

A close-up, slightly blurred image of the top portion of the American flag, showing the white stars on a dark blue field and the top of a red stripe.

Federal Bus Standard 833S

APPENDIX A

OPTION SPECIFICATIONS

July 7, 2023

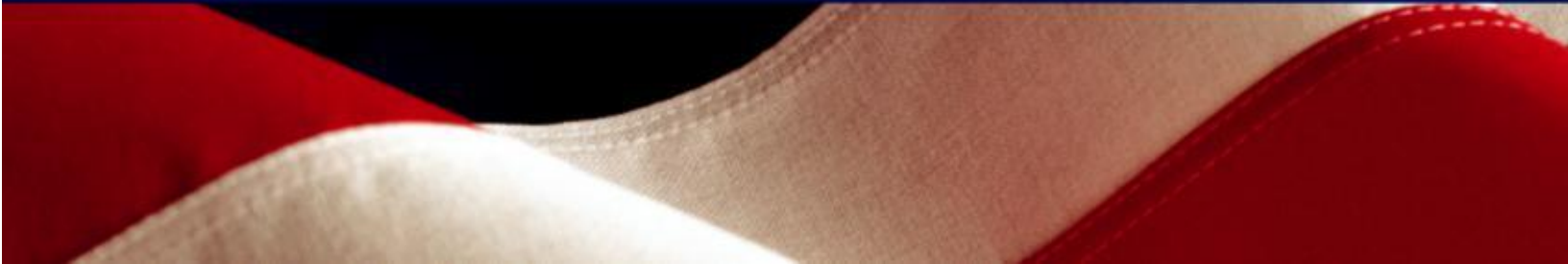
A close-up, slightly blurred image of the bottom portion of the American flag, showing the red and white stripes.

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Options are requirements that may be selected to modify the standard configuration bus. These options do not supersede, relax, or otherwise change the minimum requirements unless specifically stated.

1611 OEM EXPORT DOCUMENT FEE

When code 1611 is specified, A GSA Form 1611 shall be completed and submitted by the contractor per the instructions on the form.

3WSK – TRI-WHEEL SCOOTER SECUREMENT KIT– USE WITH LIFT PACKAGE

Requires Q'Straint scooter mounting kit Q5–7583–A to be furnished individually. This option will secure one scooter per unit requested.

ACLS – AUTOMATIC CHASSIS LUBRICATION SYSTEM

Requires the installation of a central distribution type automatic lubrication system such as Interlube AC1 or higher. System must be capable of supplying all lubrication points of the chassis, suspension, body, and subsystems excluding driveshafts. Distribution unit shall be installed under body in proximity of the battery box or in a location such as in the engine compartment where it will not be subject to road debris. All chassis and suspension spring shackles, spring ends, ball and socket joints, bushings, pins, brake cross-shafts, and slack adjusters shall be a grease requiring type and supplied with a metered amount of lubrication by the system.

AF1 – CHASSIS MANUFACTURER'S MAXIMUM AVAILABLE FUEL TANK(S)

Requires the installation of the chassis manufacturer's 100-gallon fuel tank.

AICE – CHAINS–TIRE–AUTOMATIC

Requires air operated tire chains to be added to the rear axle with the control switch mounted in driver's area with identification label and operation indication.

ALW – ALUMINUM WHEELS

Requires front and rear outside hub piloted bright finish chassis OEM, ALCOA , or AccuRide Accu–Shield aluminum wheels, applicable mounting nuts, bright–finish center caps, and bright–finish nut covers to be furnished ILO the standard steel disc assemblies.

AM6 – AUTOMATED MANUAL TRANSMISSION 6–SPEED

Requires the substitution of the standard equipment planetary type transmission with an automatic operating clutch and shift manual transmission. The transmission must have no less than six forward speeds. The transmission fluid must be synthetic and meet or exceed the requirements of the transmission manufacturer.

AST– TWO STAGE AIR CLEANER

Requires a filter arrangement with a primary and secondary filter or a cyclonic particle diffuser and paper element, combination filter.

AVSC– AUTOMATED VEHICLE STABILITY CONTROL

Requires chassis OEM electronic vehicle stability package utilizing motion and wheel sensors and manipulating braking and power transmission to enhance vehicle stability.

AWD– OEM ALL WHEEL DRIVE

Requires an all-wheel drive chassis in place of the standard two-wheel drive version of the standard unit. If the standard chassis used for the Standard Item Number is not available, an equal model of the same manufacturer must be used in its place. The GSA load and weight capacities must be met or exceeded.

Passenger entrance requirements:

- The passenger entrance well shall remain as standard construction.
- The first step height as measured from the ground on a level surface to the top face of the step tread shall not exceed 16–inches.
- If the tread height is greater than 16–inches an automatic step must be added to reduce height. Subsequent steps shall not exceed 11–inches. The manufacturer will determine the number of steps required to meet the requirement.

BA– BRAKES–AIR

Requires upgrade of braking system from hydraulic to drum type air. The system must include the following components:

- Air Storage Tanks – shall be appropriately rated for application and mounted in such a way to maintain drains at the lowest point for proper water evacuation.
- Automatic Moisture Ejector – the first air storage tank (wet tank) after the air dryer shall be equipped with a heated, automatic, moisture–ejector. All other air tanks shall be equipped with a brass or stainless steel, ¼–turn ball valve drain. The moisture ejector shall be protected from debris damage or accumulation by shielding.
- Air Dryer with replaceable, spin–on cartridge, desiccant air dryer; Meritor Model SS1200 or Bendix AD–IP shall be furnished on all air systems and installed per compressor and air dryer manufacturer’s recommendations.

BAC2 – LITTER PATIENT TRANSPORT PKG DOUBLE LOAD DOOR

Requirements include the following:

- a. Shall include Options SAF, and SAR. Ambulatory passenger capacity may be reduced.
- b. 11–rows of track–mounted removable bench seats with quick fold–up/fold–down mechanisms.
- c. The first six rows of seats are 34–inches wide
- d. Rows 7 through 10 are 30–inches wide
- e. Eleventh row consists of two removable forward facing jump seats, mounted one per side in the rear of the bus positioned to provide unobstructed clearance while rear door is open for loading and unloading operations.
- f. Fittings/hardware for 12 litters, six per side, three and three suspended from grab rails mount to the ceiling and secured to side wall by dedicated, quick release clamps.
- g. Lockable storage compartment in the right rear overhang large enough to litter fittings/hardware for 12 litters. Items shall be stored on a rollout tray meeting the following requirements:

- h. Tray shall be fabricated from .190 thick, 5052 aluminum.
- i. Shall be approximately 50 ½ inches wide by 21–3/4 inches deep by 7 inches high.
- j. Corrosion resistant ball bearing slides rated at not less than 300 lbs. each
- k. Sedan type double rear loading–door shall be provided that is large enough allow for easy passage of an attendant and patient on stretcher with hold open feature capable of maintaining fully open position until closer is demanded by operator. Door holder shall be fixed to remain in position to not allow rear doors to contact lights or body. Rear loading door is not required to be keyed alike to match other locks if not practical.
- l. Tinted split sash school bus windows tinted to allow no more than 6% light transmission.
- m. A single quartz halogen floodlight positioned over rear loading door angled down in such a way as to light the entire length of the loading ramp.
- n. “Slide Away” manually operated 10–foot long by 26–inch wide rear–loading ramp with an all–weather non–skid surface stored beneath floor under rear doors and rated at not less than 1,500 lbs.
- o. Grab rails on both sides of entrance door stepwell.
- p. Evenly spaced dome lights throughout the passenger compartment beginning at the first row of seats. May be a single row with a candlepower of not less than 21 per fixture or double rows not less than 15 candlepower per fixture.
- q. Modesty panel behind driver may be omitted.
- r. Body length may be different than that shown for the standard equipment bus due to the specialized requirements included with this option.
- s. Rear tow hooks not required due to ramp installation.
- t. Fuel fill may be recessed when a side frame mounted fuel tank must be furnished due to vehicle design limitations

BADA – BRAKES–AIR–DISC–ALL WHEEL ENDS

Requires the upgrade to the standard foundation air drum brakes to air discs as all wheel ends. The system must include the following components:

- a. Air Storage Tanks – shall be appropriately rated for application and mounted in such a way to maintain drains at the lowest point for proper water evacuation.
- b. Automatic Moisture Ejector – the first air storage tank (wet tank) after the air dryer shall be equipped with a heated, automatic, moisture–ejector. All other air tanks shall be equipped with a brass or stainless steel, ¼–turn ball valve drain. The moisture ejector shall be protected from debris damage or accumulation by shielding.
- c. Air Dryer with replaceable, spin–on cartridge, desiccant air dryer; Meritor Model SS1200 or Bendix AD–IP shall be furnished on all air systems and installed per compressor and air dryer manufacturer’s recommendations.

BBGR – REAR BAGGAGE COMPARTMENT

Requires a rear luggage compartment measuring full nominal interior width and height of bus and not less than 28–inches deep shall be furnished. Interior height of compartment can be reduced to accommodate air–conditioning evaporator. Locking entrance doors to the compartment shall be supplied at the rear of the bus and measure not less than 30–inches wide and 54–inches high. A step bumper painted to match bus body color or painted black shall be furnished to accommodate entry to luggage compartment. This option will reduce passenger–seating capacity.

BCA– BUS–CHILD–ACTIVITY

Requires the bus comply with NHTSA definition of Multifunction School Activity Bus (MFSAB) including the deletion of the stop arm, flashing light system and all school bus markings except for those required by the State in which it will be operated. Bus shall be configured to child passenger conforming to Activity Bus requirements. Exterior color shall be bright white with rub rails painted to color required by the state to which it is delivered. Seating shall be high back, fixed back, vinyl cover, Freedman Family seats without arm rests. The overall seating capacity is reduced when the standard bench 3 x 3 seating is replaced by the individual high back 2 x 2 seating.

BFEA– BUMPER–FRONT–ENERGY ABSORBING

Requires the substitution of the standard equipment front bumper for an impact energy absorbing HELP or TRANSPEC composite bumper.

BFST– BARRIER–FULL HEIGHT–TRANSLUCENT

Requires the standard driver's area barrier to be substituted by a Lexan, smoked charcoal, or bronze color, translucent, driver's barrier. Color shall harmonize with bus interior. Translucency shall be approximately 50%. The barrier shall minimize glare and reflections in the windshield directly in front of the barrier from interior lighting during night operation. The barrier shall extend from the floor to the ceiling and shall fit the bus side windows, wall, and ceiling panels to prevent passengers from reaching the operator or the operator's personal effects. The barrier may be partially padded, but only up to the height where it has no effect on the driver's visibility or protection. Nominal (less than 6") gaps between barrier and floor/walls/ceiling for airflow are acceptable provided driver's area remains protected. The barrier shall comply with all ADA requirements.

BIF–FABRIC SURFACE INTERIOR SIDE PANELS

Requires ceiling panels and walls to be covered with medium grey padded, woven, stain resistant, industrial cloth fabric or carpet.

BOI–BUS OPTIONAL INSULATION PACKAGE

Requires all bus and chassis manufacturer's optional insulation packages including but not limited to all available firewall insulation, minimum R-value of 5 and shall fill all cavity areas and voids in outer and inner walls, outer, and inner roof, and roof bow hat sections.

BREA– BUMPER–REAR–ENERGY ABSORBING

Requires the substitution of the standard equipment rear bumper for an impact energy absorbing HELP or TRANSPEC composite bumper. This Option is not available with Option BBGR.

BRL– INDIVIDUALLY CONTROLLED READING LIGHTS

Individually controlled reading lights, one per seating position shall be furnished. Lights can be mounted in pairs but must be fully adjustable to meet individual focus requirements.

BSI– SIGN– DESTINATION– ROLLER FRONT

Requires the largest available display area, forward-facing, glass-faced, illuminated, internal to body, sign compartment and full width roller curtain display with white background sign material printed with customer designated information.

BSIE– SIGN–DESTINATION–ELECTRONIC–FRONT

Requires largest available, display area, forward-facing, glass-faced, internal to body, sign compartment with LED display characters 4 inches in height or taller. All programming software and patch cabling shall

be included with this package. If a programming tool other than a laptop computer is required, it shall be furnished with this package.

BVTS – BOTTOM VENT TRANSIT SLIDER

Requires all passenger window slider vents to be oriented in the bottom 1/3 of the windowpane. The window glazing shall be tinted and tempered safety glass.

BWP– ADDITIONAL WHEELCHAIR POSITIONS

Requires the addition of one wheelchair position to be added to wheelchair lift options. This option increases the number of wheelchair positions by one. Multiples of this option can be requested. All positions shall comply with FMVSS 571.210, 222, 403, 404.

CARM – CONDENSER AIR CONDITIONING ROOF MOUNTED

Requires the relocation of the air conditioning condenser to the roof. The condenser and total system capacity shall remain the same or greater when this option is required.

CLV – CEILING – LIGHT – VINYL

Requires ceiling to be covered with medium gray or white vinyl.

CM–CARPETED FLOOR COVERING

Requires closed loop, industrial grade, stain resistant, treated carpeting in lieu of standard flooring. Standard color is medium grey. Aisle shall remain standard material.

CNG– DEDICATED COMPRESSED NATURAL GAS

Requires a dedicated, compressed natural gas engine and fuel system in place of standard diesel–fueled engine. The fuel system and installation shall comply with all applicable FMVSS, FMCSR, and National Fire Code requirements. The storage cylinders shall equal not less than 4800 SCF on vehicles with a GVWR at or below 21,000 lbs., and 7600 SCF on larger vehicles.

COBB– ONBOARD BATTERY CHARGER

Requires a permanently mounted self–regulated charger designed to maintain battery state of charge. The power supply for charger shall be combined with propulsion engine block heater.

CPFS–CEILING PADDED FABRIC SURFACE

Requires ceiling to be covered with medium gray padded, woven, stain resistant, industrial cloth fabric or carpet.

CPT– CUSTOM COLOR PAINT

Requires any single stage solid color offered by the Contractor in lieu of standard color bright white. A DuPont or other brand product code must be provided to the Contractor at the time of order when requesting this option. This option covers the vehicle except for the roof, which shall remain white.

CS Codes – Exterior Luggage Compartments

- a. Multiple storage boxes can be ganged to comply with the following cubic foot requirements.
- b. All compartments shall be mounted curbside only. The only exception shall be school and activity buses, which may be mounted on both sides.
- c. All luggage compartments shall be illuminated and shall have a carpet, rubber, or vinyl covered floor unless made of corrugated aluminum, corrugated stainless steel, or corrugated galvanized steel.

CSU1– COMPARTMENT–STORAGE–UNDERFLOOR–MINIMUM 12 CUBIC FEET

Requires underfloor baggage compartment with a minimum of 12–cubic feet.

CSU2– COMPARTMENT–STORAGE–UNDERFLOOR–MINIMUM 16 CUBIC FEET

Requires underfloor baggage compartment with a minimum of 16–cubic feet.

CSU3– COMPARTMENT–STORAGE–UNDERFLOOR–MINIMUM 20 CUBIC FEET

Requires underfloor baggage compartment with a minimum of 20–cubic feet.

CSU4– COMPARTMENT–STORAGE–UNDERFLOOR–MINIMUM 24 CUBIC FEET

Requires underfloor baggage compartment with a minimum of 24–cubic feet.

CSU5– COMPARTMENT–STORAGE–UNDERFLOOR–MINIMUM 28 CUBIC FEET

Requires underfloor baggage compartment with a minimum of 28–cubic feet.

CSU6– COMPARTMENT–STORAGE–UNDERFLOOR–MINIMUM 32 CUBIC FEET

Requires underfloor baggage compartment with a minimum of 32–cubic feet

CSU7– COMPARTMENT–STORAGE–UNDERFLOOR–MINIMUM 36 CUBIC FEET

Requires underfloor baggage compartment with a minimum of 36–cubic feet.

CSU8– COMPARTMENT–STORAGE–UNDERFLOOR–MINIMUM 40 CUBIC FEET

Requires underfloor baggage compartment with a minimum of 40–cubic feet.

CSU9– COMPARTMENT–STORAGE–UNDERFLOOR–MINIMUM 44 CUBIC FEET

Requires underfloor baggage compartment with a minimum of 44–cubic feet.

CTD - COMPRESSOR AIR CONDITIONING UPGRADE TO TRANSIT TYPE

Requires replacement of the standard equipment dual swash plate compressors by a single or multiple compressors from the list below. The BTUH capacity shall equal or exceed the dual swash plate compressors replaced.

The following compressors are acceptable for this requirement dependent on application:

- Bitzer Models: F400 and 4NFC
- Carrier Model: 05K and 05G
- Thermo King Model: X430
- Bock Model: FK40 and FK50
- Valeo: TM65 and TM55

CWPA – COLD WEATHER PACKAGE–BASIC BUS

Requires the addition of the following:

1. One auxiliary heater in the passenger compartment with an output capacity of not less than 80,000 BTU's.
2. Minimum of one fuel fired heater designed to function as a cooling system preheater and supplemental heat source while the engine is running. Heater shall be minimum of 20,000 BTU on vehicles less than 21,000 lbs. GVWR and minimum 31,000 BTU on larger vehicles. (Diesel Engines Only)
3. All required additional coolant pumps and controls.

4. Passenger entry stepwell forced air heater designed to defog the entry door glass. In cases where the OEM does not allow a forced air heater in the entry door area, a fan pointed at the entry steps may be provided as an alternative. (Not required on SIN 240L)
5. OEM Engine block heater. (Not required on SIN 240L)
6. Bus Optional Insulation Package as described in option BOI.
7. Entry Step Heated as described in option ESH
8. Water Resistant Wood Flooring as described in option WWF
9. Noise Reduction Package as described in option NR
10. Exterior Rearview Heated Remote Mirrors as described in option RM6
11. Heated Fuel/Water Separator, when available from chassis OEM (diesel engines only)

CWPB – COLD WEATHER PACKAGE–BUS

Requires the inclusion of the following:

1. One auxiliary heater in the passenger compartment with an output of not less than 80,000 BTU's.
2. Minimum of one fuel fired heater designed to function as a cooling system preheater and supplemental heat source while the engine is running. Heater shall be minimum of 20,000 BTU on vehicles less than 21,000 lbs. GVWR and minimum 31,000 BTU on larger vehicles.
3. All required additional coolant pumps and controls.
4. Heated step tread for the bottom entry step.
5. Passenger entry stepwell forced air heater designed to defog the entry door glass. (Not required on SIN 240L)
6. OEM Engine block heater (Not required on SIN240L)

CWR– COMPONENT WARRANTY REGISTRATION

Requires the Contractor to register all components that require registration to begin warranty coverage or validate start mileage or time. The registration must reflect the date and mileage at the time of delivery as recorded at the final destination. The Contractor's agent is responsible for collecting any information required for the registration and will not involve any parties of the Government to facilitate completing the documentation.

DA– DELETE AIR CONDITIONING

Requires the complete deletion of the standard equipment air conditioning and requires two driver's fans be installed on opposite sides of the bus for driver comfort. This option also deletes the requirement for a white roof unless option WPT is also selected on 200 series buses.

DAS– DELETE AIR SUSPENSION

Deletes the requirement for an air suspension system on the vehicle.

DB1– DETAINEE BUS PACKAGE - DHS

This package is primarily intended for detainee buses ordered by the Department of Justice. Any requirements listed below shall take precedence over contradictory requirements listed for the specific SIN. All pictures are for reference only.

BODY CONSTRUCTION

The transporter shall be based upon a rear engine adult work bus. Two (2) FMVSS escape hatches shall be installed on the roof with provisions to lock from the exterior.

INTERIOR FINISHES

The floor covering shall be a single piece of non-slip vinyl, color shall be gray. The walls, ceiling, and trim color shall be white.

WINDOWS

The windows shall be fixed. Security covers shall be installed over windows on the exterior. The mounting hardware shall be tamperproof.



FRONT DRIVER SIDE AND PASSENGER SIDE GUARD PROVISIONS

The front driver and passenger side guard seats, two (2) total, shall face the center aisle.

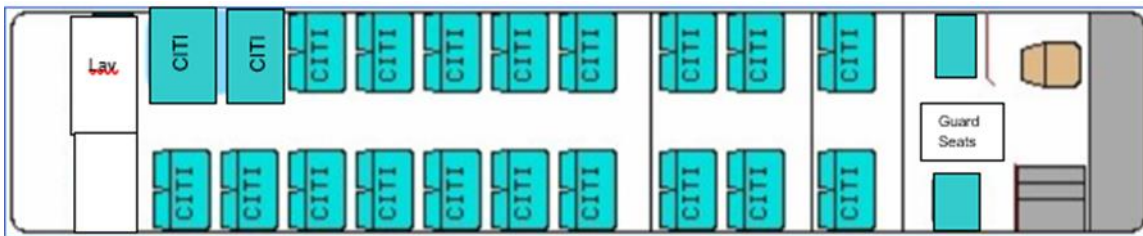
The guard seats shall include the following features.

- a. Seats shall be upholstered in vinyl
- b. Seats shall be air ride style



DETAINEE SEATING

Freedman Citi, or equal, hard plastic seating with bacterial resistant vinyl cushion insert, two position, shall be provided. Seat color shall be gray. A minimum hip to knee measurement of 26 inches shall be maintained. A minimum of twenty (20) two position seats (total minimum detainee capacity at 40) shall be provided. The driver, guards, and prisoners' weights of 175 pounds each shall be applied for rating purposes.



LAVATORY

A lavatory will be provided and installed at the rear of the bus. The lavatory shall be of stainless-steel construction and have a stainless-steel floor to ceiling enclosure. Shall be constructed in a manner where access between the rear of lavatory and the rear window is inaccessible.



LOCKS AND KEYS

All door and partition locks shall be keyed alike.

EXTERIOR ENTRANCE LIGHTING

Sealed dome lights shall be mounted above the front and rear doors. The light shall be controlled by a switch on the driver instrument panel. A rear door ajar light shall be provided in the dash area. Exterior side floodlighting package on driver and curb sides will be installed in a manner that will illuminate the entirety of the side of the bus.

INTERIOR STATION LIGHTING

Dome light shall be mounted above each guard and prisoner seating position. Dome lights shall have white and red-light capability to be controlled by the driver. Dome lights shall be brighter than standard overhead dome lights. The lights shall be controlled by a switch on the driver instrument panel. Expanded metal screening shall cover the lights. The hardware to mount the screening shall be tamper proof.

VIDEO SURVEILLANCE SYSTEM

Systems shall have three (3) monitors in guard area for viewing. Monitors shall be mounted over one guard bench in a fashion as not to be blocked from view while guard is seated. Three (3) cameras shall be installed in each partitioned passenger area in a fashion that will provide the guards a clear view of all passenger activity. Cameras shall be covered in clear plexi-glass dome/box/shield. All installation hardware shall be tamper proof. A video recording device shall be provided that allows for storage and review of video recordings.

RADIO, A/V PROVISIONS

Provisions shall be provided for government installation of three (3) radio antennas. Two (2) conduits with three (3) fish wires each shall be routed from the chassis cab dash to the forward guard position. An AM/FM/ radio with a 3.5 MM auxiliary input jack shall be installed in the driver dash area. Speakers shall be provided throughout the vehicle. Hardware used for installation must be tamper proof.

ELECTRICAL-BATTERY DISCONNECT

A battery disconnect switch shall be provided for all circuits supplying body installed equipment as specified within this document, lights, siren, radios. The remote control for the battery disconnects shall be located in the driver's area.

EMERGENCY EQUIPMENT

The provisions shall comply with FMCSR 393.95.

One (1) fire extinguisher shall be mounted convenient to the driver and shall have an Underwriter's Laboratory rating of 2A 10 B:C or greater, shall be a minimum 5 pounds, shall have a hose, shall include a metal safety pin and wire, and shall conform to type I or type II, class 2, size 5 of A-A-393. The fire extinguisher shall permit visual determination of charge.

One (1) minimum of 25unit type first-aid kit shall be furnished. A set of three (3) reflective safety triangles shall be shipped with the vehicle.

ROOF MOUNTED HVAC

Three (3) roof mounted electrically operated air conditioning systems with a minimum capacity rating of 13,000 BTUH each shall be provided. The air conditioners shall be mounted on the roof and include remote controls located in the forward guard area. Due to space constraints on the bus roof, the selection of this optional equipment may require mounting of the primary air conditioning system in an alternative location (not roof mounted).

The air conditioners shall be powered by a diesel engine generator mounted in a lower compartment on the driver side of the bus. The capacity of the diesel engine generator shall support simultaneous operation of all three air conditioners. Service access for the diesel engine generator shall be from outboard side. The chassis fuel tank shall supply the diesel engine generator. The diesel engine generator shall have a dedicated cranking battery, fuel filter, and water separator.

The installed electrical system shall comply with the most current NFPA Article 70- National Electrical Code. The diesel engine generator remote start and the AC circuit breaker panel shall be located in the forward guard area.

DB2- DETAINEE BUS PACKAGE - ICE

This package is primarily intended for detainee buses ordered by the U.S. Immigration and Customs Enforcement agency. Any requirements listed below shall take precedence over contradictory requirements listed for the specific SIN. All pictures are for reference only.

DCT- DELETE CONSPICUITY TAPE ON ADULT BUS

Requires the standard equipment white conspicuity tape to be removed from bus leaving only reflectors required to meet FMVSS requirements.

DDSS- DELETE DRIVER'S SUSPENSION SEAT

When selected the driver's seat shall be fixed rather than air-suspended.

DLS- DIFFERENTIAL-LIMITED SLIP

Requires substitution of the standard open differential for the axle manufacturer's slip limiting or locking type differential.

DSSP– DRIVER SAFETY SOFTWARE PACKAGE

- Driver drowsiness detection
- Forward collision warning

E85– ETHANOL FLEXIBLE FUEL

Requires adding the ability for the primary propulsion engine to use a fuel mixture containing as much as 85% ethanol and 15% gasoline and commonly known as E85 in the United States. This option requires first selecting the gasoline engine option GAS which replaces the standard equipment diesel engine with one that operates on commercially available gasoline. Option E85 is the incremental difference between option GAS and the addition of being a flex–fuel capable vehicle.

ECB– ENGINE COMPRESSION BRAKE

Requires a system that opens all or some of the engine exhaust valves near the end of the compression stroke, thereby converting vehicle motion to a pumping loss (engine compression break). Partial exhaust valve cycle is also acceptable for this function. Operator control shall be a dash mounted switch shall be provided to activate, modulate, or cut the brake augmentation. The switch shall be marked to indicate its position. When active, the system shall be automatically activated by means of conventional driving controls to apply retardation during vehicle deceleration, and deactivate in other operating modes.

ED2– SECOND ENTRY DOOR

A second entry door shall be provided. This option may reduce seating and shall be noted in the clarification tab if it does. The exact location of the second door shall also be noted in the clarifications tab.

EFSF– ECO FRIENDLY RECYCLED YARN SEAT FABRIC

Seat covers furnished must be made from 100% recycled yarn and a minimum of 80% post-consumer plastic water bottles. Material must meet FMVSS safety standards.

ELDI– EXTERIOR LIGHTING DOWNGRADE TO INCANDESCENT

Requires removing all exterior LED lamps and replacing them with incandescent where practical and if available from the bus manufacturer.

EPF – ENGINE PROPANE FUELED

Requires replacing the standard equipment diesel engine with direct–injected, dedicated, propane fueled engine and all subsystems required. This option deletes the requirement for the engine block heater, intake air restriction indicator, automatic 5–minute idle shutdown, and shore power requirements if no other alternating current consumer is requested. Option EPF is the incremental difference of replacing the standard diesel engine with a spark ignition engine designed to operate solely on propane fuel and includes all storage vessels and controls to complete the modification. Some options may not be available in conjunction with this engine choice.

ER2– ENTRY RAMP FOR SECOND DOOR

An entry ramp meeting ADA requirements shall be provided for the second entrance. This ramp may be manual or electronic and should be specified in the vendor's clarifications tab. THIS OPTION SHOULD BE SETUP TO ONLY BE VALID IF OPTION ED2 IS CHOSEN.

ESH– ENTRY STEP–HEATED

Requires a heated entry step to melt/prevent snow and ice from forming. Step may be heated by means of a thermal balance electric grid embedded in the non–skid step face, engine coolant circulated under the stepwell housing, or for folding ramps, by heated blowers. Electric grid operation shall be controlled

thermostatically or by a manual switch marked and located in the driver's area. Coolant heated step shall be controlled by means of a ¼ ball valve located to prevent accidental damage and marked to locate.

ESPD– ELECTRIC SLIDING PLUG DOOR

Electric Sliding Plug Dual Leaf Door shall be provided instead of standard entry door. The door shall have sensitive edge obstruction detection and sound alert for pedestrian and passenger safety. LED lit access button with driver disable controls which allow the driver to override the opening or closing of the door at any time.

EV – ELECTRIC BATTERY POWERED VEHICLE

This option is only intended for EVs that were offered prior to 888E. We will be creating new SINs for 888E offers with more in-depth requirements and removing this option.

Replaces the engine and transmission with a fully electric propulsion system. Any requirements that are related to the engine or transmission are also nulled.

The electric propulsion system shall consist of at least one motor and will still need to meet the same power and torque requirements as a standard engine. The system shall use a direct motor-to-wheel configuration eliminating the need for a transmission. The battery pack shall allow for a range of at least 100 miles on a full charge. The charging system shall allow for a charging rate of at least 100 kW-hrs.

The vehicle shall meet ISO6469 safety standards for electrically propelled road vehicles.

EXB – ENGINE EXHAUST BRAKE

Requires an exhaust brake installation such as a PAC Brake or a variable pitch turbo charger. This installation shall be done in compliance with engine manufacturer's recommendations and include all necessary hardware to complete the installation.

EWCS- EXTRA WIDE COMFORT SEAT

Two extra wide comfort seats with 3-point seat belts are added without reducing the overall seat count. Seats should be Freedman XL ES model or equivalent.

FFP – HEATER–COOLANT–FUEL FIRED

Requires the installation of a fuel-fired engine coolant pre-heater. The minimum specification varies based on the standard fuel for the SIN:

- SINs with GAS standard: Minimum 17k BTU
- SINs with DIESEL standard: Minimum 31k BTU

Heater shall be installed in a dedicated storage box under the bus body. The heater may be installed in the engine bay of large coaches to conserve underbody storage. Controls shall be located in the driver's area. Heater shall be programmable as a pre-heater as well as a heat supplement when the propulsion engine is in use.

FFS– FUEL/WATER SEPARATOR, HEATED

Requires fuel/water separator with a replaceable filter element or cartridge rated no larger than 30 microns, a drain valve that allows for water and debris to be drained from the lowest point of the unit, a water sensor warning light and heated with thermostatic control.

FL–FLAT FL BUS W/NO WHEELHOUSE INTRUSION IN PASS AREA

Requires no rear wheelhouse intrusion in passenger area. In other words, there should be no elevation change in the path that a passenger is walking to get to any seat. Minimum interior height shall not be reduced. Low profile tires can be used to lower overall height of bus.

FLP–TRANSIT STYLE INTERIOR LIGHTING PKG

Requires minimum one row of fluorescent or LED light fixtures installed center of aisle or integrated into overhead parcel racks if requested by option. The fixtures shall extend as far to the rear of the bus and as far forward as possible in a continuous assembly. Lens material shall be clear polycarbonate. Lens shall be designed to effectively "mask" fluorescent tubes or LEDs. Lens material shall not drip flaming onto seats if burned. Lens shall be sealed to inhibit incursion of dust and insects yet are easily removable for needed service. If threaded fasteners are used, they must be held captive in the lens. Individual ballasts shall be provided for each fluorescent light fixture. Ballasts shall have a fireproof housing, minimum operating frequency of 18,000 Hz, reverse polarity protection, integrated circuit breaker/automatic thermal protection, and be rebuildable. If the driver's area ceiling angles down making installation in that area impractical, standard equipment dome lights may be used to provide fill lighting. Additional overhead lighting shall be provided using the manufacturer's standard interior lighting and be capable of meeting ADA illumination values without the use of the fluorescent fixtures. Fluorescent/LED light fixtures shall be powered by an independent circuit and controlled by a manual switch located in the driver's area. No time limit shall apply to the on-time of these fixtures with the ignition in the Run or Aux position. There shall be a minimum of one dome light over the driver area controlled independently of other interior lighting with a separate switch. Door–open activated stepwell illumination LED lamp(s). Interior illumination shall meet or exceed requirements of ADA 1192.31. The number of lamps used, and the combination of fixtures are at the discretion of the bus manufacturer.

FSS– FIRE SUPPRESSION SYSTEM

Requires an Automatic Fire Sensing and Suppression System (AFSS) complete with fire detector(s), control panel, manual activation switch and fire extinguishing system. At a minimum, the AFSS shall provide protection of the engine compartment and battery compartment. Final installation and design of the AFSS shall meet AFSS manufacturer requirements to maintain AFSS warranty.

1. The purpose of the AFSS is to ensure coach and passenger safety and survivability in the event of a fire. The AFSS shall detect fires in protected areas. Upon fire detection the AFSS shall immediately activate an audible and visual alarm in the vehicle operator's area. After not more a 15 second delay, the AFSS shall discharge extinguishing agent into the protected areas.
2. The completed AFSS shall be tested and certified by the installer or manufacturer. The test shall determine that the system has been properly installed and will function as intended.
3. The AFSS manufacturer shall provide to the purchaser all necessary equipment, training, and manuals to ensure complete working knowledge of the system.
4. The fire detector(s) shall be optical infrared (IR), thermally operated linear (LTD) type, or spot type thermal sensor. The IR detector(s) shall cause the AFSS to alarm when exposed to optical radiation emitted from a fire within a 90–degree field of view. The IR detector(s) shall provide false alarm immunity to sources such as flashlights, sunlight, tobacco products, arc welding and more. Each individual detector shall be monitored for status by the control panel. Detectors of differing types shall be compatible with each other, including linear thermal and spot thermal, for use independently or in combination up to a total of ten.
5. The fire detectors shall be located in critical fire hazards and areas in the sensors field of view that are likely to be wetted by leaking flammable fluids.

6. The LTD detector(s) shall cause the AFSS to alarm when the ambient temperature surrounding the sensor exceeds its set alarm point.
7. The control panel shall provide the vehicle operator a visual and audible interface to the AFSS. At a minimum, the panel shall have unique controls and indicators with a System “OK”, fire, self-test, Alarm silence, detector faults, extinguisher fault, and system reset.
8. The control must be located in easy view of the driver.
9. All electrical connectors must be weather tight and locking.
10. The manual activation switch must be located in easy access to the driver and be clearly labeled. The switch must have tampered evident seal.
11. The fire extinguishing system must consist of an extinguisher and distribution system. The extinguisher shall be a DOT approved pressure cylinder and pressure gauge with a minimum charge of 20 lbs. extinguishing agent.
12. The extinguisher cylinder must be securely mounted and installed per AFSS manufacturer requirements.

GAS – GASOLINE ENGINE

Requires replacing the standard diesel with a V–8 or V–10 gasoline engine. GSA minimum HP for the SIN must be met. A different OEM chassis and different bus body (same brand bus) may be provided. Passenger count must be maintained. This option deletes the requirements for dual batteries, engine block heater, intake air restriction indicator, and automatic 5–minute idle shutdown. Offeror shall indicate in Autochoice clarifications area the:

- Chassis Model
- Bus Model
- Horsepower
- Torque
- Alternator Capacity
- Fuel capacity

GR– STANDEE GRAB RAILS

Requires, except forward of the standee line and to a point within 18 inches of the face of the rear seat, two continuous, full grip, and overhead assist. These assists shall be convenient to standees and shall be located off center of the aisle. The assist shall be no less than 70 inches above the floor. Overhead assists shall simultaneously support 150 pounds on any 12–inch length. No more than 5 percent of the full grip feature shall be lost due to assist supports. Standee line shall be marked in accordance with Federal Motor Carrier Safety Regulation 393.90. Additional passenger load equaling one 215 lb. person per 2.5 square feet of aisle space shall be added to the passenger load calculation. When calculated standee capacity ends with a fraction the capacity shall be rounded down to nearest whole number. Passenger loading stickers in paragraph 3.1.21 shall be amended to include the total passenger capacity including standees and delete the verbiage “No Standees”. Included in this option shall be all body, chassis, suspension, transmission, driveline, tire, etc. requirements to safely handle the occupant capacity and meet GVWR and GAWR requirements.

GRS– SEAT–PASSENGER–GRAB HANDLE

Requires molded high–density foam with internal structural support or molded thermoplastic grab handle, mounted to the aisle side upper corner on high back seats and top mounted on Mid–High seats. Option price shall reflect the upgrade of all passenger seats.

HDAC – HEAVY DUTY AIR CONDITIONING

Provide passenger HVAC system including the following:

- Espar AC353 Integrated Roof Top air conditioner with IMACA rating: 52Kw and 180K BTU
- Dedicated 24V/150A alternator (rear engine buses – in addition to standard engine alternator)
- Bitzer 4NFCY or Bock FK40–655K compressor (in rear engine buses)
- Valeo TM–65 compressor (in front engine buses)
- Electronic System Controller

HEV– HYBRID ELECTRIC VEHICLE

Propulsion system includes an internal combustion engine (ICE) powered by gasoline, diesel or other alternative fuel powered combined with electric motor(s), motor controllers and batteries. The engine and electric motor may be connected in either series or parallel configurations. The hybrid system shall include regeneration, a feature that converts inertia into electric energy to charge the hybrid batteries during vehicle deceleration. The horsepower and torque of the standard diesel engine may be reduced. This option deletes the requirement for an automatic 5–minute idle shutdown.

HEV1– HYBRID ELECTRIC PROPULSION AND SUPPORT SYSTEMS

Propulsion system includes an internal combustion engine (ICE) powered by gasoline, diesel or other alternative fuel powered combined with electric motor(s), motor controllers and batteries. The engine and electric motor may be connected in either series or parallel configurations. The hybrid system shall include regeneration, a feature that converts inertia into electric energy to charge the hybrid batteries during vehicle deceleration. The horsepower and torque of the standard diesel engine may be reduced when option HEV1 is selected. The vehicle's air conditioning and cabin heating systems shall operate on electricity produced by the hybrid system or by a supplemental source while the ICE is off or at idle. This option deletes the requirement for an automatic 5–minute idle shutdown.

HEV2– PLUG-IN HYBRID ELECTRIC VEHICLE

Propulsion system includes an internal combustion engine (ICE) powered by gasoline, diesel or other alternative fuel combined with electric motor(s), motor controllers and batteries. The engine and electric motor may be connected in either series or parallel configurations. The hybrid system shall include regeneration, a feature that converts inertia into electric energy to charge the hybrid batteries during vehicle deceleration. The horsepower and torque of the standard engine may be reduced. Required by this configuration is a means to charge the hybrid batteries using shore power while the vehicle is stationary. If the charging cable is typically furnished as part of the Contractor's package, it must also be furnished to the Government. If a ground-based charging station is typically used to charge the batteries, one is not required to be furnished as part of this packaged option. When the shore power cable and connector are typically furnished, it must be included as part of this package. This option deletes the requirement for an automatic 5–minute idle shutdown.

HLF– WHEELCHAIR LIFT– LOCATED TO FRONT BEHIND ENTRY DOOR

Requires locating the wheelchair and door to front right side of the bus just behind the passenger entry door.

HEPA – HEPA FILTER

Requires High-Efficiency Particulate Air (HEPA) filters within the circulated air ventilation system.

HPA– 1,000 LB CAP WHEELCHAIR LIFT UPGRADE

Requires upgrading the standard 800 lb. capacity lift to a 1000 lb. certified capacity lift, including all improvements in the floor structure and chassis mounting points to accommodate the greater loads experienced.

HPBS– HANDICAP PACKAGE SCHOOL–ONE WHEELCHAIR POSITION

Requires the modification of the bus to comply with FMVSS 571.403 and 404 as applicable to school bus use. Lift shall be electric with power up and fold–up platform and rated for public use. This option provides a securement location and hardware for one wheelchair. The securement hardware provided shall be RESNA WC18 compliant. The standard securement type will be track tiedowns (Choose option SCFS for pocket anchors). This option reduces overall seating capacity.

IVR– INTERIOR WALLS AND CEILING – VANDAL RESISTANT

Requires the interior walls and ceiling surface material to be white melamine or similar material ILO the standard.

LAV1 – LAVATORY W/PROVISIONS FOR HAND CLEANING

Requires the bus manufacturer’s standard forced ventilation enclosure with chemical flush basin and towelette or waterless gel dispenser for hand sanitizing. System furnished must include all plumbing, holding tanks, tank freeze prevention heaters, and ventilation system.

LED– LIGHTS, LIGHT EMITTING DIODE (LED)

When specified, all exterior lights will be LED in lieu of incandescent unless required photometric values cannot be achieved in specific locations. LED lights provided shall have a minimum 5–year manufacturer’s warranty.

LRI– INTERIOR OVERHEAD PARCEL RACKS

Requires right and left side, full length open–faced, overhead parcel racks. Retaining lip or bungee cord luggage retaining devices shall be intrinsic to the design features. Minimum vertical clear opening shall be 6–inches with interior measurement vertical measurement of 9.5–inches. Air volume shall not be restricted or diverted when parcel rack contains passenger carryon items.

LWSA– LIGHT–WARNING STROBE–AMBER

Requires an amber strobe light to be furnished centered on the top rear of the roof.

MCF– MIRROR–CROSSVIEW SYSTEM–FRONT

School bus configuration front mounted cross view mirror system shall be provided and comply with FMVSS.

MEDS– SWITCH–BATTERY–MASTER–DISCONNECT

Requires a manually operated, master–battery disconnect–switch (switch) installed within 18 inches of the battery compartment in a dedicated compartment or located in the battery compartment. A label clearly identifying the location of the switch shall be applied to the exterior surface of the compartment. Attached to or in near proximity to the switch shall be a sticker indicating switch operation. Electrical load carrying device furnished shall be rated at a minimum of 120% continuous, worst–case circuit load. Switch shall be located to be readily distinguishable and provide unimpeded access in an emergency.

MIL–DATA PLATE AND DD250

Requires the following:

1. A data plate of metal or vinyl construction shall be furnished. No exterior military markings shall be furnished.

The Data Plate shall list the following and can be completed using a permanent marking pen and covering with a transparent sheet to prevent degradation:

NOMENCLATURE _____
MAKE AND MODEL _____
CHASSIS SERIAL NUMBER (VIN) _____
VEHICLE CURB WEIGHT: _____ KG (LBS)
PAYLOAD, MAXIMUM: _____ KG (LBS)
GROSS VEHICLE WEIGHT RATING, MAX. _____ KG (LBS)
GROSS COMBINATION WEIGHT RATING, MAX. _____ KG (LBS)
DATE OF DELIVERY: _____ MONTH _____ YEAR
WARRANTY: _____ MO. _____ KM (MILES)
CONTRACT NUMBER _____
RPN NUMBER _____
US PROPERTY

The Data Plate shall be located inside the bus in the driver's area in an easily viewed location such as the forward bulkhead.

2. A DD FORM 250 (MATERIAL INSPECTION AND RECEIVING REPORT) shall be furnished in lieu of a GSA form 308.

MMV- MULTI MOBILITY VEHICLE (1 WC & 1 STRETCHER)

Ability to carry one stretcher and one wheelchair with 6 ambulatory seats on a 240L bus. A perimeter seating configuration may be used to meet these requirements. The securement of the stretcher must meet all applicable ADA requirements and tests.

MS1- TIRES-DRIVE AXLE-ON/OFF ROAD

Requires the tires on the drive axle shall be "On/Off Road" with a minimum rated speed of not less than 65mph. The maximum governed speed shall be reduced to equal tire rating.

NR-NOISE REDUCTION PACKAGE

Requires all noise reduction methods available from body and chassis manufacturer to be added to the standard package. Examples of noise reduction methods that shall be included are complete lining of stepwell treads, and sides with multi-layer matting, urethane foam underbody insulation, application of insulation and acoustical coating, noised reducing mufflers, underbody, and engine compartment shielding.

OXY- OXYGEN TANK HOLDER

Mounted oxygen tank cylinder holder to secure o² cylinders during transport.

PASP–PUBLIC ADDRESS SYSTEM

Requires a public address system integrated into the radio system with a corded microphone. When any wheelchair transport option is selected, this option must be shown as required for all 200 series buses.

PDST– PASSENGER DOOR– SEDAN TYPE

Requires a single panel sedan/plug door, fully gasketed for maximum air and water seal. A VAPOR or equivalent operating mechanism must be used to provide open and closing function.

PPWR– PASSENGER USB AND AC POWER OUTLETS

Requires 115VAC and USB power outlets at each passenger seating location. To be mounted on center frame of seats. Outlets may be mounted in heating ducts in locations such as sliding, reversible, or rear center seats where frame mount is not feasible. System is to include a minimum 3600W inverter.

PSDB– PASSENGER SEATING DOWNGRADE TO BENCH

Requires the downgrade of the standard high back, certified, school activity seat to a 36–inch school bus bench.

1. The seat cover shall be a medium grey color.
2. Material class rating must be ASTM D–3690–Class A or better.
3. UV Stabilized Pigments must be 500 hours minimum.

PSM– PARTS AND SERVICE MANUALS

Requires printed parts and service manual(s) for the vehicle and equipment furnished shall be provided. Documentation shall be provided based on the quantity ordered, which may not necessarily match the number of buses on the order.

PSMA– AIR FORCE PARTS AND SERVICE MANUALS

When code PSMA is specified, the following shall be provided in a complete package:

The Contractor/Vendor shall provide two (2) complete sets of manuals (1 paper and 1 electronic) to include, operators, parts, and service manuals to the U.S. Air Force Program Office at the address listed below. Manuals shall be for the complete vehicle and include any mounted or accessory equipment. The data formats shall be paper (printed), and electronic (CD ROM). Those files provided in electronic format must be complete and assembled separately in a “print on demand” format such that a bound paper copy can be produced and provided with no security restrictions (unlocked). No “auto run” or “executable files” are acceptable. Requires printed parts and service manual(s) for the vehicle and equipment furnished shall be provided. Documentation shall be provided based on the quantity ordered, which may not necessarily match the number of buses on the order.

For each set of manuals, the Contractor/Vendor shall provide one copy of Form DD250 Material Inspection and Receiving Report available at <http://www.dtic.mil/whs/directives/infomgt/forms/eforms/dd0250.pdf> to the U.S. Air Force Program Office at the below listed address.

All data shall be supplied in accordance with DFARS clause 252.227–7015 TECHNICAL DATA—COMMERCIAL ITEMS (MAY 2013). The Contractor/Vendor shall provide the U.S. Air Force Program Office at the address listed below a Government

Purpose License Agreement to allow the reproduction of the data they supply in agreement with the above referenced DFARS clause.

The shipping address for the above required technical data packages is:

235 BYRON STREET (BLDG300)

SUITE 19A

Robins AFB, GA 31098–1813

Attn: 404 SCMS/GUEEA

PSME– PARTS AND SERVICE MANUALS, ELECTRONIC

When specified, parts and service manuals shall be furnished in electronic format (CD) or web-based access. Information shall include parts and service information of all standard and optional equipment supplied with each bus. If complete electronic information is unavailable, supplemental paper copies may be substituted for such details not available in electronic form. Requires printed parts and service manual(s) for the vehicle and equipment furnished shall be provided. Documentation shall be provided based on the quantity ordered, which may not necessarily match the number of buses on the order.

PWS– PASSENGER WINDOW SHADES

Requires sun screening material mounted on a roller above the passenger windows in the control of the passenger to minimize the entry of light from the outside. The shade can be per passenger window or two windows and must have a means to prevent swing regardless of height chosen by the passenger. This option must be priced to include all passenger side windows.

QAST– Q’ASSIST WHEELCHAIR WINCH

Q’Straint Q’Assist brand winch system. Designed to assist large wheelchairs while going up an entry ramp.

QUBE– WHEELCHAIR QUICK-RELEASE SYSTEM

Q’Straint QUBE Quick Release Wheelchair passenger restraint system for personal space and minimal contact between wheelchair passenger and driver

RAX – AM/FM RADIO WITH AUX INPUT

Requires an AM/FM radio with a 3.5mm stereo auxiliary input jack and/or USB input port.

RL36– RACK LUGGAGE–MINIMUM DIMENSION 22in X 36in 2–TIER

Requires a tubular two tier luggage rack with shelving area measuring not less than 22–inches deep by 36–inches wide and shall be installed immediately behind the driver’s area. The rack shall be installed by securely mounting to floor stringer or tapping plates. This option will reduce seating capacity.

RL60– RACK LUGGAGE–MINIMUM DIMENSION 22in X 60in 2–TIER

Requires a tubular two tier luggage rack with shelving area measuring not less than 22–inches deep by 60–inches wide and shall be installed immediately behind the driver’s area. The rack shall be installed by securely mounting to floor stringer or tapping plates. This option will reduce seating capacity.

RLD– REAR LOADING DOOR

Requires a door located in the rear wall of the passenger compartment leading to the outside of the bus measuring not less than 30–inches wide and 55–inches tall. A step bumper painted to match bus body color or painted black shall be furnished to accommodate entry and exit. Two windows shall be furnished

in the door with one in the upper half and a second in the lower. Both windows shall be tempered with the lower window coated with a layer of Huper Optik, VehicleGard or equal film. This door is considered an emergency exit and must be marked accordingly with signage and red LED light mounted above the light in the interior.

RM6– MIRRORS–EXTERIOR REARVIEW HEATED REMOTE

Flat and convex surfaces. Both surfaces shall be heated; flat surface shall be remote controlled, with controls located in driver's area. Heat and position control switch(s) shall be marked to indicate function. Heating function shall be automatically deactivated when the ignition switch is turned to the "OFF" position.

RSCP– PREMIUM HIGHBACK RECLINING SEAT– 19–INCH WIDE

Requires reclining seats with seat bottom width of 19–inches and upholstered flip–up arms on wall and aisle sides. Standard material cover or one of the seat material options described elsewhere this specification if ordered. This option shall be priced to upgrade all passenger seats from standard.

RSCU– SEAT–HIGH BACK–RECLINING–CLOTH COVERED W/ARMREST

Requires Freedman Featherweight Recliner, American Horizon High Back Recliner, or CE White LER–35–HB with cloth cover or, if ordered, one of the seat material options described elsewhere this specification.

1. Minimum seat bottom cushion width 17½ –inches.
2. Aisle side molded rubber/plastic movable arm rests.
3. This option shall be priced to include the upgrade of all passenger seats.

S3BA– SEAT–PASS–3 PNT BELT SYSTEM HIGH BACK SCHOOL CERTIF

Requires American Seating SafeGuard Premier, Freedman 3 Point Family seat or CE White Activity in lieu of standard seat. Seat cover material shall be Grey vinyl. This option upgrades all passenger seats.

S3BH– SEAT–PASSENGER–3 POINT BELT SYSTEM HIGH BACK

Requires Freedman 3 Point Seat High back in lieu of standard fixed back Mid High.

1. Seats shall be equipped with aisle side molded rubber/plastic movable armrest and Level 3 woven cloth fabrics.
2. This option upgrades all passenger seats.

S3BM– SEAT–PASSENGER–3 POINT BELT SYSTEM MID HIGH

Requires Freedman 3 Point Seat Mid–Hi in lieu of standard fixed back Mid High.

1. Seats shall be equipped with aisle side molded rubber/plastic movable arm rest and Level 3 woven cloth fabrics.
2. This option shall be priced to include the upgrade of all passenger seats.

S3BV– SEAT–PASSENGER–VINYL–3 POINT BELT SYSTEM MID HIGH

Requires Freedman 3 Point Seat Mid–Hi in lieu of standard fixed back Mid High.

1. Seats shall be equipped with aisle side molded rubber/plastic movable arm rest and Level 3 vinyl.
2. This option shall be priced to include the upgrade of all passenger seats.

SEHA – ENGINE BLOCK HEATER, OEM

Engine shall be equipped with a 120-volt AC coolant heater located in the engine block. Heater shall be engine manufacturer's standard or optional equipment.

SMW– STORAGE AREA MOVABLE WALL

Requires a track mounted three-piece movable walls to be used in conjunction with Option BBGR. The wall sectional shall be secured to the walls and ceiling with heavy-duty U-track with quick release locking levers allowing the wall to be moved without the use of tools or complete disassembly

SA – Air Suspensions

When air suspension is specified, the following applies:

- a. Minimum of one bag per axle end.
- b. All air springs shall be furnished with an internally mounted elastomer travel-limiting device.
- c. A minimum of one air suspension leveling valve shall be furnished with standard or optional equipment rear air suspension.
- d. A minimum of three air suspension leveling valves shall be furnished for the combination of front and rear air suspension.

SA8– Suspension–8 AIR SPRINGS

Requires upgrading front and rear suspension to include 2 air springs per wheel end and frame rail reinforcements. A minimum of four (4) air suspension leveling valves shall be furnished, one per axle end.

SAF– SUSPENSION–AIR SPRING–FRONT

Requires the substitution of steel spring suspension with one air bag per axle end or combination steel spring and air bag for the front axle. Requires Option SAR.

SAFK– SUSPENSION–FRONT–AIR SPRING W/ KNEELING

Requires the substitution of steel spring suspension with one air bag per axle end or combination steel spring and air bag for the front axle. Requires Option SAR and includes kneeling feature. Shall include an audible alarm when request to lower has been initiated, an orange flashing indicator lamp mounted near the entrance door with instruction label stating the bus body is moving downward, and a shift interlock which does not permit the bus from being placed in gear prior to the suspension returning to normal operating height.

SAR– SUSPENSION–AIR SPRING–REAR

Requires the substitution of steel spring suspension with one air bag per axle end for the rear axle.

SAS– SEAT–AISLE SLIDER

Requires a mechanical locking slide mechanism to aisle side seats that allows the aisle seat to be moved a minimum of 2-inches into the aisle for added shoulder and hip room. Option shall be priced to include the upgrade of all aisle side passenger seats.

SB3B – SEAT BENCH 3-POINT BELTS

Requires the substitution of the standard bench with a 3-point seat belt system bench. This option shall only be provided for those States that do not specifically prohibit them. This option must be added to vehicle orders for those States that require 3-point belt system benches.

SBSA– SEAT BELT (ADULT)

Requires a retractable safety belt for each passenger seat in compliance with FMVSS 571.209 and 571.210. Retractors shall be located below seat base, cushion surface. A fixed, non-retracting belt assembly may be used where retractors cannot be installed. Examples are those seats located on the engine compartment housing of a rear engine style bus or those mounted on top of wheel housing. This option shall be priced to include the upgrade of all passenger seats.

SBSC– SEAT BELTS (CHILD)

Requires three retractable safety belts for each bench seat in compliance with FMVSS 571.209 and 571.210. Two belts per bench can be furnished on seats less than 39 inches in width that are used at emergency door areas. When Option BCA is requested, this option shall furnish two seat belts for a pair of high back seats. A fixed, non-retracting belt assembly may be used where retractors cannot be installed. Examples are those seats located on the engine compartment housing of a rear engine style bus or those mounted on top of wheel housing. This option shall be priced to include the upgrade of all passenger seats.

SCFS– WHEELCHAIR, FLOOR–POCKET ANCHORS ILO STD TRACKS

Requires the Q'Straint Slide n' Click or Sure-Lok Solo Anchor floor mounting system per wheelchair position and modification to the belt system floor point to match the pocket mount. Installation and hardware to comply with RESNA WC18 standards.

SCO– CO-PILOT SEAT– AIR SUSPENSION

Requires the addition of a second driver type high back seat in the cab located in the right-hand position. The seat shall be reclining type with adjustable lumbar features. The seat shall have a minimum of left side arm rest and covered with the same cloth as the driver seat.

SCO1– CO-PILOT SEAT– MECHANICAL SUSPENSION

Requires the addition of a second driver type high back seat in the cab located in the right-hand position. The seat shall be reclining type with minimum left side arm rest and covered with the same cloth as the driver seat.

SCS4– SEAT–CLOTH–STAIN/FLUID RESISTANT–LEVEL 4 FABRICS

Requires REPEL fabric or equivalent, color grey. This option shall be priced to include the upgrade of all passenger seats.

SCS6– SEAT–CLOTH–STAIN/FLUID RESISTANT–LEVEL 6 FABRICS

Requires Synergy Vanes Gray Level 6 fabric or equivalent. This option shall be priced to include the upgrade of all passenger seats.

SCS7– SEAT FABRIC–STAIN/FLUID RESISTANT–CMI BLACK

Requires seat fabric upgrade from standard level 3 fabrics to CMI O–Vinyl or Illusion fabric or equivalent, color black or equal simulated leather material. This option shall be priced to include the upgrade of all passenger seats.

SCU1– OLEFIN SEAT FABRIC – CROSS WOVEN – GREY

Requires woven Olefin or equivalent, grey color cloth. This option shall be priced to include all passenger seats.

SCU3– SEAT–CLOTH UPHOLSTERY–LEVEL 3 FABRIC

Requires Regions Pacific Grey face fabric or approved equivalent. This option shall be priced to include the upgrade of all passenger seats.

SCU4– SEAT FABRIC– CMI PLUSH FLAGS GRAY CLOTH

Requires CMI Plush Flags Gray fabric, or equivalent. This option shall be priced to include the upgrade of all passenger seats from standard level 3 fabric.

SCU5– SEAT FABRIC– TOWER 4000 GREEN CLOTH

Requires Tower 4000 Green Level 5 cloth, or equivalent. This option shall be priced to include the upgrade of all passenger seats from standard level 3 fabric.

SCU6– SEAT FABRIC– LEVEL 6 CLOTH

Requires Level 6 cloth. This option shall be priced to include the upgrade of all passenger seats from standard level 3 fabric.

SDES– SIGN DESTINATION–ELECTRONIC–SIDE

Requires largest available, display area, curbside–facing, glass–faced, internal to body, sign compartment with LED display characters 2–inches in height or taller. All programming software and patch cabling shall be included with this package. If a programming tool other than a laptop computer is required, it shall be furnished with this package. Front and side message controls shall be integrated into one controller when Option BSIE is requested.

SDRS– SIGN– DESTINATION– ROLLER SIDE

Requires largest available, display area, curbside–facing, glass–faced, internal to body, sign compartment and full width roller curtain display with white background sign material printed with customer designated information.

SDSA– SEVERE DUTY STOP ARM

Requires Specialty Manufacturing Defender Electric heavy duty stop arm, with High Windguard option. An equivalent stop arm with a different brand may be used.

SFD– SEAT–FOLDING–DOUBLE

Requires one double Mid–High folding seat, with a seat bottom that folds/flips up and locks to a vertical position such as the Freedman FW Flip and American Seating Horizon Flip Up.

SFD2– SEAT–FOLDING–FLIP–DOUBLE

Requires one double Freedman FSC Foldaway or American Seating Horizon Cantilevered Folding, Mid–High folding flip seat that fold down and flips up to store against the bus wall. Other equivalent brands may be used with approval from the engineer.

SHB– SEAT–PASSENGER–HIGHBACK

Requires seats with high fixed back or fixed headrest in lieu of standard Mid High. Seats shall be equipped with aisle and center movable arm rests.

SH3P– SEATS–HARD SURFACE 3–PT

Requires Freedman Citi–Pro hard surface seating with 3–pt belts and without fabric inserts. Other equivalent brands may be used with approval from the engineer.

SICA– SEAT–CHILD SEAT–INTEGRATED–ADULT BUS

Requires the substitution of one pair of Midhigh seats with an Integrated Child Securement (ICS) seat. Seat and installation shall comply with FMVSS No. 210 and 213. The number of ICS equipped seats required must be specified at the time of order.

SICS– SEAT–CHILD SEAT–INTEGRATED–SCHOOL BUS

Requires the substitution the standard bench with an IMMI SafeGuard, CE White CR series bench with two Integrated Child Securement (ICS) seats, or HSM NextGen with Child Restraints Seat. Seat and installation shall comply with FMVSS No. 210 and 213. The number of ICS equipped benches required must be specified at the time of order. Other equivalent brands may be used with approval from the engineer.

SID– IMPROVED DRIVER SEAT

Requires replacement of the standard equipment seat with one having the following features:

- a. Right side adjustable arm rest.
- b. Adjustable headrest.
- c. Minimum of two-way adjustable lumbar support.

SID2– IMPROVED AIR RIDE DRIVER’S SEAT

Driver’s seat shall be air ride with adjustable lumbar, cushion, backrest, and height adjustment. Driver’s seat shall be equipped with 3–point safety belt system and right movable armrest.

SPB– SEATING PERIMETER

Requires all seating to be arranged in perimeter orientation. Seats shall be positioned around the entire perimeter of the bus interior with no gaps between seats other than for door openings. Track mounting not required. This option will reduce seating capacity.

SRDA– SIGN REAR DRIVER ALERT–LED DUAL SAFETY MESSAGE DISPLAY

Requires a SMI Driver Alert Model 7500 to be linked to the 8–way light system and 4–way flashers. The Caution–Stopping message shall activate whenever the 4–way flasher system or orange warning lights are activated. The Stop and Do Not Pass message shall be activated when the red warning lights are activated.

SSDR– FLOOR DRAIN, STAINLESS STEEL

A stainless-steel drain with duck bill is provided in the composite waterproof floor for easy cleanup of outside debris / passenger accidents/drainage water hose may be used on interior floor. The drain should be located in an easily accessible area and should be at the lowest point of the floor if the bus has a sloped walkway. NOTE TO CUSTOMERS: The addition of this drain DOES NOT mean that all other components attached to the floor are waterproof. You should not hose down seats and should only use minimal amounts of water to target specific areas to clean.

STEP– DRIVER SIDE ENTRY STEP w/ TREAD

Requires a black entry step which runs alongside the entire length of the driver side door or an OEM-standard driver’s step. The step should meet or exceed OEM-standard weight capacity. The step should also contain tread on the top side which is designed for wet or icy conditions.

STLB– SEAT TRANSIT– LOW BACK

Requires American Seating Metropolitan or Freedman Citiseat with padded Synergy fabric upholstered inserts.

T1–RETARDER–AUTOMATIC TRANSMISSION–INTEGRAL

Requires an internal to transmission, fluid operated, driveline retarder included in transmission package. Retarder shall function in a minimum of 3 levels and shall be controlled by the driver with a selector mounted to the upper dash panel in easy access for the driver. Retarder shall activate when throttle is lifted, and the unit has been selected on. Engine cooling system shall be upgraded to meet the increased cooling requirements. Additional synthetic transmission fluid needed to fill retarder shall be included in this option.

TAA– TRACTION ASSIST–AUTOMATIC

Requires a two–wheel spin control system integrated with the brake ABS system.

TDSS– WHEELCHAIR TIE–DOWN STORAGE SYSTEM– UNDER SEAT TYPE

Requires the addition of a Tie–Down Storage System to be added to the underside of seating option SFD2. The option shall be priced to include one retainer hardware set per convertible seat for either “L” track or Slide n’ Click mounting systems. It is recommended that the number of quantities ordered equal the number of wheelchair positions required.

TJ– TOOLS–TIRE REMOVAL AND JACK

Requires chassis OEM tire removal tools to be supplied and stored in or under the bus in such a way as to not shift during vehicle operation.

TMS–SEATS–TRACK MOUNTED

Requires floor mounted seat tracks for all forward-facing passengers seating to allow for indexed seating positioning or removal. Removable track filler strips shall be installed between seat rows to prevent debris from entering track and to protect passengers from sharp edges. Installation shall maintain all FMVSS certifications.

TPMS– TIRE PRESSURE MONITORING SYSTEM

Requires real–time all–wheel direct monitoring of tire pressures and temperatures using in–tire (rim mounted) sensors. A driver’s area located digital display shall indicate tire status by wheel position.

TSAF– TIRE–SPARE ASSEMBLY–FRONT AXLE–SHIPPED LOOSE

Requires an inflated spare wheel/tire assembly, identical to the front tires, shipped loose. Tire shall be wrapped in stretch shipping plastic or cardboard and held in position to prevent it from abrading the bus interior during delivery.

TSAR– TIRE–SPARE ASSEMBLY–REAR AXLE–SHIPPED LOOSE

Requires an inflated spare wheel/tire assembly, identical to the rear tires, shall be furnished, shipped loose. Tire shall be wrapped in stretch shipping plastic or cardboard and held in position to prevent it from abrading the bus interior during delivery.

TSCF– TIRE–SPARE ASSEMBLY AND CARRIER–FRONT AXLE

Requires an inflated spare wheel/tire assembly, identical to the front tires, shall be furnished in a readily accessible carrier, located as to not protrude beyond the body.

TSCR–TIRE–SPARE ASSEMBLY AND CARRIER–REAR AXLE

Requires an inflated spare wheel/tire assembly, identical to the rear tires, shall be furnished in a readily accessible carrier, located as to not protrude beyond the body.

VCB1– VIDEO CAMERA–BACKUP–COLOR MONITOR

Requires a backup camera system that includes a color monitor mounted in the driver's area with viewable screen not less than 6.8 inches and weatherproof reverse image color camera center mounted at highest practical location in rear of bus. Front mounted monitor shall be in driver's normal viewing area as close as practical to the driver for easy viewing but not obstructing driving view when not in use.

VCPS– VINYL COVER PASSENGER SEATS

Nanocide antimicrobial impregnated vinyl substituted for standard cloth. This option shall be priced to include the changing seating surface of all passenger seats.

VCS2– VIDEO CAMERA–SECURITY PACKAGE–TWO CAMERA AND STORAGE DRIVE

Requires minimum of two interior mounted miniature color video cameras with one located to provide a forward-facing driver's view of the area in front of the bus and the second located on the forward bulkhead providing an image of the total passenger compartment. Image storage shall be on a rugged-duty hard drive or card with 256GB minimum capacity, recording at a resolution capable of not less than 720 x 486.

VIP3– SURROUND PASSENGER SEATING AND TABLE

Requires a seating configuration arranged in perimeter style using Freedman mid-high seats without seat belts on both side and rear walls. This option shall also include a round meeting table located near the front door with two swiveling captains' chairs flanking the table. The seat fabric for shall be standard level three grey unless changed by fabric option. The table shall be mounted to the floor but must be removable without the need of special tools unless furnished. Seating layout shall be like the configuration sample of the plan below with the exception being the total number of seats shown.

VIP4– SURROUND PASSENGER SEATING AND MEDIA CENTER

Requires a seating configuration arranged in perimeter style using a continuous sofa per wall. The sofa shall be covered with LeFrance Mills Illusion black in color. The floor shall be a dark charcoal color complementary to the sofa fabric. The wall material shall also complement the sofa fabric with a dark shade of grey or black. This option shall include a flat screen television with minimum dimension of 40-inches located behind a smoked color acrylic false rear wall. Passengers window shades shall be furnished for each passenger window and shall not require option PWS. The audio system shall be upgraded to include full range high out speakers with surround sound and be linked to the Radio, PA, and TV outputs. No satellite uplink shall be furnished with this option. The floor shall be fully carpeted with heavy duty floor mats in high wear areas.

VIPS–2+1 VIP SEATING–RECLINER W/ CMI ILLUSIONS FABRIC

Requires Amaya Model 2+1 VIP seating ILO standard midhigh Freedman seats. This option reduces seating capacity by 1/3 due to 2x1 arrangements instead of 2x2. The paired seats shall be located on the left side of the bus and the single on the right. The standard seat fabric shall be upgraded to CMI Illusion fabric, black in color, without requiring option SCS7. The seat manufacture's options that shall be provided as standard include Tufting for backrest and cushion, Airline style food tray, mesh magazine pocket, and two armrests per seat

VV1– VIDEO VIEWING–DVD/VCR W/ 1–13” TFT/LCD MONITORS CENTER MOUNTED

Requires one, manual flip down 13-inch or larger TFT/LCD monitors mounted as far forward as practical to allow all passengers to view. The screen can also be fixed mounted in a forward bulkhead or divider if practical so long as it is integrated into the part that supports it. A DVD player or combination AM/FM/CD/DVD shall be located for operation by the driver.

VV2– VIDEO VIEWING–DVD/VCR W/ 2–13” TFT/LCD MONITORS CENTER MOUNTED

Requires two, manual flip down 13–inch or larger TFT/LCD monitors, one mounted as far forward as practical to allow for first row passengers to view and the second mounted to allow rear half of passengers to view. The screen can also be fixed mounted in a forward bulkhead or divider if practical so long as it is integrated into the part that supports it and the distance from the furthest passenger does not exceed 15–feet. A DVD player or combination AM/FM/CD/DVD shall be located for operation by the driver.

VV3– VIDEO VIEWING–DVD/VCR W/ 3–13” TFT/LCD MONITORS CENTER MOUNTED

Requires three, manual flip down 13–inch or larger TFT/LCD monitors, one center mounted as far forward as practical to allow for first row passengers to view with the remaining two proportionally spaced, center mounted to provide comfortable viewing at all passenger positions. A DVD player or combination AM/FM/CD/DVD shall be located for operation by the driver.

VV4– VIDEO VIEWING–DVD/VCR W/ 4–8” TFT/LCD MONITORS ROW MOUNTED

Requires four, fixed mount, 8–inch or larger TFT/LCD monitors, two per side with one mounted as far forward as practical to allow for first row passengers to view with the remaining proportionally spaced, center mounted between seated pair. A DVD player or combination AM/FM/CD/DVD shall be located for operation by the driver.

VV61– VIDEO VIEWING–DVD W/ 6–10” TFT/LCD MONITORS ROW MOUNTED

Requires six, fixed mount, 6–inch or larger TFT/LCD monitors, three per side with one mounted as far forward as practical to allow for first row passengers to view with the remaining proportionally spaced, center mounted between seated pair. A DVD player or combination AM/FM/CD/DVD shall be located for operation by the driver.

VV6– VIDEO VIEWING–DVD W/ 6–15” TFT/LCD MONITORS ROW MOUNTED

Requires six, fixed mount, 6–inch or larger TFT/LCD monitors, three per side with one mounted as far forward as practical to allow for first row passengers to view with the remaining proportionally spaced, center mounted between seated pair. A DVD player or combination AM/FM/CD/DVD shall be located for operation by the driver.

VV81– VIDEO VIEWING–DVD W/ 8–10” TFT/LCD MONITORS ROW MOUNTED

Require eight, fixed mount, 8–inch or larger TFT/LCD monitors, four per side with one mounted as far forward as practical to allow for first row passengers to view with the remaining proportionally spaced, center mounted between seated pair. A DVD player or combination AM/FM/CD/DVD shall be located for operation by the driver.

VV8– VIDEO VIEWING–DVD W/ 8–15” TFT/LCD MONITORS ROW MOUNTED

Require eight, fixed mount, 8–inch or larger TFT/LCD monitors, four per side with one mounted as far forward as practical to allow for first row passengers to view with the remaining proportionally spaced, center mounted between seated pair. A DVD player or combination AM/FM/CD/DVD shall be located for operation by the driver.

WCL2 – RICON WHEELCHAIR LIFT PACKAGE

Requires the modification of the bus to comply with the Americans with Disabilities Act (ADA) Accessibility Specifications for Transportation Vehicles.

1. Chair lift shall be rated for public use.

2. Requires complete Q'Straint, SureLok, or AMF-Bruns safety belt and wheelchair tie down system to restrain two wheelchairs. System shall be RESNA WC18 compliant. The system shall include L-Track sections or continuous L-track sufficient for each of the two wheelchair locations.
3. All safety equipment, markings, interior signage, and labels required in accordance with the Americans with Disabilities Act Accessibility Guidelines for Transportation Vehicles in affect at the time the bus is manufactured. No external signs or stop buzzer shall be furnished.
4. Ricon S2010, S5010, S5510, F9T or SSBF as applicable to application with platform minimum clear width of 29 inches and minimum clear platform length of 48 inches.
5. Access door positioned on curbside as far rearward as practical.
6. When Option LRI is specified with this Option an additional evaporator shall be installed in the wheelchair lift area to compensate for the additional heat load created by the wheelchair door opening or when ducted air is lost due to the removal of a portion of the air passage.
7. This Option reduces overall seating capacity.

WCL3 – BRAUN WHEELCHAIR LIFT PACKAGE

Requires the modification of the bus to comply with the Americans with Disabilities Act (ADA) Accessibility Specifications for Transportation Vehicles.

1. Chair lift shall be rated for public use.
2. Requires complete Q'Straint, SureLok, or AMF-Bruns safety belt and wheelchair tie down system to restrain two wheelchairs. System shall be RESNA WC18 compliant. The system shall include L-Track sections or continuous L-track sufficient for each of the two wheelchair locations.
3. All safety equipment, markings, interior signage, and labels required in accordance with the Americans with Disabilities Act Accessibility Guidelines for Transportation Vehicles in affect at the time the bus is manufactured. No external signs or stop buzzer shall be furnished.
4. Braun Mobility lifts with platform minimum clear width of 30 inches and minimum clear platform length of 48 inches.
5. Access door positioned on curbside as far rearward as practical.
6. When Option LRI is specified with this Option an additional evaporator shall be installed in the wheelchair lift area to compensate for the additional heat load created by the wheelchair door opening or when ducted air is lost due to the removal of a portion of the air passage.
7. This Option reduces overall seating capacity.

WID – WARRANTY INFORMATION DOCUMENT

Requires vendor to create and deliver a document summarizing warranty information and contacts on the installed (as-built) major bus components including at a minimum:

- Engine
- Transmission
- Axles
- Suspension
- Basic Body Structure
- Seating
- Braking System
- Corrosion Protection
- HVAC System
- Door Systems
- Wheelchair Lift

- Alternator

The document shall list, by component:

- Warranty length in miles and years
- Responsible Party (such as Cummins, etc.)
- Contact information for warranty service

This option does not relieve the bus Prime Contractor of responsibility for assisting customers with initial warranty claims but is intended to assist customers with “at-a-glance” summary of warranty coverage on their vehicle’s components.

WLKR – WALKER RACK

A rack to store up to 3 Passenger’s Walkers while vehicle is in motion. This option may reduce seating capacity. If it does reduce seating capacity, it should be noted in the vendor’s clarifications tab.

WLSC– WHEELCHAIR LIFT SAFETY COVER

A full-length lift cover constructed of a vinyl material with an inside layer of sound deadening foam.

WPC– WINDOW-POLYCARBONATE

Requires windows made of polycarbonate material

WPFT– WINDOW–PASSENGER–FIXED TOURING

Requires manufacturer’s largest available fixed touring window in place of standard window. The window glass shall be tinted and tempered or tinted and laminated safety glass.

WPT– WHITE ROOF

Requires a white painted roof as typically furnished by the bus manufacturer. Check with local/state requirements.

WPPO– WINDOW–PASSENGER–PUSH OUT

Requires manufacturer’s largest available push out windows to replace the standard equipment windows. The window glass shall be tinted and tempered or tinted and laminated safety glass.

WPTS– WINDOW–PASSENGER–TRANSIT SLIDER

Requires manufacturer’s largest available transit slider windows to replace the standard equipment windows. The window glass shall be tinted and tempered or tinted and laminated safety glass.

WWF–WATER RESISTANT WOOD FLOORING

Requires water resistant marine grade plywood flooring a minimum of 5/8” nominal thickness.

YD2 – ENGINE–DIESEL–MIN 190 GHP & 520 LB–FT TORQUE

Requires a diesel engine with horsepower minimum of 190 GHP and 520 lb–ft of torque. Included shall be all needed subcomponents to complete the change from the standard offering including transmission and axle that match the engine output. The transmission furnished must be rated to meet the rated engine output power and torque in all gears.

YD3– ENGINE–DIESEL–MIN 210 GHP & 520LB–FT TORQUE

Requires a diesel engine with horsepower minimum of 210 GHP and 520 lb–ft of torque. Included shall be all needed subcomponents to complete the change from the standard offering including transmission and

axle that match the engine output. The transmission furnished must be rated to meet the rated engine output power and torque in all gears.

YD3B – ENGINE–DIESEL–MIN 260 GHP & 620LB–FT TORQUE

Requires a diesel engine with horsepower minimum of 260 GHP and 620 lb–ft of torque. Included shall be all needed subcomponents to complete the change from the standard offering including transmission and axle that match the engine output. The transmission furnished must be rated to meet the rated engine output power and torque in all gears.

YD3C – ENGINE–DIESEL–MIN 260 GHP & 660LB–FT TORQUE

Requires a diesel engine with horsepower minimum of 260 GHP and 660 lb–ft of torque. Included shall be all needed subcomponents to complete the change from the standard offering including transmission and axle that match the engine output. The transmission furnished must be rated to meet the rated engine output power and torque in all gears.

YD3D– ENGINE–DIESEL–MIN 285 GHP & 860 LB–FT TORQUE

Requires a diesel engine with horsepower minimum of 285 GHP and 860 lb–ft of torque. Included shall be all needed subcomponents to complete the change from the standard offering including transmission and axle that match the engine output. The transmission furnished must be rated to meet the rated engine output power and torque in all gears.

YD3E – ENGINE–DIESEL–MIN 280 GHP & 660LB–FT TORQUE

Requires a diesel engine with horsepower minimum of 280 GHP and 660 lb–ft of torque. Included shall be all needed subcomponents to complete the change from the standard offering including transmission and axle that match the engine output. The transmission furnished must be rated to meet the rated engine output power and torque in all gears.

YD3F – ENGINE–DIESEL–MIN 300 GHP & 860 LB–FT TORQUE

Requires a diesel engine with horsepower minimum of 300 GHP and 860 lb–ft of torque. Included shall be all needed subcomponents to complete the change from the standard offering including transmission and axle that match the engine output. The transmission furnished must be rated to meet the rated engine output power and torque in all gears.



Smarter Solutions



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