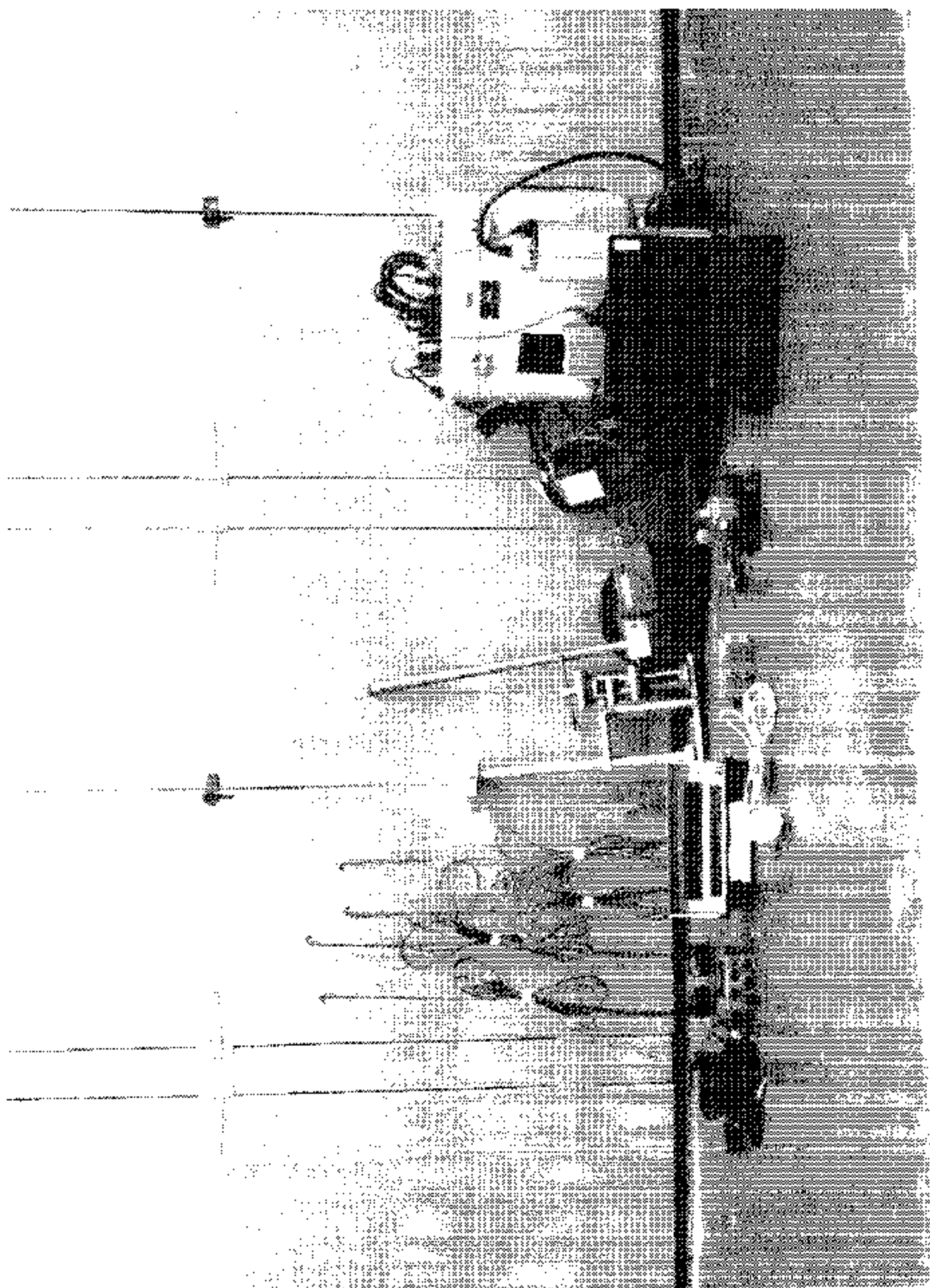
41 Instrumentation Installed
in Vehicle

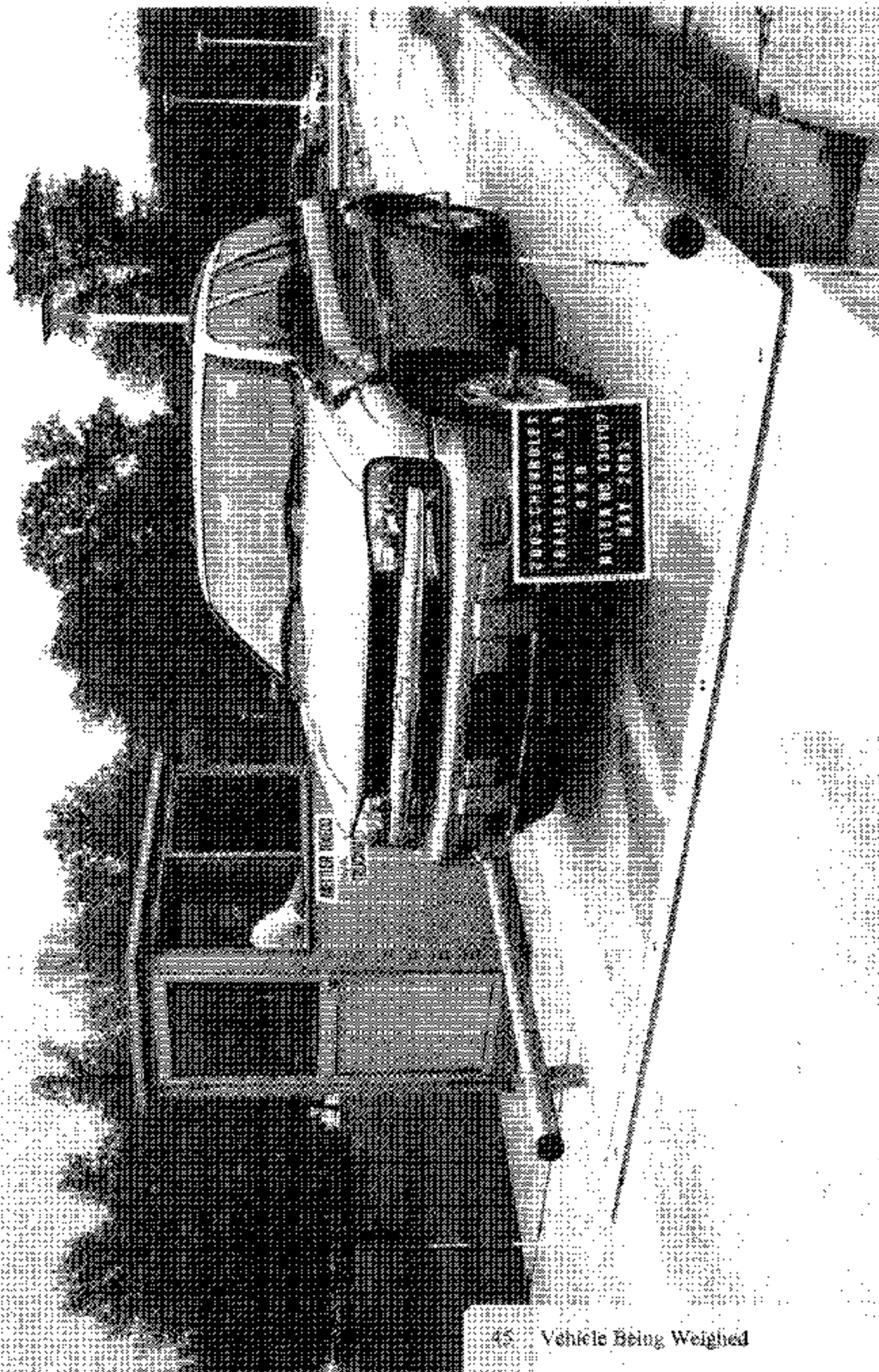
2003 CHEVROLET
TRAILBLAZER LS
4 WHEEL DRIVE
NHTSA NO. C30107
MAY 2003



**2003 CHEVROLET
TRAILBLAZER LS
4 WHEEL DRIVE
NHTSA NO. C30107
MAY 2003**







45 Vehicle Being Weighed

2003 CHEVROLET
TRAILBLAZER LS
4 WHEEL DRIVE
NHTSA NO. C30107
MAY 2003

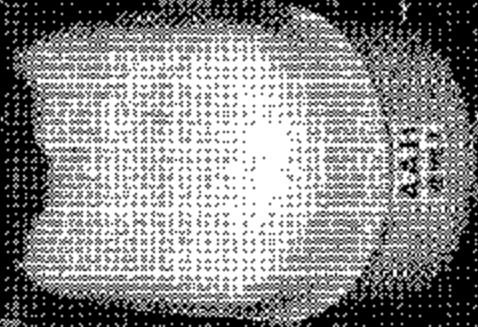
2003 CHEVROLET
TRAILBLAZER LS
4 WHEEL DRIVE
NHTSA NO. C00167
MAY 2003

2003 CHEVROLET
TRAILBLAZER LS
4 WHEEL DRIVE
NHTSA NO. C30107
MAY 2003

2003 CHEVROLET
TRAILBLAZER LS
4 WHEEL DRIVE
NHTSA NO. C30107
MAY 2003

0-8PFWX101010

2003 CHEVROLET
TRAILBLAZER LS
4 WHEEL DRIVE
NHTSA NO. C30107
MAY 2003



7.0 INSTRUMENT CALIBRATION (12 MONTH MAXIMUM INTERVAL)

VEHICLE: 2003 Chevrolet Trailblazer LS 4WD; NHTSA NO.: C30107; DATE: 04/02/03

INSTRUMENT	SERIAL NUMBER	CALIBRATION DATE	NEXT CALIBRATION
Data Acquisition System - Link DAS 2082	975016	09/13/02	09/15/03
Computer - Dell Latitude LM/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 - Fischer Scientific Accusplit	SW ST03	11/05/02	11/05/03
Tire Pressure Gauge - Ashcroft	AG-05	11/05/02	11/05/03
Frequency Counter - Hewlett Packard	M-1128A00670	09/19/02	09/19/03
Pedal Force Transducer - Sensor Devel.	169755	Each Test	Each Test
Assorted Pipe-Handle Steel Weights	Not Available	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)	A1055763	10/02/02	10/02/03
Fifth Wheel - ADAT DSR-06 Radar	140.0027	Each Test	Each Test
Wind Velocity/Direct. - Davis Model 6410	021023N09	10/24/02	10/24/03
Ambient Temp. Gage - Davis Model 6320	021024N11	10/29/02	10/29/03
LF Brake Thermocouple - Tempref/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
RF Brake Thermocouple - Tempref/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
LR Brake Thermocouple - Tempref/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
RR Brake Thermocouple - Tempref/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
Lock-up Detection System	TRC Propr.	Each Test	Each Test
Vehicle Weight - Mettler/Toledo Digital Truckmate	JX6A 3000 JAG EXTREME	02/11/03	05/14/03

QUALITY ASSURANCE

DAILY CALIBRATIONS (1 of 3)

Vehicle: 2003 Chevrolet Trailblazer LS 4WD NHTSA No.: C30107

Deceleration Calibration Data for Unit 3355

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"
5/8/2003	11:28:52	-0.01	9.80
5/13/2003	8:10:51	-0.01	9.82
5/13/2003	15:34:20	0.00	9.81
5/14/2003	9:44:52	0.00	9.79
5/14/2003	15:47:15	-0.01	9.77
5/15/2003	10:07:22	-0.03	9.90
5/15/2003	14:42:39	-0.06	9.88
5/15/2003	14:54:59	0.06	9.81

PRE-TEST CAL.

POST-TEST CAL.

Pre-Test Linearity Check 05/08/03

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 05/15/03

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 3355

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
5/8/2003	14:38:37	1001.1
5/13/2003	8:28:58	1000.1
5/13/2003	15:43:34	999.1
5/14/2003	9:53:52	998.4
5/14/2003	15:55:22	998.8
5/15/2003	10:31:32	998.8
5/15/2003	14:50:53	998.9

PRE-TEST CAL.

POST-TEST CAL.

DAILY CALIBRATIONS CONTINUED (2 of 3)

VEHICLE: 2003 Chevrolet Trailblazer LS 4WD

NHTSA No.: C30107

Wheel Tachometer Calibrations for Unit 3555

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

		"Date"	"Time"	Zero	@15km/h	Zero	@15km/h	Zero	@15km/h	Zero	@15km/h	
				LF	LF	RF	RF	LR	LR	RR	RR	
Wheel lock detector	While at a standstill, check zeros. Drive vehicle at approx. 15 km/h and engage zero speed switch for each wheel	5/13/03	08:32:38	0.0	19.0	0.0	16.7	0.0	17.3	0.0	17.0	PRE-TEST CAL.
		5/13/03	15:38:56	0.0	17.4	0.0	15.7	0.0	15.9	-19.7	-3.4	
		5/13/03	15:39:26	13.0	17.0	13.8	16.1	13.6	16.5	-19.7	-3.2	
		5/14/03	09:49:10	0.0	16.0	0.0	15.6	0.0	15.9	0.0	17.1	POST-TEST CAL.
		5/14/03	16:50:51	0.0	16.6	0.0	15.7	0.0	16.1	0.0	17.2	
		5/15/03	10:30:45	0.0	16.5	0.0	15.4	0.0	15.8	0.0	16.9	
		5/15/03	14:49:21	0.0	16.8	0.0	15.7	0.0	16.1	0.0	16.6	

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

Pedal Force Meter Calibration for Unit 3555

Target shunt calibration is 390 N

Desired recorded value is: 390 N

Desired recorded calibration value is: 500 N

Allowed deviation is: 6.5 N

		"Date"	"Time"	Zero	Cal Val	
				Force	Force lb	
Service brk. pedal effort	Driver engages a fixed shunt cal. switch.	5/8/2003	13:09:35	-0.3	498.4	PRE-TEST CAL.
		5/13/2003	8:22:19	-0.8	390.8	
		5/13/2003	15:33:01	-0.5	390.5	
		5/14/2003	9:46:43	-0.2	390.8	POST-TEST CAL.
		5/14/2003	15:49:20	-0.6	390.8	
		5/15/2003	10:08:57	-0.5	390.8	
		5/15/2003	14:44:11	-0.6	391.8	
		5/16/2003	11:43:59	-0.8	500.2	

Pre-Test Linearity Check - 05/08/03

Actual	Recorded
Force (N)	Force (N)
0	0
222	222
445	445
498	499

Post-Test Linearity Check - 05/15/03

Actual	Recorded
Force (N)	Force (N)
0	1
222	222
445	446
498	449

DAILY CALIBRATIONS CONTINUED (3 of 3)

VEHICLE: 2003 Chevrolet Trailblazer LS 4WD

NHTSA No. C30107

Dynamic Speed Calibration for Unit 3355

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
5/8/2003	14:42:08	100.6	36.25
5/13/2003	8:37:51	100.4	36.25
5/13/2003	15:42:01	100.4	36.12
5/14/2003	9:51:49	100.2	36.28
5/14/2003	15:53:01	100.0	36.12
5/15/2003	10:28:58	100.1	36.25
5/15/2003	14:47:27	99.8	36.09

POST-TEST CAL.

APPENDIX A

Copy of Manufacturer's Sticker

2003 TRAILBLAZER LS 4WD

VOH1EC 4200 SFI 16

4 SPD AUTO TRANS W/ OVERDRIVE

EXTERIOR

LT PEWTER METALLIC

INTERIOR

MED PEWTERDK PEWTER ACCENTS



The Most Dependable, Longest-Lasting Trucks.

CHEVY TRUCKS

STANDARD EQUIPMENT

Items Featured Below are included at NO EXTRA CHARGE in the Standard Vehicle Price Shown at Right

- OPERATING/DURABILITY FEATURES**
- VORTEC 4200 6 CYLINDER ENGINE
 - 4 SPD AUTOMATIC TRANSMISSION
 - AUTOTRAC 4 WHEEL DRIVE SYSTEM
 - AIR CONDITIONING, DUAL ZONE
 - TWO SIDED GALVANIZED STEEL
 - LONG LIFE COOLANT
 - FRONT & REAR STABILIZER BARS
 - INDEPENDENT FRONT SUSPENSION
 - RACK & PINION POWER STEERING
 - PREMIUM RIDE SUSPENSION PKG
 - SPECIALLY TUNED SHOCK/SPRINGS
 - P245/70R16 BW ALL-SEASON TIRE
 - 16 INCH ALUMINUM WHEELS
 - 5 LINK REAR SUSPENSION
 - HYDROFORMED FRAME STRUCTURE
- SAFETY FEATURES**
- DAYTIME RUNNING LAMPS
 - DUAL STAGE FRONT AIR BAGS
 - 4 WHEEL ANTILOCK DISC BRAKES
 - STEEL SIDE IMPACT DOOR BEAMS

- REAR CHILD SECURITY DR LOCKS
- 3 POINT SAFETY BELTS
- BATTERY RUNDOWN PROTECTION
- AUTOMATIC DOOR LOCKS
- CONVENIENCE FEATURES
- AM/FM STEREO RADIO/CD PLAYER
- SOLAR RAY TINT REAR GLASS
- TACHOMETER, LIFTGATE AJAR WRN
- HEADLAMPS ON WARNING CHIME
- FRT BUCKET STS W/FLR CONSOLE
- 65/35 FOLDING 2ND ROW SEAT
- 5 REAR CARGO TIE DOWN HOOKS
- 5 CUPHOLDERS & 3 PWR OUTLETS
- FULL CARPET - COLOR KEYED
- 4 ENTRY/MAP LAMPS
- BMRP-BMPP 3 YR/36K MILE LTD WARRANTY-SEE DLR FOR DETAILS
- AUTO HEADLAMP W/FLASH TO PASS
- PASSLOCK THEFT DETERRENT SYS
- FRONT AND REAR 5 MPH BUMPERS
- UNDERFLOOR STORAGE CARGO AREA

Compare this vehicle to others in the FREE FUEL ECONOMY GUIDE available at the dealer

CITY MPG

15



HIGHWAY MPG

21

Actual mileage will vary with options, driving conditions, driving habits and vehicle condition. Results reported to EPA indicate that the majority of vehicles with these estimates will achieve between 12 and 18 mpg in the city and between 17 and 25 mpg on the highway.

2003 TRAILBLAZER 4WD
4.2 LITER LS ENGINE
FUEL INJECTION, AUTOMATIC
4 SPD ELECTRONIC TRANS
CATALYST, FEEDBACK FUEL SYSTEM

ESTIMATED ANNUAL FUEL COST: \$1357

DEALER TO WHOM DELIVERED
310 W GARFIELD
ALBUQUERQUE
NM 87101

VIN 1GNDT13SX32213808
FINAL ASSEMBLY DAYTON, OHIO 43001

OPTION NO FINANCE
MODEL NO CYCLOS
SALES CODE E
DEALER NO 38-380

STANDARD VEHICLE PRICE
Options Installed by Manufacturer

\$28,445.00

- LS PREFERRED EQUIPMENT GROUP 1 NO CHARGE
- ELECTRIC REAR WINDOW DEFOGGER NO CHARGE
- GVW RATING - 5750 LBS NO CHARGE
- 50-STATE EMISSIONS NO CHARGE
- REAR AXLE 3.42 RATIO NO CHARGE
- FRONT LICENSE PLATE MOUNT NO CHARGE

TOTAL OPTIONS

197.00

TOTAL VEHICLE & OPTIONS \$28,642.00

DESTINATION CHARGE 625.00

TOTAL VEHICLE PRICE* \$29,267.00

This info has been supplied by the manufacturer. By its nature, it is not intended to be used for comparison shopping. It is not intended to be used for comparison shopping. It is not intended to be used for comparison shopping.

3M
1GA8114732

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 INTT	-	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 C30107.

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 Sheet 27 – Hot Performance at GVWR, stop number two, the driver momentarily exceeded the maximum allowable pedal force of 500 N by 19 N. The target average pedal force, however, was not exceeded and the stopping distance was less than the maximum allowable by a fair margin. It is believed that, had the driver not exceeded the maximum allowable pedal effort, the vehicle would have complied with this portion of the Standard.

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

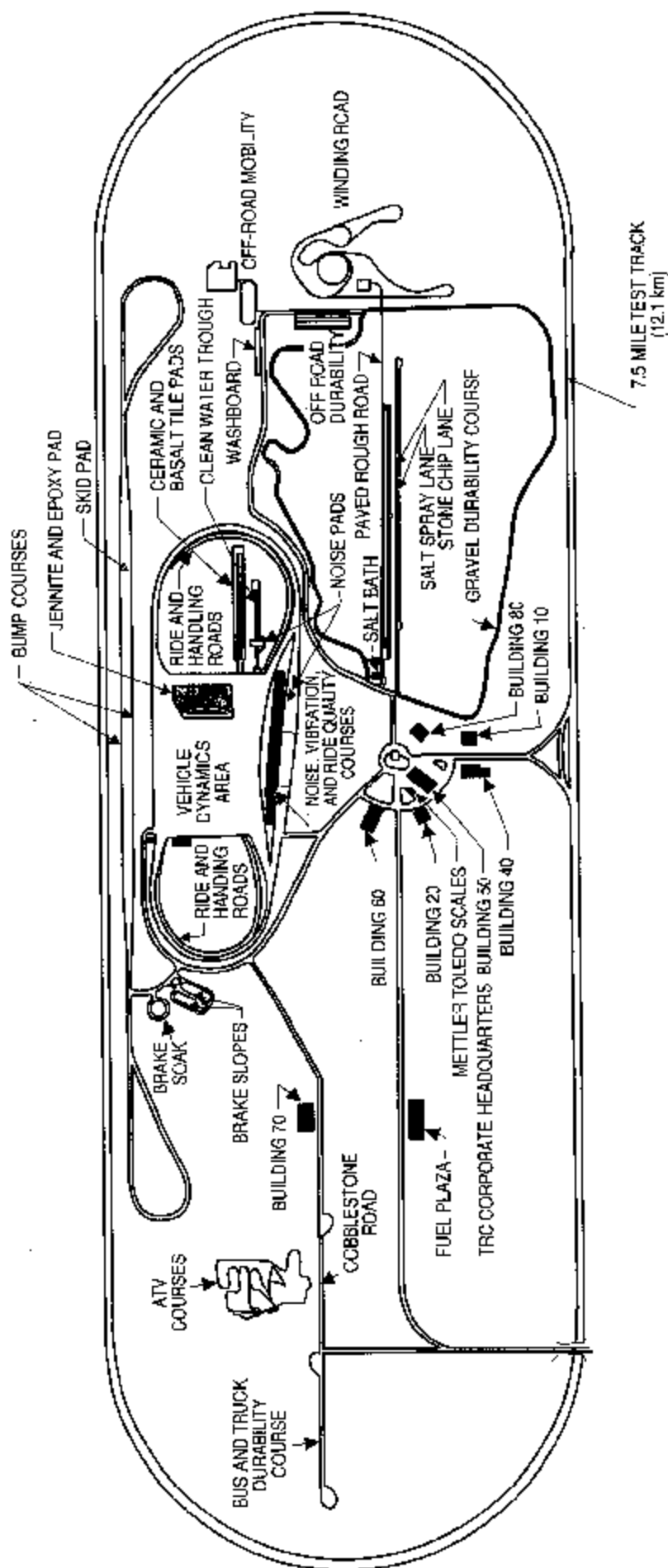
The Skid Pad is a test facility which is utilized primarily for the evaluation of tire and brake systems.

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 gs 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

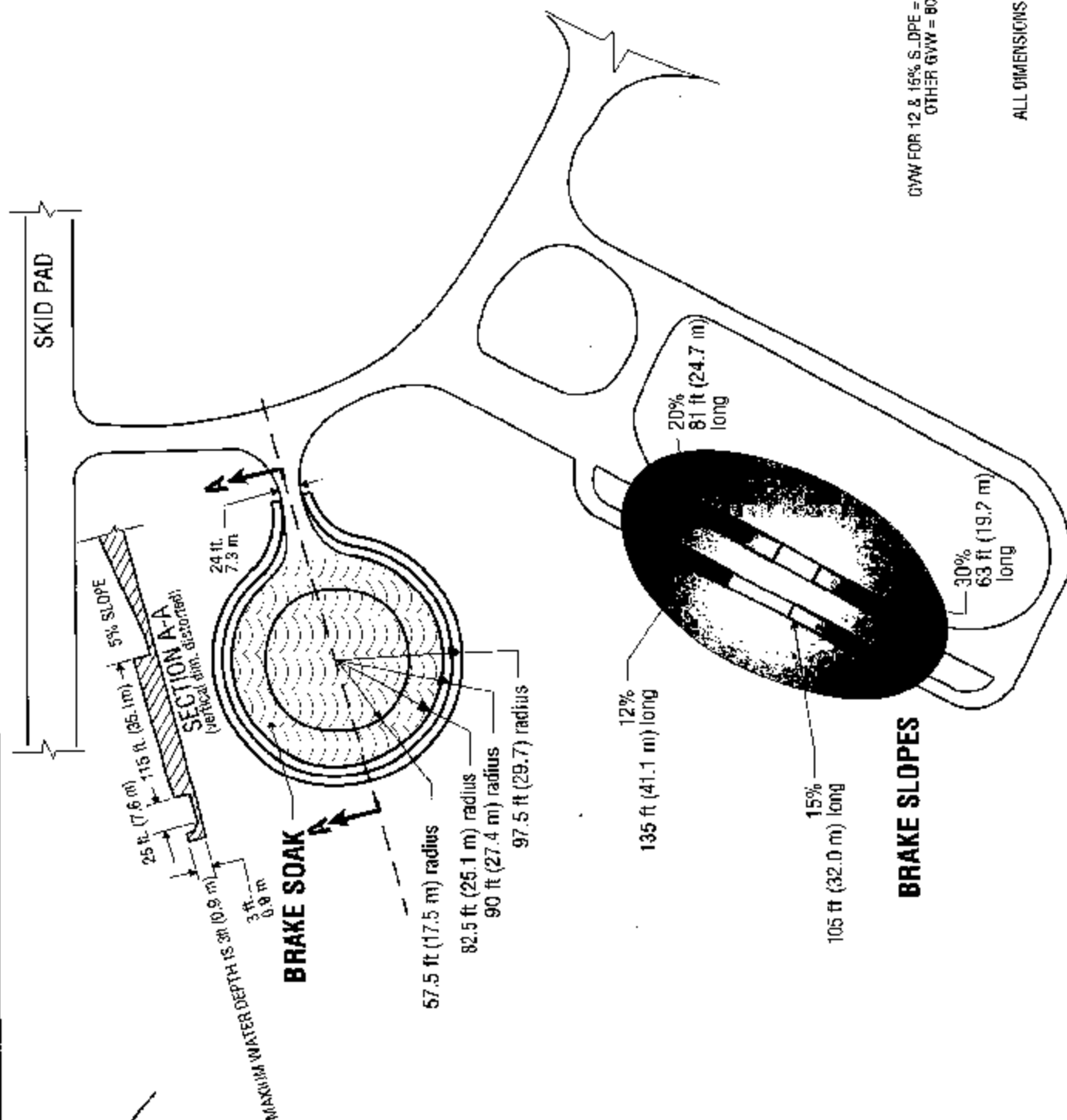
TEST FACILITY DETAIL

TRC

TRANSPORTATION RESEARCH CENTER INC.

FAST LIBERTY, OHIO 43084-3367

F-15 D601



GVW FOR 12 & 15% S.D.P.E = 4000 lbs (1814 kg)
OTHER GVW = 80,000 lbs (36,296 kg)

NOT TO SCALE
ALL DIMENSIONS ARE APPROXIMATE

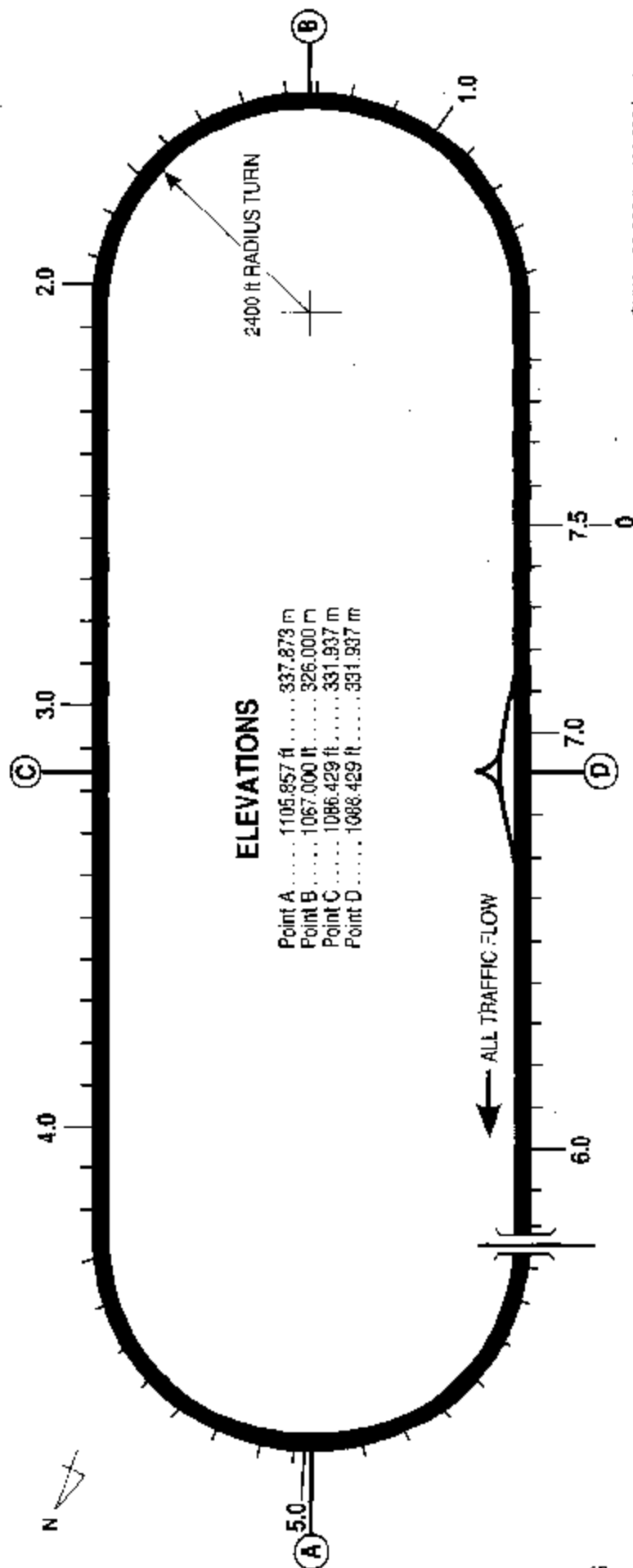
TRC

BRAKE SOAK and BRAKE SLOPES

TRANSPORTATION RESEARCH CENTER INC.

EAST LIBERTY, OHIO 43015-0067

F-30500



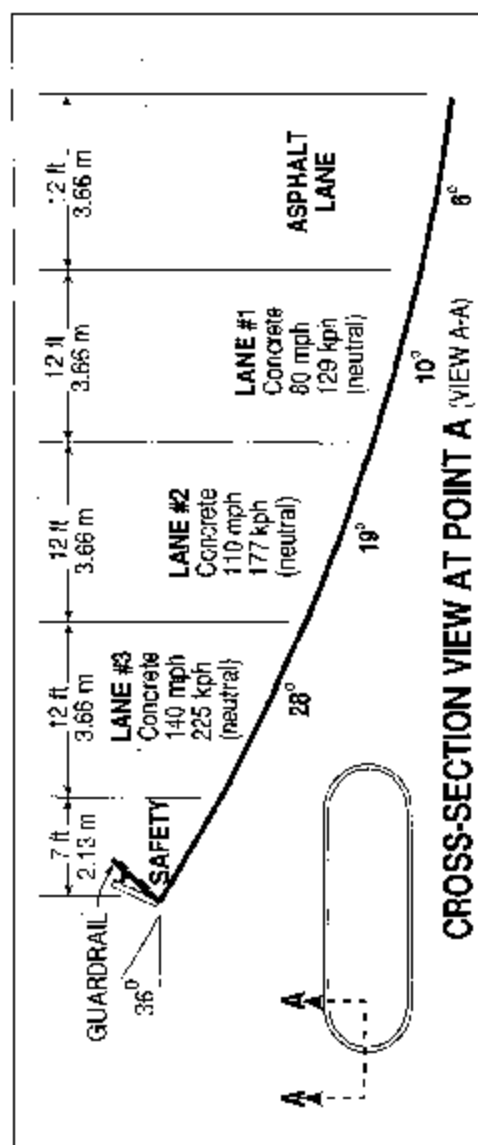
GVW = 80,000 lbs (36,298 kgs)

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



TRANSPORTATION RESEARCH CENTER INC.

FAST LIBERTY, OHIO 43102-367

F-11 1489

APPENDIX D
Notice of Possible Non-Compliance

This vehicle (C30107) met the requirements.