

REPORT NUMBER 110(IND)-GTL-03-005

**SAFETY COMPLIANCE TESTING FOR
FMVSS NO. 110(INDICANT)
TIRE SELECTION AND RIMS**

**GENERAL MOTORS DE MEXICO, S. DE R.L. DE C.V.
2003 BUICK RENDEZVOUS, MPV
NHTSA NO. C30106**

**GENERAL TESTING LABORATORIES, INC.
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COLONIAL BEACH, VIRGINIA 22443**



SEPTEMBER 04, 2003

FINAL REPORT

PREPARED FOR

**U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: John Krumm
Acceptance Date: 9/11/03

1. Report No. 110(IND)-GTL-03-005		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of FMVSS 110 (Indicant) Test of 2003 BUICK RENDEZVOUS MPV NHTSA No. C30106				5. Report Date <u>September 4, 2003</u> August 20, 2003	
				6. Performing Organ. Code GTL	
7. Author(s) Grant Farrand, Project Engineer Debbie Messick, Project Manager				8. Performing Organ. Rep# GTL-DOT-03-110(INDICANT)-005	
9. Performing Organization Name and Address General Testing Laboratories, Inc. 1623 Leedstown Road Colonial Beach, Va 22443				10. Work Unit No. (TRIS)	
				11. Contract or Grant No. DTNH22-01-C-11025	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Admin. Safety Enforcement Office of Vehicle Safety Compliance (NVS-220) 400 7 th Street, S.W., Room 6111 Washington, DC 20590				13. Type of Report and Period Covered Final Test Report May 23, 2003	
				14. Sponsoring Agency Code NVS-120 & NVS 220	
15. Supplementary Notes					
16. Abstract This test was conducted on the subject 2003 Buick Rendezvous MPV in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-110-02 (partial), to gather data relating to the normal load requirements specified in FMVSS 110. NHTSA's Office of Safety Performance Standards requested this data to support the agency's TREAD tire rulemaking efforts.					
17. Key Words Vehicle Testing Safety Engineering FMVSS 110			18. Distribution Statement Copies of this report are available from NHTSA NHTSA Technical Reference Div., Rm. 5108 (NPO-230) 400 7 th St., S.W. Washington, DC 20590 Telephone No. (202) 366-4946		
19. Security Classif. (of this report) UNCLASSIFIED		21. No. of Pages 21		22. Price	
20. Security Classif. (of this page) UNCLASSIFIED					

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SECTION 1

INTRODUCTION

1.0 PURPOSE OF INDICANT TEST

A 2003 Buick Rendezvous MPV was subjected to a FMVSS No. 110 (Indicant) test intended to gather data relating to the normal load requirements specified in FMVSS 110. NHTSA's Office of Safety Performance Standards requested this data to support the agency's TREAD tire rulemaking efforts.

1.1 TEST VEHICLE

The test vehicle was a 2003 Buick Rendezvous MPV. Nomenclature applicable to the test vehicle are:

- A. Vehicle Identification Number: 3G5DA03E03S560384
- B. NHTSA No.: C30106
- C. Manufacturer: GENERAL MOTORS DE MEXICO, S. DE R.L. DE C.V.
- D. Manufacture Date: 12/02

1.2 TEST DATE

The test vehicle was subjected to testing on May 23, 2003.

SECTION 2

TEST PROCEDURE AND SUMMARY OF RESULTS

2.0 TEST PROCEDURE

The vehicle was inspected, photographed and filled with fuel. It was then weighed to establish total curb weight and the weights of all wheels were measured and recorded. The vehicle was then ballasted to its normal load condition (refer to appendix) and the weights of all wheels were measured and recorded. Tire information labeling data and tire sidewall data were recorded.

This indicant test did not include any other requirements in FMVSS 110.

2.1 SUMMARY OF RESULTS

Currently FMVSS 110 applies only to passenger cars. The subject Buick Rendezvous is a multipurpose passenger vehicle (MPV) and therefore it is not required to meet FMVSS 110 requirements. It was subjected to the normal load testing as executed for FMVSS 110 compliance verification for information only.

SECTION 3

TEST DATA

DATA SHEET 1 SUMMARY

VEHICLE MAKE/MODEL/BODY STYLE: 2003 BUICK RENDEZVOUS MPV
 VEHICLE NHTSA NO.: C30106 ; VIN: 3G5DA03E03S560384
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/23/03

<u>REQUIREMENT</u>	<u>YES/NO</u>
The vehicle is equipped with tires that meet the requirements of FMVSS 109 or FMVSS 119.	<u>YES</u>
The vehicle normal load on the tire is not greater than the high speed performance test load specified in FMVSS 109 paragraph S5.5 or FMVSS 119 paragraph S7.4.	<u>YES</u>
For passenger cars, the tire information placard is permanently affixed to the glove compartment door or equally accessible location; and displays the required information (FMVSS 110, S4.3).	<u>N/A</u>
For vehicles other than passenger cars, a combined certification/ tire information label or separate tire information label is permanently affixed to either the hinge pillar, door-latch post or to the inward-facing surface of the door next to the driver's seating position (FMVSS 120, S5.3).	<u>YES</u>

REMARKS:

RECORDED BY:

M. A. B. B.

DATE: 05/23/03

APPROVED BY:

D. M. M.

DATA SHEET 2 TEST VEHICLE INFORMATION/RECEIVING INSPECTION

LABORATORY: GENERAL TESTING LABORATORIES DATE: 05/23/03

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 BUICK RENDEZVOUS MPV

MANUFACTURE DATE: 12/02 NHTSA NO.: C30106 BODY COLOR: LIGHT DRIFTWOOD METALLIC

VIN: 3G5DA03E03S560384 VEHICLE TYPE: MPV

GVWR 2430 kg (5357 lbs) GAWR(Fr) 1230 kg (2712 lbs) GAWR(Rr) 1210 kg (2668 lbs)

BELTED SEATING POSITIONS: FRONT 2 MID N/A REAR 3 OTHER N/A

ENGINE DATA: 6 Cylinders 3.4 Liters Cubic Inches

TRANSMISSION DATA: X Automatic Manual 4 No. of Speeds

FINAL DRIVE DATA: Rear Drive X Front Drive 4 Wheel Drive

INSTALLED TIRE DATA: Size - P215/70R16 Mfr. - FIRESTONE

CHECK APPROPRIATE BOXES FOR VEHICLE EQUIPMENT/MAKE SURE ALL OPTIONS ON WINDOW STICKER ARE LISTED:

X	Air Conditioning		Traction Control	X	Clock
X	Tinted Glass		All Wheel Drive	X	Roof Rack
X	Power Steering	X	Cruise Control	X	Console
X	Power Windows	X	Rear Window Defroster	X	Driver Air Bag
X	Power Door Locks		Sun Roof or T-Top	X	Passenger Air Bag
	Power Seat(s)	X	Tachometer	X	Front Disc Brakes
X	Power Brakes	X	Tilt Steering Wheel	X	Rear Disc Brakes
X	Antilock Brake System	X	AM/FM/CD		Other -

ARE ALL OPTIONS LISTED ON "WINDOW STICKER" PRESENT ON THE TEST VEHICLE:
(YES/NO) Yes

REMARKS:

RECORDED BY: M. A. Flor DATE: 05/23/03

APPROVED BY: D. Messia

DATA SHEET 3
CURB WEIGHT WITH OPTIONS AND NORMAL LOAD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 BUICK RENDEZVOUS MPV
 VEHICLE NHTSA NO.: C30106 ; VIN: 3G5DA03E03S560384
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/23/03

Full Fluid Levels:

Fuel Full ; Coolant Full ; Other Fluids Full

Tire Pressure: LF 240 KPA (35 psi) LR 240 KPA (35 psi)
 RF 240 KPA (35 psi) RR 240 KPA (35 psi)

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

LF <u>523</u> KG (1154 LB)	LR <u>357</u> KG (788 LB)
RF <u>529</u> KG (1167 LB)	RR <u>350</u> KG (771 LB)
Front Axle <u>1053</u> KG (2321 LB)	Rear Axle <u>707</u> KG (1559 LB)
Total Vehicle <u>1760</u> KG (3880 LB)	

B. MEASURED VEHICLE WEIGHT IN NORMAL LOAD CONDITION

- (1) Seating Capacity (from Tire Information Placard) = N/A
 Seating Capacity (# of belted seating positions) = 5
- (2) Normal Load # of Occupants from Appendix
 Occupant Distribution: Front Seat- 2 Second Seat- 1
 Third Seat - N/A Fourth Seat- N/A
- (3) Total Normal Occupant Load 204 KG (450 LB)
 (# of occupants x 68 KG per occupant)
- (4) Measured Normal Load on each Wheel and Axles (Sum)

LF <u>574</u> KG (1266 LB)	LR <u>407</u> KG (898 LB)
RF <u>582</u> KG (1283 LB)	RR <u>401</u> KG (883 LB)
Frt Axle <u>1156</u> KG (2549 LB)	Rr Axle <u>808</u> KG (1781 LB)
Total Vehicle <u>1964</u> KG (4330 LB)	

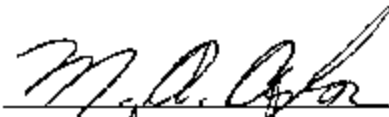
DATA SHEET 3 - CONTINUED

- (5) Calculated Vehicle Normal Load on the Tire
 Front Tires (measured front axle normal load/2) = 578 KG (1275 LB)
 Rear Tires (measured front axle normal load/2) = 404 KG (891 LB)
- (6) High Speed Test Load from () FMVSS 109 (S5.5), or (X) FMVSS 119 (S7.4)

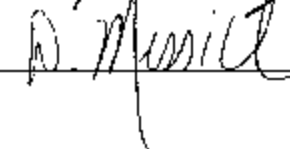
	Front	Rear
(a) Installed Tire Size	<u>P215/70R16</u>	<u>P215/70R16</u>
Max. Load Rating on Sidewall	<u>775 KG(1709 LBS)</u>	<u>775 KG(1709 LBS)</u>
Reduced Sidewall Load Rating (if applicable)*	<u>705 KG(1554 LBS)</u>	<u>705 KG(1554 LBS)</u>
High Speed Test Load (88% of sidewall max. load rating)	<u>620 KG(1368 LBS)</u>	<u>620 KG(1368 LBS)</u>
(b) Optional Tire Size(s)	<u>NONE</u>	<u>NONE</u>

* If a passenger car tire is installed on a multipurpose passenger vehicle (MPV), truck or bus, the tire's load rating shall be reduced by dividing by 1.10.

REMARKS: The Vehicle Normal Load on the Tire is not greater than the High Speed Test Load.

RECORDED BY: 

DATE: 05/23/03

APPROVED BY: 

DATA SHEET 4
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 BUICK RENDEZVOUS MPV
 VEHICLE NHTSA NO.: C30106 ; VIN: 3G5DA03E03S560384
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/23/03

A. Vehicle Type from Certification Label: MPV

B. Identify Vehicle Labeling:

Vehicle has a combined Certification Tire Information Label ☒ Yes ☐ No
 Is Label Permanently Affixed: ☒ Yes ☐ No
 Label Location: Inside Driver's Side Door Jam
 Description of Label: White/Black Sticker

Vehicle has a separate Tire Information Label or Placard ☐ Yes ☒ No
 Is Label Permanently Affixed: ☐ Yes ☐ No
 Label Location: _____
 Description of Label: _____

C. Enter Information from Combined or Separate Tire Information Label/Placard

Vehicle Capacity Weight - N/A(see remarks)

Designated Seating Capacity (DSC) - N/A(see remarks)
 Expressed In—

(1) Total No. of Occupants ☐ Yes ☐ No
 (2) Terms of Occupants for Each Seat Location ☐ Yes ☐ No

Manufacturer's Recommended Tire Size(s) and Cold Tire Inflation Pressure(s) for Maximum Load Vehicle Weight:

P215/70R16 FRONT - 240 kPa (35 psi)
 REAR - 240 kPa (35 psi)

Manufacturer's Recommended Tire Size(s) and Cold Tire Inflation Pressure(s) for Other Load Conditions: NONE

REMARKS: The vehicle labeling requirements of FMVSS 120 for an MPV do not include Vehicle Capacity Weight (VCW) or Designated Seating Capacity (DSP) as required by FMVSS 110 passenger car labeling.

RECORDED BY: *M. A. [Signature]*

DATE: 05/23/03

APPROVED BY: *N. [Signature]*

DATA SHEET 5
VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2003 BUICK RENDEZVOUS MPV
 VEHICLE NHTSA NO.: C30106 ; VIN: 3G5DA03E03S560384
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/23/03

All tires on the vehicle are the same size: (Yes/No) Yes

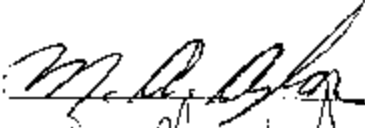
INFORMATION FROM TIRE SIDEWALL:

Right Front Tire

Tire Size Designation P215/70R16
 Tire Load Index/Speed Symbol 99S
 Maximum Inflation Pressure 300 kPa (44 psi)
 Maximum Load Rating 775 KG (1709 LBS.)
 Mfr. Name or Brand & Code FIRESTONE AFFINITY
 Tube or Tubeless TUBELESS
 Treadwear/Traction/Temp. Grades 400/B/B
 Sidewall (Plies & Composition) 1 PLY POLYESTER
 Tread (Plies & Composition) 1 PLY POLYESTER
2 PLY STEEL
 Serial Number: Right Front - DOT-V609 BHT 4802

Tire has "DOT" markings: (X) YES () NO () UNDETERMINED

REMARKS:

RECORDED BY:  DATE: 05/23/03

APPROVED BY: 

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
PAD SCALES	#1 199744LF	199744LF	06/02	06/03
	#2 199744RF	199744RF	06/02	06/03
	#3 199744LR	199744LR	06/02	06/03
	#4 199744RR	19974RR	06/02	06/03
PRESSURE GAGE	WESKLER	0-100	05/03	05/04
SURFACE LEVEL	GTL	N/A	BEFORE USE	BEFORE USE

SECTION 5 PHOTOGRAPHS



FIGURE 5.1
¾ FRONTAL VIEW OF VEHICLE

2003 BUICK RENDEZVOUS
NHTSA NO. C30106
FMVSS NO. 110 (INDICANT)



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THIS SAMPLE COMPLIES TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY AND HEAVY PREVENTION STANDARDS IN EFFECT AT THE TIME OF MANUFACTURE SHOWN ABOVE.

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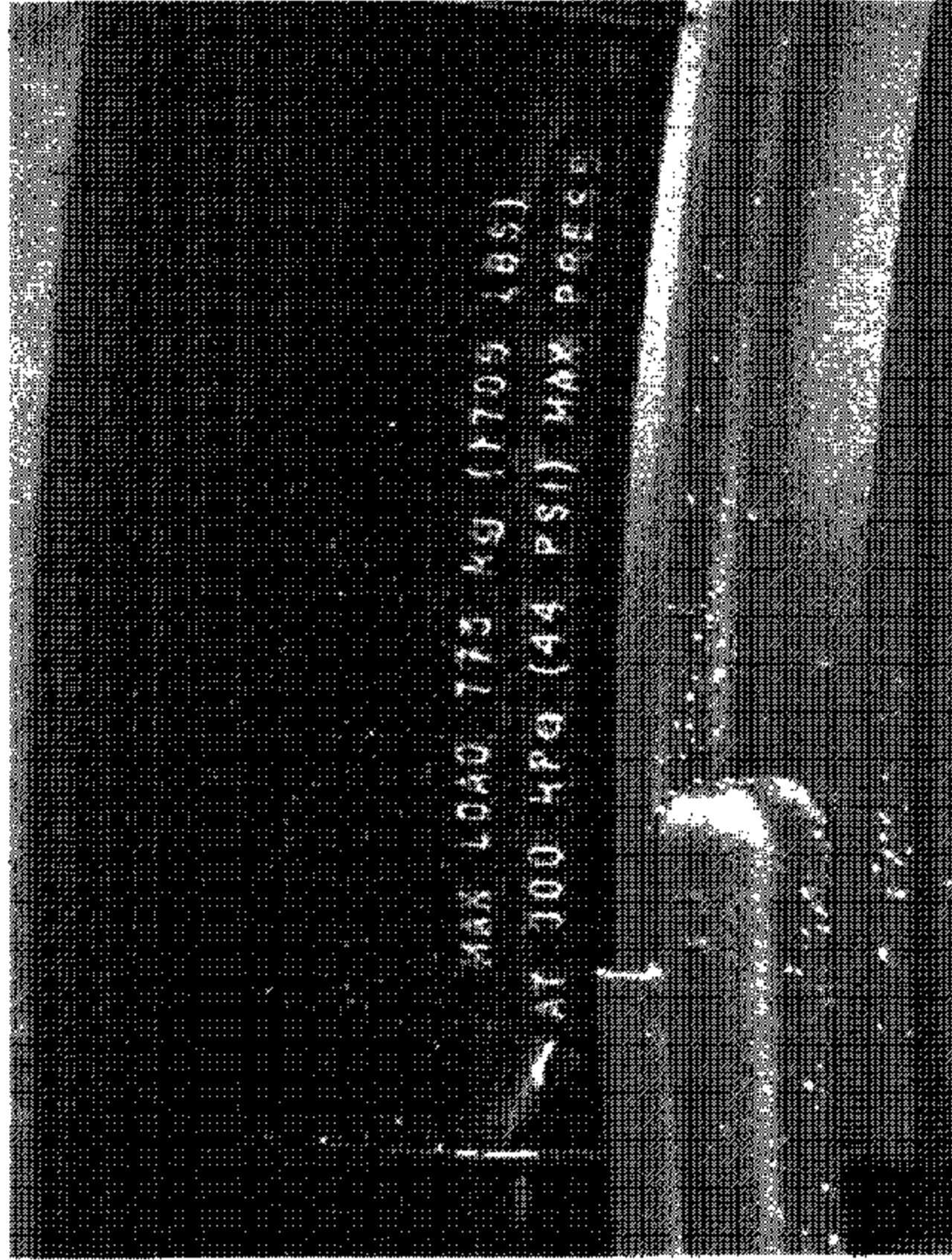
**FIGURE 5.2
VEHICLE'S CERTIFICATION AND TIRE
INFORMATION LABEL**

2003 BLACK RENDEZVOUS
NHTSA NO. C30106
FMVSS NO. 110 (INDICANT)



2003 BUICK RENDEZVOUS
NHTSA NO. C30106
FMVSS NO. 110 (INDICANT)

FIGURE 5.3
TIRE SHOWING BRAND, SIZE, LOAD INDEX AND
SPEED SYMBOL



2003 BUICK RENDEZVOUS
NHTSA NO. C30106
FMVSS NO. 110 (INDICANT)

FIGURE 5A
TIRE SHOWING MAX LOAD RATING AND MAX
INFLATION PRESSURE



2003 BUICK RENDEZVOUS
NIHTSA NO. C30106
FMVSS NO. 110 (INDICANT)

FIGURE 5.5
VEHICLE BALLASTED TO SIMULATE NORMAL
LOAD CONDITION

APPENDIX

Table 1 – Occupant Loading and Distribution for Vehicle Normal Load for Various Designated Seating Capacities

Designated Seating Capacities, numbers of Occupants	Vehicle normal load, number of occupants	Occupant distribution in a normally loaded vehicle
2 through 4	2	2 in front
5 through 10	3	2 in front, 1 in second seat
11 through 15	5	2 in front, 1 in second seat, 1 in third seat, 1 in fourth seat
16 through 22	7	2 in front, 2 in second seat, 2 in third seat, 1 in fourth seat

NOTE: For the indicant test each seat was adjusted to its full down and mid forward to aft position with the seat back adjusted to a 25° reclined angle. Each designated seat position was ballasted with 54 KG (120 LBS) in the seat and 14 KG (30 LBS) on the floor directly in front of the respective seat position.