Individual Vehicle dimensions were obtained through the use of the Expert AutoStats(R) program.

The Expert AutoStats(R) program contains a multitude of vehicle dimensions and specifications on over 40,000 different vehicles and 203 different manufacturers spanning more than 50 years.

While every attempt has been made to ensure accurate data, these dimensions are meant to be used as first approximations. Some measurements are dependant on such factors as tire and rim sizes, tire inflation pressure and wear, suspension system condition, bumper type and style, and other manufacturing variations from vehicle to vehicle.

Whenever feasible, the vehicle in question or an exemplar vehicle should be measured to verify data important to your case.

Individual Vehicle Data Search Service (R) Provided by: 4N6XPRT SYSTEMS (R) Forensic Expert Software La Mesa, CA 91941-3842 (619) 464-3478 / (800) 266-9778 / FAX: (619) 464-2206 Through the use of A U T O S T A T S (R) EXPERT COPYRIGHT (c) 1991-2010 EXPERT WITNESS SERVICES, INC. ALL RIGHTS RESERVED DEVELOPED BY: Daniel W. Vomhof III & Daniel W. Vomhof, Ph.D. VEHICLE DATA RESEARCH BY: Sheryl Cozby, Marion Vomhof, Muriel Vomhof, & Cindy Christensen

EXPERT VIN DeCoder Version 2.9 The VIN Number is 1FA FP653 4 XK 106418 The vehicle should be a 1999 Ford Passenger Car The model: Contour GL 4-door Sedan The assembly plant: Kansas City, MO The 5 passenger vehicle had : Manual Seatbelts + Driver/Passenger Front Air Bags The OEM engine was: In-line 4 cylinder with Double Overhead Cam Engine Displacement/Type = 2.0 L/ 122 cu.in. L4, DOHC Brake Horsepower (SAE) = 130 @ 6000 rpm = 130 lb-ft at 4500 rpm Torque (SAE) Engine manufacturer = Ford The fuel distribution system: Sequential Port Fuel Injection (SEFI) Fuel pump/line pressure = 30-41 psi The ignition system = electronic This is a Front Wheel Drive vehicle. The first three characters {1, F, A} indicates that the vehicle was a Ford made in the U.S.A. The fourth character  $\{F\}$  indicates the vehicle had Manual Seatbelts + Driver/Passenger Front Air Bags The fifth though seventh character {P65} indicates a Contour GL 4-door Sedan The eighth character {3} indicates the OEM engine : 2.0 L/ 122 cu.in. L4, DOHC The 9th Character { the Check Digit } is 4 The calculated Check Digit value is The tenth character  $\{X\}$  indicates the Model Year was 1999 The eleventh character {K} indicates it was made at the assembly plant in Kansas City, MO The twelveth through the seventeenth characters { 106418 } is the Serial Number unique to this vehicle. 04-22-2010 S/N:09R-930114VD01201

Reg. User: 4N6XPRT SYSTEMS

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> PROVIDED BY: 4N6XPRT Systems 8387 University Avenue La Mesa CA 91941

#### 04-22-2010

1999 FORD CONTOUR 4DR SEDAN

CURB WEIGHT: Curb Weight Distribution -	2840 lbs. Front: 64 %		L288 kg. c: 36 %
Gross Vehicle Weight Rating:	4079 lbs.	1	L850 kg.
Number of Tires on Vehicle: Drive Wheels:	4 FRONT		
HORIZONTAL DIMENSIONS	_		
	Inches	Feet	Meters
Total Length	185	15.42	4.70
Wheelbase:	107	8.92	2.72
Front Bumper to Front Axle	38	3.17	0.97
Front Bumper to Front of Front Well		2.00	0.61
Front Bumper to Front of Hood	7	0.58	
Front Bumper to Base of Windshield	50	4.17	1.27
Front Bumper to Top of Windshield	81	6.75	2.06
Rear Bumper to Rear Axle	40	3.33	1.02
Rear Bumper to Rear of Rear Well	27	2.25	0.69
Rear Bumper to Rear of Trunk	6	0.50	0.15
Rear Bumper to Base of Rear Window	24	2.00	0.61
WIDTH DIMENSIONS			
Maximum Width	69	5.75	1.75
Front Track	59	4.92	1.50
Rear Track	59	4.92	1.50
VERTICAL DIMENSIONS			
	Inches	Feet	Meters
Height Ground to:	55	4.58	1.40
Front Bumper (Top)	21	1.75	0.53
Headlight - center	26	2.17	0.66
Hood - top front	26	2.17	0.66
Base of windshield	36	3.00	0.00
Rear Bumper - top	26	2.17	
Trunk - top rear	39	3.25	0.99
Base of rear window	41	3.42	1.04

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1999 FORD CONTOUR 4DR SEDAN

INTERIOR DIMENSIONS			
	Inches		
Front Seat Shoulder Width	54	4.50	1.37
Front Seat to Headliner	39	3.25	
Front Leg - seatback to floor (max)	42	3.50	1.07
Rear Seat Shoulder Width	53	4.42	1.35
Rear Seat to Headliner	37	3.08	0.94
Rear Leg - seatback to floor (min)	34	2.83	0.86
Seatbelts: 3pt - front and rear Airbags: FRONT SEAT AIRBAGS			
STEERING DATA			
Turning Circle (Diameter)	432	36.00	10 97
Steering Ratio: 14.50:1	152	50.00	10.97
Wheel Radius:			•
Tire Size (OEM): P185/70SR1	4		_•
ACCELERATION & BRAKING INFORMATION			
Brake Type: FRONT DISC - REAR DRUM ABS System: ALL WHEEL ABS - OPTIONA	L		
Braking, 60 mph -> 0 (Hard pedal, n d = 138 ft t = 3.1 sec. a =-			
ACCELERATION:			
0 -> 30 mph t = . sec. a =	. ft/sec/	′sec G-1	Force = .
0->30 mph t = sec. a = 0->60 mph t = 9.2 sec. a =	9.6 ft/sec/	sec G-1	force = 0.30
$45 -> 65 \text{ mph} t = \\_ sec. a =$	. ft/sec/	/sec G-1	force = .
· · · <u> </u>			
Transmission Type: 5spd	MANUAL		
NOTES:			
Federal Bumper Standard Require	monta - 2		
This vehicles Rated Bumper Stre			
		~P11	

N.S.D.C. = 1998 - 2000

Reg. To: 4N6XPRT Systems

1999 FORD CONTOUR 4DR SEDAN

OTHER INFORMATION				
TIP-OVER STABILITY RATIO = NHTSA Star Rating (calculated)				
CENTER OF GRAVITY (No Load):				
Inches behind front axle	= 38.52			
Inches in front of rear axle				
Inches from side of vehicle				
Inches from ground	= 21.59			
Inches from front corner				
Inches from rear corner				
Inches from front bumper				
Inches from rear bumper	= 108.48			
MOMENTS OF INERTIA APPROXIMATIONS	(No Load):			
YAW MOMENT OF INERTIA	(110 2000)	=	1719.20	lb-ft-sec^2
PITCH MOMENT OF INERTIA		=	1662.60	lb-ft-sec^2
ROLL MOMENT OF INERTIA		=	361.20	lb-ft-sec^2
FRONT PROFILE INFORMATION				
ANGLE FRONT BUMPER TO HOOD FI			= 35.5	-
ANGLE FRONT OF HOOD TO WINDSH			= 13.1	
ANGLE FRONT OF HOOD TO WINDSH	HIELD TOP		= 20.0	
ANGLE OF WINDSHIELD			= 28.7	5
ANGLE OF STEERING TIRES AT MA	AX TURN		= 28.4	deg

FIRST APPROXIMATION CRUSH FACTORS:

Speed Equivalent (mph) of Kinetic Energy (KE) used in causing crush or indentation may be evaluated using the following formula, the appropriate Crush Factor (CF), and Maximum Indentation Depth (MID), in feet:

V(mph) = Sqr root of (30 \* CF \* MID)

KE Equivalent Speed (Front/Rear/Side) = 21 CF

Bullet vehicle IMPACT SPEED estimation based on TARGET VEHICLE damage ONLY = 27 CF (Tested for Rear/Side Impact only)

These CF values are based upon analysis of NHTSA Barrier Crash data, and from over 1000 vehicle accidents where independant evaluation of speed was possible. (These are NOT 'A', 'B', 'C', or 'G' values)

The Rear Impact data with more than 2-3 inches of crush damage should be looked at carefully, since some vehicles have very weak trunk & fender strength. Therefore, on some cars, esp. GM, your estimate from the rear crush data may be high by as much as 4-5 mph (on a crush of 18 inches).

Reg. To: 4N6XPRT Systems

# Stiffness Values and Test Data

## Derived from

NHTSA Crash Test

## # 2903

## **1998 FORD CONTOUR**

Provided By 4N6XPRT StifCalcs™

**Registered to:** 

4N6XPRT SYSTEMS 8387 UNIVERSITY AVENUE LA MESA CA 91941-3842 S/N: 030201SC01301

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## Sister/Clone database reader

#### You entered: 1999 FORD CONTOUR

The Sister/Clone Vehicle Year/Model Interchange list indicates the following are Similar Models

Year Range	Make	Model	Body Styles	Wheelbase	
1995 - 1997 REMARKS :	FORD	CONTOUR	4D	106.5"	
1995 - 1997 REMARKS :	MERCURY	MYSTIQUE	4D	106.5"	
1998 - 2000 REMARKS :	FORD	CONTOUR	4D	106.5"	
1998 - 2000 REMARKS :	MERCURY	MYSTIQUE	4D	106.5"	

The data contained in the database has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. 4N6XPRT Systems has made no changes to this data, and has only provided for distribution of this data free of charge. 4N6XPRT Systems makes no warranties, either express or implied, with respect to this data, its quality, performance, merchantability, or fitness for any particular purpose. The entire risk as to its quality and performance is with the user. In no event will 4N6XPRT Systems be liable for direct, indirect, incidental, or consequential damages resulting from any data presented here, even if 4N6XPRT Systems has been advised of the possibility of such damages. The user must agree to assume full responsibility for any decisions which are based, in whole or in part, upon information obtained by using this data. As previously stated, the data has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. Mr. Anderson does not in any way guarantee the accuracy of the data. Some of the listed similarities are based on his own estimates or memory. Most of the data are pulled from specification tables which may contain inaccuracies of their own. Use common sense - if something seems wrong, check it (and if it is wrong, let him know!).

If you have suggestions, corrections, etc., you should contact Greg Anderson at Scalia Safety Engineering, 521 East Washington Avenue, Suite 200, Madison, WI 53703-2914, (608) 256-0820, FAX (608) 256-0212, E-mail: greganderson@cs.com.

Test Information
Test #         2903         NHTSA Version #         V4         Test Date         1998-07         Contract #         DTNH22-97-D-02007
Contract/Study Title 1998 NHTSA OFFSET PROGRAM R AND D
Test Objective(s) OBTAIN ATD AND VEHICLE DATA
Test Type       TEST PROCEDURE DEVELOPMENT       Configuration       VEHICLE INTO BARRIER
Closing Speed 48.9 Km/Hr 30 MPH
Impact Angle       0       Offset Distance       0       mm       0       inches       Side Impact Point       mm       0       inches
Test Performer       KARCO ENGINEERING         Test Reference #       MW0212
Test Track Surface CONCRETE Condition DRY Ambient Temperature 38 C 100 F
Data Recorder Type OTHER Data Link OTHER Total Number of Curves 133
Test Commentary 48.3 KMH FMVSS 208 WIT

## **Fixed Barrier Information**

Barrier Type	RIGID	Barrier Shape	LOAD CELL BAR	Pole Barrier Diameter	9999 mm inches
Barrier Comm	entary	NO DATA COLLECT	ED ON A1,B1,C1,D1	,D2,D3,D4,D5,D6,D7,D8,	,D9

#### 4N6XPRT StifCalcs<sup>™</sup> 1998 FORD CONTOUR LEFT FRONT SEAT OCCUPANT Location | LEFT FRONT SEAT 2903 Vehicle # Seat Position CENTER POSITION 1 HYBRID III DUMMY Size Percentile 50 PERCENTILE **Calibration Method** HYBRID III M Age 99 Occupant Height 999 mm 0 inches Occupant Weight 999 kg 0 pounds Occupant Manufactuer VECTOR, S/N:034 **Occupant Modification** UNMODIFIED Occupant Description NO COMMENTS **Occupant Commentary** Head Head To Head To Windshield Header 315 mm inches Side Header 210 mm inches 12.4 8.3 Windshield 565 mm 22.2 inches Side Window 298 mm inches 11.7 Seatback 9999 mm inches 0 Neck to Seatback 9999 mm 0 inches First Contact Region (Head) AIR BAG Second Contact Region (Head) NONE Head Injury Criteria (HIC) HIC Lower Time interval (ms) 87.9 HIC Upper Time interval (ms) 363 -3370 Chest Chest To Arm to Door inches mm 94 3.7 Dash inches mm 21.2 538 Steering Wheel 10.8 inches 274 mm Hip to Door mm 5 inches 128 Seatback 9999 mm 0 inches First Contact Region (Chest/Abdomen) Second Contact Region (Chest/Abdomen) AIR BAG NONE Lap Belt Peak Load 0 pounds Force Shoulder Belt Peak Load 0 pounds Force Newtons Newtons **Chest Severity Index** Thorax Peak Acceleration (g's) Thoraic Trauma Index Pelvic Peak Lateral Acceleration (g's) 9999

#### Legs

Knees to Dash 155 mm	6.1 inches	Knees to Seatback	9999 mm 0	inches
First Contact Region (Legs) ST	EERING COLUMN Sec	cond Contact Region (Leg	s) DASHPANEL	
Left Femur Peak Load 5912 Ne	ewtons 1329. pounds Force F	Right Femur Peak Load	0 Newtons	0 pounds Force
1	998 FORD CONTOUR LEFT	FRONT SEAT OCCUP	PANT	
Restraint # 1 3 POINT BI	ELT Mounted	Deployment?	NOT APPLICABLE	
Restraint Commentary NO CO	MMENTS			

Test #

Type

Sex

#### 4N6XPRT StifCalcs<sup>™</sup>

#### **Restraints**

1998 FORD CONTOUR LEFT FRONT SEAT OCCUPANT

Restraint #	2 [	AIR BAG	Mounted	Deployment?	DEPLOYED PROPERLY
Restraint Corr	nmentar	NO COMMENTS			

4N6XPRT StifCalcs™
1998 FORD CONTOUR RIGHT FRONT SEAT OCCUPANT
Test #       2903       Vehicle #       1       Location       RIGHT FRONT SEAT       Seat Position       CENTER POSITION
Type     HYBRID III DUMMY     Size Percentile     50 PERCENTILE     Calibration Method     HYBRID III
Sex M Age 99 Occupant Height 999 mm 0 inches Occupant Weight 999 kg 0 pounds
Occupant Manufactuer VECTOR, S/N:035
Occupant Modification UNMODIFIED
Occupant Description N0 COMMENTS
Occupant Commentary
Head To Head To
Windshield Header 330 mm 12.4 inches Side Header 180 mm 8.3 inches
Windshield     560     mm     22.2     inches
Side Window 274 mm 11.7 inches Seatback 9999 mm 0 inches
Neck to Seatback 9999 mm 0 inches
First Contact Region (Head) AIR BAG Second Contact Region (Head) NONE
Head Injury Criteria (HIC) 386 HIC Lower Time interval (ms) 96.3 HIC Upper Time interval (ms) -4557
<u>Chest</u>
Chest To
Dash521mm21.2inchesArm to Door40mm3.7inches
Steering Wheel    9999    mm    10.8    inches    Hip to Door    156    mm    5    inches
Seatback 9999 mm 0 inches
First Contact Region (Chest/Abdomen) AIR BAG Second Contact Region (Chest/Abdomen) NONE
Lap Belt Peak Load    Newtons    0    pounds Force    Shoulder Belt Peak Load    Newtons    0    pounds Force
Chest Severity Index
Thorax Peak Acceleration (g's)       9999       Thoraic Trauma Index       Pelvic Peak Lateral Acceleration (g's)
Legs
Knees to Dash    162    mm    6.1    inches    Knees to Seatback    9999    mm    0    inches
First Contact Region (Legs) DASHPANEL Second Contact Region (Legs) NONE
Left Femur Peak Load       8912       Newtons       1329.       pounds Force       Right Femur Peak Load       0       Newtons       0       pounds Force
1998 FORD CONTOUR RIGHT FRONT SEAT OCCUPANT
Restraint #     1     3 POINT BELT     Mounted     Deployment?     NOT APPLICABLE
Restraint Commentary NO COMMENTS

#### **Restraints**

1998 FORD CONTOUR RIGHT FRONT SEAT OCCUPANT

Restraint #	2	AIR BAG	Mounted	Deployment?	DEPLOYED PROPERLY
Restraint Cor	nmentai	y NO COMMENTS			

## 4N6XPRT StifCalcs<sup>™</sup> Vehicle 1 - 1998 FORD CONTOUR

Test # 2903 NH	TSA Test Vehicle	Number		/IN 1FAFP6535\	VK290525
Year 1998 Make FORD	Model	CONTOUR	Вс	DOD FOUR DOOR SE	DAN
Vehicle Modification Indicatior	Vehicle	e Modification(s) D	escription		
PRODUCTION VEHICLE	UNMC	DIFIED			
Post-test Steering Column Shear Ca	apsule Seperation	Steering	Column Collapse	Mechanism	
UNKNOWN		UNKN	IOWN		
Vehicle Commentary NO COMM	ENTS				
Vehicle Length	4695 mm 184	.8 inches	Vehicle Test	t Weight 1473 KG	3247 pounds
Vehicle Wheelbase	2704 mm 106	.5 inches	Vehic	le Width 1670 mm	65.7 inches
CG behind front axle	1108 mm 43				
Center of Damage to CG Axis	0 mm	0 inches	otal Length of Ind	entation 1440 mm	56.7 inches
		Max	imum Static Crus	<b>h Depth</b> 465 mm	18.3 inches
Vehicle Damage Index 12FDEW	Principal Direct	ion of Force	0 Pre-Impac	t Speed 48.9 kph	30.4 mph
Damage Profile Distance	Measurements	s Crush fro	om Pre & Post	Test Damage Mea	surements
(Measured Left-to-Right, Re		<u> </u>	Pre-Test	Post-Test	Crush-Depth
DPD 1 465 mm 18.3	inches	D	178.5 inches	166.9 inches	11.7 inches
	1	Bumper Corner	4535 mm	4238 mm	297 mm
DPD 2 457 mm 18	inches				
DPD 3 387 mm 15.2	inches	Centerline	184.8 inches	169.8 inches	15.1 inches
DPD 4 395 mm 15.6	inches	Centernine	4695 mm	4312 mm	383 mm
DPD 5 400 mm 15.7					
	inches Right	Bumper Corner	178.5 inches	167.7 inches	10.8 inches
DPD 6 426 mm 16.8	Right	Bumper Corner	178.5 inches 4535 mm	167.7         inches           4260         mm	10.8         inches           275         mm
DPD 6 426 mm 16.8 Bumper Engagement	Right	Bumper Corner Still Engagemer	4535 mm		275 mm
Bumper Engagement (Inline Impact Only)	Right	Still Engagemen (Side Impact Onl	4535 mm t y)	4260 mm A-pillar Enga (Side Impac	275 mm gement t Only)
Bumper Engagement	Right	Still Engagemen	4535 mm t y)	4260 mm A-pillar Enga	275 mm gement t Only)
Bumper Engagement (Inline Impact Only) DIRECT ENGAGEMENT Moving Test Cart	Right inches	Still Engagemen (Side Impact Onl NOT APPLICABL	4535 mm t y) E ehicle	4260 mm A-pillar Enga (Side Impac NOT APPLI Moving Tes	275 mm gement t Only) CABLE
Bumper Engagement (Inline Impact Only) DIRECT ENGAGEMENT Moving Test Cart Angle	Right inches	Still Engagemen (Side Impact Onl NOT APPLICABL ving Test Cart / V Crabbed Angle	4535 mm t y) E ehicle	4260 mm A-pillar Enga (Side Impac NOT APPLI Moving Test Vehicle Orienta	275 mm gement t Only) CABLE
Bumper Engagement (Inline Impact Only) DIRECT ENGAGEMENT Moving Test Cart	Right	Still Engagemen (Side Impact Onl NOT APPLICABL	4535 mm (4535 mm (y) (E) (hicle	4260 mm A-pillar Enga (Side Impac NOT APPLI Moving Tes	275 mm gement t Only) CABLE t Cart ation on Cart

#### Vehicle 1 - 1998 FORD CONTOUR

Test #	2903	]	NHTSA T	est Vehicle N	Number			VIN	1FAFP6	535WK29	0525
Year	1998	Make FOF	RD	Model	CONTOUR			Body F	OUR DOO	R SEDAN	
Vehicle	Modification	Indicatior		Vehicle	Modificatior	n(s) Descr	iption				
PROD	JCTION VEF	IICLE		UNMO	DIFIED		-				
Post-tes	t Steering Co	olumn Shea	ar Capsule	Seperation	Ste	ering Colu	umn Colla	apse Mecha	inism		
UNKNO	OWN				ι	JNKNOW	N				
Vehicle	Commentary	NO CC	OMMENTS								
	Vehi	cle Length	4695	mm 184.	8 inches		Vehicle	Test Weigl	nt 1473	KG 32	47 pounds
	Vehicle W	/heelbase	2704	mm 106.	5 inches		v	ehicle Wid	<b>th</b> 1670	mm 6	5.7 inches
	CG behind	front axle	1108	mm 43.	6 inches		•				
Center	of Damage to	o CG Axis	0	mm	0 inches	Total L	_ength of	Indentatio	<b>on</b> 1440	mm 50	6.7 inches
						Maximur	m Static (	Crush Dep	th 465	mm 18	3.3 inches
Vehicle	Damage Inde	ex 12FDE	EW6 Prin	cipal Directi	on of Force	0	Pre-In	npact Spee	d 48.9	kph 3	).4 mph
				Pro & P	ost Test N	Measure	ments				
	(Measurments a	re taken in a l	logitudinal dire					aken from the	Rear Vehicle	Surface forv	vard
	Left				Centerli					nt Side	
Pre	-Test	Post	-Test	Pre-Tes	st	Post-Te	est	Pre-	-		st-Test
mm	inches	mm	inches	mm i	nches m	nm in	nches	mm	inches	mm	inches
				Leng	th of Vehicle	e at Cente	rline				
				Leng 4695	184.8	4312	rline 169.8				
				4695	184.8 Engine E	4312 Block	169.8				
453	5 178 5	4238	166.9	4695 230	184.8 Engine E 9.1	4312 Block 230		4535	178 5	426	
453	5 178.5	4238	166.9	4695 230	184.8 Engine E	4312 Block 230 er Corner	169.8	4535	i <u>178.5</u>	4260	) 167.7
453	5 178.5	4238	166.9	4695 230	184.8 Engine E 9.1 Front Bumpe	4312 Block 230 er Corner	169.8	4535	178.5	4260	) 167.7
453		4238	166.9	4695 230	184.8 Engine E 9.1 Front Bumpe Front of E	4312 Block 230 er Corner Engine 3930	9.1	4535		4260	
				4695 230	184.8Engine E9.1Front BumpeFront of E162.1	4312 Block 230 er Corner Engine 3930	9.1				
	6 136.9			4695 230 4117 3517	184.8 Engine E 9.1 Front Bumpe Front of E 162.1 Firew	4312 Block 230 er Corner Engine 3930 rall 3480	9.1 9.1 154.7 137		] 136.9		) 135.4
347	6     136.9       5     127.4	3455	136	4695 230 4117 3517 Upp	184.8Engine E9.1Front BumpeFront of E162.1Firew154.7	4312 Block 230 er Corner Engine 3930 rall 3480 Edge of Do	169.8 9.1 154.7 137 oor	3476	136.9	3440	) <u>135.4</u> 5 <u>127.8</u>
347	6       136.9         5       127.4         8       126.3	3455	136	4695 230 4117 3517 Upp	184.8Engine E9.1Front BumpeFront of E162.1Firew154.7Der Leading E	4312 Block 230 er Corner Engine 3930 rall 3480 Edge of De	169.8 9.1 154.7 137 oor	3476	136.9 127.4 126.2	3440	)     135.4       5     127.8       6     126.2
347 323 320	6       136.9         5       127.4         8       126.3         5       125.8	3455 3222 3202	136 126.9 126.1	4695 230 4117 3517 Upp Low	184.8Engine E9.1Front BumpeFront of E162.1Firew154.7ber Leading Ever Leading E	4312 Block 230 er Corner Engine 3930 rall 3480 Edge of Do Edge of Do	169.8 9.1 154.7 137 oor oor	3476 3235 3205	136.9         127.4         126.2         125	3440 3245 3206	135.4         127.8         126.2         125.4
347 323 320 319	6       136.9         5       127.4         8       126.3         5       125.8         6       83.8	3455 3222 3202 3190	136 126.9 126.1 125.6	4695 230 4117 3517 Upp Low	184.8         Engine E         9.1         Front Bumpe         Front of E         162.1         Firew         154.7         ber Leading E         Wer Leading E         Bottom of E         pper Trailing         ver Trailing E	4312 Block 230 er Corner Engine 3930 rall 3480 Edge of Dr Edge of Dr 'A' Post Edge of I Edge of I	169.8 9.1 154.7 137 oor oor	3476 3235 3205 3175	136.9         127.4         126.2         125         84.1	3440 3245 3206 3185	135.4         127.8         126.2         125.4         84.4
347 323 320 319 213	6       136.9         5       127.4         8       126.3         5       125.8         6       83.8	3455 3222 3202 3190 2120	136 126.9 126.1 125.6 83.5	4695 230 4117 3517 Upp Low Uj	184.8         Engine E         9.1         Front Bumpe         Front of E         162.1         Firew         154.7         per Leading E         yer Leading F         Bottom of P         pper Trailing E         Steering C	4312 Block 230 er Corner Engine 3930 rall 3480 Edge of Do Edge of Do 'A' Post Edge of Do Column	169.8 9.1 154.7 137 00r 00r Door	3476 3235 3205 3175 2136	136.9         127.4         126.2         125         84.1	3440 3245 3206 3185 2145	135.4         127.8         126.2         125.4         84.4
347 323 320 319 213	6       136.9         5       127.4         8       126.3         5       125.8         6       83.8	3455 3222 3202 3190 2120	136 126.9 126.1 125.6 83.5 82.7	4695 230 4117 3517 Upp Low U Low	184.8Engine E9.1Front BumpeFront of E162.1Firew154.7ber Leading Ewer Leading EBottom of Epper Trailing ESteering C104.3	4312 Block 230 er Corner Engine 3930 rall 3480 Edge of De Edge of De 'A' Post Edge of De Column 2705	169.8 9.1 154.7 137 oor oor Door Door Door	3476 3235 3205 3175 2136 2117	136.9         127.4         126.2         125         84.1	3440 3245 3206 3185 2145	135.4         127.8         126.2         125.4         84.4
347 323 320 319 213	6       136.9         5       127.4         8       126.3         5       125.8         6       83.8	3455 3222 3202 3190 2120	136 126.9 126.1 125.6 83.5 82.7	4695 230 4117 3517 Upp Low Up Low	184.8         Engine E         9.1         Front Bumpe         Front of E         162.1         Firew         154.7         ber Leading E         yer Leading E         Bottom of E         pper Trailing E         Steering C         104.3	4312 Block 230 er Corner Engine 3930 rall 3480 Edge of Dr Edge of Dr Column 2705 to 'A' Post	169.8 9.1 154.7 137 00r 00r Door Door Door Door t (Horizon	3476 3235 3205 3175 2136 2117	136.9         127.4         126.2         125         84.1	3440 3245 3206 3185 2145	135.4         127.8         126.2         125.4         84.4
347 323 320 319 213	6       136.9         5       127.4         8       126.3         5       125.8         6       83.8	3455 3222 3202 3190 2120	136 126.9 126.1 125.6 83.5 82.7 Cer	4695 230 4117 3517 Upp Low Up Low 2650 nter of Steer 427	184.8Engine E9.1Front BumpeFront of E162.1Firew154.7ber Leading Ewer Leading EBottom of Epper Trailing ESteering C104.3	4312 Block 230 er Corner Engine 3930 rall 3480 Edge of Dr Edge of Dr Edge of Dr Column 2705 to 'A' Post 390	169.8 9.1 154.7 137 000r 000r 000r 000r 106.5 t (Horizon 15.4	3476 3235 3205 3175 2136 2117 tal)	136.9         127.4         126.2         125         84.1	3440 3245 3206 3185 2145	135.4         127.8         126.2         125.4         84.4

### 4N6XPRT StifCalcs™ 1998 FORD CONTOUR

#### NHTSA Crash Test - # 2903 - Front Impact

{ Pre/Post Crush Depths - Vehicle Width - Closing Speed - Trapezoidal Average}

Vehicle Test Weight = 3247 pounds Vehicle Test Speed = 30.4 mph Test crush width = 65.7 inches

#### Pre/Post Collision Crush Depths (inches)

	Left Bumper Corner	Centerline	Right Bumper Corner	
(Driver Side)	11.7	15.1	10.8	(Pass. Side)

		Galcula	Calculated Stimless Coeffici			
Minimum Crush = 10.8 inches		A	<u> </u>	G		
Using a Rated No Damage Speed of	2.5 mph	255.6	264	123.7		
Using a Rated No Damage Speed of	5 mph	465.3	218.8	494.9		
Using a Rated No Damage Speed of	7.5 mph	629.3	177.8	1113.6		
Using a Rated No Damage Speed of	10 mph	747.4	141.1	1979.6		
Average Crush = 13.2 inches						
Using a Rated No Damage Speed of	2.5 mph	209.1	176.7	123.7		
Using a Rated No Damage Speed of	5 mph	380.7	146.4	494.9		
Using a Rated No Damage Speed of	7.5 mph	514.8	119	1113.6		
Using a Rated No Damage Speed of	10 mph	611.5	94.4	1979.6		
Maximum Crush = 15.1 inches						
Using a Rated No Damage Speed of	2.5 mph	182.8	135	123.7		
Using a Rated No Damage Speed of	5 mph	332.8	111.9	494.9		
Using a Rated No Damage Speed of	7.5 mph	450.1	90.9	1113.6		
Using a Rated No Damage Speed of	10 mph	534.5	72.2	1979.6		

Rated No Damage Speed = Impact speed with a barrier resulting in no permenant vehicle deformation

A = Maximum force per inch of damage without permenant damage, lb/in

**Calculated Stiffness Coefficients** 

B = Crush resistance per inch of damage width, lb/in^2

G = Energy dissipated without permenant damage, lb

Normal "Rated No Damage Speed" is 2.5 or 5 mph. Some specific vehicles may have a higher rating

\*

#### 4N6XPRT System's First Approximation Crush Factor (CF)

Speed from Crush calculation using a generic CF of 21 as suggested in Expert AutoStats Impact Speed (mph) = SQR(30 \* CF \* max crush in feet)

Crush Factor	Maximum Crush (inches)	Calculated Impact Speed (mph)	Calculated Error (mph)	Calculated Error (%)
21	15.1	28.2	-2.2	-7.2%
	4N6XPRT Systems S	pecific Crush Factor (CF s	pecific to this test) = 24.	.5

CF = (mph \* mph) / (30 \* max crush in feet), dimensionless

4N6XPRT Systems Specific CF is calculated based upon the data reported and is specific to this vehicle and this test

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### 4N6XPRT StifCalcs™ 1998 FORD CONTOUR

#### NHTSA Crash Test - # 2903 - Front Impact

{ Pre/Post Crush Depths - Indentation Length - Closing Speed - Trapezoidal Average}

Vehicle Test Weight = 3247 pounds Vehicle Test Speed = 30.4 mph Test crush width = 56.7 inches

#### Pre/Post Collision Crush Depths (inches)

	Left Bumper Corner	Centerline	Right Bumper Corner	
(Driver Side)	11.7	15.1	10.8	(Pass. Side)

Minimum Crush = 10.8 inches		A	<u> </u>	G
Using a Rated No Damage Speed of	2.5 mph	296.4	306.1	143.5
Using a Rated No Damage Speed of	5 mph	539.6	253.7	574
Using a Rated No Damage Speed of	7.5 mph	729.8	206.2	1291.4
Using a Rated No Damage Speed of	10 mph	866.7	163.6	2295.8
Average Crush = 13.2 inches				
Using a Rated No Damage Speed of	2.5 mph	242.5	204.9	143.5
Using a Rated No Damage Speed of	5 mph	441.5	169.8	574
Using a Rated No Damage Speed of	7.5 mph	597.1	138	1291.4
Using a Rated No Damage Speed of	10 mph	709.1	109.5	2295.8
Maximum Crush = 15.1 inches				
Using a Rated No Damage Speed of	2.5 mph	212	156.6	143.5
Using a Rated No Damage Speed of	5 mph	386	129.8	574
Using a Rated No Damage Speed of	7.5 mph	521.9	105.5	1291.4
Using a Rated No Damage Speed of	10 mph	619.9	83.7	2295.8

Rated No Damage Speed = Impact speed with a barrier resulting in no permenant vehicle deformation

A = Maximum force per inch of damage without permenant damage, Ib/in

**Calculated Stiffness Coefficients** 

B = Crush resistance per inch of damage width, lb/in^2

G = Energy dissipated without permenant damage, lb

Normal "Rated No Damage Speed" is 2.5 or 5 mph. Some specific vehicles may have a higher rating

#### \*

#### 4N6XPRT System's First Approximation Crush Factor (CF)

Speed from Crush calculation using a generic CF of 21 as suggested in Expert AutoStats Impact Speed (mph) = SQR(30 \* CF \* max crush in feet)

Crush Factor	Maximum Crush (inches)	Calculated Impact Speed (mph)	Calculated Error (mph)	Calculated Error (%)
21	15.1	28.2	-2.2	-7.2%
	4N6XPRT Systems S	pecific Crush Factor (CF s	pecific to this test) = 24.	.5

CF = (mph \* mph) / (30 \* max crush in feet), dimensionless

4N6XPRT Systems Specific CF is calculated based upon the data reported and is specific to this vehicle and this test

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#### **Available Test Results**

Frontal Impact Test Summary

#### **Report Filter Settings**

Year Range : 1998 - 2000

Make : FORD

Model : CONTOUR

Test Number	Vehicle Info	No Damage	Average Crush		Vehicle Width Stiffness Values			Crush Factor	
		Speed (mph)	(inch)	(mph)	Α	В	G	(Average Crush)	
Test Typ	pe : Front								
2708	1998 FORD CONTOUR FOUR DOOR SEDAN	5.0	14	35	413.5	177.7	481	35.1	
2903	1998 FORD CONTOUR FOUR DOOR SEDAN	5.0	16.4	30.4	306.4	94.9	494.9	22.5	
2906	1998 FORD CONTOUR FOUR DOOR SEDAN	5.0	13.3	37	477.4	230.4	494.6	41.3	
2912	1998 FORD CONTOUR FOUR DOOR SEDAN	5.0	14.9	37.8	418.6	184.4	475.1	38.4	
2921	1998 FORD CONTOUR FOUR DOOR SEDAN	5.0	17.9	30.4	265.4	75.2	468.7	20.6	
		Front A	verages		376.3	152.5	464.1	31.6	
		Front M	inimums		265.4	75.2	468.3	20.6	
		Front M	aximums		477.4	230.4	494.6	41.3	
		Front S	tandard Dev	viations	87.4	65.2	65.3	9.4	

#### **Available Test Results**

Frontal Impact Test Summary

#### **Report Filter Settings**

Year Range : 1998 - 2000

Make : FORD

Model : CONTOUR

Test Number	Vehicle Info	Damage	Max Crush	Closing Speed		nicle Width ness Values		Crush Factor	
		Speed (mph)	(inch)	(mph)	Α	В	G	(Max Crush)	
Test Ty	pe : Front								
2708	1998 FORD CONTOUR FOUR DOOR SEDAN	5.0	15.2	35	379.7	149.9	481	32.2	
2903	1998 FORD CONTOUR FOUR DOOR SEDAN	5.0	18.3	30.4	274.7	76.2	494.9	20.2	
2906	1998 FORD CONTOUR FOUR DOOR SEDAN	5.0	152	37	41.6	1.8	494.6	3.6	
2912	1998 FORD CONTOUR FOUR DOOR SEDAN	5.0	22	37.8	283.3	84.5	475.1	26	
2921	1998 FORD CONTOUR FOUR DOOR SEDAN	5.0	21.3	30.4	223.2	53.1	468.7	17.3	
		Front Av	/erages		240.5	73.1	395.6	19.9	
		Front M	inimums		41.6	1.8	480.7	3.6	
		Front Ma	aximums		379.7	149.9	480.9	32.2	
		Front St	andard De	viations	124.7	53.7	64.9	10.7	

EXPERT VIN DeCoder Version 2.9 The VIN to be decoded is : JB7 FP447 2 CY 700449 The vehicle should be a 1982 Dodge Truck The Model: Ram 50 Royal Pick-Up 4x2 Wheelbase: 109(in.) The Body, & GVWR: Conventional Cab, 4001-5000 lbs. The assembly plant: Nagoya #1, JAPAN The OEM engine was: In-Line 4 cylinder with Overhead Valves Engine Displacement/Type = 2.6 L/ 156 cu.in. L4, OHV Brake Horsepower (SAE) = 105/88 @ 5000 rpm (US/CA) = 139/103 lb-ft at 2500 rpm (US/CA) Torque (SAE) Engine manufacturer = Chrysler The fuel distribution system: 2 Bbl Carburetor Fuel pump/line pressure = 6.5-8 psi The ignition system = Electronic This is a Rear Wheel Drive vehicle. The first three characters {JB7} indicates the vehicle was a Dodge Truck made in Japan The fourth character  $\{F\}$  indicates the GVWR is 4001-5000 lbs. The fifth, sixth and seventh characters {P44} indicates a Ram 50 Royal Pick-Up 4x2 The sixth character {4} indicates the series is High Series The seventh character  $\{4\}$  indicates the body is a Conventional Cab The eighth character  $\{7\}$  indicates the OEM engine was a 2.6 L/ 156 cu.in. L4, OHV The 9th Character { the Check Digit } is 2 The calculated Check Digit value is 2 The tenth character  $\{C\}$  indicates the Model Year was 1982 The eleventh character  $\{Y\}$  indicates it was made at the assembly plant in Nagoya #1, JAPAN The twelveth through the seventeenth characters {700449} is the Serial Number unique to this vehicle. S/N:09R-930114VD01201 04-22-2010 Reg. User: 4N6XPRT SYSTEMS

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#### PROVIDED BY: 4N6XPRT Systems 8387 University Avenue La Mesa CA 91941

#### 04-22-2010

#### 1982 DODGE RAM 50 SWB 2DR 4X2 PICKUP

CURB WEIGHT: Curb Weight Distribution -	2415 lbs. Front: 57 %		1095 kg. r: 43 %
Gross Vehicle Weight Rating:	4325 lbs.	:	1962 kg.
Number of Tires on Vehicle: Drive Wheels:	4 REAR		
HORIZONTAL DIMENSIONS	_		
	Inches	Feet	
Total Length	184	15.33	4.67
Wheelbase:	109	9.08	2.77
Front Bumper to Front Axle	30	2.50	
Front Bumper to Front of Front Well		1.08	
Front Bumper to Front of Hood	3	0.25	
Front Bumper to Base of Windshield	47	3.92	
Front Bumper to Top of Windshield	66	5.50	1.68
Rear Bumper to Rear Axle	45	3.75	1.14
Rear Bumper to Rear of Rear Well	36	3.00	
Rear Bumper to Rear of Trunk	2	0.17	0.05
Rear Bumper to Base of Rear Window	80	6.67	2.03
WIDTH DIMENSIONS			
Maximum Width	65	5.42	1.65
Front Track	55	4.58	
Rear Track	55	4.58	1.40
VERTICAL DIMENSIONS			
	Inches	Feet	Meters
Height Ground to:	60	5.00	1.52
Front Bumper (Top)	20	1.67	0.51
Headlight - center	28	2.33	
Hood - top front	33	2.75	0.84
Base of windshield	39	3.25	0.99
Rear Bumper - top	20	1.67	0.51
Trunk - top rear	42	3.50	1.07
Base of rear window	44	3.67	1.12

Reg. To: 4N6XPRT Systems

1982 DODGE RAM 50 SWB 2DR 4X2 PICKUP

	Inches	Feet	Meters
Front Seat Shoulder Width	56	4.67	1.42
Front Seat to Headliner	39	3.25	0.99
Front Leg - seatback to floor (max)	42	3.50	1.07
Rear Seat Shoulder Width		•	_•
Rear Seat to Headliner		•	_•
Rear Leg – seatback to floor (min)		•	_•

Seatbelts: 3pt LAP & SHOULDER - front, None or Unknown - rear Airbags: NO AIRBAGS

#### STEERING DATA

INTERIOR DIMENSIONS

Turning Circle (Diameter)		456	38.00	11.58
Steering Ratio:	<b>:</b> 1			
Wheel Radius:		12	1.00	0.30
Tire Size (OEM):	195-75R14			

#### ACCELERATION & BRAKING INFORMATION

Brake Type: FRONT DISC - REAR DRUM ABS System: ABS UNKNOWN

Braking, 60 mph -> 0 (Hard pedal, no skid, dry pavement): d = 140 ft t = 3.2 sec. a =-27.6 ft/sec/sec G-force = -0.86

ACCELERATION:

0->30 mph t = \_\_.\_ sec. a = \_\_.\_ ft/sec/sec G-force = \_.\_\_ 0->60 mph t = 11.5 sec. a = 7.7 ft/sec/sec G-force = 0.24 45->65 mph t = \_\_. sec. a = \_\_. ft/sec/sec G-force = \_.\_\_

Transmission Type: AUTOMATIC

#### NOTES:

Federal Bumper Standard Requirements = NO REQUIREMENT

N.S.D.C. = 1981 - 1986

Reg. To: 4N6XPRT Systems

1982 DODGE RAM 50 SWB 2DR 4X2 PICKUP

OTHER INFORMATION TIP-OVER STABILITY RATIO = 1.19 REASONABLY STABLE NHTSA Star Rating (calculated) \* \* \* CENTER OF GRAVITY (No Load): Inches behind front axle = 46.87 Inches in front of rear axle = 62.13 Inches from side of vehicle = 32.50 Inches from ground = 23.07 Inches from front corner=83.46Inches from rear corner=111.95Inches from front bumper=76.87Inches from rear bumper=107.13 MOMENTS OF INERTIA APPROXIMATIONS (No Load): YAW MOMENT OF INERTIA 1144.45 lb-ft-sec^2 = PITCH MOMENT OF INERTIA = 1047.80 lb-ft-sec<sup>2</sup> 296.30 lb-ft-sec^2 ROLL MOMENT OF INERTIA = FRONT PROFILE INFORMATION ANGLE FRONT BUMPER TO HOOD FRONT = 77.0 deg ANGLE FRONT OF HOOD TO WINDSHIELD BASE = 7.8 deg ANGLE FRONT OF HOOD TO WINDSHIELD TOP = 21.6 deg ANGLE OF WINDSHIELD = 45.0 deg ANGLE OF STEERING TIRES AT MAX TURN = 27.4 deg

FIRST APPROXIMATION CRUSH FACTORS:

Speed Equivalent (mph) of Kinetic Energy (KE) used in causing crush or indentation may be evaluated using the following formula, the appropriate Crush Factor (CF), and Maximum Indentation Depth (MID), in feet:

V(mph) = Sqr root of (30 \* CF \* MID)

KE Equivalent Speed (Front/Rear/Side) = 21 CF

Bullet vehicle IMPACT SPEED estimation based on TARGET VEHICLE damage ONLY = 27 CF (Tested for Rear/Side Impact only)

These CF values are based upon analysis of NHTSA Barrier Crash data, and from over 1000 vehicle accidents where independant evaluation of speed was possible. (These are NOT 'A', 'B', 'C', or 'G' values)

The Rear Impact data with more than 2-3 inches of crush damage should be looked at carefully, since some vehicles have very weak trunk & fender strength. Therefore, on some cars, esp. GM, your estimate from the rear crush data may be high by as much as 4-5 mph (on a crush of 18 inches).

Reg. To: 4N6XPRT Systems

Expert System Software for Litigation

8387 University Avenue La Mesa, CA 91941-3842 Phone: (619) 464-3478 Fax: (619) 464-2206 Toll Free: 1- 800-266-9778

Web Site: http://www.4n6xprt.com

E-Mail: 4n6@4n6xprt.com

The NHTSA Crash Test database contains NO SIDE Impact tests for the RAM 50 Pickup.

To create a SIMILAR class of vehicle, we first looked at the test wheelbase of the frontal impact tests for the RAM 50, which were reported as 109 inches..

We then looked at the NHTSA database for PICKUPS that have SIDE IMPACT TESTS and had a Wheelbase of 107-111 inches (+/- 2 inches of the frontal test vehicles).

The Test Summary Reports based on the Average and Maximum crush depths follow.

# Available Tests in the NHTSA database for a 1980 - 1986 DODGE D-50

Print Modify Year Range Frontal Test(s)											
Test Number	Year	Make	Model	Impact Speed	Max Crush	Crush Factor	VDI	PDOF	Test Config	VIN	^
579	1983	MITSUBISHI	PICKUP	35.2	22.9	21.6	12FDAW8	0	VEHICLE INTO BARRIER		
656	1983	MITSUBISHI	PICKUP	29.5	15	23.2	12FDEW2	0	VEHICLE INTO BARRIER	JA7FP245	
											~
										>	
	Test Number 579	Test Number         Year           579         1983           656         1983	Test Number     Year     Make       579     1983     MITSUBISHI       656     1983     MITSUBISHI	Test Number     Year     Make     Model       579     1983     MITSUBISHI     PICKUP       656     1983     MITSUBISHI     PICKUP	Test Number     Year     Make     Model     Impact Speed       579     1983     MITSUBISHI     PICKUP     35.2       656     1983     MITSUBISHI     PICKUP     29.5	Test NumberYearMakeModelImpact SpeedMax Crush5791983MITSUBISHIPICKUP35.222.96561983MITSUBISHIPICKUP29.515	Test NumberYearMakeModelImpact SpeedMax CrushCrush Factor5791983MITSUBISHIPICKUP35.222.921.66561983MITSUBISHIPICKUP29.51523.2	Test NumberYearMakeModelImpact SpeedMax CrushCrush FactorVDI5791983MITSUBISHIPICKUP35.222.921.612FDAW86561983MITSUBISHIPICKUP29.51523.212FDEW2	Test NumberYearMakeModelImpact SpeedMax CrushCrush FactorVDIPDOF5791983MITSUBISHIPICKUP35.222.921.612FDAW806561983MITSUBISHIPICKUP29.51523.212FDEW20	Test NumberYearMakeModelImpact SpeedMax CrushCrush FactorVDIPDOFTest Config5791983MITSUBISHIPICKUP35.222.921.612FDAW80VEHICLE INTO BARRIER6561983MITSUBISHIPICKUP29.51523.212FDEW20VEHICLE INTO BARRIER	Test NumberYearMakeModelImpact SpeedMax CrushCrush FactorVDIPDOFTest ConfigVIN5791983MITSUBISHIPICKUP35.222.921.612FDAW80VEHICLE INTO BARRIER6561983MITSUBISHIPICKUP29.51523.212FDEW20VEHICLE INTO BARRIERJA7FP245

	Print	🗖 Mc	odify Year Range	÷	R	ear Test(	(s)					
	Test Number	(Year	Make	Model	Impact Speed	Max Crush	Crush Factor	VDI (	PDOF	Test Config	VIN	^
	537	1982	2 DODGE	PICKUP	29.6	12.3	28.5	06BDEW1	180	IMPACTOR INTO VEHICLE		
	639	1983	3 MITSUBISHI	PICKUP	29.5	12.2	28.5	06BDEW2	180	IMPACTOR INTO VEHICLE	JA7FP2454DY:	:
	717	1984	4 DODGE	PICKUP	29.4	8.8	39.2	06BDEW2	180	IMPACTOR INTO VEHICLE		
												~
<											>	

📕 Modify Year Range

Side Test(s)

## **NO SIDE TESTS 1980-1986**

📕 Modify Year Range

Other Test(s)

**NO OTHER TESTS 1980-1986** 

## Sister/Clone database reader

You entered: 1982 DODGE D-50

The Sister/Clone Vehicle Year/Model Interchange list indicates the following are Similar Models

Year Range	Make	Model	Body Styles	Wheelbase	
1980 - 1986	DODGE	D-50	P/U	109.4"	
REMARKS : D=4x2	2,W=4x4				
1983 - 1986 REMARKS :	MITSUBISHI	PICKUP	P/U	109.4"	
1980 - 1982 REMARKS :	PLYMOUTH	ARROW	P/U	109.4"	
1980 - 1986 REMARKS : D=4x	DODGE 2,W=4x4	W-50	P/U	109.4"	

The data contained in the database has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. 4N6XPRT Systems has made no changes to this data, and has only provided for distribution of this data free of charge. 4N6XPRT Systems makes no warranties, either express or implied, with respect to this data, its quality, performance, merchantability, or fitness for any particular purpose. The entire risk as to its quality and performance is with the user. In no event will 4N6XPRT Systems be liable for direct, indirect, incidental, or consequential damages resulting from any data presented here, even if 4N6XPRT Systems has been advised of the possibility of such damages. The user must agree to assume full responsibility for any decisions which are based, in whole or in part, upon information obtained by using this data. As previously stated, the data has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. Mr. Anderson does not in any way guarantee the accuracy of the data. Some of the listed similarities are based on his own estimates or memory. Most of the data are pulled from specification tables which may contain inaccuracies of their own. Use common sense - if something seems wrong, check it (and if it is wrong, let him know!).

If you have suggestions, corrections, etc., you should contact Greg Anderson at Scalia Safety Engineering, 521 East Washington Avenue, Suite 200, Madison, WI 53703-2914, (608) 256-0820, FAX (608) 256-0212, E-mail: greganderson@cs.com.

#### **Available Test Results**

Side Impact Test Summary

#### **Report Filter Settings**

Year Range : 1965 - 2010

Bodystyle : PICKUP TRUCK WB Range : 107 - 111

Impact Locations : SIDE

Test Number	Vehicle Info r	No Damage Speed (mph)	Average Crush (inch)	KE Speed (mph)		icle Indent ness Values B	G	Crush Factor (Average Crush)
Test Ty	pe : <b>Side</b>							
1268	1984 FORD RANGER PICKUP TRUCK	2.0	12.6	24.8	68.7	62.1	38	19.5
1271	1988 CHEVROLET S-10 PICKUP TRUCK	2.0	11.3	24.9	128.5	130	63.5	21.9
3288	2000 CHEVROLET S-10 PICKUP TRUCK	2.0	7.8	26.4	120.4	189.3	38.3	35.9
5309	2005 TOYOTA TACOMA PICKUP TRUCK	2.0	3.9	25.6	356.9	1081.6	58.9	67.4
6507	2009 TOYOTA TACOMA PICKUP TRUCK	2.0	7.9	25.6	202.3	300.9	68	33.1
		Side Av	erages		175.4	352.8	43.6	35.6
		Side Mi	nimums		68.7	62.1	38	19.5
		Side Ma	iximums		356.9	1081.6	58.9	67.4
		Side Sta	andard Devi	ations	112.1	416.7	416.9	19.1

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#### **Available Test Results**

Side Impact Test Summary

#### **Report Filter Settings**

Year Range : 1965 - 2010

Bodystyle : PICKUP TRUCK WB Range : 107 - 111

Impact Locations : SIDE

Test Number	Vehicle Info	No Damage Speed (mph)	Max Crush (inch)	KE Speed (mph)		icle Indent ness Values B	s G	Crush Factor (Max Crush)
Test Type : Side								
1268	1984 FORD RANGER PICKUP TRUCK	2.0	22	24.8	39.3	20.3	38	11.1
1271	1988 CHEVROLET S-10 PICKUP TRUCK	2.0	15.5	24.9	93.9	69.5	63.5	16
3288	2000 CHEVROLET S-10 PICKUP TRUCK	2.0	16.1	26.4	57.8	43.6	38.3	17.2
5309	2005 TOYOTA TACOMA PICKUP TRUCK	2.0	7.7	25.6	181.3	279.1	58.9	34.2
6507	2009 TOYOTA TACOMA PICKUP TRUCK	2.0	10.4	25.6	155.1	176.9	68	25.4
		Side Av	erages		105.5	117.9	47.2	20.8
		Side Mir	nimums		39.3	20.3	38	11.1
		Side Ma	ximums		181.3	279.1	58.9	34.2
		Side Sta	ndard Devi	iations	61.2	108.2	108.7	9.1

EXPERT VIN DeCoder Version 2.9 The VIN Number is 5N1 ED28Y 3 YC 557331 The vehicle should be a 2000 Nissan MPV The model: Xterra MPV 4x4 The assembly plant: Smyrna, TN The 5 passenger Xterra had : Manual Belts The OEM engine was: V-6 Cylinder with Single Overhead Cam Engine Displacement/Type = 3.3 L/ 199 cu.in., V6, SOHC Brake Horsepower (SAE) = 170 @ 4800 rpm Torque (SAE) = 200 lb-ft at 2800 rpm = Nissan Engine manufacturer The fuel distribution system: Multiport Fuel Injection (MFI) Fuel pump/line pressure = 34 psi The ignition system was = electronic This is a Four Wheel Drive vehicle. The first three characters {5, N, 1} indicates the vehicle was a Nissan MPV made in U.S.A. The fourth character {E} indicates the OEM engine : 3.3 L/ 199 cu.in., V6, SOHC The fifth character {D} indicates a Xterra The sixth character {2} indicates Model Change #2 The seventh character {8} indicates a MPV The eighth character {Y} indicates Manual Belts The 9th Character { the Check Digit } is 3 The calculated Check Digit value is 3 The tenth character  $\{Y\}$  indicates the Model Year was 2000 The eleventh character {C} indicates it was made at the Smyrna, TN assembly plant. The twelveth through the seventeenth characters {557331} is the Serial Number unique to this vehicle. 04-22-2010 S/N:09R-930114VD01201 Reg. User: 4N6XPRT SYSTEMS

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#### PROVIDED BY: 4N6XPRT Systems 8387 University Avenue La Mesa CA 91941

#### 04-22-2010

#### 2000 NISSAN XTERRA XE 4DR 4X4 UTILITY

CURB WEIGHT: Curb Weight Distribution -	3864 lbs Front: 56 %		1753 kg. r: 44 %
Gross Vehicle Weight Rating:	5200 lbs	5.	2359 kg.
Number of Tires on Vehicle: Drive Wheels:	4 4 Wheel	L Drive	
HORIZONTAL DIMENSIONS			
	Inches	Feet	Meters
Total Length	178	14.83	4.52
Wheelbase:	104	8.67	2.64
Front Bumper to Front Axle	34	2.83	0.86
Front Bumper to Front of Front Well		1.42	
Front Bumper to Front of Hood	8	0.67	
Front Bumper to Base of Windshield	49	4.08	1.24
Front Bumper to Top of Windshield	71	5.92	1.80
Rear Bumper to Rear Axle	40	3.33	1.02
Rear Bumper to Rear of Rear Well	23	1.92	
Rear Bumper to Rear of Trunk	4	0.33	0.10
Rear Bumper to Base of Rear Window	6	0.50	0.15
WIDTH DIMENSIONS			
Maximum Width	70	5.83	1.78
Front Track	59	4.92	
Rear Track	58	4.83	1.47
VERTICAL DIMENSIONS			
	Inches	Feet	Meters
Height Ground to:	69	5.75	1.75
Front Bumper (Top)	29	2.42	0.74
Headlight - center	37	3.08	
Hood - top front	41	3.08	1.04
Base of windshield	47		
pase of windshield	4/	3.92	1.19
Rear Bumper - top	30	2.50	
Trunk - top rear	35	2.92	0.89
Base of rear window	47	3.92	1.19

Reg. To: 4N6XPRT Systems

2000 NISSAN XTERRA XE 4DR 4X4 UTILITY

INTERIOR DIMENSIONS			
		Feet	
Front Seat Shoulder Width	55		1.40
Front Seat to Headliner	39	3.25	0.99
Front Leg - seatback to floor (max)	41	3.42	1.04
Rear Seat Shoulder Width	54	4.50	
Rear Seat to Headliner	38	3.17	0.97
Rear Leg – seatback to floor (min)	33	2.75	0.84
Seatbelts: 3pt - front and rear Airbags: FRONT SEAT AIRBAGS			
STEERING DATA			
Turning Circle (Diameter)	420	35.00	10.67
Steering Ratio::1		1 00	
Wheel Radius:	13	1.08	0.33
Tire Size (OEM): 205/70R1	5		
ACCELERATION & BRAKING INFORMATION			
Brake Type: FRONT DISC - REAR DRUM ABS System: ALL WHEEL ABS			
Braking, 60 mph -> 0 (Hard pedal, n d = 128 ft t = 2.9 sec. a =-			
ACCELERATION:			
0->30 mph t = 3.2 sec. a =	13.7 ft/sec	sec G-f	orce = 0.43
0->60  mph t = 10.0 sec. a =			
45->65 mph t = 7.0 sec. a =			
Transmission Type: 4spd	AUTOMATIC		
Federal Bumper Standard Require	ments = NC	) REQUIREME	ENT

N.S.D.C. = 2000 - 2001

Reg. To: 4N6XPRT Systems

2000 NISSAN XTERRA XE 4DR 4X4 UTILITY

OTHER INFORMATION

TIP-OVER STABILITY RATIO = NHTSA Star Rating (calculated)			STABL	E
CENTER OF GRAVITY (No Load):				
Inches behind front axle	= 45.76			
Inches in front of rear axle	= 58.24			
Inches from side of vehicle	= 35.00			
Inches from ground	= 27.53			
Inches from front corner	= 87.10			
Inches from rear corner	= 104.29			
Inches from front bumper	= 79.76			
Inches from rear bumper	= 98.24			
MOMENTS OF INERTIA APPROXIMATIONS	(No Load):			
YAW MOMENT OF INERTIA				lb-ft-sec^2
PITCH MOMENT OF INERTIA			570.68	lb-ft-sec^2
ROLL MOMENT OF INERTIA		= 6	515.08	lb-ft-sec^2
FRONT PROFILE INFORMATION				
ANGLE FRONT BUMPER TO HOOD FI	RONT	=	= 56.3	deg
ANGLE FRONT OF HOOD TO WINDSE	HIELD BASE	=	= 8.3	deg
ANGLE FRONT OF HOOD TO WINDSH	HIELD TOP	=	= 22.4	deg
ANGLE OF WINDSHIELD		=	42.3	deg
ANGLE OF STEERING TIRES AT MA	AX TURN	=	= 28.4	deg

FIRST APPROXIMATION CRUSH FACTORS:

Speed Equivalent (mph) of Kinetic Energy (KE) used in causing crush or indentation may be evaluated using the following formula, the appropriate Crush Factor (CF), and Maximum Indentation Depth (MID), in feet:

V(mph) = Sqr root of (30 \* CF \* MID)

KE Equivalent Speed (Front/Rear/Side) = 21 CF

Bullet vehicle IMPACT SPEED estimation based on TARGET VEHICLE damage ONLY = 27 CF (Tested for Rear/Side Impact only)

These CF values are based upon analysis of NHTSA Barrier Crash data, and from over 1000 vehicle accidents where independant evaluation of speed was possible. (These are NOT 'A', 'B', 'C', or 'G' values)

The Rear Impact data with more than 2-3 inches of crush damage should be looked at carefully, since some vehicles have very weak trunk & fender strength. Therefore, on some cars, esp. GM, your estimate from the rear crush data may be high by as much as 4-5 mph (on a crush of 18 inches).

Reg. To: 4N6XPRT Systems

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#### PROVIDED BY: 4N6XPRT Systems 8387 University Avenue La Mesa CA 91941

#### 04-22-2010

#### 2000 NISSAN XTERRA SE 4DR 4X4 UTILITY

CURB WEIGHT: Curb Weight Distribution -	4030 lbs Front: 56 %		1828 kg. r: 44 %
Gross Vehicle Weight Rating:	5200 lbs		2359 kg.
Number of Tires on Vehicle: Drive Wheels:	4 4 Whee]	Drive	
HORIZONTAL DIMENSIONS	_		
	Inches	Feet	
Total Length	178	14.83	4.52
Wheelbase:	104	8.67	2.64
Front Bumper to Front Axle	34	2.83	0.86
Front Bumper to Front of Front Well		1.42	
Front Bumper to Front of Hood	8	0.67	
Front Bumper to Base of Windshield		4.08	1.24
Front Bumper to Top of Windshield	71	5.92	1.80
Rear Bumper to Rear Axle	40	3.33	
Rear Bumper to Rear of Rear Well	23	1.92	
Rear Bumper to Rear of Trunk	4	0.33	
Rear Bumper to Base of Rear Window	6	0.50	0.15
WIDTH DIMENSIONS			
Maximum Width	70	5.83	1.78
Front Track	59	4.92	1.50
Rear Track	58	4.83	1.47
VERTICAL DIMENSIONS			
	Inches	Feet	Meters
Height	74	6.17	1.88
Ground to:			
Front Bumper (Top)	29	2.42	0.74
Headlight - center	37	3.08	0.94
Hood - top front	41	3.42	1.04
Base of windshield	47	3.92	1.19
Rear Bumper - top	30	2.50	0.76
Trunk - top rear	35	2.92	0.89
Base of rear window	47	3.92	1.19

Reg. To: 4N6XPRT Systems

2000 NISSAN XTERRA SE 4DR 4X4 UTILITY

INTERIOR DIMENSIONS			
	Inches		
Front Seat Shoulder Width	55		1.40
Front Seat to Headliner	39	3.25	0.99
Front Leg - seatback to floor (max)	41	3.42	1.04
Rear Seat Shoulder Width	54	4.50	
Rear Seat to Headliner	38	3.17	0.97
Rear Leg - seatback to floor (min)	33	2.75	0.84
Seatbelts: 3pt - front and rear Airbags: FRONT SEAT AIRBAGS			
STEERING DATA			
Turning Circle (Diameter)	420	35.00	10.67
Steering Ratio::1			
Wheel Radius:	13	1.08	0.33
Tire Size (OEM): 205/70R1	.5		
ACCELERATION & BRAKING INFORMATION			
Brake Type: FRONT DISC - REAR DRUM ABS System: ALL WHEEL ABS			
Braking, 60 mph -> 0 (Hard pedal, n d = 128 ft t = 2.9 sec. a =-			
ACCELERATION:			
0 -> 30  mph t = 3.2  sec. a =	13.7 ft/sec	/sec G-f	force = $0.43$
0 -> 60  mph t = 10.0  sec. a =			
45 - > 65  mph t = 7.0  sec. a =			
Transmission Type: 4spd	AUTOMATIC		
Federal Bumper Standard Require	ments = NC	REQUIREME	ENT

N.S.D.C. = 2000 - 2001

Reg. To: 4N6XPRT Systems

2000 NISSAN XTERRA SE 4DR 4X4 UTILITY

OTHER INFORMATION TIP-OVER STABILITY RATIO = 0.99 UNSTABLE NHTSA Star Rating (calculated) \* CENTER OF GRAVITY (No Load): Inches behind front axle = 45.76 Inches in front of rear axle = 58.24 Inches from side of vehicle = 35.00 Inches from ground = 29.53 Inches from front corner=87.10Inches from rear corner=104.29Inches from front bumper=79.76Inches from rear bumper=98.24 MOMENTS OF INERTIA APPROXIMATIONS (No Load): YAW MOMENT OF INERTIA 2807.90 lb-ft-sec^2 = PITCH MOMENT OF INERTIA 2856.60 lb-ft-sec^2 = 651.60 lb-ft-sec^2 ROLL MOMENT OF INERTIA = FRONT PROFILE INFORMATION ANGLE FRONT BUMPER TO HOOD FRONT = 56.3 deg ANGLE FRONT OF HOOD TO WINDSHIELD BASE = 8.3 deg ANGLE FRONT OF HOOD TO WINDSHIELD TOP = 26.2 deg ANGLE OF WINDSHIELD = 48.7 deg = 28.4 ANGLE OF STEERING TIRES AT MAX TURN deg

FIRST APPROXIMATION CRUSH FACTORS:

Speed Equivalent (mph) of Kinetic Energy (KE) used in causing crush or indentation may be evaluated using the following formula, the appropriate Crush Factor (CF), and Maximum Indentation Depth (MID), in feet:

V(mph) = Sqr root of (30 \* CF \* MID)

KE Equivalent Speed (Front/Rear/Side) = 21 CF

Bullet vehicle IMPACT SPEED estimation based on TARGET VEHICLE damage ONLY = 27 CF (Tested for Rear/Side Impact only)

These CF values are based upon analysis of NHTSA Barrier Crash data, and from over 1000 vehicle accidents where independant evaluation of speed was possible. (These are NOT 'A', 'B', 'C', or 'G' values)

The Rear Impact data with more than 2-3 inches of crush damage should be looked at carefully, since some vehicles have very weak trunk & fender strength. Therefore, on some cars, esp. GM, your estimate from the rear crush data may be high by as much as 4-5 mph (on a crush of 18 inches).

Reg. To: 4N6XPRT Systems

# Stiffness Values and Test Data

## Derived from

NHTSA Crash Test

## # 3220

# 2000 NISSAN XTERRA

Provided By 4N6XPRT StifCalcs™

**Registered to:** 

4N6XPRT SYSTEMS 8387 UNIVERSITY AVENUE LA MESA CA 91941-3842 S/N: 030201SC01301

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## Sister/Clone database reader

You entered: 2000 NISSAN XTERRA

The Sister/Clone Vehicle Year/Model Interchange list indicates the following are Similar ModelsYear RangeMakeModelBody StylesWheelbase2000 - 2004NISSANXTERRASUV"REMARKS : BASED ON PICKUP - FRONTIER (FRONTAL)

The data contained in the database has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. 4N6XPRT Systems has made no changes to this data, and has only provided for distribution of this data free of charge. 4N6XPRT Systems makes no warranties, either express or implied, with respect to this data, its quality, performance, merchantability, or fitness for any particular purpose. The entire risk as to its quality and performance is with the user. In no event will 4N6XPRT Systems be liable for direct, indirect, incidental, or consequential damages resulting from any data presented here, even if 4N6XPRT Systems has been advised of the possibility of such damages. The user must agree to assume full responsibility for any decisions which are based, in whole or in part, upon information obtained by using this data. As previously stated, the data has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. Mr. Anderson does not in any way guarantee the accuracy of the data. Some of the listed similarities are based on his own estimates or memory. Most of the data are pulled from specification tables which may contain inaccuracies of their own. Use common sense - if something seems wrong, check it (and if it is wrong, let him know!).

If you have suggestions, corrections, etc., you should contact Greg Anderson at Scalia Safety Engineering, 521 East Washington Avenue, Suite 200, Madison, WI 53703-2914, (608) 256-0820, FAX (608) 256-0212, E-mail: greganderson@cs.com.

Test Information
Test #         3220         NHTSA Version #         V4         Test Date         1999-11         Contract #         DTNH22-97-D-02007
Contract/Study Title 2000 NHTSA 35 MPH NEW CAR ASSESSMENT PROGRAM (NCAP)
Test Objective(s) OBTAIN ATD AND VEHICLE DATA
Test Type       NEW CAR ASSESSMENT TEST       Configuration       VEHICLE INTO BARRIER
Closing Speed 56.3 Km/Hr 35 MPH
Impact Angle 0 Offset Distance 0 mm 0 inches Side Impact Point 9999 mm 0 inches
Test Performer KARCO ENGINEERING Test Reference # MY5203
Test Track Surface       CONCRETE       Condition       DRY       Ambient Temperature       13       C       55       F
Data Recorder Type OTHER Data Link OTHER Total Number of Curves 133
Test Commentary NO COMMENTS
Fixed Barrier Information

LOAD CELL BAR Pole Barrier Diameter 9999 mm

Barrier Commentary	NO DATA COLLECTED ON A1,B1,C1,D1,D2,D3,D4,D5,D6,D7,D8,D9

Barrier Shape

Barrier Type RIGID

inches

	2000 NISSAN XTERRA	LEFT FRONT SEAT	OCCUPANT	
Test # 3220 Vehicle #	1 Location LEFT FRON	T SEAT Seat Positio	n CENTER POSITION	N
Type HYBRID III DUMMY	Size Per	centile 50 PERCENTIL	E Calibration Metho	od HYBRID III
Sex M Age 99 Occ	cupant Height 999 mm	0 inches Occu	pant Weight 999	kg 0 pounds
Occupant Manufactuer	VECTOR, S/N:035			
Occupant Modification	UNMODIFIED			
Occupant Description	NO COMMENTS			
Occupant Commentary				
Head To		<u>Head</u> Head To		
Windshield Header 45	0 mm 17.7 inches	Side Header	250 mm 9.8	inches
Windshield 64	0 mm 25.2 inches	Side Window		inches
Seatback 999	9 mm 0 inches	Side Window	323 mm 12.7	inches
Neck to Seatback 999	9 mm 0 inches			
First Contact Region (Head)	AIR BAG	Second Contact	Region (Head) NON	E
Head Injury Criteria (HIC)	500 HIC Lower Time in	nterval (ms) 84.9	HIC Upper Time inte	erval (ms) -1270
		<u>Chest</u>		
Chest To		Arn	n to Door 75 mm	n 3 inches
Dash 610	mm 24 inches			
Steering Wheel 320	mm <u>12.6</u> inches	Hip	to Door 137 mm	n 5.4 inches
Seatback 9999	mm 0 inches			
First Contact Region (Chest/	Abdomen) AIR BAG	Second Contact Reg	gion (Chest/Abdomen)	NONE
Lap Belt Peak Load	Newtons 0 pounds Ford	ce Shoulder Belt Peak Lo	bad Newtons	0 pounds Force
	Chest Severity Inde			
Thorax Peak Acceleration (g	· · · ·		vic Peak Lateral Accele	vicition (a's)
morax r eak Acceleration (g	's) 9999 Thoraic Traum			
		<u>Legs</u>		
Knees to Dash 200 mm	n 7.9 inches	Knees to Seath	back 9999 mm	0 inches
First Contact Region (Legs)	DASHPANEL	Second Contact Regi	on (Legs) STEERIN	G COLUMN
Left Femur Peak Load 5185	Newtons 1165. pounds Fo	rce Right Femur Peak	Load 0 Newtons	0 pounds Force
	2000 NISSAN XTERRA	LEFT FRONT SEAT (	OCCUPANT	
Restraint # 1 3 POIN	IT BELT Mounted	Deploym	nent? NOT APPLICA	BLE
Restraint Commentary NC	COMMENTS			

## **Restraints**

2000 NISSAN XTERRA LEFT FRONT SEAT OCCUPANT

Restraint #	2 [	AIR BAG	Mounted	Deployment?	DEPLOYED
Restraint Corr	nmentar	NO COMMENTS			

2000 NISSAN XTERRA RIG	HT FRONT SEAT OCCUPANT
Test #   3220   Vehicle #   1   Location   RIGHT FRONT S	SEAT Seat Position CENTER POSITION
Type HYBRID III DUMMY Size Percent	tile 50 PERCENTILE Calibration Method HYBRID III
Sex M Age 99 Occupant Height 999 mm	0 inches Occupant Weight 999 kg 0 pounds
Occupant Manufactuer VECTOR, S/N:034	
Occupant Modification UNMODIFIED	
Occupant Description N0 COMMENTS	
Occupant Commentary	
Head To	lead Head To
Windshield Header 415 mm 17.7 inches	Side Header 255 mm 9.8 inches
Windshield 615 mm 25.2 inches	Side Window 335 mm 12.7 inches
Seatback 9999 mm 0 inches	Side Window 335 mm 12.7 inches
Neck to Seatback 99999 mm 0 inches	
First Contact Region (Head) AIR BAG	Second Contact Region (Head) NONE
Head Injury Criteria (HIC) 658 HIC Lower Time interv	val (ms) 86.5 HIC Upper Time interval (ms) -2505
Chest To	
Dash 535 mm 24 inches	Arm to Door 15 mm 3 inches
Steering Wheel 9999 mm 12.6 inches	Hip to Door 128 mm 5.4 inches
Seatback 9999 mm 0 inches	
First Contact Region (Chest/Abdomen) AIR BAG	Second Contact Region (Chest/Abdomen) NONE
Lap Belt Peak Load Newtons 0 pounds Force S	houlder Belt Peak Load Newtons 0 pounds Force
Chest Severity Index	
Thorax Peak Acceleration (g's) 9999 Thoraic Trauma In	dex Pelvic Peak Lateral Acceleration (g's)
<u>L</u>	<u>egs</u>
Knees to Dash 185 mm 7.9 inches	Knees to Seatback 9999 mm 0 inches
First Contact Region (Legs) DASHPANEL	Second Contact Region (Legs) NONE
Left Femur Peak Load 4938 Newtons 1165. pounds Force	Right Femur Peak Load 0 Newtons 0 pounds Force
2000 NISSAN XTERRA RIG	HT FRONT SEAT OCCUPANT
Restraint # 1 3 POINT BELT Mounted	Deployment? NOT APPLICABLE
Restraint Commentary NO COMMENTS	

## **Restraints**

2000 NISSAN XTERRA RIGHT FRONT SEAT OCCUPANT

Restraint #	2 [	AIR BAG	Mounted	Deployment?	DEPLOYED
Restraint Corr	nmentar	NO COMMENTS			

# 4N6XPRT StifCalcs<sup>™</sup> Vehicle 1 - 2000 NISSAN XTERRA

Test # 3220	IHTSA Test Vehi	icle Number	MY520	3 VIN	5N1	DD28T4Y	′C53393	30
Year 2000 Make NISS	AN Mod	lel XTERRA		Body	UTILITY	VEHICLE	Ξ	
Vehicle Modification Indicatior Vehicle Modification(s) Description								
PRODUCTION VEHICLE		NMODIFIED	-					
Post-test Steering Column Shear	Capsule Seperat	tion Steering	g Column	Collapse Med	chanism			
UNKNOWN	· ·		NOWN					
Vehicle Commentary MODEL:	XTERRA (NISS	AN SUV)						
Vehicle Length	4523 mm	178.1 inches	Veh	icle Test We	ight 19	908 KG	4206	pounds
Vehicle Wheelbase	2659 mm	104.7 inches		Vehicle W	Vidth	mm	0	inches
CG behind front axle	1374 mm	54.1 inches						
Center of Damage to CG Axis	0 mm	0 inches T	otal Leng	th of Indenta	ation 16	600 mm	63	inches
		Мах	timum Sta	atic Crush D	epth e	539 mm	21.2	inches
Vehicle Damage Index 12FDE	V Principal Di	rection of Force	0 P	re-Impact Sp	beed 5	6.3 kph	35	mph
Damage Profile Distanc	e Measureme	ents Crush fr	om Pre a	& Post Tes	st Dama	ae Mea	surem	ents
(Measured Left-to-Right,			Pre-Test		Post-Te		Crush-I	
DPD 1 430 mm 16	.9 inches	<b>.</b>	167.3	inches	150.4	inches		
			107.5	monoo	130.4	inches	16.9	inches
		_eft Bumper Corner		mm		mm	<b>16.9</b> 430	inches mm
DPD 2 501 mm 19		Left Bumper Corner						
DPD 2 501 mm 19 DPD 3 530 mm 20	.7 inches		4250		3820			
DPD 3 530 mm 20	.7 inches .9 inches	Lett Bumper Corner	4250	mm	3820	mm	430	mm
DPD 3 530 mm 20 DPD 4 539 mm 21	.7 inches .9 inches .2 inches		4250	mm inches	3820	mm inches	430 <b>21.1</b>	mm inches
DPD 3 530 mm 20	.7 inches .9 inches .2 inches .3 inches	Centerline	4250 178.1 4523	mm inches	3820 156.9 3986	mm inches	430 <b>21.1</b>	mm inches
DPD 3 530 mm 20 DPD 4 539 mm 21	.7 inches .9 inches .2 inches .3 inches Ri		4250 178.1 4523 167.6	mm <b>inches</b> mm	3820 156.9 3986 148.9	mm <b>inches</b> mm	430 21.1 537	mm inches mm
DPD 3 530 mm 20 DPD 4 539 mm 21 DPD 5 516 mm 20	.7 inches .9 inches .2 inches .3 inches Ri	Centerline	4250 178.1 4523 167.6 4258	mm inches mm inches	3820 156.9 3986 148.9 3783	mm inches mm inches	430 21.1 537 18.7 475	mm inches mm inches
DPD 3       530       mm       20         DPD 4       539       mm       21         DPD 5       516       mm       20         DPD 6       475       mm       18	.7 inches .9 inches .2 inches .3 inches Ri	Centerline ght Bumper Corner	4250 178.1 4523 167.6 4258 nt	mm inches mm inches	3820 156.9 3986 148.9 3783 A-pi	mm inches mm inches mm	430 21.1 537 18.7 475 gement	mm inches mm inches
DPD 3 530 mm 20 DPD 4 539 mm 21 DPD 5 516 mm 20 DPD 6 475 mm 18 Bumper Engagement	.7 inches .9 inches .2 inches .3 inches Ri	Centerline ght Bumper Corner Still Engageme	178.1 4250 178.1 4523 167.6 4258 nt ly)	mm inches mm inches	3820 156.9 3986 148.9 3783 A-pi (Sic	mm inches mm inches mm	430 21.1 537 18.7 475 gement : Only)	mm inches mm inches
DPD 3 530 mm 20 DPD 4 539 mm 21 DPD 5 516 mm 20 DPD 6 475 mm 18 Bumper Engagement (Inline Impact Only)	.7 inches .9 inches .2 inches .3 inches Ri	Centerline ght Bumper Corner Still Engagemer (Side Impact On	4250 4250 178.1 4523 167.6 4258 nt ly) LE	mm inches mm inches	3820 156.9 3986 148.9 3783 A-pi (Sio NO	mm inches mm inches mm llar Engag de Impact	430 21.1 537 18.7 475 gement Only) CABLE	mm inches mm inches
DPD 3 530 mm 20 DPD 4 539 mm 21 DPD 5 516 mm 20 DPD 6 475 mm 18 Bumper Engagement (Inline Impact Only) DIRECT ENGAGEMENT Moving Test Cart Angle	.7 inches .9 inches .2 inches .3 inches Ri	Centerline ght Bumper Corner Still Engagemer (Side Impact On NOT APPLICAB Moving Test Cart / V Crabbed Angle	4250 178.1 4523 167.6 4258 nt ly) LE /ehicle	mm inches mm inches	3820 156.9 3986 148.9 3783 A-pi (Sia NO Mor	mm inches mm inches mm Ilar Engag de Impact T APPLIC ving Test e Orientat	430 21.1 537 18.7 475 gement Only) CABLE Cart	mm inches mm inches
DPD 3 530 mm 20 DPD 4 539 mm 21 DPD 5 516 mm 20 DPD 6 475 mm 18 Bumper Engagement (Inline Impact Only) DIRECT ENGAGEMENT Moving Test Cart	.7 inches .9 inches .2 inches .3 inches Ri	Centerline ght Bumper Corner Still Engagemer (Side Impact On NOT APPLICAB Moving Test Cart / V	4250 178.1 4523 167.6 4258 nt ly) LE /ehicle	mm inches mm inches	3820 156.9 3986 148.9 3783 A-pi (Sia NO Mor	mm inches mm inches mm llar Engaç de Impact T APPLIC ving Test	430 21.1 537 18.7 475 gement Only) CABLE Cart	mm inches mm inches

# Vehicle 1 - 2000 NISSAN XTERRA

Test #	3220	]	NHTSA T	est Vehicle Nu	umber	MY	′5203	VIN	5N1DD2	8T4YC533	930
Year	2000	Make	SAN	Model X	TERRA			Body [		HICLE	
Vehicle I	Modification	Indicatior		Vehicle M	/lodification	n(s) Descr	iption				
PRODL	JCTION VEF	IICLE		UNMOD	IFIED						
Post-tes	t Steering Co	olumn Shea	ar Capsule	Seperation	Ste	ering Colu	umn Colla	pse Mech	anism		
UNKNO	DWN				U	JNKNOWI	N				
Vehicle	Commentary	MODE	L: XTERRA	A (NISSAN SL	JV)						
	Vehi	cle Length	4523	mm 178.1	inches		Vehicle 1	Test Weig	jht 1908	KG <b>420</b>	6 pounds
	Vehicle W	/heelbase	2659	mm 104.7	inches		Ve	ehicle Wi	dth	mm	0 inches
	CG behind	front axle	1374	mm 54.1	inches						
Center	of Damage to	o CG Axis	0	mm 0	inches	Total L	ength of	Indentati	<b>on</b> 1600	mm 6	3 inches
						Maximur	n Static C	Crush Dep	oth 539	mm <b>21.</b>	2 inches
Vehicle	Damage Inde	ex 12FDE	EW6 Prin	cipal Directior	n of Force	0	Pre-Im	pact Spe	<b>ed</b> 56.3	kph 3	5 mph
		L		Pre & Po	et Toet M		monte				
,			e elitere la elitere							Curto e ferrue	
(	Measuments a		ogituainai aire	ection. Except for			ments are ta	iken nom ine		nt Side	Ia
Pre	Test	Post	-Test	Pre-Test	••••••	Post-Te	est	Pre	-Test		t-Test
mm	inches	mm	inches	mm inc	ches m	m in	ches	mm	inches	mm	inches
				Length	of Vehicle	at Center	rline				
				4523	178.1	3986	156.9				
					Engine B	Block					
4250	0 167.3	3820	150.4	530		Block 530	156.9 20.9	425	8 167.6	3783	148.9
4250	) 167.3	3820	150.4	530 [ Fr	Engine B 20.9 ront Bumpe Front of E	Block 530 er Corner ingine	20.9	425	8 167.6	3783	148.9
				530	Engine B 20.9 Font Bumpe Front of E 156.1	Block 530 er Corner ingine 3768					
4250 3368		3820 3429	150.4	530 [ Fr 3966 [	Engine B 20.9 [ ront Bumpe Front of E 156.1 [ Firewa	Block 530 er Corner ingine 3768	20.9	425 336		3783 3431	148.9
3368	3 132.6	3429	135	530 [ Fr	Engine B 20.9 Font Bumpe Front of E 156.1	Block 530 er Corner ingine 3768	20.9	336	8 132.6	3431	135.1
	3 132.6			530 [ Fr 3966 [ 3375 [	Engine B 20.9 [ ront Bumpe Front of E 156.1 [ Firewa	Block 530 er Corner ingine 3768 all 3419	20.9 148.3 134.6		8 132.6		
3368	3 <u>132.6</u> 5 <u>125.8</u>	3429	135	530 Fr 3966 3375 Upper	Engine B 20.9 Font Bumpe Front of E 156.1 Firewa 148.3	Block 530 er Corner ingine 3768 all 3419 Edge of Do	20.9 148.3 134.6 por	336	8 132.6 0 126.4	3431	135.1
3368	3     132.6       5     125.8       0     122	3429	135	530 Fr 3966 3375 Upper Lower	Engine B 20.9 [ ront Bumpe Front of E 156.1 [ Firewa 148.3 [ r Leading E	Block 530 er Corner ingine 3768 all 3419 Edge of Do	20.9 148.3 134.6 por	336	8 132.6 0 126.4 0 122.4	3431	135.1
3368 3198 3100	3       132.6         5       125.8         0       122         3       132.6	3429 3226 3100	135 127 122	530 Fr 3966 3375 Upper Lower	Engine B 20.9 Font Bumpe Front of E 156.1 Firewa 148.3 r Leading E r Leading E	Block 530 er Corner ingine 3768 all 3419 Edge of Do Edge of Do A' Post	20.9 148.3 134.6 por	3366 3210 3110	8       132.6         0       126.4         0       122.4         5       125	3431 3234 3105	135.1 127.3 122.2
3368 3198 3100 3368	3       132.6         5       125.8         0       122         3       132.6         5       79.9	3429 3226 3100 3160	135 127 122 124.4	530 Fr 3966 3375 Upper Lower	Engine B 20.9 [ ront Bumpe Front of E 156.1 [ Firewa 148.3 [ r Leading E Bottom of ' per Trailing E	Block 530 Fr Corner angine 3768 all 3419 Edge of Do Edge of Do A' Post Edge of Do	20.9 148.3 134.6 Dor Door	336 321 311 317	8       132.6         0       126.4         0       122.4         5       125         5       80.1	3431 3234 3105 3201	135.1 127.3 122.2 126
3368 3198 3100 3368 2038	3       132.6         5       125.8         0       122         3       132.6         5       79.9	3429 3226 3100 3160 2062	135         127         122         124.4         81.2	530 Fr 3966 3375 Upper Lower	Engine B 20.9 [ ront Bumpe Front of E 156.1 [ Firewa 148.3 [ r Leading E r Leading E Bottom of ' per Trailing	Block 530 Fr Corner angine 3768 all 3419 Edge of Do Edge of Do A' Post Edge of Do	20.9 148.3 134.6 Dor Door	336 321 311 317 203	8       132.6         0       126.4         0       122.4         5       125         5       80.1	3431 3234 3105 3201 2066	135.1         127.3         122.2         126         81.3
3368 3198 3100 3368 2038	3       132.6         5       125.8         0       122         3       132.6         5       79.9	3429 3226 3100 3160 2062	135         127         122         124.4         81.2         90.6	530 Fr 3966 3375 Upper Lower Lower	Engine B 20.9 [ ront Bumpe Front of E 156.1 [ Firewa 148.3 [ r Leading E r Leading E Bottom of ' ber Trailing E Steering C 104.9 [	Block 530 er Corner ingine 3768 all 3419 Edge of Do Edge of Do	20.9 148.3 134.6 Dor Door Door Door Door 104.1	336 321 311 317 203 201	8       132.6         0       126.4         0       122.4         5       125         5       80.1	3431 3234 3105 3201 2066	135.1         127.3         122.2         126         81.3
3368 3198 3100 3368 2038	3       132.6         5       125.8         0       122         3       132.6         5       79.9	3429 3226 3100 3160 2062	135 127 122 124.4 81.2 90.6 Cer	530 Fr 3966 5 3375 0 Upper Lower Lower 2665 0 nter of Steerin 350 0	Engine B 20.9 [ ront Bumpe Front of E 156.1 [ Firewa 148.3 [ r Leading E r Leading E Bottom of ' ber Trailing E Steering C 104.9 [ g Column t 13.8 [	Block 530 er Corner ingine 3768 all 3419 Edge of Do Edge of Do	20.9 148.3 134.6 por por Door por 104.1 : (Horizont 12.6	336 321 311 317 203 201 tal)	8       132.6         0       126.4         0       122.4         5       125         5       80.1	3431 3234 3105 3201 2066	135.1         127.3         122.2         126         81.3
3368 3198 3100 3368 2038	3       132.6         5       125.8         0       122         3       132.6         5       79.9	3429 3226 3100 3160 2062	135 127 122 124.4 81.2 90.6 Cer	530 Fr 3966 3375 Upper Lower 2665 come	Engine B 20.9 [ ront Bumpe Front of E 156.1 [ Firewa 148.3 [ r Leading E r Leading E Bottom of ' ber Trailing E Steering C 104.9 [ g Column t 13.8 [	Block 530 er Corner ingine 3768 all 3419 Edge of Do Edge of Do	20.9 148.3 134.6 por por Door por 104.1 : (Horizont 12.6	336 321 311 317 203 201 tal)	8       132.6         0       126.4         0       122.4         5       125         5       80.1	3431 3234 3105 3201 2066	135.1         127.3         122.2         126         81.3

# 4N6XPRT StifCalcs™ 2000 NISSAN XTERRA

## NHTSA Crash Test - # 3220 - Front Impact

{ Pre/Post Crush Depths - Indentation Length - Closing Speed - Trapezoidal Average}

Vehicle Test Weight = 4206 pounds Vehicle Test Speed = 35 mph Test crush width = 63 inches

#### Pre/Post Collision Crush Depths (inches)

(Driver Cide)	Left Bumper Corner	Centerline	Right Bumper Corner	
(Driver Side)	16.9	21.1	18.7	(Pass. Side)

			Calcula			
Minimum Crush = 16.	16.9 inches		A	<u> </u>	G	
Using a Rated No Damag	ge Speed of	2.5 mph	257.2	197.8	167.3	
Using a Rated No Damag	ge Speed of	5 mph	474.9	168.5	669.1	
Using a Rated No Damag	ge Speed of	7.5 mph	652.9	141.6	1505.5	
Using a Rated No Damag	ge Speed of	10 mph	791.3	117	2676.5	
Average Crush = 19.	5 inches					
Using a Rated No Damag	ge Speed of	2.5 mph	222.9	148.5	167.3	
Using a Rated No Damag	ge Speed of	5 mph	411.5	126.6	669.1	
Using a Rated No Damag	ge Speed of	7.5 mph	565.8	106.3	1505.5	
Using a Rated No Damag	ge Speed of	10 mph	685.8	87.9	2676.5	
Maximum Crush = 21.	1 inches					
Using a Rated No Damag	ge Speed of	2.5 mph	206	126.9	167.3	
Using a Rated No Damag	ge Speed of	5 mph	380.3	108.1	669.1	
Using a Rated No Damag	ge Speed of	7.5 mph	522.9	90.8	1505.5	
Using a Rated No Damag	ge Speed of	10 mph	633.8	75.1	2676.5	
			A = Maximum force per	inch of damage without	permenant dama	

Rated No Damage Speed = Impact speed with a barrier resulting in no permenant vehicle deformation

A = Maximum force per inch of damage without permenant damage, lb/in

**Calculated Stiffness Coefficients** 

B = Crush resistance per inch of damage width, lb/in^2

G = Energy dissipated without permenant damage, lb

Normal "Rated No Damage Speed" is 2.5 or 5 mph. Some specific vehicles may have a higher rating

\*\*\*\*\*\*\*

### 4N6XPRT System's First Approximation Crush Factor (CF)

Speed from Crush calculation using a generic CF of 21 as suggested in Expert AutoStats Impact Speed (mph) = SQR(30 \* CF \* max crush in feet)

Crush Factor	Maximum Crush (inches)	Calculated Impact Speed (mph)	Calculated Error (mph)	Calculated Error (%)
21	21.1	33.3	-1.7	-4.8%
	,	pecific Crush Factor (CF s	pecific to this test) = 23.	2

CF = (mph \* mph) / (30 \* max crush in feet), dimensionless

4N6XPRT Systems Specific CF is calculated based upon the data reported and is specific to this vehicle and this test

4N6XPRT StifCalcs<sup>™</sup> licensed by 4N6XPRT Systems (www.4N6XPRT.com) to:

## **Available Test Results**

Frontal Impact Test Summary

## **Report Filter Settings**

Year Range : 2000 - 2004

Make : NISSAN

Model : XTERRA

Test Number	Vehicle Info	No Damage Speed (mph)	Average Crush (inch)	Closing Speed (mph)		icle Width ness Values B	G	Crush Factor (Average Crush)
Test Typ	be : Front							
3220	2000 NISSAN XTERRA UTILITY VEHICLE	5.0	20	35	401.9	120.7	669.1	24.5
4158	2000 NISSAN XTERRA UTILITY VEHICLE	5.0	17.4	30.1	390.6	112.8	676.6	20.8
4249	2002 NISSAN XTERRA UTILITY VEHICLE	5.0	17.5	34.6	451.8	153.1	666.7	27.4
		Front Averages			414.8	128.9	667.5	24.2
		Front M	inimums		390.6	112.8	676.3	20.8
		Front M	aximums		451.8	153.1	666.6	27.4
		Front St	andard Dev	riations	32.6	21.4	21.4	3.3

## **Available Test Results**

Frontal Impact Test Summary

## **Report Filter Settings**

Year Range : 2000 - 2004

Make : NISSAN

Model : XTERRA

Test Number	Vehicle Info			Closing Speed		nicle Width ness Values		Crush Factor
		Speed (mph)	(inch)	(mph)	Α	В	G	(Max Crush)
Test Typ	be : Front							
3220	2000 NISSAN XTERRA UTILITY VEHICLE	5.0	21.2	35	378.4	107	669.1	23.1
4158	2000 NISSAN XTERRA UTILITY VEHICLE	5.0	18.4	30.1	369.2	100.7	676.6	19.7
4249	2002 NISSAN XTERRA UTILITY VEHICLE	5.0	18.5	34.6	425.7	135.9	666.7	25.8
		Front Av	erages		391.1	114.5	667.7	22.9
		Front Mi	nimums		369.2	100.7	676.8	19.7
		Front Ma	ximums		425.7	135.9	666.7	25.8
		Front Sta	andard Dev	viations	30.3	18.8	18.8	3.1

EXPERT VIN DeCoder Version 2.9 The VIN to be decoded is : WDB EA30D 7 KB 057812 The vehicle should be a 1989 Mercedes Benz Passenger Car The model: 300E. The Body : 4 Door Sedan This is a Rear Wheel Drive vehicle. The assembly plant: Sindelfingen, Germany The 5 passenger Passenger Car had 3-point Seat Belts + Frt Emrgncy Rtrctrs & Airbags (ETR/SRS) The OEM engine was: In-Line 6 cylinder with Single Overhead Cam Engine Displacement/Type = 3.0 L/ 181 cu.in. L6, SOHC Brake Horsepower (SAE) = 177 @ 5700 rpm Torque (SAE) = 188 lb-ft @ 4400 rpm Engine manufacturer = Daimler-Benz The fuel distribution system: Electronic Continuous Injection (ECIS) Fuel pump/line pressure = 43 psi = Electronic The ignition system The first three characters {WDB} indicates the vehicle was a Mercedes Benz made in West Germany by Daimler-Benz AG, Stuttgart, Germany The fourth through seventh characters {EA30} indicates the Model: 300E 4 Door Sedan The fifth character  $\{A\}$  indicates the OEM engine type: Gasoline The engine size/cylinders is specific for a particular model. The eighth character  $\{D\}$  indicates the Restraint System: 3-point Seat Belts + Frt Emrgncy Rtrctrs & Airbags (ETR/SRS) The 9th Character { the Check Digit } is 7 7 The calculated Check Digit value is The tenth character  $\{K\}$  indicates the Model Year was 1989 The eleventh character {B} indicates it was made at the assembly plant in Sindelfingen, Germany The twelveth through the seventeenth characters {057812} is the Serial Number unique to this vehicle. 04-22-2010 S/N:09R-930114VD01201 Reg. User: 4N6XPRT SYSTEMS

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#### PROVIDED BY: 4N6XPRT Systems 8387 University Avenue La Mesa CA 91941

#### 04-22-2010

#### 1989 MERCEDES BENZ 300 E 4DR SEDAN

CURB WEIGHT:	3365 lbs.		L526 kg.
Curb Weight Distribution -	Front: 55 %		c: 45 %
Gross Vehicle Weight Rating:	lbs.		kg.
Number of Tires on Vehicle: Drive Wheels:	4 REAR		
HORIZONTAL DIMENSIONS			
Total Length Wheelbase:	Inches 187 110	Feet 15.58 9.17	Meters 4.75 2.79
Front Bumper to Front Axle	2	2.75	0.84
Front Bumper to Front of Front Well		1.25	0.38
Front Bumper to Front of Hood		0.17	0.05
Front Bumper to Base of Windshield		4.17	1.27
Front Bumper to Top of Windshield		6.17	1.88
Rear Bumper to Rear Axle	44	3.67	1.12
Rear Bumper to Rear of Rear Well	29	2.42	0.74
Rear Bumper to Rear of Trunk	2	0.17	0.05
Rear Bumper to Base of Rear Window	25	2.08	0.63
WIDTH DIMENSIONS			
Maximum Width	69	5.75	1.75
Front Track	59	4.92	1.50
Rear Track	59	4.92	1.50
VERTICAL DIMENSIONS			
Height	Inches	Feet	Meters
Ground to:	56	4.67	1.42
Front Bumper (Top)	21	1.75	
Headlight - center	27	2.25	
Hood - top front	32	2.67	
Base of windshield	38	3.17	
Rear Bumper - top	22	1.83	0.56
Trunk - top rear	40	3.33	1.02
Base of rear window	41	3.42	1.04

Reg. To: 4N6XPRT Systems

1989 MERCEDES BENZ 300 E 4DR SEDAN INTERIOR DIMENSIONS Inches Feet Meters Front Seat Shoulder Width 56 4.67 Front Seat to Headliner 37 3.08 3.50 Front Leg - seatback to floor (max) 42 Rear Seat Shoulder Width 56 4.67 Rear Seat to Headliner 37 3.08 Rear Leg - seatback to floor (min) 34 2.83 Seatbelts: 3pt LAP & SHOULDER - front, None or Unknown - rear Airbags: DRIVER SIDE AIRBAGS STEERING DATA

#### Turning Circle (Diameter) 444 37.00 11.28 Steering Ratio: 14.81:1 1.00 0.30 Wheel Radius: 12 Tire Size (OEM): 195-65R15

#### ACCELERATION & BRAKING INFORMATION

Brake Type: ALL DISC ABS System: ABS

Braking, 60 mph -> 0 (Hard pedal, no skid, dry pavement): d = 150 ft t = 3.4 sec. a =-25.8 ft/sec/sec G-force = -0.80

ACCELERATION:

 $0 \rightarrow 30$  mph t = 3.4 sec. a = 12.9 ft/sec/sec G-force = 0.40 0 - 50 mph t = 8.6 sec. a = 10.2 ft/sec/sec G-force = 0.32 45 - 565 mph t = 4.2 sec. a = 7.0 ft/sec/sec G-force = 0.22

Transmission Type: AUTOMATIC

#### NOTES:

Federal Bumper	Standard Requirements	=	2.5	MPH
This vehicles	Rated Bumper Strength:		5	mph

N.S.D.C. = 1986 - 1993

Reg. To: 4N6XPRT Systems

S/N:10R-930512AQ03201

1.42

0.94

1.07

1.42

0.94

0.86

1989 MERCEDES BENZ 300 E 4DR SEDAN

TIP-OVER STABILITY RATIO = 1.34 STABLE NHTSA Star Rating (calculated) **** CENTER OF GRAVITY (No Load): Inches behind front axle = 49.50 Inches in front of rear axle = 60.50 Inches from side of vehicle = 34.50 Inches from ground = 21.98 Inches from front corner = 89.42 Inches from rear corner = 110.05 Inches from rear bumper = 82.50 Inches from rear bumper = 104.50 MOMENTS OF INERTIA APPROXIMATIONS (No Load): YAW MOMENT OF INERTIA = 2259.95 lb-ft-sec^2 PITCH MOMENT OF INERTIA = 2182.35 lb-ft-sec^2 ROLL MOMENT OF INERTIA = 455.70 lb-ft-sec^2 FRONT PROFILE INFORMATION ANGLE FRONT OF HOOD TO WINDSHIELD BASE = 7.1 deg ANGLE FRONT OF HOOD TO WINDSHIELD DASE = 7.1 deg ANGLE FRONT OF HOOD TO WINDSHIELD DASE = 7.1 deg ANGLE OF WINDSHIELD = 33.7 deg ANGLE OF STEERING TIRES AT MAX TURN = 28.4 deg	OTHER INFORMATION				
Inches behind front axle = 49.50 Inches in front of rear axle = 60.50 Inches from side of vehicle = 34.50 Inches from ground = 21.98 Inches from front corner = 89.42 Inches from rear corner = 110.05 Inches from rear bumper = 82.50 Inches from rear bumper = 104.50 MOMENTS OF INERTIA APPROXIMATIONS (No Load): YAW MOMENT OF INERTIA = 2259.95 lb-ft-sec^2 PITCH MOMENT OF INERTIA = 2182.35 lb-ft-sec^2 ROLL MOMENT OF INERTIA = 2182.35 lb-ft-sec^2 ROLL MOMENT OF INERTIA = 455.70 lb-ft-sec^2 FRONT PROFILE INFORMATION ANGLE FRONT BUMPER TO HOOD FRONT = 79.7 deg ANGLE FRONT OF HOOD TO WINDSHIELD BASE ANGLE FRONT OF HOOD TO WINDSHIELD TOP = 17.0 deg ANGLE OF WINDSHIELD = 33.7 deg					
Inches in front of rear axle = 60.50 Inches from side of vehicle = 34.50 Inches from ground = 21.98 Inches from front corner = 89.42 Inches from rear corner = 110.05 Inches from rear bumper = 82.50 Inches from rear bumper = 104.50 MOMENTS OF INERTIA APPROXIMATIONS (No Load): YAW MOMENT OF INERTIA = 2259.95 lb-ft-sec^2 PITCH MOMENT OF INERTIA = 2182.35 lb-ft-sec^2 ROLL MOMENT OF INERTIA = 455.70 lb-ft-sec^2 FRONT PROFILE INFORMATION ANGLE FRONT BUMPER TO HOOD FRONT = 79.7 deg ANGLE FRONT OF HOOD TO WINDSHIELD BASE ANGLE FRONT OF HOOD TO WINDSHIELD TOP = 17.0 deg ANGLE OF WINDSHIELD = 33.7 deg	CENTER OF GRAVITY (No Load):				
Inches from side of vehicle = 34.50 Inches from ground = 21.98 Inches from front corner = 89.42 Inches from rear corner = 110.05 Inches from rear bumper = 82.50 Inches from rear bumper = 104.50 MOMENTS OF INERTIA APPROXIMATIONS (No Load): YAW MOMENT OF INERTIA = 2259.95 lb-ft-sec^2 PITCH MOMENT OF INERTIA = 2182.35 lb-ft-sec^2 ROLL MOMENT OF INERTIA = 455.70 lb-ft-sec^2 FRONT PROFILE INFORMATION ANGLE FRONT BUMPER TO HOOD FRONT = 79.7 deg ANGLE FRONT OF HOOD TO WINDSHIELD BASE ANGLE FRONT OF HOOD TO WINDSHIELD TOP = 17.0 deg ANGLE OF WINDSHIELD = 33.7 deg	Inches behind front axle	= 49.50			
Inches from ground = 21.98 Inches from front corner = 89.42 Inches from rear corner = 110.05 Inches from front bumper = 82.50 Inches from rear bumper = 104.50 MOMENTS OF INERTIA APPROXIMATIONS (No Load): YAW MOMENT OF INERTIA = 2259.95 lb-ft-sec^2 PITCH MOMENT OF INERTIA = 2182.35 lb-ft-sec^2 ROLL MOMENT OF INERTIA = 455.70 lb-ft-sec^2 FRONT PROFILE INFORMATION ANGLE FRONT OF HOOD TO WINDSHIELD BASE ANGLE FRONT OF HOOD TO WINDSHIELD TOP = 79.7 deg ANGLE OF WINDSHIELD = 33.7 deg	Inches in front of rear axle	= 60.50			
Inches from front corner = 89.42 Inches from rear corner = 110.05 Inches from front bumper = 82.50 Inches from rear bumper = 104.50 MOMENTS OF INERTIA APPROXIMATIONS (No Load): YAW MOMENT OF INERTIA = 2259.95 lb-ft-sec^2 PITCH MOMENT OF INERTIA = 2182.35 lb-ft-sec^2 ROLL MOMENT OF INERTIA = 455.70 lb-ft-sec^2 FRONT PROFILE INFORMATION ANGLE FRONT OF HOOD TO WINDSHIELD BASE = 7.1 deg ANGLE FRONT OF HOOD TO WINDSHIELD TOP = 17.0 deg ANGLE OF WINDSHIELD = 33.7 deg	Inches from side of vehicle	= 34.50			
Inches from rear corner = 110.05 Inches from front bumper = 82.50 Inches from rear bumper = 104.50 MOMENTS OF INERTIA APPROXIMATIONS (No Load): YAW MOMENT OF INERTIA = 2259.95 lb-ft-sec^2 PITCH MOMENT OF INERTIA = 2182.35 lb-ft-sec^2 ROLL MOMENT OF INERTIA = 455.70 lb-ft-sec^2 FRONT PROFILE INFORMATION ANGLE FRONT BUMPER TO HOOD FRONT = 79.7 deg ANGLE FRONT OF HOOD TO WINDSHIELD BASE = 7.1 deg ANGLE FRONT OF HOOD TO WINDSHIELD TOP = 17.0 deg = 33.7 deg	Inches from ground	= 21.98			
Inches from front bumper = 82.50 Inches from rear bumper = 104.50 MOMENTS OF INERTIA APPROXIMATIONS (No Load): YAW MOMENT OF INERTIA = 2259.95 lb-ft-sec^2 PITCH MOMENT OF INERTIA = 2182.35 lb-ft-sec^2 ROLL MOMENT OF INERTIA = 455.70 lb-ft-sec^2 FRONT PROFILE INFORMATION ANGLE FRONT OF HOOD TO WINDSHIELD BASE = 7.1 deg ANGLE FRONT OF HOOD TO WINDSHIELD TOP = 17.0 deg ANGLE OF WINDSHIELD = 33.7 deg	Inches from front corner	= 89.42			
Inches from rear bumper = 104.50 MOMENTS OF INERTIA APPROXIMATIONS (No Load): YAW MOMENT OF INERTIA = 2259.95 lb-ft-sec^2 PITCH MOMENT OF INERTIA = 2182.35 lb-ft-sec^2 ROLL MOMENT OF INERTIA = 455.70 lb-ft-sec^2 FRONT PROFILE INFORMATION ANGLE FRONT BUMPER TO HOOD FRONT = 79.7 deg ANGLE FRONT OF HOOD TO WINDSHIELD BASE = 7.1 deg ANGLE FRONT OF HOOD TO WINDSHIELD TOP = 17.0 deg ANGLE OF WINDSHIELD = 33.7 deg					
MOMENTS OF INERTIA APPROXIMATIONS (No Load): YAW MOMENT OF INERTIA=2259.95lb-ft-sec^2PITCH MOMENT OF INERTIA=2182.35lb-ft-sec^2ROLL MOMENT OF INERTIA=455.70lb-ft-sec^2FRONT PROFILE INFORMATION ANGLE FRONT OF HOOD TO WINDSHIELD BASE ANGLE FRONT OF HOOD TO WINDSHIELD TOP ANGLE OF WINDSHIELD=79.7deg =33.7deg					
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YAW MOMENT OF INERTIA PITCH MOMENT OF INERTIA ROLL MOMENT OF INERTIA ANGLE FRONT BUMPER TO HOOD FRONT ANGLE FRONT OF HOOD TO WINDSHIELD BASE ANGLE FRONT OF HOOD TO WINDSHIELD TOP ANGLE OF WINDSHIELD ANGLE OF WINDSHIELD ANGLE OF WINDSHIELD ANGLE OF WINDSHIELD	VOVENER OF THERETA ADDROUTNAMIONS				
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ROLL MOMENT OF INERTIA=455.701b-ft-sec^2FRONT PROFILE INFORMATION ANGLE FRONT BUMPER TO HOOD FRONT ANGLE FRONT OF HOOD TO WINDSHIELD BASE ANGLE FRONT OF HOOD TO WINDSHIELD TOP ANGLE OF WINDSHIELD=79.7degdeg =1.1degangle of windshield=17.0degangle of windshield=33.7deg					
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ANGLE FRONT BUMPER TO HOOD FRONT= 79.7degANGLE FRONT OF HOOD TO WINDSHIELD BASE= 7.1degANGLE FRONT OF HOOD TO WINDSHIELD TOP= 17.0degANGLE OF WINDSHIELD= 33.7deg	ROLL MOMENT OF INERTIA		-	455.70	ID-IC-Sec Z
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ANGLE FRONT OF HOOD TO WINDSHIELD BASE=7.1degANGLE FRONT OF HOOD TO WINDSHIELD TOP=17.0degANGLE OF WINDSHIELD=33.7deg		RONT		= 79.7	deg
ANGLE FRONT OF HOOD TO WINDSHIELD TOP= 17.0degANGLE OF WINDSHIELD= 33.7deg	ANGLE FRONT OF HOOD TO WINDS	HIELD BASE		= 7.1	~
ANGLE OF WINDSHIELD = 33.7 deg	ANGLE FRONT OF HOOD TO WINDS	HIELD TOP			-
-	ANGLE OF WINDSHIELD			= 33.7	~
	ANGLE OF STEERING TIRES AT M	AX TURN		= 28.4	deg

FIRST APPROXIMATION CRUSH FACTORS:

Speed Equivalent (mph) of Kinetic Energy (KE) used in causing crush or indentation may be evaluated using the following formula, the appropriate Crush Factor (CF), and Maximum Indentation Depth (MID), in feet:

V(mph) = Sqr root of (30 \* CF \* MID)

KE Equivalent Speed (Front/Rear/Side) = 21 CF

Bullet vehicle IMPACT SPEED estimation based on TARGET VEHICLE damage ONLY = 27 CF (Tested for Rear/Side Impact only)

These CF values are based upon analysis of NHTSA Barrier Crash data, and from over 1000 vehicle accidents where independant evaluation of speed was possible. (These are NOT 'A', 'B', 'C', or 'G' values)

The Rear Impact data with more than 2-3 inches of crush damage should be looked at carefully, since some vehicles have very weak trunk & fender strength. Therefore, on some cars, esp. GM, your estimate from the rear crush data may be high by as much as 4-5 mph (on a crush of 18 inches).

Reg. To: 4N6XPRT Systems

# **4N6XPRT Systems**

Expert System Software for Litigation

8387 University Avenue La Mesa, CA 91941-3842 Phone: (619) 464-3478 Fax: (619) 464-2206 Toll Free: 1- 800-266-9778

Web Site: http://www.4n6xprt.com

E-Mail: 4n6@4n6xprt.com

The NHTSA Crash Test database contains NO SIDE Impact tests for the Mercedes Benz 300 E Four door Sedan..

To create a SIMILAR class of vehicle, we first looked at the test wheelbase and weight of the frontal impact tests for the 300 E, which were reported as 109 inches, and 4000 pounds.

We then looked at the NHTSA database for FOUR DOOR SEDANS that have SIDE IMPACT TESTS and had a Wheelbase of 109-111 inches (+/- 1 inches of the frontal test vehicles), and 3900-4100 pounds (+/- 100 pounds of the frontal test vehicles).

The Test Summary Reports based on the Average and Maximum crush depths follow.

# Available Tests in the NHTSA database for a 1986 - 1993 MERCEDES 300E/D

📕 Modify Year Range

Frontal Test(s)

NO FRONTAL TESTS 1986-1993

📕 Modify Year Range

Rear Test(s)

# **NO REAR TESTS 1986-1993**

📕 Modify Year Range

Side Test(s)

# **NO SIDE TESTS 1986-1993**

📕 Modify Year Range

Other Test(s)

# **NO OTHER TESTS 1986-1993**

# Sister/Clone database reader

## You entered: 1989 MERCEDES 300E/D

The Sister/Clone Vehicle Year/Model Interchange list indicates the following are Similar Models

Year Range	Make	Model	Body Styles	Wheelbase	
1986 - 1993 REMARKS :	MERCEDES	300TE/TD	SW	110.2,0,0,0,	
1988 - 1993 REMARKS : NEW C	MERCEDES OUPE ON 300 C	300CE HASSIS	2D	106.9,0,0,0,	
1986 - 1989 REMARKS :	MERCEDES	260E	4D	110.2,0,0,0,	
1994 - 1995 REMARKS :	MERCEDES	E320	4D,SW	110.2,0,0,0,	
1986 - 1993 REMARKS :	MERCEDES	300E/D	4D	110.2,0,0,0,	
1992 - 1993 REMARKS :	MERCEDES	400E/D	4D,SW	110.2,0,0,0,	
1992 - 1993 REMARKS :	MERCEDES	500E/D	4D,SW	110.2,0,0,0,	
1994 - 1995 REMARKS :	MERCEDES	E420	4D,SW	110.2,0,0,0,	
1994 - 1995 REMARKS :	MERCEDES	E500	4D,SW	110.2,0,0,0,	
1994 - 1995 REMARKS :	MERCEDES	E320	2D,CONV	106.9,0,0,0,	

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If you have suggestions, corrections, etc., you should contact Greg Anderson at Scalia Safety Engineering, 521 East Washington Avenue, Suite 200, Madison, WI 53703-2914, (608) 256-0820, FAX (608) 256-0212, E-mail: greganderson@cs.com.

#### **Available Test Results**

Side Impact Test Summary

## **Report Filter Settings**

Year Range : 1965 - 2010Bodystyle : FOUR DOOR SEDANWeight Range : 3900 - 4100WB Range : 109 - 111Impact Locations : SIDE

Test Number	. Vehicle Info	No Damage Speed (mph)	Average Crush (inch)	KE Speed (mph)		icle Indent ness Values B	G	Crush Factor (Average Crush)
Test Typ	pe : <b>Side</b>							
2679	1998 BUICK LESABRE FOUR DOOR SEDAN	2.0	9.2	24.9	341.9	426.2	137.1	27
2694	1998 OLDSMOBILE INTRIGUE FOUR DOOR SEDAN	2.0	5.1	21.5	136.9	260.1	36	36.1
2753	1998 OLDSMOBILE INTRIGUE FOUR DOOR SEDAN	2.0	7.2	24.9	119.1	190.7	37.2	34.7
2716	1998 PONTIAC BONNEVILLE FOUR DOOR SEDAN	2.0	8.8	24.9	203.7	265.1	78.2	28.2
3210	2000 CHEVROLET IMPALA FOUR DOOR SEDAN	2.0	11.7	25.1	135.6	133.8	68.7	21.6
3575	2001 CHEVROLET IMPALA FOUR DOOR SEDAN	2.0	8.2	25.2	129.5	182.7	45.9	30.9
3475	2001 OLDSMOBILE INTRIGUE FOUR DOOR SEDAN	2.0	9.2	36.1	172.7	318.6	46.8	56.4
3803	2002 CHEVROLET IMPALA FOUR DOOR SEDAN	2.0	7.2	25	125.3	200.8	39.1	34.8
4380	2002 CHEVROLET IMPALA FOUR DOOR SEDAN	2.0	6.8	25.2	133.6	227.8	39.2	37.3
4551	2002 CHEVROLET IMPALA FOUR DOOR SEDAN	2.0	5.6	21.5	136.2	236.8	39.2	33
4607	2004 PONTIAC GRAND PRIX FOUR DOOR SEDAN	2.0	13.7	25.3	141.4	120.4	83	18.7
5267	2005 BUICK LACROSSE FOUR DOOR SEDAN	2.0	7.3	25	190.7	300.1	60.6	34.3
5379	2005 TOYOTA AVALON FOUR DOOR SEDAN	2.0	6	25.3	200.5	391	51.4	42.9
5548	2006 CHEVROLET IMPALA FOUR DOOR SEDAN	2.0	2.8	25	451	1843.6	55.2	88.8
5871	2007 BUICK LACROSSE FOUR DOOR SEDAN	2.0	7	25.1	197.7	326.4	59.9	36
5965	2007 BUICK LACROSSE FOUR DOOR SEDAN	2.0	6.3	25.2	211.8	387.3	57.9	40
6463	2009 NISSAN MAXIMA FOUR DOOR SEDAN	2.0	7.4	25.2	210.7	328.7	67.5	34.2
		Side Av	verages		190.5	361.2	50.2	37.3
		Side Mi	nimums		119.1	120.4	58.9	18.7
			aximums		451	1843.6	55.2	88.8
		Side St	andard Devi	ations	86.5	392.1	392.1	15.7

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#### **Available Test Results**

Side Impact Test Summary

## **Report Filter Settings**

Year Range : 1965 - 2010Bodystyle : FOUR DOOR SEDANWeight Range : 3900 - 4100WB Range : 109 - 111Impact Locations : SIDE

Test Number	Vehicle Info	No Damage Speed (mph)	Max Crush (inch)	KE Speed (mph)		icle Indent ness Values B	G	Crush Factor (Max Crush)
Test Typ	pe: Side							
2679	1998 BUICK LESABRE FOUR DOOR SEDAN	2.0	19.7	24.9	159.3	92.5	137.1	12.6
2694	1998 OLDSMOBILE INTRIGUE FOUR DOOR SEDAN	2.0	14.9	21.5	47.3	31	36	12.5
2753	1998 OLDSMOBILE INTRIGUE FOUR DOOR SEDAN	2.0	17.3	24.9	49.3	32.7	37.2	14.4
2716	1998 PONTIAC BONNEVILLE FOUR DOOR SEDAN	2.0	40.7	24.9	44.1	12.4	78.2	6.1
3210	2000 CHEVROLET IMPALA FOUR DOOR SEDAN	2.0	17.1	25.1	92.8	62.7	68.7	14.8
3575	2001 CHEVROLET IMPALA FOUR DOOR SEDAN	2.0	16.2	25.2	65.8	47.1	45.9	15.7
3475	2001 OLDSMOBILE INTRIGUE FOUR DOOR SEDAN	2.0	17.6	36.1	90.9	88.2	46.8	29.7
3803	2002 CHEVROLET IMPALA FOUR DOOR SEDAN	2.0	16.3	25	55.2	39	39.1	15.3
4380	2002 CHEVROLET IMPALA FOUR DOOR SEDAN	2.0	17	25.2	53.5	36.6	39.2	15
4551	2002 CHEVROLET IMPALA FOUR DOOR SEDAN	2.0	13.1	21.5	58.4	43.6	39.2	14.2
4607	2004 PONTIAC GRAND PRIX FOUR DOOR SEDAN	2.0	16.5	25.3	117.8	83.6	83	15.6
5267	2005 BUICK LACROSSE FOUR DOOR SEDAN	2.0	11.9	25	117.8	114.5	60.6	21.2
5379	2005 TOYOTA AVALON FOUR DOOR SEDAN	2.0	12.7	25.3	94.6	87	51.4	20.2
5548	2006 CHEVROLET IMPALA FOUR DOOR SEDAN	2.0	8.8	25	144.3	188.9	55.2	28.4
5871	2007 BUICK LACROSSE FOUR DOOR SEDAN	2.0	11.8	25.1	117.6	115.4	59.9	21.4
5965	2007 BUICK LACROSSE FOUR DOOR SEDAN	2.0	11.5	25.2	116.8	117.8	57.9	22.1
6463	2009 NISSAN MAXIMA FOUR DOOR SEDAN	2.0	10.8	25.2	145.3	156.3	67.5	23.6
		Side Av	erages		92.4	79.4	53.8	17.8
		Side Mir	nimums		44.1	12.4	78.4	6.1
			ximums		159.3	188.9	67.2	29.7
		Side Sta	andard Dev	ations	38.3	48.3	48.4	6

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EXPERT VIN DeCoder Version 2.9 The VIN Number is 2C3 HD56F 9 TH 227496 The vehicle should be a 1996 Chrysler Passenger Car The Model: Concorde 4-Door Sedan The passenger vehicle had : Manual Seatbelts, Driver Airbag & Passenger Hybrid Airbag The assembly plant: Bramalea, ONT The OEM engine was: V-6 cylinder with 24V Overhead Cam Engine Displacement/Type = 3.5L / 215 cu.in. V6, 24V OHC Brake Horsepower (SAE) = 214 @ 5800 rpm = 221 lb-ft @ 2800 rpm Torque (SAE) Engine manufacturer = Chrysler The fuel distribution system: Throttle Body Sequential Multi-port Fuel Injection (SMPI) Fuel pump/line pressure = 45 psi = Electronic The ignition system was This is a Front Wheel Drive vehicle The first three characters {2C3} indicates the vehicle was a Chrysler Passenger Car made in Canada The fourth character {H} indicates the OEM vehicle had Manual Seatbelts, Driver Airbag & Passenger Hybrid Airbag The fifth and sixth characters {D5} indicate the Model is Concorde The seventh character  $\{6\}$  indicates the body style is a 4-Door Sedan The eighth character {F} indicates the OEM engine was a 3.5L / 215 cu.in. V6, 24V OHC The 9th Character { the Check Digit } is 9 The calculated Check Digit value is The tenth character  $\{T\}$  indicates the Model Year was 1996 The eleventh character {H} indicates it was made at the assembly plant in Bramalea, ONT The twelveth through the seventeenth characters {227496} is the Serial Number unique to this vehicle. 04-26-2010 S/N:09R-930114VD01201 Reg. User: 4N6XPRT SYSTEMS

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#### PROVIDED BY: 4N6XPRT Systems 8387 University Avenue La Mesa CA 91941

#### 04-26-2010

1996 CHRYSLER CONCORDE 4DR SEDAN

CURB WEIGHT: Curb Weight Distribution -	3376 lbs. Front: 65 %		L531 kg. c: 35 %
Gross Vehicle Weight Rating:	4618 lbs.	2	2095 kg.
Number of Tires on Vehicle: Drive Wheels:	4 FRONT		
HORIZONTAL DIMENSIONS	_		
	Inches	Feet	Meters
Total Length	202	16.83	5.13
Wheelbase:	113	9.42	2.87
Front Bumper to Front Axle	45	3.75	1.14
Front Bumper to Front of Front Well		2.42	0.74
Front Bumper to Front of Hood	4	0.33	
Front Bumper to Base of Windshield	48	4.00	
Front Bumper to Top of Windshield	81	6.75	2.06
Rear Bumper to Rear Axle	44	3.67	1.12
Rear Bumper to Rear of Rear Well	27	2.25	0.69
Rear Bumper to Rear of Trunk	5	0.42	0.13
Rear Bumper to Base of Rear Window	26	2.17	0.66
WIDTH DIMENSIONS			
Maximum Width	74	6.17	1.88
Front Track	62	5.17	1.57
Rear Track	62	5.17	1.57
VERTICAL DIMENSIONS	_		
	Inches	Feet	Meters
Height Ground to:	56	4.67	1.42
Front Bumper (Top)	18	1.50	0.46
Headlight - center	22	1.83	0.56
Hood - top front	25	2.08	0.63
Base of windshield	36	3.00	0.91
		–	
Rear Bumper - top	26	2.17	
Trunk - top rear	39	3.25	0.99
Base of rear window	40	3.33	1.02

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1996 CHRYSLER CONCORDE 4DR SEDAN

INTERIOR DIMENSIONS			
Front Seat Shoulder Width	Inches 59	Feet 4.92	1.50
Front Seat to Headliner	38	3.17	0.97
Front Leg - seatback to floor (1		3.50	1.07
(-			
Rear Seat Shoulder Width	59	4.92	1.50
Rear Seat to Headliner	38	3.17	0.97
Rear Leg – seatback to floor (mi	.n) 39	3.25	0.99
Seatbelts: 3pt - front and rear Airbags: FRONT SEAT AIRBAGS			
STEERING DATA			
Turning Circle (Diameter)		40.00	12.19
Steering Ratio:: Wheel Radius:	14	1.17	0 36
Tire Size (OEM): 205-5		1.1/	0.30
	ORIS		
ACCELERATION & BRAKING INFORMATION			
Brake Type: ALL DISC ABS System: ABS UNKNOWN			
Braking, 60 mph -> 0 (Hard peda)	no altid dra	· ·····	•
$d = \ ft t = \ sec. a$			
ACCELERATION:			
0->30 mph t = sec. a	a = . ft/sec	/sec G-f	orce = .
0 - > 60  mph t = 8.4  sec.			
$45 -> 65 \text{ mph} t = \\_ sec.$			
Transmission Type: 2	UTOMATIC		
NOTES:			
Federal Bumper Standard Requ	iromonta -	2 5 MDU	
This vehicles Rated Bumper S		2.5 MPH 2.5 mph	
	/01 0119 011 V	200 mpn	

N.S.D.C. = 1995 - 1997

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1996 CHRYSLER CONCORDE 4DR SEDAN

OTHER INFORMATION				
TIP-OVER STABILITY RATIO = NHTSA Star Rating (calculated)	1.41 STA **			
CENTER OF GRAVITY (No Load):				
Inches behind front axle	= 39.55			
Inches in front of rear axle				
Inches from side of vehicle				
Inches from ground Inches from front corner	= 21.98			
Inches from rear corner				
Inches from front bumper				
Inches from rear bumper				
MOMENTS OF INERTIA APPROXIMATIONS	(No Load):			
YAW MOMENT OF INERTIA		=		lb-ft-sec^2
PITCH MOMENT OF INERTIA		=	2193.24	
ROLL MOMENT OF INERTIA		=	457.68	lb-ft-sec^2
FRONT PROFILE INFORMATION				
ANGLE FRONT BUMPER TO HOOD FI	RONT		= 60.3	deg
ANGLE FRONT OF HOOD TO WINDS	HIELD BASE		= 14.0	-
ANGLE FRONT OF HOOD TO WINDS	HIELD TOP		= 20.6	deg
ANGLE OF WINDSHIELD			= 28.6	
ANGLE OF STEERING TIRES AT MA	AX TURN		= 27.0	deg

FIRST APPROXIMATION CRUSH FACTORS:

Speed Equivalent (mph) of Kinetic Energy (KE) used in causing crush or indentation may be evaluated using the following formula, the appropriate Crush Factor (CF), and Maximum Indentation Depth (MID), in feet:

V(mph) = Sqr root of (30 \* CF \* MID)

KE Equivalent Speed (Front/Rear/Side) = 21 CF

Bullet vehicle IMPACT SPEED estimation based on TARGET VEHICLE damage ONLY = 27 CF (Tested for Rear/Side Impact only)

These CF values are based upon analysis of NHTSA Barrier Crash data, and from over 1000 vehicle accidents where independant evaluation of speed was possible. (These are NOT 'A', 'B', 'C', or 'G' values)

The Rear Impact data with more than 2-3 inches of crush damage should be looked at carefully, since some vehicles have very weak trunk & fender strength. Therefore, on some cars, esp. GM, your estimate from the rear crush data may be high by as much as 4-5 mph (on a crush of 18 inches).

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# Stiffness Values and Test Data

# Derived from

# NHTSA Crash Test

# # 5252

# **1996 CHRYSLER CONCORDE**

Provided By 4N6XPRT StifCalcs™

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# Sister/Clone database reader

## You entered: 1996 CHRYSLER CONCORDE

The Sister/Clone Vehicle Year/Model Interchange list indicates the following are Similar Models

	Year Range	Make	Model	Body Styles	Wheelbase	
	1993 - 1997	EAGLE	VISION	4D	113"	
R	EMARKS : NEW "L	H" CAR				
R	1993 - 1997 EMARKS : NEW "L	CHRYSLER .H" CAR	CONCORDE	4D	113"	
R	1993 - 1997 EMARKS : NEW "L	DODGE .H" CAR	INTREPID	4D	113"	
R	1994 - 1996 EMARKS : STRET(	CHRYSLER CHED LH	NEW YORKER	4D	113"	
R	1994 - 1997 EMARKS : STRET(	CHRYSLER CHED LH	LHS	4D	113"	

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Test Information
Test #   5252   NHTSA Version #   V5   Test Date   2004-10   Contract #   VRTC-DC08510
Contract/Study Title CHRYSLER CONCORD INTO FLAT LOAD CELL BARRIER AT 35 MPH
Test Objective(s) EVAL BOTH PARTNER- & SELF-PROTECTION ASPECTS OF VEHICLE COMPATABILITY
Test Type       RESEARCH SAFETY VEHICLE TEST       Configuration       VEHICLE INTO BARRIER
Closing Speed 56.2 Km/Hr 35 MPH
Impact Angle       0       Offset Distance       0       mm       0       inches       Side Impact Point       0       mm       0       inches
Test Performer   TRC OF OHIO   Test Reference #   041021-1
Test Track Surface       CONCRETE       Condition       DRY       Ambient Temperature       21       C       70       F
Data Recorder Type DIGITAL DATA ACQUISITI Data Link UMBILICAL CABLE Total Number of Curves 144
Test Commentary USED PLASCORE FULL WID
Fixed Barrier Information

Barrier Type	DEFORMAB	Barrier Shape	8 X 16 + 6 LOAD	Pole Barrier Diameter	0 mm	inches

# Barrier Commentary 6 LOAD CELLS ADDED TO CENTER OF ROW 9 FOR TEST, PLASCORE FWDB

# 4N6XPRT StifCalcs™ Vehicle 1 - 1996 CHRYSLER CONCORDE

	TSA Test Vehicle Num	nber		VIN	1C3	BHD56F6	TF13697	77
Year 1996 Make CHRYSL	ER Model CO	NCORDE		Body	FOUR D	OOR SE	DAN	
Vehicle Modification Indicatior	Vehicle Mc	dification(s) D	escription					
PRODUCTION VEHICLE			-					
Post-test Steering Column Shear Capsule Seperation Steering Column Collapse Mechanism								
NOT APPLICABLE NOT APPLICABLE								
Vehicle Commentary DPD1,2,5,6	Vehicle Commentary DPD1,2,5,6=TOP OF BUMPER; DPD3,4=CENTER OF GRILL							
Vehicle Length	5121 mm 201.6	inches	Vehicle	e Test Wei	ght 17	788 KG	3942	pounds
Vehicle Wheelbase	2870 mm 113	inches		Vehicle W	idth 19	905 mm	75	inches
CG behind front axle	1139 mm 44.8	inches						
Center of Damage to CG Axis	0 mm 0	To inches	tal Length	of Indentat	tion 1	524 mm	60	inches
		Maxi	imum Statio	c Crush De	epth e	570 mm	22.4	inches
Vehicle Damage Index 12FDEW	Principal Direction of	of Force	0 Pre-	Impact Spe	eed 5	6.2 kph	34.9	mph
Damage Profile Distance	Measurements	Crush fro	m Pre & I	Post Test	t Dama	de Mea	surem	ents
(Measured Left-to-Right, Re			Pre-Test		Post-Tes		Crush-I	
DPD 1 414 mm 16.3	inches		193.9 inc	ches	180.2	inches	13.7	inches
	Left Bur	nper Corner						linches
			4926 mr	n	4578	mm		mm
DPD 2 473 mm 18.6	inches		4926 mr	n	4578	mm	348	
							348	mm
DPD 2     473 mm     18.6       DPD 3     546 mm     21.5	inches inches	Centerline	201.6 inc	ches	181.1	inches	348 20.5	mm inches
		Centerline		ches	181.1		348	mm
DPD 3 546 mm 21.5 DPD 4 570 mm 22.4	inches inches	Centerline	201.6 inc 5121 mr	ches n	181.1 4600	<b>inches</b> mm	348 20.5 521	mm inches mm
DPD 3 546 mm 21.5	inches inches inches	Centerline nper Corner	201.6 inc 5121 mr 193.9 inc	ches n ches	181.1 4600 178.7	inches mm inches	348 20.5 521 15.3	mm inches mm inches
DPD 3 546 mm 21.5 DPD 4 570 mm 22.4	inches inches inches		201.6 inc 5121 mr	ches n ches	181.1 4600 178.7	<b>inches</b> mm	348 20.5 521	mm inches mm
DPD 3 546 mm 21.5 DPD 4 570 mm 22.4 DPD 5 503 mm 19.8	inches inches inches Right Bur inches		201.6 ind 5121 mr 193.9 ind 4926 mr	ches n ches	181.1 4600 178.7 4538	inches mm inches	348 20.5 521 15.3 388	mm inches mm inches
DPD 3       546 mm       21.5         DPD 4       570 mm       22.4         DPD 5       503 mm       19.8         DPD 6       453 mm       17.8         Bumper Engagement (Inline Impact Only)       1000	inches inches inches inches St (Si	<b>nper Corner</b> ill Engagemen de Impact Only	201.6 inc 5121 mr 193.9 inc 4926 mr t y)	ches n ches	181.1 4600 178.7 4538 A-pil (Sic	inches mm inches mm Ilar Engag	348 20.5 521 15.3 388 gement t Only)	mm inches mm inches
DPD 3 546 mm 21.5 DPD 4 570 mm 22.4 DPD 5 503 mm 19.8 DPD 6 453 mm 17.8 Bumper Engagement	inches inches inches inches St (Si	<b>nper Corner</b> ill Engagemen	201.6 inc 5121 mr 193.9 inc 4926 mr t y)	ches n ches	181.1 4600 178.7 4538 A-pil (Sic	inches mm inches mm Ilar Engag	348 20.5 521 15.3 388 gement t Only)	mm inches mm inches
DPD 3 546 mm 21.5 DPD 4 570 mm 22.4 DPD 5 503 mm 19.8 DPD 6 453 mm 17.8 Bumper Engagement (Inline Impact Only) NOT APPLICABLE Moving Test Cart	inches inches inches inches inches St (Sin (Sin (Sin NO Moving	nper Corner ill Engagemen de Impact Only T APPLICABL 1 Test Cart / Ve	201.6 inc 5121 mr 193.9 inc 4926 mr t y) E	ches n ches	181.1 4600 178.7 4538 A-pil (Sic NO Mov	inches mm inches mm Ilar Engag de Impac DT APPLIQ ving Test	348 20.5 521 15.3 388 gement t Only) CABLE Cart	mm inches mm inches
DPD 3 546 mm 21.5 DPD 4 570 mm 22.4 DPD 5 503 mm 19.8 DPD 6 453 mm 17.8 Bumper Engagement (Inline Impact Only) NOT APPLICABLE Moving Test Cart Angle	inches inches inches inches inches St (Sin (Sin (Sin NO Moving	nper Corner ill Engagemen de Impact Only T APPLICABL T Test Cart / Ve crabbed Angle	201.6 inc 5121 mr 193.9 inc 4926 mr t y) E	ches n ches	181.1 4600 178.7 4538 A-pil (Sic NO Mov	inches mm inches mm Ilar Engag de Impac DT APPLIC ving Test e Orienta	348 20.5 521 15.3 388 gement t Only) CABLE Cart	mm inches mm inches
DPD 3 546 mm 21.5 DPD 4 570 mm 22.4 DPD 5 503 mm 19.8 DPD 6 453 mm 17.8 Bumper Engagement (Inline Impact Only) NOT APPLICABLE Moving Test Cart	inches inches inches inches St (Sin NO Moving C	nper Corner ill Engagemen de Impact Only T APPLICABL 1 Test Cart / Ve	201.6 ind 5121 mr 193.9 ind 4926 mr t y) E ehicle	ches n ches n	181.1 4600 178.7 4538 A-pil (Sic NO NO Vehicle	inches mm inches mm Ilar Engag de Impac DT APPLIQ ving Test	348 20.5 521 15.3 388 gement t Only) CABLE Cart tion on C	mm inches mm inches mm

## Vehicle 1 - 1996 CHRYSLER CONCORDE

Test #	5252	]	NHTSA Te	est Vehicle N	lumber			VIN	1C3HD	56F6TF136	977
Year	1996	MakeCHF	RYSLER	Model	CONCORD	E		Body	FOUR DOOF	R SEDAN	
Vehicle N	Aodification I	ndicatior		Vehicle	Modification	n(s) Descr	iption				
PRODU	ICTION VEH	IICLE									
Post-test	Steering Co	olumn Shea	ar Capsule	Seperation	Ste	ering Colu	umn Colla	pse Mech	nanism		
NOT AF	PLICABLE				N	NOT APPL	ICABLE				
Vehicle (	Commentary	DPD1,	2,5,6=TOP	OF BUMPE	R; DPD3,4=	CENTER	OF GRIL	L			
	Vehic	cle Length	5121	mm 201.6	inches		Vehicle <sup>·</sup>	Test Weig	ght 1788	KG <b>394</b>	2 pounds
	Vehicle W	/heelbase	2870	mm 113	3 inches		V	ehicle Wi	i <b>dth</b> 1905	mm <b>7</b>	5 inches
	CG behind	front axle	1139	mm 44.8	3 inches		•		1905		5
Center of	of Damage to	o CG Axis	0	mm (	) inches	Total L	_ength of	Indentat	ion 1524	mm 6	0 inches
						Maximur	m Static (	Crush De	<b>pth</b> 570	mm 22.	4 inches
Vahiala [	)omogo Indo		-14/0 Drin	cipal Directio	n of Earoa		Dro Im	naat Sna			o mnh
	Damage Inde	ex 12FDE	=003 FIII	icipai Directio		0	Fie-III	pact Spe	<b>ed</b> 56.2	Kpri 34.	9 mph
				<u>Pre &amp; Pc</u>	ost Test N	leasure	ements				
()			ogitudinal dire	ection. Except fo	-		ments are ta	aken from th			ard
Pre-	Left Test		-Test	Pre-Test	Centerlir t	ne Post-Te	est	Pre	Rign e-Test	t Side Post	t-Test
mm	inches	mm	inches	mm in	nches m	nm in	nches	mm	inches	mm	inches
mm	inches	mm	inches		h <b>ches m</b> h of Vehicle			mm	inches	mm	inches
mm	inches	mm	inches		h of Vehicle 201.6	e at Cente 4600		mm	inches	mm	inches
mm	inches	mm	inches	Lengt	h of Vehicle 201.6 Engine E	e at Cente 4600 Block	rline 181.1	mm	inches	mm	inches
4926		mm 4578	inches 180.2	Lengt 5121 550	h of Vehicle 201.6	e at Center 4600 Block 550	rline	<b>mm</b>		<b>mm</b> 4538	inches
				Lengt 5121 550 F	h of Vehicle 201.6 Engine E 21.7 Front Bumpe Front of E	e at Cente 4600 Block 550 er Corner Engine	rline 181.1 21.7				
4926	i <u>193.9</u>	4578	180.2	Lengt 5121 550	h of Vehicle 201.6 Engine E 21.7 Front Bumpe Front of E 176.6	e at Center 4600 Block 550 er Corner Engine 4228	rline 181.1	492	26 193.9	4538	178.7
	6 193.9			Lengt 5121 550 F	h of Vehicle 201.6 Engine E 21.7 Front Bumpe Front of E	e at Center 4600 Block 550 er Corner Engine 4228	rline 181.1 21.7		26 193.9		
4926	i 193.9 i 160.5	4578	180.2	Lengt 5121 550 F 4486 4046	h of Vehicle 201.6 Engine E 21.7 Front Bumpe Front of E 176.6 Firewa 166.5	e at Center 4600 Block 550 er Corner Engine 4228 all 4032	rline          181.1         21.7         166.5         158.7	492	26 193.9 76 160.5	4538	178.7
4926	<ul> <li>i 193.9</li> <li>i 160.5</li> <li>i 138.1</li> </ul>	4578	180.2	Lengt 5121 550 F 4486 4046 Uppe	h of Vehicle 201.6 Engine E 21.7 Front Bumpe Front of E 176.6 Firewa 166.5	e at Center 4600 Block 550 er Corner Engine 4228 rall 4032 Edge of De	rline          181.1         21.7         166.5         158.7         oor	492	26     193.9       76     160.5       98     137.7	4538	178.7
4926	<ul> <li>193.9</li> <li>160.5</li> <li>138.1</li> <li>135.2</li> </ul>	4578 4041 3501 3456	180.2 159.1 137.8 136.1	Lengt 5121 550 F 4486 4046 Uppe	h of Vehicle 201.6 Engine E 21.7 Front Bumpe Front of E 176.6 Firewa 166.5 er Leading E	e at Center 4600 Block 550 er Corner Engine 4228 rall 4032 Edge of Do	rline          181.1         21.7         166.5         158.7         oor	492 407 349 322	26       193.9         76       160.5         98       137.7         28       127.1	4538 4018 3487 3435	178.7 158.2 137.3 135.2
4926 4076 3507 3435	<ul> <li>193.9</li> <li>160.5</li> <li>138.1</li> <li>135.2</li> <li>135.5</li> </ul>	4578 4041 3501	180.2 159.1 137.8	Lengt 5121 550 F 4486 4046 Uppe Lowe	h of Vehicle 201.6 Engine E 21.7 Front Bumpe Front of E 176.6 Firewa 166.5 er Leading E er Leading E Bottom of '	e at Center 4600 Block 550 er Corner Engine 4228 all 4032 Edge of Do Edge of Do	rline 181.1 21.7 166.5 158.7 oor oor	492	26       193.9         76       160.5         98       137.7         28       127.1         36       135.3	4538 4018 3487	178.7 158.2 137.3
4926 4076 3507 3435 3441	<ul> <li>193.9</li> <li>160.5</li> <li>138.1</li> <li>135.2</li> <li>135.5</li> <li>95.9</li> </ul>	4578 4041 3501 3456 3437	180.2 159.1 137.8 136.1 135.3	Lengt 5121 550 F 4486 4046 Uppe Lowe	h of Vehicle 201.6 Engine E 21.7 Front Bumpe Front of E 176.6 Firewa 166.5 er Leading E er Leading E Bottom of '	e at Center 4600 Block 550 er Corner Engine 4228 all 4032 Edge of Do Edge of Do CA' Post Edge of I	rline 181.1 21.7 166.5 158.7 oor oor Door	492 407 349 322 343	26       193.9         76       160.5         98       137.7         28       127.1         36       135.3         26       95.5	4538 4018 3487 3435 3421	178.7 158.2 137.3 135.2 134.7
4926 4076 3507 3435 3441 2426	<ul> <li>193.9</li> <li>160.5</li> <li>138.1</li> <li>135.2</li> <li>135.5</li> <li>95.9</li> </ul>	4578 4041 3501 3456 3437 2429	180.2 159.1 137.8 136.1 135.3 95.6	Lengt 5121 550 F 4486 4046 Uppe Lowe	h of Vehicle 201.6 Engine E 21.7 Front Bumpe Front of E 176.6 Firewa 166.5 er Leading E er Leading E Bottom of '	e at Center 4600 Block 550 er Corner Engine 4228 all 4032 Edge of Do Edge of Do 'A' Post Edge of Do	rline 181.1 21.7 166.5 158.7 oor oor Door	492 407 349 322 343 242	26       193.9         76       160.5         98       137.7         28       127.1         36       135.3         26       95.5	4538 4018 3487 3435 3421 2416	178.7 158.2 137.3 135.2 134.7 95.1
4926 4076 3507 3435 3441 2426	<ul> <li>193.9</li> <li>160.5</li> <li>138.1</li> <li>135.2</li> <li>135.5</li> <li>95.9</li> </ul>	4578 4041 3501 3456 3437 2429	180.2 159.1 137.8 136.1 135.3 95.6 96.3	Lengt 5121 550 F 4486 4046 Uppe Lowe Up Lowe	h of Vehicle 201.6 Engine E 21.7 Front Bumpe Front of E 176.6 Firewa 166.5 er Leading E Bottom of ' oper Trailing er Trailing E Steering C 119.7	e at Center 4600 Block 550 er Corner Engine 4228 all 4032 Edge of Do Edge of Do 'A' Post Edge of Do Column 2971	rline 181.1 21.7 166.5 158.7 oor oor Door Door 117	492 407 349 322 343 242 241	26       193.9         76       160.5         98       137.7         28       127.1         36       135.3         26       95.5	4538 4018 3487 3435 3421 2416	178.7 158.2 137.3 135.2 134.7 95.1
4926 4076 3507 3435 3441 2426	<ul> <li>193.9</li> <li>160.5</li> <li>138.1</li> <li>135.2</li> <li>135.5</li> <li>95.9</li> </ul>	4578 4041 3501 3456 3437 2429	180.2 159.1 137.8 136.1 135.3 95.6 96.3	Lengt 5121 550 F 4486 4046 Uppe Lowe 3041 nter of Steeri	h of Vehicle 201.6 Engine E 21.7 Front Bumpe Front of E 176.6 Firewa 166.5 er Leading E Bottom of ' oper Trailing er Trailing E Steering C 119.7 ng Column f	e at Center 4600 Block 550 er Corner Engine 4228 rall 4032 Edge of Do Edge of Do Column 2971 to 'A' Post	rline 181.1 21.7 166.5 158.7 oor oor Door Door Door t (Horizon	492 407 349 322 343 242 241	26       193.9         76       160.5         98       137.7         28       127.1         36       135.3         26       95.5	4538 4018 3487 3435 3421 2416	178.7 158.2 137.3 135.2 134.7 95.1
4926 4076 3507 3435 3441 2426	<ul> <li>193.9</li> <li>160.5</li> <li>138.1</li> <li>135.2</li> <li>135.5</li> <li>95.9</li> </ul>	4578 4041 3501 3456 3437 2429	180.2 159.1 137.8 136.1 135.3 95.6 96.3 Cer	Lengt 5121 550 F 4486 4046 Uppe Lowe Up Lowe	h of Vehicle 201.6 Engine E 21.7 Front Bumpe Front of E 176.6 Firew 166.5 er Leading E Bottom of ' oper Trailing er Trailing E Steering C 119.7 ng Column f 12.6	e at Center 4600 Block 550 er Corner Engine 4228 rall 4032 Edge of Do Edge of Do Calumn 2971 to 'A' Post 270	rline 181.1 21.7 166.5 158.7 oor oor Door Door Door t (Horizon 10.6	492 407 349 349 322 343 241 tal)	26       193.9         76       160.5         98       137.7         28       127.1         36       135.3         26       95.5	4538 4018 3487 3435 3421 2416	178.7 158.2 137.3 135.2 134.7 95.1

# 4N6XPRT StifCalcs™ 1996 CHRYSLER CONCORDE

## NHTSA Crash Test - # 5252 - Front Impact

{ Pre/Post Crush Depths - Vehicle Width - Closing Speed - Trapezoidal Average}

Vehicle Test Weight = 3942 pounds Vehicle Test Speed = 34.9 mph Test crush width = 75 inches

#### Pre/Post Collision Crush Depths (inches)

(Driver Side)	Left Bumper Corner 13.7	Centerline 20.5	Right Bumper Corner 15.3	(Pass. Side)

Minimum Crush = 13.7 inches		A	<u> </u>	G
Using a Rated No Damage Speed of	2.5 mph	249.3	236	131.7
Using a Rated No Damage Speed of	5 mph	460.1	201	526.6
Using a Rated No Damage Speed of	7.5 mph	632.5	168.8	1184.9
Using a Rated No Damage Speed of	10 mph	766.4	139.4	2106.6
Average Crush = 17.5 inches				
Using a Rated No Damage Speed of	2.5 mph	195.1	144.6	131.7
Using a Rated No Damage Speed of	5 mph	360.2	123.2	526.6
Using a Rated No Damage Speed of	7.5 mph	495.1	103.4	1184.9
Using a Rated No Damage Speed of	10 mph	600	85.4	2106.6
Maximum Crush = 20.5 inches				
Using a Rated No Damage Speed of	2.5 mph	166.6	105.4	131.7
Using a Rated No Damage Speed of	5 mph	307.5	89.8	526.6
Using a Rated No Damage Speed of	7.5 mph	422.7	75.4	1184.9
Using a Rated No Damage Speed of	10 mph	512.2	62.3	2106.6

Rated No Damage Speed = Impact speed with a barrier resulting in no permenant vehicle deformation

A = Maximum force per inch of damage without permenant damage, Ib/in

**Calculated Stiffness Coefficients** 

 $B = Crush resistance per inch of damage width, Ib/in^2$ 

G = Energy dissipated without permenant damage, lb

Normal "Rated No Damage Speed" is 2.5 or 5 mph. Some specific vehicles may have a higher rating

#### 

#### 4N6XPRT System's First Approximation Crush Factor (CF)

Speed from Crush calculation using a generic CF of 21 as suggested in Expert AutoStats Impact Speed (mph) = SQR(30 \* CF \* max crush in feet)

Crush Factor	Maximum Crush (inches)	Calculated Impact Speed (mph)	Calculated Error (mph)	Calculated Error (%)
21	20.5	32.8	-2.1	-6.1%
	4N6XPRT Systems S	pecific Crush Factor (CF s	pecific to this test) = 23	.8

CF = (mph \* mph) / (30 \* max crush in feet), dimensionless

4N6XPRT Systems Specific CF is calculated based upon the data reported and is specific to this vehicle and this test

4N6XPRT StifCalcs<sup>™</sup> licensed by 4N6XPRT Systems (www.4N6XPRT.com) to:

# 4N6XPRT StifCalcs™ 1996 CHRYSLER CONCORDE

## NHTSA Crash Test - # 5252 - Front Impact

{ Pre/Post Crush Depths - Indentation Length - Closing Speed - Trapezoidal Average}

Vehicle Test Weight = 3942 pounds Vehicle Test Speed = 34.9 mph Test crush width = 60 inches

#### Pre/Post Collision Crush Depths (inches)

(Driver Side)	Left Bumper Corner 13.7	Centerline 20.5	Right Bumper Corner 15.3	(Pass. Side)
	10.7	20.0	10.0	

	Galcula		
	<u>A</u>	<u> </u>	G
2.5 mph	311.6	295	164.6
5 mph	575.1	251.2	658.3
7.5 mph	790.6	211	1481.2
10 mph	958	174.3	2633.2
2.5 mph	243.9	180.8	164.6
5 mph	450.2	154	658.3
7.5 mph	618.9	129.3	1481.2
10 mph	750	106.8	2633.2
2.5 mph	208.2	131.7	164.6
5 mph	384.3	112.2	658.3
7.5 mph	528.3	94.2	1481.2
10 mph	640.2	77.8	2633.2
	5 mph 7.5 mph 10 mph 2.5 mph 5 mph 7.5 mph 10 mph 2.5 mph 5 mph 7.5 mph	A         2.5 mph       311.6         5 mph       575.1         7.5 mph       790.6         10 mph       958         2.5 mph       243.9         5 mph       450.2         7.5 mph       618.9         10 mph       750         2.5 mph       618.9         10 mph       750         2.5 mph       384.3         7.5 mph       384.3         7.5 mph       528.3	2.5 mph       311.6       295         5 mph       575.1       251.2         7.5 mph       790.6       211         10 mph       958       174.3         2.5 mph       243.9       180.8         5 mph       450.2       154         7.5 mph       618.9       129.3         10 mph       750       106.8         2.5 mph       208.2       131.7         5 mph       384.3       112.2         7.5 mph       528.3       94.2

Rated No Damage Speed = Impact speed with a barrier resulting in no permenant vehicle deformation

A = Maximum force per inch of damage without permenant damage, Ib/in

**Calculated Stiffness Coefficients** 

 $B = Crush resistance per inch of damage width, Ib/in^2$ 

G = Energy dissipated without permenant damage, lb

Normal "Rated No Damage Speed" is 2.5 or 5 mph. Some specific vehicles may have a higher rating

#### 

#### 4N6XPRT System's First Approximation Crush Factor (CF)

Speed from Crush calculation using a generic CF of 21 as suggested in Expert AutoStats Impact Speed (mph) = SQR(30 \* CF \* max crush in feet)

Crush Factor	Maximum Crush (inches)	Calculated Impact Speed (mph)	Calculated Error (mph)	Calculated Error (%)
21	20.5	32.8	-2.1	-6.1%
	4N6XPRT Systems S	pecific Crush Factor (CF s	pecific to this test) = 23.	.8
	4N6XPRT Systems S		pecific to this test) = $23$ .	.8

CF = (mph \* mph) / (30 \* max crush in feet), dimensionless

4N6XPRT Systems Specific CF is calculated based upon the data reported and is specific to this vehicle and this test

4N6XPRT StifCalcs<sup>™</sup> licensed by 4N6XPRT Systems (www.4N6XPRT.com) to:

## **Available Test Results**

Frontal Impact Test Summary

## **Report Filter Settings**

Year Range : 1993 - 1997

Make : CHRYSLER

Model : CONCORDE

Test Number	Vehicle Info	No Damage Speed (mph)	Average Crush (inch)	Closing Speed (mph)		icle Width ness Values B	s G	Crush Factor (Average Crush)
Test Typ	be : Front	(						
1769	1993 EAGLE VISION FOUR DOOR SEDAN	5.0	13	29.4	368.9	138.5	491.3	26.6
1778	1993 DODGE INTREPID FOUR DOOR SEDAN	5.0	25.8	34.9	232.3	53.9	500.6	18.9
2001	1994 CHRYSLER NEW YORKER FOUR DOOR SEDAN	5.0	15.7	29.6	372.4	116.9	593.2	22.4
2045	1994 CHRYSLER NEW YORKER FOUR DOOR SEDAN	5.0	18.1	29.3	291.6	78.1	544.4	18.9
2196	1995 CHRYSLER NEW YORKER FOUR DOOR SEDAN	5.0	16.6	29.6	318.1	94.6	535	21.2
2449	1996 DODGE INTREPID FOUR DOOR SEDAN	5.0	13.7	28.9	451.7	157.9	645.9	24.4
4963	1996 CHRYSLER CONCORDE FOUR DOOR SEDAN	5.0	20.7	35	304.8	88.3	526.1	23.7
5251	1996 CHRYSLER CONCORDE FOUR DOOR SEDAN	5.0	18.9	35	335.3	106.4	528	25.9
5252	1996 CHRYSLER CONCORDE FOUR DOOR SEDAN	5.0	19.9	34.9	317	95.4	526.6	24.5
		Front A	verages		332.5	103.3	534.8	22.9
		Front M	linimums		232.3	53.9	500.6	18.9
		Front M	laximums		451.7	157.9	646.1	26.6
		Front S	tandard Dev	viations	61.3	31.3	31.5	2.8

## **Available Test Results**

Frontal Impact Test Summary

## **Report Filter Settings**

Year Range : 1993 - 1997

Make : CHRYSLER

Model : CONCORDE

Test Number	Vehicle Info	No Damage Speed (mph)	Max Crush (inch)	Closing Speed (mph)		icle Width ness Values B	G	Crush Factor (Max Crush)
Test Typ	be : Front							
1769	1993 EAGLE VISION FOUR DOOR SEDAN	5.0	20.7	29.4	231.6	54.6	491.3	16.7
1778	1993 DODGE INTREPID FOUR DOOR SEDAN	5.0	27.9	34.9	214.5	45.9	500.6	17.5
1928	1994 CHRYSLER NEW YORKER FOUR DOOR SEDAN	5.0	20.4	34.6	340.8	98.9	587.1	23.5
2001	1994 CHRYSLER NEW YORKER FOUR DOOR SEDAN	5.0	18	29.6	324.3	88.6	593.2	19.5
2045	1994 CHRYSLER NEW YORKER FOUR DOOR SEDAN	5.0	20.2	29.3	262	63	544.4	17
2196	1995 CHRYSLER NEW YORKER FOUR DOOR SEDAN	5.0	21.3	29.6	247.2	57.1	535	16.5
2449	1996 DODGE INTREPID FOUR DOOR SEDAN	5.0	14.9	28.9	414.4	132.9	645.9	22.4
4963	1996 CHRYSLER CONCORDE FOUR DOOR SEDAN	5.0	24.5	35	257.7	63.1	526.1	20
5251	1996 CHRYSLER CONCORDE FOUR DOOR SEDAN	5.0	21.2	35	298.6	84.4	528	23.1
5252	1996 CHRYSLER CONCORDE FOUR DOOR SEDAN	5.0	22.4	34.9	280.7	74.8	526.6	21.7
		Front Av	verages		287.2	76.3	540.2	19.8
		Front M	nimums		214.5	45.9	501.2	16.5
		Front M	aximums		414.4	132.9	646.1	23.5
		Front St	andard De	viations	59.7	25.9	26.3	2.8

4N6XPRT StifCalcs™ licensed by 4N6XPRT Systems (www.4N6XPRT.com) to:

EXPERT VIN DeCoder Version 2.9 The VIN Number is 2ME PM36X 1 RB 601386 The vehicle should be a 1994 Mercury (Ford) Passenger car The model: Topaz GS 4 door Sedan The assembly plant: Oakville, Ontario (Canada) The passenger vehicle had : Passive (Automatic) Front Belts The OEM engine was: High Swirl Comb. In-line 4 cylinder with Overhead Cam Engine Displacement/Type = 2.3 L/ 140 cu.in. HSC L4, OHC Brake Horsepower (SAE) = 98 @ 4400 rpm = 124 lb-ft at 2200 rpm Torque (SAE) Engine manufacturer = Ford The fuel distribution system: Electronic Fuel Injection (EFI) Fuel pump/line pressure = 50-60 psi = electronic The ignition system This is a Front Wheel Drive vehicle The first three characters {2, M, E} indicates that the vehicle was a Mercury (Ford) made in Canada The fourth character {P} indicates the vehicle had Passive (Automatic) Front Belts The fifth though seventh character {M36} indicates a Mercury Topaz GS 4 door Sedan The eighth character  $\{X\}$  indicates the OEM engine : 2.3 L/ 140 cu.in. HSC L4, OHC The 9th Character { the Check Digit } is 1 The calculated Check Digit value is The tenth character  $\{R\}$  indicates the Model Year was 1994 The eleventh character {B} indicates it was made at the assembly plant in Oakville, Ontario (Canada) The twelveth through the seventeenth characters { 601386 } is the Serial Number unique to this vehicle. 04-26-2010 S/N:09R-930114VD01201

Reg. User: 4N6XPRT SYSTEMS

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#### PROVIDED BY: 4N6XPRT Systems 8387 University Avenue La Mesa CA 91941

#### 04-26-2010

#### 1994 MERCURY TOPAZ GS 4DR SEDAN

CURB WEIGHT: Curb Weight Distribution -	2500 lbs. Front: 62 %		L134 kg. c: 38 %
Gross Vehicle Weight Rating:	lbs.		kg.
Number of Tires on Vehicle: Drive Wheels:	4 FRONT		
HORIZONTAL DIMENSIONS			
Total Longth	Inches 177	Feet 14.75	Meters 4.50
Total Length Wheelbase:	100	8.33	2.54
meerbase.	200	0.00	2.51
Front Bumper to Front Axle	35	2.92	
Front Bumper to Front of Front Well		1.50	
Front Bumper to Front of Hood Front Bumper to Base of Windshield	4 51	0.33 4.25	0.10 1.30
Front Bumper to Base of Windshield Front Bumper to Top of Windshield	75	4.25	1.90
	/5	0.25	1.90
Rear Bumper to Rear Axle	42	3.50	
Rear Bumper to Rear of Rear Well	27	2.25	
Rear Bumper to Rear of Trunk	4	0.33	
Rear Bumper to Base of Rear Window	28	2.33	0.71
WIDTH DIMENSIONS			
Maximum Width	68	5.67	1.73
Front Track	55	4.58	1.40
Rear Track	58	4.83	1.47
VERTICAL DIMENSIONS			
	Inches	Feet	Meters
Height	53	4.42	1.35
Ground to:			
Front Bumper (Top)	21	1.75	
Headlight - center	27	2.25	
Hood - top front	32	2.67	
Base of windshield	37	3.08	0.94
Rear Bumper - top	24	2.00	0.61
Trunk - top rear	38	3.17	
Base of rear window	41	3.42	1.04

Reg. To: 4N6XPRT Systems

1994 MERCURY TOPAZ GS 4DR SEDAN

INTERIOR DIMENSIONS							
Event Cost Chaulden Width	Inches 54	Feet					
Front Seat Shoulder Width Front Seat to Headliner	38	4.50 3.17	1.37 0.97				
Front Leg - seatback to floor (max)		3.50					
Rear Seat Shoulder Width	54	4.50	1.37				
Rear Seat to Headliner	37	3.08	0.94				
Rear Leg – seatback to floor (min)	36	3.00	0.91				
Seatbelts: 3pt front, 2pt rear Airbags: NO AIRBAGS							
STEERING DATA							
Turning Circle (Diameter)	468	39.00	11.89				
Steering Ratio: 18.29:1							
Wheel Radius:	12	1.00	0.30				
Tire Size (OEM): 185-70R1	4						
ACCELERATION & BRAKING INFORMATION							
Brake Type: FRONT DISC - REAR DRUM ABS System: ABS UNKNOWN							
Braking, 60 mph -> 0 (Hard pedal, no skid, dry pavement): d = 159 ft t = 3.6 sec. a =-24.3 ft/sec/sec G-force = -0.75							
ACCELERATION:							
0 - > 30  mph t = 5.7  sec. a =	7.7 ft/sec	sec G-f	orce = 0.2	4			
0->60  mph t = 8.7 sec. a = $45->65  mph$ t = 8.1 sec. a =	3.6 ft/sec	/sec G-f	orce = 0.1	1			
Transmission Type: 5spd	MANUAL						
NOTES:							
Federal Bumper Standard Requirements = 2.5 MPH							
This vehicles Rated Bumper Strength: 5 mph							

N.S.D.C. = 1992 - 1994

Reg. To: 4N6XPRT Systems

**1994 MERCURY TOPAZ GS 4DR SEDAN** 

OTHER INFORMATION						
TIP-OVER STABILITY RATIO = NHTSA Star Rating (calculated)						
CENTER OF GRAVITY (No Load):						
Inches behind front axle	= 38.00					
Inches in front of rear axle	= 62.00					
Inches from side of vehicle						
Inches from ground	= 20.80					
Inches from front corner						
Inches from rear corner						
Inches from front bumper						
Inches from rear bumper	= 104.00					
MOMENTS OF INERTIA APPROXIMATIONS (No Load):						
YAW MOMENT OF INERTIA		=	1369.00	lb-ft-sec^2		
PITCH MOMENT OF INERTIA		=	1326.00	lb-ft-sec^2		
ROLL MOMENT OF INERTIA		=	300.00	lb-ft-sec^2		
FRONT PROFILE INFORMATION						
ANGLE FRONT BUMPER TO HOOD FI	RONT		= 70.0	deg		
ANGLE FRONT OF HOOD TO WINDSHIELD BASE		= 6.1	deg			
ANGLE FRONT OF HOOD TO WINDSHIELD TOP		= 15.0	deg			
ANGLE OF WINDSHIELD			= 30.3	deg		
ANGLE OF STEERING TIRES AT MA	AX TURN		= 24.5	deg		

FIRST APPROXIMATION CRUSH FACTORS:

Speed Equivalent (mph) of Kinetic Energy (KE) used in causing crush or indentation may be evaluated using the following formula, the appropriate Crush Factor (CF), and Maximum Indentation Depth (MID), in feet:

V(mph) = Sqr root of (30 \* CF \* MID)

KE Equivalent Speed (Front/Rear/Side) = 21 CF

Bullet vehicle IMPACT SPEED estimation based on TARGET VEHICLE damage ONLY = 27 CF (Tested for Rear/Side Impact only)

These CF values are based upon analysis of NHTSA Barrier Crash data, and from over 1000 vehicle accidents where independant evaluation of speed was possible. (These are NOT 'A', 'B', 'C', or 'G' values)

The Rear Impact data with more than 2-3 inches of crush damage should be looked at carefully, since some vehicles have very weak trunk & fender strength. Therefore, on some cars, esp. GM, your estimate from the rear crush data may be high by as much as 4-5 mph (on a crush of 18 inches).

Reg. To: 4N6XPRT Systems

# Stiffness Values and Test Data

# Derived from

# NHTSA Crash Test

# # 998

# **1987 MERCURY TOPAZ**

Provided By 4N6XPRT StifCalcs™

**Registered to:** 

4N6XPRT SYSTEMS 8387 UNIVERSITY AVENUE LA MESA CA 91941-3842 S/N: 030201SC01301

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# Sister/Clone database reader

You entered: 1994 MERCURY TOPAZ

The Sister/Clone Vehicle Year/Model Interchange list indicates the following are Similar Models

Year Range	Make	Model	Body Styles	Wheelbase
1984 - 1994 REMARKS :	MERCURY	TOPAZ	2D,4D	99.9"
1984 - 1994 REMARKS :	FORD	TEMPO	2D,4D	99.9"

The data contained in the database has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. 4N6XPRT Systems has made no changes to this data, and has only provided for distribution of this data free of charge. 4N6XPRT Systems makes no warranties, either express or implied, with respect to this data, its quality, performance, merchantability, or fitness for any particular purpose. The entire risk as to its quality and performance is with the user. In no event will 4N6XPRT Systems be liable for direct, indirect, incidental, or consequential damages resulting from any data presented here, even if 4N6XPRT Systems has been advised of the possibility of such damages. The user must agree to assume full responsibility for any decisions which are based, in whole or in part, upon information obtained by using this data. As previously stated, the data has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. Mr. Anderson does not in any way guarantee the accuracy of the data. Some of the listed similarities are based on his own estimates or memory. Most of the data are pulled from specification tables which may contain inaccuracies of their own. Use common sense - if something seems wrong, check it (and if it is wrong, let him know!).

If you have suggestions, corrections, etc., you should contact Greg Anderson at Scalia Safety Engineering, 521 East Washington Avenue, Suite 200, Madison, WI 53703-2914, (608) 256-0820, FAX (608) 256-0212, E-mail: greganderson@cs.com.

Test Information
Test #         998         NHTSA Version #         2         Test Date         1987-03         Contract #         DTNH22-87-D-02012
Contract/Study Title FY87 NEW CAR ASSESSMENT PROGRAM FRONTAL BARRIER IMPACT TEST
Test Objective(s) TO OBTAIN VEHICLE CRASHWORTHINESS AND OCCUPANT RESTRAINT PERFORMANC
Test Type       NEW CAR ASSESSMENT TEST       Configuration       VEHICLE INTO BARRIER
Closing Speed 56.2 Km/Hr 35 MPH
Impact Angle 0 Offset Distance 0 mm 0 inches Side Impact Point mm 0 inches
Test Performer       CALSPAN         Test Reference #       MH0201
Test Track Surface CONCRETE Condition DRY Ambient Temperature 4 C 39 F
Data Recorder Type       FM TAPE RECORDER       Data Link       UMBILICAL CABLE       Total Number of Curves       67
Test Commentary NO COMMENTS
Fixed Barrier Information
Barrier Type RIGID Barrier Shape FLAT BARRIER Pole Barrier Diameter mm inches
Barrier Commentary 10*12*5 FT. CONCRETE BARRIER WITH THE GFE LOAD CELL ASSEMBLY ATTACHED

4N6XPRT StifCalcs™
1987 MERCURY TOPAZ LEFT FRONT SEAT OCCUPANT
Test #     998     Vehicle #     1     Location     LEFT FRONT SEAT     Seat Position     CENTER POSITION
Type     PART 572 DUMMY     Size Percentile     50 PERCENTILE     Calibration Method     PART 572
Sex M Age Occupant Height mm 0 inches Occupant Weight kg 0 pounds
Occupant Manufactuer ALDERSON S/N 320
Occupant Modification UNMODIFIED
Occupant Description NO COMMENTS
Occupant Commentary
Head To Head To
Windshield Header 257 mm 10.1 inches Side Header 117 mm 4.6 inches
Windshield 414 mm 16.3 inches
Side Window 208 mm 8.2 inches Seatback mm 0 inches
Neck to Seatback mm 0 inches
First Contact Region (Head) NONE Second Contact Region (Head) NONE
Head Injury Criteria (HIC) 743 HIC Lower Time interval (ms) 83.62 HIC Upper Time interval (ms) -2593
<u>Chest</u>
Chest To
Dash   513   mm   20.2   inches   Arm to Door     86   mm   3.4
Steering Wheel     287     mm     11.3     inches     Hip to Door     168     mm     6.6     inches
Seatback mm 0 inches
First Contact Region (Chest/Abdomen) NONE Second Contact Region (Chest/Abdomen) NONE
Lap Belt Peak Load       Newtons       0       pounds Force       Shoulder Belt Peak Load       Newtons       0       pounds Force
Chest Severity Index
Thorax Peak Acceleration (g's)       628       Thoraic Trauma Index       Pelvic Peak Lateral Acceleration (g's)
Legs
Knees to Dash    86    mm    3.4    inches    Knees to Seatback       mm    0    inches
First Contact Region (Legs) DASHPANEL Second Contact Region (Legs) NONE
Left Femur Peak Load 6548 Newtons 1472 pounds Force Right Femur Peak Load Newtons 0 pounds Force
1987 MERCURY TOPAZ LEFT FRONT SEAT OCCUPANT
Restraint #     1     3 POINT BELT     Mounted     Deployment?     NOT APPLICABLE
Restraint Commentary NO COMMENTS

## **Restraints**

1987 MERCURY TOPAZ LEFT FRONT SEAT OCCUPANT

Restraint #	2	AIR BAG	Mounted	Deployment?	DEPLOYED PROPERLY
Restraint Cor	nmentai	y NO COMMENTS			

1987 MERCURY TOPAZ RIGHT FRONT SEAT OCCUPANT
Test #       998       Vehicle #       1       Location       RIGHT FRONT SEAT       Seat Position       CENTER POSITION
Type     PART 572 DUMMY     Size Percentile     50 PERCENTILE     Calibration Method     PART 572
Sex M Age Occupant Height mm 0 inches Occupant Weight kg 0 pounds
Occupant Manufactuer ALDERSON S/N 749
Occupant Modification UNMODIFIED
Occupant Description NO COMMENTS
Occupant Commentary
Head To Head To
Windshield Header 241 mm 10.1 inches Side Header 114 mm 4.6 inches
Windshield 389 mm 16.3 inches Side Window 213 mm 8.2 inches
Side Window 213 mm 8.2 inches
Neck to Seatback mm 0 inches
First Contact Region (Head) NONE Second Contact Region (Head) NONE
Head Injury Criteria (HIC) 626 HIC Lower Time interval (ms) 108.3 HIC Upper Time interval (ms) -4239 Chest
Chest To
Dash    538    mm    20.2    inches    Arm to Door       114    mm    3.4    inches
Steering Wheel    mm    11.3    inches    Hip to Door    173    mm    6.6    inches
Seatback mm 0 inches
First Contact Region (Chest/Abdomen) NONE Second Contact Region (Chest/Abdomen) NONE
Lap Belt Peak Load       Newtons       0       pounds Force       Shoulder Belt Peak Load       Newtons       0       pounds Force
Chest Severity Index
Thorax Peak Acceleration (g's)     376     Thoraic Trauma Index     Pelvic Peak Lateral Acceleration (g's)
Legs
Knees to Dash       94       mm       3.4       inches       Knees to Seatback       mm       0       inches
First Contact Region (Legs) DASHPANEL Second Contact Region (Legs) NONE
Left Femur Peak Load 8082 Newtons 1472 pounds Force Right Femur Peak Load Newtons 0 pounds For
1987 MERCURY TOPAZ RIGHT FRONT SEAT OCCUPANT
Restraint #     1     3 POINT BELT     Mounted     Deployment?     NOT APPLICABLE
Restraint Commentary NO COMMENTS

## **Restraints**

## 1987 MERCURY TOPAZ RIGHT FRONT SEAT OCCUPANT

Restraint #	2 [	NONE	Mounted	Deployment?	NOT APPLICABLE
Restraint Corr	nmentar	y NO COMMENTS			

# 4N6XPRT StifCalcs™ Vehicle 1 - 1987 MERCURY TOPAZ

	998		NH	TSA Test V	ehicle Nur	nber		VIN	1ME	CM36X9I	HK62442	20
Year	1987	Make 👔	MERCU	RY M	lodel TC	PAZ		Body	FOUR D	OOR SE	DAN	
Vehicle Mo	dification I	ndicatio	or		Vehicle M	odification(s)	Descriptio	n				
PRODUC	TION VEH	ICLE			UNMODI	FIED						
Post-test S	teering Co	lumn S	hear Ca	psule Sepe	eration	Steerin	ng Column	Collapse Med	chanism			
NO SEPA				<u> </u>		OTH	IER					
Vehicle Co	mmentary	VEI	HICLE N	NODEL IS 1	TOPAZ, CO	OLMEC IS UI	NKNOWN					
	Vehic	cle Len	gth	4488 mm	176.7	inches	Vel	hicle Test We	eight 1	442 KG	3179	pounds
	Vehicle W			2537 mm	99.9	inches		Vehicle V	Vidth 14	422 mm	56	inches
	G behind i			1062 mm	41.8	inches	Total Lenç	gth of Indenta	ation 1	422 mm	56	inches
Center of	Damage to			711 mm	28	inches Ma	aximum St	tatic Crush D	epth	564 mm	22.2	inches
											LLIL	
Vehicle Da	mage Inde	x 12	FDEW	Principal	Direction	of Force	0 F	Pre-Impact Sp	beed 5	56.2 kph	34.9	mph
Dama	ge Profil	e Dis	tance	Measure	<u>ments</u>	<u>Crush fr</u>	rom Pre	& Post Tes	st Dama	ige Mea	surem	ents
(N	leasured L	eft-to-F	Right, Re	ear-to-Front	:)		Pre-Tes	st	Post-Te	<u>st</u>	Crush-I	Depth
DPD 1	536	mm	21.1	inches	Loft Bu	mpor Corno	<b>,</b> 174.7	inches	155.7	inches	19	inches
					Left Bu	mper Cornei	r 174.7 4437	<b>inches</b> mm		<b>inches</b> mm	<b>19</b> 482	<b>inches</b> mm
DPD 1 DPD 2	536 528	mm mm	21.1	inches inches	Left Bu	mper Cornei	r					
					Left Bu		r 4437		3955		482	
DPD 2 DPD 3	528	mm mm	20.8	inches inches	Left Bu	mper Corner Centerline	r 4437	mm	3955	mm	482 22.2	mm
DPD 2	528	mm	20.8	inches	Left Bu		r 4437	mm inches	3955	mm inches	482	mm inches
DPD 2 DPD 3	528 556 551	mm mm mm	20.8	inches inches			r 4437 176.7 4488	mm inches	3955 154.5 3924	mm inches	482 22.2	mm inches
DPD 2 DPD 3 DPD 4	528 556 551	mm mm mm	20.8 21.9 21.7	inches inches inches		Centerline	r 4437 176.7 4488	mm <b>inches</b> mm	3955 154.5 3924 153.7	mm inches mm	482 22.2 564	mm inches mm
DPD 2 DPD 3 DPD 4 DPD 5 DPD 6 Bu	528 556 551 554 457 umper Eng	mm mm mm mm ageme	20.8 21.9 21.7 21.8 18 nt	inches inches inches inches	Right Bu S	Centerline mper Corner	r 4437 4437 4488 r 175.2 4450 ent	mm inches mm inches	3955 3955 3924 153.7 3904 A-pi	mm inches mm inches mm illar Enga	482 22.2 564 21.5 546 gement	mm inches mm inches
DPD 2 DPD 3 DPD 4 DPD 5 DPD 6 Bi	528 556 551 554 457 umper Eng	mm mm mm mm mm ageme cct Only	20.8 21.9 21.7 21.8 18 nt ()	inches inches inches inches	Right Bu S (S	Centerline mper Corner till Engageme	r 4437 4437 4488 r 175.2 4450 ent nly)	mm inches mm inches	3955 3955 3924 153.7 3904 A-pi (Sid	mm inches mm inches mm Ilar Enga de Impac	482 22.2 564 21.5 546 gement t Only)	mm inches mm inches
DPD 2 DPD 3 DPD 4 DPD 5 DPD 6 Bi	528 556 551 554 457 umper Eng	mm mm mm mm mm ageme cct Only	20.8 21.9 21.7 21.8 18 nt ()	inches inches inches inches	Right Bu S (S	Centerline mper Corner	r 4437 4437 4488 r 175.2 4450 ent nly)	mm inches mm inches	3955 3955 3924 153.7 3904 A-pi (Sid	mm inches mm inches mm illar Enga	482 22.2 564 21.5 546 gement t Only)	mm inches mm inches
DPD 2 DPD 3 DPD 4 DPD 5 DPD 6 Bu (1	528 556 551 554 457 umper Eng Inline Impa IOT APPLI Moving Te	mm mm mm mm ageme <u>ict Only</u> <u>CABLE</u> st Cart	20.8 21.9 21.7 21.8 18 nt ()	inches inches inches inches	Right Bu S (S NC Moving	Centerline mper Corner till Engageme ide Impact Or DT APPLICAE g Test Cart /	r 4437 4437 4488 r 175.2 4450 ent nly) BLE Vehicle	mm inches mm inches	3955 3955 3924 153.7 3904 A-pi (Sia NO Mo	mm inches mm inches mm Illar Enga de Impac DT APPLIQ ving Test	482 22.2 564 21.5 546 gement t Only) CABLE Cart	mm inches mm inches mm
DPD 2 DPD 3 DPD 4 DPD 5 DPD 6 Bu (1	528 556 551 554 457 umper Eng Inline Impa IOT APPLI	mm mm mm mm ageme <u>ict Only</u> <u>CABLE</u> st Cart	20.8 21.9 21.7 21.8 18 nt ()	inches inches inches inches	Right Bu S (S NC Moving	Centerline mper Corner ide Impact Or DT APPLICAE g Test Cart / Crabbed Angl	r 4437 4437 4488 r 175.2 4450 ent nly) BLE Vehicle	mm inches mm inches	3955 3955 3924 153.7 3904 A-pi (Sia NO Mo	mm inches mm inches mm illar Enga de Impac DT APPLI	482 22.2 564 21.5 546 gement t Only) CABLE Cart	mm inches mm inches mm
DPD 2 DPD 3 DPD 4 DPD 5 DPD 6 Bu ((	528 556 551 554 457 umper Eng Inline Impa IOT APPLI Moving Te	mm mm mm mm ageme cct Only <u>CABLE</u> st Cart e	20.8 21.9 21.7 21.8 18 nt ()	inches inches inches inches	Right Bu S (S NC Moving	Centerline mper Corner till Engageme ide Impact Or DT APPLICAE g Test Cart /	r 4437 4437 4488 r 176.7 4488 r 175.2 4450 ent nly) BLE Vehicle le	mm inches mm mm	3955 3955 3924 153.7 3904 A-pi (Sia NO Mo	mm inches mm inches mm Ilar Enga de Impac DT APPLIG ving Test e Orienta	482 22.2 564 21.5 546 gement t Only) CABLE Cart tion on C	mm inches mm inches mm

# Vehicle 1 - 1987 MERCURY TOPAZ

Test #	998	]	NHTSA Te	est Vehicle N	lumber			VIN	1ME	CM36X9	HK6244	420
Year	1987	Make MEI	RCURY	Model	TOPAZ			Body	FOUR D	DOOR SE	DAN	
Vehicle	Modification	Indicatior		Vehicle	Modification	n(s) Descr	iption					
PRODI	JCTION VEH	IICLE		UNMO	DIFIED		·					
Post-tes	t Steering Co	olumn Shea	ar Capsule 3	Seperation	Ste	ering Colu	umn Colla	pse Mec	hanism			
	PARATION		•	•		DTHER						
Vehicle	Commentary	VEHIC		- IS TOPAZ,	COLMEC IS	S UNKNO	WN					
	Vehi	cle Length	4488	mm 176.7	7 inches		Vehicle 1	Fest Wei	ight 1	442 KG	3179	pounds
	Vehicle W	/heelbase	2537	mm 99.9	9 inches		V	shiele M		100		] :
	CG behind	front axle		mm 41.8	_		Ve	ehicle W		422 mm	56	inches
Contor						Total I	Length of	Indenta	tion 1	422 mm	56	inches
Center	of Damage to		711	mm 28	8 inches							
						Maximu	m Static C	crush De	epth	564 mm	22.2	inches
Vehicle	Damage Inde	× 12FDE	=w3 Prin	cipal Directic	on of Force	0	Pre-Im	pact Sp	eed 🦉	56.2 kph	34 9	mph
		121 01								1	0.110	
				Pre & Po	ost Test N	leasure	ements					
(	Measurments a		ogitudinal dire	ection. Except fo	-		rments are ta	aken from t				ď
Pre	Left -Test	Side Post	-Test	Pre-Tes	Centerlii	ne Post-Te	est	Pr	e-Test	Right Si	de Post-	Test
mm	inches	mm	inches		-		nches	mm	inch	nes m	nm	inches
				Lena	th of Vehicle	at Cente	rline					
					176.7	3924	154.5					
				4488	170.7	3924	104.0					
				4488	Engine E		154.5					
				457	Engine E	Block 457	134.5					[]
443	7 174.7	3955	155.7	457	Engine E 18 Front Bumpe	Block 457 er Corner		44	50 17	75.2	3904	153.7
443	7 174.7	3955	155.7	457 F	Engine E 18 Front Bumpe Front of E	Block 457 er Corner Engine	18	44	50 17	75.2	3904	153.7
443		3955	155.7	457	Engine E 18 Front Bumpe	Block 457 er Corner Engine 3620		44		75.2	3904 3175	153.7
				457 F	Engine E 18 Front Bumpe Front of E 152.2	Block 457 er Corner Engine 3620	18					
	6 133.3			457 3866 3465	Engine E 18 Front Bumpe Front of E 152.2 Firew	Block 457 er Corner Engine 3620 all 3302	18 142.5 130		07 13			
338	6       133.3         2       123.3	3137	123.5	457 F 3866 3465 Upp	Engine E 18 Front Bumpe Front of E 152.2 Firew 142.5	Block 457 er Corner Engine 3620 all 3302 Edge of D	18 142.5 130 oor	33	07 13 34 12	30.2	3175	125
338	6       133.3         2       123.3         8       121.2	3137	123.5	457 F 3866 3465 Upp	Engine E 18 Front Bumpe Front of E 152.2 Firew 142.5 er Leading E	Block 457 er Corner Engine 3620 all 3302 Edge of D Edge of D	18 142.5 130 oor	33	07 13 34 12 86 12	23.4	3175 3099	125
338 313 307	6       133.3         2       123.3         8       121.2         6       121.5	3137 3099 3068	123.5 122 120.8	457 F 3866 3465 Upp Low	Engine E 18 Front Bumpe Front of E 152.2 Firew 142.5 er Leading E er Leading E	Block 457 er Corner Engine 3620 rall 3302 Edge of D Edge of D	18 142.5 130 oor oor	33	07 13 34 12 86 12 89 12	30.2	3175 3099 3086	125 122 121.5
338 313 307 308	6       133.3         2       123.3         8       121.2         6       121.5         9       83.7	3137 3099 3068 3071	123.5 122 120.8 120.9	457 F 3866 3465 Upp Low	Engine E 18 Front Bumpe Front of E 152.2 Firew 142.5 er Leading E er Leading E Bottom of 1	Block 457 er Corner Engine 3620 rall 3302 Edge of D Edge of D	18 142.5 130 oor oor	33 31 30 30	07 13 34 12 86 12 89 12 29 8	30.2	3175 3099 3086 3071	125 122 121.5 120.9
338 313 307 308 212	6       133.3         2       123.3         8       121.2         6       121.5         9       83.7	3137 3099 3068 3071 2096	123.5         122         120.8         120.9         82.5	457 F 3866 3465 Upp Low Up Low	Engine E 18 Front Bumpe Front of E 152.2 Firew 142.5 er Leading E er Leading E Bottom of toper Trailing ver Trailing E Steering C	Block 457 er Corner Engine 3620 all 3302 Edge of D Edge of D Calge of D Edge of D Edge of D Edge of D	18 142.5 130 00r 00r Door	33 31 30 30 21	07 13 34 12 86 12 89 12 29 8	30.2 [ 23.4 [ 21.5 [ 21.6 [ 33.8 [	3175 3099 3086 3071 2103	125 122 121.5 120.9 82.8
338 313 307 308 212	6       133.3         2       123.3         8       121.2         6       121.5         9       83.7	3137 3099 3068 3071 2096	123.5 122 120.8 120.9 82.5 83.1	457 F 3866 3465 Upp Low Up Low	Engine E 18 Front Bumpe Front of E 152.2 Firew 142.5 er Leading E er Leading E Bottom of b oper Trailing E Steering C 102.5	Block 457 er Corner Engine 3620 rall 3302 Edge of D Edge of D Column 2588	18 142.5 130 oor oor Door oor Door 00r	33 31 30 30 21	07 13 34 12 86 12 89 12 29 8	30.2 [ 23.4 [ 21.5 [ 21.6 [ 33.8 [	3175 3099 3086 3071 2103	125 122 121.5 120.9 82.8
338 313 307 308 212	6       133.3         2       123.3         8       121.2         6       121.5         9       83.7	3137 3099 3068 3071 2096	123.5 122 120.8 120.9 82.5 83.1	457 F 3866 3465 Upp Low Up Low	Engine E 18 Front Bumpe Front of E 152.2 Firew 142.5 er Leading E er Leading E Bottom of b oper Trailing E Steering C 102.5 ing Column	Block 457 er Corner Engine 3620 all 3302 Edge of D Edge of D E Edge of D E Edge of D E Edge of D E Edge of D E Edge of D E E Edge of D E E E E E E E E E E E E E E E E E E E	18 142.5 130 00r 00r Door Door 00r 101.9 t (Horizont	33 31 30 30 21	07 13 34 12 86 12 89 12 29 8	30.2 [ 23.4 [ 21.5 [ 21.6 [ 33.8 [	3175 3099 3086 3071 2103	125 122 121.5 120.9 82.8
338 313 307 308 212	6       133.3         2       123.3         8       121.2         6       121.5         9       83.7	3137 3099 3068 3071 2096	123.5 122 120.8 120.9 82.5 83.1 Cer	457 F 3866 3465 Upp Low Up Low	Engine E 18 Front Bumper Front of E 152.2 Firew 142.5 er Leading E er Leading E Bottom of C oper Trailing E Steering C 102.5 ing Column 19	Block 457 er Corner Engine 3620 all 3302 Edge of D Edge of D Edge of D Edge of D Edge of D Column 2588 to 'A' Post 483	18 142.5 130 00r 00r Door 00r 101.9 t (Horizont 19	33 31 30 30 21 21 21	07 13 34 12 86 12 89 12 29 8	30.2 [ 23.4 [ 21.5 [ 21.6 [ 33.8 [	3175 3099 3086 3071 2103	125 122 121.5 120.9 82.8

# 4N6XPRT StifCalcs™ 1987 MERCURY TOPAZ

## NHTSA Crash Test - # 998 - Front Impact

{ Pre/Post Crush Depths - Vehicle Width - Closing Speed - Trapezoidal Average}

Vehicle Test Weight = 3179 pounds Vehicle Test Speed = 34.9 mph Test crush width = 56 inches

#### Pre/Post Collision Crush Depths (inches)

(Driver Side)	Left Bumper Corner 19	Centerline 22.2	Right Bumper Corner 21.5	(Pass. Side)

Minimum Crush = 19 inches		A	<u> </u>	G		
Using a Rated No Damage Speed of	2.5 mph	194.2	132.5	142.2		
Using a Rated No Damage Speed of	5 mph	358.4	112.9	569		
Using a Rated No Damage Speed of	7.5 mph	492.7	94.8	1280.2		
Using a Rated No Damage Speed of	10 mph	597.1	78.3	2276		
Average Crush = 21.2 inches						
Using a Rated No Damage Speed of	2.5 mph	174	106.5	142.2		
Using a Rated No Damage Speed of	5 mph	321.2	90.7	569		
Using a Rated No Damage Speed of	7.5 mph	441.6	76.2	1280.2		
Using a Rated No Damage Speed of	10 mph	535.1	62.9	2276		
Maximum Crush = 22.2 inches						
Using a Rated No Damage Speed of	2.5 mph	166.2	97.1	142.2		
Using a Rated No Damage Speed of	5 mph	306.8	82.7	569		
Using a Rated No Damage Speed of	7.5 mph	421.7	69.5	1280.2		
Using a Rated No Damage Speed of	10 mph	511	57.4	2276		

Rated No Damage Speed = Impact speed with a barrier resulting in no permenant vehicle deformation

A = Maximum force per inch of damage without permenant damage, Ib/in

**Calculated Stiffness Coefficients** 

 $B = Crush resistance per inch of damage width, Ib/in^2$ 

G = Energy dissipated without permenant damage, lb

Normal "Rated No Damage Speed" is 2.5 or 5 mph. Some specific vehicles may have a higher rating

#### 

### 4N6XPRT System's First Approximation Crush Factor (CF)

Speed from Crush calculation using a generic CF of 21 as suggested in Expert AutoStats Impact Speed (mph) = SQR(30 \* CF \* max crush in feet)

Crush Factor	Maximum Crush (inches)	Calculated Impact Speed (mph)	Calculated Error (mph)	Calculated Error (%)
21	22.2	34.1	-0.8	-2.4%
	4N6XPRT Systems S	pecific Crush Factor (CF s	pecific to this test) = 22	

CF = (mph \* mph) / (30 \* max crush in feet), dimensionless

4N6XPRT Systems Specific CF is calculated based upon the data reported and is specific to this vehicle and this test

# 4N6XPRT StifCalcs™ 1987 MERCURY TOPAZ

## NHTSA Crash Test - # 998 - Front Impact

{ Pre/Post Crush Depths - Indentation Length - Closing Speed - Trapezoidal Average}

Vehicle Test Weight = 3179 pounds Vehicle Test Speed = 34.9 mph Test crush width = 56 inches

#### Pre/Post Collision Crush Depths (inches)

(Driver Side)	Left Bumper Corner 19	Centerline 22.2	Right Bumper Corner 21.5	(Pass. Side)

Minimum Crush = 19 inches		<u>A</u>	<u> </u>	<u> </u>		
Using a Rated No Damage Speed of	2.5 mph	194.2	132.5	142.2		
Using a Rated No Damage Speed of	5 mph	358.4	112.9	569		
Using a Rated No Damage Speed of	7.5 mph	492.7	94.8	1280.2		
Using a Rated No Damage Speed of	10 mph	597.1	78.3	2276		
Average Crush = 21.2 inches						
Using a Rated No Damage Speed of	2.5 mph	174	106.5	142.2		
Using a Rated No Damage Speed of	5 mph	321.2	90.7	569		
Using a Rated No Damage Speed of	7.5 mph	441.6	76.2	1280.2		
Using a Rated No Damage Speed of	10 mph	535.1	62.9	2276		
Maximum Crush = 22.2 inches						
Using a Rated No Damage Speed of	2.5 mph	166.2	97.1	142.2		
Using a Rated No Damage Speed of	5 mph	306.8	82.7	569		
Using a Rated No Damage Speed of	7.5 mph	421.7	69.5	1280.2		
Using a Rated No Damage Speed of	10 mph	511	57.4	2276		

Rated No Damage Speed = Impact speed with a barrier resulting in no permenant vehicle deformation

A = Maximum force per inch of damage without permenant damage, Ib/in

**Calculated Stiffness Coefficients** 

 $B = Crush resistance per inch of damage width, Ib/in^2$ 

G = Energy dissipated without permenant damage, lb

Normal "Rated No Damage Speed" is 2.5 or 5 mph. Some specific vehicles may have a higher rating

#### 

### 4N6XPRT System's First Approximation Crush Factor (CF)

Speed from Crush calculation using a generic CF of 21 as suggested in Expert AutoStats Impact Speed (mph) = SQR(30 \* CF \* max crush in feet)

Crush Factor	Maximum Crush (inches)	Calculated Impact Speed (mph)	Calculated Error (mph)	Calculated Error (%)		
21	22.2	34.1	-0.8	-2.4%		
4N6XPRT Systems Specific Crush Factor (CF specific to this test) = 22						

CF = (mph \* mph) / (30 \* max crush in feet), dimensionless

4N6XPRT Systems Specific CF is calculated based upon the data reported and is specific to this vehicle and this test

### **Available Test Results**

Frontal Impact Test Summary

## **Report Filter Settings**

Year Range : 1984 - 1994

Make : MERCURY

Model : TOPAZ

Test Number	Vehicle Info	No Damage Speed	Damage Crush Speed		Vehicle Width Stiffness Values A B C			Crush Factor (Average Crush)
		(mph)						
Test Typ	pe : Front							
681	1984 FORD TEMPO FOUR DOOR SEDAN	5.0	20.7	35	270.3	78.4	466.3	23.7
818	1985 FORD TEMPO FOUR DOOR SEDAN	5.0	22.4	34.8	241	64.1	452.6	21.6
842	1985 FORD TEMPO TWO DOOR SEDAN	5.0	23.5	35.1	225.3	57.8	439	21
998	1987 MERCURY TOPAZ FOUR DOOR SEDAN	5.0	21.2	34.9	321.8	91	569	23
1186	1988 FORD TEMPO FOUR DOOR SEDAN	5.0	20.3	34.8	264.8	77.6	451.8	23.8
1200	1988 FORD TEMPO FOUR DOOR SEDAN	5.0	14.8	29.2	300.6	98.6	458.1	23.1
1211	1988 FORD TEMPO FOUR DOOR SEDAN	5.0	14.8	29.3	301.2	98.8	458.9	23.2
1306	1989 FORD TEMPO FOUR DOOR SEDAN	5.0	13.8	29.3	331.1	116.4	470.9	24.8
1858	1993 FORD TEMPO FOUR DOOR SEDAN	5.0	18.6	35	347.7	112.4	537.7	26.4
2006	1994 FORD TEMPO FOUR DOOR SEDAN	5.0	14.2	29.3	321.2	109.9	469.3	24.2
		Front A	verages		292.5	90.5	472.7	23.5
		Front N	linimums		225.3	57.8	439.1	21
		Front N	laximums		347.7	116.4	519.3	26.4
		Front S	tandard Dev	viations	40.5	20.4	20.4	1.5

### **Available Test Results**

Frontal Impact Test Summary

## **Report Filter Settings**

Year Range : 1984 - 1994

Make : MERCURY

Model : TOPAZ

Test Number	Vehicle Info	No Damage Speed (mph)	Max Crush (inch)	Closing Speed (mph)		icle Width ness Values B	G	Crush Factor (Max Crush)
Test Typ	pe : Front							
681	1984 FORD TEMPO FOUR DOOR SEDAN	5.0	22.5	35	248.7	66.3	466.3	21.8
818	1985 FORD TEMPO FOUR DOOR SEDAN	5.0	23	34.8	234.6	60.8	452.6	21.1
842	1985 FORD TEMPO TWO DOOR SEDAN	5.0	24.6	35.1	214.8	52.6	439	20
998	1987 MERCURY TOPAZ FOUR DOOR SEDAN	5.0	22.2	34.9	306.5	82.5	569	21.9
1186	1988 FORD TEMPO FOUR DOOR SEDAN	5.0	21	34.8	256.4	72.8	451.8	23.1
1200	1988 FORD TEMPO FOUR DOOR SEDAN	5.0	14.9	29.2	297.6	96.7	458.1	22.9
1211	1988 FORD TEMPO FOUR DOOR SEDAN	5.0	15.2	29.3	293.4	93.8	458.9	22.6
1306	1989 FORD TEMPO FOUR DOOR SEDAN	5.0	14.4	29.3	317.8	107.3	470.9	23.8
1858	1993 FORD TEMPO FOUR DOOR SEDAN	5.0	20.2	35	319.4	94.9	537.7	24.3
2006	1994 FORD TEMPO FOUR DOOR SEDAN	5.0	14.7	29.3	310.3	102.6	469.3	23.4
		Front Av	verages		280	83	471.9	22.5
		Front Mi	nimums		214.8	52.6	438.6	20
		Front Ma	aximums		319.4	107.3	475.4	24.3
		Front St	andard De	viations	37.9	18.9	18.9	1.3

#### EXPERT VIN DeCoder Version 2.9

The VIN Number is 2B3 HD46R 7 XH 668955 The vehicle should be a 1999 Dodge Passenger Car The Model: Intrepid 4-Door Sedan The 4 passenger vehicle had : Restraint System Active, Driver & Frnt Passenger Air Bags The assembly plant: Bramalea, ONT The OEM engine was: V-6 cylinder with Dual Overhead Cam Engine Displacement/Type = 2.7 L/ 167 cu.in. L4, DOHC Brake Horsepower (SAE) = 200 @ 5800 rpm Torque (SAE) = 190 lb-ft @ 4850 rpm Engine manufacturer = Chrysler The fuel distribution system: Multi-Port Fuel Injection (MFI) Fuel pump/line pressure = 58 psi = Electronic The ignition system was This is a Front Wheel Drive vehicle. The first three characters {2B3} indicates the vehicle was a Dodge Passenger Car made in Canada The fourth character {H} indicates the OEM vehicle had Restraint System Active, Driver & Frnt Passenger Air Bags The fifth and sixth characters {D4} indicate the Model is Intrepid The seventh character  $\{6\}$  indicates the body style is a 4-Door Sedan The eighth character  $\{R\}$  indicates the OEM engine was a 2.7 L/ 167 cu.in. L4, DOHC The 9th Character { the Check Digit } is 7 The calculated Check Digit value is 7 The tenth character  $\{X\}$  indicates the Model Year was 1999 The eleventh character {H} indicates it was made at the assembly plant in Bramalea, ONT The twelveth through the seventeenth characters {668955} is the Serial Number unique to this vehicle. 04-26-2010 S/N:09R-930114VD01201 Reg. User: 4N6XPRT SYSTEMS

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#### PROVIDED BY: 4N6XPRT Systems 8387 University Avenue La Mesa CA 91941

#### 04-26-2010

1999 DODGE INTREPID 4DR SEDAN

CURB WEIGHT: Curb Weight Distribution -	3310 lbs. Front: 64 %		L501 kg. c: 36 %
Gross Vehicle Weight Rating:	4472 lbs.	2	2028 kg.
Number of Tires on Vehicle: Drive Wheels:	4 FRONT		
HORIZONTAL DIMENSIONS			<b></b> .
Total Length Wheelbase:	Inches 204 113	Feet 17.00 9.42	Meters 5.18 2.87
Front Bumper to Front Axle Front Bumper to Front of Front Well Front Bumper to Front of Hood Front Bumper to Base of Windshield Front Bumper to Top of Windshield	45 29 4 47 82	3.75 2.42 0.33 3.92 6.83	1.19
Rear Bumper to Rear Axle Rear Bumper to Rear of Rear Well Rear Bumper to Rear of Trunk Rear Bumper to Base of Rear Window	46 30 5 28	3.83 2.50 0.42 2.33	
WIDTH DIMENSIONS			
Maximum Width Front Track Rear Track	74 62 62	6.17 5.17 5.17	
VERTICAL DIMENSIONS	Inches	Feet	Meters
Height Ground to:	53	4.42	1.35
Front Bumper (Top) Headlight - center Hood - top front Base of windshield	20 24 28 36	1.67 2.00 2.33 3.00	0.51 0.61 0.71 0.91
Rear Bumper - top Trunk - top rear Base of rear window	26 40 40	2.17 3.33 3.33	0.66 1.02 1.02

Reg. To: 4N6XPRT Systems

1999 DODGE INTREPID 4DR SEDAN

Inches Feet Meters						
Front Seat Shoulder Width594.921.50Front Seat to Headliner383.170.97						
Front Leg - seatback to floor (max) 39 3.25 0.99						
FIGHT heg beatback to fitter (max) 55 5.25 0.55						
Rear Seat Shoulder Width 58 4.83 1.47						
Rear Seat to Headliner 38 3.17 0.97						
Rear Leg - seatback to floor (min) 42 3.50 1.07						
Seatbelts: 3pt - front and rear Airbags: FRONT SEAT AIRBAGS						
STEERING DATA						
Truncian (Single (Dispeter)) (00 10 00 10 00						
Turning Circle (Diameter)49241.0012.50Steering Batic:17.00.1						
Steering Ratio: 17.00:1 Wheel Radius: 14 1.17 0.36						
Tire Size (OEM): 205/70R15						
ACCELERATION & BRAKING INFORMATION						
Brake Type: ALL DISC ABS System: ALL WHEEL ABS - OPTIONAL						
Braking, 60 mph -> 0 (Hard pedal, no skid, dry pavement): d = 125 ft t = 2.8 sec. a =-30.9 ft/sec/sec G-force = -(	.96					
ACCELERATION:						
$0 \rightarrow 30$ mph t = 3.5 sec. a = 12.6 ft/sec/sec G-force = (	.39					
0->60 mph t = 8.9 sec. a = 9.9 ft/sec/sec G-force = (						
45 - 55  mph t = 6.6 sec. a = 4.4 ft/sec/sec G-force = (						
Transmission Type: AUTOMATIC						
NOTES:						
Federal Bumper Standard Requirements = 2.5 MPH This vehicles Rated Bumper Strength: 5 mph						

N.S.D.C. = 1998 - 2004

Reg. To: 4N6XPRT Systems

1999 DODGE INTREPID 4DR SEDAN

OTHER INFORMATION				
TIP-OVER STABILITY RATIO = NHTSA Star Rating (calculated)	1.49 STAE ***			
CENTER OF GRAVITY (No Load):				
Inches behind front axle	= 40.68			
Inches in front of rear axle				
Inches from side of vehicle				
Inches from ground	= 20.80			
Inches from front corner				
Inches from rear corner				
Inches from front bumper Inches from rear bumper				
inches from fear sumper	- 110.52			
MOMENTS OF INERTIA APPROXIMATIONS	(No Load):			
YAW MOMENT OF INERTIA		=	2203.30	lb-ft-sec^2
PITCH MOMENT OF INERTIA		=	2127.90	lb-ft-sec^2
ROLL MOMENT OF INERTIA		=	445.80	lb-ft-sec^2
FRONT PROFILE INFORMATION			<i></i>	-
ANGLE FRONT BUMPER TO HOOD FI			= 63.4	
ANGLE FRONT OF HOOD TO WINDS ANGLE FRONT OF HOOD TO WINDS			= 10.5 = 16.4	-
ANGLE FRONT OF HOOD TO WINDSP ANGLE OF WINDSHIELD	IUP IUP		= 10.4 = 23.2	
ANGLE OF STEERING TIRES AT MA	X TURN		= 25.2	-

FIRST APPROXIMATION CRUSH FACTORS:

Speed Equivalent (mph) of Kinetic Energy (KE) used in causing crush or indentation may be evaluated using the following formula, the appropriate Crush Factor (CF), and Maximum Indentation Depth (MID), in feet:

V(mph) = Sqr root of (30 \* CF \* MID)

KE Equivalent Speed (Front/Rear/Side) = 21 CF

Bullet vehicle IMPACT SPEED estimation based on TARGET VEHICLE damage ONLY = 27 CF (Tested for Rear/Side Impact only)

These CF values are based upon analysis of NHTSA Barrier Crash data, and from over 1000 vehicle accidents where independant evaluation of speed was possible. (These are NOT 'A', 'B', 'C', or 'G' values)

The Rear Impact data with more than 2-3 inches of crush damage should be looked at carefully, since some vehicles have very weak trunk & fender strength. Therefore, on some cars, esp. GM, your estimate from the rear crush data may be high by as much as 4-5 mph (on a crush of 18 inches).

Reg. To: 4N6XPRT Systems

# Stiffness Values and Test Data

# Derived from

# NHTSA Crash Test

# # 3098

# **1999 CHRYSLER INTREPID**

Provided By 4N6XPRT StifCalcs™

**Registered to:** 

4N6XPRT SYSTEMS 8387 UNIVERSITY AVENUE LA MESA CA 91941-3842 S/N: 030201SC01301

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# Sister/Clone database reader

## You entered: 1999 DODGE INTREPID

The Sister/Clone Vehicle Year/Model Interchange list indicates the following are Similar Models

Year Range	Make	Model	Body Styles	Wheelbase
1998 - 2004 REMARKS :	DODGE	INTREPID	4D	113,0,0,0,0,
1999 - 2001 REMARKS :	CHRYSLER	LHS	4D	113"
1998 - 2004 REMARKS :	CHRYSLER	CONCORDE	4D	113,0,0,0,0,

The data contained in the database has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. 4N6XPRT Systems has made no changes to this data, and has only provided for distribution of this data free of charge. 4N6XPRT Systems makes no warranties, either express or implied, with respect to this data, its quality, performance, merchantability, or fitness for any particular purpose. The entire risk as to its quality and performance is with the user. In no event will 4N6XPRT Systems be liable for direct, indirect, incidental, or consequential damages resulting from any data presented here, even if 4N6XPRT Systems has been advised of the possibility of such damages. The user must agree to assume full responsibility for any decisions which are based, in whole or in part, upon information obtained by using this data. As previously stated, the data has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. Mr. Anderson does not in any way guarantee the accuracy of the data. Some of the listed similarities are based on his own estimates or memory. Most of the data are pulled from specification tables which may contain inaccuracies of their own. Use common sense - if something seems wrong, check it (and if it is wrong, let him know!).

If you have suggestions, corrections, etc., you should contact Greg Anderson at Scalia Safety Engineering, 521 East Washington Avenue, Suite 200, Madison, WI 53703-2914, (608) 256-0820, FAX (608) 256-0212, E-mail: greganderson@cs.com.

			Test Info	ormatior	า				
Test #	3098	NHTSA Version	# V3	Test Date	1999-06	Contract #		(	00-5001
Contract/Study T	itle 99,	00 TC/NHTSA JC	DINT RESEAR	CH COLLISI	ON TESTS	3			
Test Objective(s)	) FR	ONTAL CRASH							
Test Type RE	SEARCH S	AFETY VEHICLE	TEST	Configu	ration	EHICLE IN	TO BARRI	ER	
		Closing Spee	d 47.28 I	Km/Hr	29 MP	Н			
Impact Angle	0 Offs	et Distance	0 mm	2 inches	Side Impa	ct Point	9999 mr	m0	inches
Test Performer [	TRANSPO	RT CANADA			Te	est Referend	ce #	тс	99-246
Test Track Surfa	ce CONC	RETE Co	ondition DRY	,	Ambier	nt Temperat	ure	21 C	70 F
Data Recorder T	ype OTH	ER	Data Lin	k OTHER		Total N	lumber of	Curves	151
Test Commentar	NO CO	DMMENTS							
		Fix	ed Barrie	r Inform	ation				
Barrier Type R	IGID	Barrier Shape	FLAT BARRI	ER Pole	e Barrier Di	ameter	9999 mm		inches

Barrier Commentary	NO COMMENTS

19	999 CHRYSLER INTREPID	LEFT FRONT SE	AT OCCUPANT
Test # 3098 Vehicle #	1 Location LEFT FRONT S	SEAT Seat Positio	FORWARD OF CENTER POSITION
Type HYBRID III DUMMY	Size Percer	ntile 5 PERCENTIL	E Calibration Method OTHER
Sex F Age 99 Occ	cupant Height 999 mm	0 inches Occ	upant Weight 999 kg 0 pounds
Occupant Manufactuer	FIRST TECHNOLOGY		
Occupant Modification	UNMODIFIED		
Occupant Description	S/N:105		
Occupant Commentary			
Head To		<u>Head</u> Head To	
Windshield Header 30	00 mm <u>11.8</u> inches	Side Header	275 mm 10.8 inches
Windshield 64	46 mm 25.4 inches	Side Window	
Seatback 999	99 mm 0 inches	Side Window	380 mm 15 inches
Neck to Seatback 999	99 mm 0 inches		
First Contact Region (Head)	AIR BAG	Second Contact	t Region (Head) OTHER
Head Injury Criteria (HIC)	397 HIC Lower Time inte	erval (ms) <u>90.2</u> Chest	HIC Upper Time interval (ms) -853
Chest To	-		
Dash 9999	mm 0 inches	Arr	m to Door 142 mm 5.6 inches
Steering Wheel 210	mm 8.3 inches	Hip	o to Door 184 mm 7.2 inches
Seatback 9999	mm 0 inches		
First Contact Region (Chest/	Abdomen) AIR BAG	Second Contact Re	gion (Chest/Abdomen) UNKNOWN
Lap Belt Peak Load	Newtons 0 pounds Force	Shoulder Belt Peak L	oad Newtons 0 pounds Force
	Chest Severity Index		
Thorax Peak Acceleration (g	r's) 9999 Thoraic Trauma I	Index Pe	Ivic Peak Lateral Acceleration (g's)
		Legs	
Knees to Dash 45 mm	n 1.8 inches	Knees to Seat	back 9999 mm 0 inches
First Contact Region (Legs)	DASHPANEL	Second Contact Reg	ion (Legs) UNKNOWN
Left Femur Peak Load 3520	Newtons 791.3 pounds Force	e Right Femur Peak	Load Newtons 0 pounds Force
	1999 CHRYSLER INTREPID	LEFT FRONT SEA	T OCCUPANT
Restraint # 1 3 POIN	NT BELT Mounted	Deployn	nent? NOT APPLICABLE
Restraint Commentary NC	D_COMMENTS		

## **Restraints**

# 1999 CHRYSLER INTREPID LEFT FRONT SEAT OCCUPANT

Restraint #	2 [	AIR BAG	Mounted	Deployment?	DEPLOYED
Restraint Corr	nmentar	y NO_COMMENTS			

1999 CHRYSLER INTREPID RIGHT	FRONT SEAT OCCUPANT
Test #   3098   Vehicle #   1   Location   RIGHT FRONT SEAT	Seat Position FORWARD OF CENTER POSITION
Type     HYBRID III DUMMY     Size Percentile     5	PERCENTILE Calibration Method OTHER
Sex F Age 99 Occupant Height 999 mm 0 in	ches Occupant Weight 999 kg 0 pounds
Occupant Manufactuer FIRST TECHNOLOGY	
Occupant Modification UNMODIFIED	
Occupant Description S/N:104	
Occupant Commentary	
Head To Head	id To
Windshield Header 280 mm 11.8 inches Si	de Header 270 mm 10.8 inches
Windshield 646 mm 25.4 inches	de Window 380 mm 15 inches
Seatback 9999 mm 0 inches	de Window 380 mm 15 inches
Neck to Seatback 99999 mm 0 inches	
First Contact Region (Head) AIR BAG Se	econd Contact Region (Head) OTHER
Head Injury Criteria (HIC) 291 HIC Lower Time interval (ms Chest	HIC Upper Time interval (ms) -3334
Chest To	
Dash 412 mm 0 inches	Arm to Door 194 mm 5.6 inches
Steering Wheel 9999 mm 8.3 inches	Hip to Door 205 mm 7.2 inches
Seatback 9999 mm 0 inches	
First Contact Region (Chest/Abdomen) AIR BAG Secon	nd Contact Region (Chest/Abdomen) UNKNOWN
Lap Belt Peak Load Newtons 0 pounds Force Shoulde	er Belt Peak Load Newtons 0 pounds Force
Chest Severity Index	
Thorax Peak Acceleration (g's) 9999 Thoraic Trauma Index	Pelvic Peak Lateral Acceleration (g's)
Legs	
Knees to Dash 87 mm 1.8 inches	Knees to Seatback 9999 mm 0 inches
First Contact Region (Legs) DASHPANEL Second	Contact Region (Legs) UNKNOWN
Left Femur Peak Load 3682 Newtons 791.3 pounds Force Right	t Femur Peak Load Newtons 0 pounds Force
1999 CHRYSLER INTREPID RIGHT	FRONT SEAT OCCUPANT
Restraint # 1 3 POINT BELT Mounted	Deployment? NOT APPLICABLE
Restraint Commentary NO_COMMENTS	

## **Restraints**

# 1999 CHRYSLER INTREPID RIGHT FRONT SEAT OCCUPANT

Restraint #	2 [	AIR BAG	Mounted	Deployment?	DEPLOYED
Restraint Corr	nmentar	y NO_COMMENTS			

1999 CHRYSLER INTREPID RIGHT R	EAR SEAT OCCUPANT
Test #     3098     Vehicle #     1     Location     RIGHT REAR SEAT     Set	eat Position NON-ADJUSTABLE SEAT
Type HYBRID III DUMMY Size Percentile OTHE	ER Calibration Method OTHER
Sex N Age 99 Occupant Height 999 mm 0 inche	s Occupant Weight 999 kg 0 pounds
Occupant Manufactuer FIRST TECHNOLOGY	
Occupant Modification UNMODIFIED	
Occupant Description S/N:107	
Occupant Commentary	
Head To Head To	)
Windshield Header 9999 mm 11.8 inches Side H	leader 9999 mm 10.8 inches
Windshield 9999 mm 25.4 inches	
Side v Seatback 9999 mm 0 inches	Vindow 9999 mm 15 inches
Neck to Seatback 9999 mm 0 inches	
First Contact Region (Head) SEAT BACK Secon	d Contact Region (Head) UNKNOWN
Head Injury Criteria (HIC) 707 HIC Lower Time interval (ms) Chest	113 HIC Upper Time interval (ms) 0
Chest To	
Dash 9999 mm 0 inches	Arm to Door 9999 mm 5.6 inches
Steering Wheel 9999 mm 8.3 inches	Hip to Door 9999 mm 7.2 inches
Seatback 9999 mm 0 inches	
First Contact Region (Chest/Abdomen) UNKNOWN Second Co	ontact Region (Chest/Abdomen) UNKNOWN
Lap Belt Peak Load Newtons 0 pounds Force Shoulder Be	elt Peak Load Newtons 0 pounds Force
Chest Severity Index	
Thorax Peak Acceleration (g's) 9999 Thoraic Trauma Index	Pelvic Peak Lateral Acceleration (g's)
Legs	
Knees to Dash 9999 mm 1.8 inches Knee	es to Seatback 9999 mm 0 inches
First Contact Region (Legs) UNKNOWN Second Co	ntact Region (Legs) UNKNOWN
Left Femur Peak Load 9999 Newtons 791.3 pounds Force Right Fer	mur Peak Load Newtons 0 pounds Force
1999 CHRYSLER INTREPID RIGHT RE	EAR SEAT OCCUPANT
Restraint # 1 CHILD RESTRAINT Mounted	Deployment? NOT APPLICABLE
Restraint Commentary NO_COMMENTS	

## **Restraints**

1999 CHRYSLER INTREPID RIGHT REAR SEAT OCCUPANT

Restraint #	2	SEAT BACK	Mounted	Deployment?	NOT APPLICABLE
Restraint Cor	nmentai	ry NO COMMENTS			

199	99 CHRYSLER INTREPID	LEFT REAR SE	AT OCCUPANT
Test # 3098 Vehicle #	1 Location LEFT REAR SE	AT Seat Positio	NON-ADJUSTABLE SEAT
Type CHILD DUMMY	Size Percer	other other	Calibration Method OTHER
Sex N Age 99 Occu	ipant Height 999 mm	0 inches Occi	upant Weight 999 kg 0 pounds
Occupant Manufactuer			
Occupant Modification	UNMODIFIED		
Occupant Description	S/N:KCA 9507		
Occupant Commentary			
Head To	<u> </u>	Head Head To	
Windshield Header 9999	mm 11.8 inches	Side Header	9999 mm 10.8 inches
Windshield 9999	mm 25.4 inches	Side Window	9999 mm 15 inches
Seatback 9999	mm 0 inches	Side Willdow	9999 mm 15 inches
Neck to Seatback 99999	mm 0 inches		
First Contact Region (Head)	SEAT BACK	Second Contact	Region (Head) UNKNOWN
Head Injury Criteria (HIC)	99999 HIC Lower Time inte	rval (ms) Chest	HIC Upper Time interval (ms) 0
Chest To	-		
Dash 9999	mm 0 inches	Arr	m to Door 99999 mm 5.6 inches
Steering Wheel 9999	mm 8.3 inches	Hip	o to Door 99999 mm 7.2 inches
Seatback 9999	mm 0 inches		
First Contact Region (Chest/Al	bdomen) UNKNOWN	Second Contact Re	gion (Chest/Abdomen) UNKNOWN
Lap Belt Peak Load	ewtons 0 pounds Force	Shoulder Belt Peak Lo	oad Newtons 0 pounds Force
	Chest Severity Index		
Thorax Peak Acceleration (g's)	-	ndex Pe	Ivic Peak Lateral Acceleration (g's)
		<u>Legs</u>	
Knees to Dash 9999 mm	1.8 inches	Knees to Seat	back 9999 mm 0 inches
First Contact Region (Legs)	UNKNOWN	Second Contact Reg	ion (Legs) UNKNOWN
Left Femur Peak Load 9999	Newtons 791.3 pounds Force	e Right Femur Peak	Load Newtons 0 pounds Force
	1999 CHRYSLER INTREPIE	D LEFT REAR SEA	T OCCUPANT
Restraint # 1 CHILD R	RESTRAINT Mounted	Deployn	nent? NOT APPLICABLE
Restraint Commentary NO_	COMMENTS		

## **Restraints**

1999 CHRYSLER INTREPID LEFT REAR SEAT OCCUPANT

Restraint #	2	SEAT BACK	Mounted	Deployment?	NOT APPLICABLE
Restraint Cor	nmentai	NO COMMENTS			

# 4N6XPRT StifCalcs™ Vehicle 1 - 1999 CHRYSLER INTREPID

Test # 3098 NH	ITSA Test Vehicle Nu	mber		VIN 2C3HH46R1	XH612341
Year 1999 Make CHRYS	LER Model IN	TREPID	I	Body FOUR DOOR SE	DAN
Vehicle Modification Indicatior	Vehicle M	odification(s) D	escription		
PRODUCTION VEHICLE	UNMODI		·		
Post-test Steering Column Shear Ca	apsule Seperation	Steering	Column Collaps	e Mechanism	
NOT APPLICABLE		NOT	APPLICABLE		
Vehicle Commentary NO COMM	IENTS				
Vehicle Length	5188 mm 204.3	inches	Vehicle Te	st Weight 1743 KG	3842 pounds
Vehicle Wheelbase	2870 mm 113	inches	Veh	icle Width 1890 mm	74.4 inches
CG behind front axle	1169 mm 46	inches			14.4
Center of Damage to CG Axis	0 mm 0	inches <b>T</b> o	otal Length of In	dentation 1601 mm	63 inches
		Max	imum Static Cru	ush Depth 99999 mm	0 inches
Vehicle Damage Index 99999999	Principal Direction	of Force	0 Pre-Impa	act Speed 47.28 kph	29.4 mph
Damage Profile Distance	Measurements	Crush fro	m Pro & Pos	t Test Damage Me	asurements
(Measured Left-to-Right, R			Pre-Test	Post-Test	Crush-Depth
DPD 1 162 mm 6.4	inches	-	197.5 inches	186 inches	11.5 inches
	Left Bu	mper Corner	5016 mm	4724 mm	292 mm
DPD 2 360 mm 14.2	inches				
DPD 3 415 mm 16.3	inches		204.3 inches	192.8 inches	11.4 inches
	_	Centerline	201.0		
DPD 4 410 mm 16.1	inches		5188 mm	4898 mm	290 mm
DPD 5 363 mm 14.3	inches	-	198 inches	186.6 inches	11.3 inches
DPD 6 146 mm 5.7	- -	mper Corner	5028 mm	4740 mm	288 mm
Bumper Engagement		till Engagemer		A-pillar Enga	-
		ide Impact Onl		(Side Impac NOT APPL	
<u>_</u>					
Moving Test Cart Angle		g Test Cart / V Crabbed Angle		Moving Tes Vehicle Orienta	
999				999	
Magnitude of the Tilt-Angle Measured between surface if a Rollover Test Cart and the Ground		f the Crabbed Ang om Logitudial Vecto Vector of Vehicle		Magnitude of the Angle the vehicle Orientation the Test Ca	Measured between and the Direction of

# Vehicle 1 - 1999 CHRYSLER INTREPID

Test #	3098		NHTSA T	est Vehicle Nu	mber			VIN	2C3H	H46R1	XH6123	341
Year	1999	Make CHF	RYSLER	Model IN	TREPID			Body	FOUR DC	OR SE	DAN	
Vehicle	Modification I	ndicatior		Vehicle M	lodificatior	n(s) Desci	ription					
PRODU	JCTION VEH	IICLE		UNMODI	IFIED	. ,	•					
Post-tes	t Steering Co	lumn Shea	ar Capsule	Seperation	Ste	ering Col	umn Colla	pse Mech	nanism			
NOT A	PPLICABLE				١	NOT APP	LICABLE					
Vehicle	Commentary	NO CC	OMMENTS									
	Vehic	cle Length	5188	mm 204.3	inches		Vehicle <sup>-</sup>	Test Wei	ght 174	13 KG	3842	pounds
	Vehicle W	/heelbase	2870	mm 113	inches		V	ehicle Wi	idth 190	90 mm	74 4	inches
	CG behind	front axle	1169	mm 46	inches		•				/4.4	mones
Center	of Damage to	o CG Axis	0	mm 0	inches	Total	Length of	Indentat	t <b>ion</b> 160	)1 mm	63	inches
						Maximu	m Static C	Crush De	pth 9999	99 mm	0	inches
Vehicle	Damage Inde	ex 9999	9999 Prin	cipal Direction	of Force	0	Pre-Im	pact Spe	eed 47.2	28 kph	29.4	. mph
				Pre & Pos	st Test N	Measure	ements					
(	Measurments ar	e taken in a l	ogitudinal dire	ection. Except for E				aken from ti	he Rear Vehi	cle Surfa	ace forwar	.d
(	Left		ogitaania are		Centerli					ight Si		u
Pre	-Test	Post	-Test	Pre-Test		Post-T	est	Pre	e-Test	0	Post-	Test
mm	inches	mm	inches	mm inc	hes m	nm iı	nches	mm	inche	s m	nm	inches
				Length	of Vehicle	e at Cente	erline					
					204.3	4898	erline 192.8					
				5188	204.3 Engine E	4898 Block	192.8					
5010	6 197.5	4724	186	5188       364	204.3	4898 Block 365	192.8	502	28 19	8	4740	186.6
5010	6 197.5	4724	186	5188 364 Fro	204.3 Engine E 14.3	4898 Block 365 er Corner	192.8	502	28 19	8	4740	186.6
				5188 364 Fro	204.3 Engine E 14.3 ont Bumpe Front of E 183	4898 Block 365 er Corner Engine 4437	192.8					
5010 3894		4724	186	5188 364 Fro 4648	204.3 Engine E 14.3 ont Bumpe Front of E 183 Firew	4898 Block 365 er Corner Engine 4437 all	192.8         14.4         174.7	502 376			4740 3663	186.6
				5188 364 Fro 4648	204.3 Engine E 14.3 ont Bumpe Front of E 183	4898 Block 365 er Corner Engine 4437	192.8					
	4 153.3			5188 364 Fro 4648 4192	204.3 Engine E 14.3 ont Bumpe Front of E 183 Firew	4898 Block 365 er Corner Engine 4437 rall 4129	192.8         14.4         174.7         162.6		51 148	1		
3894	4 153.3 8 143.2	3793	149.3	5188 364 Fro 4648 4192 Upper	204.3 Engine E 14.3 ont Bumpe Front of E 183 Firew 174.7	4898 Block 365 er Corner Engine 4437 rall 4129 Edge of D	192.8 14.4 174.7 162.6	376	61 148 42 143	1	3663	144.2
3894	4 153.3 8 143.2 4 141.9	3793	149.3	5188 364 Fro 4648 4192 Upper Lower	204.3 Engine E 14.3 ont Bumpe Front of E 183 Firew 174.7	4898 Block 365 er Corner Engine 4437 rall 4129 Edge of D Edge of D	192.8 14.4 174.7 162.6	376	61     148       42     143       17     142	1 [ 4 [ 4 [	3663 3641	144.2
3894 3634 3604	<ul> <li>4 153.3</li> <li>8 143.2</li> <li>4 141.9</li> <li>7 138.5</li> </ul>	3793 3635 3602	149.3 143.1 141.8	5188 364 Fro 4648 4192 Upper Lower E	204.3 Engine E 14.3 ont Bumpe Front of E 183 Firew 174.7	4898 Block 365 er Corner Engine 4437 rall 4129 Edge of D Edge of D	192.8 14.4 174.7 162.6 Door	376 364 361	61     148       42     143       17     142       24     138		3663 3641 3613	144.2 143.3 142.2
3894 3634 3604 351	4       153.3         8       143.2         4       141.9         7       138.5         9       100.4	3793 3635 3602 3510	149.3 143.1 141.8 138.2	5188 364 Fro 4648 4192 Upper Lower E Uppor Lower	204.3 Engine E 14.3 ont Bumpe Front of E 183 Firew 174.7 Leading E Sottom of er Trailing E	4898 Block 365 er Corner Engine 4437 rall 4129 Edge of D Edge of D 'A' Post I Edge of D	192.8 14.4 174.7 162.6 Door Door	376 364 361 352	61     148       42     143       17     142       24     138       49     100	1 [ 4 [ 4 [ 7 [ 4 [	3663 3641 3613 3516	144.2 143.3 142.2 138.4
3894 3634 3604 351 2544	4       153.3         8       143.2         4       141.9         7       138.5         9       100.4	3793 3635 3602 3510 2546	149.3 143.1 141.8 138.2 100.2	5188 364 4648 4192 Upper Lower E Upper	204.3 Engine E 14.3 ont Bumpe Front of E 183 Firew 174.7 Leading E Bottom of f er Trailing E Steering C	4898 Block 365 er Corner Engine 4437 rall 4129 Edge of D Edge of D Column	192.8 14.4 174.7 162.6 Door Door Door	376 364 361 352 254	61     148       42     143       17     142       24     138       49     100	1 [ 4 [ 4 [ 7 [ 4 [	3663 3641 3613 3516 2547	144.2 143.3 142.2 138.4 100.3
3894 3634 3604 351 2544	4       153.3         8       143.2         4       141.9         7       138.5         9       100.4	3793 3635 3602 3510 2546	149.3 143.1 141.8 138.2 100.2 100.4	5188 364 4648 4192 Upper Lower E Upper Lower 3110	204.3 Engine E 14.3 ont Bumpe Front of E 183 Firew 174.7 Leading E Leading E Sottom of er Trailing Steering C 122.4	4898 Block 365 er Corner Engine 4437 all 4129 Edge of D Edge of D Column 3115	192.8 14.4 174.7 162.6 Door Door Door 000r	376 364 361 352 254 255	61     148       42     143       17     142       24     138       49     100	1 [ 4 [ 4 [ 7 [ 4 [	3663 3641 3613 3516 2547	144.2 143.3 142.2 138.4 100.3
3894 3634 3604 351 2544	4       153.3         8       143.2         4       141.9         7       138.5         9       100.4	3793 3635 3602 3510 2546	149.3 143.1 141.8 138.2 100.2 100.4	5188 364 Fro 4648 4192 Upper Lower E Uppe Lower 3110 nter of Steering	204.3 Engine E 14.3 ont Bumpe Front of E 183 Firew 174.7 Leading E Bottom of <sup>1</sup> er Trailing E Steering C 122.4 g Column	4898 Block 365 er Corner Engine 4437 rall 4129 Edge of D Edge of D Column 3115 to 'A' Post	192.8         14.4         174.7         162.6         0oor         0oor	376 364 361 352 254 255	61     148       42     143       17     142       24     138       49     100	1 [ 4 [ 4 [ 7 [ 4 [	3663 3641 3613 3516 2547	144.2 143.3 142.2 138.4 100.3
3894 3634 3604 351 2544	4       153.3         8       143.2         4       141.9         7       138.5         9       100.4	3793 3635 3602 3510 2546	149.3 143.1 141.8 138.2 100.2 100.4 Ce	5188 364 4648 4192 Upper Lower E Upper Lower 3110	204.3 Engine E 14.3 ont Bumpe Front of E 183 Firew 174.7 • Leading E Column trailing E Steering C 122.4 g Column 15.7	4898 Block 365 er Corner Engine 4437 rall 4129 Edge of D Edge of D Edge of D Column 3115 to 'A' Pos 399	192.8 14.4 174.7 162.6 Door Door Door Door 000r 000r 000r 000r	376 364 361 352 254 255 tal)	61     148       42     143       17     142       24     138       49     100	1 [ 4 [ 4 [ 7 [ 4 [	3663 3641 3613 3516 2547	144.2 143.3 142.2 138.4 100.3

# 4N6XPRT StifCalcs™ 1999 CHRYSLER INTREPID

## NHTSA Crash Test - # 3098 - Front Impact

{ Pre/Post Crush Depths - Vehicle Width - Closing Speed - Trapezoidal Average}

Vehicle Test Weight = 3842 pounds Vehicle Test Speed = 29.4 mph Test crush width = 74.4 inches

#### Pre/Post Collision Crush Depths (inches)

	Left Bumper Corner	Centerline	Right Bumper Corner	
(Driver Side)	11.5	11.4	11.3	(Pass. Side)

Minimum Crush = 11.3 inches		A	В	G			
Using a Rated No Damage Speed of	2.5 mph	246.2	234.2	129.4			
Using a Rated No Damage Speed of	5 mph	446.6	192.7	517.5			
Using a Rated No Damage Speed of	7.5 mph	601.1	155.2	1164.3			
Using a Rated No Damage Speed of	10 mph	709.9	121.8	2069.8			
Average Crush = 11.4 inches							
Using a Rated No Damage Speed of	2.5 mph	244	230.1	129.4			
Using a Rated No Damage Speed of	5 mph	442.6	189.3	517.5			
Using a Rated No Damage Speed of	7.5 mph	595.9	152.5	1164.3			
Using a Rated No Damage Speed of	10 mph	703.7	119.6	2069.8			
Maximum Crush = 11.5 inches							
Using a Rated No Damage Speed of	2.5 mph	241.9	226.2	129.4			
Using a Rated No Damage Speed of	5 mph	438.8	186	517.5			
Using a Rated No Damage Speed of	7.5 mph	590.7	149.8	1164.3			
Using a Rated No Damage Speed of	10 mph	697.6	117.6	2069.8			

Rated No Damage Speed = Impact speed with a barrier resulting in no permenant vehicle deformation

A = Maximum force per inch of damage without permenant damage, Ib/in

**Calculated Stiffness Coefficients** 

 $B = Crush resistance per inch of damage width, Ib/in^2$ 

G = Energy dissipated without permenant damage, lb

Normal "Rated No Damage Speed" is 2.5 or 5 mph. Some specific vehicles may have a higher rating

#### 

### 4N6XPRT System's First Approximation Crush Factor (CF)

Speed from Crush calculation using a generic CF of 21 as suggested in Expert AutoStats Impact Speed (mph) = SQR(30 \* CF \* max crush in feet)

Crush Factor	Maximum Crush (inches)	Calculated Impact Speed (mph)	Calculated Error (mph)	Calculated Error (%)
21	11.5	24.6	-4.8	-16.3%
	4N6XPRT Systems S	pecific Crush Factor (CF s	pecific to this test) = 30	

CF = (mph \* mph) / (30 \* max crush in feet), dimensionless

4N6XPRT Systems Specific CF is calculated based upon the data reported and is specific to this vehicle and this test

# 4N6XPRT StifCalcs™ 1999 CHRYSLER INTREPID

## NHTSA Crash Test - # 3098 - Front Impact

{ Pre/Post Crush Depths - Indentation Length - Closing Speed - Trapezoidal Average}

Vehicle Test Weight = 3842 pounds Vehicle Test Speed = 29.4 mph Test crush width = 63 inches

#### Pre/Post Collision Crush Depths (inches)

	Left Bumper Corner	Centerline	Right Bumper Corner	
(Driver Side)	11.5	11.4	11.3	(Pass. Side)

Minimum Crush = 11.3 inches		<u>A</u>	<u> </u>	G			
Using a Rated No Damage Speed of	2.5 mph	290.6	276.5	152.7			
Using a Rated No Damage Speed of	5 mph	527.2	227.5	610.9			
Using a Rated No Damage Speed of	7.5 mph	709.7	183.2	1374.5			
Using a Rated No Damage Speed of	10 mph	838.1	143.7	2443.5			
Average Crush = 11.4 inches							
Using a Rated No Damage Speed of	2.5 mph	288.1	271.7	152.7			
Using a Rated No Damage Speed of	5 mph	522.5	223.5	610.9			
Using a Rated No Damage Speed of	7.5 mph	703.4	180	1374.5			
Using a Rated No Damage Speed of	10 mph	830.7	141.2	2443.5			
Maximum Crush = 11.5 inches							
Using a Rated No Damage Speed of	2.5 mph	285.6	267	152.7			
Using a Rated No Damage Speed of	5 mph	518	219.6	610.9			
Using a Rated No Damage Speed of	7.5 mph	697.3	176.9	1374.5			
Using a Rated No Damage Speed of	10 mph	823.5	138.8	2443.5			

Rated No Damage Speed = Impact speed with a barrier resulting in no permenant vehicle deformation

A = Maximum force per inch of damage without permenant damage, Ib/in

**Calculated Stiffness Coefficients** 

 $B = Crush resistance per inch of damage width, Ib/in^2$ 

G = Energy dissipated without permenant damage, lb

Normal "Rated No Damage Speed" is 2.5 or 5 mph. Some specific vehicles may have a higher rating

#### 

### 4N6XPRT System's First Approximation Crush Factor (CF)

Speed from Crush calculation using a generic CF of 21 as suggested in Expert AutoStats Impact Speed (mph) = SQR(30 \* CF \* max crush in feet)

Crush Factor	Maximum Crush (inches)	Calculated Impact Speed (mph)	Calculated Error (mph)	Calculated Error (%)
21	11.5	24.6	-4.8	-16.3%
	4N6XPRT Systems S	pecific Crush Factor (CF s	pecific to this test) = 30	

CF = (mph \* mph) / (30 \* max crush in feet), dimensionless

4N6XPRT Systems Specific CF is calculated based upon the data reported and is specific to this vehicle and this test

### **Available Test Results**

Frontal Impact Test Summary

## **Report Filter Settings**

Year Range : 1998 - 2004

Make : DODGE

Model : INTREPID

Test Number	Vehicle Info	No Damage	Average Crush	Closing Speed		icle Width less Values		Crush Factor
		Speed (mph)	(inch)	(mph)	Α	В	G	(Average Crush)
Test Typ	pe : Front							
3005	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	16.9	35	432.4	153.7	608.2	29
3098	1999 CHRYSLER INTREPID FOUR DOOR SEDAN	5.0	13.4	29.4	377.2	137.5	517.5	25.8
3116	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	10.3	30	477.7	231.4	493	34.9
3118	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	13.8	30	363.1	131.9	499.6	26.2
3122	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	9.8	25.1	409	168	498.1	25.7
3126	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	16.3	30	325.7	99.7	531.8	22
3147	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	9.6	24.9	427.8	177.6	515.4	25.9
3262	2000 CHRYSLER LHS FOUR DOOR SEDAN	5.0	18	35.1	358.6	119.9	536.5	27.4
3472	2001 CHRYSLER LHS FOUR DOOR SEDAN	5.0	22.3	35	291.9	78.5	543	22
4799	2004 DODGE INTREPID FOUR DOOR SEDAN	5.0	24.9	35.3	241.2	58.6	495.9	20
5182	2004 CHRYSLER CONCORDE FOUR DOOR SEDAN	5.0	16.3	29.5	408.7	123	679	21.4
		Front Averages			373.9	134.5	519.7	25.5
		Front M	linimums		241.2	58.6	496.4	20
		Front M	laximums		477.7	231.4	493.1	34.9

**Front Standard Deviations** 

68.2

48.2

69.7

4.2

## **Available Test Results**

Frontal Impact Test Summary

## **Report Filter Settings**

Year Range : 1998 - 2004

Make : DODGE

Model : INTREPID

Test Number	Vehicle Info	No Damage Speed (mph)	Max Crush (inch)	Closing Speed (mph)		icle Width ness Values B	G	Crush Factor (Max Crush)
Test Type : Front								
3005	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	19.9	35	366.7	110.6	608.2	24.6
3098	1999 CHRYSLER INTREPID FOUR DOOR SEDAN	5.0	16.3	29.4	309.8	92.8	517.5	21.2
3114	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	20.7	35.1	290.3	84.4	499.4	23.8
3116	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	19.3	30	255.4	66.2	493	18.7
3117	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	18.1	29.8	281.5	77.1	513.6	19.6
3118	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	16.9	30	295.6	87.5	499.6	21.3
3121	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	25.5	35.2	237.4	56.2	501.1	19.4
3122	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	15.4	25.1	260	67.9	498.1	16.4
3126	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	19.3	30	275.6	71.4	531.8	18.7
3143	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	17.9	35.1	343.8	115.5	511.5	27.5
3144	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	14.9	30	343.2	115.2	511.3	24.2
3147	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	12	24.9	340.6	112.5	515.4	20.6
3182	1999 CHRYSLER INTREPID FOUR DOOR SEDAN	5.0	10.4	25.3	398.8	155.7	510.8	24.6
3190	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	20.6	30.1	243	59.2	498.5	17.6
3198	1999 DODGE INTREPID FOUR DOOR SEDAN	5.0	15.7	35.1	383.7	147.1	500.3	31.4
3262	2000 CHRYSLER LHS FOUR DOOR SEDAN	5.0	21.7	35.1	297.6	82.6	536.5	22.7
3472	2001 CHRYSLER LHS FOUR DOOR SEDAN	5.0	25.9	35	251.5	58.3	543	18.9
4799	2004 DODGE INTREPID FOUR DOOR SEDAN	5.0	27	35.3	222.2	49.8	495.9	18.4
5182	2004 CHRYSLER CONCORDE FOUR DOOR SEDAN	5.0	19.4	29.5	343	86.6	679	17.9
		Front Averages			302.1	89.3	511	21.4
		Front Mi	nimums		222.2	49.8	495.7	16.4
			aximums		398.8 52	155.7	510.7	31.4
		Front St	Front Standard Deviations			30	49.7	3.8

EXPERT VIN DeCoder Version 2.9 The VIN Number is 1FA CP50U 9 NG 286444 The vehicle should be a 1992 Ford Passenger Car The model: Taurus 4-door Sedan L The assembly plant: Chicago, IL. The 6 passenger vehicle had : Manual Seatbelts + Driver Air Bag The OEM engine was: V-6 cylinder with Overhead Cam Engine Displacement/Type = 3.0 L/ 181 cu.in. V6 OHV Brake Horsepower (SAE) = 155 @ 4900 rpm = 185 lb-ft at 3950 rpm Torque (SAE) Engine manufacturer = Ford The fuel distribution system: Sequential Fuel Injection (SFI) Fuel pump/line pressure = 26-45 psi The ignition system = electronic This is a Front Wheel Drive vehicle. The first three characters {1, F, A} indicates that the vehicle was a Ford made in the U.S.A. The fourth character {C} indicates the vehicle had Manual Seatbelts + Driver Air Bag The fifth though seventh character {P50} indicates a Taurus 4-door Sedan L The eighth character {U} indicates the OEM engine : 3.0 L/ 181 cu.in. V6 OHV The 9th Character { the Check Digit } is 9 The calculated Check Digit value is The tenth character  $\{N\}$  indicates the Model Year was 1992 The eleventh character {G} indicates it was made at the assembly plant in Chicago, IL. The twelveth through the seventeenth characters { 286444 } is the Serial Number unique to this vehicle. 04-26-2010 S/N:09R-930114VD01201

Reg. User: 4N6XPRT SYSTEMS

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#### PROVIDED BY: 4N6XPRT Systems 8387 University Avenue La Mesa CA 91941

#### 04-26-2010

#### 1992 FORD TAURUS 3.8L MSP POLICE PACKAGE 4DR SEDAN

CURB WEIGHT: Curb Weight Distribution -	3339 lbs. Front: 65 %		1515 kg. r: 35 %
Gross Vehicle Weight Rating:	lbs.		kg.
Number of Tires on Vehicle: Drive Wheels:	4 FRONT		
HORIZONTAL DIMENSIONS			
	Inches	Feet	
Total Length	192	16.00	4.88
Wheelbase:	106	8.83	2.69
Front Bumper to Front Axle	42	3.50	1.07
Front Bumper to Front of Front Well		2.08	0.63
Front Bumper to Front of Hood	3	0.25	0.08
Front Bumper to Base of Windshield	55	4.58	1.40
Front Bumper to Top of Windshield	80	6.67	2.03
Rear Bumper to Rear Axle	44	3.67	1.12
Rear Bumper to Rear of Rear Well	29	2.42	0.74
Rear Bumper to Rear of Trunk	4	0.33	0.10
Rear Bumper to Base of Rear Window	26	2.17	0.66
WIDTH DIMENSIONS			
Maximum Width	71	5.92	1.80
Front Track	62	5.17	1.57
Rear Track	61	5.08	1.55
VERTICAL DIMENSIONS			
	Inches	Feet	Meters
Height Ground to:	54	4.50	1.37
	20	1 67	0 51
Front Bumper (Top)	20	1.67	0.51
Headlight - center	25	2.08	0.63
Hood - top front	28	2.33	0.71
Base of windshield	39	3.25	0.99
Rear Bumper - top	23	1.92	
Trunk - top rear	38	3.17	
Base of rear window	40	3.33	1.02

Reg. To: 4N6XPRT Systems

#### EXPERT AUTOSTATS

1992 FORD TAURUS 3.8L MSP POLICE PACKAGE 4DR SEDAN

INTERIOR DIMENSIONS			
Front Seat Shoulder Width	Inches 58	Feet	
Front Seat to Headliner	38	4.03	1.47 0.97
Front Leg - seatback to floor (		3.50	1.07
(			
Rear Seat Shoulder Width	58	4.83	1.47
Rear Seat to Headliner	38	3.17	
Rear Leg – seatback to floor (m	in) 38	3.17	0.97
Seatbelts: 3pt - front and rear Airbags: DRIVER SIDE AIRBAGS			
STEERING DATA			
Turning Circle (Diameter)	468	39.00	11.89
Steering Ratio: 16.00		55.00	11.00
Wheel Radius:	12	1.00	0.30
Tire Size (OEM): P215/	70R14		
ACCELERATION & BRAKING INFORMATION			
Brake Type: ALL DISC			
ABS System: ABS			
Braking, 60 mph -> 0 (Hard peda d = 156 ft t = 3.6 sec.			
ACCELERATION:			
0 -> 30  mph t = 3.4  sec.	a = 12.9  ft/gap	/sec C-f	orge = 0.40
0->60  mph t = 10.1 sec.			
45 ->65 mph t = 5.6 sec.			
		,	
Transmission Type:	4spd AUTOMATIC		
NOTES:			
- 1 1 1 1 -		0 5	
Federal Bumper Standard Req This vehicles Rated Bumper		5 mph	
THIS VEHICLES Rated Bumper	SCI Englis	5 mpn	

N.S.D.C. = 1992 - 1992

Reg. To: 4N6XPRT Systems

S/N:10R-930512AQ03201

1992 FORD TAURUS 3.8L MSP POLICE PACKAGE 4DR SEDAN OTHER INFORMATION TIP-OVER STABILITY RATIO = 1.45 STABLE NHTSA Star Rating (calculated) \*\*\*\* CENTER OF GRAVITY (No Load): Inches behind front axle = 37.10 Inches in front of rear axle = 68.90 Inches from side of vehicle = 35.50 Inches from ground = 21.20 Inches from front corner= 86.70Inches from rear corner= 118.35Inches from front bumper= 79.10Inches from rear bumper= 112.90 MOMENTS OF INERTIA APPROXIMATIONS (No Load): = 2233.17 lb-ft-sec^2 YAW MOMENT OF INERTIA PITCH MOMENT OF INERTIA 2156.61 lb-ft-sec^2 = 451.02 lb-ft-sec^2 ROLL MOMENT OF INERTIA = FRONT PROFILE INFORMATION = 69.4 ANGLE FRONT BUMPER TO HOOD FRONT deg = 11.9 ANGLE FRONT OF HOOD TO WINDSHIELD BASE deg ANGLE FRONT OF HOOD TO WINDSHIELD TOP = 17.3 deg ANGLE OF WINDSHIELD = 27.5 deg ANGLE OF STEERING TIRES AT MAX TURN deg = 26.0

FIRST APPROXIMATION CRUSH FACTORS:

Speed Equivalent (mph) of Kinetic Energy (KE) used in causing crush or indentation may be evaluated using the following formula, the appropriate Crush Factor (CF), and Maximum Indentation Depth (MID), in feet:

V(mph) = Sqr root of (30 \* CF \* MID)

KE Equivalent Speed (Front/Rear/Side) = 21 CF

Bullet vehicle IMPACT SPEED estimation based on TARGET VEHICLE damage ONLY = 27 CF (Tested for Rear/Side Impact only)

These CF values are based upon analysis of NHTSA Barrier Crash data, and from over 1000 vehicle accidents where independant evaluation of speed was possible. (These are NOT 'A', 'B', 'C', or 'G' values)

The Rear Impact data with more than 2-3 inches of crush damage should be looked at carefully, since some vehicles have very weak trunk & fender strength. Therefore, on some cars, esp. GM, your estimate from the rear crush data may be high by as much as 4-5 mph (on a crush of 18 inches).

Reg. To: 4N6XPRT Systems

S/N:10R-930512AQ03201

# Stiffness Values and Test Data

## Derived from

NHTSA Crash Test

## # 1973

## **1993 FORD TAURUS**

Provided By 4N6XPRT StifCalcs™

**Registered to:** 

4N6XPRT SYSTEMS 8387 UNIVERSITY AVENUE LA MESA CA 91941-3842 S/N: 030201SC01301

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## Sister/Clone database reader

You entered: 1992 FORD TAURUS

The Sister/Clone Vehicle Year/Model Interchange list indicates the following are Similar Models

Year Range	Make	Model	Body Styles	Wheelbase
1992 - 1995 REMARKS :	FORD	TAURUS	4D,SW	106"
1992 - 1995 REMARKS :	MERCURY	SABLE	4D,SW	106"

The data contained in the database has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. 4N6XPRT Systems has made no changes to this data, and has only provided for distribution of this data free of charge. 4N6XPRT Systems makes no warranties, either express or implied, with respect to this data, its quality, performance, merchantability, or fitness for any particular purpose. The entire risk as to its quality and performance is with the user. In no event will 4N6XPRT Systems be liable for direct, indirect, incidental, or consequential damages resulting from any data presented here, even if 4N6XPRT Systems has been advised of the possibility of such damages. The user must agree to assume full responsibility for any decisions which are based, in whole or in part, upon information obtained by using this data. As previously stated, the data has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. Mr. Anderson does not in any way guarantee the accuracy of the data. Some of the listed similarities are based on his own estimates or memory. Most of the data are pulled from specification tables which may contain inaccuracies of their own. Use common sense - if something seems wrong, check it (and if it is wrong, let him know!).

If you have suggestions, corrections, etc., you should contact Greg Anderson at Scalia Safety Engineering, 521 East Washington Avenue, Suite 200, Madison, WI 53703-2914, (608) 256-0820, FAX (608) 256-0212, E-mail: greganderson@cs.com.

Test Information
Test #   1973   NHTSA Version #   2   Test Date   1993-08   Contract #   DTRS57-90-C-00104
Contract/Study Title FRONTAL IMPACT RESEARCH TEST
Test Objective(s) TO OBTAIN VEHICLE CRASHWORTHINESS AND OCCUPANT RESTRAINT PERFORMANC
Test Type TEST PROCEDURE DEVELOPMENT Configuration VEHICLE INTO BARRIER
Closing Speed 48.4 Km/Hr 30 MPH
Impact Angle 0 Offset Distance 0 mm 0 inches Side Impact Point mm 0 inches
Test Performer       CALSPAN         Test Reference #       RUN1306
Test Track Surface CONCRETE Condition DRY Ambient Temperature 25 C 77 F
Data Recorder Type FM TAPE RECORDER Data Link UMBILICAL CABLE Total Number of Curves 115
Test Commentary NO COMMENTS
Fixed Barrier Information
Barrier Type RIGID Barrier Shape LOAD CELL BAR Pole Barrier Diameter mm inches

Barrier Commentary 10\*12\*5 FT. CONCRETE BARRIER WITH THE GFE LOAD CELL ASSEMBLY ATTACHED.

#### 4N6XPRT StifCalcs<sup>™</sup> 1993 FORD TAURUS LEFT FRONT SEAT OCCUPANT Test # 1973 Vehicle # Location | LEFT FRONT SEAT Seat Position CENTER POSITION 1 Type HYBRID III DUMMY Size Percentile **95 PERCENTILE Calibration Method** HYBRID III Sex M Age Occupant Height mm 0 inches Occupant Weight kg 0 pounds Occupant Manufactuer MFG:HUMANOID S/N:001 Occupant Modification NO COMMENTS Occupant Description NO COMMENTS Occupant Commentary Head Head To Head To Side Header Windshield Header mm inches 140 mm inches 389 15.3 5.5 Windshield mm inches 20.5 521 Side Window mm 9.3 inches 236 Seatback mm inches 0 Neck to Seatback mm inches 0 First Contact Region (Head) Second Contact Region (Head) OTHER NONE Head Injury Criteria (HIC) HIC Lower Time interval (ms) HIC Upper Time interval (ms) 462 86.64 -4 Chest Chest To Arm to Door mm inches 91 3.6 Dash mm inches 602 23.7 **Steering Wheel** 376 mm 14.8 inches Hip to Door inches 170 mm 6.7 Seatback mm 0 inches First Contact Region (Chest/Abdomen) Second Contact Region (Chest/Abdomen) NONE OTHER Lap Belt Peak Load Newtons 0 pounds Force Shoulder Belt Peak Load Newtons 0 pounds Force **Chest Severity Index** Thorax Peak Acceleration (g's) Thoraic Trauma Index Pelvic Peak Lateral Acceleration (g's) 373 Legs 150 Knees to Dash mm inches Knees to Seatback mm inches 5.9 0 First Contact Region (Legs) DASHPANEL Second Contact Region (Legs) NONE 0.9 pounds Force Right Femur Peak Load Left Femur Peak Load Newtons Newtons 0 pounds Force 4 1993 FORD TAURUS LEFT FRONT SEAT OCCUPANT Restraint # 1 Mounted Deployment? AIR BAG DEPLOYED PROPERLY Restraint Commentary NO COMMENTS

#### **Restraints**

1993 FORD TAURUS LEFT FRONT SEAT OCCUPANT

Restraint #	2	NONE	Mounted	Deployment?	NOT APPLICABLE
Restraint Cor	nmentar	y NO COMMENTS			

		4N6XPRT St	ifCalcs™		
1	993 FORD T	AURUS RIGHT I	FRONT SEAT C	DCCUPANT	
Test # 1973 Vehicle #	1 Location R	IGHT FRONT SEA	T Seat Position	CENTER POSITION	
Type HYBRID III DUMMY		Size Percentile	5 PERCENTILE	Calibration Method	HYBRID III
Sex F Age Occu	pant Height	mm 0	inches Occupa	ant Weight kg	0 pounds
Occupant Manufactuer	MFG:HUMANOI	D S/N:145			
Occupant Modification	NO COMMENTS	;			
Occupant Description	NO COMMENTS				
Occupant Commentary					
Head To		<u>Hea</u> e	<u>d</u> lead To		
Windshield Header 254	mm 15.3	inches	Side Header	203 mm 5.5 inc	hes
Windshield 521	mm 20.5	inches			
Seatback	mm 0	inches	Side Window	277 mm 9.3 inc	hes
Neck to Seatback	mm0	inches			
First Contact Region (Head)	OTHER		Second Contact R	egion (Head) NONE	
Head Injury Criteria (HIC)	319 HIC Lo	ower Time interval (	ms) 70.44	HIC Upper Time interva	al (ms) -4
		<u>Ches</u>	<u>st</u>		
Chest To			Arm t	to Door 145 mm	3.6 inches
Dash 602 r	mm <u>23.7</u> ind	ches			3.0 110103
Steering Wheel	mm 14.8 ind	ches	Hip to	Door 188 mm	6.7 inches
Seatback r	mm 0 ind	ches			
First Contact Region (Chest/At	odomen) OTH	ER Sec	cond Contact Regic	on (Chest/Abdomen)	NONE
Lap Belt Peak Load	ewtons 0	oounds Force Shou	lder Belt Peak Load	d Newtons	0 pounds Force
	Chest S	everity Index			
Thorax Peak Acceleration (g's)	334 Th	oraic Trauma Index	Pelvio	c Peak Lateral Acceleration	on (g's)
		Leg	<u>S</u>		
Knees to Dash 38 mm	5.9 inches		Knees to Seatba	ck mm	0 inches
First Contact Region (Legs)	DASHPANEL	Seco	ond Contact Regior	n (Legs) NONE	
Left Femur Peak Load 4	Newtons 0.9	pounds Force Ri	ght Femur Peak Lo	bad Newtons	0 pounds Force
	1993 FORD <sup>-</sup>	TAURUS RIGHT F	FRONT SEAT OC	CCUPANT	
Restraint # 1 AIR BAG	i M	lounted	Deploymer	nt? DEPLOYED PROP	PERLY
Restraint Commentary NO (	COMMENTS				

#### **Restraints**

1993 FORD TAURUS RIGHT FRONT SEAT OCCUPANT

Restraint #	2 [	NONE	Mounted	Deployment?	NOT APPLICABLE
Restraint Com	nmentar	NO COMMENTS			

## 4N6XPRT StifCalcs™ Vehicle 1 - 1993 FORD TAURUS

Test #	1973		NH	TSA Test \	/ehicle Nur	mber	Y49113	06 VIN	1F.	ALP52U2	PG2682	06
Year 1	993 I	Make	FORD	Γ	Nodel TA	URUS		Body	FOUR I	DOOR SE	DAN	
Vehicle Modi	fication I	ndicati	or		Vehicle M	odification(s	s) Descriptic	on				
PRODUCTI	ON VEH	ICLE			NO COM	MENTS	<u>, .</u>					
Post-test Ste	ering Co	lumn S	Shear Ca	apsule Sep	eration	Steer	ring Column	Collapse Me	chanism			
UNKNOWN						UN	NKNOWN	•				
Vehicle Com	mentary	19	93 FORI	D TAURUS								
	Vehio	cle Len	ngth	4879 mm	192.1	inches	Ve	hicle Test We	eight	1603 KG	3534	pounds
V	ehicle W	heelba	ase	2700 mm	106.3	inches		Vehicle V	Vidth	1808 mm	71.2	inches
CG	behind	front a	xle	1097 mm	43.2	inches						
Center of Da	amage to	CG A	xis	0 mm	0	inches	l otal Len	gth of Indenta		1809 mm	71.2	inches
						N	/laximum S	tatic Crush D	epth	25 mm	1	inches
Vehicle Dam	age Inde	x 9	9999999	Principa	I Direction	of Force	0	Pre-Impact Sp	beed	48.4 kph	30.1	mph
Damag	a Profil		tanco	Measure	monts	Crush	from Pre	& Post Te	st Dam	ano Mos	suram	onts
				ear-to-Fron		<u>orusii</u>	Pre-Tes		Post-Te		Crush-	
DPD 1		mm	0	inches		_	186.6	inches	173	inches	13.6	inches
				]	Left Bu	mper Corn	er 4740	mm	4394	mm	346	mm
DPD 2		mm	0	inches								
DPD 3		mm	0	inches			192.1	inches	175.6	inches	16.5	inches
				]		Centerlin		mm		mm		mm
DPD 4		mm	0	inches			4879		4460		419	
DPD 5		mm	0	inches	Pight Bu	mper Corn	186.7	inches	173.2	inches	13.5	inches
DPD 6		mm	0	inches			4742	mm	4399	mm	343	mm
Burr	nper Eng	ageme	ent		S	till Engager	nent		A-p	oillar Enga	gement	
	ine Impa	-				ide Impact			-	ide Impac	-	
DIREC	CT ENG	AGEM	ENT		NC	OT APPLIC	ABLE		N	OT APPLI	CABLE	
М	oving Te	st Car	t		Moving	g Test Cart	/ Vehicle		M	oving Test	Cart	
	Angl	е		1	(	Crabbed An	ngle		Vehic	le Orienta	ition on (	Cart
				]		0						
Magnitude o between surfac		ver Tes					Angle Measure /ector to Veloc iicle		the vehicle	of the Angle Orientation a the Test Car	and the Di	

Test #	1973	]	NHTSA Te	est Vehicle Nu	umber	Y4911	306	VIN	1FALP	52U2PG268	206
Year	1993 I	Make FOR	RD	Model T	AURUS			Body [	FOUR DOC	R SEDAN	
Vehicle	Modification I	Indicatior		Vehicle M	Iodification(	s) Descrip	tion				
PRODI	JCTION VEH	IICLE		NO COM	IMENTS						
	t Steering Co	olumn Shea	r Capsule S	Seperation	ı —	ering Colun		ose Mech	nanism		
UNKNO	OWN					NKNOWN					
Vehicle	Commentary	1993 F	ORD TAUF	RUS							
	Vehi	cle Length	4879	mm 192.1	inches	١	/ehicle T	est Wei	ght 1603	KG <b>353</b>	4 pounds
	Vehicle W	/heelbase	2700	mm 106.3	inches		Ve	hicle W	idth 1808	mm <b>71.</b>	2 inches
	CG behind	front axle	1097	mm 43.2	inches	<b>T</b> . ( . ] ] .			••••		
Center	of Damage to	o CG Axis	0	mm 0	inches	l otal Le	ength of	Indenta	lion 1809	mm <b>71.</b>	2 inches
					Γ	Maximum	Static C	rush De	pth 25	mm 🦯	1 inches
Vehicle	Damage Inde	ex 9999	999 Princ	cipal Direction	of Force	0	Pre-Im	pact Spe	eed 48.4	. kph <b>30.</b>	1 mph
		L		Pre & Po	st Tast M	aasuran	nonte				
	Moosurmonts a	ro takon in a k	aritudinal dira	ction. Except for				kon from t	ha Paar Vahiel	o Surfaco forma	rd
(	Left		Syntacinal ane		Centerline		ents are la			ht Side	iu
Pre	-Test	Post-	Test	Pre-Test		Post-Tes	st	Pro	e-Test		-Test
								• • •			
mm	inches	mm	inches	mm inc	ches mr		hes	mm	inches	mm	inches
mm	inches	mm	inches	Length	of Vehicle	n inc at Centerli	hes ne			mm	
mm	inches	mm	inches		of Vehicle a	m inc at Centerli 4460	hes			mm	
mm	inches	mm	inches	Length	of Vehicle	m inc at Centerli 4460	hes ne			mm	
mm 474		mm 4394	inches	Length 4879	n of Vehicle a 192.1 [ Engine Bl 16 [ ront Bumper	m inc at Centerli 4460 [ lock 406 [ r Corner	ne 175.6		inches		
				Length 4879	n of Vehicle a 192.1 [ Engine Bl 16 [ ront Bumper Front of Er	m inc at Centerli 4460 [ lock 406 [ r Corner ngine	h <b>es</b> ne 175.6 16	mm	inches		inches
	0 186.6			Length 4879	n of Vehicle a 192.1 [ Engine Bl 16 [ ront Bumper	m inc at Centerli 4460 [ lock 406 [ r Corner ngine 4128 [	ne 175.6	mm	inches	4399	inches
474	0 186.6	4394	173	Length 4879	n of Vehicle a 192.1 [ Engine Bl 16 [ ront Bumper Front of Er 169.1 [	m inc at Centerli 4460 [ lock 406 [ r Corner ngine 4128 [	h <b>es</b> ne 175.6 16	mm 474	inches	4399	inches
474	0 186.6 7 142.8	4394	173	Length 4879 [ 406 [ Fr 4295 [ 3660 [	n of Vehicle a 192.1 Engine BI 16 Front Bumper Front of Er 169.1 Firewa	n inc at Centerli 4460 [ lock 406 [ r Corner ngine 4128 [ 	hes ne 175.6 16 162.5	mm 474	inches 42 186.7 47 143.6	3548	inches
474	0 186.6 7 142.8 0 132.3	4394	173	Length 4879 ( 406 ( Fr 4295 ( 3660 ( Upper	n of Vehicle a 192.1 [ Engine Bl 16 [ ront Bumper Front of Er 169.1 [ Firewa 162.5 [	m inc at Centerli 4460 [ lock 406 [ r Corner ngine 4128 [ ill 3612 [ dge of Doc	hes ne 175.6 16 162.5 142.2 or	mm	inches 42 186.7 47 143.6 38 131.4	<ul> <li>4399</li> <li>3548</li> <li>3317</li> </ul>	inches 173.2 139.7
474 362 336	0 186.6 7 142.8 0 132.3 7 130.2	4394 3602 3343	173 141.8 131.6	Length 4879 ( 406 ( Fr 4295 ( 3660 ( Upper Lower	n of Vehicle a 192.1 [ Engine Bl 16 [ ront Bumper Front of Er 169.1 [ Firewa 162.5 [ r Leading Ed	m inc at Centerli 4460 [ lock 406 [ r Corner ngine 4128 [ ill 3612 [ dge of Doo dge of Doo	hes ne 175.6 16 162.5 142.2 or	mm 474 364	inches 42 186.7 47 143.6 38 131.4 10 130.3	<ul> <li>4399</li> <li>3548</li> <li>3317</li> <li>3272</li> </ul>	inches 173.2 139.7 130.6
474 362 336 330	0 186.6 7 142.8 0 132.3 7 130.2 3 131.2	4394 3602 3343 3282	173 141.8 131.6 129.2	Length 4879 ( 406 ( Fr 4295 ( 3660 ( Upper Lower	n of Vehicle a 192.1 [ Engine BI 16 [ ront Bumper Front of Er 169.1 [ Firewa 162.5 [ r Leading Ed r Leading Ed	m inc at Centerli 4460 [ lock 406 [ r Corner ngine 4128 [ ill 3612 [ dge of Doo dge of Doo	hes ne 175.6 16 162.5 142.2 or or	mm 474 364 333	inches 42 186.7 47 143.6 38 131.4 10 130.3 30 131.1	<ul> <li>4399</li> <li>3548</li> <li>3317</li> <li>3272</li> <li>3320</li> </ul>	inches 173.2 139.7 130.6 128.8
474 362 336 330 333	0 186.6 7 142.8 0 132.3 7 130.2 3 131.2 1 90.3	4394 3602 3343 3282 3338	173 141.8 131.6 129.2 131.4	Length 4879	n of Vehicle a 192.1 [ Engine BI 16 [ ront Bumper Front of Er 169.1 [ Firewa 162.5 [ r Leading Ed Bottom of 'A per Trailing Ed	m inc at Centerli 4460 [ lock 406 [ r Corner ngine 4128 [ ill 3612 [ dge of Doc dge of Doc A' Post Edge of Doc	hes ne 175.6 16 162.5 142.2 or or	mm 474 364 333 333 335 355 3	inches 42 186.7 47 143.6 38 131.4 10 130.3 30 131.1 31 89.8	<ul> <li>4399</li> <li>3548</li> <li>3317</li> <li>3272</li> <li>3320</li> </ul>	inches 173.2 139.7 130.6 128.8 130.7
474 362 336 330 333 228	0 186.6 7 142.8 0 132.3 7 130.2 3 131.2 1 90.3	4394 3602 3343 3282 3338 2271	173 141.8 131.6 129.2 131.4 89.4	Length 4879 ( 406 ( Fr 4295 ( 3660 ( Upper Lower	n of Vehicle a 192.1 [ Engine Bl 16 [ ront Bumper Front of Er 169.1 [ Firewa 162.5 [ r Leading Ec Bottom of 'A per Trailing Ec Steering Co	m inc at Centerli 4460 [ lock 406 [ r Corner ngine 4128 [ ill 3612 [ dge of Doc dge of Doc dge of Doc A' Post Edge of Doc	hes ne 175.6 16 162.5 142.2 or or or	mm 474 364 333 333 228	inches 42 186.7 47 143.6 38 131.4 10 130.3 30 131.1 31 89.8	<ul> <li>4399</li> <li>3548</li> <li>3317</li> <li>3272</li> <li>3320</li> <li>2250</li> </ul>	inches 173.2 139.7 130.6 128.8 130.7 88.6
474 362 336 330 333 228	0 186.6 7 142.8 0 132.3 7 130.2 3 131.2 1 90.3	4394 3602 3343 3282 3338 2271	173 141.8 131.6 129.2 131.4 89.4 88.5	Length 4879 ( 406 ( Fr 4295 ( 3660 ( Upper Lower Lower 2878 (	o of Vehicle a 192.1 [ Engine BI 16 [ ront Bumper Front of Er 169.1 [ Firewa 162.5 [ r Leading Ec Bottom of 'A per Trailing Ec Steering Co 113.3 [	m inc at Centerli 4460 [ lock 406 [ r Corner ngine 4128 [ ill 3612 [ dge of Doc dge of Doc dge of Doc blumn 3665 [	hes ne 175.6 16 162.5 142.2 or or or or 144.3	mm 474 364 333 333 228 226	inches 42 186.7 47 143.6 38 131.4 10 130.3 30 131.1 31 89.8	<ul> <li>4399</li> <li>3548</li> <li>3317</li> <li>3272</li> <li>3320</li> <li>2250</li> </ul>	inches 173.2 139.7 130.6 128.8 130.7 88.6
474 362 336 330 333 228	0 186.6 7 142.8 0 132.3 7 130.2 3 131.2 1 90.3	4394 3602 3343 3282 3338 2271	173 141.8 131.6 129.2 131.4 89.4 88.5 Cer	Length 4879 ( 406 ( Fr 4295 ( 3660 ( Upper Lower Lower 2878 ( 396 (	n of Vehicle a 192.1 [ Engine Bl 16 [ ront Bumper Front of Er 169.1 [ Firewa 162.5 [ r Leading Ed bottom of 'A per Trailing Ed Steering Co 113.3 [ g Column to 15.6 [	m inc at Centerli 4460 [ lock 406 [ r Corner ngine 4128 [ ll 3612 [ dge of Doc dge of Doc	hes ne 175.6 16 162.5 142.2 or or or 144.3 Horizonta 14.3	mm 474 364 333 333 228 226 al)	inches 42 186.7 47 143.6 38 131.4 10 130.3 30 131.1 31 89.8	<ul> <li>4399</li> <li>3548</li> <li>3317</li> <li>3272</li> <li>3320</li> <li>2250</li> </ul>	inches 173.2 139.7 130.6 128.8 130.7 88.6
474 362 336 330 333 228	0 186.6 7 142.8 0 132.3 7 130.2 3 131.2 1 90.3	4394 3602 3343 3282 3338 2271	173 141.8 131.6 129.2 131.4 89.4 88.5 Cer	Length 4879 ( 406 ( Fr 4295 ( 3660 ( Upper Lower 2878 ( nter of Steerin	n of Vehicle a 192.1 [ Engine Bl 16 [ ront Bumper Front of Er 169.1 [ Firewa 162.5 [ r Leading Ed bottom of 'A per Trailing Ed Steering Co 113.3 [ g Column to 15.6 [	m inc at Centerli 4460 [ lock 406 [ r Corner ngine 4128 [ ll 3612 [ dge of Doc dge of Doc	hes ne 175.6 16 162.5 142.2 or or or 144.3 Horizonta 14.3	mm 474 364 333 333 228 226 al)	inches 42 186.7 47 143.6 38 131.4 10 130.3 30 131.1 31 89.8	<ul> <li>4399</li> <li>3548</li> <li>3317</li> <li>3272</li> <li>3320</li> <li>2250</li> </ul>	inches 173.2 139.7 130.6 128.8 130.7 88.6

Vehicle 1 - 1993 FORD TAURUS

## 4N6XPRT StifCalcs™ 1993 FORD TAURUS

#### NHTSA Crash Test - # 1973 - Front Impact

{ Pre/Post Crush Depths - Vehicle Width - Closing Speed - Trapezoidal Average}

Vehicle Test Weight = 3534 pounds Vehicle Test Speed = 30.1 mph Test crush width = 71.2 inches

#### Pre/Post Collision Crush Depths (inches)

(Driver Side)	Left Bumper Corner 13.6	Centerline 16.5	Right Bumper Corner 13.5	(Pass. Side)

Minimum Crush = 13.5 inches		A	<u> </u>	G
Using a Rated No Damage Speed of	2.5 mph	203.2	166	124.4
Using a Rated No Damage Speed of	5 mph	369.6	137.3	497.5
Using a Rated No Damage Speed of	7.5 mph	499.1	111.3	1119.3
Using a Rated No Damage Speed of	10 mph	591.8	88	1989.9
Average Crush = 15 inches				
Using a Rated No Damage Speed of	2.5 mph	182.9	134.5	124.4
Using a Rated No Damage Speed of	5 mph	332.7	111.2	497.5
Using a Rated No Damage Speed of	7.5 mph	449.2	90.1	1119.3
Using a Rated No Damage Speed of	10 mph	532.6	71.3	1989.9
Maximum Crush = 16.5 inches				
Using a Rated No Damage Speed of	2.5 mph	166.3	111.2	124.4
Using a Rated No Damage Speed of	5 mph	302.4	91.9	497.5
Using a Rated No Damage Speed of	7.5 mph	408.4	74.5	1119.3
Using a Rated No Damage Speed of	10 mph	484.2	58.9	1989.9

Rated No Damage Speed = Impact speed with a barrier resulting in no permenant vehicle deformation A = Maximum force per inch of damage without permenant damage, Ib/in

**Calculated Stiffness Coefficients** 

 $B = Crush resistance per inch of damage width, Ib/in^2$ 

G = Energy dissipated without permenant damage, lb

Normal "Rated No Damage Speed" is 2.5 or 5 mph. Some specific vehicles may have a higher rating

#### 

#### 4N6XPRT System's First Approximation Crush Factor (CF)

Speed from Crush calculation using a generic CF of 21 as suggested in Expert AutoStats Impact Speed (mph) = SQR(30 \* CF \* max crush in feet)

Crush Factor	Maximum Crush (inches)	Calculated Impact Speed (mph)	Calculated Error (mph)	Calculated Error (%)
21	16.5 4N6XPRT Svstems S	29.4 pecific Crush Factor (CF s	-0.7 pecific to this test) = 21.	-2.2% . <b>9</b>
	······			-

CF = (mph \* mph) / (30 \* max crush in feet), dimensionless

4N6XPRT Systems Specific CF is calculated based upon the data reported and is specific to this vehicle and this test

4N6XPRT StifCalcs<sup>™</sup> licensed by 4N6XPRT Systems (www.4N6XPRT.com) to:

## 4N6XPRT StifCalcs™ 1993 FORD TAURUS

#### NHTSA Crash Test - # 1973 - Front Impact

{ Pre/Post Crush Depths - Indentation Length - Closing Speed - Trapezoidal Average}

Vehicle Test Weight = 3534 pounds Vehicle Test Speed = 30.1 mph Test crush width = 71.2 inches

#### Pre/Post Collision Crush Depths (inches)

(Driver Side)	Left Bumper Corner 13.6	Centerline 16.5	Right Bumper Corner 13.5	(Pass. Side)

Minimum Crush = 13.5 inches		<u> </u>	<u> </u>	<u>G</u>
Using a Rated No Damage Speed of	2.5 mph	203.1	166	124.3
Using a Rated No Damage Speed of	5 mph	369.4	137.2	497.2
Using a Rated No Damage Speed of	7.5 mph	498.9	111.2	1118.7
Using a Rated No Damage Speed of	10 mph	591.5	88	1988.8
Average Crush = 15 inches				
Using a Rated No Damage Speed of	2.5 mph	182.8	134.4	124.3
Using a Rated No Damage Speed of	5 mph	332.5	111.2	497.2
Using a Rated No Damage Speed of	7.5 mph	449	90.1	1118.7
Using a Rated No Damage Speed of	10 mph	532.3	71.2	1988.8
Maximum Crush = 16.5 inches				
Using a Rated No Damage Speed of	2.5 mph	166.2	111.1	124.3
Using a Rated No Damage Speed of	5 mph	302.2	91.9	497.2
Using a Rated No Damage Speed of	7.5 mph	408.2	74.5	1118.7
Using a Rated No Damage Speed of	10 mph	484	58.9	1988.8

Rated No Damage Speed = Impact speed with a barrier resulting in no permenant vehicle deformation

A = Maximum force per inch of damage without permenant damage, Ib/in

**Calculated Stiffness Coefficients** 

 $B = Crush resistance per inch of damage width, Ib/in^2$ 

G = Energy dissipated without permenant damage, lb

Normal "Rated No Damage Speed" is 2.5 or 5 mph. Some specific vehicles may have a higher rating

#### 

#### 4N6XPRT System's First Approximation Crush Factor (CF)

Speed from Crush calculation using a generic CF of 21 as suggested in Expert AutoStats Impact Speed (mph) = SQR(30 \* CF \* max crush in feet)

Crush Factor	Maximum Crush (inches)	Calculated Impact Speed (mph)	Calculated Error (mph)	Calculated Error (%)
21	16.5	29.4	-0.7	-2.2%
	4N6XPRT Systems S	pecific Crush Factor (CF s	pecific to this test) = 21.	.9

CF = (mph \* mph) / (30 \* max crush in feet), dimensionless

4N6XPRT Systems Specific CF is calculated based upon the data reported and is specific to this vehicle and this test

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#### **Available Test Results**

Frontal Impact Test Summary

#### **Report Filter Settings**

Year Range : 1992 - 1995

Make : FORD

Model : TAURUS

Test Number		Average Crush	Closing Speed	Veh Stiffr	Crush Factor			
		Speed (mph)	(inch)	(mph)	A	B	G	(Average Crush)
Test Typ	be : Front							
1777	1993 FORD TAURUS FOUR DOOR SEDAN	5.0	12	29.3	446.7	180.9	551.5	28.6
1890	1993 FORD TAURUS FOUR DOOR SEDAN	5.0	18.3	35	352.7	115.9	536.3	26.8
1899	1993 FORD TAURUS FOUR DOOR SEDAN	5.0	11.9	29.4	404.6	165.2	495.4	28.9
1973	1993 FORD TAURUS FOUR DOOR SEDAN	5.0	14.3	30.1	349.9	123	497.5	25.4
1974	1993 FORD TAURUS FOUR DOOR SEDAN	5.0	17.5	35.1	342.3	117.9	496.9	28.2
1976	1993 FORD TAURUS FOUR DOOR SEDAN	5.0	19.8	35	311.8	94.4	515.2	24.7
2143	1994 FORD TAURUS FOUR DOOR SEDAN	5.0	57.8	40.2	118.6	14.5	486.3	11.2
		Front A	verages		332.4	116	476.3	24.8
		Front M	inimums		118.6	14.5	485	11.2
		Front M	aximums		446.7	180.9	551.5	28.9
		Front S	tandard Dev	/iations	104.3	53.9	54.1	6.2

#### **Available Test Results**

Frontal Impact Test Summary

#### **Report Filter Settings**

Year Range : 1992 - 1995

Make : FORD

Model : TAURUS

Test Number	Vehicle Info	No Damage	Max Crush	Closing Speed	Veh Stiffr	Crush Factor		
		Speed (mph)	(inch)	(mph)	A	В	G	(Max Crush)
Test Ty	pe : Front							
1777	1993 FORD TAURUS FOUR DOOR SEDAN	5.0	12.6	29.3	425.4	164.1	551.5	27.3
1890	1993 FORD TAURUS FOUR DOOR SEDAN	5.0	19.3	35	333.5	103.7	536.3	25.4
1899	1993 FORD TAURUS FOUR DOOR SEDAN	5.0	13.4	29.4	360.9	131.4	495.4	25.8
1973	1993 FORD TAURUS FOUR DOOR SEDAN	5.0	16.5	30.1	302.7	92.1	497.5	22
1974	1993 FORD TAURUS FOUR DOOR SEDAN	5.0	19.7	35.1	303.7	92.8	496.9	25
1976	1993 FORD TAURUS FOUR DOOR SEDAN	5.0	21.5	35	287.5	80.2	515.2	22.8
2076	1993 FORD TAURUS FOUR DOOR SEDAN	5.0	36.9	69.6	341	119.4	486.9	52.5
2143	1994 FORD TAURUS FOUR DOOR SEDAN	5.0	58.3	40.2	117.4	14.2	486.3	11.1
		Front Av	verages		309	99.7	478.7	26.5
		Front Mi	nimums		117.4	14.2	485.3	11.1
		Front Ma	aximums		425.4	164.1	551.4	52.5
		Front St	andard De	viations	88.7	43.7	43.8	11.7

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# Stiffness Values and Test Data

## Derived from

NHTSA Crash Test

## # 5981

## **1995 FORD TAURUS**

Provided By 4N6XPRT StifCalcs™

**Registered to:** 

4N6XPRT SYSTEMS 8387 UNIVERSITY AVENUE LA MESA CA 91941-3842 S/N: 030201SC01301

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## Sister/Clone database reader

You entered: 1992 FORD TAURUS

The Sister/Clone Vehicle Year/Model Interchange list indicates the following are Similar Models

Year Range	Make	Model	Body Styles	Wheelbase
1992 - 1995 REMARKS :	FORD	TAURUS	4D,SW	106"
1992 - 1995 REMARKS :	MERCURY	SABLE	4D,SW	106"

The data contained in the database has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. 4N6XPRT Systems has made no changes to this data, and has only provided for distribution of this data free of charge. 4N6XPRT Systems makes no warranties, either express or implied, with respect to this data, its quality, performance, merchantability, or fitness for any particular purpose. The entire risk as to its quality and performance is with the user. In no event will 4N6XPRT Systems be liable for direct, indirect, incidental, or consequential damages resulting from any data presented here, even if 4N6XPRT Systems has been advised of the possibility of such damages. The user must agree to assume full responsibility for any decisions which are based, in whole or in part, upon information obtained by using this data. As previously stated, the data has been provided free of charge as a courtesy to the traffic accident reconstruction community by Gregory C. Anderson of Scalia Safety Engineering. Mr. Anderson does not in any way guarantee the accuracy of the data. Some of the listed similarities are based on his own estimates or memory. Most of the data are pulled from specification tables which may contain inaccuracies of their own. Use common sense - if something seems wrong, check it (and if it is wrong, let him know!).

If you have suggestions, corrections, etc., you should contact Greg Anderson at Scalia Safety Engineering, 521 East Washington Avenue, Suite 200, Madison, WI 53703-2914, (608) 256-0820, FAX (608) 256-0212, E-mail: greganderson@cs.com.

		Test Info	ormation	า				
Test # 5981	NHTSA Version #	V5	Test Date	2001-05	Contract #	DTN	IH22-97-C-	·11033
Contract/Study Title	FMVSS 214-1995 FOR	D TAURUS						
Test Objective(s)	VEHICLE CRASHWOR	THINESS A		PANT RES	TRAINT PE	RFORMA	NCE DAT	A
Test Type FMVSS 214	4 SIDE IMPACT PROTE		Configu	Iration	MPACTOR	INTO VE	HICLE	
	Closing Speed	53.1 I	Km/Hr	33 MP	Н			
Impact Angle 270 C	Offset Distance 0	mm	0 inches	Side Impa	ct Point [	-135 m	ım5	inches
Test Performer MGA RE	SEARCH			Te	est Referen	ce #	BT010	50101
Test Track Surface CO	NCRETE Conc	lition DRY	,	Ambier	nt Temperat	ture	21 C	70 F
Data Recorder Type	THER	Data Lin	k OTHER		Total N	Number o	f Curves [	49
Test Commentary EM	E ON BOARD DAS 320	00						

**No Fixed Barrier Data** 

1995 FORD TAURUS LEFT FRONT SEAT OCCUPANT
Test #       5981       Vehicle #       2       Location       LEFT FRONT SEAT       Seat Position       CENTER POSITION
Type     NHTSA SIDE IMPACT DUMMY     Size Percentile     50 PERCENTILE     Calibration Method     SIDE IMPACT
Sex M Age 0 Occupant Height 0 mm 0 inches Occupant Weight 0 kg 0 pounds
Occupant Manufactuer FIRST TECH. S/N 048
Occupant Modification
Occupant Description
Occupant Commentary
Head To Head To
Windshield Header 373 mm 14.7 inches Side Header 200 mm 7.9 inches
Windshield 66 mm 2.6 inches
Side Window   314   mm   12.4     Seatback   0   mm   0   inches
Neck to Seatback 0 mm 0 inches
First Contact Region (Head) NONE Second Contact Region (Head) NONE
Head Injury Criteria (HIC) 289 HIC Lower Time interval (ms) 83.2 HIC Upper Time interval (ms) 0 Chest
Chest To
Dash   533   mm   21   inches   Arm to Door   110   mm   4.3   inches
Steering Wheel 319 mm 12.6 inches Hip to Door 171 mm 6.7 inches
Seatback 0 mm 0 inches
First Contact Region (Chest/Abdomen) NONE Second Contact Region (Chest/Abdomen) NONE
Lap Belt Peak Load       Newtons       0       pounds Force       Shoulder Belt Peak Load       Newtons       0       pounds Force
Chest Severity Index
Thorax Peak Acceleration (g's) 0 Thoraic Trauma Index Pelvic Peak Lateral Acceleration (g's)
Legs
Knees to Dash    229    mm    9    inches    Knees to Seatback    0    mm    0    inches
First Contact Region (Legs) OTHER Second Contact Region (Legs) NONE
Left Femur Peak Load 0 Newtons 0 pounds Force Right Femur Peak Load 110 Newtons 24.7 pounds Force
1995 FORD TAURUS LEFT FRONT SEAT OCCUPANT
Restraint #       1       3 POINT BELT       Mounted       BELT - CON       Deployment?       NOT APPLICABLE
Restraint Commentary PRIMARY

#### **Restraints**

1995 FORD TAURUS LEFT FRONT SEAT OCCUPANT

Restraint #	2	NONE	Mounted	NOT APPLIC	Deployment?	NOT APPLICABLE

Restraint Commentary SECONDARY

1995 FORD TAURUS LEFT REA	R SEAT OCCUPANT
Test #   5981   Vehicle #   2   Location   LEFT REAR SEAT	Seat Position NOT APPLICABLE
Type         NHTSA SIDE IMPACT DUMMY         Size Percentile         50 I	PERCENTILE Calibration Method SIDE IMPACT
Sex M Age 0 Occupant Height 0 mm 0 inch	es Occupant Weight 0 kg 0 pounds
Occupant Manufactuer FIRST TECH. S/N 049	
Occupant Modification	
Occupant Description	
Occupant Commentary	
Head To Head	То
Windshield Header 0 mm 14.7 inches Side	Header 156 mm 7.9 inches
Windshield 0 mm 2.6 inches	Window 288 mm 12.4 inches
Seatback 590 mm 0 inches	Window 288 mm 12.4 inches
Neck to Seatback 0 mm 0 inches	
First Contact Region (Head) OTHER Seco	ond Contact Region (Head) OTHER
Head Injury Criteria (HIC) <u>1037</u> HIC Lower Time interval (ms) <u>Chest</u>	64.1 HIC Upper Time interval (ms) 0
Chest To	
Dash 0 mm 21 inches	Arm to Door 81 mm 4.3 inches
Steering Wheel 0 mm 12.6 inches	Hip to Door 144 mm 6.7 inches
Seatback 503 mm 0 inches	
First Contact Region (Chest/Abdomen) NONE Second	Contact Region (Chest/Abdomen) NONE
Lap Belt Peak Load Newtons 0 pounds Force Shoulder B	Belt Peak Load Newtons 0 pounds Force
Chest Severity Index	
Thorax Peak Acceleration (g's) 0 Thoraic Trauma Index	Pelvic Peak Lateral Acceleration (g's)
Legs	
	ees to Seatback 218 mm 0 inches
	Contact Region (Legs) NONE
Left Femur Peak Load 0 Newtons 0 pounds Force Right F 1995 FORD TAURUS LEFT REAI	emur Peak Load 86 Newtons 24.7 pounds Force
Restraint # 1 3 POINT BELT Mounted BELT - CON	Deployment? NOT APPLICABLE
Restraint Commentary PRIMARY	

#### **Restraints**

1995 FORD TAURUS LEFT REAR SEAT OCCUPANT

Restraint #	2	NONE	Mounted	NOT APPLIC	Deployment?	NOT APPLICABLE

Restraint Commentary SECONDARY

## 4N6XPRT StifCalcs™ Vehicle 1 - 0 NHTSA DEFORMABLE IMPACTOR

Test # 5981 NH	TSA Test V	ehicle Number		VIN			
Year 0 Make NHTSA	N	Iodel DEFORMABLE	MPACTO	DR Body	NOT APPLICABL	.E	
Vehicle Modification Indicatior		Vehicle Modification(s)	Descriptio	n			
RESEARCH VEHICLE							
Post-test Steering Column Shear Ca	apsule Sepe	eration Steering	g Column	Collapse Med	hanism		
NOT APPLICABLE	<u> </u>	NOT	APPLICA	ABLE			
Vehicle Commentary FMVSS 21	4 DEFORM	IABLE BARRIER					
Vehicle Length	4115 mm	162 inches	Vel	hicle Test We	ight 1362 KG	3003	pounds
Vehicle Wheelbase	2591 mm			Vehicle W	/idth 1252 mm	49.3	inches
CG behind front axle	1106 mm	T	otal Leng	gth of Indenta	tion 0 mm	0	inches
	0 mm		cimum Si	tatic Crush D	epth 0 mm	0	inches
Vehicle Damage Index	Principal	Direction of Force		Pre-Impact Sp			mph
	_						
Damage Profile Distance					t Damage Mea		
(Measured Left-to-Right, R	ear-to-Fron	t)	Pre-Tes	<u>st</u>	Post-Test	Crush-l	Depth
DPD 1 0 mm 0	inches	Left Bumper Corner	0	inches	0 inches	0	inches
DPD 2 0 mm 0	inches	·	0	mm	0 mm	0	mm
	mones						
DPD 3 0 mm 0	inches	Centerline	0	inches	0 inches	0	inches
DPD 4 0 mm 0	inches		0	mm	0 mm	0	mm
DPD 5 0 mm 0	inches		0	inches	0 inches	0	inches
DPD 6 0 mm 0	inches	Right Bumper Corner	0	mm	0 mm	0	mm
Bumper Engagement	I	Still Engageme	nt		A-pillar Enga	aement	
(Inline Impact Only)		(Side Impact On			(Side Impac	-	
NOT APPLICABLE		NOT APPLICAB	LE		NOT APPLI	CABLE	
Moving Test Cart		Moving Test Cart / \	/ehicle		Moving Test	t Cart	
Angle		Crabbed Angle	9		Vehicle Orienta	ation on (	Cart
27		27			0		
Magnitude of the Tilt-Angle Measured between surface if a Rollover Test Cart and the Ground		Magnitude of the Crabbed An Clockwise from Logitudial Vec Vector of Vehicle	tor to Veloc		lagnitude of the Angle he vehicle Orientation the Test Car	and the Di	

			Vehicle	1 - 0 NHTS	SA DEFO	RMABLE IN	IPACTOF	R				
Test #	5981		NHTSA Te	st Vehicle Nur	mber		VIN					
Year	0	Make NHT	SA	Model DE	FORMABL	E IMPACTOR	Body	NOT	APPLIC	ABLE		
Vehicle	Modification I	ndicatior		Vehicle M	odification(	s) Description						
RESE	ARCH VEHIC	LE										
	st Steering Co	lumn Sheai	Capsule S	Seperation		ring Column C		chanis	sm			
						OT APPLICAB	LE					
Vehicle	Commentary	FMVSS	214 DEFC	DRMABLE BAI	RRIER							
	Vehic	cle Length	4115	mm 162	inches	Vehi	cle Test We	eight	1362 H	<g< td=""><td>3003</td><td>pounds</td></g<>	3003	pounds
	Vehicle W	/heelbase	2591	mm 102	inches		Vehicle V	Vidth	1252 r	nm 🗌	49.3	inches
	CG behind	front axle	1106	mm 43.5	inches	Total Lengtl	of Indont					inchoo
Center	of Damage to	o CG Axis	0	mm 0	inches	rotar Lengti		ation	01	nm	0	inches
					N	Aaximum Stat	ic Crush D	epth	0 r	nm	0	inches
Vehicle	Damage Inde	x	Princ	cipal Direction	of Force	0 Pre	e-Impact Sp	beed	53.1 k	kph 🗌	33	mph
				Pre & Pos	st Test M	easuremen	ts					
	(Measurments ar	e taken in a lo	gitudinal dired			all measurments a		the Re	ar Vehicle S	Surface	forward	I
	Left	Side			Centerline	9			Right	t Side		
									-			
	e-Test	Post-		Pre-Test	haa mu	Post-Test		re-Te			Post-	
Pre mm	e-Test inches		Test inches	mm inc	hes mn	Post-Test n inches	P mm		st inches	F mm		Γest inches
				mm inc		Post-Test	<b>mm</b>					
				mm inc	of Vehicle a	Post-Test n inches at Centerline 0	<b>mm</b>					
mm	inches	mm	inches	mm incl Length	of Vehicle a 0 Engine Blo 0	Post-Test n inches at Centerline 0 0 0 0	<b>mm</b>		inches			inches
mm				mm inclusion	of Vehicle a 0 Engine Bla 0 Dont Bumper Front of En	Post-Test inches at Centerline 0 0 0 0 Corner ngine	mm 0					
mm	inches 0 0	<b>mm</b>	inches 0	mm inc Length 0	of Vehicle a 0 Engine Bla 0 0 cont Bumper Front of En 0	Post-Test inches at Centerline 0 0 0 0 Corner agine 0	<b>mm</b>	0	inches 0		0	inches 0
mm	inches	mm	inches	mm inclusion	of Vehicle a 0 Engine Bla 0 Dont Bumper Front of En	Post-Test inches at Centerline 0 0 0 0 Corner agine 0	mm 0		inches			inches
mm	inches 0 0	<b>mm</b>	inches 0	mm inclusion	of Vehicle a 0 Engine Bla 0 cont Bumper Front of En 0 Firewal 0	Post-Test inches at Centerline 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mm 0	0	inches 0		0	inches 0
mm	inches 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mm 0	0 0	mm inclusion	of Vehicle a 0 Engine Bla 0 Front of En 0 Firewal 0 Leading Ec	Post-Test inches at Centerline 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mm 0	0	0 0		0	0 0
mm	inches 0 0 0 0 0 0 0 0	mm 0 0	0 0	mm inclusion	of Vehicle a 0 Engine Bla 0 0 0 Front of En 0 Firewal 0 Leading Ec Leading Ec	Post-Test inches at Centerline 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mm 0	0	0 0		0	0 0
mm	inches 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mm 0 0 0 0 0 0 0	inches 0 0 0 0	mm incl Length 0 ( 7 C Fro 0 ( 7 C Fro 0 ( 7 C Fro 0 ( 7 C Fro 0 ( 7 C) Fro 1 C Fro 1 C Fro Fro 1 C Fro 1 C C C C Fro 1 C Fro 1 C C C Fro 1 C F C C C C C C C C C C C C C C C C C C	of Vehicle a 0 Engine Bla 0 0 cont Bumper Front of En 0 Firewal 0 Leading Ec Bottom of 'A	Post-Test inches at Centerline 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mm 0	0 0 0 0 0	0 0 0 0 0		0   0   0   0	inches 0 0 0 0
mm	inches 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mm 0 0 0 0 0	0 0	mm incl Length 0 ( From 0 ( From 0 ( Upper Lower E	of Vehicle a 0 Engine Bla 0 0 Front of En 0 Firewal 0 Leading Ec Bottom of 'A er Trailing E	Post-Test inches at Centerline 0 0 0 Corner ogine 0 1 dge of Door dge of Door dge of Door	mm 0	0 0 0 0	0 0 0		0	inches 0 0 0 0 0 0
mm	inches 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mm 0 0 0 0 0 0 0 0 0 0 0	inches 0 0 0 0 0 0	mm incl Length 0 ( 0 ( From 0 ( 0 ( 0 ( 0 ( 0 ( 0 ( 0 ( 0 ( 0 ( 0 (	of Vehicle a 0 Engine Bla 0 Cont Bumper Front of En 0 Firewal 0 Leading Ec Bottom of 'A er Trailing Ed Steering Co	Post-Test in inches at Centerline 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mm 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0	inches 0 0 0 0 0 0 0		0   0   0   0   0   0	inches 0 0 0 0
mm	inches 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mm 0 0 0 0 0 0 0 0 0 0 0	inches 0 0 0 0 0 0 0	mm incl Length 0 0 Fro 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	of Vehicle a 0 Engine Bla 0 ont Bumper Front of En 0 Firewal 0 Leading Ec Bottom of 'A er Trailing Ed Steering Co 0	Post-Test in inches at Centerline 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mm 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0	inches 0 0 0 0 0 0 0		0   0   0   0   0   0	inches 0 0 0 0 0 0
mm	inches 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mm 0 0 0 0 0 0 0 0 0 0 0	inches 0 0 0 0 0 0 Cen	mm incl Length 0 0 From 0 0 0 0 0 0 0 0 0 0 0 0 0	of Vehicle a 0 Engine Bla 0 Cont Bumper Front of En 0 Firewal 0 Leading Ec Bottom of 'A er Trailing Ed Steering Co 0 0 0 0 0 0 0 0 0 0 0 0 0	Post-Test in inches at Centerline 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mm 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0	inches 0 0 0 0 0 0 0		0   0   0   0   0   0	inches 0 0 0 0 0 0

## 4N6XPRT StifCalcs™ Vehicle 2 - 1995 FORD TAURUS

Test # 5981 NH	TSA Test Vehicle Number	PS0201	VIN	1FALP5345	SA27498	81
Year 1995 Make FORD	Model TAURUS		Body FO	UR DOOR SE	DAN	
Vehicle Modification Indicatior	Vehicle Modificat	tion(s) Description				
PRODUCTION VEHICLE						
Post-test Steering Column Shear Ca	apsule Seperation	Steering Column Co	ollapse Mechan	ism		
UNKNOWN		UNKNOWN				
Vehicle Commentary						
Vehicle Length	4860 mm 191.3 inch	es Vehic	le Test Weight	1716 KG	3783	pounds
Vehicle Wheelbase	2693 mm 106 inch	es	Vehicle Widt	h 1820 mm	71.7	inches
CG behind front axle	1109 mm 43.7 inch	es				
Center of Damage to CG Axis	24 mm 0.9 inche	Total Length	of Indentation	<b>1</b> 4200 mm	165.4	inches
		Maximum Stati	c Crush Depth	<b>377</b> mm	14.8	inches
Vehicle Damage Index 03LPAW	Principal Direction of Ford	297 <b>Pre</b> -	-Impact Speed	l0 kph	0	mph
Damage Profile Distance	Measurements Cru	ush from Pre &	Post Test D	amage Mea	surem	ents
(Measured Left-to-Right, R		Pre-Test		st-Test	Crush-E	
DPD 1 _2 mm0.1	inches	<b>6</b> 164.9 in	ches 1	62.6 inches	2.3	inches
	Left Bumper	4189 m	m 4	130 mm	59	mm
DPD 2 27 mm 1.1	inches					
DPD 3 350 mm 13.8	inches	erline 191.3 in	ches 1	90.2 inches	1.1	inches
DPD 4 269 mm 10.6		4860 m	m 4	.832 mm	28	mm
DPD 4 269 mm 10.6	licties					
DPD 5 16 mm 0.6	inches <b>Right Bumper</b>	Corner 164.9 in	ches 1	65.3 inches	-0.4	inches
DPD 6 8 mm 0.3	inches	4189 m	m 4	198 mm	-9	mm
Bumper Engagement	- ··· -			A-pillar Enga	gement	
(Inline Impact Only)	Still Eng	•				
· · · · · · · · · · · · · · · · · · ·	(Side Imp	pact Only)		(Side Impac	• ·	-
NOT APPLICABLE	(Side Imp	•			• ·	Т
NOT APPLICABLE Moving Test Cart	(Side Imp DIRECT EN Moving Test	GAGEMENT Cart / Vehicle		(Side Impac DIRECT ENGA Moving Test	GEMEN	
NOT APPLICABLE	(Side Imp DIRECT EN Moving Test Crabbe	GAGEMENT		(Side Impac	GEMEN	

### Vehicle 2 - 1995 FORD TAURUS

Test #	5981		NHTSA Te	st Vehicle Numb	ber	PS0201	VIN	1FALP5	345SA2749	981
Year	1995 N	Make FOR	D	Model TAU	RUS		Body FO	UR DOOR	SEDAN	
Vehicle	Modification I	ndicatior		Vehicle Mod	lification(s)	Description				
PROD	UCTION VEH	ICLE								
Post-tes	st Steering Co	lumn Shea	r Capsule S	Seperation	Steerin	g Column Colla	pse Mechani	sm		
UNKN	OWN				UNK	NOWN				
Vehicle	Commentary									
	Vehic	cle Length	4860	mm 191.3	inches	Vehicle <sup>-</sup>	Test Weight	1716 k	<g 3783<="" td=""><td>pounds</td></g>	pounds
	Vehicle W	'heelbase	2693	mm 106	inches	V	ehicle Width	1820 r	mm <b>71</b> 7	inches
	CG behind	front axle	1109	mm 43.7	inches			1020	1.1	
Center	r of Damage to	o CG Axis	24	mm 0.9	inches	otal Length of	Indentation	4200 r	nm <b>165.4</b>	inches
					Ма	ximum Static (	Crush Depth	377 r	nm <b>14.8</b>	inches
										_
Vehicle	Damage Inde	X 03LPA	W2 Princ	ipal Direction of	Force	297 Pre-Im	pact Speed	0 k	(ph 0	mph
				Pre & Post	Test Mea	surements				
	(Measurments ar	e taken in a lo	ogitudinal direc	ction. Except for Eng	jine Block, all	measurments are ta	aken from the R	ear Vehicle S	Surface forwar	d
_	Left				enterline			Right		
Pre mm	e-Test inches	Post- mm	l est inches	Pre-Test mm inche		ost-Test inches	Pre-To mm	est inches	Post- mm	inches
	mones		mones					mones		mones
					Vehicle at 0	832 190.2				
					Engine Bloc					
				0	0	0 0		[]		
418	164.9	4130	162.6		t Bumper C ont of Engi		4189	164.9	4198	165.3
	0 0	0	0		Firewall		0	0	0	0
L				0	0	0				
	0 0	0	0	Upper Le	eading Edge	e of Door	0	0	0	0
	0 0			••	0 0					0
		0	0	Lower Le	eading Edge		0	0	0	
		0	0		eading Edge	e of Door	0	0	0	0
				Bot	tom of 'A' F	e of Door Post				0
	0 0	0	0	Bot Upper	tom of 'A' F	e of Door Post ge of Door	0	0		
	0 0 0	0	0	Bot Upper Lower T	tom of 'A' F	e of Door Post ge of Door e of Door mn		0	0	0
	0 0 0	0		Bot Upper Lower T Ste	tom of 'A' F Trailing Edge railing Edge eering Colu	e of Door Post ge of Door e of Door mn 0 0 0		0	0	0
	0 0 0	0		Bot Upper Lower T Ste 0 ter of Steering C	ttom of 'A' F Trailing Edge railing Edge eering Colu 0	e of Door Post ge of Door e of Door mn 0 0 0		0	0	0
	0 0 0	0	0 0 0 Cen	Bot Upper Lower T Ste	ttom of 'A' F Trailing Edge railing Edge eering Colu 0 Column to 'A	e of Door Post ge of Door e of Door mn 0 0 0 0 1 Post (Horizon	0 0 0 tal)	0	0	0

### 4N6XPRT StifCalcs™ 1995 FORD TAURUS

#### NHTSA Crash Test - # 5981 - Side Impact

{ Damage Profile Distances - Indentation Length - KE Speed - Trapezoidal Average}

Given:	Vehicle Test Weight =	3783 pounds	Impactor Weight =	3003 pounds
	KE Equivalent Speed =	21.9 mph	Impactor Test Speed =	33 mph
	Damage Width =	165.4 inches		

#### Damage Profile Distance Crush Depths (inches)

(Front)	DPD6	DPD5	DPD4	DPD3	DPD2	DPD1	(Deer)
(FIOIII)	0.3	0.6	10.6	13.8	1.1	-0.1	(Rear)

Minimum Crush = 0.3 inches		<u> </u>	<u> </u>	<u> </u>
Using a Rated No Damage Speed of	1 mph	1280.7	89428.9	9.2
Using a Rated No Damage Speed of	2 mph	2439.1	81094.8	36.7
Using a Rated No Damage Speed of	3 mph	3475.2	73168.3	82.5
Using a Rated No Damage Speed of	5 mph	5180.7	58538	229.3
Average Crush = 5.2 inches				
Using a Rated No Damage Speed of	1 mph	73.3	293.1	9.2
Using a Rated No Damage Speed of	2 mph	139.6	265.8	36.7
Using a Rated No Damage Speed of	3 mph	199	239.8	82.5
Using a Rated No Damage Speed of	5 mph	296.6	191.9	229.3
Maximum Crush = 13.8 inches				
Using a Rated No Damage Speed of	1 mph	27.8	42.3	9.2
Using a Rated No Damage Speed of	2 mph	53	38.3	36.7
Using a Rated No Damage Speed of	3 mph	75.5	34.6	82.5
Using a Rated No Damage Speed of	5 mph	112.6	27.7	229.3

Calculated Stiffness Coefficients

Rated No Damage Speed = Impact speed with a barrier resulting in no permenant vehicle deformation

A = Maximum force per inch of damage width without permenant damage, Ib/in

B = Crush resistance per inch of damage width,  $lb/in^2$ 

G = Energy dissipated without permenant damage, lb

Normal "Rated No Damage Speed" is 2 mph

Some specific vehicles may have a higher rating

\*\*\*\*\*\*

#### 4N6XPRT System's First Approximation Crush Factor (CF)

Speed from Crush calculation using a generic CF of 21 as suggested in Expert AutoStats Impact Speed (mph) = SQR(30 \* CF \* max crush in feet)

Crush Factor	Maximum Crush (inches)	Calculated KE Equivalent Speed (mph)	Calculated Error (mph)	Calculated Error (%)
21	13.8	26.9	5	22.6%

4N6XPRT Systems Specific Crush Factor (CF specific to this test) = 14

CF = (mph \* mph) / (30 \* max crush in feet), dimensionless

4N6XPRT Systems Specific CF is calculated based upon the data reported and is specific to this vehicle and this test

#### 4N6XPRT StifCalcs™ licensed by 4N6XPRT Systems (www.4N6XPRT.com) to:

Expert System Software for Litigation

8387 University Avenue La Mesa, CA 91941-3842 Phone: (619) 464-3478 Fax: (619) 464-2206 Toll Free: 1- 800-266-9778

Web Site: http://www.4n6xprt.com

E-Mail: 4n6@4n6xprt.com

The NHTSA Crash Test database contains only ONE SIDE Impact tests for the Ford Taurus.

To create a SIMILAR class of vehicle, we first looked at the test wheelbase and weight of the one side impact test for the Taurus, which was reported as 106 inches, and 3783 pounds.

We then looked at the NHTSA database for FOUR DOOR SEDANS that have SIDE IMPACT TESTS and had a Wheelbase of 105-107 inches (+/- 1 inches of the frontal test vehicles), and 3733-3833 pounds (+/- 50 pounds of the frontal test vehicles).

The Test Summary Reports based on the Average and Maximum crush depths follow.

#### **Available Test Results**

Side Impact Test Summary

#### **Report Filter Settings**

Year Range : 1965 - 2010	Bodystyle : FOUR DOOR SEDAN	Weight Range : 3733 - 3833		
	WB Range : 105 - 107	Impact Locations : SIDE		

Test Number	Vehicle Info	No Damage Speed (mph)	Average Crush (inch)	KE Speed (mph)		icle Indent ness Values B	G	Crush Factor (Average Crush)
Test Ty	pe : <b>Side</b>							
5981	1995 FORD TAURUS FOUR DOOR SEDAN	2.0	5.2	21.9	139.6	265.8	36.7	36.8
3289	2000 VOLKSWAGEN PASSAT FOUR DOOR SEDAN	2.0	9.1	25.8	191.3	249.8	73.2	29.2
4618	2003 MERCEDES C240 FOUR DOOR SEDAN	2.0	7.4	25.7	218.4	348.6	68.4	35.5
6055	2007 SAAB 9-3 FOUR DOOR SEDAN	2.0	9.5	25.7	170.4	212.4	68.4	27.8
5869	2007 SUBARU LEGACY FOUR DOOR SEDAN	2.0	6.5	25.5	247.5	444.8	68.8	39.8
		Side Av	erages		193.4	304.3	61.5	33.8
		Side Mi	nimums		139.6	212.4	45.9	27.8
		Side Ma	aximums		247.5	444.8	68.9	39.8
		Side Sta	andard Devi	ations	41.8	93	93.1	5.1

#### **Available Test Results**

Side Impact Test Summary

#### **Report Filter Settings**

Year Range : 1965 - 2010	Bodystyle : FOUR DOOR SEDAN	Weight Range : 3733 - 3833	
	WB Range : 105 - 107	Impact Locations : SIDE	

Test Number	Vehicle Info	No Damage	Max Crush	KE Speed		icle Indent ness Values		Crush Factor
		Speed (mph)	(inch)	(mph)	Α	В	G	(Max Crush)
Test Ty	pe : <b>Side</b>							
5981	1995 FORD TAURUS FOUR DOOR SEDAN	2.0	14.8	21.9	49.3	33.1	36.7	13
3289	2000 VOLKSWAGEN PASSAT FOUR DOOR SEDAN	2.0	13.2	25.8	132	118.9	73.2	20.1
4618	2003 MERCEDES C240 FOUR DOOR SEDAN	2.0	9.9	25.7	163.1	194.5	68.4	26.5
6055	2007 SAAB 9-3 FOUR DOOR SEDAN	2.0	12	25.7	135	133.2	68.4	22
5869	2007 SUBARU LEGACY FOUR DOOR SEDAN	2.0	9.3	25.5	174.2	220.4	68.8	28
		Side Ave	erages		130.7	140	61	21.9
		Side Mir	nimums		49.3	33.1	36.7	13
		Side Ma	ximums		174.2	220.4	68.8	28
		Side Sta	Indard Dev	iations	49	73.1	73.2	5.9

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Web Site: http://www.4n6xprt.com

E-Mail: 4n6@4n6xprt.com

Dear Conference Attendee,

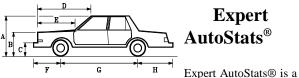
We at 4N6XPRT Systems were pleased to be able to provide you with the preceding data for the crash test vehicles.

Information regarding the Services available to you through our company, as well as the Programs used to create the data report follows this page.

We look forward to providing you similar information in the near future.

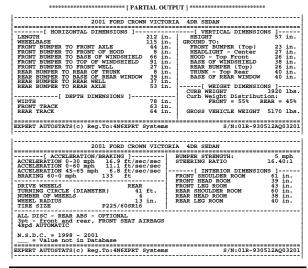
Sincerely,

Daniel W. Vomhof III Daniel W. Vomhof, Ph.D.



program that has over 40,000 cars, pick-ups, vans, and utility vehicles that range in years from the 1940's to the present. Expert AutoStats® has specifications that can assist in reconstructing accidents when the data for the vehicle is unavailable or the vehicle is too severely damaged to get correct measurements.

For many vehicles mid-1960's to present, data such as bumper height, front and rear overhang, hood height, etc., are also included.





Biomechanics is the application of physics to describe, evaluate, or model living tissue and biological materials. Originally it was the application of the part of physics known as Mechanics to living systems. This is the same portion of physics which is used as the basis for much of accident reconstruction.

Biomechanics is important in many aspects of forensic work from vehicle accident reconstruction to slip-trip-stumble-fall cases. This particular program contains modules containing information on a variety of biomechanics and injury modalities, physical data found in the literature for failure of bone and tissue, calculation modules to evaluate individual specific parameters, and definitions and terminology used in the literature and found in medical reports.

4N6XPRT BioMeknx<sup>TM</sup> is a program designed for the accident investigator. The BioMeknx program incorporates information from a number of different sources, as well as over 30 years of reconstruction experience. 4N6XPRT BioMeknx<sup>TM</sup> compiles into one source a number of items of information to assist in reconstructing accidents by tying in the human component more tightly without the need to be a BioMechanics expert. Identification of body location, body part illustrations, failure threshold limits, definitions of terms, calculation modules for body link lengths, weights, stride lengths, and formulas for other types of calculations are only some of the material included in the program.

To gather into your library the material included in the 4N6XPRT BioMeknx<sup>™</sup>, you would need a minimum of 10-15 Anatomy and Physiology, Human Factors, and Biomechanics books, as well as conduct over 50 hours of internet research.

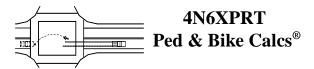


**DeCoder**<sup>®</sup> Expert VIN DeCoder® is a program that

"DeCodes" the 17 character VIN number for Cars. Vans.

Pickups, and Utility vehicles manufactured from 1981 to the present.

Cars/Vans/Utility/Lt. Trucks Modules: 1981 to Present Ford Chevrolet/Geo Mercury/Lincoln Pontiac / Buick / Oldsmobile Chrysler/AMC/Jeep Cadillac/Saturn European Import Asian Import



The 4N6XPRT Ped & Bike Calcs<sup>®</sup>) program is a program that provides FIRST ESTIMATE calculations to evaluate the speed of a vehicle involved in striking a pedestrian or bicyclist, IF Vehicle, scene, and pedestrian {or pedestrian and bicycle in a vehicle-bike accident} measurements are available. This program may also be used when skateboards or roller skates are involved.



>>>Calculate Time given D & V<<<

45

6

Enter Distance (in feet) :

Enter Velocity (in mph) :

**Expert Qwic Calcs**<sup>®</sup>

Expert Qwic Calcs®

quickly provides answers to questions important in vehicle collision litigation. The user inputs data in response to relevant questions, Expert

Qwic Clacs® performs the mathematical calculations required. Both the input data and the calculated result are then displayed, and may be "dumped" to a printer.

When the law enforcement accident report gives insufficient information to do a full - blown accident reconstruction, Expert Qwic Calcs® may be used to "scope out"the parameters of speeds, times, and distances to determine these relationships in a vehicle accident.

## Expert TireStuf<sup>®</sup>

The Expert



TireStuf® program is a Menu Driven program which has 19 modules explaining the various tire size designation systems, the information which MAY be in the DOT tire number, the DOT mandated Tire Grading

system, Lug Nut Tightening and Tire Rotation schemes, Mix and Match precautions, a glossary of Tire Terms, and Addresses of a few of the sources of additional information on tires and rims.

Also included is a calculation of the number of revolutions in one mile given the tire dimensions.



4N6XPRT StifCalcs®. Is a program which puts the NHTSA Crash Test database at your fingertips with no need to access the internet!

In addition to the NHTSA Crash Test data, the program includes a "Sister/Clone List Reader" developed in cooperation with Greg Anderson. This allows quick retrieval of the "Sister/Clone" data for the desired vehicle. This will drive the initial selection of the available tests. Alternatively, we have an ADVANCED SEARCH module for the initial vehicle selection.

**STIFFNESS DATA**, based on the selected test, is automatically calculated based on the reported crush depths and widths for front, side, and rear tests.

To use the program, follow this "Yellow Brick Road":

```
1) Sister/Clone Reader -
    (a) - Select YEAR (b) - Select Manufacturer
                (c) - Select Model
                       T
         Click on TEST SELECTION Tab
2)
                       T
3)
           Select a test from the available
             tests which are displayed
4)
           View TEST INFORMATION
5)
             View OCCUPANT DATA
                       T
6)
              View VEHICLE DATA
                       ▼
7)
            View STIFFNESS CALCS
                       V
          Click on Reports - PRINT REPORT
```

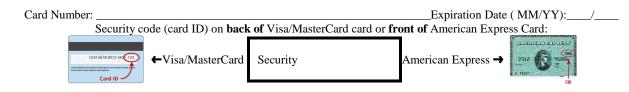
8

Please use this order form when ordering. Due to conditions and rising costs beyond our control, Shipping & Handling for program orders must be paid per the included schedule.

Contact Name:	 
Title:	 
Company/Organization:	 
Street:	
City:	_ Zip:
Phone: ()	
E-Mail:	

PAYMENT BY: Check\_\_\_\_ Money Order\_\_\_\_ Govt. Purchase Order\_\_\_\_

for Credit Card Orders, please circle Credit Card type: Am. Express / Visa / MasterCard, then complete the following:



Address for where the credit card bill is sent:

PROGRAM	I ORDER FORM:		
(Pricing effective as of 4/28/10 -	prices subject to change without	notice)	
Expert AutoStats <sup>®</sup> :	\$ 595.00 *	\$	
4N6XPRT BioMeknx <sup>TM</sup> :	\$ 495.00 *	\$	
4N6XPRT Ped & Bike Calcs <sup>®</sup> :	\$ 375.00 *	\$	
Expert Qwic Calcs <sup>®</sup> :	\$ 275.00 *	\$	
Expert TireStuf <sup>®</sup> :	\$ 85.00 *	\$	YEAR & M
4N6XPRT StifCalcs <sup>®</sup> :	\$ 570.00 *	\$	MODEL:
Expert VIN DeCoder <sup>®</sup> :	\$ 525.00 *	\$	WODEL.
-			If you
	SUB-TOTAL	\$	
Handling **:		\$	
( Cash or Check with order =	\$5.00, Credit Card = \$1	0.00 , Govt.	
Purchase O	Order = \$15.00 )		
Notarized Affidavit Filing Require	ment	\$	PICKUP
( \$25.00 per require	ed Notarized Signature )		
Normal delivery is	via electronic download		
Deliver via electronic download link		\$ 0.00	
- Deliver on USB - additional cost of	of \$35.00 / disk / program	\$	
	SUB-TOTAL	\$	
California shipping addresses add	9.50% sales tax	\$	
(California orders delivered el	ectronically <u>DO NOT</u> owe s	ales tax)	
	TOTAL	\$	

Individual Vehicle Data FAX/Order Form

Expert VIN Decoder & Expert AutoStats
 INHTSA Crash Test Results
 BOTH
 Please circle ALL OPTIONS that apply

& MAKE:\_\_\_\_\_

you are requesting VIN DeCoder & AutoStats please also provide:

Vehicle Type:Car - Pickup - Utility - Van No. of Doors:2/3/4/5 Car Body Style:Coupe/Conv./Sedan/Wagon DRIVE WHEELS: 4x2 / 4x4 CUPS:Dual Rear Wheel - Std. / Extra / Super / Crew Cab - Short Bed / Long Bed VANS:Cargo / Passenger - Short / Long Wheelbase

VIN Information

1	2	3	4	5	6	7	8	9	
	10	11	12	13	3 14	4 1:	5 16	17	
NHTSA Crash Test Information Impact location - Front / Side / Rear									
		Impact	Speed -	Lov	ver / H	ligher			

Case Reference/Number:\_\_\_\_\_

## Individual Vehicle Data Search Service<sup>®</sup>

Charges & Services

Individual Vehicle Specifications \$40.00-First vehicle\*, \$35.00/Additional Vehicles\*, \$20.00/Additional Similar Model\*

Medium/Heavy Truck Specifications

\$40.00-First vehicle\*, \$35.00/Additional Vehicles\*, \$20.00/Additional Similar Model\*

<u>Motorcycle Specifications (1970+)</u> **\$40.00-First cycle**\*, \$35.00/Additional cycles\*, \$20.00/Additional Similar Model\*

<u>NHTSA Crash Test Results</u> \$40.00 per test - Includes A, B, & G values Calculations are based on the test results

#### **Individual Vehicle Specifications**

Now you can get the Expert AutoStats® data for the vehicles in your case *QUICKLY*, *EASILY*, and *ECONOMICALLY*, instead of guessing, or begging a printout from a friend.

Our vehicle database includes dimensions on over 35,000 Cars, Vans, Lt. Pickups, and Utility Vehicles covering 1945 to the present.

#### Minimum Vehicle specifications include:

Overall Length	Curb Weight				
Overall Width	Weight Distribution				
Overall Height	Front/Rear Track				
Wheelbase	CG Location				
Model years with No Significant Dimensional Changes VIN DeCoding when VIN is provided Information available					
Mid-60's to present <b>also</b>	includes (when available)				
Front/Rear Overhang	Bumper Heights				
Hood height	Turning Circle				
Bumper-to-hood	Ground-to-hood				

Dimensions are given in both Imperial and metric (SI) units. Motorcycle specifications will be similar to the Vehicle specifications with appropriate changes where applicable.

#### NHTSA Crash Test Results

Test results include: General Test information, Barrier Data when provided, Vehicle Data as reported by the testing organization, Occupant (Dummy) data when provided, and A-B-G Stiffness calculations based on the test results.

# 4N6XPRT Systems®

Providing Vehicle dimensional data, VIN DeCoding, and NHTSA Crash Test Results as a service to the Litigation community, in the form of:

Expert Systems Software Programs for Litigation

Expert AutoStats<sup>®</sup> 4N6XPRT StifCalcs<sup>®</sup> 4N6XPRT BioMeknx<sup>TM</sup> 4N6XPRT Ped & Bike Calcs<sup>®</sup> Expert Qwic Calcs<sup>®</sup> Expert TireStuf<sup>®</sup> Expert VIN DeCoder<sup>®</sup>

<u>Vehicle Data Service</u> Individual Vehicle Data Search Service<sup>®</sup>

8387 University Avenue, Suite P La Mesa, CA 91942-9342

Phone: 1-800-266-9778 Fax: (619) 464-2206 E-Mail: <u>4n6@4n6xprt.com</u>

Web: http://www.4n6xprt.com

#### **Expert VIN DeCoder®**

Expert VIN DeCoder® is a program that "DeCodes" the 17 character VIN number for vehicles manufactured from 1981 to the present.

> Modules: 1981 to Present Control Module - One Required per Set

Ford Cars (includes Festiva & Merkur) Mercury/Lincoln Cars Ford vans/Utility/Lt. Trucks

Chevrolet/Geo Cars Pontiac/GM of Canada Cars Oldsmobile Cars **Buick Cars** Cadillac/Saturn Cars General Motors Vans/Utility/Lt. Trucks

Chrysler/AMC/Jeep Cars Chrysler/Jeep Vans/Utility/Lt. Trucks

European Import Cars/Vans/Utility/Lt. Trucks Asian Import Cars/Vans/Utility/Lt. Trucks

#### SYSTEM REQUIREMENTS

Expert VIN DeCoder® has been tested on a wide variety of IBM laptop and desktop clones ranging from 8088 through Pentium® chips. A math coprocessor chip is NOT required. Expert VIN DeCoder® has also been tested under the various versions of MS-DOS 3.0 thru 7.0, DrDOS 6.0, and PC DOS 7.0. It also works as a DOS program under Windows 3.x, Windows, 95, Windows 98, Windows NT, OS/2 2.x, OS/2 Warp, and various versions of LINUX.

A variety of dot matrix printers emulating the EPSON series have been used with no difficulty. The output is also compatible with the Hewlett-Packard II, IIP, III and IIIP Laser printers. Expert VIN DeCoder® works with monochrome and color monitors.

As of April 1995 the 4N6XPRT Systems® programs Expert AutoStats®, Expert Qwic Calcs®, Expert TireStuf®, 4N6XPRT Ped & Bike Calcs®, and Expert VIN DeCoder® are accessible from within RECTEC.

#### PLEASE PRINT

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Phone:		-	
Fax:			
E-Mail:			

#### Expert VIN DeCoder®

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#### Orders will be shipped Priority Mail within 10 working days of receipt of order. Prices subject to change WITHOUT NOTICE. \* Checks MUST be drawn from a bank in the U.S.A.

# Expert VIN DeCoder<sup>®</sup>



User Friendly Software to provide interpretation of the 17 character VIN Number on Cars, Lt. Pickups, Utility Vehicles, and Vans.

#### 4N6XPRT Systems®

Forensic Expert Software 8387 University Avenue La Mesa, CA 91942-9342

## Web: http://www.4n6xprt.com E-Mail: VIN@4n6xprt.com

#### 1-800-266-9778

## INPUT:1)Enter VIN Numbers to be DeCoded: 3FAPP1280MR117253

3FA PP128 0 MR 117253

\_\_\_\_\_

\_\_\_\_\_

2)

Is this the VIN Number to be DeCoded (Y/N)? **Y** 

## **OUTPUT:**

EXPERT VIN DeCoder
The VIN Number is 3FA PP128 0 MR 117253
The vehicle should be a 1991 Ford The model: Escort 2/3-door Hatchback GT The assembly plant: Hermosillo, Mexico The 4 passenger vehicle had : Passive (Automatic) Front Belts
The OEM engine was: In-line 4 cylinder with Double Overhead Cam Engine Displacement/Type = 1.8 L/ 112 cu.in. L4, DOHC Brake Horsepower (SAE) = 127 @ 6500 rpm Torque (SAE) = 114 lb-ft at 4500 rpm Engine manufacturer = Mazda
The fuel distribution system: Electronic Fuel Injection (EFI) Fuel pump/line pressure = 35-45 psi The ignition system = electronic
This is a Front Wheel Drive vehicle.
The first three characters {3, F, A} indicates that the vehicle was a Ford made in Mexico
The fourth character {P} indicates the vehicle had Passive (Automatic) Front Belts
The fifth character {P} indicates it was a Passenger Car
The sixth with the seventh character {12} indicates a Escort 2/3-door Hatchback GT
The eighth character {8} indicates the OEM engine : 1.8 L/ 112 cu.in. L4, DOHC
The 9th Character { the Check Digit } is 0 The calculated Check Digit value is 0
The tenth character {M} indicates the Model Year was 1991
The eleventh character {R} indicates it was made at the assembly plant in Hermosillo, Mexico
The twelveth through the seventeenth characters { 117253 } is the Serial Number unique to this vehicle.
01-01-2001 S/N:930114VD01201 Reg. User: 4N6XPRT SYSTEMS

#### **Expert AutoStats®**

The Expert AutoStats® program contains data on more than 40,000 cars, pick-ups, vans, and utility vehicles that range in years from the 1940's to the present. The Expert AutoStats® base information can assist in reconstructing accidents when the data for the vehicle is unavailable or the vehicle is too severely damaged to get correct measurements. The program is currently relied upon by over 600 private and 250 Government entities within the United States for this very purpose. Additionally, for many vehicles mid-1960's to present, data such as bumper height, front and rear overhang, hood height, etc., are also included.

As of April 1995 the 4N6XPRT Systems® programs Expert AutoStats®, Expert Qwic Calcs®, Expert TireStuf®, and Expert VIN DeCoder® are accessible from within RECTEC.

#### SYSTEM REQUIREMENTS

Expert AutoStats® has been tested on a wide variety of IBM laptop and desktop clones ranging from 8088 through Pentium® chips. A math coprocessor chip is NOT required. Expert AutoStats® has also been tested under the various versions of MS-DOS 3.0 thru 7.0, DrDOS 6.0, and PC DOS 7.0. It also works as a DOS program under Windows 3.x, Windows, 95, Windows 98, Windows NT, Windows Me, Windows 2000, Windows XP, Windows Vista, OS/2 2.x, OS/2 Warp, and various versions of LINUX.

A variety of dot matrix printers emulating the EPSON series have been used with no difficulty. The output is also compatible with the Hewlett-Packard II, IIP, III and IIIP Laser printers and Hewlett-Packard Desk Jet inkjet printers. Expert AutoStats® works with monochrome and color monitors.

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AutoStats® \_\_\_\_ (copies) x \$595.00 . . = \$\_\_\_\_ Handling \*\*: \$\_\_\_\_\_ (Check with order = \$5.00, Credit Card = \$10.00, Govt. P.O.r = \$15.00 ) Notarized Affidavit Filing Requirement \$\_\_\_\_\_ (\$25.00 per required Notarized Signature )

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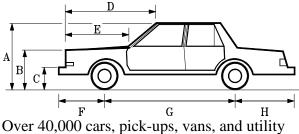
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**Telephone Orders:** 

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Orders will be shipped Priority Mail within 10 working days of receipt of order. Prices subject to change WITHOUT NOTICE. \* Checks MUST be drawn from a bank in the U.S.A.

# Expert AutoStats®



vehicles 1940's to the present are represented.

#### 4N6XPRT Systems®

Forensic Expert Software 8387 University Avenue La Mesa, CA 91942-9342

## Web: http://www.4n6xprt.com E-Mail: <u>autostats@4n6xprt.com</u>

### 1-800-266-9778

#### **Select Your Vehicle**

MAKE OF VEHICLE: YEAR OF VEHICLE: BODYSTYLE OF VEHICLE:	FORD 2001 Car				
			1214		

More than one model matches the make, year, and body style you specified. Select the actual model from the list. Use the arrow keys to highlight the model, then press Enter. Press Esc to return to the list of manufacturers. (You can also begin typing the name of the model to jump directly to it.)

E ** AVAILABLE MODELS - 2001	FORD ** ]	[ WB(in)	OAL(in)] ]
CROWN VICTORIA	4DR SEDAN	115	212
CROWN VICTORIA (CNG) MSP POLICE PACKAG	4DR SEDAN	115	212
CROWN VICTORIA 4.6L MSP POLICE PACKAGE	4DR SEDAN	115	212
CROWN VICTORIA EXTENDED	4DR SEDAN	121	218
ESCORT	4DR SEDAN	98	175
ESCORT ZX2	2DR COUPE	98	175
FOCUS	4DR SEDAN	103	175
FOCUS	4DR WAGON	103	178
FOCUS ZX3	2DR HATCHBACK	103	168
MUSTANG	2DR CONVERTIBLE	101	183
MUSTANG	2DR COUPE	101	183
MUSTANG COBRA	2DR CONVERTIBLE	101	183
MUSTANG COBRA	2DR COUPE	101	183

After typing in the Make, Year, and Type of vehicle, you are presented with the vehicles which are available for that year.

#### Screen 1

2001 FORD CROWN VICTORIA 4	.6L MSP P	OLICE PACKAGE 4DR SEDA	N
FRONT BUMPER TO FRONT WELL REAR BUMPER TO FRONT AKLE FRONT BUMPER TO FRONT AKLE FRONT BUMPER TO FRONT OF HOOD FRONT BUMPER TO BASE OF WINDSHIELD FRONT BUMPER TO TRONT WELL REAR BUMPER TO REAR OF TRUNK REAR BUMPER TO REAR OF TRUNK REAR BUMPER TO REAR WELL REAR BUMPER TO REAR AKLE	212 in. 115 in. 44 in. 8 in. 66 in. 91 in. 27 in. 8 in. 39 in.	HEIGHT   GROUND TO:   FRONT BUMPER (Top)   HEADLIGHT - Center   HOOD - Top Front   BASE OF WINDSHIELD   REAR BUMPER (Top)   TRUNK - Top Rear	57 in. 23 in. 27 in. 29 in. 38 in. 26 in. 40 in. 40 in.
MIDIN FRONT TRACK REAR TRACK P)rint this screen,	78 in. 63 in. 64 in.	CURB WEIGHT Curb Weight Distribut FRONT = 55% R GROSS VEHICLE WEIGHT	4020 lbs. ion: EAR = 45%

The first screen of data contains exterior dimensions and weight data. Length, Height, Wheelbase, Width, and Weight Distribution are published dimensions. Curb Weight is an average of published curb weights for the given vehicle. Detail dimensions such as the bumper heights and Front Bumper to Front of Hood are measurements obtained by our staff from actual vehicles.

Screen 2

	50100		
2001 FORD CROWN	VICTORIA 4.6L MS	POLICE PACKAGE 4DR SEL	DAN
ACCELERATION 0-30 mph ACCELERATION 0-60 mph	13.8 ft/sec/sec 10.1 ft/sec/sec 6.7 ft/sec/sec	BUMPER STRENGTH: STEERING RATIO [ INTERIOR DIMENS FRONT SHOULDER ROOM FRONT HEAD ROOM	16.40:1 SIONS ] 61 in.
DIVE WHEELS TURNING CIRCLE (DIAMETER NUMBER OF WHEELS WHEEL RADIUS TIRE SIZE	<ol> <li>41 ft.</li> </ol>	FRONT LEG ROOM REAR SHOULDER ROOM	43 in. 60 in. 38 in.
ALL DISC - ALL WHEEL ABS 3pt - front and rear, FF 4spd AUTOMATIC			
N.S.D.C. = 2001 - 2001 = Value not in Data	oase		
B)ack a screen,	P)rint this scree	en, ANY OTHER KEY =	Continue
B)ack a screen,	P)rint this scree	en, ANY OTHER KEY =	Continue

The second screen of data contains interior dimensions and various performance data. The data contained in the second screen comes from various published sources.

## Screen 3

2001 FORD CROWN VICTORIA 4.6L MSP POLICE PACKAGE 4DR SEDAN
Indle FRONT BUMPER TO HOOD FRONT       = 36.9       deg         ANGLE FRONT OF HOOD TO WINDSHIELD BASE       = 8.8       deg         ANGLE FRONT OF HOOD TO WINDSHIELD TOP       = 17.4       deg         ANGLE FRONT OF HOOD TO WINDSHIELD TOP       = 34.2       deg         ANGLE OF STEERING TIRES AT WAX TURN       = 26.8       deg         Inches from ground       = 22.37         Inches from side of vehicle = 39.00         Inches behind front axle       = 51.75         Inches from rear bumper = 116.25         Inches from front towner = 193.39         Inches from rear corner = 122.62
TIP-OVER STABILITY RATIO = 1.42 STABLE NHTSA Static Stability Factor (calculated) Star Rating: ****
B)ack a screen, P)rint this screen, ANY OTHER KEY = Continue

The third and last screen contains a number of calculated items of information which may be of use depending upon the type of case, the other software that you use, and the questions which need to be answered.

#### Screen 4

2001 FORD CROWN VICTORIA 4.6L MSP POL	ICE PACKAGE 4DR SEDAN
ANGLE FRONT OF HOOD TO WINDSHIELD TOP ANGLE OF WINDSHIELD ANGLE OF WINDSHIELD ANGLE OF STEEPING TIRES AT MAX TURN	= 36.9 deg = 8.8 deg = 17.4 deg = 34.2 deg = 26.8 deg
Inches from front burger = 95.75   Inches Inches from front burger = 95.75   Inches Inches from front burger = 95.75   Inches	from side of vehicle = 39.00 in front of rear axle = 63.25 from rear bumper = 116.25
	1,42 STABLE ar Rating: **** TTA 1 = 2934.60 lb-ft-sec <sup>-</sup> 2 = 2830.80 lb-ft-sec <sup>-</sup> 2 = 573.60 lb-ft-sec <sup>-</sup> 2
N)ext Car, Print to - P)rinter or to F)ile, E	)xchange File, D)XF File, O)uit

From within the Expert AutoStats program you have the ability to output the data to a 2-D DXF file for importation into your CAD Scene Drawings. The screen below shows an import of the DXF file with Text into the CAD Zone program.

## **CADZONE Import**

The Crash Zone B.1 - [01473.0XF]			
🔁 File Edit Dravi View Snaps Text/Dimension	Utilities Recon 30 Window Help		. 6
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Quick Pick DXF Outp	ut Data		
ā	17.67 Feet		
Ø Line Types			
eat	6.50 Feet		
	per to Front Axle: 3.67 Feet		
E View Wheelbas	e:		
30 3D Tools Eront Tran	ck: 5.25 Feet		
C INNER	:k:		
ă			
Forms CG behin	d Front Axle: 4.31 Feel		
Learning Center			
Select Objects : Selection Tool		A:282.06' D:8.59'	X1.78 Y-4.36

Introducing ..... 4N6XPRT StifCalcs<sup>®</sup>. A program which puts the NHTSA Crash Test database at your fingertips with no need to access the internet!

In addition to the NHTSA Crash Test data, the program includes a "Sister/Clone List Reader" developed in cooperation with Greg Anderson. This allows quick retrieval of the "Sister/Clone" data for the desired vehicle. This will drive the initial selection of the available tests. Alternatively, we have an ADVANCED SEARCH module for the initial vehicle selection.

**STIFFNESS DATA**, based on the selected test, is automatically calculated based on the reported crush depths and widths for front, side, and rear tests.

### SYSTEM REQUIREMENTS

4N6XPRT StifCalcs<sup>®</sup> is a MS-Windows program designed to work under a 32 bit (95/98/Me/NT/ 2000/XP/Vista) Windows System.

AT 4963PRT SUICARS - SELECTED VEHICLE   1988 DODGE CARAVAN GRAND CARA.	-10
Pie Reports	
Sister/Clone Reader Test Selection Manual Stiffness Calcs Advanced Search	
Available Tests Test Information Occupant Information Vehicle Info	
Vehicle 2 - 1988 PLYMOUTH VOYAGER VAN	
Vehicle 1 Vehicle 2	
Text # 1252 NHTSA Text Vehicle Number (20604 VIN (2P4FH21K6,IF598919	
Year 1988 Nake PLYHOUTH Nodel VOYAGER VAN Body VAN	
Engine 4 CYLINDER TRANSVERSE FRONT Displacement 25 I and Transmission MANUAL - FRONT WHEEL DRIVE	
Vehicle Modification Indicator Vehicle Modification(i) Description	
PRODUCTION VEHICLE [UNMODIFIED	
Portest Seering Calen Steer Caloude Soperation, 1921 APPLICABLE Steering Calen Collegie Mechanism, 1921 APPLICABLE Verkich Convertery, 1922 Closed 2/15	
Vehicle Length 4483 nm 176 inches Vehicle Test Weight 1556 K5 3437 pounds	
Vehicle Wielbare 2832 nm 112 inches Vehicle Width 1829 nm 72 inches	
C5 behind Florit Aule 1135 nm 45 inches Total Length of Indextation 1829 nm 72 inches	
Center of Damage to DS Avis 0 nm 0 inches Maximum Static Crush Depth 249 nm 10 inches	
Vehicle Danage Index DEEDEW2 Principal Direction of Force 180 Pie-Impact Speed 0 kph 0 mph	
Damage Profile Distance Measurements Crush from Pre & Post Test Damage Measurements	
(Measured Lek-to-Right, Res-to-Front) Past-Test Count Death	
DPD 1 229 9 Left Bunger Cerner 174 inches 165 inches 9 inches	
DPD 1 229 nm 9 inches Left Bunger Corner 1/4 inches 100 inches 9 inches DPD 2 249 nm 10 inches 4415 nm 4191 nm 224 nm	

To use the program, follow this "Yellow Brick Road":

1) Sister/Clone Reader -(a) - Select YEAR (b) - Select Manufacturer (c) - Select Model

2) Click on TEST SELECTION Tab

3) Select a test from the available tests which are displayed

V

T

T

4) View TEST INFORMATION ▼

5) View OCCUPANT DATA

6) View VEHICLE DATA

7) View STIFFNESS CALCS

8) Click on Reports - PRINT REPORT

V



#### PLEASE PRINT

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(E-mail address required for electronic delivery)
StifCalcs <sup>®</sup> (copies) x \$570.00 = \$
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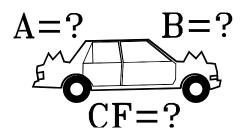
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# 4N6XPRT StifCalcs®



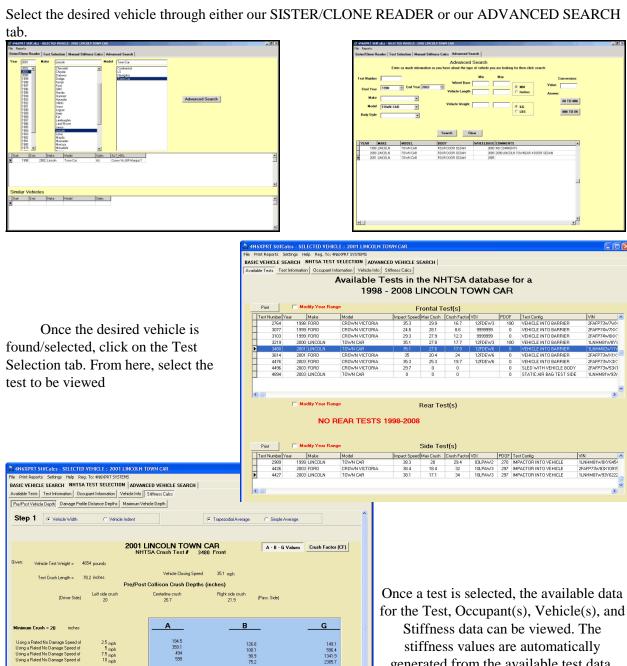
Quick, Convenient, Easy access to the NHTSA Crash Test data on your own MS-Windows computer without the need for an internet connection.

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## Web: http://www.4n6xprt.com E-Mail: <u>stifcalcs@4n6xprt.com</u>

1-800-266-9778



149.1 596.4 1341.9 2385.7

149.1 596.4 1341.9 2385.7

Using a Rated No Damage Speed of

Ising a Bated No Damage Speed o

rush = 23.8

Using a Rated No Damage Speed of Using a Rated No Damage Speed of

Using a Rated No Damage Speed o

laximum Crush =26.7 inches

Using a Rated No Damage Speed of

Using a Rated No Damage Speed of

Jsing a Rated No Damage Speed of

sing a Rated No Damage Speed o

Rated No Damage Speed = Imapc

resulting in no permenant vehicle deformation

Normal "Rated No Damage Speed" is 2.5 or 5 mph. Some specific

5 mph 7.5 mph

10 mo

2.5 mph 5 mph 7.5 mph 10 mph

speed with a barrie

163.4 301.8 415.1 503.4

145.7

370 448.7

A = Maximum force per inch of damage without pe B = Crush resistance per inch of damage width, lb/

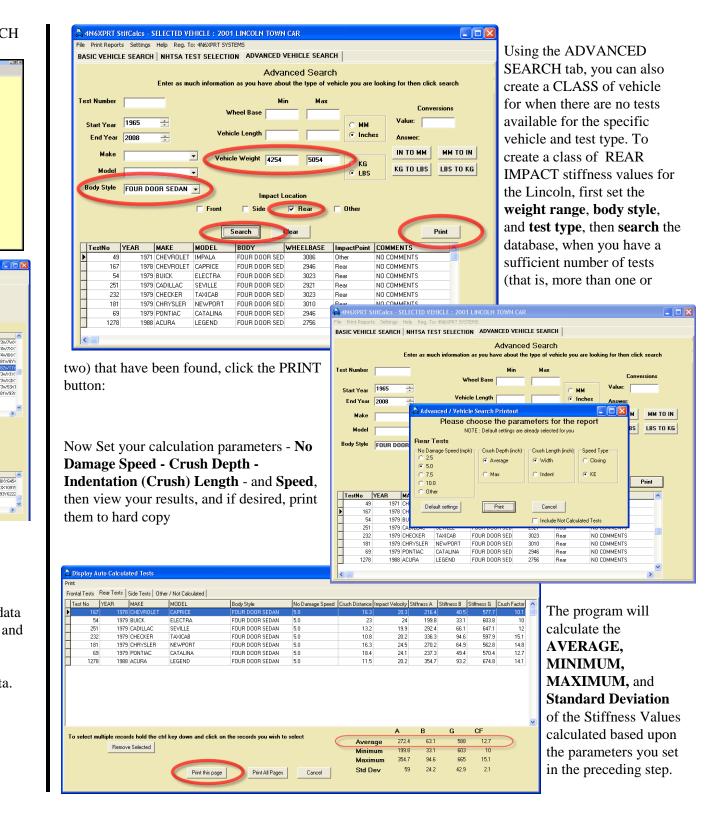
G = Energy dissipated without permenant damage, Ib

89.6 76.4

64.2 53.1

71.2 60.7

stiffness values are automatically generated from the available test data.



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Expert System Software for Litigation

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Please use this order form when ordering your programs. Due to conditions and rising costs beyond our control, Shipping & Handling must be paid per the included schedule.

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City:	State: Zip:	
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E-Mail:		
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Expert Qwic Calcs <sup>®</sup> :	\$ 275.00 <sup>*</sup>	\$
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Phone: 1- 800-266-9778 Fax: (619) 464-2206

Web Site: http://www.4n6xprt.com

E-Mail: 4n6@4n6xprt.com

Dear Customer,

Due to the governments desire ( both U.S. & California ) to "protect us" we will need the following information from you in order to process your credit card(s). Please complete this form and return it with your order.

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Expiration Date (MM/Y	YY):/		
1234 5678 9012 345 123 Loren been bren been bren been bren bren b		American Express →	AMERICANI EXPRESS

Security code (card ID) on back of Visa/MasterCard card or front of American Express Card:

Address for where the credit card bill is sent:

(*This is the address number - for instance, ours would be* **8387 University Avenue -** *that the credit card bill would go to, not where we would send the data or product to )* 

City/State/Zip for where the credit card bill is sent:

(- for instance, ours would be La Mesa, CA 91941 - that the credit card bill would go to, not where we would send the data or product to )

Authorized signature:

We appreciate your cooperation in supplying us with this information and understanding that it is being required of us to obtain the information.

Sincerely,

il United DE

Daniel W. Vomhof III General Manager/Technical Support

A Division of Expert Witness Services, Inc.

#### **SERVICE**

You may make your request by phone or fax. Our fax machine is on 24 hours, 7 days a week, and can be reached at (619) 464-2206. A request may also be made by e-mail, which reaches us when we are "on the road" as well as in the office..

Upon receiving your request, we will research you request and **fax the information to you at NO ADDITIONAL CHARGE!** Normal response time is one working day or less. Your hard copy will follow in the mail.

Please include the vehicle information on the sample order form when requesting your Individual Vehicle Data Search. Please also be sure to provide a Visa, MasterCard, or American Express number, name as it appears on the card, Expiration date, and the billing address # and Zip.

\*Pricing is for multiple vehicles on same Order/Request. Similar Vehicles may be required when it is not possible to determine the exact model of vehicle requested, based upon the information provided.

VIN DeCoding Information

## **FAX/Order Form**

Expert VIN Decoder & Expert AutoStats
 NHTSA Crash Test Results
 BOTH

Please circle <u>ALL OPTIONS</u> that apply

YEAR & MAKE:

MODEL:

If you are requesting VIN DeCoder & AutoStats please also provide the following information:

No. of Doors:	2/3/4/5
Body Style:	Coupe/Conv./Sedan/Wagon
SUV & P/U:	4x2 / 4x4 / Dual Rear Wheel
PICKUPS:	Std. / Extra / Super / Crew Cab
	Short Bed / Long Bed
VANS:	Cargo / Passenger
	Short / Long Wheelbase

VIN Information

1	2	3	4	5	6	7	8		9
	10	11	12	13	14	15	16	17	-

<u>NHTSA Crash Test Information</u> Impact location - Front / Side / Rear Impact Speed - Lower / Higher

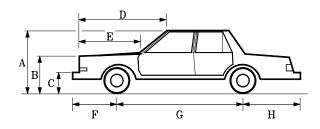
PAYMENT INFORMATION Visa/MasterCard / American Express:

Expires: \_\_\_\_ / \_\_\_\_

Name & Address:

Case Reference Name/Number:

## Individual Vehicle Data Search Service<sup>®</sup>



Providing Vehicle dimensional data, VIN DeCoding, and NHTSA Crash Test Results as a service to the Litigation community.

## E-Mail: ivdss@4n6xprt.com

FAX: (619) 464-2206 Phone: (619) 464-3478 / 1-800-266-9778

> 4N6XPRT Systems<sup>®</sup> Forensic Expert Software 8387 University Avenue, Suite P La Mesa, CA 91942-9342

## Web: http://www.4n6xprt.com

How often have you been confronted with the

following on a Traffic Collision Report - "87 Ford, 4 door, Blue"? We have the answer to the problem of determining WHICH Ford 4 door model this was!

We will DeCode the VIN number and provide you with the information contained within that VIN number

Information generally includes:

Year	OEM Engine
Make	Displacement/Type
Model	Rated Horsepower
Drive Wheels	Rated Torque
Rated Pass. Load	Iginition System
Plant of Manufacture	Fuel Line Pressure
Also ( <i>when provided</i> Gross Vehicle Weight Transmission	•

A DMV search for a vehicle identification from the registration will typically cost less than \$10.00 and will give the VIN number, Make, and Year of vehicle. However, to also obtain the vehicle Model requires a "Manual Search" which will typically cost \$30.00/vehicle/year searched.

With our service, you will be able to find out the model of vehicle as well as all of the other information mentioned above. This information will be faxed to you, typically in less than one working day, and the hard copy will follow in the mail.

Allow us to help you have all the information you require in your next Accident, Personal Injury, Criminal, Domestic, or Product Liability case.

## **Individual Vehicle Specifications**

Now you can get the Expert AutoStats® data for the vehicles in your case *QUICKLY*, *EASILY*, and *ECONOMICALLY*, instead of guessing, or begging a printout from a friend.

Our vehicle database includes dimensions on over 35,000 Cars, Vans, Lt. Pickups, and Utility Vehicles covering 1945 to the present.

Minimum Vehicle specifications include:

Overall Length	Curb Weight
Overall Width	Weight Distribution
Overall Height	Front/Rear Track
Wheelbase	CG Location
Model yeasr with No Signifi VIN DeCoding when VIN is p	0
Mid-60's to present <b>also in</b>	ncludes ( <i>when available</i> )
Fron/Reart Overhang	Bumper Heights
Hood height	Turning Circle
Bumper-to-hood	Ground-to-hood

Dimensions are given in both Imperial and metric (SI) units. Motorcycle specifications will be similar to the Vehicle specifications with appropriate changes where applicable.

While the VIN number contains much information, it does not contain everything needed to identify a particular vehicle in every situation. Therefore, we would appreciate you providing as much of the information on the order form as possible.

If you are not sure of the specific model, we will provide dimensions on the similar model vehicles matching the provided data for a small additional cost per model\*.

## Individual Vehicle Data Search Service<sup>®</sup> Charges & Services

## **Individual Vehicle Specifications**

\$40.00-First vehicle\*, \$35.00/Additional Vehicles\*, \$20.00/Additional Similar Model\*

## <u>Medium/Heavy Truck</u> <u>Specifications</u>

\$40.00-First vehicle\*, \$35.00/Additional Vehicles\*, \$20.00/Additional Similar Model\*

## **Motorcycle Specifications (1970+)**

**\$40.00-First cycle**\*, \$35.00/Additional cycles\*, \$20.00/Additional Similar Model\*

## **NHTSA Crash Test Results**

**\$40.00 per test -** Includes A, B, & G values Calculations are based on the test results

## **NHTSA Crash Test Results**

Test results include: General Test information, Barrier Data when provided, Vehicle Data as reported by the testing organization, Occupant (Dummy) data when provided, and A-B-G Stiffness calculations based on the test results.

You may make your request by phone or fax. Our fax machine is on 24 hours/day and can be reached at:

(619) 464-2206

## Individual Vehicle Data Search Service<sup>®</sup> Charges & Services

You may make your request by phone or fax. Our fax machine is on 24 hours/day and can be reached at

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#### **Individual Vehicle Specifications**

\$40.00-First vehicle\*, \$35.00/Additional Vehicles\*, \$20.00/Additional Similar Model\*

#### Medium/Heavy Truck Specifications

\$40.00-First vehicle\*, \$35.00/Additional Vehicles\*, \$20.00/Additional Similar Model\*

#### Motorcycle Specifications (1970+)

**\$40.00-First cycle**\*, \$35.00/Additional cycles\*, \$20.00/Additional Similar Model\*

#### **NHTSA Crash Test Results**

**\$40.00 per test** - Includes A, B, & G values Calculations are based on the test results

Contact Name & Address:

Phone: (	)	
Fax: (	)	

PAYMENT INFORMATION
Visa/MasterCard / American Express:

Expires: /	
Credit Card billing address and Zip:	
Address:	
Zip:	
Security Code #	

## FAX/Order Form

Expert VIN Decoder & Expert AutoStats
 NHTSA Crash Test Results
 BOTH

#### Please circle <u>ALL OPTIONS</u> that apply

#### YEAR & MAKE:

MODEL:

#### If you are requesting VIN DeCoder & AutoStats please also provide:

No. of Doors:	2/3/4/5
Body Style:	Coupe/Conv./Sedan/Wagon
SUV - P/U:	4x2 / 4x4 / Dual Rear Wheel
PICKUPS:	Std. / Extra / Super / Crew Cab
	Short Bed / Long Bed
VANS:	Cargo / Passenger
	Short / Long Wheelbase

#### VIN Information

1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17

#### **NHTSA Crash Test Information**

YEAR & MAKE:

## MODEL:

Impact location - Front / Side / Rear Impact Speed - Lower / Higher

Case Reference/Number:\_\_\_\_\_

## **FAX/Order Form**

# Expert VIN Decoder & Expert AutoStats NHTSA Crash Test Results BOTH

#### Please circle <u>ALL OPTIONS</u> that apply

YEAR & MAKE:

MODEL:			

If you are requesting VIN DeCoder & AutoStats please also provide:

No. of Doors:	2/3/4/5
Body Style:	Coupe/Conv./Sedan/Wagon
SUV - P/U:	4x2 / 4x4 / Dual Rear Wheel
PICKUPS:	Std. / Extra / Super / Crew Cab
	Short Bed / Long Bed
VANS:	Cargo / Passenger
	Short / Long Wheelbase
	Short Bed / Long Bed Cargo / Passenger

#### VIN Information

1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17

#### **NHTSA Crash Test Information**

\_\_\_\_\_

YEAR & MAKE:

#### MODEL:

Impact location - Front / Side / Rear Impact Speed - Lower / Higher

Case Reference/Number:\_\_\_\_\_

### **4N6XPRT Systems**

Expert System Software for Litigation

8387 University Avenue La Mesa, CA 91942-9342 FED Tax ID No.: 95-3121248

Phone: 1- 800-266-9778 Fax: (619) 464-2206

Web Site: http://www.4n6xprt.com

E-Mail: 4n6@4n6xprt.com

Dear Customer,

Due to the governments desire ( both U.S. & California ) to "protect us" we will need the following information from you in order to process your credit card(s). Please complete this form and return it with your order.

Card type: Am. Expre Card Number:	ess / Visa / MasterCard		
Expiration Date (MM/YY	Y):/		
1234 5678 9012 345 123 Leven (pase bree (pase bree pase bree pase) bree pase bree (pase bree pase) Card ID	←Visa/MasterCard	American Express →	AMERICANI EXPRESS

Security code (card ID) on back of Visa/MasterCard card or front of American Express Card:

Address for where the credit card bill is sent:

(*This is the address number - for instance, ours would be* **8387 University Avenue -** *that the credit card bill would go to, not where we would send the data or product to )* 

City/State/Zip for where the credit card bill is sent:

(- for instance, ours would be La Mesa, CA 91941 - that the credit card bill would go to, not where we would send the data or product to )

Authorized signature:

We appreciate your cooperation in supplying us with this information and understanding that it is being required of us to obtain the information.

Sincerely,

il United DE

Daniel W. Vomhof III General Manager/Technical Support

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