

**CITY AND COUNTY OF SAN FRANCISCO  
SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY**

**TECHNICAL SPECIFICATIONS**

**FOR**

**Mid-Life Overhaul of the 40' & 60' Hybrid Electric Coaches  
and  
60' Electric Trolley Coaches**

**VOLUME 2**

**CONTRACT PROPOSAL NO. SFMTA-2021-05-FTA  
(CCO No. 21-1554)**

**FINAL**

**Revision 0**

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# 1 OVERALL REQUIREMENTS

## 1.1 SCOPE OF WORK

These specifications detail the technical requirements for the mid-life rehabilitation of 219 New Flyer Hybrid and Electric Trolley Coaches of the San Francisco Municipal Transportation Agency (SFMTA). The New Flyer Coaches are comprised of 40-foot and 60-foot low-floor Coaches with a stainless-steel structure and hybrid or electric trolley propulsion. The designated Coaches shall be Overhauled in accordance with the requirements detailed in this Technical Specifications. The New Flyer Coaches to be overhauled are from Sales Release (SR) numbers 1849, 1907, 1955, 1961, 1962, 1963, and 1964 for a total of 219 coaches (see table below).

Bus #	Sales Release Number #	Type	QTY	Propulsion	Arrival Date
7201 - 7260	SR-1849	60-ft	60	Trolley	Mar-15
6500 - 6554	SR-1907	60-ft	55	Allison	Apr-15
6700 - 6705	SR-1955	60-ft	6	BAE	Dec-15
6560 - 6584	SR-1961	60-ft	25	Allison	Jan-16
6706 - 6730	SR-1962	60-ft	25	BAE	Apr-16
8824 - 8847	SR-1963	40-ft	24	Allison	May-16
8800 - 8823	SR-1964	40-ft	24	BAE	May-16
<b>Total</b>			<b>219</b>		

The Contractor shall be responsible for all transportation costs, materials, and labor, unless specifically noted. The scope of work includes the following areas and systems of the Buses:

- Door System
- Interior/Flooring
- Operator’s Area
- Heating, Ventilation, and Air Conditioning (HVAC)
- Electronic Equipment (destination signs, surveillance cameras)
- Suspension System
- Pneumatic System
- Fuel System
- Lines and Piping
- Propulsion System
  - Traction Motor
  - Hybrid Drive System

- Engine System
- Energy Storage System (ESS)
- Cooling System
- Electrical (batteries/alternator/roof traction container/roof auxiliary container)
- Wheelchair Ramp

The SFMTA's Inspection Team will perform a pre-departure inspection of all Coaches prior to being picked-up by the Contractor for rehabilitation. The Contractor will be responsible for confirming and verifying the Coaches condition against the Pre-Departure Inspection Report. Any damages incurred during transportation shall be the responsibility of the Contractor and shall be repaired at the Contractor's expense.

Prior to delivery of the Coaches back to the SFMTA, the Contractor shall ensure that the engine oil, transmission oil, wheelchair ramp fluid, power steering fluid, and engine coolant are topped-off to the correct amount. The Contractor shall use the same grade/rating of fluids that the SFMTA currently uses on the shop floor. The Contractor shall verify fluid compatibility with SFMTA Maintenance during the design review.

### 1.1.1 DEFINITIONS

The following are definitions of special terms used in the Technical Specifications:

ADA - The Americans with Disabilities Act of 1990 and its implementing regulations, including 49 CFR Part 38.

Coach - One of the New Flyer hybrid or electric trolley coaches to be repaired under this Agreement. The terms Bus, Coach and Vehicle are used interchangeably.

Day - A calendar day.

Defect(s) - Patent or latent malfunctions or failure in manufacture or design of any component or subsystem.

Design Review - This is a series of meetings between SFMTA and the Contractor to review any technical or contractual clarifications required to assure that the completed Vehicles will comply with SFMTA specifications. These meetings will also allow the SFMTA and the Contractor to exchange existing documents and specification data to further clarify the designs.

First Article Coach - The first Coach for each SR completed the rehabilitation process and used to verify that the work completed by the Contractor is in compliance with the contractual requirements.

First Article Inspection – A detailed inspection by SFMTA personnel or representatives on the First Article Coach to ensure that the Coach is compliant with the contractual requirements.

Gross Load - 150 pounds for every designed passenger seating position, for the operator, and for each 1.5 square feet of free floor space.

GVW (Gross Vehicle Weight) - Curb Weight plus gross load.

GVWR (Gross Vehicle Weight Rated) - The maximum total weight, as determined by the Vehicle manufacturer, at which the Vehicle can be safely and reliably operated for its intended purpose. The GVWR shall be greater than or equal to GVW.

HVAC (Heating, Ventilation and Air Conditioning) - The on-board system that provides the operator and passenger's temperature comfort within the Coach.

Maintenance Personnel Skill Levels - Definitions of maintenance personnel skill levels are listed below:

- a) 5M: Specialist Mechanic or Class A Mechanic Leader
- b) 4M: Journeyman or Class A Mechanic
- c) 3M: Service Mechanic or Class B Servicer
- d) 2M: Mechanic Helper or Coach Servicer
- e) 1M: Cleaner, Fueller, Oiler, Hostler, or Shifter
- f) 3E: Assistant Supervising Electronics Maintenance Technician
- g) 2E: Electronics Maintenance Technician
- h) 1E: Assistant Electronics Maintenance Technician

Propulsion System - System that provides propulsion for the Vehicle in an amount proportional to what the driver commands.

Related Defect(s) - Damages inflicted on any component or subsystem as a direct result of a Defect.

Remove and Replace - This phrase as used in these Specifications requires the Contractor to clean, paint, lubricate and in general refurbish components that are required to be Removed and Replaced. Damaged parts shall be replaced with new parts.

SR - Sales Release. New Flyer assigns an SR identifying number to each order of Buses.

Seated Load - 150 pounds for every designed passenger seating position and for the operator.

Standee Line - A line marked across the Coach aisle in line with the front curbside modesty panel to designate the forward area, which passengers may not occupy when the Coach is moving.

Unforeseeable Work - Latent conditions in the Coach that differ materially from the Scope of Work as identified in the Technical Provisions and that are generally recognized as inherent in work of the character provided for under this Contract.

Wheelchair - Mobility aid belonging to any class of three- or four-wheel devices, usable indoors, designed for and used by individuals with mobility impairments, whether operated manually or powered.

Working Day - All 24-hour periods beginning and ending at midnight, Monday through Friday inclusive.

### 1.1.2 ABBREVIATIONS

The following is a list of abbreviations used in the Technical Specifications:

- ANSI American National Standards Institute
- ASTM American Society for Testing and Materials



<u>ATG</u>	Autotechnik GmbH
<u>AWS</u>	American Welding Society
<u>CAC</u>	Charge Air Cooler
<u>CARB</u>	California Air Resources Board
<u>EPA</u>	Environmental Protection Agency
<u>ESS</u>	Energy Storage System
<u>FMVSS</u>	Federal Motor Vehicle Safety Standards
<u>HVAC</u>	Heating, Ventilation and Air Conditioning
<u>JIC</u>	Joint Industrial Council
<u>LED</u>	Light Emitting Diode
<u>MSDS</u>	Material Safety Data Sheets
<u>NF</u>	New Flyer
<u>OCU</u>	Operator Control Unit
<u>OEM</u>	Original Equipment Manufacturer
<u>PCB</u>	Polychlorinated Biphenyls
<u>P/N</u>	Part Number
<u>PSI</u>	Pounds per Square Inch
<u>PVC</u>	Polyvinyl Chloride
<u>SAE</u>	Society of Automotive Engineers
<u>SDS</u>	Secure Diagnostics Station
<u>SFMTA</u>	San Francisco Municipal Transportation Agency
<u>TOLE</u>	Transit-Only Lane Enforcement
<u>VOC</u>	Volatile Organic Compounds

### **1.1.3 LEGAL REQUIREMENTS**

The Coaches and equipment must comply with all applicable FMVSS, federal, state, and local regulations. Local regulations are defined as those below the state level. In the event of any conflict between the requirements of these specifications and any applicable legal requirement, the legal requirement shall prevail.

## **1.2 CONTRACT MEETINGS AND DELIVERABLES**

The Contractor shall participate in one pre-production meeting, for the purpose of resolving design issues and a three-stage Design Review, which consists of an initial Design Review, a follow-up Design Review, and a final Design Review. At these meetings, the Contractor shall provide sufficient information to define the proposed remanufacturing processes and procedures, present qualifications for proposed subcontractors and present design proposals for the new systems specified. All materials to be reviewed at each pre-production meeting must be provided to the SFMTA for review a minimum of three working days prior to the meeting. The process shall result in the production of a First Article Coach, which will undergo a First Article Inspection (FAI) to ensure full compliance with the Technical Specifications and drawings. Once the SFMTA approves the First Article Coach, it will serve as the baseline design configuration for production Coaches.

## **1.3 DIMENSIONS REQUIREMENTS**

The Contractor shall not alter the exterior dimensions without the SFMTA's approval. The Contractor shall refer to the original Technical Worksheet submittal from the manufacturer when the Coach was purchased (Reference, ATTACHMENT 1: ORIGINAL OEM SPECIFICATIONS ).

## **1.4 MATERIALS**

All materials used in construction of the Coach and all its parts shall conform in all respects to American Society of Testing Materials (ASTM), Society of Automotive Engineers (SAE), and industry recognized standards. Materials used shall be of the same manufacturer and model on each Coach. All removed materials shall be disposed of in compliance with the federal, state and local regulations.

The Contractor shall return the removed and salvageable parts from the Coaches to the SFMTA at no additional cost.

## **1.5 WORKMANSHIP**

The Coaches shall be repaired with new parts and components meeting or exceeding OEM specifications. Workmanship and construction shall be of the best grade and shall conform in all respects to the best practices in the industry. Welding procedures, welding materials, and qualifications of welding operators shall be in accordance with the standards of the ASTM and the AWS.

The Contractor shall provide certifications from subsystem manufacturers that the Contractor is certified/authorized to perform such installations.

## **1.6 UNFORESEEABLE WORK**

Due to the nature of the work, it is extremely difficult to predict and budget the total amount of replacement work for damage that may not be visible. The Coaches being overhauled in this program may require repairs beyond the scope of this Technical Specification. To the greatest extent practical, repairs to be tagged as Unforeseeable Work shall be identified at the Departure Inspection prior to transferring the Coach to the Contractor. It is the responsibility of the Contractor to inform the SFMTA of any work that they consider to be Unforeseeable Work during the Receiving Inspection or during the overhaul of the vehicle at the Contractor's facility. Unforeseeable Work shall be negotiated according to the provisions of Section 3.3 (Compensation) of the Sample Agreement. The Contractor shall obtain approval from the SFMTA before proceeding with the repair of Unforeseeable Work on each Vehicle. Photo documentation is required prior to repairs being performed on all Unforeseeable Work; Contractor must have email attachment capability.

The SFMTA reserves the right to supply the Contractor with any replacement components for any repairs negotiated as Unforeseeable Work.

## **2 BODY**

### **2.1 RESERVED**

### **2.2 DOORS**

The Contractor shall Remove and Replace the door motor base plates. The Contractor shall Remove and Replace with new track rollers, bushings, washers, pivots and bearings for upper and lower tracks.

The Contractor shall Remove and Replace all door sensors, connecting rods, rod end bearings, upper door shaft pivot bearings, door panel top seal assembly, door panel bottom seal assembly, door panel pocket seals, and solenoid valves. The sensitive edge system shall have its door edge, transfer tube, pressure wave switch, and mechanical limit switches Removed and Replaced.

The Contractor shall rebuild the existing electric door motor driving mechanisms according to the procedures recommended by Vapor.

The Contractor shall check all valve fittings for air leaks and adjust door panels by following the procedure in the OEM service manual.

It is the Contractor's responsibility to verify that the door operations are in adjustment and in proper working condition after Removing and Replacing all door components in this Section.

#### **2.2.1 ROTARY MASTER DOOR CONTROLLER**

The handle for the existing 5-positioned rotary master door controller shall be Removed and Replaced with an extended door handle (NF P/N 106847). The Contractor shall Remove and Replace the snap action switches (NF P/N 6304386, NF P/N 6305089) in the door controller assembly.

### **2.3 BIKE RACK**

The bike rack at the front bumper shall be Removed and Replaced with a 3-position Byk-Rak bicycle rack with extra heavy-duty spring lift assist pivot bracket (Byk-Rack P/N B0053DSBAD). The rack hardware shall be torqued appropriately and installed along with durable rubber stops to mitigate rattle noise in both the deployed and stowed positions. The installation shall include a deployment kit to provide the operator with a visual indicator on the vehicle dash panel when the bike rack is deployed. The front bumper will need to be modified and/or replaced with a new bumper in order to accommodate the 3-position Byk-Rak. The Contractor shall propose a methodology for the SFMTA's approval to either modify the front bumper or replace with a new bumper.

### **2.4 WINDOWS**

All windshield and window frame seals and interior rubber seals must be inspected for cracks and damage. The seals must be flexible, in good condition and free of leaks. The window channels shall be cleaned. The windows shall be inspected for damage and replaced as necessary. The seals shall be lubricated and reinstalled according to New Flyer service manual specifications. The sliding windows shall be tested for proper functionality. All replacement work shall be documented as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).

Any replaced windows shall be safety glass of minimum 1/4-inch-thick and conform to the requirements of ANSI Z26.1 Standard for Type AS-3. All passenger windows and door glass shall be 55 percent luminous transmittance. The Operator's side window shall be 76 percent luminous transmittance. Windows over the side destination signs shall not be tinted.

The Contractor shall inspect the windshield for damage and replace as necessary (Reference, Section 1.6, UNFORESEEABLE WORK). The windshield shall be laminated safety glass of minimum of 1/4-inch-thick and shall conform to the requirements of ANSI Z26.1-1983 Standard for Type AS-1. The windshield shall be easily replaceable by removing zip-locks from the windshield retaining moldings. Bonded-in-place windshields shall not be used. The glazing material shall have single-density tint. The upper portion of the windshield above the operator's field of view shall have a dark, shaded band with a minimum luminous transmittance of 6 percent when tested according to ASTM D-1003. See ATTACHMENT 4: MATERIALS, COLORS, FINISHES for specifications regarding windows.

## **2.5 ARTICULATED JOINTS**

All 60-foot Coaches shall have their articulated joints and mounting chassis structural member thoroughly inspected using die penetrant for cracks, corrosion, structural deficiencies, and any other damage. The Contractor shall perform all inspection procedures outlined in the ATG and New Flyer service manual. All structural deficiencies shall be corrected using best industry practices or replaced with new parts. All damaged, cracked or corroded parts shall be replaced with new parts. All wear parts, including but not limited to, wear plates, articulation bellows, and flexible hoses run through the articulation section shall be Removed and Replaced. The turntable shall be rebuilt with new bearings and seals. The proportioning valves shall be Removed and Replaced. The hydraulic cylinders shall be Removed and Replaced. The limit switch shall be replaced, and all hoses shall be replaced between bulkhead termination points.

### 3 INTERIOR

The interior trim shall be inspected for damage and repaired or replaced as necessary through Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK). See ATTACHMENT 4: MATERIALS, COLORS, FINISHES for material specification on interior trim.

#### 3.1 FLOOR COVERING

The Contractor shall inspect the floor covering thoroughly on all Coaches and replace damaged sections and welds as necessary through Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK). All floor covering shall remain effective in all weather conditions and complies with all ADA requirements. The floor covering, as well as the transition of flooring material to the center aisle and to the entrance/exit areas, shall be smooth and present no tripping hazards (Reference ATTACHMENT 4: MATERIALS, COLORS, FINISHES).

A "Do Not Stand" warning inlay shall be installed at the rear door exit area for all Coaches (Reference ATTACHMENT 12: DO NOT STAND EXIT AREA FLOORING ). The ribbed floor covering at the exit door area of Trolley Coaches shall be Removed and Replaced with a one-piece Altro floor covering with the "Do Not Stand" inlay. The color of the Altro floor covering shall match the color of the ribbed floor covering and shall be submitted to the SFMTA for final approval during the design review.

The front standee line shall be removed and relocated 18 inches behind the turn of the corner at the forward edge of the wheel well. The standee line shall be the same yellow color as the existing standee line, at least two inches wide, and shall extend across the Coach aisle. The color shall be consistent throughout the floor covering.

The contractor shall remove and replace the edge of the vestibule floor tread with the 2 inch wide Altro TFM2729 "Safety Yellow" Speckled Material or approved equal.

The Contractor shall clean the floor as required to remove any odor or slippery coating prior to Bus delivery.

##### 3.1.1 STEPS AND STEPWELLS

The Contractor shall reapply the Safety Yellow anti-slip coating flooring to the stepwell of all buses.

Due to the frequency of maintenance in the stepwell area, the Contractor shall use stainless screws at the lip of the last step instead of rivets.

#### 3.2 RESERVED

#### 3.3 PASSENGER SEATING

The Contractor shall propose a design for adding a horizontal stanchion to the modesty panel in front of the double forward facing seats on the upper deck of SR-1963 and SR-1964. The goal for the design is to assist passengers getting in and out of the seat. The design shall be submitted to the SFMTA for approval during the design review meeting.

### **3.4 OPERATOR'S AREA AND CONTROL**

The operator's seat shall be Removed and Replaced with a USSC Group 9100ALX or approved equal. The operator's seat upholstery shall be black vinyl and no cloth. The seat shall be supplied with an orange lap belt assembly. The seat belt retractor shall match the original location. The seat shall be easily removable from the Coach for service or repair. A height adjustable headrest shall be supplied and shall not be able to be removed by Operators. However, it shall be easily removed and installed by a mechanic with proper tools.

The Contractor shall Remove and Replace the adjustable brake & accelerator pedal assembly with a new assembly. See ATTACHMENT 11: COACH OVERHAUL MATRIX for applicable Coaches and P/N's.

The shift selector shall be Removed and Replaced with a new shift selector. All Allison hybrid Coaches shall be replaced with an INTERSTATE DETROIT DIESEL 29551556 Shift selector. All BAE coaches shall be replaced with an Arens Controls SBW-PB2-656 shift selector. All Trolley coaches shall be replaced with new mode selector that Kiepe specified in the overhaul procedure. See ATTACHMENT 11: COACH OVERHAUL MATRIX for applicable Coaches.

The front dash shall be thoroughly cleaned and inspected for damage. Repair work shall be documented and negotiated as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).

The Contractor shall inspect the operator barrier for damage and repair as necessary through Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).

#### **3.4.1 EMERGENCY ALARM / SILENT ALARM SWITCH (EA SWITCH)**

The Contractor shall Remove and Replace the EA switch on the Operator side console with a new EA switch (NF P/N 651002).

### **3.5 RESERVED**

### **3.6 MIRRORS**

#### **3.6.1 RESERVED**

#### **3.6.2 INTERIOR (AS APPLICABLE)**

The Contractor shall add a Front Stepwell mirror (NF P/N 268393) onto the ceiling panel of all hybrid coaches. See ATTACHMENT 14: ENTRANCE DOOR MIRROR for install location.

### **3.7 HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)**

The Contractor shall inspect the heating system on all hybrid Coaches for functionality and reliability. The Contractor shall clean the battery pack cooling condenser for all Allison hybrid Coaches and the rear HVAC condenser and evaporator for all Trolley Coaches If Contractor believes that any repairs are warranted, the condition shall be documented and the repair work shall be negotiated as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).

The Contractor shall replace the polyester air filter on the upper air intake. The Contractor shall add an additional latch to the compartment air intake cover if there are only two latches on the cover. The third latch shall be placed equally between the two latches to provide additional securement to the cover and reduce rattling. See ATTACHMENT 11: COACH OVERHAUL MATRIX for applicable Coaches.

The Contractor shall Remove and Replace the liquid line sight glass for the refrigerant fluid gauge.

The Contractor shall replace all flexible hoses with hoses that meet or exceed OEM specifications and are compatible with the SFMTA fluids. Hard pipes shall be inspected for damage and replaced under Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK). In addition, reference Section 5.6, LINES AND PIPING for other flexible (soft) lines replacement requirements.

Since the heating and ventilation system condition varies from Coach to Coach, it is the Contractor's responsibility to document any repair or replacement of the EPROM and extra blower motors as Unforeseeable Work. All other component repairs or replacements not mentioned in this subsection shall be documented and negotiated as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK). The HVAC system on the Coaches shall be in proper working condition at the time of delivery to the SFMTA.

### **3.8 WHEELCHAIR RAMP**

The Contractor shall Remove and Replace the NFI wheelchair ramp with a new Lift-U LU-18 ramp on Bus 7201 and 7202. See ATTACHMENT 11: COACH OVERHAUL MATRIX for applicable Coaches and appropriate part numbers. The Contractor will be responsible for any structural or electrical modifications that are required for the installation of the new Lift-U LU-18 ramp. The Contractor shall test all adjustments to ensure proper operation per Lift-U maintenance manuals after installation into the Coaches. The ramp surface shall match the color of the ripped floor covering. The color shall be submitted to the SFMTA for approval during the detail design review. The wheelchair ramps on Trolley Coaches shall be electrically isolated to eliminate the possibility of electric shock.

The Contractor shall clean and test the functionality of the wheelchair ramp. Any damages found shall be repaired. If the condition of the LU-11 wheelchair ramp is beyond repairable, the contractor shall Remove and Replace the wheelchair ramp with the Lift-U LU-18. If the condition of the NFI wheelchair ramp is beyond repairable, the Contractor shall Remove and Replace the wheelchair ramp with another NFI wheelchair ramp. All repair or replacement shall be documented and negotiated as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).

### **3.9 RESERVED**

### **3.10 SECURE DIAGNOSTICS STATION (SDS) CABINET**

The Contractor shall clean the dust and debris out of the SDS cabinet. The Contractor shall also inspect and replace any damaged cables or components. The threaded inserts on the SDS panels shall be Removed and Replaced. Any damaged cables or components shall be documented and negotiated as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).



**3.11 RESERVED**

**3.12 AISLE LIGHT**

The Contractor shall add a glare shield (NF P/N 534427) to the aisle light on the front street side wheel housing.

**3.13 REAR PANEL**

The Contractor shall Remove and Replace the carpeted upper rear panel with material and color that is the same as the sidewall panels.

## 4 FURNISHINGS

The Contractor shall revise existing wiring diagrams, clearly showing the interfacing Coach schematic wiring diagrams for the Destination Signs and Video Surveillance Camera. The SFMTA will provide existing documentation during the design review.

### 4.1 DESTINATION SIGNS

The Contractor shall inspect and replace (as part of Unforeseeable Work) the front head sign glass seal as necessary and ensure that it is water tight. The Contractor shall test all LED signs in the interior of the Coach for proper functionality before returning it to the SFMTA. The seals shall prevent water intrusion as outlined in Section 11.6.1.2 WATER TEST.

### 4.2 VIDEO SURVEILLANCE CAMERA SYSTEM

The Contractor shall verify that CAM 3, CAM 7, and CAM 11 are digital IP cameras with a built-in mic (See ATTACHMENT 11: COACH OVERHAUL MATRIX for applicable Coaches and ATTACHMENT 6: CAMERA CONFIGURATION for camera location and lens size). If they are not, the camera shall be Removed and Replaced with a new digital IP camera with a built-in mic of the same lens size. The camera layout for 40-ft coaches shall match SR-2117, 60-ft Trolleys shall match SR-2129 and 60-ft Hybrids shall match SR-2116.

The aisle camera (CAM 4) shall be replaced with a new 2.8mm IP camera with a built-in mic on all Coaches. CAM 4 is mounted in the same location on both 40-foot and 60-foot Coaches.

The Contractor shall inspect the exterior streetside and curbside cameras and replace the camera if the seal is not properly preventing water intrusion. This shall be determined during the departure inspection and shall be included in Unforeseeable Work.

The Contractor shall replace the white TOLE (Transit-Only Lane Enforcement) camera housing with a black housing to reduce glare.

The Contractor shall remove the Firetide router, bracket, and 24V to 12V converter located inside the SDS cabinet and replace it with a Cradlepoint router (Cradlepoint P/N IBR1700-1200M-b) that will be provided by the SFMTA to the Contractor. The two Firetide antennas on the roof shall be removed and replaced with a Panorama 11-in-1 antenna (Panorama P/N LGMHM4B-6-60-24-58). The location of the new antenna shall be approved by the SFMTA at the design review. A GPS cable (Panorama P/N C32F-5SMAP), cellular cable (Panorama P/N C32SP-5SMARV), and WiFi cable (Panorama P/N C32SP-5) shall run from the new antenna to the new router. The ends of the Firetide antenna harness shall be cut and capped.

The Contractor shall verify the DVR program is the latest version, which will be confirmed during the design phase.

The Contractor shall install an uninterruptible power supply (UPS) capable of powering the DVR for at least 30 minutes to mitigate hard drive failure. The Contractor shall provide 100 spare two terabyte hard drives to SFMTA.

Note: It is the responsibility of the Contractor to complete the rehabilitation without damaging the DriveCam system.

### **4.3 MOBILE RADIO**

The Coach is equipped with a mobile radio system. The Contractor and the SFMTA shall verify the radio system's functionality during the Departure Inspection. The Contractor is responsible for ensuring that the radio system remains fully functional before delivering the Coach back to the SFMTA after the overhaul is complete.

The Contractor shall remove the two Motorola antenna and its mounting structure on the roof and properly terminate and secure the antenna harness inside the coach. The Contractor shall ensure the roof is properly sealed to prevent water intrusion.

### **4.4 FARE COLLECTION**

The Coach is equipped with a farebox and the SFMTA farebox shop will remove the system's hardware before the Contractor picks up the Vehicle from the SFMTA. The SFMTA will leave the farebox system cables on the Coach. The farebox system cables shall be fully functional when the Contractor delivers the Coaches back to the SFMTA.

### **4.5 SIGN REQUIREMENTS**

The internal display sign shall display coordinating text for next stop and other audio announcements. The sign shall meet all ADA requirements for internal signage. The sign shall be a Twin Vision Smart Series 3 Light Emitting Diode (LED) type sign with amber LEDs and no wider than 37.4-inch. Coaches with red LED stop request signs shall be changed to amber LEDs. Messages can be shown streaming or by any of three single frame modes with automatic centering. Speed, delays, and looping shall be programmable. Busy/ready status shall be pollable. Forced reset capability shall exist.

The internal LED display sign shall be used to display the words "Stop Requested" and shall be visible to passengers. When the passenger chime is activated, it shall remain on until the front or rear door is opened. The internal LED display sign shall also be used to display "Ramp Requested" when the Wheelchair passenger chime is activated.

The interior information sign shall also function as a Stop Requested sign. This stop requested sign message should be automatically mixed with other active messages when applicable. The stop requested message shall be cleared when any of the passenger doors are opened.

The electronic display sign shall function simultaneously with the analog passenger stop request display located on the front sign compartment door.

The two rear interior speakers currently located at the rear bulkhead panel above the rear bench seat on each side shall be relocated to the light panel approximately 6ft forward. The existing holes for the speaker shall be covered with similar rear bulkhead panel material and color. See ATTACHMENT 11: COACH OVERHAUL MATRIX for applicable Coaches.

**4.6 RESERVED**

**4.7 RESERVED**

**4.8 CLIPPER®**

The Contractor shall install a new commercial grade, CAT-6, copper stranded, shielded Ethernet cable and shall run it alongside with the existing Clipper® cabling. The existing cabling shall not be removed. The new cable shall be left secured and unterminated in the light panel above each Clipper® Passenger Device (PD) to the top of the SDS box and provide 8-ft of additional wire on each unterminated end for future installation. The additional wire shall be looped and labeled for easy access and identification.

## 5 CHASSIS

### 5.1 SUSPENSION AND AXLES

The existing axles on the Coaches are in fair/good condition, and the SFMTA anticipates that a small number of damaged axles will be found. Each Coach requires a proper realignment as part of the Vehicle record requirements in Section 9, VEHICLE RECORDS.

#### 5.1.1 AXLES

The rear axles on all trolley Coaches shall be Removed and Replaced with a new MAN HY-1350-F axle with a 4.10:1 ratio (NF P/N 677708). This axle assembly shall be replaced with a new differential; see Section 6.1.7 DIFFERENTIAL (AS APPLICABLE).

The Contractor shall Remove and Replace all bearings, bushings, bearing seals, leveling valves, control valves, kingpins including bushings and seals, and radius rods bushings as appropriate on all axles (Reference, Section 1.6, UNFORESEEABLE WORK).

All axles (control arms, housings, stabilizers, etc.) on each Coach shall be thoroughly cleaned of paint and rust and examined and inspected for cracks and damage using magnetic particle testing. If the damage/wear exceeds the OEM tolerance, the damaged component shall be replaced. The axles will then be repainted with an appropriate paint for service under the coaches. The axle replacement work shall be documented and negotiated as Unforeseeable Work under Section 1.6, UNFORESEEABLE WORK.

All axle bump stops should be replaced. All axles that have been replaced shall have a minimum load rating sufficient for the Coach to be loaded to GVWR (Reference, ATTACHMENT 1: ORIGINAL OEM SPECIFICATIONS).

#### 5.1.2 AIR BAGS AND SHOCK ABSORBERS

All active member of the suspension system (air bellows and shock absorbers) shall be replaced with Firestone air bellows (Firestone Model # 1T15L-4), Koni shock absorbers (Koni Model # 90-2517 for front wheels, Koni Model # 90-2518 for center (if applicable) and rear wheels) or approved equal.

The Contractor shall verify that the suspension kneels evenly on both sides in compliance with the OEM standards listed in ATTACHMENT 1: ORIGINAL OEM SPECIFICATIONS, when kneeling is activated.

### 5.2 STEERING

The Contractor shall perform a full vehicle alignment on the Coaches to OEM standards. The Contractor shall provide SFMTA an alignment procedure for review and an alignment print out for each bus shall be included in the Coach History Book. The outside body cornering radius shall not exceed 528 inches with the Coach at seated load weight, applicable to both 40- and 60-foot length Coaches.

### **5.2.1 POWER STEERING PUMP, GEAR BOX AND LINKAGE**

The Contractor shall Remove and Replace the power steering pump and the steering miter box (NF P/N 200640). The power steering gearbox shall be removed and replaced with a new steering gearbox. See ATTACHMENT 11: COACH OVERHAUL MATRIX for applicable Coaches. Any other replacement work shall be documented and negotiated as Unforeseeable Work, under Section 1.6, UNFORESEEABLE WORK.

### **5.2.2 STEERING COLUMN AND STEERING WHEEL**

The Contractor shall Remove and Replace the existing steering wheel with a new steering wheel (NF P/N 064449) on all Coaches.

The steering column and steering shaft U-Joints, bearings & bushings shall be Removed and Replaced according to OEM specifications. In addition, the Contractor shall verify the functionality of the horn button, condition of the horn contact, steering column, steering wheel, and connections to the steering gear. Any other replacement work shall be documented and negotiated as Unforeseeable Work, under Section 1.6, UNFORESEEABLE WORK.

### **5.2.3 STEERING EFFORTS**

The Contractor shall develop a QA procedure/process to ensure that all Coaches have a consistent turning effort. The Contractor shall determine the average steering torque value of the existing New Flyer fleet and this value should be used as a baseline for all Vehicles during Vehicle inspection.

### **5.2.4 STEERING LINKAGE**

The Contractor shall remove and replace all steering linkages including tie rod, drag link, and steering damper.

## **5.3 BRAKES**

### **5.3.1 AIR LINES, VALVES AND AIR TANKS**

The brake airlines and tanks shall be pressure tested and replaced if found to not meet OEM Specifications. This work shall be documented and negotiated as Unforeseeable Work under Section 1.6, UNFORESEEABLE WORK and Section 5.4.2, AIR LINES AND FITTINGS and Section 5.4.3, AIR TANKS.

## **5.4 AIR SYSTEM**

The air system shall provide air to the braking system, door system and other pneumatic accessories with reserve capacity. The Contractor shall ensure that all pipes and hoses are not rubbing/chafing other components. The Contractor shall perform a pneumatic system leak down test after final installation.

### 5.4.1 RESERVED

### 5.4.2 AIR LINES AND FITTINGS

All air lines and fittings shall be cleaned, inspected and examined for any damages or leaks. Splices are not allowed in air lines, and any splices found during overhaul shall be removed. All damage work shall be documented and negotiated as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK). Any repair work shall follow the practices below.

Air lines, except necessary flexible lines, shall conform to the installation and material requirements of SAE Standard J1149 for copper tubing with standard brass flared or ball-sleeve fittings, or SAE Standard J844 for nylon tubing. The routing shall preclude the nylon tubing from being subjected to temperatures over 200°F. Air lines shall be cleaned and blown out before installation and shall be installed to minimize air leaks. All air lines shall be sloped toward a reservoir and routed to prevent water traps. Nylon tubing shall be installed in accordance with the following standard color-coding:

<b>GREEN</b>	Rear Service Brakes and Supply
<b>RED</b>	Front Service Brakes
<b>BROWN</b>	Parking Brake
<b>YELLOW</b>	Compressor and Governor
<b>BLACK</b>	Accessories
<b>BLUE</b>	Suspension

All replacement parts shall be replaced with OEM parts and shall be positioned in compliance with the OEM installation. Nylon lines may be grouped and shall be continuously supported at two-foot intervals or less, and prevented from any movement, flexing, tension strain, and vibration.

Copper lines shall be supported by looms at intervals of no more than five feet to prevent movement, flexing, tension strain, and vibration. Copper lines shall be prevented from touching one another or any component in the Coach. To the extent practicable and before installation, the copper lines shall be pre-formed on a fixture that prevents tube flattening or excessive local strain. Copper lines shall be bent only once at any point, including pre-bending and installation, to avoid fatigue of the tubing.

Flexible hoses shall be as short as practicable and individually supported. They shall not touch one another or any part of the Coach except for the supporting grommets. Flexible lines shall be supported at two-foot intervals or less. Grommets of bulkhead fittings shall protect the air lines at all points where they pass through under structure components.

### 5.4.3 AIR TANKS

Air tanks shall be cleaned with solvent and drained while left in place on the chassis. Air tanks shall be visually inspected for corrosion, pressure tested, and replaced when negotiated as Unforeseeable Work. Relief valves and relief valve O-rings shall be replaced if found to be leaking. Any repair/replacement work shall be documented and negotiated as Unforeseeable Work. (Reference, Section 1.6, UNFORESEEABLE WORK).

## **5.5 FUEL TANK (AS APPLICABLE)**

The Contractor shall clean and examine the outside of the existing fuel tank for any damages/Defects per OEM fuel tank specifications. The Contractor shall replace the fuel tank as Unforeseeable Work if damages are found (Reference, Section 1.6, UNFORESEEABLE WORK). All new fuel tanks shall be constructed of stainless steel with visible manufacturing tags (listing model number and manufacturing date). The Contractor shall also Remove and Replace all primary and secondary fuel filters (Allison: NF P/N 63567854, 6410207) (BAE: NF P/N 6470056, 6410207) regardless of whether the fuel tank is replaced. See ATTACHMENT 11: COACH OVERHAUL MATRIX for applicable Coaches.

## **5.6 LINES AND PIPING**

All flexible (soft) or non-metal fluid lines excluding nylon air lines but including hydraulic, fuel, air, air conditioning and coolant shall be Removed and Replaced along with their securement clamps for the entire Vehicle from undercarriage to rooftop. Reference Section 5.4.2, AIR LINES AND FITTINGS, 5.6.1, FLUID LINES, 5.6.2, HYDRAULIC LINES and 5.6.3, PIPING AND HOSE for installation guidelines and specifications.

All hard (rigid) metal piping and tubing such as exhaust pipes, air intake pipes, coolant and fuel piping shall be thoroughly inspected for damages or leaks. Leaks that can be corrected by torquing the leaking fitting shall be addressed by the Contractor as part of the scope of work. All damaged, rusted, corroded or badly dented hard rigid piping shall be documented and the repair/replacement work shall be negotiated as Unforeseeable Work unless specified otherwise by SFMTA, reference Section 3.7 HEATING, VENTILATION. Reference Section 5.4.2 AIR LINES AND FITTINGS, 5.6.1 FLUID LINES, 5.6.2 HYDRAULIC LINES and 5.6.3 PIPING AND HOSE for installation guidelines and specifications. To ensure proper mounting, the Contractor shall furnish and install clamps and support as deemed necessary.

Also reference Section 3.7, HEATING, VENTILATION and Section 6.1.1, ENGINE for additional areas.

### **5.6.1 FLUID LINES**

All flexible fuel and oil lines within the engine compartment shall be Removed and Replaced by the Contractor. Specifications for new fluid lines should meet or exceed OEM hose quality specifications. All fuel and oil lines shall be rigidly and independently supported with properly insulated clamps and standoffs. All routing, clamps and standoffs shall be installed in such a way as to eliminate any chafing or rubbing. All fuel and oil lines shall be routed or shielded so that failure of a line will not allow fuel or oil to spray or drain onto any component operable above the flash point of the fluid. The existing check valve for the fuel suction line shall be replaced with new check valve. The new check valve shall be installed and tested after fuel filter changes.

Flexible lines shall be Teflon hoses with braided stainless-steel jackets, except in applications where premium hoses are required, and shall have standard SAE or JIC brass or steel reusable swivel end fittings. High-pressure hydraulic lines shall be Aeroquip FC395, Aeroquip FC300, or approved equal.



### **5.6.2 HYDRAULIC LINES**

Hydraulic lines shall be individually and rigidly supported to prevent chafing damage, fatigue failures, and tension strain on the lines and fittings. Specifications for new fluid lines should meet or exceed OEM hose quality specifications. The flexible hydraulic lines in the engine compartment shall be Aeroquip 2807 except where the radii of the lines exceed the performance of the Aeroquip 2807 line. In those instances, Aeroquip FC 350 with replaceable ends will be permitted. Lines of the same size and fittings as those on other piping systems of the Coach, but interchangeable, shall be tagged or marked for use on the hydraulic systems only. It shall not be possible to connect the input lines to the output lines.

The underbody stainless steel lines shall be inspected for proper mounting; they should be rigidly mounted and routed separately from all other lines per the original OEM configuration. Any broken or loose mounting, as well as any damaged or worn stainless steel lines shall be documented and such work shall be negotiated as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK). The routing and mounting of all replacement lines shall be the same as the existing lines.

### **5.6.3 PIPING AND HOSE**

All flexible (soft) hoses, in the engine compartment, such as all cooling system hoses, heater hoses, transmission cooler hoses, air intake hoses including pump hoses and metal reinforced hoses for the CAC hoses shall be replaced. The cooling system hoses shall be premium silicone-rubber type and shall be secured with heavy-duty constant torque clamps. Hoses with an outside diameter of one inch or more shall be secured with heavy-duty constant torque clamps as per OEM specification and appropriately tightened.

Stainless steel piping in the cooling system, exhaust system (as applicable) and aluminized steel piping used in the air intake charger system shall be thoroughly inspected for damages, corrosion or rust. All replacement works shall be documented and quoted as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).

## **5.7 FIRE SAFETY**

Fire suppression systems shall be inspected for proper functionality. All bottles onboard shall be recertified in accordance with the OEM's 6-year recertification specifications and procedures with appropriate decals and a tag that shall be easily visible without removing the bottle from the coach. The fire suppression nozzles shall be thoroughly cleaned. The agent dispersal system shall be blown out. The nozzles shall be fitted with new dust caps. The backup battery and thermostats will be replaced with new manufactured within one year of installation in the system and verify their function. The electric actuator on fire suppression systems shall be Removed and Replaced. The Contractor shall test the fire suppression system and include the test results with system certifications in the coach history book. Any other replacement works shall be documented and quotes as unforeseeable work (Reference, Section 1.6, UNFORESEEABLE WORK).

## **5.8 DEF TANK**

The Contractor shall clean the exterior of the DEF tank and inspect tank for leakage, replace the DEF tank if leakage found. The Contractor shall inspect the DEF strainer screen for damage and replace if necessary, otherwise clean the strainer per OEM service instruction. All replacement works shall be documented and quoted as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).

The Contractor shall remove the entire existing DEF level sender assembly including the filter and O-ring and replace it with the new generation DEF level sender kit, NF P/N 6474379. See ATTACHMENT 11: COACH OVERHAUL MATRIX on all hybrid Coaches.

## 6 PROPULSION SYSTEM

### 6.1 PROPULSION SYSTEM COMPONENTS

The Contractor shall follow OEM recommended propulsion overhaul procedures for Allison, BAE, and Kiepe. Refer to ATTACHMENT 7: ALLISON SPECIFIC OVERHAUL REFERENCE DOCUMENT, ATTACHMENT 8: BAE SPECIFIC OVERHAUL PROCEDURES, and ATTACHMENT 9: KIEPE SPECIFIC OVERHAUL PROCEDURES.

#### 6.1.1 ENGINE (AS APPLICABLE)

The ISL engines on SR-1907 and SR-1961 Coaches shall be removed and shipped back to the SFMTA to be rebuilt. To start the engine rebuilding process, the Contractor shall purchase 12 remanufactured ISL engines of the same engine model year. These 12 engines shall be installed onto the first 12 coaches to be overhauled from SR-1907. The SFMTA shall provide rebuilt ISL engines to the Contractor at a rate of 2 engines per week. The Contractor shall be responsible for all shipping and handling costs.

The ISL engines on SR-1955, SR-1962, and SR-1963 Coaches shall be Removed and Replaced with new Cummins ISL engines of the same engine model year.

The ISB engines on SR-1964 Coaches shall be Removed and Replaced with new Cummins ISB engines of the same engine model year with Start/Stop feature.

New engines shall include emission sensors, wiring harnesses, and a starter assembly. They shall comply with all applicable CARB, ARB and EPA regulations. The new engine shall be procured from an authorized Cummins dealer with extended warranty coverage of 5 years/300,000 miles. See ATTACHMENT 11: COACH OVERHAUL MATRIX for applicable Coaches.

The engine motor mounts shall be Removed and Replaced. The part numbers are front (NF P/N, 499546), and rear (NF P/N 492756). See ATTACHMENT 11: COACH OVERHAUL MATRIX for applicable Coaches.

The Contractor shall Remove and Replace with new exhaust flex pipe and clamps. The Contractor shall utilize the Flex Connector Alignment Tool (NF P/N 6360381) to align the exhaust tubes from the turbo outlet and to the muffler inlet. The Contractor shall also Remove and Replace with new coolant hoses and valves in the engine compartment. Additional requirements for replacing flexible (soft) lines are in Section 5.6, LINES AND PIPING.

#### 6.1.2 RESERVED

#### 6.1.3 TRACTION MOTOR (AS APPLICABLE)

The traction motor assemblies shall be sent to the motor manufacturer for general overhaul. The Contractor is responsible for replacing motor mounts, insulators, bearings, and any other wear components.

The Contractor shall Remove and Replace the shaft coupling WKI 201, the motor fan, and all flexible ducts in the traction motor and accessories.

The Contractor shall remove the existing traction motor gearbox on all Trolley Coaches and replace it with an upgraded traction motor gearbox with a 2.56:1 gear ratio. The traction motor shaft coupling shall be replaced with an upgraded coupling, subject to review in the design review process. See ATTACHMENT 11: COACH OVERHAUL MATRIX for applicable Coaches.

#### **6.1.4 ENERGY STORAGE SYSTEM (ESS) (AS APPLICABLE)**

The Contractor shall Remove the ESS on trolley coaches and replace it with a new 436V LiFePO4 battery with a capacity of 26.1 kWh. The ESS on the hybrid coaches are to be Removed and Replaced with a refreshed ESS according to the most recent recommendations from Allison and BAE. All battery parts shall be OEM parts. All hybrid Coaches shall have their high voltage cables replaced with new cables. See ATTACHMENT 11: COACH OVERHAUL MATRIX for applicable Coaches.

#### **6.1.5 EXHAUST AFTERTREATMENT SYSTEM (AS APPLICABLE)**

The Contractor shall inspect the exhaust aftertreatment system. If Contractor believes that any repairs are warranted, the condition shall be documented and the repair work shall be negotiated as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).

#### **6.1.6 ENGINE COMPARTMENT**

All gauges in the engine compartment shall be fully tested and functional at the time of Bus delivery. The gauges include transmission oil, engine oil (as applicable), air and coolant (as applicable).

#### **6.1.7 DIFFERENTIAL (AS APPLICABLE)**

The Contractor shall take a sample of gear oil from each differential and have it evaluated by an independent laboratory for metal shavings or other evidence of a damaged differential. Oil sample reports shall be presented to the SFMTA Technical Project Manager and Resident Inspector for review. Based on review of the oil samples reports, any/all differentials Removed and Replaced on hybrid coaches shall be considered as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).

The Contractor shall Remove and Replace the differential assembly on all Trolley Coaches with a differential assembly from M.A.N. (NF P/N 6407971), or approved equal, subject to review in the design review process. The Contractor shall work with New Flyer to determine the proper upgraded differential and axle assembly; the differential ratio shall be 4.10:1. See ATTACHMENT 11: COACH OVERHAUL MATRIX for applicable Coaches.

### **6.2 COOLING SYSTEM**

The Contractor shall inspect the existing cooling system for functionality and reliability and inform the SFMTA of any defects found. If Contractor believes that any repairs are warranted, the condition shall be documented and the repair work shall be negotiated as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).

There are also additional roof mounting cooling systems (Hybrid Cooling System and Thermo King condenser unit for Allison hybrids and Electronic Cooling Package (ECP) for BAE hybrids) for the propulsion systems. The Contractor shall inspect all propulsion system cooling unit components for function, perform recommended maintenance from the system manufacturer, and clear any debris from the units. Any damage found outside the scope of the overhaul recommendations shall be addressed as Unforeseeable Work.. The Contractor shall inspect all WEG pump in the cooling system for any leakage and functionality test. Contractor shall document and replace any defective WEG pump and the repaired work shall be negotiated as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).

Any coolant catch-pans inside the electronic compartment (SDS box) shall be removed. If needed, the Contractor shall Replace any damaged components with new.

Based on Maintenance experience, there are certain areas where Contractor shall replace the hoses/pipes. Besides these coolant hoses and valves recommended by the OEM service manual, also reference Section 5.6, LINES AND PIPING for all flexible (soft) lines replacement requirements.

### **6.3 DRIVE SHAFT**

The Contractor shall Remove and Replace the drive shaft bolts, bearing strap, locking plates, and universal joints at each end with new parts. Refer to the New Flyer OEM service manual for instructions on Removing, Replacing, and inspecting the drive shaft.

The Contractor shall inspect the drive shaft guard plate for damage. If the Contractor believes that any repair or replacement is warranted, the condition shall be documented and the repair work shall be negotiated as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).

## **7 ELECTRICAL**

### **7.1 BATTERIES**

All Hybrid Coaches shall have their batteries Removed and Replaced with two new 8D AGM/Deka 1450CCA maintenance free batteries from East Penn Batteries. All Trolley Coaches shall have their batteries replaced with 4 new Odyssey group 31 maintenance free 1150 CCA batteries. The connections shall be 3/8-inch for the positive post and 3/8-inch for the negative post. Battery cables shall be Removed and Replaced with new cables matching the gauge of the existing cables. The battery cables shall have red heat shrink on the 24-volt positive cable end and light blue heat shrink on the 12-volt positive cable end. Cables shall not lie on top of the batteries and shall be sheathed and wrapped to prevent corrosion.

The Contractor shall inspect the battery tray's rubber mounts, rollers (on both the battery tray and support tray), pivot mechanism, and rubber/water dust ejector for damage. If the Contractor believes that any repair or replacement is warranted, the condition shall be documented and the repair work shall be negotiated as Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK).

### **7.2 ALTERNATOR / CHARGING SYSTEM**

The Contractor shall inspect all alternator and static converters per manufacturer recommendations, and any damage addressed under Unforeseeable Work (Reference, Section 1.6, UNFORESEEABLE WORK). See ATTACHMENT 11: COACH OVERHAUL MATRIX for information on alternator replacement.

### **7.3 PROGRAMMABLE LOGIC CONTROL (PLC)**

Each built of the buses has its own unique version of Vansco PLC program. The contractor shall verify with the bus OEM to ensure the latest and greatest version of the PLC program are used to make modification that are required by the scope of this contract. The Contractor shall document all the modification of the changes to the PLC program and ensure that the modification will not affect other functionality of the bus. The contractor shall test all functionality prior to presenting the bus to SFMTA for inspection. The functionality test shall be comprehensive for all features and functions of the bus, not only the functions that were modified. The Contractor shall provide OEM certification that the Contractor's firm is capable and qualified to make modification changes to the PLC program.

## 8 MATERIALS AND OVERALL WORK QUALITY

### 8.1 MATERIALS

All materials used in the construction of the Coach and all its parts shall be in accordance with the stated specification or description unless written approval for substitution is obtained from the SFMTA. All materials shall comply with the standards established by ASTM, SAE, or other relevant association standards. Materials used shall be equivalent in manufacture, design, and construction on each Coach and shall have a manufacturer label affixed to the part.

Whenever under the Contract Documents it is provided that the Contractor shall furnish materials or manufactured components or shall do work for which no detailed specifications are set forth, the work performed shall be in accordance with the best standards of manufacture.

Foreign matter such as shavings, chips, etc., shall be completely removed from all parts of the Coach whether hidden or exposed.

- I. All lumber shall be thoroughly kiln dried, free from knots and shall be of clear, straight grain, dressed on all sides.
- II. All painted aluminum sheets shall be thoroughly cleaned and coated on the inside and outside with zinc- chromate protective paint prior to assembly in Coach.
- III. All joints shall be protected by application of a zinc-chromate metallic compound at assembly.
- IV. In the event plywood is used for the flooring, the sub floor material shall be no less than 3/4-inch-thick, 7-ply, marine grade with no voids. The floor shall be waterproof, non-hygroscopic, resistant to wet and dry rot, resistant to mold growth, and impervious to insects.
- V. All bolts, nuts, washers and exposed linkage shall be stainless steel or zinc plated (where applicable) to prevent corrosion. Contractor shall submit a certification that all bolts furnished on the Coaches will meet OEM standards, including, but not limited to, SAE J429.

#### 8.1.1 HAZARDOUS MATERIALS

It shall be the design objective to eliminate from the Coaches all materials that are or may become hazardous to passengers, operators, or maintenance personnel. Of particular concern are materials that produce toxic smoke or gases when heated, possibly due to an accidental fire when bodywork using welding equipment or cutting torches are used. No parts on the Coach shall contain asbestos or PCBs. The Contractor shall provide, for SFMTA approval, the material safety data sheets (MSDS) of any non-OEM materials or fluids that will be used in the construction, operation or maintenance of the Vehicle. SFMTA has the option to reject the use of any hazardous materials proposed for use on the Vehicles during Design Reviews.

## **8.2 OVERALL WORK QUALITY**

Overall work quality shall be of the best grade and shall conform in all respects to the best practice in the industry such as ISO 9001. The fit and finish of the exterior and interior components shall be to the best of the industry standards of the automotive trade.

Unless otherwise specified, all materials and equipment shall be new. Mechanical, electrical and electronic equipment and components shall be the products of manufacturers regularly engaged in the fabrication of such equipment and components for use in transit vehicles.

The work shall be executed in conformity with the best-accepted industry standard practice of the trade so as to contribute to maximum efficiency of operation, accessibility, pleasing appearance and minimum cost of maintenance.

The Contractor shall provide a summary of fastener sizes and torque values for critical areas on the Vehicle, based on OEM specifications. SFMTA requires that the Contractor include this attachment as part of the Vehicle record book, Reference Section 9, VEHICLE RECORDS. This attachment is developed for reference only; it is the Contractor's responsibility to verify the accuracy against the OEM manuals.

### **8.2.1 WELDING**

Welding procedures, welding materials, and qualifications of welding personnel shall be in accordance with the current standards of the ASTM and AWS. Where metal is welded to metal, the contact surfaces shall be free of scale, grease, and paint and prepared according to AWS procedures. The Contractor shall provide documentation of their welding procedures, set up sheets, and processes to SFMTA as part of the design review process. The Contractor shall not perform any welding on SFMTA buses until the above documentation has been submitted and approved by SFMTA.

### **8.2.2 MECHANICAL FASTENING**

No protruding screws, mounting bolts, or similar items shall be permitted in the interior or the exterior of the Coach. Fasteners not exposed to passengers on the inside of the Coach shall be stainless steel or zinc-plated steel. Zinc plating shall conform to the latest revision of ASTM B633, TYPE II, SC3 or SC4 or ASTM F1941 Fe/Zn 12C. All fasteners used in the Vehicle body exterior, even if not exposed to passengers, shall be of stainless steel except where mechanical requirements impose graded steel fasteners, or to minimize galvanic corrosion. These fasteners shall be zinc-plated with treatments to prevent hydrogen embrittlement if required. Where non-anodized metal is riveted or bolted to metal, contact surfaces shall be thoroughly cleaned and properly primed.

#### **8.2.2.1 RIVETS**

All rivets shall meet or exceed the OEM standards and shall completely fill the holes. External rivet heads shall be concentric with the body of the rivets and free from rings, pits, burrs and fins. Surfaces exposed to passengers, operator, or maintenance personnel shall be smooth and free of burrs, fins, sharp edges, and dangerous protrusions.



### **8.2.2.2 SCREWS**

On the Coach interior, all screws exposed to passengers shall be stainless steel with a flat or oval head. Exposed screws shall be of an approved tamper-proof type with the exception of the glazing mounting screws. Self-tapping screws shall not be used in areas requiring dismantling for servicing. At least 1-1/2 screw threads shall be visible beyond all nuts.

### **8.2.2.3 BOLTS**

All bolts or rods passing through wood or exposed to the elements shall be an approved grade stainless steel or, with SFMTA's pre-approval, zinc-plated. All nuts and bolts exposed to passengers shall be an approved grade stainless steel unless otherwise specified. The design strengths for Grade 2 bolts and Class A nuts shall be used in sizing the mounting and attachment bolts for under floor mounted equipment, support structures, or brackets. However, all structural or load-carrying bolts shall be domestic manufacture, SAE grade 8 or better. Bolts or screws used for structural connections shall have full-size bodies in areas subjected to bearing and/or shear loads. For bolted joints subject to steady vibration, UNC bolts with appropriate locking arrangement shall be used. Nuts shall be a regular height, nylon insert, and self-locking type. Bolts smaller than 1/4 inch shall not project more than 1-1/2 threads plus 1/4 inch. Bolts 1/4 inch or larger shall not project more than eight threads. All hardware is to be installed and torqued per ANSI guidelines.

### **8.2.3 FINISHING**

Special care shall be taken with the outside sheathing; roof, roof bonnets, and interior finish so that all kinks and buckles are removed before assembly to present a true and smooth finish. This shall be accomplished without excessive grinding, which may weaken the structure material. All painted surfaces shall have a true and smooth surface that will not show sanding or grinding marks after painting. Where wood is placed against wood, both surfaces shall be coated with an approved sealing compound. All steel and aluminum body parts that are to be painted shall be thoroughly cleaned and treated before priming with a primer compatible with the paint system.

### **8.2.4 ELECTRICAL**

All electrical connections shall be of the locking type. All electrical wiring harnesses shall be clamped, tie-wrapped and supported at regular intervals in compliance with the OEM installation. When wires, cables, hoses or tubes go through walls or panels, the bulkhead holes shall have protective grommets/molding and the wires, cables, hoses or tubes shall be clamped on both sides of the bulkhead hole. A 1/4-inch minimum clearance to the protective grommet/molding is required. All electrical wires shall be installed to as not to have any chafing or rubbing with other components.

## **8.3 PROOF OF COMPLIANCE WITH CONTRACT**

In order that SFMTA may determine whether the Contractor has complied with the requirements of the Contract Documents not readily determinable through inspection and test of equipment, components or materials used in the Work, the Contractor shall, at any time when requested, submit to SFMTA properly authenticated test results, design documents or other satisfactory proof as to its compliance with such requirements.

## 9 VEHICLE RECORDS

The Contractor shall provide a Coach History Book to be included in each Coach upon its arrival at the SFMTA. Vehicle record books must include the following information as to new or reworked/refurbished equipment/systems:

- 1) Subcomponent description
- 2) Subcomponent serial numbers
- 3) Test records
- 4) Inspection records
- 5) Shipping and Acceptance dates.
- 6) Parts List for all new component added or reworked.
- 7) Description of modifications and dates of completion
- 8) Updated schematics for all subsystems added or overhauled.
- 9) List of defects
- 10) List of serial-numbered components
- 11) Documentation of Unforeseeable Work performed on the coach
- 12) Shipping documents
- 13) Shipping exceptions and unresolved / open issues
- 14) Summary detail of each test performed on the coach or any part of the coach
- 15) Safety Critical torquing locations and values

Each book shall be indelibly marked with the serial number of the Vehicle it accompanies.

Upon delivery of the final coach to the SFMTA, a master list of any parts reworked or added to all coaches for each SR shall be delivered to SFMTA in Excel format. At the SFMTA's discretion, additional documentation may be added to the requirements of the Coach History Book.

## **10 WARRANTY**

### **10.1 WARRANTY REQUIREMENTS**

Warranties in this document are in addition to any statutory remedies or warranties imposed on the Contractor. Consistent with this requirement, the Contractor shall warrant and guarantee to the SFMTA each Coach and specific subsystems and components according to the following provisions:

The Contractor shall ensure that the warranty requirements of this Contract are enforceable through and against the Contractor's suppliers, vendors, and subcontractors. Any inconsistency or difference between the warranties extended to the SFMTA by the Contractor and those extended to the Contractor by its suppliers, vendors, and subcontractors, shall be at the risk and expense of the Contractor. Such inconsistency or difference will not excuse the Contractor's full compliance with its obligations under the Contract Documents.

Upon request of the SFMTA, the Contractor shall promptly provide complete copies of written warranties or guarantees of documentation of any other arrangement relating to such warranties or guarantees extended by the Contractor's suppliers, sub-suppliers, vendors, and subcontractors covering parts, components, and systems utilized in the Coach. If any vendor/supplier to the Contractor offers a warranty on a component that is longer or more comprehensive than the requirement in Section 10.2 COMPLETE COACH, the Contractor shall provide this information to the SFMTA in their bid documents and pass it through to SFMTA at no additional cost to the SFMTA.

The Contractor shall ensure that such suppliers, sub-suppliers, vendors, and subcontractors satisfactorily perform warranty-related work.

The Contractor shall provide five Microsoft Surface Pro (latest generation) tablets to the SFMTA for warranty administration purposes. The warranty equipment shall be provided to the SFMTA at least 30 Working Days prior to the First Article delivery. The Contractor shall install all necessary warranty parameters and warranty claim forms onto the laptop computers. Reference Schedule 1B – Special Tools List of the Sample Agreement.

### **10.2 COMPLETE COACH**

Contractor warrants and guarantees that the work performed, and new equipment installed by the Contractor shall be free from Defects and Related Defects for one year or 50,000 miles, whichever comes first, beginning on the date of the Acceptance of each Coach.

#### **10.2.1 VOIDING OF WARRANTY**

The warranty shall not apply to any part or component of the Coach that has failed as a direct result of misuse, negligence, or accident, or that has been repaired or altered in any way so as to affect adversely its performance or reliability, except insofar as such repairs were in accordance with the Contractor's maintenance manuals and the workmanship was in accordance with recognized standards of the industry.

The warranty on any part or component of the Coach shall also be void if the SFMTA fails to conduct normal inspections and scheduled preventive maintenance procedures on the same part or component substantially as recommended in the Contractor's maintenance manuals, and such failure by the SFMTA is the sole cause of the part or component failure.

### **10.2.2 CONTRACTOR'S SERVICE MANAGER / REPRESENTATIVE**

The Contractor's service manager / representative shall be available during the acceptance and commissioning per SR for rehabilitated Vehicles to assist the SFMTA in the solution of engineering or design problems that are within the scope of the Technical Specifications and that may arise. The service manager / representative will also be available to the SFMTA on request during the Coach warranty period. Maintenance or repair instructions or suggestions from these representatives affecting warranty shall be in writing and directed to the SFMTA. The Contractor's service manager / representative shall have the authority to accept and approve warranty claims and make timely decisions affecting the repair of Defects.

The SFMTA will work with the Contractor's service manager / representative as much as possible to minimize the costs and time involved in conducting warranty repairs; however, due to space constraints and labor agreements, the SFMTA cannot guarantee that any Contractor work will be performed on SFMTA property.

### **10.3 DETECTION OF DEFECTS**

If the SFMTA finds Defects within the warranty period defined in Section 10.2, COMPLETE COACH, it shall notify the Contractor's representative in writing. Within five Working Days after receipt of notification, the Contractor's representative shall either agree that the Defect is in fact covered by warranty, or reserve judgment until the subsystem or component is inspected by the Contractor's representative or is removed and examined at the SFMTA property or at the Contractor's plant. At that time the status of warranty coverage on the subsystem or component shall be mutually resolved between the SFMTA and the Contractor. Work necessary to commence the inspection or repairs, under the provisions of Section 10.5, REPAIR PROCEDURES shall proceed immediately after receipt of notification by the Contractor

If within 10 Working Days of notification to contractor, the SFMTA and Contractor are unable to agree whether a Defect is covered by warranty provisions, SFMTA reserves the right to commence repairs and seek reimbursement through Section 10.5, REPAIR PROCEDURES.

### **10.4 FLEET DEFECTS**

A Fleet Defect is defined as cumulative failures of any kind in the same new systems or components in the same or similar application where such items are covered by the warranty and such failures occur within the warranty period in at least 10 percent of Vehicles delivered under this contract. The SFMTA shall have final approval of corrections or changes under these conditions, which may include requesting Failure Analysis Report (see Section 10.5.6) for the failed system.

#### **10.4.1 CORRECTION OF FLEET DEFECTS**

The Contractor shall provide a corrective action plan within ten Days of receipt of notification of a Fleet Defect under the procedures specified in this subsection. Unless the SFMTA grants an extension, the Contractor shall provide the SFMTA with a retrofit work plan, a Field Service Repair Procedure and schedule, to be reviewed and approved by the SFMTA. The schedule shall specify how and when all Coaches with Defects shall be corrected.

Any proposed changes to an approved Fleet Defect work plan or program must be submitted to the SFMTA for review and approval.

If Contractor does not provide a plan for correction within ten Days (or as extended by SFMTA); or a specific declared Fleet Defect is not fully corrected within the time specified in the agreed upon schedule; or the remainder of the Coaches are not corrected in accordance with the Contractor's work plan; then the SFMTA will assess liquidated damages in the amount of \$200/Coach per Day.

The warranty on parts, components or subsystems replaced as a result of a Fleet Defect shall be assigned a new warranty period equal to the original manufacturers or contract part warranty (whichever is longer), effective the replacement date. Any extended warranties shall commence at the conclusion of the new warranty period.

#### **10.4.2 FLEET DEFECT REPAIRS**

When the SFMTA requires the Contractor to perform warranty-covered repairs under the Fleet Defect corrections, the Contractor's representative must begin work necessary to effect repairs in a proper and timely manner, within five Working Days after the approval of the retrofit plan/schedule. Whenever the Contractor makes warranty repairs, new parts, subcomponents and subsystems shall be used, unless the repair of original parts is authorized in writing by the SFMTA. The SFMTA shall make the Coach available to complete repairs timely with the Contractor's repair schedule.

The Contractor shall provide, at its own expense, all spare parts, labor, tools and space required to complete repairs. The Contractor shall reimburse the SFMTA for all expenses incurred, including labor for driving Coaches, or towing charges for Coaches transported, between the SFMTA's facilities and Contractor's service center or the facilities of its subcontractors or suppliers.

#### **10.4.3 CONTRACTOR SUPPLIED PARTS**

The Contractor shall furnish parts for all warranty work performed by the Contractor.

#### **10.4.4 VOIDING OF WARRANTY PROVISIONS**

The Fleet Defect provisions shall not apply to Coach Defects solely caused by non-compliance with the Contractor's recommended preventive maintenance practices and procedures or caused solely by abuse of the equipment.

## **10.5 REPAIR PROCEDURES**

The Contractor shall reimburse the SFMTA for labor, parts and administrative costs for warranty claims performed by SFMTA personnel or by any contractor(s) hired by SFMTA to perform warranty work.

Contractor shall reimburse the SFMTA for warranty claims within 30 Days after each warranty claim has been submitted by SFMTA. If SFMTA does not receive payment within 30 Days, the SFMTA will deduct the amount of the claim, which includes labor, parts, administrative overhead and towing costs, from payments due to Contractor or will deduct the amount of the claim from the Retention.

### **10.5.1 PARTS USED**

The SFMTA shall use new parts, subcomponents and subsystems that Contractor shall provide specifically for these repairs. All parts shall be stamped or permanently marked with the OEM part number, and serial number if applicable. Warranties on parts used shall begin once the Vehicle has been repaired. The warranty on parts, components or subsystems replaced as a result of a standard warranty repair shall be assigned a new warranty period equal to the original manufacturers or contract part warranty, whichever is longer, effective the replacement date. Any extended warranties shall commence at the conclusion of the new warranty period.

The SFMTA shall use parts or components available from its own stock only on an emergency basis. Monthly reports, or reports at intervals mutually agreed upon, of all repairs covered by warranty will be submitted by the SFMTA to the Contractor for reimbursement or replacement of parts or components. The Contractor shall provide forms for these reports.

### **10.5.2 DEFECTIVE PARTS RETURN**

The Contractor may request that Defective parts or components covered by warranty be returned to the Contractor. The Contractor is responsible for all costs associated with material return. Material will be returned in accordance with the Contractor's instructions. Contractor shall provide such instructions to the SFMTA at the beginning of the project. The Contractor's representative shall meet with an SFMTA representative on an as-required basis to determine which parts need to be returned to the manufacturer for evaluation, or which parts may be discarded.

### **10.5.3 REIMBURSEMENT FOR LABOR**

The Contractor shall reimburse the SFMTA for all warranty labor incurred by SFMTA. The amount shall be determined by multiplying the number of person-hours required to correct the Defect by the current top mechanic's hourly overtime wage rate. The wage rate, and therefore, the warranty labor rate, is subject to adjustment each year. As of February 2019, the warranty labor rate shall be based on the mechanic's wage rate of \$126/hour, which includes labor, fringe benefits, and overhead.

In the event the SFMTA deems it necessary to contract out for warranty repairs, the Contractor shall reimburse the SFMTA for the actual cost of the repair, including charges for any warrantable parts, consequential parts or damages, labor, and towing or transportation. A 15 percent handling fee will be included on all outside invoices for warranty related services submitted to the Contractor.

#### **10.5.4 REIMBURSEMENT FOR PARTS, TOWING**

In the event the SFMTA uses its own parts for warranty repairs, the Contractor shall reimburse the SFMTA for those parts, including all Defective parts, components, and consequential parts supporting the warranty repair. The reimbursement shall be at the invoice cost of the parts or components at the time of repair and shall include applicable taxes plus a 15 percent handling fee.

The warranty will include the cost of towing the Coach or a Coach change if either was necessary because of the failure of a warranted part. Towing costs consist of the SFMTA's established contracted tow truck charge including applicable taxes, any parts utilized in the transfer of the Coach, any SFMTA labor expended, plus a 15 percent handling fee. The cost of a Coach change will consist of the actual time spent at the established warranty labor rate.

Contractor shall reimburse the SFMTA for warranty claims within 30 Days after each warranty claim has been approved by the Contractor. If the SFMTA does not receive payment within 30 Days, the SFMTA may deduct the amount of the claim from payments due to Contractor.

#### **10.5.5 WARRANTY AFTER REPLACEMENT OR REPAIRS**

The warranty on parts, components or subsystems replaced as a result of a standard warranty repair shall be assigned a new warranty period equal to the original manufacturer's or contract part warranty, whichever is longer, effective the replacement date. Any extended warranties shall commence at the conclusion of the new warranty period.

#### **10.5.6 FAILURE ANALYSIS**

At the SFMTA's request, the Contractor, at its cost, shall conduct a failure analysis of a failed part involved in a Fleet Defect or that is safety-related or a major component that could affect fleet operation that has been removed from Coaches under the terms of the warranty. The analysis shall commence with the approved corrective action plan and be documented and compiled into a report. Failure Analysis Reports shall be delivered to the SFMTA within 60 Days of the receipt of failed parts.

## **11 QUALITY ASSURANCE**

In order to closely monitor the First Article and production progress, the SFMTA requires having Quality Assurance meetings with the Contractor on a regular basis. During the conference call, the Contractor shall prepare to discuss project schedule, production issues, material issues and other items associated with the Project.

All special tools shall be provided to the SFMTA at least 30 Working Days prior to the First Article delivery. Reference Schedule 1B – Special Tools List of the Sample Agreement.

### **11.1 CONTRACTOR QUALITY ASSURANCE**

The Contractor shall assign an in-plant Quality Assurance Inspector (QAI) to exercise quality control over all phases of production from initiation of design through manufacture and preparation for delivery. The QAI shall have the authority and responsibility for reliability, quality control, inspection planning, establishment of the quality control system, and Acceptance/rejection of materials and manufactured articles in the overhaul of the transit coaches.

The QAI shall conduct all required inspections and testing and maintain records and data for review by the SFMTA Resident Inspector. The QAI shall detect and assure corrections of any defective coaches.

### **11.2 DEPARTURE INSPECTION**

A Departure Inspection shall be led by the SFMTA and the Contractor's Representative on each of the SFMTA's Coaches prior to transferring the Vehicles to the Contractor's plant. The Departure Inspection shall be held at any of the SFMTA's Coach yards in San Francisco. To the greatest extent practical, all items to be considered as Unforeseeable Work shall be identified on each Bus prior to transfer of the Vehicle to the Contractor (Reference, Section 1.6, UNFORESEEABLE WORK).

### **11.3 RESIDENT INSPECTOR**

The SFMTA shall be represented at the Contractor's plant by Resident Inspector(s), who shall monitor the re-manufacturing of the transit coaches. The Resident Inspector shall be authorized to approve the pre-delivery Acceptance tests and release the Coach for delivery. The presence of these Resident Inspectors in the plant shall not relieve the Contractor of its responsibility to meet all of the requirements of this procurement. Upon request to the quality assurance supervisors, the Resident Inspectors shall have access to the Contractor's quality assurance files related to this procurement. These files shall include but not be limited to drawings, assembly procedures, material standards, parts lists, inspection processing and reports, and records of defects.

The Contractor's gauges and other measuring and testing devices shall be made available for use by the Resident Inspectors to verify that the Coaches conform to all specification requirements. If necessary, the Contractor's personnel shall be made available to operate the devices and to verify their condition and accuracy.



## **11.4 COMPLIANCE DEMONSTRATION**

Upon written request of the SFMTA, the Contractor shall demonstrate compliance with any requirement of these specifications in accordance with the testing requirements outlined in Section 11.6 TESTING. Requests shall normally be made such that the demonstration can be scheduled in advance of the First Article Coach. Other demonstrations shall be requested after delivery, should the SFMTA suspect that the production Coaches are not in conformance to these specifications.

The demonstrations shall consist of formal tests conducted on the First Article and/or production Coaches and witnessed by the SFMTA authorized personnel. In lieu of conducting tests of a destructive nature, the demonstration requirement may be satisfied by a comprehensive analysis of sufficient scope and quality to show specification compliance.

The burden of demonstrating compliance rests on the Contractor, but is subject to approval by the SFMTA. The Contractor shall be responsible for associated costs, including traveling and lodging for SFMTA personnel, to demonstrate compliance and any work required to correct any non-compliance conditions.

## **11.5 FIRST ARTICLE INSPECTION (FAI) COACH**

The Contractor shall present a First Article Inspection (FAI) Coach for each SR to be overhauled, which shall undergo a detailed inspection by SFMTA personnel or representatives. The FAI involves the physical examination, internal / independent testing of, and Acceptance by SFMTA of an initial part, major assembly, subassembly, system, subsystem, apparatus or material, manufactured or assembled by either the Contractor or Subcontractors. The purpose of this inspection is to ensure that the First Article Coach has been built to approved engineering standards and that all contract work has been incorporated into the First Article. The configuration established for the First Article shall be the benchmark for all remaining production Coaches. The SFMTA Project Manager may approve the design that is revealed at the FAI or may require changes in order that the component can meet the requirements of the Contract.

### **11.5.1 FIRST ARTICLE CERTIFICATIONS SUBMITTALS**

During the FAI, the Contractor shall present the certifications to the SFMTA, as specified in Section 1.5, WORKMANSHIP.

## **11.6 TESTING**

### **11.6.1 PRE-DELIVERY TESTS**

The Contractor shall conduct pre-delivery testing at its plant on each Coach before delivery to the SFMTA. These pre-delivery tests shall include visual and measured inspections, as well as testing of the total Coach operation. The tests shall be conducted and documented in accordance with written test procedures to ensure that the completed Coaches have attained the desired quality and have met the requirements of these Technical Specifications. All tests shall be witnessed and approved by the SFMTA's Resident Inspector.

#### **11.6.1.1 VISUAL AND MEASURED INSPECTION**

The visual and measured inspections shall be conducted to verify if overhauled components and repairs have been executed in accordance to the Technical Specifications, Unforeseeable Work, and Industry Standard practices.

#### **11.6.1.2 WATER TEST**

Each Bus must undergo a water test approved by SFMTA. The water test shall replicate the direction and pressure of water flow in an SFMTA yard bus wash. The underside of the Bus shall be sprayed with water to simulate tire splash and heavy rain conditions. The water test shall ensure that water does not enter the interior of the bus or any exterior compartments through the floor, body, windows, signs, lights, or any other openings. The seals on the destination signs and windows shall prohibit condensation on the glass. Any Coach that fails water testing shall be repaired by the Contractor and retested until they pass.

#### **11.6.1.3 AIR LEAK DOWN TEST**

Each Coach shall have its air system fully charged and monitored for eight hours. If the air system pressure drops more than ten PSI, the air system shall be repaired by the Contractor and retested until they pass.

#### **11.6.1.4 STEERING ALIGNMENT AND TURN RADIUS**

The Contractor shall perform an axle alignment on each Coach to OEM specifications. The Contractor shall also verify that the Coach's turning radius is in accordance with OEM specifications. The alignment and the turn radius test shall be documented in the Coach History Book for each Vehicle (Reference, Section 9, VEHICLE RECORDS).

#### **11.6.1.5 BRAKE TEST**

The Contractor shall ensure that the Coach's brake system performs to the standards outlined by the FMVSS and the state of California. The first Coach in each SR shall have their braking system tested to be capable of stopping a Vehicle traveling at 20 mph in under 25 feet on a dry, level road. The parking brake shall be able to hold the Coach loaded to GVWR in both forward and rearward directions on a 23 percent grade. The "Parking Brake Applied" indicator shall be functioning when the parking brake is engaged. The interior audible warning alarm and blinking warning lights shall be activated when the Master Run Switch is set to the "Off" position and the parking brake is not engaged.

#### **11.6.1.6 TOTAL COACH OPERATION**

The operation of the Coach shall be verified by conducting road tests. These tests shall simulate the functionality of the subsystems onboard the Coach that are operated while in revenue service. Any Defects or excessive noise should be recorded and investigated by the Contractor. If the Coach fails to operate to the satisfaction of the Resident Inspector, the Coach shall be repaired and retested until it passes.

#### **11.6.1.7 VERIFICATION OF CRITICAL TORQUES**

The Contractor shall supply a torquing procedure for all safety critical items repaired in the scope of this Technical Specification. The torque locations and values shall be recorded in the Coach History Book (Reference, Section 9, VEHICLE RECORDS).

### **11.6.1.8 OTHER TESTS**

The Resident Inspector shall ensure compliance of the specification requirements by performing additional tests on each Coach. The tests include and are not limited to:

- Paint Testing
- Electrical Systems
- Brake System
- Fire Suppression System
- Torque Verification
- Weld Inspections

### **11.6.2 POST-DELIVERY TESTS**

The SFMTA will conduct post-delivery tests (Acceptance testing), which shall include, but not be limited to, visual inspection, functional testing of all systems that were replaced or rehabilitated, and a road test on each delivered Coach, including the First Article Coach. Coaches that fail to pass the post-delivery tests will not be Accepted, and the next Coach scheduled for rehabilitation will not be released until all Defects are corrected and the Coach is Accepted by the SFMTA's inspection team.

The SFMTA will record details of all Defects on the appropriate inspection forms which shall be submitted to the Contractor for immediate corrective action.

Each delivered Coach shall be delivered with the Vehicle traveler document, (Reference, Section 9, VEHICLE RECORDS), at the time of delivery.

### **11.6.3 SERVICEABILITY TEST**

Prior to Acceptance, and at the SFMTA's discretion, the SFMTA may operate each Vehicle for a minimum of 50 miles. Any Defects will be recorded on the appropriate test form which shall be submitted to the Contractor for immediate corrective action.

## **11.7 PRODUCTION COACHES**

The Contractor shall not proceed to the following Coaches of the SR group until the First Article Coach is signed off by SFMTA. The following Coaches shall have the same configuration as the approved First Article. At SFMTA's discretion, the Contractor shall comply with the requirement in Section 11.3, RESIDENT INSPECTOR.

## **11.8 STANDARDS**

The Contractor shall ensure quality standards and facilities. Each Bus shall be Overhauled according to the drawings, procedures, and other documentation that completely describe the overhaul activities. The Contractor shall provide the SFMTA with all appropriate Safety Practices and General Workshop Procedures which will be in effect throughout this program. All production tooling (jig, fixtures, templates, tooling masters, etc.) shall be verified for accuracy and adjusted as required, throughout the inspection process.

## **11.9 PURCHASING AND MANUFACTURING CONTROL**

The Contractor shall ensure that all basic production operations, as well as all other processing and fabricating, are performed under controlled conditions. Establishment of these controlled conditions shall be based on formally documented work instructions, adequate production equipment, and (if necessary) special working environments. Manufacturing control shall include but is not limited to completed items for final inspection, control of transferred materials (moved from one Vehicle to another, if new or refurbished materials not available) and non-conforming materials. The Contractor shall maintain quality control of purchases including supplier control, purchasing data and SFMTA-supplied materials.

## 12 DELIVERY SCHEDULE

### 12.1 PREFERRED DELIVERY SCHEDULE

Completion of items as indicated below shall occur before the time periods listed have elapsed. Liquidated Damages applies to all items. Refer to Section 4.7 of the Agreement.

Item	Calendar Days after Notice-to-Proceed				
	SR-1964	SR-1955 SR-1962	SR-1849	SR-1907 SR-1961	SR-1963
Pick Up of First Article Coach	31	98	184	214	673
Delivery of Completed First Article Coach	91	158	244	274	733
Conditional Acceptance and Approval of First Article Coach	105	172	258	288	747
Begin overhaul of remaining coaches	107	179	260	290	749
Delivery of the last coach	222	325	714	884	906
Submittal of final As-Built Drawings, Updated Schematics, and Parts Lists	222	325	714	884	906

Item	Calendar Days after Notice-to-Proceed
Submittal of draft recommended spare parts and special tools lists	365
Delivery of spare parts and special tools	906

## **Deliveries:**

**Note 1:** Actual item due dates will be determined after the First Article Coaches have been presented and changes to the scope of work have been finalized and negotiated.

**Note 2:** All deliveries to the SFMTA shall be to the SFMTA's Marin facility during weekday working hours, Monday through Friday, 7 a.m. – 3 p.m., except SFMTA holidays, or as otherwise specified in writing by the SFMTA. Contractor shall provide at least 48 hours-notice to SFMTA prior to delivery.

**Note 3:** Due to service demands, the SFMTA can only allow up to 16 Coaches at the Contractor's site at any one time. Contractor shall not deliver more than three Coaches to the SFMTA at any one time.

**Note 4:** The coach will have to pass inspection and Acceptance testing by SFMTA before being put back into revenue service. The SFMTA reserves the right to not release scheduled coaches for rehabilitation if one or more rehabilitated coaches fails to meet the SFMTA's requirements.

## **12.2 PROPOSED DELIVERY SCHEDULE**

Delivery schedules proposed (See Delivery Schedule Worksheets in Volume 1, Appendix A, 1B) will be compared with the SFMTA's preferred delivery schedules and the proposed delivery schedules will be rated accordingly.

## **12.3 COACH DELIVERY**

Coaches shall be delivered at a rate not to exceed three Coaches per week.

### 13 ATTACHMENTS

#### 13.1 ATTACHMENT 1: ORIGINAL OEM SPECIFICATIONS

##### 13.1.1 SR – 1849

Option#	Description	Value Description (blank means unset)
100-002	XCELSIOR COACH LENGTH	Xcelsior - 60' coach.
100-003	STRUCTURAL MATERIAL	(B),Structural material - carbon steel/ferritic sst.
100-004	FUEL/PROPULSION SYSTEM	(C),Trolley system - Kiepe trolley system. Specific component details as per Kiepe/customer spec.
100-006	DOCKET 90 SPEC	(A),Docket 90 spec - for interior of coach (as per spec).
201-005	BUMPERS	(B),Bumpers - Romeo Rim, three piece, front and rear bumpers. Rear has anti-ride feature.
201-015	FRONT TOW EYES	(B),Front tow eyes - basic set-up, incorporated in front chassis. Tow adapters are required.
203-005	FRONT AXLE	(B),Front axle - M.A.N. VOK-07-F, GAWR 15,873 lbs. With disc brakes. Hub mount, Knorr cylinders, Ferodo lining.
203-005b	SECUREMENT OF BRAKE LININGS	(S),Securement of brake linings - bonded.
203-005f	ELECTRONIC BRAKE STROKE MONITOR	(A),Electronic brake stroke monitor - MGM E-stroke system.
203-011	SHOCK ABSORBERS	(S),Shock absorbers - Koni.
203-050	FRT AXLE AND WHEEL SPLASH APRONS	(A),Front axle and wheel splash aprons - full width, fore of axle and wheels. Also, two additional aprons aft of the wheels.
204-005	REAR AXLE	(A),Rear axle - M.A.N. 5.67:1. Model HY-1350-F. GAWR 28,660. With disc brakes, hub mount, Knorr cylinder, Ferodo lining.
204-005b	CENTER AXLE	(B),Center axle - ZF model AVN132-NF1, GAWR 25,350. With disc brakes, hub mount, Knorr cylinder, Ferodo lining.
204-005d	REAR AXLE GEAR OIL	(A),Rear axle gear oil - synthetic.
204-070	REAR AXLE DRAIN PLUGS	(B),Rear axle drain plug - magnetic external hex head.
204-140	REAR AXLE AND WHEEL SPLASH APRONS	(B),Rear axle and wheel splash aprons - two pieces behind rear wheels and two behind center wheels.
205-005	TIRES	(B),Tires - 305/70R/22.5, customer supplied Michelin X InCity Z (65 mph).
205-005a	TIRE BRANDING	(A),Tire branding - required as per spec.
205-010b	WHEELS	(A),Wheels - Alcoa 22.5" x 8.25" aluminum. Polished Durabright finish both sides.
209-005	POWER STEERING PUMP	(C),Power steering pump - Parker Hannifin electric, driving LUK hydraulic pump.
209-005a	POWER STEERING HOSES	(C),Power steering hoses - NFIL (Manuli) Equator 2 and GH100 hose at steering box.
209-005b	POWER STEERING DIAGNOSTIC FTGS	(A),Power steering diagnostic fittings - at steering box.
209-008	POWER STEERING RESERVOIR	(S),Power steering reservoir - required.
209-008d	POWER STEERING DRAIN PLUG	(B),Power steering drain plug - magnetic plug.
209-010	POWER STEERING UNIT	(S),Steering box - Sheppard M110, power assisted, frame mounted.
219-005a	ENGINE AIR COMPRESSOR	(C),Air compressor - Powerex, direct coupled scroll compressor.

Option#	Description	Value Description (blank means unset)
219-005d	ALTERNATOR	(C),Alternator - Vossloh Kiepe, static converter.
219-005h	ROAD SPEED	(C),Road speed - top road speed is governed. Set at 40 MPH.
219-045	ENGINE SWITCH BOX,BASIC	(C),Engine switch box - minimal sized enclosure with propulsion system on/off switch, engine compartment light switch, diagnostic plug and power plug. Located at streetside of center rear in engine compartment.
219-090	P-CLIPS,ENGINE COMPT & HVAC	(B),Engine compartment and HVAC system p-clips - UMPCO 775 SST with high temperature boxed silicon cushion provided to secure air and fluid lines to structure.
220-005	TRACTION MOTOR MFG./MODEL	(C),Traction Motor - Skoda
221-005	ENERGY STORAGE SYSTEM	(C),Energy Storage System - Vossloh Kiepe/Paragon Lithium Phosphate (LiFePO4) batteries, located in engine compartment
222-005	POLES	(C),2 X Kiepe conductive yellow poles with insulated hooks and guide ropes
231-010a	ENGINE COMPARTMENT & HVAC HOSES	(S),Engine compartment and HVAC hoses - a combination NFIL (Manuli) Equator 1, Equator 2, Nozone and GH100 hose for fluid and air system hoses.
231-070	HYDRAULIC/POWER STEERING SYSTEM FLUID	(B),Hydraulic / power steering system fluid - Dexron III, mineral based.
246-001	AIR COMPRESSOR DISCHARGE LINE	(S),Air compressor discharge line - Teflon 2807 SST braided hose.
246-005	AIR TANKS	(C),Air tanks - three dual compartment ceiling-mounted tanks combining wet and rear brake tanks, front and rear accessory and kneeling tanks, and three single tanks for front brake, center brake and center kneeling tanks.
246-005b	AIR TANK DRAIN VALVES	(B),Air tank drain valves - manual.
246-015	KNEELING	(S),Kneeling - full front kneeling with rapid recovery.
246-015b	LEVELING VALVES	(S),Leveling valves - Barksdale.
246-020	DOOR INTERLOCK	(B),Door interlock - applied to entrance and exit doors. Foot on brake to release interlock, applied via multiplex system programming.
246-040	DRIVER'S PARK BRAKE ALARM	(A),Driver's park brake alarm - a switch in the driver's seat cushion triggers alarm to alert the driver that the park brake is not set. A light at the instrument panel is also activated.
246-040a	PARK BRAKE PRESSURE SETTING	(S),Park brake pressure setting - park brake light is activated at 60 psi.
246-060	AIR DRYER	(C),Air dryer - Graham White, "SludgeBreaker", QBA15NX5, w/ 24V heater, 12/24V purge control, dryer boost protection, high performance air dryer. With Muni specific SST Hose.
246-060a	AIR DRYER LOCATION	(S),Air dryer location - behind the rear streetside wheelhouse, on the bulkhead.
246-060d	AIR DRYER VOLTAGE	(A),Air dryer voltage - 24 volt.
246-065	PARK BRAKE ACTUATION	(B),Park brake actuation - Pull To Apply.
246-065a	PARK/EMERG BRAKE LOCATION	(S),Park brake control location - on side console panel.
246-105a	REAR AIR CHARGE FITTING LOCATION	(C),Rear air charge fitting location - routed to streetside of engine compartment, accessible via the engine door.
246-105b	REAR AIR CHARGE CONNECTOR TYPE	(B),Rear air charge connector type - male 1/4" NPT fitting.
246-120	FRONT TOW CONNECTOR	(B),Front tow connector fitting - 1/4" male NPT fitting with tag.
246-120a	FRONT AIR CONNECTOR ARRANGEMENT	(C),Front air connector arrangement - located on front mask, curbside below headlight. Fittings inside box with access door and labels to identify lines.
246-125	FRONT AIR CHARGE CONNECTOR	(B),Front air charge connector - 1/4" male NPT fitting with tag.



Option#	Description	Value Description (blank means unset)
246-130	FLEXIBLE AIR LINES	(S),Flexible air lines - Synflex colour coded. Green: rear service brakes and supplies. Red: front service brakes. Brown: parking brake. Black: accessories and brake hose. Yellow: compressor and governor. Blue: suspension.
246-225	ABS	(S),ABS braking system - Wabco.
246-230	TRACTION CONTROL	(B),Automatic traction control - Wabco system, to reduce drive wheel overspin.
246-NEW	NEW OPTION,246 GROUP	(C),Over raise feature-provided to raise coach past normal ride height to allow coaches to clear obstacles/ferry bridgeplates.
260-005b	FOUR BATTERIES,TYPE / MFR	(A),Batteries - four Odyssey group 31 maintenance free batteries. 1150 CCA. Top posts: 3/8" positive, 3/8" negative.
260-005d	BATTERY CABLES	(S),Battery cables - red heat shrink on 24 volt positive cable end and light blue heat shrink on 12 volt positive cable end.
260-010	BATTERY TRAY	(B),Battery tray - extended slide out battery acid resistant polyethylene enclosure with SST sub frame, SST bearings and rubber isolation mounts. Located aft of the curbside rear wheelhouse. Note: battery access door opens to the side.
260-025	POSITIVE BATTERY DISCONNECT SW	(B),Positive battery disconnect switch - required with quick access through flip-open door.
260-030	BATTERY VOLTAGE EQUALIZER	(A),Battery voltage equalizer - Vanner 100 amp.
260-035	JUMP START MANUFACTURER	(C),Jumpstart - Anderson model 6322 G1 connector.
260-035a	JUMP START LOCATION	(C),Jump start location - One near the battery disconnect switch at the fusebox, accessible via the flip-open door. Second plug at RH engine compartment strut facing rearward accessible via the engine door.
260-820	ROOF FAIRING / SKIRTS ENCLOSURE	(C),Roof fairing / skirt enclosure - fairing with full length skirts for XT's.
260-NEW	FUSEBOX,LAYOUT/BATT.CONN.DECALS	(C),Fuse box layout and battery connection decals - required.
269-002	P.A. AMPLIFIER MFR / TYPE	(A),P.A. amplifier manufacturer / type - included with AVA or AVL system.
269-005	INTERIOR SPEAKER MFR	(B),Interior speaker manufacturer - TCB.
269-005bb	60' INT SPEAKER QUANTITY	(B),Primary interior speakers, quantity - eight: six to light panels, two above rear bench.
269-010	EXTERIOR SPEAKERS,LOCATION	(B),Exterior speaker, location - at basic location above entrance. Includes baffled cover.
269-010a	EXTERIOR SPEAKER MFR	(B),Exterior speaker manufacturer - Shekonic.
273-005	HEADLIGHTS	(S),Headlights - NFIL Xcelsior LED low beam and halogen high beam headlights.
273-005a	DAY RUN HEADLIGHTS	(B),Day run headlights - required.
273-005b	FRONT TURN SIGNALS	(S),Front turn signals - NFIL amber LED. Integrated with headlight assembly.
273-010	TAIL LIGHTS QTY PER SIDE	(B),Tail lights quantity per side - four.
273-010ab	FOUR TAIL LIGHT ARRANGEMENT	(B),Four tail light arrangement (top to bottom) - amber, red, red, white.
273-010b	TAIL LIGHTS MFR	(B),Red / amber tail light manufacturer - 4" Dialight LED.
273-010d	WHITE BACK-UP LIGHT MFR	(S),White back-up light manufacturer - 4" Dialight LED.
273-010e	STOP LIGHTS ON W/RTRDR/REGEN BRK	(C),Stop light activation by transmission retarder / regenerative braking - Not required.

Option#	Description	Value Description (blank means unset)
273-010f	STOP LIGHTS ON WITH PARK BRAKE OR INTERLOCK	(S),Stop light activation - when park brake or interlock are engaged.
273-015	CENTER STOP / DECELERATION LIGHTS	(A),Center stop lights (red) - two Dialight 18" X 1" LED above the engine door.
273-020a	SIDE TURN SIGNALS,TYPE / QTY PER SIDE	(B),Side turn signals, type and quantity per side - 3 amber Dialight LED with guards. Lamps are at fore of all wheelhouses except curbside front which is aft. For 60' coaches.
273-025	KNEELING/RAMP LIGHT AT ENTRANCE	(S),Kneeling / ramp deployment warning light at entrance - 2.5" Dialight LED.
273-025b	SIDE TURN SIGNAL FUNCTIONALITY	(C),Side turn signal functionality - Sonalert/beeper at curbside exterior center and rear exit door areas to sound when turn signal switches depressed. Override switches to be located in SDS enclosure/compartment.
273-035	MARKER / CLEARANCE LIGHTS	(S),Marker and clearance lights - Dialight LED all around.
273-040	REFLECTORS	(S),Reflectors - self-adhesive decals installed at NFIL basic positions.
273-045	REAR LICENCE PLATE LIGHT	(B),Rear licence plate light - LED.
273-050a	TIMED SHUT-OFF,ENTR AREA LIGHTS	(B),Timed shut-off of entrance area lights (interior and/or exterior) - the program is set to shut the lights off when the door closes.
273-055a	TIMED SHUT-OFF,EXIT AREA LIGHTS	(S),Timed shut-off of exit area lights (interior and/or exterior) - the program is set to shut the lights off five seconds after the door closes.
273-112	CURBSIDE CORNERING LIGHT	(C),Curbside cornering lights - two, one curbside lamp located behind each exit door.
277-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 277 group equipment.
277-005	INTERIOR PASSENGER LIGHTING	(B),Interior passenger lighting - TCB LED, 24 VDC.
277-005f	INTERIOR LED LIGHT FUNCTIONALITY	(B),Interior LED light functionality-first bank of light on each side turn on when entrance door is opened and off when door is closed.
277-010a	TINTED LED PASSENGER LIGHT COVERS	(B),Tinted LED passenger light covers - white for all lights.
277-015	FAREBOX LIGHT	(B),Farebox light - one swivel light with a replaceable LED bulb.
277-020	DRIVER'S OVERHEAD LIGHT	(B),Driver's light - one sealed 2.5" white high output LED light.
277-030	ENGINE COMPARTMENT LIGHTS	(B),Engine compartment lights - four 1.38" LED lights.
277-035	REAR DECK STEP LIGHT	(S),Rear deck step light - LED.
277-040	INTERIOR DOOR HEADER LIGHTS	(B),Interior door header lights - one LED strip light (approx 18" long) provided above exit (if applicable) and entrance doors. With anti-glare shield. For Smartrend.
277-070a	REAR PLC AND FUSEBOX SERVICE LIGHTS	(S),Rear PLC compartment and fusebox lights - provided, LED.
277-080	ARTIC JOINT AREA LIGHTS	(B),Articulated joint area lights - TCB LED lights, two aft facing.
280-001a	PASSENGER SIGNAL CHIMES, FOR 60'	(B),Passenger signal chimes - for 60' coach with two exits. Two basic electronic chimes, one above driver and one at rear exit. Chimes have a single tone which sounds once for regular activation, twice for wheelchair positions.
280-002	PASSENGER SIGNAL PULLCORDS	(B),Passenger pullcords - yellow cords are required.
280-002a	PASSENGER PULLCORD HARDWARE	(B),Passenger pullcord hardware - Phillips.

Option#	Description	Value Description (blank means unset)
280-003	HORIZONTAL PASSENGER SIGNAL PULLCORDS	(B),Horizontal passenger signal pullcords - set at NFIL designated basic height.
280-005a	FRT UNIT VERT PULLCORDS, FOR 60'	(C),Front unit vertical pullcords - Six, three at first, second, and third streetside pillars and three at first, third, and fourth curbside pillars forward of the joint.
280-005b	RR UNIT LWR DECK VERT PULLCORDS, FOR 60'	(B),Rear unit vertical pullcords - two: at first street and curbside pillars forward of the face of the upper deck.
280-005e	SECUREMENT OF VERTICAL PULLCORDS	(B),Securement of vertical pullcords to horizontals - looped or clamped to the horizontal depending on the location.
280-010	FRONT STOP REQUEST SIGN	(C),Front stop request sign type / position - Smartrend LED installed in the destination sign door.
280-010a	FRONT STOP REQUEST SIGN TEXT	(B),Front stop request sign text - Stop Requested.
280-010b	FRONT STOP REQUEST SIGN LETTERING	(B),Front stop request sign lettering - upper case.
280-011f	60' CENTER EXIT STOP REQUEST SIGN	(A),60' center exit stop request sign - two sided LED, ceiling mounted, near exit area.
280-011g	60'CTR EXIT STOP REQUEST SIGN TEXT	(B),60' center exit stop request sign text - Stop Requested.
280-012	STOP REQUEST SIGN COLOURS	(B),Stop request sign colours - white letters on a red background.
280-015	PASS SIGNAL AT WHEELCHAIR POSITIONS	(C),Passenger signals at wheelchair positions - Muni specific push button mounted to flip-up seat.
280-025	PUSH BUTTON SIGNAL AT EXIT	(C),Push button signal at exit - LFR style switches mounted facing aisle on stanchions fore and aft of each exit.
280-025a	PUSH BUTTONS,VERT & SEAT STANCHI	(C),Push button passenger signals on vertical seat stanchions - LFR style buttons at specified vertical stanchions.
284-001	ELECTRONIC CONTROL SYSTEM	(S),Electronic control system - Vansco.
284-001a	SYSTEM VOLTAGE	(S),System voltage - 24 VDC primary, 12 VDC secondary.
284-001b	SWITCHES	(S),Switches - water resistant.
284-001d	SPARE INPUT/OUTPUT PORTS	(S),Spare I/O (Input/Output) ports for multiplex system modules - minimum 10% input and 10% output.
284-005g	HAZARD WARNING LIGHTS	(S),Hazard warning lights - front, side and rear lights flash for hazard warning.
284-005h	SPECIAL HAZARD LIGHTS ACTIVATION	(A),Custom activation of hazard warning lights - when doors in open position.
286-001	INSTRUMENT PANEL	(S),Instrument panel - acrylic material with luminescent lighting, with Vansco Instrument Panel Cluster module.
286-001a	SHIFT SELECTOR LOCATION	(S),Shift selector - located on instrument panel.
286-001b	EXTERIOR LAMP TEST	(S),Exterior lamp test - simultaneously depress both turn signals.
286-010a	SPEEDOMETER	(C),Speedometer - part of Vansco instrument panel cluster. Set to display miles. With odometer (the display can be toggled to show Trip1, Trip 2, ESS hours).
286-010b	AUDIBLE SOUND,TURN SIGNALS/HAZARDS	(B),Turn signal and hazard warning audible sound - using click sound for turn signal and for hazard warning.
286-010e	BRK/ACCEL INTERLOCK DEACTIV WRNG	(A),Brake accelerator interlock deactivated warning - provided by audible alarm and separate red warning lamp on instrument panel. (Must have in California.)
286-055	DOOR MASTER SWITCH LOCATION	(B),Door master switch location - in sawtooth panel above driver.

Option#	Description	Value Description (blank means unset)
286-065	SILENT ALARM	(C),Silent alarm - Switch per specification required.
286-065a	SILENT ALARM SW LOCATION	(A),Silent alarm switch location - with side console switch assembly.
286-070	DIAGNOSTICS PLUG LOCATIONS	(B),Diagnostic plug locations - under the front dash (left side of the steering column), at forward face of the SDS barrier (above driver) and at the engine switch box.
286-070a	ACCESSORY POWER PLUG-IN LOCATION	(C),Accessory power plug - at forward face of the SDS barrier (above driver), and at engine switch box.
289-001	SECUREMENT OF HARNESSSES	(S),Securement of harnessses - hellerman tyton clamps, with Panduit releasable cable ties.
296-001	WIRING DECAL,REAR PLC AND FUSEBOX	(S),Wiring decal, rear PLC and fusebox - provided, laminated.
296-001a	WIRING DECAL,SIDE CONSOLE	(B),Wiring decal, side console - laminated, shipped loose.
304-001a	EXTERIOR PAINT TYPE	(S),Exterior paint type - Axalta Imron Elite high solids polyurethane.
304-001aa	EXTERIOR PAINT CLEARCOAT	(A),Exterior paint clearcoat - required.
304-001d	PAINTED JACK PADS	(A),Painted jack pads - Safety Yellow.
304-010	CORROSION PROTECTION	(A),Corrosion protection - grit blasted frame, moisture cure zinc-rich primer (applied for 18 year warranty protection), anti-chip undercoating, corrosion preventive coating sprayed inside frame tubes up to roof line.
304-015	EXTERIOR LOGOS,NFIL	(B),Exterior logos, NFIL - required.
304-015b	EXT DECALS,CUSTOMER SPECIFIC	(C),Exterior decals, customer-specific - as per spec/MRL.
304-020	NFIL SAFETY AND MAINTENANCE DECALS	(B),New Flyer safety and maintenance related decal package - English.
304-020a	INTERIOR DECALS, CUSTOMER SPECIFIC	(A),Customer specific interior decals - required.
304-020b	INT PASSENGER DECALS,LANGUAGE	(C),Interior passenger related decals, language - Combination of English and English/Spanish/Chinese.
304-020d	INTERIOR FLEET NUMBER DECALS	(B),Interior fleet number decals - required.
304-025	KNEELING / RAMP DECALS	(C),Kneeling / ramp decals - NFIL basic ramp & kneeling decal (red on white) and an arrow decal (red and black) provided near the kneeling / ramp deployment lights. Laminated Decals required per property request.
304-030	AIR TANK DECALS	(C),Air tank decals - NFIL basic. Laminated Decals required per property request.
304-035	EXT FLEET NUMBERS,NON-ROOF	(B),Exterior fleet numbers, non-roof - required (reflective or non-reflective as per spec).
304-035a	EXTERIOR FLEET NUMBERS,ROOF	(A),Exterior fleet numbers, roof - required (reflective or non-reflective as per spec).
304-700	HYBRID SAFETY DECALS	(C),Trolley safety decals - required. Laminated Decals required per property request.
304-NEW	FLUID REFILL TAGS	(C),Fluid Capacity Refill Tags - metal tags for differential oil and gearbox oil.
306-005	FIRE EXTINGUISHERS	(B),Fire extinguisher - 5 lb ABC class. With gauge, hose and mounting bracket. UL compliant for US customers.
306-005a	FIRE EXTINGUISHER LOCATION	(A),Fire extinguisher location - inside the curbside equipment box.
306-010	SAFETY TRIANGLES	(B),Safety triangles - triangle reflector.
306-010a	SAFETY TRIANGLE LOCATION	(A),Safety triangle location - in equipment box on curbside luggage rack.

Option#	Description	Value Description (blank means unset)
350-001	DRIVER'S PEDALS, POSITION / TYPE	(A),Driver's pedals positions / type - adjustable pedal assembly.
350-002b	ADJUSTABLE PEDAL BRAKE/THROTTLE ANGLE	(B),Brake / Throttle pedal angle - brake set at 45 degrees, throttle at 45 degrees from pedal to floor.
350-005	BRAKE VALVES	(B),Brake valve - E6.
350-005e	DRVR'S CONTROL PLATE SURFACE TREATMENT	(A),Driver's control plate surface treatment - Full metal jacket applied to area near the pedals.
350-015	TURN SIGNAL SWITCHES	(B),Turn signal switches - basic switches, floor mounted.
350-015a	DIMMER SWITCH	(B),Dimmer switch - basic foot switch.
350-015b	P.A. SYSTEM SWITCH	(A),P.A. system switch - foot switch.
350-015d	HAZARD WARNING LIGHT SW LOCATION	(B),Hazard warning light switch location - on side console.
350-030	STEERING COLUMN	(B),Steering column - Douglas Autotech with tilt and telescopic features.
350-030a	STEERING WHEEL	(B),Steering wheel - 2 spoke, 18" diameter hard padded (molded urethane).
350-035	DUAL HORN	(S),Dual horn - provided with splash shield.
400-001a	JACKING / LIFTING PADS	(S),Jacking / lifting pads - 4" diameter pads at front and rear chassis.
405-001	ARTICULATED JOINT	(B),Articulated joint - ATG, grey bellows
420-005	DEFROSTER ACCESS DOOR	(S),Defroster access door - top hinged with two gas struts, quarter turn 5/16" square key quad latches.
420-010	EXTERIOR SIDE PANELS	(S),Exterior lower side panels - fiberglass.
420-035a	CURB & STREET ENG,S/CONS DOORS,STRUTS	(B),Struts for curb and street side engine compartment, battery compartment and side console access doors - supported by gas struts.
420-035d	CURB SIDE ENGINE COMP'T DOOR	(C),Curb side engine compartment door - solid door which includes battery disconnect switch access door (using a gas strut)
420-035e	BATTERY COMPARTMENT DOOR	(B),Battery compartment door - solid door located aft of the curb side rear wheel, separate from the engine compartment.
420-035f	STREET SIDE ENGINE COMPT DOOR	(C),Streetside engine access door - solid door.
420-045	SIDE CONSOLE DOOR LATCHES	(S),Side console door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050	ENGINE DOOR	(B),Engine door - solid door with built-in handle.
420-050a	ENGINE DOOR STRUTS	(B),Engine door struts - two, the streetside strut has a locking mechanism.
420-050b	ENGINE DOOR LATCHES	(B),Engine door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050e	REAR LICENSE PLATE RETENTION	(B),Rear license plate retention - centered with bottom retainer and two upper inserts.
420-060	RAIN GUTTER	(S),Rain gutter - .44" cross section bonded.
420-065	ROOF HATCHES / VENTS	(B),Roof hatches / vents - two basic hatches at front and rear, 24" X 24".
420-065a	ROOF HATCH INSTRUCTION LANGUAGE	(B),Roof hatch instruction language - English.
420-070	WIPERS	(B),Wipers - wet arm Sprague 24 volt electric. Intermittent.
420-075	WINDSHIELD WASHER BOTTLE	(B),Washer bottle - 5 US gallon with electric powered pump.

Option#	Description	Value Description (blank means unset)
420-075a	WINDSHIELD WASHER FILL LOCATION	(S),Windshield washer fill location - accessed via a flip-out door built into the exterior side console access door.
420-080	LOWER DRIVER'S VENT	(B),Lower driver's vent - provided.
420-120	FENDERS	(B),Fenders - molded polyurethane.
420-121	S1 WHEEL GUARDS	(C),S1 wheel guard - required, forward of center and rear wheels - curbside.
420-125	EXTERIOR UPPER REAR	(B),Exterior upper rear - louvered style fiberglass door for RR HVAC.
420-125a	EXT UPPER REAR DOOR STRUTS	(B),Exterior upper rear door, struts - two, non-locking.
420-125b	EXT UPPER REAR DOOR,LATCHES	(S),Exterior upper rear door, latches - quarter turn chrome plate 5/16" square key latches.
420-135	FRONT LICENSE PLATE LOCATION	(A),Front license plate location - on street side of defroster door.
420-135a	FRONT LICENSE PLATE RETENTION	(B),Front license plate retention - four inserts.
421-010	INSULATION,SIDEWALL AND ROOF	(S),Insulation, sidewall and roof - polyisocyanurate foam. meets Docket 90 spec.
421-030	ENGINE COMPARTMENT INSULATION	(S),Engine compartment insulation - noise reduction acoustical foam, retained by perforated aluminum panels.
422-001	DOCKET 90 SPEC	(A),Docket 90 spec - review for 422 group components.
422-005	CEILING PNLS AFT OF FRT W/HS INCL RR PLC	(C),Ceiling panels aft of the front wheelhouses (including rear PLC) - Limo Grey plastic, SST trim.
422-005a	CEILING / HVAC COVER PANELS ABOVE FRT W/HS	(C),Ceiling / HVAC cover panels above front wheelhouses - Limo Grey fiberglass.
422-006	ENTRANCE / DRIVER'S AREA PANELS COLOUR	(B),Entrance/driver's area panels colour - black. Includes dash, dest sign c/out, ent. mech. box, driver's o/head panels. and if used, ent. floor heat duct, frt. RH harness cover is black powder coated alum.
422-006b	DRIVER'S CEILING PANEL MATERIAL	(B),Driver's ceiling panel material - melamine.
422-009	INTERIOR PIER PANEL MATERIAL	(B),Interior pier panel material - thermoplastic.
422-010	PIER PANEL COLOUR	(A),Pier panel colour - Limousine Grey, thermoplastic.
422-015b	INTERIOR SIDEWALL MELAMINE	(B),Interior sidewall melamine colour - Charcoal Grey Gloss.
422-025	INTERIOR ENGINE COMPT ACCESS PANEL	(S),Interior engine compartment access panel - there is a single hinged panel under the rear seat.
422-035	INTERIOR UPR REAR PANEL	(B),Interior upper rear panel - bulkhead panel covered with carpet / fabric material. With return air grille for RR mount HVAC system.
422-035a	CARPET / FABRIC,UPR REAR INT PANEL	(B),Upper rear interior carpeted / fabric panel - Charcoal Grey carpet with 1/2" plywood backing.
422-035e	C/S,S/S RR BULKHEAD ACCESS PANELS	(B),Curb and street side rear bulkhead access panels - carpeted DB plywood.
422-050	HRNS/AIR LINE COVERS AT UPPER DECK	(B),Harness / air line covers at upper deck - painted flat black.
422-060	FRT DEST SIGN DOOR LATCHES	(B),Front destination sign door latches - short wing quad latches.
422-061	DRIVER'S OVERHEAD PANEL	(S),Driver's overhead panel - with locker.
422-061a	DRIVER'S LOCKER LATCH	(C),Driver's locker latch - short wing quad latch with pull tab.

Option#	Description	Value Description (blank means unset)
422-065	DRIVER'S COAT HOOK AND STRAP	(B),Driver's coat hook and strap - located on the forward face of the harness cover behind the driver.
422-070	SECURE DIAGNOSTIC STATION	(C),Secure diagnostic station - large enclosure above street side front wheelhouse. Incorporates driver's barrier. With four Take One pockets. With additional electrical compartment/access at rear side of enclosure.
422-070a	SDS ENCLOSURE COLOUR	(B),SDS enclosure colour - Flat Black with Cashmere Black melamine panel.
422-070b	SDS ENCLOSURE DOOR LATCHES	(C),SDS enclosure door latches - two 5/16" square key quad latch and paddle latch with CH751 key.
422-085	FRONT SUNVISOR / ROLLERBLINDS	(A),Front sunvisor - black padded.
422-085a	SIDE SUNVISOR / ROLLERBLIND	(C),Side sunvisor - black padded visor for high mount mirror.
422-090	SQUARE KEY T-HANDLE	(B),Square key t-handle - located at lower left of driver.
422-105	ENTRANCE MECHANISM BOX DOOR LATCH	(S),Entrance mechanism box door latches - two short wing quad latches.
422-160	GRAB HANDLE NEAR FRONT ROOF HATCH	(B),Grab handle near front roof hatch - chrome handle.
422-165	FLOOR HEAT DUCT MATERIAL	(B),Floor heat duct material - leathergrain textured SST.
422-210	ARTICULATED JOINT CLOSEOUTS	(C),Articulated joint closeouts - Limo Grey.
422-NEW	NEW OPTION,422 GROUP	(C),Rear PLC and bulkhead access doors with tamperproof latches.
423-010	AD FRAMES,SDS ENCLOSURE	(C),Interior ad frame - One 17" X 11" clear holder. Located on rear face of SDS Enclosure.
440-005	DUST SHIELDS,ENGINE COMPARTMENT	(C),Engine compartment dust shields -4 pieces under the engine compartment area.
450-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 450 group equipment.
450-010	FLOORING	(B),Flooring - lower deck uses pressure treated NT ACQ plywood. Upper deck uses composite for step and floor to the rear wheelhouses and NT DB ACQ plywood to the rear.
450-013	DRIVESHAFT/DRIVETRAIN ACCESS PNL	(C),Driveshaft access panels - two panels set in the floor to access both ends of the driveshaft.
450-025d	RCA FLOOR COVERING	(C),RCA rubber flooring - TR-466, Charcoal with Medium Gray and Ivory Flecks (Granite-Flor), 3/16" ribbed throughout coach except at center and rear wheelhouses, fuel filler riser, artic joint turntable, and curbside and streetside of the center aisle forward of the artic joint.
450-025da	RCA FLOORING AT WHEELCHAIR AREAS	(A),RCA flooring at wheelchair areas - 1/8" smooth.
450-025e	STEP TO UPPER DECK	(B),Step to upper deck - yellow anti-slip coating is applied to the edges and vertical faces of the step.
450-025f	STANDEE LINE	(B),Standee line - yellow.
450-025g	ENTRANCE NOSING	(B),Entrance nosing - nosing is 2" wide yellow anti-skid applied to the ramp.
450-025h	EXIT NOSING	(C),Exit nosing - 5" yellow nosing and 2.0" yellow standee line in vestibule area at edge of exit door opening/sweep. RCA flooring.
450-025j	REAR SEAT RISER COVERING MATERIAL	(B),Rear seat riser covering material - same material and colour as used for the flooring.
450-025k	GRIT FLOORING AT ARTIC JOINT	(B),Grit flooring at articulated joint - black non-aggregate anti-slip coating.
450-025p	CTR AXLE HUMP SAFETY LINES	(A),Safety line at centre axle hump - two yellow flooring safety lines are provided fore and aft of the hump at the centre axle.

Option#	Description	Value Description (blank means unset)
450-030	DRIVER'S PLATFORM FLOORING	(A),Driver's platform flooring - RCA transverse ribbed.
450-030a	DRIVER'S PLATFORM TRIM	(B),Driver's platform trim - SST.
450-045	OUTER WHEELHOUSES	(B),Outer wheelhouses - SST front and rear.
450-055	INTERIOR FRONT W/HOUSE (LUGG RACK) COLOURS	(B),Interior front wheelhouse (luggage rack) colours - Matte black, painted stipple. An LED aisle light is provided on the streetside. Also, SST scuff guards are provided.
460-005	WINDSHIELDS	(B),Windshield - 72% light transmittance green laminated. With blue shade band for street and curb sides.
460-005a	WINDSHIELD PROTECTIVE FILM	(B),Windshield protective film - required for coach delivery beyond a 500 mile radius of Final Assembly.
460-010	PASS / DRVR'S WINDOWS MANUFACTURER	(B),Passenger and driver's windows, manufacturer - Arow Global (Stormtite) non-flush mounted.
460-010b	NON-FLUSH PASSENGER WINDOWs	(C),Non-flush passenger windows - bottom is fixed, top slider.
460-010e	NON-FLUSH WINDOW GLAZING	(C),Non-flush window glazing - grey, 55% light transmittance, laminated.
460-010h	WINDOW FRAME COLOUR	(C),Window frame colour - all window frames are clear anodized.
460-010j	WINDOW EMERGENCY EGRESS	(S),Emergency egress windows - minimum quantity based on FMVSS requirements or the customer spec, whichever is the greater of the two.
460-010k	SIDE DESTINATION SIGN WINDOWS	(C),Destination sign window - curb and street sides. Fixed clear top and fixed bottom. Bottom matches passenger window glazing. (review 470 for side sign details).
460-010n	WINDOW GLAZING REPLACEMENT	(A),Window glazing replacement for servicing - rapid replacement.
460-010p	PASS WINDOW LINERS AND COATINGS	(C),Window liners and coatings - .12" acrylic liners on all windows.
460-010s	PASS WINDOW THICKNESS	(B),Passenger window thickness - 6 mm.
460-011a	DRIVER'S WINDOW,NON-FLUSH	(B),Driver's window, non-flush mounted - with fore and aft sliding sashes. The forward sash has exterior and interior handles. Non-egress.
460-011b	AFT SASH,NON-FLUSH DRIVER'S WINDOW	(B),Aft sash, non-flush driver's window - with interior handle and latch.
460-011d	DRIVER'S WINDOW GLAZING	(B),Driver's window glazing - laminated with minimum 70% light transmittance.
460-011e	DRIVER'S WINDOW SHADE BAND	(B),Driver's window shade band - not required.
470-001	DESTINATION SIGNS MFR	(A),Destination sign mfr - Twin Vision Smart Series, LED display system.
470-001a	DEST SIGN CONTROL UNIT LOCATION	(B),Destination sign control unit location - under driver's overhead panel.
470-005a	TWIN VISION FRT.DEST.SIGNS	(A),Twin Vision front destination sign - LED Chroma I, 16 X 156, 4 amber matrix boards and 1 colour board with a single LED. Will be programmed with white test pattern, customer to reprogram sign in color after acceptance.
470-010	FRONT DESTINATION SIGN GLASS	(A),Front destination sign glass - heated and laminated.
470-025	CURB SIDE DESTINATION SIGN LOCATION	(A),Curbside destination sign location - at the second window, aft of the entrance door.
470-025b	TWIN VISION CURBSIDE DEST.SIGNS	(A),Twin Vision curbside destination sign - LED, amber, 8 x 96 (37.4" wide display).



Option#	Description	Value Description (blank means unset)
470-026	STREET SIDE DEST SIGN	(C),Street side dest/route sign - required at #2 streetside window.
470-030	FRONT ROUTE SIGN	(C),Front route sign - Twin Vision LED, 14 X 40, addressable.
470-035	REAR ROUTE SIGN LOCATION	(C),Rear route sign location - at the upper curb side of HVAC Door.
470-035b	TWIN VISION REAR ROUTE SIGNS	(A),Twin Vision rear route sign - LED, amber 16 X 48.
470-060b	CLEVER DEVICES (DIGITAL RECORDER) AVA SYSTEM	(A),Clever Devices (Digital Recorder) AVA system - full system installed by NFIL, including antenna(s), cabling, ground plates and all required system components as per customer spec.
470-060f	ACS (ORBITAL/TMS) AVA SYSTEM	(A),ACS (Orbital / TMS) AVA system - provisions. Includes installation of antenna(s), cabling and ground plates as per customer spec.
470-060k	AVA/AVL LED SIGN & LOCATION	(A),AVA/AVL LED sign and location - required on the HVAC overhead enclosure.
470-061	AUTO VEHICLE MONITORING SYSTEM (AVM)	(A),Automatic Vehicle Monitoring (AVM) system - Fleetwatch required as per spec/MRL.
470-075	NEW FLYER CONNECT-DIAGNOSTIC & MONITORING SYSTEM	(A),New Flyer Connect-Diagnostic & Monitoring - required with driver maneuver awareness system (DMAS).
470-NEW	NEW OPTION,470 GROUP	(C),Nextbus system - Installation of complete system including antenna.
480-005	STREET SIDE MIRROR MANUFACTURER	(B),Street side mirror manufacturer - Hadley.
480-005a	HADLEY STREET SIDE MIRROR	(B),Hadley street side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-005b	STREET SIDE MIRROR POWER OPTIONS	(A),Street side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-005f	STREET SIDE MIRROR ARM	(A),Street side mirror arm - mirror arm springs back to its previously set position after deflection.
480-005g	STREET SIDE MIRROR MOUNT	(A),Street side mirror mount - high mount.
480-006	CURB SIDE MIRROR MANUFACTURER	(B),Curb side mirror manufacturer - Hadley.
480-006a	HADLEY CURB SIDE MIRROR	(B),Hadley curb side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-006b	CURB SIDE MIRROR POWER OPTIONS	(B),Curb side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-006e	CURB SIDE MIRROR ARM	(A),Curb side mirror arm - mirror arm springs back to its previously set position after deflection.
480-010	INTERIOR MIRRORS,MANUFACTURER	(A),Interior mirrors, manufacturer - Hadley.
480-010a	DRIVER'S REAR VIEW MIRROR	(B),Driver's rear view mirror - 8" x 15", black, convex.
480-010d	EXIT DOOR MIRROR	(B),Exit door mirror - convex, 12" diameter.
480-010e	VIEW BEHIND SDS MIRROR	(A),View behind SDS mirror - mounted at the entrance mechanism box in a position to view the area behind the SDS box.
480-010f	OVERHEAD ENTRANCE (STEPWELL) MIRROR	(A),Overhead entrance (stepwell) mirror - ceiling mounted, 7" x 10", convex.
490-001	ENT DOOR DRIVE SYS	(A),Entrance door drive system - Electric
490-005	ENTRANCE DOOR	(C),Entrance door - Vapor slide glide. Electrical operated motor. Isolated for Trolley coach application.

Option#	Description	Value Description (blank means unset)
490-005a	ENTR DOOR LIMIT SWITCH SET-UP	(A),Entrance door limit switch - solid state proximity switch.
490-005d	ENTRANCE DOOR MAGNETIC DUMP VALVE	(A),Entrance door magnetic dump valve - not required.
490-005f	ENTR/EXIT FRANG COVER LANGUAGE	(C),Entrance / exit door frangible cover instructions (for emergency release), language - English, with Muni specific perforation pattern.
490-006	ENTRANCE DOOR HANDLES	(B),Entrance door handles - yellow powder coated.
490-015	ENTRANCE DOOR CONTROLLER	(B),Entrance door controller - basic with 5 position settings.
490-015a	DOOR CONTROLLER HANDLE	(B),Entrance door control handle - non-removable.
490-030	ENTRANCE DOOR GLAZING	(S),Entrance door glass - full length single piece, 72% green.
490-055	ENTRANCE DOOR EXTERIOR SWITCH	(A),Entrance door exterior switch - installed within box at curbside area of front mask. Momentary switch to lock / unlock the entrance door from the exterior.
491-001	EXIT DOOR DRIVE SYS	(A),Exit door drive system - Electric
491-005	EXIT DOOR TYPE	(C),Exit door - wide Ameriview Vapor Slide Glide, 45.2" between panels. 60' coach with two exits, one at front and one at rear unit. Electrical operated motor. Isolated for Trolley coach application.
491-005a	SLIDE GLIDE EXIT LIMIT SWITCH	(A),Exit door limit switch - solid state proximity switch.
491-005b	EXIT DOOR CONTROL	(A),Exit door control - Vapor Class Acoustic Sensing System. Activates door opening and detects obstruction on closing.
491-005ba	CLASS SYSTEM DOOR DECAL	(C),Class system door decal - English, Spanish, and Chinese, text and characters as per customer requirement.
491-005d	EXIT DOOR SENSITIVE EDGE	(B),Exit door sensitive edge - sensor on the vertical edge provided with all exit doors.
491-005g	EXIT FRANGIBLE COVER SECUREMENT	(C),Exit frangible cover securement - Torx screw.
491-005j	EXIT BASEPLATE / ELEC PNL ACCESS	(B),Exit baseplate access- at each exit door, Tcb set-up, through removable ad frame.
491-006	EXIT DOOR ASSIST HANDLES	(B),Exit door assists - yellow powdercoated.
491-020	EXIT DOOR GREEN LIGHT	(B),Exit door green light - LED green light indicates that the exit door is set to open.
491-035	EXIT DOOR GLASS SIZE	(B),Exit door glass size - full length.
491-035a	EXIT DOOR GLAZING	(B),Exit door glazing - 6 mm.
491-NEW	EXIT DOOR EXTERNAL BUTTONS	(C),Exit door external buttons - Two flush mounted "Elevator Style" external switches mounted on either side of the exit doors to permit passenger loading/entry from exit.
526-001b	60' PASSENGER SEAT QTY	(C),60' passenger seat quantity - 44.
526-005	PASSENGER SEAT MANUFACTURER	(B),Passenger seat manufacturer - American Seating.
526-005b	AMERICAN SEATING SEATS	(A),American Seating passenger seats - Vision stainless seat. Details as per customer spec.
526-005ba	AMERICAN SEATING D90 SPEC	(B),American Seating passenger seats D90 spec - not required.
526-005d	REAR BENCH SEAT	(S),Rear bench seat - 1-3-1 hinged seat.

Option#	Description	Value Description (blank means unset)
526-005e	PASSENGER SEAT MOUNTING	(B),Passenger seat mounting - cantilever.
526-005f	SEAT MOUNTED GRABRAIL	(A),Seat mounted grabrails - stainless steel.
526-005h	FIRST SEAT,CURBSIDE UPPER REAR	(A),First seat at curbside upper rear - aisle facing.
526-005i	PASSENGER SEATING BARRIER	(B),Passenger seating barrier - pedestal mounted barrier.
526-005j	SEAT POSITION,FORWARD OF EXIT	(B),Seat position, forward of exit - forward facing.
526-005k	ARTICULATED JOINT SEATS	(B),Articulated joint seats -not required.
526-005l	SEAT FWD OF ARTIC JOINT AREA	(A),Seat forward of artic joint - two rearward facing on each side.
526-006	DRIVER'S SEAT MANUFACTURER	(A),Driver's seat manufacturer - USSC.
526-006a	USSC DRIVER'S SEAT MODEL	(A),USSC driver's seat model - 9100 ALX. The fore / aft seat travel is 11.8". Has 2 point seat belt. Has air suspension and lumbar.
526-006f	DRIVER'S SEAT MATERIAL	(B),Driver's seat material - all vinyl.
526-006g	DRIVER'S SEAT BELT	(C),Driver's seat belt - orange colored lap belt with retractor on left hand side.
526-006ga	DRIVER'S SEAT BELT ALARM	(A),Driver's seat belt alarm - required to warn driver that seat belt is not connected.
526-006j	DRIVER'S SEAT,DOCKET 90 SPEC	(B),Driver's seat D90 spec - Not required.
526-006k	DRIVER'S SEAT BASE RISER	(A),Driver's seat base (riser) - SST.
526-006m	DRIVER'S SEAT PARK BRAKE ALARM	(A),Driver's seat park brake alarm - switch is required in seat cushion to trigger driver's park brake alarm (ref. option 246-040).
526-006s	DRVR'S SEAT HEADREST	(B),Driver's seat headrest - required.
526-007	WHEELCHAIR POSITIONS,QUANTITY	(B),Wheelchair positions - two. At basic locations, one aft of the curbside and one aft of the streetside front wheelhouses.
526-007a	W/CHAIR POSITIONS,RESTRAINT SYSTEM	(A),Wheelchair restraint system - padded barrier/restraint system for rearward facing w/chr position(s) and restraint system for forward facing w/chr position(s). Mfr, position, mat'l color/type and details as per customer spec.
526-007e	SHOULDER HARNESS,W/CHR RESTRAINT	(C),Shoulder harness for wheelchair restraints - secured to structure (pier panel), one on streetside only (for rear facing wheelchair position).
526-010	STANCHION / GRABRAIL STYLE	(C),Stanchion / grabrail style - curved style vertical stanchions. Using mechanical fittings for vertical and horizontal stanchions.
526-010a	OVERHEAD HORIZONTAL GRABRAILS	(A),Overhead horizontal grabrails - yellow SST.
526-010ab	OVERHEAD HANDSTRAPS,QTY	(C),Overhead grabrail handhold straps, quantity - 36 nylon straps
526-010b	VERT STANCH AT EXITS & RR RISER STEP	(B),Vertical stanchions at exits and rear riser steps - yellow SST.
526-010d	VERT FORE OF S/S FRT W/HOUSE	(C),Vertical stanchion fore of streetside front wheelhouse - black SST (part of drivers door).
526-010da	VERT AFT OF S/S FRT W/HOUSE	(B),Vertical stanchion aft of streetside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).
526-010e	VERT FORE OF C/S FRT W/HOUSE	(A),Vertical stanchion fore of curbside front wheelhouse - black SST.

Option#	Description	Value Description (blank means unset)
526-010ea	VERT AFT OF C/S FRT W/HOUSE	(B),Vertical stanchion aft of curbside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).
526-010f	VERTICAL STANCHIONS AT SEATS	(A),Vertical stanchions at seats - yellow SST.
526-010j	ARTIC JOINT HANDHOLD / GRABRAILS	(C),Articulated joint handholds or straps - Muni specific center hoop mounted grabrails with melamine panels.
526-010jb	ARTIC JOINT GRABRAIL COLOUR	(A),Articulated joint grabrail colour - yellow SST.
526-010k	FRONT CURBSIDE LUGGAGE RACK	(A),Front curbside luggage rack - horizontal yellow tube wraps around aft, aisle and fore sides, SST.
526-010m	FAREBOX GRABRAIL	(A),Farebox grabrail - wrap-around, black SST.
526-015	CURBSIDE MODESTY PANEL,FORE UPR DECK	(B),Curbside modesty panel, fore of upper deck - .375" thick melamine.
526-015a	FORE OF UPR DECK MELAMINE MODESTY PNLS	(B),Fore of upper deck melamine modesty panels - charcoal gloss.
526-015b	C/SIDE FORE UPR DECK MOD PNL, GAP	(S),Gap at bottom of curbside fore of upper deck modesty panels - approximately 2" diagonally.
526-015e	UPPER PANEL,C/SIDE FORE OF UPPER DECK	(A),Upper panel at curbside fore of upper deck - clear polycarbonate.
526-015h	STREETSIDE MODESTY PANEL,FORE OF UPR DECK	(A),Streetside modesty panel,fore of upper deck - .375" thick melamine (colour as per option 526-015a).
526-022	DRIVER'S DRAFT SHIELD	(C),Driver's enclosure - clear AS-2 Lexan and black powdercoated steel bi-fold enclosure.
526-035	FORE OF EXIT(S),BARRIERS / GRABRAILS	(A),Fore of exit(s), barriers and grabrails - upper panel, 0.5" clear polycarbonate, wide width panel.
526-039	CENTER EXIT MODESTY PANEL	(B),Modesty panel aft of the center exit door - basic width (colour as per option 526-015a).
526-039e	UPPER PANEL,AFT OF CENTER EXIT	(B),Upper panel at center exit modesty panel - 0.5" clear polycarbonate, basic width.
526-055	EMERGENCY INSTRUCTIONS	(C),Emergency instructions - decals. English, Spanish, and Chinese.
526-070	LUGG RACK AT CENTER AXLE PLATFORM	(A),Luggage rack at center axle platform - not required.
549-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 549 group equipment (as per spec).
549-001b	60' HVAC SYSTEM	(C),HVAC System - Front RLFE with 460V electric heat and A/C, compressor and 24V fans, Rear TE-15 with 460V electric heat and A/C, compressor and fans.
549-002a	HVAC UNIT MOTOR TYPE	(S),HVAC motor type - brushless motor for primary heating & cooling system.
549-002b	REFRIGERANT	(A),Refrigerant - R-407C freon.
549-002d	HVAC AIR INTAKE	(B),HVAC air intake - recirculated air only.
549-002ea	HVAC RETURN AIR FILTER	(B),HVAC return air filter - polyester filter installed at the return air grille for RLF evaporator coil with a basic filter (polyester) installed at the return air grille of the T15 unit.
549-004	HVAC ELECTRONICS	(B),HVAC electronics - Thermo King Intelligaire 3, valid for A/C or heater units. With limited diagnostic capabilities.
549-004a	HVAC CONTROL PANELS	(B),HVAC control panel - Thermo King, installed at the HVAC unit.

Option#	Description	Value Description (blank means unset)
549-004d	A/C PRESSURE READINGS	(B),A/C pressure readings - A/C system pressure readings can be obtained via the Thermo King Intelligaire 3 control unit.
549-005a	60' FLOOR HEATER SYSTEM	(C),Floor heater system - using two electric Mobile Climate Control units, located across from center exit and forward of rear exit. (note: exact position may be dependant on seating layout.)
549-005b	MCC FLOOR HEATER UNIT	(C),MCC floor heater - Electric with low noise EBM centrifugal brushless motor. The casing is SST with plain finish.
549-025	DEFROSTER	(C),Defroster - MCC Electric. With 3 speed fan and heat setting controls.
549-100	AUXILIARY HEATER	(B),Auxiliary heater - not required.
580-005	WHEELCHAIR RAMP	(C),Wheelchair ramp -LIFT-U LU11 ramp at front door. Trolley Isolated
580-005a	FRONT RAMP CONTROL	(S),Front ramp control - ramp switch at driver's instrument panel.
580-005d	WHEELCHAIR RAMP SURFACE	(C),Wheelchair ramp surfaces - deployed surface covered with anti-skid treatment. Stowed surface covered with RCA Flooring. The leading edge is yellow, the side flanges are painted yellow.
580-NEW	RAMP TOOL	(C),Ramp tool - required for Lift-U ramps, located in curbside equipment box.
600-025	BACK-UP ALARM	(B),Backup alarm - basic alarm located on curbside.
600-065	SDS TRAY	(C),SDS tray quantity - Four trays.
600-075	FAREBOX PEDESTAL	(C),Farebox pedestal - SST, 7.0` high with Muni specific mounting plate.
600-076	FAREBOX	(B),Farebox - not required.
600-076e	FAREBOX GROUND STRAP	(A),Farebox groundstrap - required.
600-077	FARECARD READER	(C),Farecard reader - provisions/harnesses for Muni specific Clipper® system
600-078	TRANSFER CUTTER	(C),Transfer cutters - one Globe model 303 (two notchers). Installed as per customer specific details.
600-100	CURBSIDE FRONT EQUIPMENT BOX	(A),Curbside front equipment box - black, aluminum with paddle latch, no lock.
600-101	DRIVER'S STORAGE BOX BEHIND SEAT	(A),Driver's storage box behind seat - basic box with paddle latch, no key. The box is to include a chamfer to allow for driver's seat clearance.
600-125	TAKE ONE HOLDERS	(A),Take one holders - required. Type(s) and location(s) specified by customer.
600-125e	TAKE ONES,PASSENGER AREA	(A),Take one holders - in the passenger area, installed on various window pillars.
600-152	TRASH CONTAINERS	(A),Trash container - type and location as per customer spec.
600-175	RADIO,COMMUNICATION SYSTEM	(C),Radio , communication system - As per Muni spec/MRL.
600-177	AUTOMATIC PASSENGER COUNTER	(A),Automatic passenger counter system - IRMA matrix
600-178	TRAFFIC SIGNAL CONTROL SYSTEM	(C),Traffic signal control system - required. 3M opticom system as per MRL.
600-225	VIDEO SURVEILLANCE SYSTEM	(A),Video surveillance system - interior cameras, quantity, details and location as per customer spec and installation / approval drawing.
600-225a	VIDEO SURVEILLANCE SYSTEM,MFR	(C),Video surveillance system with WiFi requirements - DTI-Loronix system, equipment as per customer spec.
600-225b	CAMERA COLOUR TYPE	(A),Camera colour type - cameras are a combination of colour and colour with infrared capabilities.
600-268	TURN ANNUNCIATOR SYSTEM	(C),Required. Details as per spec/MRL.

Option#	Description	Value Description (blank means unset)
600-276	FIRE SUPPRESSION	(C),Fire suppression - Amerex Safety Net System. With 25 lb clean agent tank.
600-276b	AMEREX FIRE DETECTION SENSORS	(A),Amerex fire detection sensors - Sensors in ESS Compartment, Battery compartment, at traction motor, and at rooftop propulsion and current collection compartments.
600-300	BICYCLE RACK,MFR/MODEL	(C),Bicycle rack, manufacturer / model - Sportworks, DL2-WP (wide profile), front mounted, electrically isolated for trolley coach application.
600-300a	SPORTWORKS BICYCLE RACK MOUNTING	(A),Sportworks bicycle rack mounting - TSB (ten second bracket) quick release slide-in standoff with incorporated pivot.
600-300b	SPORTWORKS BICYCLE RACK REMOVAL	(A),Sportworks bicycle rack removal - quick release rack.
600-300d	SPORTWORKS BICYCLE RK MATL/COLOR	(A),Sportworks bicycle rack material/colour - SST, black powdercoated.
600-300e	BIKE RACK DEPLOY INDICATOR LIGHT	(A),Bike rack deployment indicator light - required.
600-300f	BICYCLE RACK MFR LOGO	(A),Bicycle rack manufacturer logo - provided.
600-300g	BICYCLE RACK INSTRUCTIONS	(A),Bicycle rack instructions - English.
600-NEW	DRIVECAM	(C),Drivecam system - Full install for Drivecam system.
600-NEW2	LADDER MOUNTING PROVISIONS	(C),Ladder mounting provisions - SST railing mounted on exterior roof above rear curbside wheelhouse area.
600-NEW4	110 VOLT POWER SUPPLY	(C),110 Volt power supply - Vossloh Kiepe supplied 110 Volt power Plug in SDS Compartment.
600-NEW5	OSA LIGHT	(C),OSA light - Vossloh Kiepe supplied LED Lamp to illuminate trolley poles included with current collector assembly.

**13.1.2 SR – 1907**

Option#	Description	Value Description (blank means unset)
100-002	XCELSIOR COACH LENGTH	Xcelsior - 60' coach.
100-003	STRUCTURAL MATERIAL	(B),Structural material - carbon steel/ferritic sst.
100-004	FUEL/PROPULSION SYSTEM	Propulsion system - Allison hybrid with ISL diesel engine.
100-004a	FUEL TYPE	(B),Fuel type - diesel, compatible up to 20% biodiesel.
100-006	DOCKET 90 SPEC	(A),Docket 90 spec - for interior of coach (as per spec).
201-005	BUMPERS	(B),Bumpers - Romeo Rim, three piece, front and rear bumpers. Rear has anti-ride feature.
201-015	TOWING PROVISIONS	(B),Front tow eyes - basic set-up, incorporated in front chassis. Tow adapters are required.
203-005	FRONT AXLE	(B),Front axle - M.A.N. VOK-07-F, GAWR 15,873 lbs. With disc brakes. Hub mount, Knorr cylinders, Ferodo lining.
203-005b	SECUREMENT OF BRAKE LININGS	(S),Securement of brake linings - bonded.
203-005f	ELECTRONIC BRAKE STROKE MONITOR	(A),Electronic brake stroke monitor - MGM E-stroke system.
203-011	SHOCK ABSORBERS	(S),Shock absorbers - Koni.
203-014	FRONT STABILIZER BAR	(C),Front stabilizer bar provided - SR specific application is approved by NF Engineering.
203-050	FRT AXLE AND WHEEL SPLASH APRONS	(A),Front axle and wheel splash aprons - full width, fore of axle and wheels. Also, two additional aprons aft of the wheels.
204-005	REAR AXLE	(B),Rear axle - M.A.N. 4.56:1. Model HY-1350-F. GAWR 28,660. With disc brakes, hub mount, Knorr cylinder, Ferodo lining.
204-005b	CENTER AXLE	(B),Center axle - ZF model AVN132-NF1, GAWR 25,350. With disc brakes, hub mount, Knorr cylinder, Ferodo lining.
204-005d	REAR AXLE GEAR OIL	(B),Rear axle gear oil - petroleum based.
204-070	REAR AXLE DRAIN PLUGS	(B),Rear axle drain plug - magnetic external hex head.
204-140	REAR AXLE AND WHEEL SPLASH APRONS	(S),Rear axle and wheel splash aprons - one piece behind RR axle, two behind RR wheels and two pieces behind centre wheels.
205-005	TIRES	(B),Tires - 305/70R/22.5, customer supplied Michelin X InCity Z (65 mph).
205-005a	TIRE BRANDING	(A),Tire branding - required as per spec.
205-010b	WHEELS	(A),Wheels - Alcoa 22.5" x 8.25" aluminum. Polished Durabright finish both sides.
209-005	POWER STEERING PUMP	(B),Power steering pump - Ixetic (Luk) power steering pump powered off engine accessory drive.
209-005a	POWER STEERING HOSES	(S),Power steering hoses - NFIL (Manuli) Equator 2 and GH100 hose at steering box and NFIL (Manuli) Equator 2 in engine compartment.
209-008	POWER STEERING RESERVOIR	(S),Power steering reservoir - required.
209-008d	POWER STEERING DRAIN PLUG	(B),Power steering drain plug - magnetic plug.
209-010	POWER STEERING UNIT	(S),Steering box - Sheppard M110, power assisted, frame mounted.
209-060	POWER STEERING SYSTEM FLUID	(B),Power steering system fluid - Dexron III, mineral based.

Option#	Description	Value Description (blank means unset)
219-001a	ENGINE,HP,TORQUE,TYPE	(B),Engine - Cummins ISL 2015 diesel (hybrid), 330 horsepower with 1050 LB FT torque (for H40EP, Allison system de-rates engine to 280HP). Uses SCR (Selective Catalytic Reduction) system to attain 2015 emissions standard.
219-005a	ENGINE AIR COMPRESSOR	(B),Air compressor - Wabco HD 30.4, twin cylinder, turbo aspirated.
219-005da	ALTERNATOR ISL HYBRIDS	(A),Alternator - Niehoff C803, 28 volt, 500 amp, belt driven. Used with Niehoff regulator with data logging feature.
219-005e	CUMMINS DIESEL FUEL FILTERS	(B),Cummins diesel fuel filters - for ISL's, Cummins primary and secondary fuel filter system.
219-005f	CUMMINS DIPSTICK,LOCATION	(S),Cummins dipstick, location - static oil level indicator, on streetside of engine.
219-005g	ENGINE & TRANS FLUID FILL TAGS	(S),Fluid fill ID tags - for engine and transmission dipsticks.
219-005h	ROAD SPEED	(C),Road speed - top road speed is governed. Set at 63 MPH (101 KPH).
219-010	TRANSMISSION/HYBRID DRIVE	(S),Hybrid drive - Allison H50EP
219-010a	TRANSMISSION SHIFTING	(S),Transmission shifting - foot on brake enables shift when in neutral.
219-010f	ALLISON TRANS FLUID LEVEL DISPLAY	(B),Allison transmission fluid level display - display provided.
219-010p	FLUID,HYBRID DRIVES	(S),Transmission fluid - Transynd synthetic.
219-025	AIR CLEANER	(B),Air cleaner - Donaldson. Reusable housing with disposable cartridge/filter.
219-025a	AIR RESTRICTION INDICATOR	(B),Air restriction indicator (air filter minder gauge) - mounted to a bracket on the curbside of the engine gauge/switchbox.
219-035	EXHAUST SYSTEM	(S),SST Exhaust system - Cummins diesel particulate filter (DPF).
219-035a	EXHAUST TAIL PIPE ORIENTATION	(B),Exhaust tail pipe orientation - curved pipe set to 45 degrees to streetside.
219-035b	EXHAUST BLANKETS FOR CUMMINS DIESEL OR CNG	(B),Cummins Diesel / CNG exhaust blankets - provided for the exhaust tubes.
219-045	ENGINE SWITCH BOX	(B),Engine switch box - basic configuration with run control, start and engine compartment light switches. Located at curbside of center rear in engine compartment.
219-045b	ENGINE SPEED CONTROL AT SW BOX	(A),Engine speed control at engine switch box - Morse throttle (controls engine RPM).
219-050	ENGINE COMPT GAUGES,BASIC	(S),Engine compartment gauges - CAN communicator programmable to multiple functions. Located at engine switchbox.
219-090	P-CLIPS,ENGINE COMPT & HVAC	(B),Engine compartment and HVAC system p-clips - UMPCO 775 SST with high temperature boxed silicon cushion provided to secure air and fluid lines to structure.
219-175	BELT GUARD	(B),Belt guard - the engine pulley guard is provided with hinges.
219-175a	BELT GUARD LATCHING	(B),Belt guard latching - rubber hood latch.
219-195	OIL SAMPLING	(C),Oil sampling - required for engine, using easy access probalizer fittings.
219-810	DEF(DIESEL EXH FLUID) TANK	(B),DEF (diesel exhaust fluid) tank - manual fill is set in the lower curbside fusebox access door with NFIL fill cap.
231-005	RADIATOR,CAC,HYDR FLUID COOLER	(A),Radiator - EMP cooling system with full diagnostic capabilities (individual fan speed control). Radiator with 9 fans, XPL2D. Required for LAT up to 120 F @ sea level.
231-005d	RADIATOR DRAIN VALVES	(A),Radiator drain valve - brass hex head plug.
231-010a	ENGINE COMPARTMENT & HVAC HOSES	(S),Engine compartment and HVAC hoses - a combination NFIL (Manuli) Equator 1, Equator 2, Nozone and GH100 hose for fluid and air system hoses.
231-020	SURGE TANK	(B),Surge tank - 5 gallon cylindrical SST tank.



Option#	Description	Value Description (blank means unset)
231-020a	LOW COOLANT INDICATION / SENSORS	(S),Low coolant indication / sensors - an early warning sensor at the surge tank signals the instrument panel Low Coolant telltale. A lower sensor signals engine shutdown and the Check Engine and Low Coolant telltales.
231-020b	SURGE TANK PRESSURE TEST PORT	(B),Surge tank pressure test port - provided.
231-020d	SURGE TANK PRESSURE RELIEF VALVE	(B),Surge tank pressure relief valve - Radiator cap (LEV-R VENT), built into surge tank cap.
231-020e	SURGE TANK SIGHT GLASS	(S),Surge tank sight glass - graduated sight glass (glass material).
231-040	COOLANT TUBES	(S),Coolant tubes - SST.
231-075	COOLANT FLUID/ANTIFREEZE	(B),Coolant fluid / antifreeze - 50/50 pre-mixed distilled water with ethylene glycol with anti-corrosion additive and bittering agent. Pink fluid.
231-085	TRANSMISSION/HYBRID DRIVE OIL COOLER	(S),Hybrid drive oil cooler - EMP for Allison EV drives for ISL engine.
231-085a	TRANSMISSION/HYBRID OIL COOLER HOSES	(S),Transmission / hybrid drive oil cooler hoses - NFIL (Manuli) Equator 1.
231-120	COOLANT RECOVERY TANK	(S),Coolant Recovery tank - required.
234-005	WATER FILTER	(B),Water filter - for Cummins, single release filter, pre-charged, with 1/4 turn ball shut-off valves.
241-005	DIESEL FUEL TANK MATERIAL	(B),Diesel fuel tank material - cross-linked polyethylene.
241-005a	DIESEL TANK CAPACITY AND FILL TYPE	(B),Diesel fuel tank capacity and fill type - 125 useable US gallons. Pressure fill.
241-005b	DIESEL FILLER CAP	(B),Diesel fuel fill cap - posi-snap flip type.
241-005c	DIESEL FUEL SENDER	(S),Diesel fuel sender - required.
241-005d	DIESEL FUEL LEVEL INDICATION	(B),Diesel fuel level indication - not required.
241-010	DIESEL FUEL HOSES,ENGINE COMPT	(S),Diesel fuel hoses in engine compartment - GH100.
241-010a	DIESEL FUEL LINES,TANK TO BULKHEAD	(S),Diesel fuel lines from fuel tank to bulkhead - orange, fuel grade nylon tubing.
246-001	AIR COMPRESSOR DISCHARGE LINE	(S),Air compressor discharge line - Teflon 2807 SST braided hose.
246-005	AIR TANKS	(C),Air tanks - three dual compartment ceiling-mounted tanks combining wet and rear brake tanks, front accessory and kneeling tanks, rear accessory and kneeling and three single tanks for front brake, center brake and center kneeling tanks.
246-005b	AIR TANK DRAIN VALVES	(B),Air tank drain valves - manual.
246-015	KNEELING	(S),Kneeling - full front kneeling with rapid recovery.
246-015b	LEVELING VALVES	(S),Leveling valves - Barksdale.
246-020	ENTR/EXIT DOOR INTERLOCK	(C),Door interlock - Brake valve actuator on treadle valve, applied to entrance and exit doors. Foot on brake to release interlock, applied via multiplex system programming.
246-040	DRIVER'S PARK BRAKE ALARM	(A),Driver's park brake alarm - a switch in the driver's seat cushion triggers alarm to alert the driver that the park brake is not set. A light at the instrument panel is also activated.
246-040a	PARK BRAKE PRESSURE SETTING	(S),Park brake pressure setting - park brake light is activated at 60 psi.
246-060	AIR DRYER	(C),Air dryer - Graham White, "SludgeBreaker", QBA60NX5, w/ 24V heater, 12/24V purge control, dryer boost protection, high performance air dryer.
246-060a	AIR DRYER LOCATION	(S),Air dryer location - behind the rear streetside wheelhouse, on the bulkhead.

Option#	Description	Value Description (blank means unset)
246-060d	AIR DRYER VOLTAGE	(A),Air dryer voltage - 24 volt.
246-065	PARK BRAKE ACTUATION	(B),Park brake actuation - Pull To Apply.
246-065a	PARK/EMERG BRAKE LOCATION	(S),Park brake control location - on side console panel.
246-105a	REAR AIR CHARGE FITTING LOCATION	(S),Rear air charge fitting location - routed to curbside of engine.
246-105b	REAR AIR CHARGE CONNECTOR TYPE	(B),Rear air charge connector type - male 1/4" NPT fitting.
246-105f	MUFFLER TANK,REMOTE DRAIN	(B),Muffler tank remote drain valve - required.
246-120	FRONT TOW CONNECTOR	(B),Front tow connector fitting - 1/4" male NPT fitting with tag.
246-120a	FRONT AIR CONNECTOR ARRANGEMENT	(B),Front air connector arrangement - located below the bumper, streetside.
246-125	FRONT AIR CHARGE CONNECTOR	(B),Front air charge connector - 1/4" male NPT fitting with tag.
246-130	FLEXIBLE AIR LINES	(S),Flexible air lines - Synflex colour coded. Green: rear service brakes and supplies. Red: front service brakes. Brown: parking brake. Black: accessories and brake hose. Yellow: compressor and governor. Blue: suspension.
246-225	ABS	(S),ABS braking system - Wabco.
246-230	TRACTION CONTROL	(B),Automatic traction control - Wabco system, to reduce drive wheel overspin.
246-NEW	INCLINE RAISE FEATURE	(C),Incline raise feature - air suspension steep incline feature required per Muni specifications.
260-005a	TWO BATTERIES,TYPE / MFR	(C),Batteries - two 8D AGM/Deka 1450CCA maintenance free batteries (mfr East Penn Batteries). Post connection 3/8" positive X 3/8" negative.
260-005d	BATTERY CABLES	(S),Battery cables - red heat shrink on 24 volt positive cable end and light blue heat shrink on 12 volt positive cable end.
260-010	BATTERY TRAY	(B),Battery tray - extended slide out battery acid resistant polyethylene enclosure with SST sub frame, SST bearings and rubber isolation mounts. Located aft of the curbside rear wheelhouse. Note: battery access door opens to the side.
260-025	POSITIVE BATTERY DISCONNECT SW	(A),Positive battery disconnect switch - required with quick access through flip-open door. Uses a micro-switch for engine shutdown.
260-030	BATTERY VOLTAGE EQUALIZER	(B),Battery voltage equalizer - Vanner 80 amp.
260-035	JUMP START MANUFACTURER	(C),Jumpstart - Anderson model 6322 G1 connector.
260-035a	JUMP START LOCATION	(A),Jump start location - near the battery disconnect switch at the fusebox. Accessible via the flip-open door.
260-700	ALLISON HYBR OIL CLR FAN FAULT INDICATION	(S),Allison hybrid oil cooling system fan fault indication - provided at instrument panel LCD indicator. Also, there is an indication lamp at the engine switchbox.
260-820	ROOF FAIRING / SKIRTS ENCLOSURE	(S),Roof fairing / skirt enclosure - fairing with full length skirts for XDE's.
269-002	P.A. AMPLIFIER MFR / TYPE	(A),P.A. amplifier manufacturer / type - included with AVA or AVL system.
269-005	INTERIOR SPEAKER MFR	(B),Interior speaker manufacturer - TCB.
269-005bb	PRIMARY INTERIOR SPEAKERS,QTY FOR 60'	(B),Primary interior speakers, quantity - eight: six to light panels, two above rear bench.
269-010	EXTERIOR SPEAKERS,LOCATION	(B),Exterior speaker, location - at basic location above entrance. Includes baffled cover.

Option#	Description	Value Description (blank means unset)
269-010a	EXTERIOR SPEAKER MFR	(B),Exterior speaker manufacturer - Shekonic.
273-005	HEADLIGHTS	(S),Headlights - NFIL Xcelsior LED low beam and halogen high beam headlights.
273-005a	DAY RUN HEADLIGHTS	(B),Day run headlights - required.
273-005b	FRONT TURN SIGNALS	(S),Front turn signals - NFIL amber LED. Integrated with headlight assembly.
273-010	TAIL LIGHTS QTY PER SIDE	(B),Tail lights quantity per side - four.
273-010ab	FOUR TAIL LIGHT ARRANGEMENT	(B),Four tail light arrangement (top to bottom) - amber, red, red, white.
273-010b	TAIL LIGHTS MFR	(B),Red / amber tail light manufacturer - 4" Dialight LED.
273-010d	WHITE BACK-UP LIGHT MFR	(S),White back-up light manufacturer - 4" Dialight LED.
273-010e	STOP LIGHTS ON WITH RTRDR/REGEN BRAKE	(B),Stop light activation by transmission retarder / regenerative braking - required.
273-010f	STOP LIGHTS ON WITH PARK BRAKE OR INTERLOCK	(S),Stop light activation - when park brake or interlock are engaged.
273-015	CENTER STOP / DECELERATION LIGHTS	(A),Center stop lights (red) - two Dialight 18" X 1" LED above the engine door.
273-020a	SIDE TURN SIGNALS,TYPE / QTY PER SIDE	(B),Side turn signals, type and quantity per side - 3 amber Dialight LED with guards. Lamps are at fore of all wheelhouses except curbside front which is aft. For 60' coaches.
273-025	KNEELING/RAMP LIGHT AT ENTRANCE	(S),Kneeling / ramp deployment warning light at entrance - 2.5" Dialight LED.
273-025b	SIDE TURN SIGNAL FUNCTIONALITY	(C),Side turn signal functionality - Sonalert/beeper at curbside exterior center and rear exit door areas to sound when turn signal switches depressed. Override switches to be located in SDS enclosure/compartment.
273-035	MARKER / CLEARANCE LIGHTS	(S),Marker and clearance lights - Dialight LED all around.
273-040	REFLECTORS	(S),Reflectors - self-adhesive decals installed at NFIL basic positions.
273-045	REAR LICENCE PLATE LIGHT	(B),Rear licence plate light - LED.
273-050a	TIMED SHUT-OFF,ENTR AREA LIGHTS	(B),Timed shut-off of entrance area lights (interior and/or exterior) - the program is set to shut the lights off when the door closes.
273-055a	TIMED SHUT-OFF,EXIT AREA LIGHTS	(C),Timed shut-off of exit area lights (interior and/or exterior) - the program is set to shut the lights off three seconds after the door closes.
273-112	CURBSIDE CORNERING LIGHT	(C),Curbside cornering lights - two, one curbside lamp located behind each exit door.
277-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 277 group equipment.
277-005	INTERIOR PASSENGER LIGHTING	(B),Interior passenger lighting - TCB LED, 24 VDC.
277-005f	INTERIOR LED LIGHT FUNCTIONALITY	(B),Interior LED light functionality-first bank of light on each side turn on when entrance door is opened and off when door is closed.
277-010a	TINTED LED PASSENGER LIGHT COVERS	(B),Tinted LED passenger light covers - white for all lights.
277-015	FAREBOX LIGHT	(B),Farebox light - one swivel light with a replaceable LED bulb.
277-020	DRIVER'S LIGHT	(B),Driver's light - one sealed 2.5" white high output LED light.
277-030	ENGINE COMPARTMENT LIGHTS	(B),Engine compartment lights - four 1.38" LED lights.
277-035	REAR DECK STEP LIGHT	(S),Rear deck step light - LED.

Option#	Description	Value Description (blank means unset)
277-040	INTERIOR DOOR HEADER LIGHTS	(B),Interior door header lights - one LED strip light (approx 18" long) provided above exit (if applicable) and entrance doors. With anti-glare shield.
277-070a	REAR PLC AND FUSEBOX SERVICE LIGHTS	(S),Rear PLC compartment and fusebox lights - provided, LED.
277-080	ARTIC JOINT AREA LIGHTS	(B),Articulated joint area lights - TCB LED lights, two aft facing.
280-001a	PASSENGER SIGNAL CHIMES, FOR 60'	(B),Passenger signal chimes - for 60' coach with two exits. Two basic electronic chimes, one above driver and one at rear exit. Chimes have a single tone which sounds once for regular activation, twice for wheelchair positions.
280-002	PASSENGER SIGNAL PULLCORDS	(B),Passenger pullcords - yellow cords are required.
280-002a	PASSENGER PULLCORD HARDWARE	(B),Passenger pullcord hardware - Phillips.
280-003	HORIZONTAL PASSENGER SIGNAL PULLCORDS	(B),Horizontal passenger signal pullcords - set at NFIL designated basic height.
280-005a	60' FRT UNIT VERT PULLCORDS	(C),Front unit vertical pullcords - Six, three at first, second, and third streetside pillars and three at first, third, and fourth curbside pillars forward of the joint.
280-005b	RR UNIT LWR DECK VERT PULLCORDS, FOR 60'	(B),Rear unit vertical pullcords - two: at first street and curbside pillars forward of the face of the upper deck.
280-005e	SECUREMENT OF VERTICAL PULLCORDS	(B),Securement of vertical pullcords to horizontals - looped or clamped to the horizontal depending on the location.
280-010	FRONT STOP REQUEST SIGN TYPE/POSITION	(C),Front stop request sign type / position - Smartrend LED installed in the destination sign door.
280-010a	FRONT STOP REQUEST SIGN TEXT	(B),Front stop request sign text - Stop Requested.
280-010b	FRONT STOP REQUEST SIGN LETTERING	(B),Front stop request sign lettering - upper case.
280-011f	60' CENTER EXIT STOP REQUEST SIGN	(A),60' center exit stop request sign - two sided LED, ceiling mounted, near exit area.
280-011g	60'CTR EXIT STOP REQUEST SIGN TEXT	(B),60' center exit stop request sign text - Stop Requested.
280-011t	REAR STOP REQUEST SIGN LETTERING	(A),Rear stop request sign lettering - upper case.
280-012	STOP REQUEST SIGN COLOURS	(B),Stop request sign colours - white letters on a red background.
280-015	PASS SIGNAL @ WHEELCHAIR POSITIONS	(C),Passenger signals at wheelchair positions - Muni specific push button mounted to flip-up seat.
280-025	PUSH BUTTON SIGNAL AT EXIT AREA	(C),Push button signal at exit - LFR style switches mounted facing aisle on stanchions fore of each exit.
280-025a	PUSH BUTTONS,VERT & SEAT STANCHI	(C),Push button passenger signals on vertical seat stanchions - LFR style buttons at specified vertical stanchions.
284-001	ELECTRONIC CONTROL SYSTEM	(S),Electronic control system - Vansco.
284-001a	SYSTEM VOLTAGE	(S),System voltage - 24 VDC primary, 12 VDC secondary.
284-001b	SWITCHES	(S),Switches - water resistant.
284-001d	SPARE INPUT/OUTPUT PORTS	(S),Spare I/O (Input/Output) ports for multiplex system modules - minimum 10% input and 10% output.
284-005g	HAZARD WARNING LIGHTS	(S),Hazard warning lights - front, side and rear lights flash for hazard warning.

Option#	Description	Value Description (blank means unset)
286-001	INSTRUMENT PANEL	(S),Instrument panel - acrylic material with luminescent lighting, with Vansco Instrument Panel Cluster module.
286-001a	SHIFT SELECTOR LOCATION	(S),Shift selector - located on instrument panel.
286-001b	EXTERIOR LAMP TEST	(S),Exterior lamp test - simultaneously depress both turn signals.
286-010a	SPEEDOMETER	(S),Speedometer - part of Vansco instrument panel cluster. Set to display miles. With odometer (the display can be toggled to show Trip1, Trip 2, engine hours).
286-010b	AUDIBLE SOUND,TURN SIGNALS/HAZARDS	(B),Turn signal and hazard warning audible sound - using click sound for turn signal and for hazard warning.
286-010e	BRK/ACCEL INTERLOCK DEACTIV WRNG	(A),Brake accelerator interlock deactivated warning - provided by audible alarm and separate red warning lamp on instrument panel. (Must have in California.)
286-055	DOOR MASTER SWITCH LOCATION	(B),Door master switch location - in sawtooth panel above driver.
286-055b	HYBRID REGEN SWITCH LOCATION	(B),Regenerative braking switch location - in sawtooth panel above driver.
286-065	SILENT ALARM	(C),Silent alarm - Motorola switch per specification required.
286-065a	SILENT ALARM SW LOCATION	(A),Silent alarm switch location - with side console switch assembly.
286-070	DIAGNOSTICS PLUG LOCATIONS	(B),Diagnostic plug locations - under the front dash (left side of the steering column), at forward face of the SDS barrier (above driver) and at the engine switch box.
286-070a	ACCESSORY POWER PLUG	(A),Accessory power plug - at forward face of the SDS barrier (above driver).
289-001	SECUREMENT OF HARNESSSES	(S),Securement of harnesses - hellerman tyton clamps, with Panduit releasable cable ties.
296-001	WIRING DECAL,REAR PLC AND FUSEBOX	(S),Wiring decal, rear PLC and fusebox - provided, laminated.
296-001a	WIRING DECAL,SIDE CONSOLE	(B),Wiring decal, side console - laminated, shipped loose.
304-001a	EXTERIOR PAINT TYPE	(S),Exterior paint type - Axalta Imron Elite high solids polyurethane.
304-001aa	EXTERIOR PAINT CLEARCOAT	(A),Exterior paint clearcoat - required.
304-010	CORROSION PROTECTION	(B),Corrosion protection - grit blasted frame, moisture cure zinc-rich primer (applied for 12 year warranty protection), anti-chip undercoating, corrosion preventive coating sprayed inside frame tubes up to roof line.
304-015	EXTERIOR LOGOS,NFIL	(B),Exterior logos, NFIL - required.
304-015b	EXT DECALS,CUSTOMER SPECIFIC	(C),Exterior decals, customer-specific - as per spec/MRL.
304-020	NFIL SAFETY AND MAINTENANCE DECALS	(B),New Flyer safety and maintenance related decal package - English.
304-020a	INTERIOR DECALS, CUSTOMER SPECIFIC	(A),Customer specific interior decals - required.
304-020b	INTERIOR PASSENGER RELATED DECALS,LANGUAGE	(C),Interior passenger related decals, language - Combination of English and English/Spanish/Chinese.
304-020d	INTERIOR FLEET NUMBER DECALS	(B),Interior fleet number decals - required.
304-025	KNEELING / RAMP DECALS	(C),Kneeling / ramp decals - None provided per SFMTA Specification.
304-030	AIR TANK DECALS	(B),Air tank decals - NFIL basic.
304-035	EXT FLEET NUMBERS,NON-ROOF	(B),Exterior fleet numbers, non-roof - required (reflective or non-reflective as per spec).

Option#	Description	Value Description (blank means unset)
304-035a	EXTERIOR FLEET NUMBERS, ROOF	(A), Exterior fleet numbers, roof - required (reflective or non-reflective as per spec).
304-700	HYBRID SAFETY DECALS	(B), Hybrid safety decals - required.
306-005	FIRE EXTINGUISHERS	(B), Fire extinguisher - 5 lb ABC class. With gauge, hose and mounting bracket. UL compliant for US customers.
306-005a	FIRE EXTINGUISHER LOCATION	(A), Fire extinguisher location - inside the curbside equipment box.
306-010	SAFETY TRIANGLES	(B), Safety triangles - triangle reflector.
306-010a	SAFETY TRIANGLE LOCATION	(A), Safety triangle location - in equipment box on curbside luggage rack.
350-001	DRIVER'S PEDALS, POSITION / TYPE	(A), Driver's pedals positions / type - adjustable pedal assembly.
350-002b	ADJUSTABLE PEDAL BRAKE/THROTTLE ANGLE	(B), Brake / Throttle pedal angle - brake set at 45 degrees, throttle at 45 degrees from pedal to floor.
350-005	BRAKE VALVES	(B), Brake valve - E6.
350-015	TURN SIGNAL SWITCHES	(B), Turn signal switches - basic switches, floor mounted.
350-015a	DIMMER SWITCH	(B), Dimmer switch - basic foot switch.
350-015b	P.A. SYSTEM SWITCH	(A), P.A. system switch - foot switch.
350-015d	HAZARD WARNING LIGHT SW LOCATION	(B), Hazard warning light switch location - on side console.
350-030	STEERING COLUMN	(B), Steering column - Douglas Autotech with tilt and telescopic features.
350-030a	STEERING WHEEL	(B), Steering wheel - 2 spoke, 18" diameter hard padded (molded urethane).
350-035	DUAL HORN	(S), Dual horn - provided with splash shield.
400-001a	JACKING / LIFTING PADS	(B), Jacking / lifting pads - 4" diameter pads at front and rear chassis.
405-001	ARTICULATED JOINT	(B), Articulated joint - ATG, grey bellows
420-005	DEFROSTER ACCESS DOOR	(B), Defroster access door - top hinged with two gas struts, quarter turn 5/16" square key quad latches.
420-010	EXTERIOR SIDE PANELS	(S), Exterior lower side panels - fiberglass.
420-035a	CURB & STREET ENG, S/CONS DOORS, STRUTS	(B), Struts for curb and street side engine compartment, battery compartment and side console access doors - supported by gas struts.
420-035d	CURB SIDE ENGINE COMPT DOOR	(B), Curb side engine compartment door - includes battery disconnect switch access door (using a gas strut) and a DEF manual fill access door set in upper part of the door.
420-035e	BATTERY COMPARTMENT DOOR	(B), Battery compartment door - solid door located aft of the curb side rear wheel, separate from the engine compartment.
420-035f	STREET SIDE ENGINE COMPT DOOR	(B), Streetside engine (radiator) access door - with wavy screen.
420-040	DIESEL FUEL FILL DOOR	(B), Diesel fuel fill door - basic hinged door located forward of the curbside rear wheelhouse.
420-040a	SURGE TANK DOOR	(B), Surge tank door - basic hinged door.
420-045	SIDE CONSOLE DOOR LATCHES	(S), Side console door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050	ENGINE DOOR	(B), Engine door - solid door with built-in handle.
420-050a	ENGINE DOOR STRUTS	(B), Engine door struts - two, the streetside strut has a locking mechanism.

Option#	Description	Value Description (blank means unset)
420-050b	ENGINE DOOR LATCHES	(B),Engine door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050e	REAR LICENSE PLATE RETENTION	(B),Rear license plate retention - centered with bottom retainer and two upper inserts.
420-060	RAIN GUTTER	(S),Rain gutter - .44" cross section bonded.
420-065	ROOF HATCHES / VENTS	(B),Roof hatches / vents - two basic hatches at front and rear, 24" X 24".
420-065a	ROOF HATCH INSTRUCTION LANGUAGE	(B),Roof hatch instruction language - English.
420-070	WIPERS	(B),Wipers - wet arm Sprague 24 volt electric. Intermittent.
420-075	WINDSHIELD WASHER BOTTLE	(B),Washer bottle - 5 US gallon with electric powered pump.
420-075a	WINDSHIELD WASHER FILL LOCATION	(S),Windshield washer fill location - accessed via a flip-out door built into the exterior side console access door.
420-080	LOWER DRIVER'S VENT	(B),Lower driver's vent - provided.
420-120	FENDERS	(B),Fenders - molded polyurethane.
420-121	S1 WHEEL GUARDS	(C),S1 wheel guard - required, forward of center and rear wheels - curbside.
420-125	EXTERIOR UPPER REAR	(B),Exterior upper rear - fiberglass panel with no door and no window.
420-135	LOCATION,FRONT LICENSE PLATE	(C),Front license plate location - at streetside of defroster door.
420-135a	FRONT LICENSE PLATE RETENTION	(B),Front license plate retention - four inserts.
421-010	INSULATION,SIDEWALL AND ROOF	(S),Insulation, sidewall and roof - polyisocyanurate foam. meets Docket 90 spec.
421-020	INSULATION,EXHAUST CAVITY	(S),Exhaust cavity insulation - Heat-resistant fiberglass mat.
421-030	ENGINE COMPARTMENT INSULATION	(S),Engine compartment insulation - noise reduction acoustical foam, retained by perforated aluminum panels.
422-001	DOCKET 90 SPEC	(A),Docket 90 spec - review for 422 group components.
422-005	CEILING PNLS AFT OF FRT W/HS INCL RR PLC	(B),Ceiling panels aft of the front wheelhouses (including rear PLC) - Antique white plastic, SST trim.
422-005a	CEILING / HVAC COVER PANELS ABOVE FRT W/HS	(B),Ceiling / HVAC cover panels above front wheelhouses - Antique White fiberglass.
422-006	ENTRANCE/DRIVER'S AREA PANELS	(C),Entrance/driver's area panels colour - black. Includes dash, dest sign c/out, ent. mech. box, driver's o/head panels. and if used, ent. floor heat duct, frt. RH harness cover is painted flat black.
422-006b	DRIVER'S CEILING PANEL MATERIAL	(B),Driver's ceiling panel material - melamine.
422-009	INTERIOR PIER PANEL MATERIAL	(B),Interior pier panel material - thermoplastic.
422-010	PIER PANEL COLOUR	(B),Pier panel colour - Antique white, thermoplastic.
422-015b	INTERIOR SIDEWALL MELAMINE	(B),Interior sidewall melamine colour - Charcoal Grey Gloss.
422-025	INTERIOR ENGINE COMPT ACCESS PANEL	(S),Interior engine compartment access panel - there is a single hinged panel under the rear seat.
422-035	INTERIOR UPPER REAR PANEL	(A),Interior upper rear panel - bulkhead panel covered with carpet / fabric material. With large central access door.
422-035a	CARPET / FABRIC,UPR REAR INT PANEL	(B),Upper rear interior carpeted / fabric panel - Charcoal Grey carpet with 1/2" plywood backing.

Option#	Description	Value Description (blank means unset)
422-035e	C/S,S/S RR BULKHEAD ACCESS PANELS	(B),Curb and street side rear bulkhead access panels - carpeted DB plywood.
422-050a	HRNS/AIR LINE COVERS AT UPPER DECK	(B),Harness / air line covers at upper deck - painted flat black.
422-060	FRT DEST SIGN DOOR LATCHES	(B),Front destination sign door latches - short wing quad latches.
422-061	DRIVER'S OVERHEAD PANEL	(S),Driver's overhead panel - with locker.
422-061a	DRIVER'S LOCKER LATCH	(C), Driver's locker latch - short wing quad latch with pull tab.
422-065	DRIVER'S COAT HOOK AND STRAP	(B),Driver's coat hook and strap - located on the forward face of the harness cover behind the driver.
422-070	SECURE DIAGNOSTIC STATION	(B),Secure diagnostic station - above street side front wheelhouse. Incorporates driver's barrier. With four Take One pockets. Quantity of trays as per customer and / or as per electronic equipment within compartment.
422-070a	SDS ENCLOSURE COLOUR	(B),SDS enclosure colour - Flat Black with Cashmere Black melamine panel.
422-070b	SDS ENCLOSURE DOOR LATCHES	(C),SDS enclosure door latches - Two 5/16" square key quad latch and paddle latch with CH751 key.
422-085	FRONT SUNVISOR / ROLLERBLINDS	(A),Front sunvisor - black padded.
422-085a	SIDE SUNVISOR / ROLLERBLIND	(C),Side sunvisor - black padded visor for high mount mirror.
422-090	SQUARE KEY T-HANDLE	(B),Square key t-handle - located at lower left of driver.
422-105	ENTRANCE MECHANISM BOX DOOR LATCH	(S),Entrance mechanism box door latches - two short wing quad latches.
422-160	GRAB HANDLE NEAR FRONT ROOF HATCH	(B),Grab handle near front roof hatch - required.
422-210	ARTICULATED JOINT CLOSEOUTS	(A),Articulated joint closeouts - Pewter Grey.
422-NEW	NEW OPTION,422 GROUP	(C), Rear PLC and bulkhead access doors with tamperproof latches.
423-010	AD FRAMES,SDS BOX	(C),Interior ad frame - One 17" X 11" clear holder. Located on rear face of SDS Enclosure.
450-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 450 group equipment.
450-010	FLOORING	(C),Flooring - Composite Flooring required for both lower and upper deck.
450-013	DRIVESHAFT / TRANSMISSION ACCESS PANELS	(A),Driveshaft / transmission access panels - two panels set in the floor, one to access the driveshaft and the other to access the transmission.
450-025a	ALTRO FLOOR COVERING	(C),Altro floor covering - Rocket TFFG 2704F (2.7 mm / 0.11" thick), for aisle and underseats.
450-025e	STEP TO UPPER DECK	(B),Step to upper deck - yellow anti-slip coating is applied to the edges and vertical faces of the step.
450-025f	STANDEE LINE	(B),Standee line - yellow.
450-025g	ENTRANCE NOSING	(B),Entrance nosing - nosing is 2" wide yellow anti-skid applied to the ramp.
450-025h	EXIT NOSING	(C),Exit nosing - 2.5" yellow nosing and 2.0" yellow standee line in vestibule area at edge of exit door opening/sweep. Altro / Tarabus flooring.
450-025j	REAR SEAT RISER COVERING MATERIAL	(B),Rear seat riser covering material - same material and colour as used for the flooring.
450-025k	GRIT FLOORING AT ARTIC JOINT	(B),Grit flooring at articulated joint - black non-aggregate anti-slip coating.



Option#	Description	Value Description (blank means unset)
450-030	DRIVER'S PLATFORM FLOORING	(A),Driver's platform flooring - Altro.
450-030a	DRIVER'S PLATFORM TRIM	(B),Driver's platform trim - SST.
450-045	OUTER WHEELHOUSES	(B),Outer wheelhouses - SST front and rear.
450-055	INTERIOR FRONT W/HOUSE (LUGG RACK) COLOURS	(B),Interior front wheelhouse (luggage rack) colours - Matte black, painted stipple. An LED aisle light is provided on the streetside. Also, SST scuff guards are provided.
460-005	WINDSHIELDS	(B),Windshield - 72% light transmittance green laminated. With blue shade band for street and curb sides.
460-005a	WINDSHIELD PROTECTIVE FILM	(B),Windshield protective film - required for coach delivery beyond a 500 mile radius of Final Assembly.
460-010	PASS / DRVR'S WINDOWS MANUFACTURER	(B),Passenger and driver's windows, manufacturer - Arow Global (Stormtite) non-flush mounted.
460-010b	NON-FLUSH PASSENGER WINDOWs	(C),Non-flush passenger windows - bottom is fixed, top slider.
460-010e	NON-FLUSH WINDOW GLAZING	(C),Non-flush window glazing - grey, 55% light transmittance, laminated.
460-010h	WINDOW FRAME COLOUR	(C),Window frame colour - all window frames are clear anodized.
460-010j	WINDOW EMERGENCY EGRESS	(S),Emergency egress windows - minimum quantity based on FMVSS requirements or the customer spec, whichever is the greater of the two.
460-010k	SIDE DESTINATION SIGN WINDOWS	(C),Destination sign window - curb and street sides. Fixed clear top and fixed bottom. Bottom matches passenger window glazing. (review 470 for side sign details).
460-010n	WINDOW GLAZING REPLACEMENT	(A),Window glazing replacement for servicing - rapid replacement.
460-010p	PASS WINDOW LINERS AND COATINGS	(C),Window liners and coatings - .12" acrylic liners on all windows.
460-010s	PASS WINDOW THICKNESS	(B),Passenger window thickness - 6 mm.
460-011a	DRIVER'S WINDOW, NON-FLUSH	(B),Driver's window, non-flush mounted - with fore and aft sliding sashes. The forward sash has exterior and interior handles. Non-egress.
460-011b	AFT SASH, NON-FLUSH DRIVER'S WINDOW	(B),Aft sash, non-flush driver's window - with interior handle and latch.
460-011d	DRIVER'S WINDOW GLAZING	(B),Driver's window glazing - laminated with minimum 70% light transmittance.
460-011e	DRIVER'S WINDOW SHADE BAND	(B),Driver's window shade band - not required.
470-001	DESTINATION SIGNS MFR	(A),Destination sign mfr - Twin Vision Smart Series, LED display system.
470-001a	DEST SIGN CONTROL UNIT LOCATION	(B),Destination sign control unit location - under driver's overhead panel.
470-005a	TWIN VISION FRT.DEST.SIGNS	(A),Twin Vision front destination sign - LED Chroma I, 16 X 156, 4 amber matrix boards and 1 colour board with a single LED. Will be programmed with white test pattern, customer to reprogram sign in color after acceptance.
470-010	FRONT DESTINATION SIGN GLASS	(A),Front destination sign glass - heated and laminated.
470-025	CURB SIDE DESTINATION SIGN LOCATION	(A),Curbside destination sign location - at the second window, aft of the entrance door.
470-025b	TWIN VISION CURBSIDE DEST.SIGNS	(A),Twin Vision curbside destination sign - LED, amber, 8 x 96 (37.4" wide display).

Option#	Description	Value Description (blank means unset)
470-026	STREETSIDE DESTINATION SIGN	(C),Street side dest/route sign - required at #2 streetside window.
470-030	FRONT ROUTE SIGN	(C),Front route sign - Twin Vision LED, 14 x 40, addressable.
470-035	REAR ROUTE SIGN, LOCATION	(B),Rear route sign location - at the upper curb side. For non-CNG coaches.
470-035b	TWIN VISION REAR ROUTE SIGNS	(A),Twin Vision rear route sign - LED, amber 16 X 48.
470-060b	CLEVER DEVICES (DIGITAL RECORDER) AVA SYSTEM	(A),Clever Devices,(DRI,Digital Recorder) AVA system - full system installed by NFIL, including antenna(s), cabling, ground plates and all required system components as per customer spec.
470-060f	ACS (ORBITAL/TMS) AVA SYSTEM	(C),ACS (Orbital / TMS) AVL system - provisions. Includes installation of antenna(s), cabling and ground plates as per customer spec.
470-060k	AVA/AVL LED SIGN & LOCATION	(A),AVA/AVL LED sign and location - required on the HVAC overhead enclosure.
470-061	AUTO VEHICLE MONITORING SYSTEM (AVM)	(A),Automatic Vehicle Monitoring (AVM) system - Fleetwatch required as per spec/MRL.
470-075	NEW FLYER CONNECT-DIAGNOSTIC & MONITORING SYSTEM	(A),New Flyer Connect-Diagnostic & Monitoring - required with driver maneuver awareness system (DMAS).
470-NEW	NEXTBUS SYSTEM	(C),Nextbus system - Installation of complete system including antenna.
480-005	STREET SIDE MIRROR MANUFACTURER	(B),Street side mirror manufacturer - Hadley.
480-005a	HADLEY STREET SIDE MIRROR	(B),Hadley street side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-005b	STREET SIDE MIRROR POWER OPTIONS	(A),Street side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-005f	STREET SIDE MIRROR ARM	(A),Street side mirror arm - mirror arm springs back to its previously set position after deflection.
480-005g	STREET SIDE MIRROR MOUNT	(A),Street side mirror mount - high mount.
480-006	CURB SIDE MIRROR MANUFACTURER	(B),Curb side mirror manufacturer - Hadley.
480-006a	HADLEY CURB SIDE MIRROR	(B),Hadley curb side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-006b	CURB SIDE MIRROR POWER OPTIONS	(B),Curb side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-006e	CURB SIDE MIRROR ARM	(B),Curb side mirror arm - basic, pull-back. Mirror arm is manually returned to its previously set position after deflection. Mirror can be folded forward or backward for bus wash.
480-010	INTERIOR MIRRORS,MANUFACTURER	(A),Interior mirrors, manufacturer - Hadley.
480-010a	DRIVER'S REAR VIEW MIRROR	(B),Driver's rear view mirror - 8" x 15", black, convex.
480-010b	SPOT MIRROR	(B),Spot mirror - 6" diameter flat mirror, located at curb side front.
480-010d	EXIT DOOR MIRROR	(B),Exit door mirror - convex, 12" diameter.
490-001	ENTR DOOR DRIVE SYS	(A),Entrance door drive system - Electric
490-005	ENTRANCE DOOR	(B),Entrance door - Vapor slide glide.
490-005a	ENTR DOOR LIMIT SWITCH SET-UP	(A),Entrance door limit switch - solid state proximity switch.

Option#	Description	Value Description (blank means unset)
490-005d	ENTRANCE DOOR MAGNETIC DUMP VALVE	(B),Entrance door magnetic dump valve - required, located at baseplate.
490-005f	ENTR/EXIT FRANG COVER LANGUAGE	(C),Entrance / exit door frangible cover instructions (for emergency release), language - English. Additional scoring required on exit door frangible cover.
490-006	ENTRANCE DOOR HANDLES	(B),Entrance door handles - yellow powder coated.
490-015	ENTRANCE DOOR CONTROLLER	(B),Entrance door controller - basic with 5 position settings.
490-015a	DOOR CONTROLLER HANDLE	(B),Entrance door control handle - non-removable.
490-030	ENTRANCE DOOR GLAZING	(S),Entrance door glass - full length single piece, 72% green.
491-001	EXIT DOOR DRIVE SYS	(A),Exit door drive system - Electric
491-005	EXIT DOOR	(B),Exit door - wide Ameriview Vapor Slide Glide, 45.2" between panels. 60' coach with two exits, one at front and one at rear unit.
491-005a	SLIDE GLIDE EXIT LIMIT SWITCH	(A),Exit door limit switch - solid state proximity switch.
491-005b	EXIT DOOR CONTROL	(A),Exit door control - Vapor Class Acoustic Sensing System. Activates door opening and detects obstruction on closing.
491-005ba	CLASS SYSTEM DOOR DECAL	(C),Class system door decal - English, Spanish, and Chinese, text and characters as per customer requirement.
491-005d	EXIT DOOR SENSITIVE EDGE	(B),Exit door sensitive edge - sensor on the vertical edge provided with all exit doors.
491-005g	EXIT FRANGIBLE COVER SECUREMENT	(C),Exit frangible cover securement - magnetic latch with screw.
491-005j	EXIT BASEPLATE / ELEC PNL ACCESS	(B),Exit baseplate access- at each exit door, Tcb set-up, through removable ad frame.
491-006	EXIT DOOR ASSIST HANDLES	(B),Exit door assists - yellow powdercoated.
491-020	EXIT DOOR GREEN LIGHT	(B),Exit door green light - LED green light indicates that the exit door is set to open.
491-035	EXIT DOOR GLASS SIZE	(B),Exit door glass size - full length.
491-035a	EXIT DOOR GLAZING	(B),Exit door glazing - 6 mm.
491-NEW	EXIT DOOR EXTERNAL BUTTONS	(C),Exit door external buttons - Two flush mounted "Elevator Style" external switches mounted on either side of the exit doors to permit passenger loading/entry from exit.
526-001b	60' PASSENGER SEAT QUANTITY	(C),60' passenger seat quantity - 45.
526-005	PASSENGER SEAT MANUFACTURER	(B),Passenger seat manufacturer - American Seating.
526-005b	AMERICAN SEATING SEATS	(A),American Seating passenger seats - Vision stainless seat. Details as per customer spec.
526-005ba	AMERICAN SEATING D90 SPEC	(B),American Seating passenger seats D90 spec - not required.
526-005d	REAR BENCH SEAT	(S),Rear bench seat - 1-3-1 hinged seat.
526-005e	PASSENGER SEAT MOUNTING	(B),Passenger seat mounting - cantilever.
526-005f	SEAT MOUNTED GRABRAIL	(A),Seat mounted grabrails - stainless steel.
526-005h	FIRST SEAT,CURBSIDE UPPER REAR	(B),First seat at curbside upper rear - forward facing.

Option#	Description	Value Description (blank means unset)
526-005i	PASSENGER SEATING BARRIER	(B),Passenger seating barrier - pedestal mounted barrier.
526-005j	SEAT POSITION, FORWARD OF REAR EXIT	(B),Seat position, forward of rear exit - forward facing
526-005k	ARTICULATED JOINT SEATS	(B),Articulated joint seats -not required.
526-005l	SEAT FWD OF ARTIC JOINT AREA	(A),Seat forward of artic joint - two rearward facing on each side.
526-006	DRIVER'S SEAT MANUFACTURER	(A),Driver's seat manufacturer - USSC.
526-006a	USSC DRIVER'S SEAT MODEL	(A),USSC driver's seat model - 9100 ALX. The fore / aft seat travel is 11.8". Has 2 point seat belt. Has air suspension and lumbar.
526-006f	DRIVER'S SEAT MATERIAL	(B),Driver's seat material - all vinyl.
526-006g	DRIVER'S SEAT BELT	(C),Driver's seat belt - orange colored lap belt with retractor on right hand side.
526-006ga	DRIVER'S SEAT BELT ALARM	(A),Driver's seat belt alarm - required to warn driver that seat belt is not connected.
526-006j	DRIVER'S SEAT, DOCKET 90 SPEC	(B),Driver's seat D90 spec - Not required.
526-006k	DRIVER'S SEAT BASE RISER	(A),Driver's seat base (riser) - SST.
526-006m	DRIVER'S SEAT PARK BRAKE ALARM	(A),Driver's seat park brake alarm - switch is required in seat cushion to trigger driver's park brake alarm (ref. option 246-040).
526-006s	DRVR'S SEAT HEADREST	(B),Driver's seat headrest - required.
526-007	WHEELCHAIR POSITIONS, QUANTITY	(C),Wheelchair positions - Three. One fwd of the exit door curbside and TWO aft of the streetside front wheelhouses.
526-007a	W/CHAIR POSITIONS, RESTRAINT SYSTEM	(A),Wheelchair restraint system - padded barrier/restraint system for rearward facing w/chr position(s) and restraint system for forward facing w/chr position(s). Mfr, position, mat'l color/type and details as per customer spec.
526-007e	SHOULDER HARNESS, W/CHR RESTRAINTS	(C),Shoulder harness for wheelchair restraints - secured to structure (pier panel), one on streetside only (for rear facing wheelchair position).
526-010	STANCHION / GRABRAIL STYLE	(B),Stanchion / grabrail style - curved style vertical stanchions. Using cast SST fittings for vertical and horizontal stanchions.
526-010a	OVERHEAD HORIZONTAL GRABRAILS	(A),Overhead horizontal grabrails - yellow SST.
526-010aa	OVERHEAD HANDSTRAPS, TYPE	(C),Handhold straps on overhead grabrails - flexible grey PVC straps in yellow Bentech mounts, secured to horizontal stanchions, locations as per customer spec.
526-010ab	OVERHEAD HANDSTRAPS, QTY	(A),Overhead grabrail handhold straps, quantity - twenty-four.
526-010b	VERT STANCH AT EXITS & RR RISER STEP	(B),Vertical stanchions at exits and rear riser steps - yellow SST.
526-010d	VERT FORE OF S/S FRT W/HOUSE	(C),Vertical stanchion fore of streetside front wheelhouse - black SST (part of drivers door).
526-010da	VERT AFT OF S/S FRT W/HOUSE	(B),Vertical stanchion aft of streetside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).
526-010e	VERT FORE OF C/S FRT W/HOUSE	(A),Vertical stanchion fore of curbside front wheelhouse - black SST.
526-010ea	VERT AFT OF C/S FRT W/HOUSE	(B),Vertical stanchion aft of curbside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).

Option#	Description	Value Description (blank means unset)
526-010f	VERTICAL STANCHIONS AT SEATS	(A),Vertical stanchions at seats - yellow SST.
526-010j	ARTIC JOINT HANDSTRAPS/GRABRAILS	(C),Articulated joint handholds or straps - Muni specific center hoop mounted grabrails with melamine panels..
526-010jb	ARTIC JOINT GRABRAIL COLOUR	(A),Articulated joint grabrail colour - yellow SST.
526-010k	FRONT CURBSIDE LUGGAGE RACK	(A),Front curbside luggage rack - horizontal yellow tube wraps around aft, aisle and fore sides, SST.
526-010m	FAREBOX GRABRAIL	(A),Farebox grabrail - wrap-around, black SST.
526-015	CURBSIDE MODESTY PANEL,FORE UPR DECK	(B),Curbside modesty panel, fore of upper deck - .375" thick melamine.
526-015a	FORE OF UPR DECK MELAMINE MODESTY PNLS	(B),Fore of upper deck melamine modesty panels - charcoal gloss.
526-015b	C/SIDE FORE UPR DECK MOD PNL, GAP	(S),Gap at bottom of curbside fore of upper deck modesty panels - approximately 2" diagonally.
526-015e	UPPER PANEL,C/SIDE FORE OF UPPER DECK	(A),Upper panel at curbside fore of upper deck - clear polycarbonate.
526-015h	STREETSIDE MODESTY PANEL,FORE OF UPR DECK	(A),Streetside modesty panel,fore of upper deck - .375" thick melamine (colour as per option 526-015a).
526-022	DRIVER'S DRAFT SHIELD	(C),Driver's enclosure - clear AS-2 Lexan and black powdercoated steel bi-fold enclosure.
526-035	FORE OF EXIT(S),BARRIERS / GRABRAILS	(A),Fore of exit(s), barriers and grabrails - upper panel, 0.5" clear polycarbonate, wide width panel.
526-039	CENTER EXIT MODESTY PANEL	(B),Modesty panel aft of the center exit door - basic width (colour as per option 526-015a).
526-039e	UPPER PANEL,AFT OF CENTER EXIT	(A),Upper panel at center exit modesty panel - 0.5" clear polycarbonate, basic width.
526-055	EMERGENCY INSTRUCTIONS	(C),Emergency instructions - decals. English, Spanish, and Chinese and Tagalog.
526-070	LUGG RACK AT CENTER AXLE PLATFORM	(A),Luggage rack at center axle platform - not required.
526-NEW	S/SIDE MODESTY PANEL FORE OF CTR AXLE	( C ), Street side modesty panel, fore of center axle platform - .375 thick melamine (color as per option 526-015a)
549-001b	60' HVAC SYSTEM	(C),HVAC system manufacturer and type - Thermo King RLF front and rear rooftop heat units with B-100 rooftop unit for hybrid battery cooling. Safe-T-Walk is provided for rooftop units.
549-002a	HVAC UNIT MOTOR TYPE	(S),HVAC motor type - brushless motor for primary heating & cooling system.
549-002b	REFRIGERANT	(B),Refrigerant - R-134a freon
549-002d	HVAC AIR INTAKE	(B),HVAC air intake - recirculated air only.
549-002ea	HVAC RETURN AIR FILTER	(B),HVAC return air filter - polyester filters installed at the return air grille for RLF rooftop units.
549-002g	HVAC SYSTEM VALVES	(B),HVAC system valves - brass ball valves with basic handles.
549-002h	A/C AND HEATER LINE CLAMPS	(B),A/C and heater line clamps - Ideal.

Option#	Description	Value Description (blank means unset)
549-004	HVAC ELECTRONICS	(B),HVAC electronics - Thermo King Intelligaire 3, valid for A/C or heater units. With limited diagnostic capabilities.
549-004a	HVAC CONTROL PANELS	(B),HVAC control panel - Thermo King, installed at the HVAC unit.
549-020	BOOSTER PUMP	(B),Booster pump - Rotron.
549-025	DEFROSTER	(B),Defroster - 3 speed brushless motor, electrically controlled damper.
549-100	AUXILIARY HEATER	(B),Auxiliary heater - not required.
580-005	WHEELCHAIR RAMP	(B),Wheelchair ramp - NFIL ramp at front door. 32" wide, with 1:7 slope.
580-005a	FRONT RAMP CONTROL	(S),Front ramp control - ramp switch at driver's instrument panel.
580-005d	WHEELCHAIR RAMP,SURFACE	(B),Wheelchair ramp surfaces - covered with Full Metal Jacket anti-skid treatment. The leading edge is yellow FMJ, the side flanges are painted yellow.
600-025	BACK-UP ALARM	(B),Backup alarm - basic alarm located on curbside.
600-065	SDS TRAY QUANTITY	(A),SDS tray quantity - four trays
600-075	FAREBOX PEDESTAL	(C),Farebox pedestal - SST, 7.0" high with Muni specific mounting plate.
600-076	FAREBOX	(B),Farebox - not required.
600-077	FARECARD READER	(C),Farecard reader - Provisions/Harnesses for Muni specific Clipper® system.
600-078	TRANSFER CUTTER	(C),Transfer cutters - one Globe model 303 (two notchers). Installed as per customer specific details.
600-100	CURBSIDE FRONT EQUIPMENT BOX	(A),Curbside front equipment box - black, aluminum with paddle latch, no lock.
600-101	DRIVER'S STORAGE BOX BEHIND SEAT	(A),Driver's storage box behind seat - basic box with paddle latch, no key. The box is to include a chamfer to allow for driver's seat clearance.
600-125	TAKE ONE HOLDERS	(A),Take one holders - required. Type(s) and location(s) specified by customer.
600-125e	TAKE ONES,PASSENGER AREA	(A),Take one holders - in the passenger area, installed on various window pillars.
600-152	TRASH CONTAINERS	(A),Trash container - type and location as per customer spec.
600-175	RADIO,COMMUNICATION SYSTEM	(C),Radio, communication system - partial system installed by NFIL per Muni requirements, additional conduit/provision for secondary radio system.
600-177	AUTOMATIC PASSENGER COUNTER	(A),Automatic passenger counter system - IRMA matrix
600-178	TRAFFIC SIGNAL CONTROL SYSTEM	(C),Traffic signal control system - required. 3M Opticom system with separate emitter and GPS antenna per Specification/Addendum 1.
600-225	VIDEO SURVEILLANCE SYSTEM	(A),Video surveillance system - interior and exterior cameras, quantity, details and location as per customer spec and installation / approval drawing.
600-225a	VIDEO SURVEILLANCE SYSTEM,MFR	(A),Video surveillance system - DTI-Loronix system, equipment as per customer spec.
600-225b	CAMERA COLOUR TYPE	(A),Camera colour type - cameras are a combination of colour and colour with infrared capabilities.
600-268	TURN ANNUNCIATOR SYSTEM	(C),Turn annunciator system - Mallory Sonalert SC628JR beepers at curbside exterior center and rear exit door areas to sound when turn signal switches depressed. Override switches to be located in SDS enclosure/compartament.
600-276	FIRE SUPPRESSION NON-CNG	(C),Fire suppression - Amerex Safety Net System. With one 25 lb dry chemical agent tank and one 13 lb dry chemical tank.
600-276b	AMEREX FIRE DETECTION SENSORS	(C), Amerex fire detection sensors - linear wire in engine compartment.fire or smoke conditions in the battery compartment shall actuate a visual and audible alarm at the operator's control panel.
600-300	BICYCLE RACK,MFR/MODEL	(A),Bicycle rack, manufacturer / model - Sportworks, DL2-WP (wide profile), front mounted.

Option#	Description	Value Description (blank means unset)
600-300a	SPORTWORKS BICYCLE RACK MOUNTING	(A),Sportworks bicycle rack mounting - TSB (ten second bracket) quick release slide-in standoff with incorporated pivot.
600-300b	SPORTWORKS BICYCLE RACK REMOVAL	(A),Sportworks bicycle rack removal - quick release rack.
600-300d	SPORTWORKS BICYCLE RK MATL/COLOR	(A),Sportworks bicycle rack material/colour - SST, black powdercoated.
600-300e	BIKE RACK DEPLOY INDICATOR LIGHT	(A),Bike rack deployment indicator light - required.
600-300f	BICYCLE RACK MFR LOGO	(A),Bicycle rack manufacturer logo - provided.
600-300g	BICYCLE RACK INSTRUCTIONS	(A),Bicycle rack instructions - English.
600-NEW	DRIVECAM SYSTEM	(C),Drivecam system - Full Install for Drivecam system.

**13.1.3 SR – 1955**

Option#	Description	Value Description (blank means unset)
100-002	XCELSIOR COACH LENGTH	Xcelsior - 60' coach.
100-003	STRUCTURAL MATERIAL	(B),Structural material - carbon steel/ferritic sst.
100-004	FUEL/PROPULSION SYSTEM	Propulsion system - BAE hybrid with ISL diesel engine.
100-004a	FUEL TYPE	(B),Fuel type - diesel, compatible up to 20% biodiesel.
100-006	DOCKET 90 SPEC	(A),Docket 90 spec - for interior of coach (as per spec).
201-005	BUMPERS	(B),Bumpers - Romeo Rim, three piece, front and rear bumpers. Rear has anti-ride feature.
201-015	TOWING PROVISIONS	(B),Front tow eyes - basic set-up, incorporated in front chassis. Tow adapters are required.
203-005	FRONT AXLE	(B),Front axle - M.A.N. VOK-07-F, GAWR 15,873 lbs. With disc brakes. Hub mount, Knorr cylinders, Ferodo lining.
203-005b	SECUREMENT OF BRAKE LININGS	(S),Securement of brake linings - bonded.
203-005f	ELECTRONIC BRAKE STROKE MONITOR	(A),Electronic brake stroke monitor - MGM E-stroke system.
203-011	SHOCK ABSORBERS	(S),Shock absorbers - Koni.
203-014	FRONT STABILIZER BAR	(C),Front stabilizer bar provided - SR specific application is approved by NF Engineering.
203-050	FRT AXLE AND WHEEL SPLASH APRONS	(A),Front axle and wheel splash aprons - full width, fore of axle and wheels. Also, two additional aprons aft of the wheels.
204-005	REAR AXLE	(B),Rear axle - M.A.N. 4.56:1. Model HY-1350-F. GAWR 28,660. With disc brakes, hub mount, Knorr cylinder, Ferodo lining.
204-005b	CENTER AXLE	(B),Center axle - ZF model AVN132-NF1, GAWR 25,350. With disc brakes, hub mount, Knorr cylinder, Ferodo lining.
204-005d	REAR AXLE GEAR OIL	(B),Rear axle gear oil - petroleum based.
204-070	REAR AXLE DRAIN PLUGS	(B),Rear axle drain plug - magnetic external hex head.
204-140	REAR AXLE AND WHEEL SPLASH APRONS	(S),Rear axle and wheel splash aprons - one piece behind RR axle, two behind RR wheels and two pieces behind centre wheels.
205-005	TIRES	(B),Tires - 305/70R/22.5, customer supplied Michelin X InCity Z (65 mph).
205-005a	TIRE BRANDING	(A),Tire branding - required as per spec.
205-010b	WHEELS	(A),Wheels - Alcoa 22.5" x 8.25" aluminum. Polished Durabright finish both sides.
209-005	POWER STEERING PUMP	(A),Power steering pump - Ixetic (Luk) power steering pump powered by 24V Parker Motor mounted at the front street side.
209-005a	POWER STEERING HOSES	(S),Power steering hoses - NFIL (Manuli) Equator 2 and GH100 hose at steering box and NFIL (Manuli) Equator 2 in engine compartment.
209-005b	POWER STEERING DIAGNOSTIC FTGS	(A),Power steering diagnostic fittings - at steering box.
209-008	POWER STEERING RESERVOIR	(S),Power steering reservoir - required.
209-008d	POWER STEERING DRAIN PLUG	(B),Power steering drain plug - magnetic plug.
209-010	POWER STEERING UNIT	(S),Steering box - Sheppard M110, power assisted, frame mounted.
209-060	POWER STEERING SYSTEM FLUID	(B),Power steering system fluid - Dexron III, mineral based.



Option#	Description	Value Description (blank means unset)
219-001a	ENGINE,HP,TORQUE,TYPE	(B),Engine - Cummins ISL 2015 diesel (hybrid), 330 horsepower with 1050 LB FT torque (Allison system de-rates engine to 240HP for H40EP, and 300HP for H50EP). Uses SCR (Selective Catalytic Reduction) system to attain 2015 emissions standard
219-005a	ENGINE AIR COMPRESSOR	(C), Engine air compressor - Scroll electric compressor
219-005db	ALTERNATOR BAE	(A),Alternator - BAE APS2 (Accessory Power System). Note: Replaces belt drive alternator, supports full electrification of accessories.
219-005e	CUMMINS DIESEL FUEL FILTERS	(B),Cummins diesel fuel filters - for ISL's, Cummins primary and secondary fuel filter system.
219-005f	CUMMINS DIPSTICK,LOCATION	(S),Cummins dipstick, location - static oil level indicator, on streetside of engine.
219-005g	ENGINE & TRANS FLUID FILL TAGS	(S),Fluid fill ID tags - for engine and transmission dipsticks.
219-005h	ROAD SPEED	(A),Road speed - top road speed is governed. Set at 62 MPH (100 KPH).
219-010	TRANSMISSION/HYBRID DRIVE	(S),Hybrid drive - as per BAE hybrid system, HDS 300.
219-010a	TRANSMISSION SHIFTING	(S),Transmission shifting - foot on brake enables shift when in neutral.
219-010p	FLUID,HYBRID DRIVES	(S),Transmission fluid - Transynd synthetic.
219-025	AIR CLEANER	(B),Air cleaner - Donaldson. Reusable housing with disposable cartridge/filter.
219-025a	AIR RESTRICTION INDICATOR	(B),Air restriction indicator (air filter minder gauge) - mounted to a bracket on the curbside of the engine gauge/switchbox.
219-035	EXHAUST SYSTEM	(S),SST Exhaust system - Cummins diesel particulate filter (DPF).
219-035a	EXHAUST TAIL PIPE ORIENTATION	(B),Exhaust tail pipe orientation - curved pipe set to 45 degrees to streetside.
219-035b	EXHAUST BLANKETS FOR CUMMINS DIESEL OR CNG	(B),Cummins Diesel / CNG exhaust blankets - provided for the exhaust tubes.
219-045	ENGINE SWITCH BOX	(B),Engine switch box - basic configuration with run control, start and engine compartment light switches. Located at curbside of center rear in engine compartment.
219-045b	ENGINE SPEED CONTROL AT SW BOX	(A),Engine speed control at engine switch box - Morse throttle (controls engine RPM).
219-050	ENGINE COMPT GAUGES,BASIC	(S),Engine compartment gauges - CAN communicator programmable to multiple functions. Located at engine switchbox.
219-090	P-CLIPS,ENGINE COMPT & HVAC	(B),Engine compartment and HVAC system p-clips - UMPCO 775 SST with high temperature boxed silicon cushion provided to secure air and fluid lines to structure.
219-175	BELT GUARD	(B),Belt guard - the engine pulley guard is provided with hinges.
219-175a	BELT GUARD LATCHING	(B),Belt guard latching - rubber hood latch.
219-195	OIL SAMPLING	(C),Oil sampling - required for engine, using easy access probalizer fittings.
219-810	DEF(DIESEL EXH FLUID) TANK	(B),DEF (diesel exhaust fluid) tank - manual fill is set in the lower curbside fusebox access door with NFIL fill cap.
231-005	RADIATOR,CAC,HYDR FLUID COOLER	(A),Radiator - EMP cooling system with full diagnostic capabilities (individual fan speed control). Radiator with 9 fans, XPL2D. Required for LAT up to 120 F @ sea level.
231-005d	RADIATOR DRAIN VALVES	(A),Radiator drain valve - brass hex head plug.
231-010a	ENGINE COMPARTMENT & HVAC HOSES	(S),Engine compartment and HVAC hoses - a combination NFIL (Manuli) Equator 1, Equator 2, Nozone and GH100 hose for fluid and air system hoses.
231-020	SURGE TANK	(B),Surge tank - 5 gallon cylindrical SST tank.
231-020a	LOW COOLANT INDICATION / SENSORS	(S),Low coolant indication / sensors - an early warning sensor at the surge tank signals the instrument panel Low Coolant telltale. A lower sensor signals engine shutdown and the Check Engine and Low Coolant telltales.

Option#	Description	Value Description (blank means unset)
231-020b	SURGE TANK PRESSURE TEST PORT	(B),Surge tank pressure test port - provided.
231-020d	SURGE TANK PRESSURE RELIEF VALVE	(B),Surge tank pressure relief valve - Radiator cap (LEV-R VENT), built into surge tank cap.
231-020e	SURGE TANK SIGHT GLASS	(S),Surge tank sight glass - graduated sight glass (glass material).
231-040	COOLANT TUBES	(S),Coolant tubes - SST.
231-075	COOLANT FLUID/ANTIFREEZE	(B),Coolant fluid / antifreeze - 50/50 pre-mixed distilled water with ethylene glycol with anti-corrosion additive and bittering agent. Pink fluid.
231-085	TRANSMISSION/HYBRID DRIVE OIL COOLER	(S),Hybrid drive oil cooler - built into rad for BAE hybrids.
231-085a	TRANSMISSION/HYBRID OIL COOLER HOSES	(S),Transmission / hybrid drive oil cooler hoses - NFIL (Manuli) Equator 1.
231-120	COOLANT RECOVERY TANK	(S),Coolant Recovery tank - required.
234-005	WATER FILTER	(A),Water filter - for Cummins, single release filter, pre-charged, with 1/4 turn ball shut-off valves.
241-005	DIESEL FUEL TANK MATERIAL	(B),Diesel fuel tank material - cross-linked polyethylene.
241-005a	DIESEL TANK CAPACITY AND FILL TYPE	(B),Diesel fuel tank capacity and fill type - 125 useable US gallons. Pressure fill.
241-005b	DIESEL FILLER CAP	(B),Diesel fuel fill cap - posi-snap flip type.
241-005c	DIESEL FUEL SENDER	(S),Diesel fuel sender - required.
241-005d	DIESEL FUEL LEVEL INDICATION	(B),Diesel fuel level indication - not required.
241-010	DIESEL FUEL HOSES,ENGINE COMPT	(S),Diesel fuel hoses in engine compartment - GH100.
241-010a	DIESEL FUEL LINES,TANK TO BULKHEAD	(S),Diesel fuel lines from fuel tank to bulkhead - orange, fuel grade nylon tubing.
246-001	AIR COMPRESSOR DISCHARGE LINE	(S),Air compressor discharge line - Teflon 2807 SST braided hose.
246-005	AIR TANKS	(C),Air tanks - three dual compartment ceiling-mounted tanks combining wet and rear brake tanks, front accessory and kneeling tanks, rear accessory and kneeling and three single tanks for front brake, center brake and center kneeling tanks.
246-005b	AIR TANK DRAIN VALVES	(B),Air tank drain valves - manual.
246-015	KNEELING	(S),Kneeling - full front kneeling with rapid recovery.
246-015b	LEVELING VALVES	(S),Leveling valves - Barksdale.
246-020	ENTR/EXIT DOOR INTERLOCK	(C),Door interlock - Brake valve actuator on treadle valve, applied to entrance and exit doors. Foot on brake to release interlock, applied via multiplex system programming.
246-040	DRIVER'S PARK BRAKE ALARM	(A),Driver's park brake alarm - a switch in the driver's seat cushion triggers alarm to alert the driver that the park brake is not set. A light at the instrument panel is also activated.
246-040a	PARK BRAKE PRESSURE SETTING	(S),Park brake pressure setting - park brake light is activated at 60 psi.
246-060	AIR DRYER	(C),Air dryer - Graham White, "SludgeBreaker", QBA60NX5, w/ 24V heater, 12/24V purge control, dryer boost protection, high performance air dryer.
246-060a	AIR DRYER LOCATION	(S),Air dryer location - behind the rear streetside wheelhouse, on the bulkhead.
246-060d	AIR DRYER VOLTAGE	(A),Air dryer voltage - 24 volt.

Option#	Description	Value Description (blank means unset)
246-065	PARK BRAKE ACTUATION	(B),Park brake actuation - Pull To Apply.
246-065a	PARK/EMERG BRAKE LOCATION	(S),Park brake control location - on side console panel.
246-105a	REAR AIR CHARGE FITTING LOCATION	(S),Rear air charge fitting location - routed to curbside of engine.
246-105b	REAR AIR CHARGE CONNECTOR TYPE	(C),Rear air charge connector type - male 1/4" Amflo CP1 fitting.
246-120	FRONT TOW CONNECTOR	(C),Front tow connector fitting - 1/4" male Amflo CP1 fitting with tag.
246-120a	FRONT AIR CONNECTOR ARRANGEMENT	(B),Front air connector arrangement - located below the bumper, streetside.
246-125	FRONT AIR CHARGE CONNECTOR	(B),Front air charge connector - 1/4" male Amflo CP1 fitting with tag.
246-130	FLEXIBLE AIR LINES	(S),Flexible air lines - Synflex colour coded. Green: rear service brakes and supplies. Red: front service brakes. Brown: parking brake. Black: accessories and brake hose. Yellow: compressor and governor. Blue: suspension.
246-225	ABS	(S),ABS braking system - Wabco.
246-230	TRACTION CONTROL	(B),Automatic traction control - Wabco system, to reduce drive wheel overspin.
246-NEW	INCLINE RAISE FEATURE	(C),Incline raise feature - air suspension steep incline feature required per Muni specifications.
260-005a	TWO BATTERIES,TYPE / MFR	(C),Batteries - two 8D AGM/Deka 1450CCA maintenance free batteries (mfr East Penn Batteries). Post connection 3/8" positive X 3/8" negative.
260-005d	BATTERY CABLES	(S),Battery cables - red heat shrink on 24 volt positive cable end and light blue heat shrink on 12 volt positive cable end.
260-010	BATTERY TRAY	(S),Battery tray - slide out battery acid resistant polyethylene enclosure with SST sub frame, SST bearings and rubber isolation mounts. Located aft of the curbside rear wheelhouse. Note: battery access door opens to the side.
260-025	POSITIVE BATTERY DISCONNECT SW	(A),Positive battery disconnect switch - required with quick access through flip-open door. Uses a micro-switch for engine shutdown.
260-030	BATTERY VOLTAGE EQUALIZER	(B),Battery voltage equalizer - Vanner 80 amp.
260-035	JUMP START MANUFACTURER	(C),Jumpstart - Anderson model 6322 G1 connector.
260-035a	JUMP START LOCATION	(A),Jump start location - near the battery disconnect switch at the fusebox. Accessible via the flip-open door.
260-820	ROOF FAIRING / SKIRTS ENCLOSURE	(S),Roof fairing / skirt enclosure - fairing with full length skirts for XDE's.
269-002	P.A. AMPLIFIER MFR / TYPE	(A),P.A. amplifier manufacturer / type - included with AVA or AVL system.
269-005	INTERIOR SPEAKER MFR	(B),Interior speaker manufacturer - TCB.
269-005bb	PRIMARY INTERIOR SPEAKERS,QTY FOR 60'	(B),Primary interior speakers, quantity - eight: six to light panels, two above rear bench.
269-010	EXTERIOR SPEAKERS,LOCATION	(B),Exterior speaker, location - at basic location above entrance. Includes baffled cover.
269-010a	EXTERIOR SPEAKER MFR	(B),Exterior speaker manufacturer - Shekonic.
273-005	HEADLIGHTS	(S),Headlights - NFIL Xcelsior LED low beam and halogen high beam headlights.
273-005a	DAY RUN HEADLIGHTS	(B),Day run headlights - required.

Option#	Description	Value Description (blank means unset)
273-005b	FRONT TURN SIGNALS	(S),Front turn signals - NFIL amber LED. Integrated with headlight assembly.
273-010	TAIL LIGHTS QTY PER SIDE	(B),Tail lights quantity per side - four.
273-010ab	FOUR TAIL LIGHT ARRANGEMENT	(B),Four tail light arrangement (top to bottom) - amber, red, red, white.
273-010b	TAIL LIGHTS MFR	(B),Red / amber tail light manufacturer - 4" Dialight LED.
273-010d	WHITE BACK-UP LIGHT MFR	(S),White back-up light manufacturer - 4" Dialight LED.
273-010e	STOP LIGHTS ON WITH RTRDR/REGEN BRAKE	(B),Stop light activation by transmission retarder / regenerative braking - required.
273-010f	STOP LIGHTS ON WITH PARK BRAKE OR INTERLOCK	(S),Stop light activation - when park brake or interlock are engaged.
273-015	CENTER STOP / DECELERATION LIGHTS	(A),Center stop lights (red) - two Dialight 18" X 1" LED above the engine door.
273-020a	SIDE TURN SIGNALS,TYPE / QTY PER SIDE	(B),Side turn signals, type and quantity per side - 3 amber Dialight LED with guards. Lamps are at fore of all wheelhouses except curbside front which is aft. For 60' coaches.
273-025	KNEELING/RAMP LIGHT AT ENTRANCE	(S),Kneeling / ramp deployment warning light at entrance - 2.5" Dialight LED.
273-025b	SIDE TURN SIGNAL FUNCTIONALITY	(C),Side turn signal functionality - Sonalert/beeper at curbside exterior center and rear exit door areas to sound when turn signal switches depressed. Override switches to be located in SDS enclosure/compartment.
273-035	MARKER / CLEARANCE LIGHTS	(S),Marker and clearance lights - Dialight LED all around.
273-040	REFLECTORS	(S),Reflectors - self-adhesive decals installed at NFIL basic positions.
273-045	REAR LICENCE PLATE LIGHT	(B),Rear licence plate light - LED.
273-050a	TIMED SHUT-OFF,ENTR AREA LIGHTS	(B),Timed shut-off of entrance area lights (interior and/or exterior) - the program is set to shut the lights off when the door closes.
273-055a	TIMED SHUT-OFF,EXIT AREA LIGHTS	(C),Timed shut-off of exit area lights (interior and/or exterior) - the program is set to shut the lights off three seconds after the door closes.
273-112	CURBSIDE CORNERING LIGHT	(C),Curbside cornering lights - two, one curbside lamp located behind each exit door.
277-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 277 group equipment.
277-005	INTERIOR PASSENGER LIGHTING	(B),Interior passenger lighting - TCB LED, 24 VDC.
277-005f	INTERIOR LED LIGHT FUNCTIONALITY	(B),Interior LED light functionality-first bank of light on each side turn on when entrance door is opened and off when door is closed.
277-010a	TINTED LED PASSENGER LIGHT COVERS	(B),Tinted LED passenger light covers - white for all lights.
277-015	FAREBOX LIGHT	(B),Farebox light - one swivel light with a replaceable LED bulb.
277-020	DRIVER'S LIGHT	(B),Driver's light - one sealed 2.5" white high output LED light.
277-030	ENGINE COMPARTMENT LIGHTS	(B),Engine compartment lights - four 1.38" LED lights.
277-035	REAR DECK STEP LIGHT	(S),Rear deck step light - LED.
277-040	INTERIOR DOOR HEADER LIGHTS	(B),Interior door header lights - one LED strip light (approx 18" long) provided above exit (if applicable) and entrance doors. With anti-glare shield.
277-070a	REAR PLC AND FUSEBOX SERVICE LIGHTS	(S),Rear PLC compartment and fusebox lights - provided, LED.

Option#	Description	Value Description (blank means unset)
277-080	ARTIC JOINT AREA LIGHTS	(B),Articulated joint area lights - TCB LED lights, two aft facing.
280-001a	PASSENGER SIGNAL CHIMES, FOR 60'	(B),Passenger signal chimes - for 60' coach with two exits. Two basic electronic chimes, one above driver and one at rear exit. Chimes have a single tone which sounds once for regular activation, twice for wheelchair positions.
280-002	PASSENGER SIGNAL PULLCORDS	(B),Passenger pullcords - yellow cords are required.
280-002a	PASSENGER PULLCORD HARDWARE	(B),Passenger pullcord hardware - Phillips.
280-003	HORIZONTAL PASSENGER SIGNAL PULLCORDS	(B),Horizontal passenger signal pullcords - set at NFIL designated basic height.
280-005a	60' FRT UNIT VERT PULLCORDS	(C),Front unit vertical pullcords - Six, three at first, second, and third streetside pillars and three at first, third, and fourth curbside pillars forward of the joint.
280-005b	RR UNIT LWR DECK VERT PULLCORDS, FOR 60'	(B),Rear unit vertical pullcords - two: at first street and curbside pillars forward of the face of the upper deck.
280-005e	SECUREMENT OF VERTICAL PULLCORDS	(B),Securement of vertical pullcords to horizontals - looped or clamped to the horizontal depending on the location.
280-010	FRONT STOP REQUEST SIGN TYPE/POSITION	(C),Front stop request sign type / position - Smartrend LED installed in the destination sign door.
280-010a	FRONT STOP REQUEST SIGN TEXT	(B),Front stop request sign text - Stop Requested.
280-010b	FRONT STOP REQUEST SIGN LETTERING	(B),Front stop request sign lettering - upper case.
280-012	STOP REQUEST SIGN COLOURS	(B),Stop request sign colours - white letters on a red background.
280-015	PASS SIGNAL @ WHEELCHAIR POSITIONS	(C),Passenger signals at wheelchair positions - Muni specific push button mounted to flip-up seat.
280-025	PUSH BUTTON SIGNAL AT EXIT AREA	(C),Push button signal at exit - LFR style switches mounted facing aisle on stanchions fore of each exit.
280-025a	PUSH BUTTONS,VERT & SEAT STANCHI	(C),Push button passenger signals on vertical seat stanchions - LFR style buttons at specified vertical stanchions.
284-001	ELECTRONIC CONTROL SYSTEM	(S),Electronic control system - Vansco.
284-001a	SYSTEM VOLTAGE	(S),System voltage - 24 VDC primary, 12 VDC secondary.
284-001b	SWITCHES	(S),Switches - water resistant.
284-001d	SPARE INPUT/OUTPUT PORTS	(S),Spare I/O (Input/Output) ports for multiplex system modules - minimum 10% input and 10% output.
284-005g	HAZARD WARNING LIGHTS	(S),Hazard warning lights - front, side and rear lights flash for hazard warning.
286-001	INSTRUMENT PANEL	(B),Instrument panel - acrylic material with luminescent lighting, with Vansco Instrument Panel Cluster module including LCD display screen.
286-001a	SHIFT SELECTOR LOCATION	(S),Shift selector - located on instrument panel.
286-001b	EXTERIOR LAMP TEST	(S),Exterior lamp test - simultaneously depress both turn signals.
286-010a	SPEEDOMETER	(S),Speedometer - part of Vansco instrument panel cluster. Set to display miles. With odometer (the display can be toggled to show Trip1, Trip 2, engine hours).
286-010b	AUDIBLE SOUND,TURN SIGNALS/HAZARDS	(B),Turn signal and hazard warning audible sound - using click sound for turn signal and for hazard warning.
286-010e	BRK/ACCEL INTERLOCK DEACTIV WRNG	(A),Brake accelerator interlock deactivated warning - provided by audible alarm and separate red warning lamp on instrument panel. (Must have in California.)

Option#	Description	Value Description (blank means unset)
286-055	DOOR MASTER SWITCH LOCATION	(B),Door master switch location - in sawtooth panel above driver.
286-055b	HYBRID REGEN SWITCH LOCATION	(B),Regenerative braking switch location - in sawtooth panel above driver.
286-065	SILENT ALARM	(C),Silent alarm - Motorola switch per specification required.
286-065a	SILENT ALARM SW LOCATION	(A),Silent alarm switch location - at side console.
286-070	DIAGNOSTICS PLUG LOCATIONS	(S),Diagnostic plug locations - under the front dash (left of the steering column), at fwd face of the SDS barrier (above driver) and at the engine switch box and one BAE diagnostic connector at fwd face of the SDS.
286-070a	ACCESSORY POWER PLUG	(A),Accessory power plug - at forward face of the SDS barrier (above driver).
289-001	SECUREMENT OF HARNESSSES	(S),Securement of harnesses - hellerman tyton clamps, with Panduit releasable cable ties.
296-001	WIRING DECAL,REAR PLC AND FUSEBOX	(S),Wiring decal, rear PLC and fusebox - provided, laminated.
296-001a	WIRING DECAL,SIDE CONSOLE	(B),Wiring decal, side console - laminated, shipped loose.
304-001a	EXTERIOR PAINT TYPE	(S),Exterior paint type - Axalta Imron Elite high solids polyurethane.
304-001aa	EXTERIOR PAINT CLEARCOAT	(A),Exterior paint clearcoat - required.
304-010	CORROSION PROTECTION	(B),Corrosion protection - grit blasted frame, moisture cure zinc-rich primer (applied for 12 year warranty protection), anti-chip undercoating, corrosion preventive coating sprayed inside frame tubes up to roof line.
304-015	EXTERIOR LOGOS,NFIL	(B),Exterior logos, NFIL - required.
304-015b	EXT DECALS,CUSTOMER SPECIFIC	(C),Exterior decals, customer-specific - as per spec/MRL.
304-020	NFIL SAFETY AND MAINTENANCE DECALS	(B),New Flyer safety and maintenance related decal package - English.
304-020a	INTERIOR DECALS, CUSTOMER SPECIFIC	(A),Customer specific interior decals - required.
304-020b	INTERIOR PASSENGER RELATED DECALS,LANGUAGE	(C),Interior passenger related decals, language - Combination of English and English/Spanish/Chinese.
304-020d	INTERIOR FLEET NUMBER DECALS	(B),Interior fleet number decals - required.
304-025	KNEELING / RAMP DECALS	(C),Kneeling / ramp decals - None provided per SFMTA Specification.
304-030	AIR TANK DECALS	(B),Air tank decals - NFIL basic.
304-035	EXT FLEET NUMBERS,NON-ROOF	(B),Exterior fleet numbers, non-roof - required (reflective or non-reflective as per spec).
304-035a	EXTERIOR FLEET NUMBERS,ROOF	(A),Exterior fleet numbers, roof - required (reflective or non-reflective as per spec).
304-700	HYBRID SAFETY DECALS	(B),Hybrid safety decals - required.
306-005	FIRE EXTINGUISHERS	(B),Fire extinguisher - 5 lb ABC class. With gauge, hose and mounting bracket. UL compliant for US customers.
306-005a	FIRE EXTINGUISHER LOCATION	(A),Fire extinguisher location - inside the curbside equipment box.
306-010	SAFETY TRIANGLES	(B),Safety triangles - triangle reflector.
306-010a	SAFETY TRIANGLE LOCATION	(A),Safety triangle location - in equipment box on curbside luggage rack.

Option#	Description	Value Description (blank means unset)
350-001	DRIVER'S PEDALS, POSITION / TYPE	(A),Driver's pedals positions / type - adjustable pedal assembly.
350-002b	ADJUSTABLE PEDAL BRAKE/THROTTLE ANGLE	(B),Brake / Throttle pedal angle - brake set at 45 degrees, throttle at 45 degrees from pedal to floor.
350-005	BRAKE VALVES	(B),Brake valve - E6.
350-015	TURN SIGNAL SWITCHES	(B),Turn signal switches - basic switches, floor mounted.
350-015a	DIMMER SWITCH	(B),Dimmer switch - basic foot switch.
350-015b	P.A. SYSTEM SWITCH	(A),P.A. system switch - foot switch.
350-015d	HAZARD WARNING LIGHT SW LOCATION	(B),Hazard warning light switch location - on side console.
350-030	STEERING COLUMN	(B),Steering column - Douglas Autotech with tilt and telescopic features.
350-030a	STEERING WHEEL	(C),Steering wheel - 2 spoke, 18" diameter hard padded (molded PVC).
350-035	DUAL HORN	(S),Dual horn - provided with splash shield.
400-001a	JACKING / LIFTING PADS	(B),Jacking / lifting pads - 4" diameter pads at front and rear chassis.
405-001	ARTICULATED JOINT	(B),Articulated joint - ATG, grey bellows
420-005	DEFROSTER ACCESS DOOR	(B),Defroster access door - top hinged with two gas struts, quarter turn 5/16" square key quad latches.
420-010	EXTERIOR SIDE PANELS	(S),Exterior lower side panels - fiberglass.
420-035a	CURB & STREET ENG,S/CONS DOORS,STRUTS	(B),Struts for curb and street side engine compartment, side console access doors - supported by gas struts.
420-035d	CURB SIDE ENGINE COMPT DOOR	(B),Curb side engine compartment door - includes battery disconnect switch access door (using a gas strut) and a DEF manual fill access door set in upper part of the door.
420-035e	BATTERY COMPARTMENT DOOR	(B),Battery compartment door - solid door located aft of the curb side rear wheel, separate from the engine compartment.
420-035f	STREET SIDE ENGINE COMPT DOOR	(B),Streetside engine (radiator) access door - with wavy screen.
420-040	DIESEL FUEL FILL DOOR	(B),Diesel fuel fill door - basic hinged door located forward of the curbside rear wheelhouse.
420-040a	SURGE TANK DOOR	(B),Surge tank door - basic hinged door.
420-045	SIDE CONSOLE DOOR LATCHES	(S),Side console door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050	ENGINE DOOR	(A),Engine door - screened door with built-in handle.
420-050a	ENGINE DOOR STRUTS	(B),Engine door struts - two, the streetside strut has a locking mechanism.
420-050b	ENGINE DOOR LATCHES	(B),Engine door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050e	REAR LICENSE PLATE RETENTION	(B),Rear license plate retention - centered with bottom retainer and two upper inserts.
420-060	RAIN GUTTER	(S),Rain gutter - .44" cross section bonded.
420-065	ROOF HATCHES / VENTS	(B),Roof hatches / vents - two basic hatches at front and rear, 24" X 24".
420-065a	ROOF HATCH INSTRUCTION LANGUAGE	(B),Roof hatch instruction language - English.
420-070	WIPERS	(B),Wipers - wet arm Sprague 24 volt electric. Intermittent.

Option#	Description	Value Description (blank means unset)
420-075	WINDSHIELD WASHER BOTTLE	(B),Washer bottle - 5 US gallon with electric powered pump.
420-075a	WINDSHIELD WASHER FILL LOCATION	(S),Windshield washer fill location - accessed via a flip-out door built into the exterior side console access door.
420-080	LOWER DRIVER'S VENT	(B),Lower driver's vent - provided.
420-120	FENDERS	(B),Fenders - molded polyurethane.
420-121	S1 WHEEL GUARDS	(C),S1 wheel guard - required, forward of center and rear wheels - curbside.
420-125	EXTERIOR UPPER REAR	(B),Exterior upper rear - fiberglass panel with no door and no window.
420-135	LOCATION,FRONT LICENSE PLATE	(C),Front license plate location - at streetside of defroster door.
420-135a	FRONT LICENSE PLATE RETENTION	(B),Front license plate retention - four inserts.
421-010	INSULATION,SIDEWALL AND ROOF	(S),Insulation, sidewall and roof - polyisocyanurate foam. meets Docket 90 spec.
421-020	INSULATION,EXHAUST CAVITY	(S),Exhaust cavity insulation - Heat-resistant fiberglass mat.
421-030	ENGINE COMPARTMENT INSULATION	(S),Engine compartment insulation - noise reduction acoustical foam, retained by perforated aluminum panels.
422-001	DOCKET 90 SPEC	(A),Docket 90 spec - review for 422 group components.
422-005	CEILING PNLS AFT OF FRT W/HS INCL RR PLC	(B),Ceiling panels aft of the front wheelhouses (including rear PLC) - Antique white plastic, SST trim.
422-005a	CEILING / HVAC COVER PANELS ABOVE FRT W/HS	(B),Ceiling / HVAC cover panels above front wheelhouses - Antique White fiberglass.
422-006	ENTRANCE/DRIVER'S AREA PANELS	(C),Entrance/driver's area panels colour - black. Includes dash, dest sign c/out, ent. mech. box, driver's o/head panels. and if used, ent. floor heat duct, frt. RH harness cover is painted flat black.
422-006b	DRIVER'S CEILING PANEL MATERIAL	(B),Driver's ceiling panel material - melamine.
422-009	INTERIOR PIER PANEL MATERIAL	(B),Interior pier panel material - thermoplastic.
422-010	PIER PANEL COLOUR	(B),Pier panel colour - Antique white, thermoplastic.
422-015b	INTERIOR SIDEWALL MELAMINE	(B),Interior sidewall melamine colour - Charcoal Grey Gloss.
422-025	INTERIOR ENGINE COMPT ACCESS PANEL	(S),Interior engine compartment access panel - there is a single hinged panel under the rear seat.
422-035	INTERIOR UPPER REAR PANEL	(A),Interior upper rear panel - bulkhead panel covered with carpet / fabric material. With large central access door.
422-035a	CARPET / FABRIC,UPR REAR INT PANEL	(B),Upper rear interior carpeted / fabric panel - Charcoal Grey carpet with 1/2" plywood backing.
422-035e	C/S,S/S RR BULKHEAD ACCESS PANELS	(B),Curb and street side rear bulkhead access panels - carpeted DB plywood.
422-050a	HRNS/AIR LINE COVERS AT UPPER DECK	(B),Harness / air line covers at upper deck - painted flat black.
422-060	FRT DEST SIGN DOOR LATCHES	(B),Front destination sign door latches - short wing quad latches.
422-061	DRIVER'S OVERHEAD PANEL	(S),Driver's overhead panel - with locker.
422-061a	DRIVER'S LOCKER LATCH	(C), Driver's locker latch - short wing quad latch with pull tab.
422-065	DRIVER'S COAT HOOK AND STRAP	(B),Driver's coat hook and strap - located on the forward face of the harness cover behind the driver.



Option#	Description	Value Description (blank means unset)
422-070	SECURE DIAGNOSTIC STATION	(B),Secure diagnostic station - above street side front wheelhouse. Incorporates driver's barrier. With four Take One pockets. Quantity of trays as per customer and / or as per electronic equipment within compartment.
422-070a	SDS ENCLOSURE COLOUR	(B),SDS enclosure colour - Flat Black with Cashmere Black melamine panel.
422-070b	SDS ENCLOSURE DOOR LATCHES	(C),SDS enclosure door latches - Two 5/16" square key quad latch and paddle latch with CH751 key.
422-085	FRONT SUNVISOR / ROLLERBLINDS	(A),Front sunvisor - black padded.
422-085a	SIDE SUNVISOR / ROLLERBLIND	(C),Side sunvisor - black padded visor for high mount mirror.
422-090	SQUARE KEY T-HANDLE	(B),Square key t-handle - located at lower left of driver.
422-105	ENTRANCE MECHANISM BOX DOOR LATCH	(S),Entrance mechanism box door latches - two short wing quad latches.
422-160	GRAB HANDLE NEAR FRONT ROOF HATCH	(B),Grab handle near front roof hatch - required.
422-210	ARTICULATED JOINT CLOSEOUTS	(A),Articulated joint closeouts - Pewter Grey.
422-NEW	NEW OPTION,422 GROUP	(C), Rear PLC and bulkhead access doors with tamperproof latches.
423-010	AD FRAMES,SDS BOX	(C),Interior ad frame - Two 17" X 11" clear holders. Located on rear face of SDS Enclosure and aisle facing door.
450-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 450 group equipment.
450-010	INSTL-PLYWOOD FLOORING	(A),Flooring - lower deck uses Milwaukee composite flooring. Upper deck uses fiberglass composite for step and floor to the rear wheelhouses and Milwaukee composite flooring to the rear.
450-013	DRIVESHAFT / TRANSMISSION ACCESS PANELS	(A),Driveshaft / transmission access panels - two panels set in the floor, one to access the driveshaft and the other to access the transmission.
450-025a	ALTRO FLOOR COVERING	(C),Altro floor covering - Rocket TFFG 2704F (2.7 mm / 0.11" thick), for aisle and underseats.
450-025e	STEP TO UPPER DECK	(C),Step to upper deck - yellow anti-slip coating is applied to the edges and vertical faces of the step. Yellow/black caution stripe decals at each step.
450-025f	STANDEE LINE	(B),Standee line - yellow.
450-025g	ENTRANCE NOSING	(B),Entrance nosing - nosing is 2" wide yellow anti-skid applied to the ramp.
450-025h	EXIT NOSING	(C),Exit nosing - 2.5" yellow nosing and 2.0" yellow standee line in vestibule area at edge of exit door opening/sweep. Altro / Tarabus flooring.
450-025j	REAR SEAT RISER COVERING MATERIAL	(B),Rear seat riser covering material - same material and colour as used for the flooring.
450-025k	GRIT FLOORING AT ARTIC JOINT	(B),Grit flooring at articulated joint - black non-aggregate anti-slip coating.
450-030	DRIVER'S PLATFORM FLOORING	(A),Driver's platform flooring - Altro.
450-030a	DRIVER'S PLATFORM TRIM	(B),Driver's platform trim - SST.
450-045	OUTER WHEELHOUSES	(B),Outer wheelhouses - SST front and rear.
450-055	INTERIOR FRONT W/HOUSE (LUGG RACK) COLOURS	(B),Interior front wheelhouse (luggage rack) colours - Matte black, painted stipple. An LED aisle light is provided on the streetside. Also, SST scuff guards are provided.
460-005	WINDSHIELDS	(B),Windshield - 72% light transmittance green laminated. With blue shade band for street and curb sides.

Option#	Description	Value Description (blank means unset)
460-005a	WINDSHIELD PROTECTIVE FILM	(B),Windshield protective film - required for coach delivery beyond a 500 mile radius of Final Assembly.
460-010	PASS / DRVR'S WINDOWS MANUFACTURER	(B),Passenger and driver's windows, manufacturer - Arow Global (Stormite) non-flush mounted.
460-010b	NON-FLUSH PASSENGER WINDOWS	(C),Non-flush passenger windows - bottom is fixed, top slider.
460-010e	NON-FLUSH WINDOW GLAZING	(C),Non-flush window glazing - grey, 55% light transmittance, laminated.
460-010h	WINDOW FRAME COLOUR	(C),Window frame colour - all window frames are clear anodized.
460-010j	WINDOW EMERGENCY EGRESS	(S),Emergency egress windows - minimum quantity based on FMVSS requirements or the customer spec, whichever is the greater of the two.
460-010k	SIDE DESTINATION SIGN WINDOWS	(C),Destination sign window - curb and street sides. Fixed clear top and fixed bottom. Bottom matches passenger window glazing. (review 470 for side sign details).
460-010n	WINDOW GLAZING REPLACEMENT	(A),Window glazing replacement for servicing - rapid replacement.
460-010p	PASS WINDOW LINERS AND COATINGS	(C),Window liners and coatings - .12" acrylic liners on all windows.
460-010s	PASS WINDOW THICKNESS	(B),Passenger window thickness - 6 mm.
460-011a	DRIVER'S WINDOW, NON-FLUSH	(B),Driver's window, non-flush mounted - with fore and aft sliding sashes. The forward sash has exterior and interior handles. Non-egress.
460-011b	AFT SASH, NON-FLUSH DRIVER'S WINDOW	(B),Aft sash, non-flush driver's window - with interior handle and latch.
460-011d	DRIVER'S WINDOW GLAZING	(B),Driver's window glazing - laminated with minimum 70% light transmittance.
460-011e	DRIVER'S WINDOW SHADE BAND	(B),Driver's window shade band - not required.
470-001	DESTINATION SIGNS MFR	(A),Destination sign mfr - Twin Vision Smart Series, LED display system.
470-001a	DEST SIGN CONTROL UNIT LOCATION	(B),Destination sign control unit location - under driver's overhead panel.
470-005a	TWIN VISION FRT.DEST.SIGNS	(A),Twin Vision front destination sign - LED Chroma I, 16 X 156, 4 amber matrix boards and 1 colour board with a single LED. Will be programmed with white test pattern, customer to reprogram sign in color after acceptance.
470-010	FRONT DESTINATION SIGN GLASS	(A),Front destination sign glass - heated and laminated.
470-025	CURB SIDE DESTINATION SIGN LOCATION	(A),Curbside destination sign location - at the second window, aft of the entrance door.
470-025b	TWIN VISION CURBSIDE DEST.SIGNS	(A),Twin Vision curbside destination sign - LED, amber, 8 x 96 (37.4" wide display).
470-026	STREETSIDE DESTINATION SIGN	(C),Street side dest/route sign - required at #3 streetside window (first window rear of SDS compartment).
470-030	FRONT ROUTE SIGN	(C),Front route sign - Twin Vision LED, 14 x 40, addressable.
470-035	REAR ROUTE SIGN, LOCATION	(B),Rear route sign location - at the upper curb side. For non-CNG coaches.
470-035b	TWIN VISION REAR ROUTE SIGNS	(A),Twin Vision rear route sign - LED, amber 16 X 48.
470-060b	CLEVER DEVICES (DIGITAL RECORDER) AVA SYSTEM	(A),Clever Devices,(DRI,Digital Recorder) AVA system - full system installed by NFIL, including antenna(s), cabling, ground plates and all required system components as per customer spec.
470-060f	ACS (ORBITAL/TMS) AVA SYSTEM	(C),ACS (Orbital / TMS) AVL system - provisions. Includes installation of antenna(s), cabling and ground plates as per customer spec.

Option#	Description	Value Description (blank means unset)
470-060k	AVA/AVL LED SIGN & LOCATION	(C),AVA/AVL LED sign and location - required on the front and rear HVAC overhead enclosures and at the center exit door area.
470-061	AUTO VEHICLE MONITORING SYSTEM (AVM)	(A),Automatic Vehicle Monitoring (AVM) system - Fleetwatch required as per spec/MRL.
470-075	NEW FLYER CONNECT-DIAGNOSTIC & MONITORING SYSTEM	(A),New Flyer Connect-Diagnostic & Monitoring - required with driver maneuver awareness system (DMAS).
470-NEW	NEXTBUS SYSTEM	(C),Nextbus system - Installation of complete system including antenna.
480-005	STREET SIDE MIRROR MANUFACTURER	(B),Street side mirror manufacturer - Hadley.
480-005a	HADLEY STREET SIDE MIRROR	(B),Hadley street side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-005b	STREET SIDE MIRROR POWER OPTIONS	(A),Street side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-005f	STREET SIDE MIRROR ARM	(A),Street side mirror arm - mirror arm springs back to its previously set position after deflection.
480-005g	STREET SIDE MIRROR MOUNT	(A),Street side mirror mount - high mount.
480-006	CURB SIDE MIRROR MANUFACTURER	(B),Curb side mirror manufacturer - Hadley.
480-006a	HADLEY CURB SIDE MIRROR	(B),Hadley curb side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-006b	CURB SIDE MIRROR POWER OPTIONS	(B),Curb side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-006e	CURB SIDE MIRROR ARM	(B),Curb side mirror arm - basic, pull-back. Mirror arm is manually returned to its previously set position after deflection. Mirror can be folded forward or backward for bus wash.
480-010	INTERIOR MIRRORS,MANUFACTURER	(A),Interior mirrors, manufacturer - Hadley.
480-010a	DRIVER'S REAR VIEW MIRROR	(B),Driver's rear view mirror - 8" x 15", black, convex.
480-010b	SPOT MIRROR	(B),Spot mirror - 6" diameter flat mirror, located at curb side front.
480-010d	EXIT DOOR MIRROR	(B),Exit door mirror - convex, 12" diameter.
490-001	ENT DOOR DRIVE SYS	(A),Entrance door drive system - Electric
490-005	ENTRANCE DOOR	(B),Entrance door - Vapor slide glide.
490-005a	ENTR DOOR LIMIT SWITCH SET-UP	(A),Entrance door limit switch - solid state proximity switch.
490-005d	ENTRANCE DOOR MAGNETIC DUMP VALVE	(B),Entrance door magnetic dump valve - required, located at baseplate.
490-005f	ENTR/EXIT FRANG COVER LANGUAGE	(C),Entrance / exit door frangible cover instructions (for emergency release), language - English. Additional scoring required on exit door frangible cover.
490-006	ENTRANCE DOOR HANDLES	(B),Entrance door handles - yellow powder coated.
490-015	ENTRANCE DOOR CONTROLLER	(B),Entrance door controller - basic with 5 position settings.
490-015a	DOOR CONTROLLER HANDLE	(B),Entrance door control handle - non-removable.
490-030	ENTRANCE DOOR GLAZING	(S),Entrance door glass - full length single piece, 72% green.
491-001	EXIT DOOR DRIVE SYS	(A),Exit door drive system - Electric

Option#	Description	Value Description (blank means unset)
491-005	EXIT DOOR	(B),Exit door - wide Ameriview Vapor Slide Glide, 45.2" between panels. 60' coach with two exits, one at front and one at rear unit.
491-005a	SLIDE GLIDE EXIT LIMIT SWITCH	(A),Exit door limit switch - solid state proximity switch.
491-005b	EXIT DOOR CONTROL	(A),Exit door control - Vapor Class Acoustic Sensing System. Activates door opening and detects obstruction on closing.
491-005ba	CLASS SYSTEM DOOR DECAL	(C),Class system door decal - English, Spanish, Tagalog, and Chinese, text and characters as per customer requirement.
491-005d	EXIT DOOR SENSITIVE EDGE	(B),Exit door sensitive edge - sensor on the vertical edge provided with all exit doors.
491-005g	EXIT FRANGIBLE COVER SECUREMENT	(C),Exit frangible cover securement - magnetic latch with screw.
491-005j	EXIT BASEPLATE / ELEC PNL ACCESS	(B),Exit baseplate access- at each exit door, Tcb set-up, through removable ad frame.
491-006	EXIT DOOR ASSIST HANDLES	(B),Exit door assists - yellow powdercoated.
491-020	EXIT DOOR GREEN LIGHT	(B),Exit door green light - LED green light indicates that the exit door is set to open.
491-035	EXIT DOOR GLASS SIZE	(B),Exit door glass size - full length.
491-035a	EXIT DOOR GLAZING	(B),Exit door glazing - 6 mm.
491-NEW	EXIT DOOR EXTERNAL BUTTONS	(C),Exit door external buttons - Two flush mounted "Elevator Style" external switches mounted on either side of the exit doors to permit passenger loading/entry from exit.
526-001b	60' PASSENGER SEAT QTY	(C),60' passenger seat quantity - 45.
526-005	PASSENGER SEAT MANUFACTURER	(B),Passenger seat manufacturer - American Seating.
526-005b	AMERICAN SEATING SEATS	(A),American Seating passenger seats - Vision stainless seat. Details as per customer spec.
526-005ba	AMERICAN SEATING D90 SPEC	(B),American Seating passenger seats D90 spec - not required.
526-005d	REAR BENCH SEAT	(S),Rear bench seat - 1-3-1 hinged seat.
526-005e	PASSENGER SEAT MOUNTING	(B),Passenger seat mounting - cantilever.
526-005f	SEAT MOUNTED GRABRAIL	(A),Seat mounted grabrails - stainless steel.
526-005h	FIRST SEAT,CURBSIDE UPPER REAR	(B),First seat at curbside upper rear - forward facing.
526-005i	PASSENGER SEATING BARRIER	(B),Passenger seating barrier - pedestal mounted barrier.
526-005j	SEAT POSITION, FORWARD OF REAR EXIT	(B),Seat position, forward of rear exit - forward facing.
526-005k	ARTICULATED JOINT SEATS	(B),Articulated joint seats -not required.
526-005l	SEAT FWD OF ARTIC JOINT AREA	(A),Seat forward of artic joint - two rearward facing on each side.
526-006	DRIVER'S SEAT MANUFACTURER	(A),Driver's seat manufacturer - USSC.
526-006a	USSC DRIVER'S SEAT MODEL	(A),USSC driver's seat model - 9100 ALX. The fore / aft seat travel is 11.8". Has 2 point seat belt. Has air suspension and lumbar.
526-006f	DRIVER'S SEAT MATERIAL	(B),Driver's seat material - all vinyl.
526-006g	DRIVER'S SEAT BELT	(C),Driver's seat belt - orange colored lap belt with retractor on right hand side.

Option#	Description	Value Description (blank means unset)
526-006ga	DRIVER'S SEAT BELT ALARM	(A),Driver's seat belt alarm - required to warn driver that seat belt is not connected.
526-006j	DRIVER'S SEAT,DOCKET 90 SPEC	(B),Driver's seat D90 spec - Not required.
526-006k	DRIVER'S SEAT BASE RISER	(A),Driver's seat base (riser) - SST.
526-006m	DRIVER'S SEAT PARK BRAKE ALARM	(A),Driver's seat park brake alarm - switch is required in seat cushion to trigger driver's park brake alarm (ref. option 246-040).
526-006s	DRVR'S SEAT HEADREST	(B),Driver's seat headrest - required.
526-007	WHEELCHAIR POSITIONS,QUANTITY	(C),Wheelchair positions - Three. One fwd of the exit door curbside and TWO aft of the streetside front wheelhouses.
526-007a	W/CHAIR POSITIONS,RESTRAINT SYSTEM	(A),Wheelchair restraint system - padded barrier/restraint system for rearward facing w/chr position(s) and restraint system for forward facing w/chr position(s). Mfr, position, mat'l color/type and details as per customer spec.
526-007e	SHOULDER HARNESS,W/CHR RESTRAINT	(C),Shoulder harness for wheelchair restraints - secured to structure (pier panel), one on streetside only (for rear facing wheelchair position).
526-010	STANCHION / GRABRAIL STYLE	(B),Stanchion / grabrail style - curved style vertical stanchions. Using cast SST fittings for vertical and horizontal stanchions.
526-010a	OVERHEAD HORIZONTAL GRABRAILS	(A),Overhead horizontal grabrails - yellow SST.
526-010aa	OVERHEAD HANDSTRAPS,TYPE	(C),Handhold straps on overhead grabrails - flexible grey PVC straps in yellow Bentech mounts, secured to horizontal stanchions, locations as per customer spec.
526-010ab	OVERHEAD HANDSTRAPS,QTY	(A),Overhead grabrail handhold straps, quantity - twenty-four.
526-010b	VERT STANCH AT EXITS & RR RISER STEP	(B),Vertical stanchions at exits and rear riser steps - yellow SST.
526-010d	VERT FORE OF S/S FRT W/HOUSE	(C),Vertical stanchion fore of streetside front wheelhouse - black carbon. (part of drivers door).
526-010da	VERT AFT OF S/S FRT W/HOUSE	(B),Vertical stanchion aft of streetside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).
526-010e	VERT FORE OF C/S FRT W/HOUSE	(A),Vertical stanchion fore of curbside front wheelhouse - black SST.
526-010ea	VERT AFT OF C/S FRT W/HOUSE	(B),Vertical stanchion aft of curbside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).
526-010f	VERTICAL STANCHIONS AT SEATS	(A),Vertical stanchions at seats - yellow SST.
526-010j	ARTIC JOINT HANDSTRAPS/GRABRAILS	(C),Articulated joint handholds or straps - Muni specific center hoop mounted grabrails with melamine panels..
526-010jb	ARTIC JOINT GRABRAIL COLOUR	(A),Articulated joint grabrail colour - yellow SST.
526-010k	FRONT CURBSIDE LUGGAGE RACK	(A),Front curbside luggage rack - horizontal yellow tube wraps around aft, aisle and fore sides, SST.
526-010m	FAREBOX GRABRAIL	(A),Farebox wrap-around stanchion - black SST. Requires known farebox location.
526-015	CURBSIDE MODESTY PANEL,FORE UPR DECK	(B),Curbside modesty panel, fore of upper deck - .375" thick melamine.
526-015a	FORE OF UPR DECK MELAMINE MODESTY PNLS	(B),Fore of upper deck melamine modesty panels - charcoal gloss.
526-015b	C/SIDE FORE UPR DECK MOD PNL, GAP	(S),Gap at bottom of curbside fore of upper deck modesty panels - approximately 2" diagonally.

Option#	Description	Value Description (blank means unset)
526-015e	UPPER PANEL,C/SIDE FORE OF UPPER DECK	(A),Upper panel at curbside fore of upper deck - 0.5" clear polycarbonate,basic width.
526-015h	S/S BARRIER/MODESTY PANEL,FORE OF UPR DECK	(B),Streetside barrier/modesty panel,fore of upper deck - .375" thick melamine (colour as per option 526-015a).
526-032	DRIVER'S DOOR	(C),Driver's door - clear AS-2 Lexan, Two Piece, Full height driver's door.
526-035	FORE OF EXIT(S),BARRIERS / GRABRAILS	(A),Fore of exit(s), barriers and grabrails - upper panel, 0.5" clear polycarbonate, wide width panel.
526-039	CENTER EXIT MODESTY PANEL	(B),Modesty panel aft of the center exit door - basic width (colour as per option 526-015a).
526-039e	UPPER PANEL,AFT OF CENTER EXIT	(A),Upper panel at center exit modesty panel - 0.5" clear polycarbonate,basic width.
526-055	EMERGENCY INSTRUCTIONS	(C),Emergency instructions - decals. English, Spanish, and Chinese and Tagalog.
526-070	LUGG RACK AT CENTER AXLE PLATFORM	(A),Luggage rack at center axle platform - not required.
526-NEW	NEW OPTION,526 GROUP	(C),Street side modesty panel, fore of center axle platform - 0.375 thick melamine (color as per option 526-015a)
549-001b	60' HVAC SYSTEM	(A),HVAC system manufacturer and type - Thermo King RLF front and rear rooftop heat units. Safe-T-Walk is provided for rooftop units.
549-002a	HVAC UNIT MOTOR TYPE	(S),HVAC motor type - brushless motor for primary heating & cooling system.
549-002d	HVAC AIR INTAKE	(B),HVAC air intake - recirculated air only.
549-002ea	HVAC RETURN AIR FILTER	(B),HVAC return air filter - polyester filters installed at the return air grille for RLF rooftop units.
549-002g	HVAC SYSTEM VALVES	(S),HVAC system valves - brass ball valves with basic handles.
549-002h	A/C AND HEATER LINE CLAMPS	(S),A/C and heater line clamps - Ideal.
549-004	HVAC ELECTRONICS	(B),HVAC electronics - Thermo King Intelligaire 3, valid for A/C or heater units. With limited diagnostic capabilities.
549-004a	HVAC CONTROL PANELS	(B),HVAC control panel - Thermo King, installed at the HVAC unit.
549-004b	HVAC PROGRAM SETTINGS	(B),HVAC program settings - APTA standard
549-020	BOOSTER PUMP	(C),Booster pump - Rotron.
549-025	DEFROSTER	(B),Defroster - 3 speed brushless motor, electrically controlled damper.
549-100	AUXILIARY HEATER	(B),Auxiliary heater - not required.
580-005	WHEELCHAIR RAMP	(B),Wheelchair ramp - NFIL ramp at front door. 32" wide, with 1:7 slope.
580-005a	FRONT RAMP CONTROL	(S),Front ramp control - ramp switch at driver's instrument panel.
580-005d	WHEELCHAIR RAMP,SURFACE	(B),Wheelchair ramp surfaces - covered with Full Metal Jacket anti-skid treatment. The leading edge is yellow FMJ, the side flanges are painted yellow.
600-025	BACK-UP ALARM	(B),Backup alarm - basic alarm located on curbside.
600-065	SDS TRAY QUANTITY	(A),SDS tray quantity - four trays total.
600-075	FAREBOX PEDESTAL	(C),Farebox pedestal - SST, 7.0" high with Muni specific mounting plate.
600-076	FAREBOX	(B),Farebox - not required.
600-077	FARECARD READER	(C),Farecard reader - Provisions/Harnesses for Muni specific Clipper® system.

Option#	Description	Value Description (blank means unset)
600-078	TRANSFER CUTTER	(C),Transfer cutters - one Globe model 303 (two notchers). Installed as per customer specific details.
600-100	CURBSIDE FRONT EQUIPMENT BOX	(A),Curbside front equipment box - black, aluminum with paddle latch, no lock.
600-101	DRIVER'S STORAGE BOX BEHIND SEAT	(A),Driver's storage box behind seat - basic box with paddle latch, no key. The box is to include a chamfer to allow for driver's seat clearance.
600-125	TAKE ONE HOLDERS	(A),Take one holders - required. Type(s) and location(s) specified by customer.
600-125e	TAKE ONES,PASSENGER AREA	(A),Take one holders - in the passenger area, installed on various window pillars.
600-152	TRASH CONTAINERS	(A),Trash container - type and location as per customer spec.
600-175	RADIO,COMMUNICATION SYSTEM	(C),Radio, communication system - partial system installed by NFIL per Muni requirements, additional conduit/provision for secondary radio system.
600-177	AUTOMATIC PASSENGER COUNTER	(A),Automatic passenger counter system - IRMA matrix
600-178	TRAFFIC SIGNAL CONTROL SYSTEM	(C),Traffic signal control system - required. 3M Opticom 2101/ASM 2807 GPS controlled system.
600-225	VIDEO SURVEILLANCE SYSTEM	(A),Video surveillance system - interior and exterior cameras, quantity, details and location as per customer spec and installation / approval drawing.
600-225a	VIDEO SURVEILLANCE SYSTEM,MFR	(A),Video surveillance system - DTI-Loronix system, equipment as per customer spec.
600-225b	CAMERA COLOUR TYPE	(A),Camera colour type - cameras are a combination of colour and colour with infrared capabilities.
600-268	TURN ANNUNCIATOR SYSTEM	(C),Turn annunciator system - Mallory Sonalert SC628JR beepers at curbside exterior center and rear exit door areas to sound when turn signal switches depressed. Override switches to be located in SDS enclosure/compartment.
600-276	FIRE SUPPRESSION	(C),Fire suppression - Amerex Safety Net System. With one 25 lb dry chemical agent tank and one 13 lb dry chemical tank.
600-276b	AMEREX FIRE DETECTION SENSORS	(C), Amerex fire detection sensors - linear wire in engine compartment. fire or smoke conditions in the battery compartment shall actuate a visual and audible alarm at the operator's control panel.
600-300	BICYCLE RACK,MFR/MODEL	(A),Bicycle rack, manufacturer / model - Sportworks, DL2-WP (wide profile), front mounted.
600-300a	SPORTWORKS BICYCLE RACK MOUNTING	(A),Sportworks bicycle rack mounting - TSB (ten second bracket) quick release slide-in standoff with incorporated pivot.
600-300b	SPORTWORKS BICYCLE RACK REMOVAL	(A),Sportworks bicycle rack removal - quick release rack.
600-300d	SPORTWORKS BICYCLE RK MATL/COLOR	(A),Sportworks bicycle rack material/colour - SST, black powdercoated.
600-300e	BIKE RACK DEPLOY INDICATOR LIGHT	(A),Bike rack deployment indicator light - required.
600-300f	BICYCLE RACK MFR LOGO	(A),Bicycle rack manufacturer logo - provided.
600-300g	BICYCLE RACK INSTRUCTIONS	(A),Bicycle rack instructions - English.
600-NEW	DRIVECAM SYSTEM	(C),Drivecam system - Full Install for Drivecam system.

**13.1.4 SR – 1961**

Option#	Description	Value Description (blank means unset)
100-002	XCELSIOR COACH LENGTH	Xcelsior - 60' coach.
100-003	STRUCTURAL MATERIAL	(B),Structural material - carbon steel/ferritic sst.
100-004	FUEL/PROPULSION SYSTEM	Propulsion system - Allison hybrid with ISL diesel engine.
100-004a	FUEL TYPE	(B),Fuel type - diesel, compatible up to 20% biodiesel.
100-006	DOCKET 90 SPEC	(A),Docket 90 spec - for interior of coach (as per spec).
201-005	BUMPERS	(B),Bumpers - Romeo Rim, three piece, front and rear bumpers. Rear has anti-ride feature.
201-015	TOWING PROVISIONS	(B),Front tow eyes - basic set-up, incorporated in front chassis. Tow adapters are required.
203-005	FRONT AXLE	(B),Front axle - M.A.N. VOK-07-F, GAWR 15,873 lbs. With disc brakes. Hub mount, Knorr cylinders, Ferodo lining.
203-005b	SECUREMENT OF BRAKE LININGS	(S),Securement of brake linings - bonded.
203-005f	ELECTRONIC BRAKE STROKE MONITOR	(A),Electronic brake stroke monitor - MGM E-stroke system.
203-011	SHOCK ABSORBERS	(S),Shock absorbers - Koni.
203-014	FRONT STABILIZER BAR	(C),Front stabilizer bar provided - SR specific application is approved by NF Engineering.
203-050	FRT AXLE AND WHEEL SPLASH APRONS	(A),Front axle and wheel splash aprons - full width, fore of axle and wheels. Also, two additional aprons aft of the wheels.
204-005	REAR AXLE	(B),Rear axle - M.A.N. 4.56:1. Model HY-1350-F. GAWR 28,660. With disc brakes, hub mount, Knorr cylinder, Ferodo lining.
204-005b	CENTER AXLE	(B),Center axle - ZF model AVN132-NF1, GAWR 25,350. With disc brakes, hub mount, Knorr cylinder, Ferodo lining.
204-005d	REAR AXLE GEAR OIL	(B),Rear axle gear oil - petroleum based.
204-070	REAR AXLE DRAIN PLUGS	(B),Rear axle drain plug - magnetic external hex head.
204-140	REAR AXLE AND WHEEL SPLASH APRONS	(S),Rear axle and wheel splash aprons - one piece behind RR axle, two behind RR wheels and two pieces behind centre wheels.
205-005	TIRES	(B),Tires - 305/70R/22.5, customer supplied Michelin X InCity Z (65 mph).
205-005a	TIRE BRANDING	(A),Tire branding - required as per spec.
205-010b	WHEELS	(A),Wheels - Alcoa 22.5" x 8.25" aluminum. Polished Durabright finish both sides.
209-005	POWER STEERING PUMP	(B),Power steering pump - Ixetic (Luk) power steering pump powered off engine accessory drive.
209-005a	POWER STEERING HOSES	(S),Power steering hoses - NFIL (Manuli) Equator 2 and GH100 hose at steering box and NFIL (Manuli) Equator 2 in engine compartment.
209-008	POWER STEERING RESERVOIR	(S),Power steering reservoir - required.



Option#	Description	Value Description (blank means unset)
209-008d	POWER STEERING DRAIN PLUG	(B),Power steering drain plug - magnetic plug.
209-010	POWER STEERING UNIT	(S),Steering box - Sheppard M110, power assisted, frame mounted.
209-060	POWER STEERING SYSTEM FLUID	(B),Power steering system fluid - Dexron III, mineral based.
219-001a	ENGINE,HP,TORQUE,TYPE	(B),Engine - Cummins ISL 2015 diesel (hybrid), 330 horsepower with 1050 LB FT torque (Allison system de-rates engine to 240HP for H40EP, and 300HP for H50EP). Uses SCR (Selective Catalytic Reduction) system to attain 2015 emissions standard
219-005a	ENGINE AIR COMPRESSOR	(B),Air compressor - Wabco HD 30.4, twin cylinder, turbo aspirated.
219-005da	ALTERNATOR ISL HYBRIDS	(A),Alternator - Niehoff C803, 28 volt, 500 amp, belt driven. Used with Niehoff regulator with data logging feature.
219-005e	CUMMINS DIESEL FUEL FILTERS	(B),Cummins diesel fuel filters - for ISL's, Cummins primary and secondary fuel filter system.
219-005f	CUMMINS DIPSTICK,LOCATION	(S),Cummins dipstick, location - static oil level indicator, on streetside of engine.
219-005g	ENGINE & TRANS FLUID FILL TAGS	(S),Fluid fill ID tags - for engine and transmission dipsticks.
219-005h	ROAD SPEED	(C),Road speed - top road speed is governed. Set at 63 MPH (101 KPH).
219-010	TRANSMISSION/HYBRID DRIVE	(S),Hybrid drive - Allison H50EP
219-010a	TRANSMISSION SHIFTING	(S),Transmission shifting - foot on brake enables shift when in neutral.
219-010f	ALLISON TRANS FLUID LEVEL DISPLAY	(B),Allison transmission fluid level display - display provided.
219-010p	FLUID,HYBRID DRIVES	(S),Transmission fluid - Transynd synthetic.
219-025	AIR CLEANER	(A),Air cleaner - Donaldson. Reusable housing with disposable cartridge/filter.
219-025a	AIR RESTRICTION INDICATOR	(C),Air restriction indicator - mounted to a bracket on the curbside of the engine gauge/switchbox.
219-035	EXHAUST SYSTEM	(S),SST Exhaust system - Cummins diesel particulate filter (DPF).
219-035a	EXHAUST TAIL PIPE ORIENTATION	(B),Exhaust tail pipe orientation - curved pipe set to 45 degrees to streetside.
219-035b	EXHAUST BLANKETS FOR CUMMINS DIESEL OR CNG	(B),Cummins Diesel / CNG exhaust blankets - provided for the exhaust tubes.
219-045	ENGINE SWITCH BOX	(B),Engine switch box - basic configuration with run control, start and engine compartment light switches. Located at curbside of center rear in engine compartment.
219-045b	ENGINE SPEED CONTROL AT SW BOX	(A),Engine speed control at engine switch box - Morse throttle (controls engine RPM).
219-050	ENGINE COMPT GAUGES,BASIC	(S),Engine compartment gauges - CAN communicator programmable to multiple functions. Located at engine switchbox.
219-090	P-CLIPS,ENGINE COMPT & HVAC	(B),Engine compartment and HVAC system p-clips - UMPCO 775 SST with high temperature boxed silicon cushion provided to secure air and fluid lines to structure.
219-175	BELT GUARD	(B),Belt guard - the engine pulley guard is provided with hinges.
219-175a	BELT GUARD LATCHING	(B),Belt guard latching - rubber hood latch.
219-195	OIL SAMPLING	(C),Oil sampling - required for engine, using easy access probalizer fittings.

Option#	Description	Value Description (blank means unset)
219-810	DEF(DIESEL EXH FLUID) TANK	(B),DEF (diesel exhaust fluid) tank - manual fill is set in the lower curbside fusebox access door with NFIL fill cap.
231-005	RADIATOR	(C),Radiator - EMP cooling system with full diagnostic capabilities. GEN IV Radiator with 4 fans (Model MH4)
231-005d	RADIATOR DRAIN VALVES	(A),Radiator drain valve - brass hex head plug.
231-010a	ENGINE COMPARTMENT & HVAC HOSES	(S),Engine compartment and HVAC hoses - a combination NFIL (Manuli) Equator 1, Equator 2, Nozone and GH100 hose for fluid and air system hoses.
231-020	SURGE TANK	(B),Surge tank - 5 gallon cylindrical SST tank.
231-020a	LOW COOLANT INDICATION / SENSORS	(S),Low coolant indication / sensors - an early warning sensor at the surge tank signals the instrument panel Low Coolant telltale. A lower sensor signals engine shutdown and the Check Engine and Low Coolant telltales.
231-020b	SURGE TANK PRESSURE TEST PORT	(B),Surge tank pressure test port - provided.
231-020d	SURGE TANK PRESSURE RELIEF VALVE	(B),Surge tank pressure relief valve - Radiator cap (LEV-R VENT), built into surge tank cap.
231-020e	SURGE TANK SIGHT GLASS	(S),Surge tank sight glass - graduated sight glass (glass material).
231-040	COOLANT TUBES	(S),Coolant tubes - SST.
231-075	COOLANT FLUID/ANTIFREEZE	(B),Coolant fluid / antifreeze - 50/50 pre-mixed distilled water with ethylene glycol with anti-corrosion additive and bittering agent. Pink fluid.
231-085	TRANSMISSION/HYBRID DRIVE OIL COOLER	(S),Hybrid drive oil cooler - EMP for Allison hybrid drives for ISL engine.
231-085a	TRANSMISSION/HYBRID OIL COOLER HOSES	(S),Transmission / hybrid drive oil cooler hoses - NFIL (Manuli) Equator 1.
231-120	COOLANT RECOVERY TANK	(S),Coolant Recovery tank - required.
234-005	WATER FILTER	(B),Water filter - not required.
241-005	DIESEL FUEL TANK MATERIAL	(B),Diesel fuel tank material - cross-linked polyethylene.
241-005a	DIESEL TANK CAPACITY AND FILL TYPE	(B),Diesel fuel tank capacity and fill type - 125 useable US gallons. Pressure fill.
241-005b	DIESEL FILLER CAP	(B),Diesel fuel fill cap - posi-snap flip type.
241-005c	DIESEL FUEL SENDER	(S),Diesel fuel sender - required.
241-005d	DIESEL FUEL LEVEL INDICATION	(B),Diesel fuel level indication - not required.
241-010	DIESEL FUEL HOSES,ENGINE COMPT	(S),Diesel fuel hoses in engine compartment - GH100.
241-010a	DIESEL FUEL LINES,TANK TO BULKHEAD	(S),Diesel fuel lines from fuel tank to bulkhead - orange, fuel grade nylon tubing.
246-001	AIR COMPRESSOR DISCHARGE LINE	(S),Air compressor discharge line - Teflon 2807 SST braided hose.
246-005	AIR TANKS	(C),Air tanks - three dual compartment ceiling-mounted tanks combining wet and rear brake tanks, front accessory and kneeling tanks, rear accessory and kneeling and three single tanks for front brake, center brake and center kneeling tanks.
246-005b	AIR TANK DRAIN VALVES	(B),Air tank drain valves - manual.

Option#	Description	Value Description (blank means unset)
246-015	KNEELING	(S),Kneeling - full front kneeling with rapid recovery.
246-015b	LEVELING VALVES	(S),Leveling valves - Barksdale.
246-020	ENTR/EXIT DOOR INTERLOCK	(C),Door interlock - Brake valve actuator on treadle valve, applied to entrance and exit doors. Foot on brake to release interlock, applied via multiplex system programming.
246-040	DRIVER'S PARK BRAKE ALARM	(A),Driver's park brake alarm - a switch in the driver's seat cushion triggers alarm to alert the driver that the park brake is not set. A light at the instrument panel is also activated.
246-040a	PARK BRAKE PRESSURE SETTING	(S),Park brake pressure setting - 40 psi auto-apply park brake valve. 60 psi pressure switch for park brake light activation.
246-060	AIR DRYER	(C),Air dryer - Graham White, "SludgeBreaker", QBA60NX5, w/ 24V heater, 12/24V purge control, dryer boost protection, high performance air dryer.
246-060a	AIR DRYER LOCATION	(S),Air dryer location - behind the rear streetside wheelhouse, on the bulkhead.
246-060d	AIR DRYER VOLTAGE	(B),Air dryer voltage - 24 volt.
246-065	PARK BRAKE ACTUATION	(B),Park brake actuation - Pull To Apply.
246-065a	PARK/EMERG BRAKE LOCATION	(S),Park brake control location - on side console panel.
246-105a	REAR AIR CHARGE FITTING LOCATION	(S),Rear air charge fitting location - routed to curbside of engine.
246-105b	REAR AIR CHARGE CONNECTOR TYPE	(C),Rear air charge connector type - male 1/4" Amflo CP1 fitting.
246-105f	MUFFLER TANK,REMOTE DRAIN	(B),Muffler tank remote drain valve - required.
246-120	FRONT TOW CONNECTOR	(C),Front tow connector fitting - 1/4" male Amflo CP1 fitting with tag.
246-120a	FRONT AIR CONNECTOR ARRANGEMENT	(B),Front air connector arrangement - located below the bumper, streetside.
246-125	FRONT AIR CHARGE CONNECTOR	(C),Front air charge connector - 1/4" male Amflo CP1 fitting with tag.
246-130	FLEXIBLE AIR LINES	(S),Flexible air lines - Synflex colour coded. Green: rear service brakes and supplies. Red: front service brakes. Brown: parking brake. Black: accessories and brake hose. Yellow: compressor and governor. Blue: suspension.
246-225	ABS	(S),ABS braking system - Wabco.
246-230	TRACTION CONTROL	(B),Automatic traction control - Wabco system, to reduce drive wheel overspin.
246-NEW	INCLINE RAISE FEATURE	(C),Incline raise feature - air suspension steep incline feature required per Muni specifications.
260-005a	TWO BATTERIES,TYPE / MFR	(C),Batteries - two 8D AGM/Deka 1450CCA maintenance free batteries (mfr East Penn Batteries). Post connection 3/8" positive X 3/8" negative.
260-005d	BATTERY CABLES	(S),Battery cables - red heat shrink on 24 volt positive cable end and light blue heat shrink on 12 volt positive cable end.
260-010	BATTERY TRAY	(S),Battery tray - slide out battery acid resistant polyethylene enclosure with SST sub frame, SST bearings and rubber isolation mounts. Located aft of the curbside rear wheelhouse. Note: battery access door opens to the side.
260-025	POSITIVE BATTERY DISCONNECT SW	(A),Positive battery disconnect switch - required with quick access through flip-open door. Uses a micro-switch for engine shutdown.
260-030	BATTERY VOLTAGE EQUALIZER	(B),Battery voltage equalizer - Vanner 80 amp.
260-035	JUMP START MANUFACTURER	(C),Jumpstart - Anderson model 6322 G1 connector.

Option#	Description	Value Description (blank means unset)
260-035a	JUMP START LOCATION	(A),Jump start location - near the battery disconnect switch at the fusebox. Accessible via the flip-open door.
260-700	ALLISON HYBR OIL CLR FAN FAULT INDICATION	(S),Allison hybrid oil cooling system fan fault indication - provided at instrument panel LCD indicator. Also, there is an indication lamp at the engine switchbox.
260-820	ROOF FAIRING / SKIRTS ENCLOSURE	(S),Roof fairing / skirt enclosure - fairing with full length skirts for XDE's.
269-002	P.A. AMPLIFIER MFR / TYPE	(A),P.A. amplifier manufacturer / type - included with AVA or AVL system.
269-005	INTERIOR SPEAKER MFR	(B),Interior speaker manufacturer - TCB.
269-005bb	PRIMARY INTERIOR SPEAKERS,QTY FOR 60'	(B),Primary interior speakers, quantity - eight: six to light panels, two above rear bench.
269-010	EXTERIOR SPEAKERS,LOCATION	(B),Exterior speaker, location - at basic location above entrance. Includes baffled cover.
269-010a	EXTERIOR SPEAKER MFR	(B),Exterior speaker manufacturer - Shekonic.
273-005	HEADLIGHTS	(S),Headlights - NFIL Xcelsior LED low beam and halogen high beam headlights.
273-005a	DAY RUN HEADLIGHTS	(B),Day run headlights - required.
273-005b	FRONT TURN SIGNALS	(S),Front turn signals - NFIL amber LED. Integrated with headlight assembly.
273-010	TAIL LIGHTS QTY PER SIDE	(B),Tail lights quantity per side - four.
273-010ab	FOUR TAIL LIGHT ARRANGEMENT	(B),Four tail light arrangement (top to bottom) - amber, red, red, white.
273-010b	TAIL LIGHTS MFR	(B),Red / amber tail light manufacturer - 4" Dialight LED.
273-010d	WHITE BACK-UP LIGHT MFR	(S),White back-up light manufacturer - 4" Dialight LED.
273-010e	STOP LIGHTS ON WITH RTRDR/REGEN BRAKE	(B),Stop light activation by transmission retarder / regenerative braking - required.
273-010f	STOP LIGHTS ON WITH PARK BRAKE OR INTERLOCK	(S),Stop light activation - when park brake or interlock are engaged.
273-015	CENTER STOP / DECELERATION LIGHTS	(A),Center stop lights (red) - two Dialight 18" X 1" LED above the engine door.
273-020a	SIDE TURN SIGNALS,TYPE / QTY PER SIDE	(B),Side turn signals, type and quantity per side - 3 amber Dialight LED with guards. Lamps are at fore of all wheelhouses except curbside front which is aft. For 60' coaches.
273-025	KNEELING/RAMP LIGHT AT ENTRANCE	(S),Kneeling / ramp deployment warning light at entrance - 2.5" Dialight LED.
273-025b	SIDE TURN SIGNAL FUNCTIONALITY	(C),Side turn signal functionality - Sonalert/beeper at curbside exterior center and rear exit door areas to sound when turn signal switches depressed. Override switches to be located in SDS enclosure/compartment.
273-035	MARKER / CLEARANCE LIGHTS	(S),Marker and clearance lights - Dialight LED all around.
273-040	REFLECTORS	(S),Reflectors - self-adhesive decals installed at NFIL basic positions.
273-045	REAR LICENCE PLATE LIGHT	(B),Rear licence plate light - LED.
273-050a	TIMED SHUT-OFF,ENTR AREA LIGHTS	(B),Timed shut-off of entrance area lights (interior and/or exterior) - the program is set to shut the lights off when the door closes.

Option#	Description	Value Description (blank means unset)
273-055a	TIMED SHUT-OFF,EXIT AREA LIGHTS	(C),Timed shut-off of exit area lights (interior and/or exterior) - the program is set to shut the lights off three seconds after the door closes.
273-112	CURBSIDE CORNERING LIGHT	(C),Curbside cornering lights - two, one curbside lamp located behind each exit door.
277-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 277 group equipment.
277-005	INTERIOR PASSENGER LIGHTING	(B),Interior passenger lighting - TCB LED, 24 VDC.
277-005f	INTERIOR LED LIGHT FUNCTIONALITY	(B),Interior LED light functionality-first bank of light on each side turn on when entrance door is opened and off when door is closed.
277-010a	TINTED LED PASSENGER LIGHT COVERS	(B),Tinted LED passenger light covers - white for all lights.
277-015	FAREBOX LIGHT	(B),Farebox light - one swivel light with a replaceable LED bulb.
277-020	DRIVER'S LIGHT	(B),Driver's light - one sealed 2.5" white high output LED light.
277-030	ENGINE COMPARTMENT LIGHTS	(B),Engine compartment lights - four 1.38" LED lights.
277-035	REAR DECK STEP LIGHT	(S),Rear deck step light - LED.
277-040	INTERIOR DOOR HEADER LIGHTS	(B),Interior door header lights - one LED strip light (approx 18" long) provided above exit (if applicable) and entrance doors. With anti-glare shield.
277-070a	REAR PLC AND FUSEBOX SERVICE LIGHTS	(S),Rear PLC compartment and fusebox lights - provided, LED.
277-080	ARTIC JOINT AREA LIGHTS	(B),Articulated joint area lights - TCB LED lights, two aft facing.
280-001a	PASSENGER SIGNAL CHIMES, FOR 60'	(B),Passenger signal chimes - for 60' coach with two exits. Two basic electronic chimes, one above driver and one at rear exit. Chimes have a single tone which sounds once for regular activation, twice for wheelchair positions.
280-002	PASSENGER SIGNAL PULLCORDS	(B),Passenger pullcords - yellow cords are required.
280-002a	PASSENGER PULLCORD HARDWARE	(B),Passenger pullcord hardware - Phillips.
280-003	HORIZONTAL PASSENGER SIGNAL PULLCORDS	(B),Horizontal passenger signal pullcords - set at NFIL designated basic height.
280-005a	60' FRT UNIT VERT PULLCORDS	(C),Front unit vertical pullcords - Six, three at first, second, and third streetside pillars and three at first, third, and fourth curbside pillars forward of the joint.
280-005b	RR UNIT LWR DECK VERT PULLCORDS, FOR 60'	(B),Rear unit vertical pullcords - two: at first street and curbside pillars forward of the face of the upper deck.
280-005e	SECUREMENT OF VERTICAL PULLCORDS	(B),Securement of vertical pullcords to horizontals - looped or clamped to the horizontal depending on the location.
280-010	FRONT STOP REQUEST SIGN TYPE/POSITION	(C),Front stop request sign type / position - Smartrend LED installed in the destination sign door.
280-010a	FRONT STOP REQUEST SIGN TEXT	(B),Front stop request sign text - Stop Requested.
280-010b	FRONT STOP REQUEST SIGN LETTERING	(B),Front stop request sign lettering - upper case.
280-012	STOP REQUEST SIGN COLOURS	(B),Stop request sign colours - white letters on a red background.

Option#	Description	Value Description (blank means unset)
280-015	PASS SIGNAL @ WHEELCHAIR POSITIONS	(C),Passenger signals at wheelchair positions - Muni specific push button mounted to flip-up seat.
280-025	PUSH BUTTON SIGNAL AT EXIT AREA	(C),Push button signal at exit - LFR style switches mounted facing aisle on stanchions fore of each exit.
280-025a	PUSH BUTTONS,VERT & SEAT STANCHI	(C),Push button passenger signals on vertical seat stanchions - LFR style buttons at specified vertical stanchions.
284-001	ELECTRONIC CONTROL SYSTEM	(S),Electronic control system - Vansco.
284-001a	SYSTEM VOLTAGE	(S),System voltage - 24 VDC primary, 12 VDC secondary.
284-001b	SWITCHES	(S),Switches - water resistant.
284-001d	SPARE INPUT/OUTPUT PORTS	(S),Spare I/O (Input/Output) ports for multiplex system modules - minimum 10% input and 10% output.
284-005g	HAZARD WARNING LIGHTS	(S),Hazard warning lights - front, side and rear lights flash for hazard warning.
286-001	INSTRUMENT PANEL	(B),Instrument panel - acrylic material with luminescent lighting, with Vansco Instrument Panel Cluster module including LCD display screen.
286-001a	SHIFT SELECTOR LOCATION	(S),Shift selector - located on instrument panel.
286-001b	EXTERIOR LAMP TEST	(S),Exterior lamp test - simultaneously depress both turn signals.
286-010a	SPEEDOMETER	(S),Speedometer - part of Vansco instrument panel cluster. Set to display miles. With odometer (the display can be toggled to show Trip1, Trip 2, engine hours).
286-010b	AUDIBLE SOUND,TURN SIGNALS/HAZARDS	(B),Turn signal and hazard warning audible sound - using click sound for turn signal and for hazard warning.
286-010e	BRK/ACCEL INTERLOCK DEACTIV WRNG	(A),Brake accelerator interlock deactivated warning - provided by audible alarm and separate red warning lamp on instrument panel. (Must have in California.)
286-055	DOOR MASTER SWITCH LOCATION	(B),Door master switch location - in sawtooth panel above driver.
286-055b	HYBRID REGEN SWITCH LOCATION	(B),Regenerative braking switch location - in sawtooth panel above driver.
286-065	SILENT ALARM	(C),Silent alarm - Motorola switch per specification required.
286-065a	SILENT ALARM SW LOCATION	(A),Silent alarm switch location - at side console.
286-070	DIAGNOSTICS PLUG LOCATIONS	(B),Diagnostic plug locations - under the front dash (left side of the steering column), at forward face of the SDS barrier (above driver) and at the engine switch box.
286-070a	ACCESSORY POWER PLUG	(A),Accessory power plug - at forward face of the SDS barrier (above driver).
289-001	SECUREMENT OF HARNESSSES	(B),Securement of harnesses - hellerman tyton clamps, with Panduit releasable cable ties.
296-001	WIRING DECAL,REAR PLC AND FUSEBOX	(S),Wiring decal, rear PLC and fusebox - provided, laminated.
296-001a	WIRING DECAL,SIDE CONSOLE	(B),Wiring decal, side console - laminated, shipped loose.
304-001a	EXTERIOR PAINT TYPE	(S),Exterior paint type - Axalta Imron Elite high solids polyurethane.
304-001aa	EXTERIOR PAINT CLEARCOAT	(A),Exterior paint clearcoat - required.

Option#	Description	Value Description (blank means unset)
304-010	CORROSION PROTECTION	(B),Corrosion protection - grit blasted frame, moisture cure zinc-rich primer (applied for 12 year warranty protection), anti-chip undercoating, corrosion preventive coating sprayed inside frame tubes up to roof line.
304-015	EXTERIOR LOGOS,NFIL	(B),Exterior logos, NFIL - required.
304-015b	EXT DECALS,CUSTOMER SPECIFIC	(C),Exterior decals, customer-specific - as per spec/MRL.
304-020	NFIL SAFETY AND MAINTENANCE DECALS	(B),New Flyer safety and maintenance related decal package - English.
304-020a	INTERIOR DECALS, CUSTOMER SPECIFIC	(A),Customer specific interior decals - required.
304-020b	INTERIOR PASSENGER RELATED DECALS,LANGUAGE	(C),Interior passenger related decals, language - Combination of English and English/Spanish/Chinese.
304-020d	INTERIOR FLEET NUMBER DECALS	(B),Interior fleet number decals - required.
304-025	KNEELING / RAMP DECALS	(C),Kneeling / ramp decals - None provided per SFMTA Specification.
304-030	AIR TANK DECALS	(B),Air tank decals - NFIL basic.
304-035	EXT FLEET NUMBERS,NON-ROOF	(B),Exterior fleet numbers, non-roof - required (reflective or non-reflective as per spec).
304-035a	EXTERIOR FLEET NUMBERS,ROOF	(A),Exterior fleet numbers, roof - required (reflective or non-reflective as per spec).
304-700	HYBRID SAFETY DECALS	(B),Hybrid safety decals - required.
306-005	FIRE EXTINGUISHERS	(B),Fire extinguisher - 5 lb ABC class. With gauge, hose and mounting bracket. UL compliant for US customers.
306-005a	FIRE EXTINGUISHER LOCATION	(A),Fire extinguisher location - inside the curbside equipment box.
306-010	SAFETY TRIANGLES	(B),Safety triangles - triangle reflector.
306-010a	SAFETY TRIANGLE LOCATION	(A),Safety triangle location - in equipment box on curbside luggage rack.
350-001	DRIVER'S PEDALS, POSITION / TYPE	(A),Driver's pedals positions / type - adjustable pedal assembly.
350-002b	ADJUSTABLE PEDAL BRAKE/THROTTLE ANGLE	(B),Brake / Throttle pedal angle - brake set at 45 degrees, throttle at 45 degrees from pedal to floor.
350-005	BRAKE VALVES	(S),Brake valve - E6.
350-015	TURN SIGNAL SWITCHES	(B),Turn signal switches - basic switches, floor mounted.
350-015a	DIMMER SWITCH	(B),Dimmer switch - basic foot switch.
350-015b	P.A. SYSTEM SWITCH	(A),P.A. system switch - foot switch.
350-015d	HAZARD WARNING LIGHT SW LOCATION	(B),Hazard warning light switch location - on side console.
350-030	STEERING COLUMN	(B),Steering column - Douglas Autotech with tilt and telescopic features.
350-030a	STEERING WHEEL	(B),Steering wheel - 2 spoke, 18" diameter hard padded.

Option#	Description	Value Description (blank means unset)
350-035	DUAL HORN	(S),Dual horn - provided with splash shield.
400-001a	JACKING / LIFTING PADS	(B),Jacking / lifting pads - 4" diameter pads at front and rear chassis.
405-001	ARTICULATED JOINT	(B),Articulated joint - ATG, grey bellows
420-005	DEFROSTER ACCESS DOOR	(B),Defroster access door - top hinged with two gas struts, quarter turn 5/16" square key quad latches.
420-010	EXTERIOR SIDE PANELS	(S),Exterior lower side panels - fiberglass.
420-035a	CURB & STREET ENG,S/CONS DOORS,STRUTS	(B),Struts for curb and street side engine compartment, side console access doors - supported by gas struts.
420-035d	CURB SIDE ENGINE COMPT DOOR	(C),Curb side engine compartment door - includes battery disconnect switch access door (using a gas strut) and a DEF manual fill access door. MUNI specific door with 1" additional clearance at bottom edge.
420-035e	BATTERY COMPARTMENT DOOR	(B),Battery compartment door - solid door located aft of the curb side rear wheel, separate from the engine compartment.
420-035f	STREET SIDE ENGINE COMPT DOOR	(B),Streetside engine (radiator) access door - with wavy screen.
420-040	DIESEL FUEL FILL DOOR	(B),Diesel fuel fill door - basic hinged door located forward of the curbside rear wheelhouse.
420-040a	SURGE TANK DOOR	(B),Surge tank door - basic hinged door.
420-045	SIDE CONSOLE DOOR LATCHES	(B),Side console door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050	ENGINE DOOR	(B),Engine door - solid door with built-in handle.
420-050a	ENGINE DOOR STRUTS	(B),Engine door struts - two, the streetside strut has a locking mechanism.
420-050b	ENGINE DOOR LATCHES	(B),Engine door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050e	REAR LICENSE PLATE RETENTION	(B),Rear license plate retention - centered with bottom retainer and two upper inserts.
420-060	RAIN GUTTER	(S),Rain gutter - .44" cross section bonded.
420-065	ROOF HATCHES / VENTS	(B),Roof hatches / vents - two basic hatches at front and rear, 24" X 24".
420-065a	ROOF HATCH INSTRUCTION LANGUAGE	(B),Roof hatch instruction language - English.
420-070	WIPERS	(B),Wipers - wet arm Sprague 24 volt electric. Intermittent.
420-075	WINDSHIELD WASHER BOTTLE	(B),Washer bottle - 5 US gallon with electric powered pump.
420-075a	WINDSHIELD WASHER FILL LOCATION	(S),Windshield washer fill location - accessed via a flip-out door built into the exterior side console access door.
420-080	LOWER DRIVER'S VENT	(B),Lower driver's vent - provided.
420-120	FENDERS	(B),Fenders - molded polyurethane.
420-121	S1 WHEEL GUARDS	(C),S1 wheel guard - required, forward of center and rear wheels - curbside.
420-125	EXTERIOR UPPER REAR	(B),Exterior upper rear - fiberglass panel with no door and no window.



Option#	Description	Value Description (blank means unset)
420-135	LOCATION,FRONT LICENSE PLATE	(C),Front license plate location - at streetside of defroster door.
420-135a	FRONT LICENSE PLATE RETENTION	(B),Front license plate retention - four inserts.
421-010	INSULATION,SIDEWALL AND ROOF	(S),Insulation, sidewall and roof - polyisocyanurate foam. meets Docket 90 spec.
421-020	INSULATION,EXHAUST CAVITY	(S),Exhaust cavity insulation - Heat-resistant fiberglass mat.
421-030	ENGINE COMPARTMENT INSULATION	(S),Engine compartment insulation - noise reduction acoustical foam, retained by perforated aluminum panels.
422-001	DOCKET 90 SPEC	(A),Docket 90 spec - review for 422 group components.
422-005	CEILING PNLS AFT OF FRT W/HS INCL RR PLC	(B),Ceiling panels aft of the front wheelhouses (including rear PLC) - Antique white plastic, SST trim.
422-005a	CEILING / HVAC COVER PANELS ABOVE FRT W/HS	(B),Ceiling / HVAC cover panels above front wheelhouses - Antique White fiberglass.
422-006	ENTRANCE/DRIVER'S AREA PANELS	(C),Entrance/driver's area panels colour - black. Includes dash, dest sign c/out, ent. mech. box, driver's o/head panels. and if used, ent. floor heat duct, frt. RH harness cover is painted flat black.
422-006b	DRIVER'S CEILING PANEL MATERIAL	(B),Driver's ceiling panel material - melamine.
422-009	INTERIOR PIER PANEL MATERIAL	(B),Interior pier panel material - thermoplastic.
422-010	PIER PANEL COLOUR	(B),Pier panel colour - Antique white, thermoplastic.
422-015b	INTERIOR SIDEWALL MELAMINE	(B),Interior sidewall melamine colour - Charcoal Grey Gloss.
422-025	INTERIOR ENGINE COMPT ACCESS PANEL	(S),Interior engine compartment access panel - there is a single hinged panel under the rear seat.
422-035	INTERIOR UPPER REAR PANEL	(A),Interior upper rear panel - bulkhead panel covered with carpet / fabric material. With large central access door.
422-035a	CARPET / FABRIC,UPR REAR INT PANEL	(B),Upper rear interior carpeted / fabric panel - Charcoal Grey carpet with 1/2" plywood backing.
422-035e	C/S,S/S RR BULKHEAD ACCESS PANELS	(B),Curb and street side rear bulkhead access panels - carpeted DB plywood.
422-050a	HRNS/AIR LINE COVERS AT UPPER DECK	(B),Harness / air line covers at upper deck - painted flat black.
422-060	FRT DEST SIGN DOOR LATCHES	(B),Front destination sign door latches - short wing quad latches.
422-061	DRIVER'S OVERHEAD PANEL	(S),Driver's overhead panel - with locker.
422-061a	DRIVER'S LOCKER LATCH	(C), Driver's locker latch - short wing quad latch with pull tab.
422-065	DRIVER'S COAT HOOK AND STRAP	(B),Driver's coat hook and strap - located on the forward face of the harness cover behind the driver.
422-070	SECURE DIAGNOSTIC STATION	(B),Secure diagnostic station - above street side front wheelhouse. Incorporates driver's barrier. With four Take One pockets. Quantity of trays as per customer and / or as per electronic equipment within compartment.
422-070a	SDS ENCLOSURE COLOUR	(B),SDS enclosure colour - Flat Black with Cashmere Black melamine panel.
422-070b	SDS ENCLOSURE DOOR LATCHES	(C),SDS enclosure door latches - Two 5/16" square key quad latch and paddle latch with CH751 key.
422-085	FRONT SUNVISOR / ROLLERBLINDS	(A),Front sunvisor - black padded.

Option#	Description	Value Description (blank means unset)
422-085a	SIDE SUNVISOR / ROLLERBLIND	(C),Side sunvisor - black padded visor for high mount mirror.
422-090	SQUARE KEY T-HANDLE	(B),Square key t-handle - located at lower left of driver.
422-105	ENTRANCE MECHANISM BOX DOOR LATCH	(S),Entrance mechanism box door latches - two short wing quad latches.
422-160	GRAB HANDLE NEAR FRONT ROOF HATCH	(B),Grab handle near front roof hatch - required.
422-210	ARTICULATED JOINT CLOSEOUTS	(A),Articulated joint closeouts - Pewter Grey.
422-NEW	NEW OPTION,422 GROUP	(C), Rear PLC and bulkhead access doors with tamperproof latches.
423-010	AD FRAMES,SDS ENCLOSURE	(C),Interior Ad Frame - TWO 17" x 11" clear holder's. One located on rear face of SDS enclosure, and One located on front door of SDS.
450-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 450 group equipment.
450-010	FLOORING	(A),Flooring - lower deck uses Milwaukee composite flooring. Upper deck uses fiberglass composite for step and floor to the rear wheelhouses and Milwaukee composite flooring to the rear.
450-013	DRIVESHAFT / TRANSMISSION ACCESS PANELS	(A),Driveshaft / transmission access panels - two panels set in the floor, one to access the driveshaft and the other to access the transmission.
450-025a	ALTRO FLOOR COVERING	(C),Altro floor covering - Rocket TFFG 2704F (2.7 mm / 0.11" thick), for aisle and underseats.
450-025e	STEP TO UPPER REAR	(C),Step to upper deck - yellow anti-slip coating is applied to the edges and vertical faces of the step. Yellow/black caution stripe decals at each step.
450-025f	STANDEE LINE	(B),Standee line - yellow.
450-025g	ENTRANCE NOSING	(B),Entrance nosing - nosing is 2" wide yellow anti-skid applied to the ramp.
450-025h	EXIT NOSING	(C),Exit nosing - 2.5" yellow nosing and 2.0" yellow standee line in vestibule area at edge of exit door opening/sweep. Altro / Tarabus flooring.
450-025j	REAR SEAT RISER COVERING MATERIAL	(B),Rear seat riser covering material - same material and colour as used for the flooring.
450-025k	GRIT FLOORING AT ARTIC JOINT	(B),Grit flooring at articulated joint - black non-aggregate anti-slip coating.
450-030	DRIVER'S PLATFORM FLOORING	(A),Driver's platform flooring - Altro.
450-030a	DRIVER'S PLATFORM TRIM	(B),Driver's platform trim - SST.
450-045	OUTER WHEELHOUSES	(B),Outer wheelhouses - SST front and rear.
450-055	INTERIOR FRONT W/HOUSE (LUGG RACK) COLOURS	(B),Interior front wheelhouse (luggage rack) colours - Matte black, painted stipple. An LED aisle light is provided on the streetside. Also, SST scuff guards are provided.
460-005	WINDSHIELDS	(B),Windshield - 72% light transmittance green laminated. With blue shade band for street and curb sides.
460-005a	WINDSHIELD PROTECTIVE FILM	(B),Windshield protective film - required for coach delivery beyond a 500 mile radius of Final Assembly.
460-010	PASS / DRVR'S WINDOWS MANUFACTURER	(B),Passenger and driver's windows, manufacturer - Arow Global (Stormtite) non-flush mounted.
460-010b	NON-FLUSH PASSENGER WINDOWS	(C),Non-flush passenger windows - bottom is fixed, top slider.

Option#	Description	Value Description (blank means unset)
460-010e	NON-FLUSH WINDOW GLAZING	(C),Non-flush window glazing - grey, 55% light transmittance, laminated.
460-010h	WINDOW FRAME COLOUR	(C),Window frame colour - all window frames are clear anodized.
460-010j	WINDOW EMERGENCY EGRESS	(S),Emergency egress windows - minimum quantity based on FMVSS requirements or the customer spec, whichever is the greater of the two.
460-010k	SIDE DESTINATION SIGN WINDOWS	(C),Destination sign window - curb and street sides. Fixed clear top and fixed bottom. Bottom matches passenger window glazing. (review 470 for side sign details).
460-010n	WINDOW GLAZING REPLACEMENT	(A),Window glazing replacement for servicing - rapid replacement.
460-010p	PASS WINDOW LINERS AND COATINGS	(C),Window liners and coatings - .12" acrylic liners on all windows.
460-010s	PASS WINDOW THICKNESS	(B),Passenger window thickness - 6 mm.
460-011a	DRIVER'S WINDOW,NON-FLUSH	(B),Driver's window, non-flush mounted - with fore and aft sliding sashes. The forward sash has exterior and interior handles. Non-egress.
460-011b	AFT SASH,NON-FLUSH DRIVER'S WINDOW	(B),Aft sash, non-flush driver's window - with interior handle and latch.
460-011d	DRIVER'S WINDOW GLAZING	(B),Driver's window glazing - laminated with minimum 70% light transmittance.
460-011e	DRIVER'S WINDOW SHADE BAND	(B),Driver's window shade band - not required.
470-001	DESTINATION SIGNS MFR	(A),Destination sign mfr - Twin Vision Smart Series, LED display system.
470-001a	DEST SIGN CONTROL UNIT LOCATION	(B),Destination sign control unit location - under driver's overhead panel.
470-005a	TWIN VISION FRT.DEST.SIGNS	(A),Twin Vision front destination sign - LED Chroma I, 16 X 156, 4 amber matrix boards and 1 colour board with a single LED. Will be programmed with white test pattern, customer to reprogram sign in color after acceptance.
470-010	FRONT DESTINATION SIGN GLASS	(A),Front destination sign glass - heated and laminated.
470-025	CURB SIDE DESTINATION SIGN LOCATION	(A),Curbside destination sign location - at the second window, aft of the entrance door.
470-025b	TWIN VISION CURBSIDE DEST.SIGNS	(A),Twin Vision curbside destination sign - LED, amber, 8 x 96 (37.4" wide display).
470-026	STREET SIDE DEST SIGN	(C),Street side dest/route sign - required at #3 streetside window (first window rear of SDS compartment).
470-030	FRONT ROUTE SIGN	(C),Front route sign - Twin Vision LED, 14 x 40, addressable.
470-035	REAR ROUTE SIGN,LOCATION	(B),Rear route sign location - at the upper curb side. For non-CNG coaches.
470-035b	TWIN VISION REAR ROUTE SIGNS	(A),Twin Vision rear route sign - LED, amber 16 X 48.
470-060b	CLEVER DEVICES (DIGITAL RECORDER) AVA SYSTEM	(A),Clever Devices,(DRI,Digital Recorder) AVA system - full system installed by NFIL, including antenna(s), cabling, ground plates and all required system components as per customer spec.
470-060f	ACS (ORBITAL/TMS) AVA SYSTEM	(C),ACS (Orbital / TMS) AVL system - provisions. Includes installation of antenna(s), cabling and ground plates as per customer spec.
470-060k	AVA/AVL LED SIGN & LOCATION	(A),AVA/AVL LED sign and location - required on the HVAC overhead enclosure.
470-061	AUTO VEHICLE MONITORING SYSTEM (AVM)	(A),Automatic Vehicle Monitoring (AVM) system - Fleetwatch required as per spec/MRL.

Option#	Description	Value Description (blank means unset)
470-075	NEW FLYER CONNECT-DIAGNOSTIC & MONITORING SYSTEM	(A),New Flyer Connect-Diagnostic & Monitoring - required with driver maneuver awareness system (DMAS).
470-NEW	NEXTBUS SYSTEM	(C),Nextbus system - Installation of complete system including antenna.
480-005	STREET SIDE MIRROR MANUFACTURER	(B),Street side mirror manufacturer - Hadley.
480-005a	HADLEY STREET SIDE MIRROR	(B),Hadley street side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-005b	STREET SIDE MIRROR POWER OPTIONS	(A),Street side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-005e	STREET / CURB SIDE MIRROR W/TURN SIGNAL	(A),Street and curb side mirror with turn signal - LED, in mirror glass.
480-005f	STREET SIDE MIRROR ARM	(A),Street side mirror arm - mirror arm springs back to its previously set position after deflection.
480-005g	STREET SIDE MIRROR MOUNT	(A),Street side mirror mount - high mount.
480-005h	STREET / CURB SIDE MIRROR VOLTAGE	(B),Exterior mirror voltage - 12 volt.
480-006	CURB SIDE MIRROR MANUFACTURER	(B),Curb side mirror manufacturer - Hadley.
480-006a	HADLEY CURB SIDE MIRROR	(B),Hadley curb side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-006b	CURB SIDE MIRROR POWER OPTIONS	(B),Curb side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-006e	CURB SIDE MIRROR ARM	(B),Curb side mirror arm - basic, pull-back. Mirror arm is manually returned to its previously set position after deflection. Mirror can be folded forward or backward for bus wash.
480-010	INTERIOR MIRRORS,MANUFACTURER	(A),Interior mirrors, manufacturer - Hadley.
480-010a	DRIVER'S REAR VIEW MIRROR	(A),Driver's rear view mirror - 8" x 15", black, flat.
480-010b	SPOT MIRROR	(B),Spot mirror - 6" diameter flat mirror, located at curb side front.
480-010d	EXIT DOOR MIRROR	(B),Exit door mirror - convex, 12" diameter.
490-001	ENT DOOR DRIVE SYS	(A),Entrance door drive system - Electric
490-005	ENTRANCE DOOR	(B),Entrance door - Vapor slide glide.
490-005a	ENTR DOOR LIMIT SWITCH SET-UP	(A),Entrance door limit switch - solid state proximity switch.
490-005d	ENTRANCE DOOR MAGNETIC DUMP VALVE	(B),Entrance door magnetic dump valve - required, located at baseplate.
490-005f	ENTR/EXIT FRANG COVER LANGUAGE	(C),Entrance / exit door frangible cover instructions (for emergency release), language - English. Additional scoring required on exit door frangible cover.
490-006	ENTRANCE DOOR HANDLES	(B),Entrance door handles - yellow powder coated.
490-015	ENTRANCE DOOR CONTROLLER	(A),Entrance door controller - extended with 5 position settings.
490-015a	DOOR CONTROLLER HANDLE	(B),Entrance door control handle - non-removable.
490-030	ENTRANCE DOOR GLAZING	(S),Entrance door glass - full length single piece, 72% green.

Option#	Description	Value Description (blank means unset)
491-001	EXIT DOOR DRIVE SYS	(A),Exit door drive system - Electric with pneumatic emergency release.
491-005	EXIT DOOR	(B),Exit door - wide Ameriview Vapor Slide Glide, 45.2" between panels. 60' coach with two exits, one at front and one at rear unit.
491-005a	SLIDE GLIDE EXIT LIMIT SWITCH	(A),Exit door limit switch - solid state proximity switch.
491-005b	EXIT DOOR CONTROL	(A),Exit door control - Vapor Class Acoustic Sensing System. Activates door opening and detects obstruction on closing.
491-005ba	CLASS SYSTEM DOOR DECAL	(C),Class system door decal - English, Spanish, Tagalog, and Chinese, text and characters as per customer requirement.
491-005d	EXIT DOOR SENSITIVE EDGE	(B),Exit door sensitive edge - sensor on the vertical edge provided with all exit doors.
491-005g	EXIT FRANGIBLE COVER SECUREMENT	(C),Exit frangible cover securement - magnetic latch with screw.
491-005j	EXIT BASEPLATE / ELEC PNL ACCESS	(B),Exit baseplate access- at each exit door, Tcb set-up, through removable ad frame.
491-006	EXIT DOOR ASSIST HANDLES	(B),Exit door assists - yellow powdercoated.
491-020	EXIT DOOR GREEN LIGHT	(B),Exit door green light - LED green light indicates that the exit door is set to open.
491-035	EXIT DOOR GLASS SIZE	(B),Exit door glass size - full length.
491-035a	EXIT DOOR GLAZING	(B),Exit door glazing - 6 mm.
491-NEW	EXIT DOOR EXTERNAL BUTTONS	(C),Exit door external buttons - Two flush mounted "Elevator Style" external switches mounted on either side of the exit doors to permit passenger loading/entry from exit.
526-001b	60' PASSENGER SEAT QTY	(C),60' passenger seat quantity - 44.
526-005	PASSENGER SEAT MANUFACTURER	(B),Passenger seat manufacturer - American Seating.
526-005b	AMERICAN SEATING SEATS	(A),American Seating passenger seats - Vision stainless seat. Details as per customer spec.
526-005ba	AMERICAN SEATING D90 SPEC	(B),American Seating passenger seats D90 spec - not required.
526-005d	REAR BENCH SEAT	(S),Rear bench seat - 1-3-1 hinged seat.
526-005e	PASSENGER SEAT MOUNTING	(B),Passenger seat mounting - cantilever.
526-005f	SEAT MOUNTED GRABRAIL	(A),Seat mounted grabrails - stainless steel.
526-005h	FIRST SEAT,CURBSIDE UPPER REAR	(B),First seat at curbside upper rear - forward facing.
526-005i	PASSENGER SEATING BARRIER	(B),Passenger seating barrier - pedestal mounted barrier.
526-005j	SEAT POSITION, FORWARD OF REAR EXIT	(B),Seat position, forward of rear exit - forward facing.
526-005k	ARTICULATED JOINT SEATS	(B),Articulated joint seats -not required.
526-005l	SEAT FWD OF ARTIC JOINT AREA	(A),Seat forward of artic joint - two rearward facing on each side.
526-005n	SEAT AFT OF ARTIC JOINT AREA	(C),Seat aft of artic joint area - one forward facing seat on curbside and one aisle facing seat on streetside.
526-006	DRIVER'S SEAT MANUFACTURER	(A),Driver's seat manufacturer - USSC.

Option#	Description	Value Description (blank means unset)
526-006a	USSC DRIVER'S SEAT MODEL	(A),USSC driver's seat model - 9100 ALX. The fore / aft seat travel is 11.8". Has 2 point seat belt. Has air suspension and lumbar.
526-006f	DRIVER'S SEAT MATERIAL	(B),Driver's seat material - all vinyl.
526-006g	DRIVER'S SEAT BELT	(C),Driver's seat belt - orange colored lap belt with retractor on right hand side.
526-006ga	DRIVER'S SEAT BELT ALARM	(A),Driver's seat belt alarm - required to warn driver that seat belt is not connected.
526-006j	DRIVER'S SEAT,DOCKET 90 SPEC	(B),Driver's seat D90 spec - Not required.
526-006k	DRIVER'S SEAT BASE RISER	(A),Driver's seat base (riser) - SST.
526-006m	DRIVER'S SEAT PARK BRAKE ALARM	(A),Driver's seat park brake alarm - switch is required in seat cushion to trigger driver's park brake alarm (ref. option 246-040).
526-006s	DRVR'S SEAT HEADREST	(B),Driver's seat headrest - required.
526-007	WHEELCHAIR POSITIONS,QUANTITY	(C),Wheelchair positions - Three. One fwd of the exit door curbside and TWO aft of the streetside front wheelhouses.
526-007a	W/CHAIR POSITIONS,RESTRAINT SYSTEM	(A),Wheelchair restraint system - padded barrier/restraint system for rearward facing w/chr position(s) and restraint system for forward facing w/chr position(s). Mfr, position, mat'l color/type and details as per customer spec.
526-007e	SHOULDER HARNESS,W/CHR RESTRAINT	(C),Shoulder harness for wheelchair restraints - secured to structure (pier panel), one on streetside only (for rear facing wheelchair position).
526-010	STANCHION / GRABRAIL STYLE	(B),Stanchion / grabrail style - curved style vertical stanchions. Using cast SST fittings for vertical and horizontal stanchions.
526-010a	OVERHEAD HORIZONTAL GRABRAILS	(A),Overhead horizontal grabrails - yellow SST.
526-010aa	OVERHEAD HANDSTRAPS,TYPE	(C),Handhold straps on overhead grabrails - flexible grey PVC straps in yellow Bentech mounts, secured to horizontal stanchions, locations as per customer spec.
526-010ab	OVERHEAD GRABRAIL HANDHOLD STRAPS,QUANTITY	(A),Overhead grabrail handhold straps, quantity - twenty-four.
526-010b	VERT STANCH AT EXITS & RR RISER STEP	(B),Vertical stanchions at exits and rear riser steps - yellow SST.
526-010d	VERT FORE OF S/S FRT W/HOUSE	(C),Vertical stanchion fore of streetside front wheelhouse - black SST (part of drivers door).
526-010da	VERT AFT OF S/S FRT W/HOUSE	(B),Vertical stanchion aft of streetside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).
526-010e	VERT FORE OF C/S FRT W/HOUSE	(A),Vertical stanchion fore of curbside front wheelhouse - black SST.
526-010ea	VERT AFT OF C/S FRT W/HOUSE	(B),Vertical stanchion aft of curbside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).
526-010f	VERTICAL STANCHIONS AT SEATS	(A),Vertical stanchions at seats - yellow SST.
526-010j	ARTIC JOINT HANDSTRAPS/GRABRAILS	(C),Articulated joint handholds or straps - Muni specific center hoop mounted grabrails with melamine panels..
526-010jb	ARTIC JOINT GRABRAIL COLOUR	(A),Articulated joint grabrail colour - yellow SST.
526-010k	FRONT CURBSIDE LUGGAGE RACK	(A),Front curbside luggage rack - horizontal yellow tube wraps around aft, aisle and fore sides, SST.

Option#	Description	Value Description (blank means unset)
526-010m	FAREBOX GRABRAIL	(A),Farebox wrap-around stanchion - black SST. Requires known farebox location.
526-015	CURBSIDE MODESTY PANEL,FORE UPR DECK	(B),Curbside modesty panel, fore of upper deck - .375" thick melamine.
526-015a	FORE OF UPR DECK MELAMINE MODESTY PNLS	(B),Fore of upper deck melamine modesty panels - charcoal gloss.
526-015b	C/SIDE FORE UPR DECK MOD PNL, GAP	(S),Gap at bottom of curbside fore of upper deck modesty panels - approximately 2" diagonally.
526-015e	UPPER PANEL,C/SIDE FORE OF UPPER DECK	(A),Upper panel at curbside fore of upper deck - 0.5" clear polycarbonate,basic width.
526-015h	S/S BARRIER/MODESTY PANEL,FORE OF UPR DECK	(B),Streetside barrier/modesty panel,fore of upper deck - .375" thick melamine (colour as per option 526-015a).
526-017	BARRIER FWD OF JOINT	(A),Barrier - Modesty panels provided at forward artic joint closeouts. Stanchion color to match vertical stanchions at seats. (526-010f).
526-022	DRIVER'S DRAFT SHIELD	(C),Driver's enclosure - clear AS-2 Lexan and black powdercoated steel bi-fold enclosure.
526-035	FORE OF EXIT(S),BARRIERS / GRABRAILS	(A),Fore of exit(s), barriers and grabrails - upper panel, 0.5" clear polycarbonate, wide width panel.
526-039	CENTER EXIT MODESTY PANEL	(B),Modesty panel aft of the center exit door - basic width (colour as per option 526-015a).
526-039e	UPPER PANEL,AFT OF CENTER EXIT	(A),Upper panel at center exit modesty panel - 0.5" clear polycarbonate,basic width.
526-048	BARRIER REAR OF JOINT	(C),Barrier - vertical stanchions without padding, yellow SST.
526-055	EMERGENCY INSTRUCTIONS	(C),Emergency instructions - decals. English, Spanish, and Chinese and Tagalog.
526-070	LUGG RACK AT CENTER AXLE PLATFORM	(A),Luggage rack at center axle platform - not required.
526-129	CTR AXLE BARRIER	(B),Barrier/modesty panel at center axle platform - .375" melamine (colour as per option 526-015a) both at curbside and streetside.
526-NEW	NEW OPTION,526 GROUP	(C),Street side modesty panel, fore of center axle platform - 0.375 thick melamine (color as per option 526-015a)
549-001b	60' HVAC SYSTEM	(C),HVAC system manufacturer and type - Thermo King RLF front and rear rooftop heat units with B-100 rooftop unit for hybrid battery cooling. Safe-T-Walk is provided for rooftop units.
549-002a	HVAC UNIT MOTOR TYPE	(S),HVAC motor type - brushless motor for primary heating & cooling system.
549-002b	REFRIGERANT	(B),Refrigerant - R-134a freon
549-002d	HVAC AIR INTAKE	(B),HVAC air intake - recirculated air only.
549-002ea	HVAC RETURN AIR FILTER	(B),HVAC return air filter - polyester filters installed at the return air grille for RLF rooftop units.
549-002g	HVAC SYSTEM VALVES	(S),HVAC system valves - brass ball valves with basic handles.
549-002h	A/C AND HEATER LINE CLAMPS	(S),A/C and heater line clamps - Ideal.
549-004	HVAC ELECTRONICS	(B),HVAC electronics - Thermo King Intelligaire 3, valid for A/C or heater units. With limited diagnostic capabilities.
549-004a	HVAC CONTROL PANELS	(B),HVAC control panel - Thermo King, installed at the HVAC unit.

Option#	Description	Value Description (blank means unset)
549-004b	HVAC PROGRAM SETTINGS	(B),HVAC program settings - APTA standard
549-020	BOOSTER PUMP	(C),Booster pump - Rotron.
549-025	DEFROSTER	(B),Defroster - 3 speed brushless motor, electrically controlled damper.
549-100	AUXILIARY HEATER	(B),Auxiliary heater - not required.
580-005	WHEELCHAIR RAMP	(C),Wheelchair ramp -LIFT-U LU11-15 ramp at front door.
580-005a	FRONT RAMP CONTROL	(S),Front ramp control - ramp switch at driver's instrument panel.
580-005d	WHEELCHAIR RAMP,SURFACE	(C),Wheelchair ramp surfaces - covered with Rocket TFFG 2704F Altro flooring
580-070	RAMP RETRACTOR TOOL	(C),WheelChair Ramp Tool - Required as per spec/MRL.
600-025	BACK-UP ALARM	(B),Backup alarm - basic alarm located on curbside.
600-065	SDS TRAY QUANTITY	(A),SDS tray quantity - four trays total.
600-075	FAREBOX PEDESTAL	(C),Farebox pedestal - SST, 7.0" high with Muni specific mounting plate.
600-076	FAREBOX	(B),Farebox - not required.
600-077	FARECARD READER	(C),Farecard reader - Provisions/Harnesses for Muni specific Clipper® system.
600-078	TRANSFER CUTTER	(C),Transfer cutters - one Globe model 303 (two notchers). Installed as per customer specific details.
600-100	CURBSIDE FRONT EQUIPMENT BOX	(A),Curbside front equipment box - black, aluminum with paddle latch, no lock.
600-101	DRIVER'S STORAGE BOX BEHIND SEAT	(A),Driver's storage box behind seat - basic box with paddle latch, no key. The box is to include a chamfer to allow for driver's seat clearance.
600-125	TAKE ONE HOLDERS	(A),Take one holders - required. Type(s) and location(s) specified by customer.
600-125e	TAKE ONES,PASSENGER AREA	(A),Take one holders - in the passenger area, installed on various window pillars.
600-152	TRASH CONTAINERS	(A),Trash container - type and location as per customer spec.
600-175	RADIO,COMMUNICATION SYSTEM	(C),Radio, communication system -provisions for a Harris radio system installed by NFIL per Muni requirements
600-177	AUTOMATIC PASSENGER COUNTER	(A),Automatic passenger counter system - IRMA matrix
600-178	TRAFFIC SIGNAL CONTROL SYSTEM	(C),Traffic signal control system required. Opticom 2101/ASM 2807 GPS controlled system.
600-225	VIDEO SURVEILLANCE SYSTEM	(A),Video surveillance system - interior and exterior cameras, quantity, details and location as per customer spec and installation / approval drawing.
600-225a	VIDEO SURVEILLANCE SYSTEM,MFR	(A),Video surveillance system - DTI-Loronix system, equipment as per customer spec.
600-225b	CAMERA COLOUR TYPE	(A),Camera colour type - cameras are a combination of colour and colour with infrared capabilities.
600-268	TURN ANNUNCIATOR SYSTEM	(C),Turn annunciator system - Mallory Sonalert SC628JR beepers at curbside exterior center and rear exit door areas to sound when turn signal switches depressed. Override switches to be located in SDS enclosure/compartament.



Option#	Description	Value Description (blank means unset)
600-276	FIRE SUPPRESSION	(C),Fire suppression - Amerex Safety Net System. With one 25 lb dry chemical agent tank and one 13 lb dry chemical tank.
600-276b	AMEREX FIRE DETECTION SENSORS	(C), Amerex fire detection sensors - linear wire in engine compartment. fire or smoke conditions in the battery compartment shall actuate a visual and audible alarm at the operator's control panel.
600-300	BICYCLE RACK,MFR/MODEL	(A),Bicycle rack, manufacturer / model - Sportworks, DL2-WP (wide profile), front mounted.
600-300a	SPORTWORKS BICYCLE RACK MOUNTING	(A),Sportworks bicycle rack mounting - TSB (ten second bracket) quick release slide-in standoff with incorporated pivot.
600-300b	SPORTWORKS BICYCLE RACK REMOVAL	(A),Sportworks bicycle rack removal - quick release rack.
600-300d	SPORTWORKS BICYCLE RK MATL/COLOR	(A),Sportworks bicycle rack material/colour - SST, black powdercoated.
600-300e	BIKE RACK DEPLOY INDICATOR LIGHT	(A),Bike rack deployment indicator light - required.
600-300f	BICYCLE RACK MFR LOGO	(A),Bicycle rack manufacturer logo - provided.
600-300g	BICYCLE RACK INSTRUCTIONS	(A),Bicycle rack instructions - English.
600-NEW	DRIVECAM SYSTEM	(C),Drivecam system - Full Install for Drivecam system.

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Option#	Description	Value Description (blank means unset)
100-002	XCELSIOR COACH LENGTH	Xcelsior - 60' coach.
100-003	STRUCTURAL MATERIAL	(B),Structural material - carbon steel/ferritic sst.
100-004	FUEL/PROPULSION SYSTEM	Propulsion system - BAE hybrid with ISL diesel engine.
100-004a	FUEL TYPE	(B),Fuel type - diesel, compatible up to 20% biodiesel.
100-006	DOCKET 90 SPEC	(A),Docket 90 spec - for interior of coach (as per spec).
201-005	BUMPERS	(B),Bumpers - Romeo Rim, three piece, front and rear bumpers. Rear has anti-ride feature.
201-015	TOWING PROVISIONS	(B),Front tow eyes - basic set-up, incorporated in front chassis. Tow adapters are required.
203-005	FRONT AXLE	(B),Front axle - M.A.N. VOK-07-F, GAWR 15,873 lbs. With disc brakes. Hub mount, Knorr cylinders, Ferodo lining.
203-005b	SECUREMENT OF BRAKE LININGS	(S),Securement of brake linings - bonded.
203-005f	ELECTRONIC BRAKE STROKE MONITOR	(A),Electronic brake stroke monitor - MGM E-stroke system.
203-011	SHOCK ABSORBERS	(S),Shock absorbers - Koni.
203-014	FRONT STABILIZER BAR	(C),Front stabilizer bar provided - SR specific application is approved by NF Engineering.
203-050	FRT AXLE AND WHEEL SPLASH APRONS	(A),Front axle and wheel splash aprons - full width, fore of axle and wheels. Also, two additional aprons aft of the wheels.
204-005	REAR AXLE	(B),Rear axle - M.A.N. 4.56:1. Model HY-1350-F. GAWR 28,660. With disc brakes, hub mount, Knorr cylinder, Ferodo lining.
204-005b	CENTER AXLE	(B),Center axle - ZF model AVN132-NF1, GAWR 25,350. With disc brakes, hub mount, Knorr cylinder, Ferodo lining.
204-005d	REAR AXLE GEAR OIL	(B),Rear axle gear oil - petroleum based.
204-070	REAR AXLE DRAIN PLUGS	(B),Rear axle drain plug - magnetic external hex head.
204-140	REAR AXLE AND WHEEL SPLASH APRONS	(S),Rear axle and wheel splash aprons - one piece behind RR axle, two behind RR wheels and two pieces behind centre wheels.
205-005	TIRES	(B),Tires - 305/70R/22.5, customer supplied Michelin X InCity Z (65 mph).
205-005a	TIRE BRANDING	(A),Tire branding - required as per spec.
205-010b	WHEELS	(A),Wheels - Alcoa 22.5" x 8.25" aluminum. Polished Durabright finish both sides.
209-005	POWER STEERING PUMP	(A),Power steering pump - Ixetic (Luk) power steering pump powered by 24V Parker Motor mounted at the front street side.
209-005a	POWER STEERING HOSES	(S),Power steering hoses - NFIL (Manuli) Equator 2 and GH100 hose at steering box and NFIL (Manuli) Equator 2 in engine compartment.
209-005b	POWER STEERING DIAGNOSTIC FTGS	(A),Power steering diagnostic fittings - at steering box.
209-008	POWER STEERING RESERVOIR	(S),Power steering reservoir - required.

Option#	Description	Value Description (blank means unset)
209-008d	POWER STEERING DRAIN PLUG	(B),Power steering drain plug - magnetic plug.
209-010	POWER STEERING UNIT	(S),Steering box - Sheppard M110, power assisted, frame mounted.
209-060	POWER STEERING SYSTEM FLUID	(B),Power steering system fluid - Dexron III, mineral based.
219-001a	ENGINE,HP,TORQUE,TYPE	(C),Engine - Cummins ISL 2016 diesel (hybrid), 330 horsepower with 1050 LB FT torque (Allison system de-rates engine to 240HP for H40EP, and 300HP for H50EP). Uses SCR (Selective Catalytic Reduction) system to attain 2016 emissions standard.
219-005a	ENGINE AIR COMPRESSOR	(A),Air compressor - direct coupled air compressor powered by electric motor.
219-005db	ALTERNATOR BAE	(A),Alternator - BAE APS2 (Accessory Power System). Note: Replaces belt drive alternator, supports full electrification of accessories.
219-005e	CUMMINS DIESEL FUEL FILTERS	(B),Cummins diesel fuel filters - for ISL's, Cummins primary and secondary fuel filter system.
219-005f	CUMMINS DIPSTICK,LOCATION	(S),Cummins dipstick, location - static oil level indicator, on streetside of engine.
219-005g	ENGINE & TRANS FLUID FILL TAGS	(S),Fluid fill ID tags - for engine and transmission dipsticks.
219-005h	ROAD SPEED	(A),Road speed - top road speed is governed. Set at 62 MPH (100 KPH).
219-010	TRANSMISSION/HYBRID DRIVE	(S),Hybrid drive - as per BAE hybrid system, HDS 300.
219-010a	TRANSMISSION SHIFTING	(S),Transmission shifting - foot on brake enables shift when in neutral.
219-010p	FLUID,HYBRID DRIVES	(S),Transmission fluid - Transynd synthetic.
219-025	AIR CLEANER	(A),Air cleaner - Donaldson. Reusable housing with disposable cartridge/filter.
219-025a	AIR RESTRICTION INDICATOR	(C),Air restriction indicator - mounted to a bracket on the curbside of the engine gauge/switchbox.
219-035	EXHAUST SYSTEM	(S),SST Exhaust system - Cummins diesel particulate filter (DPF).
219-035a	EXHAUST TAIL PIPE ORIENTATION	(B),Exhaust tail pipe orientation - curved pipe set to 45 degrees to streetside.
219-035b	EXHAUST BLANKETS FOR CUMMINS DIESEL OR CNG	(B),Cummins Diesel / CNG exhaust blankets - provided for the exhaust tubes.
219-045	ENGINE SWITCH BOX	(B),Engine switch box - basic configuration with run control, start and engine compartment light switches. Located at curbside of center rear in engine compartment.
219-045b	ENGINE SPEED CONTROL AT SW BOX	(A),Engine speed control at engine switch box - Morse throttle (controls engine RPM).
219-050	ENGINE COMPT GAUGES,BASIC	(S),Engine compartment gauges - CAN communicator programmable to multiple functions. Located at engine switchbox.
219-090	P-CLIPS,ENGINE COMPT & HVAC	(B),Engine compartment and HVAC system p-clips - UMPCO 775 SST with high temperature boxed silicon cushion provided to secure air and fluid lines to structure.
219-175	BELT GUARD	(B),Belt guard - the engine pulley guard is provided with hinges.
219-175a	BELT GUARD LATCHING	(B),Belt guard latching - rubber hood latch.
219-195	OIL SAMPLING	(C),Oil sampling - required for engine, using easy access probalizer fittings.
219-810	DEF(DIESEL EXH FLUID) TANK	(B),DEF (diesel exhaust fluid) tank - manual fill is set in the lower curbside fusebox access door with NFIL fill cap.

Option#	Description	Value Description (blank means unset)
231-005	RADIATOR	(C),Radiator - EMP cooling system with full diagnostic capabilities (individual fan speed control). Radiator with 4 fans (15"), model MH4.
231-005d	RADIATOR DRAIN VALVES	(A),Radiator drain valve - brass hex head plug.
231-010a	ENGINE COMPARTMENT & HVAC HOSES	(S),Engine compartment and HVAC hoses - a combination NFIL (Manuli) Equator 1, Equator 2, Nozone and GH100 hose for fluid and air system hoses.
231-020	SURGE TANK	(B),Surge tank - 5 gallon cylindrical SST tank.
231-020a	LOW COOLANT INDICATION / SENSORS	(S),Low coolant indication / sensors - an early warning sensor at the surge tank signals the instrument panel Low Coolant telltale. A lower sensor signals engine shutdown and the Check Engine and Low Coolant telltales.
231-020b	SURGE TANK PRESSURE TEST PORT	(B),Surge tank pressure test port - provided.
231-020d	SURGE TANK PRESSURE RELIEF VALVE	(B),Surge tank pressure relief valve - Radiator cap (LEV-R VENT), built into surge tank cap.
231-020e	SURGE TANK SIGHT GLASS	(S),Surge tank sight glass - graduated sight glass (glass material).
231-040	COOLANT TUBES	(S),Coolant tubes - SST.
231-075	COOLANT FLUID/ANTIFREEZE	(B),Coolant fluid / antifreeze - 50/50 pre-mixed distilled water with ethylene glycol with anti-corrosion additive and bittering agent. Pink fluid.
231-085	TRANSMISSION/HYBRID DRIVE OIL COOLER	(S),Hybrid drive oil cooler - built into rad for BAE hybrids.
231-085a	TRANSMISSION/HYBRID OIL COOLER HOSES	(S),Transmission / hybrid drive oil cooler hoses - NFIL (Manuli) Equator 1.
231-120	COOLANT RECOVERY TANK	(S),Coolant Recovery tank - required.
234-005	WATER FILTER	(B),Water filter - not required.
241-005	DIESEL FUEL TANK MATERIAL	(B),Diesel fuel tank material - cross-linked polyethylene.
241-005a	DIESEL TANK CAPACITY AND FILL TYPE	(B),Diesel fuel tank capacity and fill type - 125 useable US gallons. Pressure fill.
241-005b	DIESEL FILLER CAP	(B),Diesel fuel fill cap - posi-snap flip type.
241-005c	DIESEL FUEL SENDER	(S),Diesel fuel sender - required.
241-005d	DIESEL FUEL LEVEL INDICATION	(B),Diesel fuel level indication - not required.
241-010	DIESEL FUEL HOSES,ENGINE COMPT	(S),Diesel fuel hoses in engine compartment - GH100.
241-010a	DIESEL FUEL LINES,TANK TO BULKHEAD	(S),Diesel fuel lines from fuel tank to bulkhead - orange, fuel grade nylon tubing.
246-001	AIR COMPRESSOR DISCHARGE LINE	(S),Air compressor discharge line - Teflon 2807 SST braided hose.
246-005	AIR TANKS	(C),Air tanks - three dual compartment ceiling-mounted tanks combining wet and rear brake tanks, front accessory and kneeling tanks, rear accessory and kneeling and three single tanks for front brake, center brake and center kneeling tanks.
246-005b	AIR TANK DRAIN VALVES	(B),Air tank drain valves - manual.

Option#	Description	Value Description (blank means unset)
246-015	KNEELING	(S),Kneeling - full front kneeling with rapid recovery.
246-015b	LEVELING VALVES	(S),Leveling valves - Barksdale.
246-020	ENTR/EXIT DOOR INTERLOCK	(C),Door interlock - Brake valve actuator on treadle valve, applied to entrance and exit doors. Foot on brake to release interlock, applied via multiplex system programming.
246-040	DRIVER'S PARK BRAKE ALARM	(A),Driver's park brake alarm - a switch in the driver's seat cushion triggers alarm to alert the driver that the park brake is not set. A light at the instrument panel is also activated.
246-040a	PARK BRAKE PRESSURE SETTING	(S),Park brake pressure setting - 40 psi auto-apply park brake valve. 60 psi pressure switch for park brake light activation.
246-060	AIR DRYER	(C),Air dryer - Graham White, "SludgeBreaker", QBA60NX5, w/ 24V heater, 12/24V purge control, dryer boost protection, high performance air dryer.
246-060a	AIR DRYER LOCATION	(S),Air dryer location - behind the rear streetside wheelhouse, on the bulkhead.
246-060d	AIR DRYER VOLTAGE	(B),Air dryer voltage - 24 volt.
246-065	PARK BRAKE ACTUATION	(B),Park brake actuation - Pull To Apply.
246-065a	PARK/EMERG BRAKE LOCATION	(S),Park brake control location - on side console panel.
246-105a	REAR AIR CHARGE FITTING LOCATION	(S),Rear air charge fitting location - routed to curbside of engine.
246-105b	REAR AIR CHARGE CONNECTOR TYPE	(C),Rear air charge connector type - male 1/4" Amflo CP1 fitting.
246-120	FRONT TOW CONNECTOR	(C),Front tow connector fitting - 1/4" male Amflo CP1 fitting with tag.
246-120a	FRONT AIR CONNECTOR ARRANGEMENT	(B),Front air connector arrangement - located below the bumper, streetside.
246-125	FRONT AIR CHARGE CONNECTOR	(C),Front air charge connector - 1/4" male Amflo CP1 fitting with tag.
246-130	FLEXIBLE AIR LINES	(S),Flexible air lines - Synflex colour coded. Green: rear service brakes and supplies. Red: front service brakes. Brown: parking brake. Black: accessories and brake hose. Yellow: compressor and governor. Blue: suspension.
246-225	ABS	(S),ABS braking system - Wabco.
246-230	TRACTION CONTROL	(B),Automatic traction control - Wabco system, to reduce drive wheel overspin.
246-NEW	INCLINE RAISE FEATURE	(C),Incline raise feature - air suspension steep incline feature required per Muni specifications.
260-005a	TWO BATTERIES,TYPE / MFR	(C),Batteries - two 8D AGM/Deka 1450CCA maintenance free batteries (mfr East Penn Batteries). Post connection 3/8" positive X 3/8" negative.
260-005d	BATTERY CABLES	(S),Battery cables - red heat shrink on 24 volt positive cable end and light blue heat shrink on 12 volt positive cable end.
260-010	BATTERY TRAY	(S),Battery tray - slide out battery acid resistant polyethylene enclosure with SST sub frame, SST bearings and rubber isolation mounts. Located aft of the curbside rear wheelhouse. Note: battery access door opens to the side.
260-025	POSITIVE BATTERY DISCONNECT SW	(A),Positive battery disconnect switch - required with quick access through flip-open door. Uses a micro-switch for engine shutdown.
260-030	BATTERY VOLTAGE EQUALIZER	(B),Battery voltage equalizer - Vanner 80 amp.
260-035	JUMP START MANUFACTURER	(C),Jumpstart - Anderson model 6322 G1 connector.

Option#	Description	Value Description (blank means unset)
260-035a	JUMP START LOCATION	(A),Jump start location - near the battery disconnect switch at the fusebox. Accessible via the flip-open door.
260-820	ROOF FAIRING / SKIRTS ENCLOSURE	(S),Roof fairing / skirt enclosure - fairing with full length skirts for XDE's.
269-002	P.A. AMPLIFIER MFR / TYPE	(A),P.A. amplifier manufacturer / type - included with AVA or AVL system.
269-005	INTERIOR SPEAKER MFR	(B),Interior speaker manufacturer - TCB.
269-005bb	PRIMARY INTERIOR SPEAKERS,QTY FOR 60'	(B),Primary interior speakers, quantity - eight: six to light panels, two above rear bench.
269-010	EXTERIOR SPEAKERS,LOCATION	(B),Exterior speaker, location - at basic location above entrance. Includes baffled cover.
269-010a	EXTERIOR SPEAKER MFR	(B),Exterior speaker manufacturer - Shekonic.
273-005	HEADLIGHTS	(S),Headlights - NFIL Xcelsior LED low beam and halogen high beam headlights.
273-005a	DAY RUN HEADLIGHTS	(B),Day run headlights - required.
273-005b	FRONT TURN SIGNALS	(S),Front turn signals - NFIL amber LED. Integrated with headlight assembly.
273-010	TAIL LIGHTS QTY PER SIDE	(B),Tail lights quantity per side - four.
273-010ab	FOUR TAIL LIGHT ARRANGEMENT	(B),Four tail light arrangement (top to bottom) - amber, red, red, white.
273-010b	TAIL LIGHTS MFR	(B),Red / amber tail light manufacturer - 4" Dialight LED.
273-010d	WHITE BACK-UP LIGHT MFR	(S),White back-up light manufacturer - 4" Dialight LED.
273-010e	STOP LIGHTS ON WITH RTRDR/REGEN BRAKE	(B),Stop light activation by transmission retarder / regenerative braking - required.
273-010f	STOP LIGHTS ON WITH PARK BRAKE OR INTERLOCK	(S),Stop light activation - when park brake or interlock are engaged.
273-015	CENTER STOP / DECELERATION LIGHTS	(A),Center stop lights (red) - two Dialight 18" X 1" LED above the engine door.
273-020a	SIDE TURN SIGNALS,TYPE / QTY PER SIDE	(B),Side turn signals, type and quantity per side - 3 amber Dialight LED with guards. Lamps are at fore of all wheelhouses except curbside front which is aft. For 60' coaches.
273-025	KNEELING/RAMP LIGHT AT ENTRANCE	(S),Kneeling / ramp deployment warning light at entrance - 2.5" Dialight LED.
273-025b	SIDE TURN SIGNAL FUNCTIONALITY	(C),Side turn signal functionality - Sonalert/beeper at curbside exterior center and rear exit door areas to sound when turn signal switches depressed. Override switches to be located in SDS enclosure/compartment.
273-035	MARKER / CLEARANCE LIGHTS	(S),Marker and clearance lights - Dialight LED all around.
273-040	REFLECTORS	(S),Reflectors - self-adhesive decals installed at NFIL basic positions.
273-045	REAR LICENCE PLATE LIGHT	(B),Rear licence plate light - LED.
273-050a	TIMED SHUT-OFF,ENTR AREA LIGHTS	(B),Timed shut-off of entrance area lights (interior and/or exterior) - the program is set to shut the lights off when the door closes.
273-055a	TIMED SHUT-OFF,EXIT AREA LIGHTS	(C),Timed shut-off of exit area lights (interior and/or exterior) - the program is set to shut the lights off three seconds after the door closes.

Option#	Description	Value Description (blank means unset)
273-112	CURBSIDE CORNERING LIGHT	(C),Curbside cornering lights - two, one curbside lamp located behind each exit door.
277-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 277 group equipment.
277-005	INTERIOR PASSENGER LIGHTING	(B),Interior passenger lighting - TCB LED, 24 VDC.
277-005f	INTERIOR LED LIGHT FUNCTIONALITY	(B),Interior LED light functionality-first bank of light on each side turn on when entrance door is opened and off when door is closed.
277-010a	TINTED LED PASSENGER LIGHT COVERS	(B),Tinted LED passenger light covers - white for all lights.
277-015	FAREBOX LIGHT	(B),Farebox light - one swivel light with a replaceable LED bulb.
277-020	DRIVER'S LIGHT	(B),Driver's light - one sealed 2.5" white high output LED light.
277-030	ENGINE COMPARTMENT LIGHTS	(B),Engine compartment lights - four 1.38" LED lights.
277-035	REAR DECK STEP LIGHT	(S),Rear deck step light - LED.
277-040	INTERIOR DOOR HEADER LIGHTS	(B),Interior door header lights - one LED strip light (approx 18" long) provided above exit (if applicable) and entrance doors. With anti-glare shield.
277-070a	REAR PLC AND FUSEBOX SERVICE LIGHTS	(S),Rear PLC compartment and fusebox lights - provided, LED.
277-080	ARTIC JOINT AREA LIGHTS	(B),Articulated joint area lights - TCB LED lights, two aft facing.
280-001a	PASSENGER SIGNAL CHIMES, FOR 60'	(B),Passenger signal chimes - for 60' coach with two exits. Two basic electronic chimes, one above driver and one at rear exit. Chimes have a single tone which sounds once for regular activation, twice for wheelchair positions.
280-002	PASSENGER SIGNAL PULLCORDS	(B),Passenger pullcords - yellow cords are required.
280-002a	PASSENGER PULLCORD HARDWARE	(B),Passenger pullcord hardware - Phillips.
280-003	HORIZONTAL PASSENGER SIGNAL PULLCORDS	(B),Horizontal passenger signal pullcords - set at NFIL designated basic height.
280-005a	60' FRT UNIT VERT PULLCORDS	(C),Front unit vertical pullcords - Six, three at first, second, and third streetside pillars and three at first, third, and fourth curbside pillars forward of the joint.
280-005b	RR UNIT LWR DECK VERT PULLCORDS, FOR 60'	(B),Rear unit vertical pullcords - two: at first street and curbside pillars forward of the face of the upper deck.
280-005e	SECUREMENT OF VERTICAL PULLCORDS	(B),Securement of vertical pullcords to horizontals - looped or clamped to the horizontal depending on the location.
280-010	FRONT STOP REQUEST SIGN TYPE/POSITION	(C),Front stop request sign type / position - Smartrend LED installed in the destination sign door.
280-010a	FRONT STOP REQUEST SIGN TEXT	(B),Front stop request sign text - Stop Requested.
280-010b	FRONT STOP REQUEST SIGN LETTERING	(B),Front stop request sign lettering - upper case.
280-012	STOP REQUEST SIGN COLOURS	(B),Stop request sign colours - white letters on a red background.
280-015	PASS SIGNAL @ WHEELCHAIR POSITIONS	(C),Passenger signals at wheelchair positions - Muni specific push button mounted to flip-up seat.

Option#	Description	Value Description (blank means unset)
280-025	PUSH BUTTON SIGNAL AT EXIT AREA	(C),Push button signal at exit - LFR style switches mounted facing aisle on stanchions fore of each exit.
280-025a	PUSH BUTTONS,VERT & SEAT STANCHI	(C),Push button passenger signals on vertical seat stanchions - eleven: four on c/s, seven on s/s. With flat "LFR style" buttons
284-001	ELECTRONIC CONTROL SYSTEM	(S),Electronic control system - Vansco.
284-001a	SYSTEM VOLTAGE	(S),System voltage - 24 VDC primary, 12 VDC secondary.
284-001b	SWITCHES	(S),Switches - water resistant.
284-001d	SPARE INPUT/OUTPUT PORTS	(S),Spare I/O (Input/Output) ports for multiplex system modules - minimum 10% input and 10% output.
284-005g	HAZARD WARNING LIGHTS	(S),Hazard warning lights - front, side and rear lights flash for hazard warning.
286-001	INSTRUMENT PANEL	(B),Instrument panel - acrylic material with luminescent lighting, with Vansco Instrument Panel Cluster module including LCD display screen.
286-001a	SHIFT SELECTOR LOCATION	(S),Shift selector - located on instrument panel.
286-001b	EXTERIOR LAMP TEST	(S),Exterior lamp test - simultaneously depress both turn signals.
286-010a	SPEEDOMETER	(S),Speedometer - part of Vansco instrument panel cluster. Set to display miles. With odometer (the display can be toggled to show Trip1, Trip 2, engine hours).
286-010b	AUDIBLE SOUND,TURN SIGNALS/HAZARDS	(B),Turn signal and hazard warning audible sound - using click sound for turn signal and for hazard warning.
286-010e	BRK/ACCEL INTERLOCK DEACTIV WRNG	(A),Brake accelerator interlock deactivated warning - provided by audible alarm and separate red warning lamp on instrument panel. (Must have in California.)
286-055	DOOR MASTER SWITCH LOCATION	(B),Door master switch location - in sawtooth panel above driver.
286-055b	HYBRID REGEN SWITCH LOCATION	(B),Regenerative braking switch location - in sawtooth panel above driver.
286-065	SILENT ALARM	(C),Silent alarm - Motorola switch per specification required.
286-065a	SILENT ALARM SW LOCATION	(A),Silent alarm switch location - at side console.
286-070	DIAGNOSTICS PLUG LOCATIONS	(C),Diagnostic plug locations - at fwd face of the SDS barrier and engine switch box and one BAE connector at fwd face of the SDS. 500K Baud dia. connector under the front dash , at fwd face of the SDS barrier and engine switch box.
286-070a	ACCESSORY POWER PLUG	(A),Accessory power plug - at forward face of the SDS barrier (above driver).
289-001	SECUREMENT OF HARNESSSES	(B),Securement of harnessses - hellerman tyton clamps, with Panduit releasable cable ties.
296-001	WIRING DECAL,REAR PLC AND FUSEBOX	(S),Wiring decal, rear PLC and fusebox - provided, laminated.
296-001a	WIRING DECAL,SIDE CONSOLE	(B),Wiring decal, side console - laminated, shipped loose.
304-001a	EXTERIOR PAINT TYPE	(S),Exterior paint type - Axalta Imron Elite high solids polyurethane.
304-001aa	EXTERIOR PAINT CLEARCOAT	(A),Exterior paint clearcoat - required.
304-010	CORROSION PROTECTION	(B),Corrosion protection - grit blasted frame, moisture cure zinc-rich primer (applied for 12 year warranty protection), anti-chip undercoating, corrosion preventive coating sprayed inside frame tubes up to roof line.



Option#	Description	Value Description (blank means unset)
304-015	EXTERIOR LOGOS,NFIL	(B),Exterior logos, NFIL - required.
304-015b	EXT DECALS,CUSTOMER SPECIFIC	(C),Exterior decals, customer-specific - as per spec/MRL.
304-020	NFIL SAFETY AND MAINTENANCE DECALS	(B),New Flyer safety and maintenance related decal package - English.
304-020a	INTERIOR DECALS, CUSTOMER SPECIFIC	(A),Customer specific interior decals - required.
304-020b	INTERIOR PASSENGER RELATED DECALS,LANGUAGE	(C),Interior passenger related decals, language - Combination of English and English/Spanish/Chinese.
304-020d	INTERIOR FLEET NUMBER DECALS	(B),Interior fleet number decals - required.
304-025	KNEELING / RAMP DECALS	(C),Kneeling / ramp decals - None provided per SFMTA Specification.
304-030	AIR TANK DECALS	(B),Air tank decals - NFIL basic.
304-035	EXT FLEET NUMBERS,NON-ROOF	(B),Exterior fleet numbers, non-roof - required (reflective or non-reflective as per spec).
304-035a	EXTERIOR FLEET NUMBERS,ROOF	(A),Exterior fleet numbers, roof - required (reflective or non-reflective as per spec).
304-700	HYBRID SAFETY DECALS	(B),Hybrid safety decals - required.
306-005	FIRE EXTINGUISHERS	(B),Fire extinguisher - 5 lb ABC class. With gauge, hose and mounting bracket. UL compliant for US customers.
306-005a	FIRE EXTINGUISHER LOCATION	(A),Fire extinguisher location - inside the curbside equipment box.
306-010	SAFETY TRIANGLES	(B),Safety triangles - triangle reflector.
306-010a	SAFETY TRIANGLE LOCATION	(A),Safety triangle location - in equipment box on curbside luggage rack.
350-001	DRIVER'S PEDALS, POSITION / TYPE	(A),Driver's pedals positions / type - adjustable pedal assembly.
350-002b	ADJUSTABLE PEDAL BRAKE/THROTTLE ANGLE	(B),Brake / Throttle pedal angle - brake set at 45 degrees, throttle at 45 degrees from pedal to floor.
350-005	BRAKE VALVES	(S),Brake valve - E6.
350-015	TURN SIGNAL SWITCHES	(B),Turn signal switches - basic switches, floor mounted.
350-015a	DIMMER SWITCH	(B),Dimmer switch - basic foot switch.
350-015b	P.A. SYSTEM SWITCH	(A),P.A. system switch - foot switch.
350-015d	HAZARD WARNING LIGHT SW LOCATION	(B),Hazard warning light switch location - on side console.
350-030	STEERING COLUMN	(B),Steering column - Douglas Autotech with tilt and telescopic features.
350-030a	STEERING WHEEL	(B),Steering wheel - 2 spoke, 18" diameter hard padded.
350-035	DUAL HORN	(S),Dual horn - provided with splash shield.
400-001a	JACKING / LIFTING PADS	(B),Jacking / lifting pads - 4" diameter pads at front and rear chassis.

Option#	Description	Value Description (blank means unset)
405-001	ARTICULATED JOINT	(B),Articulated joint - ATG, grey bellows
420-005	DEFROSTER ACCESS DOOR	(B),Defroster access door - top hinged with two gas struts, quarter turn 5/16" square key quad latches.
420-010	EXTERIOR SIDE PANELS	(S),Exterior lower side panels - fiberglass.
420-035a	CURB & STREET ENG,S/CONS DOORS,STRUTS	(B),Struts for curb and street side engine compartment, side console access doors - supported by gas struts.
420-035d	CURB SIDE ENGINE COMPT DOOR	(C),Curb side engine compartment door - includes battery disconnect switch access door (using a gas strut) and a DEF manual fill access door. MUNI specific door with 1" additional clearance at bottom edge.
420-035e	BATTERY COMPARTMENT DOOR	(B),Battery compartment door - solid door located aft of the curb side rear wheel, separate from the engine compartment.
420-035f	STREET SIDE ENGINE COMPT DOOR	(B),Streetside engine (radiator) access door - with wavy screen.
420-040	DIESEL FUEL FILL DOOR	(B),Diesel fuel fill door - basic hinged door located forward of the curbside rear wheelhouse.
420-040a	SURGE TANK DOOR	(B),Surge tank door - basic hinged door.
420-045	SIDE CONSOLE DOOR LATCHES	(B),Side console door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050	ENGINE DOOR	(A),Engine door - screened door with built-in handle.
420-050a	ENGINE DOOR STRUTS	(B),Engine door struts - two, the streetside strut has a locking mechanism.
420-050b	ENGINE DOOR LATCHES	(B),Engine door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050e	REAR LICENSE PLATE RETENTION	(B),Rear license plate retention - centered with bottom retainer and two upper inserts.
420-060	RAIN GUTTER	(S),Rain gutter - .44" cross section bonded.
420-065	ROOF HATCHES / VENTS	(B),Roof hatches / vents - two basic hatches at front and rear, 24" X 24".
420-065a	ROOF HATCH INSTRUCTION LANGUAGE	(B),Roof hatch instruction language - English.
420-070	WIPERS	(B),Wipers - wet arm Sprague 24 volt electric. Intermittent.
420-075	WINDSHIELD WASHER BOTTLE	(B),Washer bottle - 5 US gallon with electric powered pump.
420-075a	WINDSHIELD WASHER FILL LOCATION	(S),Windshield washer fill location - accessed via a flip-out door built into the exterior side console access door.
420-080	LOWER DRIVER'S VENT	(B),Lower driver's vent - provided.
420-120	FENDERS	(B),Fenders - molded polyurethane.
420-121	S1 WHEEL GUARDS	(C),S1 wheel guard - required, forward of center and rear wheels - curbside.
420-125	EXTERIOR UPPER REAR	(B),Exterior upper rear - fiberglass panel with no door and no window.
420-135	LOCATION,FRONT LICENSE PLATE	(C),Front license plate location - at streetside of defroster door.
420-135a	FRONT LICENSE PLATE RETENTION	(B),Front license plate retention - four inserts.

Option#	Description	Value Description (blank means unset)
421-010	INSULATION,SIDEWALL AND ROOF	(S),Insulation, sidewall and roof - polyisocyanurate foam. meets Docket 90 spec.
421-020	INSULATION,EXHAUST CAVITY	(S),Exhaust cavity insulation - Heat-resistant fiberglass mat.
421-030	ENGINE COMPARTMENT INSULATION	(S),Engine compartment insulation - noise reduction acoustical foam, retained by perforated aluminum panels.
422-001	DOCKET 90 SPEC	(A),Docket 90 spec - review for 422 group components.
422-005	CEILING PNLs AFT OF FRT W/HS INCL RR PLC	(B),Ceiling panels aft of the front wheelhouses (including rear PLC) - Antique white plastic, SST trim.
422-005a	CEILING / HVAC COVER PANELS ABOVE FRT W/HS	(B),Ceiling / HVAC cover panels above front wheelhouses - Antique White fiberglass.
422-006	ENTRANCE/DRIVER'S AREA PANELS	(C),Entrance/driver's area panels colour - black. Includes dash, dest sign c/out, ent. mech. box, driver's o/head panels. and if used, ent. floor heat duct, frt. RH harness cover is painted flat black.
422-006b	DRIVER'S CEILING PANEL MATERIAL	(B),Driver's ceiling panel material - melamine.
422-009	INTERIOR PIER PANEL MATERIAL	(B),Interior pier panel material - thermoplastic.
422-010	PIER PANEL COLOUR	(B),Pier panel colour - Antique white, thermoplastic.
422-015b	INTERIOR SIDEWALL MELAMINE	(B),Interior sidewall melamine colour - Charcoal Grey Gloss.
422-025	INTERIOR ENGINE COMPT ACCESS PANEL	(S),Interior engine compartment access panel - there is a single hinged panel under the rear seat.
422-035	INTERIOR UPPER REAR PANEL	(A),Interior upper rear panel - bulkhead panel covered with carpet / fabric material. With large central access door.
422-035a	CARPET / FABRIC,UPR REAR INT PANEL	(B),Upper rear interior carpeted / fabric panel - Charcoal Grey carpet with 1/2" plywood backing.
422-035e	C/S,S/S RR BULKHEAD ACCESS PANELS	(B),Curb and street side rear bulkhead access panels - carpeted DB plywood.
422-050a	HRNS/AIR LINE COVERS AT UPPER DECK	(B),Harness / air line covers at upper deck - painted flat black.
422-060	FRT DEST SIGN DOOR LATCHES	(B),Front destination sign door latches - short wing quad latches.
422-061	DRIVER'S OVERHEAD PANEL	(S),Driver's overhead panel - with locker.
422-061a	DRIVER'S LOCKER LATCH	(C), Driver's locker latch - short wing quad latch with pull tab.
422-065	DRIVER'S COAT HOOK AND STRAP	(B),Driver's coat hook and strap - located on the forward face of the harness cover behind the driver.
422-070	SECURE DIAGNOSTIC STATION	(B),Secure diagnostic station - above street side front wheelhouse. Incorporates driver's barrier. With four Take One pockets. Quantity of trays as per customer and / or as per electronic equipment within compartment.
422-070a	SDS ENCLOSURE COLOUR	(B),SDS enclosure colour - Flat Black with Cashmere Black melamine panel.
422-070b	SDS ENCLOSURE DOOR LATCHES	(C),SDS enclosure door latches - Two 5/16" square key quad latch and paddle latch with CH751 key.
422-085	FRONT SUNVISOR / ROLLERBLINDS	(A),Front sunvisor - black padded.
422-085a	SIDE SUNVISOR / ROLLERBLIND	(C),Side sunvisor - black padded visor for high mount mirror.
422-090	SQUARE KEY T-HANDLE	(B),Square key t-handle - located at lower left of driver.

Option#	Description	Value Description (blank means unset)
422-105	ENTRANCE MECHANISM BOX DOOR LATCH	(S),Entrance mechanism box door latches - two short wing quad latches.
422-160	GRAB HANDLE NEAR FRONT ROOF HATCH	(B),Grab handle near front roof hatch - required.
422-210	ARTICULATED JOINT CLOSEOUTS	(A),Articulated joint closeouts - Pewter Grey.
422-NEW	NEW OPTION,422 GROUP	(C), Rear PLC and bulkhead access doors with tamperproof latches.
423-010	AD FRAMES,SDS BOX	(C),Interior Ad Frame - Two 17" x 11" clear holder's. One located on rear face of SDS enclosure, and One located on front door of SDS.
450-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 450 group equipment.
450-010	FLOORING	(A),Flooring - lower deck uses Milwaukee composite flooring. Upper deck uses fiberglass composite for step and floor to the rear wheelhouses and Milwaukee composite flooring to the rear.
450-013	DRIVESHAFT / TRANSMISSION ACCESS PANELS	(A),Driveshaft / transmission access panels - two panels set in the floor, one to access the driveshaft and the other to access the transmission.
450-025a	ALTRO FLOOR COVERING	(C),Altro floor covering - Rocket TFFG 2704F (2.7 mm / 0.11" thick), for aisle and underseats.
450-025e	STEP TO UPPER REAR	(C),Step to upper deck - yellow anti-slip coating is applied to the edges and vertical faces of the step. Yellow/black caution stripe decals at each step.
450-025f	STANDEE LINE	(B),Standee line - yellow.
450-025g	ENTRANCE NOSING	(B),Entrance nosing - nosing is 2" wide yellow anti-skid applied to the ramp.
450-025h	EXIT NOSING	(C),Exit nosing - 2.5" yellow nosing and 2.0" yellow standee line in vestibule area at edge of exit door opening/sweep. Altro / Tarabus flooring.
450-025j	REAR SEAT RISER COVERING MATERIAL	(B),Rear seat riser covering material - same material and colour as used for the flooring.
450-025k	GRIT FLOORING AT ARTIC JOINT	(B),Grit flooring at articulated joint - black non-aggregate anti-slip coating.
450-030	DRIVER'S PLATFORM FLOORING	(A),Driver's platform flooring - Altro.
450-030a	DRIVER'S PLATFORM TRIM	(B),Driver's platform trim - SST.
450-045	OUTER WHEELHOUSES	(B),Outer wheelhouses - SST front and rear.
450-055	INTERIOR FRONT W/HOUSE (LUGG RACK) COLOURS	(B),Interior front wheelhouse (luggage rack) colours - Matte black, painted stipple. An LED aisle light is provided on the streetside. Also, SST scuff guards are provided.
460-005	WINDSHIELDS	(B),Windshield - 72% light transmittance green laminated. With blue shade band for street and curb sides.
460-005a	WINDSHIELD PROTECTIVE FILM	(B),Windshield protective film - required for coach delivery beyond a 500 mile radius of Final Assembly.
460-010	PASS / DRVR'S WINDOWS MANUFACTURER	(B),Passenger and driver's windows, manufacturer - Arow Global (Stormtite) non-flush mounted.
460-010b	NON-FLUSH PASSENGER WINDOWs	(C),Non-flush passenger windows - bottom is fixed, top slider.
460-010e	NON-FLUSH WINDOW GLAZING	(C),Non-flush window glazing - grey, 55% light transmittance, laminated.
460-010h	WINDOW FRAME COLOUR	(C),Window frame colour - all window frames are clear anodized.

Option#	Description	Value Description (blank means unset)
460-010j	WINDOW EMERGENCY EGRESS	(S),Emergency egress windows - minimum quantity based on FMVSS requirements or the customer spec, whichever is the greater of the two.
460-010k	SIDE DESTINATION SIGN WINDOWS	(C),Destination sign window - curb and street sides. Fixed clear top and fixed bottom. Bottom matches passenger window glazing. (review 470 for side sign details).
460-010n	WINDOW GLAZING REPLACEMENT	(A),Window glazing replacement for servicing - rapid replacement.
460-010p	PASS WINDOW LINERS AND COATINGS	(C),Window liners and coatings - .12" acrylic liners on all windows.
460-010s	PASS WINDOW THICKNESS	(B),Passenger window thickness - 6 mm.
460-011a	DRIVER'S WINDOW, NON-FLUSH	(B),Driver's window, non-flush mounted - with fore and aft sliding sashes. The forward sash has exterior and interior handles. Non-egress.
460-011b	AFT SASH, NON-FLUSH DRIVER'S WINDOW	(B),Aft sash, non-flush driver's window - with interior handle and latch.
460-011d	DRIVER'S WINDOW GLAZING	(B),Driver's window glazing - laminated with minimum 70% light transmittance.
460-011e	DRIVER'S WINDOW SHADE BAND	(B),Driver's window shade band - not required.
470-001	DESTINATION SIGNS MFR	(A),Destination sign mfr - Twin Vision Smart Series, LED display system.
470-001a	DEST SIGN CONTROL UNIT LOCATION	(B),Destination sign control unit location - under driver's overhead panel.
470-005a	TWIN VISION FRT.DEST.SIGNS	(A),Twin Vision front destination sign - LED Chroma I, 16 X 156, 4 amber matrix boards and 1 colour board with a single LED. Will be programmed with white test pattern, customer to reprogram sign in color after acceptance.
470-010	FRONT DESTINATION SIGN GLASS	(A),Front destination sign glass - heated and laminated.
470-025	CURB SIDE DESTINATION SIGN LOCATION	(A),Curbside destination sign location - at the second window, aft of the entrance door.
470-025b	TWIN VISION CURBSIDE DEST.SIGNS	(A),Twin Vision curbside destination sign - LED, amber, 8 x 96 (37.4" wide display).
470-026	STREET SIDE DEST SIGN	(C),Street side dest/route sign - required at #3 streetside window (first window rear of SDS compartment).
470-030	FRONT ROUTE SIGN	(C),Front route sign - Twin Vision LED, 14 x 40, addressable.
470-035	REAR ROUTE SIGN, LOCATION	(B),Rear route sign location - at the upper curb side. For non-CNG coaches.
470-035b	TWIN VISION REAR ROUTE SIGNS	(A),Twin Vision rear route sign - LED, amber 16 X 48.
470-060b	CLEVER DEVICES (DIGITAL RECORDER) AVA SYSTEM	(A),Clever Devices (Digital Recorder) AVA system - full system installed by NFIL, including antenna(s), cabling, ground plates and all required system components as per customer spec.
470-060f	ACS (ORBITAL/TMS) AVA SYSTEM	(C),ACS (Orbital / TMS) AVL system - provisions. Includes installation of antenna(s), cabling and ground plates as per customer spec.
470-060k	AVA/AVL LED SIGN & LOCATION	(C),AVA/AVL LED sign and location - required on the front and rear HVAC overhead enclosures and at the center exit door area.
470-061	AUTO VEHICLE MONITORING SYSTEM (AVM)	(A),Automatic Vehicle Monitoring (AVM) system - Fleetwatch required as per spec/MRL.
470-075	NEW FLYER CONNECT-DIAGNOSTIC & MONITORING SYSTEM	(A),New Flyer Connect-Diagnostic & Monitoring - required with driver maneuver awareness system (DMAS).
470-NEW	NEXTBUS SYSTEM	(C),Nextbus system - Installation of complete system including antenna.

Option#	Description	Value Description (blank means unset)
480-005	STREET SIDE MIRROR MANUFACTURER	(B),Street side mirror manufacturer - Hadley.
480-005a	HADLEY STREET SIDE MIRROR	(B),Hadley street side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-005b	STREET SIDE MIRROR POWER OPTIONS	(A),Street side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-005e	STREET / CURB SIDE MIRROR W/TURN SIGNAL	(A),Street and curb side mirror with turn signal - LED, in mirror glass.
480-005f	STREET SIDE MIRROR ARM	(A),Street side mirror arm - mirror arm springs back to its previously set position after deflection.
480-005g	STREET SIDE MIRROR MOUNT	(A),Street side mirror mount - high mount.
480-005h	STREET / CURB SIDE MIRROR VOLTAGE	(B),Exterior mirror voltage - 12 volt.
480-006	CURB SIDE MIRROR MANUFACTURER	(B),Curb side mirror manufacturer - Hadley.
480-006a	HADLEY CURB SIDE MIRROR	(B),Hadley curb side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-006b	CURB SIDE MIRROR POWER OPTIONS	(B),Curb side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-006e	CURB SIDE MIRROR ARM	(B),Curb side mirror arm - basic, pull-back. Mirror arm is manually returned to its previously set position after deflection. Mirror can be folded forward or backward for bus wash.
480-010	INTERIOR MIRRORS,MANUFACTURER	(A),Interior mirrors, manufacturer - Hadley.
480-010a	DRIVER'S REAR VIEW MIRROR	(A),Driver's rear view mirror - 8" x 15", black, flat.
480-010b	SPOT MIRROR	(B),Spot mirror - 6" diameter flat mirror, located at curb side front.
480-010d	EXIT DOOR MIRROR	(B),Exit door mirror - convex, 12" diameter.
490-001	ENT DOOR DRIVE SYS	(A),Entrance door drive system - Electric
490-005	ENTRANCE DOOR	(B),Entrance door - Vapor slide glide.
490-005a	ENTR DOOR LIMIT SWITCH SET-UP	(A),Entrance door limit switch - solid state proximity switch.
490-005d	ENTRANCE DOOR MAGNETIC DUMP VALVE	(B),Entrance door magnetic dump valve - required, located at baseplate.
490-005f	ENTR/EXIT FRANG COVER LANGUAGE	(C),Entrance / exit door frangible cover instructions (for emergency release), language - English. Additional scoring required on exit door frangible cover.
490-006	ENTRANCE DOOR HANDLES	(B),Entrance door handles - yellow powder coated.
490-015	ENTRANCE DOOR CONTROLLER	(A),Entrance door controller - extended with 5 position settings.
490-015a	DOOR CONTROLLER HANDLE	(B),Entrance door control handle - non-removable.
490-030	ENTRANCE DOOR GLAZING	(S),Entrance door glass - full length single piece, 72% green.
491-001	EXIT DOOR DRIVE SYS	(A),Exit door drive system - Electric with pneumatic emergency release.
491-005	EXIT DOOR	(B),Exit door - wide Ameriview Vapor Slide Glide, 45.2" between panels. 60' coach with two exits, one at front and one at rear unit.

Option#	Description	Value Description (blank means unset)
491-005a	SLIDE GLIDE EXIT LIMIT SWITCH	(A),Exit door limit switch - solid state proximity switch.
491-005b	EXIT DOOR CONTROL	(A),Exit door control - Vapor Class Acoustic Sensing System. Activates door opening and detects obstruction on closing.
491-005ba	CLASS SYSTEM DOOR DECAL	(C),Class system door decal - English, Spanish, Tagalog, and Chinese, text and characters as per customer requirement.
491-005d	EXIT DOOR SENSITIVE EDGE	(B),Exit door sensitive edge - sensor on the vertical edge provided with all exit doors.
491-005g	EXIT FRANGIBLE COVER SECUREMENT	(C),Exit frangible cover securement - magnetic latch with screw.
491-005j	EXIT BASEPLATE / ELEC PNL ACCESS	(B),Exit baseplate access- at each exit door, Tcb set-up, through removable ad frame.
491-006	EXIT DOOR ASSIST HANDLES	(B),Exit door assists - yellow powdercoated.
491-020	EXIT DOOR GREEN LIGHT	(B),Exit door green light - LED green light indicates that the exit door is set to open.
491-035	EXIT DOOR GLASS SIZE	(B),Exit door glass size - full length.
491-035a	EXIT DOOR GLAZING	(B),Exit door glazing - 6 mm.
491-NEW	EXIT DOOR EXTERNAL BUTTONS	(C),Exit door external buttons - Two flush mounted "Elevator Style" external switches mounted on either side of the exit doors to permit passenger loading/entry from exit.
526-001b	60' PASSENGER SEAT QTY	(C),60' passenger seat quantity - 44.
526-005	PASSENGER SEAT MANUFACTURER	(B),Passenger seat manufacturer - American Seating.
526-005b	AMERICAN SEATING SEATS	(A),American Seating passenger seats - Vision stainless seat. Details as per customer spec.
526-005ba	AMERICAN SEATING D90 SPEC	(B),American Seating passenger seats D90 spec - not required.
526-005d	REAR BENCH SEAT	(S),Rear bench seat - 1-3-1 hinged seat.
526-005e	PASSENGER SEAT MOUNTING	(B),Passenger seat mounting - cantilever.
526-005f	SEAT MOUNTED GRABRAIL	(A),Seat mounted grabrails - stainless steel.
526-005h	FIRST SEAT,CURBSIDE UPPER REAR	(B),First seat at curbside upper rear - forward facing.
526-005i	PASSENGER SEATING BARRIER	(B),Passenger seating barrier - pedestal mounted barrier.
526-005j	SEAT POSITION, FORWARD OF REAR EXIT	(B),Seat position, forward of rear exit - forward facing.
526-005k	ARTICULATED JOINT SEATS	(B),Articulated joint seats -not required.
526-005l	SEAT FWD OF ARTIC JOINT AREA	(A),Seat forward of artic joint - two rearward facing on each side.
526-005n	SEAT AFT OF ARTIC JOINT AREA	(C),Seat aft of artic joint area - one forward facing seat on curbside and one aisle facing seat on streetside.
526-006	DRIVER'S SEAT MANUFACTURER	(A),Driver's seat manufacturer - USSC.
526-006a	USSC DRIVER'S SEAT MODEL	(A),USSC driver's seat model - 9100 ALX. The fore / aft seat travel is 11.8". Has 2 point seat belt. Has air suspension and lumbar.
526-006f	DRIVER'S SEAT MATERIAL	(B),Driver's seat material - all vinyl.

Option#	Description	Value Description (blank means unset)
526-006g	DRIVER'S SEAT BELT	(C),Driver's seat belt - orange colored lap belt with retractor on right hand side.
526-006ga	DRIVER'S SEAT BELT ALARM	(A),Driver's seat belt alarm - required to warn driver that seat belt is not connected.
526-006j	DRIVER'S SEAT,DOCKET 90 SPEC	(B),Driver's seat D90 spec - Not required.
526-006k	DRIVER'S SEAT BASE RISER	(A),Driver's seat base (riser) - SST.
526-006m	DRIVER'S SEAT PARK BRAKE ALARM	(A),Driver's seat park brake alarm - switch is required in seat cushion to trigger driver's park brake alarm (ref. option 246-040).
526-006s	DRVR'S SEAT HEADREST	(B),Driver's seat headrest - required.
526-007	WHEELCHAIR POSITIONS,QUANTITY	(C),Wheelchair positions - Three. One fwd of the exit door curbside and TWO aft of the streetside front wheelhouses.
526-007a	W/CHAIR POSITIONS,RESTRAINT SYSTEM	(A),Wheelchair restraint system - padded barrier/restraint system for rearward facing w/chr position(s) and restraint system for forward facing w/chr position(s). Mfr, position, mat'l color/type and details as per customer spec.
526-007e	SHOULDER HARNESS,W/CHR RESTRAINT	(C),Shoulder harness for wheelchair restraints - secured to structure (pier panel), one on streetside only (for rear facing wheelchair position).
526-010	STANCHION / GRABRAIL STYLE	(B),Stanchion / grabrail style - curved style vertical stanchions. Using cast SST fittings for vertical and horizontal stanchions.
526-010a	OVERHEAD HORIZONTAL GRABRAILS	(A),Overhead horizontal grabrails - yellow SST.
526-010aa	OVERHEAD HANDSTRAPS,TYPE	(C),Handhold straps on overhead grabrails - flexible grey PVC straps in yellow Bentech mounts, secured to horizontal stanchions, locations as per customer spec.
526-010ab	OVERHEAD GRABRAIL HANDHOLD STRAPS,QUANTITY	(A),Overhead grabrail handhold straps, quantity - twenty-four.
526-010b	VERT STANCH AT EXITS & RR RISER STEP	(B),Vertical stanchions at exits and rear riser steps - yellow SST.
526-010d	VERT FORE OF S/S FRT W/HOUSE	(C),Vertical stanchion fore of streetside front wheelhouse - black SST (part of drivers door).
526-010da	VERT AFT OF S/S FRT W/HOUSE	(B),Vertical stanchion aft of streetside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).
526-010e	VERT FORE OF C/S FRT W/HOUSE	(A),Vertical stanchion fore of curbside front wheelhouse - black SST.
526-010ea	VERT AFT OF C/S FRT W/HOUSE	(B),Vertical stanchion aft of curbside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).
526-010f	VERTICAL STANCHIONS AT SEATS	(A),Vertical stanchions at seats - yellow SST.
526-010j	ARTIC JOINT HANDSTRAPS/GRABRAILS	(C),Articulated joint handholds or straps - Muni specific center hoop mounted grabrails with melamine panels..
526-010jb	ARTIC JOINT GRABRAIL COLOUR	(A),Articulated joint grabrail colour - yellow SST.
526-010k	FRONT CURBSIDE LUGGAGE RACK	(A),Front curbside luggage rack - horizontal yellow tube wraps around aft, aisle and fore sides, SST.
526-010m	FAREBOX GRABRAIL	(A),Farebox wrap-around stanchion - black SST. Requires known farebox location.
526-015	CURBSIDE MODESTY PANEL,FORE UPR DECK	(B),Modesty panel material - melamine.
526-015a	FORE OF UPR DECK MELAMINE MODESTY PNLS	(B),Fore of upper deck melamine modesty panels - charcoal gloss.



Option#	Description	Value Description (blank means unset)
526-015b	C/SIDE FORE UPR DECK MOD PNL, GAP	(S),Gap at bottom of curbside fore of upper deck modesty panels - approximately 2" diagonally.
526-015e	UPPER PANEL,C/SIDE FORE OF UPPER DECK	(A),Upper panel aft of exit(s) - 0.5" clear polycarbonate, basic width.
526-016	BARRIER AT STREET SIDE REAR RISER	(B),Barrier at street side rear riser - Modesty panel (material and color per 526-015/526-015a).
526-017	BARRIER FWD OF JOINT	(A),Barrier - Modesty panels provided at forward artic joint closeouts. Stanchion color to match vertical stanchions at seats. (526-010f).
526-022	DRIVER'S DRAFT SHIELD	(C),Driver's enclosure - clear AS-2 Lexan and black powdercoated steel bi-fold enclosure.
526-035	FORE OF EXIT(S),BARRIERS / GRABRAILS	(A),Fore of exit(s), barriers and grabrails - upper panel, 0.5" clear polycarbonate, wide width panel.
526-048	BARRIER REAR OF JOINT	(C),Barrier - vertical stanchions without padding, yellow SST.
526-055	EMERGENCY INSTRUCTIONS	(C),Emergency instructions - decals. English, Spanish, and Chinese and Tagalog.
526-070	LUGG RACK AT CENTER AXLE PLATFORM	(A),Luggage rack at center axle platform - not required.
526-129	CTR AXLE BARRIER	(B),Barrier/modesty panel at center axle platform - .375" melamine (colour as per option 526-015a) both at curbside and streetside.
526-NEW	NEW OPTION,526 GROUP	(C),Street side modesty panel, fore of center axle platform - 0.375 thick melamine (color as per option 526-015a)
549-001b	60' HVAC SYSTEM	(A),HVAC system manufacturer and type - Thermo King RLF front and rear rooftop heat units. Safe-T-Walk is provided for rooftop units.
549-002a	HVAC UNIT MOTOR TYPE	(S),HVAC motor type - brushless motor for primary heating & cooling system.
549-002d	HVAC AIR INTAKE	(B),HVAC air intake - recirculated air only.
549-002ea	HVAC RETURN AIR FILTER	(B),HVAC return air filter - polyester filters installed at the return air grille for RLF rooftop units.
549-002g	HVAC SYSTEM VALVES	(S),HVAC system valves - brass ball valves with basic handles.
549-002h	A/C AND HEATER LINE CLAMPS	(S),A/C and heater line clamps - Ideal.
549-004	HVAC ELECTRONICS	(B),HVAC electronics - Thermo King Intelligaire 3, valid for A/C or heater units. With limited diagnostic capabilities.
549-004a	HVAC CONTROL PANELS	(B),HVAC control panel - Thermo King, installed at the HVAC unit.
549-004b	HVAC PROGRAM SETTINGS	(B),HVAC program settings - APTA standard
549-020	BOOSTER PUMP	(C),Booster pump - Rotron.
549-025	DEFROSTER	(B),Defroster - 3 speed brushless motor, electrically controlled damper.
549-100	AUXILIARY HEATER	(B),Auxiliary heater - not required.
580-005	WHEELCHAIR RAMP	(C),Wheelchair ramp -LIFT-U LU11-15 ramp at front door.
580-005a	FRONT RAMP CONTROL	(S),Front ramp control - ramp switch at driver's instrument panel.

Option#	Description	Value Description (blank means unset)
580-005d	WHEELCHAIR RAMP,SURFACE	(C),Wheelchair ramp surfaces - deployed surface covered with anti-skid treatment. Stowed surface covered with Altro Flooring. The leading edge is yellow, the side flanges are painted yellow.
580-070	RAMP RETRACTOR TOOL	(C),WheelChair Ramp Tool - Required as per spec/MRL.
600-025	BACK-UP ALARM	(B),Backup alarm - basic alarm located on curbside.
600-065	SDS TRAY QUANTITY	(A),SDS tray quantity - four trays total.
600-075	FAREBOX PEDESTAL	(C),Farebox pedestal - SST, 7.0" high with Muni specific mounting plate.
600-076	FAREBOX	(B),Farebox - not required.
600-077	FARECARD READER	(C),Farecard reader - Provisions/Harnesses for Muni specific Clipper® system.
600-078	TRANSFER CUTTER	(C),Transfer cutters - one Globe model 303 (two notchers). Installed as per customer specific details.
600-100	CURBSIDE FRONT EQUIPMENT BOX	(A),Curbside front equipment box - black, aluminum with paddle latch, no lock.
600-101	DRIVER'S STORAGE BOX BEHIND SEAT	(A),Driver's storage box behind seat - basic box with paddle latch, no key. The box is to include a chamfer to allow for driver's seat clearance.
600-125	TAKE ONE HOLDERS	(A),Take one holders - required. Type(s) and location(s) specified by customer.
600-125e	TAKE ONES,PASSENGER AREA	(A),Take one holders - in the passenger area, installed on various window pillars.
600-152	TRASH CONTAINERS	(A),Trash container - type and location as per customer spec.
600-175	RADIO,COMMUNICATION SYSTEM	(C),Radio, communication system - full Harris radio system installed by NFIL per Muni requirements, additional conduit/provision for future radio system.
600-177	AUTOMATIC PASSENGER COUNTER	(A),Automatic passenger counter system - IRMA matrix
600-178	TRAFFIC SIGNAL CONTROL SYSTEM	(C),Traffic signal control system required. Opticom 2101/ASM 2807 GPS controlled system.
600-225	VIDEO SURVEILLANCE SYSTEM	(A),Video surveillance system - interior and exterior cameras, quantity, details and location as per customer spec and installation / approval drawing.
600-225a	VIDEO SURVEILLANCE SYSTEM,MFR	(A),Video surveillance system - DTI-Loronix system, equipment as per customer spec.
600-225b	CAMERA COLOUR TYPE	(A),Camera colour type - cameras are a combination of colour and colour with infrared capabilities.
600-268	TURN ANNUNCIATOR SYSTEM	(C),Turn annunciator system - Mallory Sonalert SC628JR beepers at curbside exterior center and rear exit door areas to sound when turn signal switches depressed. Override switches to be located in SDS enclosure/compartmen
600-276	FIRE SUPPRESSION	(C),Fire suppression - Amerex Safety Net System. With one 25 lb dry chemical agent tank and one 13 lb dry chemical tank.
600-276b	AMEREX FIRE DETECTION SENSORS	(C), Amerex fire detection sensors - linear wire in engine compartment.fire or smoke conditions in the battery compartment shall actuate a visual and audible alarm at the operator's control panel.
600-300	BICYCLE RACK,MFR/MODEL	(A),Bicycle rack, manufacturer / model - Sportworks, DL2-WP (wide profile), front mounted.
600-300a	SPORTWORKS BICYCLE RACK MOUNTING	(A),Sportworks bicycle rack mounting - TSB (ten second bracket) quick release slide-in standoff with incorporated pivot.

Option#	Description	Value Description (blank means unset)
600-300b	SPORTWORKS BICYCLE RACK REMOVAL	(A),Sportworks bicycle rack removal - quick release rack.
600-300d	SPORTWORKS BICYCLE RK MATL/COLOR	(A),Sportworks bicycle rack material/colour - SST, black powdercoated.
600-300e	BIKE RACK DEPLOY INDICATOR LIGHT	(A),Bike rack deployment indicator light - required.
600-300f	BICYCLE RACK MFR LOGO	(A),Bicycle rack manufacturer logo - provided.
600-300g	BICYCLE RACK INSTRUCTIONS	(A),Bicycle rack instructions - English.
600-NEW	DRIVECAM SYSTEM	(C),Drivecam system - Full Install for Drivecam system.

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Option#	Description	Value Description (blank means unset)
100-002	XCELSIOR COACH LENGTH	Xcelsior - 40' coach.
100-003	STRUCTURAL MATERIAL	(B),Structural material - carbon steel/ferritic sst.
100-004	FUEL/PROPULSION SYSTEM	Propulsion system - Allison hybrid with ISL diesel engine.
100-004a	FUEL TYPE	(B),Fuel type - diesel, compatible up to 20% biodiesel.
100-006	DOCKET 90 SPEC	(A),Docket 90 spec - for interior of coach (as per spec).
201-005	BUMPERS	(B),Bumpers - Romeo Rim, three piece, front and rear bumpers. Rear has anti-ride feature.
201-015	TOWING PROVISIONS	(B),Front tow eyes - basic set-up, incorporated in front chassis. Tow adapters are required.
203-005	FRONT AXLE	(B),Front axle - M.A.N. VOK-07-F, GAWR 15,873 lbs. With disc brakes. Hub mount, Knorr cylinders, Ferodo lining.
203-005b	SECUREMENT OF BRAKE LININGS	(S),Securement of brake linings - bonded.
203-005f	ELECTRONIC BRAKE STROKE MONITOR	(A),Electronic brake stroke monitor - MGM E-stroke system.
203-011	SHOCK ABSORBERS	(S),Shock absorbers - Koni.
203-014	FRONT STABILIZER BAR	(C),Front stabilizer bar provided - SR specific application is approved by NF Engineering.
203-050	FRT AXLE AND WHEEL SPLASH APRONS	(A),Front axle and wheel splash aprons - full width, fore of axle and wheels. Also, two additional aprons aft of the wheels.
204-005	REAR AXLE	(B),Rear axle - M.A.N. 4.56:1. Model HY-1350-F. GAWR 28,660. With disc brakes, hub mount, Knorr cylinder, Ferodo lining.
204-005d	REAR AXLE GEAR OIL	(B),Rear axle gear oil - petroleum based.
204-070	REAR AXLE DRAIN PLUGS	(B),Rear axle drain plug - magnetic external hex head.
204-140	REAR AXLE AND WHEEL SPLASH APRONS	(B),Rear axle and wheel splash aprons - one piece behind axle and two behind rr wheels.
205-005	TIRES	(B),Tires - 305/70R/22.5, customer supplied Michelin X InCity Z (65 mph).
205-005a	TIRE BRANDING	(A),Tire branding - required as per spec.
205-010b	WHEELS	(A),Wheels - Alcoa 22.5" x 8.25" aluminum. Polished Durabright finish both sides.
209-005	POWER STEERING PUMP	(B),Power steering pump - Ixetic (Luk) power steering pump powered off engine accessory drive.
209-005a	POWER STEERING HOSES	(S),Power steering hoses - NFIL (Manuli) Equator 2 and GH100 hose at steering box and NFIL (Manuli) Equator 2 in engine compartment.
209-005b	POWER STEERING DIAGNOSTIC FTGS	(A),Power steering diagnostic fittings - at steering box.
209-008	POWER STEERING RESERVOIR	(S),Power steering reservoir - required.
209-008d	POWER STEERING DRAIN PLUG	(B),Power steering drain plug - magnetic plug.
209-010	POWER STEERING UNIT	(S),Steering box - Sheppard M110, power assisted, frame mounted.
209-060	POWER STEERING SYSTEM FLUID	(B),Power steering system fluid - Dexron III, mineral based.
219-001a	ENGINE,HP,TORQUE,TYPE	(B),Engine - Cummins ISL 2016 diesel (hybrid), 330 horsepower with 1050 LB FT torque (Engine output is controlled by Hybrid drive). Uses a heat exchanger for the isolated cabin heating loop.

Option#	Description	Value Description (blank means unset)
219-005a	ENGINE AIR COMPRESSOR	(B),Air compressor - Wabco HD 30.4, twin cylinder, turbo aspirated.
219-005da	ALTERNATOR ISL HYBRIDS	(A),Alternator - HBA (Hybrid beltless alternator).
219-005e	CUMMINS DIESEL FUEL FILTERS	(B),Cummins diesel fuel filters - for ISL's, Cummins primary and secondary fuel filter system.
219-005f	CUMMINS DIPSTICK, LOCATION	(S),Cummins dipstick, location - static oil level indicator, on streetside of engine.
219-005g	ENGINE & TRANS FLUID FILL TAGS	(S),Fluid fill ID tags - for engine and transmission dipsticks.
219-005h	ROAD SPEED	(C),Road speed - top road speed is governed. Set at 63 MPH (101 KPH).
219-010	TRANSMISSION/HYBRID DRIVE	(S),Hybrid drive - Allison H50EP
219-010a	TRANSMISSION SHIFTING	(S),Transmission shifting - foot on brake enables shift when in neutral.
219-010f	ALLISON TRANS FLUID LEVEL DISPLAY	(B),Allison transmission fluid level display - display provided.
219-010p	FLUID, HYBRID DRIVES	(S),Transmission fluid - Transynd synthetic.
219-025	AIR CLEANER	(A),Air cleaner - Donaldson. Reusable housing with disposable cartridge/filter.
219-025a	AIR RESTRICTION INDICATOR	(B),Air restriction indicator - mounted directly on air intake tube.
219-035	EXHAUST SYSTEM	(S),SST Exhaust system - Cummins diesel particulate filter (DPF).
219-035a	EXHAUST TAIL PIPE ORIENTATION	(B),Exhaust tail pipe orientation - curved pipe set to 45 degrees to streetside.
219-035b	EXHAUST BLANKETS FOR CUMMINS DIESEL OR CNG	(B),Cummins Diesel / CNG exhaust blankets - provided for the exhaust tubes.
219-045	ENGINE SWITCH BOX	(B),Engine switch box - basic configuration with run control, start and engine compartment light switches. Located at curbside of center rear in engine compartment.
219-045b	ENGINE SPEED CONTROL AT SW BOX	(A),Engine speed control at engine switch box - Morse throttle (controls engine RPM).
219-050	ENGINE COMPT GAUGES, BASIC	(S),Engine compartment gauges - CAN communicator programmable to multiple functions. Located at engine switchbox.
219-090	P-CLIPS, ENGINE COMPT & HVAC	(B),Engine compartment and HVAC system p-clips - UMPCO 775 SST with high temperature boxed silicon cushion provided to secure air and fluid lines to structure.
219-175	BELT GUARD	(B),Belt guard - the engine pulley guard is provided with hinges.
219-175a	BELT GUARD LATCHING	(B),Belt guard latching - rubber hood latch.
219-195	OIL SAMPLING	(C),Oil sampling - required for engine, using easy access probalizer fittings.
219-810	DEF(DIESEL EXH FLUID) TANK	(B),DEF (diesel exhaust fluid) tank - manual fill is set in the lower curbside fusebox access door with NFIL fill cap.
231-005	RADIATOR	(B),Radiator - EMP MH4 GEN4 with full diagnostic capabilities. 4 x 15" fans.
231-005d	RADIATOR DRAIN VALVES	(A),Radiator drain valve - brass hex head plug.
231-010a	ENGINE COMPARTMENT & HVAC HOSES	(S),Engine compartment and HVAC hoses - a combination NFIL (Manuli) Equator 1, Equator 2, Nozone and GH100 hose for fluid and air system hoses.
231-020	SURGE TANK	(B),Surge tank - Dual cylindrical SST tanks with isolated cabin heating loop.
231-020a	LOW COOLANT INDICATION / SENSORS	(S),Low coolant indication / sensors - an early warning sensor at the surge tank signals the instrument panel Low Coolant telltale. A lower sensor signals engine shutdown and the Check Engine and Low Coolant telltales.

Option#	Description	Value Description (blank means unset)
231-020b	SURGE TANK PRESSURE TEST PORT	(B),Surge tank pressure test port - provided.
231-020d	SURGE TANK PRESSURE RELIEF VALVE	(B),Surge tank pressure relief valve - Radiator cap (LEV-R VENT), built into surge tank cap.
231-020e	SURGE TANK SIGHT GLASS	(S),Surge tank sight glass - graduated sight glass (glass material).
231-040	COOLANT TUBES	(S),Coolant tubes - SST.
231-075	COOLANT FLUID/ANTIFREEZE	(B),Coolant fluid / antifreeze - 50/50 pre-mixed distilled water with ethylene glycol with anti-corrosion additive and bittering agent. Pink fluid.
231-085	TRANSMISSION/HYBRID DRIVE OIL COOLER	(S),Hybrid drive oil cooler - EMP for Allison hybrid drives for ISL engine.
231-085a	TRANSMISSION/HYBRID OIL COOLER HOSES	(S),Transmission / hybrid drive oil cooler hoses - NFIL (Manuli) Equator 1.
231-120	COOLANT RECOVERY TANK	(S),Coolant Recovery tank - required.
234-005	WATER FILTER	(B),Water filter - not required.
241-005	DIESEL FUEL TANK MATERIAL	(B),Diesel fuel tank material - cross-linked polyethylene.
241-005a	DIESEL TANK CAPACITY AND FILL TYPE	(B),Diesel fuel tank capacity and fill type - 100 useable US gallons. Pressure filled.
241-005b	DIESEL FILLER CAP	(B),Diesel fuel fill cap - posi-snap flip type.
241-005c	DIESEL FUEL SENDER	(S),Diesel fuel sender - required.
241-005d	DIESEL FUEL LEVEL INDICATION	(B),Diesel fuel level indication - not required.
241-010	DIESEL FUEL HOSES,ENGINE COMPT	(S),Diesel fuel hoses in engine compartment - GH100.
241-010a	DIESEL FUEL LINES,TANK TO BULKHEAD	(S),Diesel fuel lines from fuel tank to bulkhead - orange, fuel grade nylon tubing.
246-001	AIR COMPRESSOR DISCHARGE LINE	(S),Air compressor discharge line - Teflon 2807 SST braided hose.
246-005	AIR TANKS	(B),Air tanks - two dual compartment ceiling mounted tanks combining wet tank and rear brake tanks, accessories tank and kneeling tank and a single front brake tank .
246-005b	AIR TANK DRAIN VALVES	(B),Air tank drain valves - manual.
246-015	KNEELING	(S),Kneeling - full front kneeling with rapid recovery.
246-015b	LEVELING VALVES	(S),Leveling valves - Barksdale.
246-020	ENTR/EXIT DOOR INTERLOCK	(C),Door interlock - Brake valve actuator on treadle valve, applied to entrance and exit doors. Foot on brake to release interlock, applied via multiplex system programming.
246-040	DRIVER'S PARK BRAKE ALARM	(A),Driver's park brake alarm - a switch in the driver's seat cushion triggers alarm to alert the driver that the park brake is not set. A light at the instrument panel is also activated.
246-040a	PARK BRAKE PRESSURE SETTING	(S),Park brake pressure setting - 40 psi auto-apply park brake valve. 60 psi pressure switch for park brake light activation.
246-060	AIR DRYER	(C),Air dryer - Graham White, "SludgeBreaker", QBA60NX5, w/ 24V heater, 12/24V purge control, dryer boost protection, high performance air dryer.
246-060a	AIR DRYER LOCATION	(S),Air dryer location - behind the rear streetside wheelhouse, on the bulkhead.
246-060d	AIR DRYER VOLTAGE	(B),Air dryer voltage - 24 volt.
246-065	PARK BRAKE ACTUATION	(B),Park brake actuation - Pull To Apply.

Option#	Description	Value Description (blank means unset)
246-065a	PARK/EMERG BRAKE LOCATION	(S),Park brake control location - on side console panel.
246-105a	REAR AIR CHARGE FITTING LOCATION	(S),Rear air charge fitting location - routed to curbside of engine.
246-105b	REAR AIR CHARGE CONNECTOR	(C),Rear air charge connector type - male 1/4" Amflo CP1 fitting.
246-105f	MUFFLER TANK,REMOTE DRAIN	(B),Muffler tank remote drain valve - required.
246-120	FRONT TOW CONNECTOR	(C),Front tow connector fitting - 1/4" male Amflo CP1 fitting with tag.
246-120a	FRONT AIR CONNECTOR ARRANGEMENT	(B),Front air connector arrangement - located below the bumper, streetside.
246-125	FRONT AIR CHARGE CONNECTOR	(C),Front air charge connector - 1/4" male Amflo CP1 fitting with tag.
246-130	FLEXIBLE AIR LINES	(S),Flexible air lines - Synflex colour coded. Green: rear service brakes and supplies. Red: front service brakes. Brown: parking brake. Black: accessories and brake hose. Yellow: compressor and governor. Blue: suspension.
246-225	ABS	(S),ABS braking system - Wabco.
246-230	TRACTION CONTROL	(B),Automatic traction control - Wabco system, to reduce drive wheel overspin.
246-NEW	INCLINE RAISE FEATURE	(C),Incline raise feature - air suspension steep incline feature required per Muni specifications.
260-005a	TWO BATTERIES,TYPE / MFR	(C),Batteries - two 8D AGM/Deka 1450CCA maintenance free batteries (mfr East Penn Batteries). Post connection 3/8" positive X 3/8" negative.
260-005d	BATTERY CABLES	(S),Battery cables - red heat shrink on 24 volt positive cable end and light blue heat shrink on 12 volt positive cable end.
260-010	BATTERY TRAY	(S),Battery tray - slide out battery acid resistant polyethylene enclosure with SST sub frame, SST bearings and rubber isolation mounts. Located aft of the curbside rear wheelhouse. Note: battery access door opens to the side.
260-025	POSITIVE BATTERY DISCONNECT SW	(A),Positive battery disconnect switch - required with quick access through flip-open door. Uses a micro-switch for engine shutdown.
260-030	BATTERY VOLTAGE EQUALIZER	(B),Battery voltage equalizer - Vanner 80 amp with monitor, J1939 and battery State-of-Health monitor.
260-035	JUMP START MANUFACTURER	(C),Jumpstart - Anderson model 6322 G1 connector.
260-035a	JUMP START LOCATION	(A),Jump start location - near the battery disconnect switch at the fusebox. Accessible via the flip-open door.
260-700	ALLISON HYBR OIL CLR FAN FAULT INDICATION	(S),Allison hybrid oil cooling system fan fault indication - provided at instrument panel LCD indicator. Also, there is an indication lamp at the engine switchbox.
260-820	ROOF FAIRING / SKIRTS ENCLOSURE	(S),Roof fairing / skirt enclosure - fairing with full length skirts for XDE's.
269-002	P.A. AMPLIFIER MFR / TYPE	(A),P.A. amplifier manufacturer / type - included with AVA or AVL system.
269-005	INTERIOR SPEAKER MFR	(B),Interior speaker manufacturer - TCB.
269-005b	PRIMARY INTERIOR SPEAKERS,QTY FOR 40'	(B),Primary interior speakers, quantity - six: four to light panels, two above rear bench.
269-010	EXTERIOR SPEAKERS,LOCATION	(B),Exterior speaker, location - at basic location above entrance. Includes baffled cover.
269-010a	EXTERIOR SPEAKER MFR	(B),Exterior speaker manufacturer - Shekonic.
273-005	HEADLIGHTS	(S),Headlights - NFIL Xcelsior LED low beam and halogen high beam headlights.

Option#	Description	Value Description (blank means unset)
273-005a	DAY RUN HEADLIGHTS	(B),Day run headlights - required.
273-005b	FRONT TURN SIGNALS	(S),Front turn signals - NFIL amber LED. Integrated with headlight assembly.
273-010	TAIL LIGHTS QTY PER SIDE	(B),Tail lights quantity per side - four.
273-010ab	FOUR TAIL LIGHT ARRANGEMENT	(B),Four tail light arrangement (top to bottom) - amber, red, red, white.
273-010b	TAIL LIGHTS MFR	(B),Red / amber tail light manufacturer - 4" Dialight LED.
273-010d	WHITE BACK-UP LIGHT MFR	(S),White back-up light manufacturer - 4" Dialight LED.
273-010e	STOP LIGHTS ON WITH RTRDR/REGEN BRAKE	(B),Stop light activation by transmission retarder / regenerative braking - required.
273-010f	STOP LIGHTS ON WITH PARK BRAKE OR INTERLOCK	(S),Stop light activation - when park brake or interlock are engaged.
273-015	CENTER STOP / DECELERATION LIGHTS	(A),Center stop lights (red) - two Dialight 18" X 1" LED above the engine door.
273-020	SIDE TURN SIGNALS,TYPE / QTY PER SIDE	(B),Side turn signals, type and quantity per side - 2 amber Dialight LED with guards. Lamps are at fore of all wheelhouses except curbside front which is aft. For non-60' coaches.
273-025	KNEELING/RAMP LIGHT AT ENTRANCE	(S),Kneeling / ramp deployment warning light at entrance - 2.5" Dialight LED.
273-025b	SIDE TURN SIGNAL FUNCTIONALITY	(C),Side turn signal functionality - Sonalert/beeper at curbside exterior exit door area to sound when turn signal switches depressed. Override switches to be located in SDS enclosure/compartment.
273-035	MARKER / CLEARANCE LIGHTS	(S),Marker and clearance lights - Dialight LED all around.
273-040	REFLECTORS	(S),Reflectors - self-adhesive decals installed at NFIL basic positions.
273-045	REAR LICENCE PLATE LIGHT	(B),Rear licence plate light - LED.
273-050a	TIMED SHUT-OFF,ENTR AREA LIGHTS	(B),Timed shut-off of entrance area lights (interior and/or exterior) - the program is set to shut the lights off when the door closes.
273-055a	TIMED SHUT-OFF,EXIT AREA LIGHTS	(C),Timed shut-off of exit area lights (interior and/or exterior) - the program is set to shut the lights off three seconds after the door closes.
273-112	CURBSIDE CORNERING LIGHT	(C),Curbside cornering lights - one curbside lamp located behind exit door.
277-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 277 group equipment.
277-005	INTERIOR PASSENGER LIGHTING	(B),Interior passenger lighting - TCB LED, 24 VDC.
277-005f	INTERIOR LED LIGHT FUNCTIONALITY	(B),Interior LED light functionality-first bank of light on each side turn on when entrance door is opened and off when door is closed.
277-010a	TINTED LED PASSENGER LIGHT COVERS	(B),Tinted LED passenger light covers - white for all lights.
277-015	FAREBOX LIGHT	(B),Farebox light - one swivel light with a replaceable LED bulb.
277-020	DRIVER'S LIGHT	(B),Driver's light - one sealed 2.5" white high output LED light.
277-030	ENGINE COMPARTMENT LIGHTS	(B),Engine compartment lights - four 1.38" LED lights.
277-035	REAR DECK STEP LIGHT	(S),Rear deck step light - LED.
277-040	INTERIOR DOOR HEADER LIGHTS	(B),Interior door header lights - one LED strip light (approx 18" long) provided above exit (if applicable) and entrance doors. With anti-glare shield.
277-070a	REAR PLC AND FUSEBOX SERVICE LIGHTS	(S),Rear PLC compartment and fusebox lights - provided, LED.



Option#	Description	Value Description (blank means unset)
280-001	PASSENGER SIGNAL CHIMES, FOR NON-60'	(B),Passenger signal chimes - one basic electronic chime above driver. Chime has single tone which sounds once for regular activation, twice for wheelchair positions.
280-002	PASSENGER SIGNAL PULLCORDS	(B),Passenger pullcords - yellow cords are required.
280-002a	PASSENGER PULLCORD HARDWARE	(B),Passenger pullcord hardware - Phillips.
280-003	HORIZONTAL PASSENGER SIGNAL PULLCORDS	(B),Horizontal passenger signal pullcords - set at NFIL designated basic height.
280-005	LWR DECK VERT PULLCORDS, FOR 40'	(A),Lower deck vertical passenger pullcords - three: two at first and second streetside pillars and one at first curbside pillar forward of the face of the upper deck.
280-005e	SECUREMENT OF VERTICAL PULLCORDS	(B),Securement of vertical pullcords to horizontals - looped or clamped to the horizontal depending on the location.
280-010	FRONT STOP REQUEST SIGN TYPE/POSITION	(C),Front stop request sign type / position - Smartrend LED installed in the destination sign door.
280-010a	FRONT STOP REQUEST SIGN TEXT	(B),Front stop request sign text - Stop Requested.
280-010b	FRONT STOP REQUEST SIGN LETTERING	(B),Front stop request sign lettering - upper case.
280-012	STOP REQUEST SIGN COLOURS	(B),Stop request sign colours - white letters on a red background.
280-015	PASS SIGNAL @ WHEELCHAIR POSITIONS	(C),Passenger signals at wheelchair positions - Muni specific push button mounted to flip-up seat.
280-025	PUSH BUTTON SIGNAL AT EXIT AREA	(C),Push button signal at exit - LFR style switches mounted facing aisle on stanchion fore of exit.
280-025a	PUSH BUTTONS,VERT & SEAT STANCHI	(C),Push button passenger signals on vertical seat stanchions - LFR style buttons at specified vertical stanchions.
280-025b	PUSH BUTTON SIGNALS,FRT W/HOUSE STANCH	(C),Push button signals, front wheelhouse stanchions - one each on the c/s and s/s stanchions aft of the wheelhouse, 46.5" from the floor to bottom of switches. LFR style switches.
284-001	ELECTRONIC CONTROL SYSTEM	(S),Electronic control system - Vansco.
284-001a	SYSTEM VOLTAGE	(S),System voltage - 24 VDC primary, 12 VDC secondary.
284-001b	SWITCHES	(S),Switches - water resistant.
284-001d	SPARE INPUT/OUTPUT PORTS	(S),Spare I/O (Input/Output) ports for multiplex system modules - minimum 10% input and 10% output.
284-005g	HAZARD WARNING LIGHTS	(S),Hazard warning lights - front, side and rear lights flash for hazard warning.
286-001	INSTRUMENT PANEL	(B),Instrument panel - acrylic material with luminescent lighting, with Vansco Instrument Panel Cluster module including LCD display screen.
286-001a	SHIFT SELECTOR LOCATION	(S),Shift selector - located on instrument panel.
286-001b	EXTERIOR LAMP TEST	(S),Exterior lamp test - simultaneously depress both turn signals.
286-010a	SPEEDOMETER	(S),Speedometer - part of Vansco instrument panel cluster. Set to display miles. With odometer (the display can be toggled to show Trip1, Trip 2, engine hours).
286-010b	AUDIBLE SOUND,TURN SIGNALS/HAZARDS	(B),Turn signal and hazard warning audible sound - using click sound for turn signal and for hazard warning.
286-010e	BRK/ACCEL INTERLOCK DEACTIV WRNG	(A),Brake accelerator interlock deactivated warning - provided by audible alarm and separate red warning lamp on instrument panel. (Must have in California.)
286-055	DOOR MASTER SWITCH LOCATION	(B),Door master switch location - in sawtooth panel above driver.

Option#	Description	Value Description (blank means unset)
286-055b	HYBRID REGEN SWITCH LOCATION	(B),Regenerative braking switch location - in sawtooth panel above driver.
286-065	SILENT ALARM	(C),Silent alarm - Motorola switch per specification required.
286-065a	SILENT ALARM SW LOCATION	(A),Silent alarm switch location - at side console.
286-070	DIAGNOSTICS PLUG LOCATIONS	(C),Diagnostic plug locations -at forward face of the SDS barrier (above driver) and at the engine switch box. 500K Baud diagnostic connector under the front dash ,forward face of the SDS barrier and at the engine switch box.
286-070a	ACCESSORY POWER PLUG	(A),Accessory power plug - at forward face of the SDS barrier (above driver).
289-001	SECUREMENT OF HARNESSSES	(B),Securement of harnesses - hellerman tyton clamps, with Panduit releasable cable ties.
296-001	WIRING DECAL,REAR PLC AND FUSEBOX	(S),Wiring decal, rear PLC and fusebox - provided, laminated.
296-001a	WIRING DECAL,SIDE CONSOLE	(B),Wiring decal, side console - laminated, shipped loose.
304-001a	EXTERIOR PAINT TYPE	(S),Exterior paint type - Axalta Imron Elite high solids polyurethane.
304-001aa	EXTERIOR PAINT CLEARCOAT	(A),Exterior paint clearcoat - required.
304-010	CORROSION PROTECTION	(B),Corrosion protection - grit blasted frame, moisture cure zinc-rich primer (applied for 12 year warranty protection), anti-chip undercoating, corrosion preventive coating sprayed inside frame tubes up to roof line.
304-015	EXTERIOR LOGOS,NFIL	(B),Exterior logos, NFIL - required.
304-015b	EXT DECALS,CUSTOMER SPECIFIC	(C),Exterior decals, customer-specific - as per spec/MRL.
304-020	NFIL SAFETY AND MAINTENANCE DECALS	(B),New Flyer safety and maintenance related decal package - English.
304-020a	INTERIOR DECALS, CUSTOMER SPECIFIC	(A),Customer specific interior decals - required.
304-020b	INTERIOR PASSENGER RELATED DECALS,LANGUAGE	(C),Interior passenger related decals, language - Combination of English and English/Spanish/Chinese.
304-020d	INTERIOR FLEET NUMBER DECALS	(B),Interior fleet number decals - required.
304-025	KNEELING / RAMP DECALS	(C),Kneeling / ramp decals - None provided per SFMTA Specification.
304-030	AIR TANK DECALS	(B),Air tank decals - NFIL basic.
304-035	EXT FLEET NUMBERS,NON-ROOF	(B),Exterior fleet numbers, non-roof - required (reflective or non-reflective as per spec).
304-035a	EXTERIOR FLEET NUMBERS,ROOF	(A),Exterior fleet numbers, roof - required (reflective or non-reflective as per spec).
304-700	HYBRID SAFETY DECALS	(B),Hybrid safety decals - required.
306-005	FIRE EXTINGUISHERS	(B),Fire extinguisher - 5 lb ABC class. With gauge, hose and mounting bracket. UL compliant for US customers.
306-005a	FIRE EXTINGUISHER LOCATION	(A),Fire extinguisher location - inside the curbside equipment box.
306-010	SAFETY TRIANGLES	(B),Safety triangles - triangle reflector.
306-010a	SAFETY TRIANGLE LOCATION	(A),Safety triangle location - in equipment box on curbside luggage rack.
350-001	DRIVER'S PEDALS, POSITION / TYPE	(A),Driver's pedals positions / type - adjustable pedal assembly.

Option#	Description	Value Description (blank means unset)
350-002b	ADJUSTABLE PEDAL BRAKE/THROTTLE ANGLE	(B),Brake / Throttle pedal angle - brake set at 45 degrees, throttle at 45 degrees from pedal to floor.
350-005	BRAKE VALVES	(S),Brake valve - E6.
350-015	TURN SIGNAL SWITCHES	(B),Turn signal switches - basic switches, floor mounted.
350-015a	DIMMER SWITCH	(B),Dimmer switch - basic foot switch.
350-015b	P.A. SYSTEM SWITCH	(A),P.A. system switch - foot switch.
350-015d	HAZARD WARNING LIGHT SW LOCATION	(B),Hazard warning light switch location - on side console.
350-030	STEERING COLUMN	(B),Steering column - Douglas Autotech with tilt and telescopic features.
350-030a	STEERING WHEEL	(B),Steering wheel - 2 spoke, 18" diameter hard padded.
350-035	DUAL HORN	(S),Dual horn - provided with splash shield.
400-001a	JACKING / LIFTING PADS	(B),Jacking / lifting pads - 4" diameter pads at front and rear chassis.
420-005	DEFROSTER ACCESS DOOR	(B),Defroster access door - top hinged with two gas struts, quarter turn 5/16" square key quad latches.
420-010	EXTERIOR SIDE PANELS	(S),Exterior lower side panels - fiberglass.
420-035a	CURB & STREET ENG,S/CONS DOORS,STRUTS	(B),Struts for curb and street side engine compartment, side console access doors - supported by gas struts.
420-035d	CURB SIDE ENGINE COMPT DOOR	(C),Curb side engine compartment door - includes battery disconnect switch access door (using a gas strut) and a DEF manual fill access door. MUNI specific door with 1" additional clearance at bottom edge.
420-035e	BATTERY COMPARTMENT DOOR	(B),Battery compartment door - solid door located aft of the curb side rear wheel, separate from the engine compartment.
420-035f	STREET SIDE ENGINE COMPT DOOR	(B),Streetside engine (radiator) access door - with wavy screen.
420-040	DIESEL FUEL FILL DOOR	(B),Diesel fuel fill door - basic hinged door located forward of the curbside rear wheelhouse.
420-040a	SURGE TANK DOOR	(B),Surge tank door - basic hinged door.
420-045	SIDE CONSOLE DOOR LATCHES	(B),Side console door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050	ENGINE DOOR	(B),Engine door - solid door with built-in handle.
420-050a	ENGINE DOOR STRUTS	(B),Engine door struts - two, the streetside strut has a locking mechanism.
420-050b	ENGINE DOOR LATCHES	(B),Engine door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050e	REAR LICENSE PLATE RETENTION	(B),Rear license plate retention - centered with bottom retainer and two upper inserts.
420-060	RAIN GUTTER	(S),Rain gutter - .44" cross section bonded.
420-065	ROOF HATCHES / VENTS	(A),Roof hatches / vents - two basic hatches, 24" X 24".
420-065a	ROOF HATCH INSTRUCTION LANGUAGE	(B),Roof hatch instruction language - English.
420-070	WIPERS	(B),Wipers - wet arm Sprague 24 volt electric. Intermittent.
420-075	WINDSHIELD WASHER BOTTLE	(B),Washer bottle - 5 US gallon with electric powered pump.
420-075a	WINDSHIELD WASHER FILL LOCATION	(S),Windshield washer fill location - accessed via a flip-out door built into the exterior side console access door.
420-080	LOWER DRIVER'S VENT	(B),Lower driver's vent - provided.

Option#	Description	Value Description (blank means unset)
420-120	FENDERS	(B),Fenders - molded polyurethane.
420-120b	S1 WHEEL GUARDS	(C),S1 Wheel guard - required, forward of rear wheels
420-125	EXTERIOR UPPER REAR	(B),Exterior upper rear - fiberglass panel with no door and no window.
420-135	LOCATION,FRONT LICENSE PLATE	(C),Front license plate location - at streetside of defroster door.
420-135a	FRONT LICENSE PLATE RETENTION	(B),Front license plate retention - four inserts.
421-010	INSULATION,SIDEWALL AND ROOF	(S),Insulation, sidewall and roof - polyisocyanurate foam. meets Docket 90 spec.
421-020	INSULATION,EXHAUST CAVITY	(S),Exhaust cavity insulation - Heat-resistant fiberglass mat.
421-030	ENGINE COMPARTMENT INSULATION	(S),Engine compartment insulation - noise reduction acoustical foam, retained by perforated aluminum panels.
422-001	DOCKET 90 SPEC	(A),Docket 90 spec - review for 422 group components.
422-005	CEILING PNLS AFT OF FRT W/HS INCL RR PLC	(B),Ceiling panels aft of the front wheelhouses (including rear PLC) - Antique white plastic, SST trim.
422-005a	CEILING / HVAC COVER PANELS ABOVE FRT W/HS	(B),Ceiling / HVAC cover panels above front wheelhouses - Antique White fiberglass.
422-006	ENTRANCE/DRIVER'S AREA PANELS	(C),Entrance/driver's area panels colour - black. Includes dash, dest sign c/out, ent. mech. box, driver's o/head panels. and if used, ent. floor heat duct, frt. RH harness cover is painted flat black.
422-006b	DRIVER'S CEILING PANEL MATERIAL	(B),Driver's ceiling panel material - melamine.
422-009	INTERIOR PIER PANEL MATERIAL	(B),Interior pier panel material - thermoplastic.
422-010	PIER PANEL COLOUR	(B),Pier panel colour - Antique white, thermoplastic.
422-015b	INTERIOR SIDEWALL MELAMINE	(B),Interior sidewall melamine colour - Charcoal Grey Gloss.
422-025	INTERIOR ENGINE COMPT ACCESS PANEL	(S),Interior engine compartment access panel - there is a single hinged panel under the rear seat.
422-035	INTERIOR UPPER REAR PANEL	(A),Interior upper rear panel - bulkhead panel covered with carpet / fabric material. With large central access door.
422-035a	CARPET / FABRIC,UPR REAR INT PANEL	(B),Upper rear interior carpeted / fabric panel - Charcoal Grey carpet with 1/2" plywood backing.
422-035e	C/S,S/S RR BULKHEAD ACCESS PANELS	(B),Curb and street side rear bulkhead access panels - carpeted DB plywood.
422-050a	HRNS/AIR LINE COVERS AT UPPER DECK	(B),Harness / air line covers at upper deck - painted flat black.
422-060	FRT DEST SIGN DOOR LATCHES	(B),Front destination sign door latches - short wing quad latches.
422-061	DRIVER'S OVERHEAD PANEL	(S),Driver's overhead panel - with locker.
422-061a	DRIVER'S LOCKER LATCH	(C), Driver's locker latch - short wing quad latch with pull tab.
422-065	DRIVER'S COAT HOOK AND STRAP	(B),Driver's coat hook and strap - located on the forward face of the harness cover behind the driver.
422-070	SECURE DIAGNOSTIC STATION	(B),Secure diagnostic station - above street side front wheelhouse. Incorporates driver's barrier. With four Take One pockets. Quantity of trays as per customer and / or as per electronic equipment within compartment.
422-070a	SDS ENCLOSURE COLOUR	(B),SDS enclosure colour - Flat Black with Cashmere Black melamine panel.

Option#	Description	Value Description (blank means unset)
422-070b	SDS ENCLOSURE DOOR LATCHES	(C),SDS enclosure door latches - Two 5/16" square key quad latch and paddle latch with CH751 key.
422-085	FRONT SUNVISOR / ROLLERBLINDS	(A),Front sunvisor - black padded.
422-085a	SIDE SUNVISOR / ROLLERBLIND	(C),Side sunvisor - black padded visor for high mount mirror.
422-090	SQUARE KEY T-HANDLE	(B),Square key t-handle - located at lower left of driver.
422-105	ENTRANCE MECHANISM BOX DOOR LATCH	(S),Entrance mechanism box door latches - two short wing quad latches.
422-160	GRAB HANDLE NEAR FRONT ROOF HATCH	(B),Grab handle near front roof hatch - required.
422-NEW	NEW OPTION,422 GROUP	(C), Rear PLC and bulkhead access doors with tamperproof latches.
423-010	AD FRAMES,SDS ENCLOSURE	(C),Interior Ad Frame - TWO 17" x 11" clear holder's. One located on rear face of SDS enclosure, and One located on front door of SDS.
450-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 450 group equipment.
450-010	FLOORING	(A),Flooring - lower deck uses Milwaukee composite flooring. Upper deck uses fiberglass composite for step and floor to the rear wheelhouses and Milwaukee composite flooring to the rear.
450-013	DRIVESHAFT / TRANSMISSION ACCESS PANELS	(A),Driveshaft / transmission access panels - two panels set in the floor, one to access the driveshaft and the other to access the transmission.
450-025a	ALTRO FLOOR COVERING	(C),Altro floor covering - Rocket TFFG 2704F (2.7 mm / 0.11" thick), for aisle and underseats.
450-025e	STEP TO UPPER REAR	(C),Step to upper deck - yellow anti-slip coating is applied to the edges and vertical faces of the step. Yellow/black caution stripe decals at each step.
450-025f	STANDEE LINE	(B),Standee line - yellow.
450-025g	ENTRANCE NOSING	(B),Entrance nosing - nosing is 2" wide yellow anti-skid applied to the ramp.
450-025h	EXIT NOSING	(C),Exit nosing - 2.5" yellow nosing and 2.0" yellow standee line in vestibule area at edge of exit door opening/sweep. Altro / Tarabus flooring.
450-025j	REAR SEAT RISER COVERING MATERIAL	(B),Rear seat riser covering material - same material and colour as used for the flooring.
450-030	DRIVER'S PLATFORM FLOORING	(A),Driver's platform flooring - Altro.
450-030a	DRIVER'S PLATFORM TRIM	(B),Driver's platform trim - SST.
450-045	OUTER WHEELHOUSES	(B),Outer wheelhouses - SST front and rear.
450-055	INTERIOR FRONT W/HOUSE (LUGG RACK) COLOURS	(B),Interior front wheelhouse (luggage rack) colours - Matte black, painted stipple. An LED aisle light is provided on the streetside. Also, SST scuff guards are provided.
460-005	WINDSHIELDS	(B),Windshield - 72% light transmittance green laminated. With blue shade band for street and curb sides.
460-005a	WINDSHIELD PROTECTIVE FILM	(B),Windshield protective film - required for coach delivery beyond a 500 mile radius of Final Assembly.
460-010	PASS / DRVR'S WINDOWS MANUFACTURER	(B),Passenger and driver's windows, manufacturer - Arow Global (Stormtite) non-flush mounted.
460-010b	NON-FLUSH PASSENGER WINDOWS	(C),Non-flush passenger windows - bottom is fixed, top slider.
460-010e	NON-FLUSH WINDOW GLAZING	(C),Non-flush window glazing - grey, 55% light transmittance, laminated.

Option#	Description	Value Description (blank means unset)
460-010h	WINDOW FRAME COLOUR	(C),Window frame colour - all window frames are clear anodized.
460-010j	WINDOW EMERGENCY EGRESS	(S),Emergency egress windows - minimum quantity based on FMVSS requirements or the customer spec, whichever is the greater of the two.
460-010k	SIDE DESTINATION SIGN WINDOWS	(C),Destination sign window - curb and street sides. Fixed clear top and fixed bottom. Bottom matches passenger window glazing. (review 470 for side sign details).
460-010n	WINDOW GLAZING REPLACEMENT	(A),Window glazing replacement for servicing - rapid replacement.
460-010p	PASS WINDOW LINERS AND COATINGS	(C),Window liners and coatings - .12" acrylic liners on all windows.
460-010s	PASS WINDOW THICKNESS	(B),Passenger window thickness - 6 mm.
460-011a	DRIVER'S WINDOW, NON-FLUSH	(B),Driver's window, non-flush mounted - with fore and aft sliding sashes. The forward sash has exterior and interior handles. Non-egress.
460-011b	AFT SASH, NON-FLUSH DRIVER'S WINDOW	(B),Aft sash, non-flush driver's window - with interior handle and latch.
460-011d	DRIVER'S WINDOW GLAZING	(B),Driver's window glazing - laminated with minimum 70% light transmittance.
460-011e	DRIVER'S WINDOW SHADE BAND	(B),Driver's window shade band - not required.
470-001	DESTINATION SIGNS MFR	(A),Destination sign mfr - Twin Vision Smart Series, LED display system.
470-001a	DEST SIGN CONTROL UNIT LOCATION	(B),Destination sign control unit location - under driver's overhead panel.
470-005a	TWIN VISION FRT.DEST.SIGNS	(A),Twin Vision front destination sign - LED Chroma I, 16 X 156, 4 amber matrix boards and 1 colour board with a single LED. Will be programmed with white test pattern, customer to reprogram sign in color after acceptance.
470-010	FRONT DESTINATION SIGN GLASS	(A),Front destination sign glass - heated and laminated.
470-025	CURB SIDE DESTINATION SIGN LOCATION	(A),Curbside destination sign location - at the second window, aft of the entrance door.
470-025b	TWIN VISION CURBSIDE DEST.SIGNS	(A),Twin Vision curbside destination sign - LED, amber, 8 x 96 (37.4" wide display).
470-026	STREET SIDE DEST SIGN	(C),Street side dest/route sign - required at #3 streetside window (first window rear of SDS compartment).
470-030	FRONT ROUTE SIGN	(C),Front route sign - Twin Vision LED, 14 x 40, addressable.
470-035	REAR ROUTE SIGN, LOCATION	(B),Rear route sign location - at the upper curb side. For non-CNG coaches.
470-035b	TWIN VISION REAR ROUTE SIGNS	(A),Twin Vision rear route sign - LED, amber 16 X 48.
470-060b	CLEVER DEVICES (DIGITAL RECORDER) AVA SYSTEM	(A),Clever Devices (Digital Recorder) AVA system - full system installed by NFIL, including antenna(s), cabling, ground plates and all required system components as per customer spec.
470-060f	ACS (ORBITAL/TMS) AVA SYSTEM	(C),ACS (Orbital / TMS) AVL system - provisions. Includes installation of antenna(s), cabling and ground plates as per customer spec.
470-060k	AVA/AVL LED SIGN & LOCATION	(C),AVA/AVL LED sign and location - required on the front HVAC overhead enclosure and at the exit door area.
470-061	AUTO VEHICLE MONITORING SYSTEM (AVM)	(A),Automatic Vehicle Monitoring (AVM) system - Fleetwatch required as per spec/MRL.
470-075	NEW FLYER CONNECT-DIAGNOSTIC & MONITORING SYSTEM	(A),New Flyer Connect-Diagnostic & Monitoring - required with driver maneuver awareness system (DMAS).

Option#	Description	Value Description (blank means unset)
470-NEW	NEXTBUS SYSTEM	(C),Nextbus system - Installation of complete system including antenna.
480-005	STREET SIDE MIRROR MANUFACTURER	(B),Street side mirror manufacturer - Hadley.
480-005a	HADLEY STREET SIDE MIRROR	(B),Hadley street side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-005b	STREET SIDE MIRROR POWER OPTIONS	(A),Street side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-005e	STREET / CURB SIDE MIRROR W/TURN SIGNAL	(A),Street and curb side mirror with turn signal - LED, in mirror glass.
480-005f	STREET SIDE MIRROR ARM	(A),Street side mirror arm - mirror arm springs back to its previously set position after deflection.
480-005g	STREET SIDE MIRROR MOUNT	(A),Street side mirror mount - high mount.
480-005h	STREET / CURB SIDE MIRROR VOLTAGE	(B),Exterior mirror voltage - 12 volt.
480-006	CURB SIDE MIRROR MANUFACTURER	(B),Curb side mirror manufacturer - Hadley.
480-006a	HADLEY CURB SIDE MIRROR	(B),Hadley curb side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-006b	CURB SIDE MIRROR POWER OPTIONS	(B),Curb side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-006e	CURB SIDE MIRROR ARM	(B),Curb side mirror arm - basic, pull-back. Mirror arm is manually returned to its previously set position after deflection. Mirror can be folded forward or backward for bus wash.
480-010	INTERIOR MIRRORS,MANUFACTURER	(A),Interior mirrors, manufacturer - Hadley.
480-010a	DRIVER'S REAR VIEW MIRROR	(A),Driver's rear view mirror - 8" x 15", black, flat.
480-010b	SPOT MIRROR	(B),Spot mirror - 6" diameter flat mirror, located at curb side front.
480-010d	EXIT DOOR MIRROR	(B),Exit door mirror - convex, 12" diameter.
490-001	ENT DOOR DRIVE SYS	(A),Entrance door drive system - Electric
490-005	ENTRANCE DOOR	(B),Entrance door - Vapor slide glide.
490-005a	ENTR DOOR LIMIT SWITCH SET-UP	(A),Entrance door limit switch - solid state proximity switch.
490-005d	ENTRANCE DOOR MAGNETIC DUMP VALVE	(B),Entrance door magnetic dump valve - required, located at baseplate.
490-005f	ENTR/EXIT FRANG COVER LANGUAGE	(C),Entrance / exit door frangible cover instructions (for emergency release), language - English. Additional scoring required on exit door frangible cover.
490-006	ENTRANCE DOOR HANDLES	(B),Entrance door handles - yellow powder coated.
490-015	ENTRANCE DOOR CONTROLLER	(A),Entrance door controller - extended with 5 position settings.
490-015a	DOOR CONTROLLER HANDLE	(B),Entrance door control handle - non-removable.
490-030	ENTRANCE DOOR GLAZING	(S),Entrance door glass - full length single piece, 72% green.
491-001	EXIT DOOR DRIVE SYS	(A),Exit door drive system - Electric with pneumatic emergency release.
491-005	EXIT DOOR	(A),Exit door - wide Ameriview Vapor Slide Glide, 45.2" between panels.
491-005a	SLIDE GLIDE EXIT LIMIT SWITCH	(A),Exit door limit switch - solid state proximity switch.

Option#	Description	Value Description (blank means unset)
491-005b	EXIT DOOR CONTROL	(A),Exit door control - Vapor Class Acoustic Sensing System. Activates door opening and detects obstruction on closing.
491-005ba	CLASS SYSTEM DOOR DECAL	(C),Class system door decal - English, Spanish, Tagalog, and Chinese, text and characters as per customer requirement.
491-005d	EXIT DOOR SENSITIVE EDGE	(B),Exit door sensitive edge - sensor on the vertical edge provided with all exit doors.
491-005g	EXIT FRANGIBLE COVER SECUREMENT	(C),Exit frangible cover securement - magnetic latch with screw.
491-005j	EXIT BASEPLATE / ELEC PNL ACCESS	(B),Exit baseplate access- at each exit door, Tcb set-up, through removable ad frame.
491-006	EXIT DOOR ASSIST HANDLES	(B),Exit door assists - yellow powdercoated.
491-020	EXIT DOOR GREEN LIGHT	(B),Exit door green light - LED green light indicates that the exit door is set to open.
491-035	EXIT DOOR GLASS SIZE	(B),Exit door glass size - full length.
491-035a	EXIT DOOR GLAZING	(B),Exit door glazing - 6 mm.
491-NEW	EXIT DOOR EXTERNAL BUTTONS	(C),Exit door external buttons - Two flush mounted "Elevator Style" external switches mounted on either side of the exit doors to permit passenger loading/entry from exit.
526-001	40' PASSENGER SEAT QTY	(C),40' passenger seat quantity - 31.
526-005	PASSENGER SEAT MANUFACTURER	(B),Passenger seat manufacturer - American Seating.
526-005b	AMERICAN SEATING SEATS	(A),American Seating passenger seats - Vision stainless seat. Details as per customer spec.
526-005ba	AMERICAN SEATING D90 SPEC	(B),American Seating passenger seats D90 spec - not required.
526-005d	REAR BENCH SEAT	(S),Rear bench seat - 1-3-1 hinged seat.
526-005e	PASSENGER SEAT MOUNTING	(B),Passenger seat mounting - cantilever.
526-005f	SEAT MOUNTED GRABRAIL	(A),Seat mounted grabrails - stainless steel.
526-005h	FIRST SEAT,CURBSIDE UPPER REAR	(B),First seat at curbside upper rear - forward facing.
526-005i	PASSENGER SEATING BARRIER	(B),Passenger seating barrier - pedestal mounted barrier.
526-005j	SEAT POSITION, FORWARD OF REAR EXIT	(A),Seat position, forward of rear exit - aisle facing.
526-006	DRIVER'S SEAT MANUFACTURER	(A),Driver's seat manufacturer - USSC.
526-006a	USSC DRIVER'S SEAT MODEL	(A),USSC driver's seat model - 9100 ALX. The fore / aft seat travel is 11.8". Has 2 point seat belt. Has air suspension and lumbar.
526-006f	DRIVER'S SEAT MATERIAL	(B),Driver's seat material - all vinyl.
526-006g	DRIVER'S SEAT BELT	(A),Driver's seat belt - lap belt with retractor on left hand side.
526-006ga	DRIVER'S SEAT BELT ALARM	(A),Driver's seat belt alarm - required to warn driver that seat belt is not connected.
526-006gb	DRIVER'S SEAT BELT COLOR	(A),Driver's seat belt color - Orange.
526-006j	DRIVER'S SEAT,DOCKET 90 SPEC	(B),Driver's seat D90 spec - Not required.



Option#	Description	Value Description (blank means unset)
526-006k	DRIVER'S SEAT BASE RISER	(A),Driver's seat base (riser) - SST.
526-006m	DRIVER'S SEAT PARK BRAKE ALARM	(A),Driver's seat park brake alarm - switch is required in seat cushion to trigger driver's park brake alarm (ref. option 246-040).
526-006s	DRVR'S SEAT HEADREST	(B),Driver's seat headrest - required.
526-007	WHEELCHAIR POSITIONS,QUANTITY	(C),Wheelchair positions - two. One fwd of the exit door curbside and one aft of the streetside front wheelhouses.
526-007a	W/CHAIR POSITIONS,RESTRAINT SYSTEM	(A),Wheelchair restraint system - padded barrier/restraint system for rearward facing w/chr position(s) and restraint system for forward facing w/chr position(s). Mfr, position, mat'l color/type and details as per customer spec.
526-007e	SHOULDER HARNESS,W/CHR RESTRAINT	(C),Shoulder harness for wheelchair restraints - secured to structure (pier panel), one on streetside only (for rear facing wheelchair position).
526-010	STANCHION / GRABRAIL STYLE	(B),Stanchion / grabrail style - curved style vertical stanchions. Using cast SST fittings for vertical and horizontal stanchions.
526-010a	OVERHEAD HORIZONTAL GRABRAILS	(A),Overhead horizontal grabrails - yellow SST.
526-010aa	OVERHEAD HANDSTRAPS,TYPE	(C),Handhold straps on overhead grabrails - flexible grey PVC straps in yellow Bentech mounts, secured to horizontal stanchions, locations as per customer spec.
526-010ab	OVERHEAD GRABRAIL HANDHOLD STRAPS,QUANTITY	(A),Overhead grabrail handhold straps, quantity - twenty-four.
526-010b	COLOR - STANCHIONS AT EXITS & RR RISER STEP	(B),Color - stanchions at exits and rear riser steps - yellow SST.
526-010d	VERT FORE OF S/S FRT W/HOUSE	(C),Vertical stanchion fore of streetside front wheelhouse - black SST (part of drivers door).
526-010da	VERT AFT OF S/S FRT W/HOUSE	(B),Vertical stanchion aft of streetside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).
526-010e	VERT FORE OF C/S FRT W/HOUSE	(A),Vertical stanchion fore of curbside front wheelhouse - black SST.
526-010ea	VERT AFT OF C/S FRT W/HOUSE	(B),Vertical stanchion aft of curbside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).
526-010f	COLOR - VERTICAL STANCHIONS AT SEATS	(A),Color - vertical stanchions at seats - yellow SST.
526-010k	FRONT CURBSIDE LUGGAGE RACK	(A),Front curbside luggage rack - horizontal yellow tube wraps around aft, aisle and fore sides, SST.
526-010m	FAREBOX GRABRAIL	(A),Farebox wrap-around stanchion - black SST. Requires known farebox location.
526-015	MODESTY PANEL MATERIAL	(B),Modesty panel material - melamine.
526-015a	MODESTY PANEL MELAMINE COLOR	(B),Modesty panel melamine color - charcoal gloss (-209).
526-015b	C/SIDE FORE UPR DECK MOD PNL, GAP	(S),Gap at bottom of curbside fore of upper deck modesty panels - approximately 2" diagonally.
526-015e	UPPER PANEL AFT OF EXIT(S)	(A),Upper panel aft of exit(s) - 0.5" clear polycarbonate, basic width.
526-016	BARRIER AT STREET SIDE REAR RISER	(B),Barrier at street side rear riser - Modesty panel (material and color per 526-015/526-015a).
526-018	BARRIER REAR BENCH SEATS	(C),Barrier at rear bench seats - double stanchion bar.

Option#	Description	Value Description (blank means unset)
526-022	DRIVER'S DRAFT SHIELD	(C),Driver's enclosure - clear AS-2 Lexan and black powdercoated steel bi-fold enclosure.
526-035	BARRIER FWD OF EXIT(S)	(A),Fore of exit(s), barriers and grabrails - upper panel, 0.5" clear polycarbonate, wide width panel.
526-055	EMERGENCY INSTRUCTIONS	(C),Emergency instructions - decals. English, Spanish, and Chinese and Tagalog.
549-001a	NON-60' HVAC SYSTEM	(C),HVAC system manufacturer and type - Thermo King RLF rooftop heat unit with B-100 rooftop unit for hybrid battery cooling. Safe-T-Walk is provided for rooftop units.
549-002a	HVAC UNIT MOTOR TYPE	(S),HVAC motor type - brushless motor for primary heating & cooling system.
549-002b	REFRIGERANT	(B),Refrigerant - R-134a freon
549-002d	HVAC AIR INTAKE	(B),HVAC air intake - recirculated air only.
549-002e	HVAC RETURN AIR FILTER	(B),HVAC return air filter - polyester filter for RLF unit.
549-002g	HVAC SYSTEM VALVES	(S),HVAC system valves - brass ball valves with basic handles.
549-002h	A/C AND HEATER LINE CLAMPS	(S),A/C and heater line clamps - Ideal.
549-004	HVAC ELECTRONICS	(B),HVAC electronics - Thermo King Intelligaire 3, valid for A/C or heater units. With limited diagnostic capabilities.
549-004a	HVAC CONTROL PANELS	(B),HVAC control panel - Thermo King, installed at the HVAC unit.
549-004b	HVAC PROGRAM SETTINGS	(B),HVAC program settings - APTA standard
549-020	BOOSTER PUMP	(B),Booster pump - Rotron.
549-025	DEFROSTER	(B),Defroster - 3 speed brushless motor, electrically controlled damper.
549-100	AUXILIARY HEATER	(B),Auxiliary heater - not required.
580-005	WHEELCHAIR RAMP	(C),Wheelchair ramp -LIFT-U LU11-15 ramp at front door.
580-005a	FRONT RAMP CONTROL	(S),Front ramp control - ramp switch at driver's instrument panel.
580-005d	WHEELCHAIR RAMP SURFACE	(C),Wheelchair ramp surfaces - covered with Rocket TFFG 2704F Altro flooring
580-070	WHEELCHAIR RAMP TOOL	(C),WheelChair Ramp Tool - Required as per spec/MRL.
600-025	BACK-UP ALARM	(B),Backup alarm - basic alarm located on curbside.
600-065	SDS TRAY QUANTITY	(A),SDS tray quantity - four trays total.
600-075	FAREBOX PEDESTAL	(C),Farebox pedestal - SST, 7.0" high with Muni specific mounting plate.
600-076	FAREBOX	(B),Farebox - not required.
600-077	FARECARD READER	(C),Farecard reader - Provisions/Harnesses for Muni specific Clipper® system.
600-078	TRANSFER CUTTER	(C),Transfer cutters - one Globe model 303 (two notchers). Installed as per customer specific details.
600-100	CURBSIDE FRONT EQUIPMENT BOX	(A),Curbside front equipment box - black, aluminum with paddle latch, no lock.
600-101	DRIVER'S STORAGE BOX BEHIND SEAT	(A),Driver's storage box behind seat - basic box with paddle latch, no key. The box is to include a chamfer to allow for driver's seat clearance.
600-125	TAKE ONE HOLDERS	(A),Take one holders - required. Type(s) and location(s) specified by customer.
600-125e	TAKE ONES,PASSENGER AREA	(A),Take one holders - in the passenger area, installed on various window pillars.

Option#	Description	Value Description (blank means unset)
600-152	TRASH CONTAINERS	(A),Trash container - type and location as per customer spec.
600-175	RADIO,COMMUNICATION SYSTEM	(C),Radio, communication system - full Harris radio system installed by NFIL per Muni requirements, additional conduit/provision for future radio system.
600-177	AUTOMATIC PASSENGER COUNTER	(A),Automatic passenger counter system - IRMA matrix
600-178	TRAFFIC SIGNAL CONTROL SYSTEM	(C),Traffic signal control system required. Opticom 2101/ASM 2807 GPS controlled system.
600-225	VIDEO SURVEILLANCE SYSTEM	(A),Video surveillance system - interior and exterior cameras, quantity, details and location as per customer spec and installation / approval drawing.
600-225a	VIDEO SURVEILLANCE SYSTEM,MFR	(A),Video surveillance system - DTI-Loronix system, equipment as per customer spec.
600-225b	CAMERA COLOUR TYPE	(A),Camera colour type - cameras are a combination of colour and colour with infrared capabilities.
600-268	TURN ANNUNCIATOR SYSTEM	(C),Turn annunciator system - Mallory Sonalert SC628JR beepers at curbside exterior center and rear exit door areas to sound when turn signal switches depressed. Override switches to be located in SDS enclosure/compartment.
600-276	FIRE SUPPRESSION	(C),Fire suppression - Amerex Safety Net System. With one 25 lb dry chemical agent tank and one 13 lb dry chemical tank.
600-276b	AMEREX FIRE DETECTION SENSORS	(C), Amerex fire detection sensors - linear wire in engine compartment. fire or smoke conditions in the battery compartment shall actuate a visual and audible alarm at the operator's control panel.
600-300	BICYCLE RACK,MFR/MODEL	(A),Bicycle rack, manufacturer / model - Sportworks, DL2-WP (wide profile), front mounted.
600-300a	SPORTWORKS BICYCLE RACK MOUNTING	(A),Sportworks bicycle rack mounting - TSB (ten second bracket) quick release slide-in standoff with incorporated pivot.
600-300b	SPORTWORKS BICYCLE RACK REMOVAL	(A),Sportworks bicycle rack removal - quick release rack.
600-300d	SPORTWORKS BICYCLE RK MATL/COLOR	(A),Sportworks bicycle rack material/colour - SST, black powdercoated.
600-300e	BIKE RACK DEPLOY INDICATOR LIGHT	(A),Bike rack deployment indicator light - required.
600-300f	BICYCLE RACK MFR LOGO	(A),Bicycle rack manufacturer logo - provided.
600-300g	BICYCLE RACK INSTRUCTIONS	(A),Bicycle rack instructions - English.
600-NEW	DRIVECAM SYSTEM	(C),Drivecam system - Full Install for Drivecam system.

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Option#	Description	Value Description (blank means unset)
100-002	XCELSIOR COACH LENGTH	Xcelsior - 40' coach.
100-003	STRUCTURAL MATERIAL	(B),Structural material - carbon steel/ferritic sst.
100-004	FUEL/PROPULSION SYSTEM	Propulsion system - BAE hybrid with ISB diesel engine.
100-004a	FUEL TYPE	(B),Fuel type - diesel, compatible up to 20% biodiesel.
100-006	DOCKET 90 SPEC	(A),Docket 90 spec - for interior of coach (as per spec).
201-005	BUMPERS	(B),Bumpers - Romeo Rim, three piece, front and rear bumpers. Rear has anti-ride feature.
201-015	TOWING PROVISIONS	(B),Front tow eyes - basic set-up, incorporated in front chassis. Tow adapters are required.
203-005	FRONT AXLE	(B),Front axle - M.A.N. VOK-07-F, GAWR 15,873 lbs. With disc brakes. Hub mount, Knorr cylinders, Ferodo lining.
203-005b	SECUREMENT OF BRAKE LININGS	(S),Securement of brake linings - bonded.
203-005f	ELECTRONIC BRAKE STROKE MONITOR	(A),Electronic brake stroke monitor - MGM E-stroke system.
203-011	SHOCK ABSORBERS	(S),Shock absorbers - Koni.
203-014	FRONT STABILIZER BAR	(C),Front stabilizer bar provided - SR specific application is approved by NF Engineering.
203-050	FRT AXLE AND WHEEL SPLASH APRONS	(A),Front axle and wheel splash aprons - full width, fore of axle and wheels. Also, two additional aprons aft of the wheels.
204-005	REAR AXLE	(B),Rear axle - M.A.N. 4.56:1. Model HY-1350-F. GAWR 28,660. With disc brakes, hub mount, Knorr cylinder, Ferodo lining.
204-005d	REAR AXLE GEAR OIL	(B),Rear axle gear oil - petroleum based.
204-070	REAR AXLE DRAIN PLUGS	(B),Rear axle drain plug - magnetic external hex head.
204-140	REAR AXLE AND WHEEL SPLASH APRONS	(B),Rear axle and wheel splash aprons - one piece behind axle and two behind rr wheels.
205-005	TIRES	(B),Tires - 305/70R/22.5, customer supplied Michelin X InCity Z (65 mph).
205-005a	TIRE BRANDING	(A),Tire branding - required as per spec.
205-010b	WHEELS	(A),Wheels - Alcoa 22.5" x 8.25" aluminum. Polished Durabright finish both sides.
209-005	POWER STEERING PUMP	(A),Power steering pump - Ixetic (Luk) power steering pump powered by 24V Parker Motor mounted at the front street side.
209-005a	POWER STEERING HOSES	(S),Power steering hoses - NFIL (Manuli) Equator 2 and GH100 hose at steering box and NFIL (Manuli) Equator 2 in engine compartment.
209-005b	POWER STEERING DIAGNOSTIC FTGS	(A),Power steering diagnostic fittings - at steering box.
209-008	POWER STEERING RESERVOIR	(S),Power steering reservoir - required.
209-008d	POWER STEERING DRAIN PLUG	(B),Power steering drain plug - magnetic plug.
209-010	POWER STEERING UNIT	(S),Steering box - Sheppard M110, power assisted, frame mounted.
209-060	POWER STEERING SYSTEM FLUID	(B),Power steering system fluid - Dexron III, mineral based.
219-001a	ENGINE,HP,TORQUE,TYPE	(B),Engine - Cummins ISB 2016 engine, 280 horsepower (Engine output is controlled by Hybrid Drive)

Option#	Description	Value Description (blank means unset)
219-005a	ENGINE AIR COMPRESSOR	(A),Air compressor - direct coupled air compressor powered by electric motor.
219-005db	ALTERNATOR BAE	(A),Alternator - BAE APS2 (Accessory Power System). Note: Replaces belt drive alternator, supports full electrification of accessories.
219-005e	CUMMINS DIESEL FUEL FILTERS	(B),Cummins diesel fuel filters - for ISB's, Cummins primary and secondary fuel filter system. the primary filter has a priming pump.
219-005f	CUMMINS DIPSTICK, LOCATION	(S),Cummins dipstick, location - static oil level indicator, on curbside of engine.
219-005g	ENGINE & TRANS FLUID FILL TAGS	(S),Fluid fill ID tags - for engine and transmission dipsticks.
219-005h	ROAD SPEED	(C),Road speed - top road speed is governed. Set at 63 MPH (101 KPH).
219-010	TRANSMISSION/HYBRID DRIVE	(C),Hybrid drive - as per BAE hybrid system, HDS200.
219-010a	TRANSMISSION SHIFTING	(S),Transmission shifting - foot on brake enables shift when in neutral.
219-010p	FLUID, HYBRID DRIVES	(S),Transmission fluid - Transynd synthetic.
219-025	AIR CLEANER	(A),Air cleaner - Donaldson. Reusable housing with disposable cartridge/filter.
219-025a	AIR RESTRICTION INDICATOR	(B),Air restriction indicator - mounted directly on air intake tube.
219-035	EXHAUST SYSTEM	(S),SST Exhaust system - Cummins diesel particulate filter (DPF).
219-035a	EXHAUST TAIL PIPE ORIENTATION	(B),Exhaust tail pipe orientation - curved pipe set to 45 degrees to streetside.
219-035b	EXHAUST BLANKETS FOR CUMMINS DIESEL OR CNG	(B),Cummins Diesel / CNG exhaust blankets - provided for the exhaust tubes.
219-045	ENGINE SWITCH BOX	(B),Engine switch box - basic configuration with run control, start and engine compartment light switches. Located at curbside of center rear in engine compartment.
219-045b	ENGINE SPEED CONTROL AT SW BOX	(A),Engine speed control at engine switch box - Morse throttle (controls engine RPM).
219-050	ENGINE COMPT GAUGES, BASIC	(S),Engine compartment gauges - CAN communicator programmable to multiple functions. Located at engine switchbox.
219-090	P-CLIPS, ENGINE COMPT & HVAC	(B),Engine compartment and HVAC system p-clips - UMPCO 775 SST with high temperature boxed silicon cushion provided to secure air and fluid lines to structure.
219-175	BELT GUARD	(B),Belt guard - the engine pulley guard is provided with hinges.
219-175a	BELT GUARD LATCHING	(B),Belt guard latching - rubber hood latch.
219-195	OIL SAMPLING/PROBALIZER FTGS	(C),Oil sampling - required for engine, using easy access probalizer fittings.
219-810	DEF(DIESEL EXH FLUID) TANK	(B),DEF (diesel exhaust fluid) tank - manual fill is set in the lower curbside fusebox access door with NFIL fill cap.
231-005	RADIATOR, CAC, HYDR FLUID COOLER	(B),Radiator - EMP MH5 GEN4 with full diagnostic capabilities. 3 x 15" fans and 2 x 11" fans. Includes hybrid cooler.
231-005d	RADIATOR DRAIN VALVES	(A),Radiator drain valve - brass hex head plug.
231-010a	ENGINE COMPARTMENT & HVAC HOSES	(S),Engine compartment and HVAC hoses - a combination NFIL (Manuli) Equator 1, Equator 2, Nozone and GH100 hose for fluid and air system hoses.
231-020	SURGE TANK	(B),Surge tank - 5 gallon cylindrical SST tank.
231-020a	LOW COOLANT INDICATION / SENSORS	(S),Low coolant indication / sensors - an early warning sensor at the surge tank signals the instrument panel Low Coolant telltale. A lower sensor signals engine shutdown and the Check Engine and Low Coolant telltales.
231-020b	SURGE TANK PRESSURE TEST PORT	(B),Surge tank pressure test port - provided.

Option#	Description	Value Description (blank means unset)
231-020d	SURGE TANK PRESSURE RELIEF VALVE	(B),Surge tank pressure relief valve - Radiator cap (LEV-R VENT), built into surge tank cap.
231-020e	SURGE TANK SIGHT GLASS	(S),Surge tank sight glass - graduated sight glass (glass material).
231-040	COOLANT TUBES	(S),Coolant tubes - SST.
231-075	COOLANT FLUID/ANTIFREEZE	(B),Coolant fluid / antifreeze - 50/50 pre-mixed distilled water with ethylene glycol with anti-corrosion additive and bittering agent. Pink fluid.
231-085	TRANSMISSION/HYBRID DRIVE OIL COOLER	(S),Hybrid drive oil cooler - built into rad for BAE hybrids.
231-085a	TRANSMISSION/HYBRID OIL COOLER HOSES	(S),Transmission / hybrid drive oil cooler hoses - NFIL (Manuli) Equator 1.
231-120	COOLANT RECOVERY TANK	(S),Coolant Recovery tank - required.
234-005	WATER FILTER	(B),Water filter - not required.
241-005	DIESEL FUEL TANK MATERIAL	(B),Diesel fuel tank material - cross-linked polyethylene.
241-005a	DIESEL TANK CAPACITY AND FILL TYPE	(B),Diesel fuel tank capacity and fill type - 100 useable US gallons. Pressure filled.
241-005b	DIESEL FILLER CAP	(B),Diesel fuel fill cap - posi-snap flip type.
241-005c	DIESEL FUEL SENDER	(S),Diesel fuel sender - required.
241-005d	DIESEL FUEL LEVEL INDICATION	(B),Diesel fuel level indication - not required.
241-010	DIESEL FUEL HOSES,ENGINE COMPT	(S),Diesel fuel hoses in engine compartment - GH100.
241-010a	DIESEL FUEL LINES,TANK TO BULKHEAD	(S),Diesel fuel lines from fuel tank to bulkhead - orange, fuel grade nylon tubing.
246-001	AIR COMPRESSOR DISCHARGE LINE	(S),Air compressor discharge line - Teflon 2807 SST braided hose.
246-005	AIR TANKS	(B),Air tanks - two dual compartment ceiling mounted tanks combining wet tank and rear brake tanks, accessories tank and kneeling tank and a single front brake tank .
246-005b	AIR TANK DRAIN VALVES	(B),Air tank drain valves - manual.
246-015	KNEELING	(S),Kneeling - full front kneeling with rapid recovery.
246-015b	LEVELING VALVES	(S),Leveling valves - Barksdale.
246-020	ENTR/EXIT DOOR INTERLOCK	(C),Door interlock - Brake valve actuator on treadle valve, applied to entrance and exit doors. Foot on brake to release interlock, applied via multiplex system programming.
246-040	DRIVER'S PARK BRAKE ALARM	(A),Driver's park brake alarm - a switch in the driver's seat cushion triggers alarm to alert the driver that the park brake is not set. A light at the instrument panel is also activated.
246-040a	PARK BRAKE PRESSURE SETTING	(S),Park brake pressure setting - 40 psi auto-apply park brake valve. 60 psi pressure switch for park brake light activation.
246-060	AIR DRYER	(C),Air dryer - Graham White, "SludgeBreaker", QBA60NX5, w/ 24V heater, 12/24V purge control, dryer boost protection, high performance air dryer.
246-060a	AIR DRYER LOCATION	(S),Air dryer location - behind the rear streetside wheelhouse, on the bulkhead.
246-060d	AIR DRYER VOLTAGE	(B),Air dryer voltage - 24 volt.
246-065	PARK BRAKE ACTUATION	(B),Park brake actuation - Pull To Apply.
246-065a	PARK/EMERG BRAKE LOCATION	(S),Park brake control location - on side console panel.
246-105a	REAR AIR CHARGE FITTING LOCATION	(S),Rear air charge fitting location - routed to curbside of engine.

Option#	Description	Value Description (blank means unset)
246-105b	REAR AIR CHARGE CONNECTOR	(C),Rear air charge connector type - male 1/4" Amflo CP1 fitting.
246-120	FRONT TOW CONNECTOR	(C),Front tow connector fitting - 1/4" male Amflo CP1 fitting with tag.
246-120a	FRONT AIR CONNECTOR ARRANGEMENT	(B),Front air connector arrangement - located below the bumper, streetside.
246-125	FRONT AIR CHARGE CONNECTOR	(C),Front air charge connector - 1/4" male Amflo CP1 fitting with tag.
246-130	FLEXIBLE AIR LINES	(S),Flexible air lines - Synflex colour coded. Green: rear service brakes and supplies. Red: front service brakes. Brown: parking brake. Black: accessories and brake hose. Yellow: compressor and governor. Blue: suspension.
246-225	ABS	(S),ABS braking system - Wabco.
246-230	TRACTION CONTROL	(B),Automatic traction control - Wabco system, to reduce drive wheel overspin.
246-NEW	INCLINE RAISE FEATURE	(C),Incline raise feature - air suspension steep incline feature required per Muni specifications.
260-005a	TWO BATTERIES,TYPE / MFR	(C),Batteries - two 8D AGM/Deka 1450CCA maintenance free batteries (mfr East Penn Batteries). Post connection 3/8" positive X 3/8" negative.
260-005d	BATTERY CABLES	(S),Battery cables - red heat shrink on 24 volt positive cable end and light blue heat shrink on 12 volt positive cable end.
260-010	BATTERY TRAY	(S),Battery tray - slide out battery acid resistant polyethylene enclosure with SST sub frame, SST bearings and rubber isolation mounts. Located aft of the curbside rear wheelhouse. Note: battery access door opens to the side.
260-025	POSITIVE BATTERY DISCONNECT SW	(A),Positive battery disconnect switch - required with quick access through flip-open door. Uses a micro-switch for engine shutdown.
260-030	BATTERY VOLTAGE EQUALIZER	(B),Battery voltage equalizer - Vanner 80 amp.
260-035	JUMP START MANUFACTURER	(C),Jumpstart - Anderson model 6322 G1 connector.
260-035a	JUMP START LOCATION	(A),Jump start location - near the battery disconnect switch at the fusebox. Accessible via the flip-open door.
260-820	ROOF FAIRING / SKIRTS ENCLOSURE	(S),Roof fairing / skirt enclosure - fairing with full length skirts for XDE's.
260-NEW	BAE HYBRID MODE	(C),BAE Hybrid Mode - Depot mode with switch on side console required. Also Start/Stop mode functionality.
269-002	P.A. AMPLIFIER MFR / TYPE	(A),P.A. amplifier manufacturer / type - included with AVA or AVL system.
269-005	INTERIOR SPEAKER MFR	(B),Interior speaker manufacturer - TCB.
269-005b	PRIMARY INTERIOR SPEAKERS,QTY FOR 40'	(B),Primary interior speakers, quantity - six: four to light panels, two above rear bench.
269-010	EXTERIOR SPEAKERS,LOCATION	(B),Exterior speaker, location - at basic location above entrance. Includes baffled cover.
269-010a	EXTERIOR SPEAKER MFR	(B),Exterior speaker manufacturer - Shekonic.
273-005	HEADLIGHTS	(S),Headlights - NFIL Xcelsior LED low beam and halogen high beam headlights.
273-005a	DAY RUN HEADLIGHTS	(B),Day run headlights - required.
273-005b	FRONT TURN SIGNALS	(S),Front turn signals - NFIL amber LED. Integrated with headlight assembly.
273-010	TAIL LIGHTS QTY PER SIDE	(B),Tail lights quantity per side - four.
273-010ab	FOUR TAIL LIGHT ARRANGEMENT	(B),Four tail light arrangement (top to bottom) - amber, red, red, white.

Option#	Description	Value Description (blank means unset)
273-010b	TAIL LIGHTS MFR	(B),Red / amber tail light manufacturer - 4" Dialight LED.
273-010d	WHITE BACK-UP LIGHT MFR	(S),White back-up light manufacturer - 4" Dialight LED.
273-010e	STOP LIGHTS ON WITH RTRDR/REGEN BRAKE	(B),Stop light activation by transmission retarder / regenerative braking - required.
273-010f	STOP LIGHTS ON WITH PARK BRAKE OR INTERLOCK	(S),Stop light activation - when park brake or interlock are engaged.
273-015	CENTER STOP / DECELERATION LIGHTS	(A),Center stop lights (red) - two Dialight 18" X 1" LED above the engine door.
273-020	SIDE TURN SIGNALS,TYPE / QTY PER SIDE	(B),Side turn signals, type and quantity per side - 2 amber Dialight LED with guards. Lamps are at fore of all wheelhouses except curbside front which is aft. For non-60' coaches.
273-025	KNEELING/RAMP LIGHT AT ENTRANCE	(S),Kneeling / ramp deployment warning light at entrance - 2.5" Dialight LED.
273-025b	SIDE TURN SIGNAL FUNCTIONALITY	(C),Side turn signal functionality - Sonalert/beeper at curbside exterior exit door area to sound when turn signal switches depressed. Override switches to be located in SDS enclosure/compartment.
273-035	MARKER / CLEARANCE LIGHTS	(S),Marker and clearance lights - Dialight LED all around.
273-040	REFLECTORS	(S),Reflectors - self-adhesive decals installed at NFIL basic positions.
273-045	REAR LICENCE PLATE LIGHT	(B),Rear license plate light - LED.
273-050a	TIMED SHUT-OFF,ENTR AREA LIGHTS	(B),Timed shut-off of entrance area lights (interior and/or exterior) - the program is set to shut the lights off when the door closes.
273-055a	TIMED SHUT-OFF,EXIT AREA LIGHTS	(C),Timed shut-off of exit area lights (interior and/or exterior) - the program is set to shut the lights off three seconds after the door closes.
273-112	CURBSIDE CORNERING LIGHT	(C),Curbside cornering lights - one curbside lamp located behind exit door.
277-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 277 group equipment.
277-005	INTERIOR PASSENGER LIGHTING	(B),Interior passenger lighting - TCB LED, 24 VDC.
277-005f	INTERIOR LED LIGHT FUNCTIONALITY	(B),Interior LED light functionality-first bank of light on each side turn on when entrance door is opened and off when door is closed.
277-010a	TINTED LED PASSENGER LIGHT COVERS	(B),Tinted LED passenger light covers - white for all lights.
277-015	FAREBOX LIGHT	(B),Farebox light - one swivel light with a replaceable LED bulb.
277-020	DRIVER'S LIGHT	(B),Driver's light - one sealed 2.5" white high output LED light.
277-030	ENGINE COMPARTMENT LIGHTS	(B),Engine compartment lights - four 1.38" LED lights.
277-035	REAR DECK STEP LIGHT	(S),Rear deck step light - LED.
277-040	INTERIOR DOOR HEADER LIGHTS	(B),Interior door header lights - one LED strip light (approx 18" long) provided above exit (if applicable) and entrance doors. With anti-glare shield.
277-070a	REAR PLC AND FUSEBOX SERVICE LIGHTS	(S),Rear PLC compartment and fusebox lights - provided, LED.
280-001	PASSENGER SIGNAL CHIMES, FOR NON-60'	(B),Passenger signal chimes - one basic electronic chime above driver. Chime has single tone which sounds once for regular activation, twice for wheelchair positions.
280-002	PASSENGER SIGNAL PULLCORDS	(B),Passenger pullcords - yellow cords are required.



Option#	Description	Value Description (blank means unset)
280-002a	PASSENGER PULLCORD HARDWARE	(B),Passenger pullcord hardware - Phillips.
280-003	HORIZONTAL PASSENGER SIGNAL PULLCORDS	(B),Horizontal passenger signal pullcords - set at NFIL designated basic height.
280-005	LWR DECK VERT PULLCORDS, FOR 40'	(A),Lower deck vertical passenger pullcords - three: two at first and second streetside pillars and one at first curbside pillar forward of the face of the upper deck.
280-005e	SECUREMENT OF VERTICAL PULLCORDS	(B),Securement of vertical pullcords to horizontals - looped or clamped to the horizontal depending on the location.
280-010	FRONT STOP REQUEST SIGN TYPE/POSITION	(C),Front stop request sign type / position - Smartrend LED installed in the destination sign door.
280-010a	FRONT STOP REQUEST SIGN TEXT	(B),Front stop request sign text - Stop Requested.
280-010b	FRONT STOP REQUEST SIGN LETTERING	(B),Front stop request sign lettering - upper case.
280-012	STOP REQUEST SIGN COLOURS	(B),Stop request sign colours - white letters on a red background.
280-015	PASS SIGNAL @ WHEELCHAIR POSITIONS	(C),Passenger signals at wheelchair positions - Muni specific push button mounted to flip-up seat.
280-025	PUSH BUTTON SIGNAL AT EXIT AREA	(C),Push button signal at exit - LFR style switches mounted facing aisle on stanchion fore of exit.
280-025a	PUSH BUTTONS,VERT & SEAT STANCHI	(C),Push button passenger signals on vertical seat stanchions - LFR style buttons at specified vertical stanchions.
280-025b	PUSH BUTTONS,FRT WHEELHOUSES	(C),Push button signals, front wheelhouse stanchions - one each on the c/s and s/s stanchions aft of the wheelhouse, 46.5" from the floor to bottom of switches. LFR style switches.
284-001	ELECTRONIC CONTROL SYSTEM	(S),Electronic control system - Vansco.
284-001a	SYSTEM VOLTAGE	(S),System voltage - 24 VDC primary, 12 VDC secondary.
284-001b	SWITCHES	(S),Switches - water resistant.
284-001d	SPARE INPUT/OUTPUT PORTS	(S),Spare I/O (Input/Output) ports for multiplex system modules - minimum 10% input and 10% output.
284-005g	HAZARD WARNING LIGHTS	(S),Hazard warning lights - front, side and rear lights flash for hazard warning.
286-001	INSTRUMENT PANEL	(B),Instrument panel - acrylic material with luminescent lighting, with Vansco Instrument Panel Cluster module including LCD display screen.
286-001a	SHIFT SELECTOR LOCATION	(S),Shift selector - located on instrument panel.
286-001b	EXTERIOR LAMP TEST	(S),Exterior lamp test - simultaneously depress both turn signals.
286-010a	SPEEDOMETER	(S),Speedometer - part of Vansco instrument panel cluster. Set to display miles. With odometer (the display can be toggled to show Trip1, Trip 2, engine hours).
286-010b	AUDIBLE SOUND,TURN SIGNALS/HAZARDS	(B),Turn signal and hazard warning audible sound - using click sound for turn signal and for hazard warning.
286-010e	BRK/ACCEL INTERLOCK DEACTIV WRNG	(A),Brake accelerator interlock deactivated warning - provided by audible alarm and separate red warning lamp on instrument panel. (Must have in California.)
286-055	DOOR MASTER SWITCH LOCATION	(B),Door master switch location - in sawtooth panel above driver.
286-055b	HYBRID REGEN SWITCH LOCATION	(B),Regenerative braking switch location - in sawtooth panel above driver.
286-065	SILENT ALARM	(C),Silent alarm - Motorola switch per specification required.
286-065a	SILENT ALARM SW LOCATION	(A),Silent alarm switch location - at side console.

Option#	Description	Value Description (blank means unset)
286-070	DIAGNOSTIC PLUG-IN LOCATION	(C),Diagnostic plugs at fwd face of SDS barrier and at engine switch box. 500K Baud diagnostic connector under front dash, fwd face of SDS barrier and at engine switch box. One BAE diagnostic connector at fwd face of SDS.
286-070a	ACCESSORY POWER PLUG	(A),Accessory power plug - at forward face of the SDS barrier (above driver).
289-001	SECUREMENT OF HARNESSES	(B),Securement of harnesses - hellerman tyton clamps, with Panduit releasable cable ties.
296-001	WIRING DECAL,REAR PLC AND FUSEBOX	(S),Wiring decal, rear PLC and fusebox - provided, laminated.
296-001a	WIRING DECAL,SIDE CONSOLE	(B),Wiring decal, side console - laminated, shipped loose.
304-001a	EXTERIOR PAINT TYPE	(S),Exterior paint type - Axalta Imron Elite high solids polyurethane.
304-001aa	EXTERIOR PAINT CLEARCOAT	(A),Exterior paint clearcoat - required.
304-010	CORROSION PROTECTION	(B),Corrosion protection - grit blasted frame, moisture cure zinc-rich primer (applied for 12 year warranty protection), anti-chip undercoating, corrosion preventive coating sprayed inside frame tubes up to roof line.
304-015	EXTERIOR LOGOS,NFIL	(B),Exterior logos, NFIL - required.
304-015b	EXT DECALS,CUSTOMER SPECIFIC	(C),Exterior decals, customer-specific - as per spec/MRL.
304-020	NFIL SAFETY AND MAINTENANCE DECALS	(B),New Flyer safety and maintenance related decal package - English.
304-020a	INTERIOR DECALS, CUSTOMER SPECIFIC	(A),Customer specific interior decals - required.
304-020b	INTERIOR PASSENGER RELATED DECALS,LANGUAGE	(C),Interior passenger related decals, language - Combination of English and English/Spanish/Chinese.
304-020d	INTERIOR FLEET NUMBER DECALS	(B),Interior fleet number decals - required.
304-025	KNEELING / RAMP DECALS	(C),Kneeling / ramp decals - None provided per SFMTA Specification.
304-030	AIR TANK DECALS	(B),Air tank decals - NFIL basic.
304-035	EXT FLEET NUMBERS,NON-ROOF	(B),Exterior fleet numbers, non-roof - required (reflective or non-reflective as per spec).
304-035a	EXTERIOR FLEET NUMBERS,ROOF	(A),Exterior fleet numbers, roof - required (reflective or non-reflective as per spec).
304-700	HYBRID SAFETY DECALS	(B),Hybrid safety decals - required.
306-005	FIRE EXTINGUISHERS	(B),Fire extinguisher - 5 lb ABC class. With gauge, hose and mounting bracket. UL compliant for US customers.
306-005a	FIRE EXTINGUISHER LOCATION	(A),Fire extinguisher location - inside the curbside equipment box.
306-010	SAFETY TRIANGLES	(B),Safety triangles - triangle reflector.
306-010a	SAFETY TRIANGLE LOCATION	(A),Safety triangle location - in equipment box on curbside luggage rack.
350-001	DRIVER'S PEDALS, POSITION / TYPE	(A),Driver's pedals positions / type - adjustable pedal assembly.
350-002b	ADJUSTABLE PEDAL BRAKE/THROTTLE ANGLE	(B),Brake / Throttle pedal angle - brake set at 45 degrees, throttle at 45 degrees from pedal to floor.
350-005	BRAKE VALVES	(S),Brake valve - E6.

Option#	Description	Value Description (blank means unset)
350-015	TURN SIGNAL SWITCHES	(B),Turn signal switches - basic switches, floor mounted.
350-015a	DIMMER SWITCH	(B),Dimmer switch - basic foot switch.
350-015b	P.A. SYSTEM SWITCH	(A),P.A. system switch - foot switch.
350-015d	HAZARD WARNING LIGHT SW LOCATION	(B),Hazard warning light switch location - on side console.
350-030	STEERING COLUMN	(B),Steering column - Douglas Autotech with tilt and telescopic features.
350-030a	STEERING WHEEL	(B),Steering wheel - 2 spoke, 18" diameter hard padded.
350-035	DUAL HORN	(S),Dual horn - provided with splash shield.
400-001a	JACKING / LIFTING PADS	(B),Jacking / lifting pads - 4" diameter pads at front and rear chassis.
420-005	DEFROSTER ACCESS DOOR	(B),Defroster access door - top hinged with two gas struts, quarter turn 5/16" square key quad latches.
420-010	EXTERIOR SIDE PANELS	(S),Exterior lower side panels - fiberglass.
420-035a	CURB & STREET ENG,S/CONS DOORS,STRUTS	(B),Struts for curb and street side engine compartment, side console access doors - supported by gas struts.
420-035d	CURB SIDE ENGINE COMPT DOOR	(C),Curb side engine compartment door - includes battery disconnect switch access door (using a gas strut) and a DEF manual fill access door. MUNI specific door with 1" additional clearance at bottom edge.
420-035e	BATTERY COMPARTMENT DOOR	(B),Battery compartment door - solid door located aft of the curb side rear wheel, separate from the engine compartment.
420-035f	STREET SIDE ENGINE COMPT DOOR	(B),Streetside engine (radiator) access door - with wavy screen.
420-040	DIESEL FUEL FILL DOOR	(B),Diesel fuel fill door - basic hinged door located forward of the curbside rear wheelhouse.
420-040a	SURGE TANK DOOR	(B),Surge tank door - basic hinged door.
420-045	SIDE CONSOLE DOOR LATCHES	(B),Side console door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050	ENGINE DOOR	(B),Engine door - solid door with built-in handle.
420-050a	ENGINE DOOR STRUTS	(B),Engine door struts - two, the streetside strut has a locking mechanism.
420-050b	ENGINE DOOR LATCHES	(B),Engine door latches - quarter turn chrome plated 5/16" square key quad latches.
420-050e	REAR LICENSE PLATE RETENTION	(B),Rear license plate retention - centered with bottom retainer and two upper inserts.
420-060	RAIN GUTTER	(S),Rain gutter - .44" cross section bonded.
420-065	ROOF HATCHES / VENTS	(A),Roof hatches / vents - two basic hatches, 24" X 24".
420-065a	ROOF HATCH INSTRUCTION LANGUAGE	(B),Roof hatch instruction language - English.
420-070	WIPERS	(C),Wipers - wet arm Sprague 24 volt electric. Intermittent.
420-075	WINDSHIELD WASHER BOTTLE	(B),Washer bottle - 5 US gallon with electric powered pump.
420-075a	WINDSHIELD WASHER FILL LOCATION	(S),Windshield washer fill location - accessed via a flip-out door built into the exterior side console access door.
420-080	LOWER DRIVER'S VENT	(B),Lower driver's vent - provided.
420-120	FENDERS	(B),Fenders - molded polyurethane.
420-120b	S1 WHEEL GUARDS	(C),S1 Wheel guard - required, forward of rear wheels

Option#	Description	Value Description (blank means unset)
420-125	EXTERIOR UPPER REAR	(B),Exterior upper rear - fiberglass panel with no door and no window.
420-135	LOCATION,FRONT LICENSE PLATE	(C),Front license plate location - at streetside of defroster door.
420-135a	FRONT LICENSE PLATE RETENTION	(B),Front license plate retention - four inserts.
421-010	INSULATION,SIDEWALL AND ROOF	(S),Insulation, sidewall and roof - polyisocyanurate foam. meets Docket 90 spec.
421-020	INSULATION,EXHAUST CAVITY	(S),Exhaust cavity insulation - Heat-resistant fiberglass mat.
421-030	ENGINE COMPARTMENT INSULATION	(S),Engine compartment insulation - noise reduction acoustical foam, retained by perforated aluminum panels.
422-001	DOCKET 90 SPEC	(A),Docket 90 spec - review for 422 group components.
422-005	CEILING PNLS AFT OF FRT W/HS INCL RR PLC	(B),Ceiling panels aft of the front wheelhouses (including rear PLC) - Antique white plastic, SST trim.
422-005a	CEILING / HVAC COVER PANELS ABOVE FRT W/HS	(B),Ceiling / HVAC cover panels above front wheelhouses - Antique White fiberglass.
422-006	ENTRANCE/DRIVER'S AREA PANELS	(C),Entrance/driver's area panels colour - black. Includes dash, dest sign c/out, ent. mech. box, driver's o/head panels. and if used, ent. floor heat duct, frt. RH harness cover is painted flat black.
422-006b	DRIVER'S CEILING PANEL MATERIAL	(B),Driver's ceiling panel material - melamine.
422-009	INTERIOR PIER PANEL MATERIAL	(B),Interior pier panel material - thermoplastic.
422-010	PIER PANEL COLOUR	(B),Pier panel colour - Antique white, thermoplastic.
422-015b	INTERIOR SIDEWALL MELAMINE	(B),Interior sidewall melamine colour - Charcoal Grey Gloss.
422-025	INTERIOR ENGINE COMPT ACCESS PANEL	(S),Interior engine compartment access panel - there is a single hinged panel under the rear seat.
422-035	INTERIOR UPPER REAR PANEL	(A),Interior upper rear panel - bulkhead panel covered with carpet / fabric material. With large central access door.
422-035a	CARPET / FABRIC,UPR REAR INT PANEL	(B),Upper rear interior carpeted / fabric panel - Charcoal Grey carpet with 1/2" plywood backing.
422-035e	C/S,S/S RR BULKHEAD ACCESS PANELS	(B),Curb and street side rear bulkhead access panels - carpeted DB plywood.
422-050a	HRNS/AIR LINE COVERS AT UPPER DECK	(B),Harness / air line covers at upper deck - painted flat black.
422-060	FRT DEST SIGN DOOR LATCHES	(B),Front destination sign door latches - short wing quad latches.
422-061	DRIVER'S OVERHEAD PANEL	(S),Driver's overhead panel - with locker.
422-061a	DRIVER'S LOCKER LATCH	(C), Driver's locker latch - short wing quad latch with pull tab.
422-065	DRIVER'S COAT HOOK AND STRAP	(B),Driver's coat hook and strap - located on the forward face of the harness cover behind the driver.
422-070	SECURE DIAGNOSTIC STATION	(B),Secure diagnostic station - above street side front wheelhouse. Incorporates driver's barrier. With four Take One pockets. Quantity of trays as per customer and / or as per electronic equipment within compartment.
422-070a	SDS ENCLOSURE COLOUR	(B),SDS enclosure colour - Flat Black with Cashmere Black melamine panel.
422-070b	SDS ENCLOSURE DOOR LATCHES	(C),SDS enclosure door latches - Two 5/16" square key quad latch and paddle latch with CH751 key.

Option#	Description	Value Description (blank means unset)
422-085	FRONT SUNVISOR / ROLLERBLINDS	(A),Front sunvisor - black padded.
422-085a	SIDE SUNVISOR / ROLLERBLIND	(C),Side sunvisor - black padded visor for high mount mirror.
422-090	SQUARE KEY T-HANDLE	(B),Square key t-handle - located at lower left of driver.
422-105	ENTRANCE MECHANISM BOX DOOR LATCH	(S),Entrance mechanism box door latches - two short wing quad latches.
422-160	GRAB HANDLE NEAR FRONT ROOF HATCH	(B),Grab handle near front roof hatch - required.
422-NEW	NEW OPTION,422 GROUP	(C), Rear PLC and bulkhead access doors with tamperproof latches.
423-010	AD FRAMES,SDS ENCLOSURE	(C),Interior Ad Frame - Two 17" x 11" clear holder's. One located on rear face of SDS enclosure, and One located on front door of SDS.
450-001	DOCKET 90 SPEC	(A),Docket 90 spec - Engineering is to review if applicable for any 450 group equipment.
450-010	FLOORING	(A),Flooring - lower deck uses Milwaukee composite flooring. Upper deck uses fiberglass composite for step and floor to the rear wheelhouses and Milwaukee composite flooring to the rear.
450-013	DRIVESHAFT / TRANSMISSION ACCESS PANELS	(A),Driveshaft / transmission access panels - two panels set in the floor, one to access the driveshaft and the other to access the transmission.
450-025a	ALTRO FLOOR COVERING	(C),Altro floor covering - Rocket TFFG 2704F (2.7 mm / 0.11" thick), for aisle and underseats.
450-025e	STEP TO UPPER REAR	(C),Step to upper deck - yellow anti-slip coating is applied to the edges and vertical faces of the step. Yellow/black caution stripe decals at each step.
450-025f	STANDEE LINE	(B),Standee line - yellow.
450-025g	ENTRANCE NOSING	(B),Entrance nosing - nosing is 2" wide yellow anti-skid applied to the ramp.
450-025h	EXIT NOSING	(C),Exit nosing - 2.5" yellow nosing and 2.0" yellow standee line in vestibule area at edge of exit door opening/sweep. Altro / Tarabus flooring.
450-025j	REAR SEAT RISER COVERING MATERIAL	(B),Rear seat riser covering material - same material and colour as used for the flooring.
450-030	DRIVER'S PLATFORM FLOORING	(A),Driver's platform flooring - Altro.
450-030a	DRIVER'S PLATFORM TRIM	(B),Driver's platform trim - SST.
450-045	OUTER WHEELHOUSES	(B),Outer wheelhouses - SST front and rear.
450-055	INTERIOR FRONT W/HOUSE (LUGG RACK) COLOURS	(B),Interior front wheelhouse (luggage rack) colours - Matte black, painted stipple. An LED aisle light is provided on the streetside. Also, SST scuff guards are provided.
460-005	WINDSHIELDS	(B),Windshield - 72% light transmittance green laminated. With blue shade band for street and curb sides.
460-005a	WINDSHIELD PROTECTIVE FILM	(B),Windshield protective film - required for coach delivery beyond a 500 mile radius of Final Assembly.
460-010	PASS / DRVR'S WINDOWS MANUFACTURER	(B),Passenger and driver's windows, manufacturer - Arow Global (Stormtite) non-flush mounted.
460-010b	NON-FLUSH PASSENGER WINDOWS	(C),Non-flush passenger windows - bottom is fixed, top slider.
460-010e	NON-FLUSH WINDOW GLAZING	(C),Non-flush window glazing - grey, 55% light transmittance, laminated.
460-010h	WINDOW FRAME COLOUR	(C),Window frame colour - all window frames are clear anodized.

Option#	Description	Value Description (blank means unset)
460-010j	WINDOW EMERGENCY EGRESS	(S),Emergency egress windows - minimum quantity based on FMVSS requirements or the customer spec, whichever is the greater of the two.
460-010k	SIDE DESTINATION SIGN WINDOWS	(C),Destination sign window - curb and street sides. Fixed clear top and fixed bottom. Bottom matches passenger window glazing. (review 470 for side sign details).
460-010n	WINDOW GLAZING REPLACEMENT	(A),Window glazing replacement for servicing - rapid replacement.
460-010p	PASS WINDOW LINERS AND COATINGS	(C),Window liners and coatings - .12" acrylic liners on all windows.
460-010s	PASS WINDOW THICKNESS	(B),Passenger window thickness - 6 mm.
460-011a	DRIVER'S WINDOW, NON-FLUSH	(B),Driver's window, non-flush mounted - with fore and aft sliding sashes. The forward sash has exterior and interior handles. Non-egress.
460-011b	AFT SASH, NON-FLUSH DRIVER'S WINDOW	(B),Aft sash, non-flush driver's window - with interior handle and latch.
460-011d	DRIVER'S WINDOW GLAZING	(B),Driver's window glazing - laminated with minimum 70% light transmittance.
460-011e	DRIVER'S WINDOW SHADE BAND	(B),Driver's window shade band - not required.
470-001	DESTINATION SIGNS MFR	(A),Destination sign mfr - Twin Vision Smart Series, LED display system.
470-001a	DEST SIGN CONTROL UNIT LOCATION	(B),Destination sign control unit location - under driver's overhead panel.
470-005a	TWIN VISION FRT.DEST.SIGNS	(A),Twin Vision front destination sign - LED Chroma I, 16 X 156, 4 amber matrix boards and 1 colour board with a single LED. Will be programmed with white test pattern, customer to reprogram sign in color after acceptance.
470-010	FRONT DESTINATION SIGN GLASS	(A),Front destination sign glass - heated and laminated.
470-025	CURB SIDE DESTINATION SIGN LOCATION	(A),Curbside destination sign location - at the second window, aft of the entrance door.
470-025b	TWIN VISION CURBSIDE DEST.SIGNS	(A),Twin Vision curbside destination sign - LED, amber, 8 x 96 (37.4" wide display).
470-026	STREET SIDE DEST SIGN	(C),Street side dest/route sign - required at #3 streetside window (first window rear of SDS compartment).
470-030	FRONT ROUTE SIGN	(C),Front route sign - Twin Vision LED, 14 x 40, addressable.
470-035	REAR ROUTE SIGN, LOCATION	(B),Rear route sign location - at the upper curb side. For non-CNG coaches.
470-035b	TWIN VISION REAR ROUTE SIGNS	(C),Twin Vision rear route sign - LED, amber 16 X 48.
470-060b	CLEVER DEVICES (DIGITAL RECORDER) AVA SYSTEM	(A),Clever Devices (Digital Recorder) AVA system - full system installed by NFIL, including antenna(s), cabling, ground plates and all required system components as per customer spec.
470-060f	ACS (ORBITAL/TMS) AVA SYSTEM	(C),ACS (Orbital / TMS) AVL system - provisions. Includes installation of antenna(s), cabling and ground plates as per customer spec.
470-060k	AVA/AVL LED SIGN & LOCATION	(C),AVA/AVL LED sign and location - required on the front HVAC overhead enclosure and at the exit door area.
470-061	AUTO VEHICLE MONITORING SYSTEM (AVM)	(A),Automatic Vehicle Monitoring (AVM) system - Fleetwatch required as per spec/MRL.
470-075	NEW FLYER CONNECT-DIAGNOSTIC & MONITORING SYSTEM	(A),New Flyer Connect-Diagnostic & Monitoring - required with driver maneuver awareness system (DMAS).
470-NEW	NEXTBUS SYSTEM	(C),Nextbus system - Installation of complete system including antenna.

Option#	Description	Value Description (blank means unset)
480-005	STREET SIDE MIRROR MANUFACTURER	(B),Street side mirror manufacturer - Hadley.
480-005a	HADLEY STREET SIDE MIRROR	(B),Hadley street side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-005b	STREET SIDE MIRROR POWER OPTIONS	(A),Street side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-005e	STREET / CURB SIDE MIRROR W/TURN SIGNAL	(A),Street and curb side mirror with turn signal - LED, in mirror glass.
480-005f	STREET SIDE MIRROR ARM	(A),Street side mirror arm - mirror arm springs back to its previously set position after deflection.
480-005g	STREET SIDE MIRROR MOUNT	(A),Street side mirror mount - high mount.
480-005h	STREET / CURB SIDE MIRROR VOLTAGE	(B),Exterior mirror voltage - 12 volt.
480-006	CURB SIDE MIRROR MANUFACTURER	(B),Curb side mirror manufacturer - Hadley.
480-006a	HADLEY CURB SIDE MIRROR	(B),Hadley curb side mirror - 8" x 15", 2/1 (upper portion is flat, smaller lower portion is convex).
480-006b	CURB SIDE MIRROR POWER OPTIONS	(B),Curb side mirror power options - dual remote control, not heated. (The upper and lower portions are remote controlled.)
480-006e	CURB SIDE MIRROR ARM	(B),Curb side mirror arm - basic, pull-back. Mirror arm is manually returned to its previously set position after deflection. Mirror can be folded forward or backward for bus wash.
480-010	INTERIOR MIRRORS,MANUFACTURER	(A),Interior mirrors, manufacturer - Hadley.
480-010a	DRIVER'S REAR VIEW MIRROR	(A),Driver's rear view mirror - 8" x 15", black, flat.
480-010b	SPOT MIRROR	(B),Spot mirror - 6" diameter flat mirror, located at curb side front.
480-010d	EXIT DOOR MIRROR	(B),Exit door mirror - convex, 12" diameter.
490-001	ENT DOOR DRIVE SYS	(A),Entrance door drive system - Electric
490-005	ENTRANCE DOOR	(B),Entrance door - Vapor slide glide.
490-005a	ENTR DOOR LIMIT SWITCH SET-UP	(A),Entrance door limit switch - solid state proximity switch.
490-005d	ENTRANCE DOOR MAGNETIC DUMP VALVE	(B),Entrance door magnetic dump valve - required, located at baseplate.
490-005f	ENTR/EXIT FRANG COVER LANGUAGE	(C),Entrance / exit door frangible cover instructions (for emergency release), language - English. Additional scoring required on exit door frangible cover.
490-006	ENTRANCE DOOR HANDLES	(B),Entrance door handles - yellow powder coated.
490-015	ENTRANCE DOOR CONTROLLER	(A),Entrance door controller - extended with 5 position settings.
490-015a	DOOR CONTROLLER HANDLE	(B),Entrance door control handle - non-removable.
490-030	ENTRANCE DOOR GLAZING	(S),Entrance door glass - full length single piece, 72% green.
491-001	EXIT DOOR DRIVE SYS	(A),Exit door drive system - Electric with pneumatic emergency release.
491-005	EXIT DOOR	(A),Exit door - wide Ameriview Vapor Slide Glide, 45.2" between panels.
491-005a	SLIDE GLIDE EXIT LIMIT SWITCH	(A),Exit door limit switch - solid state proximity switch.

Option#	Description	Value Description (blank means unset)
491-005b	EXIT DOOR CONTROL	(A),Exit door control - Vapor Class Acoustic Sensing System. Activates door opening and detects obstruction on closing.
491-005ba	CLASS SYSTEM DOOR DECAL	(C),Class system door decal - English, Spanish, Tagalog, and Chinese, text and characters as per customer requirement.
491-005d	EXIT DOOR SENSITIVE EDGE	(B),Exit door sensitive edge - sensor on the vertical edge provided with all exit doors.
491-005g	EXIT FRANGIBLE COVER SECUREMENT	(C),Exit frangible cover securement - magnetic latch with screw.
491-005j	EXIT BASEPLATE / ELEC PNL ACCESS	(B),Exit baseplate access- at each exit door, Tcb set-up, through removable ad frame.
491-006	EXIT DOOR ASSIST HANDLES	(B),Exit door assists - yellow powdercoated.
491-020	EXIT DOOR GREEN LIGHT	(B),Exit door green light - LED green light indicates that the exit door is set to open.
491-035	EXIT DOOR GLASS SIZE	(B),Exit door glass size - full length.
491-035a	EXIT DOOR GLAZING	(B),Exit door glazing - 6 mm.
491-NEW	EXIT DOOR EXTERNAL BUTTONS	(C),Exit door external buttons - Two flush mounted "Elevator Style" external switches mounted on either side of the exit doors to permit passenger loading/entry from exit.
526-001	40' PASSENGER SEAT QTY	(C),40' passenger seat quantity - 31.
526-005	PASSENGER SEAT MANUFACTURER	(B),Passenger seat manufacturer - American Seating.
526-005b	AMERICAN SEATING SEATS	(A),American Seating passenger seats - Vision stainless seat. Details as per customer spec.
526-005ba	AMERICAN SEATING D90 SPEC	(B),American Seating passenger seats D90 spec - not required.
526-005d	REAR BENCH SEAT	(S),Rear bench seat - 1-3-1 hinged seat.
526-005e	PASSENGER SEAT MOUNTING	(B),Passenger seat mounting - cantilever.
526-005f	SEAT MOUNTED GRABRAIL	(A),Seat mounted grabrails - stainless steel.
526-005h	FIRST SEAT,CURBSIDE UPPER REAR	(B),First seat at curbside upper rear - forward facing.
526-005i	PASSENGER SEATING BARRIER	(B),Passenger seating barrier - pedestal mounted barrier.
526-005j	SEAT POSITION, FORWARD OF REAR EXIT	(A),Seat position, forward of rear exit - aisle facing.
526-006	DRIVER'S SEAT MANUFACTURER	(A),Driver's seat manufacturer - USSC.
526-006a	USSC DRIVER'S SEAT MODEL	(A),USSC driver's seat model - 9100 ALX. The fore / aft seat travel is 11.8". Has 2 point seat belt. Has air suspension and lumbar.
526-006f	DRIVER'S SEAT MATERIAL	(B),Driver's seat material - all vinyl.
526-006g	DRIVER'S SEAT BELT	(A),Driver's seat belt - lap belt with retractor on left hand side.
526-006ga	DRIVER'S SEAT BELT ALARM	(A),Driver's seat belt alarm - required to warn driver that seat belt is not connected.
526-006gb	DRIVER'S SEAT BELT COLOR	(A),Driver's seat belt color - Orange.
526-006j	DRIVER'S SEAT,DOCKET 90 SPEC	(B),Driver's seat D90 spec - Not required.



Option#	Description	Value Description (blank means unset)
526-006k	DRIVER'S SEAT BASE RISER	(A),Driver's seat base (riser) - SST.
526-006m	DRIVER'S SEAT PARK BRAKE ALARM	(A),Driver's seat park brake alarm - switch is required in seat cushion to trigger driver's park brake alarm (ref. option 246-040).
526-006s	DRVR'S SEAT HEADREST	(B),Driver's seat headrest - required.
526-007	WHEELCHAIR POSITIONS,QUANTITY	(C),Wheelchair positions - two. One fwd of the exit door curbside and one aft of the streetside front wheelhouses.
526-007a	W/CHAIR POSITIONS,RESTRAINT SYSTEM	(A),Wheelchair restraint system - padded barrier/restraint system for rearward facing w/chr position(s) and restraint system for forward facing w/chr position(s). Mfr, position, mat'l color/type and details as per customer spec.
526-007e	SHOULDER HARNESS,W/CHR RESTRAINTS	(C),Shoulder harness for wheelchair restraints - secured to structure (pier panel), one on streetside only (for rear facing wheelchair position).
526-010	STANCHION / GRABRAIL STYLE	(B),Stanchion / grabrail style - curved style vertical stanchions. Using cast SST fittings for vertical and horizontal stanchions.
526-010a	OVERHEAD HORIZONTAL GRABRAILS	(A),Overhead horizontal grabrails - yellow SST.
526-010aa	OVERHEAD HANDSTRAPS,TYPE	(C),Handhold straps on overhead grabrails - flexible grey PVC straps in yellow Bentech mounts, secured to horizontal stanchions, locations as per customer spec.
526-010ab	OVERHEAD GRABRAIL HANDHOLD STRAPS,QUANTITY	(A),Overhead grabrail handhold straps, quantity - twenty-four.
526-010b	COLOR - STANCHIONS AT EXITS & RR RISER STEP	(B),Color - stanchions at exits and rear riser steps - yellow SST.
526-010d	VERT FORE OF S/S FRT W/HOUSE	(C),Vertical stanchion fore of streetside front wheelhouse - black SST (part of drivers door).
526-010da	VERT AFT OF S/S FRT W/HOUSE	(B),Vertical stanchion aft of streetside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).
526-010e	VERT FORE OF C/S FRT W/HOUSE	(A),Vertical stanchion fore of curbside front wheelhouse - black SST.
526-010ea	VERT AFT OF C/S FRT W/HOUSE	(B),Vertical stanchion aft of curbside front wheelhouse - to match colour of vertical seat stanchions (see option 526-010f).
526-010f	COLOR - VERTICAL STANCHIONS AT SEATS	(A),Color - vertical stanchions at seats - yellow SST.
526-010k	FRONT CURBSIDE LUGGAGE RACK	(A),Front curbside luggage rack - horizontal yellow tube wraps around aft, aisle and fore sides, SST.
526-010m	FAREBOX GRABRAIL	(A),Farebox wrap-around stanchion - black SST. Requires known farebox location.
526-015	MODESTY PANEL MATERIAL	(B),Modesty panel material - melamine.
526-015a	MODESTY PANEL MELAMINE COLOR	(B),Modesty panel melamine color - charcoal gloss (-209).
526-015b	C/SIDE FORE UPR DECK MOD PNL, GAP	(S),Gap at bottom of curbside fore of upper deck modesty panels - approximately 2" diagonally.
526-015e	UPPER PANEL AFT OF EXIT(S)	(A),Upper panel aft of exit(s) - 0.5" clear polycarbonate, basic width.
526-016	BARRIER AT STREET SIDE REAR RISER	(B),Barrier at street side rear riser - Modesty panel (material and color per 526-015/526-015a).
526-018	BARRIER REAR BENCH SEATS	(C),Barrier at rear bench seats - double stanchion bar.
526-022	DRIVER'S DRAFT SHIELD	(C),Driver's enclosure - clear AS-2 Lexan and black powdercoated steel bi-fold enclosure.

Option#	Description	Value Description (blank means unset)
526-035	BARRIER FWD OF EXIT(S)	(A),Fore of exit(s), barriers and grabrails - upper panel, 0.5" clear polycarbonate, wide width panel.
526-055	EMERGENCY INSTRUCTIONS	(C),Emergency instructions - decals. English, Spanish, and Chinese and Tagalog.
549-001a	NON-60' HVAC SYSTEM	(C),HVAC system manufacturer and type - Thermo King RLF rooftop heat unit. Safe-T-Walk is provided for rooftop units.
549-002a	HVAC UNIT MOTOR TYPE	(S),HVAC motor type - brushless motor for primary heating & cooling system.
549-002d	HVAC AIR INTAKE	(B),HVAC air intake - recirculated air only.
549-002e	HVAC RETURN AIR FILTER	(B),HVAC return air filter - polyester filter for RLF unit.
549-002g	HVAC SYSTEM VALVES	(S),HVAC system valves - brass ball valves with basic handles.
549-002h	A/C AND HEATER LINE CLAMPS	(S),A/C and heater line clamps - Ideal.
549-004	HVAC ELECTRONICS	(B),HVAC electronics - Thermo King Intelligaire 3, valid for A/C or heater units. With limited diagnostic capabilities.
549-004a	HVAC CONTROL PANELS	(B),HVAC control panel - Thermo King, installed at the HVAC unit.
549-004b	HVAC PROGRAM SETTINGS	(B),HVAC program settings - APTA standard
549-020	BOOSTER PUMP	(B),Booster pump - Rotron.
549-025	DEFROSTER	(B),Defroster - 3 speed brushless motor, electrically controlled damper.
549-100	AUXILIARY HEATER	(B),Auxiliary heater - not required.
580-005	WHEELCHAIR RAMP	(C),Wheelchair ramp -LIFT-U LU11-15 ramp at front door.
580-005a	FRONT RAMP CONTROL	(S),Front ramp control - ramp switch at driver's instrument panel.
580-005d	WHEELCHAIR RAMP SURFACE	(C),Wheelchair ramp surfaces - covered with Rocket TFFG 2704F Altro flooring
580-070	WHEELCHAIR RAMP TOOL	(C),WheelChair Ramp Tool - Required as per spec/MRL.
600-025	BACK-UP ALARM	(B),Backup alarm - basic alarm located on curbside.
600-065	SDS TRAY QUANTITY	(A),SDS tray quantity - four trays total.
600-075	FAREBOX PEDESTAL	(C),Farebox pedestal - SST, 7.0" high with Muni specific mounting plate.
600-076	FAREBOX	(B),Farebox - not required.
600-077	FARECARD READER	(C),Farecard reader - Provisions/Harnesses for Muni specific Clipper® system.
600-078	TRANSFER CUTTER	(C),Transfer cutters - one Globe model 303 (two notchers). Installed as per customer specific details.
600-100	CURBSIDE FRONT EQUIPMENT BOX	(A),Curbside front equipment box - black, aluminum with paddle latch, no lock.
600-101	DRIVER'S STORAGE BOX BEHIND SEAT	(A),Driver's storage box behind seat - basic box with paddle latch, no key. The box is to include a chamfer to allow for driver's seat clearance.
600-125	TAKE ONE HOLDERS	(A),Take one holders - required. Type(s) and location(s) specified by customer.
600-125e	TAKE ONES,PASSENGER AREA	(A),Take one holders - in the passenger area, installed on various window pillars.
600-152	TRASH CONTAINERS	(A),Trash container - type and location as per customer spec.
600-175	RADIO,COMMUNICATION SYSTEM	(C),Radio, communication system - full Harris radio system installed by NFIL per Muni requirements, additional conduit/provision for future radio system.
600-177	AUTOMATIC PASSENGER COUNTER	(A),Automatic passenger counter system - IRMA matrix

Option#	Description	Value Description (blank means unset)
600-178	TRAFFIC SIGNAL CONTROL SYSTEM	(C),Traffic signal control system required. Opticom 2101/ASM 2807 GPS controlled system.
600-225	VIDEO SURVEILLANCE SYSTEM	(A),Video surveillance system - interior and exterior cameras, quantity, details and location as per customer spec and installation / approval drawing.
600-225a	VIDEO SURVEILLANCE SYSTEM,MFR	(A),Video surveillance system - DTI-Loronix system, equipment as per customer spec.
600-225b	CAMERA COLOUR TYPE	(A),Camera colour type - cameras are a combination of colour and colour with infrared capabilities.
600-268	TURN ANNUNCIATOR SYSTEM	(C),Turn annunciator system - Mallory Sonalert SC628JR beepers at curbside exterior center and rear exit door areas to sound when turn signal switches depressed. Override switches to be located in SDS enclosure/compartment.
600-276	FIRE SUPPRESSION	(C),Fire suppression - Amerex Safety Net System. With one 25 lb dry chemical agent tank and one 13 lb dry chemical tank.
600-276b	AMEREX FIRE DETECTION SENSORS	(C), Amerex fire detection sensors - linear wire in engine compartment. fire or smoke conditions in the battery compartment shall actuate a visual and audible alarm at the operator's control panel.
600-300	BICYCLE RACK,MFR/MODEL	(A),Bicycle rack, manufacturer / model - Sportworks, DL2-WP (wide profile), front mounted.
600-300a	SPORTWORKS BICYCLE RACK MOUNTING	(A),Sportworks bicycle rack mounting - TSB (ten second bracket) quick release slide-in standoff with incorporated pivot.
600-300b	SPORTWORKS BICYCLE RACK REMOVAL	(A),Sportworks bicycle rack removal - quick release rack.
600-300d	SPORTWORKS BICYCLE RK MATL/COLOR	(A),Sportworks bicycle rack material/colour - SST, black powdercoated.
600-300e	BIKE RACK DEPLOY INDICATOR LIGHT	(A),Bike rack deployment indicator light - required.
600-300f	BICYCLE RACK MFR LOGO	(A),Bicycle rack manufacturer logo - provided.
600-300g	BICYCLE RACK INSTRUCTIONS	(A),Bicycle rack instructions - English.
600-NEW	DRIVECAM SYSTEM	(C),Drivecam system - Full Install for Drivecam system.
900-020	BUILD LOCATION	(B),Build Location - Winnipeg/Crookston

### 13.2 ATTACHMENT 2: RESERVED

### 13.3 ATTACHMENT 3: RESERVED

### 13.4 ATTACHMENT 4: MATERIALS, COLORS, FINISHES

NOTE: 1) All brand name call-outs are understood to include the phrase, 'or approved equal';  
2) Where stainless steel, aluminum or fiberglass is called for, natural finish/color is acceptable.

<b>BUMPERS</b>	Romeo Rim High Energy Level Polymer (HELP)
<b>Front and Rear Bumpers</b>	
<b>Color:</b>	Black (colored throughout)

<b>FINISH</b>	PPG Delta DBHS 2.7 VOC or approved equal
<b>Coach Exterior Primer</b>	PPG Deltron, NCP 280, Hardener NCX 285, Primer
<b>Coach Exterior Color</b>	PPG Delfleet, FBCH 37464, New Flyer Silver ALT-1 Base
<b>Coach Exterior Top Trim</b>	PPG Delfleet, FBCH 942608, New Flyer Red
<b>Coach Exterior Bottom Trim</b>	PPG Delfleet, FBCH 942608, New Flyer Red
<b>Coach Roof Fairing Color</b>	PPG Delfleet, FBCH 37464, New Flyer Silver ALT-1 Base
<b>Coach Clear Coating</b>	PPG Delfleet, Clear F3921, Hardener F3210
<b>Coach Interior Color</b>	Black N3472 (with flattener) For Operator area in front of Standee Line

<b>FLOOR COVERING</b>	Altro Transflor
<b>Aisle floor*</b>	Altro Transflor
Color:	Figura TFFG2704F "Rocket",
Reference:	Section 3.1 (Floor Covering)
•	
<b>Floor under seats</b>	Altro Transflor
Color:	TFFG2704F "Rocket",
Reference:	Section 3.1 (Floor Covering)
<b>Operator's Platform</b>	Altro Transflor
Color:	TFFG2704F "Rocket",
<b>Standee line</b>	Altro Transflor Two (2) inches wide
Color:	Altro TFM2729 "Safety Yellow" (colored throughout)
Reference:	Section 3.1 (Floor Covering)
<b>Step Nosing</b>	Altro Transflor Two (2) inches wide
Color:	Altro TFM2729 "Safety Yellow" (colored throughout)
Reference:	Section 3.1 (Floor Covering)
<b>Step Tread</b>	Altro Transflor
Color:	TFFG2704F "Rocket",
Reference:	Section 3.1 (Floor Covering)
<b>Exit Area Warning Decal</b>	Altro Transflor
Reference:	Section 3.1 (Floor Covering) & Attachment 12
<b>Stepwell Warning Decal</b>	Altro Transflor
Reference:	Section 3.1.1 (Steps & Stepwells) & Attachment 2

<b>Glazing</b>	
<b>Passenger Windows</b>	55 percent luminous transmittance.
Reference:	Section 2.4 (Windows)
<b>Operator's Side –Window</b>	76 percent luminous transmittance
Reference:	Section 2.4 (Windows)
<b>Door Glass</b>	55 percent luminous transmittance
Reference:	Section 2.4 (Windows)
<b>Windshield</b>	single-density tint
Reference:	Section 2.4 (Windows)

<b>INTERIOR TRIM</b>	Textured stainless steel or anodized aluminum
<b>Trim moldings</b>	
Reference:	Section 3 (Interior)

<b>PANELING</b>	Non-absorbing graffiti resistant material (final colors TBD with prototype)
<b>Divider panels</b> Color:	1/4 inch thick Grey
<b>Headlining</b> Color:	1/16 inch smooth and matte Grey
<b>Operator barrier</b> Color:	1/10 inch thick Grey
<b>Rear Bulkhead</b> Color:	1/16 inch thick Grey below the window / white above the window
<b>Side Wall</b> Color:	1/10 inch thick Grey

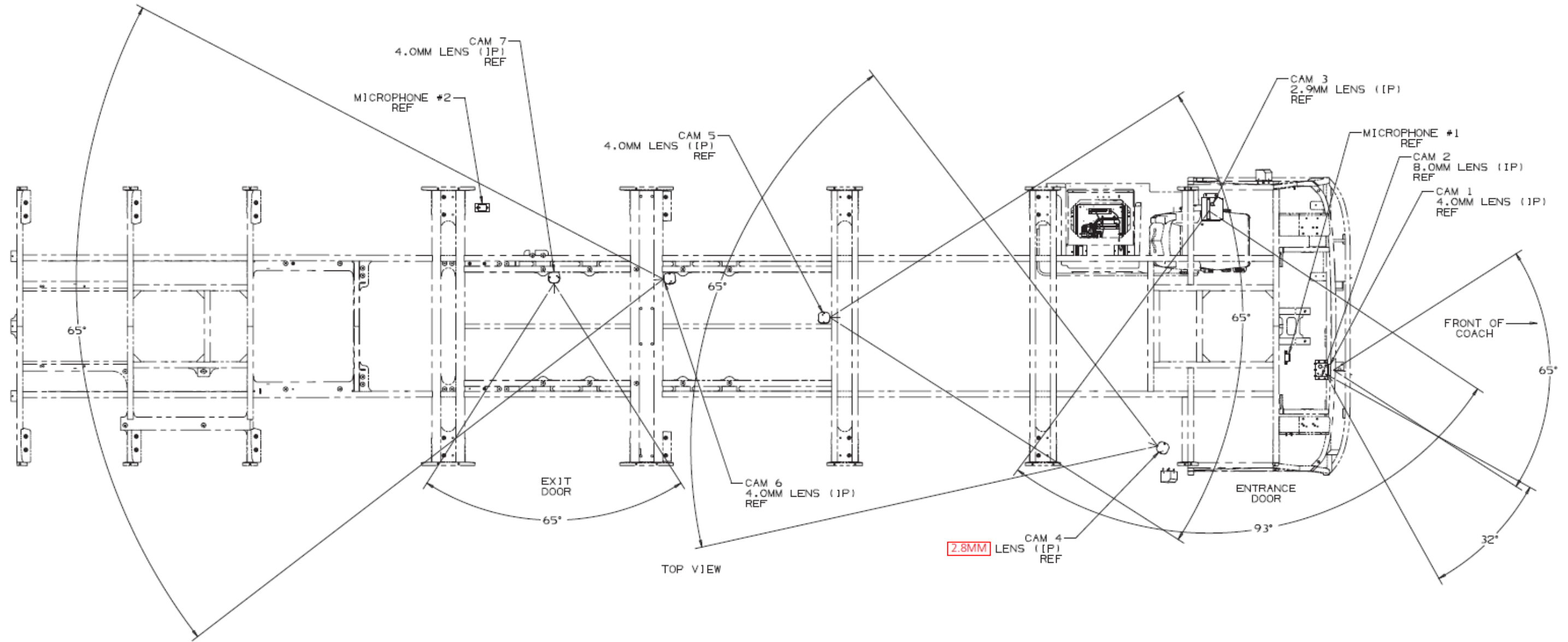
<b>Non-priority Passenger Seats</b> Color:	American Seating Vision E-512 Blue Fiberglass
<b>Priority Passenger Seats</b> Color:	American Seating Vision E-989 Blue Fiberglass with Priority Logo
<b>Stroller Passenger Seats</b> Color:	American Seating Vision E-989 Blue Fiberglass with Stroller Logo
<b>Seat Onsert</b>	Plastic
<b>Seat Handhold</b>	Stainless Steel
<b>Stanchions/Handholds</b> Color:	Stainless Steel with Yellow Powder Coating PPG Delfleet, FDGU 976044

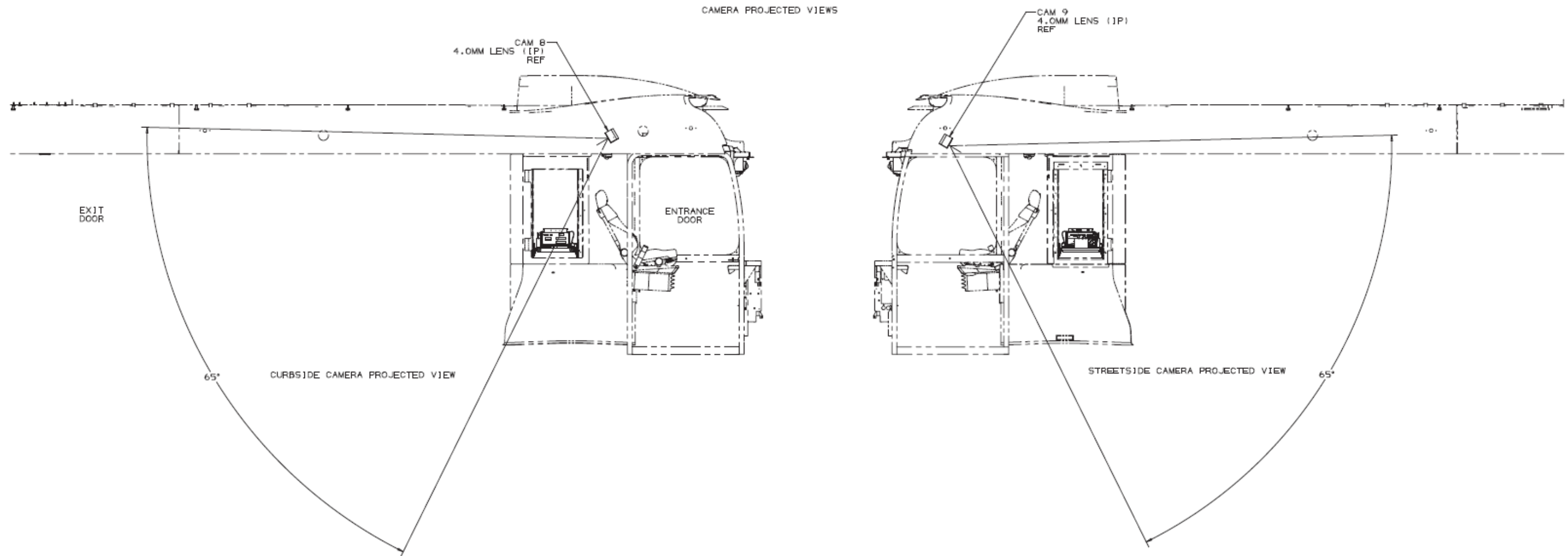
<b>Steering Wheel</b> Color: Reference:	Vehicle Improvement – NF P/N 064449 Black Section 5.2.2 (Steering Column and Steering Wheel)
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### 13.5 ATTACHMENT 5: RESERVED

### 13.6 ATTACHMENT 6: CAMERA CONFIGURATION

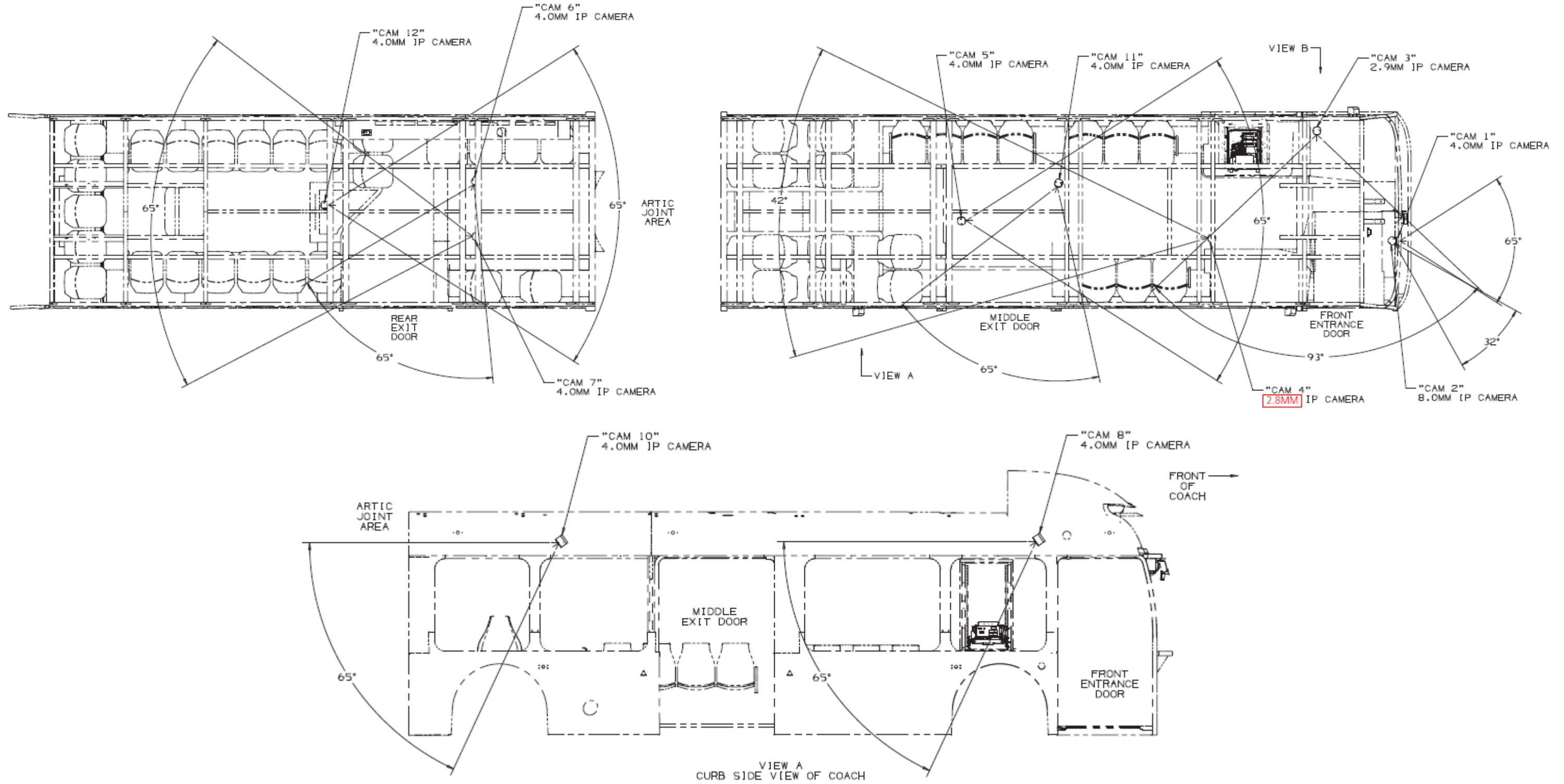
Camera Layout for 40-ft Hybrid bus

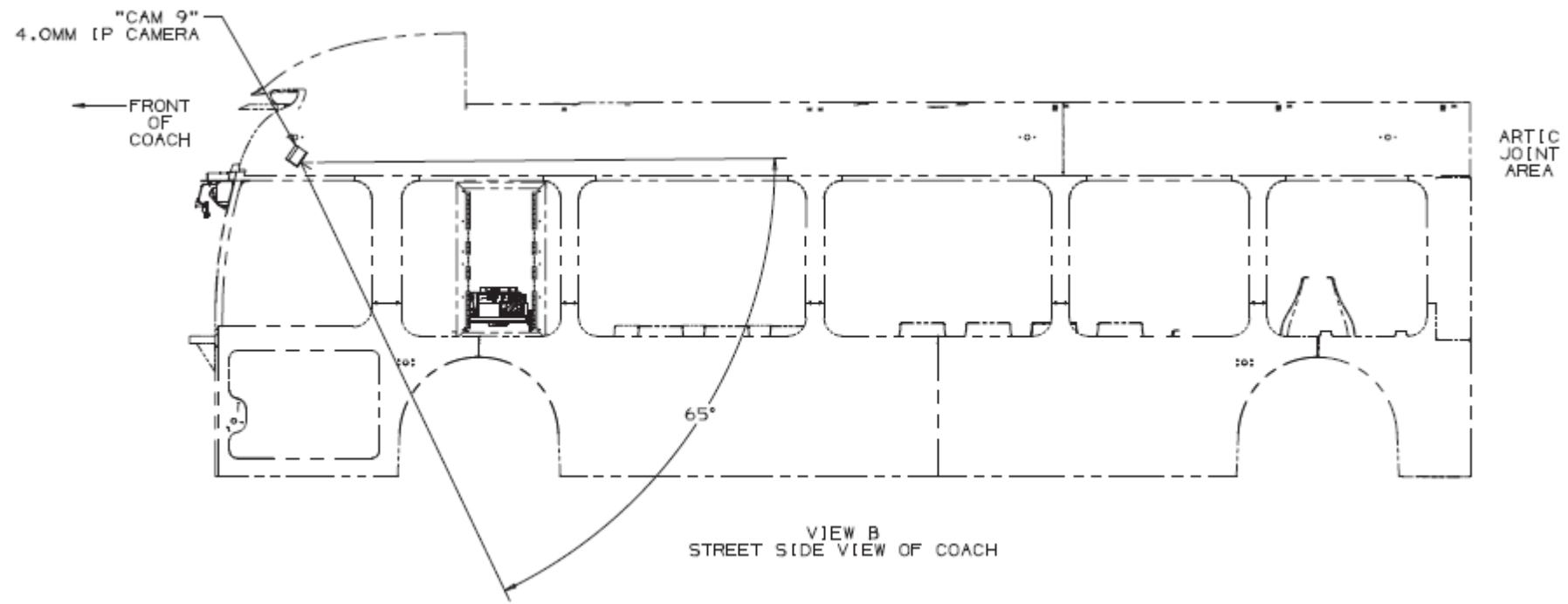




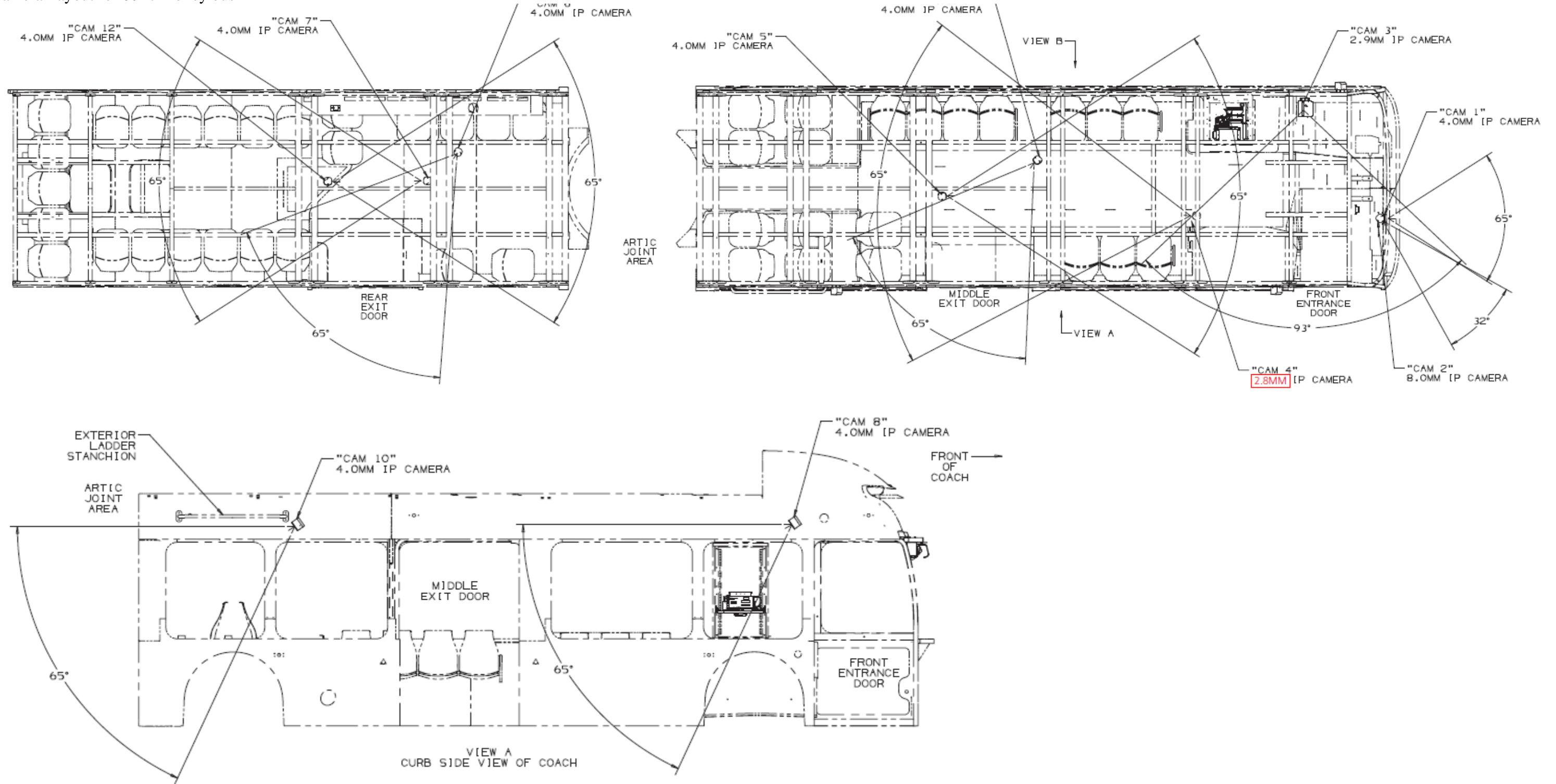


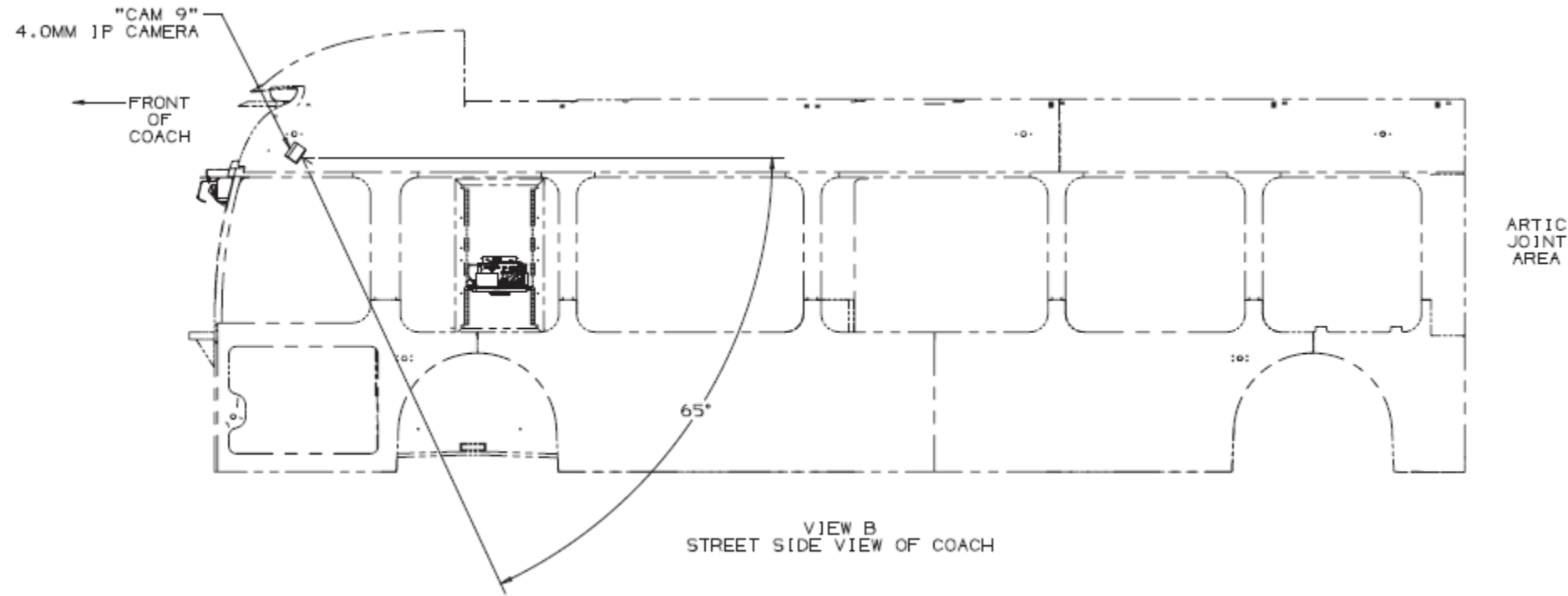
Camera Layout for 60-ft Hybrid bus





Camera Layout for 60-ft Trolley bus





**13.7 ATTACHMENT 7: ALLISON SPECIFIC OVERHAUL REFERENCE DOCUMENT**

Component	Task	Allison SIL	SR
H 40/50 EP Drive Unit	Basic Overhaul Kit	20-EP-17	SR-1907, 1961, 1963
	Replace High Voltage Lug	6-EP-10	SR-1907, 1961, 1963
ESS Battery	Refresh kit for ESS for ESS 2	10-EP-10	SR-1907, 1961, 1963
DPIM	Replace SKiM Module and GATE Drive Card	01-EP-15	SR-1907, 1961, 1963
	Replace Current Sensors	22-EP-16	SR-1907, 1961, 1963

Note: It is the responsibility for the Contractor to ensure the latest Allison Overhaul SIL are followed.

**13.8 ATTACHMENT 8: BAE SPECIFIC OVERHAUL PROCEDURES**

Component	Content of Overhaul or Upgrade	Applicable SFMTA Fleets	Recommended Timing	Categorization of Overhaul or Upgrade Content			
				Standard Mid-Life Overhaul Content	Reliability or Serviceability Improvement	Fleet Commonality	Electric Range Hybrid and Electric Vehicle Roadmap Progression
Alternating Traction Motor (ACTM)	Replacement of all Bearings, Seals and Oil Pump	40' Fleet: SR 1964, 60' Fleet: SR 1955, 1962	Required maintenance by 300k miles; Recommend performing at 185k miles to coincide with major ISB overhaul activity	✓			
Planetary Speed Reducer(PSR)	Replacement of all Bearings and Seals	40' Fleet: SR 1964, 60' Fleet: SR 1955, 1962	Required maintenance by 300k miles; Recommend performing at 185k miles to coincide with major ISB overhaul activity	✓			
Accessory Power System-2 (APS2)	Update Input and Output Filter Circuit Cards to incorporate product improvements	40' Fleet: SR 1964, 60' Fleet: SR 1955, 1962	Performed at time of ACTM and PSR Standard Overhaul		✓		
Energy Storage System (ESS)	Replace the A123 Li-Ion ESS,	40' Fleet: SR 1964 60' Fleet: SR 1955, 1962	Combine with other hybrid overhaul activities recommended for timing with major ISB overhaul to incorporate all fleet improvements at the same time, or when the standard A123 ESS mid-life overhaul would have been performed.			✓	✓

Component	Content of Overhaul or Upgrade	Applicable SFMTA Fleets	Recommended Timing	Categorization of Overhaul or Upgrade Content			
				Standard Mid-Life Overhaul Content	Reliability or Serviceability Improvement	Fleet Commonality	Electric Range Hybrid and Electric Vehicle Roadmap Progression
BAE Systems Datalogger and BusMonitor™	Equip vehicle with BAE Systems Datalogger which provides access to Fleet Health Management, Remote Diagnostic Assistance, Battery Management and provides GPS Enabled Engine Off Capability.	40' Fleet: SR 1964, 60' Fleet: SR 1955, 1962	Combine with other hybrid overhaul activities recommended for timing with major ISB overhaul to incorporate all fleet improvements at the same time.		✓		✓

Note: It is the responsibility of the Contractor to ensure the latest BAE overhaul procedures are followed.

13.9 ATTACHMENT 9: KIEPE SPECIFIC OVERHAUL PROCEDURES



**Suggested Mid-Life Overhaul**  
**Project: New Flyer Trolley Bus XT60**

Distance traveled: 60,000 km (37.282 mi) / year

No. main product group	No. sub-product group	No. module / component	System	Module	Activity	Mounting location as per circuit diagram 94.098671.111	Operating materials, auxiliary materials and lubricants, additional tools	Comments
<b>1 Cross-system</b> <sup>Ex)</sup>								
1	4		Cross-system / insulation monitoring					
				Insulation monitoring	Test and clean		Megohmmeter in accordance with VDE 0413, DIN EN 61557 (recommended by Kiepe Electric GmbH: Test voltage DC 1000 V, resistance measurement range up to DC 1000 MOhm)	Measure all insulation sections as per commissioning report at DC 1000 V with vehicle dry and wet. Clean.
<b>2 Power system, drive system</b>								
2	1	1	Trolleybus current collector system OSA 501 and accessories					
				Current collector OSA 501 / compressed air hoses	Replacement	+202		
				Current collector OSA 501 / cables	Replacement	+202		
				Poles	Replacement			
				Maintain and upgrade all other OSA parts as per maintenance manual				consider replacing entire OSA unit

Date of issue: September 13, 2018





E11)

**Suggested Mid-Life Overhaul**  
**Project: New Flyer Trolley Bus XT60**

Distance traveled: 60,000 km (37.282 mi) / year

No. main product group	No. sub-product group	No. module / component	System	Module	Activity	Mounting location as per circuit diagram 94.098671.111	Operating materials, auxiliary materials and lubricants, additional tools	Comments
2	1	2	Trolleybus current collector system OSA 501 and accessories / trolleybus current collector head OSK 802					
				Trolleybus current collector head OSK 802 / contact shoe	Replacement	-		
2	1	3	Trolleybus current collector system OSA 501 and accessories / pole interlocking device					
				Pole interlocking device	Replacement	+205		Replace rubber covers and damaged parts
2	1	4	Trolleybus current collector system OSA 501 and accessories / pneumatic retriever unit PRE 101					
				Pneumatic retriever unit PRE 101 / compressed air motor	Maintain	+245	Air motor service kit	
				Replace rope reel				
				Replace air vent button on rear door				

Date of issue: September 13, 2018



E11)

**Suggested Mid-Life Overhaul**  
**Project: New Flyer Trolley Bus XT60**

Distance traveled: 60,000 km (37.282 mi) / year

No. main product group	No. sub-product group	No. module / component	System	Module	Activity	Mounting location as per circuit diagram 94.098671.111	Operating materials, auxiliary materials and lubricants, additional tools	Comments
2	2		<b>Roof Traction Container RTC 101</b>					
				Roof Traction Container RTC 101 / all-metal cushions	Replacement	+105		
				Roof Traction Container RTC 101 / fan	Replacement	+105		
				Roof Traction Container RTC 101 / DC contactor LSG 2/35T	Visual inspection	+105		
				Roof Traction Container RTC 101 / DC contactor LSG 2/35T	Clean visual inspection	+105	Oil-free compressed air	Clean completely visual inspection of the arc chamber, main contacts, activation lever, switching gear; replace damaged components
				Roof Traction Container RTC 101 / DC contactor LSG 2/35T / cam switch NSI35	Replacement	+105		
				Roof Traction Container RTC 101 / DC contactors K2, K4	Check	+105		Visual inspection for obvious damage, check condition of the switching elements and, if necessary, arc chamber; replace damaged components
				Roof Traction Container RTC 101 / DC contactors K2, K4	Replacement	+105		
				Replace all seals				
				Renew decals				
2	3		<b>Brake resistor</b>					
				Brake resistor mounts	Replacement	+103		Replace mounts and insulators

Date of issue: September 13, 2018



E11)

**Suggested Mid-Life Overhaul**  
**Project: New Flyer Trolley Bus XT60**

Distance traveled: 60,000 km (37.282 mi) / year

No. main product group	No. sub-product group	No. module / component	System	Module	Activity	Mounting location as per circuit diagram 94.098671.111	Operating materials, auxiliary materials and lubricants, additional tools	Comments
2	4	1	Traction motor and accessories / traction motor <sup>E2)</sup>					
				Traction motor and accessories	General overhaul	+294		Motor should be sent to the motor manufacturer for general overhaul. Replace motor mounts and insulators.
2	4	3	Traction motor and accessories / shaft coupling WKI 111					
				Traction motor and accessories / shaft coupling WKI 111	Replacement	+294		Install new coupling
2	4	5	Traction motor and accessories / motor fan <sup>E5)</sup>					
				Motor fan	Replacement	+244		
2	5		Energy storage / battery auxiliary unit					
				ESS battery	Replacement	+244		Install new battery with higher capacity

Date of issue: September 13, 2018



E11)

**Suggested Mid-Life Overhaul**  
**Project: New Flyer Trolley Bus XT60**

Distance traveled: 60,000 km (37.282 mi) / year

No. main product group	No. sub-product group	No. module / component	System	Module	Activity	Mounting location as per circuit diagram 94-098671.111	Operating materials, auxiliary materials and lubricants, additional tools	Comments
<b>3 Control system for vehicle operation</b>								
3	1		Control system for vehicle operation					
				Kiepe Control Module KCM / IBIS clock module MUI 100 / Timekeeper Snaphat battery	Replacement	+105	DIP extractor tool, grounding wrist strap and antistatic gloves	
				Update Kiepe software				
				Address obsolescence issues				upgrade components that are no longer available by plug in compatible units
<b>4 Auxiliary operation system</b>								
4	1		Roof Auxiliary Container RAC101					
				Roof Auxiliary Container RAC101 / all-metal cushions	Visual inspection	+104		
				Roof Auxiliary Container RAC101 / all-metal cushions	Replacement	+104		
				Roof Auxiliary Container RAC101 / fan	Replacement	+104		
				Update Kiepe software				
				Address obsolescence issues				upgrade components that are no longer available by plug in compatible units
				Replace all seals				
				Renew decals				

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E11)

**Suggested Mid-Life Overhaul**  
**Project: New Flyer Trolley Bus XT60**

Distance traveled: 60,000 km (37.282 mi) / year

No. main product group	No. sub-product group	No. module / component	System	Module	Activity	Mounting location as per circuit diagram 94.098671.111	Operating materials, auxiliary materials and lubricants, additional tools	Comments
4	2		<b>Roof Auxiliary Container RAC201</b>					
				Roof Auxiliary Container RAC201 / modules DRE7, EWR4 / Timekeeper Snaphat battery	Replacement	+201	DIP extractor tool	
				Roof Auxiliary Container RAC201 / all-metal cushions	Visual inspection	+201		
				Roof Auxiliary Container RAC201 / all-metal cushions	Replacement	+201		
				Roof Auxiliary Container RAC201 / fan	Replacement	+201		
				Update Kiepe software				
				Address obsolescence issues				upgrade components that are no longer available by plug in compatible units
<b>7 Control panels and equipment panel, emergency stop controls</b>								
7	1		<b>Controls</b>					
				Control panel BT111	Replacement	+111		Install new mode selector panel
<b>8 Electrical cable laying</b>								
8	1		<b>Articulated joint transition / cables and protective sleeves</b>					
				Cables and protective sleeves	Replacement			Install new cables (XT60, articulated joint)

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Note: It is the responsibility of the Contractor to ensure the latest Kiepe overhaul procedures are followed.

**13.10 ATTACHMENT 10: RESERVED**

**13.11 ATTACHMENT 11: COACH OVERHAUL MATRIX**

		60' Trolley	60' Allison	60' BAE	60' Allison	60' BAE	40' Allison	40' BAE
Section	Body - Scope Line Items	SR-1849	SR-1907	SR-1955	SR-1961	SR-1962	SR-1963	SR-1964
<b>2.2</b>	<b>Doors</b>							
	Rebuild electric door motor driving mechanism 40' with new baseplate						X	X
	Rebuild electric door motor driving mechanism 60' with new baseplate	X	X	X	X	X		
	Remove and replace door sensors, connecting rods, rod end bearings, upper door shaft pivot bearings, door panel top seal assembly, door panel bottom seal assembly, door panel pocket seals and solenoid valves 40'						X	X
	Remove and replace door sensors, connecting rods, rod end bearings, upper door shaft pivot bearings, door panel top seal assembly, door panel bottom seal assembly, door panel pocket seals and solenoid valves 60'	X	X	X	X	X		
	Remove and replace door edge, transfer tube, pressure wave switch and mechanical limit switches in sensitive edge system 40'						X	X
	Remove and replace door edge, transfer tube, pressure wave switch and mechanical limit switches in sensitive edge system 60'	X	X	X	X	X		
	Rebuild electric door motor driving mechanisms per Vapor recommendations	X	X	X	X	X	X	X
	Check all valve fittings for air leaks and adjust door panels as outlined in OEM service manual	X	X	X	X	X	X	X
	Verify that all door operations are in adjustment and in proper working condition	X	X	X	X	X	X	X

		60' Trolley	60' Allison	60' BAE	60' Allison	60' BAE	40' Allison	40' BAE
Section	Body - Scope Line Items	SR-1849	SR-1907	SR-1955	SR-1961	SR-1962	SR-1963	SR-1964
<b>2.2.1</b>	<b>Rotary Master Door Controller</b>							
	Remove rotary master door switch handle and replace with an extended handle (P/N # 106847)	X	X	X	X	X	X	X
	Remove and replace snap action switches in the door controller assembly	X	X	X	X	X	X	X
<b>2.3</b>	<b>Bike Rack</b>							
	Upgrade to Byk Rak 3 with extra heavy-duty lift assist pivot bracket (Byk Rak P/N B0053DSBAD)	X	X	X	X	X	X	X
	Torque rack hardware	X	X	X	X	X	X	X
	Install durable rubber stop	X	X	X	X	X	X	X
	Install deployment kit to provide bike rack visual indicator on operator dash panel	X	X	X	X	X	X	X
	Propose methodology to either modify or replace bumper to fix the Byk Rak 3	X	X	X	X	X	X	X
<b>2.4</b>	<b>Windows</b>							
	Inspect windshield and window frame seals and rubber seals for cracks and leaks	X	X	X	X	X	X	X
	Clean window channels	X	X	X	X	X	X	X
	Inspect windows for damage and replace as necessary	X	X	X	X	X	X	X
	Lubricate and reinstall seals according to OEM specifications	X	X	X	X	X	X	X
<b>2.5</b>	<b>Articulated Joint</b>							
	Die penetrant testing for cracks, corrosion, structural deficiencies, and other damage	X	X	X	X	X		
	Perform inspection procedures outlined in ATG and New Flyer manuals	X	X	X	X	X		
	Repair or replace structural deficiencies	X	X	X	X	X		
	Replace functionally damaged, crack, or corroded parts	X	X	X	X	X		
	Remove and replace wear plates, artic bellows, and flexible hoses	X	X	X	X	X		

		60' Trolley	60' Allison	60' BAE	60' Allison	60' BAE	40' Allison	40' BAE
Section	Body - Scope Line Items	SR-1849	SR-1907	SR-1955	SR-1961	SR-1962	SR-1963	SR-1964
	Rebuild turntable with new bearings and seals	X	X	X	X	X		
	Remove and replace proportioning valves	X	X	X	X	X		
	Remove and replace hydraulic cylinders with rebuilt units	X	X	X	X	X		
	Replace limit switch and all hoses between bulkhead termination points	X	X	X	X	X		
<b>3</b>	<b>Interior</b>							
	Inspect interior trim for damage and repair or replace as necessary	X	X	X	X	X	X	X
<b>3.1</b>	<b>Floor Covering</b>							
	Repair damaged sections of flooring, if needed. (Altro Rocket TFFG 2704F 2.7mm)	X	X	X	X	X	X	X
	Add Exit area "DO NOT STAND" warning floor inlay	X	X	X	X	X	X	X
	Relocate the front standee line to 18 inches behind the the forward edge of the wheel well	X	X	X	X	X	X	X
	Reapply safety yellow to the exit door edge of vestibule floor tread		X	X	X	X	X	X
	Clean floors to remove odor or slippery coating	X	X	X	X	X	X	X
<b>3.1.1</b>	<b>Steps and Stepwells</b>							
	Replace yellow-anti slip coating applied to the stepwell	X	X	X	X	X	X	X
<b>3.3</b>	<b>Passenger Seating</b>							
	Provide a design for adding a horizontal stanchion onto the modesty panel in front of the double forward facing seats on the upper deck						X	X
<b>3.4</b>	<b>Operator's Area and Control</b>							
	Remove and replace operator seat	X	X	X	X	X	X	X
	Remove and replace brake and accelerator assembly (NF P/N 377128)		X		X			
	Remove and replace brake and accelerator assembly (NF P/N 456440)			X		X		X



		60' Trolley	60' Allison	60' BAE	60' Allison	60' BAE	40' Allison	40' BAE
Section	Body - Scope Line Items	SR-1849	SR-1907	SR-1955	SR-1961	SR-1962	SR-1963	SR-1964
	Remove and replace brake and accelerator assembly (NF P/N 550570)	X						
	Remove and replace brake and accelerator assembly (NF P/N 551852)						X	
	Remove and replace with new mode Selector, BT111	X						
	Remove and replace with most updated shift selector, P/N INTERSTATE DETROIT DIESEL 29551556 for Allison		X		X		X	
	Remove and replace with most updated shift selector, P/N Arens Controls SBW-PB2-656 for BAE			X		X		X
	Clean and inspect the front dash; repair as necessary	X	X	X	X	X	X	X
	Inspect the operator's barrier and repair as necessary	X	X	X	X	X	X	X
<b>3.4.1</b>	<b>EMERGENCY ALARM / SILENT ALARM SWITCH (EA SWITCH)</b>							
	Remove existing EA switch and replace with new Emergency Alarm switch, NF P/N 651002	X	X	X	X	X	X	X
<b>3.6.2</b>	<b>Interior Mirrors (As applicable)</b>							
	Add front step mirror		X	X	X	X	X	X
<b>3.7</b>	<b>Heating, Ventilation and Air Conditioning</b>							
	Inspect heating system for functionality and reliability		X	X	X	X	X	X
	Clean battery pack cooling condenser		X		X		X	
	Clean rear HVAC condenser and evaporator	X						
	Replace polyester air filter	X	X	X	X	X	X	X
	Add additional latch to the HVAC filter cover	X	X	X	X	X	X	X
	Replace liquid line sight glass for refrigerant fluid gauge	X	X	X	X	X	X	X
	Replace flexible hoses to match OEM specs	X	X	X	X	X	X	X
	Inspect hard pipes and replace as necessary	X	X	X	X	X	X	X
<b>3.8</b>	<b>Wheelchair Ramp</b>							
	Change NF ramp to Lift-U LU18, P/N 180-9221	7201-7202 only						

		60' Trolley	60' Allison	60' BAE	60' Allison	60' BAE	40' Allison	40' BAE
<b>Section</b>	<b>Body - Scope Line Items</b>	<b>SR-1849</b>	<b>SR-1907</b>	<b>SR-1955</b>	<b>SR-1961</b>	<b>SR-1962</b>	<b>SR-1963</b>	<b>SR-1964</b>
	Ensure electrical isolation for ramp on trolley coaches	X						
	Test Functionality of New Flyer Wheelchair ramp. As needed repairs are to be documented as unforeseeable work.		X	X				
	Test Functionality of Lift-U LU11. As needed repairs are to be documented as unforeseen work.	7203-7260 only			X	X	X	X
<b>3.10</b>	<b>Secure Diagnostics Station (SDS) Cabinet</b>							
	Clean dust and debris out of the SDS cabinet	X	X	X	X	X	X	X
	Inspect and replace any damaged cables or components	X	X	X	X	X	X	X
	Remove and replace threaded inserts on SDS panel	X	X	X	X	X	X	X
<b>3.12</b>	<b>Aisle Light</b>							
	Add glare shield	X	X	X	X	X	X	X
<b>3.13</b>	<b>Rear Panel</b>							
	Remove the existing carpeted upper rear panel and replace with material and color that is the same as the sidewall panel	X	X	X	X	X	X	X
<b>4</b>	<b>Furnishings</b>							
	Revise existing wiring diagrams	X	X	X	X	X	X	X
<b>4.1</b>	<b>Destination Signs</b>							
	Inspect and replace the front head sign glass seal, as needed	X	X	X	X	X	X	X
	Inspect and test all LED interior signs	X	X	X	X	X	X	X
<b>4.2</b>	<b>Video Surveillance Camera System</b>							
	Verify CAM 3, CAM 7, and CAM 11 is IP with built in mic. Remove and replace if not.	X	X	X	X	X	X	X
	Change CAM4 (aisle camera) to a 2.8mm IP camera with a built in mic	X	X	X	X	X	X	X
	Inspect and replace the seal on exterior cameras, as needed	X	X	X	X	X	X	X
	Replace TOLE camera housing with black housing	X	X	X	X	X	X	X
	Remove Firetide router, bracket, and converted and Replace with Cradlepoint router	X	X	X	X	X	X	X

		60' Trolley	60' Allison	60' BAE	60' Allison	60' BAE	40' Allison	40' BAE
Section	Body - Scope Line Items	SR-1849	SR-1907	SR-1955	SR-1961	SR-1962	SR-1963	SR-1964
	Add 11-in-1 Panorama Antenna	X	X	X	X	X	X	X
	Update DVR program	X	X	X	X	X	X	X
	Add UPS (Uninterrupted Power Supply)	X	X	X	X	X	X	X
	Provide 100 spare 2 terabyte hard drives to SFMTA	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>4.3</b>	<b>Mobile Radio</b>							
	Remove 2 Motorola antenna and its mounting structure and terminate harnesses	X	X	X	X	X	X	X
<b>4.5</b>	<b>Sign Requirements</b>							
	Change the interior red "stop request" LED sign to amber LED Twin Vision Smart Series 3		X					
	Test sign functional requirements	X	X	X	X	X	X	X
	Relocation of two speakers and patch work for holes.	X	X	X	X	X	X	X
<b>4.8</b>	<b>Clipper</b>							
	Install commercial CAT-6 cable	X	X	X	X	X	X	X
<b>5.1.1</b>	<b>Axles</b>							
	Replace rear axle on trolley with MAN HY-1350-F axle with 4.10:1 ratio	X						
	Remove and replace bearings, bushings, bearing seals, leveling valves, control valves, kingpins, radius rods bushings on the front and rear axles (40' and 60')	X	X	X	X	X	X	X
	Remove and replace bearings, bushings, bearing seals, leveling valves, control valves, kingpins, radius rods bushings on the center axle (60')	X	X	X	X	X		
	Clean, Examine and inspect axles for cracks and damage using magnetic particle testing 40', then paint						X	X
	Clean, Examine and inspect axles for cracks and damage using magnetic particle testing 60', then paint	X	X	X	X	X		

		60' Trolley	60' Allison	60' BAE	60' Allison	60' BAE	40' Allison	40' BAE
Section	Body - Scope Line Items	SR-1849	SR-1907	SR-1955	SR-1961	SR-1962	SR-1963	SR-1964
	Replace damaged components, if damage/wear exceeds OEM tolerance	X	X	X	X	X	X	X
	Replace axle bump stops	X	X	X	X	X		
<b>5.1.2</b>	<b>Air Bags and Shock Absorbers</b>							
	Remove and replace Firestone air bellows and koni shock absorbers 40'						X	X
	Remove and replace Firestone air bellows and koni shock absorbers 60'	X	X	X	X	X		
	Verify coach kneeling is even on both sides in compliance with OEM specification	X	X	X	X	X	X	X
<b>5.2</b>	<b>Steering</b>							
	Perform front end alignment (all axles) 40'						X	X
	Perform front end alignment (all axles) 60'	X	X	X	X	X		
<b>5.2.1</b>	<b>Power Steering Pump, Gear Box and Linkage</b>							
	Remove and replace power steering pump (NF P/N 489605)		X		X		X	
	Remove and replace power steering pump (NF P/N 524775)	X		X		X		X
	Replace miter box (NF P/N 200640)	X	X	X	X	X	X	X
	Remove and replace power steering gearbox (NF P/N 497510)	X	X	X	X	X	X	X
<b>5.2.2</b>	<b>Steering Column and Steering Wheel</b>							
	Replace the steering wheel	X	X	X	X	X	X	X
	Remove and replace u-joints, bearings and bushings according to OEM specifications	X	X	X	X	X	X	X
	Verify functionality of horn, condition of horn contact, steering column, steering wheel and steering gear connections	X	X	X	X	X	X	X
<b>5.2.3</b>	<b>Steering Efforts</b>							
	Develop QA procedure to ensure consistent turning effort and determine average steering torque value	X	X	X	X	X	X	X

		60' Trolley	60' Allison	60' BAE	60' Allison	60' BAE	40' Allison	40' BAE
Section	Body - Scope Line Items	SR-1849	SR-1907	SR-1955	SR-1961	SR-1962	SR-1963	SR-1964
<b>5.2.4</b>	<b>Steering Linkage</b>							
	Replace all steering linkages including tie rod, drag link, and steering damper	X	X	X	X	X	X	X
<b>5.3.1</b>	<b>Air Lines, Valves and Air Tanks</b>							
	Pressure test brake airlines	X	X	X	X	X	X	X
	Pressure test air tanks	X	X	X	X	X	X	X
<b>5.4</b>	<b>Air System</b>							
	Verify that pipes and hoses are not rubbing/chafing other components	X	X	X	X	X	X	X
	Perform a pneumatic system leak down test after final installation	X	X	X	X	X	X	X
<b>5.4.2</b>	<b>Air Lines and Fittings</b>							
	Clean, inspect and examine all air lines and fitting for damages and or leaks	X	X	X	X	X	X	X
<b>5.4.3</b>	<b>Air Tanks</b>							
	Clean air tanks and drain in situ on chassis	X	X	X	X	X	X	X
	Visually inspect air tanks for corrosion	X	X	X	X	X	X	X
	Replace relief valves and O-rings as needed	X	X	X	X	X	X	X
<b>5.5</b>	<b>Fuel Tank (As Applicable)</b>							
	Clean and examine the fuel tank for damages and defects per OEM		X	X	X	X	X	X
	Replace the fuel tank as necessary		X	X	X	X	X	X
	Remove and replace all primary and secondary fuel filters, independent of fuel tank replacement		X	X	X	X	X	X
<b>5.6</b>	<b>Line and Piping</b>							
	Remove and replace all flexible or non-metal fluid lines and securement clamps	X	X	X	X	X	X	X

		60' Trolley	60' Allison	60' BAE	60' Allison	60' BAE	40' Allison	40' BAE
<b>Section</b>	<b>Body - Scope Line Items</b>	<b>SR-1849</b>	<b>SR-1907</b>	<b>SR-1955</b>	<b>SR-1961</b>	<b>SR-1962</b>	<b>SR-1963</b>	<b>SR-1964</b>
	Inspect all hard (rigid) metal piping and tubes for damages or leaks (exhaust pipes, coolant and fuel piping); replace as necessary	X	X	X	X	X	X	X
<b>5.6.1</b>	<b>Fluid Lines</b>							
	Remove and replace all fuel and oil lines within engine compartment		X	X	X	X	X	X
	Replace check valve with a new valve		X	X	X	X	X	X
<b>5.6.2</b>	<b>Hydraulic Lines</b>							
	Tag and mark hydraulic lines that are used in other piping systems of the Coach	X	X	X	X	X	X	X
	Inspect underbody stainless steel lines for loose mounting	X	X	X	X	X	X	X
<b>5.6.3</b>	<b>Piping and Hose</b>							
	Replace all flexible (soft) hoses in the engine compartment (cooling system hoses, heater hoses, transmission cooler hoses, air intake hoses, hump hoses and metal reinforced hoses for the CAC hoses)	X	X	X	X	X	X	X
	Inspect piping in cooling system, exhaust system, and air intake charger system for damages, corrosion, or rust.		X	X	X	X	X	X
<b>5.7</b>	<b>Fire Safety</b>							
	Inspect fire suppression systems for functionality	X	X	X	X	X	X	X
	Recertify all bottles	X	X	X	X	X	X	X
	Replace all temperature sensors, and nozzle caps	X	X	X	X	X	X	X
	Remove and replace electric actuator on suppression systems	X	X	X	X	X	X	X
<b>5.8</b>	<b>DEF Tanks</b>							
	Clean and inspect the exterior of the DEF tanks		X	X	X	X	X	X
	Inspect DEF strainer and replace as necessary		X	X	X	X	X	X
	Replace the DEF level sensor with NF P/N 6474379		X	X	X	X	X	X

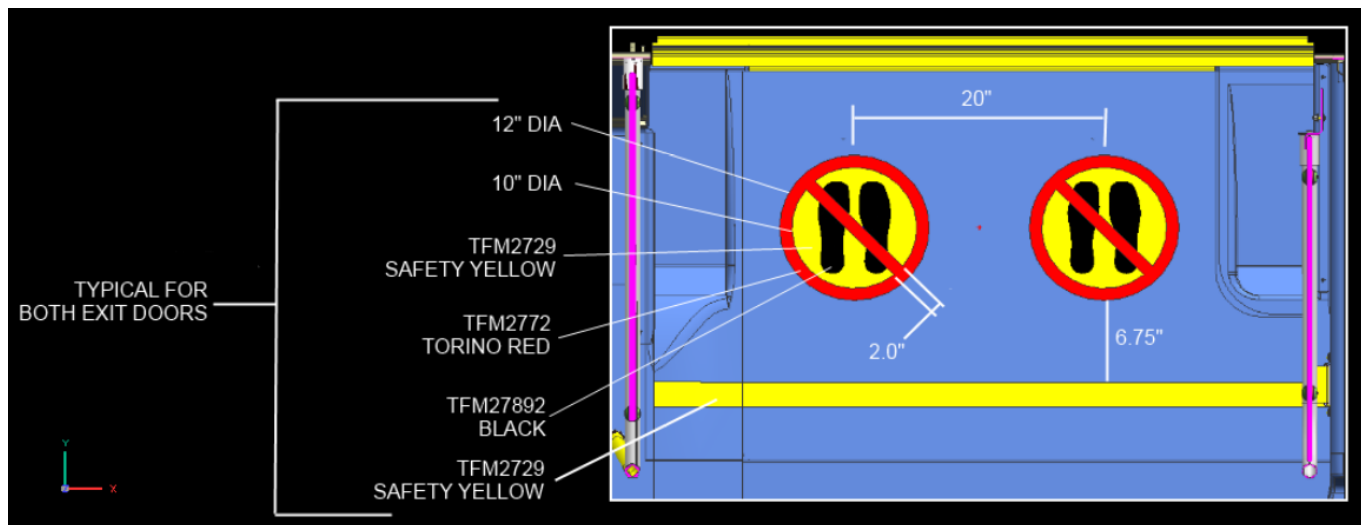
		60' Trolley	60' Allison	60' BAE	60' Allison	60' BAE	40' Allison	40' BAE
Section	Body - Scope Line Items	SR-1849	SR-1907	SR-1955	SR-1961	SR-1962	SR-1963	SR-1964
<b>6.1.1</b>	<b>Engine (As Applicable)</b>							
	Install 12 remanufactured ISL engines		First 12 buses					
	Remove ISL engine and ship back to SFMTA for in-house rebuild. Install rebuilt engines from SFMTA		X		X			
	Remove and replace ISL engine with new engines including new sensors, harnesses, and starter assembly			X		X	X	
	Remove and replace ISB engine with a new Cummins ISB engine (280 HP BAE APS2) including new sensors, harnesses, starter assembly, and Engine Start/Stop feature							X
	Remove and replace engine motor mount		X	X	X	X	X	
	Remove and replace exhaust flex pipe and clamps, using flex connector alignment tool		X	X	X	X	X	X
<b>6.1.3</b>	<b>Traction Motor (As Applicable)</b>							
	Ship motor to manufacturer for general overhaul	X						
	Remove and replace motor mounts, insulators and bearings	X						
	Remove and replace the shaft coupling (WKI 201), the motor fan, and all flexible ducts in the traction motor and accessories (coupling in Kiepe scope)	X						
	Removed the existing traction motor gearbox and replace with an upgraded gearbox with a 2.56:1 gear ratio.	X						
<b>6.1.4</b>	<b>Energy Storage System (ESS) (As Applicable)</b>							
	Remove and Replace trolley ESS with new 26.1 kWh battery	X						
	Refresh the Allison ESS battery with OEM refresh kit		X		X		X	
	Refresh the BAE ESS battery with OEM refresh kit			X		X		X
	Replace high voltage cable bundle set		X	X	X	X	X	X
<b>6.1.5</b>	<b>Exhaust Aftertreatment System (As Applicable)</b>							
	Inspect exhaust aftertreatment system		X	X	X	X	X	X

		60' Trolley	60' Allison	60' BAE	60' Allison	60' BAE	40' Allison	40' BAE
Section	Body - Scope Line Items	SR-1849	SR-1907	SR-1955	SR-1961	SR-1962	SR-1963	SR-1964
<b>6.1.6</b>	<b>Engine Compartment</b>							
	Test engine gauges for functionality at time of bus delivery		X	X	X	X	X	X
<b>6.1.7</b>	<b>Differential (As Applicable)</b>							
	Take sample of gear oil from differential and have it evaluated at an independent laboratory		X	X	X	X	X	X
	Remove and replace differential on Trolley Coaches with one that has a ratio of 4.10:1	X						
<b>6.2</b>	<b>Cooling System</b>							
	Inspect existing cooling systems for functionality and reliability		X	X	X	X	X	X
	Inspect all propulsion system cooling unit components for function and perform system manufacturer recommended maintenance		X	X	X	X	X	X
	Inspect EMP WEG ECP pumps and replace if needed.			X		X		X
	Inspect EMP WEG MCP pumps and replace if needed.			X		X		X
	Remove coolant catch pans		X	X	X	X	X	X
<b>6.3</b>	<b>Drive Shaft</b>							
	Remove and replace drive shaft bolts, bearing strap, locking plates, and universal joints at each end	X	X	X	X	X	X	X
	Inspect drive shaft guard plate and replace if necessary	X	X	X	X	X	X	X
<b>7.1</b>	<b>Batteries</b>							
	Remove and replace new house batteries (two 8D AGM/Deka 1450 CCA East Penn)		X	X	X	X	X	X
	Remove and replace new house batteries (4 Odyssey group 31 1150 CCA)	X						
	Remove and replace new battery cables	X	X	X	X	X	X	X
	Inspect battery tray's rubber mounts, rollers (battery tray and support tray), pivot mechanism, and rubber/water dust ejector for damage	X	X	X	X	X	X	X



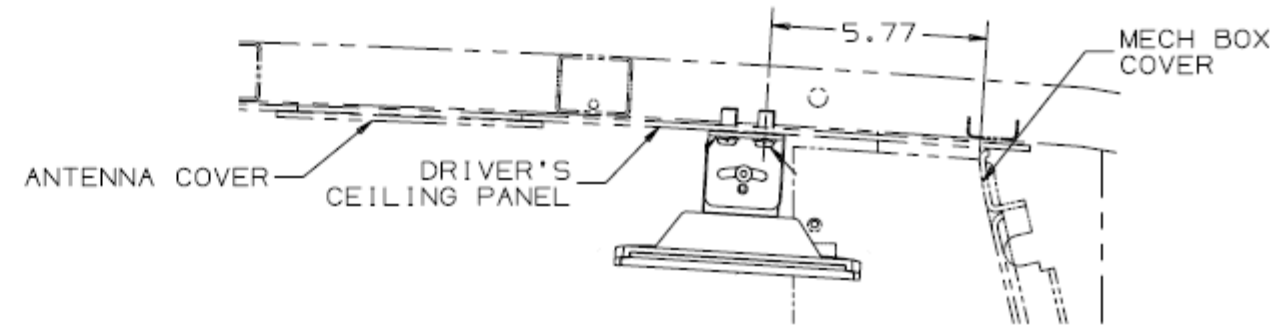
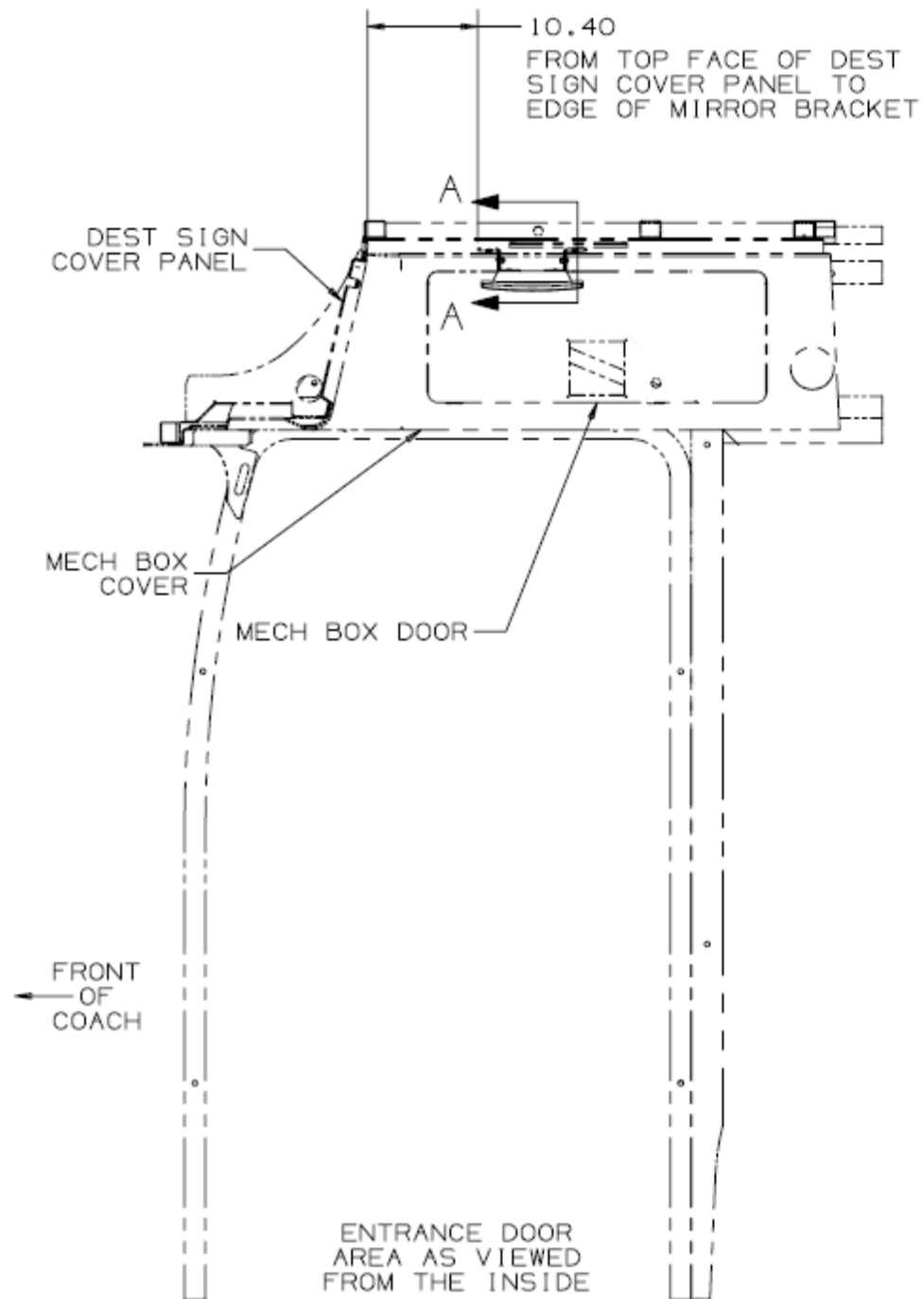
		60' Trolley	60' Allison	60' BAE	60' Allison	60' BAE	40' Allison	40' BAE
<b>Section</b>	<b>Body - Scope Line Items</b>	<b>SR-1849</b>	<b>SR-1907</b>	<b>SR-1955</b>	<b>SR-1961</b>	<b>SR-1962</b>	<b>SR-1963</b>	<b>SR-1964</b>
<b>7.2</b>	<b>Alternator / Charging System</b>							
	Inspect static converter (Vanner High Voltage DC/DC Converter)						X	
	Inspect static converter (BAE APS2)			X		X		X
	Inspect static converter (Kiepe static converter)	X						
	Inspect Nieoff C803		X		X			
<b>7.3</b>	<b>PLC program</b>							
	Revise PLC program per contract scope and provide change summaries per SR	X	X	X	X	X	X	X
<b>App. 7</b>	<b>Allison Overhaul Procedures</b>							
	Overhaul Allison Drive Unit, DPIM per latest OEM procedures		X		X		X	
<b>App. 8</b>	<b>BAE Overhaul Procedures</b>							
	Overhaul BAE ACTM/PSR, APS2, ACTG, Dual Power Circuit Card Assembly for PCS per latest OEM procedures			X		X		X
<b>App. 9</b>	<b>Kiepe Overhaul Procedures</b>							
	Overhaul latest OEM procedures	X						

**13.12 ATTACHMENT 12: DO NOT STAND EXIT AREA FLOORING INLAY**



**13.13 ATTACHMENT 13: RESERVED**

13.14 ATTACHMENT 14: ENTRANCE DOOR MIRROR



SECTION A - A  
SCALE 1:3  
SOME STRUCTURE REMOVED  
FOR CLARITY