

Illuminated School Bus Sign (ISBS) Type C & D Bus Models

Closed Cavity (Replace Decal) Installation Instructions



FIRST LIGHT
SAFETY PRODUCTS

QUICK STEPS

1. Please read the instructions thoroughly.
2. Identify all parts and hardware.
3. Review the required tools.

1. Use mounting hole template to mark holes
2. Drill holes and install threaded inserts
3. Prepare electrical connections
4. Mount sign unit and fasten mounting hardware
5. Turn on sign unit(s) and test operation

NEED PRODUCT SUPPORT?

Our technical support team is available Monday to Friday, 8 a.m. to 5 p.m. CST

Please have the following information ready:

Serial Number | Date of Purchase | Dealer of Purchase

- Contact us:**
- www.firstlightsafety.com
 - techsupport@firstlightsafety.com
 - toll-free in North America 866.216.2605

Find additional support documents on our website:
<https://www.firstlightsafety.com/document-library/>



Scan the QR code to see the
Installation Instruction video

WARNING!

IMPORTANT: PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLING. FAILURE TO DO SO MAY CAUSE PERSONAL INJURY OR DAMAGE TO PRODUCT AND/OR PROPERTY.

This manual has been created for basic informational purposes only. The activities described herein can be dangerous unless proper safety precautions are taken. If you are not comfortable or are inexperienced with the processes and tools described in this manual, you should not attempt to install the product. These instructions do not purport to cover all details or variations in the equipment and do not claim to provide for every possible contingency met in connection with the installation. Installation of this product should always be performed by a qualified technician and in accordance with safe work procedures. First Light Safety Products (a division of Smartrend Manufacturing Group (SMG), Inc., hereinafter "First Light Safety Products") shall not be held responsible for any errors or omissions respecting installation as they are the responsibility of the installing technician and/or the customer. First Light Safety Products does not make any representation, warranty, guarantee or condition respecting third-party installation or any other service provided by a third-party, and any such representations perceived by the reader/customer are hereby fully disclaimed. Any reliance on this manual is solely at the risk of the customer/reader. First Light Safety Products assumes no responsibility for other's use of this manual and hereby expressly disclaims any and all liability to any party for any direct, indirect, implied, punitive, special, incidental or other consequential damages arising directly or indirectly from any improper or incorrect use of this manual.

Have Questions?

866.216.2605 | techsupport@firstlightsafety.com

Type C & D Bus Models Closed Cavity (RD)

October 2023

Document Number: 103262-000

RECOMMENDED TOOLS

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Ladder 2. Masking Tape 3. Marker 4. Center Punch 5. 1/8" Allen Key
(Mounting Screws) 6. Fish Tape 7. Multimeter | <ol style="list-style-type: none"> 8. Drill Bits and Drill <ul style="list-style-type: none"> • Stepper Bit recommended up to final size • Sign Power Cable (3/4" Pilot Hole) • Rivet Nuts (25/64" Pilot Hole) • Plus Nut (11/32" Pilot Hole) • Low Profile Rivet Nuts (A/C) (7/16" Pilot Hole) 9. Threaded Insert Tool (Manual) <ul style="list-style-type: none"> • 7/8" Wrench • 11/16" Wrench or Socket • 5-32 Allen Key |
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* Rivet Nut Installation Tool is available for purchase Part Number: 100521

CLOSED CAVITY - REPLACE DECAL (Type C & D Bus Models)

PART NUMBER	DESCRIPTION	FITS MODEL YEAR	SIGN-FRONT	SIGN-REAR	MOUNTING TEMPLATE	FRAME HARDWARE KIT	FRAME HARDWARE KIT AC	RIVNUTS	RIVNUTS LP AC	PLUS NUTS	SIGN POWER HARNESS	FRONT LEG HARNESS	BACK LEG HARNESS	MAIN LEG HARNESS	JUMPER CABLE
			REFERENCE	A1	A2	B1 / B2	C1 / C2	D1 / D2	E1 / E2	F1 / F2	G1 / G2	H1 / H2	I1 / I2	J1 / J2	K1 / K2
100788	BB VISION	2003 - 2022	1	1	2	2	-	12	-	-	2	1	1	1	-
100805	IC CE	2005 - PRESENT	1	1	1	2	-	10	-	-	2	1	1	1	-
100823	TBB C2	2006 - PRESENT	1	1	2	2	-	14	-	-	2	1	2	-	-
101967	HDX/EFX	2006 - PRESENT	1	1	2	2	-	5	-	5	2	1	1	1	-
101968	BB ALL-AMERICAN	2004 - PRESENT	1	1	2	2	-	12	-	-	2	1	1	1	-
101969	IC RE	2005 - PRESENT	1	1	1	2	-	10	-	-	2	1	1	1	-
102131	BB VISION (A/C)	2003 - 2022	1	1	1	-	2	-	12	-	2	1	1	1	-
102709	BB VISION*	2022	1	1	1	2	-	10	-	-	2	1	1	1	-
102710	BB VISION (A/C)*	2022	1	1	1	-	2	-	10	-	2	1	1	1	-
102718	IC CE (A/C)	2005 - PRESENT	1	1	1	-	2	-	10	-	2	1	1	1	-
102752	BB VISION (PREWIRE)**	2023	1	1	1	2	-	10	-	-	-	-	-	-	2
102754	BB VISION**	2023	1	1	1	2	-	10	-	-	2	1	1	1	-
102798	BB VISION	2023	1	1	1	2	-	10	-	-	2	1	1	1	2
102868	BB VISION (A/C)**	2023	1	1	1	-	2	-	10	-	2	1	1	1	2
103074	BB VISION (PREWIRE)	2023	1	1	1	2	-	10	-	-	-	-	-	-	2
103200	BB VISION (A/C) (PREWIRE)	2023	1	1	1	-	2	-	10	-	-	-	-	-	2
103254	BB VISION (A/C)	2023	1	1	1	2	-	-	10	-	2	1	1	1	2

* 102709, 102710 - for BB Vision models that have plastic flasher covers ** 102752, 102754, 102868 - interim 2023 BB Vision models

SETS INCLUDE 2 BOXES

Box 1

- Sign Unit Front (A1)
- Mounting Template (B1)
- Frame Hardware Kit (C1-D1)
- Threaded Inserts (E1-F1-G1)
- Sign Power Harness (H1)
- Main Leg Harness (K1)
- Front Leg Harness (I1)
- Jumper Cable (L1)

Box 2

- Sign Unit Rear (A2)
- Mounting Template (B2), if required
- Frame Hardware Kit (C2-D2)
- Threaded Inserts (E2-F2-G2)
- Sign Power Harness (H2)
- Back Leg Harness (J2)
- Jumper Cable (L2)

Have Questions?

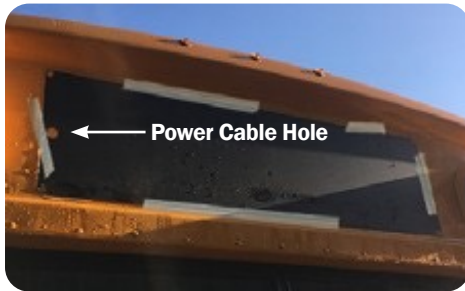
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STEP 1 - USE MOUNTING HOLE TEMPLATE TO MARK HOLES



- Position the mounting hole template (B) at the desired location and secure in place with masking tape.
- Ensure the template is oriented with the middle power cable hole on the left side.
- Mark the hole locations with a marker and remove the template.
- Indent hole locations with center punch for ease of drilling step.

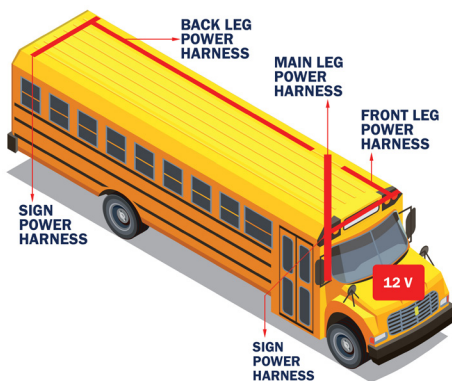
STEP 2 - DRILL HOLES AND INSTALL THREADED INSERTS



- Drill pilot holes for the mounting locations and power cable. It is recommended to increase the hole sizes incrementally for best results. If an A/C (air conditioning) unit is present, disconnect support screws and shift A/C unit forward before drilling to avoid any damage.
- Use proper pilot hole drill bit for the perimeter corner mounting holes. Refer to tools list for drill bit size depending on type of threaded insert being used.
- Use 3/4" drill bit for the power cable hole.
- Install threaded inserts (E/F/G) using manual tool or equivalent electronic or pneumatic options.
- Ensure installation is secure and flange is seated to the surface of the bulkhead. Refer to rivet nut installation guide available at www.firstlightsafety.com/document-library/ for more detail.

STEP 3 - PREPARE ELECTRICAL CONNECTIONS

(IF PREWIRED SKIP TO STEP 3c)



- Identify the various sections of the vehicle cable harness assembly. Use fishing tape for the best results when running wiring through bulkheads. If bulkhead support structures are in the way, it is recommended to remove flashing lights to allow for more access.

Sign Power Harness (H) Connects to the front leg and back leg to the sign unit(s) (Delphi MP150 connector) inside the bulkhead.

Main Leg/Fuse Holder Power Harness (K) Connects the front and back leg power harness to the fuse panel or vehicle ignition power terminals.

Back Leg Power Harness (J) Connects to rear sign power harness to the vertical main leg. The back leg typically runs through the curtain rail or equivalent conduit along the inside of the vehicle.

Front Leg Power Harness (I) Connects the front sign power harness to the vertical main leg. The front leg typically runs through the compartments above the driver.



- Run each power harness section through the required locations and connect them together to the vehicle fuse panel or vehicle ignition terminals. Each section is connected to the other using supplied Wago quick connectors.

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STEP 3 - PREPARE ELECTRICAL CONNECTIONS CONTINUED

c. Follow the steps that pertain to your vehicle.

For vehicle models with **external fuse panel access**, follow these steps:

- a. Locate "Destination Sign" location from the panel schematic or any free 12V ignition on fuse location.
- b. Insert the fuse tap connector to power circuit. The fuse tap comes with a spare 10A fuse.
- c. Locate a ground terminal to connect the ground fork of the main leg to the vehicle.

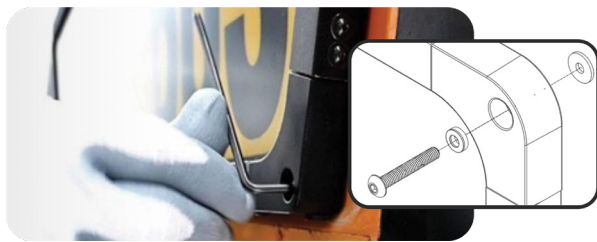
For vehicle models with **internal connections under the driver control panel**, follow these steps:

- a. Remove the top panel plate to access the internal compartment.
- b. Locate the ignition on power terminal or equivalent aftermarket 12V power source. Some of the new multiplex systems will have aftermarket fuse connections in this location.
- c. Connect main leg inline fuse to power.
- d. Locate a ground terminal to connect the ground fork of the main leg to the vehicle.

For vehicle models with a **prewired destination sign**, follow these steps:

- a. No harnesses are required.
- b. If using a mating Delphi MP150 connector, ensure the polarity between the sign and the mating connector are the same. If they are different, use the reverse polarity jumper cable provided.
- c. If using another type of connector, reference **STEP 5**.
- d. In the event there is a prewired OEM circuit being used, a jumper cable (L) is provided that can be used to reverse the polarity between the sign unit (A) and the sign power harness (H).

STEP 4 - MOUNT SIGN UNIT AND FASTEN MOUNTING HARDWARE



- a. Assemble the mounting hardware (C/D) into the frame as shown on the packaging label (10-32 screw, bonded washer and sealing washer).
- b. Connect the Delphi MP150 connector between the sign unit (A) and sign power harness (H).
- c. Ensure the power cable grommet is seated into the 3/4" hole and the cable is pushed into the bulkhead as the sign is positioned for mounting.
- d. Start to thread each mounting screw before fully tightening to the recommended torque (25-40 in-lbs).

STEP 5 - TURN ON SIGN UNIT(S) AND TEST OPERATION



- a. Restore electrical power to the vehicle. Turn on the vehicle and verify the sign illuminates and operates properly.
- b. ISBS power requirements:
 - 12 Volts and 3.5 Amps (max)
 - White wire (Power) and Black wire (Ground)

TROUBLESHOOTING

1. Ensure the vehicle engine is running.
2. Use a multimeter to test circuit wiring.
3. Inspect fuse.
4. Check the polarity between the sign and the power harness.