

CitiBus

Hybrid HD Senator



Improve fuel economy by up to 50%

Azure Dynamics
is a world leader
in hybrid electric
technology for
commercial
vehicles

MACNAB
TRANSIT SALES CORP

Lower life cycle
costs compared
to conventional
shuttle buses

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 **AZURE**
DYNAMICS

 **STARTRANS**
A SUPREMACY CORPORATION COMPANY

Azure Dynamics is a world leader in hybrid electric technology for commercial vehicles

Azure Dynamics develops and manufactures hybrid electric and electric drive systems for commercial truck and bus fleet operators. Azure's drive systems provide a significant, positive and sustainable impact on the business success of our customers and on the quality and integrity of the environment.

StarTrans is a leader in commercial bus manufacturing and markets 32 models of transit and tour buses. The company is strongly committed to building quality products,

having successfully completed commercial testing for 17 buses at the Federal Transit Administration's Altoona Bus Testing Center. StarTrans is an ISO 9001:2000 certified manufacturer.

Azure and StarTrans have partnered to produce the hybrid electric CitiBus for urban transit applications.

The purchase of new buses for a commercial or city fleet is a major decision, with a range of factors to be considered. The capital cost of the CitiBus is somewhat higher than a shuttle bus powered by a conventional

engine, but life cycle costs such as fuel and maintenance reductions counter balance this issue.

By improving fuel economy by approximately 50%, the CitiBus delivers ongoing cost savings. Furthermore, the CitiBus produces approximately 33% fewer Global Green House Gases.

The CitiBus powertrain has no transmission, no starter motor and less wear on breaks as a result of regenerative braking resulting in lower maintenance costs.



Lower life cycle costs compared to conventional shuttle buses

Fuel Savings – up to 50% fuel economy in urban driving

Significant Maintenance Savings

- **Cut Brake Maintenance by up to 75%** – 3 times longer maintenance period due to electronic braking (regenerative braking) and inspect brakes in seconds. The Brembo disk brake system enables quick visual inspection.

- **Engine Life Improvement Expected** – 20 - 25% improvement based on reduced engine operation time from anti-idle and elimination of high torque engine lugging. Launch torque is provided by the motor.

- **Virtually Eliminate Starter Motor Replacement** – 99.99% of engine starting is accomplished by the engine generator. The conventional starter motor is utilized only on very cold days.

- **No Automatic or Manual Transmission to Fail** – utilizes conventional truck axles, improved turning radius cut 50 degrees.

- **Eliminate Alternator Replacement and Dramatically Improve 12V Battery Life** – solid state DCDC converters provide rock-solid 110 amps with engine off, at idle, or at higher speeds.



Anti Idle Compliant

The CitiBus complies with legislated and regulated anti-idle requirements. Engine off-operation is accomplished using the traction battery and supporting auxiliary systems as follows:

- **Passenger Heating** – supplemented by fuel fired heating when the engine is off. This enables maintaining acceptable engine temperatures for emission and compartment temperatures for passenger comfort.
- **Air Conditioning** – powered from the high voltage system for passenger comfort.
- **Low Voltage Supply** – full supply available engine on or off.

Vehicle Emissions Effect Human Health

It is a fact that air quality in urban areas is deteriorating. More and more people - especially the elderly and children are suffering from such respiratory conditions as asthma and bronchitis. Increasingly, scientists are linking these health effects to increased levels of smog and airborne particulates caused by vehicle emissions.

Meets FTA Buy America Guidelines

The CitiBus meets US FTA Buy America program requirements, and will be eligible for the Federal Transit Administration's funding pending completion of Altoona testing.

The CitiBus is part of the solution delivering a sustainable source of transportation for a better future

Features

AZURE DYNAMICS SERIES HYBRID ELECTRIC DRIVE SYSTEM

WORKHORSE W42 CHASSIS

STARTRANS HD SENATOR SERIES BODY

SUB FLOOR - 12 gauge steel outriggers, fully welded with floor-level Z rail, incorporated with chassis rubber-ride capabilities.

FLOORING - 5/8" Marine-grade plywood with .080 aluminum underbelly, undercoated. Floor covered with 1/8" transit rubber. Aluminum heat shield over chassis catalytic converter and muffler.

SIDEWALLS - 3/4" polyurethane foam insulation (R-6, 12) gelcoated to 1/4" FRP exterior with 1/4" FRP interior. Reinforced with steel perimeter and transverse supports, Completely fiberglassed to adjoining body parts to form a single unitized body.

ROOFING - One piece honeycomb core laminate with steel cage reinforcement.

WINDOWS - 24" x 34" T-slider, 31% tinted. Clamp ring-style radius windows. Egress windows AS-2 rated: upper and lower windows = 290 square inches of visibility.

ENTRY - Spacious entrance (32" x 83" clear opening) with doors that operate manually. Door panels are Plexiglas-plated for the best possible driver visibility. White step nosing and lighted stepwell standard. Entrance grab rail (left side).

LIGHTING - Each bus comes standard with six passenger courtesy lights.

ELECTRICAL - Wiring is color-coded with the number and function designated every 12" on the wire to enable identification and circuit traceability. Only premium components built to meet the Society of Automotive Engineers (S.A.E.) and Underwriter's Laboratories (U.L.) requirements are used. Electronic control console switch panel.

OPTIONAL A/C & HEAT - A/C systems ranging in size from 30,000 BTU to 88,000 BTU. Rear heat from 40,000 BTU to 68,000 BTU.

OPTIONAL PARATRANSIT - Wheelchair accessibility with range of securement systems and seating arrangements.

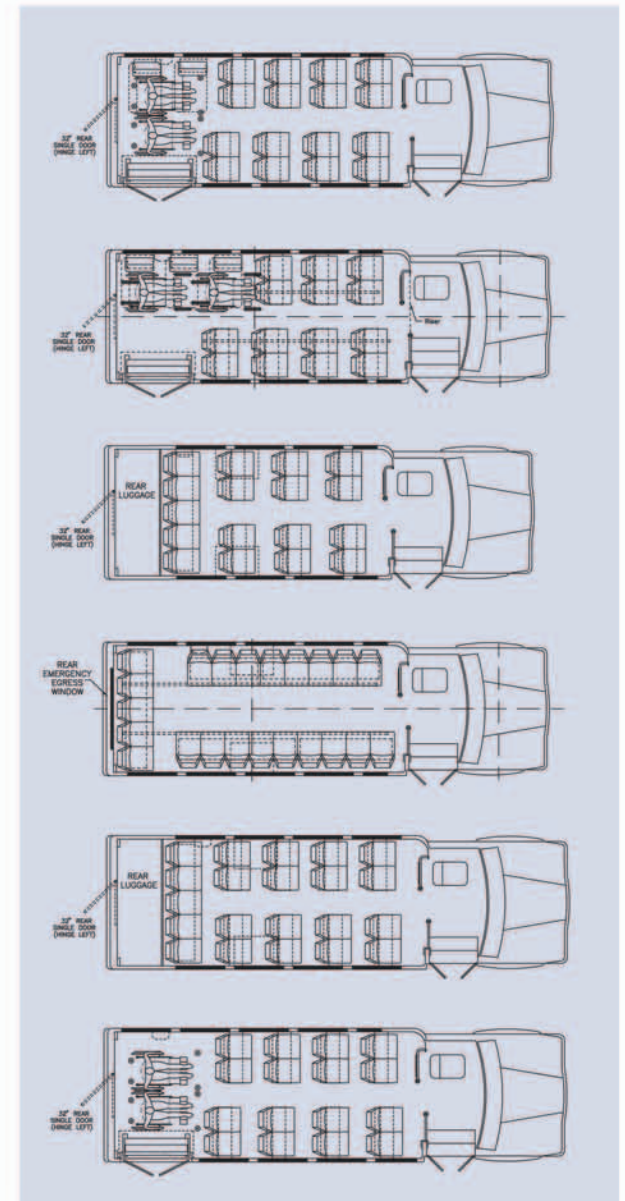
OPTIONAL LUGGAGE - Luggage can be stored in over-seat, floor to ceiling, rear compartments or custom-designed areas.

OPTIONAL SEATING - Forward facing, perimeter-style and track seating are all available. Your choice of vinyl and cloth fabric in a wide range of colors.

- Bright white gelcoated body with choice of three standard striping packages.
- Dual 15" black frame exterior mirrors - 10" flat mirror and 5" convex mirror.
- Heavy-duty 10-gauge wraparound bumper with anti-ride cover.
- Mud flaps (front and rear).



	26' (310-1/4")	27' (322-1/4")	28' (334-1/4")
Overall Length	25'-10"	26'-10"	27'-10"
Overall Height	119"	119"	119"
Overall Height w/ A/C	125"	125"	125"
Overall Width	96"	96"	96"
Center Aisle Height	82"	82"	82"
First Step to Ground	12"	12"	12"
Step Tread Depth	8-5/8"	8-5/8"	8-5/8"
Interior Width @ Seat Level	93"	93"	93"
Interior Width up 36" from Floor	93"	93"	93"
Double Wheelchair Doors	44-1/2"x69"	44-1/2"x69"	44-1/2"x69"
Wheelbase	178"	178"	190"



Contact your
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