



U.S. Department
of Transportation
**Federal Transit
Administration**

1200 New Jersey Avenue SE
Washington, D.C. 20590

April 3, 2017

Barry R. Hines
Vice President of Engineering
ARBOC Specialty Vehicles LLC
51165 Greenfield Parkway
Middlebury, IN 46540
(via email: bhines@arbocsv.com)

Dear Mr. Hines:

This is in response to your letter dated October 25, 2016, in which you requested assistance from the Federal Transit Administration (FTA) concerning the applicability of the Bus Testing Regulation (49 CFR Part 665) to the Spirit of Independence bus model manufactured by ARBOC on a Ford Transit 350HD chassis. Your letter states that:

- ARBOC's Spirit of Independence bus model built on the Dodge Promaster chassis will complete a full Altoona test in the 4-year/100,000 mile service life category and the resulting report will be available to the public.
- The construction of the Spirit of Independence on both the Promaster chassis and the Transit chassis is identical.
- The overall length of the Spirit of Independence on the Promaster chassis is 21 ft. 8 inches. The Spirit of Independence on the Transit chassis is 23 ft. 8 inches.
- The proposed Spirit of Independence built on the Ford Transit chassis utilizes the OEM driveline, axles and suspension.
- Both the Ford and Dodge Ram chassis are mass produced.
- The curb weight of the Promaster is 6,050 lbs. while the Ford is 7,050 lbs.
- The passenger capacity for the Promaster is 12 and the Ford is 15.
- ARBOC's FEA shows no significant changes in stress and deflection between the two structures.
- Both chassis frames are welded AS50 steel. The main rails are tube structures in lieu of the traditional rail increasing strength along the main chassis section.

- Identical body structure is utilized in both products along with the identical assembly techniques that have been used in all ARBOC Specialty Vehicle buses as shown in previous Altoona tests:
 - LTI-BT-0812
 - LTI-BT-0916-P
 - LTI-BT-1009
 - LTI-BT-1502

You have asked FTA to make the Spirit of Independence built on the Ford Transit chassis available to FTA grantees without additional testing.

FTA has reviewed your request and accompanying documentation and has determined that **no additional testing will be required for the ARBOC Spirit of Independence bus model built on a Ford Transit 350HD chassis, provided that:**

- **The Spirit of Independence built on the Ford Transit 350HD chassis is offered in the 4-year/100,000-mile service life category.**
- **The Bus Testing Report resulting from the Spirit of Independence being tested on the Ram Promaster chassis is provided to FTA recipients prior to their final acceptance of the Spirit of Independence built on the Ford Transit 350HD chassis, AND,**
- **A full Bus Testing Report of a similar bus built on the Ford Transit 350HD chassis (e.g., Report No. LTI-BT-R1609) is also provided to FTA recipients prior to their final acceptance of the Spirit of Independence built on the Ford Transit 350HD chassis.**

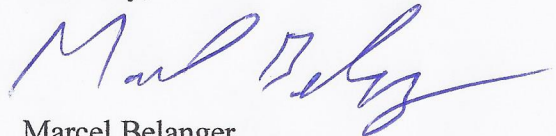
This determination is based on the following conclusions drawn from information submitted by ARBOC or contained in our files, and is contingent on the ARBOC Spirit of Independence bus model built on the Dodge Ram Promaster chassis completing full testing at Altoona:

- One example of the Spirit of Independence bus body built on the Dodge Promaster chassis modified by ARBOC is undergoing full testing at Altoona. LTI will publicly release the resulting full 4-year/100,000 mile Bus Testing Report (unless ARBOC requests in writing that the test report not be released, in which case the determination above would not apply).
- The proposed variant of the Spirit of Independence will be built on the Ford Transit 350HD chassis modified by ARBOC. The Ford Transit 350HD chassis has been evaluated at Altoona on a Starcraft Bus Division Starlite Transit bus model in the 5-year/150,000 mile service life category (LTI-BT-R1609).
- The proposed ARBOC Spirit of Independence bus model built on the Ford Transit 350HD chassis will have the same GVWR as the previously tested Starlite Transit bus model (10,360 lbs.).

- The Ford 3.7-liter V6 engine and 6-speed transmission mounting structure are not modified in any way relative to the configuration tested in Report number LTI-BT-R1609.
- The chassis conversion will be produced on an ARBOC assembly line for the Spirit of Independence bus models in accordance with Ford's guidelines and Qualified Vehicle Modifier (QVM) program.
- ARBOC will maintain consistency of body structure and design without any significant change from its original Altoona-tested bus model and the same body construction is used for the Spirit of Independence model on the Transit chassis as the previously-tested model. Differences in the proposed model are limited to changes necessary to mount the Spirit of Independence body to the Ford Transit 350HD model.
- Under FTA's "family of vehicles" concept, FTA generally permits a manufacturer of a bus body that has been tested on one unmodified third-party chassis to offer the same or closely-related body built on another similar unmodified third-party chassis that has been tested at the Bus Testing Center (on one of its own buses or on a competitor's similar bus in the same or higher service life category), without requiring additional testing. This includes changes in bus length, such as from one standard wheelbase offering to another. The family of vehicles concept does not apply to buses in the 7-year or higher service life categories.
- In general, FTA will treat vehicles built by final stage manufacturers on modified third-party chassis as vehicles built by final stage manufacturers on unmodified third-party chassis, provided that any modifications are performed in strict compliance with the chassis manufacturer's official chassis modification guidelines.

This determination is based on the changes detailed in your letter or mentioned above. Should you make any other changes to the vehicle, additional testing may be required. If you require any further assistance with this or other matters concerning Bus Testing, I encourage you to consult the resources provided at www.transit.dot.gov/research-innovation/bus-testing. If you still have questions after checking this website, please feel free to contact me.

Sincerely,



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