

**REPORT NUMBER: 131SB-MGA-2009-002**

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

**IC CORPORATION  
2009 IC CORPORATION RE300 SCHOOL BUS  
NHTSA NO.: C90900**

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



**TEST DATES: OCTOBER 9, 2008 - OCTOBER 13, 2008**

**FINAL REPORT DATE: NOVEMBER 7, 2008**

**FINAL REPORT**

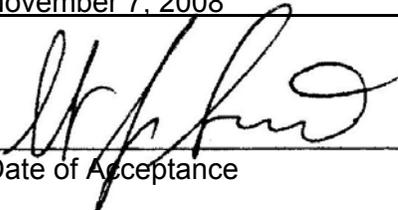
**PREPARED FOR:  
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ENFORCEMENT  
OFFICE OF VEHICLE SAFETY COMPLIANCE  
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### Technical Report Documentation Page

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<b>15. Supplementary Notes</b>			
<b>16. Abstract</b> Compliance tests were conducted on the subject, 2009 IC Corporation RE300 School Bus, NHTSA No.: C90900, 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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## TABLE OF CONTENTS

<u>Section</u>		<u>Page No</u>
1	Purpose of Compliance Test	1
2	Test Data Summary	2
3	Compliance Test Data	4
	Data Sheet 1- Dimensions of Stop Signal Arm (S5.1)	5
	Data Sheet 2 - Surface Content and Labeling (S5.2)	6
	Data Sheet 3 - Conspicuity (S5.3)	7
	Data Sheet 4 - Stop Signal Arm Installation (S5.4)	10
	Data Sheet 5 - Stop Signal Arm Operation (S5.5)	11
4	Instrumentation and Equipment List	12
5	Photographs	13

**SECTION 1**  
**PURPOSE OF COMPLIANCE TEST**

Tests were conducted by the MGA Research Corporation-Wisconsin Operations on a 2009 IC Corporation RE300 School Bus, NHTSA No.: C90900, 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 2009 IC Corporation RE300 School Bus, NHTSA No.: C90900, 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: **2009 IC Corporation RE300**  
 Test Lab: **MGA Research Corporation**

NHTSA No.: **C90900**  
 Test Dates: **10/09/08 - 10/13/08**

VIN	4DRBWAAN29A083456	Chassis Cab	Yes
No. of Stop Signal Arms	1	Rear Engine	Yes
Pass. Capacity (driver included)	73	Tire Size (on bus)	11R22.5
Stop Signal Arm Manufacturer	Transpec Worldwide		

**DATA FROM CERTIFICATION LABEL**

Final Stage Manufacturer	IC Corporation	Date of Mfg.	04/2008
GVWR (kg)	14,424	GAWR Front (kg)	5,443
		GAWR Rear (kg)	8,981

**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 2009 IC Corporation 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: **2009 IC Corporation RE300**  
 Test Lab: **MGA Research Corporation**

NHTSA No.: **C90900**  
 Test Dates: **10/09/08 - 10/13/08**

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

	Forward Signal Arm (mm)
Diameter 1	582
Diameter 2	581
Diameter 3	582
Diameter 4	582
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: 

Approved By: 

Date: October 9, 2008

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

Test Vehicle: **2009 IC Corporation RE300**  
 Test Lab: **MGA Research Corporation**

NHTSA No.: **C90900**  
 Test Dates: **10/09/08 - 10/13/08**

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)	20 mm	20 mm
Percent of border obscured by mounting brackets, clips, or bolts, or other components* ( $\leq 15\%$ )	0%	0%
Height of letters ( $\geq 150$ mm)	155 mm	155 mm
Stroke width of letters ( $\geq 20$ mm)	26 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: 

Approved By: 

Date: October 9, 2008

**FMVSS 131SB – DATA SHEET 3**

**CONSPICUITY (S5.3)**

Test Vehicle: **2009 IC Corporation RE300**  
Test Lab: **MGA Research Corporation**

NHTSA No.: **C90900**  
Test Dates: **10/09/08 - 10/13/08**

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%	0%

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

**CONSPICUITY (S5.3)**

Test Vehicle: **2009 IC Corporation RE300**  
 Test Lab: **MGA Research Corporation**

NHTSA No.: **C90900**  
 Test Dates: **10/09/08 - 10/13/08**

**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.	<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	N/A
	“T”	N/A	N/A
	“O”	N/A	N/A
	“P”	N/A	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: **2009 IC Corporation RE300**  
 Test Lab: **MGA Research Corporation**

NHTSA No.: **C90900**  
 Test Dates: **10/09/08 - 10/13/08**

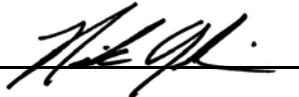
**RED FLASHING LAMPS (S5.3.2)**

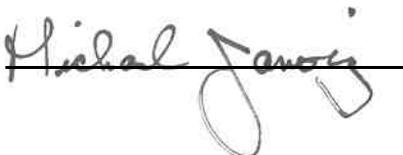
Requirements	Forward Signal Arm	
	Front Side	Aft Side
Are the Red Lamps centered on the vertical centerline? (At least 2, enter quantity)	Yes – 2	Yes - 2
Is one lamp at extreme top and another at extreme bottom? (Yes/No)	Yes	Yes
Do the lamps on each side of the signal arm flash alternately? (60-120 flashes/min.) (Yes/No)	Yes - 70	Yes - 70
Lamps current "on" time of 30% to 75% of the total flash cycle. (Yes/No)	NA	NA
Total current "on" time for two terminals shall be between 90 and 110% of the total flash cycle. (Yes/No)	NA	NA
If Xenon short-arc lamps-"off" time before each flash of at least 50% of total flash cycle. (Yes/No)	Yes	Yes
Is there a symbol "DOT" on each lamp lens? (Yes/No) (Not Required)	Yes	Yes
Additional markings on lamp lenses	Transpec Worldwide 4260 SAE-1-95-DOT	Transpec Worldwide 4260 SAE-1-95-DOT

**MARKINGS ON THE FLASHER**

Make	Transpec Worldwide	Serial No.	4260
Model	SAE-I-95-DOT	Date of Mfg.	---

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

Tested By: 

Approved By: 

Date: October 9, 2008

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

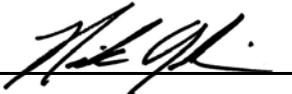
Test Vehicle: **2009 IC Corporation RE300**  
 Test Lab: **MGA Research Corporation**

NHTSA No.: **C90900**  
 Test Dates: **10/09/08 - 10/13/08**

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.) $90 \pm 5^\circ$	85.0°
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.) $90 \pm 5^\circ$	89.6°
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.	27 mm
Measure top corner furthest from school bus to the bottom edge of the window.	30 mm
Vertical centerline of signal arm not less than 228.6 mm away from side of bus	385 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: October 9, 2008

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

Test Vehicle: **2009 IC Corporation RE300**  
 Test Lab: **MGA Research Corporation**

NHTSA No.: **C90900**  
 Test Dates: **10/09/08 - 10/13/08**

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)	Yes
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)	No
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:

**Left side, 3 inches from the steering wheel below the driver window.**

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

Tested By: 

Approved By: 

Date: October 9, 2008

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

Test Vehicle: **2009 IC Corporation RE300**  
Test Lab: **MGA Research Corporation**

NHTSA No.: **C90900**  
Test Dates: **10/09/08 - 10/13/08**

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)	05389443	002	33-231
Range	0 to 150 mm	0 to 90 degrees	0 to 8 m
Accuracy	0.01 mm	0.2 degree	1 mm
Cal. Date	01/18/08	04/22/08	08/19/08
Cal. Due	01/18/09	10/22/08	02/19/09

**SECTION 5**  
**PHOTOGRAPHS**  
**TABLE OF PHOTOGRAPHS**

<u>Photo No.</u>		<u>Page No.</u>
1	3/4 Frontal View from Left Side of Vehicle with Stop Signal Arm(s) Extended	14
2	Vehicle Certification Label	15
3	Manufacturer Information Label	16
4	Front Close Up View of Stop Signal Arm	17
5	Back Close Up View of Stop Signal Arm	18
6	Close Up View of the Switches That Allow Extension of the Stop Signal Arm(s)	19
7	Switch Console Relative to the Driver Seating Position	20
8	Flasher Unit	21

Test Vehicle: 2009 IC CORPORATION RE300 SCHOOL BUS NHTSA No.: C90900  
Test Lab: MGA RESEARCH CORPORATION Test Dates: 10/09/08 – 10/13/08



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

Test Vehicle: 2009 IC CORPORATION RE300 SCHOOL BUS NHTSA No.: C90900  
 Test Lab: MGA RESEARCH CORPORATION Test Dates: 10/09/08 – 10/13/08

**MANUFACTURED BY**  
 IC CORPORATION  
 DATE OF MANUFACTURE 04 MO. 08 YR.  
 GVWR 14,424 KGS ( 31,800 LBS )  
 GAWR FRONT 5,443 KGS ( 12,000 LBS ) WITH  
 295/75R22.5G TIRES 14 PLY AT  
 758 KPa ( 110 PSI) COLD  
 RIMS 22.5X8.25 AXLE SINGLE  
 GAWR REAR 8,981 KGS ( 19,800 LBS ) WITH  
 10R22.5G TIRES 14 PLY AT  
 723 KPa ( 105 PSI) COLD  
 RIMS 22.5X7.50 AXLE DUAL  
 THIS VEHICLE CONFORMS TO ALL  
 APPLICABLE FEDERAL MOTOR  
 VEHICLE SAFETY STANDARDS IN  
 EFFECT ON THE DATE OF  
 MANUFACTURE SHOWN ABOVE.  
 VEHICLE IDENTIFICATION NO.  
 4DRBWAAN29A083456  
 VEHICLE TYPE  
 SCHOOL BUS # 083456

**ATTENTION DRIVER!**  
 USE CROSS VIEW MIRRORS TO VIEW PEDESTRIANS  
 WHILE BUS IS STOPPED. DO NOT USE THESE  
 MIRRORS TO VIEW TRAFFIC WHILE BUS IS  
 MOVING. IMAGES IN SUCH MIRRORS DO NOT ACCURATELY  
 SHOW ANOTHER VEHICLE'S LOCATION.  
 THE HAWK-EYE™ CROSS VIEW MIRROR SYSTEM BY  
 ROSCO INC. JAMAICA, NY 11435 TEL: (718) 596-2801

Vehicle Certification Label

Test Vehicle: 2009 IC CORPORATION RE300 SCHOOL BUS NHTSA No.: C90900  
Test Lab: MGA RESEARCH CORPORATION Test Dates: 10/09/08 – 10/13/08



Manufacturer Information Label

Test Vehicle: 2009 IC CORPORATION RE300 SCHOOL BUS  
Test Lab: MGA RESEARCH CORPORATION  
NHTSA No.: C90900  
Test Dates: 10/09/08 – 10/13/08



Front Close Up View of Stop Signal Arm

Test Vehicle: 2009 IC CORPORATION RE300 SCHOOL BUS NHTSA No.: C90900  
Test Lab: MGA RESEARCH CORPORATION Test Dates: 10/09/08 – 10/13/08



Back Close Up View of Stop Signal Arm

Test Vehicle: 2009 IC CORPORATION RE300 SCHOOL BUS  
Test Lab: MGA RESEARCH CORPORATION  
NHTSA No.: C909000  
Test Dates: 10/09/08 – 10/13/08



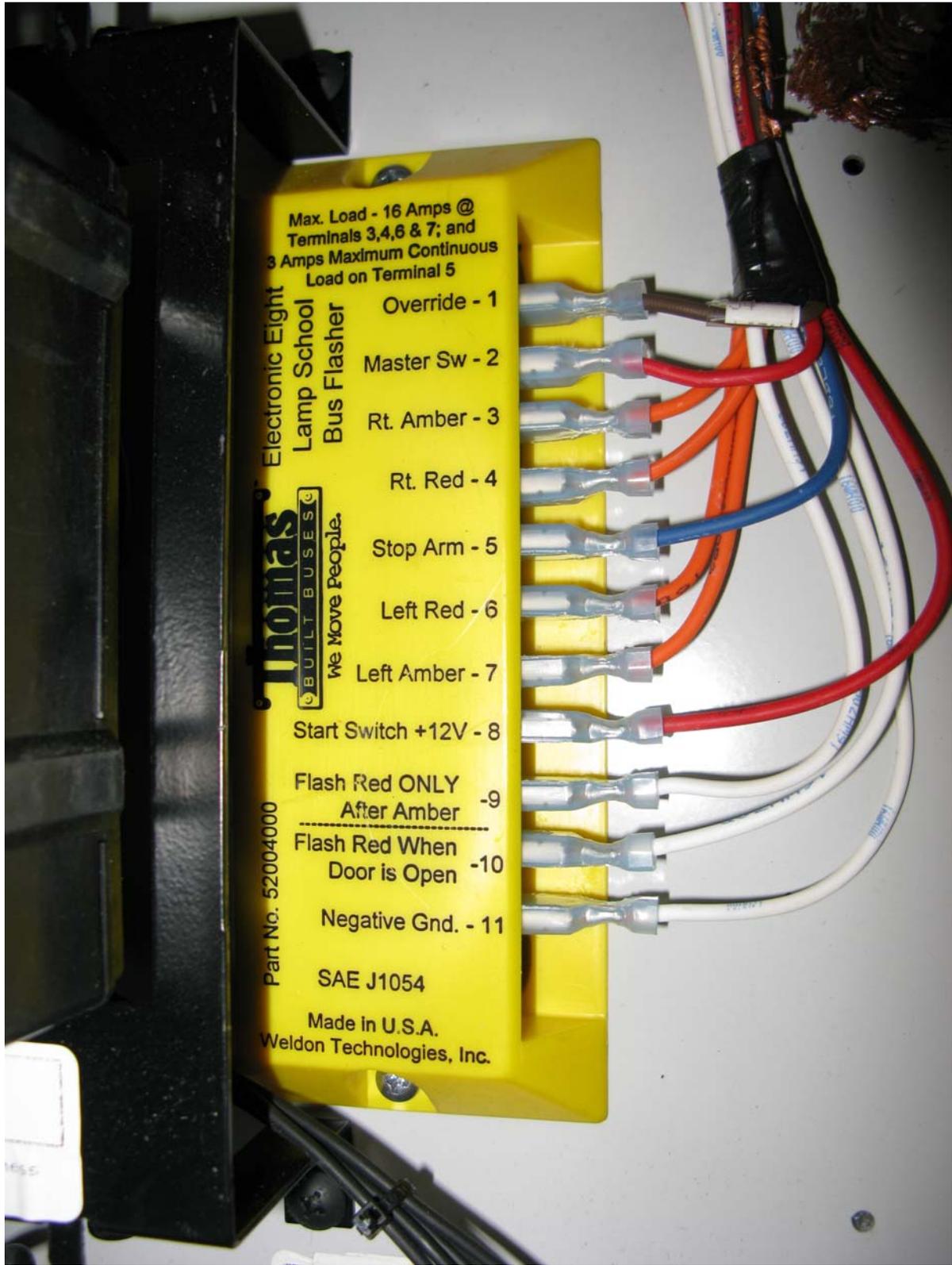
Close Up View of the Switches That Allow Extension of the Stop Signal Arm(s)

Test Vehicle: 2009 IC CORPORATION RE300 SCHOOL BUS  
Test Lab: MGA RESEARCH CORPORATION  
NHTSA No.: C90900  
Test Dates: 10/09/08 – 10/13/08



Switch Console Relative to the Driver Seating Position

Test Vehicle: 2009 IC CORPORATION RE300 SCHOOL BUS  
 Test Lab: MGA RESEARCH CORPORATION  
 NHTSA No.: C90900  
 Test Dates: 10/09/08 – 10/13/08



Flasher Unit