

**50 MPH REAR IMPACT
C/FMVSS 301**

2010 FORD TRANSIT CONNECT XLT WAGON

MGA Reference Number: C09C3-030.2

Test Date: September 15, 2009

Report Date: September 28, 2009

**PREPARED FOR:
MOBILITY ALLIANCE**

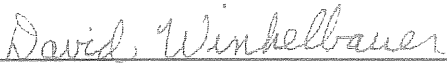
**PREPARED BY:
MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105**

SIGNATURE APPROVAL PAGE

Procedure Number: MGA Frontal/Rear/Side Impact
Dated June 11, 2008

Total Pages: 60

Prepared By: 
Joe Fleck, Project Engineer

Reviewed By: 
David Winkelbauer, Project Engineer

Technicians: Jamie Aide
Daniel Sienko Jr.
Jordan Haynes
Tim Novak
Matt Jacobson

Photographic: Chris Roach

Secretary: Cyndy Kline

The results presented in this report relate only to the specified test items.

TABLE OF CONTENTS

<u>Section</u>		<u>Page No</u>
1	Test Summary	1
2	Vehicle Information / Data Sheets	2
<u>Data Sheet No.</u>		<u>Page No.</u>
1	General Test and Vehicle Parameter Data	3
2	Summary of C/FMVSS 301 Data	4
3	Vehicle Measurements	6
4	Camera Locations	7
<u>Appendix</u>		
A	Photographs	A

SECTION 1

TEST SUMMARY

A 2010 Ford Transit Connect XLT Wagon was impacted by the FMVSS 214 moving deformable barrier at a velocity of 80.9 km/h. The test was performed at MGA Research Corporation on September 15, 2009. Pre-and post-test photographs of the vehicle can be found in Appendix A.

One real-time camera and three high-speed cameras were used to document the impact event. Camera locations and other pertinent camera information can be found in this report.

Two ballast dummies were placed in the driver and right-front passenger seating positions.

There was no Stoddard Solvent leakage after the event or during any phase of the static rollover.

TEST SPEED

Measured Parameter	Units	Value
Trap No. 1 Velocity (Primary)	km/h	80.9
Trap No. 2 Velocity (Redundant)	km/h	80.9

SECTION 2
VEHICLE INFORMATION / DATA SHEETS

Test Vehicle: 2010 Ford Transit Connect XLT Wagon Test Date: 9/15/2009
 Test Program: 50 mph Rear

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	English Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	mile/h	km/h	1.609
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Pressure	Tire Pressure	lbf/in ²	kPa	7.0
Temperature	General Use	°F	°C	$=(tf - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

*Based on the Recommended Practice in SAE J916, May 85

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2010 Ford Transit Connect XLT Wagon Test Date: 9/15/2009
 Test Program: 50 mph Rear

TEST VEHICLE INFORMATION

Manufacturer	Ford Motor Company
Model	Transit Connect XLT Wagon
VIN	NM0KS9BN7AT000042
Transmission	Automatic
Final Drive	Front
Number of Cylinders	4
Engine (L)	2.0
Engine Placement	Lateral

TEST VEHICLE OPTIONS

Driver Airbag	Yes
Passenger Airbag	Yes
Power Windows	Yes
Power Steering	Yes
Power Door Locks	Yes
Tilt Wheel	Yes
Air Conditioning	Yes
Power Brakes	Yes

TIRE DATA

Measured Parameter	Front	Rear
Cold Pressure (kPa)	250	340
Tire Size on Vehicle	P205/65R15	P205/65R15
Tire Manufacturer	Continental	Continental

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	440.9	408.7		489.4	516.7	
Right	kg	416.4	403.3		455.0	500.3	
Ratio	%	52.2	47.8		48.1	51.9	
Totals	kg	857.3	812.0	1669.3	944.4	1017.0	1961.4

Measurement Description	Units	Value
Test Vehicle Width	mm	1792
Vertical Impact	mm	11 down
Horizontal Impact	mm	0

Vehicle Wheelbase (mm): 2924

Weight of Ballast secured in cargo area (kg): 147.4

DATA SHEET NO. 2

C/FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2010 Ford Transit Connect XLT Wagon Test Date: 9/15/2009
 Test Program: 50 mph Rear

C/FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

FUEL TANK CAPACITY DATA

The "Usable Capacity" of the standard equipment fuel tank is: 56.8 liters

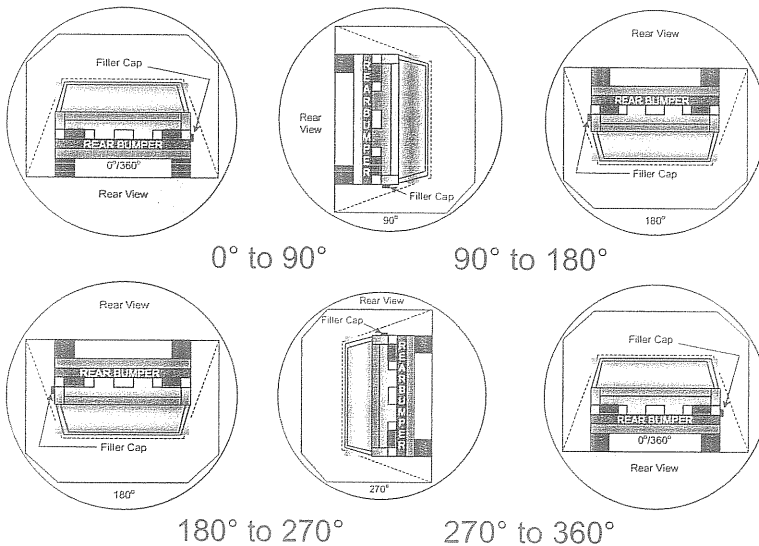
Actual amount of Stoddard solvent added to vehicle for certification test: 52.6 liters

Temperature at Time of Impact: 21° C

Stoddard Solvent Spillage Measurements

- A. From impact until vehicle motion ceases: 0 oz.
(Maximum Allowable = 1 ounce)
- B. For the 5 minute period after motion ceases: 0 oz.
(Maximum Allowable = 5 ounces)
- C. For the following 25 minutes: 0 oz.
(Maximum Allowable = 1 oz. /minute)

C/FMVSS 301 STATIC ROLLOVER DATA



1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.

2. The position hold time at each position is 300 seconds (minimum).

3. Details of Stoddard Solvent spillage locations:
None

DATA SHEET NO. 2

C/FMVSS 301 STATIC ROLLOVER DATA... (Continued)

Test Vehicle: 2010 Ford Transit Connect XLT Wagon Test Date: 9/15/2009
 Test Program: 50 mph Rear

0° TO 90° Rotation

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
First 5 minutes form onset of rotation	116	300	0
Sixth Minute from onset of rotation			0
Seventh minute from onset of rotation			0
Eight minute if required			0

90° TO 180° Rotation

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
First 5 minutes form onset of rotation	118	300	0
Sixth Minute from onset of rotation			0
Seventh minute from onset of rotation			0
Eight minute if required			0

180° TO 270° Rotation

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
First 5 minutes form onset of rotation	112	300	0
Sixth Minute from onset of rotation			0
Seventh minute from onset of rotation			0
Eight minute if required			0

270° TO 360° Rotation

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
First 5 minutes form onset of rotation	119	300	0
Sixth Minute from onset of rotation			0
Seventh minute from onset of rotation			0
Eight minute if required			0

DATA SHEET NO. 3
VEHICLE MEASUREMENTS

Test Vehicle: 2010 Ford Transit Connect XLT Wagon Test Date: 9/15/2009
Test Program: 50 mph Rear

VEHICLE MEASUREMENTS

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	2104	2065	39
C2	Crush zone 2 at left side	mm	2116	1917	199
C3	Crush zone 3 at left side	mm	2125	1910	215
C4	Crush zone 4 at right side	mm	2123	1931	192
C5	Crush zone 5 at right side	mm	2117	1971	146
C6	Crush zone 6 at right side	mm	2102	1931	171
L	C1 TO C6	mm	1198	1193	5

DATA SHEET NO. 4
CAMERA LOCATIONS

Test Vehicle: 2010 Ford Transit Connect XLT Wagon Test Date: 9/15/2009
 Test Program: 50 mph Rear

No.	Camera View	Location (mm) *			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Left Rear Half	-1120	-8095	1245	35	1000
2	Right Rear Half	-1150	8100	1260	35	1000
3	Right Overall	-2690	9230	1380	24	1000
4	Real Time				13	24

*COORDINATES:

- +X = Rearward of barrier
- +Y = Right of monorail centerline
- +Z = Above ground level