

Starcraft StarQuest Specifications

StarQuest - TECHNICAL SPECIFICATIONS - 21' / 22' / 23' BUS

GENERAL INFORMATION

- Overall length - Max. (excluding help bumpers) 21' / 22' / 23'
- Overall width (Dual Rear Wheel) 93 1/2"
- Overall Body Width (Less Fenders) 88 1/4"
- Seated Knee Room- Min. 26"
- Cushion Depth - Min. 16"
- Seat Width per Sitting - Min. 17"
- Cushion Height above Floor-Min. (Max.) ("17 1/2-18")
- Aisle Width - Min. 12"
- Headroom - Min. 70"
- Door Width - Min. (clear) 31"
- Door Height - Min. 79"
- Overall Height - Max. 105 - 109"
- Entry Steps:
 - Ground to First - Max. 10 – 11"
 - Riser Height - Max. 9"
 - Tread Depth - Min. 12"

COOLING SYSTEM

- Coolant provided shall be permanent type antifreeze with rust inhibitor, mixed as 50 /50 water and coolant.
- OEM heater hose in engine compartment shall be acceptable. EPDM rubber reinforced heater hose, with hose clamps shall be installed between the OEM tee connection and the auxiliary heater. An Auxiliary Heater hand operated (manual) coolant fluid shut-off valve will be included as standard equipment and will be located below floor level at the driver side B-Pillar.

FUEL TANK

- Thirty-Seven (37) gallon capacity minimum with internal baffles to prevent surging.

- Tank(s) shall be located in a protected area under the vehicle floor and rigidly supported by at least four (4) independent supports. A frame or shield shall be incorporated around them to preclude puncture in an accident. The OEM standard offering will be acceptable (must be 37 gallon, meeting all federal requirements).
- Fuel filler inlet bezel (at sidewall) shall be Ford OEM, sealed to the exterior body skin.
- Fuel filler bezel interior cover shall be molded plastic, attached to the interior wall skin and floor panel. All bezel cover joints shall be sealed to prevent the infiltration of fuel liquid and/or vapors to the interior passenger compartment.

EXHAUST SYSTEM

- The vehicle shall be equipped with a heavy duty, corrosion resistant exhaust system which meets or exceeds FMVSS and EPA noise level and exhaust emission (smoke and noxious gas) requirements. Heavy-duty exhaust hangers shall be standard equipment. All exhaust system modifications shall use the exact type, size and gauge material as the OEM exhaust system.
- The tailpipe shall terminate at the rear corner, curb side.
- Exhaust shall be securely attached to the chassis frame.
- An .018 Ga. galvanized heat shielding is run the entire length of exhaust system. All shields have edge flanges to prevent oil canning and noise.

ELECTRICAL

- Alternator shall be the OEM standard 130 amp for gasoline engines or the OEM dual 110 amp alternator configuration for diesel engines.
- Two maintenance-free type, 12 volt, 650 CCA batteries – gas engine or two maintenance-free type, 12 volt, 750 CCA batteries – diesel engine, shall be provided.

WIRING

- Vehicle contains professionally built harnesses using color and number coded high temperature wire. All general purpose wires shall be vinyl insulated to 200 degrees Fahrenheit, shall meet SAE standards, and shall be color coded and permanently labeled to identify their function, at least every eighteen (18) inches. All wiring shall be of sufficient size to carry the required currents without excessive voltage drop. All wiring shall be in a loom and securely clipped for maximum protection. Clips shall be rubber or plastic coated to prevent them from cutting the wiring insulation. When routing wiring under vehicle all wiring shall be encased in a loom and attached to the sub-structure with rubber or plastic coated P-clamps. All connectors under the hood and/or under the vehicle shall be environmentally sealed high impact plastic connectors. Entire harness system and mating electrical components are plug-connected with lock tab connectors; all harnesses are covered in flexible conduit and all, exterior under body/under hood connectors, are weather sealed connectors.
- All fuses and relays (other than chassis OEM) shall be placed in a solid-state circuit box, easily accessible. The circuit box shall be conveniently mounted and have a secure cover. Vehicle contains printed circuit board electrical control system reducing electrical installation errors. Each circuit is easily identified with text labels at each relay. Connection to OEM

electrical system is accomplished through connectors supplied by the chassis manufacturer using locking mating connectors.

BODY CONSTRUCTION

- The vehicle body shall be constructed as an integral welded steel cage structure, and be mounted to the OEM chassis frame by utilization of rubber body mounting bushings. The floor frame must be welded to the sidewall frame, and the sidewall frame must be welded to the roof frame. When welding perimeter tubing and cross sections all tubing shall be welded on a minimum of three.
- All exterior skin side welded surfaces shall be ground smooth and be free of unfriendly surfaces as a standard production process. All welds shall be inspected for quality and subject to on line inspection. All steel body/floor structure shall be coated with "Lesonal - Epoxy Primer Sealer" (two part epoxy), to prevent rust.
- Sidewalls: The sidewall frames shall be constructed of 1 " x 2" 16 gauge steel tubing (minimum), forming vertical members from the floor to the top of the sidewall windows. All sidewall framing must be curved to conform to the chassis body curvature and must be spaced evenly from front to rear at each window location. Sidewall framing shall be tied together with 1" x 2" x 16 gauge steel longitudinal stringers at the top of the wall, and 1" x 1" x 16 gauge steel longitudinal stringers with a 2" x 2" x 12GA. steel angle at the floor level. The exterior sidewall panels shall be .060 painted aluminum, with a painted back surface. The exterior sidewall panels shall be bonded to the sidewall frame by means of high strength adhesive tape at each framing member, and around the entire perimeter of the panel.
- Roof: The roof frame shall be constructed of 1 1/2" x 3" x 16 gauge formed steel hat shape, bent to conform to the shape of the roof of the vehicle, and must be welded to the top of the sidewall frames. Roof frame cross members shall be attached to each other longitudinal by 1" x 1" x 16 gauge steel tubing, to produce a safety cage design. When welding perimeter tubing and cross sections all tubing shall be welded on a minimum of three sides. The exterior roof panel shall be a seamless, fiberglass "FRP" design. The exterior roof panel shall be bonded to a 1/4" plywood substructure by means of contact spray adhesive over the entire surface of the roof
- Rear Body Panel: The rear frame shall be constructed of 1" x 1" x 16 gauge steel tubing, and must be welded to the top of the sidewall frames and to the floor frame. When welding perimeter tubing and cross sections all tubing shall be welded on a minimum of three sides. The exterior rear panel must be a seamless, molded fiberglass design. The exterior rear panel shall be bonded to the steel rear frame by means of butyl tape adhesive at each framing member, and around the entire perimeter.
- All joints shall be caulked and sealed at the time of construction to produce a water and dust tight seal.
- All dimensions, positioning of components, clearances, etc., shall be based on adult passengers.
- All interior and exterior fiberglass reinforced plastic panels and assemblies shall meet the flammability protection requirement of FMVSS-302.

FLOOR

- A full jig-welded steel sub-floor under-structure shall support the entire floor. When welding perimeter tubing and cross sections, all tubing shall be welded on a minimum of three sides. The floor frame shall be constructed of 2 3/4" X 4 1/2" X 88" X 13 gauge "hat shaped cross members", capped with a steel channel and painted inside and outside with an automotive paint. Floor frame cross members shall be attached to each other by longitudinal 1" X 3 1/2" X 14 gauge steel C-Channel stringers and 1" X 2" X 14 gauge steel C-Channel stringers. The floor frame shall incorporate the seat-mounting track as an integral part of the floor structure and be welded to the longitudinal C-Channel stringers. The seat-mounting track shall be 50,000 PSI yield strength, cold rolled steel channel.
- The steel sub-floor structure shall be securely attached to the cab section and bolted to the OEM chassis frame by utilization of rubber body mounting bushings.
- Minimum 5/8-inch thick, exterior grade plywood flooring shall be glued and screwed onto the steel sub-floor.

WHEEL HOUSINGS

- Rear wheel housing shall be of 13 gauge (minimum) one-piece steel constructed and adequately reinforced to prevent deflection. Ample clearance shall be provided for tires under load and operating on both smooth and rough terrain. All steel shall be treated for corrosion resistance. The wheel housing shall be undercoated for corrosion resistance with a nonflammable resin-type material, applied at the time of manufacture.

STEPS

- Step wells shall be of one-piece steel construction. Step well is to be constructed of a minimum 11 gauge steel. All steel shall be treated for corrosion resistance. All step edges shall have a band of white running the full width of the step or edge that contrasts from the step tread and riser. Each step shall be at least 36 inches wide and have a minimum tread depth of 12 inches. Maximum riser height shall be 9 inches.

DOORS

- The vehicle shall be equipped with a minimum 1" x 2" extruded aluminum tube framed entry/exit door. The door shall be a double-leaf outward opening door. Clear door opening width shall be a minimum of 31 inches with a minimum height of 79 inches measured from the first step to the door header. Doorframe finish must be satin anodized aluminum for enhanced durability.
- Entry door must utilize a bottom-bearing block. This block must be comprised of corrosion free materials and designed to keep environmental conditions from hindering performance.
- The passenger entry door shall be located in the bus body immediately aft of the chassis cab, on the curbside. Entry door must incorporate a single glazed window for each door panel, of tempered glass, which allows full view of curb.
- The entry door shall be fully encompassed by an integrally welded steel door surround. The complete door surround and header shall be a minimum 14 gauge steel and will incorporate the step well, and be installed in the body as a single unit. At the meeting edge of each door leaf, a 2-inch rubber seal shall be installed so that the edges form a tight, overlapping seal when closed.

- The passenger entry door shall be opened and closed by means of an electrically actuated door drive system. The door will be activated by means of a rocker switch located in the driver compartment overhead switch console. The drive motor will be an electric motor driven gearbox, linked to the entry door panel by means of a linkage rods

EMERGENCY EXIT

- Hinge-out windows shall be installed for emergency escape. Emergency escape windows shall comply with FMVSS-217.
- Emergency escape windows shall be clearly labeled and operation instruction shall be clearly visible at each escape window. The emergency release handle (or bar) shall meet FMVSS-217 requirements and shall not return to the locked position automatically: it shall require the driver or other authorized person to manually re-lock it.
- Each emergency exit shall be identified with a 12 volt red lamp assembly wired to the vehicle ignition circuit. The bulb assembly snaps into a ½" Dia. hole to allow for easy replacement. This system, along with window signage, shall provide passengers with a clear understanding of exit routes.

WINDOWS AND GLASS

- Side windows shall be frameless style, fixed glass type, smoke grey with a 31% light transmittance. Side and rear window glass will be tempered safety glass. Glass in the driver's area, to the right and left of the driver, shall be AS2 tempered safety glass. The windshield shall be AS1 laminated safety float glass. All glass shall be tinted, density as follows:

EXTERIOR

- Tail lamps shall be 4" round lights with Red Stop/Tail/Turn and White back-up lights. Marker lights shall be 2" round lamp assemblies, Amber and Red. All exterior lamps shall be flush mounted to minimize the possibility of lens damage that can be caused by some automated bus wash systems.

INTERIOR

- Manufacture shall include four side mounted ceiling lights as standard equipment.
- There shall be a step well light, wired to light when the door opens and shall be mounted to provide light on each step tread.
- Instrument panel and switch panel shall be indirectly lighted in a way as to prevent casting a glare on the windshield.

REFLECTORS

- Reflectors shall be size, type color and location required to comply with the requirements of FMVSS – 108.

FLOOR COVERING

- Shall be commercial grade flat nap carpet under passenger seats. Aisle covering shall be 3/16-inch thick ribbed transit grade rubber. Driver's floor area shall be black textured rubber with insulator/sound abatement backer, as provide by chassis OEM. Step treads shall have a white edge or nosing to pronounce the presence of the step. Vestibule covering shall be mitered to match the ribs in the aisle strip to facilitate cleaning.

INTERIOR FINISH

- The sidewalls from the roofline seat support rail shall be ¼" lauan covered with foam backed auto-clothe fabric.
- Upper trim and ceiling panels shall be ¼" lauan covered with foam backed auto-clothe fabric.
- Cab trim panels shall be covered with foam backed auto-clothe fabric.
- All materials must comply with FMVSS-302.

GRAB RAILS AND STANCHIONS

- A left-hand grab handrail shall be provided in the entrance of the vehicle.
- Grab rails shall be made of 1¼ inch diameter stainless steel tubing, with a brushed finish. Tubing shall be bend 90degrees at both ends there by eliminating the need for elbow fittings.

CONTROLS AND SWITCHES

- All controls and switches shall be mounted within easy reach of the driver. They shall be permanently labeled for quick and unmistakable identification. User-friendly switch console is located in clear view for driver convenience marked with clear-lighted professionally manufactured identification legends.
- Radio shall be OEM AM/FM Cassette radio W/ two speakers.

HEATER/DEFROSTER

- The front heater shall include a means to defrost the windshield and driver's windows in accordance with FMVSS-103. There shall be a separate control to give heat to the driver's foot area.
- An additional heater shall be an integral part of the A/C evaporator assembly and shall be located in the front of the vehicle, between the chassis cab and the vehicle ceiling level, to produce an even interior temperature. The heater blower motors shall be easily accessible for servicing. A four-position switch having high, med, low, and off positions shall control the fan speed.

MIRRORS

- Exterior side mounted mirrors shall be Velvac, or approved equal, mirrors with molded mirror head and breakaway arm mounted on cab doors. They shall be mounted out of the driver's normal driving line of vision to prevent driving "Blind Spots." One (1) interior rear view mirror shall be located above the windshield and shall be large enough to provide the driver with a full view of the bus interior.

- All mirror mountings shall be sufficiently rigid to prevent viewing distortion due to vibration. Exterior mirror mountings shall permit moving out of position to prevent mirror damage from automatic bus washers.

EXTERIOR FINISH

- Exterior sidewall body skin shall be .060 painted aluminum; with a painted back surface. All welds shall be chipped to remove slag.

RUST PROOFING

- The entire underbody, including Wheel housings shall be rust proofed.

BUMPERS

- Shall be provided at both front and rear of the vehicle. The rear bumper shall be an 11-gauge steel tube covered by a molded fiberglass fascia panel. Rear bumper shall be bolted, not welded, to the frame extension.

INSULATION

- 1-lb. density polystyrene insulation installed in sidewalls and roof for better insulation and quieter interior. Front cap will be insulated using "double bubble."

AIR CONDITIONING

- Vehicles will be equipped with ProAir # 935 45,000 BTU single compressor tie-in system with an integral heat coil, rated at 40,000 BTU, and a skirt mounted 2-fan condenser.