FEDERAL TRANSIT BUS TEST
VICINITY 30 FOOT MODEL

Please visit our website for a full version of the Altoona Test Results Report.
Performed for the Federal Transit Administration Service-life Category (12 Year /500,000 Miles)

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The US Federal Transit Authority's (FTA) Altoona test is an internationally recognized tough testing regime, as it essentially performs 12 years and 500,000 miles of a New York City heavy duty cycle upon completion of the testing. It allows customers to measure performance and estimate life cycle costing of the vehicle.

**RESULTS:**

1. **FUEL ECONOMY**
   - Best-in-class

2. **STRUCTURAL DURABILITY**
   - Best-in-class

3. **MAINTENANCE & REPAIRS**
   - Best-In-Class
A. STRUCTURAL DURABILITY TEST

The primary part of the test program is the Structural Durability Test, which also provides the information for the Maintainability and Reliability results. The Structural Durability Test was started on October 26, 2015 and was completed on May 19, 2016.

1. Maintainability
The objective of this test is to document unscheduled breakdowns, repairs, down time, and repair time that occur during testing. All significant breakdowns, repairs, man-hours to repair, and hours out of service are recorded.

2. Reliability
Compiles failures that occurred during Structural Durability Testing. Breakdowns are classified according to subsystems (defined below). The test bus encountered no Class 1, 2 or 4 failures. All seven reported failures were Class 3. Of the seven Class 3 failures, two each involved the after treatment system and electrical system. One each occurred with the axle, suspension and windows.
A failure that could lead directly to passenger or driver injury and represents a severe crash situation.

Class 2 - Road Call
A failure resulting in an en route interruption of revenue service. Service is discontinued until the bus is replaced or repaired at the point of failure.

Class 3 - Bus Change
A failure that requires removal of the bus from service during its assignments. The bus is operable to a rendezvous point with a replacement bus.

Class 4 - Bad Order
A failure that does not require removal of the bus from service during its assignments but does degrade coach operation. The failure shall be reported by a driver, inspector, or hostler.
B. SAFETY TEST

Safely performed in both right-hand and left-hand directions up to a maximum test speed of 45 mph.

C. BRAKE TEST

1. Stopping Distance
There was no deviation from the test lane during the performance of the Stopping Distance phase.

2. Stability
The test bus experienced no deviation from the test lane.

3. Parking Brake
Completed with the test bus maintaining the parked position for the full five minute period with no slip or roll observed in both the uphill and downhill positions.

D. SHAKEDOWN TEST

Produced a maximum final loaded deflection of 0.167 inches with a permanent set ranging between -0.001 to 0.005 inches under a distributed static load of 19,875 lbs.

E. DISTORTION TEST

Was completed with all subsystems, doors and escape mechanisms operating properly. No water leakage was observed throughout the test. All subsystems operated properly.

F. FUEL ECONOMY TEST

A Fuel Economy Test was run on simulated central business district, arterial, and commuter courses. The results were 5.09 mpg, 5.54 mpg, and 9.45 mpg respectively; with an overall average of 6.02 mpg.

G. EMISSIONS TEST

The objective of this test is to provide comparable emissions data on transit buses produced by different manufacturers. The test is performed for three differed driving cycles intended to simulate a range of transit operating environments.

The cycles consist of:
> Manhattan Cycle - a low average speed, highly transient urban cycle
> Orange County Bus Driving Cycle - urban and highway driving segments
> Urban Dynamometer Driving Cycle (UDDS).
FUEL CONSUMPTION TEST

AVERAGE FUEL CONSUMPTION: 6.02 MPG

DRIVING CYCLE

MANUFACTURER
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