

**REPORT NUMBER: 301-MGA-2009-002**

**SAFETY COMPLIANCE TESTING FOR  
FMVSS NO. 301  
FUEL SYSTEM INTEGRITY**

**THOMAS BUILT BUSES  
2009 THOMAS MINOTOUR SCHOOL BUS  
NHTSA NO.: C90901**

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



**TEST DATE: JUNE 9, 2009**

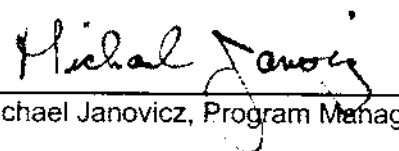
**FINAL REPORT DATE: OCTOBER 4, 2010**

**FINAL REPORT**

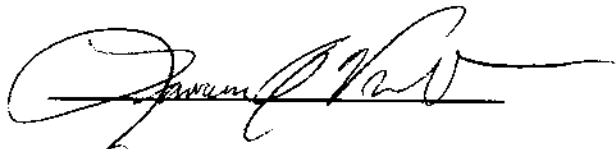
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### Technical Report Documentation Page

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<p>15. Supplementary Notes</p>			
<p>16. Abstract A compliance test was conducted on the subject 2009 Thomas Minotour School Bus, NHTSA No. C90901 in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-301-04 for the determination of FMVSS 301 compliance.</p> <p>Test failures were as follows: None</p>			
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**SECTION 1**  
**PURPOSE OF COMPLIANCE TEST AND SUMMARY**

A fuel system integrity test was performed on a MY2009 Thomas Minotour School Bus, NHTSA No. C90901, in accordance with the specifications of the Office of Vehicle Safety Compliance (OVSC) Test Procedure TP-301-04, to determine compliance to the requirements of Federal Motor Vehicle Safety Standards (FMVSS) 301, "Fuel System Integrity".

Based on the test results, the MY2009 Thomas Minotour School Bus, NHTSA No. C90901, appears to meet the requirements of FMVSS 301 testing.

This program is sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-08-D-00075.

**SECTION 2**  
**COMPLIANCE TEST DATA**

The following data sheets document the results of testing on the MY2009 Thomas Minotour School Bus, NHTSA No. C90901.

**DATA SHEET 1**  
**SCHOOL BUS DATA**

Test Vehicle: **2009 THOMAS MINOTOUR SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C90901**  
Test Date: **06/09/2009**

**GENERAL VEHICLE IDENTIFICATION**

School Bus Manufacturer:	Thomas Built Buses, Inc.	
School Bus Model:	Minotour	
Build Date:	07/08	
Incomplete Vehicle Manufactured By:	Chevrolet	
Build Date for Bus Chassis:	06/08	
School Bus GVWR (kg):	4,356 kg / 9,600 lbs	
School Bus GAWR Front (kg):	1,860 kg / 4,100 lbs	
School Bus GAWR Rear (kg):	2,760 kg / 6,084 lbs	
School Bus VIN:	1GBHG31C181210142	
No. of Designated Seating Positions (DSP) including Driver:	21	
School Bus NHTSA No.:	C90901	
Bus Body Color:	Yellow	
Engine Displacement	4.8L	
No. of Cylinders:	8	
Fuel Pump Actuation:	Electrical Pump "ON" with ignition	
School Bus Width (mm):	2084	
School Bus Length (mm):	6230	
Bus Unloaded Vehicle Weight (UVW) (kg):	3066	
Bus Occupant Load:	1080 kg - Passenger 68 kg - Driver 1148 kg - Total	
Target Bus Test Weight (SBTW) (kg):	3286	
Actual (SBTW) (kg):	3277	
School Bus Tire Manufacturer:	Bridgestone	
	Front	Rear
Rec. Cold Tire Inflation Pressure (kpa):	551	551
Tire Size:	LT245/75R16	LT245/75R16
Load Range:	E	E

**DATA SHEET 1 (CONTINUED)**

**SCHOOL BUS DATA**

Test Vehicle: **2009 THOMAS MINOTOUR SCHOOL BUS**  
 Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C90901**  
 Test Date: **06/09/2009**

**GENERAL VEHICLE IDENTIFICATION**

**SCHOOL BUS ATTITUDE**

	Units	LF	RF	LR	RR
Pre-Test:	mm	890	902	870	875

**FUEL TANK CAPACITY INFORMATION**

Fuel Tank Capacity (liters):	123.8
Tank Test Volume (liters):	115.1

**TEST VEHICLE WEIGHTS**

	Units	As Delivered (UVW)			As Tested (ATW)*		
		Front	Rear	Total	Front	Rear	Total
Left	kg	757	816		777	904	
Right	kg	706	787		718	877	
Ratio	%	47.7	52.3		45.6	54.4	
Totals	kg	1463	1603	3066	1495	1781	3276

COMMENTS: NONE

Recorded By: *Evo Leachman*

Approved By: *Michael Janoy*

DATE: 06/16/2009



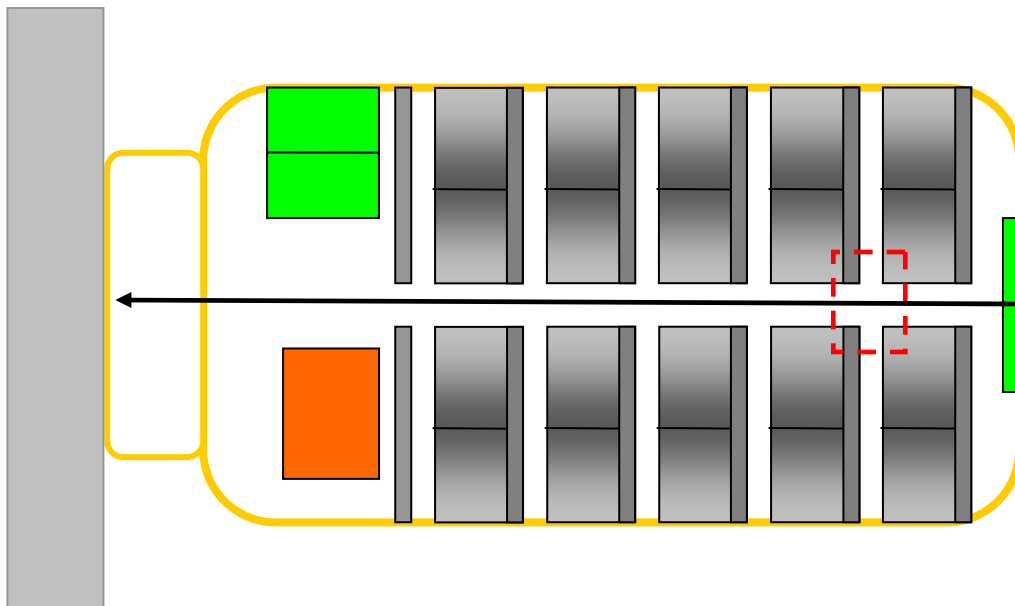
**DATA SHEET 2**  
**SCHOOL BUS IMPACT DATA**

Test Vehicle: **2009 THOMAS MINOTOUR SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C90901**  
Test Date: **06/09/2009**

Time of Impact:	9:13 AM
Ambient Temperature (°C)	21
Barrier Velocity – Speed Trap 1 (kph):	29.5
Barrier Velocity – Speed Trap 2 (kph):	29.5

**INDICATE IMPACT POINT BELOW:**



**LEGEND:** Red dotted line indicates location of fuel tank  
Arrow indicates point and angle of barrier impact ( $C_L$  of arrow coincides with  $C_L$  of monorail).

**DATA SHEET 2 (CONTINUED)**  
**SCHOOL BUS IMPACT DATA**

Test Vehicle: **2009 THOMAS MINOTOUR SCHOOL BUS**  
 Test Lab: **MGA RESEARCH CORPORATION**


NHTSA No.: **C90901**  
 Test Date: **06/09/2009**

Fuel Spillage Noted:	No
Failure, if applicable:	None

**Stoddard Solvent Spillage Measurements**

Timeframe	Description	Allowable Spillage (ounce)	Measured Spilled (ounce)	Results
T <sub>0</sub> – T <sub>1</sub>	Time Zero to Cessation of Motion	31 grams (1 ounce)	0	PASS
T <sub>1</sub> – T <sub>2</sub>	Cessation of Motion to 5 minutes after Cessation of Motion	156 grams (5 ounces)	0	PASS
T <sub>2</sub> – T <sub>3</sub>	5 Minutes after Cessation of Motion to 30 minutes after Cessation of Motion	28 grams (1 ounce) per minute 775 grams (25 ounces) Total Allowed	0	PASS

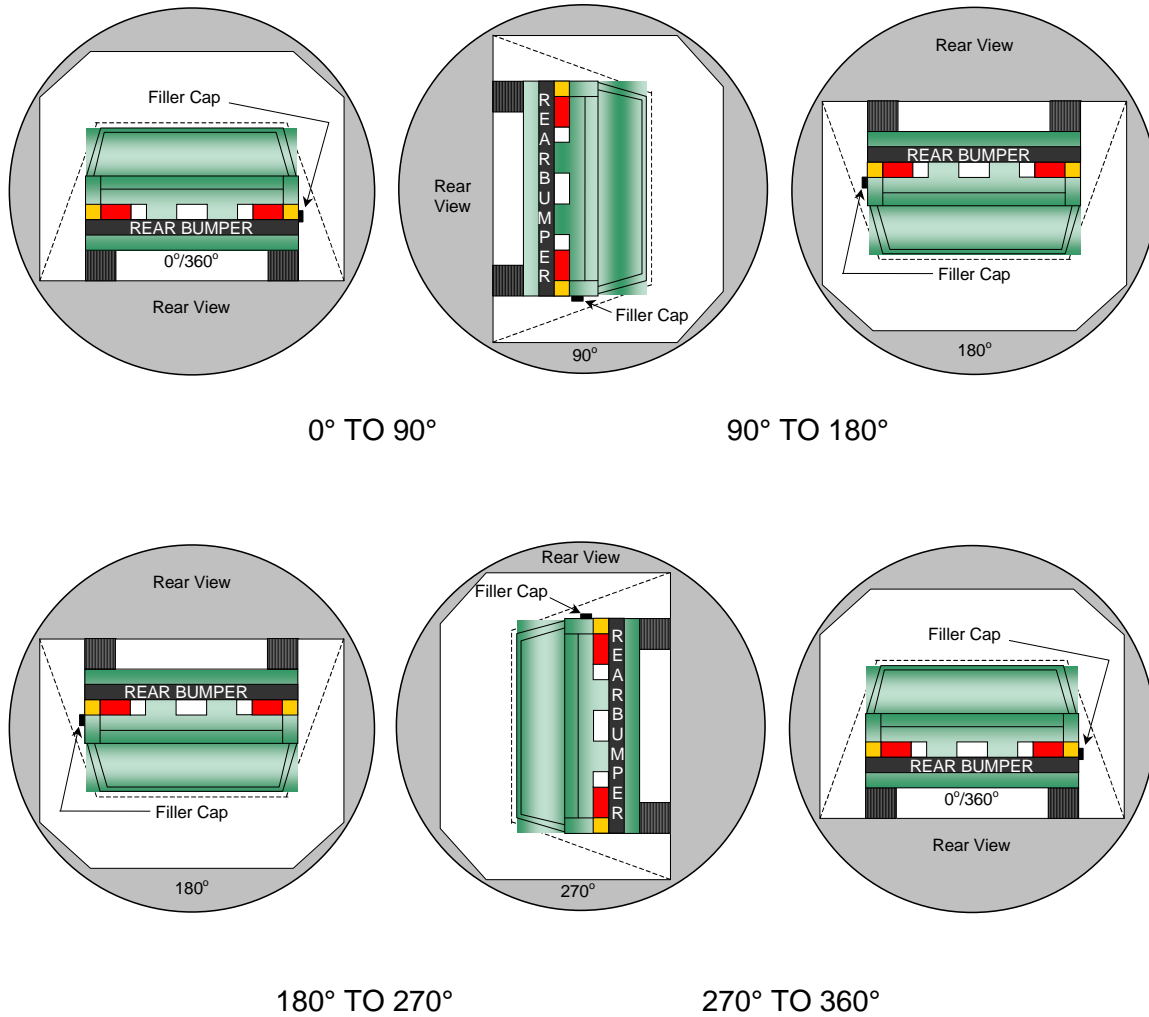
COMMENTS: None

Recorded By: 

Approved By: 

DATE: 06/16/2009

**DATA SHEET 3**  
**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:

Test Phase	Rotation Time (sec)	Hold Time (sec)	Spillage (oz)
0° TO 90°	162	300	0
90° TO 180°	142	300	0
180° TO 270°	149	300	0
270° TO 360°	164	300	0

**SECTION 3**

**INSTRUMENTATION AND EQUIPMENT LIST**

Test Vehicle: **2009 THOMAS MINOTOUR SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C90901**  
Test Date: **06/09/2009**

<b>Equipment</b>	<b>Description</b>	<b>Serial No.</b>	<b>Cal. Date</b>	<b>Next Cal. Date</b>
Counter/Timer	Newport	5140023	03/27/09	09/27/09
Counter/Timer	Newport	5270452	03/27/09	09/27/09
Vehicle Scales	GSE	004804	09/09/08	09/09/09
Tape Measure	Stanley	33-428	11/11/08	05/11/09

**SECTION 4  
PHOTOGRAPHS**

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Test Vehicle: 2009 Thomas Minotour School Bus NHTSA No.: C90901  
Procedure: FMVSS 301 Test Date: 6/9/09



HIGH POINT, NORTH CAROLINA  
MFD BY THOMAS BUILT BUSES INC.

07-2008  
06-2008

INC VEH MFD BY: CHEVROLET  
GVWR 4356KG ( 9600LB)

GAWR FRONT: 01860 KG(04100LB)W/16X6.5 RIMS, 245/75R16  
TIRES@552KPA(080PSI)COLD, "E"LOAD RATING, SINGLE

GAWR REAR : 02760 KG(06084LB)W/16X6.5 RIMS, 245/75R16  
TIRES@552KPA(080PSI)COLD, "E"LOAD RATING, SINGLE

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR  
VEHICLE SAFETY STANDARDS IN EFFECT IN: 06/2008

VIN: 1GBHG31C181210142 VEH. TYPE: SCHOOL BUS

BODY ID: 16036-0810811-041LS

CHASSIS ID NO: 97407

PROUDLY MANUFACTURED IN THE USA

Test Vehicle: 2009 Thomas Minotour School Bus NHTSA No.: C90901  
Procedure: FMVSS 301 Test Date: 6/9/09

 INCOMPLETE VEHICLE MANUFACTURED BY 06/08  
GENERAL MOTORS CORPORATION  
DETROIT, MICHIGAN 48243  
GVWR GAWR FRT GAWR RR  
4355KG(9600LB) 1860KG(4100LB) 2760KG(6084LB)  
**1GBHG31C181210142** TYPE: INC VEH  
MODEL: G33503



Test Vehicle: 2009 Thomas Minotour School Bus NHTSA No.: C90901  
 Procedure: FMVSS 301 Test Date: 6/9/09



# TIRE INFORMATION

THE COMBINED WEIGHT OF OCCUPANTS / CARGO SHOULD NEVER EXCEED 10184.00 LBS. OR 4619.39 KG.

SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION

<b>ORIGINAL TIRE SIZE</b>	<b>COLD TIRE INFLATION PRESSURE</b>				
LT24575R16	FRONT	80 psi / 551.58 kPa			
	REAR	80 psi / 551.58 kPa			

SEATING CAPACITY TOTAL INCLUDING DRIVER	1	2	3	4	5
	1	0	0	0	2

VIN # 1GBHG31C181210142 Order # 16036

Tire Placard

Test Vehicle: 2009 Thomas Minotour School Bus NHTSA No.: C90901  
Procedure: FMVSS 301 Test Date: 6/9/09



Pre-Test Front View of School Bus

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301  
NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Front View of School Bus



Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301  
NHTSA No.: C90901  
Test Date: 6/9/09



Pre-Test Left Side View of School Bus

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301  
NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Left Side View of School Bus



Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Pre-Test Right Side View of School Bus

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301  
NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Right Side View of School Bus



Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Pre-Test Rear View of School Bus



Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Rear View of School Bus

Test Vehicle: 2009 Thomas Minotour School Bus NHTSA No.: C90901  
Procedure: FMVSS 301 Test Date: 6/9/09



Pre-Test Right Front ¾ View of School Bus



Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301  
NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Right Front  $\frac{3}{4}$  View of School Bus

Test Vehicle: 2009 Thomas Minotour School Bus      NHTSA No.: C90901  
Procedure: FMVSS 301                                      Test Date: 6/9/09



Pre-Test Left Front ¾ View of School Bus



Test Vehicle: 2009 Thomas Minotour School Bus      NHTSA No.: C90901  
Procedure: FMVSS 301      Test Date: 6/9/09



Post-Test Left Front ¾ View of School Bus

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301  
NHTSA No.: C90901  
Test Date: 6/9/09



Pre-Test Right Rear 3/4 View of School Bus



Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Right Rear 3/4 View of School Bus

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301  
NHTSA No.: C90901  
Test Date: 6/9/09



Pre-Test Left Rear  $\frac{3}{4}$  View of School Bus



Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Left Rear 3/4 View of School Bus

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301  
NHTSA No.: C90901  
Test Date: 6/9/09



Pre-Test Fuel Filler Cap

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301  
NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Fuel Filler Cap



Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Pre-Test Driver Dummy Left Side View

Test Vehicle: **2009 Thomas Minotour School Bus**  
Procedure: **FMVSS 301**

NHTSA No.: **C90901**  
Test Date: **6/9/09**



Post-Test Driver Dummy Left Side View



Test Vehicle: **2009 Thomas Minotour School Bus**  
Procedure: **FMVSS 301**

NHTSA No.: **C90901**  
Test Date: **6/9/09**



Pre-Test Driver Dummy Left Side View (door open)

Test Vehicle: **2009 Thomas Minotour School Bus**  
Procedure: **FMVSS 301**

NHTSA No.: **C90901**  
Test Date: **6/9/09**

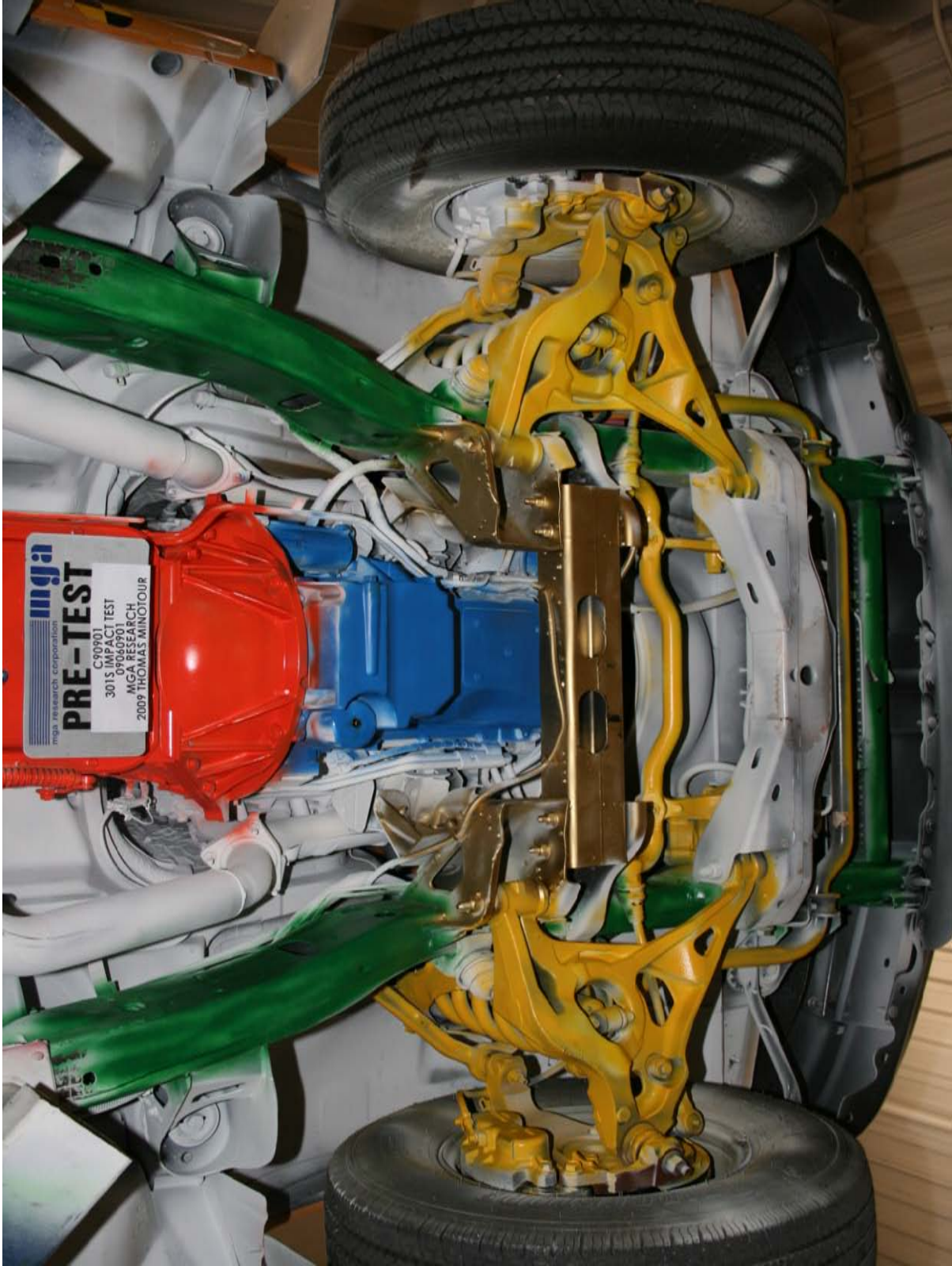


Post-Test Driver Dummy Left Side View (door open)



**Test Vehicle:** 2009 Thomas Minotour School Bus  
**Procedure:** FMVSS 301

**NHTSA No.:** C90901  
**Test Date:** 6/9/09



Pre-Test Front Underbody View



Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Front Underbody View

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Pre-Test Mid Underbody View



**Test Vehicle:** 2009 Thomas Minotour School Bus  
**Procedure:** FMVSS 301

**NHTSA No.:** C90901  
**Test Date:** 6/9/09



Post-Test Mid Underbody View

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301  
NHTSA No.: C90901  
Test Date: 6/9/09



Pre-Test Rear Underbody View



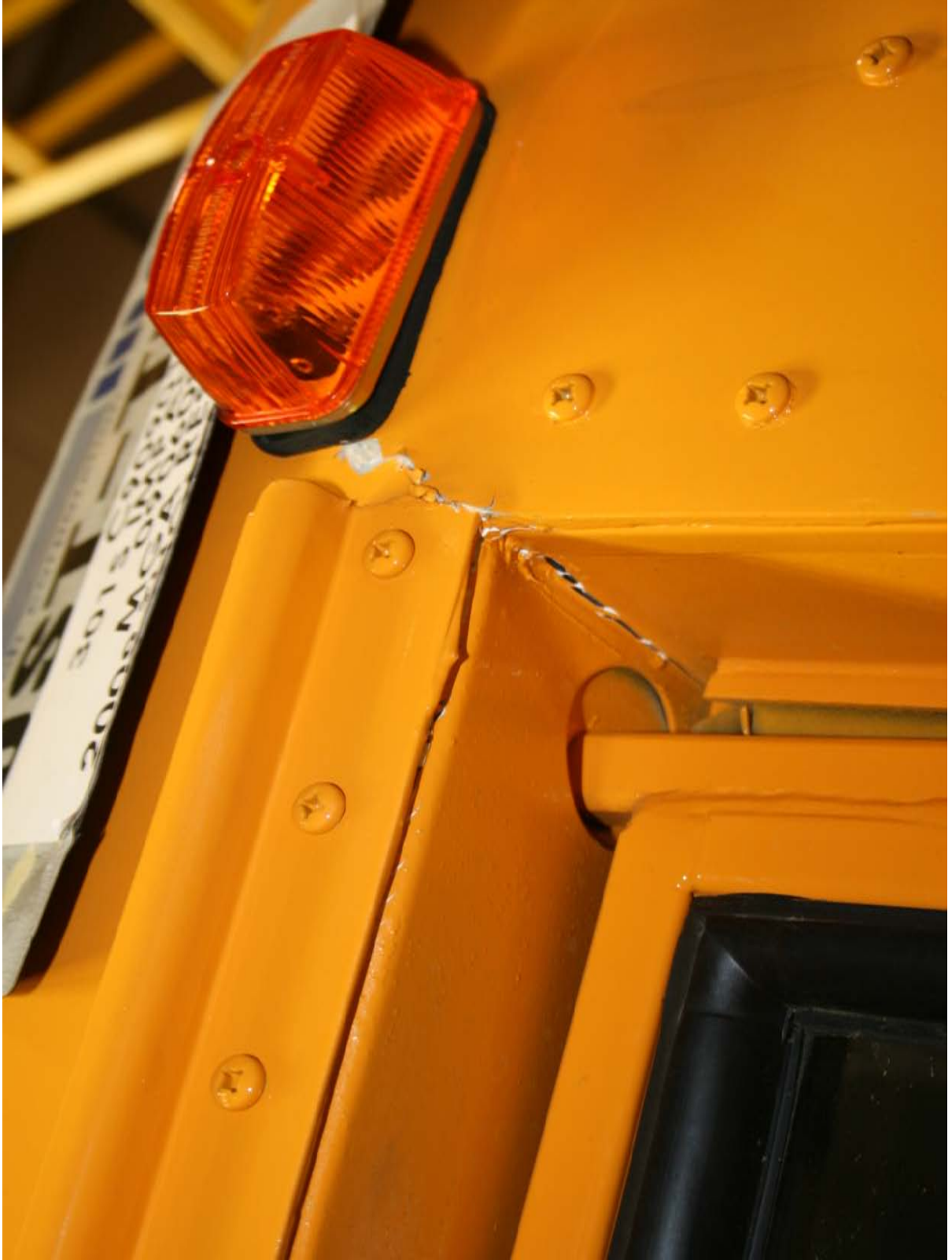
Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Rear Underbody View

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301  
NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Vehicle Damage Right Side Upper Corner of Door

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301  
NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Vehicle Damage Right Side Upper Corner of Door



Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Vehicle Damage Right Front Corner above Windshield



Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301  
NHTSA No.: C90901  
Test Date: 6/9/09



Post-Test Vehicle Damage Right Front Corner above Windshield (Close Up)

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Rollover 90 Degrees

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Rollover 180 Degrees



Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Rollover 270 Degrees

Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Rollover 360 Degrees



Test Vehicle: 2009 Thomas Minotour School Bus  
Procedure: FMVSS 301

NHTSA No.: C90901  
Test Date: 6/9/09



Ballast Weight