

REPORT NUMBER: 301SB-MGA-2011-004

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

**2010 STARTRANS MFSAB BUS
NHTSA NO.: CA0900**

**PREPARED BY:
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BURLINGTON, WI 53105**



TEST DATE: JANUARY 3, 2012

FINAL REPORT DATE: JANUARY 17, 2012

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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Technical Report Documentation Page

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16. Abstract A compliance test was conducted on the subject 2010 StarTrans MFSAB Bus, NHTSA No. CA0900 in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-301S-02 for the determination of FMVSS 301 compliance. Test failures identified were as follows: None			
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SECTION 1
PURPOSE OF COMPLIANCE TEST AND SUMMARY

A fuel system integrity test was performed on a MY2010 StarTrans MFSAB Bus, NHTSA No. CA0900, in accordance with the specifications of the Office of Vehicle Safety Compliance (OVSC) Test Procedure TP-301S-02, to determine compliance to the requirements of Federal Motor Vehicle Safety Standards (FMVSS) 301, "Fuel System Integrity".

Based on the test results, the MY2010 StarTrans MFSAB Bus, NHTSA No. CA0900, 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 MY2010 StarTrans MFSAB Bus, NHTSA No. CA0900.

DATA SHEET 1

BUS DATA

Test Vehicle: **2010 StarTrans MFSAB Bus**
 Test Lab: **MGA Research Corporation**

NHTSA No.: **CA0900**
 Test Date: **01/03/12**

GENERAL VEHICLE IDENTIFICATION

Bus Manufacturer	StarTrans	
Bus Model	MFSAB	
Build Date	10/10	
Incomplete Vehicle Manufactured By	General Motors	
Build Date for Bus Chassis	11/09	
Bus GVWR (kg)	6,441 kg / 14,200 lb	
Bus GAWR Front (kg)	2,087 kg / 4,600 lb	
Bus GAWR Rear (kg)	4,354 kg / 9,600 lb	
Bus VIN	1GB9G5AG4A1118869	
No. of Designated Seating Positions (DSP) including Driver	21	
Bus NHTSA No.	CA0900	
Bus Body Color	White	
No. of Cylinders	8	
Engine Displacement (L)	6.0 – Longitudinal	
Fuel Pump Actuation	Electric	
Bus Width (mm)	2,419	
Bus Length (mm)	7,360	
Bus Unloaded Vehicle Weight (UVW) (kg)	4,366	
Bus Occupant Load	1,080 kg - Passenger 68 kg - Driver 1,148 kg - Total	
Target Bus Test Weight (SBTW) (kg)	5,505 to 5,514	
Actual (SBTW) (kg)	5,509	
Bus Tire Manufacturer	Continental	
	Front	Rear
Rec. Cold Tire Inflation Pressure (kPa)	450	550
Tire Size	LT225/75R16	LT225/75R16
Load Range	E	E

DATA SHEET 1

BUS DATA

GENERAL VEHICLE IDENTIFICATION

BUS ATTITUDE

	Units	LF	RF	LR	RR
Pre-Test (As Received)	mm	883	879	821	809
Post Test	mm	866	875	804	786

FUEL TANK CAPACITY INFORMATION


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

TEST VEHICLE WEIGHTS

	Units	As Delivered			As Tested		
		Front	Rear	Total	Front	Rear	Total
Left	kg	771	1,397		814	1,921	
Right	kg	762	1,436		815	1,959	
Ratio	%	35.1	64.9		29.6	70.4	
Totals	kg	1,533	2,833	4,366	1,629	3,880	5,509

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 01/03/12

DATA SHEET 2
BUS IMPACT DATA

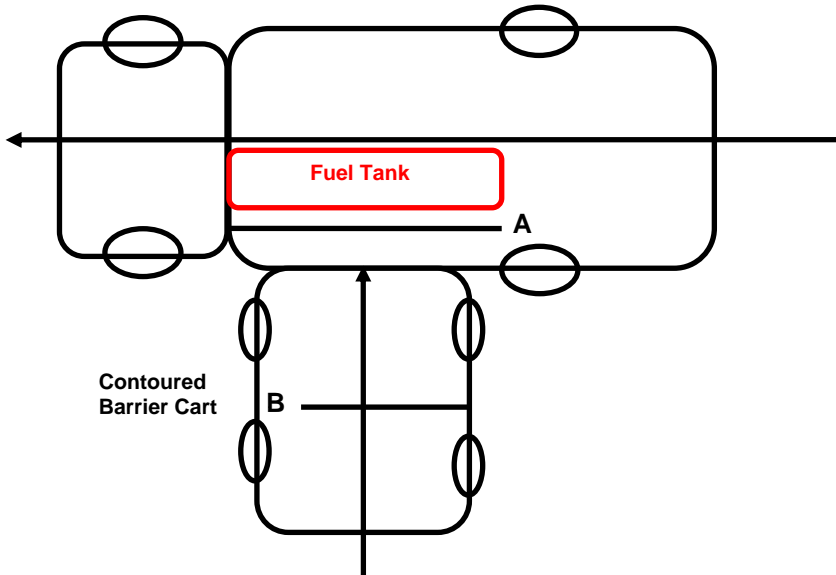
Test Vehicle: **2010 StarTrans MFSAB Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CA0900**
Test Date: **01/03/12**

IMPACT INFORMATION

Time of Impact	10:06 AM
Ambient Temperature (°C)	21
Barrier Velocity – Speed Trap 1 (kph)	47.8
Barrier Velocity – Speed Trap 2 (kph)	47.7
Barrier Penetration	711 mm

INDICATE IMPACT POINT BELOW:



LEGEND: Arrow indicates point and angle of barrier impact
(C_L of arrow coincides with C_L of monorail).

DESCRIPTION: Fuel tank is located on the right side of the vehicle, just rearward of the front axle.


DATA SHEET 2
BUS IMPACT DATA


Fuel Spillage Noted	No
Failure, if applicable	None

STODDARD SOLVENT SPILLAGE MEASUREMENTS

Timeframe	Description	Allowable Spillage	Measured Spilled	Results
T ₀ – T ₁	Time Zero to Cessation of Motion	31 grams (1 ounce)	0	PASS
T ₁ – T ₂	Cessation of Motion to 5 minutes after Cessation of Motion	156 grams (5 ounces)	0	PASS
T ₂ – T ₃	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: 01/03/12

SECTION 3
INSTRUMENTATION AND EQUIPMENT LIST

Equipment	Manufacturer	Serial No.	Cal. Date	Next Cal. Date
Counter/Timer	Newport	0080077	10/03/11	04/03/12
Counter/Timer	Newport	0080076	10/03/11	04/03/12
Vehicle Scales	GSE	004804 & 212091R	09/28/11	03/28/12
Tape Measure	Stanley Powerlock	551	08/19/11	02/19/12

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PHOTOGRAPHS

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NHTSA No.: CA0900
Test Date: 01/03/12

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation

NOTICE!
ANY WORK THAT
WARRANTY RELATED
ED, CONTACT YOUR
DEALERSHIP OR
S WARRANTY DEPT.
-258-1391
NOTICE!
WORK DONE
SECURING PRIOR
IZATION NUMBER
NOT BE PAID
REIMBURSED
ARTRANS BUS. 075748

MFD BY:

STARTRANS

A Supreme Indiana Operations Inc. Company
JONESTOWN, PA

DATE OF MFR: MO. 10 YR. 10

INC VEH. MFD BY:
GENERAL MOTORS

DATE OF INC. VEH. MFR
MO. 11YR. 09

GVWR: 6441 KG,(14200 LB)

GAWR-FRONT: 2087 KG,(4600 LB)

GAWR-REAR: 4354 KG,(9600 LB)

THIS VEHICLE HAS BEEN COMPLETED IN
ACCORDANCE WITH THE PRIOR
MANUFACTURER'S IVD WHERE APPLICABLE.
THIS VEHICLE CONFORMS TO ALL APPLICABLE
FEDERAL MOTOR VEHICLE SAFETY
STANDARDS AND BUMPER AND THEFT
PROTECTION STANDARDS, IF APPLICABLE
EFFECT IN: MO. 11YR. 09

VEHICLE ID#: 1GB9G5AG4A1118869

VEHICLE TYPE: BUS

SUITABLE TIRE-RIM CHOICE

FRONT: LT225/75R16E	TIRES
16X6.5J RIMS 450 KPA,	
(65 PSI) COLD SINGLE	

REAR: LT225/75R16E	TIRES
16X6.5J RIMS 550 KPA,	
(80 PSI) COLD DUAL	

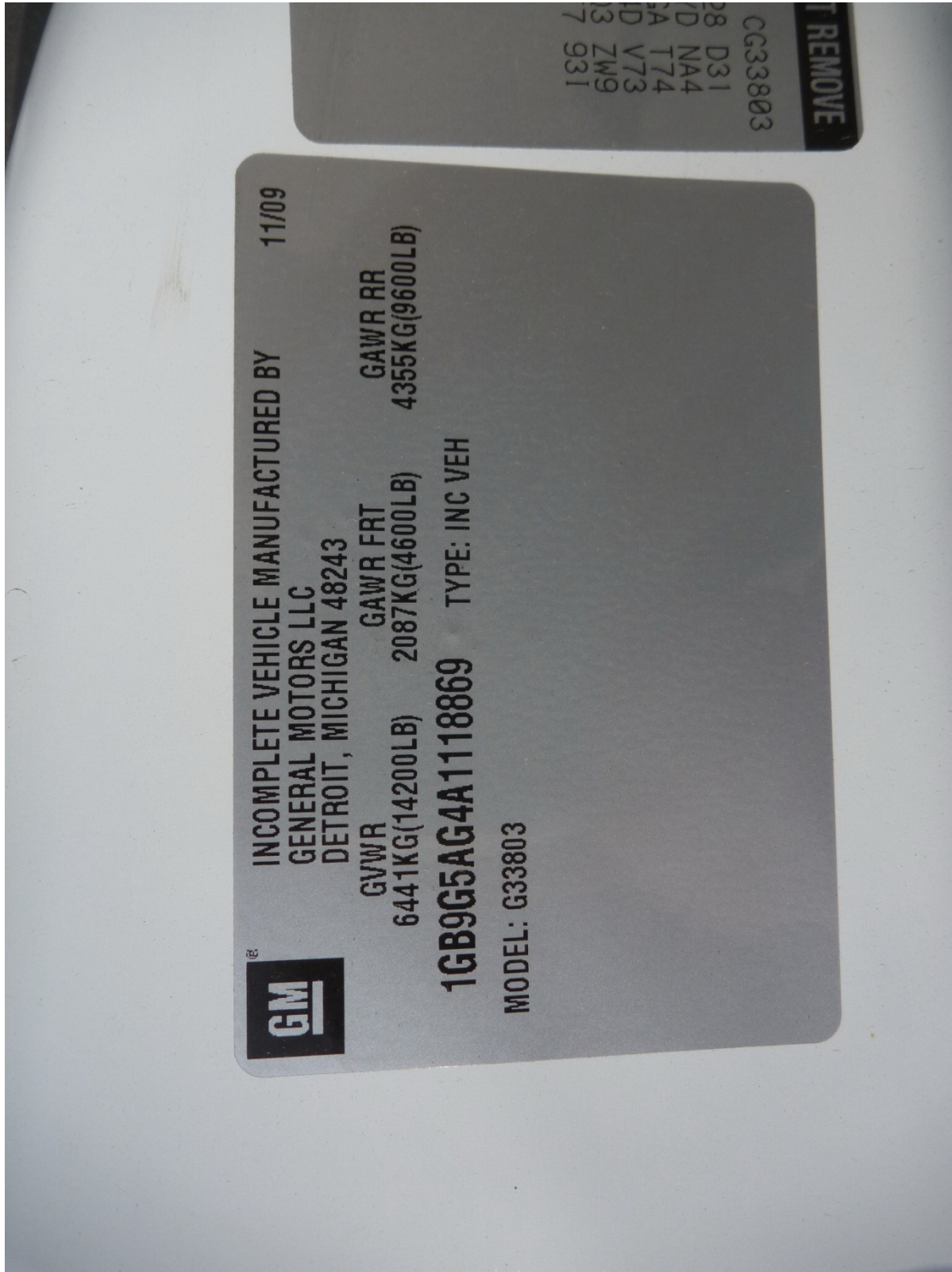
BODY NUMBER: A0056059

MODEL: MFSAB24S

CAPACITY: 20 + Driver

Vehicle Certification Label/Tire Placard

Test Vehicle: 2010 StarTrans MFSAB Bus NHTSA No.: CA0900
Test Lab: MGA Research Corporation Test Date: 01/03/12



Incomplete Vehicle Label

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Front View of Bus (Receiving Photograph)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation

NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Left Front Three-Quarter View of Bus (Receiving Photograph)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Right Front Three-Quarter View of Bus (Receiving Photograph)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Left Side View of Bus (Receiving Photograph)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Right Side View of Bus (Receiving Photograph)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Rear View of Bus (Receiving Photograph)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Left Rear Three-Quarter View of Bus (Receiving Photograph)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Right Rear Three-Quarter View of Bus (Receiving Photograph)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Cart Positioned by Bus (Rear View)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation

NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Cart and Bus (Rear View)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation

NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Cart Positioned by Bus (Side View)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Cart and Bus (Side View)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Cart Positioned by Bus (Front View)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Cart and Bus (Front View)

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Impact Close-up View

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Impact View 1

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation

NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Impact View 2

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Impact View 3

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Left Front Three-Quarter View of Bus Without Cart

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Right Front Three-Quarter View of Bus Without Cart

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation

NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Left Rear Three-Quarter View of Bus Without Cart

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Right Rear Three-Quarter View of Bus Without Cart

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Left Side View of Bus

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Fuel Filler Cap

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Fuel Filler Cap

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Fuel Tank Overall View

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Fuel Tank View 1

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Fuel Tank View 1

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Fuel Tank View 2

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Fuel Tank View 2

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test Fuel Tank View 3

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Post-Test Fuel Tank View 3

Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation

NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test View of Ballast Weight View 1

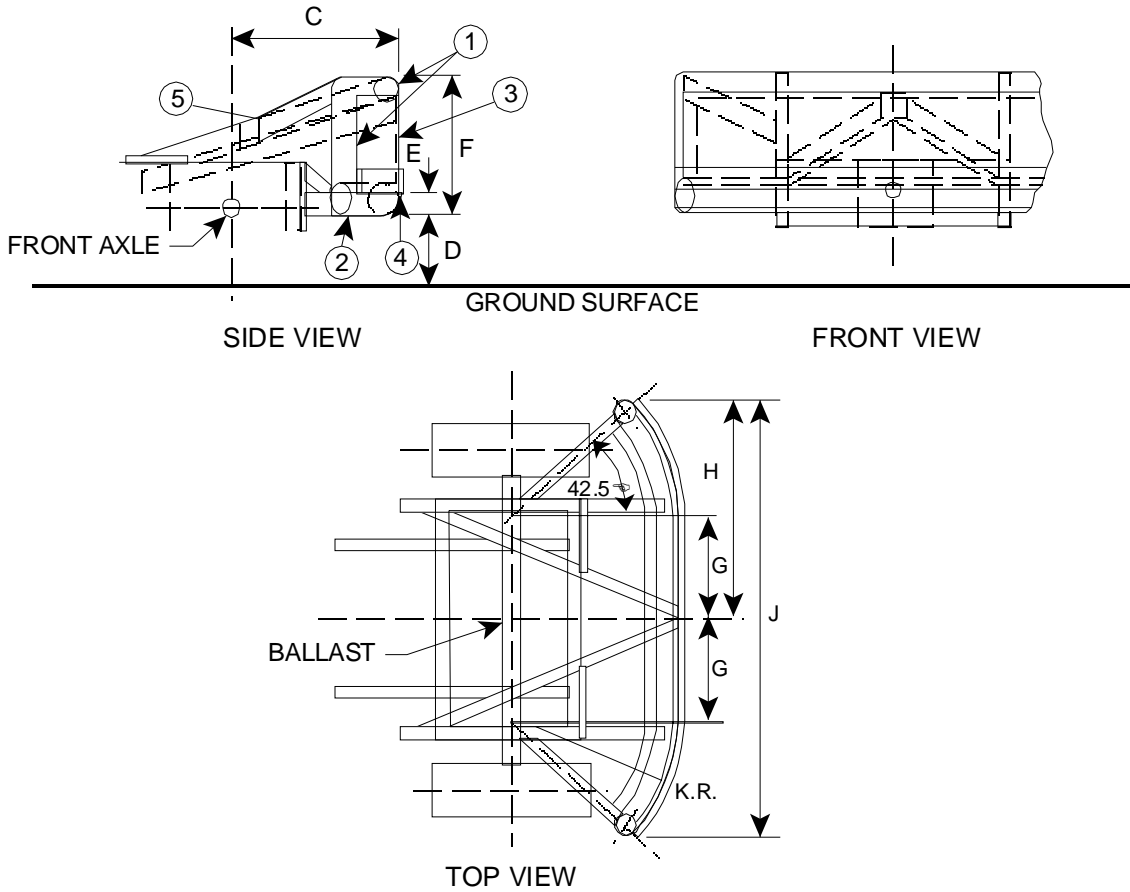
Test Vehicle: 2010 StarTrans MFSAB Bus
Test Lab: MGA Research Corporation
NHTSA No.: CA0900
Test Date: 01/03/12



Pre-Test View of Ballast Weight View 2

SECTION 5
BARRIER INFORMATION

CONTOURED IMPACT SURFACE FOR COMMON CARRIAGE



DIMENSIONS SHOWN IN TABLE ON NEXT PAGE

NOTES:

1. Upper Frame 4.0 in. dia x 0.25 in. wall (102 mm dia x 6 mm wall)
Steel Tubing (3 Sides)
2. Lower Frame 6.0 in. dia x 0.50 in. wall (152 mm dia x 13 mm wall)
Steel Tubing
3. Face Plate 0.75 in. (19 mm) thick cold rolled steel
4. Leading Edge 1.0 s 4.0 in. (25 x 102 mm) steel band, sharp
edges broken
5. All Inner Reinforcements 4.0 x 2.0 x 0.19 in. (102 x 51 x 5 mm)
steel tubing

Total Weight = 4,000 ± 50 lbs (1,814.1 ± 22.7 kg)

Weight at each Rear Wheel =
900 ± 25 lbs (408.2 ± 11.3 kg)

Weight at each Front Wheel =
1,100 ± 25 lbs (499.0 ± 11.3 kg)

Moments of Inertia:

$I_x = 271 \pm 13.6 \text{ slug-ft}^2 \text{ (} 367 \pm 18.4 \text{ kg-m}^2\text{)}$

$I_z = 3,475 \pm 174 \text{ slug-ft}^2 \text{ (} 4,711 \pm 236 \text{ kg-m}^2\text{)}$

SECTION 5
BARRIER INFORMATION

DIMENSIONS FOR CONTOURED IMPACT SURFACE

LETTER	INCHES	MILLIMETERS
A	54.0	1372
B	15.8	401
C	30.0	762
D	5.25	133
E	3.75	95
F	24.75	629
G	18.0	457
H	39.0	991
J	78.0	1981
K	30.0	762