Amendment 1
2022
SOUTH CAROLINA
MINIMUM SPECIFICATIONS for
SCHOOL BUSES

Type C – Conventional Bus
(Regular, Propane)

~~February 16, 2022~~
December 2, 2022

South Carolina Department of Education

Office of Transportation

SOUTH CAROLINA TYPE – C (Propane)

SCHOOL BUS SPECIFICATIONS

MINIMUM REQUIREMENTS OF A TYPE-C (PROPANE) SCHOOL BUS CHASSIS

APPROVED ELECTRONIC PROPANE (LPG) ENGINES
Must meet Current EPA Emissions Level Standards at time of vehicle manufacture.

MAKE	MODEL	HORSEPOWER	TORQUE
Navistar	PSI 8.8L	270	565
PIthon	8.0L	339	495
Ford	7.3L	350	460

Minimum Pupil Load ~~77~~ 75 passenger
Wheel base (approximate inches) 258-279
Front Axle Capacity (lbs.) 10,000
Rear Axle Capacity (lbs.) 21,000

Transmission Speeds Forward 5

Brakes
All chassis shall be equipped with air disc brakes.

- Front Air/Disc
- Rear Air/Disc

Air Conditioning
All chassis shall be equipped with Air Conditioning

ENGINE SPECIFICATIONS - The chassis shall be equipped with a heavy-duty, electronically controlled propane engine. All engines are to have cold cranking ability to zero degrees Fahrenheit. Acceptable engines are listed on Minimum Requirements page.

All engines shall be equipped with an ignition switch operated electric shutdown. All buses purchased under a single order shall have the ignition switch keyed alike. A minimum of two (2) spare keys shall be provided with each bus. Installation shall provide for technicians to access routine service/maintenance areas without hazard.

Turbocharger (if equipped) and water pump shall carry same warranty as engine. Turbocharger failure caused by lack of lubrication shall not be cause to void the warranty. All engines shall be equipped with a thermostatically controlled cooling fan.

HOSE AND HOSE CLAMPS - All hoses shall be silicone or Ethylene Propylene Diene Monomer (EPDM) and all engine coolant hoses that require clamp connections of one-inch diameter and larger on the engine or associated components shall be equipped with constant torque clamps, spring-equipped (Breeze or equivalent). Any unused, temporary plugs shall be converted to permanent plugs prior to delivery.

All Engine ECM program parameters and password consisting of 0000 shall be discussed and established at the Post Award Meeting to be held within 14 days after award. End user shall have access to all Engine ECM programming. The electronically controlled engine is to be programmed to establish the maximum road speed stated on order. Note: 60 mph on all school bus chassis.

EXHAUST SYSTEM - A total exhaust system, exhaust pipe, muffler and tail pipe through bumper shall be furnished by the chassis manufacturer and pre-engineered to terminate no less than flush with rear bumper or shall not extend more than two inches beyond rear bumper meeting national standards (must meet FMVSS). Tail pipe shall be minimum 16-gauge 409 stainless steel aft of catalyst chamber and shall not be reduced in size after it exits the catalyst chamber. The chassis manufacturer shall provide sufficient tail pipe length to allow body mounting without extension.

NOTE: At any point the exhaust system is 12 inches or less from the fuel tank, the fuel tank shall be properly insulated with metal shield. No adhesive shields allowed. Exhaust system components located within 4 inches of any non-metallic part shall be properly shielded to prevent heat transfer. All connections shall be slip joint connections (no butt connections) using offset band clamps compression clamp, or Marmon compression joint.

Catalyst chamber shall be constructed of stainless steel or aluminized materials that meet federal emission guidelines. Exhaust pipe, Catalyst chamber and tail pipe shall be of the heavy-duty type and of sufficient size to minimize backpressure.

FUEL TANK (S) – LIQUEFIED PETROLEUM GAS (LPG)

All Liquefied Petroleum Gas (LPG) powered buses shall be capable of traveling not less than 300 miles between refueling when fully loaded. Range verification shall be in writing. LPG containers shall have a minimum of 96 gallon WC. All on board fuel supply containers shall meet all appropriate requirements of the American Society of Mechanical Engineers (ASME) code, DOT regulations or applicable FMVSS and NFPA standards.

All fuel tanks shall be securely mounted to withstand a static force of eight times their weight in any direction.

Fuel tank(s) shall be equipped with Stäubli style quick disconnect fill fitting. Acme style connections will not be approved.

All fueling equipment shall be designed specifically for fueling motor vehicles and shall be certified by the manufacturer as meeting all applicable federal, state and industry standards.

All fuel supply containers shall be securely mounted to withstand a static force of eight times their weight in any direction. An electrical grounding system shall be required for the grounding of the fuel system during maintenance-related venting.

The manufacturer of LPG fueled vehicles shall provide written certification to the South Carolina Department of Education that the alternative fuel installation, parts, and materials meet the National Fire Protection Association and other applicable standards, including all alternative fuel requirements of the South Carolina School Bus Specifications Committee.

FUEL FILLER OPENING COVER - A latch able door is to be installed over fuel filler opening on side of body. The door must be held in the open and closed positions with a spring device. A suitable panel in the body floor shall provide access to the fuel sending unit and fuel lines. Fuel capacity and type shall be permanently labeled on the inside of fuel door.

TRANSMISSION - Transmission shall be fully automatic or automated manual, electronically controlled and have a minimum of five (5) forward ratios, neutral, and reverse, filled with factory approved premium fluid supporting school bus operation duty cycles. The transmission shifter shall be manufacturer's standard. Within the range selected, ratio changes shall be effected automatically at full engine power if desired. It shall have an illuminated range indicator embossed or made of metal and properly fastened. Control shall be located to the right of the steering column *(*dash mounting preferred). No steering wheel column mounted shifter will be accepted.

PAINT COLOR TABLE

Green	8 digit SCDE numbers (sides and rear)

End of Type C (Propane) Specifications

It shall be understood that South Carolina School buses must meet or exceed all Federal Motor Vehicle Safety Standards (FMVSS) applicable to School Buses.