

**REPORT NUMBER: 131SB-MGA-2009-003**

**SAFETY COMPLIANCE TESTING FOR  
FMVSS NO. 131SB  
SCHOOL BUS PEDESTRIAN SAFETY DEVICES**

**COLLINS BUS CORPORATION  
2008 COLLINS GRAND BANTAM SCHOOL BUS  
NHTSA NO.: C80900**

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



**TEST DATE: JANUARY 12, 2009**

**FINAL REPORT DATE: JANUARY 26, 2009**

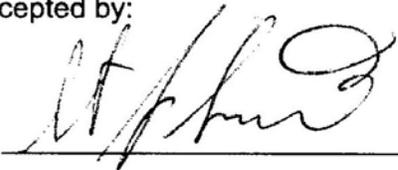
**FINAL REPORT**

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NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
ENFORCEMENT  
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Prepared by:  Date: January 26, 2009  
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Final report accepted by:  


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### Technical Report Documentation Page

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<b>15. Supplementary Notes</b>			
<b>16. Abstract</b> Compliance tests were conducted on the subject, 2008 Collins Grand Bantam School Bus, NHTSA No.: C80900, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-131SB-01 for the determination of FMVSS 131 compliance.  Test failures identified were as follows: None			
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**SECTION 1**  
**PURPOSE OF COMPLIANCE TEST**

Tests were conducted by the MGA Research Corporation-Wisconsin Operations on a 2008 Collins Grand Bantam School Bus, NHTSA No.: C80900, in accordance with the specifications of the Office of Vehicle Safety Compliance (OVSC) Test Procedures TP-131SB-01 to determine compliance to the requirements of Federal Motor Vehicle Safety Standard (FMVSS) 131, "School Bus Pedestrian Safety Devices."

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

**SECTION 2**  
**TEST DATA SUMMARY**

Based on the tests performed, the 2008 Collins Grand Bantam School Bus, NHTSA No.: C80900, appears to meet all of the requirements of FMVSS 131SB. See Test Summary Data Sheets on the following pages.

**FMVSS 131SB, SCHOOL BUS PEDESTRIAN SAFETY DEVICES**

**VEHICLE INFORMATION AND TEST SUMMARY**

Test Vehicle: **2008 Collins Grand Bantam School Bus**      NHTSA No.: **C80900**  
 Test Lab: **MGA Research Corporation**                      Test Date: **1/12/2009**

VIN	1GDJG31K981197124	Chassis Cab	Yes
No. of Stop Signal Arms	1	Rear Engine	No
Pass. Capacity (driver included)	23	Tire Size (on bus)	LT225/75R16
Stop Signal Arm Manufacturer	Specialty Manufacturing Inc.		

**DATA FROM CERTIFICATION LABEL**

Final Stage Manufacturer	Collins Bus Corporation	Date of Mfg.	06/2008
Incomplete Vehicle Manufacturer	General Motors Corporation	Date of Mfg.	03/2008
GVWR (kg)	5,579	GAWR Front (kg)	1,950
		GAWR Rear (kg)	3,901

**TEST SUMMARY**

	Pass/Fail or N/A
Dimensional Requirements (S5.1)	<b>Pass</b>
Surface Content and Labeling (S5.2)	<b>Pass</b>
Conspicuity Requirements (S5.3)	<b>Pass</b>
Location and Position Requirements (S5.4)	<b>Pass</b>
Arm Operation Requirements (S5.5)	<b>Pass</b>

Note: The 2008 Collins Grand Bantam School Bus was only equipped with one stop signal arm.

**SECTION 3**  
**COMPLIANCE TEST DATA**

**FMVSS 131SB – DATA SHEET 1**  
**DIMENSIONS OF STOP SIGNAL ARM (S5.1)**

Test Vehicle: **2008 Collins Grand Bantam School Bus**    NHTSA No.: **C80900**  
 Test Lab: **MGA Research Corporation**    Test Dates: **1/12/2009**

“Regular octagon” with diameter of at least 450 mm (point to point).

	Forward Signal Arm (mm)
Diameter 1	495
Diameter 2	495
Diameter 3	496
Diameter 4	496
Range (max. – min.)	1

Requirements	Yes, No, N/A
Are all octagon diameter values $\geq$ 450 mm?	Yes
Is range of octagon diameter values $\leq$ 12 mm?	Yes
Are all octagon chord dimensions equal within 6 mm?	Yes

Test Results	Pass/Fail
S5.1 Dimensions of Stop Signal Arm	<b>Pass</b>

Tested By: *Evo Leard*

Approved By: *Michal Janoj*

Date: January 12, 2009

**FMVSS 131SB – DATA SHEET 2**  
**SURFACE CONTENT AND LABELING (S5.2)**

Test Vehicle: **2008 Collins Grand Bantam School Bus**  
 Test Lab: **MGA Research Corporation**

NHTSA No.: **C80900**  
 Test Dates: **1/12/2009**

REQUIREMENTS	Forward Signal Arm	
	Front Side	Aft Side
Color RED except for border & legend (Yes/No)	Yes	Yes
Color of border is WHITE (Yes/No)	Yes	Yes
Color of word "STOP" is WHITE (Yes/No)	Yes	Yes
Word "STOP" is in upper case letters (Yes/No)	Yes	Yes
Width of border ( $\geq 12$ mm)	15 mm	14 mm
Percent of border obscured by mounting brackets, clips, or bolts, or other components* ( $\leq 15\%$ )	0%	13.2%
Height of letters ( $\geq 150$ mm)	152.6 mm	151.8 mm
Stroke width of letters ( $\geq 20$ mm)	25 mm	26 mm

\* = In addition to area obscured by 2 optional red lamps, if installed.

NOTE:

1. Front side of rearmost signal arm shall not contain any lettering or border.

Test Results		Pass/Fail
S5.2	Surface content and labeling	Pass

Tested By: *Evo Leedman*

Approved By: *Michael Janoy*

Date: January 12, 2009

**FMVSS 131SB – DATA SHEET 3**

**CONSPICUITY (S5.3)**

Test Vehicle: **2008 Collins Grand Bantam School Bus**  
 Test Lab: **MGA Research Corporation**

NHTSA No.: **C80900**  
 Test Dates: **1/12/2009**

The Stop Signal Arm shall comply with either S5.3.1 or S5.3.2, or both.

**REFLECTORIZED MATERIAL (S5.3.1)**

Requirements	Forward Signal Arm	
	Front Side	Aft Side
Entire surface of stop signal arm reflectorized except for mounting brackets, clips, bolts, or other necessary components. Front side of rearmost stop signal arm must not be reflectorized. (Yes/No)	Yes	Yes
Percent of entire surface obscured by mounting brackets, clips, bolts or other components necessary for mechanical or electrical operation. (7.5% max. each side)	0%	3.61%

**FMVSS 131SB – DATA SHEET 3...continued**

**CONSPICUITY (S5.3)**

Test Vehicle: **2008 Collins Grand Bantam School Bus**  
 Test Lab: **MGA Research Corporation**

NHTSA No.: **C80900**  
 Test Dates: **1/12/2009**

**OPTIONAL ILLUMINATED LETTERING (S5.3.1.1)**

Item	Stop Signal Arm Forward
Does the stop sign(s) have illuminated lettering? If optional illuminated lettering is installed, the following requirements apply in addition to reflectorized surface. (Yes/No)	<b>No</b>

Requirements	Forward Signal Arm	
	Front Side	Aft Side
Only Red lamps used (Yes/No)	N/A	N/A
Red lamps form the complete shape of each letter of the legend. (Yes/No)	N/A	N/A
Red lamps centered within stroke of each letter (Yes/No) or Red lamps outline each letter in immediately surrounding area (Yes/No)	N/A	N/A
The shape of each letter remains constant (Yes/No)	N/A	N/A
Net stroke width $\geq$ 15 mm (stroke width minus lamp width)	“S”	N/A
	“T”	N/A
	“O”	N/A
	“P”	N/A
Lamps on each side of the signal arm flash (60-120 flashes/min.)	N/A	N/A
Lamps current “on” time of 30% to 75% of the total flash cycle	N/A	N/A
Total current “on” time for the two terminals shall be between 90-110% of the total flash cycle.	N/A	N/A
If Xenon short-arc lamps – “off” time before each flash of at least 50% of the total flash cycle.	N/A	N/A

**FMVSS 131SB – DATA SHEET 3...continued**

**CONSPICUITY (S5.3)**

Test Vehicle: **2008 Collins Grand Bantam School Bus**  
 Test Lab: **MGA Research Corporation**

NHTSA No.: **C80900**  
 Test Dates: **1/12/2009**

**RED FLASHING LAMPS (S5.3.2)**

Requirements	Forward Signal Arm	
	Front Side	Aft Side
Are the Red Lamps centered on the vertical centerline? (At least 2, enter quantity)	Yes - 2	Yes - 2
Is one lamp at extreme top and another at extreme bottom? (Yes/No)	Yes	Yes
Do the lamps on each side of the signal arm flash alternately? (60-120 flashes/min.) (Yes/No)	Yes - 72	Yes - 72
Lamps current "on" time of 30% to 75% of the total flash cycle. (Yes/No)	Yes - 50%	Yes - 50%
Total current "on" time for two terminals shall be between 90 and 110% of the total flash cycle. (Yes/No)	Yes - 100%	Yes - 100%
If Xenon short-arc lamps-"off" time before each flash of at least 50% of total flash cycle. (Yes/No)	NA	NA
Is there a symbol "DOT" on each lamp lens? (Yes/No) (Not Required)	No	No
Additional markings on lamp lenses	SMC-194 C SAE J1133 FMVSS 131	SMC-194 C SAE J1133 FMVSS 131

**MARKINGS ON THE FLASHER**

Make	In Power	Serial No.	0804011453
Model	SBF90	Date of Mfg.	NA

Test Results		Pass/Fail or N/A
S5.3.1	Reflectorized Material	Pass
S5.3.1.1	Optional Illuminated Lettering	N/A
S5.3.2	Red Flashing Lamps	Pass

Tested By: *Eric Leonard*

Approved By: *Michael Janoy*

Date: January 12, 2009

**FMVSS 131SB – DATA SHEET 4**  
**STOP SIGNAL ARM INSTALLATION (S5.4)**

Test Vehicle: **2008 Collins Grand Bantam School Bus**      NHTSA No.: **C80900**  
 Test Lab: **MGA Research Corporation**                      Test Dates: **1/12/2009**

Dimensions and angles measured with Signal Arm in the extended position.

Requirements	Stop Signal Arm
	Forward
Signal arm perpendicular to side of bus (Measure angle between vertical plane of side of bus and vertical plane of the signal arm.) $90 \pm 5^\circ$	88.1°
Top edge of signal arm parallel to horizontal plane (Measure angle between vertical plane of side of bus and the top edge of the signal arm.) $90 \pm 5^\circ$	89.7°
Top edge of signal arm not more than 152.4 mm from a horizontal plane tangent to lower edge of frame of passenger window immediately behind the driver's window:	
Measure top corner closest to the school bus to the bottom edge of the window.	-65 mm
Measure top corner furthest from school bus to the bottom edge of the window.	-65 mm
Vertical centerline of signal arm not less than 228.6 mm away from side of bus	372 mm
Stop signal arm(s) installed on left side of bus (Yes, No, or Not Applicable)	Yes

Test Results		Pass/Fail or N/A
S5.4	Stop Signal Arm Installation	<b>Pass</b>

Tested By: 

Approved By: 

Date: January 12, 2009

**FMVSS 131SB – DATA SHEET 5**  
**STOP SIGNAL ARM OPERATION (S5.5)**

Test Vehicle: **2008 Collins Grand Bantam School Bus**      NHTSA No.: **C80900**  
 Test Lab: **MGA Research Corporation**                      Test Dates: **1/12/2009**

Stop Signal Arm(s) shall be automatically extended, at a minimum, whenever the red signal lamps on the bus required by FMVSS 108 are activated; except that a manual override device may be installed that prevents automatic extension.

Requirements	Stop Signal Arm
	Forward
Signal Arm(s) automatically extended when red lights are activated and override device is not activated. (Yes, No, or Not Applicable)	Yes
If a MANUAL OVERRIDE DEVICE is installed, enter applicable data below:	
Mechanism for activating the override device is within reach of the school bus driver (Yes/No)	N/A
While the override device is activated; there is a continuous or intermittent signal audible to the driver unless equipped with optional cut-off timing device (Measure duration $\geq$ 10 min.) (Yes/No)	N/A
If audible signal is equipped with optional cut-off timing device, it sounds for at least 60 seconds while the manual override is activated. (Measure 3 times, duration $\geq$ 60 sec.)	N/A
If audible signal is equipped with optional cut-off timing device, it automatically recycles every time the service entry door is opened while the engine is running and the manual override is engaged. (Recycle 3 times, Yes/No each cycle)	N/A

Describe location and mode of operation of the manual override control, if installed:

**No manual override device, which allowed overhead lights to flash and stop signal arm NOT to extend, was installed on this vehicle.**

Test Results		Pass/Fail or N/A
S5.5	Stop Signal Arm Operation	Pass

Tested By: Eino Leander

Approved By: Michael Janoy

Date: January 12, 2009

**SECTION 4**  
**INSTRUMENTATION AND EQUIPMENT LIST**

Test Vehicle: **2008 Collins Grand Bantam School Bus**      NHTSA No.: **C80900**  
 Test Lab: **MGA Research Corporation**                      Test Dates: **1/12/2009**

Identify the instruments used during this test and record their make, model, serial number, range, accuracy, and calibration date.

	Digital Caliper	Inclinometer	Tape Measure
Make	Mitutoyo	Digital Protractor	Stanley
Model	CD-6"6X	Pro 360	Powerlock 3M
Serial # (s)	06398228	67	519
Range	0 to 150 mm	0 to 90 degrees	0 to 8 m
Accuracy	0.01 mm	0.1 degree	1 mm
Cal. Date	09/11/08	Daily	09/30/08
Cal. Due	09/11/09	NA	04/30/09

**SECTION 5**  
**PHOTOGRAPHS**  
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Test Vehicle: 2008 COLLINS GRAND BANTAM SCHOOL BUS NHTSA No.: C80900  
Test Lab: MGA RESEARCH CORPORATION Test Date: 1/12/09



3/4 Frontal View from Left Side of Vehicle with Stop Signal Arm(s) Extended

Test Vehicle: 2008 COLLINS GRAND BANTAM SCHOOL BUS NHTSA No.: C80900  
Test Lab: MGA RESEARCH CORPORATION Test Date: 1/12/09



**COLLINS**

MANUFACTURED BY:  
COLLINS BUS CORPORATION  
P.O. BOX 2946  
HUTCHINSON, KS 67504-2946  
620-662-9000

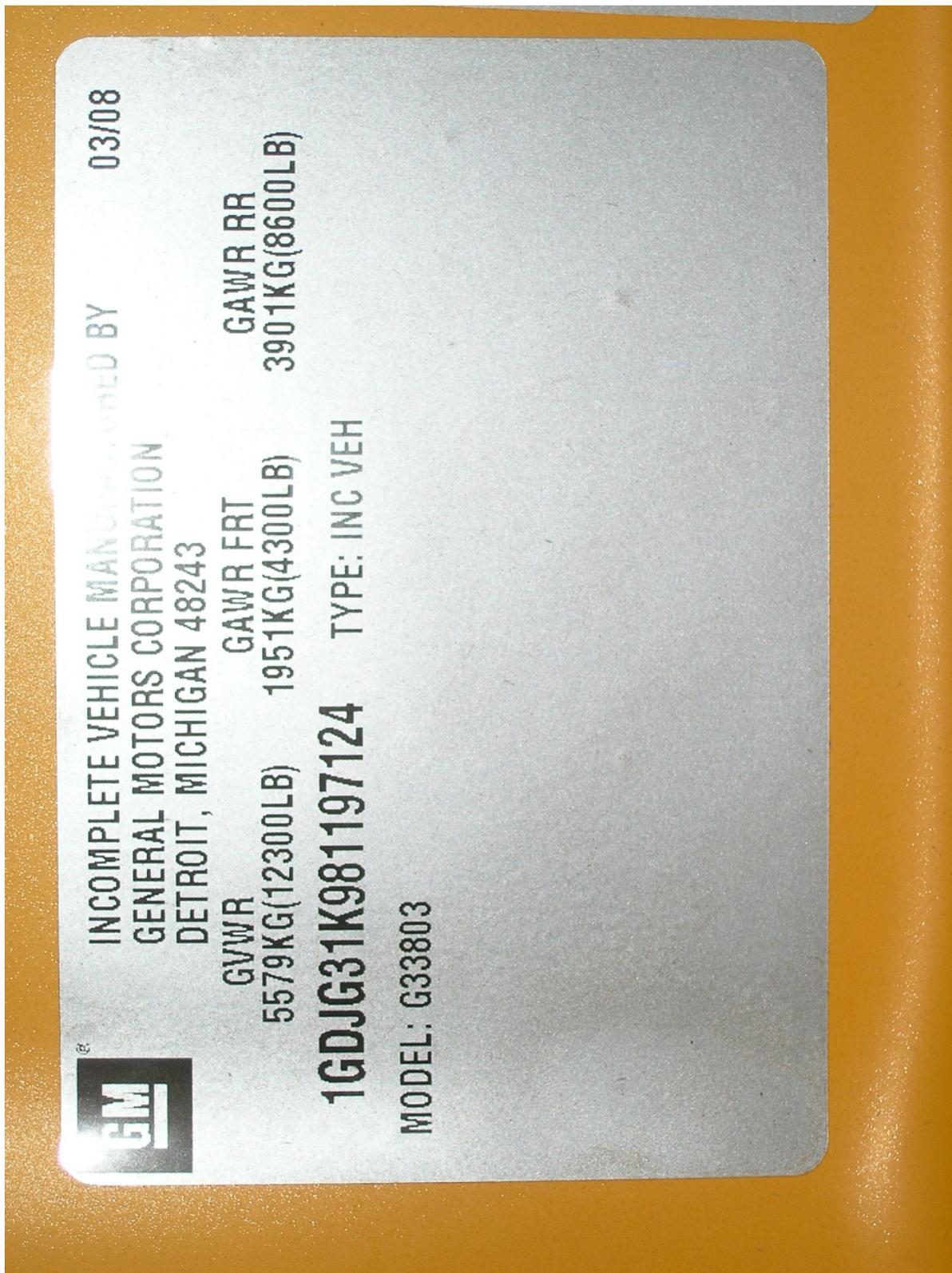
THIS VEHICLE HAS BEEN COMPLETED IN ACCORDANCE WITH THE PRIOR MANUFACTURER'S IVD WHERE APPLICABLE. THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE: **06/2008**

VEHICLE TYPE: SCHOOL BUS  
INCOMPLETE VEHICLE MANUFACTURER: GENERAL MOTORS CORPORATION  
INCOMPLETE VEHICLE DATE OF MANUFACTURE: 03/2008

GVWR:	5,579 KG ( 12,300 LBS)		
FRONT		REAR	DUAL
GAWR:	1,950 KG ( 4,300 LBS)	GAWR:	3,901 KG ( 8,600 LBS)
WITH:	LT225/75R16D TIRES	WITH:	LT225/75R16D TIRES
	16 X 6.5J RIMS		16 X 6.5J RIMS
AT:	448 KPA ( 65 PSI) COLD	AT:	448 KPA ( 65 PSI) COLD

UNIT NUMBER: 41175 CGB6WR-13G  
VIN: **1GDJG31K981197124**

Test Vehicle: 2008 COLLINS GRAND BANTAM SCHOOL BUS NHTSA No.: C80900  
Test Lab: MGA RESEARCH CORPORATION Test Date: 1/12/09



Manufacturer Information Label

Test Vehicle: 2008 COLLINS GRAND BANTAM SCHOOL BUS NHTSA No.: C80900  
 Test Lab: MGA RESEARCH CORPORATION Test Date: 1/12/09



# TIRE AND LOADING INFORMATION

SEATING CAPACITY	TOTAL 23	FRONT 1	REAR 22
------------------	----------	---------	---------

The combined weight of occupants and cargo should never exceed **1,369** kg or **3,018** lbs.

TIRE	SIZE	COLD TIRE PRESSURE	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
FRONT	LT225/75R16D	448 KPA, 65 PSI	
REAR	LT225/75R16D	448 KPA, 65 PSI	
SPARE	N/A	N/A	

41175

THIS VEHICLE HAS BEEN COMPLETED IN

Vehicle Tire Placard

Test Vehicle: 2008 COLLINS GRAND BANTAM SCHOOL BUS NHTSA No.: C80900  
Test Lab: MGA RESEARCH CORPORATION Test Date: 1/12/09



Front Close Up View of Stop Signal Arm

Test Vehicle: 2008 COLLINS GRAND BANTAM SCHOOL BUS NHTSA No.: C80900  
Test Lab: MGA RESEARCH CORPORATION Test Date: 1/12/09



Back Close Up View of Stop Signal Arm

Test Vehicle: 2008 COLLINS GRAND BANTAM SCHOOL BUS NHTSA No.: C80900  
Test Lab: MGA RESEARCH CORPORATION Test Date: 1/12/09



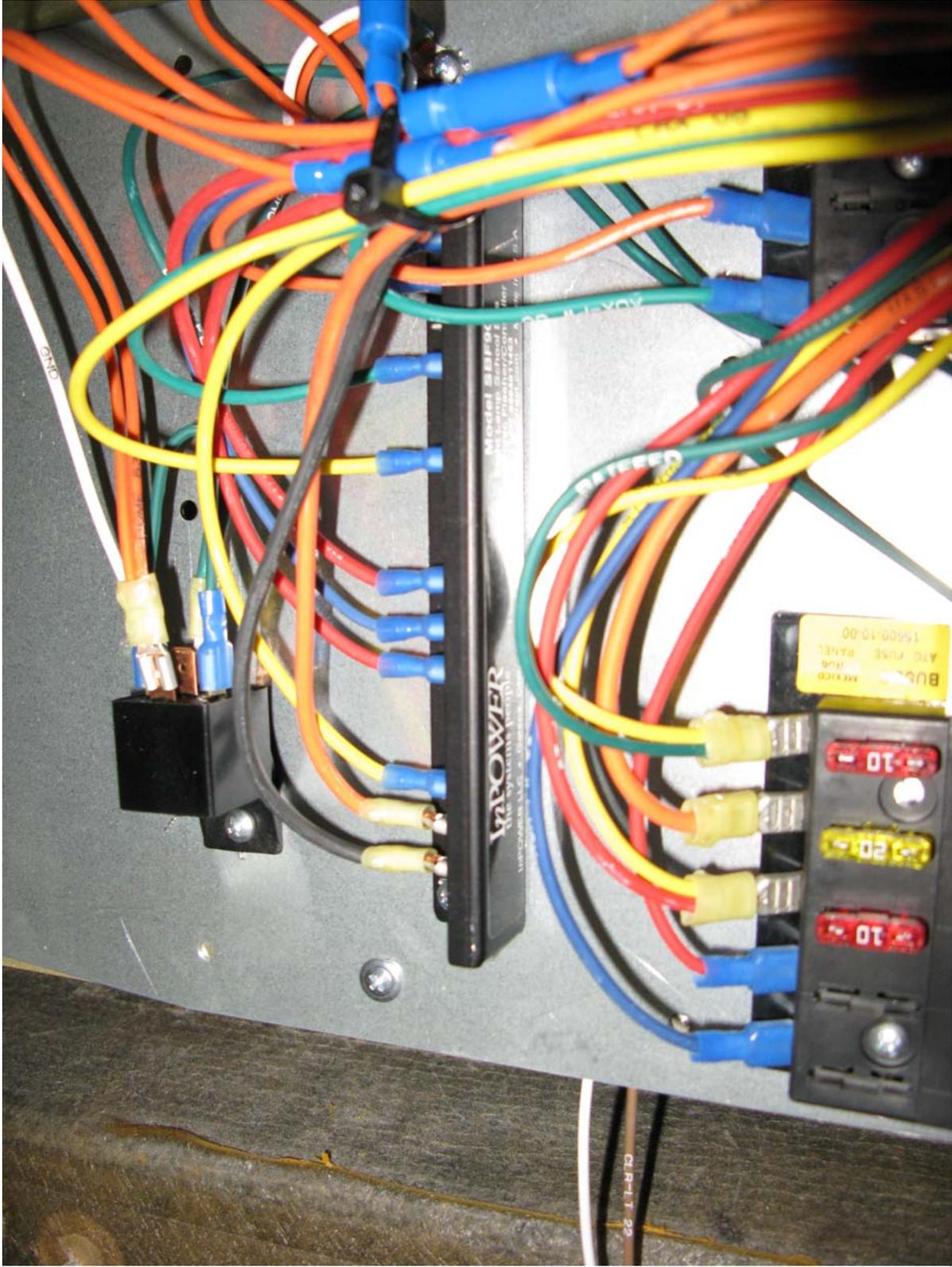
Close Up View of the Switches That Allow Extension of the Stop Signal Arm(s)

Test Vehicle: 2008 COLLINS GRAND BANTAM SCHOOL BUS NHTSA No.: C80900  
Test Lab: MGA RESEARCH CORPORATION Test Date: 1/12/09



Switch Console Relative to the Driver Seating Position

Test Vehicle: 2008 COLLINS GRAND BANTAM SCHOOL BUS NHTSA No.: C80900  
Test Lab: MGA RESEARCH CORPORATION Test Date: 1/12/09



Flasher Unit