

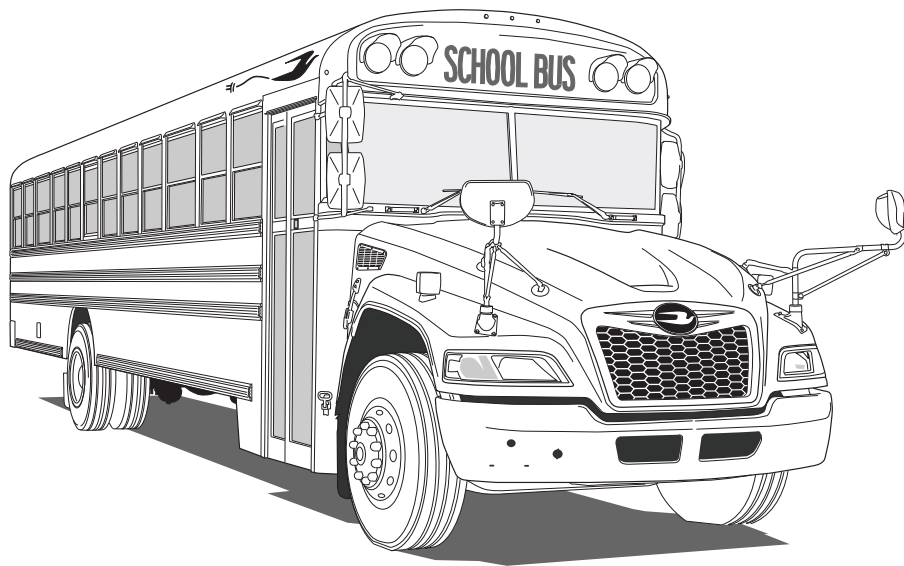
ELECTRIC POWERED



BLUE BIRD
DRIVERS HANDBOOK U.S. Edition

2022
BBCV
VISION

2022 DRIVERS HANDBOOK



BLUE BIRD

**BBCV
ELECTRIC
POWERED**

10075670 A

U.S. Edition



DRIVERS HANDBOOK

Thank You...and Congratulations!

We at Blue Bird Body Co. wish to thank you for your investment of trust in Blue Bird quality, and congratulate you on being a Driver of one of the most innovative vehicles in pupil transportation; the Blue Bird Vision.

Blue Bird Strength; Blue Bird Innovation

The BLUE BIRD VISION is the first C-Type ("conventional") school bus built upon a chassis designed specifically for pupil transportation, rather than mounted upon a multi-purpose truck chassis. The VISION's chassis is purpose-built at Blue Bird's Fort Valley, Georgia plant, as are Blue Bird's ALL AMERICAN transit-type buses.

The BLUE BIRD VISION, with its ALL AMERICAN FE and RE siblings, comprise a complete line of built-from-the-ground-up buses, providing an ideal fit for any school route need.

Unlike most "conventional" type school buses, the VISION is anything but ordinary. The Electric Powered Blue Bird VISION incorporates the latest technologies to the school bus lineup, ranging from its multiplex electrical system with intelligent micro processor instrumentation and advanced electric drive motor and power supply. The VISION is the result of Blue Bird's steadily innovative engineering and over 90 years of school bus experience, applied to the C-Type category.

Many technical refinements exist inside the bus with which the Driver may or may never interact with directly; but which nonetheless contribute to an overall improved operating and ownership experience.

Built to purpose. Built to last. Built to bring to your operation a new level of value, efficiency, and rugged reliability

Vantage Website

The Blue Bird Vantage website is part of our ongoing effort to supply the most update and complete information for your bus. Driver Handbooks and Service Manuals are available for a full range of bus models. Vantage also has information on Publications, Technical Training, Parts and Service, Sales, Warranty, and much more.

For additional information contact your Blue Bird Authorized Dealer or **Visit Vantage at** <https://vantage.blue-bird.com>.



INTRODUCTION	1-1
DRIVER ORIENTATION	2-1
INSTRUMENTATION	3-1
PASSENGER AREA	4-1
ROUTINE OPERATION	5-1
PRE-TRIP INSPECTION	6-1
ENROUTE EMERGENCIES	7-1
BUS/COMPONENT IDENTIFICATION	8-1
CARE & MAINTENANCE	9-1
GENERAL SPECIFICATIONS	10-1
INDEX	



© 2021, 2022 Blue Bird Body Co. All rights reserved.

All Blue Bird products sold for use in the United States of America and its insular areas comply with all applicable Federal Motor Vehicle Safety Standards (FMVSS) as of the date of manufacture indicated on the compliance label and applicable Federal ADA requirements. Blue Bird Body Company offers many items as standard and optional equipment to meet federal, state and local specifications and individual customer requirements.

Many of the components of Blue Bird buses are obtained from outside suppliers. Where maintenance and/or service information conflicts with the component manufacturer's documentation, the manufacturer's documentation prevails.

In the event of any conflict between the requirements of this publication and any applicable legal requirement, the legal requirement prevails. Technical requirements that exceed the legal requirements are not considered to conflict.

Blue Bird Body Co. continually endeavors to improve its products and reserves the right to change specifications without notice and without incurring obligation. Text, illustrations, photographs, and specifications in this manual are based on information available at the time of printing. Some equipment and features shown may be optional.



INTRODUCTION

1-1

About This Driver's Handbook	1-2
Safety Precautions	1-2
Scope and Content	1-3
Backed By Blue Bird	1-4
Blue Bird Authorized Dealers	1-4
Blue Bird School Bus Support	1-4
Blue Bird Academy	1-4
Blue Bird Parts Sales	1-5
Blue Bird Technical Publications	1-5
Blue Bird Bus Warranty	1-5
Reporting Safety Defects	1-6
Driver Certification	1-6



DRIVERS HANDBOOK

About This Driver's Handbook

Blue Bird Technical Communications endeavors to continuously improve the value of its manuals. Your comments and suggestions are welcome, and we value the feedback we receive from our users. Send your comments to:

*Blue Bird Corporation
Attn: Technical Communications
3920 Arkwright Road Suite 200
Macon, Georgia 31210*

or email at:

techcomm@blue-bird.com

Safety Precautions

Throughout this manual are precautions labeled Warnings and Cautions, and set in the style shown here:



WARNING! *The Warning designation is generally used for precautions which, if not properly observed while performing the related procedures, could result in serious personal injury or death.*



CAUTION! *The Caution designation is generally used for precautions which, if not properly observed, could result in damage to the bus or its equipment.*



This manual is intended for use by qualified professional bus Drivers who understand and observe all appropriate safety precautions and procedures associated with safe driving in general, and pupil transportation in particular. The user of this manual must read and abide by all safety warnings noted not only in this manual, but also on any labels and documentation for vehicle equipment and devices.

Scope and Content

This handbook is intended to acquaint the bus Driver with the Blue Bird bus model it describes. It is recommended that after being thoroughly read by the Driver, it should be stored in the bus. Although not a service manual, it contains general information that may be of value in situations of roadside hazard assistance, such as the location of jacking points, or the location of fuses.

Scheduled Maintenance tables are found in the Service Manual designated for the bus model it describes. This manual can be obtained through your Blue Bird dealer or an electronic copy of the manuals can be obtained through the Blue Bird Vantage portal at <https://vantage.blue-bird.com>. The service technician should refer to and become thoroughly acquainted with the Blue Bird Service Manual.

For replacement parts...

*Contact your local authorized
Blue Bird Dealer.*

Please note that not all possible situations that may arise while operating the bus are addressed.

The exercise of caution, common sense, and good driving practices, coupled with experience, are required for safe operation.

If questions arise that are not specifically covered in this manual, please contact your Blue Bird Dealer. Your Dealer will either answer your questions or will be able to assist in obtaining the needed information. To report a problem with your bus, contact your Blue Bird Dealer (or if you deal directly with Blue Bird, contact your Service Representative). If you are unsure of the identity of your Blue Bird Service Representative, call the Blue Bird switchboard at 478.825.2021 and ask the receptionist for the Blue Bird Service Department.



DRIVERS HANDBOOK

Backed By Blue Bird

Blue Bird provides all the behind-the-scenes support you depend upon for success in your school transportation operation. Further details can be obtained through the Blue Bird Vantage portal at <https://vantage.blue-bird.com> and your Blue Bird Authorized Dealer.

Blue Bird Authorized Dealers

Blue Bird administers its full range of Customer Services through a nationwide network of local or regional Blue Bird Authorized Dealers. The Dealer through whom your bus was purchased should always be your first point of contact for information and assistance.

Blue Bird School Bus Support

Your Blue Bird Dealer is equipped and staffed to handle your service-related issues, and also has immediate and direct access to Blue Bird's own factory-based Customer Support. All Blue Bird Support Representatives are true technical experts with long histories at Blue Bird and are eager to support your service related needs.

Blue Bird Academy

The training branch of Blue Bird Technical Communications Group offer ongoing training opportunities. Blue Bird Academy offers online and instructor led training opportunities, available to all dealership personnel, as well as the end customer. Access to the Blue Bird Academy can be found on the Vantage Portal at <https://vantage.blue-bird.com/Portal/Academy.aspx> available to dealers, dealer sales personnel and technicians, as well as the end user's personnel.

**Blue Bird Parts Sales**

We sell the world's finest school bus and the genuine Blue Bird parts to go with it. Maximize the life of your bus with the same high-quality parts that were used to build your Blue Bird bus. Only available from your locally authorized Blue Bird dealer and supported by Blue Bird's state of the art Parts Distribution Center. Contact your local blue bird dealer and discover the value that only Genuine Blue Bird Parts can deliver.

Blue Bird Technical Publications

Blue Bird Driver's Handbooks and Service Manuals are produced and continually updated by a full-time in-house staff with full access to manufacturing assembly lines and Blue Bird Engineering. Manuals are available in electronic .pdf format through the Blue Bird Vantage website. Paper manuals are available to purchase through your Blue Bird Authorized Dealer.

Blue Bird Bus Warranty

For your convenience and efficiency, warranty claims are handled at the local Dealer level, as are all other Customer Services. Be assured that your Blue Bird is backed by one of the strongest factory warranties in the industry. Refer to the standard limited warranty statement supplied with your bus for the terms and limitations of the limited warranty. Contact your Blue Bird Dealer if you have questions about the limited warranty or for assistance in obtaining repairs covered by the limited warranty.



Reporting Safety Defects

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Blue Bird.

If NHTSA receives similar complaints, it may open an investigation and, if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Blue Bird Company.

To contact NHTSA, you may call the Vehicle Safety Hotline toll-free at: **1-888-327-4236 (TTY: 1-800-424-9153)**

or go to:

<http://www.safercar.gov>

or write to:

**Administrator, NHTSA,
400 Seventh Street, SW.
Washington, DC 20590**

You can also obtain other information about motor vehicle safety from:

<http://www.safercar.gov>

Driver Certification

US Federal regulations require that school bus Drivers possess a Commercial Driver's License (CDL) with proper endorsements. The purpose of this manual is to acquaint the Driver with the particular Blue Bird bus model it covers. Its information must be considered supplemental to, not a replacement for, the specific requirements for Driver certification, testing, and operational procedures.

For example, the Pre-trip inspection routine described in this manual may not include all items or details of the Pre-trip inspection required by legally-mandated inspections.

Contact the Pupil Transportation Director or similar office for your particular state/district for more information.



DRIVER ORIENTATION

2-1

Driver Orientation	2-2	Upper Left Switch Panel	2-17	Hand Operated Parking Brake (Optional)	2-39
Electric Drivetrain	2-2	Heater Control Panel	2-18	Driver's Seat, Standard	2-40
Emergency Equipment Locations	2-4	Lower Left Switch Panel	2-20	Driver's Seat, Air	2-42
First Aid Kit	2-4	Right Console Switch Panel	2-24	Driver's Lap & Shoulder Belt	2-43
Body Fluids Clean-up Kit	2-4	Heat and Air Controls	2-27	Interior Compartments	2-45
Fire Extinguisher	2-5	E-Heater	2-27	Circuit Breakers & Fuses	2-47
Triangular Roadside Haz ard Reflector Kit	2-5	Fuel-Fired Heater (Option)	2-28	Accessories and Added Components	2-47
Flare Kit	2-5	Heater Filters	2-29	Doran Warning Light Monitor	2-48
Wrecking Bar	2-5	Heater Cores	2-29	Sleeping Child Check Monitor ...	2-49
Emergency Exits	2-6	A/C Controls	2-30	Back-Up Camera	2-49
Emergency Door	2-6	Driver's Instrument Panel	2-32	Exterior Compartments	2-49
Vandal Lock	2-7	Steering Column	2-34	Hood Compartment	2-49
Emergency Pushout Windows	2-8	Steering Wheel Position	2-34	Under the Hood	2-52
Emergency Roof Hatch	2-9	Left Switch Stalk	2-35	12V Battery Compartment	2-54
Entrance Door Emergency Release .	2-11	Right Switch Stalk	2-35	Tire Pressure Monitoring System (Optional)	2-55
Wheelchair Lifts	2-12	Cruise Control (Optional)	2-36		
Driver's Area	2-13	Parking Brake, Units With Air Brakes	2-37		
Left Switch Console	2-14	Parking Brake, Units			
Radio Switch Panel	2-15	With Hydraulic Brakes	2-37		



DANGER



UNDER NO CIRCUMSTANCES SHOULD ANYONE TOUCH THE ORANGE CABLES, ATTEMPT TO ACCESS THE BATTERY PACKS OR ANY OTHER HIGH VOLTAGE AREAS ON THIS BUS EXCEPT TRAINED SERVICE TECHNICIANS QUALIFIED TO WORK ON HIGH VOLTAGE EQUIPMENT.

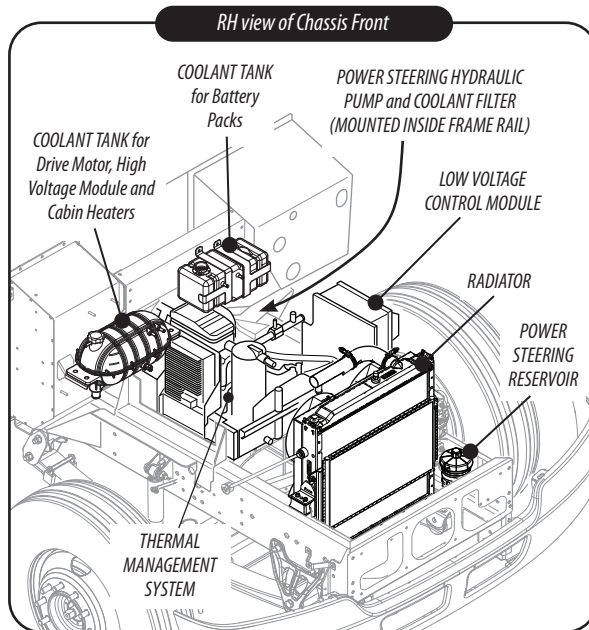
Driver Orientation

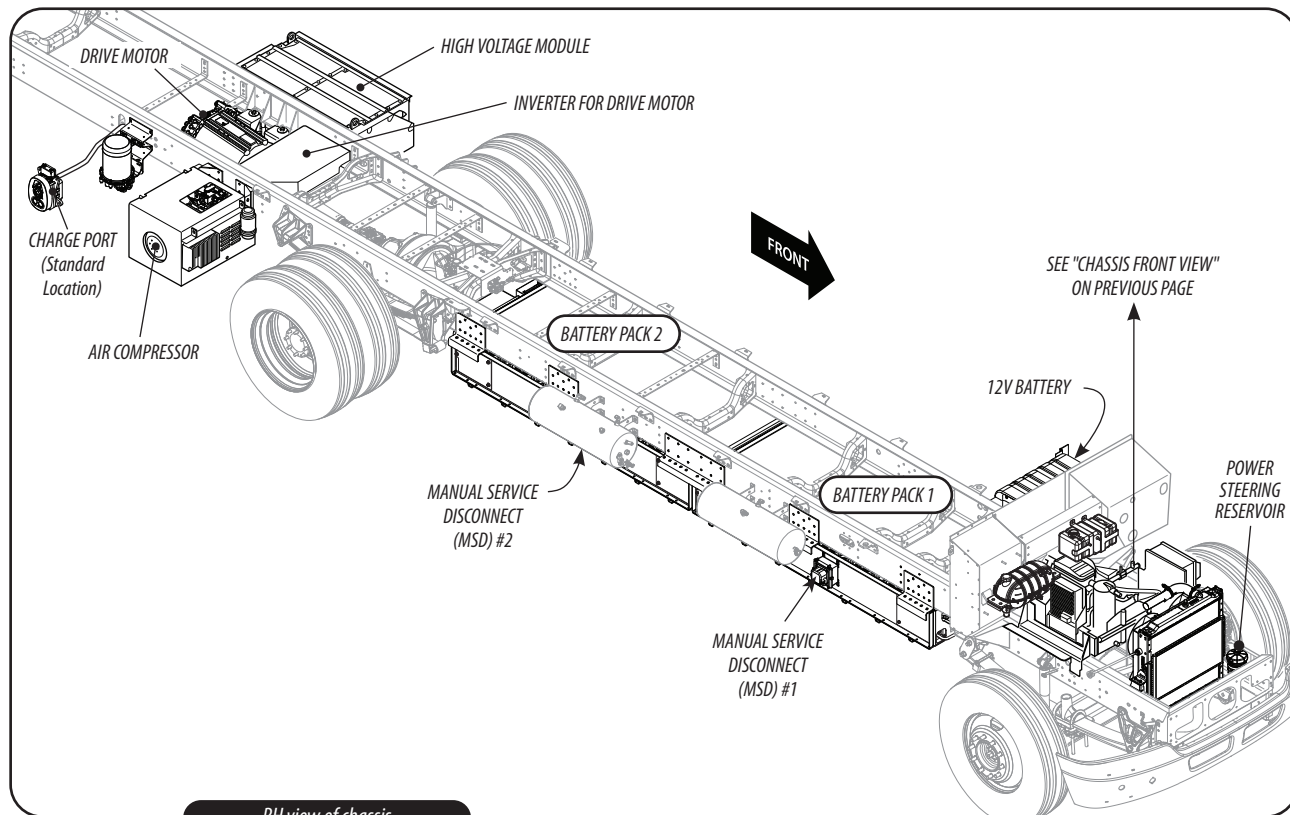
This chapter is a brief tour of the VISION's features and equipment locations.

Electric Drivetrain

The Blue Bird Electric Bus uses a highly efficient direct drive system with no additional transmission or torque coupling devices. The motor torque and energy management strategy are controlled by the vehicle control unit (VCU) to maximize the overall efficiency and performance.

The bus is controlled through a series of sensor inputs provided by the operator. The driver provides these inputs using everyday bus controls such as an accelerator pedal, push button shift selector and service brakes. Driver inputs are sent to a control unit (VCU) along with information from other operational sensors to provide a smooth and controlled operation.





RH view of chassis



Emergency Equipment Locations

Some emergency equipment is optional and differs between states. Generally, all school buses have first aid kits, fire extinguishers, and triangular roadside hazard reflector kits; however, the sizes of first aid kits and fire extinguishers vary. The bus may also be equipped with a body fluid kit, fire axe, wrecking bar, or flare kit. All such devices are generally located in the Driver's area, but specific locations are also subject to optional specifications.

Upon taking delivery of the bus, the Driver must locate all the emergency equipment purchased with the bus, and become fully acquainted with its mountings; must be able to quickly remove the equipment in an emergency situation and replace it securely. Emergency equipment must never be left loose in the bus, but must always be securely stored in its factory-installed mountings during bus operation.

As part of a daily pre-trip inspection, the Driver must verify that all emergency equipment is in place, fully stocked (First Aid Kit), up-to-date (Fire Extinguisher), and in proper working condition.



WARNING! *Emergency equipment must be checked daily for proper operation. It is the driver's responsibility to report any damage to qualified service technicians, and that the condition is corrected before transporting passengers.*

First Aid Kit

The first aid kit on most VISION buses is located over the windshield toward the curbside of the bus. Each state has a specific location and contents guide that must be followed.

Body Fluids Clean-up Kit

The body fluids clean-up kit is located in the general area of the first aid kit. However, each state has specific requirements for the location and labeling of this equipment. Know your state's requirements and maintain the kit accordingly.

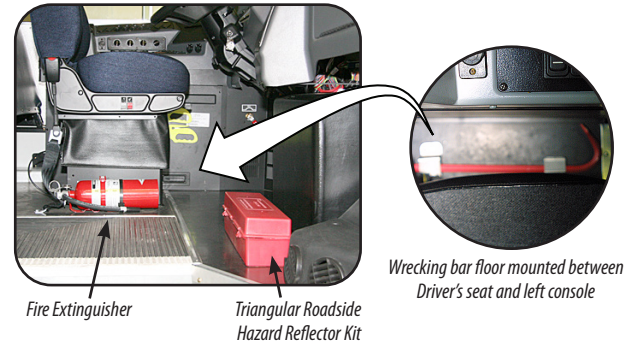


Fire Extinguisher

The fire extinguisher on most **VISION** buses is mounted vertically, forward of the entrance door stepwell or horizontally to the floor near the Driver's seat. States requirements vary for the type and size of the fire extinguisher for school buses. The fire extinguisher must be monitored to ensure the charge level is within the acceptable range, and the expiration date current. It is the responsibility of the driver to ensure compliance prior to each trip.

Triangular Roadside Hazard Reflector Kit

For those states requiring the triangular markers to be located in the driver's compartment, this container is mounted on the floor immediately behind the driver's seat. In some states, it is mounted on the floor, under the rearmost left-hand seat or under the second right hand seat. The contents of the triangular warning device kit should be checked each month or as the regulations of your state dictate. See the *Enroute Emergencies* chapter for instructions on deploying the reflectors.



Flare Kit

If the bus is equipped with a flare kit it will be located in the driver's area. The location may differ according to state specs. The kit contents should be inventoried every 30 days, or as required by your state and local regulations. The mounting fasteners should be checked monthly to ensure security.

Wrecking Bar

If the bus is equipped with a wrecking bar option it will be located in the driver's area. The location may differ according to state specs.



Emergency Exits

All emergency exits on this Blue Bird bus meet FMVSS specifications.

In true emergency situations, every second counts. It is therefore essential that every school bus Driver be completely familiar with the location and operation of all emergency exits. Read the following descriptions thoroughly, but also practice operating each of the exits to have not only a mental memorization, but also a tactile familiarity with the amount of force required to operate the opening, the amount of space available around the opening, etc. Checking for proper operation of each emergency exit must be part of the daily pre-trip inspection regimen.

Emergency exits are clearly identified with the words "EMERGENCY EXIT." Basic operating instructions are also printed on labels affixed on or near each exit.

The bus is equipped with an audible alarm that sounds when an emergency exit is unlatched and the ignition switch is in the "RUN" position. On the vision, the DID screen also identifies the open exit(s).



WARNING! All "Emergency Exits" should be inspected and tested daily. The labels and decals should be considered part of this inspection and should be maintained in a clearly legible condition.

Emergency Door

The emergency door is opened by lifting the long horizontal handle all the way upward and pushing the door outward. The three-point lock mechanism shown is optional. The door is equipped with a hold-open telescoping strut at the top of the opening. When the door is fully opened, a pawl in this strut rotates to prevent the door from falling shut. To close the door, push it outward to the end of the strut's travel. This causes the pawl to rotate again, allowing the door to close. Close the door smoothly, push it against the frame firmly to compress its seal, and close the handle latch fully.



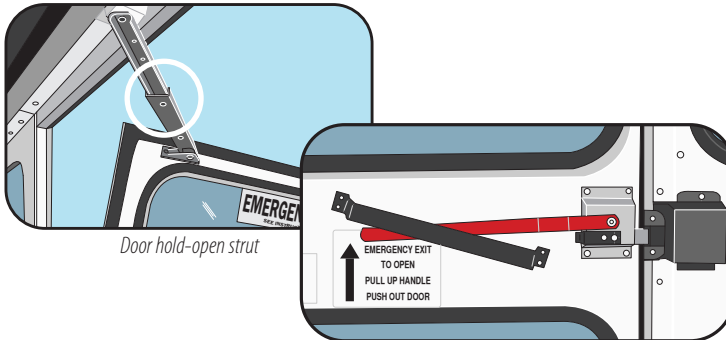
Vandal Lock

The emergency door may be equipped with an optional vandal lock. This is a sliding-bolt type latch or optional key lock with a sensor switch which detects when the vandal lock is closed.

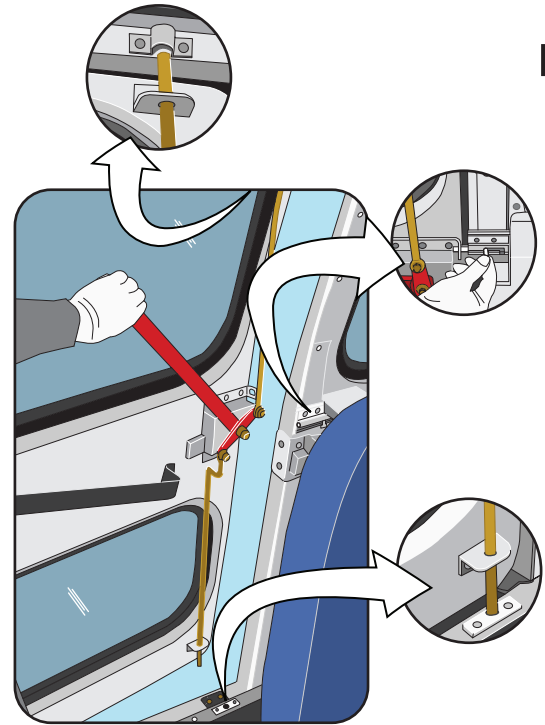
If the vandal lock is closed, the motor cannot be started, and an audible alert sounds. The vandal lock must be open during normal operation.



WARNING! The bus must not be operated with the emergency exit locked.



Standard Emergency Door Latch with/Vandal Lock



Optional 3-Point Latch with/Vandal Lock

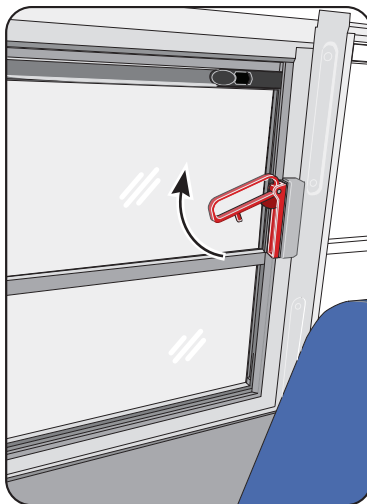


Emergency Pushout Windows

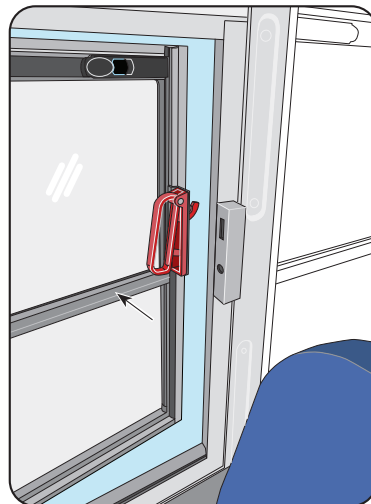
Depending on body model there may be as many as six pushout windows in the passenger area of the bus. Pushout windows are provide as emergency exits in accordance with state specification. Emergency exits are clearly identified by the words “EMERGENCY EXIT” and the red release handle at the rear edge of the window. Vertical hinged pushout windows are hinged at the front side and swing outward like a gate.

To open the pushout window, rotate the red handle parallel to the glass and away from the window frame, as indicated by the nearby decal. Then push the window outward.

The emergency windows should be operated daily as part of the Driver’s pre-trip inspection. A light spray lubricant may be used on the window latches and hinges to keep them in smooth operating condition.



Rotate Red release handle at rear edge of emergency window



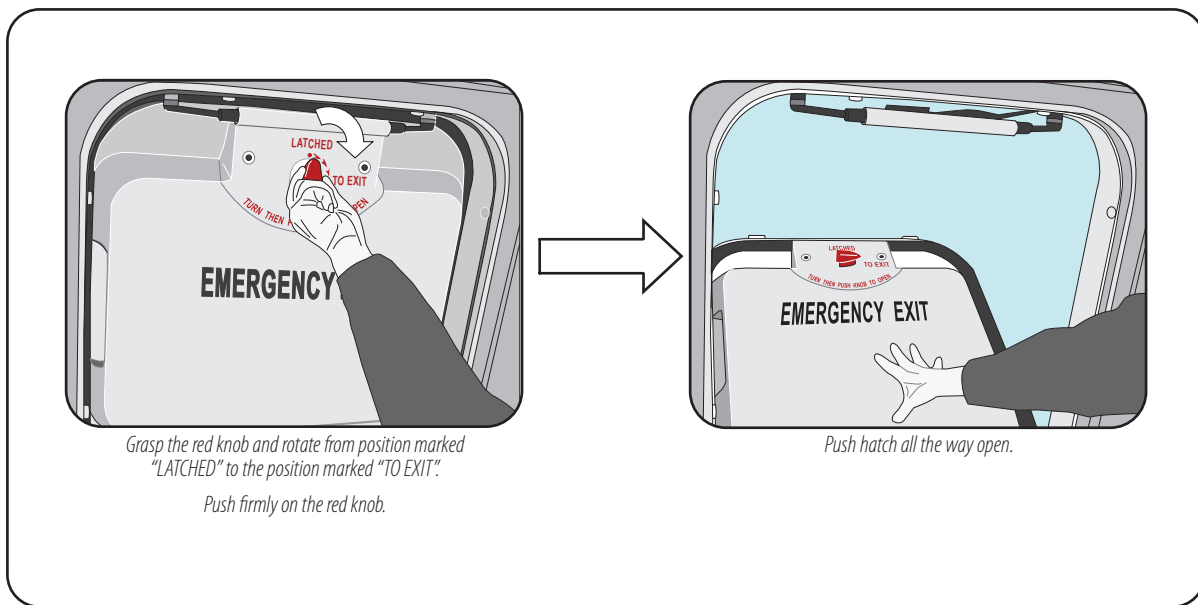
After catch has cleared hole, push window outward



Emergency Roof Hatch

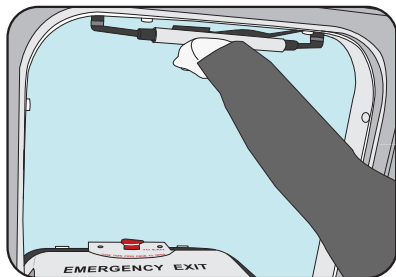
Depending upon options and/or regulation, the vision may be equipped with one or two roof-mounted emergency escape hatches.

How to Open Roof Hatch:

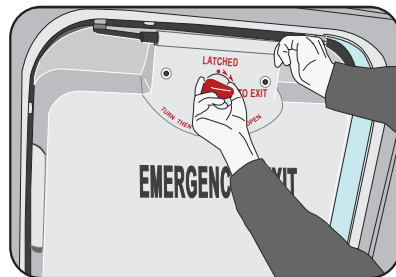
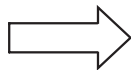




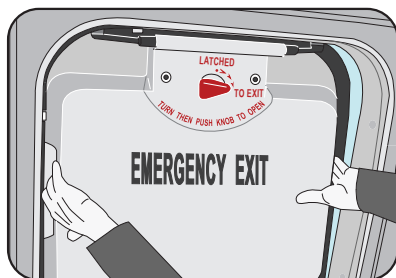
How to Close Roof Hatch:



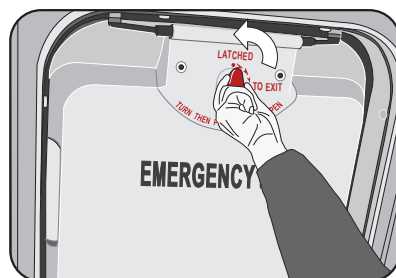
Push the white bar upward with the heel of your hand, snapping it in its upward position.



Pull the hatch downward, engaging its opening side with the white bar.



Grasp the two handholds on the sides of the hatch and pull firmly downward.



Turn the red knob to the position labeled "LATCHED."



Entrance Door Emergency Release

Depending upon purchase options, the entrance door may be manually-operated, electrically operated, or air operated.

Manually operated doors employ a door control rod connected to a handle mounted on the dash panel near the Driver. An over-center cam latching mechanism is released by the driver's thumb or palm when the handle is opened, and snaps back into latched position when closed.

Electric or air-operated doors are equipped with emergency release levers so that passengers can open the door even if the power is off or disabled.

The optional electrically-controlled entrance door is driven by a motor and gear mechanism in the door header panel. A lever protruding from the header panel serves to disengage the drive gear mechanism so that the door can be manually pushed open or shut. This serves a dual purpose: To allow the driver to close the door after parking and leaving the vehicle, and to serve as a quick door release in the case of emergency.

To release the door, push the lever to the left. The door can then be pushed open or closed manually. To re-engage the door drive mechanism, push the lever to the right.

Air-operated doors use system air pressure to open the door. Air-operated doors are also equipped with an emergency release lever mounted above the door. In the case of air pressure failure, the door closure can be released by flipping the lever toward the Open direction indicated.

Electrically Operated Door Emergency Release



Push forward to release the door mechanism so that the door can be manually opened or closed. Push rearward to engage the door mechanism for normal control of the door by the switch panel.



Air Operated Door Emergency Release



Wheelchair Lifts

Blue Bird buses may be fitted with lifting platforms designed to aid in loading and unloading passengers. There are two optional wheelchair lifts available. The units available are the Ricon™ and the Braun™. Both offer a maximum of 48 inches (122 cm) lift from the ground to the level of the bus floor. For the correct operation and maintenance of the wheelchair lift on your bus, please refer to the operator's manual supplied by the OEM.



WARNING! *Operators should familiarize themselves with the lift manufacturer's operator's manual prior to loading passengers on the lift. All lifts have maximum weight limits that should never be exceeded.*

These lifts are operated by an independent, electro-hydraulic power system and are controlled by the operator from outside the bus. There is a master switch located in the driver's area that must be activated as well.

The bus electrical system powers a hydraulic pump, internal to the lift, which moves the lift up. The "down" function is gravity type and is controlled by pressure relief valves. Manual operation of the "down" function requires that the operator manually control the pressure relief valves. To provide for the manual "up" function, the lift is fitted with a hand operated hydraulic jack, located on the right-hand (from inside the bus) side of the lift assembly.

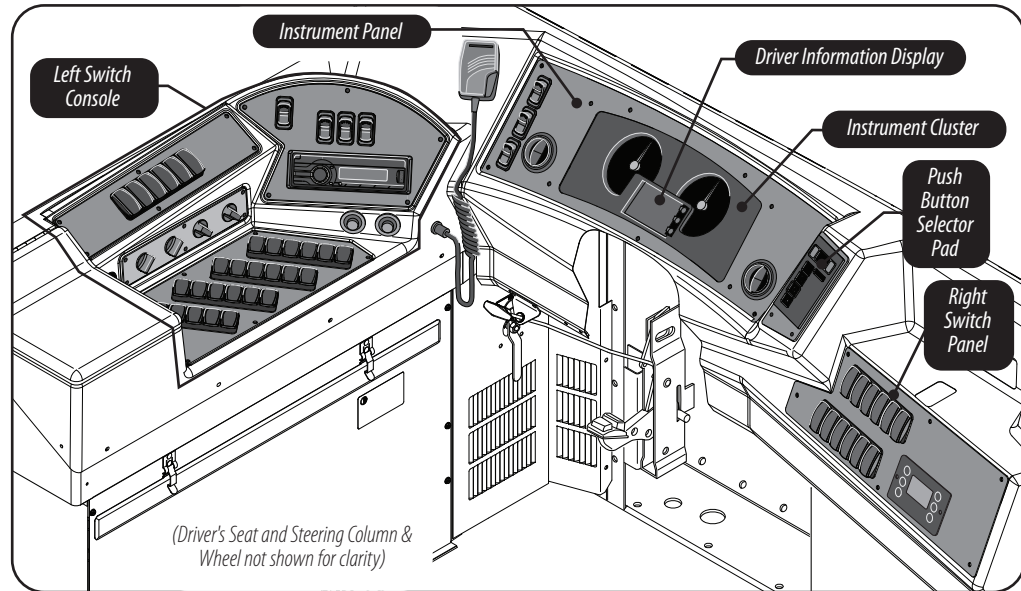
A buzzer sounds when the door is unlatched or partially opened. The buzzer stops if the door is completely open.



Driver's Area

Blue Bird has designed many features into the Driver's area. A one-piece molded dash housing spans the entire front of the bus. All gauges are incorporated in a single main instrument cluster. Switch panels are located to the right and left of the instrument panel. The exact arrangement of switches in all switch panels is somewhat dependent upon specific state specifications. (For example, some states require additional switches for red and amber Warning Light pilots.) Shown are the standard and most common configurations. If your bus differs from the diagrams shown, check with your local specifications and familiarize yourself with each switch function.

A tilt / telescope steering column provides improved adjustability range, allowing the Driver to use both hands to position the wheel for maximum comfort.

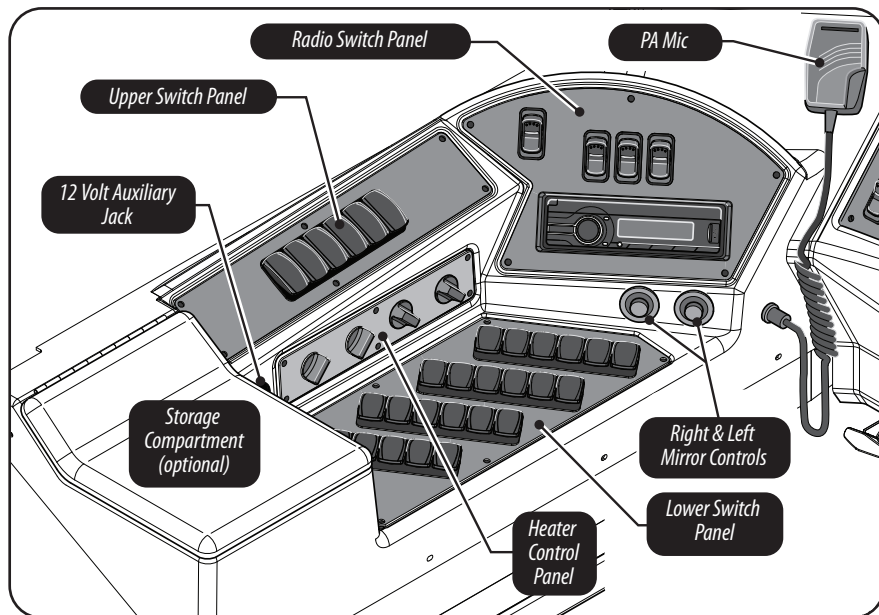




Left Switch Console

The left switch console under the driver's side window shown here consists of the Radio Switch Panel, the Heater Control Panel, Right and left rearview mirror controls, upper and lower switch banks, an optional storage compartment, the optional PA mic jack and a 12 volt auxiliary jack.

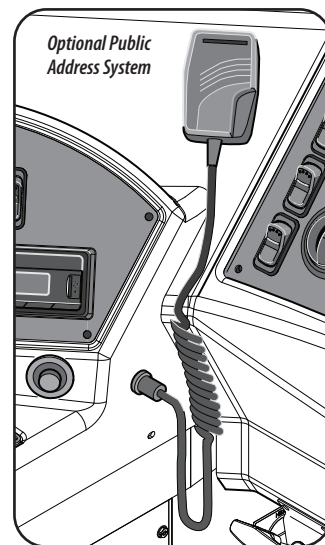
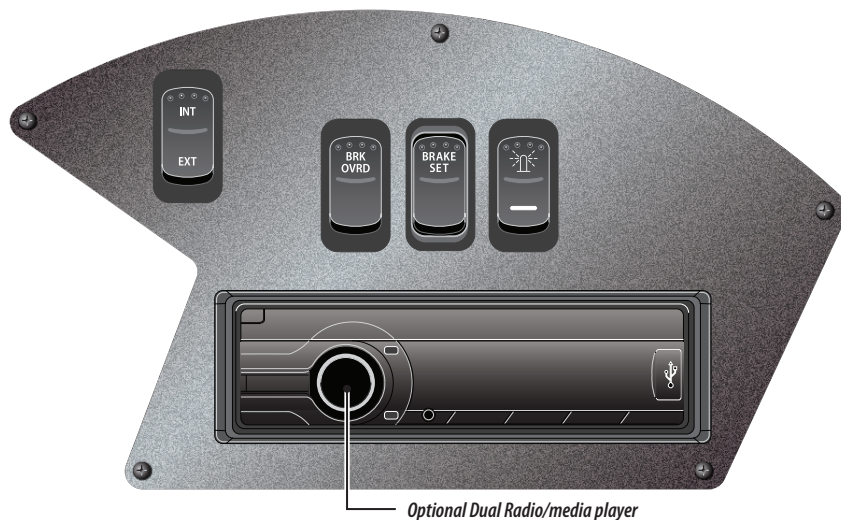
The left switch console contains three switch panel banks. The exact arrangement of switches in all switch panels is somewhat dependent upon specific state specifications. (For example, some states require additional switches for red and amber Warning Light pilots.) Shown are the standard and most common configurations. If your bus differs from the diagrams shown, check with your local specifications and familiarize yourself with each switch function.





Radio Switch Panel

The radio console switch panel located to the left of the driver and shown below includes a Dual AM/FM media player with PA system, depending on option ordered. The panel contains switches for standard and optional equipment and will be equipped only with switches for options that are included on your bus and therefore may differ from the panel shown here.





The following is a list of switches and indicators found in the Radio Switch panel and their descriptive icons.

Public Address. Interior and exterior speakers.



Brake Interlock Override.
Momentary switch overrides
Brake Interlock system.



Brake Interlock Set.
Shrouded switch for activating the
Brake Interlock System.



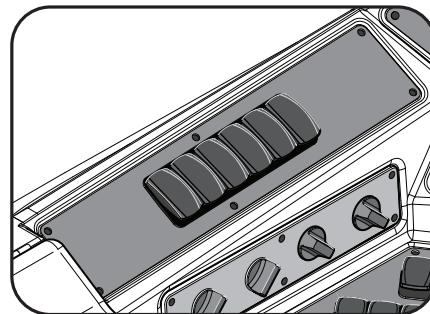
Strobe Light.
Controls the roof-mounted strobe light.





Upper Left Switch Panel

The upper left switch panel located directly below the driver's window includes switches that control the heater systems installed on your bus. The panel contains switches for standard and optional equipment heaters including front and rear heaters, the driver's heater, underseat heaters, and auxiliary heater pump. The panel will be equipped only with switches for options that are included on your bus and therefore may differ from the panel shown here.



The following is a list of switches and their descriptive icons found in this panel.

Stepwell Heater Fan.

High, Low and Off positions.



Heater Pump.

Provides power to auxiliary heater pump, supplying heat to the passenger compartment.



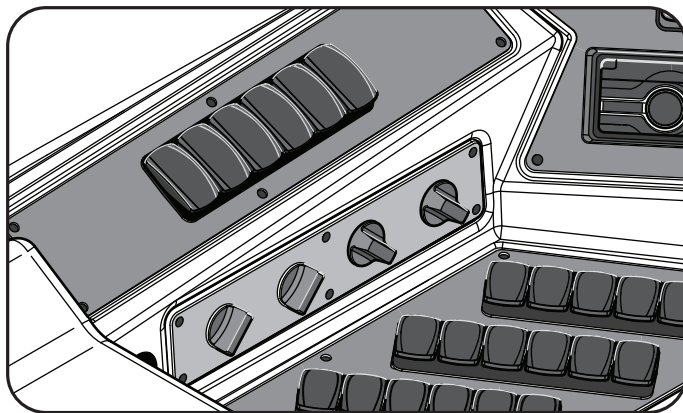
Underseat Heater Fan Switches. 3-position (High, Low, Off) Additional 3-position heater switches may be located in the left console lower panel if the bus is equipped with optional passenger area heaters. These switches control the fan speed of underseat heaters.

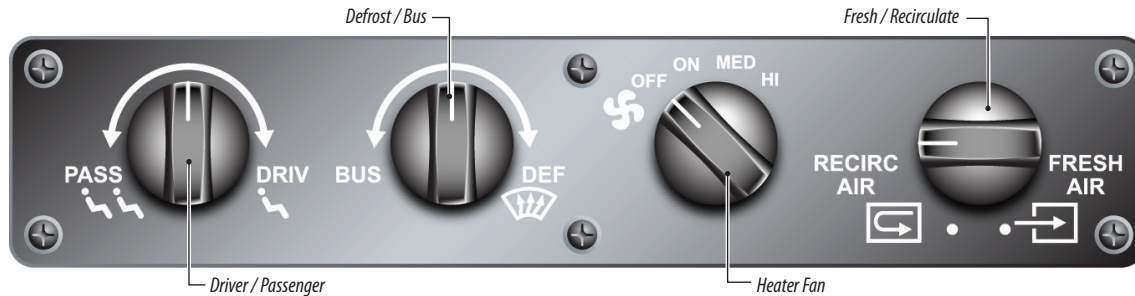




Heater Control Panel

The Heater Control panel of the Side Console contains controls for the front heater unit which is housed immediately below the Side Console left of the Driver seat. Ducts from this unit also provide windshield defrosting.





Fresh / Recirculate. This knob controls the type air, which is circulated by the heater system and fan. By turning clockwise, air is circulated from the interior of the vehicle. This is desirable when trying to heat passenger compartment rapidly. By turning the control knob counter-clockwise air from outside the bus is used in the system. This is helpful when trying to cool the vehicle.

Heater Fan. This knob adjusts the speed of the fan, which circulates the air in the system. In the counter clockwise position, the blower is off. By turning clockwise, 3 speeds can be achieved — low, medium and high.

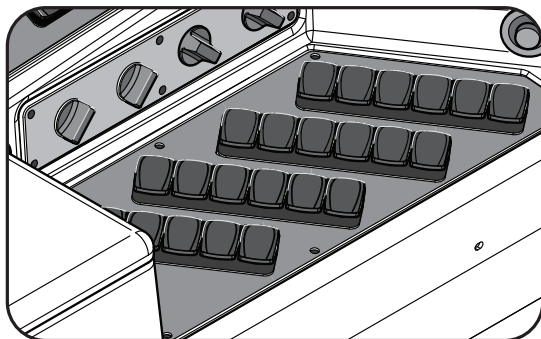
Defrost / Bus. This knob adjusts the air flow balance between the vehicle passenger compartment and the windshield. By turning knob clockwise, a damper is moved and air is diverted toward the windshield for defrosting.

Driver / Passenger. This knob Adjusts air flow balance in two directions. By turning knob clockwise, a damper is moved and air is diverted toward the driver. By turning counterclockwise, the air is diverted toward passengers. The amount of air diverted is proportional to amount the knob is turned.



Lower Left Switch Panel

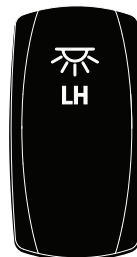
The lower left switch panel located directly beside the driver consist of switches for standard and optional equipment. The panel will be equipped only with switches for options that are included on your bus and therefore may differ from the panel shown here.



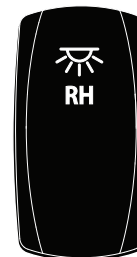
Rear Dome Lights. Turns on / off the overhead lights in the passenger area. Some Vision buses have two of these switches, one each for the dome lights in the front half and rear half or the right side and left side the bus.



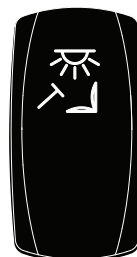
Left Side Dome Lights.



Right Side Dome Lights.



Driver's Dome Light. Turns on/off the overhead light in the Driver area.



Warning Light Indicators.

Red and yellow





Door Switch. Press and hold the top of this momentary rocker switch to open the entrance door. The door stops automatically when it reaches the end of its travel. Press and hold the bottom of the switch to close the door.



Warning Light Start. Amber Switch. A momentary switch which initiates the Warning Light sequence. Press this switch upon approach to each school bus stop. In most Warning Light System configurations, this activates the amber warning light flashers. When the door is then opened, the red warning lights are activated and the stop arm and crossing arm extend. This also arms the Sleeping Child check system if so equipped, and is indicated in the Driver Information Display



Warning Light Emergency. This momentary switch activates the red warning lights for use in the case of emergency such as a roadside hazard, regardless of entrance door position or W/L Master control switch position.



Warning Light Master. Enables entire warning light system. This switch must be on whenever the Warning Light System is required. Specific requirements vary according to state specifications. Generally, the use of the Warning Light System is required whenever picking up and discharging students. The Master switch enables you to disable the Warning Light System when stopping for other purposes such as fueling stops.



CAUTION! *If your bus is equipped with a battery powered warning system be sure to turn the Warning Light Master Switch off when the bus is parked overnight. Whenever the Warning Light Master switch is on, the Vision's Multiplex System will not enter its sleep mode, even if the key is removed. This will lead to battery discharge.*



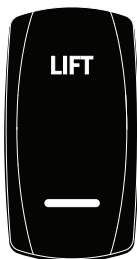
Noise Suppression. Yellow Switch. Momentary or on/off. When activated, certain noisy devices such as auxiliary fans, heater blowers, radio, public address system and/or its speakers are disabled. This enables the Driver to better hear ambient sounds, such as railroad signals and gate intercoms or personnel, etc.



Automatic Traction Control Override. Momentary switch overrides Automatic Traction Control system. Resets at next ignition cycle.



Lift. Provides power for lift operation.



Stop Arm/Crossing Arm Cancel. Interrupts stop arm and/or crossing arm sequence. Pressing this momentary switch retracts the Stop Arm and Crossing Arm if they are extended.

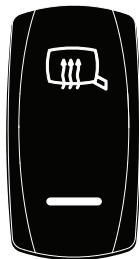


Fans. Left, center and right auxillary fans. High, low, and off positions. Fans are provided for general air circulation, Driver comfort, and/or to help accelerate windshield de-fogging under certain conditions.





Mirror Defrost. Activates defrosting system for exterior rearview mirrors.



Step De-Ice. Activates de-icing system for entrance door steps.



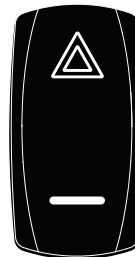
Strobe Indicator Light.
Strobe light on.



Indicator Lights. Lift door open and /or Emergency door open.



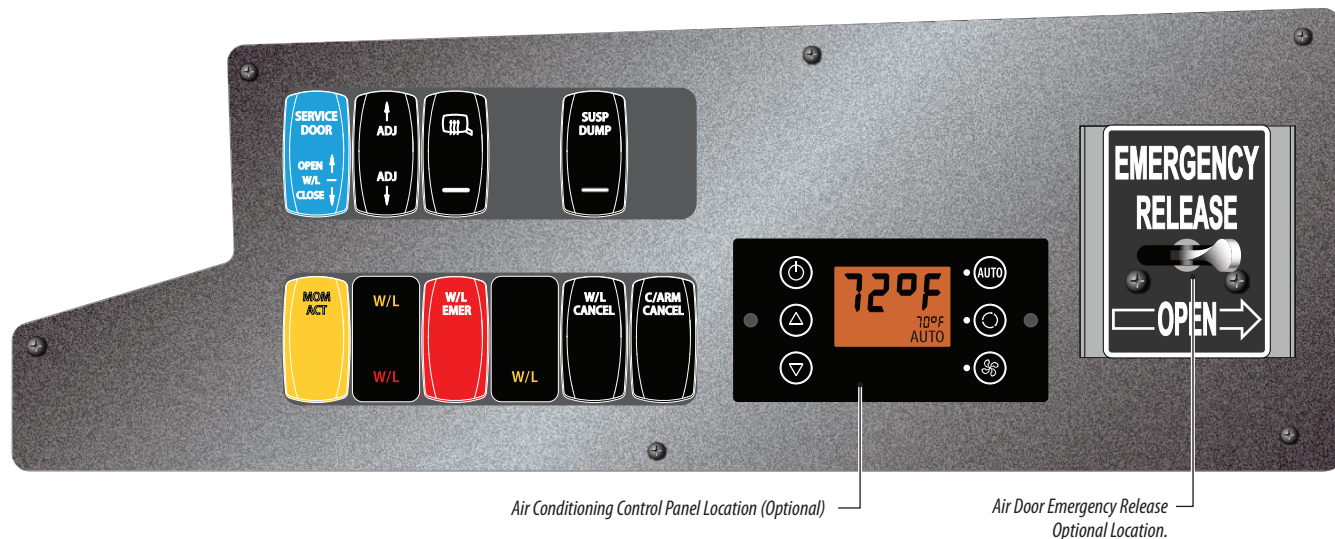
Hazard Lights. This switch turns on / off the front and rear turn signals as blinking hazard flashers (Optional location). Standard location is on the steering column.





Right Console Switch Panel

The right switch panel located toward the center of the bus consist of switches for standard and optional equipment. The panel will be equipped only with switches for options that are included on your bus and therefore may differ from the panel shown here. Other options such as a relocated air door emergency release and a location for electronic air conditioning controls may be located here.





Below is a list of switches and indicators and their descriptive icons found in this panel.

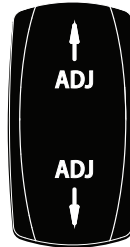
Electric Entrance Door. Blue Switch.

Press and hold the top of this momentary rocker switch to open the entrance door. The door stops automatically when it reaches the end of its travel. Press and hold the bottom of the switch to close the door.



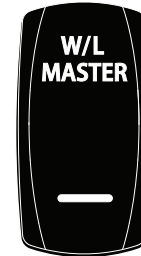
Accelerator Pedal Adjustment.

Allows forward and rearward movement of the accelerator and brake pedal. Provides a 3 inch range of movement.



Warning Light Master. Enables entire warning light system.

This switch must be on whenever the Warning Light System system is required. Specific requirements vary according to state specifications. Generally, the use of the Warning Light System is required whenever picking up and dis-charging students. The Master switch enables you to disable the Warning Light System when stopping for other purposes such as fueling stops and W/L MASTER railroad crossings.





Warning Light Indicators. Red and yellow.



Suspension Drop. (Optional) Activates dump valves releasing all air in suspension air bags. See Air Suspension Drop.

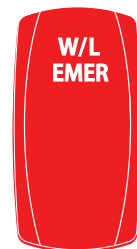


Warning Light Momentary.

Activates the amber warning lights with entrance door closed or red warning lights with entrance door open.



Override. Activates the red warning lights and stoparm regardless of entrance door position or master switch position. (Feature Specific).





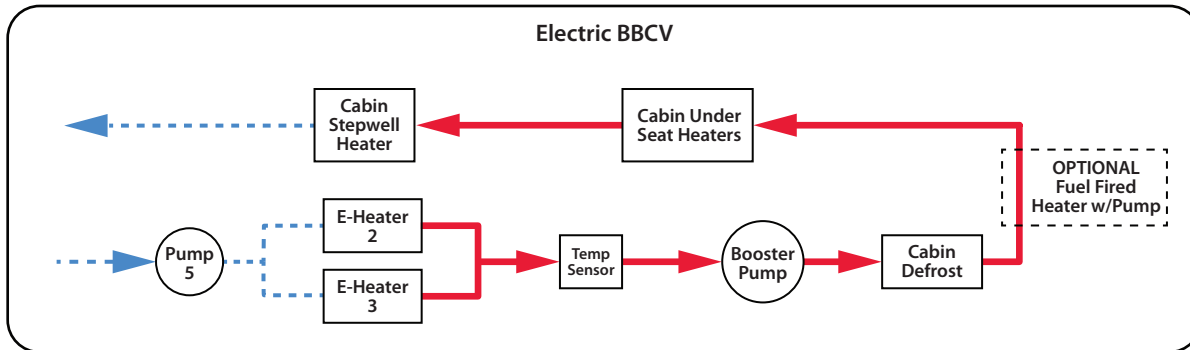
Heat and Air Controls

E-Heater

The passenger area in the electric bus obtains its heat from a coolant loop that passes through electric heaters in the Thermal Management Unit. The temperature of this loop is maintained separately from the electric motor and batteries. To initiate interior heating, use the heat request switch located on the lower left of the driver's instrument panel.



Heat Request Switch





Fuel-Fired Heater (Option)

To supplement the heating system in extremely cold climates, a diesel fuel-fired Webasto heater is offered as an option. This heater is mounted in a compartment on the LH side of the skirt forward of the rear axle.



WARNING! *The exhaust pipe for the Webasto heater exits the skirt line just below the compartment. The pipe and exhaust can be very hot, even when the unit is not running and may cause burns if it comes in contact with skin. Use caution when around the heater.*

The system has a 25 gallon tank mounted between the frame rails, just behind the electric motor in the overhang of the bus. The tank fill is located behind a spring-loaded door on the LH side of the bus between the rear axle and the rear of the bus. Status of the fuel level in this tank can be accessed through the message display center in the cluster. See *Instrumentation* Chapter for more details.

A digital timer located in the Upper LH switch panel can be programmed to have the heater pre-heat the passenger compartment of the bus prior to driving the route. For information on how to program the timer, refer to the information sheet provided with your bus or visit the website:

<https://online.flippingbook.com/view/62879/>

NOTE for buses equipped with the 12V battery disconnect switch:

When using the preheat function, make sure that the 12V battery disconnect switch shows ON. The heater gets its power from the 12V battery and if disconnected, it will be unable to start and run the preheat cycle.



*Webasto Digital Controller
(located in the heater switch panel)*



Heater Filters

All heater cores are protected by a filter except for the driver's heater which has a screen. The filters and screen are washable. If a filter cannot be washed or is damaged, it **MUST** be replaced immediately. If the screen cannot be cleaned a new screen **MUST** be installed immediately. The filters must be inspected, cleaned or replaced every 12 months or 12,000 miles (19,312 km).

The main heater filter is located behind a small panel at the driver's left. This panel is held in place by luggage type over the center clasps. To remove the filter, pull upward and outward. To replace the filter, press it firmly into position and replace the cover panel. The cover panel must be in place to maintain the airflow through the filter.

Heater Cores

The heater will be most efficient when the core is clean. The core should be cleaned carefully with compressed dry air or a vacuum and a soft bristle brush. Damaged fins should be straightened with a fin comb to prevent air flow restrictions. Heater cores must be inspected and cleaned every 12 months or 12,000 miles (19,312 km).

Maintenance intervals for filters and cores are minimum. In extreme dusty and dirty environments the maintenance must be performed more often to insure proper air flow. Maintenance and inspection of all the heater cores and filters and/or screens in the heater system is critical to prevent loss of efficiency, function and/or premature heater motor failure. Replace parts with OEM parts purchased from you Blue Bird Dealer.



Heater Filter Access



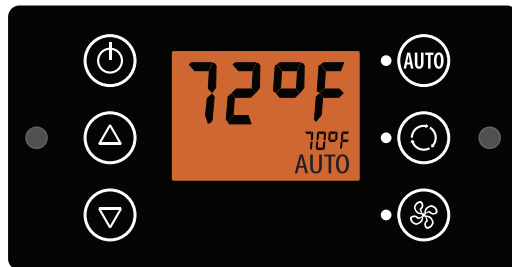
A/C Controls

An optional rooftop air conditioning unit is available for your electric bus. If ordered, this rooftop system will have a separate control panel mounted on the dash. The graphics in the control panel may display operating modes other than cooling such as heating and ventilation. These optional modes should be ignored because they are not part of your A/C unit. This control panel will only operate the air conditioner and is independent of the heating controls.

To operate the air conditioning system, the bus must be ENABLED as indicated in the instrument panel's right warning bank. For complete instructions on how to Enable the bus refer to the "Starting Procedure" in Section 5 of this manual. Once Enabled, press the ON/OFF button on the A/C control pad. This will illuminate the control pad and a green LED next to the AUTO button will light up. After a brief system self check (approximately 1 minute) the compressor will engage automatically provided the temperature setting is below the ambient (outside) temperature.

To change the temperature setting press the UP arrow to increase the temperature setting or press the DOWN arrow to decrease the temperature setting. The temperature setting can be adjusted in 1° steps between 59°F (15°C) and 82°F (28°C).

Before turning the bus OFF, turn the air conditioning system OFF by pressing the AUTO button on the A/C control pad. This will stop the cooling function by disengaging the compressor and de-energizing the electronics. *This must be done before turning the bus OFF.* After one to two minutes, the electronics will be de-energized and the bus can then be turned OFF. See complete shut down procedure in Section 5 of this manual.



Air Conditioner Control Panel



ON/OFF button. Panel will show temperature that was last set and be in Auto Mode.



Use to increase temperature setting. Also used to increase blower speed when blower button is active.



Use to decrease temperature setting. Also used to decrease blower speed when blower button is active.



Press the AUTO button to deactivate A/C system.



Used to activate the fresh air/circulation system using outside air for 10 minutes, then shuts off.



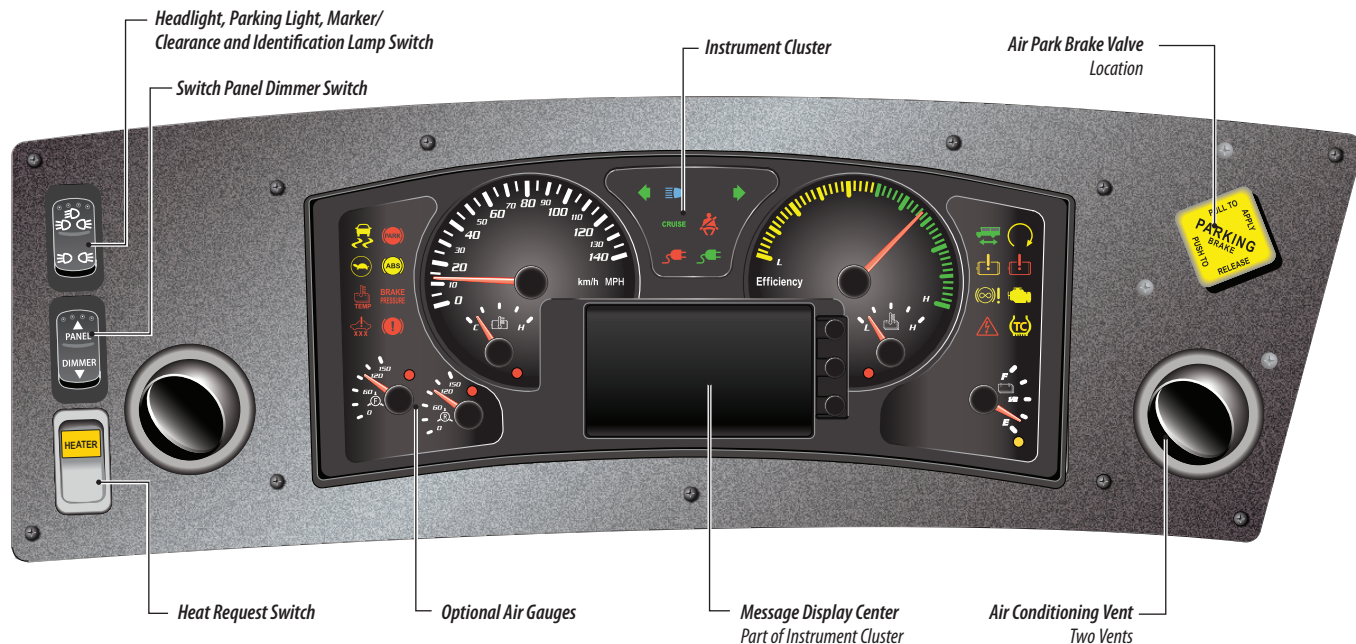
Blower. Used to manually set blower speed or to put in automatic mode.



DRIVERS HANDBOOK

Driver's Instrument Panel

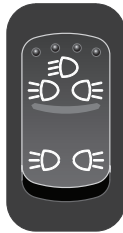
The driver's instrument panel behind the steering wheel and shown here consists of the instrument panel cluster, headlight switch, heat request switch and panel dimmer. If your bus is equipped with air brakes the parking brake valve is also located in this panel. See Section 3 for more details.



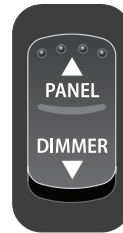


Headlights / Parking / Marker / Clearance and Identification Lights.

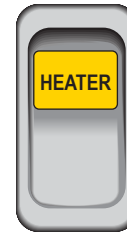
This switch turns headlights on and off, or turns on Parking Lights.



Switch Panel Dimmer. This slider switch is continuous, but has three detents. It adjusts the brightness of the switch panels backlit switches. For brightening and dimming of the Instrument Cluster see the *Message Display Center Control Panel - Dimmer Adjustment*.



Heat Request Switch. Provides the necessary control signal to request interior heat. When activated, the switch has an Amber backlight.



Other switches found in driver's area:

Exterior Light Check. Momentary switch activates automated Exterior Light Check feature. See Daily Pre-Trip Inspection.



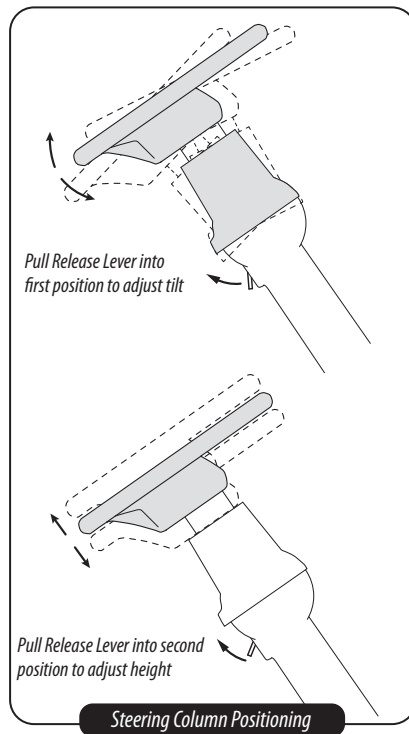


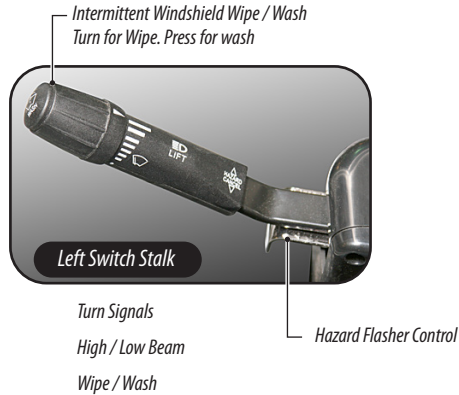
Steering Column

The steering column of the VISION is designed for better access to the driver's area with easier adjustment and a greater range of movement.

Steering Wheel Position

A lever at the lower side of the column sets the tilt and telescopic adjustment of the steering wheel. This is a two position lever. Pull it out to the first position to adjust tilt. Pull to the second position to adjust steering wheel height. Releasing the lever clamps the column securely at the position selected.





Left Switch Stalk

The left stalk controls turn signals, high / low beam, intermittent windshield wipers and washers, and also contains the hazard flasher control. Turn signals operate in the normal way, move lever forward for right turn and rearward for left turn. Pull stalk up for high beam and/or low beam. Turn knob on end of stalk for low, high, and intermittent windshield wiper control. Press knob on end for wash cycle. Hazard flasher is initiated by pulling the chrome lever at the base of the stalk. Cancel the flasher by using a turn signal.



Right Switch Stalk

The right stalk contains the cruise controls.



Cruise Control (Optional)

The Cruise Control is provided to improve fuel economy and lessen driver fatigue during long periods of uniform speed travel.

To operate the Cruise Control:

1. Attain the desired speed in the normal manner, with the foot-operated accelerator.
2. Press the "On-Off" slider switch toward the left (On) to activate the system at the current speed.
3. Press the button on the end of the stalk to incrementally adjust speed. To make larger speed adjustments, release the cruise control by tapping the brake, and then use the throttle to reach the desired speed. Then again press the slider toward the left.
4. To momentarily deactivate the cruise feature, press the brake pedal. This will disengage the cruise control and begin to apply brakes.
5. When you wish to again use the cruise control feature, press the slider switch toward the left to Resume the previously set cruise speed.

If the ignition is switched off, or if the Cruise Control slider switch is pressed toward the right (Off), the cruise control is deactivated.



WARNING! *Always apply the parking brake even with a transmission equipped with a Park (P) selection. Do not rely on the transmission park pawl alone to prevent the bus from rolling.*

Parking Brake, Units With Air Brakes

On Blue Bird vision buses equipped with air brakes, the rear wheel air chambers also enclose powerful coil springs. These springs automatically apply the rear brakes whenever air pressure is absent. These *spring brakes* also serve as the Driver-controlled parking brake.

The parking brake knob is an air valve which, when pulled outward, releases air pressure from the rear wheel chambers. This allows the springs to apply the rear brakes.

Pushing the parking brake knob inward allows air brake system air pressure to retract (cage) the coil springs. If air pressure is insufficient for safe normal air brakes operation, the air pressure is also insufficient to disengage the spring brakes. Thus, it is not possible to release the parking brake until sufficient air pressure has built up in the system. See Section 5 for more details..



Parking Brake, Units With Hydraulic Brakes

Blue Bird buses equipped with hydraulic brakes are also equipped with a drum/shoe-type brake assembly mounted to the driveline at the rear of the transmission. When applied, the park brake prevents the driveshaft from turning.

A control cable leads from the parking brake to the parking brake pedal. The parking brake pedal is located below the drivers instrument panel to the left of the steering column.



WARNING! *This type parking brake becomes inoperative if the driveshaft is disconnected, as when the bus is being prepared for towing.*

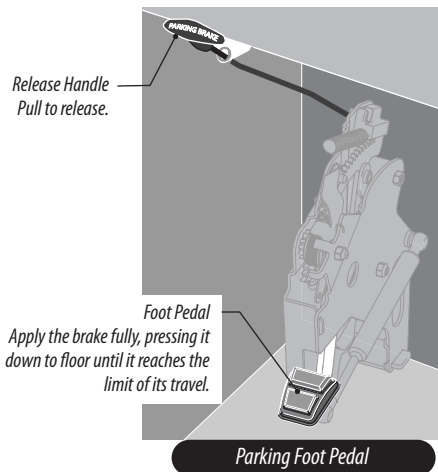


To apply the parking brake, press down firmly on the foot pedal. Always apply the brake fully, pressing it down until it reaches the limit of its travel. To release the parking brake, apply the service brake to prevent movement when the parking brake is released. Then grasp the parking brake release lever and pull until the Park Brake is fully released. For additional information see Section 5 in this manual.



CAUTION! Always release the parking brake fully.

Leaving it in a partially released position can allow the shoes of the parking brake mechanism to drag while the bus is operated, resulting in overheating and accelerated wear of the parking brake shoes and drum.



WARNING! The parking brake is designed to hold on a 20% grade, on a clean, dry, and smooth road surface.

Parking on wet, icy, snow-covered or loose aggregate surface will greatly diminish braking efficiency and is not recommended. Always use wheel chocks.

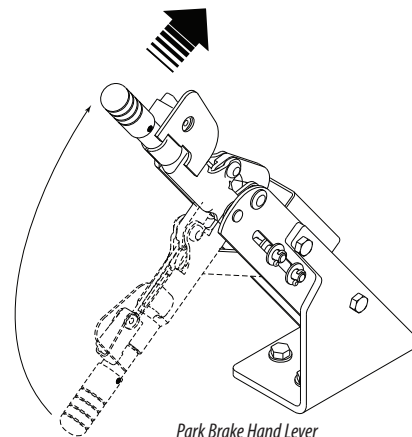


WARNING! The parking brake functionality relies on the rear wheels remaining in contact with the surface the bus is parked on. If one or both wheels are lifted off the surface the park brake will not function and the bus may move resulting in potential bodily harm or death.



Hand Operated Parking Brake (Optional)

Optionally, your bus may be equipped with a right side parking brake lever. This option places the hand operated parking brake to the right of the driver's seat mounted on the floor. To apply the parking brake, grasp the handle of the lever and pull upward. Pull lever firmly until it snaps over the center position. Continue to pull the lever upward until it is against the top stop. Now press the lever downward to the lock position stop to ensure the lock mechanism is secure. To verify that the release button is locked, press down on the button. To release the parking brake, apply the service brake to prevent movement when the parking brake is released. Then grasp the parking brake lever with the right hand and lift up, press the release button on the grip and lower the lever fully all the way against its lower stop.



Park Brake Hand Lever

**WHEN APPLYING PARK BRAKE,
PULL UP AND THEN PRESS DOWN TO
ENSURE LOCK MECHANISM IS SECURE**

*Parking Brake Decal located at right of
steering column on lower dash panel.*

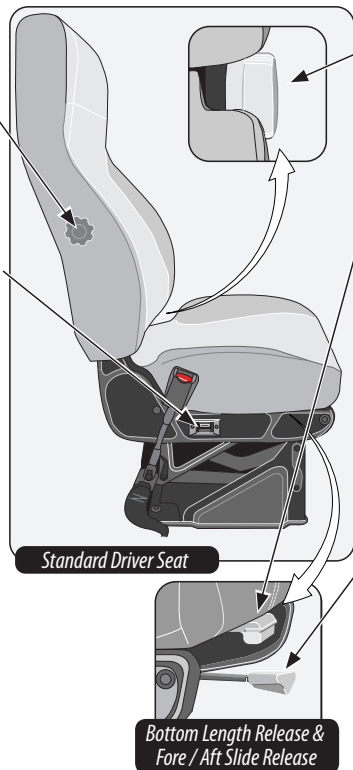


Driver's Seat, Standard

The standard Driver's seat is mounted on a spring-loaded pedestal. Several manual adjustments are provided for maximum control, safety and comfort:

Lumbar Support. The knob located at mid height on the right side of the seat back tightens / loosens a lumbar support built internally into the seat back.

Height Control. A hand operated slide handle on the right side of the seat allows adjustment of the height of the seat. To raise the seat, crouch in the sitting position but do not apply your weight to the seat. Slide the lever toward the rear. This allows the seat base to raise to the desired position. When in the desired position release the slide handle. To lower the seat apply your weight to the seat while holding the slide handle to the rear. This allows you to leverage your weight to lower the seat. Release the slide handle when seat is in the desired position.



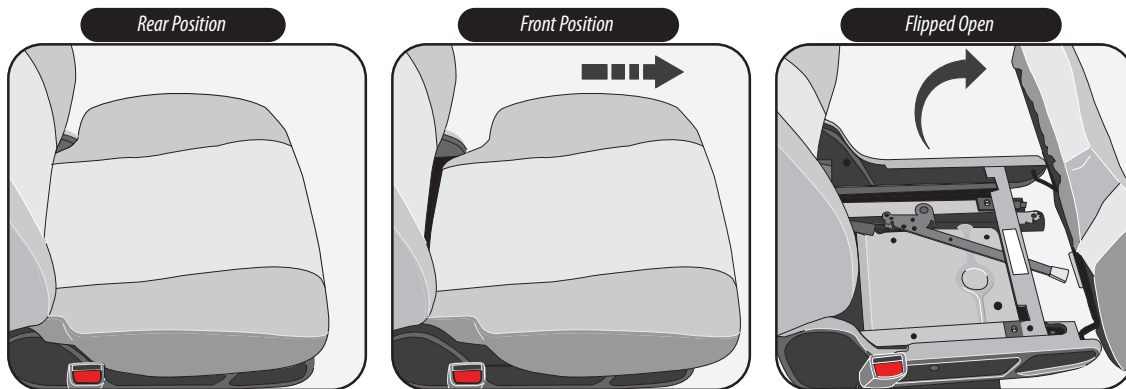
Back Tilt Control. Turn the large knob located at the bottom of the left side of the seat back, where the seat back attaches to the seat bottom.

Seat Bottom length. Under the front edge of the seat bottom is a handle which allows the seat bottom to be pivoted forward, effectively "lengthening" the seat bottom for Drivers with longer legs. To move the seat base to the forward position, stand beside the seat. Grasp the front handle with your right hand, and the side of the seat bottom with your left. Lift the seat slightly and pivot it forward. Then press it down firmly into position.

Seat Bottom Fore / Aft Slide. A lever located under the front edge of the seat bottom releases the seat track allowing the seat to be adjusted fore or aft. While seated, pull the lever toward the left. Slide the seat fore or aft to the desired position and release the lever. Slide the seat slightly to ensure the lever latches into one of its locking notches.



To Flip Seat Bottom Up: Pivot the seat bottom forward so that it clears the seat back. This allows the bottom to be hinged forward to gain service access to the seat pedestal mechanism.





DRIVERS HANDBOOK

Driver's Seat, Air

The air ride Driver's seat is mounted on an air-powered scissor mechanism which houses its own electric air compressor.

Several manual adjustments are provided for maximum control, safety and comfort:

Height Control. The front-most (red) switch located on the side of the seat bottom adjusts seat height. Press the top or bottom side of the rocker switch to raise / lower the seat.

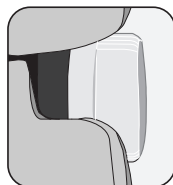
Lumbar Support. The rear-most (white) switch located on the side of the seat bottom adjusts the lumbar support. Press the top or bottom side of the rocker switch to increase / decrease lumbar support.

Back Tilt Control. To adjust the overall tilt of the seat back, turn the large knob located at the bottom of the left side of the seat back, where the seat back attaches to the seat bottom.

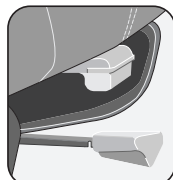
Seat Bottom Fore / Aft Slide. A lever located under the front edge of the seat bottom releases the seat track allowing the seat to be manually adjusted fore or aft. While seated, pull the lever toward the left. Slide the seat fore or aft to the desired position and release the lever. Slide the seat slightly to ensure the lever latches into one of its locking notches.



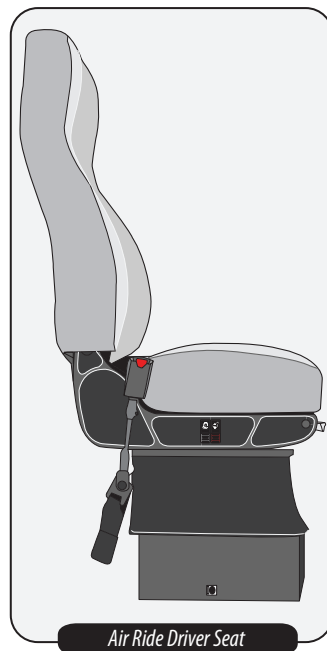
Lumbar & Height Adjustments



Back Tilt Adjustment



*Bottom Length Release &
Fore / Aft Slide Release*



Air Ride Driver's Seat



Seat Bottom length. Under the front edge of the seat bottom, directly above the slide release lever is a handle which allows the seat bottom to be pivoted forward, effectively “lengthening” the seat bottom for Drivers with longer legs. To move the seat base to the forward position, stand beside the seat. Grasp the front handle with your right hand, and the side of the seat bottom with your left. Lift the seat slightly and pivot it forward. Then press it down firmly into position.

Pivoting the seat bottom forward in this way also clears the seat bottom from the seat back, allowing the bottom to be hinged forward to gain service access to the seat pedestal mechanism.

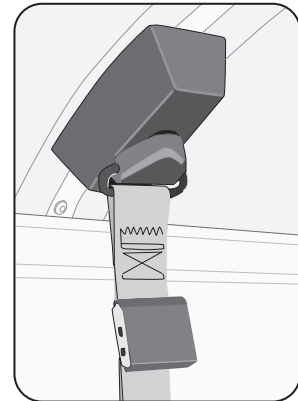
Driver's Lap & Shoulder Belt

This belt is designed to reduce the risk of injury to the driver during an accident. When used properly, it provides the driver with increased protection. However, when used improperly, the ability to provide this safety is compromised. Proper shoulder and lap belt adjustments are necessary to allow the restraints to work effectively.

To use the seat belt/shoulder harness, first adjust the driver's seat for maximum comfort and stability. Sit up straight with your hips and back firmly positioned against the back of the seat. Pull out an adequate amount of belt webbing and engage the buckle in the buckle receptacle until it “clicks” ensuring that the belts are not twisted and that they lay flat across the chest and thigh/hip area. The retractors will pull the harness snugly into place. Test that the belt is secure by tugging on it.



WARNING! Do Not place the shoulder belt behind you. This will greatly reduce the belt's ability to protect you from serious injury in case of an accident.



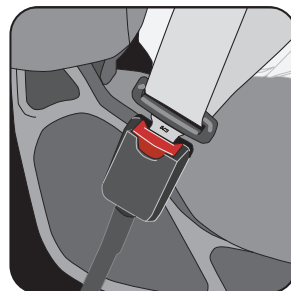
The upper shoulder belt height adjustment is for proper belt position across the Driver's chest. Adjust to place belt at the desired height.



The lap belt should fit snugly across the upper thigh area, not the abdominal region. The shoulder harness should be adjusted to fit across your collarbone (between the base of your neck and your shoulder). Use the shoulder belt height adjustment to raise or lower the belt to the most comfortable position on the collarbone. The buckle can be released by pressing the red button on the buckle receptacle.



WARNING! *The driver's lap and shoulder belt should be worn any time the bus is in motion.*



NOTE: Refer to the "Seat Belt and Park Brake Alarm Indicators" section in the *Routine Operation* chapter for information on specific visual and audible alarms, as well as notifications associated with this system.



Interior Compartments

Several interior compartments provide convenient access to service-related components. These are not storage compartments, and should only be opened for service purposes. Of these compartments, the one most applicable to the Driver is the electrical Power Distribution Unit (PDU), which contains the main fuse panel.

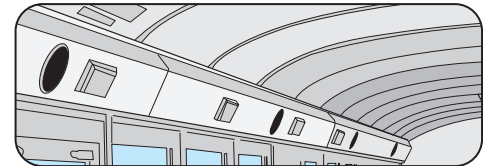
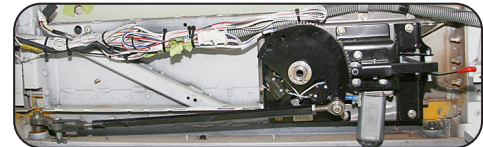


CAUTION! *The PDU, entrance door header, and wiring channels described in this section are not storage compartments. Do not place loose items in these compartments.*

Power Distribution Unit (PDU). The large black cover below the center of the dash is the main chassis and body electrical panels for the Vision, and is an area of primary importance to service technicians troubleshooting electrical and device communications systems. The PDU is also referred to as Zone A of the Multiplex electrical system because it contains the Chassis power management module (PMM). The PDU also contains the chassis and body fuses used in the Vision. A chart on the inside of the cover identifies the individual fuses. The PDU cover is easily removable without tools, secured by two thumbscrews, one on each side of the cover near the top.

Entrance Door Header. A removable panel above the entrance door provides service access to the door opening / closing mechanism when equipped with optional powered entrance door. This compartment is a service access and should not be used for storage.

Wiring Channels. The molded housings which run the length of the bus above the passenger area windows, are wiring channels which contain the harnesses for the body. A service technician can remove the screws which retain the channels to gain access to the harnesses.

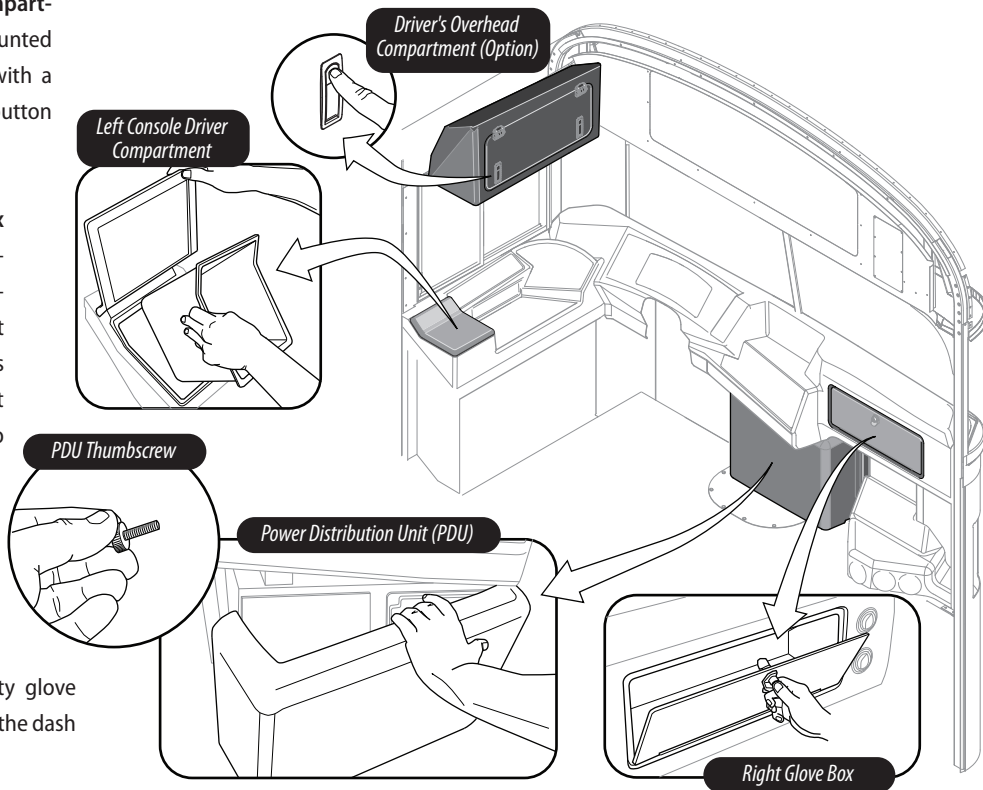




DRIVERS HANDBOOK

Driver's Overhead Storage Compartment (Optional). This box is mounted above the driver's side window with a flush door opened by dual push button latches.

Left Console Driver Storage Box (Optional). A hinged lid just rearward of the left console switch panels provides access to a convenient storage compartment for Driver's items. The tray of this compartment is removable for service access to electric components underneath.

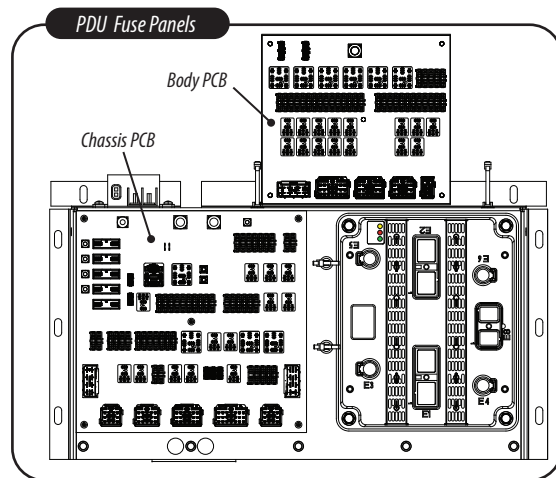


Right Glove Box. A large capacity glove box is molded into the right side of the dash housing, near the entrance door.



Circuit Breakers & Fuses

The electrical system is protected by fuses as standard. Manual reset circuit breakers are optional. Chassis and body circuit breakers or fuses are located on printed circuit boards (PCB) behind the PDU cover at the center of the bus below the dashboard. If a current overload or “short” should occur in any circuit, it will blow the fuse or trip the circuit breaker. If a short occurs and a fuse blows, the fuse will need to be replaced. If a circuit breaker breaks, the circuit breaker can be reset by pressing the tab located on the breaker. A short may be indicated by blinking lights or fluctuating gauges. The shorted circuit should be corrected immediately. Refer to body or chassis master wiring diagrams.



Accessories and Added Components

When adding accessories and aftermarket components, it is important to consider the results very carefully.

- Does the component over burden the electrical system?
- Does the accessory interfere with any of the driver's controls?
- Does the accessory interfere with the driver's field of vision?
- Heavy components and accessories must be mounted near, or below, the floor line to avoid raising the vertical center of gravity.
- Will passenger safety and comfort be adversely affected?

Wiring Diagrams

To access all electrical wiring diagrams for your Blue Bird Bus visit our Customer Access web site and enter your body number which is located on the body serial and service number plate above the windshield at:

<https://vantage.blue-bird.com>



DRIVERS HANDBOOK

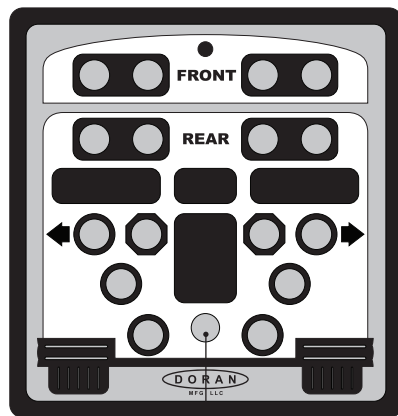
Doran Warning Light Monitor

The Doran Monitor™ is a vehicle light monitor device. If current is flowing through one of the bus lamp circuits, the vehicle multiplex module electronics senses it and communicates over the J1939 data link to the Doran Monitor to illuminate the corresponding light emitting diode (LED) on the monitor. When a lamp burns out, current flow through the circuit stops and the corresponding LED on the monitor does not illuminate, indicating the outside lamp is not functioning.

The Doran Monitor is located in the bulkhead over the windshield and slightly to the left of the driver.

Warning lights are such an essential safety feature, it is important to know when they are not working properly. This is the function of the Doran monitor. Its display is a schematic of the lights as they appear outside the bus.

If the Doran monitor is not working properly, notify your service personnel or see troubleshooting procedures in your Blue Bird Service Manual.



Green LED
Universal Monitor Only



Sleeping Child Check Monitor

Your bus may be equipped with a Sleeping Child Check system. This feature uses a Sleeping Child Check Monitor that once activated requires the operator to walk to the rear of the bus and press a deactivation switch on the rear wall to prevent an alarm from occurring. The purpose is to require the operator to check the bus for pupils that may be sleeping, hiding or remaining after each route has ended.

Depending on which feature your bus is equipped with, the alarm can be armed in one of several ways. Turning on the ignition and/or warning lights and/or entrance door will arm the system. If the alarm is activated the headlights and horn and/or red warning lights will be activated and begin to flash and the horn will sound on and off repetitively. If the alarm is activated the operator should close the entrance door and push the deactivation switch in the back of the bus. This system will disarm itself automatically after 10 minutes.

Back-Up Camera

When the bus is shifted into reverse, a display for the back-up camera will be activated and appear in the instrument cluster message display center screen. See additional information in Section 6 on this system.



Back Up Camera monitor

Exterior Compartments

Hood Compartment

The hood of the vision is mounted on a torsion spring hinge mechanism just above the front bumper, and is retained in its closed position by two spring latches, one on each side of the hood near the body's front cowl. The system is designed for very easy unassisted one-person opening / closing, and unobstructed access to regular service components.



To open the hood:

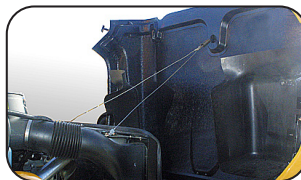
1. Unlatch the right side hood latch. Lift the latch handle and free the elastic latch from the notches of the cowl-mounted bracket. Repeat this for the latch on the left side of the bus.
2. At the front of the bus, grasp the handhold above the center of the grille. Pull lightly backward. The torsion hinge is balanced in such a way as to require very little effort to lift the hood. As the hood raises, control it with the free hand, especially in windy conditions. Open the hood fully until it stops slightly beyond vertical. A spring-cushioned cable on the underside stops the hood at its open position. A latch strut on the right side of the hood trips to prevent the hood from accidentally falling shut after being opened fully.



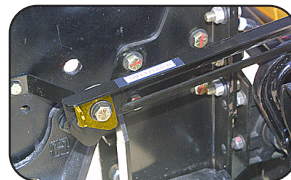
Release the hood hold-down latches.



Pull forward lightly on the front handhold.



A spring-loaded cable limits the opening range and helps support the hood in the open position.

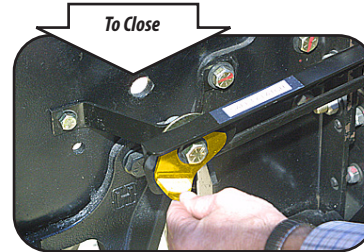


The hold-open strut automatically trips to prevent accidental closure.

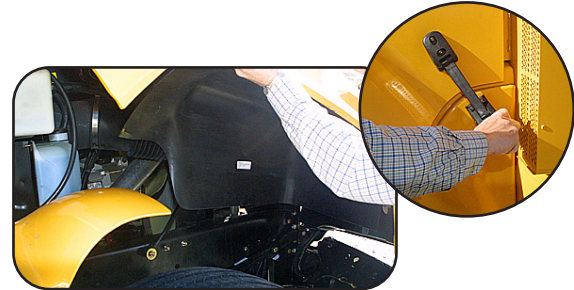


To close the hood:

1. Standing just forward of the right front tire, grasp the hood overhead with the right hand. With the left hand, rotate the release cam of the hold-open strut. Slowly lower the hood. The balance of the torsion spring hinge allows the hood to be lowered in a slow and controlled fashion. There is no need to suddenly drop the hood to engage a catch. Slowly lower the hood onto its rear supports.
2. Grasp the handle of the hood hold-down latch and hook the end of the elastic strap into the notches of the cowl-mounted bracket. Then close the latch handle fully. Similarly secure the latch on the left side of the vehicle.



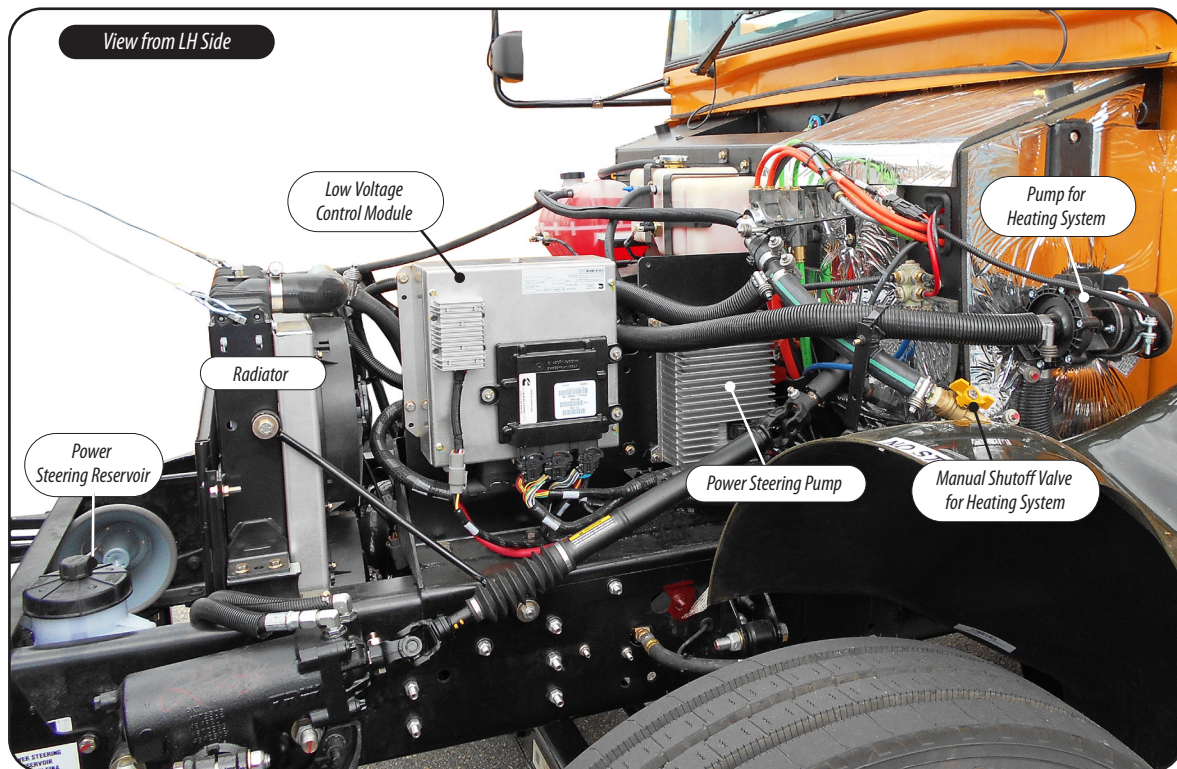
Rotate the hold-open cam to release the strut.

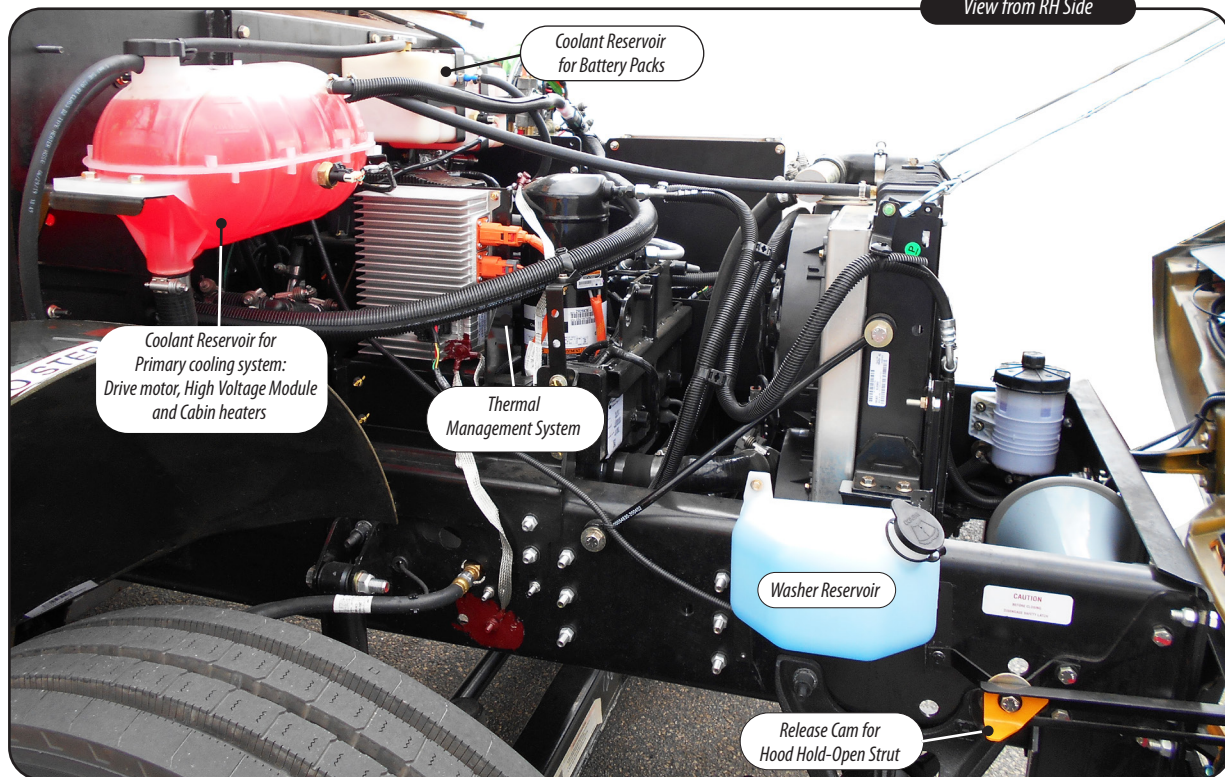


Gently lower the hood into position and re-latch the hold-down latches.



Under the Hood

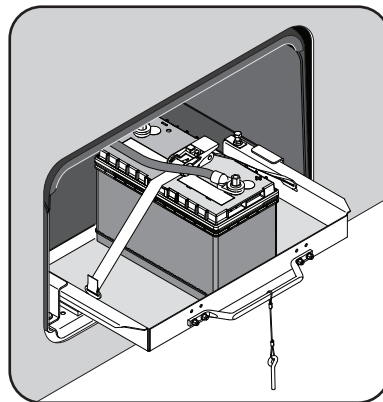






12V Battery Compartment

A hinged door located on the left side of the vision directly below the Driver's window provides access to the vehicle's 12 Volt battery. The battery is mounted on a metal tray which is retained by a removable pin. An optional roller tray is available which is held in place with two slide latches. To access the 12V battery, open the compartment door, remove the retaining pin, and slide the tray outward.



The 12V battery on slideout tray.



Tire Pressure Monitoring System (Optional)

The SmarTire™ Tire Pressure Monitoring System (TPMS) is a wireless communication network that constantly monitors the pressure and temperature of each tire on your vehicle in order to provide real-time, on-demand tire status information and to warn the driver of a tire-related problem before it becomes dangerous. The TPMS indicates tire designation, temperature, pressure and pressure deviation and displays in a gauge located in the Right Console Switch Panel. The display gauge is equipped with a screen, LED alerts with audible alarms, and buttons as an interface for programming and diagnostics.

Tire inflation pressure must not exceed the specifications of the tire and/or wheel/rim manufacturer for the specific load, speed and application. The inflation pressure embossed on the tire sidewall may not take into consideration the wheel/rim capacities. Tires should not be inflated above the pressure listed on the Federal Certification plate without consulting your tire/wheel distributor.

For full details on the operation and programming of the SmarTire™ Tire Pressure Monitoring System access document **BW2799** at:

www.bendix.com/en/service/support/documentlibrary/doclib_1.jsp



Tire Pressure Monitoring System Display





INSTRUMENTATION

3-1

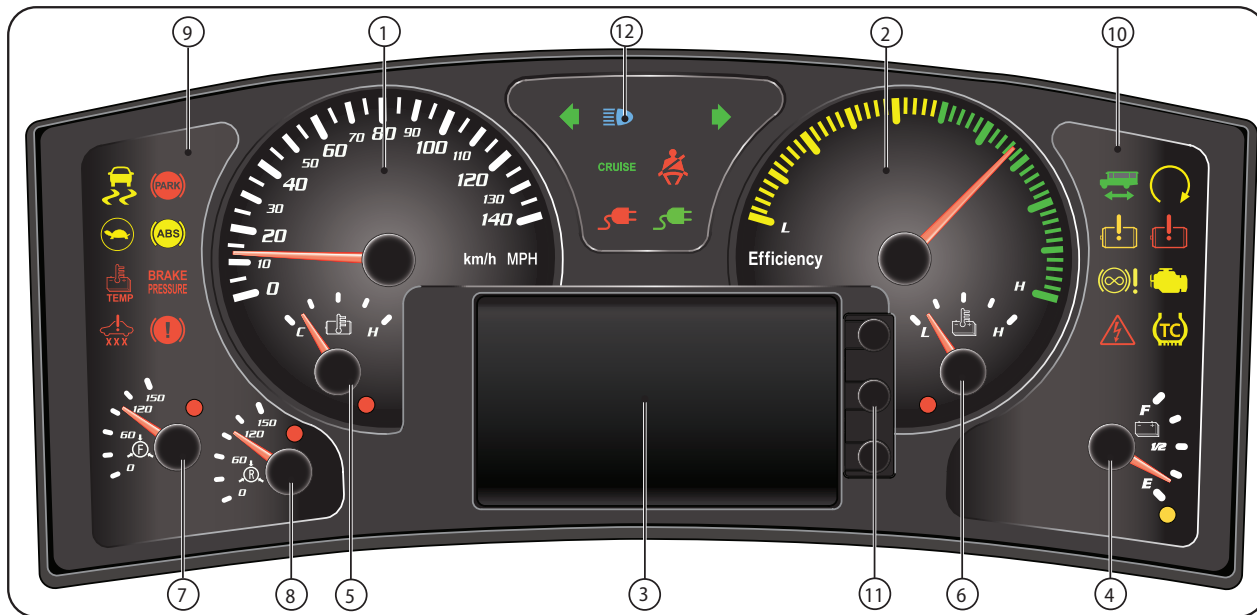
Instrument Cluster	3-2
Message Display Center	3-4
Charging Mode	3-7
Warning Bank Indicators	3-8
Settings And Diagnostics	3-10
Settings	3-10
Diagnostics	3-12
Air Brake PSI	3-13
Component Tests	3-13
Read Parameters	3-16
Configuration Menu	3-16



DRIVERS HANDBOOK

Instrument Cluster

The instrument cluster is a single unit of all-electronic gauges and warning lights, which receive both analog inputs from such components as the battery and air pressure sensors; and digital signals from components such as the headlights and turn signal control modules. A centrally-located Message Display Center displays the odometer reading, error alerts, and service technician diagnostic information. If the bus is equipped with hydraulic brakes, the instrument cluster contains 5 gauges. Busses equipped with air brakes have two additional gauges indicating primary (front) and secondary (rear) air pressure.





1. **Speedometer.** Indicates vehicle speed in miles/hour or kilometers/hour.
2. **Efficiency Gauge.** Indicates the degree of power usage. Yellow zone reflects inefficient power usage and the Green zone indicates efficient power usage.
3. **Message Display Center.** Displays additional information to the vehicle operator. If bus is equipped with a back-up camera, it can also serve as the monitor when the bus is shifted into reverse. See **Message Display Center**.
4. **State of Charge (SOC).** This gauge indicates the charge level of the propulsion batteries. A low charge indicator will flash rapidly and display a message when the signal is missing or out of range.
5. **Motor Temperature Gauge.** Indicates the temperature of the main drive motor. A high temperature indicator light will flash rapidly and display a message when the data is missing or out of range.
6. **Battery Temperature Gauge.** Indicates the temperature of the propulsion batteries. A high battery temperature indicator will flash rapidly and a message will be displayed for missing or out of range data.
7. **Front Air Gauge.** Indicates air pressure in front brake system and includes a low air warning indicator. The low air indicator will flash rapidly when pressure is equal to or less than 65 PSI and goes out when pressure is equal to or greater than 72 PSI.
8. **Rear Air Gauge.** Indicates air pressure in rear brake system and includes a low air warning indicator. The low air indicator will flash rapidly when pressure is equal to or less than 65 PSI and goes out when pressure is equal to or greater than 72 PSI.
9. **Left Warning Bank.** Cluster of indicator lamps. See **Warning Bank Indicators**.
10. **Right Warning Bank.** Cluster of indicator lamps. See **Warning Bank Indicators**.
11. **Message Display Center Control Panel.** Navigation buttons are used to toggle through the menus and to select items to display in the Message Display Center.
12. **Headlight Highbeam Indicator.** This indicator will illuminate when highbeam headlights are turned on.



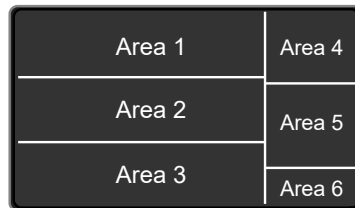
DRIVERS HANDBOOK

Message Display Center

The Ametek message display center is a color Liquid Crystal Display (LCD) located at the bottom center of the instrument panel. It provides vehicle information to the driver and diagnostic information to trained service technicians. The screen is divided into six different areas, each with their own responsibility for identifying vehicle information. Area 1 displays the odometer, trip 1 and trip 2. Area 2 Displays an alternate gauge, fuel economy and priority messages.

Video Monitor for Back-Up Camera. For buses equipped with certain back-up camera systems, the Message Display Center will remove all Area displays and show the video in the screen when the bus is shifted into reverse. After shifting out of reverse, the screen will return to previous display.

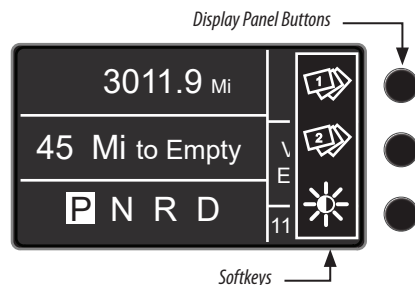
Navigating the display is done using the three buttons located to the right of the Drivers Display. They are identified as the top, middle and bottom buttons. While in the normal display screen momentarily pressing any of the buttons will display the softkeys. The softkeys will be displayed in a column adjacent to the three buttons. This provides a user-friendly navigation display used to identify the responsibility for each of the buttons which are used to change the information presented in the message center. Press the upper button to change the information displayed in Area 1. Press the middle button to change the data displayed in Area 2. Press the bottom button to adjust the display brightness. If the cluster is displaying an active fault in Area 2 pressing any of the three buttons will acknowledge most messages. Areas 1 and 2 cannot be accessed until all messages have been acknowledged or cleared.



Ametek Message Display Center Layout



Back-Up Camera display

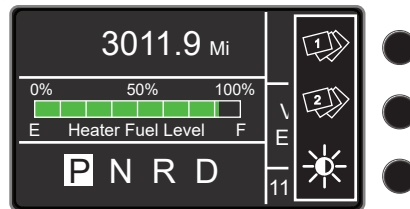




Area 1. Press the top button while the softkey is displayed to toggle between the Odometer, Trip Odometer 1 and Trip Odometer 2. Trip 1 or Trip 2 will be displayed in the top right corner of Area 1 identifying the selected trip display. While in the trip mode press and hold the top button to zero the trip odometer displayed. Press the top button again to display the Odometer.

Area 2. The default display for Area 2 is Miles to Empty. This display will indicate the approximate distance the bus can travel with the existing power level available in the batteries. This area will also display Priority Interrupt Messages (PIMs) when triggered. Some priority messages will flash forward to reverse video. Some priority messages can be acknowledged by pressing any of the three navigation buttons. When acknowledged, the display will return to previous display until being timed out, next ignition cycle or the trigger logic is not satisfied. Any lamp associated with the acknowledged priority message will remain lit until the fault is gone or the ignition is turned off. If multiple priority messages are triggered, the highest active priority message will be displayed.

Tank Level Status for the fuel-fired heater option can also be accessed in this area.



Fuel Fired Heater (Option) tank level status



Typical Drive Mode Screen Display

Priority Messages

- Brake Interlock
- * Turn Signal On
- Low Air Pressure
- Service Door Open
- * Lift Enabled
- * Lift Not Stowed
- * Headlights On
- Set Park Brake
- Missing Brake Input
- Fuel Level Low
(w/Optional Fuel Fired Heater only)
- * (Messages Shown with Icon)



Area 3. This display is similar to a transmission position identifier. It indicates the intended direction of travel. Neutral (**N**) indicates no intended motion. Reverse (**R**) indicates the intent to travel in reverse. Drive (**D**) indicates the intent to travel forward. Park Mode (**P**) is achieved by pressing the service brake and then applying the park brake. While in Park Mode, the driver's display will indicate "**P**" and the shifter pad will also display a "**P**".

When the bus batteries are being charged Area 3 will display the time needed to complete a full charge at the current rate of charge. The display will read "**Time to Full Charge**" and the value will be displayed in hours. If the ignition switch is in the off position, press any of the three navigation buttons to activate the display. The display will remain on for 10 seconds and then return to blank. If the ignition is *ON* the display will remain on until the ignition is turned *OFF*.

Area 4. The 12V auxiliary battery voltage is displayed in the Area 4 (top right corner of Drivers display). If the option for an ammeter is present, the ammeter reading can be displayed below the voltage reading when configured "**ENABLED**" in the configuration menu (see Blue Bird Service Manual for Ametek instrument cluster configuration settings). If the data is missing or out of range a "**-V**" will be displayed.

Area 5. This area will display the Vehicle Status as default. Depending on the information the instrument cluster receives, Area 5 can display the following messages:

Vehicle Initializing
Initialization Complete

Vehicle Enabled
Power-Down in Process

Emergency Power-Down
Vehicle Disabled

Charger Connected
Charging Error



Typical Drive Mode Screen Display



Area 6 (Clock). The time is displayed in the bottom right corner of the Drivers Display. It can be set to show a 24 hour or a 12 hour clock and the actual time can be adjusted using the Settings and Diagnostic menus. The 12 hour clock will display AM / PM next to the hours and minutes, but the 24 hour clock will not.

Charging Mode

When the battery charge cord is plugged into the bus, Area 5 can display the charging mode. When the ignition is in the *OFF* position press any of the three navigation buttons to display the charging status. The display will remain on for 10 seconds before timing out. If the ignition is *ON* the charging status will display automatically. Note that when charging, Area 3 will display the time needed to complete a full charge. Area 5 vehicle status will be over ridden and display the optional front and rear applied air pressure when triggered. To trigger this display the service brake must be depressed and the applied air pressure function **“ENABLED”** in the Configuration Menu.

3011.9 Mi		
		13.3 V
45 Mi to Empty		Charger Connected
Time to Full Charge:	4.7 hrs	12:25 AM

Typical Charge Mode Screen Display



Warning Bank Indicators

The warning bank lights provide a visual indicator to the state of various systems in the bus. These function to either show the engagement of some chassis function or as a warning by illuminating when a gauge fails outside the operational parameters for that gauge. These are located within the specific gauge attributed to the fault. Indicators and their definitions are shown on the following page.

Warning bank lights may have an alarm associated with them. Some warning lights are accompanied by an audible alarm and or a message that is displayed in the LCD Message Display Screen. All warnings, with associated alarms/display messages, can be "acknowledged". If the user acknowledges the warning by pressing any of the three buttons, the display will go back to the previous screen and the alarm will stop, but the indicator lamp will remain active. The alarm/display will reoccur if fault still exists at the next ignition or in a predetermined time frame. The following is a list of warning bank lights and a description for each indicator.



Left Turn. Flashes with left turn signal.



High Beam. Headlights are in high beam.



Right Turn. Flashes with right turn signal.



Park. Indicates parking brake is applied.



Seat Belt. Indicates driver seatbelt not engaged. (Optional).



Malfunction Indicator Lamp (MIL). Indicates a system component failure.



ABS. Indicates fault in the anti-lock brakes system.



Electronic Stability Control. Indicates stability control is activated.



Brake Alarm. Indicates problem with the service Brakes (Metric Units only)



Cruise. Cruise control has been activated.



Bus Enabled. Indicates bus is ready for operation.



Limited Performance Mode. Indicates performance will be limited due to low charge.



Propulsion Disabled. Indicates motor no longer providing power to move bus.



Wait to Start. Indicates electric bus is preparing the system for use. Do not attempt to enable bus until this light is off.



Regenerative Braking Disabled. Indicates regenerative braking system is not on.



High Voltage Warning. Indicates an issue with the high voltage system.



Battery Charger Status (RED and GREEN). Indicates status of connection when charging batteries.



Electric Motor Warning (AMBER and RED). Indicates an issue with the electric motor.



DRIVERS HANDBOOK

Settings And Diagnostics

The Settings And Diagnostics menus allow the user to change certain features from their default settings and to use diagnostics to troubleshoot your vehicle.

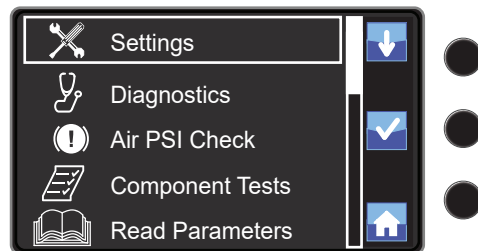
Access this menu by setting the Park Brake and then from the Drive Mode screen press the BOTTOM button and hold for more than 3 seconds or until the menu appears.

Menu choices are: **Settings, Diagnostics, Air PSI Check, Selftest and Read Parameters.**

Press the top button to move or toggle the selection box through the list as indicated by the softkey arrows. The item in the selection box will be selected when the middle button is pressed (as indicated by the softkey checkmark). To return to the Drive Mode screen, press the bottom button as indicated by the softkey home or home screen. This menu will auto exit to the Drive Mode screen after a 10 second time-out with no activity. If Park Brake is released, the display will return to the Drive Mode screen.

Settings

Selecting Settings will display a sub-menu that includes Units, Brightness and Clock. Pressing the top button will toggle to the next menu item. Pressing the middle button will select the highlighted item and pressing the bottom button will return to the previous screen.

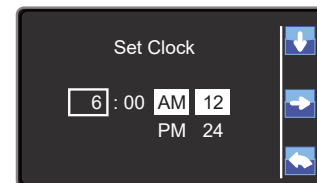
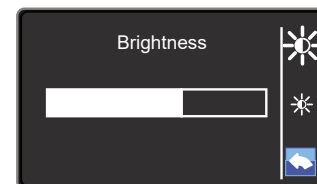
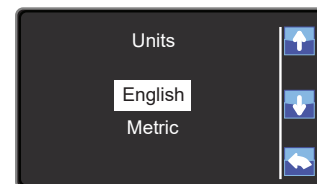




Units. Selecting Units will bring up a screen that is used to select displayed values in Metric or English units. This will change the Speedometer reading and units lamp on the cluster, display/menu items except Air which will always be displayed as PSI, and change which brake system fail lamp is used. Pressing the bottom button will exit to the previous screen.

Brightness. Selecting the menu item Brightness will display a screen to allow setting the cluster backlighting brightness. Pressing the middle button will decrease brightness while pressing the upper button will increase brightness. The buttons can be held for progressive dimming. This menu will auto exit to the previous screen after 10 seconds time-out with no activity or the bottom button can be pressed.

Clock. Selecting the menu item Clock will allow the user to set the clock. "Hours" will be the first selection upon entering the screen and will be highlighted. Press the top button to adjust the hour setting. Pressing the middle button will cycle the current selection between minutes, AM/PM, and the 12/24 display mode. Once a selected item is highlighted, the upper button can be used to increase the setting. Hours and Minutes will increment, rolling over at 12 for hours and 59 for minutes. Pressing the bottom button will save the changes and return to the previous menu. If a selection is not made this menu will timeout to the previous menu after 15 seconds.





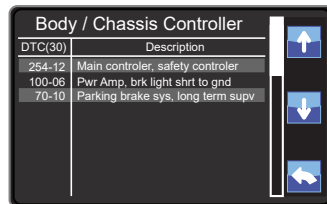
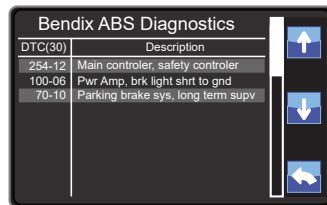
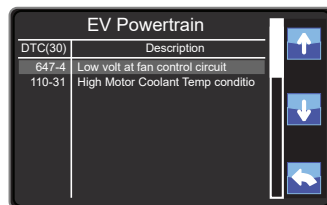
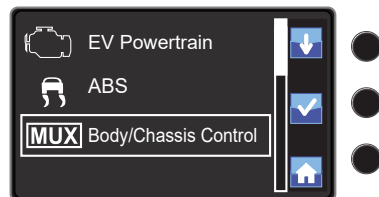
Diagnostics

Selecting the Diagnostics menu will display the following introduction screen allowing the selection of System Control Unit, ABS or Body/Chassis Controllers diagnostics. Pressing the bottom button will exit to the previous screen. This menu will auto exit to the Settings and Diagnostic screen after 10 sec timeout with no activity. The Diagnostic Display will show the Component Name at the top, the DTC Number in the LH Column, and the Description of the selected DTC in the RH Column. The count of reported DTCs will appear in parenthesis after the "DTC" in the header.

System Control Unit. The System Control Unit menu displays a description of the EV powertrain active faults and associated diagnostic trouble codes (DTC). A complete list of faults and DTC can be found in the service manual available for this bus.

ABS Diagnostic. The ABS menu displays active ABS fault codes from the J1939 data communication line in the form of a Suspect Parameter Number (SPN) and Failure Mode Identifier (FMI). Brake system manufacturer name (Air=Bendix and Hydraulic=Wabco) and the number of active DTC's is located in upper left corner. Press bottom button to exit to previous screen.

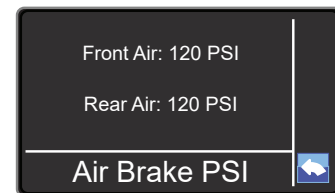
Body/Chassis Controller Diagnostic. The Body/Chassis Controller menu displays DTC's as received from the Multiplex system





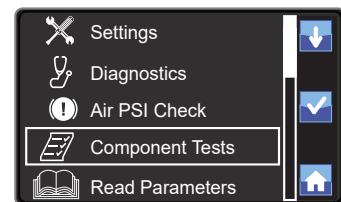
Air Brake PSI

Selecting this menu item will display the screen shown in the right margin that is used to perform Pre-trip Brake Inspections. This shows the Front and Rear brake system PSI. Pressing the bottom button will exit to the previous screen.

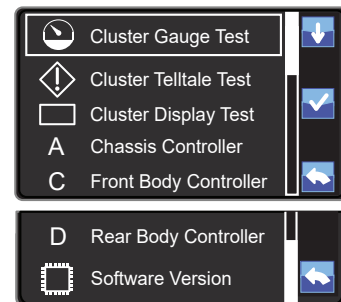


Component Tests

Selecting menu item Component Tests in the Settings and Diagnostic menu will display the instrument selftest menu. Menu items include Gauges, Telltales, Display, Controllers for Chassis, Front Body & Rear Body and Software Version.



Cluster Gauge Test. When Cluster Gauges is selected, Gauge Test will be displayed and will indicate the gauge to be tested. The selected gauge will be driven through three positions from “Zero Scale” to “Mid Scale” to “Full Scale” pausing at each position indicated in the Gauge Test. This test will proceed through all the gauges and return to the menu. Pressing the middle and top buttons will change the selected gauge. Gauges may include Frt Air, Motor Temperature, Speed, State of Charge (SOC) and Rear Air. Pressing the lower button will end the test and return to the previous menu.





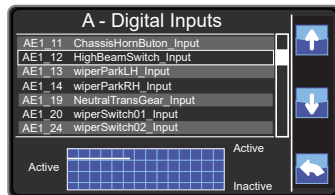
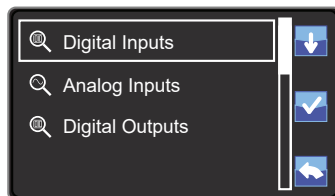
Cluster Telltale Test. When Cluster Telltales is selected Telltale Test will be displayed and will indicate the telltale light to be tested. Each warning bank lamp will be turned on then off, displaying the status of the lamp. Check each telltale light against the Telltale Light Display. This test will go through all the warning lamps one at a time and then return to the menu. Pressing the lower button will end the test and return to the previous menu.



Cluster Display Test. The display test is used to check that each of the pixels used to form the display is functioning. Each of the LCD pixels will display the following colors for 2 seconds each: RED, BLUE and GREEN. Pressing any of the three buttons will end the test and return to the previous menu.

Chassis and Body controllers. Selecting A Zone Chassis, C Zone Front Body or D Zone Rear Body controllers will load choices for the type of Input/Output menus for that particular controller:

Digital Inputs. The Digital Inputs display identifies the module connector pin number and the binary digital input status as received by the vehicle's electrical system. A graph at the bottom of the display identifies the status of each of the inputs. Scroll through all of the status screens by using the up and down arrows. Press the bottom button to exit to the previous screen.

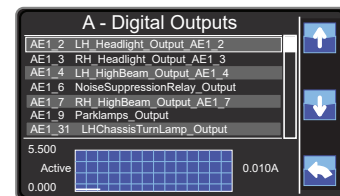
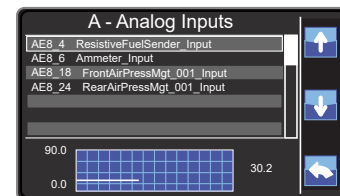




Analog Inputs. The Analog Inputs display identifies the connector pin number and the analog input signal (variable) status as received by the vehicle's electrical system. Scroll through all the status screens by using the up and down arrows. Press the bottom button to exit to the previous screen.

Digital Outputs. The Digital Outputs display identifies the module connector pin number and the binary digital output status as received by the vehicle's electrical system. A graph at the bottom of the display identifies the status of each of the Outputs. Scroll through all of the status screens by using the up and down arrows. Press the bottom button to exit to the previous screen.

Software Revision. The Cluster LCD will display the software number and the current revision installed. Press bottom button to exit to the previous screen.





Read Parameters

When the Read Parameters is selected the display shows all of the converted real time values for the applications in a table form for vehicle troubleshooting. Scroll through the listing using the top and middle buttons. Pressing the bottom button will exit to the previous screen.

Read Parameters	
Value	Description
86%	Average Efficiency
50° C	Motor Temperature
42 MPH	Vehicle Speed
13.6 V	Auxiliary (12V) Battery Voltage
116 PSI	Front Air Pressure
118 PSI	Rear Air Pressure
32° C	Highest Cell Temperature
24° C	Lowest Cell Temperature
26° C	Average Cell Temperature

Parameters Available

Average Efficiency
Motor Temperature
Vehicle Speed
Auxiliary (12V) Battery Voltage
Front Air Pressure (Hyd. displays NA)
Rear Air Pressure (Hyd. displays NA)
Highest Cell Temperature
Lowest Cell Temperature
Average Cell Temperature
Gear Selection
Highest Propulsion Battery Voltage
Lowest Propulsion Battery Voltage
State of Charge (SOC)
Diesel-Fired Fuel Level

Configuration Menu

The instrument cluster has been set to operate from the factory, in a specific manner based on the components and features ordered. Some of these default settings can be changed to accommodate an individual bus or fleet operation. The configuration menu lists the items that can be turned on or off. These items can be enabled or disabled based on the features ordered and display preferences. Items are based on hardware and software installed and affects the clusters function, performance and accuracy of reported data. For details and operational guidelines for this menu refer to the Blue Bird Service manual available for your vehicle.

**PASSENGER AREA****4-1**

Child Restraint Seats	4-2
Young Children And Infants	4-2
How Child Restraints Work	4-3
Universal Child Restraint Anchorage	4-3
Securing A Universal Child Restraint	4-4
Passenger Seats	4-5
Blue Bird NextGen Passenger Seats	4-5
Cushion Tilt Feature	4-6
Seat Assembly Removal and Cushion Disassembly	4-8
Track Mounted Passenger Seats	4-9
Blue Bird Non-Convertible Track Mounted Seats	4-10
C E White, Child Restraint, Track Mounted Seats	4-10
C E White Student Safety Seat, and C E White Student Safety Seat Child Restraint, Track Mounted Seats	4-11
Blue Bird NextGen Track Mounted Seats	4-11
Passenger Windows	4-12



Child Restraint Seats

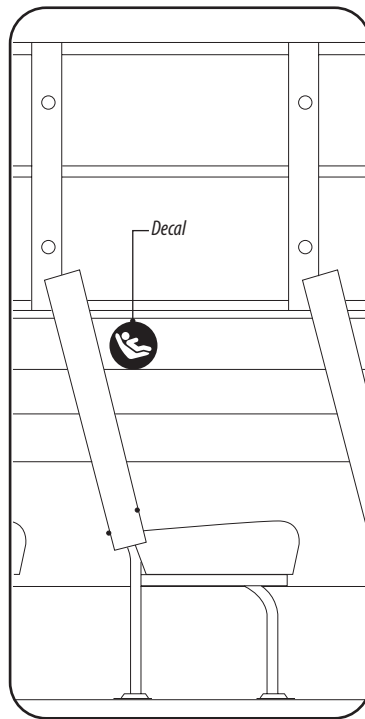
Young Children And Infants

Everyone in a vehicle needs protection. This includes infants and all other children. Neither the distance traveled nor the age and size of the traveler changes the need for everyone to use safety restraints. In fact, the law in every state in the United States and in every Canadian province says children up to a certain age must be restrained while in a vehicle.

Every time infants and young children ride in vehicles, they should have the protection provided by the appropriate restraint. Restraints must meet all applicable federal motor vehicle safety standards.



WARNING! *People should never hold a baby or young child in their arms while riding in a vehicle. During a crash a baby will become too heavy to hold. For example, in a crash at only 25 mph (40 kph) a 12 lb. (5.4 kg) baby will suddenly become a 240 lb. (108 kg) force on a person's arms. A baby should always be secured in an infant restraint. Young children must be secured in appropriate child restraints.*





How Child Restraints Work

A child restraint system is any device designed for use in a motor vehicle to restrain, seat, or position children. A built-in child restraint system is a permanent part of the vehicle. An add-on child restraint system is a portable one that must be installed.

For years, add-on child restraints have used the adult belt system in the vehicle. To help reduce the chance for injury, the child must be secured within the restraint. The vehicle's belt system secures the add-on child restraint, and the add-on child restraint's harness system holds the child in place within the restraint.

When securing an add-on child restraint, refer to the instructions that come with the restraint. These instructions may be labeled on the restraint itself or in a booklet, or both.

Universal Child Restraint Anchorage

Seats in this bus equipped with the universal child restraint anchors are identified by a decal located over the seat above the window. (See Decal illustration on the previous page.)

This vehicle may be equipped with a universal child restraint anchorage system. If so, you'll find two anchors in the front lower seatback where the bottom of the seatback meets the back of the seat cushion and a third anchor in the lower rear seatback. (See the Universal Child Restraint Anchorage illustration.)

In order to use this system, you need either a forward-facing child restraint that has attaching points (A) at its base and a top tether anchor (B), or a rear-facing child restraint that has attaching points (A) as shown.

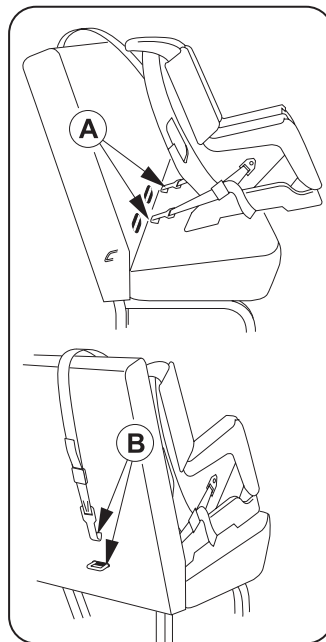
Whenever applicable, use the universal child restraint anchorage system instead of the vehicle's safety belts to secure a child restraint.



WARNING! *If a child restraint isn't attached to its anchorage points, the restraint won't be able to protect a child sitting there. In a crash, the child could be seriously injured or killed. Make sure that the child restraint is properly installed using the anchorage points.*

Securing A Universal Child Restraint

1. Find the anchors (A) for the seating position you wish to use, where the bottom of the seatback meets the back of the seat cushion. See Universal Child Restraint Anchorage illustration.
2. Put the child restraint on the seat.
3. Attach the anchor points on the child restraint to the anchors in the bus seat. The child restraint instructions will show you how.
4. Attach the top strap to the top strap anchor (B). Tighten the top strap according to the child restraint instructions.
5. Push and pull the child restraint in different directions to ensure it is secure.



Universal Child Restraint Anchorage



Passenger Seats

Blue Bird passenger seats are built to comply with Federal Motor Vehicle Safety Standards (FMVSS).

The VISION's passenger seats are through-bolted to the floor of the passenger compartment.



WARNING! *School bus seat spacing is strictly regulated. The seat dimensions and spacing are engineered to provide "compartmentalization" of the passengers according to stringent safety requirements and testing. Do not alter the passenger seat spacing or configuration.*

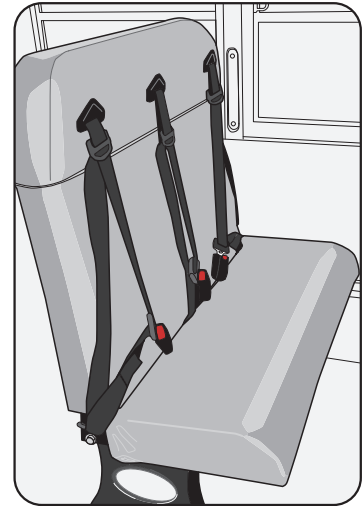
Blue Bird NextGen Passenger Seats

Your bus may be equipped with NextGen Convertible Seats offered exclusively by Blue Bird. NextGen Seats take up less space and have fewer parts, yet provide enhanced features for Passengers, Drivers, and bus fleet Technicians.

For your passengers, comfort is enhanced by inclusion of an integrated headrest, a contoured seat back for increased knee clearance, and a lumbar support molded into the back panel.

For the bus Driver, NextGen Seats provide easier access for inspection, cleaning, and closing windows at the end of the route day.

For your service Technicians, NextGen seats facilitate easy configuration of the buses in your fleet to any combination of seats equipped with (or which can include) lap belts, 3-point belts, or child restraints without unbolting the floor or wall mounts.



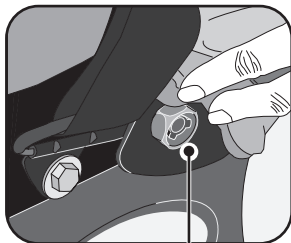
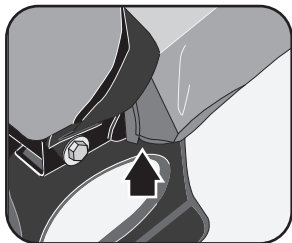
NextGen Seat



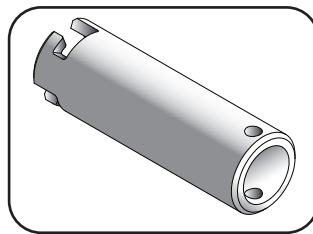
Cushion Tilt Feature

The bottom Cushion Assembly of each NextGen Convertible Seat is pivot mounted to the Back Assembly so that it can be tilted and latched in a vertical position by the Driver, to facilitate under-seat inspection, floor sweeping, or more convenient window access. The tamper-resistant tilt latch is mounted to the Cushion Assembly's frame just beneath the aisle-side rear corner of the cushion's cover, and is operated by the Driver using a provided special tool.

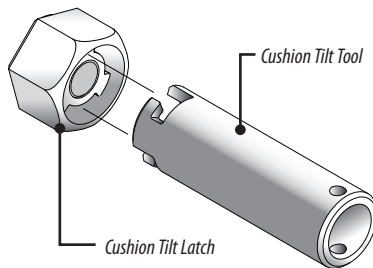
1. Uncover the cushion tilt latch located just under the cushion's cover fabric at the rear aisle-side corner of the Cushion Assembly.



Seat cushion tilt latch

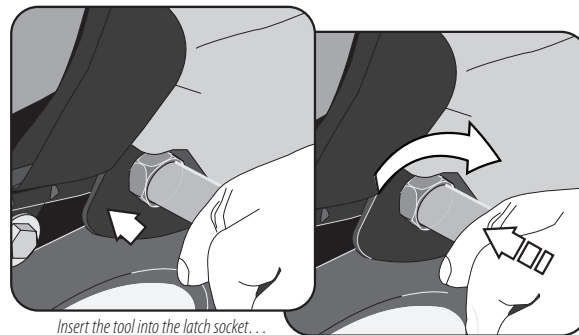


Seat cushion tilt latch tool



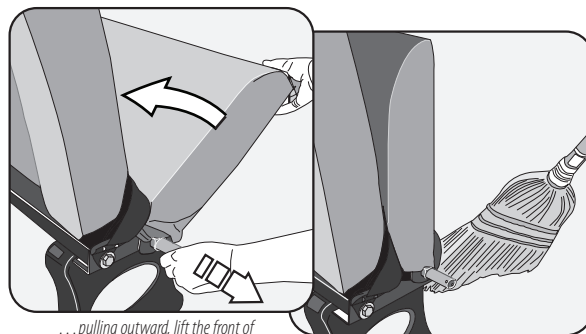


2. At the center of the tilt latch is a spring loaded pin which engages the cushion assembly's frame to latch the cushion in either the horizontal or vertical position. Insert the tool into the socket of the latch and while pushing in, turn the tool clockwise until it drops and locks behind the ears on the plunger.
3. Grasping the tool, pull outward against its spring-loaded pressure, toward the center of the aisle.
4. While applying outward pressure, begin to lift the front of the cushion assembly. It is not necessary to continue holding the tool outward throughout the cushion's movement. Tool can remain in tilt latch after you release your grip.
5. Continue lifting the front edge of the cushion assembly until it latches in an almost vertical position.



Insert the tool into the latch socket...

... push in and turn clockwise until it locks...



... pulling outward, lift the front of the cushion slightly.

... continue to raise the cushion until it snaps into the upright position.



To lower the cushion assembly back to its normal use position, pull tool outward toward aisle to release the latch, and gently lower the cushion ensuring it latches into its normal position. To remove tool from latch: push tool inward while rotating counter-clockwise until it releases from plunger, then pull tool out of tilt latch socket.



WARNING! *Seat cushions must be latched in the horizontal seated position whenever the bus is in operation.*

Proper inspection and maintenance must be routinely performed to ensure safe use and operation of passenger seats and restraints. Follow the Seat Belt Inspection And Maintenance section of the Care and Maintenance Chapter of this book.

Seat Assembly Removal and Cushion Disassembly

Technician instructions for removing NextGen Seat assemblies from the bus, and for disassembling the Cushion Assembly from the Back Assembly in order to convert the seats to alternate belt types, are provided in 2019 and later Service Manuals.



Track Mounted Passenger Seats

If your bus is equipped with track mounted passenger seats and you relocate the seats or remove them to accommodate wheelchairs, you must follow rules of spacing and placement to comply with Federal Motor Vehicle Safety Standard 222 "School Bus Passenger Seating and Crash Protection" and Federal Motor Vehicle Safety Standard 217 "Bus Window Retention and Release". A decal printed with these rules (as shown below) is installed on the interior body panel above the windshield.



WARNING! *The federal rules governing passenger seating, spacing, and placement are explicit. When the seats are moved, the entity moving or rearranging the seating assumes responsibility for compliance with FMVSS 222 "School Bus Passenger Seating and Crash Protection" and FMVSS 217, "Bus Window Retention and Release".*

All passenger seats must have a seat or barrier in front of it to provide compartmentalization required by Federal Motor Vehicle Safety Standards. As you reconfigure your bus, you may need additional barriers, which are available from Blue Bird Body Co. Part Sales.

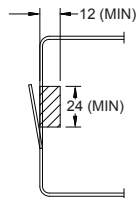
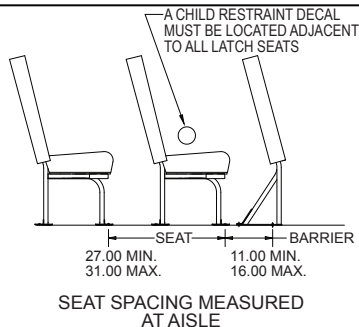


DRIVERS HANDBOOK

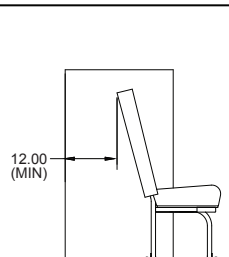
Blue Bird Non-Convertible Track Mounted Seats

FEDERAL STANDARDS REQUIRE THAT ALL PASSENGER SEATS MUST BE LOCATED REARWARD OF A SEAT OR BARRIER OF AT LEAST THE SAME WIDTH. SEATS MUST BE INSTALLED BETWEEN MINIMUM AND MAXIMUM SPACING AS LISTED BELOW IN ORDER TO MEET FMVSS 222 REQUIREMENTS.

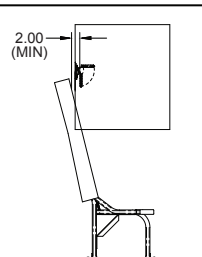
01943760 EB



REAR EMERGENCY DOOR CLEARANCE:
A CLEAR ACCESS AREA OF SIZE SHOWN WITH HEIGHT OF 45 IN. IS REQUIRED TO MEET CMVSS 217 OR FMVSS 217.



SIDE EMERGENCY DOOR CLEAR AISLE

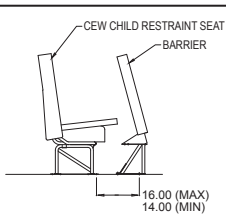
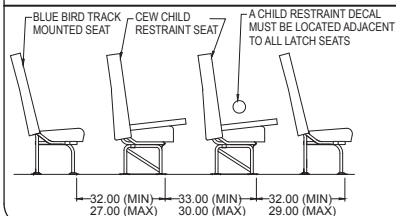


FOR 74 HEADROOM ONLY
EMERGENCY EXIT
RELEASE CLEARANCE

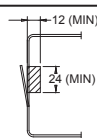
CE White, Child Restraint, Track Mounted Seats

FEDERAL STANDARDS REQUIRE THAT ALL PASSENGER SEATS MUST BE LOCATED REARWARD OF A SEAT OR BARRIER OF AT LEAST THE SAME WIDTH. SEATS MUST BE INSTALLED BETWEEN MINIMUM AND MAXIMUM SPACING AS LISTED BELOW IN ORDER TO MEET FMVSS 222 REQUIREMENTS.

00062317 CEW OR



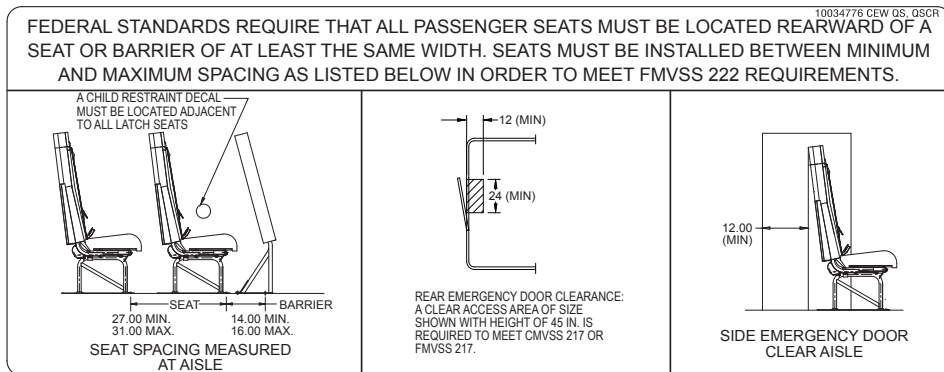
REAR EMERGENCY DOOR CLEARANCE:
A CLEAR ACCESS AREA OF SIZE SHOWN WITH HEIGHT OF 45 IN. IS REQUIRED TO MEET CMVSS 217 OR FMVSS 217.



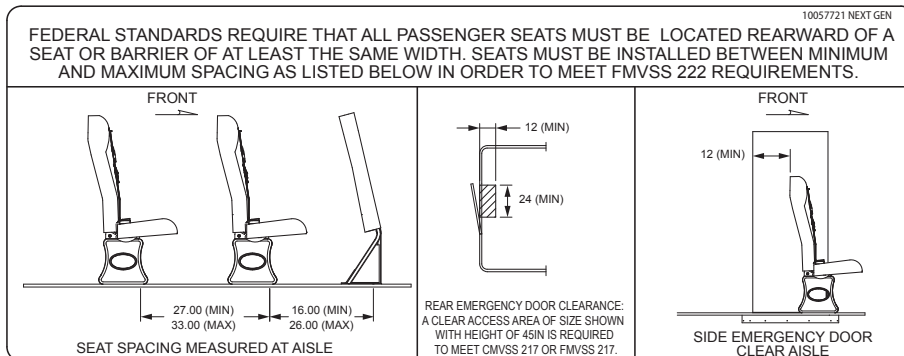
SIDE EMERGENCY DOOR CLEAR AISLE



C E White Student Safety Seat, and C E White Student Safety Seat Child Restraint, Track Mounted Seats



Blue Bird NextGen Track Mounted Seats



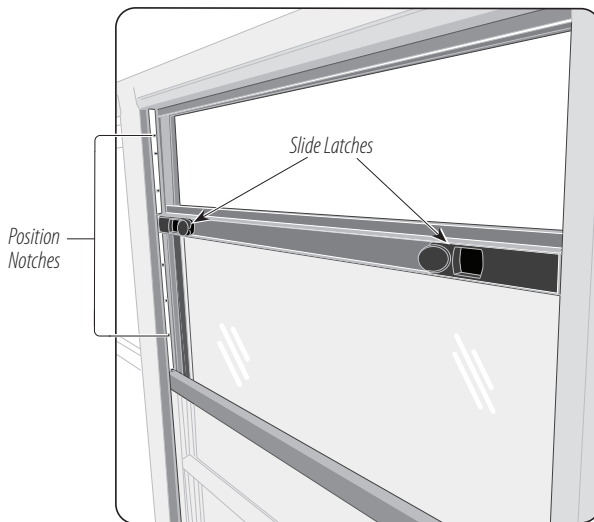


Passenger Windows

Split sash windows in the Blue Bird vision operate similar to other windows familiar to school bus drivers. To lower a window, place an index finger in both of the spring loaded sliding latches and slide them inward away from the frame. Hold them inward as you slide the window sash downward.

There are four intermediate opening positions between fully closed and fully opened. When the sash is opened to the desired height, release the latch slides and then push the top of the sash frame upward or downward to make sure the latches on both sides engage one of the position notches. When the window is in one of the intermediate positions, the sash can be pushed upward to close without first retracting the latches. However, the notches of the fully-opened positions are designed to latch more securely. To close a window that is fully open, slide the latches inward and then slide the sash.

The windows are designed for maintenance free operation. However, a light silicone spray lube may be applied to the slides and frames as needed to help ensure smooth operation.



Push inward on both slide latches to lower window


ROUTINE OPERATION
5-1

Routine Operation	5-2	Push Button Shifter	5-17
Maneuvering Safety	5-2	Park Mode	5-17
Starting Procedure	5-3	Reverse Position (R)	5-18
Interlocks	5-4	Neutral Position (N)	5-18
Pedestrian Alert System (<i>Noise Generator</i>)	5-4	Drive Position (D)	5-18
Shut Down (Turn Off) Procedure	5-5	Additional Buttons	5-18
Coolant System	5-6	Anti-Roll Back and Creep	5-19
Service Brakes	5-7	Roll Back Distance	5-19
Antilock Braking System (ABS)	5-7	Charging	5-20
Regenerative Braking	5-7	Charging Error	5-22
Electronic Stability Control	5-8	Battery Care	5-23
About Hydraulic Brakes	5-10	12V Battery	5-23
Parking Brake (With Hydraulic Brakes)	5-11	Air Suspension Drop	5-24
Parking Brake (Hand Operated)	5-13	Wheel Differential Lock	5-25
About Air Brakes	5-14	Engaged Position (Locked)	5-26
Parking Brakes (With Air Brakes)	5-15	Disengaged Position (Unlocked)	5-26
Seat Belt and Parking Brake Alarm Indicators	5-16	Important To Remember	5-27



DRIVERS HANDBOOK

Routine Operation

In terms of vehicle controls, driving an electric bus is not radically different from driving a passenger car, truck, or van. Features like power assisted brakes and steering, and modern suspensions have removed much of the fatiguing aspects and “big truck” feel.

However, the differences which do exist are extremely important and the diligent pupil transportation driver must be ever mindful to avoid being lulled into a mental state of complacency. Despite the ease of operation, modern school buses are still very large vehicles; and the cargo they carry is the most precious of all.

This chapter describes some of the general differences which a driver new to school bus operation may experience, and specific feature and equipment differences of the vision in particular with which the driver will interact every day.

Maneuvering Safety

School buses are operated in a wide variety of conditions ranging from Southwestern desert roads to tight inner-city alleyways. Refer to the dimensions chart in the *General Specifications* chapter to understand some of the considerations imposed by the physical size and geometry of the bus which may come into play in your school route environment. The proportionally long wheelbase means that the height of rises and humps which the bus can traverse without contacting the underskirt is dependent not just upon their height, but on their length or duration of the hump.

The rear overhang of school buses is longer than other vehicles. This must be borne in mind in situations such as nearing curbs or embankments on sharply-rising grades, as well as in tight turns as the body overhang “swings around” behind the rear wheels.

The driver is responsible for determining that the loading area is clear before stopping to load passengers, and must ensure that all unloaded passengers are clear before moving the bus.

States and other regional school bus administration organizations sometimes conduct training or practice seminars such as school bus “rodeos.” Blue Bird encourages participation in any program designed to increase the skill and safety of our nation’s school bus force.



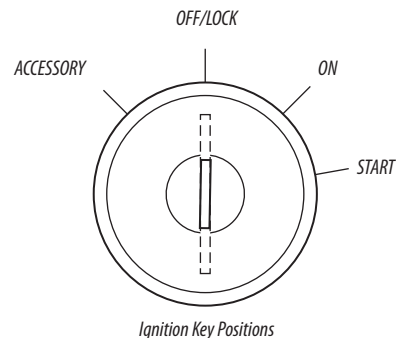
Starting Procedure

Starting the Blue Bird Electric Bus is different than starting an internal combustion engine powered bus. When you “start” the electric bus you are not starting an engine. Instead you are preparing the bus for operation. Certain steps must be followed in a specific order before systems will become operational.

Follow the steps below to “start” or prepare your bus for operation:

1. Disconnect the vehicle charging cable (if connected). See “Charging” for more detail.
2. Wait 10 seconds and verify that the shifter is no longer illuminated before proceeding to the next step.
3. Ensure the Parking Brake is engaged.
4. Turn the ignition key to “ON” without turning the key to “START”.
5. Ensure the vehicle is in park mode (push button selector pad is in Neutral and the Park Brake ON).
6. Turn the key to “START”. Release the key as soon as the vehicle is enabled (approximately 1 second). When the vehicle is enabled, a click may be heard from the battery contactors closing and the “Bus Enabled” telltale in the instrument panel’s right warning bank will be illuminated.
7. Put your foot on the brake pedal and release the parking brake.
8. For forward motion push “D” while holding the brake pedal and drive the vehicle normally.

See “Push Button Shifter” for additional information on the three drive states.





Interlocks

Your electric bus is equipped with up to three interlocks that will prevent the bus from responding to the throttle. The first is an entrance door interlock and the second is the driver's seatbelt interlock. The entrance door must be completely closed and the drivers seat belt must be fastened properly to satisfy the interlock. Failure to satisfy both of these two interlocks will "disconnect" the accelerator pedal and there will not be a throttle response. Fastening the drivers seat belt and closing the entrance door will satisfy the interlocks and allow a response to the throttle, thus allowing the bus to move depending on shift pad selection.

The third throttle interlock is linked to the optional brake interlock system. While in brake interlock the throttle will not respond.

Pedestrian Alert System *(Noise Generator)*

Since electric vehicles are nearly silent in operation, (lacking the sounds associated with an internal combustion engine) a noise generator is present on this bus. This provides additional sound to overcome ambient noise at low speeds, aiding in alerting nearby pedestrians of the vehicle's presence or approach. The sound this system makes is described as a whirring noise or a pulley with noisy ball bearings.

The bus has a speaker mounted on front of the chassis. The speaker is activated when the bus is in a forward gear, the parking brake is released, and at speeds up to 20 mph (32 kph). As the bus accelerates or decelerates, the sound changes frequency and volume in response. The sound ceases when the bus reaches speeds above 20 mph (32 kph). The system will reactivate when the bus slows down to 20 mph (32 kph) or less.



Shut Down (Turn Off) Procedure

Follow the steps below to stop and turn off the bus:

1. Press the service brake pedal until the vehicle has come to a complete stop.
2. Engage the parking brake while continuing to press the service brake pedal.
3. Push the neutral (N) button on the selector panel.
4. Then release the service brake pedal.
5. Turn the ignition key to "OFF".
6. Remove the key from the ignition switch. Once the key has been taken out, it may take 10 seconds for the system to shut off completely.

Note: Do NOT leave the key in the ignition, even in the OFF position. It may drain the 12 volt battery



DRIVERS HANDBOOK

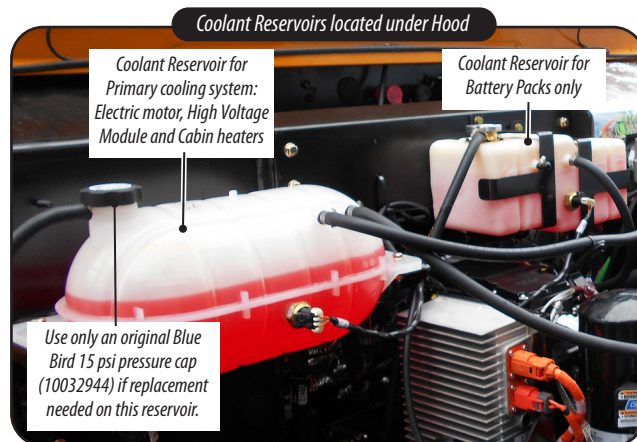
Coolant System

The Blue Bird VISION Electric Bus has two coolant systems to maintain safe temperature ranges for components that typically fluctuate during various operating conditions.

The reservoir mounted on the RH side (curb side) of the bus is for the primary cooling system. This coolant loop keeps the electric motor and high voltage module from overheating during operation and is used to heat the interior of the bus during cold weather conditions.

A second reservoir mounted closer to the LH side (driver side) of the bus is for the cooling system for the battery packs only. By isolating the battery packs coolant loop from the rest of the components, controlling the temperature of the batteries and their performance is improved.

The coolant level in the reservoirs should be checked daily as a part of routine pre-trip inspection. If the coolant level is low, coolant can be added through the reservoir cap. Use only a 50/50 mixture of distilled or filtered water with DexCool (Orange) coolant safe for aluminum blocks when replacing or replenishing the coolant. The area around the fill cap should be cleaned before removal to prevent dirt and other contaminants from entering the system. Damage can occur if particles over 60 micron are introduced into the system.



WARNING! Exercise extreme care when removing the cap from the coolant reservoir. Always allow time for the system to cool before removing the cap. The pressurized coolant may be very hot and can spray out, causing serious burn injuries.



CAUTION! Only add tap water in emergency situations. If tap water is used the system should be flushed and filled with proper coolant at earliest convenience.



CAUTION! *When replenishing or replacing coolant, only use coolant of the same type already installed. Never mix coolants of different color, type, or brand. Plain water is corrosive. Never add plain water to the system. When using concentrated coolant to raise the glycol concentration for extreme temperature environments, Blue Bird recommends only mixing the concentrate with pre-mixed coolant of the same type; not mixing with water.*

Service Brakes

Your bus may be fitted with hydraulic disc brakes, air disc brakes or air-powered drum type brakes, depending on the options chosen at the time of manufacture.

Although they perform the same task, you may feel a difference in braking characteristics. Air brakes may require additional wait time before driving during warmup, to allow air system pressure to build to normal operation levels.

Antilock Braking System (ABS)

In a vehicle equipped with an antilock braking system (ABS), motion sensors detect the speeds at which the wheels move. These sensors transmit this information to an Electronic Control Unit (ECU). If the wheels start to lock, the ECU signals the modulator assembly to regulate the brake pressure of each wheel.

An ABS indicator lamp on the dash (see “Indicator Light Panel” in Instrument Panel section) warns the driver of possible system faults and provides blink code information to diagnose the system. If this light is activated during normal vehicle operation, the driver may complete the trip, but the vehicle must be serviced as quickly as possible.

Regenerative Braking

A unique aspect of an electric bus is being able to charge the main batteries using the energy available in a moving vehicle. Your Blue Bird Electric Bus comes equipped with a regenerative braking system. When the accelerator pedal is released, the electric motor will act as a generator to slow the vehicle down while at the same time feeding energy back into the batteries. If the batteries are over 90% state of charge (SOC), the regenerative braking effect will be limited.



Electronic Stability Control

The electronic stability control (ESC) system offers a way to reduce the occurrence of loss-of-control events, as well as rollovers. ESC builds on the anti-lock brake system (ABS) with additional sensors, logic, and use of the brakes to slow and redirect the vehicle. During normal driving, ESC continuously monitors steering and vehicle direction. It compares the driver's intended direction, determined by the measured steering wheel angle, to the vehicle's actual direction determined through measured lateral acceleration, vehicle rotation, and individual road wheel speeds.

ESC intervenes only when it detects a probable loss of steering control, such as when the bus is not going where the driver is steering. This may happen, for example, when skidding during emergency evasive swerves, understeer or oversteer during poorly judged turns on slippery roads, or hydroplaning. ESC estimates the direction of the skid, and then applies the brakes to individual wheels asymmetrically in order to create torque about the vehicle's vertical axis, opposing the skid and bringing the vehicle back in line with the driver's commanded direction. Additionally, the system may reduce motor power to slow the vehicle down.

ESC can function on any surface, wet or dry. It reacts to and corrects skidding much faster and more effectively than the typical human driver, often before the driver is even aware of any imminent loss of control. ESC systems will alert the driver when they intervene, so that the driver is aware that the vehicle's handling limits have been reached. An instrument cluster indicator light will illuminate whenever the ESC system is actively controlling the bus.

The ESC system is not a performance enhancement nor a replacement for safe driving practices, but rather a safety technology to assist the driver in recovering from dangerous situations. ESC does not increase traction, so it does not enable faster cornering (although it can facilitate better-controlled cornering). More generally, ESC works within the limits of the bus's handling and available traction between the tires and road. A reckless maneuver can still exceed these limits, resulting in loss of control. For example, during hydroplaning, the wheels that ESC would use to correct a skid may lose contact with the road surface, reducing its effectiveness.



ESC incorporates yaw rate control into the anti-lock braking system (ABS). Anti-lock brakes enable ESC to slow down individual wheels. The ESC systems also incorporate a traction control system which senses drive-wheel slip under acceleration and individually brakes the slipping wheel or wheels and/or reduces excess motor power until control is regained. However, ESC serves a different purpose from that of ABS or traction control.

The ESC system uses several sensors to determine where the driver intends to travel. Other sensors indicate the actual state of the vehicle. The control algorithm compares driver input to vehicle response and decides, when necessary, to apply brakes and/or reduce throttle by the amounts calculated.

Steering components include:

- A steering wheel angle sensor that determines where the driver wants to steer.
- A yaw rate sensor that measures the rotation rate of the bus. The data from the yaw sensor is compared with the data from the steering wheel angle sensor to determine regulating action.
- A lateral acceleration sensor that measures the vehicle's lateral acceleration. This is often called an accelerometer.
- A wheel speed sensor that measures the wheel speed.



WARNING! *The driver is ALWAYS responsible for the control and safe operation of the bus at any time. The Antilock Braking System (ABS) or Electronic Stability Control (ESC) system(s) does not replace the need for a skilled, alert, professional driver reacting appropriately and in a timely matter. Safe driving practices must be followed at all times.*



DRIVERS HANDBOOK

About Hydraulic Brakes



WARNING! Hydraulic brakes are power assisted. The brakes will be noticeably less effective when the engine is not running.



WARNING! Do not continue to operate the bus with the loss of either the front or the rear portion of the system. Stop the vehicle and refer to qualified service personnel.

The hydraulic brakes are arranged in a dual system, whereby the front brakes and the rear brakes operate independently of each other. The braking function is significantly diminished by the loss of either the front or the rear brakes; however, it will be possible to stop the bus.

The hydraulic brake system includes an auxiliary electric pump which serves as a backup for the hydraulic pressure supplied by the power steering pump. With the engine not running and the key switch in the "ON" position, the electric pump will come on. This will provide some assistance in the brake system, but it will be much less effective than the power assist provided by the power steering pump.



WARNING! Check the operation of this auxiliary pump before each trip. If it fails to come on when the key is turned to the "ON" position, before the engine starts do not operate the bus. Refer to qualified service personnel.



WARNING! Inspect the level of the brake fluid in the reservoir on a regular basis. Too little fluid in the system will cause a malfunction. Be careful to put only brake fluid in the brake system and power steering fluid in the steering system.

If the brake pedal depresses more than normal, or feels "mushy", check the reservoir level. If you need to add fluid (DOT-3) frequently, have the system checked out by a professional mechanic.

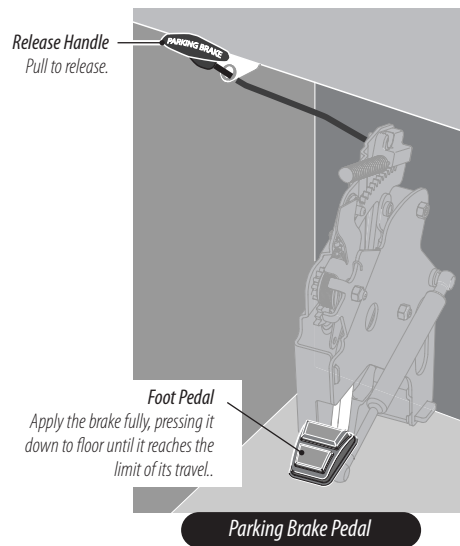


Parking Brake (With Hydraulic Brakes)

A Blue Bird VISION equipped with hydraulic brakes employs a foot operated parking brake, located to Driver's lower left. When the driver presses this pedal into the engaged position, a mechanical linkage causes a brake shoe assembly to press against a brake drum attached to the driveshaft, preventing the bus from moving. (It should be noted that this type parking brake becomes inoperative if the driveshaft is disconnected, as when the bus is being prepared for towing.) The mechanical parking brake must be kept adjusted properly for maximum holding power.

The mechanical parking brake must be kept adjusted properly for maximum holding power. To apply the parking brake, press down firmly on the foot pedal. Always apply the brake fully, pressing it down until it reaches the limit of its travel which will be nearly to the floor.

To release the parking brake, apply the service brake to prevent movement when the parking brake is released. Then grasp the parking brake release lever with the left hand and pull until the Park Brake is fully released.





The parking brake should hold the fully loaded bus on a 20% incline on a dry paved surface. If the incline is wet or covered with ice or snow, do not park on it. The brake will hold, but the tires may not. When the ignition is on and the park brake is applied, a yellow “PARK” warning light will illuminate in the instrument cluster warning the driver that the park brake is applied. The bus should not be driven when the park brake is applied. Doing so will prematurely wear the parking brake or damage drivetrain components.



CAUTION! *Always release the parking brake fully. Leaving it in a partially released position can allow the shoes of the parking brake mechanism to drag while the bus is operated, resulting in overheating and accelerated wear of the parking brake shoes and drum.*

On buses equipped with a Hydraulic Parking Brake Interlock feature, the service brake must be applied firmly before the park brake will release. A solenoid locks the park brake lever or pedal in the on position until a signal is received from the service brake switch. This signal also illuminates the service brake lights.



WARNING! *The parking brake is designed to hold on a 20% grade, on a clean, dry, and smooth road surface. Parking on wet, icy, snow-covered or loose aggregate surface will greatly diminish braking efficiency and is not recommended. Always use wheel chocks.*



WARNING! *The parking brake functionality relies on the rear wheels remaining in contact with the surface the bus is parked on. If one or both wheels are lifted off the surface the park brake will not function and the bus may move resulting in potential bodily harm or death.*



Parking Brake (Hand Operated)

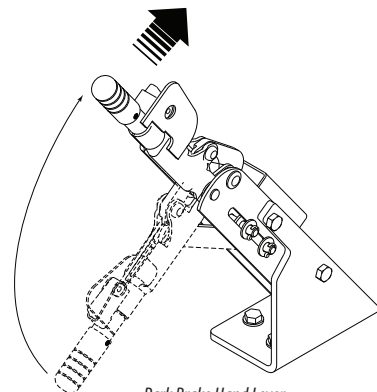
Optionally, your bus may be equipped with a right side parking brake lever. This option places the hand operated parking brake to the right of the driver's seat mounted on the floor. See *Parking Brake, Units With Hydraulic Brakes under Driver Orientation*.

To apply the parking brake, grasp the handle of the lever and pull upward. Pull lever firmly until it snaps over the center position. Continue to pull the lever upward until it is against the top stop. Now press the lever downward to the lock position stop to ensure the lock mechanism is secure. To verify that the release button is locked, press down on the button.

To release the parking brake, apply the service brake to prevent movement when the parking brake is released. Then grasp the parking brake lever with the right hand and lift up, press the release button on the grip and lower the lever fully all the way against its lower stop.

The parking brake lever's grip incorporates a threaded adjustment mechanism to allow a service technician to make fine adjustments to the cable tension. The adjustment is made by loosening a set screw in the grip handle and then rotating the grip on its shaft. This adjustment is designed to be performed in the service facility, not during normal operation of the bus. During normal operation, the grip should not be free to rotate.

The parking brake lever's grip incorporates a threaded adjustment mechanism to allow a service technician to make fine adjustments to the cable tension. The adjustment is made by loosening a set screw in the grip handle and then rotating the grip on its shaft. This adjustment is designed to be performed in the service facility, not during normal operation of the bus. During normal operation, the grip should not be free to rotate. If the Driver ever finds the grip free to rotate when applying or releasing the lever, it should be taken as indication that the setscrew is not properly tightened. This condition should be reported to service personnel, and proper adjustment and tightening should be performed.



Park Brake Hand Lever

**WHEN APPLYING PARK BRAKE,
PULL UP AND THEN PRESS DOWN TO
ENSURE LOCK MECHANISM IS SECURE**

*Parking Brake Decal located at right of
steering column on lower dash panel.*



About Air Brakes

Blue Bird air brake system uses compressed air pressure to operate drum or disc brakes. The system is divided into two separate circuits; one for rear brakes (primary) and one for front (secondary). The two circuits have their own air supplies. However, the system is designed so that if pressure in either circuit drops to certain levels, the other system can supplement the pressure.

A motor driven air compressor maintains normal operating pressure within the storage tanks. The bus cannot be driven until air pressure is sufficient for normal operation. Therefore, if the bus has been parked for an extend period, or if the tanks have been drained, as in normal maintenance procedure to expel built-up moisture, it is normal for additional time to be required for the air system to fully charge.

As air is compressed, moisture vapor tends to condense inside the storage tanks. The tanks are equipped with bleeder valves to allow removal of this built-up moisture, and should be used daily, usually when the bus is parked for the night. Some buses are equipped with an air dryer to assist collection and expulsion of the excess moisture during operation. During normal operation, the compressor cycles on and off based on operating pressure. As this occurs, the air dryer occasionally expels a blast of air (chuff) which can be heard by the driver. This is a normal “backflush” behavior of the air dryer.



Parking Brakes (With Air Brakes)

On Blue Bird buses, the parking brake function is provided not by the air pressure, but by coil springs incorporated within the rear wheel brake actuation chambers. When the parking brake valve on the dash is pulled outward, air pressure is vented from the rear brake actuators, allowing the springs to engage the rear brakes and locking the rear wheels. When the parking brake valve is pushed in, it allows the air pressure in the rear brake actuators to overcome the spring pressure, thereby releasing the rear spring brakes.

Although the parking brake control is an air valve, it is not air pressure which applies the parking brake, but the absence of air. The parking brake is applied by mechanical springs which are released (caged) when the air system pressure is sufficient for normal brakes operation. Pushing in the parking brake valve to release the parking brake does not release air pressure, it applies it to cage the spring brakes. This is why the parking brake button automatically “pops out” if you try to release the parking brake before sufficient air pressure has built up.

If for any reason the air reserve in both the primary and secondary circuits drops below a safe minimum, the spring brakes automatically engage and apply braking at the rear wheels. If this occurs enroute, the Driver should call for professional service assistance. Provisions are made for a qualified service technician to mechanically release the spring brakes to allow the bus to be towed for repair.














Pull to apply parking brakes. Push to release. The parking brake valve does not apply air brakes. It applies air to release the mechanical spring brakes.

The park brake valve cannot release the spring brakes until sufficient air is in the system for normal service air brakes operation. If it is pushed in before system pressure is present, it will automatically “pop out.”



Seat Belt and Parking Brake Alarm Indicators

The seatbelt warning light and audible alarm are active when the requirements are met based on the chart below:

Seatbelt and Parking Brake Alarm Condition Table						
Ignition ON	Park Brake ON	Seat Belt Buckled	Seat Belt Logic ENABLED	Gear in NEUTRAL or PARK	Speed: 3 mph (5 kph) or greater	Results
No	No	No	No	No	No	Flashing Park Brake Warning Light Continuous Alarm  
YES	YES	No	No	No	YES	Flashing Park Brake Warning Light Continuous Alarm  
YES	YES	No	No	No	No	Park Brake Warning Light ON 
YES	No	No	YES	YES	No	Seatbelt Warning Light ON "Set Park Brake" in Message Center Flashing Park Brake Warning Light Continuous Alarm    
YES	No	No	YES	No	No	Seatbelt Warning Light ON Continuous Alarm  



Push Button Shifter

The Electric Blue Bird Bus does not have a transmission. The motor is directly coupled to the rear axle via a single drive shaft. When a drive state is selected on the push button shifter pad, a clockwise, counter-clockwise or neutral command will be given to the main drive motor. As power is applied to the motor using the accelerator pedal, a forward or reverse motion will result. If neutral is selected the power will be blocked, resulting in no motion.

Three drive states (Reverse, Neutral, Drive) can be selected using the “push button” shifter. Ensure that the brake pedal is pressed and the vehicle is stationary before selecting a drive state. A “P” will appear in the shifter display window when in Park Mode.

Park Mode

To enter Park Mode apply the service brake pedal and set the parking brake. No Drivetrain power is available when in Park Mode resulting in the drive motor being disabled.



WARNING! *Do not engage Park Mode while the vehicle is in motion or loss of vehicle control may result. The vehicle does not automatically enter Park Mode when the key is switched off. When the Park Brake is actuated, the vehicle will enter Park Mode. The driver needs to always actuate the Park Mode before exiting the bus to avoid unwanted vehicle movement. If parking long term on an incline, it is recommended to chock the bus as well.*

NOTE: If the bus is charging, the shifter will stay illuminated, even with the key removed from the ignition. While the LEDs on the shifter are still on, the bus will be inoperable. See “Charging” for more details.



Reverse Position (R)

The bus will move backward when in Reverse Position (R) and the accelerator is pressed. Power steering is active.

Neutral Position (N)

When the vehicle is in Neutral Position (N), it will roll freely. No traction power is applied by the drive motor if the accelerator pedal is pressed. Power steering will be active while in neutral.

Drive Position (D)

The bus will move in the forward direction when in Drive Position (D) and accelerator is pressed. Power steering is active.

Additional Buttons

Although 'P' may be listed on the Push Button shifter, it will not engage the parking brake. It is used to toggle between "park" mode and "neutral" position while the Parking Brake is engaged.



Anti-Roll Back and Creep

The bus is equipped with an anti-roll back feature. The system is designed to prevent movement in the opposite direction of the selected Shifter position. If in 'R' position it reduces forward motion or in 'D' position it reduces backward motion. The effort to hold the vehicle still comes from the electric traction motor. Because electric motors can overheat, the anti-roll back feature will time out and release the vehicle to roll freely after 5 seconds. The feature is reset every time the vehicle comes to a complete stop and the brake pedal is pressed.



WARNING! *The anti-roll back feature will time out and release the vehicle to roll freely 5 seconds after the brake pedal is released. Re-apply the brake pedal or accelerator pedal before that time has elapsed or the vehicle will roll due to gravity.*

Roll Back Distance

On grades up to a 10% slope, the vehicle roll back distance is less than 1 foot (30.5 cm) while the feature is active. The maximum grade the vehicle can launch is a 20% slope. At that grade, the maximum roll back distance is 2 feet (61 cm) while the feature is active.



DRIVERS HANDBOOK

Charging

Before charging make sure the bus is in Park Mode (park brake ON and ignition switch OFF).

To charge the High Voltage Battery Packs, your bus is equipped with a dual charging system. This allows the bus to use AC or DC charging stations. The charge port on the Blue Bird EV is a CCS which is a "combo" port that will accept either the SAE J1772 or a CCS1 DC charger paddle. The AC charging system uses the J1772 paddle which fits in the top portion of the port. If using DC fast charge, the CCS1 paddle will use the entire port.

Charging Paddles

AC Charging

- Uses the J1772 paddle
- Typically requires 8 hours to fully recharge batteries



J1772 AC paddle

DC Fast Charging

- Uses the CCS1 paddle
- Can fully recharge batteries in 3 hours



CCS1 DC Fast Charge paddle

CCS "Combo" Charge Port
(shown with dust covers removed)



Charge Port Location

Standard Location:
Behind Rear Axle curb side



- OR -
Optional Front Location:
Behind Front Door curb side





To charge the batteries, open the charge port door, remove dust covers (if using the J1772 paddle, the dust cover over the lower unused section of the charger port can remain in place) and insert the paddle into the charge port. Once inserted properly a “click” can be heard indicating a good connection and the initiation of the charging process. When connected properly and charging, the instrument cluster will display **“Charger Connected”** in Area 5 of the message display center in the instrument panel.

There are two charging modes that can be displayed: **“Charger Connected”** or **“Charging Error”**. When the ignition is in the OFF position, press any of the three buttons next to the message center to display the charging status. The display will remain ON for 10 seconds and then time out. If the ignition is ON the charging status will display automatically. While charging, Area 3 in the message center will display **“Time To Full Charge”** indicating the time needed to complete a full charge.

When your bus is not in use for short periods of time (less than 7 days) it should be plugged into the battery charger (See **NOTE** on next page regarding charging when bus is idle for more than 7 days). This can be particularly important in hot and cold environments. The batteries will not begin to charge until they are the proper temperature. When the battery charger is plugged into the bus, the computer checks the battery temperature and either cools or heats the batteries using the power from the charger. When the batteries are at proper temperature, the charging cycle will automatically begin.



NOTE: the **“Time To Full Charge”** indicated on the instrument cluster reflects the *total* time, including the time it takes to heat or cool the batteries. The LEDs on the shifter will stay illuminated until the charging process is complete. While the shifter LEDs are still lit, the bus will be inoperable.



Charging Error

If charging did not commence and you have a charging error:

Check the Power LED on the charger to verify that the power supplied to the charger is ON.

Check the charger paddle to be sure it is plugged in properly to the charge port on the bus.

Verify charging has begun by checking the Charging LED on the battery charger.

Check that **“Charger Connected”** and **“Time To Full Charge”** is displayed in the message display.

NOTE: *If your bus is not going to be used for an extended period of time (more than 7 days), it is advisable to NOT leave it plugged into charger.*



Battery Care

Never allow the High Voltage batteries to fully discharge. Even when not being driven, the batteries discharge very slowly to power the on-board electronics. Situations can arise in which you must leave your bus unplugged for an extended period of time. In these situations monitor the power level to be sure you leave the battery with a sufficient charge to move the bus to a working charge station.



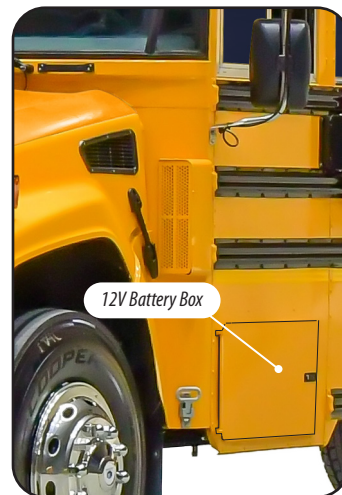
WARNING! *The batteries have no parts that a non-authorized service technician can service. Under no circumstances should you open or tamper with the High Voltage batteries. Always contact your Blue Bird Dealer to arrange for Battery servicing.*



CAUTION! *If the batteries charge level falls to 0%, you must plug it in. If you leave it unplugged for an extended period, it may not be possible to charge. Leaving your bus unplugged for an extended period can also result in permanent battery damage. If you are unable to charge your batteries contact your authorized Blue Bird Dealer.*

12V Battery

A standard 12V Group 31 battery is installed in your bus. It is located on the front left side of the bus. Open the battery door for inspection and service. This battery is kept at peak charge automatically anytime the bus is being driven or when the high voltage batteries are being charged. A DC to DC converter monitors the 12V system and based on power demand, will provide enough current for load demands and enough current to keep the battery properly charged. The 12V battery is used to power the 12V body and chassis circuits typically found on all Blue Bird buses.





Air Suspension Drop

This optional feature provides a dash mounted momentary switch that will allow the operator to fully exhaust all air retained in the suspension air bags. Air in all suspensions front and rear, (or rear only depending on vehicle configuration) is exhausted with switch activation. This permits height of bus to be decreased by two to three inches plus or minus 1/2 inch (5 to 8 cm \pm 1.2 cm) at the affected axle(s). Air bags become fully deflated in approximately 12 seconds, regardless of vehicle model, axle location, or body configuration. Air bag inflation time required for suspension to return to normal fully inflated height is approximately 60 seconds for all configurations.

The momentary switch has 2 positions, raised and dumped. It activates a double solenoid valve and once 'dump' is activated the suspension remains latched in lowered position until raised by moving the switch to the 'raised' position or exceeding 5 mph (8 kph) vehicle speed. Switch illuminates to indicate when air suspension is 'dumped' and is extinguished when suspension is at normal operating height.

Dump feature is operational only at vehicle speed of 5 miles per hour (8 kph) or less. This included safety feature contains a speed sensor that returns suspension to normal operating height ('raised' position) automatically if vehicle speed exceeds 5 miles per hour (8 kph). Once normal operating height is achieved, height will be maintained regardless of vehicle speed or engine-stop condition. Only moving dash mounted switch to 'dump' position will cause suspension to lower.





Wheel Differential Lock

A Blue Bird bus may be equipped with an optional, driver controlled, Wheel Differential Lock System. The driver manually locks and unlocks the wheel differential using a cab mounted control switch. When the control switch is placed in the lock position, an air supply solenoid valve opens and air pressure activates the shift unit to engage the differential lock. When the control switch is placed in the unlock position, air pressure supply is shut off and air pressure is released from the shift unit to disengage the differential lock.



WARNING! Engage the wheel differential lock *ONLY* when the vehicle is stationary or moving without wheel differentiation (spinout).



WARNING! Do *NOT* use the wheel differential lock when traveling downhill.



WARNING! Do *NOT* use the wheel differential lock at speeds over 25 MPH (40 kph).



WARNING! When the wheel differential lock is engaged, be sure to allow for a larger turning radius and greater steering effort.



Engaged Position (Locked)

1. Move the control switch to the "Lock" position; either while the vehicle is stationary or while moving at steady speed under 25 MPH (40 kph) without wheel differentiation (spinout).
2. Reduce pressure momentarily on the accelerator pedal to relieve torque on the gearing and fully engage the sliding clutch.
3. When the differential lock is engaged, the indicator light will be on or an audible signal sounds.

With the cab switch in the "Lock" position the vehicle system air pressure is applied to the shift system, which engages the differential lock and both wheels will turn at the same speed. **NOTE:** *When the differential lock is engaged, the vehicle under-steers, requiring a longer turning radius for a given turn.*

Disengaged Position (Unlocked)

1. To disengage the wheel differential lock, move the control switch to the "Unlock" position.
2. Reduce pressure on the accelerator pedal momentarily to relieve torque and allow the sliding clutch to disengage.
3. When the differential lock is disengaged, the indicator light and/or audible signal goes out.

With the cab switch in the "Unlock" position there is zero air pressure to shift system and a spring is keeping the shift assembly in the disengaged position. **NOTE:** *Occasionally the differential lock may not disengage immediately due to torque "wrap up," when this occurs, drive normally for a short distance with the control switch still in the "Unlock" position until normal road forces release the torque wrap up condition.*



Important To Remember

- This system should only be used when poor traction is encountered; it must be disengaged when traveling on solid road surfaces.
- The differential lock should only be engaged when the vehicle is stationary (recommended), or moving less than 25 MPH (40 kph) without wheel differentiation (spinout). Engagement of the wheel differential lock while wheels are rotating at different speeds (differentiation) may cause internal component failure.
- Operating the wheel differential lock in the engaged “lock” position on solid surfaces while turning corners (differentiating), may cause damage to internal components.
- To ensure maximum control of the vehicle, do not use the wheel differential lock when traveling downhill.
- When engaged, the wheel differential lock will cause the vehicle to under-steer, meaning that the vehicle will not turn as quickly, and more steering effort will be required.
- Use the wheel differential lock only at speeds less than 25 MPH (40 kph). At higher speeds the under-steer handling characteristics could be dangerous.
- The wheel differential lock may not disengage immediately due to torque “wrap up”. This wrap up can occur when the system is disengaged while the vehicle is operating on surfaces such as sand, mud or snow.



**PRE-TRIP INSPECTION****6-1**

Before Placing the Bus in Service	6-2
Daily Pre-Trip Inspection	6-2
Pre-Trip Inspection: Electric Bus	6-4
Pre-Trip Inspection: Exterior	6-6
Pre-Trip Inspection: Entrance	6-8
Pre-Trip Inspection: Interior	6-10
Buses with Automated Pre-Trip Exterior Light Check Feature	6-12
Prepare For Driveaway	6-13
Back-Up Camera	6-13
Mirrors and Mirrors Adjustment	6-14



DRIVERS HANDBOOK

Before Placing the Bus in Service

Upon taking delivery of any new school bus, it is recommended that the bus be inspected by a qualified school bus technician. The driver of this bus must be completely familiar with the contents of this manual. A thorough knowledge of the operating controls is essential to the proper operation, safety and comfort of passengers. Keep this manual in your bus for reference.

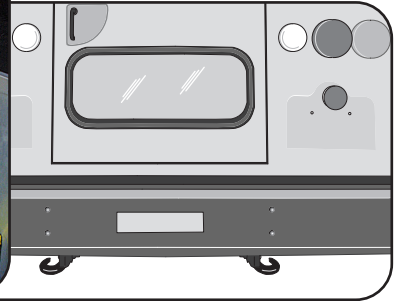
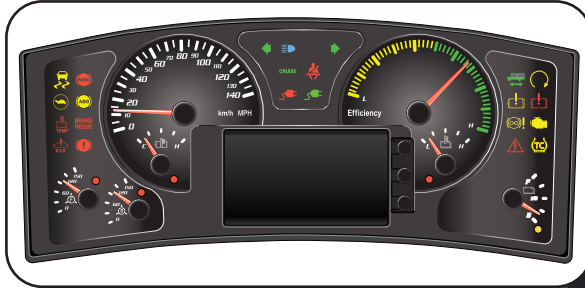
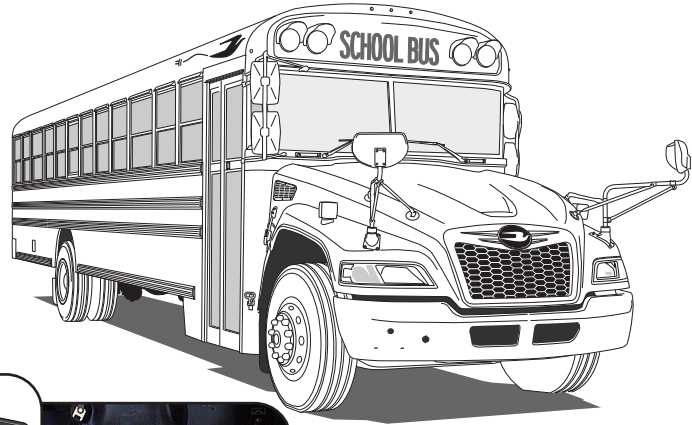
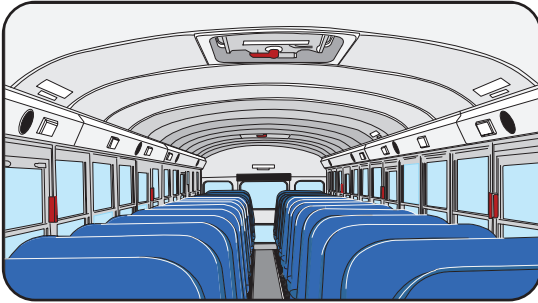
Tire inflation pressure must not exceed the specifications of the tire and/or wheel/rim manufacturer for the specific load, speed and application. The inflation pressure embossed on the tire sidewall may not take into consideration the wheel/rim capacities. Tires should not be inflated above the pressure listed on the Federal Certification plate without consulting your tire/wheel distributor.

Daily Pre-Trip Inspection

A daily school bus inspection is required by the driver before the bus is put into service. To be effective, a pre-trip inspection of a school bus must be thorough and systematic. Drivers are required to have sufficient knowledge to identify vehicle deficiencies when conducting a pre-trip inspection. As school bus operations are regulated at the state and local level and many of these jurisdictions have their own pre-trip inspection forms, this checklist is not meant to be a compliance document. This checklist does detail the areas applicable to the pre-trip inspection of a school bus and can be useful to those operations that are not required to use a specific form. The forms on the following pages are minimum suggestions that can be used in developing your own checklist and not intended to be all inclusive.



WARNING! *Parking of the school bus should always be on level and secure ground. A thorough pre-trip exterior walkaround inspection involves visual inspection of tires and areas under the bus. Do not perform an exterior walk-around inspection unless it is certain that the bus is prevented from movement. Before performing the exterior inspection, enter the bus and make sure the bus is in Park, and that the parking brake is fully on. Place wheel chocks in front of and behind rear wheels.*





DRIVERS HANDBOOK

Pre-Trip Inspection: Electric Bus

Name: _____

Date: _____

Zone 1: Rear Passenger Side of Bus

- ☐ Disconnect the charging cable at the rear, passenger side of the bus.
 - Replace the cap on the charging plug.
 - Close the charging plug access door.

Zone 2: Front Hood Area

- ☐ Open the hood at the front of the bus.
 - Check the level of the power steering fluid by looking at the reservoir;
The fluid should be in between the "COLD" and "HOT" marks. The power steering fluid is pink.
 - Check the level of the coolant by ensuring that the coolant fluid is between the "COLD FULL" and "HOT FULL" marks.
The coolant fluid is orange.
 - Visually check the area around the radiator for coolant leaks.
 - Close and latch the hood.

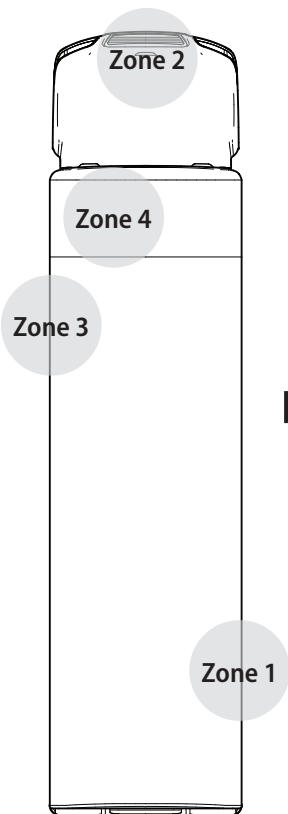
Zone 3: 12V Battery Area

- ☐ Open the battery access door and pull out the battery tray.
 - Inspect the battery connections making sure they are clean and are not corroded.
 - Check tightness of the cables to their connection points by grabbing the cables and moving them back and forth.
There should be no movement where the cables are connected to the the battery, the battery disconnect switch and the automatic disconnect switch.
 - Push the battery tray back in and close and latch the access door.
- ☐ Check under the bus around the front axle, the area under the high voltage batteries and the area behind the rear axle for any fluid on the ground which would indicate a coolant leak.



Zone 4: Driver Compartment Area

- ☐ Sit in the driver's seat.
 - Verify that the shifter is no longer illuminated.
 - Insert the key in the ignition and start the bus.
 - DO NOT put on the seat belt and DO NOT close the entrance door.
 - Firmly press the brake pedal, disengage the parking brake and press the "D" or "R" on the gear selector.
 - Warning indicators should flash on the dash, audible alarms should be heard and the bus should not move.
 - Press "N" on the gear selector, set the parking brake and release the brake pedal.
- ☐ While still sitting in the driver's seat,
 - Put on the seat belt and DO NOT close the entrance door.
 - Firmly press the brake pedal, disengage the parking brake and press "D" or "R" on the gear selector.
 - Warning indicators should flash on the dash, audible alarms should be heard and the bus should not move.
 - Press "N" on the gear selector, set the parking brake and release the brake pedal.
- ☐ With the seat belt still on, close the entrance door.
 - Firmly press the brake pedal, disengage the parking brake and press "D" or "R" on the gear selector.
 - The bus should not display any warnings on the dash and no audible alarms should be heard.
 - Slowly release pressure on the brake pedal and the bus should move.
 - Verify that the Pedestrian Alert Device is working by increasing vehicle speed gradually until the sound is clearly audible.
 - The bus is now ready for operation.





DRIVERS HANDBOOK

Pre-Trip Inspection: Exterior

Name: _____

Date: _____

ITEM	INSPECTION - Exterior Walk Around <i>Approach bus from the front to begin general exterior inspection</i>	PASS	FAIL
1	Condition of front bus markings such as the school bus sign, and reflective markings. Clean windshield if needed.		
2	Look for any leaning or twisting of the bus which may suggest tire problems, axle misalignment, or structural damage.		
3	Crossing arm is properly secure and unbroken.		
4	Check mirror brackets for secure mountings. Check for broken or cracked mirrors, and clean the mirrors if needed.		
5	Look underneath the bus for any unusual conditions such as dangling harness wires, fluid leakage or other debris.		
6	Look at the ground underneath for signs of fluid leakage, broken glass, or other debris.		
7	Check the tires for proper inflation, tread depth, and any signs of physical damage. Normal tread wear should be uniform across the width of the tread.		
8	Inspect the rim for bends or other damage. Check that all lug nuts are in place. If the bus is equipped with oil lubricated axles, check the sight glass in the center of the hub for proper oil level.		
9	Check the Stop Arm for any signs of physical damage.		
10	Open the battery compartment door and inspect the 12V battery. Check for corrosion on the battery terminals and for loose connections. Close the compartment and make sure it is secure.		
11	Check overall view of the left side. Check that all markings are legible and in good condition, including emergency exit signs and reflective tapes. Check for broken windows and any other signs of vandalism. Check that all windows are clean.		



ITEM	INSPECTION - Exterior Walk Around <i>Approach bus from the front to begin general exterior inspection</i>	PASS	FAIL
12	Approach the rear axle, at the front of the rear tires. Visually inspect for any missing suspension bolts, signs of cracks, misalignment, or other physical damage on the opposite side. View the shock absorber for signs of oil seepage.		
13	Inspect the left rear tires. Check for correct inflation pressure in both the outer and inner tires. Check the tread depth, and look for any signs of physical damage. Normal treadwear should be uniform across the width of the tread.		
14	Inspect the rim for bends or other damage. Check that all lug nuts are in place. Look at the axle center caps for missing nuts or signs of axle lubricant leakage.		
15	Look under the bus, behind the rear tires, along the back and across to the opposite side. Check oil leakage on the axle. Look for missing, bent or broken axle/suspension fasteners. Look for any signs of leaking fluid, broken glass, or other debris.		
16	Check the condition of the braking system. Look for bent, broken or leaking items or anything unusual. Test system for proper operation.		
17	Check rear markings are legible and in good condition, including emergency exit signs and reflective tapes. Check for broken windows and any other signs of vandalism.		
18	Proceed to the left side of the bus. Open the battery door and ensure battery cables are securely tightened.		
19	Inspect under the bus, behind the rear tires, and view along the back of the axle. Look for any signs of oil leakage, missing, bent, misaligned, or broken axle/suspension fasteners.		
20	Inspect the right rear tires for correct inflation pressure in both the outer and inner tires. Check the tread depth, and look for any signs of physical damage. Normal tread wear should be uniform across the width of the tread.		
21	Inspect the rim for bends or other damage. Check that all lug nuts are in place. Look at the axle center caps for missing bolts or signs of axle lubricant leakage.		
22	Inspect the front of the rear tires, under the bus and across the axle. Visually inspect for any missing suspension bolts, signs of cracks, misalignment, or other physical damage on the opposite side. View the shock absorber for signs of oil seepage.		
23	Check that all markings on the right side are legible and in good condition, including emergency exit signs and reflective tapes. Check for broken windows and any other signs of vandalism. Check that all windows are clean.		
24			



DRIVERS HANDBOOK

Pre-Trip Inspection: Entrance

Name: _____

Date: _____

ITEM	INSPECTION - Entrance Area	PASS	FAIL
1	Inspect the entrance door glass for cracks, the frame for structural damage and the closure seals for wear or damage.		
2	Open the door and inspect the stepwell for ice or debris that may be hazardous to passengers. Ensure that the entire entrance area is free of obstructions such as loose tools or cleaning equipment.		
3	Grasp the entrance handrail and check it for secure mounting.		
4	Inspect the condition of the right windshield wiper blade.		
5	Inspect the condition of the left windshield wiper blade.		



ITEM	INSPECTION - Chassis Area <i>Unlatch the right and left hood latches. Grasp the front hood handhold and pull back to raise the hood and set latch. Step to the left side (Driver's side) front wheel to proceed with the under-hood inspection.</i>	PASS	FAIL
1	Visually inspect the inner side of the wheel. Inspect the wheel end for any sign of fluid or air leakage.		
2	Inspect the front axle and suspension for missing, bent, or broken fasteners. Inspect the shocks for signs of oil leakage.		
3	Visually inspect the steering mechanism. Looks for signs of fluid leakage, loose or missing parts.		
4	Check the power steering fluid level.		
5	Check the coolant reservoir fluid level.		
6	Check the washer reservoir fluid level.		
7	Inspect both sides of the radiator for debris and signs of damage.		



DRIVERS HANDBOOK

Pre-Trip Inspection: Interior

Name: _____

Date: _____

ITEM	INSPECTION - Driver Area Alerts <i>Insert the ignition key and turn it to first ON position. All instrument panel lights and the Message Display Center illuminate.</i>	PASS	FAIL
1	Scan the lights for any that do not illuminate.		
2	Check for audible alerts.		
3	Check message display center for error codes.		
4	Check the condition of the battery charge as indicated by the instrument panel voltmeter.		
5	Turn on and check the interior dome lights.		
6	Check condition and function of emergency windows, roof hatches, or latched emergency door vandal lock.		
7	Check for proper operation of equipment switches in the upper panel of the side console.		
8	Operate all of the exterior lights and verify that they are all working properly. Include all running lights, marker and clearance lights, and warning lights.		
9	Check interior mirror for damage and proper adjustment to provide a clear view of the rear of the bus.		
10	Check for proper front and rear air pressure. Check air pressure loss (< 3 psi) during 1 minute service brake application.		



ITEM	INSPECTION - Passenger Area <i>Inspect cleanliness of the passenger area and functional check of all emergency exits.</i>	PASS	FAIL
1	Check the emergency door for proper operation including audible alarm.		
2	Inspect the condition of the interior. Look for soiled or cut seat upholstery, loose seatbacks and secure floor mounting.		
3	Check the condition of each seat and seat barrier, window, and floor area between seats.		
4	Inspect for damaged and dirty windows.		
5	Inspect and operate roof hatches for proper alarm function and operation.		
6	Inspect and operate emergency windows for proper alarm function and operation.		
7	Check walkways and aisle for obstructions; should be free of loose items.		

ITEM	INSPECTION - Emergency Equipment	PASS	FAIL
1	Check the fire extinguisher charge and expiration date.		
2	Inspect the flare kit and / or roadside hazard triangular reflector kit for full content and secure stowage.		
3	Inspect the fire axe and/or wrecking bar for secure mounting.		
4	Inspect the first aid kit and body fluid kit for fully stocked content and secure mountings.		



Buses with Automated Pre-Trip Exterior Light Check Feature

This feature allows operation of all exterior lights to be checked by the sole operator. By use of a switch in the driver's area the operator can activate the exterior lights in a flashing sequence based on related groups. The lights will flash on and off in the sequence for five minutes and deactivate automatically. The system allows check of lights only and does not verify switch or input circuit operation. To verify switch and individual circuit operation, deactivate the Exterior Light Check feature and use the exterior light switches for circuit and switch verification.

To activate the feature, apply the park brake, and select Neutral on the push button selector pad. Turn the ignition key to start position and release. To start the flash sequence press the switch labeled "EXT LGT CHECK" located in the right console switch panel. Releasing the park brake, placing the bus in gear or switching the ignition off will deactivate the system.

If the bus is equipped with sleeping child check feature, the system may be armed by activating the Pre-Trip Exterior Light Check feature. An LED on the Doran monitor will indicate if the sleeping child check feature has been armed.

Exterior light sequence activation by related groups:

- A. Directional / Hazards – All directional (left & right) lights at the same time.
- B. Tail Lights – All tail lights, tag lights, front parking lights, clearance lights, marker lights, identification lights when stop lights are in the "Off" Flash rate state.
- C. Stop Lights – All stop lights when tail lights are in the "off" flash rate state.
- D. Back Up Lights – Both back-up lights and the optional backing horn (if equipped).
- E. Rear Warning Lights – Both amber warning lights flash then both red warning lights flash.
- F. Stop Arm (s) – Will extend and flash stop arm lights throughout the 5 minute sequence.
- G. Front Warning Lights – Both amber warning lights flash then both red warning lights flash.
- H. Headlights – Alternately flash between high and low beam.



Prepare For Driveway

Return to the Driver's seat.

- A. Adjust the seat height, back, and position.
- B. Adjust the steering wheel position as needed. *See Steering Wheel Position under Steering Column.*
- C. Check the alignment and positioning of all rearview mirrors, interior and exterior for optimum view. Adjust as necessary.

Back-Up Camera

When the bus is shifted into reverse, a display for the back-up camera will be activated and appear in the instrument cluster message display center screen giving the driver a view behind the bus.

To prevent property damage and personal injury, every driver should practice safe backing:

- 1. Whenever possible, park in such a way to avoid having to back up bus.
- 2. Walk around the bus before backing up to make sure your path is clear of people and obstructions. Remember this acronym: G.O.A.L. – *Get Out And Look.*
- 3. Back slowly, watching for people, vehicles, or objects entering your path of travel.

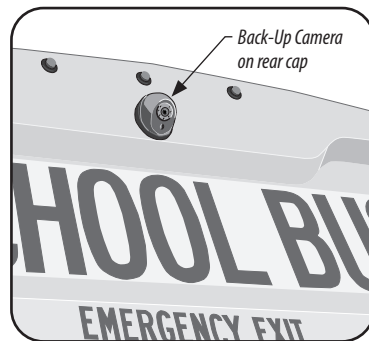


Back Up Camera monitor



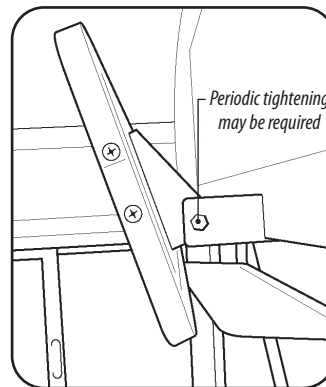
4. Frequently check mirrors and blind spots, scanning from left to right. Check the left blind spot by looking over your left shoulder, check the left side view mirror, check in front of the vehicle, check the rear view mirror, check the back-up camera monitor, check the right side view mirror, check the right blind spot by looking over your right shoulder. Repeat this frequently while backing.

NOTE: Back-up cameras can be convenient by providing a view you normally wouldn't have. They should not, however, be the only view you use when backing up.



Mirrors and Mirrors Adjustment

Inside rearview mirrors can be adjusted by loosening the bolts and nuts in the slotted holes on the mirror brackets. Because this is a friction mount, periodic tightening of these bolts and nuts may be required. Adjust the mirror to give the operator a clear view of the bus interior and the roadway to the rear.

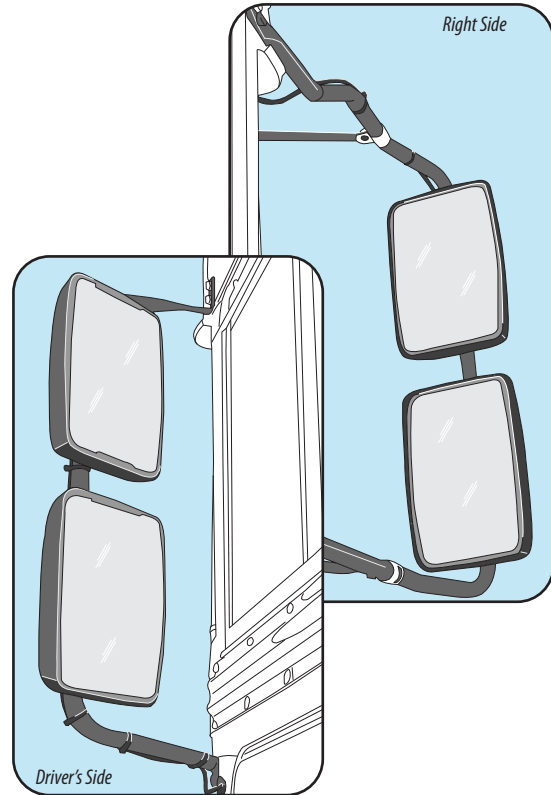


Interior Mirror Bracket



WARNING! *The mirror system on this Blue Bird bus has been designed to meet all field-of-view regulations. However, it is the responsibility of the driver to properly adjust the mirrors to provide adequate safety. Mirrors provide additional visibility and they must be properly adjusted for each driver prior to each trip. Mirrors and backing cameras are not a substitute for proper driver training and caution. Never move the bus until each disembarking passenger is accounted for and clear of the vehicle. Failure to strictly adhere to this procedure can result in serious injury or death.*

The Blue Bird vision is equipped with four external rearview mirrors. The exterior rearview mirrors are available with an array of optional mirrors and brackets. The right side rearview flat mirror and convex mirrors are mounted from the top of the bus, near the top right-hand corner of the windshield. They are positioned to be viewed by the driver through the windshield. The driver's side rearview flat mirror and convex mirrors are also mounted from the top of the bus, near the left-hand corner of the windshield. They are positioned to be viewed by the driver through the driver's side window.





Two hood-mounted crossview mirrors provide view in front of the bus and along each side. The hardware for the fender mounts must be maintained at 20 – 25 Ft lb. (27-34 Nm) torque to minimize vibration.

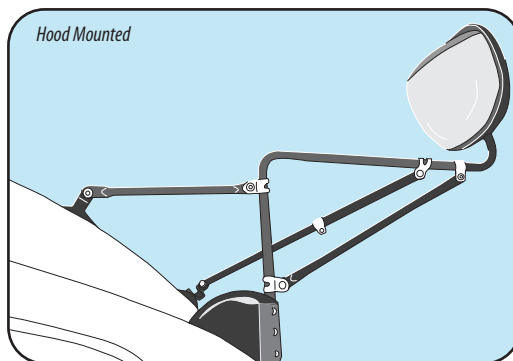


CAUTION! Do not over-torque the mirror mounting hardware.

The outside rearview mirrors are designed to allow the seated driver a comprehensive view of the areas at each side of the bus and to the rear of the bus.



WARNING! There is a “blind spot” directly behind the bus that extends several feet to the rear of the vehicle.





Mirrors must be adjusted for each individual driver of the bus.

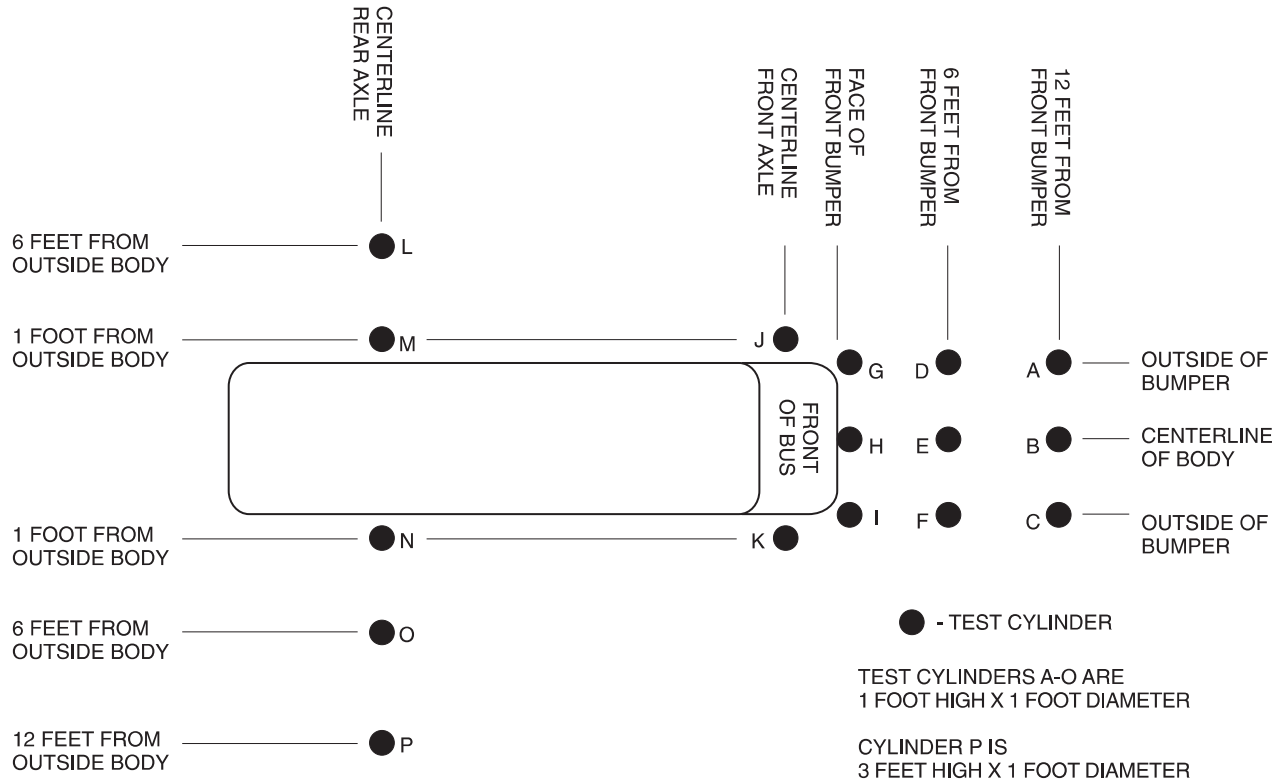
1. Ensure the driver's seat is properly adjusted.
2. Adjust the right-hand flat mirror so that the tops of the right-hand windows are visible in the upper edge of the mirror and the right-hand side of the bus is visible along the vertical, inside edge.
3. Adjust the right-hand convex mirror so that the view in the convex mirror overlaps the view provided by the flat mirror above it. The right-hand side of the bus must be visible in this mirror as well.
4. Adjust the left-hand flat mirror in the same manner as described for the right-hand flat mirror.
5. Adjust the left-hand convex mirror in the same manner as described for the right-hand convex mirror.
6. Adjust the elliptical cross-view mirrors by positioning each mirror so the arrow embossed on the mirror head points directly at the driver's eyes.



7. The final adjustment of the mirror system must be accomplished to provide the seated driver a view consistent with the requirements of FMVSS 111

- The driver, either by direct view or by use of the crossview mirrors must be able to see the entire top surface of the test cylinder in each location as well as the entire cylinder at location "P".
- The driver must be able to see the entire top surface of cylinders "M" and "N" using one of the two rearview mirrors on each side of the bus.
- The driver must have a view of at least 200 feet (60 m) from the surface of the mirror using one of the two rearview mirrors on each side of the bus.
- The elliptical cross-view mirrors should be adjusted so the seated driver is able to see the entire top surface of all cylinders "A" through "O", as well as the entire cylinder at location "P" when they are positioned as shown in the illustration, and not directly visible by the driver.
- The view provided by the elliptical mirrors must overlap the view afforded by the rear view driving mirror system.

All mirrors must be cleaned and adjusted as necessary to provide a safe driving environment. The use of a mild ammonia/water solution is recommended to clean mirrors.





**ENROUTE EMERGENCIES****7-1**

High Voltage Safety	7-2
High Voltage Manual Service Disconnects (MSD)	7-2
Enroute Emergencies	7-4
Using Triangular Hazard Reflectors	7-5
Jacking and Towing	7-6
Towing	7-7
Caging the Park Brakes	7-8
Air Tank Schrader Valve	7-10



DRIVERS HANDBOOK

High Voltage Safety

Emergency Shutdown Procedure

In the event that the vehicle must be shut down immediately, bring the vehicle to a complete stop. While still pressing the service brake pedal, enter Park Mode by engaging the park brake and then switch the ignition key to the “OFF” position. Ensure that the parking brake is engaged and exit the vehicle safely.

High Voltage Manual Service Disconnects (MSD)

The high voltage battery system is equipped with two safety devices to disconnect the high voltage current path. These devices are called Manual Service Disconnects (MSD). They should be left alone unless there is a good reason to remove them.

To disconnect the high voltage batteries, isolating them from the bus, follow these steps.

1. Disconnect the 12V battery (standard group 31) first by removing the ground cable from the battery. The battery compartment is located street side under driver’s window.
2. Remove the shunt portion (front cover) of each MSD to disconnect the High Voltage. This can be done by first pushing in on the orange locking tab centrally located on the black locking handle. While the tab is in the “in” or unlocked position, rotate the black locking handle *down and forward* to the end of travel which will be approximately 90° from the locked position. This will unlock the shunt (front cover) from the housing. Using the black handle, pull the cover off the housing and store in a clean environment for reuse.



High Voltage Manual Service Disconnects (MSD) located on RH (Curb side) under skirt



Note: As you are rotating the black handle down to unlock the cover, you may feel resistance at an intermediate position at approximately 45°. At this stage, the high voltage interlock connection has been broken. Continue to rotate the black handle to 90° to fully unlock the outer housing.

3. Two High Voltage Manual Disconnects (MSD) are on every bus. These disconnects are located on the curb side, mounted to the battery packs. Be sure to remove both (2) MSD shunt/covers to completely disconnect the high voltage battery packs from the bus electrical system.



WARNING! *The high voltage system will remain energized for 10 minutes after the MSD's have been pulled due to capacitance.*

To reinstall the MSD: push the shunt/cover firmly in place while the black locking handle is on the forward or unlocked position. When the shunt/cover is firmly in place rotate the black locking handle rearward until the orange locking button snaps into place, locking the handle. Pull on the shunt/cover to ensure it is securely locked into position. The 12V battery must be disconnected while the MSD is being reinstalled. Reconnect the 12V battery last.

Note: During normal maintenance, both MSD can be left in place.



WARNING! *The high voltage system has no user serviceable parts. Do not disassemble, remove or replace high voltage components, cables or connectors. High voltage cables are typically colored orange for easy identification.*



DRIVERS HANDBOOK

Enroute Emergencies

In the case of any enroute emergency, the Driver must ensure the safety of the passengers before performing any procedure on the bus. Safely maneuver the bus to the nearest safe location; a parking lot or emergency lane if possible, and take appropriate measures to arrange for pick up of the passengers and notify public safety officials.



WARNING! *No one should attempt to transport passengers without thorough knowledge of the controls and safety equipment. See the Driver Orientation and Pretrip Inspection sections of this manual, and thoroughly familiarize yourself with the locations of all emergency equipment.*

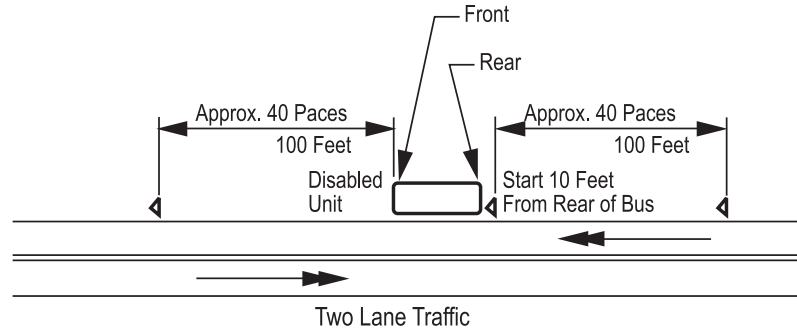
It is assumed that the Driver will seek immediate assistance of qualified service technicians in the event of any mechanical failure. The information in this section is only to provide some information which may be helpful to service technicians rendering assistance.



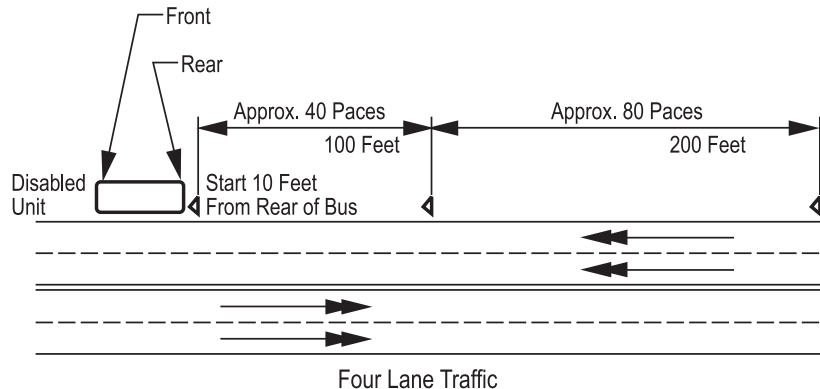
Using Triangular Hazard Reflectors

In the event that the bus must be parked in an emergency lane or road shoulder, deploy the triangular roadside hazard reflectors as follows:

On a two-lane roadway, place a triangular marker 100 feet (about 40 paces) to the front of the vehicle, with reflective side facing oncoming traffic. Place another triangular marker 100 feet (about 40 paces) to the rear of the vehicle, with the reflective side toward overtaking traffic.



On a four-lane roadway, place one triangular marker 100 feet (about 40 paces) to the rear of the vehicle. Place another triangular marker 200 feet (about 80 paces) from the first marker (300 feet [91 m] behind the vehicle). The reflective side should be facing overtaking traffic.



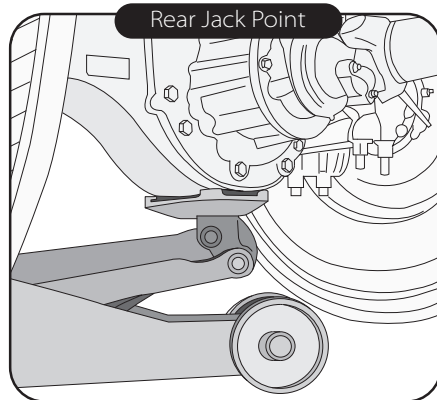
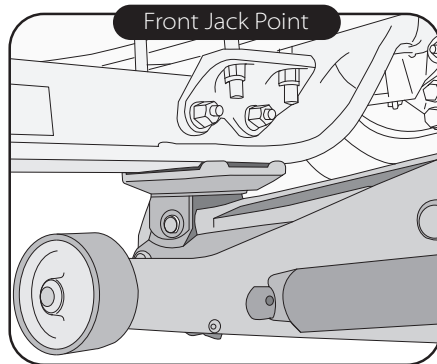


Jacking and Towing



WARNING! *Proper jacking procedures and basic safety measures must be observed to ensure the safety of personnel while working under the bus. Always check the serviceability of any lifting equipment prior to use. Ensure that the lifting device is of sufficient strength to handle the bus, and that the surface provides the necessary firmness to support the weight of the bus concentrated on the footprint of the jack. Never move under a bus supported only by a hydraulic jack.*

1. Park the bus on a flat, level surface of sufficient firmness to support the jack.
2. Chock the wheels in both directions.
3. Use only jacks and jack stands of sufficient capacity to support the bus. Following the jack manufacturer's recommendations, place the jack securely under the axle at the spring or suspension beam, nearest the tire/wheel to be repaired.
4. Jack the bus only to the height necessary to service.
5. Support the bus with blocks or jack stands under the frame rails.





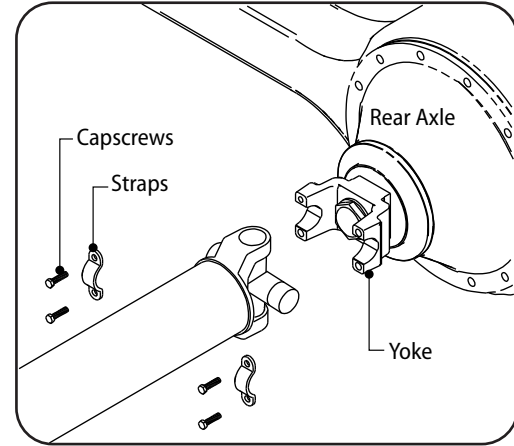
Towing

If the bus is towed with the rear wheels on the road, the driveshaft must be removed in order to prevent the drive motor input shaft from turning which could damage the motor. This is accomplished by removing the rearmost driveshaft. Also, on buses equipped with air brakes, if full normal air pressure cannot be provided to the air system, the park brakes must be mechanically caged to prevent their engagement. See **Caging the Spring Brakes**.

1. Apply the parking brake and chock the wheels while preparing the vehicle for towing.

WARNING! On units with hydraulic brakes the parking brake becomes ineffective when the driveshaft is removed which could allow the bus to roll if the wheels are not chocked. **CHOCK THE WHEELS** to avoid personal injury or death.

2. From under the bus locate the driveshaft behind the axle housing for removal. Remove the capscrews that secure the yoke straps at the forward universal joint.



WARNING! Do not secure the driveshaft to any High Voltage or Low Voltage wiring, cooling hoses or brake lines.



3. Using a pry bar, carefully apply linear pressure to the driveline allowing the slip joint to provide clearance from the universal joint. Carefully lower the driveline allowing it to rest in the driveline guard.
4. Wrap the universal joint on forward driveline with tape in order to retain bearings.
5. Moving to the rear joint at the axle housing differential, remove the capscrews that secure the yoke straps to the hub. Carefully lower the driveline removing it from the driveline guard.
6. Wrap the universal joint on the end of the removed driveline with tape in order to retain bearings.
7. Store driveline in rear of bus in preparation for towing.
8. After tow truck has been hooked to bus, release the parking brake and remove wheel chocks.
9. Discard removed capscrews and straps. New capscrews and straps will be required for reinstallation of driveline. Torque capscrews to 45-60 ft.lbs (61-81 Nm).

Caging the Park Brakes

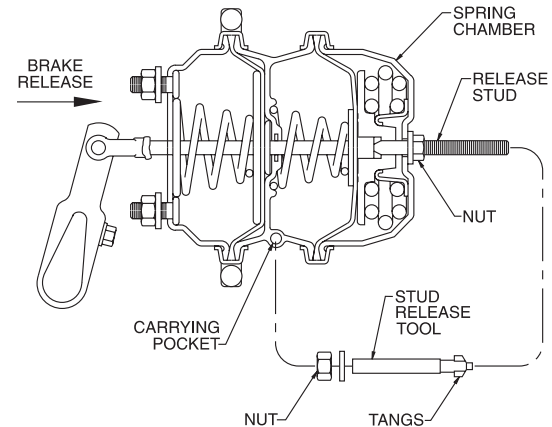
If the bus is equipped with air brakes, and if full working air pressure is not present in the system, the park brakes must be mechanically caged before the vehicle can be towed. Proceed as follows:



WARNING! *Caging the spring brakes disables the parking brake. Ensure that the bus is completely secured against rolling by wheel chocks before caging the spring brakes.*



1. On each of the rear combination brake chambers, a special release stud tool is carried in a storage socket cast into the body of the chamber. Remove the nut and washer from the end of the release stud tool, and remove the tool from its socket.
2. Remove the rubber dust cap from the access hole in the upper end of the spring brake chamber. Insert the toggle end of the release stud tool into the access hole. Be sure that the tapered end of the tool has entered the hole in the piston inside the chamber. Insert the tool until it bottoms.
3. Rotate the release stud tool a quarter turn clockwise and pull outward, to engage the toggle end with the piston. While holding the bolt in its engaged position, install the washer and nut onto the end of the tool. Turn the nut down against the flat washer until finger tight.
4. Using a 3/4" hand wrench, (do not use an impact-type wrench), turn the release nut clockwise until the internal spring is fully caged.
5. Repeat the procedure for the spring brake chamber on the opposite side of the bus. The spring brakes are now released, having their springs compressed by the release bolts.
6. The bus is prepared for towing. The bus may be equipped with optional tow hooks or tow eyes, located just inside the access openings of the front and/or rear bumper.





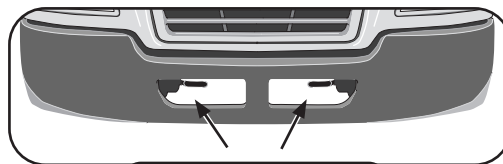
WARNING! *The tow hooks are designed for horizontal pulling only; not for lifting. Never attempt to lift the bus by the tow hooks*

Air Tank Schrader Valve

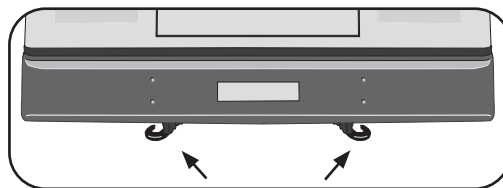
The supply (wet tank), primary (rear brake reservoir), and secondary (front brake reservoir) air tanks are mounted under the bus, outboard of the chassis frame rails between the axles.

The supply tank is fitted with a Schrader valve to allow manual pressurization of the system for service or testing purposes by using a common air hose, without having to charge the system by running the compressor.

If a service truck rendering assistant is equipped with compressed air, the Schrader valve can be used to pressurize the air brake system, so that its spring brakes can be released in order to move the bus.



Front Tow Hooks



Rear Tow Hooks



Schrader Valve



BUS/COMPONENT IDENTIFICATION

8-1

Product Identification Information8-2

 Federal Vehicle Compliance Label.....8-2

 Body Serial Number and Service Number Plate8-2

 Axle Record and Chassis Service Number Label.....8-2

 Vehicle Identification Number (VIN).....8-3

 Data Plates Reference8-4

VECI Label.....8-4



DRIVERS HANDBOOK

Product Identification Information

Federal Vehicle Compliance Label

This label certifies that the vehicle complies with all applicable Federal Motor Vehicle Safety Standards (FMVSS) in effect on the date of manufacture. Do not remove, deface or cover this decal.

Body Serial Number and Service Number Plate

Also located above the windshield on the front upper panel. This plate contains the Body Number and several specifications pertaining to the body configuration. The Body Number is a very important reference whenever ordering parts or seeking service information.

Axle Record and Chassis Service Number Label

These labels are located on the front headlining panel above the entrance door. It contains the serial numbers of the bus chassis and several major chassis components. These numbers are important references when ordering parts or seeking bus-specific service information from your Blue Bird dealer.

MANUFACTURED BY
BLUE BIRD BODY COMPANY

DATE OF MFR. **XX/XX**

SUITABLE TIRE - RIM CHOICE

GVWR: **XXXXX** KG (**XXXXX** LB)
GAWR : FRONT **XXXXX** KG (**XXXXX** LB) WITH **XXXXXXXX** TIRES
XXXXXXXX RIMS. AT **XXX** KPA (**XXX** PSI) COLD SINGLE
GAWR : REAR **XXXXX** KG (**XXXXX** LB) WITH **XXXXXXXX** TIRES
XXXXXXXX RIMS. AT **XXX** KPA (**XXX** PSI) COLD DUAL

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S.
FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN
EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

V.I.N. **XXXXXXXXXXXXXXXXXXXX** TYPE CLASSIFICATION **XXXXXX XXX**

Federal Vehicle Compliance Label



BLUE BIRD

**BLUE BIRD
FORT VALLEY**

FORT VALLEY, GEORGIA

BODY NO.

MODEL YEAR

MFG. BODY DATE

STATE / PROVINCE

EQUIPPED CAPACITY

SPECIFICATION YEAR

MAX. DESIGN CAPACITY

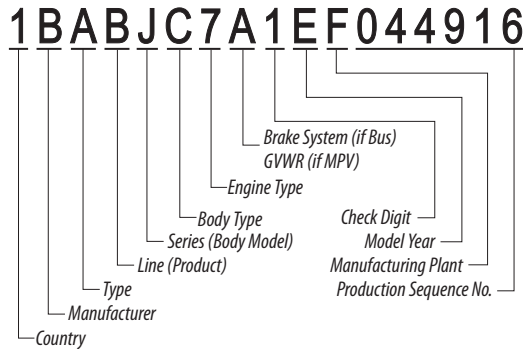
BODY SERVICE NO.

Body Serial & Service Number Plate



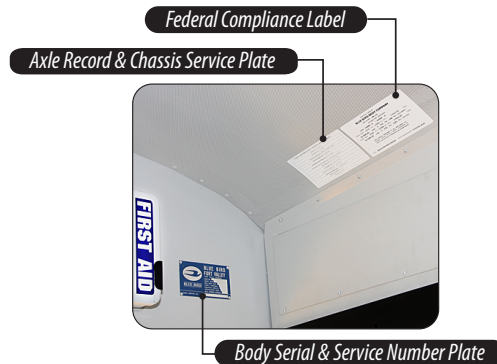
Vehicle Identification Number (VIN)

The Vehicle Identification Number Plate is located on the driver's side forward dash panel. It is visible through the driver's side windshield lower corner area near the roadside exterior rearview mirror. The VIN number for your bus may also be obtained through the Customer Access website at <https://vantage.blue-bird.com> by entering your vehicle body number. The VIN number is used by state, provincial, and federal government as a unique means of identifying each vehicle. It will also be used by Blue Bird for identification purposes and the manufacturer's certificate of origin. See sample below for VIN identifiers.



FURNISH INFORMATION BELOW WHEN ORDERING PARTS	
BODY NO:	
CHASSIS NO:	
CHASSIS SERVICE NO:	
ENGINE SERIAL NO:	
TRANSMISSION SERIAL NO:	
TRANSMISSION TCM SERIAL NO:	
DPF SERIAL NO:	
SCR SERIAL NO:	
FRONT AXLE SERIAL NO:	
REAR AXLE SERIAL NO:	
REAR AXLE RATIO:	
IGN KEY NO:	

Axle Record & Chassis Service






Data Plates Reference

The illustrations below replicate the data fields on the Chassis label and Body data plates. To create a convenient reference, fill in the data from the plates of the bus in which this manual is stored. This information is essential when ordering parts or obtaining service information.

FURNISH INFORMATION BELOW WHEN ORDERING PARTS	
BODY NO:	
CHASSIS NO:	
CHASSIS SERVICE NO:	
ENGINE SERIAL NO:	
TRANSMISSION SERIAL NO:	
TRANSMISSION TCM SERIAL NO:	
DPF SERIAL NO:	
SCR SERIAL NO:	
FRONT AXLE SERIAL NO:	
REAR AXLE SERIAL NO:	
REAR AXLE RATIO:	
IGN KEY NO:	


BLUE BIRD

**BLUE BIRD
FORT VALLEY**
FORT VALLEY, GEORGIA
BODY NO.
MODEL YEAR
MFG. BODY DATE
STATE / PROVINCE
EQUIPPED CAPACITY
SPECIFICATION YEAR
MAX. DESIGN CAPACITY

BODY SERVICE NO.

VECI Label


A Vehicle Emission Control Information (VECI) label is located on the header above the entrance door. This label defines Emission Control Identifiers associated with the tires installed on your bus. New EPA Greenhouse Gas Emission Standards require Low Rolling Resistance tires to be installed on Blue Bird buses. In order to conform to the original certified vehicle configuration, any tire(s) replaced or installed after initial manufacture date must meet the standard set by the emission control identifier. The Emission Control Identifier portion of the VECI label will list which tires (front, rear, or all) meet the new low rolling resistance requirements.



The Identifiers are defined below.

- **LRRR** – Low Rolling Resistance All tires - means the average of the Coefficient of Rolling Resistance (CRR) values of the front and rear originally-installed tires is ≤ 7.7 kg/metric ton and the CRR values of both the front and rear are ≤ 7.7 kg/metric ton
- **LRRS** –Low Rolling Resistance Steer tires - means the average of the CRR values of the front and rear originally-installed tires is ≤ 7.7 kg/metric ton and the CRR value of the front tires is ≤ 7.7 kg/metric ton but the drive tire CRR value is > 7.7 kg/metric ton
- **LRRD** – Low Rolling Resistance Drive tires - means the average of the CRR values of the front and rear originally-installed tires is ≤ 7.7 kg/metric ton and the CRR value the rear tires is ≤ 7.7 kg/metric ton but the steer tire CRR value is > 7.7 kg/metric ton
- **IF BLANK** – means the average of the CRR values of the front and rear originally-installed tires is > 7.7 kg/metric ton

Blue Bird warrants the tires for a period of two 2 years/24,000 miles/40,000 kilometers, whichever occurs first from date of delivery to the original user. Tires (excluding wear), conform with all U.S. federal emissions regulations at the time of manufacture and they are free of defects in material or workmanship which would cause them not to meet the U.S. federal emissions regulations. The warranties of the tire manufacturers may exceed the minimum U.S. federal emissions regulations. Refer to the tire manufacturers' limited warranty statements for complete warranty coverage by the tire manufacturers.

 BLUE BIRD		VEHICLE EMISSION CONTROL INFORMATION VIN - 1BABDCPA8MXXXXXX	
Date of MFR: XX/20XX		SUB-CATEGORY: Vocational vehicles over 33,000 pounds GVWR VEHICLE FAMILY NAME – MBBB2VOCVEHD	
Emission Control Identifiers: LRRR		THIS VEHICLE COMPLIES WITH U.S. AND CALIFORNIA EPA REGULATIONS FOR MY20XX HEAVY-DUTY ELECTRIC VEHICLES.	
Fuel Type ELECTRIC		THIS VEHICLE WAS CERTIFIED AS AN OTHER BUS UNDER 40 CFR 1037.105(h). NO FUEL-FIRED HEATERS MAY BE INSTALLED.	
		See driver's handbook for proper maintenance of this vehicle.	

Vehicle Emission Control Information (VECI) Label Sample - (Label located above the entrance door.)





CARE & MAINTENANCE

9-1

Seat Belt Inspection And Maintenance	9-2	Windshield Washer & Wiper	9-10
Seat Inspection And Maintenance	9-2	Wiper Assembly Replacement	9-10
Driver's Seat Lubrication	9-3	Fluids & Filters	9-11
Seat Care and Cleaning	9-3	Scheduled Maintenance	9-12
Seat Cushion Removal and Installation		EV Maintenance & Service	9-13
on Non-Convertible Seats	9-4	Necessary Safety Precautions	9-13
Keeping Your Bus Looking New	9-5	Maintenance	9-14
Electric Bus Wash Down	9-6	High Voltage Service or Repair	9-14
Wax	9-7	High Voltage Battery Disposal	9-15
Bus Downtime Treatment	9-8	Tires	9-15



Seat Belt Inspection And Maintenance

Inspect seat belts and their attachments, at least weekly. Check seat belt buckles and adjustability to ensure proper operation. If necessary, lubricate the buckle with a graphite lubricant. When a buckle is found to be inoperable, replace it immediately. If there are any defects in the webbing (i.e., torn or frayed), the seat belt must be replaced immediately to ensure passenger safety. Hand wash webbing with warm water and mild soap. Rinse thoroughly and dry in the shade. Do not bleach or re-dye, because such processing may severely weaken the assembly.



WARNING! *Do not bleach or dye the webbing. Such processing may severely weaken the assembly.*

Seat Inspection And Maintenance

Blue Bird seats are built to meet Federal Motor Vehicle Safety Standards. In order to provide a greater margin of safety during passenger transportation, follow these guidelines:

- Inspect and, if necessary, tighten seat leg and wall side mounting bolts every 90 days.
- Inspect and, if necessary, tighten cushion attachments weekly.
- Inspect upholstery for cuts and tears every 90 days. If upholstery is torn, remove it by taking out the staples at the bottom front of seat back or bottom of cushion and pulling the cover away. For installation of new cover, reverse this procedure.
- School bus seats are equipped with a special foam back pad. If the pad becomes damaged, it should be replaced with an approved part. Aftermarket suppliers should be checked for compliance with Federal standards.



Driver's Seat Lubrication

Moving parts of the driver's seat require lubrication for ease of operation, as well as longevity of the seat and prevention of excessive wear.

Currently available is white lithium-based grease in an aerosol can. It gives excellent coverage when carefully directed into moving part joints. The very light coating of lubrication provided by aerosol-carried solvent-type solution works very well for penetrating into a joint and cleaning away dirt, but it should only be depended on for lubrication if it is applied frequently. A common 10W30 or 10W40 motor oil will provide good lubrication.

Remember that all moving part joints, tilt pivots, slide forward/back adjustment, and vertical motion pivots (four in all) require lubrication. This should be done every six months or 6,000 miles (9,656 km), whichever occurs first. The use of lithium-based grease in aerosol form is recommended.

Seat Care and Cleaning

It is imperative that the interior of the bus be kept clean; seats are an important part of this maintenance. Regular cleaning and care will prolong the life of the seats and improve the general appearance of the bus.

Everyday dirt and soil. Most everyday soil and dirt may be removed with a soap and water solution. If the stain is persistent, a stiff bristle brush may be used. Fabric covered seats should be rinsed with clean water after the stain is removed.

Paint, tar, and asphalt. Remove the stain immediately using a damp cloth and kerosene. Rub gently, using small strokes. Rinse thoroughly. This type of stain may become permanent if not cleaned immediately.

Nail polish and lacquer based stains. Soak up as much as possible with dry cloth immediately. Any remaining stain may be removed with a non-flammable cleaning fluid such as "Tuff Stuff™" or "Armor All™" cleanser. Rinse thoroughly with clean water.

Gum, grease, and shoe polish. Remove as much as possible immediately. If left for any length of time, shoe polish will stain permanently. Clean any remaining stain with "Tuff Stuff™" or "Armor All™" cleanser.

Ink. Remove stain immediately using a damp cloth and alcohol.



Seat Cushion Removal and Installation on Non-Convertible Seats

(for instructions on NextGen Seats, see *Passenger Area chapter*)



WARNING! *If seat cushions are removed for maintenance, they must be reinstalled using the following instructions.*

Failure to comply with these instructions could result in injury from unattached seat cushions in the event of an accident.

1. To remove the seat cushion. Loosen and remove two Torx screws from the flanges at the front of the seat frame.
2. Lift the forward edge of the cushion 2 to 3 inches (5 to 8 cm) and pull forward.
3. To reinstall the seat cushion reverse the above procedure.



Keeping Your Bus Looking New

Before cleaning and waxing your bus a few basic rules should be followed:

- Start your project with the bus out of direct sunlight.
- Make sure the paint is not warm to the touch before applying any cleaning product or wax.
- Spray your bus with ample amounts of water before washing. Use the water to spray off dirt and other contaminants that will scratch the surface.
- Wash and rinse in sections so the wash soap doesn't dry before being rinsed off.
- Drying your bus after washing is necessary to prevent water spots – mineral deposits that etch the outline of a drop of water into your vehicle's paint.
- Read the manufacturer's directions on all products used prior to use.

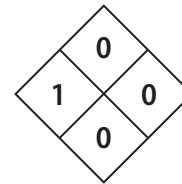
In order to preserve your vehicle's finish wash your bus at least every three months or sooner if needed.

- Wash the vehicle in lukewarm or cold water.
- Use a lamb's-wool or paint-safe microfiber washing mitt to prevent scratching the surface.
- Do not use hot water or wash in the direct rays of the sun.
- Do not use strong soap or chemical detergents.

Only cleaners with an HMIS rating of 1,0,0,0 or less should be used to clean the buses. This HMIS rating is available on all product MSDS.

Hazard Rating (NFPA/HMIS)

Health = 1 Reactivity = 0
Fire = 0 Special = 0



Rating Scale

0 = Minimum 1 = Slight
2 = Moderate 3 = Serious
4 = Severe



To wash units, Blue Bird Body Co. recommends Bird Bath™ Bus Wash & Wax Concentrate, available from authorized Blue Bird Dealers. Bus Wash & Wax is a concentrated vehicle wash (rated triple-zero) that is recommended to be mixed at up to a 20/1 ratio for new and reconditioned buses.



CAUTION! *Pressure washing may cause damage to finish. Pre-test pressure washer on a similar surface before applying pressure and chemicals to your vehicle. Pressure washers that re-circulate should filter the water to remove abrasive grit.*

Magnesium chloride, calcium chloride and other salts, ice melting agents, road oil and tar, tree sap, bird droppings, chemicals from industrial chimneys, and other foreign matter may damage vehicle finishes if allowed to remain on painted surfaces. Prompt washing may not completely remove all of these deposits. Additional cleaners may be needed. When using chemical cleaners developed for this purpose, be certain they are safe for use on painted surfaces.

Electric Bus Wash Down

All components mounted that are exposed to the environment are rated Ingress Protection Level 65 (IP65) or higher. Exposed components are protected from dust and protected against water projected from a nozzle. Although these components are wash-down safe, best practice is to avoid any direct water spray from hoses or pressure washers directly onto any air intakes, electrical components, enclosures or connectors.



Wax

Wax your bus at least once every twelve months or sooner as needed. Use a nonabrasive wax. This is required to remove accumulated residue and eliminate any weathered appearance. It is essential that units are not waxed in direct sunlight.

Products labeled cleaner wax or polish should not be used as they are somewhat abrasive and can actually remove some paint from the surface of the vehicle. Care should be taken when choosing a wax to make sure that it does not contain abrasive materials i.e.; calcium carbonate, pumice, plastic beads, etc.

- Before waxing, thoroughly wash and dry the bus.
- Never wash or wax a bus in direct sunlight or if the paint is hot to the touch. The sun can soften the paint and make it more susceptible to scratching.
- Use a lamb's-wool mitt for washing and soft cotton rags or microfiber towels for waxing. Do not use rags for waxing; they can trap dirt and scratch the finish. Synthetic fabrics and brushes can also scratch the finish.
- Wash and wax in small sections. This saves time and if the wax stays on too long, it can be difficult to remove.

Approved Waxes

- Meguiars Gold Class Liquid Wax
- Meguiars NXT Generation® Tech Wax® 2.0 Paste or Liquid
- Black Magic Wet Shine Liquid Wax
- Turtle Wax Carnauba Car Wax T-6
- Turtle Wax 1 Step Wax & Dry T-9
- Nu Finish NFP-80



Bus Downtime Treatment

During periods of bus downtime, Blue Bird Body Co. recommends the application of Bird Bath™ Bus Guard Protectant available from Blue Bird authorized dealers to protect exterior surfaces. Bus Guard is a triple-zero product that, when properly applied, protects against harmful UV rays and other damaging environmental conditions. For sufficient protection, see product instructions for the proper application requirement.

Owners should refer to the limited warranty statement supplied with the vehicle regarding their responsibilities for care and maintenance of the vehicle during the warranty period.

Floor Covering. Regular cleaning and care will prolong the life of floor covering and improve the general appearance. Floor coverings should be swept daily and mopped weekly with a mild detergent and water. Do not use floor sweeping compounds, floor wax, Armor-All type products, harsh detergents, or solvent-based cleaning agents on the flooring or step treads. Solvent-based products will permanently stain the flooring. Be sure to remove dirt, pencils, paper, and any other debris that may cause the emergency door to seal improperly. Do not use a water hose or excessive amounts of water. Damage to flooring and sensitive electronics in the driver's area can occur.



CAUTION! *Petroleum products, such as oil and grease, quickly deteriorate the floor covering. These types of products should be removed from the surface as soon as possible. Continuous care must be exercised in the stepwell area, where foreign objects can create a safety hazard. The accumulation of dirt and foreign material in the stepwell area creates a hazard for passengers and could prevent the doors from operating properly. Ensure that screws for floor trims and aisle trims are seated tightly.*



Hinges, Window Slides, Latches. Light household or automotive spray lubricants such as WD-40 or silicone based lubricants may be applied as needed. Household glass cleaners may be applied to window glass.

Seats and Upholstery. Mild soap and a damp rag may be used for routine cleaning. Household or automotive cleaners formulated for automotive vinyls may be used to clean stains from the passenger seat cushions. Avoid cleaners or coatings which leave the surfaces slippery.

Under Body Cleaning. Flush the complete underside of your vehicle frequently. Keep body and door drain holes free from packed dirt.



CAUTION! *Use care when using a power washer to clean the driveline, especially the driveshaft and interfacing components. The high-pressure fluid could penetrate the sealed parts of the drive train and cause damage.*

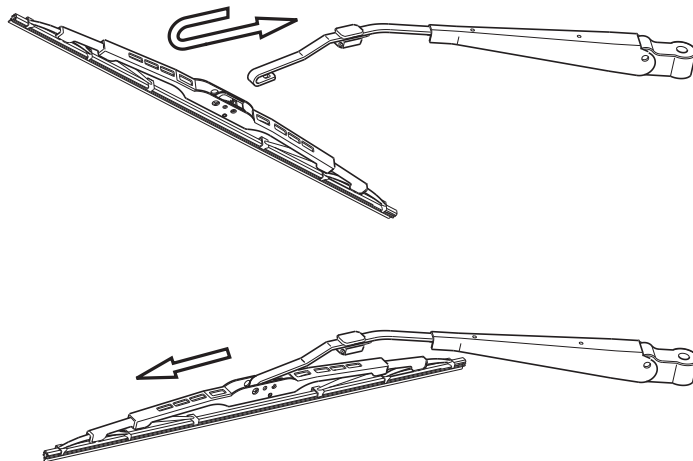


Windshield Washer & Wiper

Periodically check the windshield washer solution reservoir, located under the hood on the right hand frame rail, just forward of the tire. Be sure there is an adequate supply of fluid at all times. The solution used is a 50/50 mixture of methanol and water.

Wiper Assembly Replacement

Remove the wiper blade by lifting the wiper arm off the windshield and pulling back on the wiper blade assembly until it unhooks from the wiper arm. Assemble the new wiper blade assembly to the wiper arm as shown in the illustration. Ensure that the blade assembly is locked into position before putting into service.





Fluids & Filters

Fluids & Filters, Vision EV				
Fluid	Type	Capacity	Filter	Comments
Coolant	OAT Long Life Coolant Orange (do not mix) 50/50 Mix Deionized Water Coolant	Primary system: 18.5 Gallons (70 liters) RH Reservoir	Duramax P171276 Spin-On Filter	Factory Fill: Dex-Cool 50/50 Premix (Orange) Use distilled or filtered water. Replace filter every five years. Check fluid level once a year or every 20,000 mi (32,000 km) Drain & refill system every 5 years or 150,000 mi (240,000 km)
		Battery packs: 7.5 Gallons (28.4 liters) LH Reservoir		
Rear Axle				
Axle Oil (23060SH)	Hypoid Gear Oil	26.2 pints (12.4 liters)		See Rear Axle Viscosity Chart for appropriate viscosity.
Drive Shaft	Lithium-Based Grease			Use NLGI Grade 2 and ASTM D4950 LB Specification
Front Axle				
Front Wheel Bearing	Hypoid Gear Oil	Fill using sight glass indicator		Use same viscosity & oil type as Rear Axle
Brake System				
*Brake Fluid	DOT 3		Fluid BB 0067254	DOT 3 and DOT 5 must not be mixed. If brake system becomes contaminated with DOT 5, the system be flushed, and major components may require replacement.
Brake Interlock	DOT 5		Fluid BB 1940881	On unit with hydraulic brakes and brake interlock feature
Hydraulic System				
Hydraulic Steering	Dexron III™	5 quarts (4.7 liters) approx.		Check every 12 months or 20,000 mi (32,000 km)



Fluids & Filters, Vision EV

Pneumatic System				
Air Compressor	Use API Specification CJ-4 / CI-4 / CF-4 / CF-2 / CF-CD / SL / SJ / SH engine oil with a viscosity rating 15W-40	3.2 quarts (3.0 liters)		Change oil first 6,000 mi (10,000 km) or 6 months whichever comes first. Then every 18,000 mi (30,000 km) or 12 months, whichever comes first. Check oil level every 10,000 mi (16,000 km). Wash air intake filter in warm soapy water every 10,000 mi (16,000 km). Allow to completely dry before reinstalling.
AD-9 Air Dryer Element			BB 04311908	<i>On units with air brakes.</i>
AD-IP Air Dryer Element			BB 00114579	<i>On units with air brakes.</i>
Other				
Windshield Washer Fluid		1.05 gallons (3.9 liters)		

Scheduled Maintenance

A regularly-scheduled maintenance regimen will ensure that the bus you operate is always ready for safe, reliable, and efficient duty. Although it is assumed that maintenance tasks will be performed by your operation's Service Technician(s,) not by the Driver, the information in this chapter is provided for convenience, given that the Drivers Handbook will usually reside with the bus.

The Driver, however, is the individual most intimately familiar with the normal sounds, behaviors, and performance of the vehicle. The Driver should be alert to any unusual or changing conditions and bring them to the attention of the service staff. A few Notes pages are provided at the back of this handbook for that purpose.

For more comprehensive service and maintenance information, the Service Technician should obtain and become familiar with the current Blue Bird Service Manual for the particular model(s) being serviced.



EV Maintenance & Service

Necessary Safety Precautions

If it is necessary to weld or plasma cut anything on the bus; the 12V battery will need to be disconnected first and then both High Voltage Manual Service Disconnects (MSD) must be disconnected. You should not disconnect MSD unless you plan to weld or plasma cut. During normal maintenance, MSD can be left in place.



WARNING! *Remove the key from the ignition before working on or under the bus to prevent unintentional system engagement.*

As standard practice, disconnect the 12V battery before performing any and electrical work. Do not disconnect any orange cables or connectors on the vehicle. The orange cables indicate High Voltage. Training is needed to perform service on high voltage components safely. Before any welding, cutting or drilling, be sure to inspect what is on the opposite side of the metal. Be cautious when welding to ensure hot metal does not melt wire insulation in the surrounding area especially on the opposite side of the work surface.

Surfaces with High Voltage under or close to the sheet metal are marked with a warning sticker. These surfaces in particular should not be welded, drilled or cut into because of the High Voltage components directly behind the sheet metal. These panels must be removed to be modified.



Maintenance

The maintenance interval for chassis components are in the Service Manual available through your Blue Bird dealer and should be followed by your service technician. An additional maintenance item that needs to be monitored is the coolant level for the EV drive system cooling loop. Regular maintenance consists of a visual inspection of the cooling system checking for any damage or coolant leaks and the coolant level. If the level is low, coolant can be added through the reservoir cap. System capacities are noted in the *Fluids and Filters* Table in this chapter. The system should be filled with Dex-Cool (orange) that is “safe for aluminum blocks” prepared in a 50/50 blend of coolant and distilled water. Do not mix different types of coolant. The system must be drained and flushed anytime the coolant type is changed. Bleed screws are located on the radiator end caps to aid in removing trapped air in the system.

High Voltage Service or Repair

When the bus requires service or repair to the electric drive and high voltage systems, contact your dealer. In the event of an unexpected loss of power, unexpected driving behavior or the vehicle fails to turn on, contact your service provider for assistance.

**High Voltage Battery Disposal**

The lithium drivetrain batteries on these buses are designed to be recycled. Due to their NMC chemistry, they usually have a positive value to recyclers unlike many other lithium variants. Contact a recycling center in your area to find out where you can take the NMC batteries to be recycled.

Tires

In order to conform to the original certified vehicle configuration, any tire(s) replaced or installed after initial manufacture date must meet the standard set by the emission control identifier. Tire inflation pressure must not exceed the specifications of the tire and/or wheel/rim manufacturer for the specific load, speed and application. The inflation pressure embossed on the tire sidewall may not take into consideration the wheel/rim capacities. Tires should not be inflated above the pressure listed on the Federal Certification plate without consulting your tire/wheel distributor.





GENERAL SPECIFICATIONS

10-1

Regarding Modifications	10-2	Main Drive Motor	10-10	Lights	10-14
Dimensions	10-5	Main Drive Motor Inverter	10-10	Mirrors	10-14
General Specification, Chassis	10-6	Message Display Center	10-10	Paint	10-15
Air Compressor	10-6	Pedestrian Alert System		Panels, Exterior & Interior	10-16
Axle & Suspension, Front	10-6	<i>(Noise Generator)</i>	10-10	Reflectors	10-16
Axle & Suspension, Rear	10-6	Steering	10-10	Rubrails	10-17
Batteries	10-6	Tires	10-10	Safety Equipment	10-17
Braking System	10-7	Tow Hooks or Tow Eyes	10-11	Seats	10-17
Bumpers	10-7	Wheels	10-11	Stepwell	10-18
Charger	10-7	Wiring	10-11	Stop Arm, Crossing Arm	10-18
Controls	10-8	General Specification, Body	10-11	Sun Visor	10-18
Coolant A/C Compressor	10-8	Back-Up Camera	10-11	Switch Panel	10-18
Coolant Water Heater	10-8	Emergency Doors	10-12	Ventilation	10-18
Cooling Systems	10-8	Entrance Doors	10-12	Windows	10-19
DC to DC Converter	10-8	Electrical	10-12	Windshield	10-19
Frame, Chassis	10-9	Fans (optional)	10-12	Windshield Wipers	10-19
Horn	10-9	Floor	10-13	Wiring	10-19
Instruments / Gauges	10-9	Heater/Defroster	10-13	12 Volt Bulk Fuses	10-20
LED Warnings / Telltale Indicators .	10-9	Insulation	10-13		
Manual Service Disconnect (MSD) .	10-9	Lettering	10-13		



Regarding Modifications

Blue Bird Body Company offers many items as standard and optional equipment to meet federal, state, and local specifications and individual customer requirements. This includes, but is not necessarily limited to, stop arms, crossing guards, warning lights, warning light monitors, mirrors, first aid kits, fire extinguishers, warning reflectors, fuses, directional and brake lights, warning buzzers, security/vandal locks, emergency exits, and seat belts.

Emergency equipment must be checked daily for proper operation. It is the driver's responsibility to report any damage to qualified service technicians, and that the condition be corrected before transporting passengers.

Those interested in modifications of this vehicle should consult the Blue Bird Service Engineering Department for a more complete understanding of this vehicle. Any modifications are the responsibility of the entity making those modifications.

Vehicle alterations, which may cause non-conformance with the Emission Control and/or Federal Motor Vehicle Safety Standards (FMVSS) and/or Canada Motor Vehicle Safety Regulations and/or Canada Motor Vehicle Safety Standards, are expressly not authorized by Blue Bird Body Company.

ATTENTION: Installation of a fuel-fired heater in this vehicle is prohibited by California Air Resources Board (CARB).

Installing a non-CARB approved air conditioning system on this vehicle would cause this vehicle to be in a non-CARB certified configuration.

It is the responsibility of the entity undertaking the modification of this product to ascertain compliance of the modified vehicle with any and all applicable regulations.

The entity completing modification of this product is responsible to certify that all applicable regulations are met.

In order to certify a modified vehicle, the entity or upfitter must be a licensed vehicle manufacturer or obtain the services of a licensed vehicle manufacturer for that purpose.



Specifically, Blue Bird Body Company does not authorize any modifications including the following:

- Front or rear suspensions
- Wheelbase length
- Body or chassis crossmembers
- Frame rail flanges
- Cooling system nor installation of any equipment or component that may obstruct the flow of air into, around or from the cooling system
- Addition of any equipment or component nearer than 2 inches (51 mm) to the battery packs, rotating components or “jounce” movement of driveline components.



WARNING! *Vehicle alterations, which may cause non-conformance with the Emission Control and/or Federal Motor Vehicle Safety Standards (FMVSS), are expressly not authorized by Blue Bird Company. It is the responsibility of the entity undertaking the modification of this product to ascertain compliance with all applicable regulations. Any modifications are the responsibility of the entity making those modifications. Modification must be accomplished in accordance with strict government standards. The entity completing modification of this product must certify that all applicable regulations are met. To certify a modified vehicle, the entity must be a licensed vehicle manufacturer, or obtain the services of a licensed vehicle manufacturer for that purpose. Specifically, Blue Bird does not authorize the following modifications.*

For the terms of the Limited Warranty of this Blue Bird product, refer to the Warranty certificate provided in the owner's documents that came with the vehicle.



In addition to the safety issues involved in the modification of the unit, any “unauthorized” modification may adversely affect the warranty of this product by Blue Bird Body Co.



CAUTION! *All Blue Bird products are certified to meet or exceed all applicable motor vehicle regulations and standards in the “as purchased” configuration. Any modifications are the responsibility of the entity making those modifications. Blue Bird engineering does not authorize any modification of the vehicle.*

The complete line of Blue Bird Service Parts is available from your Blue Bird Dealer. The use of original Blue Bird replacement parts and components will help ensure that your Blue Bird remains true to its original design, best preserving performance, efficiency, and safety.

For replacement parts...

Contact your local authorized Blue Bird Dealer.



Dimensions

The dimensions shown exclude exterior mirrors, marker and signal lights, bumpers, fender skirts, washers, wipers, ad frames and rub rail; and are taken under static conditions at design height. Overall maximum height varies from 120" to 124" (3.05 to 3.15 m) depending upon choice of tires, suspension system, and body model. Add 3" (7.6 cm) for roof vents. Rear bumper adds 1.25" (3.18 cm) to overall body length. Front bumper adds 2" (5 cm) to overall body length.

Width:	96" (2.4 m)	Front Door:	27" (68.5 cm) wide, 78" (198 cm) high
Interior Width:	90 3/4" (2.3 m)	Rear Emergency Door:	52.5" (133.3 cm) x 37.7" (95.8 cm)
Height:	127" (3.2 m)	Wheel Cut:	50° (nominal)
Height, with Air Conditioning:	Add 16" (40.6 cm)	Tire Size:	11R22.5
Skirt Length:	16 3/4" (42.5 cm)	Front Overhang:	44.75" (1.13 m) including bumper
Interior Headroom:	77" (1.95 m)		

Dimensions & Payload Weight (standard equipment)

WHEELBASE	BODY MODEL	CAPACITY	PAYLOAD LB (KG)	OVERALL LENGTH INCHES (METERS)	REAR OVERHANG INCHES (METERS)	TURN RADIUS CURB-TO-CURB FT-IN (METERS)	TURN RADIUS WALL-TO-WALL FT-IN (METERS)
252"	BBCV3011	66	8070 lb (3660 kg)	442.29" (11.23 m)	144.29" (3.66 m)	33'-10" (10.31 m)	34'-5" (10.49 m)
273"	BBCV3303	72	8790 lb (3987 kg)	470.29" (11.95 m)	151.29" (3.84 m)	35'-3" (10.74 m)	36'-6" (11.12 m)
273"	BBCV3310	77	9390 lb (4259 kg)	477.29" (12.12 m)	158.29" (4.02 m)	35'-3" (10.74 m)	36'-6" (11.12 m)

Pupil weight @ 120 lb (54.4 kg) each. Driver @ 150 lb (68 kg).

Approximate curb & total weights are based on standard equipment units. Optional equipment may significantly increase these estimated weights.



DRIVERS HANDBOOK

General Specification, Chassis

Air Compressor

Electro-Pneumatic 380VAC, 4kW motor driven

Axle & Suspension, Front

Axle: Hendrickson SteerTek, 12,000 lb (5443 kg) rating. Petroleum lubed bearings. 50 degree wheel cut.

Suspensions: Hendrickson SofTek, 8,500 lb [3855 kg] (standard) or 10,000 lb [4535 kg] (optional) rating. 4" x 60" (10 x 152.4 cm), Hendrickson variable rate, tapered springs with Anti-Wear liner. Maintenance free rubber bushings. Option available for Air Ride suspension.

Shock Absorbers: Direct acting, 1.42" (36 mm) diameter bore double-action piston type with long life bushings.

Axle & Suspension, Rear

Axle: Dana, 23,000 lbs. (10,432 kg) capacity with 5.29 gear ratio. Hypoid Gear Oil.

Suspensions: 4" x 52" (10 x 132 cm) semi-elliptic, progressive, 23,000 lb. (10,432 kg) leaf springs. Maintenance free, rubber bushed radius leaf permits axle adjustment for dog tracking. Option available for Air Ride suspension.

Shock Absorbers: Direct acting, 1.42" (3.6 cm) diameter bore double-action piston type with long life bushings.

Batteries

One Group 31 battery with 12V, 700 CCA @ 0° F

Two Seven Module Strings HV Lithium-Ion NMC (Nickel-Manganese-Cobalt) Gel Batteries, Water Cooled, 155 kWh Capacity, 550V to 750V DC Operating Voltage.

12V Battery Compartment. Enclosed compartment 23.50" (59.6 cm) L x 15.50" (39.3 cm) D. Sliding tray includes retaining pin with cables to secure the tray in a closed position. Hinged door with single locking latch. Located on front left side of bus.



Braking System

Regenerative Braking System. Assists in slowing bus during deceleration and service brake application while charging the batteries.

Service Brakes, Air Drum. Meritor air-powered, cam-operated, 6" front; 7" or 8.72" rear internal expanding, single leading shoe drum brakes. Meritor automatic slack adjusters. 4-channel Bendix ABS. 3-tank air system with combined capacity of 4,400 cu in (72.1 liter). Moisture drain valve on each tank. Options available for Bendix AD-9, AD-IP and AD-SP air dryer.

Emergency/Parking (units with air brakes). Captive spring actuators incorporated into rear air brake chambers. Release valve operation with control knob at driver's right.

Service Brakes, Hydraulic. Both front and rear systems have 15" diameter x 1.438" thick rotors. 70mm front and rear 4-piston, self adjusting Meritor Quadraulic calipers. Meritor ABS.

Emergency/Parking (units with hydraulic brakes). Internal expanding, axle mounted, 9" diameter x 3" wide. Mechanical cable operation with a foot control pedal at driver's left.

Electronic Stability Control: The Electronic Stability Control (ESC) is an automatic system that reduces the occurrence of loss of control events, as well as rollovers. ESC builds on the Anti-Lock Brake system (ABS) with additional sensors, logic, and use of the brakes to slow and redirect the vehicle. An indicator light on the instrument cluster will illuminate whenever the ESC system is actively controlling the bus.

Bumpers

Contoured 15" (38.1 cm) steel front bumper die formed from 3/16" steel plate. Rear bumper smooth profile, 12" (30.48 cm) high with 90° flanges, die formed from 3/16" steel plate, with 14" (35.6 cm) wraparound at corners and diagonal bracing.

Charger

Water Cooled, 90-264VAC/45-65Hz Input, 80Amp-19.7kW, CCS1 socket SAEJ1772 compliant for AC or DC fast charge.



Controls

Electronically operated accelerator, air brakes, valve actuated parking brake (air brakes) or cable-operated driveline shoe parking brake (hydraulic brakes) with warning light, instrument panel lighting dimmer, key-type starter switch. Electric dual horns. Message Display Center controls on the instrument panel cluster. Electric powered door with optional air powered door available.

Coolant A/C Compressor

Copeland Scroll, 407 refrigerant, 600V, 5-20kW

Coolant Water Heater

HV module controlled, 600VDC Input Power, (2) 12.5 kW units Output Power

Cooling Systems

Primary cooling system circulating DexCool (Orange) coolant through the Thermal Management Unit for Electric Motor, components in the High Voltage Management unit and cabin heating. Primary system reservoir mounted on RH (curb side) of bus under front hood.

Secondary independent cooling system that circulates DexCool (Orange) coolant through Thermal Management unit for the battery packs only. Reservoir for this system mounted near LH (driver side) of bus under front hood.

DC to DC Converter

2 Units 2.8kW each, Water Cooled, 400-720 VDC/0-4A Input Power, 14 VDC/0-200A Output Power each for 400A total output.

**Frame, Chassis**

Dual "C" channels, 10 1/2" (26.6 cm) high with 3" (7.6 cm) flanges made of 1/4" thick, 100,000 psi steel. All permanent fixtures on frame are attached with hi-tensile strength Huck-Spin fasteners with swaged lock nuts.

Horn

Electric dual tone horns.

Backing safety horn variable db. (Optional) A variable db, backing safety horn activated whenever the bus is shifted into reverse. Sounds between 87 and 112 db automatically adjusting itself depending on the ambient noise level in the proximity of the alarm.

Instruments / Gauges

Gauges: Speedometer; Average Efficiency, HV battery temperature, Motor temperature, State of Charge, Front Air Pressure and Rear Air Pressure.

LED Warnings / Telltale Indicators

Brake Failure, ABS, Park Brake Applied, Electronic Stability Control, Left Turn Signal, High Beam, Right Turn Signal, Coolant Level, Motor Enable, Motor Fault Indicator, HV Battery Fault Indicator, Charging Status, Limited Performance Mode, Propulsion Disabled, Wait to Start, High Voltage Electrical Failure and Regenerative Braking Disabled.

Manual Service Disconnect (MSD)

A Manual Service Disconnect is provided for each of the two high voltage battery packs which will disconnect power to the high voltage bus systems.



Main Drive Motor

TM4, Permanent Magnet Induction, Water Cooled, 778 / 2,400 ft-lb (3,254 NM), 194 / 315 HP, 3000 RPM, 157 / 235kW, 315 Peak / 187 Cont Power.

Main Drive Motor Inverter

150kW Maximum Power, 250kW Peak Power, water cooled.

Message Display Center

When configured this display will provide a readout for volts, kilometers, vehicle status and priority messages. Interactive LCD display also provides system alerts such as voltage error, turn signal on; and also displays service diagnostic features. Screen can be used as a monitor for backup camera.

Pedestrian Alert System (*Noise Generator*)

Device mounted on front of bus that emits noise to alert pedestrians that the bus is approaching. Activated when bus is in forward gear, parking brake off and speeds up to 20 mph (32 kph). The sound changes in frequency and volume as the bus accelerates or decelerates.

Steering

Full power Ross THP-60 integral unit with 20.4 to 1 ratio; with 10 kW motor driven Pump. 18" (45.7 cm) diameter, two-spoke, padded steering wheel with tilt steering column.

Tires

11R22.5 (G) Low Rolling Resistance. In order to conform to the original certified vehicle configuration, any tire(s) replaced or installed after initial manufacture date must meet the standard set by the emission control identifier.

**Tow Hooks or Tow Eyes**

Two front frame mounted (optional). Two rear frame mounted (optional).

Wheels

Hub Piloted steel 10 stud disc rims, single front, dual rear, 8.25" (20.95 cm) x 22.5" (57.1 cm) rims.

Wiring

Blue Bird multiplex chassis and body circuit wiring system with three Power Management Modules (PMM) and two Printed Circuit Boards (PCB) containing fuses & relays. Zone A PMM, chassis & body PCBs located in PDU compartment at front of bus below dash. Zone C PMM located at front RH bulkhead and D PMM located at rear LH bulkhead.

General Specification, Body**Back-Up Camera**

Exterior camera mounted near top of rear cap. When bus is shifted into reverse gear, screen in instrument cluster will display camera view.

Power Distribution Unit (PDU). Located behind PDU cover under dash. Cover removable with two thumbscrews. Printed circuit boards (PCB) for body and chassis with connections for battery power distribution, fuses, relays, and circuit protection.

Side Electrical Channels. Inside the bus above the side windows on both sides. Houses the trunks of all body harnesses and other optional component wiring, such as radio / PA speakers, if so equipped.



Emergency Doors

Rear center door with 37.7" (95.7 cm) wide x 52.5" (133.3 cm) high opening. Single-point bar lock latch with inside handle and guard. 6" (15.24 cm) black recessed exterior handle. Upper and lower clear tempered glass. 4" (10.6 cm) black upholstered header pad.

Buzzers: One located in the Driver's area and one near the rear emergency door—sound when any emergency exit is engaged and ignition switch is at "RUN" position.

Entrance Doors

Standard: Blue Bird two-panel Outward Opening door with manual door control.

Optional: Air and electric drive outward opening doors.

Electrical

New Electrical Architecture incorporating CAN switches, J1939 and multiplex modules. Power Distribution Unit located in front of bus below dash houses Chassis multiplex module, body & chassis PCBs. More diagnostic tools accessible on instrument cluster.

Fans (optional)

One 6" (15.24 cm) fan mounted left of the Driver seat, with or without a second 6" (15.24 cm) fan mounted right of the Driver at body centerline. Each fan has high / low speed and is controlled by a single switch. Other locations available by option.

**Floor**

Covering. 3/16" (4.7 mm) thick ribbed material in aisles and 1/8" (3.18 mm) smooth under the seats. Optional aluminum aisle trim over joint in floor covering, full length of body is available. Molded black composite wheelhousings covers.

Subfloor. 1/2" (12.7 mm) or 5/8" (15.8mm) APA certified fir plywood, secured to steel floor panels with screws.

Heater/Defroster

90K BTU/h front system on Driver's side with continuous ducted defrosting of windshield and Driver's window. Washable filter. Driver selects recirculating or fresh air into system as conditions require.

Insulation

The roof, sides, front and rear (including corners) are insulated with 1 1/2" (3.81 cm) thick insulation providing an R-value of 5.75.

Lettering

SCHOOL BUS black vinyl lettering on front and rear caps. Yellow reflective background optional. Vinyl lettering on top of emergency windows and rear emergency door on both interior and exterior of vehicle, according to federal regulations. Operation instructions decal on all emergency exits. French decal options available.



Lights

Backing: Two 5" (12.7 cm) clear incandescent right and left rear.

Clearance/Marker: Two amber front and two red rear. Tail light circuit energizes clearance, cluster, and side marker lights.

Daytime Running: Low beam head lamps, tail, license plate, parking, clearance & marker lights activated when engine is running, parking brake is released, and the head light switch is off.

Directional: Two 7" (17.8 cm) amber lights mounted on rear. Two 4" (10.1 cm) front located in headlight assembly.

Dome: 15 Candlepower single row equally spaced at center over aisle. Single control switch.

Headlights: Dual element 65w high beam / 45w low beam 9007 halogen bulbs mounted in contoured lens housings.

Stepwell: 15 candlepower. Wired to operate with ID lights with entrance door open.

Stop and Tail: Two combination lights, 4" (10.1 cm) right and left rear tag panel in combination with 7" (17.8 cm) stop and tail lights with red lens.

Warning Lights: Halogen 8 lamp sequential system with hoods.

Mirrors

Exterior Crossview: A Rosco Eye-Max LP crossview mirror system allows a seated driver to view pedestrians while the bus is stopped. The crossview mirror is asymmetric shaped, LH & RH, with tunnel tube mount supported by a center mounting post. The mirror mounting posts are attached to the hood. The crossview mirror system allows for viewing all areas along the front and sides of the bus which are not visible by direct view.



Exterior Rearview: Rosco Open View Split System rearview mirror. Provides view of the roadway to the rear, as well as a view of the ground along both right and left sides. Rearview mirror system is comprised of two independent mirror assemblies with one flat mirror glass measuring 7.38" x 10.00" (18.7 x 25.4 cm) and one convex mirror glass measuring 7.38" x 5.00" (18.7 x 12.7 cm) on each side of the bus. Right rearview mirrors are located so as to be visible through the wiped area of the windshield. Left rearview mirrors are located so as to be viewed through the Driver's window. Rosco Accustyle mirrors are optional.

Interior Rearview: 6" x 30" (15.2 x 76.2 cm) with 3/16" clear safety glass laminated to steel backing plate. 1 3/4" (44.4 mm) radius rounded corners. Perimeter of mirror edged with 5/8 (15.9 mm) diameter rubber padding. Interior rearview mirror is installed above the seated Driver on the front upper inner panel, and provides a clear view of the vehicle interior and roadway to the rear.

Paint

Exterior: Heat cured polyurethane. National school bus yellow with yellow rub rails. Black rubrails (optional) and black bumpers.

Interior: Astro White, hot sprayed-on baked enamel, except aluminized inner side panels. Seat frames, heaters and trim are black. Switch console and dash dark gray.

Rust Proofing: Body parts thoroughly rust-proofed after fabrication and before assembly.

Undercoat: Underside of body floor, skirt and wheelhousings thoroughly undercoated prior to body mount on chassis to ensure best coverage and maximum corrosion resistance.



Panels, Exterior & Interior

Exterior

Outside side panels are constructed of 20 gauge steel. Side panels extend from below the side windows to a distance of 16 1/4" (41.3 cm) below the floor (16 1/4" [41.3 cm] skirt). Rear corner panels are constructed of 20 gauge steel and include a license plate emboss, both right and left. The left hand emboss includes nylon nuts and slot-head screws for license plate mounting. The front roof cap is formed from 18-gauge steel. The rear roof cap is formed from 20 gauge steel. Roof sheets are constructed of 20 gauge steel and span the entire width of the bus (window header to window header). Roof sheets include an embossed rain visor over side windows. Front cowl panels are constructed of 11 gauge steel. Floor panels are constructed of 14 gauge steel and are reinforced with full width "U" channel cross members.

Interior

A removable 18 gauge steel front upper inner panel is provided to allow access to the front roof cap area. A 20 gauge steel rear upper inner panel is installed at the rear roof cap area. Removable composite wire moldings, right and left, are provided to allow access to body wiring harnesses. Wire moldings are provided in sections. Textured galvalume inside side panels are provided, extending from the window sill down to the floor gusset seat ledge, for the entire length of the body on both left and right sides. Headlining panels may solid or acoustic, or a combination of both, spanning the entire width of the bus (window header to window header), constructed of 22 gauge steel, double-hemmed to provide additional joint strength.

Reflectors

Standard reflectors include:

- Two 3" (7.6 cm) red mounted on side of body near rear.
- Two 3" (7.6 cm) red, mounted on rear of body.
- Two 3" (7.6 cm) amber right and left intermediate side reflectors.



Reflective Tape: One inch (2.5 cm) minimum width strip around each emergency exit (roof hatch/pushout window when ordered). One-inch wide (2.5 cm) strip of yellow reflective vinyl around the perimeter of the rear emergency door.

Rubrails

Four double-ribbed low profile 16 gauge steel applied rubrails are installed along both sides of the body, as follows: One below side windows; one at seat (Passenger) level; one near the floor level; one at the bottom of the skirt. The window, seat, and floor rails extend from the front bow to the rear corner radius. The skirt rail extends from the front bow on the right, or the front cowl post on the left, to the rear bumper (interrupted at wheelhousing cutouts). Rubrails are secured with 1/4" screws - 20 x 5/8" with Torx drive heads. Layouts may vary on options ordered.

Safety Equipment

Three reflectorized triangular roadside warning devices enclosed in a plastic storage container, secured to the floor near Driver. 5 lb (2.2 kg) fire extinguisher in entrance door area. Two roof escape hatches mounted above aisle.

Seats

Driver's Seat. National NS2000 pedestal (standard) or air adjustable (optional). Seat belt is three-point, floor mounted anti-cinch emergency locking retractor.

Passenger Seats. All Passenger seats and barriers are optional. Standard upholstery is 42 oz. polyester-backed gray vinyl.



Stepwell

Three-step riser, National Standard. 10" to 14" (25.4 to 35.56 cm) ground to lower step height, G90 galvanized steel. Stainless steel optional. Step treads with non-abrasive black rubber with white nosing. Three inch wide (7.6 cm) white ribbed rubber with metal backing wearplate is located at floor level step at the entrance door. Includes stainless steel assist rail at rear of stepwell.

Stop Arm, Crossing Arm

One Specialty solid state electric operated high intensity reflective octagonal stop arm, red with a white border and 6" (15.24 cm) high lettering. "STOP" or "ARRETT" on both sides. Includes red incandescent lights over and under the word "STOP" visible from both sides.

Sun Visor

Transparent dark green tint 6.5" x 30" (16.5 x 76.2 cm) smooth edge plastic. Located in front of driver. Adjustable vertically on two arms pivoted at ends of visor and at anchor points on windshield header.

Switch Panel

Mounted on left and right of driver with rocker-type illuminated switches for electrical equipment. Brightness of illumination is controlled by the dimmer switch.

Ventilation

Air Intake. Heater intake left front below windshield level provides up to 100% fresh air through heater.

Roof Vent. Static non-closing vent in front roof.

**Windows**

Driver's. Double sliding aluminum sash with security fastener for locking both sash, clear tempered safety glass.

Side. 12" (30.5 cm) split sash with clear (standard) or tinted (optional) tempered glass. Vertically hinged push-out windows.

Rear Vision. Fixed clear tempered.

Windshield

The windshield consists of four separate pieces of flat shaded safety plate glass. Two piece curved windshield is optional. Optional black grip handles and fold-up step on right and left cowls to facilitate windshield cleaning.

Windshield Wipers

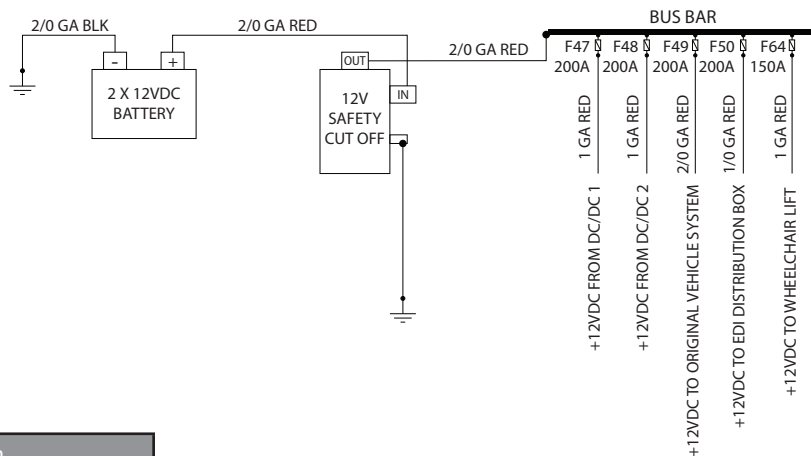
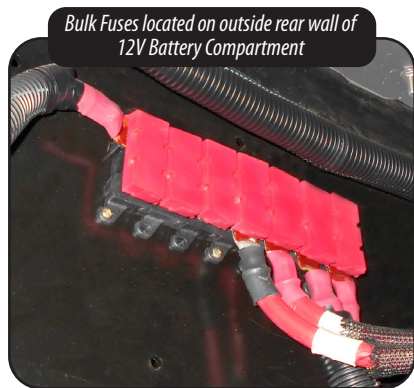
Electric, intermittent single switch, column mounted, wet arm wipers. Electric windshield washer with hard plastic one gallon capacity reservoir located under the hood.

Wiring

Colored and continuously number coded in molding on top of side windows for access to harnesses. Body wiring protected by ATO / ATC fuses. Circuit breakers optional.



12 Volt Bulk Fuses



Fuse #	Amps	Description
F47	200	12 Volt Source from DC/DC Converter 1
F48	200	12 Volt Source from DC/DC Converter 2
F49	200	12 Volt Supply to OEM Interface
F50	200	12 Volt Supply to LV-PDU
F64	150	12 Volt Supply to Wheelchair Lift



Index

A

Accelerator Pedal Adjustment. 2-25

Air Brakes 5-14

Air Compressor

General Specs 10-6

Air Conditioning (Optional)

Controls 2-30

Air Suspension Drop 5-24

Alarms

Emergency Exits 2-6

Sleeping Child Check Monitor 2-49

Vandal Lock 2-7

Automatic Traction Control 2-22

Axle & Suspension, Front

General Specs 10-6

Axle & Suspension, Rear

General Specs 10-6

B

Back-Up Camera 2-49, 6-13

Batteries

12V Battery Location 2-54

Care 5-23

Disposal 9-15

General Specs 10-6

Blue Bird

Academy (Training) 1-4

Address 1-2

Support Services 1-4

Blue Bird NextGen Passenger Seats 4-5

Body Serial Number 8-2

Brake Interlock Override 2-16

Brakes 5-7, 5-11, 5-14

General Specs 10-7

Regenerative Braking 5-7



Brightness Instrument Cluster 3-11

Bumpers

General Specs 10-7

C

Charging and Charger 5-20

Charging Port 5-20

Child Restraint Seats 4-2

Circuit Breakers & Fuses 2-47

12 Volt Bulk Fuses 10-20

Cleaning Your Bus 9-5

Cluster Instrumentation 3-2

Configuration Menu 3-10

Cooling System 5-6

Crossing Arm Cancel Switch 2-22

Cruise Control (Optional) 2-36

D

Daily Pre-Trip Inspection 6-2

DC to DC Converter

General Specs 10-8

Dealers 1-4

Defrost / Bus 2-19

Dimensions 10-5

Display Center 3-4

Dome Light 2-20

Door Switch 2-21

Doran Warning Light Monitor

Doran Sleeping Child Check Monitor 2-49

Driver Certification 1-6

Driver Orientation 2-2

Driver's Area 2-13

Driver's Instrument Panel 2-32

Driver's Lap & Shoulder Belt 2-43

Driver's Seat, Air 2-42

Driver's Seat Lubrication 9-3

Driver's Seat, Standard 2-40



E

Electrical

General Specs 10-12

Electric Bus

Charging and Charger 5-20

High Voltage Safety 7-2

Maintenance & Service 9-13

Manual Service Disconnects 7-2

Overview 2-2

Pre-trip Inspection 6-4

Push Button Shifter 5-17

Regenerative Braking 5-7

Shutdown (Turn Off) Procedure 5-5

Starting Procedure 5-3

Washing 9-6

Emergency Door

General Specs 10-12

Emergency Equipment 2-4

Emergency Exits

Emergency Door 2-6

Emergency Pushout Windows 2-8

Emergency Roof Hatch 2-9

Emergency Release 2-11

Emergency Warning Light Switch 2-21

Enroute Emergencies 7-4

Entrance Door

General Specs 10-12

ESC (Electronic Stability Control) 5-8, 10-7

Exterior Compartments 2-49

Exterior Light Check 2-33

F

Fans 2-22

General Specs 10-12

Fire Extinguisher 2-5

First Aid Kit 2-4

Flare Kit 2-5



Floor

General Specs 10-13

Fluids & Filters 9-11

Frame

General Specs 10-9

Fuses

Body 2-47

Chassis 2-45

G

General Specifications

Body 10-11

Chassis 10-6

Glove Box (Optional) 2-46

H

Handicap Lift Switch 2-22

Hand Operated Parking Brake (Optional) 2-39

Hazard Lights 2-23

Heat and Air Controls 2-27

E-Heater 2-27

Fuel Fired Heater (Option) 2-28

Tank Level Status 3-5

Heat Request Switch 2-33

Heater Control Panel 2-19

Heater Cores 2-29

Heater/ Defroster

General Specs 10-13

Heater/Defroster 2-19

Heater Filters 2-29

Heater Pump 2-17

Hood Compartment 2-49

Components under Hood 2-52

Opening/Closing Hood 2-50

Horn

General Specs 10-9

Hydraulic Brakes 5-10

**I**

Inspection Pre-Trip 6-2

Instrument Cluster 3-2

Instrument Panel 2-32

Instruments 2-32, 3-2

General Specs 10-9

Insulation

General Specs 10-13

Interior Compartments 2-45

Inverter

General Specs 10-10

J

Jacking and Towing 7-6

K

Keeping Your Bus Looking New 9-5

L

Labels / Plates 8-2

LED Warnings / Telltale Indicators 2-48

Left Switch Console 2-14

Lettering 10-13

Lift Switch 2-22

Lights

General Specs 10-14

M

Manual Service Disconnect. *See* MSD

Mirror Defrost 2-23

Mirrors

General Specs 10-14

Mirrors and Mirrors Adjustment 6-14

Modifications 10-2

Motor

General Specs 10-10

MSD (Manual Service Disconnect) 7-2

General Specs 10-9



N

National Highway Traffic Safety Administration 1-6
NextGen Passenger Seats 4-5
Noise Generator. [See Pedestrian Alert Device](#)
Noise Suppression Switch 2-22

O

Orientation 2-2
Override Switch 2-26

P

Paint
 General Specs 10-15
Panels & Compartments
 General Specs, Interior 10-16
Parking Brake, Units With Air Brakes 2-37, 5-15
Parking Brake, Units With Hydraulic Brakes 2-37
Parts 1-5
Passenger Seats 4-5

Passenger Windows 4-12
Pedal Adjustment Switch 2-25
Pedestrian Alert Device 5-4
 General Specs 10-10
Plates / Labels 8-2
Power Distribution Unit (PDU) 2-45
Pre-Trip Inspection
 Electric Bus 6-4
 General 6-2
Product Identification Information 8-2
Public Address 2-16
Publications 1-5
Push Button Shifter 5-17

R

Radio Switch Panel 2-15
Reflectors
 General Specs 10-16
Regarding Modifications 10-2



Reporting Safety Defects 1-6
Right Console Switch Panel 2-24
Routine Operation 5-2

S

Safety Defects 1-6
Safety Equipment
 General Specs 10-17
Scheduled Maintenance 9-12
Seatbelt 2-43
Seat Belt and Parking Brake Alarm Indicators 5-16
Seat Belt Inspection And Maintenance 9-2
Seat Driver 2-40
Seat Inspection And Maintenance 9-2
Seat Passenger 4-5
Service Brakes 5-7
Service Support 1-4
Settings And Diagnostics 3-10
 Configuration Menu 3-10

Shutdown Procedure 5-5
Stalk Left Switch 2-35
Stalk Right Switch 2-35
Starting Procedure 5-3
Steering Column 2-34
Step De-Ice Switch 2-23
Stepwell
 General Specs 10-18
Stepwell Heater Fan 2-17
Stop Arm/Crossing Arm Cancel Switch 2-22
Stop Arms
 General Specs 10-18
Storage Box (Optional) 2-46
Strobe Light Switch 2-16
Switches
 Center Instrument Panel 2-32
 Left Switch Console 2-14
 Right Console Switch Panel 2-24
Switch Panel 2-14
 General Specs 10-18



T

Tire Pressure Monitoring System (Optional) 2-55
Tires 9-15
Towing 7-7
Traction Control 2-22
Training 1-4
Triangular Roadside Hazard Reflector Kit 2-5
Turning Off Bus. *See* Shutdown Procedure

U

Underseat Heater Fan Switches 2-17
Using Triangular Hazard Reflectors 7-5

V

Vandal Lock 2-7
Vantage 2

VECI Label 8-4
Vehicle Identification Number (VIN) 8-3
Ventilation
 General Specs 10-18

W

Warning Bank Indicators 3-8
Warning Light Emergency Switch 2-21
Warning Light Indicators 2-20
Warning Light Master Switch 2-21, 2-25
Warning Light Momentary Switch 2-26
Warning Light Start Switch 2-21
Warranty 1-5
Waxing Your Bus 9-7
Website 2
Wheelchair Lifts 2-12



Wheel Differential Lock 5-25

Windows

General Specs 10-19

Windshield

General Specs 10-19

Windshield Washer & Wiper 9-10

Windshield Wipers

General Specs 10-19

Wiring

General Specs 10-19

Wiring Channels 2-45

Wrecking Bar 2-5





NOTES



NOTES



NOTES



NOTES



NOTES



NOTES



NOTES



NOTES



NOTES



NOTES



BLUE BIRD®

Technical Publications

3920 Arkwright Rd, Suite 200
Macon, GA 31210 USA
TechComm@blue-bird.com

Part Number: 10075670

U.S. Edition