

bus model in a service life application higher than it has been tested for may make the bus subject to the bus testing requirements.

(g) The operator of the facility shall develop a test plan for the testing of vehicles at the facility, which generally follows the guidelines set forth in appendix A of this part.

**§ 665.13 Test report and manufacturer certification.**

(a) Upon completion of testing, the operator of the facility shall provide a test report to the entity that submitted the bus for testing.

(b)(1) A manufacturer of a new bus model or a bus produced with a major change in component or configuration shall provide a copy of the test report to a recipient during the point in the procurement process specified by the recipient.

(2) A manufacturer who releases a report under paragraph (b)(1) of this section also shall provide notice to the operator of the facility that the report is available to the public.

(c) If a bus model subject to a test report has a change that is not a major change under this part, the manufacturer shall advise the recipient during the procurement process and shall include description of the change and its basis for concluding that it is not a major change.

(d) A test report shall be available publicly once the owner of the report makes it available during the recipient's procurement process. The operator of the facility will have available for distribution copies of all the publicly available reports.

(e) The test report is the only information or documentation that will be made available publicly in connection with any bus model tested at the facility.

**Subpart C—Operations**

**§ 665.21 Scheduling.**

(a) A manufacturer may schedule a vehicle for testing by contacting Penn State's Transportation Institute (PSTI) at the following address: The Pennsylvania State University, Pennsylvania Transportation Institute, Re-

search Building B, University Park, PA 16802, (814) 863-1889.

(b) Upon contacting PSTI, the manufacturer will be provided the following:

(1) A draft contract for the testing;

(2) A fee schedule; and

(3) The draft test procedures that will be conducted on the vehicle.

(c) PSTI will provide final test procedures to be conducted on the vehicle at the time of contract execution.

(d) PSTI will process vehicles for testing in the order in which the contracts are signed.

**§ 665.23 Fees.**

(a) Fees charged by the operator are according to a schedule approved by the FTA, which include different fees for partial testing.

(b) Fees will be prorated for a vehicle withdrawn from the facility before the completion of testing.

**§ 665.25 Transportation of vehicle.**

A manufacturer is responsible for transporting its vehicle to and from the facility at the beginning and completion of the testing.

**§ 665.27 Procedures during testing.**

(a) The facility operator shall perform all testing, consistent with established procedures at the facility and with the test procedures provided to the manufacturer at the time of contract execution.

(b) The manufacturer of a bus being tested may terminate the test program at any time before the completion of testing, and shall be charged a fee for the tests performed.

(c) The operator shall perform all maintenance and repairs on the test vehicle, consistent with manufacturers specifications, unless the operator determines that the nature of the maintenance or repair is best performed by the manufacturer under the operator's supervision.

(d) The manufacturer may observe all tests. The manufacturer may not provide maintenance or service unless requested to do so by the operator.

APPENDIX A TO PART 665—TESTS TO BE PERFORMED AT THE BUS TESTING FACILITY

The seven tests to be performed on each vehicle are required by STURAA and are based in part on tests described in the FTA report "First Article Transit Bus Test Plan", which is mentioned in the legislative history of section 317. When appropriate, SAE test procedures and other procedures accepted by the transit industry will be used. The seven tests are described in general terms in the following paragraphs.

*1. Maintainability*

The maintainability test includes bus servicing, preventive maintenance, inspection, and repair. It also will include the removal and reinstallation of the engine and drive train components that would be expected to require replacement during the bus' normal life cycle. Much of the maintainability data will be obtained during the bus durability test at the proving ground. Up to twenty-five percent of the bus life will be simulated and there will be servicing, preventive maintenance, and repair actions. These actions will be done by test facility staff, although manufacturers will be allowed to maintain a representative on site during the testing. Test facility staff may require a manufacturer to provide vehicle servicing or repair, under the supervision of the facility staff. Since the operator will not become familiar with the detailed design of all new bus models that are tested, tests to determine the time and skill required to remove and reinstall an engine, a transmission, or other major propulsion system components may require advice from the bus manufacturer. All routine and corrective maintenance will be carried out by the test operator in accordance with the manufacturer's specifications.

The maintainability test report will include the frequency, personnel hours, and replacement parts or supplies required for each action during the test. The accessibility of selected components and other observations that could be important to a bus user will be included in the report.

*2. Reliability*

The question of reliability will be addressed by recording all bus breakdowns during testing. It is recognized that with one test bus it is not feasible to conduct statistical reliability tests. It is anticipated that bus operation on the durability course should reveal the problems that would otherwise not be detected until much later during scheduled transit service. The bus failures, repair time, and the actions required to get the bus back into operation will be recorded in the report.

*3. Safety*

The safety test will consist of a handling and stability test. The handling and stability test is an obstacle avoidance or double-lane change test that will be performed at the proving ground. The double-lane change course will be different for each type of bus and the speed could be different for each type of bus. Coach speed will be held constant throughout a given test run. Individual test runs will be made at increasing speeds up to 45 mph or until the coach can no longer be operated safely over the course, whichever speed is lower. Both left-and-right-hand lane changes will be tested.

*4. Performance*

The performance test will be performed on the proving ground and will measure acceleration and gradeability with the test vehicle operated at seated load weight. Top speed also will be measured if it can be done safely on the track. The test will be performed using a fifth wheel or equivalent and associated instrumentation. The bus will be accelerated at full throttle from standstill to maximum safe speed on the track. The report will include a table of time required to accelerate to each 10 mph increment of speed and when possible, the top speed. The gradeability capabilities will be calculated both from the test data and a test from a dead stop on a minimum of a 15 percent grade.

*5. Structural Integrity*

Two different structural integrity tests will be performed. Structural strength and distortion tests will be performed at the testing facility in Altoona and structural durability tests will be performed at the proving ground.

*a. Structural Strength and Distortion Tests*

(1) The structural strength and distortion tests will be conducted and will be different for each type of bus. For example, a shake-down of the bus structure will be conducted by loading and unloading the bus no more than three times with a distributed load equal to 2.5 times gross load. The bus then will be loaded with a distributed load to gross vehicle weight. (Gross vehicle weight is a curb weight plus gross load.) Increase in floor deflection will be measured as the bus weight is increased from curb weight to gross vehicle weight. Then the bus will be loaded with a distributed load equal to 2.5 times gross load. The bus then will be unloaded and inspected for any permanent deformation on the floor or coach structure.

(2) The bus will be loaded to gross vehicle weight, with one wheel on top of a 6-inch-high curb and then in a 6-inch-deep pot hole. This test will be repeated for all four wheels. The test will verify: (a) Normal operation of

the steering mechanism and (b) Operability of all passenger doors, passenger escape mechanisms, windows, and service doors. In addition, a water leak test will be conducted.

(3) Using a load-equalizing towing sling, a static tension load equal to 1.2 times the bus curb weight will be applied to the bus towing fixtures (front and rear). The load will be removed and the two eyes and adjoining structure will be inspected for damages or permanent deformations.

(4) The bus at curb weight will be towed with a heavy wrecker truck for several miles after which it will be inspected for structural damage or permanent deformation.

(5) With the bus at curb weight probable damages due to tire deflating and jacking will be tested.

(6) With the bus at curb weight possible damages or deformation associated with lifting the bus on a two post hoist system or supporting it on jack stands will be assessed.

b. Structural Durability

The structural durability test also will be different for each type of bus, but all tests will be performed on the durability course at the proving ground, simulating up to twenty-five percent of the vehicle's normal serv-

ice life. During the test there will be inspections of the bus structure and the mileage and identification of possible structural anomalies.

6. Fuel Economy

This test will be run to determine the fuel economy in miles per gallon or equivalent of the new bus models. The test will be run at seated load weight on a duty cycle that simulates transit service for the type of vehicle being tested. The fuel measurement devices under consideration include volumetric, gravimetric, flow and pressure.

This fuel economy test bears no relation to the calculations done by the Environmental Protection Agency (EPA) to determine fuel economy levels for the Corporate Average Fuel Economy Program. However, the test will provide data which can be used by recipients in their purchase decisions.

7. Noise

There will be two noise tests: a. Interior noise and vibration; and b. Exterior noise. It is recognized that different levels of noise are expected and acceptable with different types of vehicles and different test procedures might be required.