General Specification, Chassis

Specifications are for standard equipment, unless otherwise stated.

Alternator

200 Amp Bosch, 12 Volt, High-Output (standard).

185, 270 or 320 amp Leece Neville, 12 Volt, High-Output (optional) on:

All American FE Alternator Output @ Idle		
200 amp Bosch (standard)		
ENGINE	COLD (25C)	HOT (80C)
Cummins ISB	158 amps	135 amps
185 amp Leece Neville (optional)		
ENGINE	COLD (25C)	HOT (93C)
Cummins ISB	158 amps	135 amps
270 amp Leece Neville (optional)		
ENGINE	COLD (25C)	HOT (93C)
Cummins ISB	180 amps	160 amps
320 amp Leece Neville (optional)		
ENGINE	COLD (25C)	HOT (93C)
Cummins ISB	225 amps	170 amps

Axle, Front

The front axle model is Hendrickson Steertek, with a Gross Axle Weight Rating of 13,200 lbs. capacity. Petroleum oil bearing lubrication and windowed hubcaps.

Hendrickson Model	GAWR	Details
SteerTek	13,200 lbs.	4.25" Drop. Standard.
SteerTek	13,200 lbs.	5.36" Drop
SteerTek	14,600 lbs.	4.25" Drop
SteerTek	14,600 lbs.	5.36" Drop

Axle, Rear

Meritor single reduction speed with synthetic bearing lubrication. Standard model is RS21-145; 21,000 lb GAWR; 5.29:1 reduction ratio. All American FE may be equipped with optional models depending upon GVWR and reduction ratio, suspension, and/or brake options:

Meritor Model	GAWR	Details
RS19-144	19,000 lbs.	
RS21-145	21,000 lbs.	Standard.
RC23-160	23,000 lbs.	
RS23-160	23,000 lbs.	

Batteries

Three 12V/3375 CCA combined. 4/0 gauge battery cables are included. Battery cables positive and negative are loomed complete from terminal end to terminal end. Enclosed in large locking heavy duty battery compartment.

Braking System

Service Brakes, Hydraulic. Both front and rear systems have 15" diameter x 1.438" thick rotor, Meritor Quadraulic hydraulic brakes at all wheels. 70MM dual system 4 pistons per caliper. Self-adjusting design. Meritor ABS.

Emergency/Parking (Units with Hydraulic Brakes). Standard park brake, installed on All American Forward Engine buses with hydraulic brakes, is an internal expanding, transmission mounted, 9" diameter x 3" wide, cable-actuated assembly, operated by a foot control lever at the driver's left.

Service Brakes, Air. Meritor air actuated drum brakes are optional on most All American Forward Engine units, and are required by certain engine options and/or GVWRs. (See Engine for more info.) All American Forward Engine units equipped with air brakes have 6" Meritor Q-Plus linings on front; and either 7" or 8.62" lining on rear, depending upon GVRW.

Air Tanks. One dual compartment tank with 1,250 cu. in. for the wet tank and 1,250 cu. in. for the primary tank. One secondary tank with 1,760 cu. in. Two tanks with a total of 4,260 cu. in.

Emergency/Parking (Units with Air Brakes). All American Forward Engine buses equipped with air brakes employ dual-chamber air brakes in the rear, which incorporate a spring brake in the outer chamber.

Bumpers

Front and rear bumpers are die-formed, 12" high with 90° flanges, top and bottom.

Front. One-piece 3/16" thick steel plate with step holes for cleaning windshield.

Rear. One-piece 3/16" thick steel plate with 14" wraparound at corners and double "A" frame bracing.

Controls

Electronic operated throttle, hydraulic brake pedal, foot applied parking brake with warning light, transmission selector, dimmer switch, instrument panel rheostat-controlled lighting and key-type starter switch.

Cooling System

Engine. Charge air and down-flow radiator mounted in tandem at vehicle front. 25" dia. nylon cooling fan with nine blades equipped with a fully-on or fully-off electromagnetic fan clutch driven by polyvee fan belt with spring loaded tensioner. Fan controlled by engine ECM. Black rubber coolant hose with constant torque clamps.

Transmission. Transmission fluid cooled by 2100 BTU/minute heat exchanger external to radiator. Long-life Cool-Guard coolant mix provides anti-freeze protection to -34° F.

Drive Line

Spicer SPL 70 or SPL 100 with protective guard around shaft.

Engine

Forward Engine All Americans are built with ISB-07 engines. Includes electric fan clutch. Optional 500W / 120V AC internal engine block heater (serves as a heater start aid). Includes a power cord.

All American Forward Engine Cummins ISB-07 Configurations

Engine	Horsepower @ RPM	Torque @ RPM	Transmission
Cummins ISB-07 200/520 (standard)	200@2300 (2600 Governed)	520 ft lb @1600	Allison PTS 2500
Cummins ISB-07 220/520	220@2300 (2600 Governed)	520 ft lb @1600	Allison PTS 2500
Cummins ISB-07 240/620	240@2300 (2600 Governed)	620 ft lb @1600	Allison PTS 2500 w/ SEM or Allison PTS 3000
Cummins ISB-07 260/620	260@2400 (2600 Governed)	620 ft lb @1600	Allison PTS 2500 w/ SEM or Allison PTS 3000
Cummins ISB-07 280/660	280@2300 (2600 Governed)	660 ft lb @1600	Allison PTS 2500 w/ SEM or Allison PTS 3000

Exhaust

Stainless steel muffler. 4" O.D. 16 gauge aluminized steel tailpipe exits ahead of rear axle, road side, except on 141" and 169" wheelbases. Wide band exhaust clamps used at all joints.

Frame

Main Frame. Dual "C" channels, 9.63" high with 3" flanges made of .25 thick, 50,000 PSI steel, Section Modulus = 10.1 in.cu.

Sub-Frame. Dual "C" channels, 9" high with 2 3/8" flanges made of .25 thick, 50,000 PSI steel, Section Modulus = 8.4 in.cu.

Fasteners. All permanent fixtures on frame are attached with hi-tensile strength Huck-Spin fasteners with swaged lock nuts.

Fuel System

60 gallon capacity standard. 100 gallon capacity (available only with: 190, 211, 232 wheelbase). Aluminized steel safety tank mounted between frame rails. Includes a sender inspection plate and right hand fill opening with spring loaded locking door. Primary fuel filter, is a Racor, 490 with primer pump. Filter provides a 10 micron, 90 GPH, heated, with water in fuel sensor for Cummins ISB-07.

Horn

Electrical dual with non-glare horn button emblem.

Backing Safety Horn (Optional). Activated whenever the bus is shifted into reverse. Sounds between 87 and 112 db, automatically adjusting itself depending on the ambient noise level in the proximity of the alarm

Instruments

Gauges. Speedometer with English major and metric minor; seven digit Odometer; resettable Trip Odometer; Tachometer; Oil Pressure; Voltmeter; Fuel Level; Coolant Temperature; Front Brake Pressure; Rear Brake Pressure; digital Clock; Panel Dimmer slide; Ammeter. Gauges have automatic self-test at power up. Needles sweep while display indicates "TEST".

LED Telltale Warnings / Indicators. Right and left directional (green); high beam indicator (blue); Service Brake Applied (red); Park Brake Applied (red); ABS Active (amber); Stop Engine (red); Service Engine Soon (amber); Check Transmission (Red); Low Coolant Level (Amber).

Steering

Full power Ross THP-60 integral unit with 18.2 to 1 ratio; with gear driven hydraulic pump. Tilt telescoping steering column with 18" diameter, four-spoke, padded steering wheel.

Suspension, Front

Front Spring Suspension (Standard). Hendrickson SofTek.13,200 lb rated. 4" x 60", two-leaf parabolic taper springs, maintenance free rubber bushings each end at shackle bracket. 1.38" diameter bore double-action Sachs shock absorbers. Anti-splay clip to maintain spring stack alignment. Anti-noise urethane wear pads between spring leaves at ends softens ride.

Front Air Suspension (Optional). Hendrickson AirTek. 14,600 lb rated. Vertical load carried by air spring, lateral load carried by single 4" x 60" steel spring which includes front safety wrap leaf for school bus applications. Maintenance free rubber bushings each end at shackle bracket. 1.38" diameter bore double-action Sachs shock absorbers with long-life bonded rubber bushings. Leveling valves to maintain ride height at all load conditions.

Suspension, Rear

Rear Spring Suspension (Standard). Drive axle spring suspension system with 3" x 52" flat two-stage, variable rate, 13-leaf slipper springs, Capacity rating varies depending upon wheelbase. Maintenance free, rubber bushed radius leaf permits axle adjustment for dog tracking. 1.38" diameter bore double-action Sachs shock absorbers with long-life bonded rubber bushings.

Rear Air Suspension (Optional). Hendrickson Comfort Air. 23,000 lb rated, trailing arm design with 2 heavy-duty rolling lobe air springs. Sachs 1.38" diameter bore shock absorbers, with long-life bonded rubber bushings. Single height control leveling valve to maintain ride height at all load conditions.

Tires

Goodyear 10R 22.5 LRG, G149 RSA.

Tow Hooks

Two front and rear, tow hooks are frame mounted.

Transmission

Allison PTS 2500, and 3000 Series transmission, 5 Forward speeds- 1 reverse. 33,000 lbs GVW. Synthetic transmission fluid is standard.

Wheels

Hub Piloted steel 10 stud disc wheels, single front, dual rear, 22.5 x 8.25 rims.

General Specification, Body

1000

Access Panels

Interior. Hinged access door on engine hood for access for routine daily engine inspection & service.

Exterior. All access panels are standard non locking. Keyed locked latches optional.

Electrical Terminals. 27.5" x 21.75" hinged door located exterior below driver's windows for access to body electrical junction, terminals and circuit breakers. Door has retainer to hold in open position. Chassis PDU, 27.5" x 15" hinged door located exterior below body electrical junction, terminals and circuit breakers.

Front Grill. Lifts upward for service access.

Right Front and Left Front. Hinged doors provide access to heater air intake screen, air restriction indicator, wiper motors, windshield washer reservoir, power steering reservoir and hydraulic master cylinder reservoir.

Compartments

Battery. Enclosed compartment 23.5" x 15.5" with rolling tray. Includes two retaining pins with cable to secure the tray in a closed position. Hinged door with recessed locking Paddle Handle latch. Located on left side behind front wheel well.

Emergency. Provides key locking compartment for storing certain emergency equipment located in upper front. Key lock is equipped with switch and wired to buzzer to indicate that compartment is locked when ignition is turned on.

Glove Box. 11" x 6 ½" door above windshield on right side with door and latch.

Doors

Rear Center Emergency Door. 42" wide x 58.25" high opening. Latching mechanism includes a single-point bar lock with inside handle and guard, and an outside 6" black handle. Door includes upper and lower tempered green tinted safety glass. Doors are identified as "EMERGENCY DOOR", 2" black letters, above the door, on the outside of the bus. Includes Emergency door arrows inside and outside 6" long x ¾" wide black arrow on the emergency door near the handles to indicate direction of turn for opening. On the outside, arrow points up and approximately 45° inboard of door; inside, the arrow points up. Arrows are in addition to standard "OPERATING INSTRUCTIONS" decal. A DOT warning buzzer activated by movement of the door latching mechanism is included. A 5" black fire-block upholstery header pad is included. A telescopic prop support attached to the top inside of the emergency door to hold it open at approx. 95°. Slide-bolt security latch prevents door from being opened from the outside when engaged. Bolt is connected to an interlock assembly which prevents engine starting when door is locked. If the lock is activated after the engine is running, an audible alarm is sounded in the driver's area.

Outward Opening Entrance Door, Manual Operation. Two panels open outward and close to seal against outside edge of lower step. Includes laminated green tinted glass. Ball bearing suspended for ease of operation and wear resistance. A Manual locking mechanism is built into the forward outward opening door assembly. This will disconnect the door from the manual control rod, and allow the door to be

opened from the outside of the bus. The latch located in the front door panel and accessible from outside the bus is lockable with the LL25 key. 4" wide black fire-block upholstery header pad over the door opening inside the bus. Stainless steel assist rail at the rear of the stepwell. Manual over-center control with an automatic latching device built into the handle for holding the door closed. Driver manually disengages the latch as the door is opened. Pivot bearings are oil-impregnated bronze.

Electrical

Power Socket, Accessory With Cap. Provides 12 volt power socket for connecting electrical accessories such as cellular phones, CB radios, etc. Only one per vehicle.

Fans

Driver's Auxilliary Fans. 6" fan mounted to wire molding, located in the upper left, above driver's window. 6" fan mounted to windshield header, center of body.

Floor

Aisle. 3⁄16" thick ribbed gray rubber in aisles and at entrance aisle area. Aluminum Aisle trim over joint in floor covering, full length of body.
Underseats. 1⁄8" thick smooth gray rubber. Galvanized steel cove molding at wall.
Wheelhousing. Molded black smooth rubber with galvanized steel trim.
Underfloor. 5⁄8" AB marine grade plywood, attached with screws.

Headroom

Full 78", over floor covering and 5⁄8" plywood floor, measured at center aisle.

Heater/defroster

Black rubber heater hoses with constant torque clamps at all joints. Includes all heater hoses and hose clamps within the body heater system.
Front Heater/Defroster. 90,000 BTU with washable air filter. Driver selects air flow up to 100% for defrosting windshield, driver's window and entrance door as conditions require.
(Optional) Auxiliary. 12,000 BTU, two speed heater under driver seat left side. Dual ball type, heater cut-off valves isolate system from engine and radiator when necessary.

Insulation

The roof, sides, front and rear (including corners & bows) are insulated with 1 ½" thick material providing an "R" value of 5.75. Driver's left hand close-out panel is insulated inside and outside.

Lettering

3M Diamond Grade "SCHOOL BUS" 8" black vinyl letters on yellow reflective tape on roof caps, front and rear. BLBS lettering and Bus numbers.

Lights

Back-Up. Two 4" clear right and left rear.

Clearance. Two LED amber front and two LED red rear single. Switch operates clearance, cluster and side marker lights.

Cluster. Three amber front and three red rear.

Daytime Running. Head lamps, tail, license plate, parking, clearance & marker lights activated when engine is running.

Directionals. 7" Front and rear, two plain amber front, two amber rear. Sealed, shock mounted, side directionals mounted at front belt line area

Dome. 15 Candlepower. Two rows equally spaced in wire molding. Separate switch to control the last two dome lights of the dual row. Driver's dome light activated with separate switch.

Headlights. 7" Round, halogen with replaceable bulb. Alarm recognition when headlights are on and igntion is off.

Side Marker. 2 LED amber right and left intermediate side marker lights.

Stepwell.14 Candlepower. Wired to operate with ID lights with entrance door open.

Stop and Tail. Two combination lights, 4" right and left rear license panel in combination with 7" stop and tail lights with clear red lens.

Warning System. 8 light sequential system with optional dual hoods.

Mirrors, Exterior

All exterior mirrors will be heated. Heat is controlled by an on/off switch.

Crossview. A Mirror Lite "High Definition" crossview mirror system offers a revolutionary new mirror lens design for increased pedestrian safety and driver visual confidence. The crossview mirror system is comprised of a 10.8" x 12.5" elliptical mirror. The mirror mounting posts are attached to the front cowls, and feature a breakaway pivot to reduce damage in the event of accidental contact. The crossview mirror system allows for viewing all areas along the front and sides of the bus which are not visible by direct view.

Rearview. The Mirror Lite "Viewmaster" non-detent rearview mirror system is designed to provide a view of the roadway to the rear, as well as a view of the ground along both sides. The Rearview mirror system is comprised of a hand adjustable 7.75" x 10" Flat mirror lens tray, hand adjustable 7.75" x 7.75" Pie-shaped convex mirrors and mirror glass, lefthand grab handle type arm for viewing mirror throgh driver's window and righthand non-breakaway overhead type arm for viewing mirrors through windshield.

Mirrors. Interior

Rearview. 6" x 30" with 3⁄16" clear safety glass laminated to steel backing plate. Mirror has 1 ¾" radius rounded corners. Perimeter of mirror is edged with 5⁄8" diameter rubber padding. The interior rearview mirror is installed above the seated driver on the front upper inner panel, and is designed to provide a clear view of the interior of the vehicle and of the roadway to the rear.

Mud Flaps

Front. Metal guard forward of front axle; left side. Mudflaps to full length, installed behind front wheels. Black rubber fenders.

Rear. 23 x 30" mudflaps; both sides (without logo and with extensions included). Black rubber fenders.

Paint

Exterior. National school bus yellow with black trim and black bumpers. OEM, heat cured, polyurethane.

Interior. Astro White, hot sprayed-on baked enamel, except aluminized inner side panels. Seat frames, heaters and trim are Black, switch consoles and dash medium gray.

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

Undercoat. Underside of body floor, skirt and wheelhousings thoroughly undercoated prior to body mount to insure best coverage and maximum corrosion resistance. Undercoat material offers optimum corrosion protection.

Panels, Exterior

Body. Outside side panels are constructed of 20 gauge smooth steel. Side panels extend from below the side windows to a distance of 19 ¾" below the floor. Rear corner panels are constructed of 20 gauge steel. Front cowl panels are 20 gauge steel.

Roof. The front roof cap is formed from 18 gauge steel. The rear roof cap is formed from 20 gauge steel. Roof sheets are constructed of 20 gauge steel and span the entire width of the bus (window header to window header). Roof sheets include an embossed rain visor over side windows.

Floor. 14 Gauge steel zinc coated steel.

Panels, Interior

A removable 18 gauge steel front upper panel provides access to the front roof cap area. Wire molding over window provides easy access to body wiring harness. Textured aluminized fully hemmed steel inside side panels extend from the window sill down to the floor gusset seat ledge, for the entire length of the body on both left and right sides. Headlining panels, spanning the entire width of the bus (window header to window header), are constructed of 22 gauge steel and are double-hemmed to provide additional joint strength.

Radio

AM/FM/PA/CD, console mounted with 8 deluxe speaker system. Wiring for two way radio system. (Two way radio is not included.)

Reflectors

Standard reflectors include:

- Two 3" Diamond grade adhesive backed amber mounted on side of body near front.
- Two 3" Diamond grade adhesive backed red mounted on side of body near rear.
- Two 3" Diamond grade adhesive backed red, mounted on rear of body.
- Two 3" Diamond grade adhesive backed amber right and left intermediate side reflectors.

Reflective Tape. 3M Diamond Grade. 1" minimum width strip surrounds each emergency exit, 1 ¾" wide rear structure, and 2" wide strip on each side of unit at approximately floor level. Front and rear roof cap, with Black 8" "SCHOOL BUS" lettering.

Canada. 1" wide strip of yellow reflective vinyl on each side of the bus, above the passenger windows. Vertical 1" strips of yellow reflective vinyl at both the rear bow and front corner post, both sides of the bus.

Rubrails

Four double-ribbed 16 gauge steel applied rubrails are installed along both sides of the body. The rubrails are installed as follows: One below side windows; one at seat (passenger) level; one near the floor level; one at the bottom of the skirt. The window rail, seat rail and floor rail extends from the front bow to the rear corner radius.

Safety Equipment

Triangular Warning Device floor mounted. Seat belt cutter included as standard equipment when lift door is ordered.

Seats

Driver's. National Driver's Seat. This seat has 4" height adjustment by fingertip controls, 7" fore and aft seat slides, recline angle infinitely adjustable, mechanical lumbar adjustment. Seat covering is gray colored fire block vinyl with pebble-top grain. A 3-point single bar lock seatbelt with adjustable pillar loops provides approximately 7 1/2" of vertical adjustment at the shoulder belt top mount. Single emergency locking retractor includes male locking bar tongue on the left retracting side.

Passenger Seat Upholstery. All Passenger seats are optional and will be upholstered in Fire Block vinyl, solid gray.

Stepwell

Three-step, 24 ¾" depth stainless steel. Black ribbed step treads non-abrasive with white nosing. 3" white ribbed rubber wear plate is located at the floor level step of the entrance door. Includes a stainless steel assist rail at the rear of stepwell.

Stop Arm

An electric operated High Intensity Reflective octagonal stop arm, red with a white border and 6" high lettering. "STOP" or "ARRETT" on both sides. Includes red incandescent lights over and under the word "STOP" visible from both sides.

Sun Visor

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

Switch Panel

Mounted left and right of driver with rocker-type self illuminated switches for electrical equipment. Brightness of illumination is controlled by a separate dimmer switch located in the left switch panel.

Ventilation

Air Intake. Heater intake on right front below windshield level is electrically controlled. Manual driver's fresh air vent on left by driver's feet.
Static Vent. Static non-closing type in front roof.

Windows

Driver's. Double sliding aluminum sash with security fastener for locking both sashes, clear tempered glass.
Side. 12" Split Sash, tempered clear glass in aluminum frame, 12" clear opening when lowered.
Rear Vision. Clear laminated glass bonded into structure.

Windshield

Two piece curved tinted laminated safety glass bonded into the structure.

Windshield Wipers

Electric, intermittent single switch, pantograph type, bottom mounted with remote control, non-glare arms and blades. Electric windshield washer with hard plastic 4 quart capacity reservoir located behind right front access door, washer outlets mounted on wiper arms.

Wiring

Color- and number-coded in molding above windows for access to harness without removing windows. Body wiring protected by automatic resetting circuit breakers, located in easy access exterior wire terminal junction under driver's window.

Dimensions

The dimensions shown exclude exterior mirrors, marker and signal lights, bumpers, fender skirts, washers, wipers, and frames and rub rail; and are taken under static conditions at design height. Overall maximum height varies from 114″ to 125″ depending upon choice of tires, suspension system, and body model. Add 3″ for roof vents. Rear bumper adds 1.25″ to overall body length. Front bumper adds 2″ to overall body length.

Width: 96″
Interior Width: 90 ¾″
Height: 123″-126″
Height, with Air Conditioning: Add 16″
Front Overhang: 94.48″
Skirt Length: 19 ¾″
Interior Headroom: 78″
Front Door: 32″ wide, 81″ high
Rear Emergency Door: 43 3/4″ wide, 62″ high
Wheel Cut: 50° (nominal)
Tire Size: Goodyear 10R 22.5 LRG, G149 RSA

Dimensions & Payload Weight (standard equipment)

WHEELBASE	BODY MODEL	CAPACITY	PAYLOAD	CURB WEIGHT	TOTAL WEIGHT	OVERALL LENGTH	REAR OVERHANG	TURN RADIUS CURB-TO-CURB	TURN RADIUS WALL-TO-WALL
141″	D3FE2903	54	6630	17,907	24,537	353.93	118.45	22′	26.1′
169″	D3FE3107	60	7350	18,420	25,770	381.93	118.45	23.7′	28.3′
190″	D3FE3406	72	8790	18,813	27,603	416.93	132.45	26.5′	31′
190″	D3FE3508	72	8790	19,142	27,932	430.93	146.45	26.5′	31′
211″	D3FE3603	72	8790	19,440	28,230	437.93	132.45	29.5′	34.1′
211″	D3FE3800	78	9510	20,052	29,562	458.93	153.45	29.5′	34.1′
232″	D3FE3909	84	10230	20,427	30,657	479.93	153.45	31.1′	35.6′
232″	D3FE4004	84	10230	20,916	31,146	486.93	160.45	31.1′	35.6′

Pupil weight @ 120 lb each. Driver @ 150 lb.
Approximate curb & total weights are based on standard equipment units. Optional equipment may significantly increase these estimated weights.

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.

General Torque Procedure

Grade 8 and Grade 5 fasteners must be tightened to the recommended torque values listed in the Designated Fastener table. When the washer is on the threaded (hex nut) side, hold the bolt head and tighten the hex nut while reading the torque. Observe the torque to ensure it is in the specified range. It is usual practice to always torque the nut and not the bolt wherever possible. 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.

Designated Fasteners Torque Chart (Plated Fasteners) U.S. Standards						
	SAE GRADE 2 (FT-LBS)		SAE GRADE 5 (FT-LBS)		SAE GRADE 8 (FT-LBS)	
SIZE	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		
	TORQUE (FT-LBS)	
SIZE	Min	Max
M4	2.6	2.9
M5	5	6
M6	9	10
M8	22	25
M10	53	58
M12	75	83
M14	1210	133
M16	176	196
M20	302	336
M24	598	664

Non Designated Fasteners Torque Chart (Plated Fasteners) U.S. Standards						
	SAE GRADE 2 (FT-LBS)		SAE GRADE 5 (FT-LBS)		SAE GRADE 8 (FT-LBS)	
SIZE	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		
	TORQUE (FT-LBS)	
SIZE	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

Service Precautions

This section proscribes safe working practices which must be followed in order to minimize the risk of personal injury and/or damage to the vehicle. Additional Warnings and Cautions appear throughout this manual.

Also follow all warnings and cautions printed in the various manuals from component manufacturers, included in this manual as chapter Appendixes.

Whenever Working Under the Bus:

Never move under a bus supported only by a hydraulic jack. Use only proper jackstands or lifts. Always check lifting equipment thoroughly to verify proper working condition before each use. Ensure that the lifting equipment is rated for lifting the weight of the bus. Ensure that the surface under all jacks, stands, or lifts is hard, level, and secure enough to support the weight of the bus concentrated on the footprint of the jack. Chock all wheels to prevent rolling in either direction. Disconnect battery cables to ensure the vehicle cannot be started.

About Modifications:

School buses are built in conformance to several levels of stringent governmental regulations. Any user-performed modification of the bus may potentially result in a non-conformance. For this reason, it is Blue Bird's policy that end users should not perform any equipment modifications to the bus. Contact your Athorized Blue Bird Dealer for advice and consultation before adding any electrical accessories or non-standard mechanical equipment.

Whenever Working Around Moving Parts:

Use extreme caution to avoid accidental entaglement. Do not wear loose clothing. Remove all jewelry including watches and rings. Securely cover long hair. Wear eye, hearing, and respiratory protection.

Whenever Working Inside the Engine Compartment:

Disconnect batteries to prevent accidental engine starting. Exercise extreme caution around hot components, and wear sufficiently protective clothing. Whenever possible, allow components to cool completely before working. Be mindful of any system which operates under pressure, and ensure that pressure is released before working on that system.

When closed system components (such as those associated with the fuel system, cooling system, or charge air system) have been removed, always take appropriate measures to prevent contamination of the system by dust, dirt, or debris.

Replacing Fasteners

Do not re-use fasteners in high-torque locations. Replace with new fasteners of appropriate hardness grade.

Performing Structural Repairs:

Welding. Modern school buses are equipped with sensitive electronic equipment such as the multiplex system and the ECUs of engine, transmission, and ABS brakes. Such components can be permanently damaged by current fluctuations. In addition to the welding precautions you would normally take to isolate components which may be damaged by heat, the repair technician must also bear in mind the potential for expensive damage to electronic systems. It is highly recommended that the multiplex Main Bus Controller and other such electronic control units be disconnected before performing any welding anywhere on the body or chassis.

Whenever Rendering Roadside Assistance:

Take measures to ensure the safety of passengers first. Move passengers away from the disabled bus to a safe location in an organized fashion. Use the roadside emergency markers to clearly warn traffic of the hazard. Call for help and alternate passenger pick-up immediately. If at all possible, avoid performing service procedures roadside, and instead have the bus towed to a proper and safe service facility.

Hazardous Materials

Vehicle fluids, including engine coolant, transmission fluid, engine oil and power steering fluid, are hazardous to the environment and to the individual performing maintenance and repair on the vehicle. The handling, storage, and disposal of these fluids are subject to government regulation. Read and strictly follow the warnings and instructions on the labels of all fluids and compounds.

The anti-freeze in engine coolant is Ethylene Glycol. This is a skin, eye and respiratory irritant, and is toxic to humans and animals.

Certain other materials, such as plastics, rubber compounds, solvents and paints, are also considered environmental hazards. Always exercise caution to protect your health and the environment when working with, or disposing of, any chemically active material or compound, including cleaning materials.

Protective Gear

Always wear proper eye protection and other required personal protective equipment to help prevent personal injury when performing vehicle maintenance, repair, or service. These include, but are not limited to:

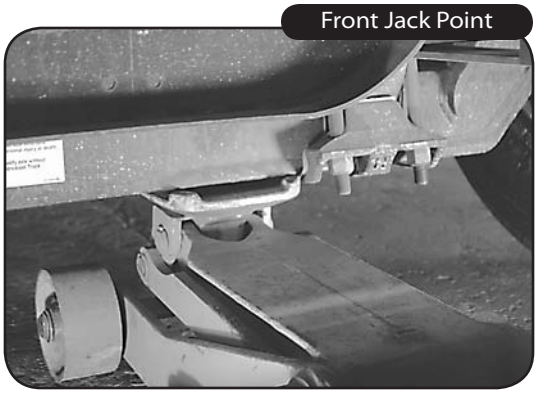
- **Skin protection.** Long sleeves, appropriate gloves, an appropriate apron, etc.
- **Eye protection:** Safety glasses, a facemask, serviceable eye wash equipment, etc.
- **Respiratory protection:** A filter mask appropriate for the material being used, properly ventilated work area, emergency breathing aids, etc.
- **Hearing protection:** Earplugs, earmuffs, etc.

Jacking and Towing

Jack Points

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

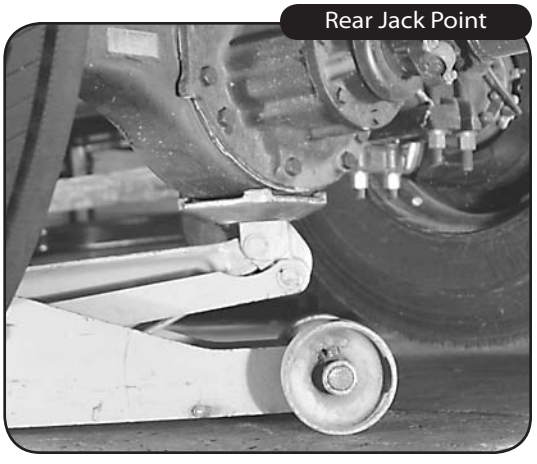
Front Jack Point



1. Park the bus on a flat, level surface of sufficient firmness to support the jack.

2. Chock the wheels in both directions.

Rear Jack Point



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

3. Use only jacks and jack stands of sufficient capacity to support the bus. Following the jack manufacturer's recommendations, place the jack securely under the axle at the spring or suspension beam, nearest the tire/wheel to be repaired.

4. Jack the bus only to the height necessary to service.

5. Support the bus with blocks or jack stands under the frame rails.

Towing

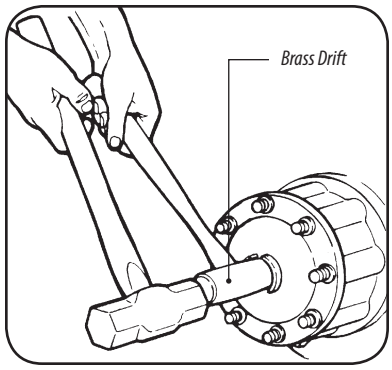
If the bus is towed with the rear wheels on the road, the driveshaft must be prevented from turning in order to avoid possible damage to the automatic transmission. This is accomplished by removing the rear axle shafts, and covering their openings with caps to prevent rear axle lubricant spillage.

Also, on All American's equipped with air brakes, if full normal air pressure is not present in the air system, the spring brakes must be mechanically caged to prevent their engagement.

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

2. Remove the stud nuts and washers from the center hub.

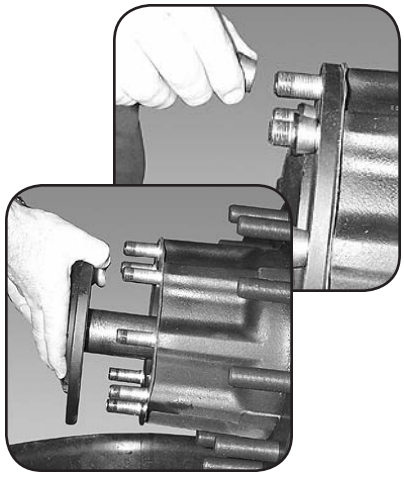
3. To loosen the tapered dowels which surround each stud, use a 1.5" diameter brass drift and 5-6 lb hammer. Hold the brass drift against the center of the axle shaft flange, inside the round driving lugs. Firmly striking the end of the brass drift with the hammer will dislodge the tapered dowels.



CAUTION ***Do not use a chisel or wedge to loosen the axle shaft and tapered dowels. Doing so can damage the axle shaft, gasket, seal, or axle hub.***

4. Mark the axle shaft so that it can easily be identified for reinstallation on the side of the axle from which it is removed. Carefully remove the axle shaft, taking measures to catch the axle lubricant which may spill. Install a cover plate over the open end of the hub to prevent dirt contamination and lubricant spillage during towing.

5. Repeat the above procedure to remove the other axle shaft.



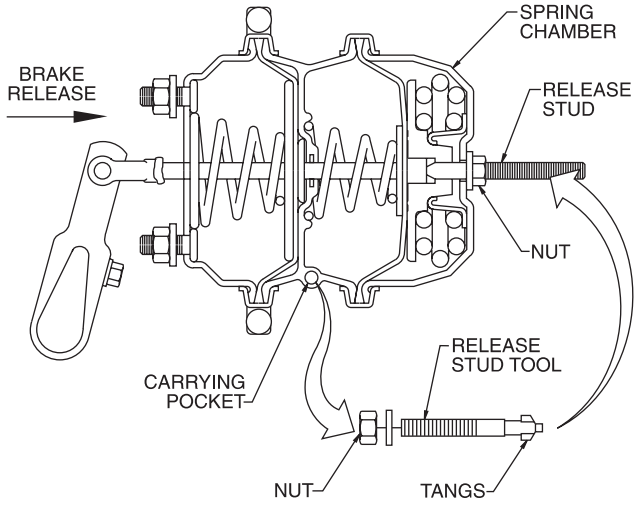
6. If the bus is equipped with air brakes, and if full working air pressure is not present in the system, the spring brakes must be mechanically caged before the vehicle can be towed. Proceed as follows:

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

6.1 On each of the rear combination brake chambers, a special release stud tool is carried in a storage socket cast into the body of the chamber. Remove the nut and washer from the end of the release stud tool, and remove the tool from its socket.

6.2 Remove the rubber dust cap from the access hole in the upper end of the spring brake chamber. Insert the toggle end of the release stud tool into the access hole. Be sure that the tapered end of the tool has entered the hole in the piston inside the chamber. Insert the tool until it bottoms.

6.3 Rotate the release stud tool a quarter turn clockwise and pull outward, to engage the toggle end with the piston. While holding the bolt in its engaged position, install the washer and nut onto the end of the tool. Turn the nut down against the flat washer until finger tight.

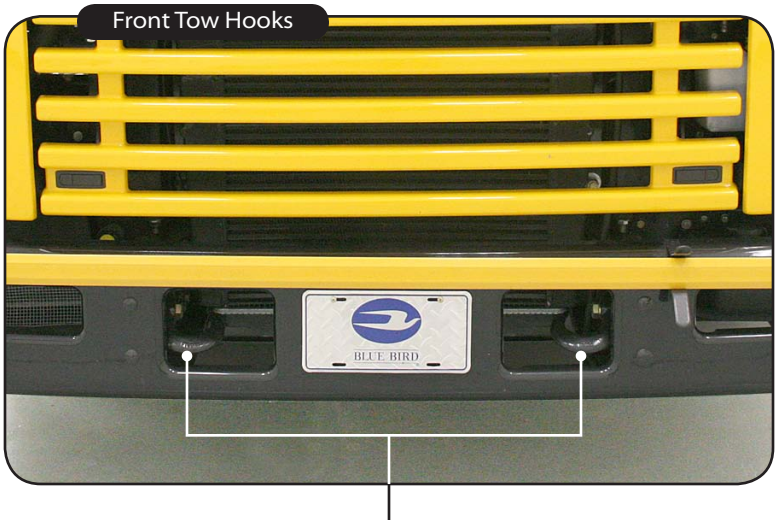


6.4 Using a 3/4" hand wrench, (do not use an impact-type wrench), turn the release nut clockwise until the internal spring is fully caged.

6.5 Repeat the procedure for the spring brake chamber on the opposite side of the bus. The spring brakes are now released, having their springs compressed by the release bolts.

7. With the axle shafts removed and air spring brakes caged, the bus is prepared for towing. The All American may be equipped with optional tow hooks, located just inside the access openings of the front and/or rear bumper. Appendix 1 of the Front Axle & Suspension chapter contains additional information about towing procedure.

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



Front Tow Hooks

Rear Tow Hooks

Fluids & Filters

Fluids & Filters, Forward Engine				
Fluid	Type	Capacity	Filter	Comments
Engine, Cummins ISB				
Engine Oil	High-Quality SAE 15W-40 heavy duty engine oil, such as Valvoline Premium Blue	21.4 Quarts (including filter) 19 Quarts (without filter change)		*See your Cummins ISB Owner's Manual for more details.*
Engine Coolant	Cummins,Fleetguard ES Compleat 50/50 premix (standard only)	6.8 Gallons (excluding heater system)	BB 0064641 Wix 24070	*Cummins equipped buses may have optional extended-life coolant installed. Never mix different coolant colors, types, or brands. See Engine Cooling System chapter for details..*
Transmission				
Transmission Fluid	Transynd™	7.4 Quarts (7 liters)	BB 0033381	*Transmission refill capacity is substantially less than the initial fill because some fluid remains in the transmission cavities after draining.*
Rear Axle				
Axle Oil (RS19-144)	Hypoid Gear Oil	33.3 pints (15.2 liters)		*See Rear Axle Viscosity Chart for appropriate viscosity.*
Axle Oil (RS21-145)		33.3 pints (15.2 liters)		
Axle Oil (RS23-160)		39.5 pints (18.7 liters)		
Front Axle				
Front Axle Grease	Chevron Dura Lith Grease EP NLGI 2	2.1 pounds		
Front Axle Oil	Chevron RPM Synthetic Transmission Fluid SAE 50	4 pints (1.9 liters)		
Brake System				
Brake Fluid	DOT 3		Fluid BB 0067254	*DOT 3 and DOT 5 must not be mixed. If brake system becomes contaminated with DOT 5, the system must be flushed, and major components may require replacement.*
Brake Interlock	DOT 5		Fluid BB 1940881	*On units with hydraulic brakes and brake interlock feature**
Hydraulic System				
Hydraulic Steering	Dexron III™	3 quarts (approximate)		
Pneumatic System				
AD-9 Air Dryer Element			BB 0020138	*On units with air brakes.*
AD-IP Air Dryer Element			BB 0066221	*On units with air brakes.*
		Fuel System		
Fuel Filter / Water Separator			BB 1967009	
		Other		
Windshield Washer Fluid		1.05 gallons		

Rear Axle Viscosity /Temperature Chart				
Meritor Lubricant Specification	Description	Cross Reference	Minimum Outside Temperature	Maximum Outside Temperature
0-76-A	Hypoid Gear Oil	GL-5, S.A.E. 85W/140	+10° F (-12.2° C)	*
0-76-B	Hypoid Gear Oil	GL-5, S.A.E. 80W/140	-15° F (-26.1° C)	*
0-76-D	Hypoid Gear Oil	GL-5, S.A.E. 80W/90	-15° F (-26.1° C)	*
0-76-E	Hypoid Gear Oil	GL-5, S.A.E. 75W/90	-40° F (-40° C)	*
0-76-J	Hypoid Gear Oil	GL-5, S.A.E. 75W	-40° F (-40° C)	+35° F (+1.6° C)
0-76-L	Hypoid Gear Oil	GL-5, S.A.E. 75W/140	-40° F (-40° C)	*
** No upper limit on these temperatures. However, axle sump temperature must never exceed + 250° F (121° C).*				

General Maintenance Schedules

The following charts list maintenance procedures which should be performed with regularity. For convenience, some of these tables are also duplicated in their respective areas throughout the manual.

About Service Intervals

The charts show recommended minimum service intervals. More frequent service intervals should be considered if the vehicle is operated in extreme conditions such as high humidity and/or dusty environments. Time intervals are shown in terms of months or mileage. The correct interval is whichever is the first to occur.

Some components should be regularly inspected, but do not lend themselves to universal intervals, because their normal service life is highly dependent upon local conditions. For these components, any estimated interval would result in overservicing in some locales and underservicing in others. Such intervals are left to the judgement of the local technican, and the service interval indicated is *As Required*. It is important to understand that this designation should not be taken as an optional inspection. Every item in the following tables should be considered mandatory, and an As Required interval should be viewed as emphasizing the importance of the local service operation first determining, and then strictly adhering to, an appropriate interval. Regardless of the interval determined appropriate, the operation must not be overlooked.

Vendor-Supplied Maintenance Guidelines

The technician should bear in mind that many of the components which are installed on a bus, are neither manufactured nor serviced by the bus manufacturer. Service and Maintenance information more detailed than that presented in this manual may be available from the component manufacturer, or may be included in the chapter appendixes. Wherever practical and available, component-specific material from our vendors has been included on the CD which accompanies this manual, and references to those documents are given in the maintenance charts.

Please be aware that these supplemental documents are provided as a courtesy, and are reproduced in their entirity. Therefore, they may also include information on other component models offered by the vendor, but not specifically applicable to the Blue Bird bus. When referring to the appendixes documents, always check the model of the component and be certain that you are using the applicable portions of the appendix documents.

Also, some of the manufacturer-supplied component manuals contain rebuild procedures. As a general rule, Blue Bird does not recommend rebuilding of components, especially in safety-critical systems such as air or hydraulic control valves. Blue Bird strongly recommends component replacement over rebuild.

Maintenance Task Schedule

Ensure that the Safety Information, warnings and instructions are read and understood before operation or maintenance procedures are performed. Use whichever interval listed (time, mileage, engine hours) occurs first. Engines operated in severe operating conditions may require more frequent maintenance. See engine manufacturer's specifications for more information.

First Month Then Every 3 Months or 3000 Miles	
Cooling System	
Inspect & Tighten Hose Clamps	Tighten radiator hose clamps to 90 in lb. Tighten heater hose clamps to 45 in lb.

First 100 Miles Then Every 12,000 Miles	
Tires & Wheels	
Inspect & Tighten Lug Nuts	Torque to 450-500 ft lb with calibrated torque wrench. Do not over-tighten. Do not lubricate nuts or studs. Operating conditions may require more frequent checks.

First 1000 Miles Then Every 3 Months or 6000 Miles	
Frame	
Inspect & Tighten Body Tie Downs Body Tie Down Clamps	Inspect for missing, damaged rubber pads. Tighten clamps to 37–41 ft lb.
Inspect & Tighten Body Tie Downs Rear Tie Down Bolts	Inspect for missing, damaged rubber pads. Tighten clamps to 37–41 ft lb.
Inspect Front Rubber Isolators	Replace any worn isolators. Tighten bolts to 52-56 ft lbs.

First 1000 Miles Then Every 6 Months or 6000 Miles	
Axle & Suspension, Front	
Lubricate Parabolic Spring Suspension Spring Pins	NLGI #2 Grease.
Axle & Suspension, Rear	
Inspect Comfort Air Suspension Ride Height	Shock length, eye-to-eye: 22.68" +/- 0.25"

First 1000 Miles Then Every 12 Months or 12,000 Miles	
Heaters & Defrosters	
Inspect Front Heater Hoses & Clamps	Inspect for evidence of leaks or deterioration. replace with proper parts.

First 5000 Miles Then Every 12 Months or 24,000 Miles
Transmission
Replace Transmission Sump Filter

First 5000 Miles Then Every 24 Months or 24,000 Miles
Transmission
Replace Transmission Main Fluid Filter

First 11,000 Miles Then Every 3 Months or 5000 Miles or 250 Engine Hours	
Engine	
Inspect All Belts	Inspect condition and tension of belt.

First 11,000 Miles Then Every 6 Months or 250 Engine Hours
Brakes
Replace Air Brakes Air Compressor Filter

First 11,000 Miles Then Every 6 Months or 5000 Miles	
Cooling System	
Inspect Charge Air Cooler	Inspect for clogging debris.

As Specified by Engine Manufacturer	
Cooling System	
Replace Coolant	See your Engine Ooperator's Manual. Use only premixed coolant(s) approved by the engine manufacturer. Never mix different types or brands of coolant.
Engine	
Replace Oil & Filter	See Engine operators manual for oil and filter specifications and maintenance interval.
Adjust Valves	See Engine manufacturer's Service Manual for interval.

As Specified by Transmission Manufacturer	
Transmission	
Adjust Transmission Shift Cable	See Transmission Chapter.

Every Day	
Doors	
Test Wheelchair Lift	Follow the manufacturers recommendations.
Emergency Equipment	
Inspect Fire Extinguisher Charge	Ensure that Extinguisher Charge is not expired.
Inspect Fire Extinguisher Mounting Bracket	Ensure that Extinguisher bracket is secure and operates correctly.
Inspect First Aid Kit Contents	Ensure that kit supplies are fully replenished, clean, and not expired.
Inspect First Aid Kit Mounting Bracket	Ensure that mounting bracket is secure and operates correctly.
Emergency Exits	
Inspect All Emergency Exits	Test all emergency exits for proper operation, including warning buzzer.
Warning Devices & Signs	
Test Stop Arms & Crossing Arms	
Windows	
Inspect All Mirrors	Clean, adjust mirrors.
Inspect All Windows	Clean Windshield, door glass, driver's window, rear vision windows, rear door windows.
Brakes	
Inspect Air Brakes Air Lines & Fittings	Inspect for leaks or physical damage.
Drain Air Brakes Air Tanks	Drain daily in cold weather; weekly in warm weather.
Inspect Air Brakes Brake Chambers	See Air Brakes Chapter for inspection criteria.
Inspect Air Brakes Brake Shoes	Wear depends upon application environment. See Meritor Cam Brakes Appendix in Air Brakes Chapter for guidelines.
Cooling System	
Inspect Coolant Level	Top off with premixed coolant of same type as installed. Never mix coolants of different colors, types, or brands. See engine Operator's Manual for details.
Inspect Entire Cooling System	Visually inspect for any signs of leakage.

Electrical	
Inspect All Lights	Check all running, stop, marker, hazard, and warning lights for proper operation.
Engine	
Inspect Oil Level	See Engine operators manual for oil specifications.
Fuel System	
Inspect Fuel Cap	
Inspect Water Separator Petcock Drain	Check for water contamination.
Intake System	
Inspect Intake Tract Duct & Elbow	Visually inspect for proper fit and sealing, cuts, abrasions, signs of dirt contamination.
Inspect Intake Tract Restriction Indicator	Replace primary filter element when gauge on Filter Minder goes into the red area, regardless of time or mileage. If filter has secondary or safety filter, replace at minimum every 2nd primary filter replacement.
Steering	
Inspect Power Steering Fluid Level	Replinish to full mark. Dexron III.
Tires & Wheels	
Inspect All Tires & Wheels	Check air pressure. Visually inspect tires, tread wear, lug nuts, including spare.
Transmission	
Inspect Transmission Fluid Level	Check production order for proper type of fluid to be added.

Every Week

Seats	
Inspect & Tighten Passenger Seats Cusion Screws	Inspect for loose cushions clips.
Inspect Passenger Seats Seat Belts	Lubricate buckles, clean webbing as required. Replace any damaged webbing straps.
Inspect Passenger Seats Upholstery	Inspect for cuts, tears, wear and soiled areas.
Brakes	
Inspect Hydraulic Brakes Pads	Replace if worn to within 1/8" lining remaining.

Every 60,000 Miles

Fuel System

Replace Fuel Filter	

Every Month or 3000 Miles

Doors

Clean & Lubricate All Doors Rubber Seals	Lubricate with Silicon Spray or protectant.
Lubricate All Doors Vandal Locks	Spray Apply lubricant into key locks. Use LPS #1 for sliding bolt locks.
Adjust Outward Opening Door Control Rod	
Adjust Outward Opening Door Control Rod Bracket	Adjust for full and secure closure without binding.
Adjust & Lubricate Outward Opening Door Linkage	Adjust linkage for firm closure, and to ensure rear panel closes first.
Lubricate Outward Opening Door Pivots	Lubricate pivot pins with LPS #1.
Adjust Outward Opening Door Roller Bracket	Adjust for full and secure closure without binding.
Lubricate Wheelchair Lift Lube Points	See model-specific literature provided with lift.

Emergency Exits

Lubricate All Emergency Exits Hinges	LPS #1
Lubricate Rear Emergency Door Hold-Open	Apply ASTM D4950 GC-LB Grade 2
Lubricate Roof Hatch Hatch Seal and Latch	Silicone lubricant to prevent sticking of rubber seal. Spray silicon lubricant into latch mechanism.

Floor

Inspect Floor Drains	Check drawin hole in each body section under window for debris obstruction.

Seats

Lubricate Driver's Seat	Lubricate per manufactuers recommendation.
Inspect & Tighten Passenger Seats Mountings	Use standard torque for bolt size , tread type and grade.

Warning Devices & Signs	
Lubricate Stop Arm, Electric 4-Point Pivot	Lubricate four hinge pivot ponts with Try-Flow lubricant
Inspect & Tighten Stop Arm, Electric Fasteners	Check interior and exterior fasteners for loosening.

Windows	
Lubricate Passenger Windows Latches & Slides	Use silicone lubricant.

Brakes	
Inspect Hydraulic Brakes Fluid	DOT-3 brake fluid.
Adjust Hydraulic Brakes Park Brake Lever	Adjust engagement pressure at the foot pedal to achieve 130-150 lbs. on the fourth "click" on the parking brake lever detent.
Inspect Hydraulic Brakes Interlock Fluid	DOT-5 brake fluid.

Electrical	
Inspect Battery Electrolyte Level	Replenish with distilled water.

Every Month or 5000 Miles

Warning Devices & Signs	
Adjust Stop Arm, Air Air Pressure	Adjust for full deployment and retraction

Every Month or 12,000 Miles

Axle & Suspension, Rear	
Inspect Rear Axle Lubricant Level	If low, refill to bottom of filler opening. Use same lubricant type as already installed.

Every 3 Months or 3000 Miles

Emergency Exits	
Lubricate Rear Emergency Door Hinges	LPS #1

Cooling System	
Inspect Radiator Fins	Clean debris from fins.
Inspect Water Pump Belt	Inspect condition and tension of belt.

Every 3 Months or 5000 Miles	
Brakes	
Lubricate Air Brakes S-Cam	See Meritor Cam Brakes Appendix in Air Brakes Chapter for guidelines.
Lubricate Hydraulic Brakes Calipers	Lube per meritor specs.
Cooling System	
Inspect Intake Tract Charged Air Tubing	Inspect for signs of contaminate infiltration, loose clamps, wear spots, holes in piping
Inspect & Tighten Intake Tract Hose Clamps	Tighten to 5 ft lb.
Electrical	
Inspect Alternator Connections	Inspect for loose wires, damaged terminals, damaged insulators.
Inspect Battery Ground Strap	Check for solid connection, tight fasteners and absense of corrosion.
Fuel System	
Inspect Fuel Lines	Inspect for leaks or signs of abrasion.
Lubricate Fuel Stop Solenoid	
Inspect Fuel Tank Vent	Inspect for obstruction.
Intake System	
Inspect Air Cleaner Filter Element	Inspect for proper seating, secure lid. Replace if soiled, wet, or damaged.
Inspect Intake Duct and All Fasteners	Inspect for signs of contaminate infiltration, loose clamps, wear spots, holes in piping
Inspect Intake Tract Support Bracket	Visual inspection. Repair damaged parts immediately.
Inspect & Tighten Intake Tract T-Bolt Clamps	Tighten to 7 ft lb.
Inspect & Tighten Intake Tract Worm Gear Clamps	Tighten to 38–42 in lb.

Steering	
Lubricate Axle Steering Linkage Drag Link	NLGI #2 EP multipurpose grease rated GC-LB or equivalent.
Lubricate Axle Steering Linkage King Pins	NLGI #2 EP multipurpose grease rated GC-LB or equivalent.
Lubricate Axle Steering Linkage Tie Rod Ends	NLGI #2 EP multipurpose grease rated GC-LB or equivalent.
Lubricate Intermediate Steering Shaft Slip Joint	NLGI #2 EP multipurpose grease rated GC-LB or equivalent

Every 3 Months or 24,000 Miles

Brakes	
Inspect Air Brakes Air Dryer	See Bendix appendix for specific model in Air Brakes Chapter.
Inspect Hydraulic Brakes Booster & Master Cylinder	Inspect for signs of leakage or physical damage.

Every 6 Months or 5000 Miles

Warning Devices & Signs	
Lubricate Destination Sign Hinges	
Lubricate Destination Sign Roller Gears	Lightweight grease such as White Lube.

Every 6 Months or 6000 Miles	
Axle & Suspension, Front	
Lubricate AirTek Suspension Grease Fittings	Use NLGI #2 EP or equivalent. Lube with suspension loaded.
Brakes	
Replace Air Brakes Air Compressor Filter	
Clean Air Brakes Check Valves	
Clean & Lubricate Air Brakes Treadle Valve	See Bendix Treadle Valve Appendix in Air Brakes Chapter.
Clean Air Compressor Governor	
Inspect Hydraulic Brakes Calipers	Inspect for signs of leakage or physical damage.
Cooling System	
Replace Coolant Filter	
Electrical	
Inspect Battery Battery Posts	Clean and apply anti corrosion agent.
Exhaust System	
Inspect Exhaust Pipe Joints	Inspect for loose clamps, leaks, damage.
Fuel System	
Replace Fuel Filter Filter Element	
Clean Fuel Filter Inlet Screen	Clean. Replace if damaged.
Steering	
Lubricate Steering Gear Pitman Arm Pivot	NLGI #2 EP multipurpose grease rated GC-LB or equivalent. Use hand-operated grease gun.

Every 6 Months or 12,000 Miles	
Brakes	
Lubricate Air Brakes Cam Shaft Housing	NLGI #2 EP multipurpose grease rated GC-LB or equivalent. Use hand-operated grease gun.
Lubricate Air Brakes Haldex Slack Adjusters	See Haldex lubricant specs in Air Brakes chapter.
Lubricate Air Brakes Meritor Slack Adjusters	See Meritor lubricant specs in Air Brakes chapter.

Every 6 Months or 25,000 Miles	
Axle & Suspension, Front	
Inspect & Torque AirTek Suspension Air Spring to Air Spring Bracket	Torque to 20-30 ft lb.
Inspect & Torque AirTek Suspension Air Spring to Top Pad	Torque to 20-30 ft lb.
Inspect & Torque AirTek Suspension Clamp Group Hardware	Torque to 285-305 ft lb.
Inspect & Torque AirTek Suspension Front Frame Hanger to Front Leaf Spring Eye	Torque to 290-310 ft lb.
Inspect & Torque AirTek Suspension HVC Linkage to HVC Arm	Torque to 10-12 ft lb.
Inspect & Torque AirTek Suspension Rear Shackle Bracket to Shackle Plate	Torque to 290-310 ft lb.
Inspect & Torque AirTek Suspension Rear Shackle Bracket to Spring Eye	Torque to 290-310 ft lb.
Inspect & Torque AirTek Suspension Shackle Bracket Lock Nuts	Torque to 114-126 ft lb.
Inspect & Torque AirTek Suspension Shocks Eye Bolts	Torque to 125-135 ft lb.
Inspect & Torque SofTek Spring Suspension Axle Clamp Group Nuts	Torque to 285-305 ft lb.
Inspect & Torque SofTek Spring Suspension Front Frame Hanger to Front Leaf Spring Eye	Torque to 290-310 ft lb.
Inspect & Torque SofTek Spring Suspension Rear Shackle Bracket to Shackle Plate	Torque to 290-310 ft lb.
Inspect & Torque SofTek Spring Suspension Rear Shackle Bracket to Spring Eye	Torque to 290-310 ft lb.
Inspect & Torque SofTek Spring Suspension Shackle Bracket Lock Nuts	Torque to 114-126 ft lb.

Inspect & Torque SofTek Spring Suspension Shocks Eye Bolts	Torque to 125-135 ft lb.

Axle & Suspension, Rear

Inspect & Torque Comfort Air Suspension Air Spring to Cross Channel	Torque to 20–30 ft lb.
Inspect & Torque Comfort Air Suspension Cross Channel to Main Support Member	Torque to 260-320 ft lb.
Inspect & Torque Comfort Air Suspension HCV Linkage to Height Control Valve Arm	Torque to 80–90 in lb.
Inspect & Torque Comfort Air Suspension Height Control Valve to Frame Bracket	Torque to 40–50in lb.
Inspect & Torque Comfort Air Suspension Linkage Rod Assembly Locknut	Torque to 80-90 in lb.
Inspect & Torque Comfort Air Suspension Quick Align Bolts	Torque to 525–575 ft lb.
Inspect & Torque Comfort Air Suspension Shock Absorbers	Inspect for leakage or damage. Torque upper mount bolts to 50–70 ft lb. Torque lower mount bolts to 160–180 ft lb.
Inspect & Torque Comfort Air Suspension Suspension Hanger	Torque to 175 ft lb.
Inspect & Torque Comfort Air Suspension Transverse Torsion Rod to Axle Bracket	Torque to 90-122 ft lb.
Inspect & Torque Comfort Air Suspension Transverse Torsion Rod to Frame	Torque to 90-122 ft lb.
Inspect & Torque Comfort Air Suspension U-Bolts	Torque 7/8" U-Bolts to 400–450 ft lb. Torque 3/4" U-Bolts to 285–305 ft lb.
Inspect Comfort Air Suspension Whole Assmebly	Visually inspect for damage.

Driveline

Inspect & Torque SPL 100 & 70 Driveshafts U-Joint Bolts	Inspect for wear and damage every time vehicle is serviced. Torque to 45–50 ft lb.
Lubricate SPL 140 Driveshafts U-Joint Bolts	Grease meeting NLGI Grade #2 grease specifications.
Inspect & Torque SPL140 & 170 Driveshafts U-Joint Bolts	Inspect for wear and damage every time vehicle is serviced. Torque to 115-135 ft lb.

Every 12 Months	
Intake System	
Test Intake Tract Restriction Indicator	Test indicator with vaccuum gauge and pump.

Every 12 Months or 12,000 Miles	
Heaters & Defrosters	
Tighten Front Heater Fasteners	All fasteners holding such heaters in place in unit. For details on fasteners check installation prints.
Clean Front Heater FIlter & Core	Clean dust from cores. Replace filter elements.
Bleed Heater System	Bleed air from heater circulation system. This procedure is done to keep system operating correctly.
Clean Underseat Heaters Filter Elements	Clean dust from cores.
Axle & Suspension, Front	
Inspect & Adjust AirTek Suspension Ride Height	Shock Length, eye-to-eye: 17.25" +/- 0.25"
Axle & Suspension, Rear	
Inspect & Torque Spring Suspension Shock Absorbers	Inspect for signs of leakage, wear, or damage. torque locknuts to 75–100 ft lb.
Inspect & Torque Spring Suspension U-Bolts	Torque u-bolt nuts to 280–310 ft lb.
Cooling System	
Test Entire Cooling System	Pressure Test Cooling system.
Engine	
Test Engine Starting Aid Block Heater	
Steering	
Inspect Hydraulic Pump Body & Seals	Inspect for leaks.
Inspect Steering Gear Body & Seals	Inspect for leaks.

Every 12 Months or 24,000 Miles	
Brakes	
Clean Air Brakes Pop Off Valves	
Steering	
Replace Hydraulic Reservoir Filter Element	Replace element and fluid. Replace more frequently in severe operating conditions. Dexron III.
Transmission	
Replace Transmission Fluid	Use TransSynd fluid.
Inspect Transmission Shift Cable	
Inspect Transmission Vent	Clear vent hose of debris or obstruction.

Every 12 Months or 50,000 Miles	
Axle & Suspension, Rear	
Replace Rear Axle Petroleum Based Lubricant	Hypoid Gear Oil. Viscosity depends upon operating climate. See Viscosity/Temperature chart.

Every 12 Months or 90,000 Miles	
Axle & Suspension, Rear	
Replace Rear Axle Synthetic Lubricant	Viscosity depends upon operating climate. See Viscosity/Temperature chart.

Every 18 Months or 20,000 Miles	
Cooling System	
Lubricate Shutters Pivots	Use Never Seize spray lubricant.

Every 24 Months or 24,000 Miles	
Brakes	
Clean Air Brakes Parking Brake Valve	See Bendix Appendixes in Air Brakes Chapter.
Clean Air Brakes Quick Release Valves	See Bendix Appendixes in Air Brakes Chapter.
Clean Air Brakes Relay Valves	See Bendix Appendixes in Air Brakes Chapter.
Clean Air Brakes Spring Brake Valve	See Bendix Appendixes in Air Brakes Chapter.
Intake System	
Replace Air Cleaner Filter Element	