Foreword

The Blue Bird Vision Operator's Manual is intended to provide the operator general information regarding the safe operation and maintenance of the Blue Bird Vision bus. Please note that not all possible situations that may arise while operating the bus will be addressed. Therefore, the exercise of caution, common sense and good driving practices, coupled with experience, are required for continued safe operation.

If questions come up that are not specifically covered in this manual, please contact your Blue Bird distributor. Your distributor will either answer your questions or will be able to advise you on how to obtain the needed information. To report a problem with your bus, contact your Blue Bird distributor, 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.

Introduction

This manual has been prepared for the purpose of helping acquaint the operator with the look and function of the features of the Blue Bird Vision. While the focus of this manual is on safe and efficient operation of this Blue Bird product, it will also address general maintenance routines and minor service information. For detailed maintenance and service information, please consult the Blue Bird Vision Service Manual. The Blue Bird Vision Service Manual is available from the Technical Publications Department at Blue Bird Body Company.

You should note that the equipment and controls on your particular bus might differ in detail from that described in this manual. The optional equipment chosen at the time of manufacture will determine whether a particular unit has certain components. You should also note that legally required equipment varies from state to state. For this reason, you may have a component on your bus not covered by this operator's manual. Contact your Blue Bird Body distributor if you have questions concerning certain components on your bus that are not covered herein.

The text, illustrations and specifications used in this manual are based on information available at the time of manual publication. Blue Bird Body Company and its vendors continually strive to improve their products. As such, Blue Bird reserves the right to make changes without notification or without incurring liability.

The complete line of Blue Bird parts and accessories is available through your Blue Bird distributor. You are encouraged to consult with your distributor before adding accessories to your bus in order to determine the safety of such changes.

Proper operation, service and maintenance will affect the safety and reliability of any vehicle. It is important that anyone operating this bus be thoroughly familiar with the controls and the handling of the vehicle before attempting to transport passengers.

Warning

No one should attempt to transport passengers without thorough knowledge of the controls and safety equipment.

Summary of Contents

The service and maintenance procedures and intervals in this manual are for the operator's reference only. More comprehensive service information is located in the Blue Bird Vision Service Manual.

All procedures in this Operator's Manual are to be considered the *minimum* care necessary for the reasonable service life of the vehicle. Each owner has the responsibility to determine if more frequent service or maintenance procedures would be beneficial.

This manual should be read and understood by the bus operator prior to transporting passengers. The operator is responsible to ensure all legal requirements are adhered to. Please note that the OEM documentation will take precedence over information contained herein.

This manual is prepared to provide you with current information important to the operation of the Blue Bird Vision bus. Your comments and suggestions regarding this manual are welcome. Blue Bird encourages you to contact its Technical Publications Department with any comments you have. Send your comments to:

Blue Bird Body Company
Attn: Technical Publications Dept
P.O. Box 937
Fort Valley, Georgia 31030

Thank You

Thank you for selecting the Blue Bird Vision as your bus of choice. The Vision is the first conventional school bus built from the ground up for the purpose of transporting children to and from school and special events. The Vision is the result of ongoing research and school bus manufacturing experience over the past 76 years. Since 1927, Blue Bird has been committed to providing its customers with quality buses at an exceptional value and with safety in mind.

Table of Contents

Maintenance Interval Schedule (Engines with a Shallow Oil Sump)

Note

Ensure that the Safety Information, warnings and instructions are read and understood before operation or maintenance procedures are performed.

Note

Use distance (odometer), fuel consumption, service hours, or calendar time (whichever occurs first), in order to determine the maintenance intervals. Engines that operate in severe operating conditions may require more frequent maintenance.

Before each consecutive interval is performed, all of the maintenance requirements from the previous interval must also be performed.

When Required

Air Dryer — Check
Battery — Replace
Battery or Battery Cable — Disconnect
Engine Storage Procedure — Check
Fuel System — Prime
Severe Service Application — Check

Daily

Cooling System Coolant Level — Check
Engine Air Cleaner Service Indicator — Inspect
Engine Oil Level — Check
Fuel System Water Separator — Drain
Walk-Around Inspection

Initial 17,700 km (11,000 miles) or 4150 L (1,100 US gallons) of Fuel or 250 Service Hours or 6 Months

Engine Valve Lash — Inspect/Adjust

PM Level 1 — Every 17,700 km (11,000 miles) or 4150 L (1,100 US gallons) of Fuel or 250 Service Hours or 6 Months

Aftercooler Core — Inspect
Air Compressor Filter — Clean/Replace
Battery Electrolyte Level — Check
Belt — Inspect
Cooling System Supplemental Coolant Additive (SCA) — Test/Add
Cylinder Head Grounding Stud — Inspect/Clean/Tighten
Engine Crankcase Breather — Clean
Engine Oil Sample — Obtain
Engine Oil and Filter — Change
Fan Drive Bearing — Lubricate
Fuel Inlet Screen — Clean/Inspect/Replace
Fuel System Primary Filter — Clean/Replace
Fuel System Secondary Filter — Replace
Fuel Tank Water and Sediment — Drain
Hoses and Clamps — Inspect/Replace
Radiator — Clean

PM Level 2 — Every 161,000 km (100,000 miles) or 56,850 L (15,000 US gallons) of Fuel or 2000 Service Hours or 2 Years

Aftercooler Core — Clean/Test
Air Compressor — Inspect
Alternator — Inspect
Belt Tensioner — Inspect
Cooling System Water Temperature Regulator — Replace
Crankshaft Vibration Damper — (Inspect
Engine — Clean
Engine Air Cleaner Element — Clean/Replace
Engine Mounts — Inspect
Engine Valve Lash — Inspect/Adjust
Starting Motor — Inspect
Turbocharger — Inspect
Water Pump — Inspect

Every 3 Years or 322,000 km (200,000 miles)

Cooling System Coolant (DEAC) — Change

Every 483,000 km (300,000 miles)

Cooling System Coolant Extender (ELC) — Add

Every 6 Years or 966,000 km (600,000 miles)

Cooling System Coolant (DEAC) — Change
Cooling System Coolant (ELC) — Change

Every 114,000 L (30,000 US gallons) of Fuel

Overhaul Considerations

Before Placing the Bus in Service

Warning

It is the responsibility of the Operator to ensure that all relevant legal requirements for operating and equipping a school bus are met in accordance with federal, state and local regulations. Safety equipment must be checked on a daily basis, including safety equipment placement and content.

Warning

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

- Check the suspension U-bolt torque.
- Check the service brake adjustment.
- Check the park brake adjustment on units equipped with hydraulic brake systems.
- Check the torque on all the body “tie-down” capscrews.
- Check the engine oil level.
- Check the transmission fluid level.
- Check the engine coolant level.
- Check the air pressure in all the tires.
- Check the torque on the driveline universal joint straps.

Daily Inspections

To maintain the highest possible safety, reliability and economy of operation standards, perform the following inspections:

1. Check the fuel level.
2. Drain all air reservoir tanks, if so equipped.
3. Check the engine oil level.
4. Check the power steering fluid level (Dexron III).
5. Check the engine coolant level. (See Caterpillar publication SEBU7011-11.)
6. Check the transmission fluid level (Transynd™ or equivalent). See the Allison Transmission manual, publication number OM3063EN, as amended, for the proper method to use.
    - Start the engine and allow it to idle for about a minute.
    - With the service brakes applied, shift to Reverse ("R") for a few seconds, back to Neutral ("N") for a few seconds, to Drive ("D") for a few seconds, and then back to Neutral ("N").
    - Allow the engine to idle at about 500-800 RPM and slowly release the service brakes.
    - With the engine running, remove the dipstick and wipe it clean.
    - Insert the dipstick into the tube and remove it. Check the fluid level indicated on the dipstick. Repeat at least twice for accuracy.
    - If the fluid level is still within the cold check band, the transmission may be operated until the fluid is up to operating temperature.
    - If the fluid level is not within the cold check band, you must drain or add fluid until it is before operating long enough to reach normal temperature.
    - Perform the hot check at the first opportunity after the transmission has been operated for about an hour and has reached the normal operating temperature of 160° - 200° F (71° - 93° C).
7. Check the brake fluid level. Maintain the fluid level between the "Max" and "Min" lines on the reservoir. Use only DOT–3 brake fluid.
8. Check the windshield for cracks; clean as necessary.

Note

There are “fold down” steps located at each side to assist in cleaning the outside of the windshield.

9. Check all the mirrors for proper setting; clean as necessary.
10. Check the strobe light, if so equipped.
11. Check the headlights; clean as necessary.
12. Check the taillights; clean as necessary.
13. Check the directional indicator lights; clean as necessary.
14. Check the hazard lights for operation.
15. Check the brake lights; clean as necessary.
16. Check that the tail pipe is clear of obstruction.
17. Check that the rear “Emergency” door is operational:
    - It opens properly and easily
    - The warning buzzer operates
    - The door closes and latches properly
18. Check the tires:
    - Are there objects lodged between the dual wheels?
    - Are there any obvious punctures?
    - Are all the lug nuts in place?
19. Check the general exterior appearance. Is it clean for school bus identification?
20. Check the general housekeeping. Are the seats, floor, aisles and stepwell clean and clear of obstruction?
21. Check that the emergency exits are clear and operate properly.
22. Check the emergency equipment and supplies:
    - Is all the equipment in the proper place?
    - Is the supply list complete?
23. Check the fire extinguisher:
    - Is the service date okay?
    - Is the charge okay?

Operation	Service Intervals (i.e., 1/3,000 equals 1 Month or 3,000 Miles; whichever occurs first)								General Instructions
	1/3,000	3/5,000	3/24,000	6/6,000	6/10,000	12/12,000	12/24,000	24/24,000	
Steering									
Lubricate steering column					•				Using either a hand pump or a pneumatically operated grease gun, force NLGI Number 2 EP (or greases rated GC-LB or equivalent) into the zerk fitting until all the old grease is forced from the bearing. Caution: If a pneumatically operated grease gun is used, the system air pressure must not exceed 150 psi (1035 kPa). Higher air pressure will damage (rupture) the boots, causing premature component failure. When damaged boots are observed, the component must be replaced, not just the boot. Carefully inspect each component for signs of leaks, wear, missing components, etc., as you clean each zerk and lubricate the bearings.
Lubricate intermediate steering shaft					•				
Lubricate king pins					•				
Lubricate tie rod ends					•				
Lubricate drag-link					•				
Lubricate slack adjuster					•				
Lubricate cam brake housing					•				
Lubricate steering gear					•				Use a hand grease gun to lube the steering gear. Use NLGI Number 2 EP or greases rated GC-LB, or equivalent.
Check fluid level					•				Frequent low levels indicate repair is needed.
Change reservoir filter						•			Extreme conditions may require more frequent changes.
Inspect hydraulic pump						•			Leaks require immediate repair.
Inspect steering gear						•			

Steering Maintenance Chart

Operation	Service Intervals (i.e., 3/5,000 equals 3 Months or 5,000 Miles; whichever occurs first)							General Instructions
	After 1st 1,000 miles	1/10,000	3/24,000	6/6,000	6/10,000	12/12,000	12/24,000	
Check lubricant		•						Meritor RS21145 Maintenance Manual 5A, Lubrication Manual 1.
Change lubricant							•	Full Synthetic Lube. Meritor RS21145 Maintenance Manual 5A, Lubrication Manual 1.
Spring Suspension								
Visual inspection				•				Check all components for visible wear or missing parts.
Rebound pins						•		Ensure that the cotter pins are installed.
Spring radius fasteners						•		Torque locknuts to 100-125 Ft lbs (11-14 Nm)
Shock absorber mounting bolts						•		Torque locknuts 75-100 Ft lbs (9-11 Nm)
Axle to suspension fasteners						•		Torque U-bolts to 300-350 Ft lbs (34-39 Nm)
Air Suspension								
Visual inspection				•				Check all components for visible wear or missing parts.
Upper shock mount					•			Torque to 50-70 Ft lbs (67.79-94.91 Nm)
Lower shock mount					•			Torque to 150-180 Ft lbs (203.37-244.05 Nm)
Check ride height	•			•				Shock length, eye-to-eye, 22.68" plus/minus .25" (576.07 mm plus/minus 6.35 mm)
Check U-bolts 7/8-14 UNF 28	•				•			Torque to 400-450 Ft lbs (542.33-610.12 Nm)
Check U-bolts 3/4-16 UNF 28	•				•			Torque to 260-320 Ft lbs (352.51-433.86 Nm)
Lower shock mount to spring					•			
Air spring anchor bolts					•			Torque to 20-30 Ft lbs (27.12-40.67 Nm)
Quick Align Bolt Right					•			Torque to 525-575 Ft lbs (711.81-799.60 Nm)
Quick Align Bolt Left					•			
Lever linkage locknut					•			Torque to 100-150 In lbs (11.30-16.95 Nm)
Leveling valve mounting bolt					•			Torque to 60-85 In lbs (6.78-9.60 Nm)

Rear Axle and Suspension Maintenance Chart

24. Check the First Aid Kit:
    - Is it in the proper place?
    - Is the supply list complete?
25. Do all available warning devices indicate when a door is ajar?
26. Start the engine.
27. Listen for obvious, unusual noises.
28. Check that the mirrors do not vibrate excessively.
29. Check interior lights.
30. Check the stepwell lights.
31. Check the horn.
32. Check the heater and defroster blower operation.
33. Check the windshield:
    - Is it clean?
    - Is the wiper operational?
    - What is the condition of the blades?
34. Check the brakes:
    - Does the pedal feel right?
    - Is it at the normal height?
35. Check the stepwell for debris and foreign objects that could present a hazard to passengers while loading or unloading.
36. Is your seat belt fastened?
37. Do the brakes stop and hold the bus?
38. Does the steering feel normal?
39. Does the steering make unusual noise when you turn the wheel?

Any malfunction should be corrected before making your trip. Report the necessary services to the responsible maintenance personnel.

Weekly Inspections

1. Drain all air pressure reservoirs or tanks.
2. Check the tires:
    - Is the tread okay?
    - Are there obvious signs of wear?
    - Are there signs of deterioration?
    - Are there foreign objects between the duals?
    - Is the air pressure correct?
        - If the air pressure is consistently low in a particular tire, it should be treated as a flat. Remove it and repair the problem.
3. Check all the passenger seat cushions:
    - Are they clean?
    - Are they properly attached to the frame?
    - Are the seat belts okay? Are the buckles operable and easy to release?
    - Is the seat frame-mounting hardware securely attached?
    - Check the stepwell trim fasteners to ensure none are loose. Tighten if necessary.

Important Safety Information Explanation

In this manual, you will see *Cautions*, *Warnings* and *Notes*. Cautions and Warnings are intended to alert the reader to potentially dangerous situations. Notes are intended to clarify instructions. Specifically, **Cautions** are intended to address situations where personal injury or equipment damage could result from improper execution of a task or practice. **Warnings** are intended to address situations where personal injury or death could occur if a task or procedure is performed improperly. In some cases, **Notes** explain the only known method to accomplish a given task or give additional insight to a procedure.

Blue Bird Body Company offers many accessory items. These components are designed to meet or exceed federal, state and local requirements. Properly selected equipment and accessories can help ensure the safe and reliable transportation of passengers.

Examples of this safety equipment include stop arms, crossing guards, warning lights, first aid kits, fire extinguishers, reflectors, park lights and directional turn indicator lights. There are, of course, many more safety features of this nature.

National Highway Transportation Service Association (NHTSA)

If you feel your new Blue Bird Vision has a safety issue that could cause a crash or personal injury, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) with the information. You should also notify Blue Bird Body Company immediately so that it can evaluate the situation or condition.

If NHTSA receives more information of a similar nature, it may open an investigation into the matter. If NHTSA determines there is a common safety defect in a group of buses, it may issue an order for a recall. NHTSA will not, however, become involved in an individual issue between the owner/operator, distributor and/or Blue Bird Body Company.

To contact NHTSA, call the Auto Safety Hotline toll free at 1.800.424.9393 (outside the Washington, DC area). In the Washington, DC area, call 366.0123. The NHTSA may also be contacted in writing at the following address:

NHTSA
US Department of Transportation
Washington, DC 20590

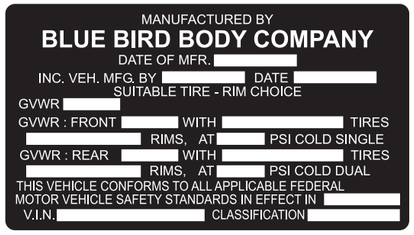
Optimum Service Life

It is important that you use the right parts when replacement of parts is necessary. The right replacement parts help keep your bus performing at its optimum level and help extend the life of your investment. For replacement parts, contact your Blue Bird distributor or Parts Sales at Blue Bird Body Company.

Product Identification Information

Vehicle Certification Plate

This plate 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 placard**.



Body Serial Number and Service Number Plate

This plate is located inside the bus above the windshield on the front upper panel. You must refer to this placard for registration information and to order replacement parts for the bus.

Axle Record and Chassis Service Number

This number is located inside the bus above the windshield on the front upper panel.

Adding Aftermarket Accessories

Electrical System Modification

From time to time, you may need to add electrical equipment, or remove and repair electrical components to the Vision. There are certain guidelines that must be followed to avoid the possibility of equipment damage or explosion. Arcing or "sparks" that can occur when electrical connections are made and/or broken causes this danger.

1. The batteries must be disconnected.

Warning

Always disconnect the NEG (-) cable from the battery first. Always disconnect the negative cable at the battery post and wrap it, to prevent accidental contact with the battery post.

Caution

Never connect any auxiliary or add-on component to posts or terminals that are labeled "Engine" or "ECU". Any noise or spurious (unwanted) signal at these points will adversely affect engine performance.

Caution

The Service Department at Blue Bird does not approve installing wiring that will produce more than 0.5 volt, voltage drop over the length of the installation.

2. Disconnect the NEG (-) battery cable from the battery post and insulate it to prevent accidental contact.
3. If necessary, remove the POS (+) battery cable. This is normally necessary only if you intend to remove the battery.
4. When adding electrical components, first ensure that the batteries and charging system are capable of the extra load.

Caution

If the extra load causes the design parameters of the charging system to be exceeded, you must upgrade the system to accommodate the equipment. Overloading the electrical system, as manufactured, will affect the warranty. Modifying the charging system to accommodate the added load may affect the warranty. Always obtain prior approval, in writing from Blue Bird, when modifying the electrical system. If distributors, dealers or customers have any vehicle modifications or equipment installations performed without the written approval of Blue Bird, to the extent the modifications adversely affect other vehicle components or performance, Blue Bird shall not accept any product liability or claims under the terms of the limited warranty. These claims become the sole responsibility of the company or entity performing the modifications and/or installations.

Operation	Service Intervals (i.e., 3/5,000 equals 3 Months or 5,000 Miles; whichever occurs first)						General Instructions
	After first 1,000 miles	3/5,000	3/10,000	6/3000	6/6,000	12/12,000	
Front Suspension							
Spring Suspension							
Lubricate					•		Carefully lubricate all grease fittings in the steering with NLGI #2 EP or equivalent. Refer to the appropriate Hendrickson publication.
Check U-bolt torque	•					•	Torque must be 285-305 Ft lbs (32-34 Nm).
Inspect suspension					•		Check all components for visual damage or misalignment. Refer to Hendrickson publication number 17730-248, as revised.
Inspect spring pin lock bolts (1 located at each end of spring)						•	Locknut, hardened washer and bolt must be in place and tight. Torque to 380-420 Ft lbs (515.21-569.44 Nm).
Shackle bracket pivot bolt						•	
Inspect shocks						•	Look for leaks and wear
Check torque of shock fasteners						•	Torque to 215 Ft lbs (25 Nm)
Air Suspension							
Lubricate					•		Carefully lubricate all grease fittings in the steering with NLGI #2 EP or equivalent. Ensure the suspension is loaded.
Check axle to suspension fasteners	•					•	Torque must be 285-305 Ft lbs (32-34 Nm)
Inspect suspension					•		Check all components for visual damage or misalignment. See Hendrickson publication number 17730-248.
Inspect pin lock bolts. (1 located at each end of spring)						•	Locknut, hardened washer and bolt must be in place and tight. Torque to 380-420 Ft lbs (515.21-569.44 Nm).
Shackle bracket pivot bolt						•	
Inspect shock mounting bolts						•	Torque to 215 Ft lbs (25 Nm)
Check air spring (the air bag)					•		Look for evidence of leaks and wear
Check air spring fasteners						•	Snap fit
Inspect shocks						•	Look for evidence of leaks and wear
Check height of suspension					•		Chock length (eye-to-eye) 18.50 inches plus/minus .25-inch. (469.9 mm plus/minus 6.35 mm)
Check ride height control valve fasteners					•		This valve is located on the right hand (curb) side only. Torque to 8-10 Ft lbs (10.85-13.56 Nm)

Hendrickson Front Axle and Suspension Maintenance Chart

Crankshaft vibration damper					•			Inspect
Engine					•			Clean
Air cleaner					•			Replace element
Engine mounts					•			Inspect
Valve lash					•			Inspect/adjust
Starting motor					•			Inspect
Turbocharger					•			Inspect
Water pump					•			Inspect
Coolant extender						•		See Caterpillar manual
Coolant change							•	

Miscellaneous (continued)

5. Always use wiring of the proper gauge, protected by a high temperature insulation material. 150º C, chemically cross-linked polyethylene insulation, conforming to SAE J-1128, is one such material.

Caution

Regardless of wiring chart estimations, never install a wire that produces voltage drop in excess of 0.5 volt over the entire length of the circuit to be added; calculations and measurement must include the "return" or ground path.

6. Ensure that any added electrical component is protected by a fuse or circuit breaker.

Caution

Always provide additional wiring from the electrical panel. Never "tap" or "splice" into an existing wiring harness unless directed to do so by Blue Bird Engineering Department. Any added component must be installed on a dedicated circuit breaker in the electrical panel. Never connect a new component to an existing, factory installed, circuit breaker that is being used to power another component.

7. Push-on type connecters must be insulated.
8. When installing wiring, always use Blue Bird approved straps and wire ties to ensure that the insulation does not come into contact with sharp edges anywhere along the length.
9. Wiring must be supported with insulated straps and wire ties at least every 24 inches (762 mm).
10. Wherever wiring is connected to a moving component, such as the engine, ensure there is a slack loop of adequate length to prevent tension on the wire or the connections.
11. Position a wire clamp (holder) at both ends of the slack loop so that the loop (and not the wire or the connections) absorbs all movement.
12. Wires must be installed so that they do not come into contact with excessive heat. Support wiring at least 4 inches (100 mm) from high heat components (such as the exhaust system) or provide heat shielding to protect the wires.
13. Install a rubber grommet when wires pass through holes.
14. All heavy gauge "hot" or positive potential wiring must be protected with an approved loom material.
15. Ensure that all positive (+) wiring that could be exposed to extreme weather or chafing is covered with an approved loom.

Warning

Always wear protective gear when working with heavy gauge "hot" conductors, including insulated footwear.

16. Avoid routing electrical wiring less than 6 inches (150 mm) from a fuel-handling component (*i.e.* fuel lines, fuel tank, etc.).
17. Do not "splice" or "tap" into existing wiring when adding components. Always run full length to a proper source in the electrical panel. See Steps 8 and 9 above.
18. When adding electrical components, it is sometimes necessary to use a relay to switch the device. High power components, such as lights, are one example.
19. If the battery cables are both disconnected, always connect the POS (+) cable first. Connect the NEG (-) cable last to avoid arcing.

Keeping Your Bus Looking New

The best way to preserve the appearance of your new bus is to keep it clean. Wash the bus frequently using only cold water and mild soap. Do not wash the bus in direct sunlight or use harsh or gritty cleaning compounds. Even strong soap and cleaning chemicals can harm the paint on your bus and should be avoided.

The soap should never be allowed to dry on the surface of the paint. Rinse thoroughly and immediately to preserve the paint finish.

Caution

Pressure washing is not recommended. Always test the effects of the pressure washer, and the chemicals you intend to use, on a similar finish prior to using it on your bus. If your pressure washer is the "re-circulating" type, there should be a filter in place to prevent blasting the paint with the grit removed from the bus.

Always polish with a non-abrasive wax to remove any accumulated residue and to avoid the "weathered" look.

Sometimes, calcium chloride (salt) and other ice melting chemicals will be deposited on the painted surfaces. If these materials are allowed to stay on the paint, they will harm the surface and allow corrosion to begin. Road oils, tree sap, pollution from industrial discharges and bird droppings will also damage the paint. These chemicals and compounds must be removed as quickly as possible.

Paint removal in localized areas due to stone impact, deep scratches and abrasive chemicals must be repaired as soon as possible. These types of damage will quickly result in major corrosion problems and may void the exterior finish warranty.

"Tracked in" petroleum products and road salts will rapidly damage the floor covering. These materials must be removed from the floor promptly to maintain the floor. Frequent mopping with mild soap is recommended to prevent premature deterioration of the floor covering.

Warning

Continuous care is required to be certain the stepwell and entrance area are kept clean. Never use this area for storage of

your ice scraper, whisk broom, etc. This practice not only presents a safety hazard for passengers, but it can also interfere with the proper operation of the door.

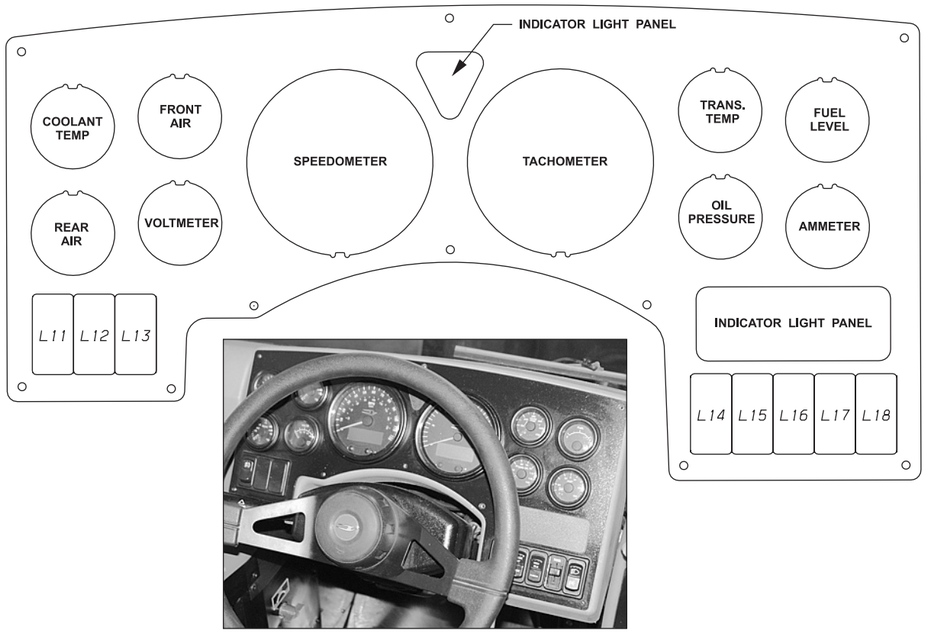
Driver's Area

The driver's area of the Blue Bird Vision is designed to afford the operator easy access to all the controls necessary for the safe operation of the vehicle.

The driver should always position his or her body in a comfortable manner, close to the position normally occupied while driving. The driver should look around, be aware of the location of all controls and make any adjustments necessary to the position of the seat, mirrors and pedals.

Instrument Panel and Controls

The instrument cluster can contain up to 10 gauges and 2 Telltale warning light panels. The individual gauges included in your bus are determined by the options chosen at the time of manufacture.



Operation	Intervals (whichever occurs first)							General Instructions
	As required	Daily	1st 11,000 miles, 100 gallons, 250 hours or 6 months	PM Level 1	PM Level 2	3 years or 300,000 miles	6 years or 600,000 miles	
Check air dryer	●							
Replace battery	●							
Engine storage	●							
Prime fuel system	●							
Check severe service	●							
Coolant		●						Check level
Check air cleaner		●						Check service indicator
Engine oil		●						Check level
Fuel system		●						Drain water separator
Walk around		●						
Engine valve lash			●					Inspect/adjust
After cooler core				●				Inspect
Air compressor				●				Clean/replace
Battery electrolyte level				●				Check
Belts				●				
Cooling system				●				Check chemistry
Head ground				●				Check/clean/tighten
Crankcase breather				●				Check/clean
Engine oil sample				●				Check chemistry
Engine oil and filter				●				Change
Fan drive bearing				●				Lubricate
Fuel inlet screen				●				Check/clean/replace
Primary fuel filter				●				Replace
Secondary fuel filter				●				
Fuel Tank				●				Drain sediment
Hoses and clamps				●				Check/tighten/replace
Cooling pack				●				Clean exterior
After cooler core					●			Clean/test
Air compressor					●			Inspect
Alternator					●			Inspect
Belt tensioner					●			Inspect
Thermostats					●			Replace

Miscellaneous

Operation	Service Intervals (i.e., 1/3,000 equals 1 Month or 3,000 Miles; whichever occurs first)								General Instructions
	1/3,000	3/5,000	3/24.000	6/6,000	6/10,000	12/12,000	12/24,000	24/24,000	
Charging System									
Check electrolyte level in battery	•								Use only distilled water to add to electrolyte level.
Inspect the battery posts				•					Clean as often as necessary. A film of heavy grease will help prevent corrosion.
Inspect the alternator				•					Look for loose wires, cracks or missing boots, etc.
Exhaust System									
Inspect piping and joints				•					Look for loose clamps, leaks, corrosion, etc. Immediate repair is imperative for continued safe operation.
Transmission									
Check fluid level	Check daily. Check after operating temperature is reached.								Use only Transynd™ fluid.
Change main filter								•	Change the filter after the first 5,000 miles (8046 km). Thereafter, change at the indicated interval.
Change sump filter							•		
Check vent							•		
Inspect shift cable							•		
Adjust shift cable	As required								Refer to the service manual for details
Driveline									
Inspect driveline		•							Refer to the service manual for details
Check torque on capscrews		•							TBD

Chassis Component Maintenance Chart

Operation	Service Intervals (Months or Miles; whichever occurs first)					General Instructions
	Daily	120 days/1,000 hours	As Necessary	36 months or 300,000 miles	72 months or 600,000 miles	
Check fluid level	•					Also check the fluid level when the engine runs hotter than normal operating temperature. If daily inspection reveals a constant leak, repair the problem as soon as possible.
Add coolant			•			Use only approved coolant. See Caterpillar Operations and Maintenance Manual SEBU7011-11 or LEBT2835, as appropriate.
Add extender				•		Use only approved extender. See Caterpillar publications referenced immediately above.
Change coolant					•	Use Caterpillar ELC or equivalent. See Caterpillar publications referenced above.
Check hose clamps			•			If daily fluid level inspection reveals a constant leak, check all hoses and hose connections. Torque radiator hose clamps to 90 In lbs (10.17 Nm) and heater hose clamps to 45 In lbs (5.08 Nm)
Visually inspect		•				Check for signs of deterioration

Coolant Maintenance Chart

Switch	Possible Functions		
L11	Special Assignment		
L12	Special Assignment		
L13	For Lights		
L14	Cruise On/Off		
L15	Cruise Set/Resume		
L16	High Idle		
L17	Dimmer		
L18	Head Lights		

Warning

Be sure to become familiar with the gauge locations and functions before transporting passengers.

Setting the Clock

Just below the LCD, on the tachometer face, are two momentary buttons. To set the clock, start the bus and press the left button repeatedly until the desired hour appears. To set the minutes, repeatedly press the right button. Parenthetically, the left button is marked "H" for "Hour" and the right button is marked "M" for "Minute".

Set the Trip Odometer

The Trip Odometer is located on the LCD on the Speedometer. The trip odometer may be displayed by pressing the "t" button. This will toggle you between the Odometer and the Trip Odometer. You will know the trip odometer is being displayed by the "T1" symbol in the top right corner of the message center display. To zero trip odometer, while "T1" is displayed, press and hold the "t" button for 5 seconds.

Cruise Control Operation

The Blue Bird Vision is equipped with a cruise control to help the driver maintain a uniform speed during operation on long periods of travel. The cruise control is designed to improve fuel economy and lessen driver fatigue.

Warning

The cruise control maintains speed set by the driver. Cruise control is not an "auto-pilot"; the driver must remain in place and in control of the vehicle at all times.

The Cruise Control switches are located on the dash switch panel, to the right hand side of the steering wheel. Activate the cruise control by pressing the rocker switch labeled "Cruise Control On-Off".

This is a rocker switch. Pressing the top edge of the switch turns the cruise control "On". Pressing the lower edge of the switch turns the cruise control "Off". The next switch to the right of the Cruise "On-Off" switch is the "Set" and "Resume" control switch.

To Operate Cruise Control:

1. Attain the desired speed in the normal manner, with the foot-operated accelerator.
2. Press the top edge of the Cruise "On-Off" switch to activate the cruise control system.
3. Press the top edge of the Cruise "Set-Resume" switch to set the speed.
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, simply press the lower edge of the "Set-Resume" switch. This will cause the speed to revert to the previously set level, providing the ignition has not been turned off.
6. To adjust the speed at which the cruise control is operating, release the cruise control by pressing the brake, and then use the throttle to reach the desired speed. Then press the top edge of the "Set-Resume" switch.

Note

If the ignition is switched "Off", it will reset the cruise control. To use it again, simply reactivate according to steps 1 through 6 above.

Directional Indicator Lever

The directional indicator lever is located to the driver's left, mounted on the steering column. To activate the directional signal, pull the lever down to indicate a left turn and push it upwards to indicate a right turn.

Hazard Flashers

The hazard flasher switch is mounted beneath the directional indicator lever, on the steering column. To activate the hazard flashers, pull outward on the red tang. To cancel the hazard flasher, move the turn indicator lever to indicate a turn.

Headlight Dimmer Switch

The headlight dimmer switch is located on the turn indicator lever. Pull the lever toward you to toggle the switch.

Switch Panels

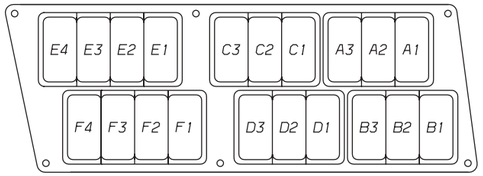
The switch panels, located to the left of the driver, are designed to house most of the control switches used in the daily operation of the vehicle.

Depending on the options installed at the time of manufacture, there will be several switches in the panel. The position each switch occupies is determined by the options installed at the time of manufacture.

Table 1 lists the switch positions and the possible function assigned to those positions.

Switch	Possible Functions		
A1	Front Dome	L.H. Dome	Dome
A2	Rear Dome	R.H. Dome	
A3	Dome	R. Rear Dome	Clearance Lights
B1	Driver's Dome		
B2	Service Door		
B3	Exit Door	ARR (Air)	
C1	Fan		
C2	Fan		
C3	Fan		
D1	Panel Dimmer		
D2	Heater Mstr		
D3	Strobe		
E1	Heated Mirror		
E2	Destination Sign		
E3	Sand Refill	Sand Refill Stop	
E4	Lift		
F1	Lift Door	Lift Door / Emergency. Exit	
F2	Roof Vent		
F3	Roof Vent		
F4	Aux Heater		

Table 1



That part of the instrument cluster where the radio is located is to the driver's left, and to the right of and above the main switch panel. For switch position assignments, see **Table 2**.

Heaters and Defrosters									
Check interior hose connections						•			Look for leaks and deterioration.
Check filters and cores						•			Clean any dust from the cores and replace filters.
Check all fasteners						•			Tighten securely.

Doors, Windows, Locks, Stop Arms and Heaters & Defrosters (continued)

Operation	Service Intervals (i.e., 1/3,000 equals 1 Month or 3,000 Miles; whichever occurs first)								General Instructions
	1/3,000	3/5,000	3/24,000	6/6,000	6/10,000	12/12,000	12/24,000	24/24,000	
Air Brakes System									
Replace compressor filters				•					
Clean the governor				•					
Inspect air dryer			•						See Bendix AD-IP Handbook.
Drain air tanks	Daily in cold weather and weekly in warm weather								Drain condensation.
Check and clean pop-off valves							•		See the appropriate Bendix publication for details.
Inspect check valves				•					
Clean and lube treadle valve				•					
Clean relay valves								•	
Clean spring brake valves								•	
Clean parking brake valve								•	
Clean quick-release valves								•	
Inspect brake chambers	•								
Air Brake Wheel-End Components									
Inspect and adjust shoes	Weekly or "as needed" in severe applications								Refer to Meritor™ Maintenance Manual 4, as revised.
Lubricate S-Cam		•							NLGI #2 EP or greases rated GC-LB, or equivalent.
Lube slack adjusters		•							
Inspect lines and fittings	•								Look for signs of deterioration or wear.
Hydraulic Brake System									
Check fluid level									Use only DOT-3 brake fluid.
Inspect the booster and master cylinder			•						Look for signs of leaks and missing components.
Hydraulic Brake Wheel-End Components									
Inspect calipers				•					Look for signs of leaks and missing components.
Lubricate calipers		•							Lubricate at each brake pad change.
Check pad thickness	Weekly or "as needed" in severe applications								Minimum 1/8-inch (3.175 mm).

Brake Maintenance Chart

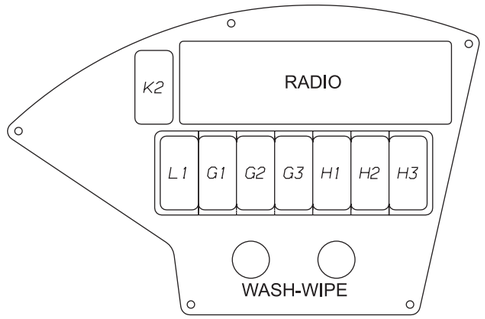
Maintenance Charts

Operation	Service Intervals (i.e., 1/3,000 equals 1 Month or 3,000 Miles; whichever occurs first)								General Instructions
	1/3,000	3/5,000	3/24,000	6/6,000	6/10,000	12/12,000	12/24,000	24/24,000	
Outward Opening Door									
Adjust door linkage	As Required								Adjust linkage for proper door operation.
Jackknife Door									
Adjust door control rod				•					
Adjust roller bracket	•								Adjust for ease of operation.
Adjust control rod bracket	•								Adjust to prevent the pivot pin from binding.
Lubricate hinge pin	•								Lubricate each hinge; use LPS number 1.
Power Jackknife Door									
Lubricate hinge pin	•								Use LPS number 1.
Adjust pneumatic pressure	•								Refer to the Doors section in the service manual.
Adjust the switch	•								
Windows									
Lube latches and slides	•								Spray silicone lubricant into the mechanism.
Pneumatic Stop Arm									
Lubrication									No lubrication required.
Adjustment	As required								Adjust for proper deployment and retraction.
Electric Stop Arm									
Lubricate	•								Lube 4 pivot point with Try-Flow™.
Fasteners	•								Check interior and exterior fasteners for security.
Vandal Locks									
Lube entrance door vandal lock				•					Use Apply™.
Lube key lock		•							Use Apply™.
Lube sliding bolt vandal lock		•							Use LPS number 1.
Exterior Body Care									
Wash exterior	As required to prevent premature oxidation								
Emergency Exits									
Lube roof hatch	•								Spray silicone lubricant into the latch and hinge mechanisms. Work a few times to ensure smooth operation.
Door hinges				•					Use LPS number 1.
Lube hold-open hinge	•								With door closed, apply ASTM D4950 GC-LB Grade 2 to each hinge
Emergency Equipment Brackets									
Inspect all mountings	•								Ensure all fasteners are secure.
Windows									
Lube latches and slides	•								Use a silicone spray lube.

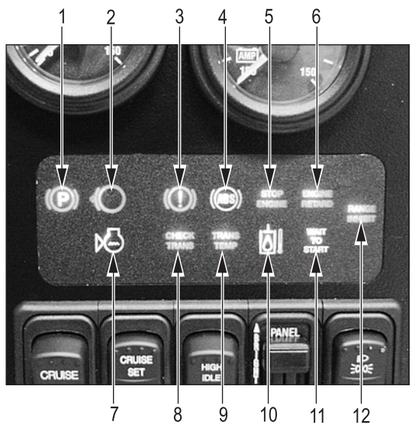
Doors, Windows, Locks, Stop Arms and Heaters & Defrosters

Switch	Possible Functions		
G1	Work Light Pilot	Work Light	
G2	Work Light Master	Work Light Cancel	
G3	Work Light Start	Work Light (select start)	
H1	Work Light Emergency	Work Light Emergency (momentary)	
H2	Cross Arm Light	Chime or Sanders	Work Light Monitor
H3	Stop Arm Hi / Lo		
L1	Cross Arm Cancel*	Stop Arm Cancel	Cross/ Stop Arm Cancel
K2	Internal / External		

Table 2



*Switch L1 can be in the seat belt circuit in certain cases. There is also a switch panel on the instrument cluster. It is located at the bottom of the cluster and on both sides of the steering wheel. For the switch position assignments, refer to chart referencing switches at the top of **page 9**.



Switch	Name	Comments
1	Park Brake	On when park brake is set; wil flash for a period of 2 minutes or until park brake is set, if the park brake is not set when the ignition is switched off. Also, will flash if speed of vehicle is above 3 MPH or until park brake is disengaged.
2	Stop Light	On when the brakes are applied.
3	Hydraulic Brake Failure	Turned on when there is a failure in the hydraulic braking system. Vehicle should not be driven until hydraulic brake system is serviced.
4	Anti-Lock Braking	ABS indicator turned on when a fault is detected in ABS system. ABS system should be serviced to identify problem.
5	Stop Engine	Turned on when there is a condition in engine that may cause damage if engine continues to run. Stop engine and have serviced.
6	Engine Retard	Turned on when engine senses something outside normal operating parameters. When this happens, engine performance will automatically be reduced. Engine should be serviced to identify problem.
7	Low Coolant Level	Turned on when coolant level drops below 50% normal range. Indicator will blink when level in reservoir indicates 0 percent. Engine should be stopped to prevent overheating.
8	Check Transmission	Turned on when fault is detected in transmission. Transmission should be serviced to identify problem.
9	High Transmission Temperature	Will come on when operation temperature of transmission fluid is greater than 250° F. Vehicle should be stopped to prevent damage to transmission.
10	High Hydraulic Oil Temperature	Turned on when hydraulic oil temperature is over 200° F. Engine should be turned off to prevent damage to hydraulic system.
11	Wait to Start	Indicator is turned on when engine is preparing itself to be started. This may include self-diagnosis and heating intake grids.
12	Range Inhibit	Turned on when the transmission senses something outside normal operating parameters. Transmission should be serviced.

Destination Signs

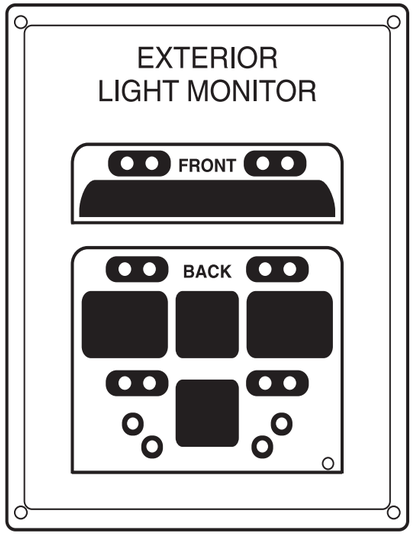
The destination sign is accessible from the inside of the bus, through a hinged panel over the windshield. The interior of the destination sign should be maintained as clean as possible. Periodic lubrication with light oil is recommended. The destination sign uses number 89 light bulbs.

Doran Warning Light Monitor

The Doran Monitor™ is a current-sensing device. Therefore, if current is flowing through one of the bus lamp circuits, the monitor senses it and illuminates the corresponding monitor light emitting diode (LED). 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.

Note

The Doran Warning Light Monitor system does not substitute for a pre-trip inspection that should be performed prior to each trip.



Telescoping Column

The telescoping steering system is activated by a lever mounted midway down the column housing on the left side. Lift the lever to slide the steering wheel up or down to the most comfortable position for the driver.

Tilt Steering Column

To adjust the steering wheel position, press downward on the tilting lever located at the left side of the steering column. Tilt the column to the desired position. To raise or lower the steering wheel, pull upward on the tilt lever.

Foot Controls

If the bus is equipped with adjustable foot pedals, the driver should position the driver's seat before adjusting the foot pedals.

Warning

Do not attempt to adjust the driver's seat or the foot pedals while the bus is in motion. Serious injury or death could result from the loss of control.

Chassis Electrical Fuses

The fuses for the chassis electrical systems are located in the electrical chassis panel. This panel is located under the transmission shifter, mounted on the floor of the bus near the centerline. The cover can be removed by removing four screws.

Fastener Grades

The following information defines chassis fastener grades to be used for the installation of various items on the Blue Bird chassis. The fastener grades shown are minimums, and the information applies to Blue Bird-installed fasteners only. It does not apply to vendor supplied or installed fasteners, except where noted. Chassis fasteners not specified below must be grade 2 at a minimum. The grade of the hexnut used must be equal to the grade of the bolt to which it is assembled.

Grade 8 Category

- Alternator to brace, and alternator mounting bracket and brace to engine
- Air compressor to mounting bracket and mounting bracket to engine
- Power steering pump to engine
- Fan to fan pulley
- Steering gear to mounting frame rail
- Air pump to mounting bracket and mounting bracket to engine
- Idler pulley bracket to engine
- All suspension parts and hardware
- All frame structure cross members, outriggers and related hardware
- All bumper and tow hook/eye mounting hardware.

Grade 5 Category

- Transmission to engine
- Driveline yoke
- Driveline flange yoke to companion flange
- Fuel tank brackets and brace to frame hardware
- Starter to engine
- Alternator to mounting bracket

Note

Grade 8 and Grade 5 fasteners must be tightened to the recommended torque values listed in the Designated Fastener table above.

General Torque Procedure

When the washer is on the threaded (hexnut) side, hold the bolt head and tighten the hexnut while reading the torque. Observe the torque to ensure it is in the specified range. When there are washers on both sides of the bolt (capscrew), or it is assembled into a threaded hole, torque the bolt head to the specified value. Do not lubricate the components when applying torque.

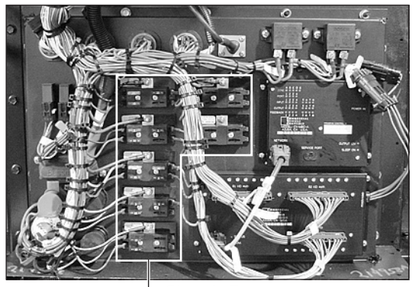
Note

Please note the charts on the following pages. In each of these charts, the time will generally be in months or mileage. In any case, the correct interval will be whichever is the first to occur.

Non Designated Fasteners Torque Chart (Plated Fasteners) U.S. Standards						
Size	SAE Grade 2 (Ft-lbs)		SAE Grade 5 (Ft-lbs)		SAE Grade 8 (Ft-lbs)	
	Min	Max	Min	Max	Min	Max
1/4 – 20	2	4	4	6	6	9
1/4 – 28	3	5	5	7	7	10
5/16 – 18	6	8	9	13	12	18
5/16 – 24	7	9	10	14	14	20
3/8 – 16	10	15	16	23	23	33
3/8 – 24	12	17	18	26	26	37
7/16 – 14	17	24	25	37	46	52
7/16 – 20	19	27	28	41	52	58
1/2 – 13	25	37	40	57	70	80
1/2 – 20	28	41	44	64	70	90
9/16 – 12	47	53	73	82	101	115
9/16 – 18	53	59	82	91	115	129
5/8 – 11	63	73	106	112	138	159
5/8 – 18	73	83	112	128	159	180
3/4 – 10	116	129	177	200	250	282
3/4 - 16	129	144	200	223	282	315
7/8 – 9	112	125	289	322	407	454
7/8 – 14	125	138	322	355	454	501
1”- 8		188	437	483	618	682
1”- 12	188	205	483	529	682	746
1”- 14	205	210	529	541	746	764

Non Designated Metric Class 10.9		
Size	Torque (Ft-lbs)	
	Min	Max
M4	2.0	2.9
M5	4.2	6
M6	7	10
M8	17	25
M10	33	58
M12	58	83
M14	93	133
M16	137	196
M20	235	336
M24	465	664

The chassis fuses are located in the panel in two rows. The identification for each fuse function is listed on the decal in the inside of the cover. If a fuse is open or “blown”, replace it one time. If the fuse opens again, seek professional help to isolate and correct the problem.



Driver's Stowage

The driver’s stowage is located to the left of the driver’s seat. The cover to the stowage area acts as a left armrest.

Interior Compartments

There are a variety of interior compartments depending on the options selected at the time of manufacture.

- There is a glove box located in the dash on the right side.

- There is a glove box located above the windshield, at the far right hand corner, adjacent to the entrance door.

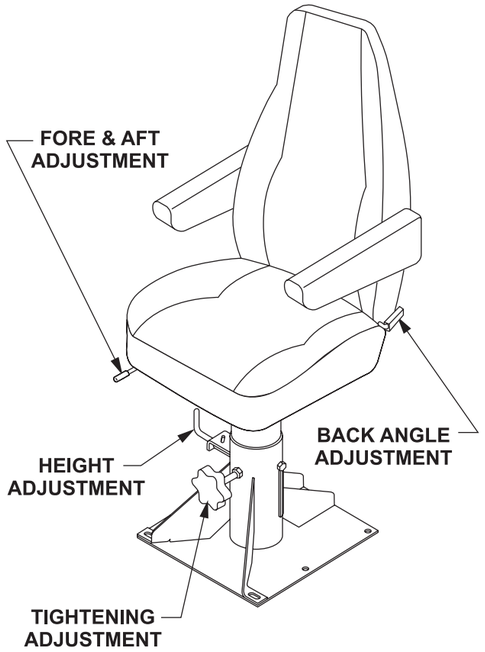
- There may be a toolbox located under the rearmost seat on the right-hand side (curb side).
- Some models feature a document pouch on the barrier behind the driver's seat.

Seats and Seat Belts

Driver's Seat

Warning

Do not attempt to adjust the driver's seat while the bus is in motion. Ensure your feet do not engage the seat adjustment controls while the bus is in motion.



The standard driver's seat in the Blue Bird Vision is the Routemaster, by Bostrom™. To adjust the driver's seat for maximum control, safety and comfort:

1. Push the height adjustment knob in to lower the seat, and pull out on it to adjust the seat higher. Take special care not to hit the height control knob while driving. The seat will suddenly drop. The seat should not reach the limits (top or bottom) during normal operation.
2. To adjust the driver's seat fore and aft position, hold the fore and aft position lever to the left and position the seat to allow access to the control pedals. Pushing down the back angle adjustment lever and moving your body to position the seat back at the desired angle accomplish seat back angle adjustment.
3. The seat cushion tilt adjustment is located to the right front corner of the driver's seat. Turn the knob to position the seat cushion angle as desired.
4. Lumbar adjustment is possible by turning the lumbar adjustment knob, located on the right hand side of the seat back. Rotating the knob clockwise will increase the lumbar support; counterclockwise will decrease the lumbar support.
5. The driver's seat requires periodic lubrication in order to maintain smooth operation. A white, lithium based grease is currently available for this purpose. Common 10W30 motor oil will suffice. Whatever the lubrication product used, a light coat is all that is needed. The seat should be cleaned and lubricated at 6 month or 6,000 mile intervals, whichever occurs first.

Warning

The driver's seat belt should be worn any time the bus is moving.

The driver's seat belt on the Blue Bird Vision features automatic-locking retractors. These retractors are self-adjusting. They also feature an anti-cinch device that helps to prevent the belt from becoming uncomfortably tight while driving.

To use the belt, withdraw an adequate amount of the belt from the retractor and engage the two halves of the buckle. Release the belt, allowing the retractor to stow the unused portion. After the belt sets, tug on it to ensure the locking mechanism is engaged. To release the buckle, push the button in the center.

If your driver's seat is equipped with a shoulder restraint, it is an emergency activated restraint. The lap belt in this case may also be emergency locking. However, the lap belt may be automatic locking, depending on the options chosen at the time of manufacture. Emergency activated seat belts monitor 2 conditions: if the bus tips 15º or more, or if the seat belt/shoulder harness begins to pay out at more than a preset rate. If either of these conditions exists, the mechanism will automatically lock into place, restraining the driver.

To use the seat belt/shoulder harness, pull out an adequate amount of webbing and engage the buckle. The retractors will pull the harness snugly into place. You may adjust

Specs and Torques

Size	SAE Grade 2 (Ft-lbs)		SAE Grade 5 (Ft-lbs)		SAE Grade 8 (Ft-lbs)	
	Min	Max	Min	Max	Min	Max
1/4 – 20	3	4	5	6	8	9
1/4 – 28	4	5	6	7	9	10
5/16 – 18	7	8	12	13	16	18
5/16 – 24	8	13	17	19	24	27
3/8 – 16	13	15	17	19	24	27
3/8 – 24	15	17	23	26	33	37
7/16 – 14	21	24	33	37	46	52
7/16 – 20	24	27	37	41	52	58
1/2 – 13	33	37	50	57	70	80
1/2 – 20	37	41	57	64	80	90
9/16 – 12	47	53	73	82	101	115
9/16 – 18	53	59	82	91	115	129
5/8 – 11	63	73	106	112	138	159
5/8 – 18	73	83	112	128	159	180
3/4 – 10	116	129	177	200	250	282
3/4 - 16	129	144	200	223	282	315
7/8 – 9	112	125	289	322	407	454
7/8 – 14	125	138	322	355	454	501
1”- 8		188	437	483	618	682
1”- 12	188	205	483	529	682	746
1”- 14	205	210	529	541	746	764

Designated Metric Class 10.9		
Size	Torque (Ft-lbs)	
	Min	Max
M4	2.6	2.9
M5	5	6
M6	9	10
M8	22	25
M10	53	58
M12	75	83
M14	121	133
M16	176	196
M20	302	336
M24	598	664

7. Turn the release stud 1/4-turn to the right (clockwise).

Warning

Ensure the wheels are chocked in both directions, before releasing the spring brake manually. The bus will move without restraint and could result in serious injury or death.

8. Using a wrench of the proper size, tighten the hexnut on the release stud until the brake releases.

Ensure that the release stud is removed from the air chamber and stowed properly before placing the bus back in service.

If your bus is air brake equipped, it is necessary to maintain the air storage tanks and the drain valve for continued safe operation.

To drain the air tanks, turn the petcock located on the tank to allow the air pressure and water to escape the tank. This procedure should be performed daily.

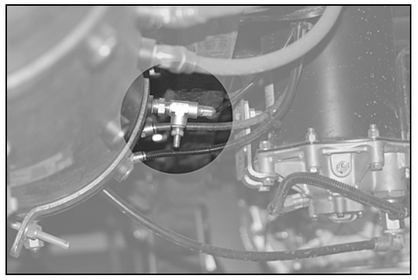
Warning

Do not move the bus until the air system is pressurized.

If your air system is fitted with a dryer, there should be little, if any, moisture in the tanks. However, it should be checked.

Schrader Valve

The air brake system is fitted with a Schrader valve to assist in maneuvering the bus when the engine isn't running. The Schrader valve is located on the wet tank. Using this valve will allow the system to be pressurized with any standard air hose, such as those designed to pressurize tires.



Door/Brake Interlock

The Door/Brake Interlock system is designed to prevent the vehicle from moving while a door is open. The interlock causes the throttle to be inoperative, and locks the brake system when any of the vehicle doors are open. The interlock also works in concert with the wheelchair lift. The lift must be properly stowed and locked before the interlock will permit the bus to move. A momentary disable switch is provided for special circumstances when the vehicle must be moved with a door open.

Towing or Pushing

The Vision should not be pushed or towed any more than enough to free the vehicle from mud or snow. When towing more than a few feet, always disconnect the drive shaft or lift the rear wheels off the ground.

When uncoupling the drive shaft on a vehicle equipped with hydraulic brakes, the emergency or park (hand) brake becomes inoperative. Never leave the bus in this condition without securely blocking the wheels in both directions.

the height of the shoulder harness by positioning the bracket to the most comfortable level. The buckle can be released by pressing on the button at the center.

Passenger Seats

Locking Lap Belts

Individual lap belts for passengers can be either retractable or non-retractable, depending on the options ordered at the time of manufacture. The use of the belt is essentially the same in either case.

- Place the catch securely into the buckle.
- Test for positive lock.
- Pull the loose end of the webbing to fit snugly across the lower hips.
- To remove the belt, press the button in the center of the buckle.
- To adjust the belt for larger persons, turn the buckle 90º to the webbing and pull to the desired length.

Belt Inspection / Maintenance

Inspect the passenger lap belts on a weekly basis (more often if conditions warrant).

- Check the buckle for positive lock.
- Check the webbing for adjustment.
- Check the webbing for general appearance and weak places due to wear or vandalism.
- The webbing can be safely washed with a mild soap and water solution.
- Do not use bleach or re-dye the webbing.
- Any cuts or worn lap belt webbing must be replaced as soon as possible.
- Any buckles found to be difficult or impossible to operate must be replaced as soon as possible.
- The buckle must release smoothly and easily.

Warning

Never allow a passenger to strap into a safety belt that is difficult to release.

Warning

Ensure that all passengers use the lap belt properly. The webbing must be fitted snugly across the body as low as possible. Wearing the webbing high around the waist will result in risk of additional injury in the event of a collision.

Warning

Do not use bleach or other harsh cleaning chemicals on the seat belt webbing. Do not re-dye the webbing. These processes can severely weaken the material.

Seat Inspection and Maintenance

Blue Bird passenger seats are built to comply with Federal Motor Vehicle Safety Standards (FMVSS). To ensure your passengers the safest possible transportation, periodic inspection and maintenance must be accomplished.

- Inspect the mounting hardware securing the seat frame to the bus body at least every 90 days. Tighten as necessary.
- Weekly, check the seat cushion attachment to the seat frame. Try to move the seat frame at this time to determine if the frame is loose.
- Check the upholstery weekly for cuts, wear spots, and soil.
- Check the seat back foam for soft or worn areas. Replacement must be with a foam product approved for this purpose. There are aftermarket providers of this material. The use of these third party materials places the responsibility for FMVSS compliance with the vehicle owner.

Cleaning

It is important to keep the interior of the bus as clean as possible. This includes the passenger seating. Regular cleaning and maintenance will help to prolong the service life of the seating and will enhance the general appearance of the bus.

For the common, everyday dirt and soil, a solution of mild soap and water will suffice. For those persistent stains and particles, a stiff brush will be helpful.

For stains of paint, tar and asphalt, the stain must be removed as soon as possible. Rub the stain gently with a series of small strokes. Rinse thoroughly with clean water. This type of stain will become permanent in a very short time.

Lacquer-based stains require immediate attention as well. Soak up as much of the material as possible with a clean dry cloth. Remove the remaining stain with a non-flammable cleaning fluid. Tuff Stuff™ and Armorall™ are two examples of this type-cleaning agent.

Wax-based stains, such as chewing gum, shoe polish or grease stains may be removed in the same manner as the lacquer-based stains. These stains will become permanent in a short while.

Cushion Removal

Warning

Passenger seat cushions must be installed in the manner prescribed below. Failure to properly install the passenger seat cushions could result in injury to passengers in the event of a collision.

Passenger seat cushion removal is accomplished by the following:

1. Loosen clamps in 2 places at the forward edge of the seat cushion. Do not remove the clamps.
2. Rotate the clamps to clear the retaining channel.
3. Lift the leading edge of the seat cushion 2 to 3 inches and pull forward to remove it from the seat frame.

Cushion Installation

Warning

The passenger seat cushion must be installed carefully to avoid risking passenger injury in the event of collision.

1. Position the rear edge of the seat cushion on the seat frame.
2. Lift the forward edge 2 or 3 inches.
3. Push the seat cushion to engage the positive clamp into the rear-retaining channel.
4. Ensure the swivel clamps at the forward edge of the seat cushion are positioned to clear the seat frame.
5. Ensure the rear clamps are securely engaged.
6. Lower the forward edge of the seat cushion into place.
7. Swivel the forward seat cushion clamps into position and tighten securely.

Passenger Seats with Seat Belts Equipped

Removal

1. Loosen the forward clamps.
2. Loosen the rearward swivel clamps.
3. Rotate the rearward clamps and lift the rear edge of the cushion.
4. Pull the seat cushion to the rear to disengage the front clamps.
5. Lift the seat cushion from the seat frame.

Installation

1. Position the forward edge of the seat cushion about 2 inches inside the seat frame.
2. Slide the seat cushion toward the front of the seat frame until the positive clamps engage the front retaining channel.
3. Lower the rear of the seat cushion and turn the swivel clamps to engage the square tubing at the rear of the seat frame.
4. Rotate the swivel clamps into locking position.
5. Tighten all hardware securely.

Track-Mounted Seating

If your Blue Bird Vision is equipped with track-mounted passenger seats, you are responsible to ensure seat spacing in accordance with FMVSS 222 “School Bus Passenger Seating and Crash Protection” and FMVSS 217 “Window Bus Retention and Release”. A decal outlining these requirements is located above the windshield of the bus.

All passenger seats must have a seat or suitable barrier in front of them to provide compartmentalization as required by Federal Motor Vehicle Safety Standards. When you reconfigure the seats to accommodate special needs, it is possible you will need additional barriers to comply with FMVSS rules. These barriers are available from Blue Bird Body Company Parts Sales.

Adjust the cable linkage by turning the grip portion of the hand brake lever. The brake shoes should not engage the driveshaft when the brake is released; however, they should grip the driveshaft securely when the hand brake is in the "engaged" position. When the parking brake is properly adjusted, the lever will snap firmly into place. Lever effort will be 80-100 pounds. The hand brake should hold the fully loaded bus on a 20% incline. The system is designed to hold on a dry, paved surface.

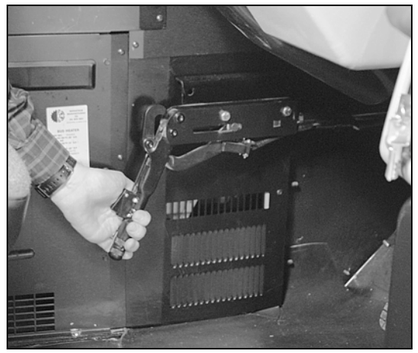
If the incline is wet or covered with ice or snow, do not park on it. The brake will hold, but the tires may not.

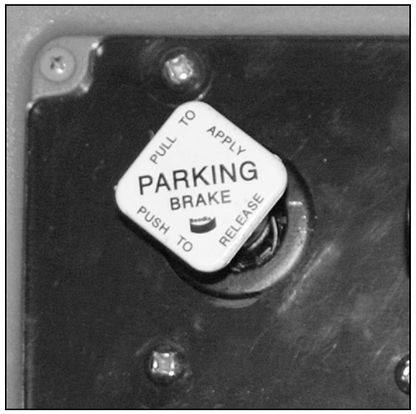
Warning

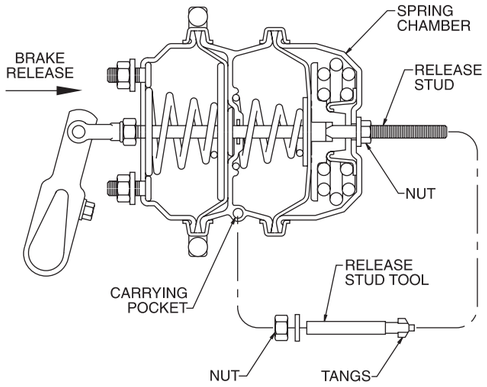
Parking the bus on an incline of more than 20% will require the use of wheel chocks properly placed.

The air brake system employs spring-actuated brakes on the drive (rear) wheels. When the parking brake valve on the dash is pulled, it vents the air pressure 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 and release the rear brakes.

In the air brake system, if the air compressor becomes inoperative, low air pressure could cause the rear brakes to engage and lock. If this happens, it is best to call for professional help to deal with it. If the bus must be moved, it is possible to release the rear brake chambers with a tool designed for the purpose. This tool is stowed in a special tube located on the side of the air chamber.







Warning

Never attempt to release the spring brake until the wheels have been chocked in both directions. The bus will begin to move as the spring brakes are released, depending on the incline of the parking space.

To release the spring brake manually:

1. Chock the wheel in both directions.
2. Remove the spring brake release stud from the stowage pocket on the side of the air chamber.
3. Run the hex nut of the release stud as far up the threads as necessary to insert the tang end into the spring brake chamber.
4. Clean the end of the spring brake chamber.
5. Remove the plastic plug in the end of the spring brake chamber.
6. Insert the tang end of the release stud into the spring brake chamber.

Warning
The engine should not start in this position.

Use 3rd gear selection for steeper inclines and heavy city traffic. The bus will automatically start moving in 1st gear and shift into 2nd, as the torque load becomes less.

Warning
The engine should not start in this position.

Use 1st gear under the following conditions:

- When pulling through mud or deep snow.
- When maneuvering in tight places.
- When driving up or down very steep grades.

First gear (1) provides the bus with the maximum driving torque and maximum engine braking effect. The transmission will not shift into a higher gear unless the maximum engine RPM is exceeded. The transmission may then shift into a higher gear to prevent engine damage. This could result in a loss of control during the descent of a very steep incline. Use the bus service brakes to help avoid the transmission upshifting.

The pressure the driver applies to the throttle pedal determines the shifting point of the transmission. With the pedal fully depressed, the transmission will take longer, and reach a higher speed, before shifting to the next gear. The action will influence fuel economy as well.

Service Brakes

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

There is a different feel to the operation of hydraulic brakes versus air brakes; however, they perform the same task. Either system is designed and built to stop and hold the bus under the full range of driving conditions for which the Vision is intended to operate.

Warning
Hydraulic brakes are power assisted. The brakes will be noticeably less effective when the engine is not running. The bus should not be moved without the engine running.

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 will be greatly diminished by the loss of either the front or the rear brakes; however, it will be possible to stop the bus.

Warning
Do not operate the bus with the loss of either the front or the rear portion of the system. Stop the vehicle and obtain professional assistance immediately.

The hydraulic brake system includes an auxiliary electric pump that acts 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. Seek immediate professional assistance.

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.

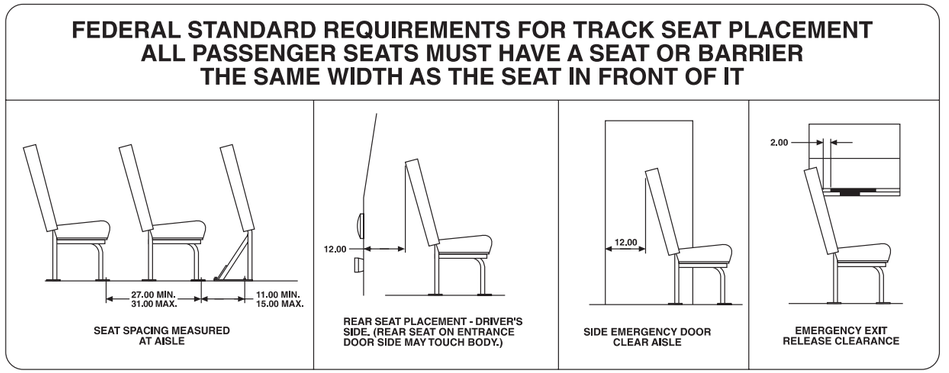
Inspect the level of the brake fluid reservoir at least weekly; more often if there is reason to believe it is low. When the brake pedal depresses more than normal (goes closer to the floor) or when the pedal feels “mushy”, check the reservoir level. If you need to add fluid (DOT–3) frequently, have the system checked out by a professional mechanic.

Caution
Use only DOT–3 brake fluid in the brake system. Ensure that the fluid is put into the proper reservoir. The power steering fluid reservoir is located adjacent to the brake fluid reservoir. The brake fluid reservoir is mounted to the top of the brake master cylinder. The power steering reservoir is mounted to the firewall, adjacent to the brake master cylinder.

Parking Brake

There is a noticeable difference in the parking or emergency brake operation between the two systems.

The hydraulic brake system employs a hand-operated lever, located to the driver’s left. When the driver pulls this lever into the engage position, a mechanical linkage causes a brake shoe assembly to close around the driveshaft, preventing the bus from moving. It should be noted that this type parking brake becomes inoperative when the driveshaft is disconnected in preparation to tow the vehicle. The mechanical parking brake must be kept adjusted properly for maximum holding power.



Note
It is the responsibility of the entity installing seating in a school bus to ensure compliance with all applicable laws. We have quoted the known federal rules, but your state or locale may have other requirements. Blue Bird Body Company cannot be responsible for parts, equipment or seating not installed by the company at the time of manufacture. Likewise, Blue Bird Body Company cannot be responsible for any modification to factory-installed equipment and components.

Wheelchair Lift

Either Ricon™ or Braun™ supplies this Blue Bird Vision optional feature. The appropriate operator’s manual from the OEM is provided with your new bus. The wheelchair lift requires specific care and maintenance, and each vendor has requirements that must be met for the continued safe operation of the lift.

- The Ricon™ model S5010, “S” series lift provides a 34-inch (.864 m) by 51-inch (1.295 m) platform for the transport of the passenger.
- The Braun™ model L919FIB also provides a 34-inch (.864 m) by 51-inch (1.295 m) platform for the transport of the passenger.
- Both lifts provide a maximum of 48 inches (1.219 m) lift from the ground (street) level to the floor of the bus.

It is important that drivers familiarize themselves with the correct operational procedure (as outlined in the OEM instruction manual) prior to attempting to load or unload a passenger.

1. The driver must bring the vehicle to a complete stop, set the parking brakes and shift the transmission to Neutral ("N").
2. The driver should activate the appropriate exterior warning lights required by state and local laws by turning the switch at the (F-1) position "On".
3. When the driver places the "Lift" (E-4) switch in the "On" position, it engages the brake interlock, to hold the bus in position.
4. The driver must go to the "Lift Door" to open it from the outside.
5. As the lift door is opened, an audible warning signal will begin and continue until the door is in the fully open position.
6. When the lift door is fully open, the area lights will come on and the warning sound will cease. The control pendant for the lift will become accessible.

Caution
Be certain you understand the complete operating instructions for the lift before you attempt to load or unload a passenger.

7. Operate the wheelchair lift in accordance with the instructions in the OEM Operator's Manual.

After the passenger is either loaded or unloaded, the lift must be stowed and the lift door securely closed and locked. When the lift is stowed and you begin to close the door, a buzzer will sound and the power will be removed from the hydraulic pump. The door buzzer will sound until the door is properly closed and latched.

The driver must place the Lift Switch in the "Off" position to release the interlock system.

All wheelchair lifts used in the Blue Bird Vision are provided with a method for manual operation of the lift. Re-

fer to the OEM instruction manual for the location and manual “emergency” operation.

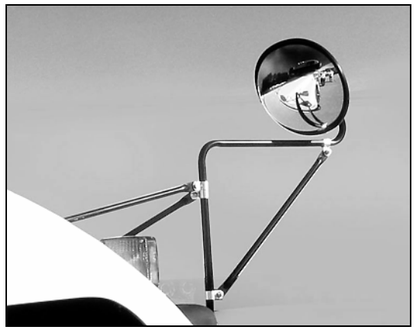
Mirrors and Mirrors Adjustment

Warning

The mirror system on this Blue Bird Vision 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 are not a substitute for proper driver training and caution. Do not 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.

There is a minimum of 4 external rearview mirrors on the Blue Bird Vision™. The curbside rearview flat mirror and convex mirrors are both mounted from the top of the bus, near the top right-hand corner of the windshield. The two mirrors are mounted in a common housing. The driver’s side rearview mirrors are mounted near the bottom left-hand corner of the windshield.

There is a minimum of 2 cross-view mirrors on the Vision, one at the forward, outside corner of each fender. The hardware for the fender mounts must be maintained at 20 – 25 Ft lb torque (27 – 34 N•m) to minimize vibration.



Caution

Do not over-torque the mirror mounting hardware.

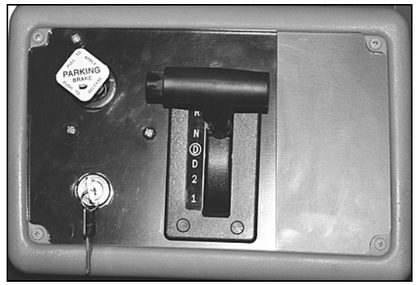
The outside rearview mirrors are designed to allow the seated driver a comprehensive view of the areas at each side of the bus and to the rear of the bus.

Warning

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

- Bring the bus to a complete stop using the service brakes.
- Ensure the engine idle is in the “low” position.
- Put the shifter lever in the Neutral ("N") position.
- Apply the emergency (hand) brake on hydraulic systems.
- Push the “Parking Brake” valve on units with air brakes.
- Chock the wheels and take any other precautionary measures necessary to ensure the bus doesn’t move.

If this procedure is not followed, the bus could move unexpectedly and cause serious injury or death and/or property damage.



Warning

The transmission may not shift into Reverse ("R") due to an active range inhibitor. Check for the illumination of the “Check Transmission”, “Range Inhibited” or the “Check Engine” light(s) on the driver’s telltale display. Check the Shift Inhibits section of the Allison Operator’s Manual for complete details.

Caution

Do not idle in Reverse ("R") for more than 5 minutes. Extended idling in Reverse may cause transmission damage and overheating. Always select Neutral ("N") whenever idle time exceeds 5 minutes.

"Reverse" is used to back the bus. Completely stop the bus and allow the engine to return to low idle before shifting from a forward gear to Reverse, or from Reverse to a forward range. The Reverse warning signal is activated when the shift selector is in the “R” position. To shift the lever into Reverse, press the lockout button in the shifter handle, and move the lever into position.

Warning

Bus service brakes, parking brakes or emergency brake must be applied while the transmission is in the Neutral ("N") position. Neutral does not automatically apply vehicle brakes.

Warning

Do not let the vehicle “coast” in Neutral. There is no engine braking and you could lose control, endangering yourself and others. It may be impossible to shift the transmission back into gear while the bus is moving.

Use "Neutral" for the following.

- To start or stop the engine.
- To idle while checking the accessories.
- To operate the engine at idle for periods longer than 5 minutes.

Warning

The engine should not start with the shifter in the “D” position. The transmission may not shift into Drive ("D") because of an active range inhibitor. Check for the illumination of the “RANGE INHIBITED” light or the “CHECK ENGINE/TRANSMISSION” light on the driver’s telltale panel. Refer to the Shift Inhibits section of Allison™ publication number OM3063EN.

Caution

Do not idle in Drive for more than 5 minutes. Extended idling in Drive may cause the transmission to overheat and could damage the transmission. For idle periods of more than 5 minutes, always shift into Park ("P") or Neutral ("N").

Note

Turn the High Idle switch to the Off or Low Idle position before attempting to shift from neutral to a motion gear. A range inhibitor will prevent any shift from Neutral while the engine is set to high idle.

Use overdrive for normal driving. The transmission will automatically move through the gear sequence, starting in 1st and progressing to 4th, depending on the configuration of your transmission. The transmission will also downshift automatically as you slow the bus.

Warning

The engine should not start with the shifter in this position. The transmission has a “hold” feature to prohibit upshifting, above the range selected during normal driving. While descending steep inclines, select a lower shifter position to assist in slowing the bus. However, if the incline is steep enough to cause the engine to exceed its governed speed, the transmission may suddenly shift to a higher gear. This could cause loss of control. Use the vehicle service brakes to prevent the engine from exceeding its governed speed in the held range.

Warning

To help avoid a loss of control, use a combination of the vehicle service brake and downshift of the transmission, to maintain speed while descending steep grades. The bus should never be allowed to travel faster than the brakes are capable of stopping, so plan ahead. Downshift before you begin the descent.

Use the 4th gear selection while driving in city traffic and/or while descending or climbing inclines. The transmission will automatically start in 1st gear and progress into 3rd.

Caution

The switch should be held in the "Start" position for a maximum of 30 seconds. If the engine has not started in 30 seconds, the operator should not try to start the engine again for at least 2 minutes, in order to allow the starter (cranking motor) time to cool

Note

If the ignition fails to make a connection, check the vandal lock(s) to ensure it/they is/are not engaged.

4. The “CHECK ENGINE” lamp will flash while the engine is cranking. This lamp will extinguish after the engine starts and achieves proper oil pressure.

- If the lamp fails to flash during cranking, have qualified service personnel correct the problem.
- If the lamp continues to flash after the engine is running, refer to qualified service personnel.

Note

The “AIR INLET HEATER” indicator lamp will flash for a minimum of 2 seconds, regardless of the coolant temperature. If the “AIR INLET HEATER” flashes for more than 2 seconds, wait until the lamp stops flashing before attempting to start the engine.

Caution

Do not engage the cranking motor when the flywheel is turning. Do not attempt to start the engine under load.

Caution

The oil pressure should rise within 15 seconds after the engine starts. Do not increase engine speed until the oil pressure gauge indicates normal. If oil pressure is not indicated on the gauge in 15 seconds, do not operate the bus. Stop the engine and refer to qualified service personnel.

5. Release the key switch and allow it to return to the “ON” (or run) position immediately after the engine starts. After the engine starts, ensure that the transmission is still in the neutral position. Once a normal engine oil pressure and air pressure are established, the vehicle may be operated at a light load and speed.
6. After the engine has started, the air inlet heater may continue to run in a “continuous” mode or intermittently. The air inlet heater will automatically turn off when the sum of the engine coolant temperature and the air inlet temperature exceeds 127º F (35º C).
7. If the engine is operated at a light load and low speed, it will reach normal operating temperature more quickly than if it idles at no load. When idling in cold weather, increase the engine idle speed to a maximum of 1200 revolutions per minute (RPM); this is the “HIGH IDLE” function. Do not exceed the no-load recommended RPM during the warm up process. Limit unnecessary idle time to 10 minutes.

High Idle Function

The high idle control positions the throttle at high idle. This allows the engine to warm up faster than at the normal low idle position. High idle is limited to 1000 to 1200 revolutions per minute (RPM) to avoid engine damage. High idle can be activated by a switch in the driver’s area. With the transmission in the neutral position and the park brake set, move the toggle switch to the “HIGH IDLE” position to maintain a constant engine RPM above the normal idle speed.

Caution

Do not move the toggle switch to the high idle position unless the transmission is in Neutral and the park brake is engaged.

Starting Problems

For more detailed instructions, refer to the engine manufacturer’s Operator’s Manual or Handbook.

One or more of the following items may cause an occasional starting problem:

- Low battery charge.
- A malfunctioning cranking motor.
- Problems with the wiring harness or connections.
- A lack of fuel.

If the fuel system has been run dry, fill the fuel tank and prime the fuel system.

Transmission

Your Blue Bird Vision is fitted with an Allison™ 2000 series transmission. The shifter lever is mounted on the dash to the driver’s right. Gear selection is straightforward; only brief instruction is required to master the shift possibilities on the Vision.

The information in this Operator’s Manual is intended to assist the driver in selecting the proper gear for the circumstances. It is accurate to Blue Bird's knowledge, based upon the information available at the time of printing. However, you must remember, Allison has intimate knowledge of its product(s) and, for this reason, the appropriate Allison Operator’s Manual will take precedence over this publication. Please refer to Allison publication number OM3063EN. (Please note that this publication number was valid at the time of this manual's publication, but may be subject to change. For clarification, please contact Allison Transmission.)

Warning

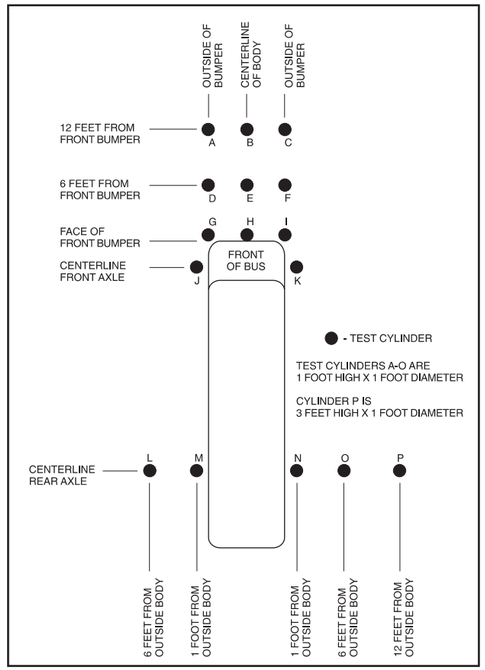
Each time you park the bus or leave the driver’s seat while the engine is running:

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 must be able to see the entire test cylinder in each location.
- The driver must be able to see the entire top surface of cylinders “M” and “N”.
- The driver must have a view of at least 200 feet from the surface of the mirror.
- The elliptical cross-view mirrors should be adjusted so the seated driver has a complete view of all cylinders “A” through “P”, when they are positioned as shown in the illustration, and not directly visible.
- The view provided by the elliptical mirrors must overlap the view afforded by the rear view driving mirror system.

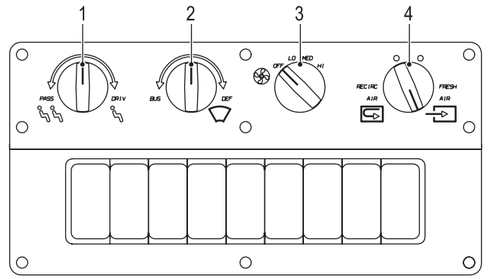
All mirrors must be cleaned and adjusted as necessary to provide a safe driving environment. The use of a mild ammonia/water solution is recommended to clean mirrors.



Heaters and Defrosters

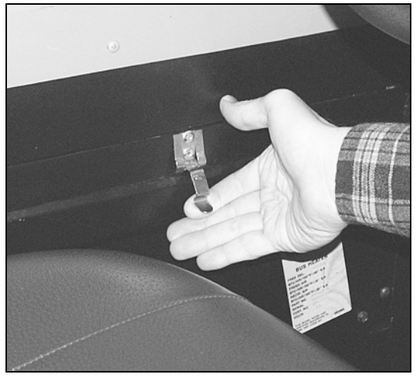
The heater on your Blue Bird Vision is a hot water type heater. The heat is produced by the engine and picked up by the engine coolant. When heat is desired in the passenger coach, the hot engine coolant is routed through heat exchangers (heater cores) located in the passenger area.

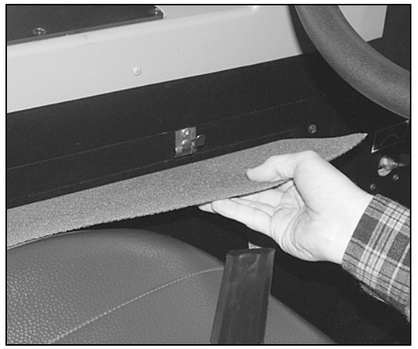
The heater may have a series of fan motors incorporated in the system to help direct warm airflow to particular areas of the coach, such as defrosters and the stepwell area. The heater controls are located to the left of the driver, on the switch panel. The warm air de-fusers are capable of being turned in different directions to help eliminate cool spots.



Switch	Name	Comments
1	Damper	Adjusts air flow balance in two directions. By turning knob clockwise, a damper is moved and air is diverted toward the driver. By t urning counterclockwise, the air is diverted toward passengers. The amount of air diverted is proportional to amount the knob is turned.
2	Defrost	Adjusts the air flow balance between the vehicle compartment and the windshield. By turning knob clockwise, a damper is moved and air is diverted toward the windshield. This should be done to defrost the windshield.
3	Blower	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, median and high.
4	Fresh Air Damper	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 counterclockwise air from outside the bus is used in the system. This is helpful when trying to cool the vehicle.

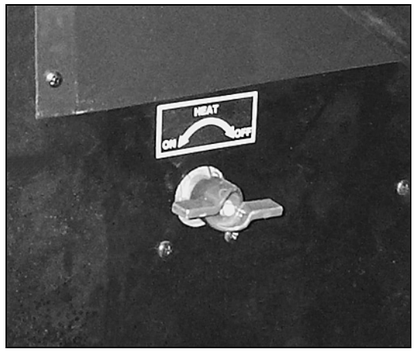
The filters in the heater system must be maintained and changed on a regular basis, to maintain the airflow across the heater cores. The main heater filter is located behind a small panel at the driver's left. This panel is held in place by luggage type over the center clasps. To remove the filter, pull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





Note
The cover panel must be in place to maintain the airflow through the filter.

There is a cut-off valve located near the driver's left knee that will stop engine coolant flow into the heater core during warm weather.



Caution
Water is corrosive at engine operating temperatures. Never add plain water to the system.

When addition of coolant is necessary, a premixed solution is required; you may premix the solution from concentrate and distilled water, or you may purchase a prediluted solution. Either way, it must meet the certified parameters of EC-1 and ASTM 4985 or ASTM 5345. Caterpillar ELC™ is one such product.

Please refer to the appropriate Operator's Manual from the manufacturer of the engine in your bus for complete details concerning coolant requirements (i.e., Caterpillar publication number SEBU7011-11 for the Caterpillar 3126 engine or Caterpillar publication number SEBU7766 for the Caterpillar C-7 engine). The OEM documentation will always take precedence over this publication in the event of conflicting information.

Shutters

If your bus is equipped with radiator shutters, the purpose is to help control the engine operating temperature in extremely cold weather. The shutters are automatically controlled by the operating temperature of the engine, and are effective by controlling the amount of air flowing through the radiator cooling fins.

The shutters must be maintained and kept free of foreign material that would prevent them from operating. It is a good idea to inspect them for obstruction on a routine schedule, such as when checking the engine oil level. Remove any debris and, if necessary, seek technical assistance to determine whether the shutters operate properly.

Prior to Starting the Engine

For the most complete engine starting details, refer to the Operator's Handbook from the engine manufacturer. A copy of this manual is provided in the material shipped with your new Blue Bird Vision. The information and/or instructions in the manufacturer's handbook will take precedence over the limited information in this manual.

Your Blue Bird Vision may be equipped with an engine alarm system, designed to help prevent major damage due to high coolant temperature and/or low engine oil pressure. If so equipped, when the engine coolant temperature exceeds 210º F (99º C) and/or the engine lubricating oil pressure falls below 6 psig, an alarm will sound.

Caution
The engine must be shut down immediately when the alarm sounds to avoid costly engine damage.

Warning
Engine exhaust contains products of combustion that may be harmful to your health. Always start and operate the bus in a well-ventilated area. If the engine must be operated in an enclosed area, vent the exhaust to the outside.

Perform the required, daily, under-the-hood inspection and maintenance. Also perform any other periodic maintenance prior to starting the engine. This routine can help avoid costly major repairs later.

Caution
Engage parking brake for safety purposes.

1. Look for obvious oil leaks, coolant leaks, loose belts and trash build-up.
2. Remove trash build up and arrange for any necessary repairs as a result of your inspection.
3. Look for cracks in the coolant hoses that may not be leaking yet.
4. Look for cracks in the drive belts and check that they are tight enough to drive the accessories.
5. Check the wiring for loose connections and obvious breaks in the insulation or frayed wires.
6. Check the oil level.
7. Check the fuel supply. Drain water from the separator, if equipped. Ensure the fuel supply valve is open.
8. Check the coolant level.
9. Check the air intake service indicator.

Starting the Engine

Warning
Never use ether as an aid in trying to start the engine.

1. Engage the parking brake and place the transmission in neutral.
2. Turn the keyed ignition switch to the "ON" position.

Caution
Wait until the "Wait to Start" light is no longer illuminated before turning the ignition to the "Start" position.

3. Once the "Wait to Start" light is no longer illuminated, turn the key to "START", to crank the engine.

Note
If the engine does not start after 15 to 20 seconds of cranking, release the key start switch.

Note
The air inlet heater will turn on if the sum of the coolant temperature and the air inlet temperature is less than 109º F (25º C). The "Wait to Start" indicator time may vary somewhat depending upon the temperature. Colder temperatures may increase the time the "Wait to Start" indicator illuminates.

Warning
Never attempt to inflate a seriously low tire. The rims may become dangerous at such times. Always seek professional service in this case.

Warning
Tire inflation pressure must not exceed the recommendations of the tire manufacturer or the wheel/rim manufacturer. You must consider the specific load, speed and application when pressurizing a tire. The inflation pressure information on the tire sidewall does not take the wheel/rim capacities into consideration. Tires should never be inflated beyond the pressure listed on the vehicle certification plate without consulting the tire manufacturer and the wheel/rim manufacturer.

Using Booster Cables

Warning
Ensure that the ignition switch of the disabled vehicle is in the "OFF" position. Always connect the POS (+) battery cable first. Connect the NEG (-) cable to the chassis, away from the batteries. The batteries produce a highly flammable gas. Do not smoke while working near batteries. Take all precautions to prevent sparks from any source in the proximity of the batteries.

1. Ensure the posts on the jumper and bus batteries are clean.
2. Using the RED jumper cable, connect the POS (+) terminal of the bus battery to the POS (+) terminal of the jumper battery.
3. Using the BLACK jumper cable, connect one end to the NEG (-) terminal of the jumper battery.
4. Connect the other end of the BLACK jumper cable to a solid chassis ground on the bus, such as the engine. Do not connect the black jumper cable to the NEG (-) terminal of the bus battery.

Caution
Do not crank the engine for more than 30 seconds. Allow the cranking motor to cool at least 2 minutes between attempts to start the engine.

5. Allow time for the jumper battery to boost the bus battery before attempting to start the engine.
6. After the engine starts, remove the NEG (-) BLACK booster cable from the ground on the bus.
7. Remove the NEG (-) BLACK booster cable from the terminal of the booster battery.
8. Remove the POS (+) RED booster cable from the POS (+) terminal of the bus battery.
9. Remove the RED booster cable from the POS (+) terminal of the booster battery.

Engine

Engine Cooling System

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

Check the engine coolant level in the sight glass daily to ensure adequate level. When the coolant level is low, fill only with pre-mixed coolant of the proper specifications. Never fill with plain water. H_2O is corrosive at engine operating temperatures. When pre-mixing antifreeze, always use distilled or ionized water.

Antifreeze

The Blue Bird Vision is filled with an extended life coolant mixture at the time of manufacture. This coolant does not require change as often as regular, heavy-duty antifreeze. The service life of extended life antifreeze is 6 years or 600,000 miles (967,000 km), whichever occurs first.

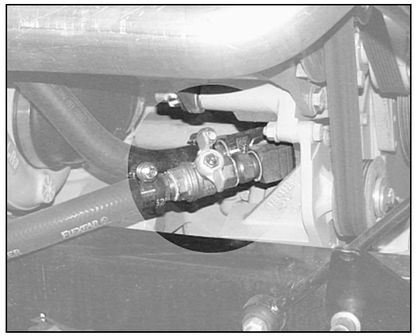
An extender additive is required at 300,000 miles (483,000 km) or 3 years, whichever occurs first. The amount of extender addition to the system is dependant on the total system capacity. Your Caterpillar engine and the cooling section (radiator, transmission cooler, attendant hoses and the standard heater/defroster) holds 7.5 gallons of coolant. To this, you must add the capacity of the heater system options included on the unit under repair. Calculate the heater options at a rate of 2/3 cup of coolant per foot of heater hose and core length. You must also add the capacity of the water filter and attendant hoses if this unit is so equipped. Refer to Caterpillar publication SEBU7011-11 (3126 engine) or SEBU7766 (C-7 engine) for the appropriate amount of extender to add to the coolant system on your bus.

Caution
Failure to drain the heater/defroster system and the water filter any time the system is filled with new coolant (changed) causes the coolant service life to revert to the date those parts of the system were filled.

The coolant mixture is 55% antifreeze (ethylene glycol) and 45% distilled or ionized water (H_20). This coolant mixture will protect against freezing to –40° F (-40° C). This mixture also provides boil protection to 228° F (109° C) at sea level. The Vision should never be operated without this coolant mixture.

Note
There are two other heater cut-off valves to prevent engine coolant entering the passenger area during warm weather. One is at the top of the engine on the heater hose exit from the block (near the water pump); the other is under the alternator at the engine coolant return point. All three valves must be in the open position to provide heat to the coach. Service personnel should normally position these valves at appropriate times.

If all the valves are open and there is no heat, check the coolant level. The efficiency of the heaters is determined, in part, by the speed of the engine. The water pump is a major factor in the circulation of the engine coolant; it pumps more when the engine is working. The engine also produces more heat when working than when idling. Your bus may be equipped with an auxiliary water pump in the heater system.



The Vision is equipped with a ducted defroster unit that is a part of the main or "driver's" heater. The airflow to the defroster duct is controlled by the manipulation of the switches at the driver's command. Some options will also include a fan, mounted over the driver's head and to the left. This auxiliary fan will greatly increase the amount of warm air directed at the windshield.

If the auxiliary defroster fan begins to vibrate noticeably, carefully remove the front portion of the fan guard by disengaging the plastic clips around the parameter.

Using a soft clean cloth, wipe the fan blades clean. Replace the fan guard before operating the fan.

Warning
Never operate a fan without the fan guard in place. The spinning fan blade can cause serious bodily harm.

If the preceding procedure fails to correct the vibration problem with the auxiliary fan, refer to properly qualified service personnel.

Heater Options

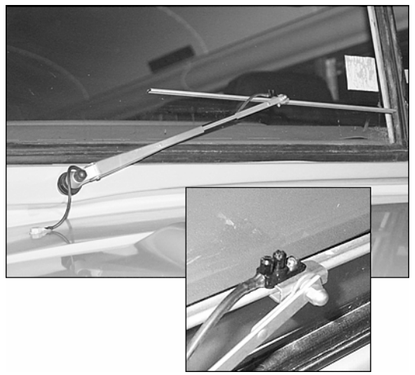
There are several heater options available on the Blue Bird Vision. The placement and BTU rating of these options is determined by the choices made during the manufacture of your bus. Some considerations for the heaters in the coach area include the duration and severity of the cold weather experienced in your locale.

It is important that you familiarize yourself with the placement of the ancillary heaters because the filter for each must be maintained in a clean condition. Please refer to the vendor material supplied with your bus to learn the proper method of changing the filters. Generally, the heaters will be located under a passenger seat. The heater could be mounted to the underside of the seat, or it could be mounted on the floor under the seat. The mounting is dependant upon the options chosen.

Caution
After the first 1000 miles of operation, ensure that service personnel inspect and tighten all the hose clamps in the system to prevent engine coolant loss.

Windshield Wiper Blade

To replace a windshield wiper blade:



1. Remove the locknut (1) from the center of the wiper blade assembly.
2. Disconnect the washer hose.
3. Remove the wiper blade assembly.

Installation of a new wiper blade assembly is accomplished in the reverse order of the removal instructions above.

Windows

Windows are located throughout your Blue Bird Vision bus. For safety purposes, keep all windows clean to ensure maximum visibility. Use a silicone spray lube for maintaining latches and slides.

Emergency Equipment

First Aid Kit

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

Fire Extinguisher

The fire extinguisher is located toward the curbside of the bus, under the dash assembly. All states have specific requirements for the location, type and size of the fire extinguisher for school buses operating within the state. All states have the requirement that the fire extinguisher be monitored to keep the charge level within the acceptable range, and the expiration date current. It is the responsibility of the driver to ensure compliance prior to each trip.

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 Axe and Crowbar

The fire axe and crowbar are located on the electrical panel access cover to the left of the driver. Check the fasteners every 30 days to ensure they are tightened securely.

Flare Kit

The flare kit is mounted on the left-hand side panel behind the driver's seat. 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.

Triangular Markers

For those states requiring the triangular markers to be located in the driver's compartment, this container is mounted above the windshield near the roofline and the center of the bus. For the other states, it is mounted on the floor, under the rearmost left-hand seat. The contents of the triangular warning device kit should be checked each month or as the regulations of your state dictate.

A Notice to Professionals

The bus should not be lifted from the front axle unless there is a block of wood available to use as a buffer, to spread the weight over the greatest possible span of the axle. It is permissible to use specially fabricated cradles fitted to the jack or lifting device as well. When lifting to replace a front wheel, always position the lifting device in such a manner that the bus is lifted from the axle wraparound — that is, the plate from which the axle/suspension U-bolts protrude, except when using fabricated cradles to protect the axle.

1. Ensure the bus is parked on a flat, level surface of sufficient firmness to support the weight of the bus concentrated on the "footprint" of the jack.
2. Chock the wheels in both directions.

Warning

Never work under or around a bus supported only by a hydraulic jack. Always use jack stands or blocks as a safety device. Never lift the bus by the bumper.

3. Position the jack at the jack point shown in the illustration, nearest the wheel to be removed.
4. Ensure the lugs are "broken loose".
5. Raise the wheel enough to rotate the wheel.
6. Position jack stands or blocks under the axle, inboard of, and as near the jack as practical.

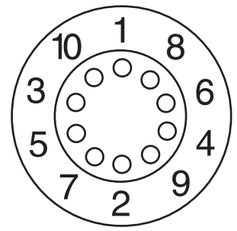
Changing a Flat Tire

The lug nuts are tightened to a torque value of 450 - 500 Ft lb (610 – 678 N•m). Without the proper power tools, it is very difficult to remove the lug nuts. The lug nuts must be "broken loose" before lifting the wheel off the ground.

Warning

Never work around or under a bus supported only with a bottle jack.

1. Remove the lug nuts.
2. Position the spare as near to the hub as possible.
3. You will probably need to raise the hub slightly to position the wheel on the studs (lugs).
4. Hand-tighten all lug nuts.
5. Using the lug wrench, tighten all the lugs about a quarter turn.
6. Remove the blocks or jack stand.
7. Lower the bus enough to lock the wheel in place.
8. Using the pattern illustrated, tighten the lug nuts in small increments (about 20 Ft lb (27 N•m)).
9. Tighten the lug nuts as much as possible (at least 300 Ft lb (406 N•m)). See the final torque value in the Warning following step 12.



10. Lower the jack and remove it from under the axle.
11. Stow the damaged wheel and tire assembly.
12. Stow the tools.

Warning

Drive very carefully to the nearest professional tire service. Have the lug nuts tightened to a torque value of 450 – 500 Ft lb. (610 – 678 N•m) if you intend to drive on the spare wheel and tire assembly.

Tires, Wheels and Rims

The tires on your Blue Bird Vision must be properly inflated whenever the vehicle is being operated. Tire pressure that is too low causes a loss of driver control, excess heat in the tire due to "flexing" of the sidewalls and excessive tire wear at the outside edges of the tire. Excessive tire pressure is dangerous because of the explosive nature of escaping pneumatic pressure and causes excessive tire wear in the center of the tread due to the crowning effect. The wheels on the Blue Bird Vision are steel, disc type wheels. There are 10 stud (or lug bolt) holes, on an 11.25-inch (285.74 mm) "hole circle" in an equidistant pattern. The wheel can be either hub-piloted or stud-piloted. There are 5 hand holes forming spokes in the wheel.

Warning

Never operate a vehicle with under-inflated tires. Low air pressure can cause the tire to "flex" too much, creating excessive heating, possibly to the point of ignition. Low tire pressure also causes a loss of driver control.

Warning

An inflated tire and rim assembly is a very dangerous item. When misused or in a worn-out condition, the tire can separate from the wheel and rim in an explosive manner. Fatal accidents have occurred as a result of improper training and care while handling inflated tires. Always refer to expert service personnel when possible. Without the proper tools, training and experience, it is very dangerous to replace a tire on the bus.

The tires on the Vision are tubeless type, and are mounted on 15º drop center rims and wheels.

If there is a properly inflated spare available and you feel professional assistance is not an option, refer to the section on jacking the bus.

Spare Wheel Location

The Vision may be fitted with a spare wheel and tire, depending on the options chosen at the time of manufacture.

The recommended procedure in the event of a flat tire is to summon professional assistance. The task of replacing a wheel on this vehicle is a difficult and dangerous one.

Warning

Read and understand all the instructions in this manual, pertaining to changing a tire, before attempting to lift the bus or remove a wheel.

The spare wheel/tire assembly may be located in any one of three possible locations, depending on the options chosen. Most buses do not have a spare wheel.

The spare may be mounted under the bus, in a special spare wheel carrier. The physical location of this carrier depends on the options chosen at the time of manufacture.

To remove a spare wheel stowed in this manner:

1. Remove 2 hex nuts securing the wheel.
2. Rotate the wheel assembly to release it from the locking mechanism.
3. Position the lug wrench into the hole provided and carefully winch the spare wheel to the ground.

Warning

Maintain a firm grip on the lug wrench during this procedure. The wrench could slip due to the weight of the wheel and cause serious injury or death.

To place the damaged wheel and tire into the spare carrier:

1. Position the wheel on the ground beneath the carrier.
2. Place the metal strap into the center of the wheel.
3. Remove the slack in the support cable while holding the metal keeper strap in position.
4. When the weight of the damaged wheel holds the keeper strap in position, continue to winch the assembly into the locked position.
5. Rotate the assembly to secure in position.
6. Install hex nuts to lock the assembly into position for transport.

The spare wheel could be stowed in a special compartment at either side of the bus, but generally this compartment is positioned on the right-hand (curb) side of the vehicle. The exact position is determined by the options chosen at the time of manufacture.

To remove a spare wheel assembly from this type stowage:

1. Unlatch the compartment door and stow it with the chain and hook assembly provided for this purpose.
2. Remove the “keeper” pin.
3. Pull the spare wheel carrier rack toward you as far as possible.
4. Remove the wheel hold-down clamp and lift the wheel assembly to place it on the ground.

Warning

Do not slide the wheel assembly over the edge of the sliding rack. The rack will suddenly retreat into the compartment and drop the spare wheel assembly, possibly causing serious injury.

To place the damaged wheel and tire assembly into the spare wheel compartment:

1. Position the spare carrier slide in the retracted position.
2. Position the damaged wheel against the opening in as high (nearly vertical) a position as possible.
3. Lift the damaged wheel and tire from the bottom, pushing inward at the same time.
4. The spare wheel will slide into the compartment.
5. Pull the rack out far enough to position and install the hold down clamp.
6. Secure the sliding rack.
7. Close and secure the compartment door.

The spare wheel may be mounted inside the bus. If so, it is located at the left-hand side of the bus, behind the last seat.

To remove the spare wheel and tire assembly from this stowage:

1. Open and secure the rear (EMERGENCY) door.
2. Remove the spare cover, if so equipped.
3. Remove the hexnut(s) securing the spare wheel to the carrier.
4. Carefully place the spare wheel on the ground through the rear door.

Mounting the damaged wheel and tire assembly in the spare carrier is accomplished in the reverse order of the removal procedure.

Jacking Instructions

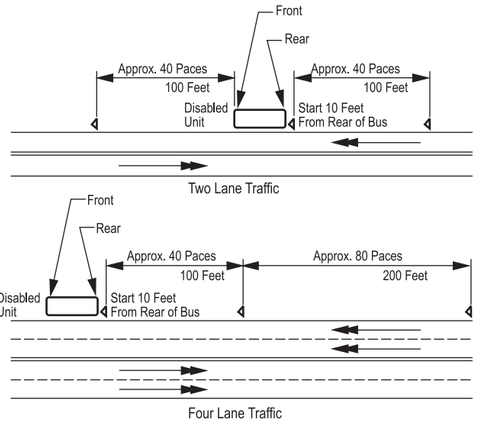
Note

Qualified, professional personnel, using the proper equipment, should always perform roadside tire service. This bus should be lifted by means of a floor jack or hydraulic lift on a heavy-duty tow vehicle.

Recommended Triangular Marker Disbursement

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 behind the vehicle). The reflective side should be facing overtaking traffic.



Emergency Exits

Emergency exits are clearly identified with the words, “EMERGENCY EXIT”. The operating instructions are written close to, or on, each exit.

Some units are equipped with an audible alarm that sounds when an emergency exit is unlatched. If a buzzer sounds when the ignition is switched to the “ON” position, check all the emergency exits to determine that they are closed and latched.

All emergency exits on this Blue Bird Vision meet FMVSS 217, “Bus Window Retention and Release”. These illustrations are “typical” and depict various styles of emergency exits. The exits on this vehicle vary, depending on options selected at the time of manufacture.

Warning

All "Emergency Exits" should be inspected and tested daily. The labels and decals should be observed to be present and in a legible condition.

Note

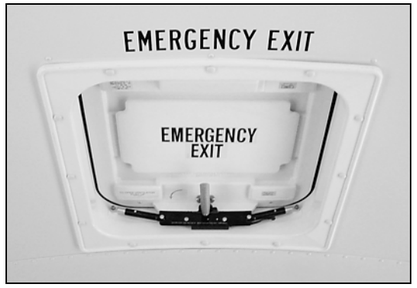
See also "Transpec Safety Vent" below in this manual.

Transpec Safety Vent

Transpec™ Safety Vents are designed to provide years of reliable service with a minimum of maintenance. All components are rust proofed with lifetime finishes. Moving parts are Teflon™-coated to eliminate the need for lubrication. Using paint or other coatings, such as graffiti-deterring coating, is not recommended.

Suggested maintenance includes periodic inspection of all fasteners for evidence of loosening from tapering or vibration. Regular cleaning with mild soap and water is best. Most other cleaning solutions available contain chemicals that will attack the plastics used in the manufacture of the vent. Graffiti removing compounds usually contain acetone, ether, lacquer thinner or other similar chemicals that are known to affect the strength of high impact plastics.

Most of the component parts for the safety vent are available for repairs, except the hinge. The decals are available from your Blue Bird distributor.



Engine Access

Engine access is gained by releasing the over-the-center cam type latches. One latch is located to either side of the engine cover (hood), near the front corner post of the coach.

1. Pull the front edge of the latch toward you.
2. As the cam clears the center, the rubber latch will pull the end section free of the latch hinge.
3. Allow the rubber latch to "dangle".
4. Repeat the process on the opposite side of the bus.
5. Pull firmly on the hood from the center of the front by placing your hand into the gripwell.
6. Gas springs will limit the forward/downward motion of the hood.
7. Allow the hood to rest against the gas springs.

few states allow the lights to be on while the stop arm is retracted. In these cases, the driver will be alerted by an audible signal.

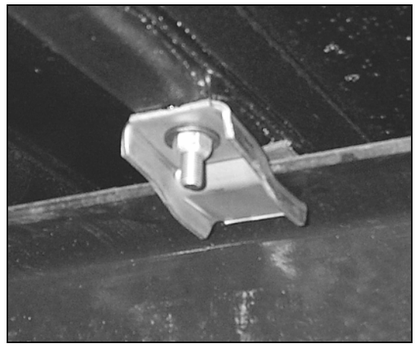
Repair, maintenance and adjustment of the pneumatically operated Stop Arms and Crossing Arms should be referred to trained service personnel.

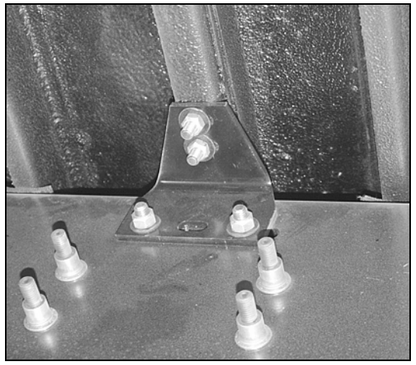
Body Tie Downs

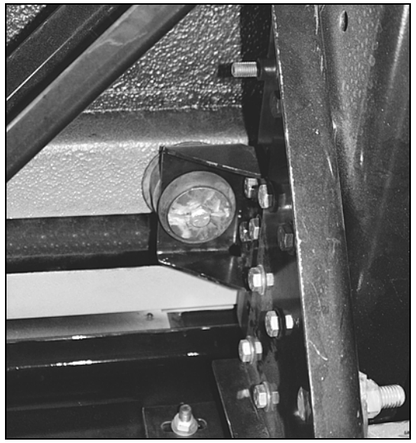
All body tie-down clamp bolts and shear bolts must be inspected at the first 2000 miles and at 90-day intervals thereafter.

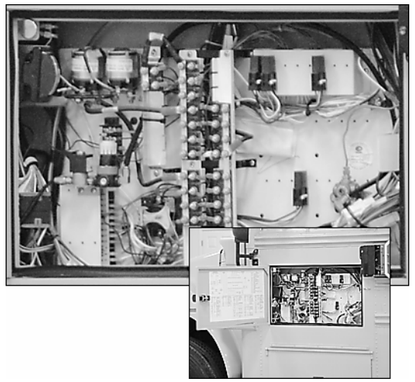
Ensure that all tie down bolts and shear bolts are tightened to a torque value of 37 – 41 Ft lb (51 – 55 N•m).

The body mounting bolts are located on the outriggers, under the body. The body is mounted with rubber pads between the body flooring and the chassis frame rails. See the illustrations. The rubber helps to absorb shock, deaden road noise and maintain tension on the tie down clamps. Always ensure the pads are in the correct position when inspecting the tie downs.









Chassis Electrical Panel

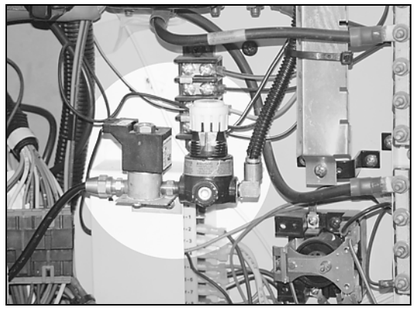
The panel is located under the transmission shifter, behind the cover.

Stop Arms

Federal Motor Vehicle Safety Standard 131 requires all school buses in the United States to have a “Stop Arm”. However, each state has specific requirements pertaining to the installation of the stop arm or stop arms. All stop arms are provided as kits. There is a kit to match the state requirements from where the school bus was ordered. While the stop arms all provide an extra safety warning to alert other drivers, the specific requirements for the blade, lights, lettering and reflectivity vary greatly. Usually, the stop arm is located on the left side of the bus, at the front under the driver’s window. Sometimes, there is another stop arm on the left toward the rear of the bus. The driver most commonly manually controls stop arms. There is a switch provided for this purpose. However, some states require that the stop arm be operated in concert with the warning lights when the bus is preparing to stop. In this case, the electronic controls are wired into the lighting system. Operation is automatic when the driver activates the warning light switch.

For pneumatically operated (air pressure) stop arms, the electric control switch operates an air valve solenoid that controls the flow of air to operate the stop arm. The air-operated system is dependant on the air brake system for pressure to operate.

The stop arm system does not require any special maintenance; however, the air pressure may need periodic adjustment. The air regulator is accessible from the electrical panel located under the driver’s window, outside of the bus. Comparing it to the illustration may identify the air regulator. To adjust the air pressure, remove the wire-retaining clip and pull downward on the red lock ring. Turn the knob counterclockwise to decrease the airflow, and then slowly increase the air pressure until the stop arm is fully extended. Push the red lock ring upward and install the wire-retaining clip.



The stop arms can be electrically operated. There can be a discrete switch for the driver, or the system can be wired into the warning light circuit. In either case, the electrically operated stop arm requires some preventative maintenance to continue to operate as designed.

- Monthly, lubricate the breakaway hinge at the four pivot points. Use a high performance, penetrating lubricant. Triflow™ with Teflon™ is one such lubricant.
- Ensure that the stop arm moves freely.
- Check all the fasteners for security and tighten as necessary.
- Quarterly, remove the covers (both front and rear) to inspect the security of the internal fasteners. Tighten as necessary.

Some stop arms are equipped with lights. If so equipped, the lights must be on when the stop arm is extended. A

Caution

Ensure that the mirrors do not hit anything as you open the hood. Never allow the weight of the hood to rest on the mirror mounts.

To secure the hood in the closed position:

1. Release the lock. See the picture below.
2. Close the hood and seat it properly.
3. Position the trailing end of the latch in the fixed mounting hinge on the body cowling.
4. Working against the elasticity of the strap, push the latch end until it passes over the center of the cam.
5. Allow the latch to rest against the cowling. The elasticity of the latch strap will secure the hood while the bus is in motion.

Doors

Entrance Door

There are three styles of entrance doors available on the Vision.

- The standard outward opening door.
- A jackknife door set.
- A sedan style door.

1. Keep the mechanism securely tightened.
2. Lubricate the mechanism periodically, including all hinges and swivel parts.
3. For manual door openers, ensure that the hand-operated mechanism works freely and crosses the center of the cam as the door closes.
4. Repair or replace any worn seals as soon as possible.
5. Before each trip, ensure that the door opens and closes properly, and that the hand lever crosses the locking cam as the door panels seat.

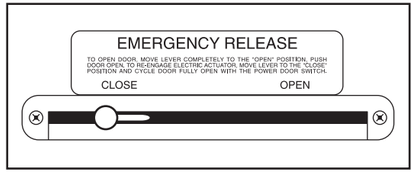
Regardless of the door style installed in your bus, the mechanism can be operated in only one of three ways:

The driver’s manually operated opening lever is designed to incorporate an over-center cam locking action and features an automatic latching device. The driver automatically disengages the latch mechanism as the door is opened.

The doors may be pneumatically operated. In this case, the driver’s manually operated lever is replaced with a control valve, and there is an “EMERGENCY” release located over the door to facilitate opening the doors if air pressure fails.

There is also an electrically operated option. The driver controls the door operation by the use of a switch that activates a motor mounted in the header. There is an

"EMERGENCY" release for the electrically operated door as well.



Note

To operate the door when the power assist (pneumatic or electrical) fails, move the "EMERGENCY RELEASE" in the door header to the right to the "OPEN" position.

Security Locks for Doors

The security lock for the outward opening door is a "bolt" that slides into a hole in the header, when the door is in the closed position. The bolt is operated with a key from outside the bus. The driver must flip the hinged stop on the control lever down to prevent the manual control lever crossing the cam center and locking the door. If this happens, entrance may usually be gained through the rear door.

The security lock for the jackknife door is a key operated latch that engages a hook on the opposite door panel. The door must be closed completely for this feature to operate properly. The mechanism can only be operated from outside the vehicle with a key. To operate the security lock, insert the key and rotate the lock ring to engage the bracket on the other door panel. Remove the key. To open the door, insert the key into the security lock and rotate the latching lever as far as possible. Remove the key and open the door.

The security lock for the rear or emergency door may be a simple slide bolt type, or it may have a lock cylinder to position in the latch mechanism. Either type operates as an interrupt in the ignition system to prevent the bus from being cranked while the door is locked.

Emergency Door

The rear center emergency door is 37.7 inches (.957 m) wide by 52.5 inches (1.333 m) high. The latching mechanism for the emergency door includes a single or three point bar lock. There is an inside handle and guard and an outside handle. The outside handle is recessed into the door. There are two panes of glass fitted in the door to assist the driver with rear view, eliminating some of the "blind" area at the rear of the bus.

This door is identified as "EMERGENCY DOOR" with 2 inch lettering. The identifying decal is located at the top of the glass panel.

The Vision is fitted with an audible alarm, activated by operation of the door latching mechanism. This alarm is provided to alert the driver that the rear door is unlatched.

See also the sections of this manual entitled "EMERGENCY EXITS" and "SECURITY LOCKS" for optional variations and door locations.

Outside the Bus

Exterior Compartments

There may be a *luggage compartment* on either the left (street) side or the right (curb) side of your bus. This luggage compartment will be positioned between the front and rear wheels. It may be singlewide (55 inches in width) or doublewide (75 inches in width). The fuel tank option chosen will determine the actual location of the luggage compartment.

A *tool compartment* can be located on either side of the bus just ahead of the rear axle.

Battery Compartment

The battery compartment is located under the driver's window, immediately below the electrical access panel. Some states require that the battery access door be identified with a decal. To access the battery box, pull outward on the leading edge of the latch.

Note

If the battery access door is provided with a lock, the fuel door key will operate it.

To secure the battery compartment door:

1. Ensure the battery tray is secure.
2. Press the battery compartment door closed.
3. The spring-operated latch will automatically latch the door.

Fuel Door

The fuel door is located in the right rear overhang.

Note

The fuel door may be fitted with a security lock. If so, you must use the key to unlock the access door before fueling.

Warning

Remove the fuel cap slowly as fuel spray may cause injury.

Warning

Observe fueling instructions that are printed on the inside of the fuel access door to avoid fire and/or explosion that could result in serious bodily harm or death. Never fill to more than 95% liquid capacity. 95% capacity is reached at the initial pump cut-off.

Note

The fuel door may be fitted with a security lock. If so, you must use the key to lock the access door after fueling.

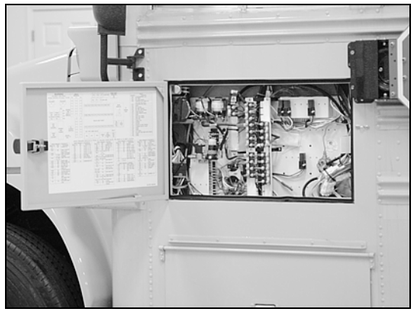
Body Electrical Panel

The electrical panel is located outside the bus, immediately under the driver's window.

To access the electrical panel:

1. Press on the button at the center of the panel latch.

2. When the latch springs open, use it as a handle to swing the compartment door open.
3. Secure the panel door in the open position with the position rod, located at the bottom inside corner of the panel. Drop the loose end into the "eye" provided in the electrical panel box.



To close the electrical panel door:

1. Remove the position rod from the "eye" in the electrical panel box and stow it in the lip of the panel door.
2. Close the panel door.
3. While pressing firmly on the door, press the latch handle into the locked position.

Circuit Breakers

The body fuses and circuit breakers are located in the electrical panel under the driver's window, outside the bus.

The latch for the outside electrical panel is located behind the driver's seat in the end of the switch panel cowling.