

## 2021-2022 MSBO Bus Purchase Program

### Base Bus Specifications (Updated 1/10/22)

PART NAME	CONVENTIONAL	TRANSIT REAR	TRANSIT FRONT	SPECIAL NEEDS	A-II
<b>BODY SPECIFICATIONS</b>					
Access Compartment	Access Compartment located over windshield.	Same as Conventional	Same as Conventional	Same as Conventional.	Located in driver's area. See "Storage Compartment" Section.
Air Conditioning, In Dash	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Air Conditioning	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Air Foil, Rear	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Aisle Strips	Manufacturer's standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
All Light Monitor System	None (warning lights only).	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Antenna	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Back Up Alarm and Sticker	To provide audible warning that the bus is in reverse gear. Alarm shall meet requirement of SAE J994 including 97dBA sound level. All buses shall have a sticker affixed to the dash in full view of the driver indicating that the bus is equipped with a back up alarm	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Battery Box	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Battery Cut Off Switch	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Battery Slide Out Tray	A body skirt mounted slide out tray and battery box is required for 2 8d batteries	Same as Conventional	Same as Conventional	Same as Conventional	None
Body Data Plate	Will be mounted in a clearly visible location inside body stating seating capacity, year manufactured, etc	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Body Mounting	To help assure and insure keeping the structural integrity of the vehicle intact in a serious collision, the body shall be firmly and safely structurally secured to the chassis. The body/chassis mounting system shall average a minimum attaching bolt and 1 body/chassis-mounting bracket down each frame rail at an average minimum interval of 1 every 12". The maximum interval for any mounting bracket shall not exceed 30" at any point on the chassis	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Body Testing	Load test of body shall meet FMVSS 222	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Booster Pump	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Bumper, Rear	Must meet State and Federal Standards and be constructed with 3/16" thickness steel minimum and be a minimum of 8" wide and painted black	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional

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Bus Lock Up System	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Buzzers	Emergency doors, lift door (if applicable), and window buzzers shall be connected to both sides of ignition switch. All buzzers should be controlled with 1 buzzer. The lift door buzzer (if applicable) will operate until the door is 6" open and then turn off.	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Color, Interior	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Crossing Gate Arm	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Defogger Fans	2 7-inch defogger fans, in addition to defrosters utilizing hot air from bus heaters, shall be installed. Must be 2-speed with reinforced mounting locations	Same as Conventional	Same as Conventional	Same as Conventional	1 7-inch defogger fan, in addition to defrosters utilizing hot air from bus heaters, shall be installed. Must be 2-speed with reinforced mounting locations
Door, Entrance	Shall be air-operated, double-out split-type located at right front of bus with padded header over entrance door.	Same as Conventional	Same as Conventional	Same as Conventional	Entrance Door, passenger. Shall be manual, double-out split-type located at right front of bus with padded header over entrance door.
Door, Entrance, Dryer	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Electrical Equipment and Wiring	Must meet SAE and State and Federal Standards. Electrical wiring shall be inside body channel readily accessible through removable panels. All harnesses and wiring shall be protected from wall metal structure. All bodies shall be equipped with an electrical circuit master switch and will cut body circuits "ON" and "OFF" by means of a solenoid controlled by the ignition switch. Second 100-amp solenoid mounted in electrical compartment for aftermarket components, controlled by ignition switch in both "ON" and "ACCESSORY" positions. Circuit Breakers: All electrical circuits, which require overload protection, shall be equipped with circuit breakers. Wiring: Must meet State and Federal Standards. Color- and/or number-coded (no scotch-lock connectors).	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Entrance Step	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Exit, Emergency Door, Left Side	None	Required	Same as Conventional	Same as Conventional	Same as Conventional

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Exit, Emergency Window	2 side windows per vehicle, must meet Federal Standards as set forth by FMVSS 217. Buzzer must be attached to both sides of ignition switch	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Exit, Emergency Door Latch	None	Required	Same as Conventional	Same as Conventional	Same as Conventional
Exit, Evacuation Step	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Exit, Roof Hatch	To include 2 roof hatches, 1 front and 1 rear. Must open from inside and outside. Transpec low profile 1170 series w/buzzer. Buzzer must be attached to both sides of ignition switch	Same as Conventional	Same as Conventional	Same as Conventional	To include 1 hatch located as required by FMVSS 217. Must open from inside and outside. Transpec low profile model 1100 w/buzzer. Buzzer must be attached to both sides of ignition switch.
Exit, Roof Hatch Power Vent	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Fenderettes	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Fire Extinguisher	Must meet Michigan Standards	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
First Aid Kit	Must meet Michigan Standards	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Flat Floor Package	None	Same as Conventional	Same as Conventional	Floors shall be raised to eliminate interior wheelhouses, maintaining a 77" headroom. Passenger seat size 39"; 3 belts/seat FMVSS restraints; 47-passenger – 8 track-mounted seats. 53-passenger – 10 track-mounted seats: 65-, 71-, and 77-passenger – 12 track-mounted seats. Floor Track: 4 floor track/rows shall be continuous, full bus length, heavy duty Kinedyne "L" track, each side of aisle. Overhead Tracking: full length on both sides for shoulder restraints. Lift: shall be minimum Braun NL917IB & must meet FMVSS 403 & 404 with a fully	Same as Conventional

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				automated lift gate and manual override: rear lift door location. Rear Emergency Door: to have minimum of 58" opening	
Floor Covering	Floor shall be of prime commercial quality steel with 14-gauge steel. Floors shall be level from back-to-front and side-to-side except for the wheel housing, toe boards, and driver's seat platform areas. Driver's compartment plate shall be removable and installed level with the bus floor. All components requiring service must be readily accessible. Opening in bus floor must meet this requirement and shall be reinforced to maintain full strength of non-punctured floor. Body floor shall have an access hole for removal and repair of fuel tank sending unit. Body floor shall have an access cover adequate to allow removal of fuel components without lowering fuel tank. Allowances must be made if the bus is lift equipped in the section of bus where fuel tank is placed. 5/8" marine-grade plywood floor is required. Floor in under seat area including tops of wheel housings and toe boards shall be covered with smooth surface rubber covering having a minimum thickness of .125 inch. Floor covering must be permanently bonded to floor and resist cracking. Adhesive materials must be waterproof and approved. Landing areas at top of steps shall be ribbed rubber, which shall extend to and join the ribbed aisle cover at an angle and its leading edge shall be white in color. Attaching screws shall be countersunk. Holes around transmission cover shall be adequately sealed. All flooring requirements and materials must meet State and Federal Standards	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Floor Tracking System	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Fuel Filler Door	Opening only	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Fuel Filler Opening	An adequate size and design shall be provided over fuel filler	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Fusees	3 30-minute in red canister mounted near entrance door.	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Grab Rail at Entrance	A suitable stainless steel grab rail shall be provided at front entrance on both sides securely mounted inside body close to bottom step for small children to reach and shall be designed to eliminate possibility of students'	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional

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	clothing or personal items to become lodged or stuck upon exiting the bus				
Headroom	Minimum 77" headroom	Same as Conventional	Same as Conventional	Same as Conventional	Minimum 73" headroom.
Heater/Defrosters	Driver's area heater minimum output 90,000 BTU with power defroster to windshield and left front window section, right front heater minimum output of 50,000 BTU including power defrosting to windshield, entrance door, and stepwell. Rear wheelhouse, heater pipe to be covered. Heater shut-off valves to be located inside bus in driver's area. No silicone hosing. Rear under seat heater, minimum output 80,000 BTU dual fan output located to rear of wheelhouse, heater to be covered.	Driver's area heater minimum output 90,000 BTU with power defroster to windshield and left & right front window section, entrance door, and stepwell. Driver's heater, minimum output 12,000 BTU. One midway and one rear under-seat heater, seat suspended for full heating action; minimum output 80,000 BTU dual fan output located to rear of wheelhouse, heater pipe to be covered. Heater shut-off valves need to be located inside bus in driver's area. No silicone hosing.	Same as Transit Rear.	Driver's area heater minimum output 90,000 BTU with power defroster to windshield and left front window section, right front heater minimum output of 50,000 BTU including power defrosting to windshield, entrance door, and stepwell. Heater shut-off valves to be located inside bus in driver's area. No silicone hosing. Heaters: one or two rear heaters must be wall mounted and have a total minimum 64,000 BTU in lieu of base rear heater.	Suspended for full heating action, minimum output 40,000 BTU single fan output located to rear of wheel house, heater pipe to be covered. Driver's heater 12,000 BTU with 2-speed switch. No silicone hosing.
Heater, Auxiliary	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Heater, Hoses	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Heater, Mid-Body Rear	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	None
Heater, Shut-Off Valve	In driver's compartment	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Inspection	Purchase of school bus bodies under these specifications shall include the right to inspection after manufacture by MSP and the school district issuing the P.O or their designee	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Inspection Plate	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Insulation/Sealing of Joints	Must meet State and Federal Standards	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Lettering and Trim	Must meet State and Federal Standards. Lettering specifics provided by each school district. Reflective markings: must be 3M Scotchlite Diamond Grade reflective tape as follows: 1" tape outlining all exits, 2" tape below beltline on both sides, 1" tape completely	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional

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	outlining rear of bus from below cap to rear bumper, "School Bus" lettering front and rear.				
License Plate Holder	Shall be on left rear outside of body with suitable method for mounting license plate	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Light Visor	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Light, Exterior	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Light, Landing	Next to entrance door, outside	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Lights	2 Combination Brake & Tail Lights: Shall be a minimum of 7" and meet all State and Federal Standards and must be LED Tail Lights: Must be LED and shall be equipped with 2 7-inch tail lights and 2 7-inch incandescent back up lights. Light intensity shall equal Class A type turn signal units. Turn Signal Lights: Must be LED and shall be 7" and include 2 sides of bus-mounted turn signals behind entrance door right side and equal distance on left side. Must meet applicable standards.	Same as Conventional	Same as Conventional	Same as Conventional	2 Combination Brake & Tail Lights: Shall be a minimum of 7" and meet all State and Federal Standards and must be LED Tail Lights: Must be LED and shall be equipped with 2 7-inch tail lights and 2 7-inch incandescent back up lights. Light intensity shall equal Class A type turn signal units. Turn Signal Lights: Must be LED and shall be 7" and include 2 sides of bus-mounted turn signals behind entrance door right side and equal distance on left side. Must meet applicable standards. Rear turn signal lights must be LED and shall be 7"
Lights, Clearance	Must be LED and meet State and Federal Standards. Clearance lights must be armored marker and LED Identification Lights: must meet State and Federal Standards	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Lights, Interior	There shall be 8 or more dome lights installed to include 2 in driver's compartment and 2 in rear on separate switches	Same as Conventional	Same as Conventional	Same as Conventional	There shall be 5 dome lights installed to include 1 in driver's compartment and 4 in passenger compartment
Lights, LED	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Lights, Overhead Warning	Must meet State and Federal Standards.	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Lights, Strobe	Low profile. Located 6' from rear on top of bus equipped with guard and pilot light in driver's compartment	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Metal Body	16-gauge metal	Same as Conventional	Same as Conventional	Same as Conventional	None
Mirror System	Interior mirror shall be tempered glass and rounded corners and protected edges. Must be 6"x 30". Exterior mirrors must meet FMVSS 111 with crossover view	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional

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	mirrors. All mirrors to be heated and actuated through a separate wired switch and ignition with a pilot light. Front visibility to provide unobstructed view of all mirrors. Rosco openview series side mirrors.				
Mirror, Timer	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Mirrors, Crossview	See "Mirror System"	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Mirrors, Crossview, Arms	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Mirrors, Rearview	See "Mirror System"	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Mirrors, Rearview, Arms	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Mud Flaps	2 front and two rear attached appropriately	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Noise Reduction System	Perforated ceiling first 2 sections	Perforated ceiling last 2 sections.	Perforated ceiling first 2 sections. Pebble grain vinyl over foam in floorboards and vertical panels in stepwell.	Same as Conventional	Same as Conventional
Paint and Finish	See attached	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Paint, Hood	Manufacturer standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Paint, Roof	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Paneling, Exterior	Exterior paneling includes sheet metal skin forming exterior surface of body and shall be 16-gauge steel minimum thickness and be attached to bow frames and strainers to act as an integral part of structural frame.	Same as Conventional	Same as Conventional	Same as Conventional	None
Paneling, Interior	Interior body shall be lined with panels securely fastened to adjoining parts. All joints are to be covered. No sharp edges will be left; molding shall be securely fastened so dirt will not readily work under it. Interior paneled areas immediately below window line shall be galvanized embossed steel, aluminum in color. Exposed edges shall be beaded, hemmed, flanged, or treated to eliminate sharp edges.	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Panel, Shoulder Pad	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Power Source	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Quiet Zone	If the customer chooses an AM/FM radio option and/or PA speakers option, to reduce noise and increase operating safety in the driver's area, a quiet zone shall be furnished that includes no AM/FM radio/PA speakers installed within a 120" radius of the driver's seat	Same as Conventional	Same as Conventional	Same as Conventional	None
Radio & Public Address System	None	Same as Conventional	Same as Conventional	Same as Conventional	AM/FM/ CD/clock

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Reflectors	2 amber reflectors on each side of bus near the front and 2 red on rear side panels, 2 red on rear panels, and 2 amber intermediate on sides	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Reflectors, Emergency Roadside	3 reflector type warning devices meeting FMVSS 125 and shall be mounted near entrance door.	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Roof Vent, Static	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Rub Rails	4 applied rub rails including snow rails to be 1 piece. 1 below side windows, 1 at passenger level, 1 near floor line, and 1 at bottom of skirt to be properly secured	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Rust Proofing	Must be fully rust proofed including battery compartment, State Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Rust Proofing, Stepwell	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Rust Proofing, Bumper	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Sashes, Side	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Seat, Barrier	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Seat, Driver's	Shall have a driver's seat equipped with a 1-piece 6-way adjustable high back seat designed to minimize potential for head and neck injuries, providing minimum obstruction to the driver's view of passengers, and meeting applicable requirements of FVMSS 222 as defined in FMVSS 208. The seat shall be made with cloth insert and adjust the position using a fingertip control. A 3-point shoulder/lap seat belt will be installed meeting all applicable standards	Same as Conventional	Same as Conventional	Same as Conventional	Shall be Manufacturer Standard. The seat shall be made with cloth insert and adjust the position using a fingertip control. A three-point shoulder/lap seat belt will be installed meeting all applicable standards.
Seat, Driver's Belt	3-point shoulder/lap belt	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Seats, Child Restraint	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Seats, Fire Block	Prevail (or equal) fire block, 52 oz., entire bus	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Seats, Passenger	To accommodate size of body, 52 oz. heavy-duty covering. 5/16" grade 5 bolts and nuts shall be used. 39" seats. Seating and Modesty Panels: must meet FMVSS 222 and FMVSS 210, seat belt ready w/o seatbelts.	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Seats, Passenger: Replaceable Back	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Seats, Passenger: Color	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional



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Seats, Passenger, Covering	52 oz. heavy-duty covering.	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Seats, Passenger, Restraining	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Seats, Track-Mounted	None	Same as Conventional	Same as Conventional	Manufacturer Standard	Same as Conventional
Severe Service Package	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Side Walls	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Step Tread	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Stepwell	3 steps required; must meet State and Federal Standards	Same as Conventional	Same as Conventional	Same as Conventional	2 steps required; must meet State and Federal Standards
Stop Arm Signals	Must meet State and Federal Standards. Front and Rear with reflective tape, alternating lights, wind-guard, electric, and LED	Same as Conventional	Same as Conventional	Same as Conventional	Must meet State and Federal Standards. Front only with reflective tape, alternating lights, wind-guard, electric, and LED
Storage Compartment	None	Required	Same as Conventional	Same as Conventional	Same as Conventional
Storage Compartment Location	None	Required	Same as Conventional	Same as Conventional	Same as Conventional
Storage Compartment Driver's Area	See "Access Compartment" section	Same as Conventional	Same as Conventional	Same as Conventional	See Access Compartment
Storage Pouch	None	Required	Same as Conventional	Same as Conventional	Same as Conventional
Structure Design	Must meet State and Federal Standards	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Student Reminder System	Manufacturer Standard to be triggered by 8-lamp flasher	Same as Conventional	Same as Conventional	Same as Conventional	None
Sunshade	A tinted, transparent plastic sun shield, 6"x30" shall be installed and have substantial mounting to remain in position	Same as Conventional	Same as Conventional	Same as Conventional	Manufacturer Standard
Tail Pipe	To be flush mount with bumper as per Michigan Specifications	Same as Conventional	Same as Conventional	Same as Conventional	Per Michigan Specifications
Ventilation	Must meet State and Federal Standards	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Warning System	8-light sequential warning system: must meet State and Federal Standards	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Warning System-Driver Alert	None	None	None	None	None

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Warranty	State Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Wheel Housing	Shall be constructed of 18 gauge or heavier steel and be rigidly reinforced and be attached to the floor and side panels in such a manner as to prevent water or dust from entering the bus interior and shall be designed for easy removal of tires	Same as Conventional	Same as Conventional	None	Same as Conventional
Wheelchair Entry	None	Same as Conventional	Same as Conventional	Lift shall be Braun NL919IB & must meet FMVSS 403 & 404 with a fully automated lift gate and manual override: rear lift door location.	Same as Conventional
Wheelchair Entry Latch	None	Required	Same as Conventional	Same as Conventional	Same as Conventional
Wheelchair Securements (L-Track)	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Window, Frost-free, Driver	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Window, Frost-free, Upper Entrance	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Window, Frost-free, Lower Entrance	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Window, Frost-free, Left-hand Passenger	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Window, Frost-free, Right-hand Passenger	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Window, Rear	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Windows	An adjustable split side sash window shall be mounted in the side of body between each framing post. Safety glass shall be used. Windows will have a 28% grade tint. All glass and windows must meet State and Federal Standards. Driver and back windows will not be tinted.	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional

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Windshield	To be constructed of Solex or Vizex Safety plate. Windshield Steps and Handles: a step and appropriate grab handle shall be installed on each front corner of the exterior body. Handle shall be stainless steel, chrome plated, or nonferrous metal and shall provide 4-point mounting and adequate handhold. Handle shall be contoured and formed to provide a safe grip. Windshield Washers and Wipers, Fluid Container: electrical intermittent wet arm 2-speed windshield wipers shall be standard. Wiper arms will be equipped with snow blades of adequate length to clear windshield glass in driver's direct view. Switch shall be located within easy reach from the driver's seat. Windshield washer fluid container is to be minimum 70 ounces and must meet State and Federal Standards.	Same as Conventional.	Same as Conventional.	Same as Conventional.	To be constructed of Solex or Vizex Safety plate. <u>Windshield Washers and Wipers, Fluid Container</u> : electrical intermittent wet arm 2-speed windshield wipers shall be standard. Wiper arms will be equipped with snow blades of adequate length to clear windshield glass in driver's direct view. Switch shall be located within easy reach from the driver's seat. Windshield washer fluid container is to be minimum 70 ounces and must meet State and Federal Standards.

## CHASSIS SPECIFICATIONS

Air Cleaner (Engine)	Heavy-duty dry type air filter w/air filter restriction indicated on air cleaner.	Same as Conventional	Same as Conventional	Same as Conventional	Manufacturer Standard
Air Compressor	13.2 CFM minimum output	Same as Conventional	Same as Conventional	Same as Conventional	None
Air Dryer	Bendix AD-9 or equivalent (AUTO DRAIN VALVES NOT ACCEPTABLE)	Same as Conventional	Same as Conventional	Same as Conventional	None
Air Tanks	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Alternator	Minimum high output 170-amp, Leece-Neville, with appropriate wiring harness with internal regulator. 100-amp minimum output at idle.	Same as Conventional	Same as Conventional	Same as Conventional	Minimum 120-amp w/appropriate wiring harness with internal regulator
Axle, Front: Minimum Load	By capacity. Axle ratings for 47, 53, 65, 71 & 77 passenger = 10,000 lbs	By capacity. Axle ratings: 78 & 84 passenger = 13,200 lbs;	By capacity. Axle ratings: 54, 66, 72, 78 & 84 passenger = 13,200 lbs; and 88/89 passenger = 14,600 lbs	Same as Conventional	By capacity. Minimum 4,300 lbs
Axle, Rear: Minimum Load	By capacity. Axle ratings: 47 & 53 passenger = 17,500 lbs.; 65 & 71 passenger = 19,000 lbs.; 77 passenger = 21,000 lbs	By capacity. Axle ratings: 78 & 84 passenger = 21,000 lbs	By capacity. Axle ratings: 54, 66 and 72 passenger = 19,000	Axle to meet requirements and compatibility	By capacity. GVWR Total 12,000 lbs

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			lbs; and 78, 84 and 88/89 passenger = 21,000 lbs		
Batteries	3 12-volt, 650-CCA each	Same as Conventional	Same as Conventional	Same as Conventional	2 12-volt, 660-CCA ea
Brake Dust Shield	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Brakes, ESC	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Brakes, ABS, Hydraulic	None	Same as Conventional	Same as Conventional	Same as Conventional	Must meet Section 257.1813 of Section 13 of PA187 of 1990. ABS to meet FMVSS #121. Hydraulic Disc ABS front and rear
Brakes, Air	Must meet Section 257.1813 of Section 13 of PA187 of 1990. ABS to meet FMVSS #121	Same as Conventional	Same as Conventional	Same as Conventional	None
Brakes, Air Disc	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Brakes, Parking	A dash mounted control valve to spring set parking brake on rear wheels	Same as Conventional	Same as Conventional	Same as Conventional	To meet State and Federal Standards
Brakes, Traction Control	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Bumper, Front	Must be painted black, full width, HD form steel type, minimum 8"	Same as Conventional	Same as Conventional	Same as Conventional	Must be painted black, full width, HD form steel type, manufacturer standard, of sufficient structural and mounting strength to ensure that the front of the vehicle may be lifted by means of an air bumper-type jack without permanent deformation of the bumper, bracketry, or chassis frame rail
Circuit Breakers	Required	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Coolant Recovery & Deaerations System (Engine)	Must include some means for visual or electronic checking of coolant level without removing tank cap or releasing pressure from cooling system	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Cruise Control	Required	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Differential Ratio	Shall be compatible with engine and provide for 60 mph in highest gear at maximum load. Specify rear axle ratio. Dealer to contact owner for road speed.	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Doghouse	See "Insulation" section. chassis shall include heat and noise insulation inside bus covering dash panel (firewall) area at least down to the point that body connects	N/A	Fiberglass, hinged cutaway with heat and sound insulation, engine noise not to	Same as Conventional	Same as Conventional

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	including engine cover (doghouse), which may be insulated on interior or exterior		exceed 82 decibels in driver's compartment. See "Insulation Section."		
Driveshaft Guards & Shields	Required	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Engine	Diesel, 200hp minimum, provide power curve to include horsepower, RPMs, torque, and fuel economy. Complete engine specifications and warranty information required.	Diesel, minimum 200 hp - provide power curve to include horsepower, RPMs, torque, and fuel economy. Complete engine specifications and warranty information required.	Same as Transit Rear	Same as Conventional	General Motors Gas minimum 6.0 L; provide power curve to include horsepower, RPMs, torque, and fuel economy. Complete engine specifications and warranty information required.
Engine Sound Deadening Package	Required in engine compartment, hood and firewall	Same as Conventional	Same as Conventional	Same as Conventional	None
Exhaust System	Corrosion resistant muffler, exhaust pipe outlet must be flush with bumper	Same as Conventional	Same as Conventional	Same as Conventional	Corrosion resistant muffler, exhaust pipes (exhaust comes out side)
Fan Drive	Manufacturer standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Frame Side Members	1-piece construction	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Fuel Tank	Minimum 60-gallon capacity, spout located for ease in servicing. Must meet State and Federal Standards	Minimum 100-gallon capacity, to be mounted between frame rails and between the axles with access plate to sending unit in the floor. Right-handed fill. Must meet State and Federal Standards	By capacity. 54/66 passenger = 60 gallon; 72/78/88/89 passenger = 100 gallon. To be mounted between frame rails, rear of rear axle with access plate to sending unit in the floor. Right-handed fill. Must meet State and Federal Standards	Same as Conventional	Manufacturer Standard, spout located for ease in servicing. Must meet State and Federal Standards. 30-gallon minimum
Fuel Purification System	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Fuel/Water Separator (Engine)	Heated, must be compatible with chassis/engine application. Racor or Fleetguard. 1. Must be completely accessible for servicing. 2. Must have clear drain sight bowl with drain valve to allow detection and draining of water to be visually or electronically monitored. 3. Must contain a replaceable pleated paper element fuel filter of	Same as Conventional	Same as Conventional	Same as Conventional	None

PART NAME	CONVENTIONAL	TRANSIT REAR	TRANSIT FRONT	SPECIAL NEEDS	A-II
	proper design to protect against premature fuel flow restriction or excessive passage of contaminants.				
Full Instrumentation Package (Engine)	To include speedometer, tachometer, odometer, hour meter, accrued mileage to 7 digits including tenths of miles; fuel gauge; dual air pressure gauges; oil pressure gauge with low pressure warning light and buzzer; water temperature gauge with high temperature warning light and buzzer; voltage and amp meters, transistorized solid state components readily accessible for service with graduated scales. All instrumentation to be directly visible to driver in normal seated position. All gauges to be English - no metric.	Same as Conventional	Same as Conventional	Same as Conventional	To include speedometer, tachometer, odometer, accrued mileage to 7 digits including tenths of miles; fuel gauge; oil pressure gauge with low pressure warning light and buzzer; water temperature gauge with high temperature warning light and buzzer; voltage meter, transistorized solid state components readily accessible for service with graduated scales. All instrumentation to be directly visible to driver in normal seated position. All gauges to be English - no metric
Headlights	Halogen daytime running lights. Must meet State and Federal Standards	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Heater Block, Internal (Engine)	Minimum 750-watt. Put receptacle in front	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Heater Block, Recptacle	Front block receptacle	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Horns	Dual, 120-decibel electric	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Hoses (Engine)	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Hour Meter	Required as defined in "Full Instrumentation Package (Engine)" section.	Same as Conventional	Same as Conventional	Same as Conventional	None
Idle Management Control	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Ignition Switch (Engine)	Controlled running and shutdown shall require electrical current provided by the ignition switch in "ON," "RUN" and "ACCESSORY" positions	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Insulation	Chassis shall include heat and noise insulation inside bus covering dash panel (firewall) area at least down to the point that body connects including engine cover (doghouse), which may be insulated on interior or exterior	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Line-set Ticket	Manufacturer shall include with delivery of vehicle a line-set ticket that will reflect all chassis components, GAWR for both front and rear axles and GVWR	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional

PART NAME	CONVENTIONAL	TRANSIT REAR	TRANSIT FRONT	SPECIAL NEEDS	A-II
Motor, Starting	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Paint & Finish, Exterior	Must be Polyurethane and a 5-year warranty and must meet State and Federal Standards. All body components shall be bonderized after fabrication and before assembly with zinc phosphate and primed with zinc chromate. All under body components and side skirts to be zinc galvanized	Same as Conventional	Same as Conventional	Same as Conventional	Must be Polyurethane and a 5-year warranty and must meet State and Federal Standards
Paint, Wheels	All wheels shall be finish painted neutral (gray or white) inside and out to comply with Michigan Motor Vehicle Code	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Parts Availability	Parts to be available for a minimum of 15 years.	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Pedals, Adjustable	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Rims	Disc wheels, 10 hole, hub piloted.	Same as Conventional	Same as Conventional	Same as Conventional	None
Rust Proofing	Underbody and firewall to be fully insulated and undercoated with rust proofing compound, including the battery compartment	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Shock Absorbers	Front and rear, heavy-duty double-acting, adequate size and axle load	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Steering	Factory installed heavy-duty power steering (Ross gear or equivalent - latest updated low steering effort model). Specify brand. Wheel to tilt.	Same as Conventional	Same as Conventional	Same as Conventional	None
Suspension	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Suspension, Axle Front	Front springs must be compatible with axle capacity and include oil type seals and caps	Same as Conventional	Same as Conventional	Same as Conventional	None
Suspension, Axle Rear	Air suspension required.	Same as Conventional	Same as Conventional	Same as Conventional	None
Suspension System	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Switches, Ignition	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Tilt Hood	Fiberglass; maximum 15-25 pound pull	None	None	Same as Conventional	None
Tires	Tubeless Michelin XZE radial tires mounted. 11R22.5 must conform to current Tire and Rim Association Standards. Steer-tread on front and rear.	Same as Conventional	Same as Conventional	Tubeless Michelin XZE radial tires mounted; 255/70R22.5, must conform to current Tire and Rim Association Standards. Steer-tread on front and rear.	LT225/75R16D All Season Radial
Tow Hooks	2 mounted to front frame and capable of lifting bus from either hook and 2 mounted to rear frame.	Same as Conventional	Same as Conventional	Same as Conventional	2 mounted to front frame member
Transmission Automatic	PTS2500. (state warranty).	Same as Conventional	Same as Conventional	Same as Conventional	4-speed with overdrive, heavy duty cooling.

<b>PART NAME</b>	<b>CONVENTIONAL</b>	<b>TRANSIT REAR</b>	<b>TRANSIT FRONT</b>	<b>SPECIAL NEEDS</b>	<b>A-II</b>
Transmission Oil	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Transmission, Warranty	State warranty	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Turn Signals	Must meet State and Federal Standards.	Same as Conventional	Same as Conventional	Same as Conventional	Manufacturer Standard
Warranty	State Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Warranty, Brakes, ABS, Hydraulic	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Warranty, Brakes, ABS, Air	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Warranty, Extended	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Warranty, Corrosion & Structural	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Warranty, Engine	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Warranty, Towing	None	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional
Wheelbase, GVWR	To be compatible with size of bus	Same as Conventional	Same as Conventional	Same as Conventional	to be compatible with size of bus: 19-20 passenger = 138" min; 23-24 passenger = 138" min; 23-24 passenger = 158" min; 29-30 passenger = 158" min.
Wheels	Manufacturer Standard. All wheels, both inside and out shall be finish painted neutral (gray or white) in color to comply with Michigan Motor Vehicle Code	Same as Conventional	Same as Conventional	Same as Conventional	Manufacturer Standard Dual Rear Wheels Only. All wheels, both inside and out shall be finish painted neutral (gray or white) in color to comply with Michigan Motor Vehicle Code.
Winter Warmup Equipment	Manufacturer Standard	Same as Conventional	Same as Conventional	Same as Conventional	None
Wiring	Complete wiring for tail lights and stoplights; color- and/or number-coded circuits: no scotch-lock connectors	Same as Conventional	Same as Conventional	Same as Conventional	Same as Conventional



## PAINT AND FINISH

The exterior surfaces shall be properly cleaned and prepared for the finish coat. All spot primers, finish primers, reducers, sealers, catalysts, and other preparation products used shall be both recommended and approved by the manufacturer of the finish coat of paint. The primer shall be an epoxy type primer that provides maximum protection from rust and corrosion. All metal utilized in the construction of the body shall be fully primed on both sides after the fabrication process is completed, but before the assembly process begins to assure full protection value and complete primer coverage.

The exterior body finish coat shall be applied with an emphasis on strong bonding and adhesion to all surface areas. For maximum protection value, the finish coat shall be smoothly and evenly applied 2.5 mils average thickness, minimum 2.0 mils absolute thickness. The finish coat shall be of only the highest professional quality, free of dirt, runs, orange peel, over spray, or other types of blemishes or imperfections.

The exterior finish coat shall be a durable, extra long-life type paint, with improved protection and increased resistance to atmospheric pollutants, harmful chemicals, road salt and salt spray, rust, corrosion, chipping, abrasion, high humidity, color fading from Ultra Violet (UV) sun rays and damage from adverse weather in general.

Exterior enamel shall be a highly durable advanced grade heat-cured Polyurethane Enamel type paint that has a Super High Gloss protective finish, with a minimum rated gloss retention rate from the paint manufacturer of 75% after 5 years, preferably an Acrylic based type Polyurethane Enamel such as BASF paint that is finish baked at a minimum temperature of 250 degrees F (120 degrees C), or approved equal.

The bus shall be painted National School Bus Yellow color and trimmed in black. All wheels, both inside and out shall also be finish painted neutral (gray or white) in color to comply with Michigan Motor Vehicle Code. The Body Guard Rails, front and rear Bumpers, and front and rear axle Wheel Hubs shall be finish painted black.

A vehicle presented to the purchaser for inspection and acceptance found not to have advanced grade Polyurethane Enamel type paint, but a lesser grade and type of paint such as, but not limited to, Alkyd Enamel or Acrylic Enamel, that will not provide either the protection value or long-term durability type paint specified, will be refused and rejected outright. Repainting of the vehicle is not an acceptable alternative or remedy.

Specifications for white roof paint option shall be: Optionally the roof of the bus may be painted white extending down to within 6" above the drip rails on the sides of the body, except that front and rear roof caps shall remain black and yellow. To be same paint as rest of bus body.