

**REPORT NUMBER: 5FEM-MGA-2001-017**

**35 MPH FRONTAL BARRIER IMPACT TEST**

**Nissan Motor Company  
2001 Nissan Maxima 4 Door Sedan  
NHTSA NUMBER: M15207**

**PREPARED BY:  
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BURLINGTON, WI 53105**



**March 21, 2001**

**FINAL REPORT**

**PREPARED FOR:  
U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
OFFICE OF CRASHWORTHINESS STANDARDS  
400 SEVENTH STREET, SW, ROOM 5311  
WASHINGTON, D.C. 20590**

35 MPH FRONTAL BARRIER IMPACT TEST

Vehicle: 2001 Nissan Maxima 4 Door Sedan

NHTSA No.: M15207

Test Date: March 21, 2001

Test Speed: 56.0 kph

Vehicle Test Weight:

Weight as Delivered: = 1374.0 kg

Weight as Tested: = 1583.1 kg

Injury Criteria:

ATD Position	HIC	Clip (g's)	Chest Disp (mm)	Left Femur (N)	Right Femur (N)
Driver	396	45	21	2833	3175
Passenger	318	45	17	1713	2611

**DATA SHEET NO. 8  
HYBRID III ATD INJURY CRITERIA AND SENSOR DATA**

Test Vehicle: 2001/Nissan/Maxima/4 Door Sedan  
Test Program: 35 mph Frontal Barrier Impact

NHTSA No.: M15207  
Test Date: March 21, 2001

**HEAD PRIMARY PEAK ACCELERATIONS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	15.3	98	60.9	57	51.2	122	56.3	69
Head CG	Y	G's	10.8	104	39.6	66	29.3	122	10.6	48
Head CG	Z	G's	17.0	45	8.5	72	27.4	122	13.7	28
Head CG Resultant	N/A	G's	64.5	57			64.9	122		

**CHEST PRIMARY PEAK ACCELERATIONS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	7.3	149	45.4	59	9.9	146	44.8	74
Chest CG	Y	G's	7.3	81	4.7	54	2.2	148	7.2	74
Chest CG	Z	G's	5.3	49	14.2	62	10.0	98	5.1	34
Chest CG Resultant	N/A	G's	46.7	59			45.4	74		

**FEMUR PEAK FORCES**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	239	41	2833	59	73	13	1713	51
Right Femur	Z	Newtons	598	42	3175	57	89	21	2611	52

**SEAT BELT SENSOR PEAK VALUES**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Lap Belt Force	N/A	Newtons	3152	49			1871	57		
Shoulder Belt Force	N/A	Newtons	3729	49			4188	71		

**HEAD INJURY CRITERIA (HIC<sub>15</sub>)**

Location	Driver				Passenger			
	HIC	Avg G's	T <sup>1</sup>	T <sup>2</sup>	HIC	Avg G's	T <sup>1</sup>	T <sup>2</sup>
Head CG Primary	396	58.7	50.9	65.9	318	53.8	62.3	77.3

**CHEST CLIP (3MSEC)**

Location	Driver			Passenger		
	CLIP	T <sup>1</sup>	T <sup>2</sup>	CLIP	T <sup>1</sup>	T <sup>2</sup>
Chest CG Primary	44.9	57.7	60.8	44.6	72.5	75.6

**NECK INJURY CRITERIA**

Location	Driver	Passenger
N <sub>te</sub>	0.9	0.8
N <sub>tf</sub>	0.2	0.0
N <sub>ce</sub>	0.6	0.8
N <sub>cf</sub>	0.0	0.0

**DATA SHEET NO. 8...(continued)**  
**HYBRID III ATD INJURY CRITERIA AND SENSOR DATA**

Test Vehicle: 2001/Nissan/Maxima/4 Door Sedan  
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**PELVIC PEAK ACCELERATIONS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	2.7	177	68.8	57	5.1	126	44.3	51
Pelvis	Y	G's	8.1	76	16.7	47	5.8	154	12.4	62
Pelvis	Z	G's	4.3	155	32.8	57	6.4	199	21.8	51

**UPPER NECK PEAK FORCES AND MOMENTS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	234	102	461	71	225	46	364	33
Neck Force	Y	Newtons	245	60	321	137	66	21	450	139
Neck Force	Z	Newtons	1960	50	647	149	1319	72	768	139
Neck Moment	X	N•m	15.6	139	18.7	59	20.8	136	8.2	164
Neck Moment	Y	N•m	0.6	39	43.9	71	0.2	10	47.1	137
Neck Moment	Z	N•m	25.4	70	0.2	32	13.2	139	0.7	18

**FOOT PEAK ACCELERATIONS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	183.7	50	27.3	73	267.9	47	63.3	62
Left Foot Aft	Z	G's	83.7	51	19.6	65	96.0	43	29.3	56
Left Foot Fore	Z	G's	104.3	65	135.5	52	266.2	47	296.5	42
Right Foot Aft	X	G's	343.7	45	46.1	61	191.4	44	27.2	66
Right Foot Aft	Z	G's	237.2	46	58.8	57	20.0	85	20.3	55
Right Foot Fore	Z	G's	116.9	54	350.0	41	122.9	55	117.7	46

**UPPER AND LOWER TIBIA PEAK FORCES AND MOMENTS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Lower Moment	X	N•m	17.8	75	13.1	54	19.3	43	39.3	54
Left Lower Moment	Y	N•m	64.0	69	59.4	52	130.2	64	137.0	43
Left Lower Force	Z	Newtons	2168	51	137	130	3426	48	186	138
Left Upper Moment	X	N•m	22.0	39	41.1	86	17.8	49	27.7	54
Left Upper Moment	Y	N•m	21.4	71	108.3	52	19.4	54	183.7	43
Left Upper Force	Z	Newtons	1502	51	150	135	2368	48	323	30
Right Lower Moment	X	N•m	139.3	47	43.8	45	39.9	45	69.5	56
Right Lower Moment	Y	N•m	109.4	70	60.7	41	38.4	56	84.1	45
Right Lower Force	Z	Newtons	8495	46	115	151	2372	45	311	51
Right Upper Moment	X	N•m	60.6	47	68.8	45	56.2	45	21.6	56
Right Upper Moment	Y	N•m	16.1	71	173.9	46	13.3	114	131.5	45
Right Upper Force	Z	Newtons	6300	46	63	137	1717	45	316	26

**DATA SHEET NO. 8...(continued)**  
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**CHEST PEAK DISPLACEMENTS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	mm			20.8	61			17.2	73

**HEAD REDUNDANT PEAK ACCELERATIONS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	14.6	104	59.2	57	50.8	122	55.5	69
Head CG	Y	G's	10.7	153	36.6	66	27.1	122	9.5	29
Head CG	Z	G's	17.6	45	7.8	73	28.4	122	14.0	28
Head CG Resultant	N/A	G's	63.9	60			64.2	122		

**CHEST REDUNDANT PEAK ACCELERATIONS**

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	7.0	149	45.0	51	9.6	147	44.4	74
Chest CG	Y	G's	7.2	81	4.7	54	2.3	60	6.4	75
Chest CG	Z	G's	5.1	49	13.6	61	5.5	34	9.7	98
Chest CG Resultant	N/A	G's	45.8	59			44.9	74		

**REDUNDANT HEAD INJURY CRITERIA (HIC)**

Location	Driver				Passenger			
	HIC	Avg G's	T <sup>1</sup>	T <sup>2</sup>	HIC	Avg G's	T <sup>1</sup>	T <sup>2</sup>
Head CG Redundant	374	57.3	50.3	65.3	314	53.5	62.6	77.6

**REDUNDANT CHEST CLIP (3MSEC)**

Location	Driver			Passenger		
	CLIP	T <sup>1</sup>	T <sup>2</sup>	CLIP	T <sup>1</sup>	T <sup>2</sup>
Chest CG Primary Redundant	44.2	57.9	61.0	44.0	72.3	75.4

