FEDERAL TRANSIT BUS TEST

Performed for the Federal Transit Administration U.S. DOT
In accordance with 49 CFR, Part 665

Altoona Bus Testing and Research Center
Test Bus Procedure

2.0 RELIABILITY-DOCUMENTATION OF BREAKDOWN AND REPAIR TIMES DURING TESTING

Pass/Fail
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ACCREDITED
Mechanical Testing Certificate 3172.01

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LTI BUS RESEARCH
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ABBREVIATIONS

ABTC	Altoona Bus Test Center
A/C	Air Conditioner
ADB	Advance design bus
CBD	Central business district
CI	Compression ignition
CNG	Compressed natural gas
CW	Curb weight (bus weight including maximum fuel, oil, and coolant; but without passengers or driver)
dB(A)	Decibels with reference to 0.0002 microbar as measured on the "A" scale
DIR	Test director
DR	Bus driver
EPA	Environmental Protection Agency
FFS	Free floor space (floor area available to standees, excluding ingress/egress areas, area under seats, area occupied by feet of seated passengers, and the vestibule area)
FTA	Federal Transit Administration
GAWR	Gross axle weight rating
GL	Gross load (150 lb. for every designed passenger seating position, for the driver, and for each 1.5 sq. ft. of free floor space)
GVW	Gross vehicle weight (curb weight plus gross vehicle load)
GVWR	Gross vehicle weight rating
hr.	Hour
LNG	Liquefied natural gas
LTI	Larson Transportation Institute
mpg	Miles per gallon
mph	Miles per hour
NBM	New bus models
PSTT	Penn State Test Track
rpm	Revolutions per minute
SAE	Society of Automotive Engineers
SCF	Standard cubic feet
SCFM	Standard cubic feet per minute
SCH	Test scheduler
SA	Staff Assistant
SI	Spark ignition
SLW	Seated load weight (curb weight plus 150 lb. for every designated passenger seating position and for the driver)
TD	Test driver
TM	Track manager
TP	Test personnel

2-I. OBJECTIVE

The objective of this test is to evaluate the reliability of the bus by documenting breakdowns and unscheduled maintenance repairs, down time, and repair time that occurs during testing.

2-II. DESCRIPTION

All breakdowns and repairs that occur during the performance of testing are compiled on the Reliability Data Form. This form summarizes the type of failure, subsystem or part, mileage, and repair time. The failure types will be classified as follows:

1. Class 1: A malfunction that represents a potential crash situation and could lead directly to passenger or driver injury.
2. Class 2: A malfunction that results in test interruption because the bus cannot be operated. Service is discontinued until the bus is repaired at the site of the malfunction or it is towed to a service workshop.
3. Class 3: A malfunction that results in temporary interruption of testing, and the bus must be returned to a service workshop for repair.
4. Class 4: A malfunction that degrades bus operations but does not require immediate removal of the bus from testing.

2-III. ARTICLE

The test article is a transit bus with a minimum service life of 4, 5,7,10 or 12 years.

2-IV. TEST EQUIPMENT/FACILITIES/PERSONNEL

The test facility is the ABTC. Test personnel include:
1. Staff Assistant (SA)
2. Data Supervisor

2-V. TEST DATA

The type of breakdown and the accumulated bus mileage at the time of each failure will be recorded. All forms must be filled out with a pen.

Within each type, breakdowns will be further classified by the specific subsystem or component that failed, e.g., engine, transmission, air conditioning per Table 1 in the Maintainability Procedures. Upon completion of this procedure, all data shall be forwarded to the ABTC manager.

The detailed test preparation and procedures are listed in Procedure 2.1-1. This section also includes Reliability Data Form – 2.

DETAILED TEST PROCEDURES		TITLE: 2. Reliability
Procedure 2	**NOMENCLATURE: 2. Reliability – Documentation of Breakdown and Repair Times During Testing**	
OPER STEP	**ACTION BY**	**TEST PREPARATION AND PROCEDURE**
1	TP	Use pen on all forms
2	SA	Record the bus number, date, and personnel performing the test on the Reliability Data Form.
3	SA	Fill out the Reliability Data Form using information obtained from the Repair Order Forms for unscheduled maintenance and the driver log. Record the down time, man-hours to repair, and the bus mileage at the time of failure under the appropriate subsystem.