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September 25, 2023

Invitation for Bid
GSA-062-23
Electric School Bus (77 Passengers) Type C (Latest Model)

Concerns received from Guam Auto Spot on September 22, 2023.

1. Please see attached letter from our manufacturer which further explains the efficacy and adequacy of the Air Brake Compressor. Moreover, this Air Brake Compressor meets or exceeds National Standard that are currently in place.

It has been brought to my attention that some Electric School Bus specification language has been used in bids that includes a specific Brake System Air Compressor flow requirement, for example 13.5 cfm. While the electric air compressor is an important component of the High Voltage electrical system on an electric school bus, the flow rate of the compressor should not be considered a minimum requirement. Instead, we should be using federal requirements as the standard.

The air brake system of the Electric CE Series has been designed and tested to exceed the requirements of FMVSS 121 (49 CFR 571.121). Among many other things, the standard defines how to ensure that an air compressor of sufficient capacity is used to fill the air tanks. Below is the text from this standard including an equation that can be used to help select an air compressor.

S5.1.1 Air compressor. An air compressor of sufficient capacity to increase air pressure in the supply and service reservoirs from 85 psi to 100 psi when the engine is operating at the vehicle manufacturer's maximum recommended r.p.m. within a time, in seconds, determined by the quotient (Actual reservoir capacity × 25)/Required reservoir capacity.

The following section can be used to find the Required Reservoir Capacity referenced above.

S5.1.2.1 The combined volume of all service reservoirs and supply reservoirs shall be at least 12 times the combined volume of all service brake chambers.

The combined volume of the service brake chambers on the CE Series is 200 cu in. This means the Required Reservoir Capacity is 2400 cu in. The Actual Reservoir Capacity for the Electric CE Series is 3484 cu in. Using the above requirements, the maximum time allowed to fill the reservoirs is 36.3 seconds.

In testing, IC Bus has confirmed that the Quanxing 10.6 cfm air compressor used on the Electric CE Series fills the air tanks from 85 psi to 100 psi in 9.5 seconds. This is well below the 36.3 seconds required by FMVSS 121. There is obviously no need to have a higher flow rate air compressor on this bus, since the tanks can be filled much faster than required.

The above results should demonstrate that it does not take a 13.5 cfm air compressor to properly fill the air tanks on all Electric School Buses. The air compressor that a manufacturer chooses to use often depends on many factors other than just the flow rate. For example, if a bus has significantly larger air tanks, the manufacturer may need to use a higher flow rate air compressor to fill those

tanks. Stopping distance, brake chamber size, air tank volume, and air compressor fill rate are all subjects for which FMVSS provides requirements for design and testing. It is best to require compliance with FMVSS 121 rather than defining certain equipment ratings only needed by other vehicle platforms.

I would like to request the acceptance of the IC Bus Electric CE Series with a 10.6 cfm air compressor in lieu of the bid requirement of 13.5 cfm.

Response:

Bid specifications remain the same.



JoyJean Arceo

Acting Chief Procurement Officer*

*By appointment of Director of the Department of Administration effective July 26, 2023 through September 26, 2023.

Please Print

Acknowledgement Copy (Email to GSA)

Received By: _____

Date: _____

Company Name: _____

Email to: esaprocurment@gsadna.guam.gov