

FEDERAL TRANSIT BUS TEST

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

**Manufacturer: Micro Bird Inc. / Micro Bird USA LLC
Model: Micro Bird G5**

**Tested in Service-Life Category
7 Year / 200,000 Miles**

December 2025

Report Number: LTI-BT-R2025-03

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Performed for the Federal Transit Administration, U.S. DOT
1200 New Jersey Avenue, SE
Washington, DC 20590

In accordance with 49 CFR Part, 665

Manufacturer: Micro Bird Inc. / Micro Bird USA LLC

Manufacturer's address:
260 Banker Rd.
Plattsburgh, NY 12901

Model: Micro Bird G5

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December 11, 2025
Date

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EXECUTIVE SUMMARY

TEST HIGHLIGHTS

The information in this report pertains only to this specific bus, as received from the manufacturer for testing.

The Check-In section of the report provides a description of the bus and specifies its major components. The following table gives the salient specifications.

Manufacturer	Micro Bird Inc. / Micro Bird USA LLC
Model	Micro Bird G5
Chassis Make/Model	Ford Motor Co. / E-450
Chassis Modified	Yes
Length	23 feet, 7.1 inches
Fuel	Gasoline
Service Life	7 years / 200,000 miles
Number of Seats (including driver)	15 or 13 and two wheelchairs
Manufacturer-Designated Standing Passenger Capacity	0
Gross Vehicle Weight used for testing	12,650 lb.
Gross Vehicle Weight Rating	14,500 lb.
Mileage at Delivery	61 miles
Test Start Date	July 16, 2025
Test Completion Date	October 29, 2025
Report Issuance Date	December 11, 2025

The measured curb weight of the vehicle is 9,490 lb., consisting of 3,170 lb. on the front axle and 6,320 lb. on the rear axle. The vehicle is configured with 15 seats, including the driver's seat, and provides additional floor space capable of accommodating up to 21 standing passengers, for a potential total passenger capacity of 36. However, per the manufacturer's specifications, standing passengers are not permitted, despite the presence of interior handholds. As such, the gross load is calculated based on seated passengers only. Of the 15 seats, two fold-away to accommodate two wheelchair positions, resulting in seating configuration allows for 13 seated passengers, plus two wheelchair positions. The gross load is therefore calculated as: $(13 \text{ seated} \times 150 \text{ lb.}) + (2 \text{ wheelchairs} \times 600 \text{ lb.}) = 3,150 \text{ lb.}$ Per the manufacturer's declared seating and wheelchair capacity, the measured gross vehicle weight (GVW) is 12,650 lb. Since there are no standing passengers permitted, the seated load weight is the same as GVW. There is potential to overload this bus with the available floor space for standing passengers.

This bus chassis has been modified by extending the rear frame rails by 15.5 inches.

BUS TESTING BACKGROUND

On August 1, 2016, FTA announced a final rule for bus testing for improving the process of ensuring the safety and reliability of new transit buses. The rule satisfies requirements in MAP-21 to establish minimum performance standards, a standardized scoring system, and a pass-fail threshold based on the score.

FTA's Bus Testing Program (often referred to as "Altoona Testing" due to the location of the main testing center) tests new transit bus models for:

- Maintainability
- Reliability
- Safety
- Performance (including Braking Performance)
- Structural Integrity (including Structural Durability)
- Fuel Economy (Energy Efficiency and Range, for electric buses)
- Noise
- Emissions

Bus models that fail to meet one or more minimum performance standards will "fail" their test and thus be ineligible for purchase with FTA funds until the failures are resolved and validated through further testing. FTA will use this authority to make sure defects are corrected before a bus model can be acquired with FTA funding.

In each application to FTA for the purchase or lease of any new bus model, or any bus model with a major change in configuration or components to be acquired or leased with funds obligated by the FTA, the recipient shall certify that it has received the appropriate full Bus Testing Report and any applicable partial testing report(s) before final acceptance of the first vehicle. In dealing with a bus manufacturer or dealer, the recipient shall be responsible for determining whether a vehicle to be acquired requires full testing or partial testing or has already satisfied the requirements of this part. A bus manufacturer or recipient may request guidance from FTA in making these determinations.

The purpose of the testing is intended set a "Pass/Fail" standard and grade the performance of the buses in order to provide performance information to the transit authorities that can be used in their purchase or lease decisions. The intent of this report is to provide the grantee a relative measure of the performance of a particular model of transit bus against a standard of performance. The passing of this test should ensure a vehicle has a high probability of meeting its service life in the category it was tested.

The data included in this test report and other applicable reports should be reviewed to choose the most suitable bus for a grantee's operation. A higher scoring bus is not necessarily the best bus for a given application. For example, a bus with a powerful engine may score well because of its performance and gradeability, but another bus with a smaller and more fuel-efficient engine could be a better choice for applications in mostly flat areas. It is the responsibility of the grantee to ensure the proper test report or applicable partial report is in their possession and has been thoroughly reviewed.

The score sheet for the subject vehicle of this test report is provided below. **This bus passed the Altoona test, with an aggregate score of 85.5.**

Micro Bird, Inc. / Micro Bird USA LLC Bus #2025-03									
Test category	Standard	Base Pts.	Bonus Pts.	Range	Range	Test Data	Score	FAIL	
1. Maintainability	Unscheduled maint.	2	14	0	125	33.7	12.23		
2. Reliability	# Class 2 failures	2	6	0	2	0	8.00		
	Hazards	10	0	P	F	P	10.00		
	Stability	2.5	0	P	F	P	2.50		
3. Safety	< 158 feet at 45mph	0.5	2	80	158	88.6	2.28		
	Braking	2.5	0	P	F	P	2.50		
	Acceleration 0-30 mph	2.5	0	P	F	P	2.50		
4. Performance	Gradeability 2.5%	1.5	0	P	F	P	1.50		
	Gradeability 10%	1.5	0	P	F	P	1.50		
	Distortion	2	0	P	F	P	2.00		
	Static Towing	1	0	P	F	P	1.00		
5. Structural Integrity	Dynamic Towing	1	0	P	F	P	1.00		
	Jacking	1	0	P	F	P	1.00		
	Hoisting	1	0	P	F	P	1.00		
	Durability-Structural	13	0	P	F	P	13.00		
	Durability-Powertrain	12	0	P	F	P	12.00		
6. Fuel Economy	Liquid fuels	1	6	1	13	6.34	4.33		
	CNG	1	6	10	50	N/A	0.00		
	Hydrogen	1	6	15	98	N/A	0.00		
	Electric	1	6	1	3	N/A	0.00		
7. Noise	Int. Noise (0-35 mph)	0.5	3	30	80	76.0	0.74		
	Ext. Noise (0-35 mph)	0.5	3	50	83	78.8	0.88		
	CO ₂	4	4	0	4000	1424	3.58		
	CO	0.4	0.4	0	20	0.67	0.39		
8. Emissions	Total hydrocarbon	1	0.4	0	3	0.01	0.40		
	NMHC	0.4	0.4	0	3	0.01	0.40		
	Nitrogen oxides	0.4	0.4	0	2	0.03	0.39		
	Particulates	0.4	0.4	0	0.1	0	0.40		
Total		60	40				85.5		

Note: The use of the scoring system is not mandatory for procurement. It is only necessary that the bus being procured has received a passing score.

ABBREVIATIONS AND ACRONYMS

ABS	- anti-skid braking system
ABTC	- Altoona Bus Test Center
A/C	- air conditioner, or air conditioning
AC	- alternating current
ADA	- American Disability Act
CDCTS	- chassis dynamometer test control system
CVS	- constant volume sampling
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
DC	- direct current
DIR	- test director
DR	- bus driver
EPA	- Environmental Protection Agency
GAWR	- gross axle weight rating
GVL	- gross vehicle 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
HD-UDDS	- Heavy Duty-Urban Dynamometer Driving Schedule
LTI	- Larson Transportation Institute
mpg	- miles per gallon
mph	- miles per hour
PM	- Preventive maintenance
PSTT	- Penn State Test Track
rpm	- revolutions per minute
SAE	- Society of Automotive Engineers
SCF	- Standard cubic foot
SCH	- test scheduler
SA	- staff assistant
SLW	- seated load weight (curb weight plus 150 lb. for every designed passenger seating position and for the driver)
TD	- test driver
TECH	- test technician
TM	- track manager
TP	- test personnel
Wh	- Watt hour

TEST BUS CHECK-IN

I. OBJECTIVE

The objective of this task is to log in the test bus, assign a bus number, complete the vehicle data form, and perform a safety check.

II. TEST DESCRIPTION

The test consisted of assigning a bus test number to the bus, cleaning the bus, completing the vehicle data form, obtaining any special information and tools from the manufacturer, determining a testing schedule, performing an initial safety check, and performing the manufacturer's recommended preventive maintenance. The bus manufacturer certified that the bus meets all Federal regulations.

III. DISCUSSION

The check-in procedure is used to identify in detail the major components and configuration of the bus.

The test bus consisted of a Micro Bird Inc. / Micro Bird USA LLC, G5 model. The bus has a front driver's door located on the streetside, rear of the front axle, and a front passenger door on the curbside, located rear of the front axle. There is a rear passenger entry door equipped with a Braun Corporation / NCL1000F1B3454HB-2 electric fold down ADA lift located on the curbside behind the rear axle. There is also a rear emergency exit door at the rear of the bus. Power is provided by a gasoline-fueled, Ford Motor Company V8 7.3L engine coupled to Ford Motor Company Torqshift 6 transmission.

The measured curb weight of the vehicle is 9,490 lb., consisting of 3,170 lb. on the front axle and 6,320 lb. on the rear axle. The vehicle is configured with 15 seats, including the driver's seat, and provides additional floor space capable of accommodating up to 21 standing passengers, for a potential total passenger capacity of 36. However, per the manufacturer's specifications, standing passengers are not permitted, despite the presence of interior handholds. As such, the gross load is calculated based on seated passengers only. Of the 15 seats, two fold-away to accommodate two wheelchair positions, resulting in seating configuration allows for 13 seated passengers, plus two wheelchair positions. The gross load is therefore calculated as: $(13 \text{ seated} \times 150 \text{ lb.}) + (2 \text{ wheelchairs} \times 600 \text{ lb.}) = 3,150 \text{ lb.}$ Per the manufacturer's declared seating and wheelchair capacity, the measured gross vehicle weight (GVW) is 12,650 lb. Since there are no standing passengers permitted, the seated load weight is the same as GVW. There is potential to overload this bus with the available floor space for standing passengers.

VEHICLE DATA FORM

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Bus Number: 2025-03	Date of Check-In: 07/16/25
Bus Manufacturer: Micro Bird Inc. / Micro Bird USA, LLC	Vehicle Identification Number (VIN): 1FDFE4FN9TDD00540
Model Number: Micro Bird G5	Chassis Mfr./Mod. #: Ford Motor Co. / E-450
Personnel: S.R., J.M. & P.D.	Starting Odometer Reading: 61 miles

WEIGHT:

Individual Wheel Reactions:

Weights (lb.)	Front Axle		Middle Axle		Rear Axle	
	Curb	Street	Curb	Street	Curb	Street
CW	1,660	1,510	N/A	N/A	3,320	3,000
SLW	1,640	1,570	N/A	N/A	4,780	4,660
GVW	1,640	1,570	N/A	N/A	4,780	4,660

Total Weight Details:

Weight (lb.)	CW	SLW	GVW	GAWR
Front Axle	3,170	3,210	3,210	5,000
Middle Axle	N/A	N/A	N/A	N/A
Rear Axle	6,320	9,440	9,440	9,600
Total	9,490	12,650	12,650	GVWR: 14,500 (Declared by Manufacturer)

Dimensions:

Body Length (ft/in)	23 / 0.2
Length Over Bumpers (ft/in)	23 / 7.1
Overall Length with add-ons (ft/in)	23 / 0
Width (in) – Excluding mirrors	96.4 at body panels; 99.5 to fender flares
Width (in) – Including mirrors	116.6 (arms adjusted to operating position)
Height of bus (in)	106.2
Overall Height (in)	116.2
Front Overhang (in)	34.9
Rear Overhang (in)	90.0
Wheelbase (in)	158.25
Wheel Track (in)	Front: 68.5
	Rear: 78.0

VEHICLE DATA FORM

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Bus Number: 2025-03	Date: 07/16/25
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CLEARANCES:

Lowest Point Outside Front Axle	Location: Valance attached to bumper	Clearance(in): 9.6
Lowest Point Outside Rear Axle	Location: Curbside exhaust clamp	Clearance(in): 10.5
Lowest Point between Axles	Location: Drive shaft loop	Clearance(in): 9.3
Front Bumper Height (in)	9.6	
Rear Bumper Height (in)	16.8	
Ground Clearance at the center (in)	11.5	
Front Approach Angle (deg)*	15.4	
Rear Approach Angle (deg)*	8.1	
Ramp Clearance Angle (deg)	7.7	
Aisle Width (in)	17.3	
Inside Standing Height at Center Aisle (in)	75.5	

*measurements used to calculate approach and departure angles are taken from the centerline of the axles.

BODY DETAILS:

Body Structural Type	Integral				
Frame Material	Steel				
Body Material	Aluminum; Fiberglass				
Floor Material	Plywood; Aluminum and steel sheets				
Roof Material	Fiberglass				
Windows Type	☒ Fixed	☒ Movable			
Window Mfg./Model No.	Lippert / ANSI: Z26-1-1996-0128 / DOT 1065 AS3M2632				
Number of Doors	Streetside: Front - 1 Curbside: Front – 1, Rear ADA – 1 Rear Emergency Exit - 1				
Mfr. / Model No.	Streetside: Front – Ford Motor Co. / OEM Curbside: Front – Huashen / PN 17D0085, Rear ADA- Huashen A004768/4790 Rear Emergency Exit - Huashen /A001321				
Dimension of Each Door (in)	Streetside: Front – 36.3 x 59.9 Curbside: Front – 36.3 x 78.0, Rear ADA – 47 x 73.4 Rear Emergency Exit – 35.4 x 55.3				
Clearance of Each Door (in)	Streetside: Front – 31.7 x 54.7 Curbside: Front – 31.6 x 76.8, Rear ADA – 43.6 x 71.7 Rear Emergency Exit – 33.3 x 53				
Passenger Seat Type	☒ Cantilever	☒ Pedestal			
Mfr. / Model No.	Freedman Seating Co. / CF35L / CH35L / CH35RD4000				
Driver Seat Type	☐ Air	☒ Spring	☐ Other		
Mfr. / Model No.	Ford Motor Co. / OEM				

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BODY DETAILS (Contd.)

Number of Seats (including Driver)	15 or 13 and two wheelchairs
Free Floor Space (ft ²)	32.6 or 12.99 with wheelchairs in place
Height of Each Step at Normal Position (in)	Streetside Front (Driver): 1. <u>14.8</u> 2. <u>6.1</u> 3. <u>6.0</u> 4. <u>N/A</u>
	Curbside Front: 1. <u>12.1</u> 2. <u>8.3</u> 3. <u>8.5</u> 4. <u>N/A</u>
	Middle 1. <u>N/A</u> 2. <u>N/A</u> 3. <u>N/A</u> 4. <u>N/A</u>
	Rear 1. <u>N/A</u> 2. <u>N/A</u> 3. <u>N/A</u> 4. <u>N/A</u>
Step Elevation Change - Kneeling (in)	N/A

ENGINE

Type	☐ C.I.	☐ Alternate Fuel	
	☒ S.I.	☐ Other (explain)	
Mfr. / Model No.	Ford Motor Company / V8 7.3L		
Engine Power	Max kW 242 @ 3750 rpm		
Engine Torque	Max torque Nm 610 @ 3750 rpm		
Location	☒ Front	☐ Rear	☐ Other
Fuel Type	☒ Gasoline	☐ CNG	☐ Methanol
	☐ Diesel	☐ LNG	☐ Other
Alternator (Generator) Mfr./Model No.	Ford Motor Co. / N6G8J / 104211		
Maximum Rated Output (Volts / Amps)	12 / 240		
Air Compressor Mfr. / Model No.	N/A		
Maximum Capacity (ft ³ / min)	N/A		
Starter Type	☒ Electrical	☐ Pneumatic	☐ Other (explain)
Starter Mfr. / Model No.	Ford Motor Co. / NC3T-11000-AA / 5024B		
Low Voltage Battery	12 Volt		
Mfr. / Model No.	(2) – BXT-65-750 / Motorcraft		

TRANSMISSION

Transmission Type	☐ Manual	☒ Automatic	☐ Load Sensing Adaptive
Mfr. / Model No.	Ford Motor Company / Torqshift 6		
Control Type	☒ Mechanical	☐ Electrical	☐ Other
Integral Retarder Mfr. / Model No.	☐ Yes	☒ No	

VEHICLE DATA FORM

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SUSPENSION

Number of Axles	2		
Front Axle Type	☒ Independent	☐ Beam Axle	
Mfr. / Model No.	Ford Motor Company / OEM (Twin I-Beam TFS)		
GAWR (lb.)	5,000		
Axle Ratio (if driven)	N/A		
Suspension Type	☐ Air	☒ Spring	☐ Other
Mfr. / Model No.	Ford Motor Company / OEM (Coil, computer selected)		
No. of Shock Absorbers	2		
Mfr. / Model No.	Motorcraft / 8C2Z-18125-D		
Sway Bar Equipped	☒ Front	☒ Rear	
Middle Axle Type	☐ Independent	☐ Beam Axle	
Mfr. / Model No.	N/A		
GAWR (lb.)	N/A		
Axle Ratio (if driven)	N/A		
Suspension Type	☐ Air	☐ Spring	☐ Other
Mfr. / Model No.	N/A		
No. of Shock Absorbers	N/A		
Mfr. / Model No.	N/A		
Rear Axle Type	☐ Independent	☒ Beam Axle	
Mfr. / Model No.	Dana / PN. 10049722		
GAWR (lb.)	9,600		
Axle Ratio (if driven)	4.56		
Suspension Type	☐ Air	☒ Spring	☐ Other
Mfr. / Model No.	Ford Motor Company / OEM (Micro Bird Option ALS)		
No. of Shock Absorbers	2		
Mfr. / Model No.	Motorcraft / 8C2Z-18124-D		

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WHEELS & TIRES

Front	Wheel Mfr./ Model No.	Fumagalli / 16 x 6
	Wheel Weight Rating (lb.)	2500 (OEM Ford E450)
	Tire Mfr./ Model No.	Hankook Dyna Pro HT / LT225 / 75R 16
	Tire Weight Rating (lb.)	2,680 (single)
Rear	Wheel Mfr./ Model No.	Fumagalli / 16 x 6
	Wheel Weight Rating (lb.)	2500 (OEM Ford E450)
	Tire Mfr./ Model No.	Hankook Dyna Pro HT / LT225 / 75R 16
	Tire Weight Rating (lb.)	2,470 (dual)

BRAKES

Front Axle Brakes Type	☐ Cam	☒ Disc	☐ Other (explain)
Mfr. / Model No.	Ford Motor Company / OEM		
Middle Axle Brakes Type	☐ Cam	☐ Disc	☐ Other
Mfr. / Model No.	N/A		
Rear Axle Brakes Type	☐ Cam	☒ Disc	☐ Other (explain)
Mfr. / Model No.	Ford Motor Company / OEM		
Parking Brake Mfr. / Model No.	Ford Motor Company / OEM		

HVAC

Driver Heating System Type	☒ Engine Coolant	☐ Electric
Capacity (Btu/hr)	15,000	
Mfr./Model No.	Ford Motor Co. / OEM	
Passenger Heating System Type	☒ Engine Coolant	☐ Electric
Capacity (Btu/hr)	42,000 + 26,000	
Mfr./Model No.	Thermatech / 082210000 and 071100002	
Auxiliary Heater	☐ Yes - Type: N/A ☒ No	
Mfr./Model No.	N/A	
Driver Air Conditioner	☒ Yes ☐ No	
Location	Dash controls / Compressor in engine bay	
Capacity (Btu/hr)	15,000	
A/C Compressor Mfr./Model No.	Ford Motor Co. / SN. 0984	

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HVAC (Cont.)

Passenger Air Conditioner	☒ Yes ☐ No
Passenger Air Conditioner	☒ Engine Driven ☐ Electric ☐ Other
Location	Rooftop (Compressor in engine bay)
Capacity (Btu/hr)	55,000
A/C Compressor Mfr./Model No.	Mobile Climate Control / QP16-2637SS

STEERING

Steering Gear Box Type	Hydraulic
Mfr. / Model No.	Ford Motor Co. / OEM
Steering Wheel Diameter	16"
Number of turns (lock to lock)	4

OTHERS

ADA Ramps	Location: N/A	Type: N/A
ADA Lifts	Location: Rear Curbside	Type: Electric fold down
Mfr. / Model No.	The Braun Corporation / NCL1000FIB3454HB-2	
Emergency Exit	Location: Window Door Roof Hatch	Number: 2 3 1
Fire Suppression System Mfr. / Model No.	N/A (Fire extinguisher at front of bus on curbside – Amerex/B402)	

CAPACITIES

Fuel Tank Capacity (gallons)	55
Engine Crankcase Capacity (gallons)	2
Transmission Capacity (gallons)	4
Differential Capacity (gallons)	1
Engine Cooling System Capacity (gallons)	5
Power Steering Fluid Capacity (quarts)	Not available (Ford OEM)

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List all spare parts, tools and manuals delivered with the bus.

- ☒ Service manual and operator's manual documentation available
☐ Service manual and operator's manual documentation NOT available

Part Number	Description	Qty.
45D0099	Body mount and bolts	5
	Motorcraft Battery 12V	1
8C2Z-5560-WIX	Rear leaf spring	2
	U-bolts	4
EOTZ-5776-A	Spring shackle	2
2C3Z-5586-AA	Spring insert	5
	Spring center bolts	4
	Spring keeper	4
LT225 / 75R 16	Spare tire	1
N806568-S439	Spring bolt	
8C2Z-5781-B	Spring bushing	
E0TZ-5781-B	Spring bushing	
W520116-S441	Nuts	
N805408-5441	Nuts	
E0TZ-5776-A	Spring shackle	
	U-bolts	
AA H8600	Adhesive henkel	
	Battery tray	
ASH-1154	Shock absorber	
ASH-1136	Shock absorber	
45D009	Body mount	
8C2Z 5560-W	Leaf spring	

COMPONENT/SUBSYSTEM INSPECTION FORM

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Subsystem	Checked	Initials	Comments
Engine	✓	S.R.	None noted.
Fuel System	✓	S.R.	None noted.
Transmission	✓	S.R.	None noted.
Exhaust	✓	S.R.	None noted.
Engine Cooling System	✓	S.R.	None noted.
Electronics Cooling System	N/A	S.R.	N/A
Drive Motor Cooling System	N/A	S.R.	N/A
Drive Motors/Axle	N/A	S.R.	N/A
High Voltage Batteries	N/A	S.R.	N/A
Body and Sheet Metal	✓	S.R.	None noted.
Frame	✓	S.R.	None noted.
Steering	✓	S.R.	None noted.
Suspension	✓	S.R.	None noted.
Interior/Seating	✓	S.R.	None noted.
Interior Fasteners	✓	S.R.	None noted.
Axles	✓	S.R.	None noted.
Brakes	✓	S.R.	None noted.
Tires/Wheels	✓	S.R.	None noted.
Air Conditioning Heating and Ventilation	✓	S.R.	None noted.
Accessories	✓	S.R.	None noted.
ADA Lift System	✓	S.R.	None noted.
ADA Ramp System	N/A	S.R.	N/A
Low Voltage Batteries	✓	S.R.	None noted.
Emergency Exits	✓	S.R.	None noted.
Fire Suppression System	✓	S.R.	Fire Extinguisher only

CHECK - IN



MICRO BIRD INC. / MICRO BIRD USA LLC G5



CHECK - IN CONT.



MICRO BIRD INC. / MICRO BIRD USA LLC G5



CHECK - IN CONT.



**THE BRAUN CORPORATION NCL1000F1B3454HB-2
ELECTRIC FOLD DOWN ADA LIFT**



OPERATOR'S AREA

CHECK - IN CONT.

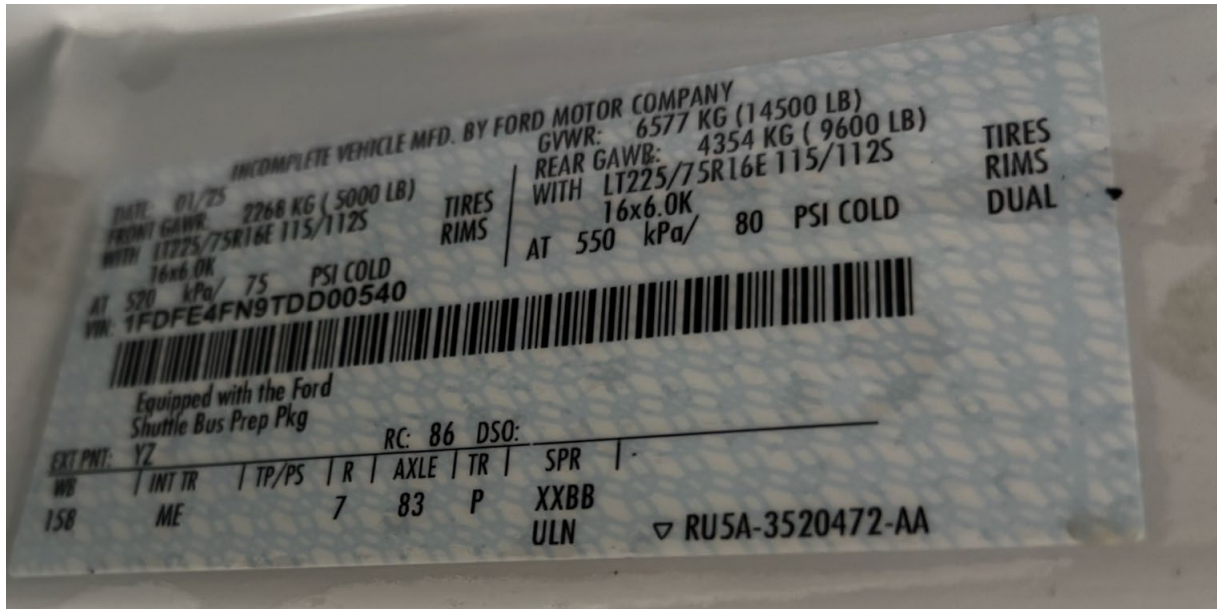


INTERIOR FROM FRONT



INTERIOR FROM REAR

CHECK - IN CONT.

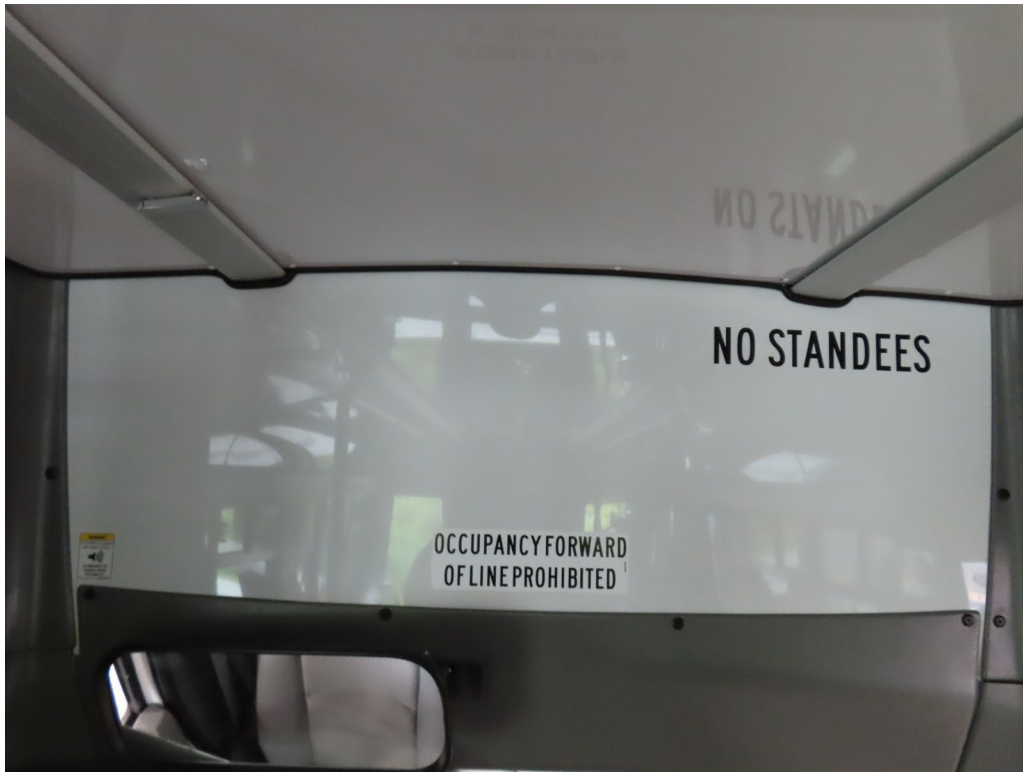


FORD MOTOR COMPANY INCOMPLETE VIN TAG



MICRO BIRD VIN TAG

CHECK - IN CONT.



PLACARD SHOWING NO STANDING PASSENGERS



ENGINE COMPARTMENT

CHECK - IN CONT.



UNDERSIDE OF BUS – FRONT TO REAR



UNDERSIDE OF BUS – REAR TO FRONT

1. MAINTAINABILITY

1.1 ACCESSIBILITY OF COMPONENTS AND SUBSYSTEMS

1.1-I. TEST OBJECTIVE

The objective of this test is to check the accessibility of components and subsystems.

1.1-II. TEST DESCRIPTION

Accessibility of components and subsystems was checked, and where accessibility was restricted the subsystem was noted along with the reason for the restriction.

1.1-III. DISCUSSION

Accessibility, in general, was adequate. Components covered in Section 1.3 (repair and/or replacement of selected subsystems), along with other components encountered during testing, were found to be readily accessible and no restrictions were noted. However, during testing, the hose for the wiper fluid tank needed to be reconnected. In order to access the hose, the 12-volt battery needed to be removed.

ACCESSIBILITY DATA FORM

Page 1 of 2

Bus Number: 2025-03	Date: 10/24/25
---------------------	----------------

Component	Checked	Comments
ENGINE:		
Oil Dipstick	✓	None noted.
Oil Filler Hole	✓	None noted.
Oil Drain Plug	✓	None noted.
Oil Filter	✓	None noted.
Fuel Filter	N/A	Inside the fuel tank.
Air Filter	✓	None noted.
Belts	✓	None noted.
Coolant Level	✓	None noted.
Coolant Filler Hole	✓	None noted.
Coolant Drain	✓	None noted.
Spark / Glow Plugs	✓	None noted.
Alternator	✓	None noted.
Diagnostic Interface Connector	✓	None noted.
TRANSMISSION:		
Fluid Dipstick	✓	None noted.
Filler Hole	✓	None noted.
Drain Plug	N/A	N/A
SUSPENSION:		
Bushings	✓	None noted.
Shock Absorbers	✓	None noted.
Air Springs	N/A	N/A
Leveling Valves	N/A	N/A
Grease Fittings	✓	None noted.

ACCESSIBILITY DATA FORM

Page 2 of 2

Bus Number: 2025-03	Date: 10/24/25
---------------------	----------------

Component	Checked	Comments
HVAC:		
A/C Compressor	✓	None noted.
Filters	✓	None noted.
Fans	✓	None noted.
ELECTRICAL SYSTEM:		
Fuses	✓	None noted.
Batteries	✓	None noted.
Voltage regulator	✓	None noted.
Voltage Converters	N/A	N/A
Lighting	✓	None noted.
MISCELLANEOUS:		
Brakes	✓	None noted.
ADA Accessible Lifts/Ramps	✓	None noted.
Instruments	✓	None noted.
Axles	✓	None noted.
Exhaust	✓	None noted.
Fuel System	✓	None noted.
OTHERS:		
None noted.	N/A	N/A

1.2 SERVICING, PREVENTIVE MAINTENANCE, AND REPAIR AND MAINTENANCE DURING TESTING

1.2-I. TEST OBJECTIVE

The objective of this test is to collect maintenance data about the servicing, preventive maintenance, and repair.

1.2.-II. TEST DESCRIPTION

The test was conducted by operating the bus and collecting the following data on work order forms and a driver log.

1. Scheduled Maintenance
 - a. Bus number
 - b. Date
 - c. Mileage
 - d. Results of scheduled inspections
 - e. Description of malfunction (if any)
 - f. Repair action and parts used (if any)
 - g. Labor-hours

2. Unscheduled Maintenance
 - a. Bus number
 - b. Date
 - c. Mileage
 - d. Description of malfunction
 - e. Place and time of malfunction (e.g., in service or undergoing inspection)
 - f. Repair action and parts used
 - g. Labor-hours

The bus was operated in accelerated durability service. While typical items are given below, the specific service schedule was that specified by the manufacturer.

- A. Service
 1. Fueling
 2. Consumable checks
 3. Interior cleaning

- B. Preventive Maintenance
 1. Brake adjustments
 2. Lubrication
 3. 3,000 mi (or manufacturer recommended) inspection

4. Oil and filter change inspection
5. Major inspection
6. Tune-up

C. Periodic Repairs

1. Brake reline*
2. Transmission change
3. Engine change*
4. Windshield wiper motor change
5. Stoplight bulb change*
6. Towing operations
7. Hoisting operations

*These items are attended to if found necessary, while the others in the list are removed/replaced/tested for all buses undergoing a full test.

1.2-III. DISCUSSION

Servicing and preventive maintenance were performed at manufacturer-specified intervals. The following Scheduled Maintenance Form lists the mileage, items serviced, the service interval, and amount of time required to perform the maintenance.

The Unscheduled Maintenance List along with related photographs is included in Section 5.7, Structural Durability. This list supplies information related to failures that occurred during the durability portion of testing. The Unscheduled Maintenance List includes the date and mileage at which the malfunction was detected, a description of the malfunction and repair, and the time required to perform the repair.

SCHEDULED MAINTENANCE
Micro Bird Inc. / Micro Bird USA LLC Bus# 2025-03
(Page 1 of 8)

DATE	TEST MILES	SERVICE	ACTIVITY/OBSERVATIONS	DOWN TIME	LABOR HOURS
07/29/25	1,815	P.M./Inspection	Steering linkage, tie rods, driveline components all checked and lubricated where necessary; all fluids checked. Inspected frame, body and suspension. Battery located behind the entrance doorsteps is leaking acid on the battery and tray. (Neutralized with baking soda and vinegar). Power box on the side of the wheelchair lift is broken. Latch on compartment above the driver fell off. Cracks observed: #1 – Cracks on the spot welds on the core support, streetside – 3 cm in length. #2 – Body under step, streetside toward back of step is cracked – 1 cm in length. #3 – Body under step, streetside toward the front of step is cracked – 1 cm in length.	4.00	4.00
08/27/25	2,930	P.M./Inspection	Steering linkage, tie rods, driveline components all checked and lubricated where necessary; all fluids checked. Inspected frame, body and suspension. Latch on compartment above the driver fell off – No change. Broken rivets on the battery box located behind the curbside entrance door. Spring guide is broken off of the rear streetside spring. Frame for the ADA lift is cracking at the lower righthand corner. Cracks observed: #1 – Cracks on the spot welds on the core support, streetside – 3 cm in length – No change. #2 – Body under step, streetside toward back of step is cracked – 1 cm in length – No change. #3 – Body under step, streetside toward the front of step is cracked – 1 cm in length – No change.	4.00	4.00

SCHEDULED MAINTENANCE
Micro Bird Inc. / Micro Bird USA LLC Bus# 2025-03
(Page 2 of 8)

DATE	TEST MILES	SERVICE	ACTIVITY/OBSERVATIONS	DOWN TIME	LABOR HOURS
09/04/25	3,817	P.M./Inspection	Steering linkage, tie rods, driveline components all checked and lubricated where necessary; all fluids checked. Inspected frame, body and suspension. Body rivet above the curbside entrance door is broken. Latch on compartment above the driver fell off – No change. Spring guide is broken off of the rear streetside spring – No change. Frame for the ADA lift is cracking at the lower righthand corner – No change. Cracks observed: #1 – Cracks on the spot welds on the core support, streetside – 3 cm in length – No change. #2 – Body under step, streetside toward back of step is cracked – 1 cm in length – No change. #3 – Body under step, streetside toward the front of step is cracked – 1 cm in length – No change. #4 – Crack under the front core support on the streetside in front of the wheel – 3 cm in length. #5 – Crack in the curbside inner fender structure in front of the curbside entrance doorsteps – 2 cm in length. #6 – Crack in the curbside inner fender structure in front of the curbside entrance doorsteps, near crack #5 – 1 cm in length. #7 - Crack on curbside under the seal of the engine cover access. Cover needs to be removed to see the crack – 2 cm in length. #8 - Crack on curbside inner fender under the hood in the engine compartment by the blower motor – 1 cm in length.	4.00	4.00
09/17/25	4,704	P.M./Inspection	Steering linkage, tie rods, driveline components all checked and lubricated where necessary; all fluids checked. Inspected frame, body and suspension. At 4,345 miles all tires were showing wear with one tire showing cords. Six new tires were installed. 9007 2001831 LT 225 / 75R16. Rivet above the curbside, front entrance door broke again.	4.00	4.00

SCHEDULED MAINTENANCE
Micro Bird Inc. / Micro Bird USA LLC Bus# 2025-03
(Page 3 of 8)

DATE	TEST MILES	SERVICE	ACTIVITY/OBSERVATIONS	DOWN TIME	LABOR HOURS
09/17/25 (Cont.)			Carrier bearing rubber is wearing out. Spring guide is broken off of the rear streetside spring – No change. Frame for the ADA lift is cracking at the lower righthand corner – No change. Cracks observed: #1 – Cracks on the spot welds on the core support, streetside – 3 cm in length – No change. #2 – Body under step, streetside toward back of step is cracked – 1 cm in length – No change. #3 – Body under step, streetside toward the front of step is cracked – 1 cm in length – No change. #4 – Crack under the front core support on the streetside in front of the wheel – 3 cm in length – No change. #5 – Crack in the curbside inner fender structure in front of the curbside entrance doorsteps – 2 cm in length – No change. #6 – Crack in the curbside inner fender structure in front of the curbside entrance doorsteps, near crack #5 – 1 cm in length – No change. #7 - Crack on curbside under the seal of the engine cover access. Cover needs to be removed to see the crack – 2 cm in length – No change. #8 - Crack on curbside inner fender under the hood in the engine compartment by the blower motor – crack has extended by 7 cm to 8 cm in length in total. #9 – Crack on curbside inner fender structure above the front tire – 4.5 cm in length. #10 Crack on curbside inner fender structure above the front tire – 6.5 cm in length. #11 – Crack on streetside inner fender structure above the frame rail near the power steering box – 2.5 cm in length.		

SCHEDULED MAINTENANCE
Micro Bird Inc. / Micro Bird USA LLC Bus# 2025-03
(Page 4 of 8)

DATE	TEST MILES	SERVICE	ACTIVITY/OBSERVATIONS	DOWN TIME	LABOR HOURS
09/29/25	5,194	P.M./Inspection Fuel Economy	Steering linkage, tie rods, driveline components all checked and lubricated where necessary; all fluids checked. Inspected frame, body and suspension. Engine oil and filter changed.	4.00	4.00
10/07/25	6,008	P.M./Inspection	Steering linkage, tie rods, driveline components all checked and lubricated where necessary; all fluids checked. Inspected frame, body and suspension. Spring guide is broken off of the rear streetside spring – No change. Frame for the ADA lift is cracking at the lower righthand corner – No change. New: ADA lift is not operational. The door switch is broken. Cracks observed: #1 – Cracks on the spot welds on the core support, streetside – 3 cm in length – No change. #2 – Body under step, streetside toward back of step is cracked – 1 cm in length – No change. #3 – Body under step, streetside toward the front of step is cracked – 1 cm in length – No change. #4 – Crack under the front core support on the streetside in front of the wheel – 3 cm in length has grown by 1 cm to 4 cm in length. #5 – Crack in the curbside inner fender structure in front of the curbside entrance doorsteps – 2 cm in length – No change. #6 – Crack in the curbside inner fender structure in front of the curbside entrance doorsteps, near crack #5 – 1 cm in length – No change. #7 – Crack on curbside under the seal of the engine cover access. Cover needs to be removed to see the crack – 2 cm in length – No change. #8 – Crack on curbside inner fender under the hood in the engine compartment by the blower motor – crack has extended by 7 cm to 8 cm in length in total – Repaired – Cracked again, see crack #8.1.	4.00	4.00

SCHEDULED MAINTENANCE
Micro Bird Inc. / Micro Bird USA LLC Bus# 2025-03
(Page 5 of 8)

DATE	TEST MILES	SERVICE	ACTIVITY/OBSERVATIONS	DOWN TIME	LABOR HOURS
10/07/25 (Cont.)			#8.1 – Crack on the curbside inner fender under the hood in the engine compartment by the blower motor, 8 cm in length. #9 – Crack on curbside inner fender structure above the front tire – 4.5 cm in length – Repaired. #10 Crack on curbside inner fender structure above the front tire – 6.5 cm in length - Repaired. #11 – Crack on streetside inner fender structure above the frame rail near the power steering box – 2.5 cm in length – No change. #12 – Crack in inner fender below crack # 8. Found when the fender was removed for the repair of other cracks - Repaired. #13 – Crack just below the corner of the windshield under the fender.		
10/20/25	6,954	P.M./Inspection	Steering linkage, tie rods, driveline components all checked and lubricated where necessary; all fluids checked. Inspected frame, body and suspension. Curbside outer fender bracket bolted to the inner fender at the front behind the headlight is broken off. Curbside outer fender is broken under the hood by the hood hinge. The lower bushings on the upper part of both rear shocks is split. Spring guide is broken off of the rear streetside spring – No change. Frame for the ADA lift is cracking at the lower righthand corner – No change. Cracks observed: #1 – Cracks on the spot welds on the core support, streetside – 3 cm in length – No change. #2 – Body under step, streetside toward back of step is cracked – 1 cm in length – now 2 cm in length. #3 – Body under step, streetside toward the front of step is cracked – 1 cm in length – No change. #4 – Crack under the front core support on the streetside in front of the wheel 4 cm in length has now grown to approximately 6 cm with a 1 cm branch.	4.00	4.00

SCHEDULED MAINTENANCE
Micro Bird Inc. / Micro Bird USA LLC Bus# 2025-03
(Page 6 of 8)

DATE	TEST MILES	SERVICE	ACTIVITY/OBSERVATIONS	DOWN TIME	LABOR HOURS
10/20/25 (Cont.)			#5 – Crack in the curbside inner fender structure in front of the curbside entrance doorsteps – 2 cm in length is now approximately 3 cm. #6 – Crack in the curbside inner fender structure in front of the curbside entrance doorsteps, near crack #5 – 1 cm in length – No change. #7 - Crack on curbside under the seal of the engine cover access. Cover needs to be removed to see the crack – 2 cm in length – No change. #8 - Crack on curbside inner fender under the hood in the engine compartment by the blower motor – crack has extended by 7 cm to 8 cm in length in total – Repaired – Cracked again, see crack #8.1. #8.1 – Crack on the curbside inner fender under the hood in the engine compartment by the blower motor, 8 cm in length – No change. #9 – Crack on curbside inner fender structure above the front tire – 4.5 cm in length – Repaired. #10 Crack on curbside inner fender structure above the front tire – 6.5 cm in length - Repaired. #11 – Crack on streetside inner fender structure above the frame rail near the power steering box – 2.5 cm in length – No change. #12 – Crack in inner fender below crack # 8. Found when the fender was removed for the repair of other cracks – Repaired – No change. #13 – Crack just below the corner of the windshield under the fender – can only be seen when the fender is removed.		
10/23/25	7,552	P.M./Inspection	Steering linkage, tie rods, driveline components all checked and lubricated where necessary; all fluids checked. Inspected frame, body and suspension. Curbside outer fender bracket bolted to the inner fender at the front behind the headlight is broken off. Curbside outer fender is broken under the hood by the hood hinge— No change.	4.00	4.00

SCHEDULED MAINTENANCE
Micro Bird Inc. / Micro Bird USA LLC Bus# 2025-03
(Page 7 of 8)

DATE	TEST MILES	SERVICE	ACTIVITY/OBSERVATIONS	DOWN TIME	LABOR HOURS
10/23/25 (Cont.)			The lower bushings on the upper part of both rear shocks are split – No change. Spring guide is broken off of the rear streetside spring – No change. Frame for the ADA lift is cracking at the lower righthand corner – No change. Cracks observed: #1 – Cracks on the spot welds on the core support, streetside – 3 cm in length – No change. #2 – Body under step, streetside toward back of step is cracked – 1 cm in length – now 2 cm in length – No change. #3 – Body under step, streetside toward the front of step is cracked – 1 cm in length – No change. #4 – Crack under the front core support on the streetside in front of the wheel 4 cm in length has now grown to approximately 6 cm with a 1 cm branch – No change. #5 – Crack in the curbside inner fender structure in front of the curbside entrance doorsteps – 2 cm in length is now approximately 3 cm – No change. #6 – Crack in the curbside inner fender structure in front of the curbside entrance doorsteps, by crack #5 – 1 cm in length – No change. #7 - Crack on curbside under the seal where the engine access cover sits. Cover needs to be removed to see the crack – 2 cm in length – No change. #8 - Crack on curbside inner fender under the hood in the engine compartment by the blower motor – crack has extended by 7 cm to 8 cm in length in total – Repaired – Cracked again, see crack #8.1. #8.1 – Crack on the curbside inner fender under the hood in the engine compartment by the blower motor, 8 cm in length, now approximately 14 inches in length. #9 – Crack on curbside inner fender structure above the front tire – 4.5 cm in length – Repaired.		

SCHEDULED MAINTENANCE
Micro Bird Inc. / Micro Bird USA LLC Bus# 2025-03
(Page 8 of 8)

DATE	TEST MILES	SERVICE	ACTIVITY/OBSERVATIONS	DOWN TIME	LABOR HOURS
10/23/25 (Cont.)			#10.1 – Crack on inner fender structure, on the curbside above the front tire, approximately 10 cm in length. #11 – Crack on streetside inner fender structure above the frame rail near the power steering box – 2.5 cm in length – No change. #12 – Crack in inner fender below crack # 8. Found when the fender was removed for the repair of other cracks – Repaired – Cracked again, see crack #12.1. #12.1 – Crack located just below crack #8 on the curbside inner fender, approximately 17 cm. #13 – Crack just below the corner of the windshield under the fender – approximately 2 cm. #14 – Crack located below crack #8 and to the rear of crack #12.1 on the curbside inner fender, approximately 3.5 cm in length. #15 – Crack located below crack #14 on curbside inner fender, approximately 2 cm in length. #16 – Crack located on the curbside inner fender well body above the shock tower, approximately 1.5 cm in length. #17 – Crack located on the streetside below the windshield on the body under the wiper cowl, approximately 2 cm in length. #18 – Crack located on streetside inner fender well behind plastic liner on body above the tire, approximately 1.5 cm in length. #19 – Crack located under the dog box next to the dog box cover latch on the streetside, approximately 2 cm long. #20 – Crack located in the fuse box above the driver to the top rear of the box on the support beam, approximately 3 cm in length. #21 – Crack located on the streetside driver floor area, approximately 8.5 cm in length. Found when the rubber flooring was pulled back to document crack #19.		

1.3 REPLACEMENT AND/OR REPAIR OF SELECTED SUBSYSTEMS

1.3-I. TEST OBJECTIVE

The objective of this test is to establish the time required to replace and/or repair selected subsystems.

1.3-II. TEST DESCRIPTION

The test involved components that may be expected to fail or require replacement during the service life of the bus. In addition, any component that failed during testing of the bus was added to this list. Components to be included are:

1. Transmission
2. Alternator
3. Starter
4. Batteries
5. Windshield wiper motor

1.3-III. DISCUSSION

At the end of the test, the items on the list were removed and replaced. The transmission assembly took 9.00 labor-hours to remove and replace. The time required for repair/replacement of the other four components is given on the following Repair and/or Replacement Form.

REPLACEMENT AND/OR REPAIR FORM

Subsystem	Replacement Time
Transmission	9.00 labor hours
Wiper Motor	0.50 labor hours
Starter	0.67 labor hours
Alternator	1.00 labor hours
Batteries -Main 12V	0.16 labor hours
-Auxiliary 12V	0.16 labor hours

During the test, additional components were removed for repair or replacement, and the details are available in Section 5.7 in Unscheduled Maintenance.

1.3 REPLACEMENT AND/OR REPAIR OF SELECTED SUBSYSTEMS



**TRANSMISSION REMOVAL AND REPLACEMENT
(6.50 LABOR HOURS)**



**WIPER MOTOR REMOVAL AND REPLACEMENT
(0.50 LABOR HOURS)**

1.3 REPLACEMENT AND/OR REPAIR OF SELECTED SUBSYSTEMS CONT.



**STARTER REMOVAL AND REPLACEMENT
(0.67 LABOR HOURS)**



**ALTERNATOR REMOVAL AND REPLACEMENT
(1.00 LABOR HOURS)**

2. RELIABILITY - DOCUMENTATION OF BREAKDOWN AND REPAIR TIMES DURING TESTING

2-I. TEST OBJECTIVE

The objective of this test is to document unscheduled breakdowns, repairs, down time, and repair time that occur during testing.

2-II. TEST DESCRIPTION

Using the driver log and unscheduled work order forms, all significant breakdowns, repairs, labor-hours to repair, and hours out of service were recorded on the Reliability Data Form. The dates on the driver's logs reflect operating times. The times when the bus was not operating for a period of time could be due to weather conditions, manufacturer's decision time/non-recurring engineering time, delay for parts delivery, holidays, etc.

CLASS OF FAILURES

Classes of failures are described below:

- (a) Class 1: Physical Safety. A failure that could lead directly to Injury, a crash and/or significant physical damage.
- (b) Class 2: Road Call. A failure resulting in an enroute interruption of revenue service. Service is discontinued until the bus is replaced or repaired at the point of failure.
- (c) 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.
- (d) 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 driver or inspector.

2-III. DISCUSSION

A listing of breakdowns and unscheduled repairs was accumulated during the Structural Durability Test. The following Reliability Data Form lists all unscheduled repairs under classes as defined above.

The classification of repairs according to subsystem is intended to emphasize those systems which had persistent minor or more serious problems. There was a total of 32 reported failures during testing. Of those 32 failures, there were 27 Class 3 and five Class 2 failures. There were no Class 4 or Class 1 failures. These failures are available for review in the Unscheduled Maintenance List, located in Section 5.7 Structural Durability.

This bus passed the Structural and Powertrain Durability sections of the test.

RELIABILITY DATA FORMS

Bus Number: 2025-03	Date: 11/18/25
Personnel: B.L., D.K, S.I. & W.J.	

Subsystems	Failure Type				Labor Hours	Down Time
	Class 4 Bad Order	Class 3 Bus Change	Class 2 Road Call	Class 1 Physical Safety		
Suspension	Mileage	Mileage	Mileage	Mileage		
		334			0.50	0.50
		7,552			0.08	0.08
ADA System		7,552			0.25	0.25
		1,815			2.00	2.00
		1,815			0.25	0.25
			2,646		1.75	1.75
			4,206		0.50	0.50
		4,298			0.25	0.25
			4,888		0.25	0.25
		5,512			0.25	0.25
		5,512			0.08	0.08
			6,540		2.00	2.00
Electrical			2,268		4.13	4.13
Body		2,268			0.25	0.25
		2,930			0.25	0.25
		2,930			0.25	0.25
		2,930			0.25	0.25
		3,817			0.50	0.50
		4,298			0.25	0.25
		4,345			0.08	0.08
		4,750			3.50	3.50
		4,750			0.25	0.25

RELIABILITY DATA FORMS

Bus Number: 2025-03	Date: 11/18/25
Personnel: B.L., D.K, S.I. & W.J.	

	Failure Type				Labor Hours	Down Time
	Class 4 Bad Order	Class 3 Bus Change	Class 2 Road Call	Class 1 Physical Safety		
Subsystems	Mileage	Mileage	Mileage	Mileage		
Body (continued)		6,008			0.08	0.08
		6,356			1.00	1.00
		6,954			0.08	0.08
		7,552			11.92	11.92
Chassis		2,930			0.25	0.25
		5,512			0.25	0.25
Interior		4,298			0.25	0.25
Wiper and Washer		4,750			0.50	0.50
Exhaust/Emissions		5,064			0.50	0.50
Driveline		5,064			1.00	1.00

3.1 SAFETY - A DOUBLE-LANE CHANGE (OBSTACLE AVOIDANCE)

3.1-I. TEST OBJECTIVE

The objective of this test is to determine handling and stability of the bus by measuring speed through a double lane change test.

3.1-II. TEST DESCRIPTION

The Safety Test consisted of an obstacle avoidance maneuver to evaluate the handling and stability of the bus. The test was conducted at the LTI test track on the vehicle dynamics pad. The bus was driven through a double-lane change course at increasing speeds until the test was determined to be unsafe or a speed of 45 mph is reached. The test is determined unsafe if vehicle handling becomes unstable or if any of the tires lose contact with the pavement.

The layout of the test course was defined by placing pylons along painted guidelines that delineated the course. The guidelines marked off two 12-foot center-to-center lanes. Each lane had two 100-foot-long gates with a spacing distance of 100 feet between them. The bus entered the test course in one lane, crossed over to the other lane within the 100-foot gate, traveled for 100 feet, and then returned back into the original lane within the next 100-foot gate. This maneuver was repeated from 20 mph with speed increasing in increments of 5 mph. The test was performed starting from both the right and left lanes.

A test run is considered valid if the bus is able to perform the maneuver at a constant speed without deviating from the test course or striking pylons. If the bus is not able to successfully complete the maneuver due to vehicle instability, the test will be terminated. The highest speed at which the maneuver can be successfully performed up to a maximum speed of 45 mph is recorded on the Safety Data Form.

3.1-III. DISCUSSION

The double-lane change was performed in both right-hand and left-hand directions. The bus was able to safely negotiate the test course in both the right-hand and left-hand directions up to the maximum test speed of 45 mph, and therefore, passed this portion of the test.

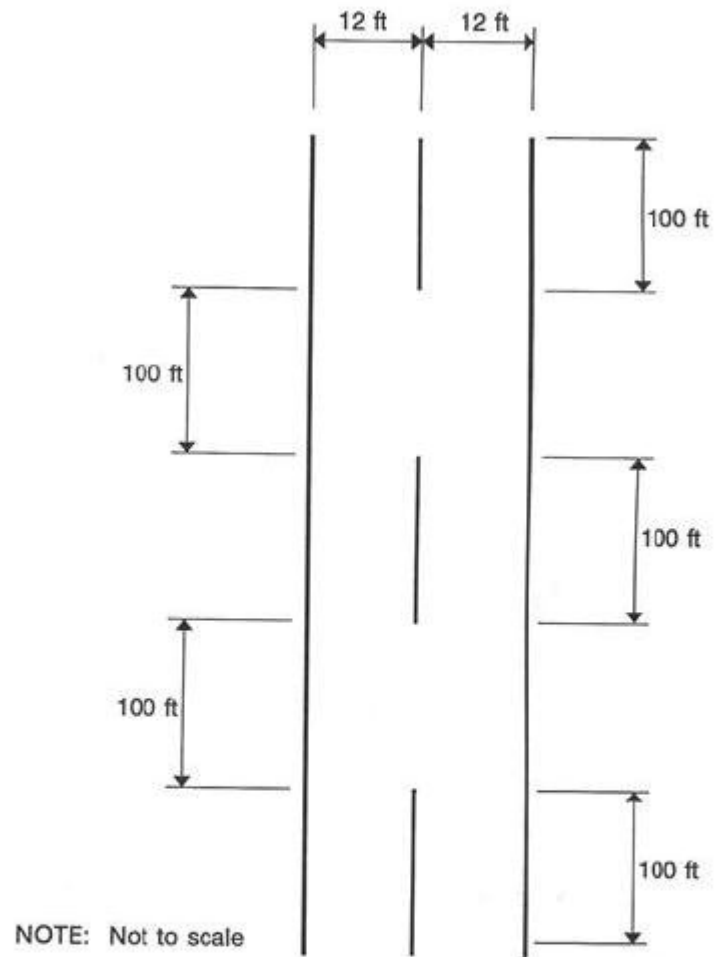


Figure 3.1. Double lane change test course

SAFETY DATA FORM

Page 1 of 1

Bus Number: 2025-03	Date: 09/15/25
Personnel: S.R., T.G., J.M. & G.C.	

Temperature (°F): 78	Humidity (%): 52
Wind Direction: E	Wind Speed (mph): 5
Barometric Pressure (mbar): 1023	

SAFETY TEST: DOUBLE LANE CHANGE	
Maximum safe speed tested for double-lane change to left	45 mph
Maximum safe speed tested for double-lane change to right	45 mph
Comments of the position of the bus during the lane change:	
Test vehicle maintained a safe profile throughout all portions of testing.	
Comments of the tire/ground contact patch:	
The test vehicle maintained the tire/ground contact throughout all portions of testing.	

3.1 SAFETY



RIGHT - HAND APPROACH



LEFT - HAND APPROACH

3.2 Safety - Braking

3.2 I. TEST OBJECTIVE

The objective of this test is to provide, for comparison purposes, braking performance data on transit buses produced by different manufacturers.

3.2 II. TEST DESCRIPTION

The testing was conducted at the LTI Test Track skid pad area. Brake tests were conducted after completion of the GVW portion of the vehicle durability test. At this point in testing the brakes have been subjected to a large number of braking snubs and will be considered well burnished. For buses that have not completed Durability Testing, the brakes will be burnished according to the test procedure. Testing was performed when the bus was fully loaded at its GVW. All tires on each bus were representative of the tires on the production model vehicle and inflated to the bus manufacturer's specified pressures.

The brake testing procedure is comprised of three phases:

1. Stopping distance tests
 - i. Dry surface (high-friction, Skid Number within the range of 70-76)
 - ii. Wet surface (low-friction, Skid Number within the range of 30-36)
2. Stability tests
3. Parking brake test

3.2-III. DISCUSSION

The results of the Stopping Distance phase of the Brake Test are available in table 3.2-2. There was no deviation from the test lane during the performance of the Stopping Distance phase. The bus passed this portion of the test.

During the Stability phase of Brake Testing the test bus experienced no deviation from the test lane during both approaches to the Split Friction Road surface.

The Parking Brake phase was 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.

This bus passed all three phases of the Safety –Braking Test.

Table 3.2-1. Braking Test Data Forms

Page 1 of 3

Bus Number: 2025-03	Date: 09/02/25
Personnel: S.R., T.G., F.T., J.M. and R.M.	
Amb. Temperature (°F): 70	Wind Speed (mph): 3
Wind Direction: S	Barometric Pressure (mbar): 1021.7
Pavement Temp (°F) Start: 100	Pavement Temp (°F) End: 110

TIRE INFLATION PRESSURE (psi):				
Tire Type: Front & Rear: Hankook DynaPro HT 225/75R/16				
	Left Tire(s)		Right Tire(s)	
Front	75		75	
	Inner	Outer	Inner	Outer
Middle	N/A	N/A	N/A	N/A
Rear	80	80	80	80

AXLE LOADS (lb.)		
	Left	Right
Front	1,570	1,640
Middle	N/A	N/A
Rear	4,660	4,780

Table 3.2-2. Stopping Distance Test Results Form
(longest stopping distance in each test condition in bold)

Stopping Distance (ft)					
Vehicle Direction	CW	CW	CCW	CCW	
Speed (mph)	Stop 1	Stop 2	Stop 3	Stop 4	Average
20 (dry)	20.22	22.51	20.75	19.90	20.85
30 (dry)	43.68	43.39	45.55	40.86	43.37
40 (dry)	69.40	71.34	75.59	69.86	71.55
45 (dry)	87.40	84.80	90.89	91.42	88.63
20 (wet)	21.48	19.67	20.90	20.36	20.60

Table 3.2-3. Stability Test Results Form

Stability Test Results (Split Friction Road surface)			
Vehicle Direction	Attempt	Did test bus stay in 12' lane? (Yes/No)	Comments
Driver side on high friction	1	Yes	None noted.
	2	Yes	None noted.
Driver side on low friction	1	Yes	None noted.
	2	Yes	None noted.

Table 3.2-4. Parking Brake Test Form

PARKING BRAKE (GVW) – GRADE HOLDING						
Vehicle Direction	Attempt	Hold Time (min)	Slide (in)	Roll (in)	Did Hold	No Hold
Front up	1	5:00	0	0	✓	--
	2	N/A	N/A	N/A	N/A	N/A
	3	N/A	N/A	N/A	N/A	N/A
Front down	1	5:00	0	0	✓	--
	2	N/A	N/A	N/A	N/A	N/A
	3	N/A	N/A	N/A	N/A	N/A

Table 3.2-5. Record of All Braking System Faults/Repairs.

Date	Fault/Repair	Description
09/02/25	None noted.	None noted.

3.2 Safety - Bus Braking



**PARKING BRAKE TEST
PARKING BRAKE HELD FOR 5 MINUTES IN
BOTH 20% UP AND 20% DOWN POSITIONS**



4. PERFORMANCE - AN ACCELERATION, GRADEABILITY, AND TOP SPEED TEST

4-I. TEST OBJECTIVE

The objective of this test is to determine the acceleration, gradeability, and top speed capabilities of the bus.

4-II. TEST DESCRIPTION

In this test, the bus was operated at SLW on a chassis dynamometer. The procedure dictates that the test bus be accelerated to a maximum “power-limited”/“governed” or maximum “safe” speed not exceeding 80 mph. The maximum power-limited/governed speed, if applicable, is the top speed as limited by the engine power or control system. The maximum safe speed is defined as the maximum speed that the dynamometer, the tires or other bus components are limited to. The test vehicle speed was measured using a speed encoder built in the chassis dynamometer. The time intervals between 10 mph increments were recorded using a Data Acquisition System. Time-speed data and the top speed attained were recorded on the Performance Data Form. The recorded data was used to generate a percent grade versus speed table and a speed versus time curve. All the above are available in the following pages.

4-III. DISCUSSION

This test consisted of three runs from standstill to full throttle on the chassis dynamometer. Speed versus time data was obtained for each run and results are averaged to minimize test variability. The test was performed up to a maximum governed speed of 79.7 mph. The calculated gradeability results are attached. The average time to reach 30 mph was 7.3 seconds. The maximum gradeability at 10 mph was 28.9% and at 40 mph was 12.2%. This bus passed this section of the test.

PERFORMANCE DATA FORM

Page 1 of 1

Bus Number: 2025-03		Date: 09/30/25	
Personnel: M.W. & S.I.			
Temperature (°F): 74		Humidity (%): 46	
Barometric Pressure (inHg): 28.8			
			INITIALS:
Air Conditioning - OFF		✓Checked	M.W.
Defroster - OFF		✓ Checked	M.W.
Exterior and interior lights - ON		✓ Checked	M.W.
Windows and doors - CLOSED		✓ Checked	M.W.
ACCELERATION, GRADEABILITY, TOP SPEED			
Recorded Interval Times			
Speed	Run 1	Run 2	Run 3
10 mph	2.4	2.2	2.6
20 mph	4.8	4.1	4.7
30 mph	7.6	7.0	7.3
40 mph	11.4	10.7	10.9
50 mph	16.1	15.2	15.4
60 mph	22.4	21.5	21.6
70 mph	35.4	33.8	33.5

Maximum Speed (mph): 79.7 (maximum governed speed reached)

PERFORMANCE SUMMARY SHEET

Bus Number: 2025-03	Date: 09/30/25
Personnel: M.W. & S.I.	

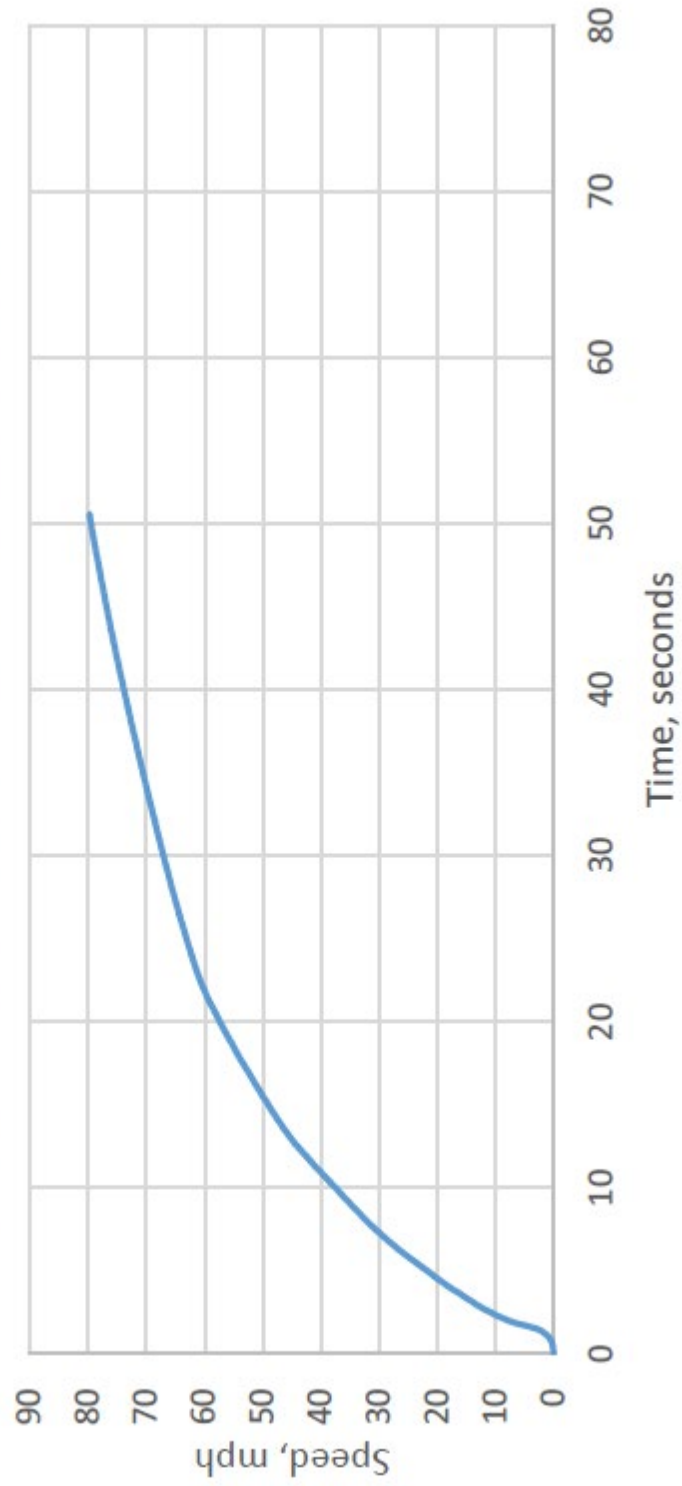
Test Conditions:

Temperature (°F): 74	Humidity (%): 46
Barometric Pressure (inHg): 28.8	

Test Results:

Vehicle Speed (MPH)	Time (SEC)	Acceleration (FT/SEC^2)	Max. Grade (%)
1.0	1.1	5.34	16.8
5.0	1.7	10.86	35.8
10.0	2.4	8.94	28.9
15.0	3.4	6.57	20.8
20.0	4.6	5.74	18.1
25.0	5.9	5.46	17.2
30.0	7.3	4.56	14.3
35.0	9.1	3.90	12.2
40.0	11.0	3.89	12.2
45.0	12.9	3.33	10.4
50.0	15.6	2.57	8.0
55.0	18.5	2.35	7.3
60.0	21.9	1.83	5.7
65.0	27.3	1.16	3.6
70.0	34.2	1.00	3.1
75.0	41.9	0.90	2.8
79.7	50.6	Maximum Speed	

Micro Bird Inc. / Micro Bird USA LLC Bus #2025-03



5.2 STRUCTURAL STRENGTH AND DISTORTION TESTS - STRUCTURAL DISTORTION

5.2-I. TEST OBJECTIVE

The objective of this test is to observe the operation of the bus subsystems when the bus is placed in a longitudinal twist simulating operation over a curb or through a pothole.

5.2-II. TEST DESCRIPTION

With the bus loaded to GVW, each wheel of the bus was raised (one at a time) to simulate operation over a curb and the following were inspected:

1. Body
2. Windows
3. Doors
4. Roof vents
5. Special seating
6. Undercarriage
7. Engine
8. Service doors
9. Escape hatches
10. Steering mechanism

Each wheel was then lowered (one at a time) to simulate operation through a pothole and the same items inspected.

5.2-III. DISCUSSION

The test sequence was repeated ten times. The first and last test is with all wheels level. The other eight tests are with each wheel 6 inches higher and 6 inches lower than the other three wheels.

All doors, windows, escape mechanisms, engine, steering and ADA accessible devices operated normally throughout the test. The undercarriage and body indicated no deficiencies. No water leakage was observed during the test. The results of this test are indicated on the following data forms. This bus passed this section of the test.

DISTORTION TEST INSPECTION FORM

(Note: Ten copies of this data sheet are required)

Page 1 of 10

Bus Number: 2025-03	Date: 07/21/25
Personnel: S.R., J.M., T.G., P.D., F.T., R.M. & G.C.	Temperature(°F): 80

Wheel Position: (check one)		
All wheels level	☒ before	☐ after
Left front	☐ 6 in higher	☐ 6 in lower
Right front	☐ 6 in higher	☐ 6 in lower
Right rear	☐ 6 in higher	☐ 6 in lower
Left rear	☐ 6 in higher	☐ 6 in lower
Right center	☐ 6 in higher	☐ 6 in lower
Left center	☐ 6 in higher	☐ 6 in lower

	Comments
Windows	No deficiencies.
Front Doors	No deficiencies.
Rear Doors	No deficiencies.
Escape Mechanisms/ Roof Vents	No deficiencies.
Engine	No deficiencies.
ADA Accessible/ Special Seating	No deficiencies.
Undercarriage	No deficiencies.
Service Doors	No deficiencies.
Body	No deficiencies.
Windows/ Body Leakage	No deficiencies.
Steering Mechanism	No deficiencies.

DISTORTION TEST INSPECTION FORM

(Note: Ten copies of this data sheet are required)

Page 2 of 10

Bus Number: 2025-03	Date: 07/21/25
Personnel: S.R., J.M., T.G., P.D., F.T., R.M. & G.C.	Temperature(°F): 80

Wheel Position: (check one)		
All wheels level	☐ before	☐ after
Left front	☒ 6 in higher	☐ 6 in lower
Right front	☐ 6 in higher	☐ 6 in lower
Right rear	☐ 6 in higher	☐ 6 in lower
Left rear	☐ 6 in higher	☐ 6 in lower
Right center	☐ 6 in higher	☐ 6 in lower
Left center	☐ 6 in higher	☐ 6 in lower

	Comments
Windows	No deficiencies.
Front Doors	No deficiencies.
Rear Doors	No deficiencies.
Escape Mechanisms/ Roof Vents	No deficiencies.
Engine	No deficiencies.
ADA Accessible/ Special Seating	No deficiencies.
Undercarriage	No deficiencies.
Service Doors	No deficiencies.
Body	No deficiencies.
Windows/ Body Leakage	No deficiencies.
Steering Mechanism	No deficiencies.

DISTORTION TEST INSPECTION FORM

(Note: Ten copies of this data sheet are required)

Page 3 of 10

Bus Number: 2025-03	Date: 07/21/25
Personnel: S.R., J.M., T.G., P.D., F.T., R.M. & G.C.	Temperature(°F): 80

Wheel Position: (check one)		
All wheels level	☐ before	☐ after
Left front	☐ 6 in higher	☐ 6 in lower
Right front	☒ 6 in higher	☐ 6 in lower
Right rear	☐ 6 in higher	☐ 6 in lower
Left rear	☐ 6 in higher	☐ 6 in lower
Right center	☐ 6 in higher	☐ 6 in lower
Left center	☐ 6 in higher	☐ 6 in lower

	Comments
Windows	No deficiencies.
Front Doors	No deficiencies.
Rear Doors	No deficiencies.
Escape Mechanisms/ Roof Vents	No deficiencies.
Engine	No deficiencies.
ADA Accessible/ Special Seating	No deficiencies.
Undercarriage	No deficiencies.
Service Doors	No deficiencies.
Body	No deficiencies.
Windows/ Body Leakage	No deficiencies.
Steering Mechanism	No deficiencies.

DISTORTION TEST INSPECTION FORM

(Note: Ten copies of this data sheet are required)

Page 4 of 10

Bus Number: 2025-03	Date: 07/21/25
Personnel: S.R., J.M., T.G., P.D., F.T., R.M. & G.C.	Temperature(°F): 80

Wheel Position: (check one)		
All wheels level	☐ before	☐ after
Left front	☐ 6 in higher	☐ 6 in lower
Right front	☐ 6 in higher	☐ 6 in lower
Right rear	☒ 6 in higher	☐ 6 in lower
Left rear	☐ 6 in higher	☐ 6 in lower
Right center	☐ 6 in higher	☐ 6 in lower
Left center	☐ 6 in higher	☐ 6 in lower

	Comments
Windows	No deficiencies.
Front Doors	No deficiencies.
Rear Doors	No deficiencies.
Escape Mechanisms/ Roof Vents	No deficiencies.
Engine	No deficiencies.
ADA Accessible/ Special Seating	No deficiencies.
Undercarriage	No deficiencies.
Service Doors	No deficiencies.
Body	No deficiencies.
Windows/ Body Leakage	No deficiencies.
Steering Mechanism	No deficiencies.

DISTORTION TEST INSPECTION FORM

(Note: Ten copies of this data sheet are required)

Page 5 of 10

Bus Number: 2025-03	Date: 07/21/25
Personnel: S.R., J.M., T.G., P.D., F.T., R.M. & G.C.	Temperature(°F): 80

Wheel Position: (check one)		
All wheels level	☐ before	☐ after
Left front	☐ 6 in higher	☐ 6 in lower
Right front	☐ 6 in higher	☐ 6 in lower
Right rear	☐ 6 in higher	☐ 6 in lower
Left rear	☒ 6 in higher	☐ 6 in lower
Right center	☐ 6 in higher	☐ 6 in lower
Left center	☐ 6 in higher	☐ 6 in lower

	Comments
Windows	No deficiencies.
Front Doors	No deficiencies.
Rear Doors	No deficiencies.
Escape Mechanisms/ Roof Vents	No deficiencies.
Engine	No deficiencies.
ADA Accessible/ Special Seating	No deficiencies.
Undercarriage	No deficiencies.
Service Doors	No deficiencies.
Body	No deficiencies.
Windows/ Body Leakage	No deficiencies.
Steering Mechanism	No deficiencies.

DISTORTION TEST INSPECTION FORM

(Note: Ten copies of this data sheet are required)

Page 6 of 10

Bus Number: 2025-03	Date: 07/21/25
Personnel: S.R., J.M., T.G., P.D., F.T., R.M. & G.C.	Temperature(°F): 80

Wheel Position: (check one)		
All wheels level	☐ before	☐ after
Left front	☐ 6 in higher	☒ 6 in lower
Right front	☐ 6 in higher	☐ 6 in lower
Right rear	☐ 6 in higher	☐ 6 in lower
Left rear	☐ 6 in higher	☐ 6 in lower
Right center	☐ 6 in higher	☐ 6 in lower
Left center	☐ 6 in higher	☐ 6 in lower

	Comments
Windows	No deficiencies.
Front Doors	No deficiencies.
Rear Doors	No deficiencies.
Escape Mechanisms/ Roof Vents	No deficiencies.
Engine	No deficiencies.
ADA Accessible/ Special Seating	No deficiencies.
Undercarriage	No deficiencies.
Service Doors	No deficiencies.
Body	No deficiencies.
Windows/ Body Leakage	No deficiencies.
Steering Mechanism	No deficiencies.

DISTORTION TEST INSPECTION FORM

(Note: Ten copies of this data sheet are required)

Page 7 of 10

Bus Number: 2025-03	Date: 07/21/25
Personnel: S.R., J.M., T.G., P.D., F.T., R.M. & G.C.	Temperature(°F): 80

Wheel Position: (check one)		
All wheels level	☐ before	☐ after
Left front	☐ 6 in higher	☐ 6 in lower
Right front	☐ 6 in higher	☒ 6 in lower
Right rear	☐ 6 in higher	☐ 6 in lower
Left rear	☐ 6 in higher	☐ 6 in lower
Right center	☐ 6 in higher	☐ 6 in lower
Left center	☐ 6 in higher	☐ 6 in lower

	Comments
Windows	No deficiencies.
Front Doors	No deficiencies.
Rear Doors	No deficiencies.
Escape Mechanisms/ Roof Vents	No deficiencies.
Engine	No deficiencies.
ADA Accessible/ Special Seating	No deficiencies.
Undercarriage	No deficiencies.
Service Doors	No deficiencies.
Body	No deficiencies.
Windows/ Body Leakage	No deficiencies.
Steering Mechanism	No deficiencies.

DISTORTION TEST INSPECTION FORM

(Note: Ten copies of this data sheet are required)

Page 8 of 10

Bus Number: 2025-03	Date: 07/21/25
Personnel: S.R., J.M., T.G., P.D., F.T., R.M. & G.C.	Temperature(°F): 80

Wheel Position: (check one)		
All wheels level	☐ before	☐ after
Left front	☐ 6 in higher	☐ 6 in lower
Right front	☐ 6 in higher	☐ 6 in lower
Right rear	☐ 6 in higher	☒ 6 in lower
Left rear	☐ 6 in higher	☐ 6 in lower
Right center	☐ 6 in higher	☐ 6 in lower
Left center	☐ 6 in higher	☐ 6 in lower

	Comments
Windows	No deficiencies.
Front Doors	No deficiencies.
Rear Doors	No deficiencies.
Escape Mechanisms/ Roof Vents	No deficiencies.
Engine	No deficiencies.
ADA Accessible/ Special Seating	No deficiencies.
Undercarriage	No deficiencies.
Service Doors	No deficiencies.
Body	No deficiencies.
Windows/ Body Leakage	No deficiencies.
Steering Mechanism	No deficiencies.

DISTORTION TEST INSPECTION FORM

(Note: Ten copies of this data sheet are required)

Page 9 of 10

Bus Number: 2025-03	Date: 07/21/25
Personnel: S.R., J.M., T.G., P.D., F.T., R.M. & G.C.	Temperature(°F): 80

Wheel Position: (check one)		
All wheels level	☐ before	☐ after
Left front	☐ 6 in higher	☐ 6 in lower
Right front	☐ 6 in higher	☐ 6 in lower
Right rear	☐ 6 in higher	☐ 6 in lower
Left rear	☐ 6 in higher	☒ 6 in lower
Right center	☐ 6 in higher	☐ 6 in lower
Left center	☐ 6 in higher	☐ 6 in lower

	Comments
Windows	No deficiencies.
Front Doors	No deficiencies.
Rear Doors	No deficiencies.
Escape Mechanisms/ Roof Vents	No deficiencies.
Engine	No deficiencies.
ADA Accessible/ Special Seating	No deficiencies.
Undercarriage	No deficiencies.
Service Doors	No deficiencies.
Body	No deficiencies.
Windows/ Body Leakage	No deficiencies.
Steering Mechanism	No deficiencies.

DISTORTION TEST INSPECTION FORM

(Note: Ten copies of this data sheet are required)

Page 10 of 10

Bus Number: 2025-03	Date: 07/21/25
Personnel: S.R., J.M., T.G., P.D., F.T., R.M. & G.C.	Temperature(°F): 80

Wheel Position: (check one)		
All wheels level	☐ before	☒ after
Left front	☐ 6 in higher	☐ 6 in lower
Right front	☐ 6 in higher	☐ 6 in lower
Right rear	☐ 6 in higher	☐ 6 in lower
Left rear	☐ 6 in higher	☐ 6 in lower
Right center	☐ 6 in higher	☐ 6 in lower
Left center	☐ 6 in higher	☐ 6 in lower

	Comments
Windows	No deficiencies.
Front Doors	No deficiencies.
Rear Doors	No deficiencies.
Escape Mechanisms/ Roof Vents	No deficiencies.
Engine	No deficiencies.
ADA Accessible/ Special Seating	No deficiencies.
Undercarriage	No deficiencies.
Service Doors	No deficiencies.
Body	No deficiencies.
Windows/ Body Leakage	No deficiencies.
Steering Mechanism	No deficiencies.

5.2 STRUCTURAL DISTORTION TEST



RIGHT FRONT WHEEL SIX INCHES HIGHER



RIGHT FRONT WHEEL SIX INCHES LOWER

5.3 STRUCTURAL STRENGTH AND DISTORTION TESTS - STATIC TOWING TEST

5.3-I. TEST OBJECTIVE

The objective of this test is to determine the characteristics of the bus towing mechanisms under static loading conditions.

5.3-II. TEST DESCRIPTION

Utilizing a load-distributing yoke, a hydraulic cylinder was used to apply a static tension load equal to 1.2 times the bus curb weight. The load is applied to both the front and rear (if applicable) towing fixtures at an angle of 20 degrees with the longitudinal axis of the bus, first to one side then the other in the horizontal plane, and then upward and downward in the vertical plane. Any permanent deformation or damage to the tow eyes or adjoining structure was recorded.

5.3-III. DISCUSSION

The test bus submitted for testing was not equipped with any type of tow eyes or tow hooks. Therefore, the static towing test was not performed. This bus is deemed to pass this section of the test, but no points were allotted for this section.

5.4 STRUCTURAL STRENGTH AND DISTORTION TESTS - DYNAMIC TOWING TEST

5.4-I. TEST OBJECTIVE

The objective of this test is to verify the integrity of the towing fixtures and determine the feasibility of towing the bus under manufacturer specified procedures.

5.4-II. TEST DESCRIPTION

This test required the bus to be towed at curb weight using the specified equipment and instructions provided by the manufacturer and a heavy-duty wrecker. The bus was towed for 5 miles at a speed of 20 mph for each recommended towing configuration. After releasing the bus from the wrecker, the bus was visually inspected for any structural damage or permanent deformation. All doors, windows and passenger escape mechanisms were inspected for proper operation.

5.4-III. DISCUSSION

The bus was towed using a heavy-duty wrecker. The towing interface was accomplished by incorporating a hydraulic under-lift. A front lift tow was performed. No problems, deformation, or damage was noted during testing. This bus passed this section of the test.

DYNAMIC TOWING TEST DATA FORM

Page 1 of 1

Bus Number: 2025-03	Date: 10/02/25
Personnel: F.T., S.R., J.M. & R.M.	

Temperature (°F): 59	
Wind Direction: SE	Wind Speed (mph): 3

Inspect tow equipment-bus interface.
Comments: Bus made an adequate connection between the bus and wrecker.
Inspect tow equipment-wrecker interface.
Comments: Wrecker made an adequate connection between the wrecker and bus.
Towing Comments: The wrecker made the laps with no issues.
Description and location of any structural damage: No damage to report.
General Comments: None noted.

5.4 DYNAMIC TOWING TEST



TOWING INTERFACE



TEST BUS IN TOW

5.5 STRUCTURAL STRENGTH AND DISTORTION TESTS – JACKING TEST

5.5-I. TEST OBJECTIVE

The objective of this test is to inspect for damage due to the deflated tire and determine the feasibility of jacking the bus with a portable hydraulic jack to a height sufficient to replace a deflated tire.

5.5-II. TEST DESCRIPTION

With the bus at curb weight, each wheel location of the bus is deflated to simulate a flat tire. A portable hydraulic floor jack is then positioned in a manner and location specified by the manufacturer. The jack is used to raise the bus to a height sufficient to provide approximately 3 inches clearance between the floor and an inflated tire. The deflated tire is then inflated to the tires specification and the jack is lowered. Any structural damage or permanent deformation is recorded on the Jacking Test Data Form. This procedure is repeated at each wheel location for each jacking point on the bus.

5.5-III. DISCUSSION

During the deflated portion of the test, the jacking point clearances ranged from 7.7 inches to 17.5 inches. No deformation or damage was observed during testing. A complete listing of jacking point clearances is provided in the Jacking Test Data Form. This bus passed this section of the test.

JACKING CLEARANCE SUMMARY

Condition	Frame Point Clearance
Front axle – one tire flat	7.7
Rear axle – one tire flat	17.2
Rear axle – two tires flat	16.2

JACKING TEST DATA FORM

Page 1 of 1

Bus Number: 2025-03	Date: 07/21/25
Personnel: S.R., J.M. & T.G.	Temperature (°F): 75

Record any permanent deformation or damage to bus as well as any difficulty encountered during jacking procedure.

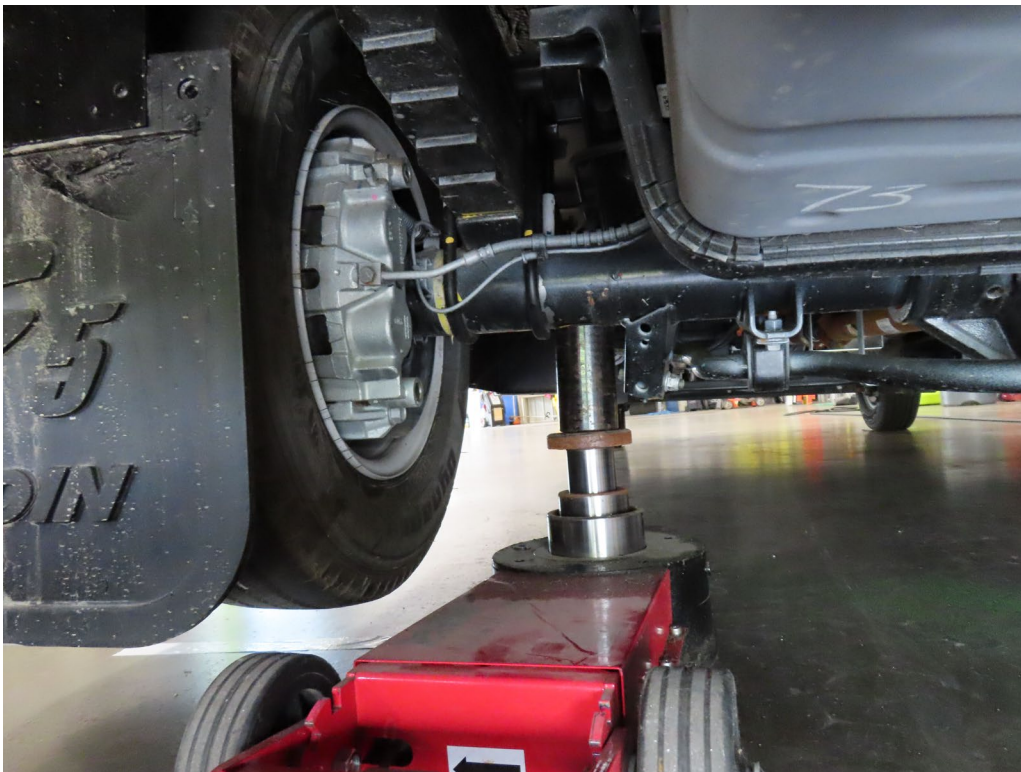
I= Inflated D= Deflated

Deflated Tire	Jacking Pad Clearance Body/Frame (in)	Jacking Pad Clearance Axle/Suspension (in)	Comments
Right front	9.8"I 7.7"D	12.0"I 9.6"D	Axle under sway bar link Body at valance
Left front	10.3"I 7.8"D	12.0"I 8.9"D	Axle under sway bar link Body at bumper valance
Right rear—outside	17.3"I 17.2"D	10.3"I 10.1"D	Frame in front of spring shackle Suspension – sway bar link
Right rear—both	17.3"I 16.2"D	10.3"I 9.1"D	Frame – shackle Suspension- sway bar
Left rear—outside	17.7"I 17.5"D	10.8"I 10.6"D	Frame – shackle Suspension- sway bar
Left rear—both	17.7"I 16.6"D	10.8"I 9.5"D	Frame – shackle Suspension- sway bar
Right middle or tag—outside	N/A	N/A	N/A
Right middle or tag—both	N/A	N/A	N/A
Left middle or tag—outside	N/A	N/A	N/A
Left middle or tag—both	N/A	N/A	N/A
Additional comments of any deformation or difficulty during jacking:			
None noted.			

5.5 JACKING TEST



JACK IN PLACE – FRONT



JACK IN PLACE – REAR

5.6 STRUCTURAL STRENGTH AND DISTORTION TESTS - HOISTING TEST

5.6-I. TEST OBJECTIVE

The objective of this test is to determine whether the bus can be lifted, supported on jackstands, and lowered safely without damage.

5.6-II. TEST DESCRIPTION

With the bus at curb weight, the front end of the bus was raised to a height sufficient to allow manufacturer-specified placement of jack stands under the axles or jacking pads independent of the hoist system. The bus was checked for stability on the jack stands and for any damage to the jacking pads or bulkheads. The procedure was repeated for the tag/middle axles (if equipped), and rear end of the bus. The procedure was then repeated for the front, tag/middle (if equipped) axles, and rear simultaneously.

5.6-III. DISCUSSION

The test was conducted using four posts of a six-post electric lift and 19-inch jack stands. The bus was hoisted from the front wheels, then from the rear wheels, and then from the front and rear wheels simultaneously and placed on jack stands.

The bus accommodated the placement of the vehicle lifts and jack stands and the procedure was performed without any instability noted. This bus passed this section of the test.

HOISTING TEST DATA FORM

Page 1 of 1

Bus Number: 2025-03	Date: 07/21/25
Personnel: S.R., J.M., T.G. & P.D.	Temperature (°F): 75

Comments of any structural damage to the jacking pads or axles while both the front wheels are supported by the jack stands:
None noted.
Comments of any structural damage to the jacking pads or axles while both the rear wheels are supported by the jack stands:
None noted.
Comments of any structural damage to the jacking pads or axles while both the tag axle wheels are supported by the jack stands:
N/A
Comments of any structural damage to the jacking pads or axles while the front and rear wheels are supported by the jack stands:
None noted.
Comments of any problems or interference placing wheel hoists under wheels:
None noted.

5.6 HOISTING TEST



JACK STANDS IN PLACE - FRONT



JACK STANDS IN PLACE – FRONT AND REAR

5.7 STRUCTURAL DURABILITY TEST

5.7-I. TEST OBJECTIVE

The objective of this test is to perform an accelerated durability test that approximates 25 percent of the service life of the vehicle.

5.7-II. TEST DESCRIPTION

The test vehicle was driven a total of 7,500 miles; approximately 5,000 miles on the LTI Durability Test Track and approximately 2,500 miscellaneous other miles. The test was conducted with the bus operated under three different loading conditions. The first segment consisted of approximately 3,000 miles with the bus operated at GVW. The second segment consisted of approximately 1,500 miles with the bus operated at SLW. The remainder of the test, approximately 3,000 miles, was conducted with the bus loaded to CW. The loads on both axles and GVW were within their ratings with the bus loaded as specified by the manufacturer. All subsystems were running during these tests in their normal operating modes. All manufacturer-recommended servicing was followed and noted on the vehicle maintainability log. Servicing items accelerated by the durability tests were compressed by 10:1; all others were done on a 1:1 mi/mi basis. Unscheduled breakdowns and repairs were recorded on the same log as are any unusual occurrences as noted by the driver. Once a week the test vehicle was washed down and thoroughly inspected for any signs of failure. The dates on the driver's logs reflect operating times. The times when the bus was not operating for a period of time could be due to weather conditions, manufacturer's decision time/non-recurring engineering time, delay for parts delivery, holidays, etc.

5.7-III. DISCUSSION

The Structural Durability Test was started on July 22, 2025 and was completed on October 21, 2025. The first 2,500 miles were performed at a GVW of 12,650 lb. and completed on August 28, 2025. The next 1,500-mile SLW segment was performed at 12,650 lb. and completed on September 5, 2025 and the final 3,000-mile segment was performed at a CW of 9,490 lb. and completed on October 21, 2025.

The following mileage summary presents the accumulation of miles during the Structural Durability Test. The driving schedule is included, showing the operating duty cycle. A detailed plan view of the LTI Test Track Facility and Durability Test Track are attached for reference. Also, a durability element profile detail shows all the measurements of the different conditions. Finally, photographs illustrating some of the failures that were encountered during the Structural Durability Test are included. This bus passed this section of the test, as there were no uncorrected Class 1 or Class 2 failures and the unscheduled maintenance of 33.7 hours was less than 125 hours.

Micro Bird Inc. / Micro Bird USA LLC Bus # 2025-03
MILEAGE DRIVEN/RECORDED FROM DRIVER'S LOGS

DATE	TOTAL DURABILITY TRACK	TOTAL OTHER MILES	TOTAL
07/21/25 To 07/27/25	838.00	152.00	990.00
07/28/25 To 08/03/25	86.00	739.00	825.00
08/04/25 To 08/10/25	356.00	16.00	372.00
08/11/25 To 08/17/25	77.00	4.00	81.00
08/18/25 To 08/24/25	0.00	0.00	0.00
08/25/25 To 08/31/25	877.00	66.00	943.00
09/01/25 To 09/07/25	927.00	68.00	995.00
09/08/25 To 09/14/25	144.00	60.00	204.00
09/15/25 To 09/21/25	175.00	118.00	293.00
09/22/25 To 10/05/25	728.00	151.00	879.00
10/06/25 To 10/12/25	672.00	170.00	842.00
10/13/25 To 10/19/25	120.00	7.00	127.00
10/20/25 To 10/26/25	0.00	953.00	953.00
Total	5000.00	2504.00	7504.00

Driving Schedule for Bus Operation on the Durability Test Track.

STANDARD OPERATING SCHEDULE

Monday through Friday

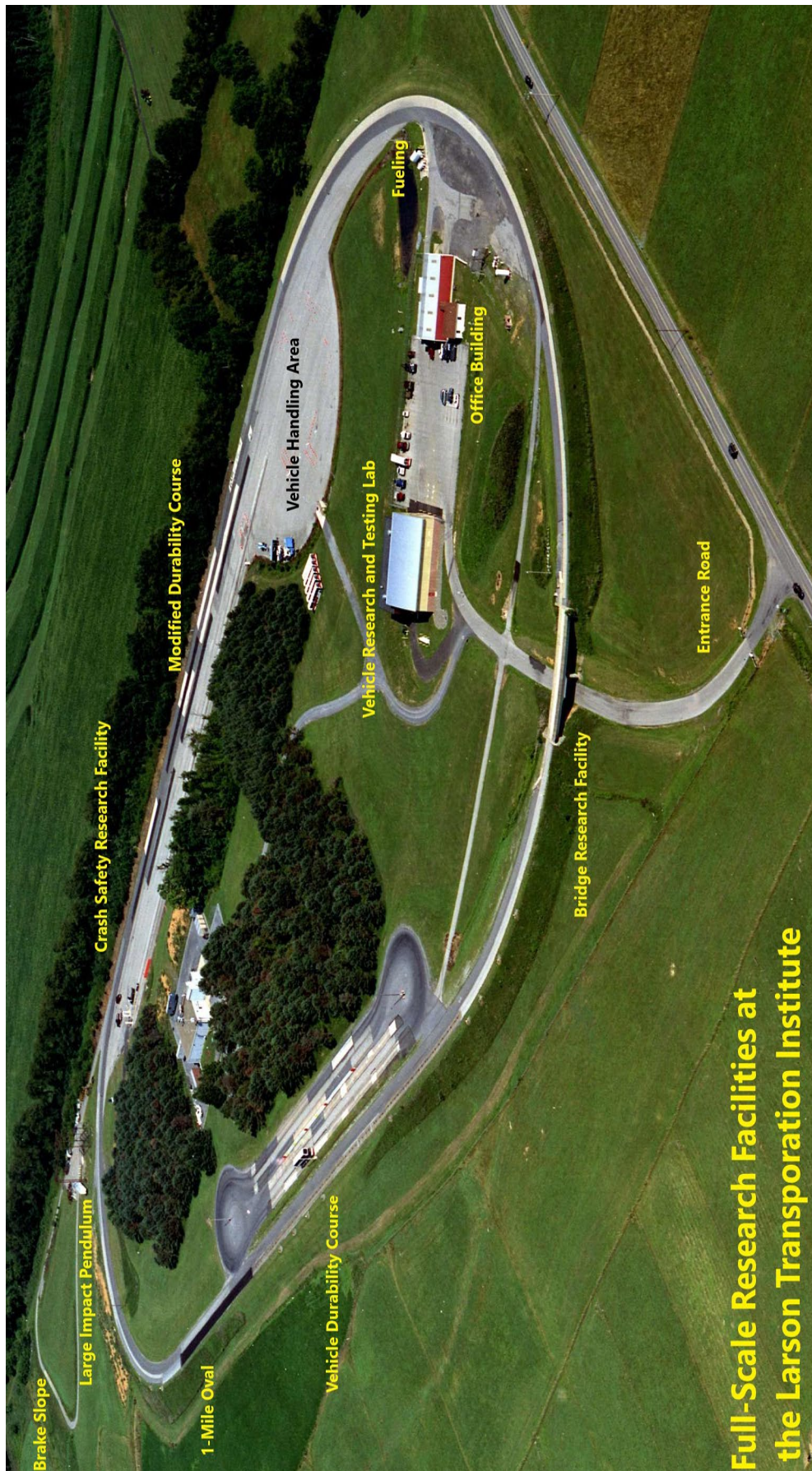
	HOUR	ACTION
Shift 1	midnight	D
	1:40 am	C
	1:50 am	B
	2:00 am	D
	3:35 am	C
	3:45 am	B
	4:05 am	D
	5:40 am	C
	5:50 am	B
	6:00 am	D
	7:40 am	C
	7:50 am	F
Shift 2	8:00 am	D
	9:40 am	C
	9:50 am	B
	10:00 am	D
	11:35 am	C
	11:45 am	B
	12:05 pm	D
	1:40 pm	C
	1:50 pm	B
	2:00 pm	D
	3:40 pm	C
	3:50 pm	F
Shift 3	4:00 pm	D
	5:40 pm	C
	5:50 pm	B
	6:00 pm	D
	7:40 pm	C
	7:50 pm	B
	8:05 pm	D
	9:40 pm	C
	9:50 pm	B
	10:00 pm	D
	11:40 pm	C
	11:50 pm	F

B—Break

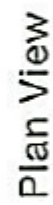
C—Cycle all systems five times, visual inspection, driver's log entries

D—Drive bus as specified by procedure

F—Fuel bus, complete driver's log shift entries



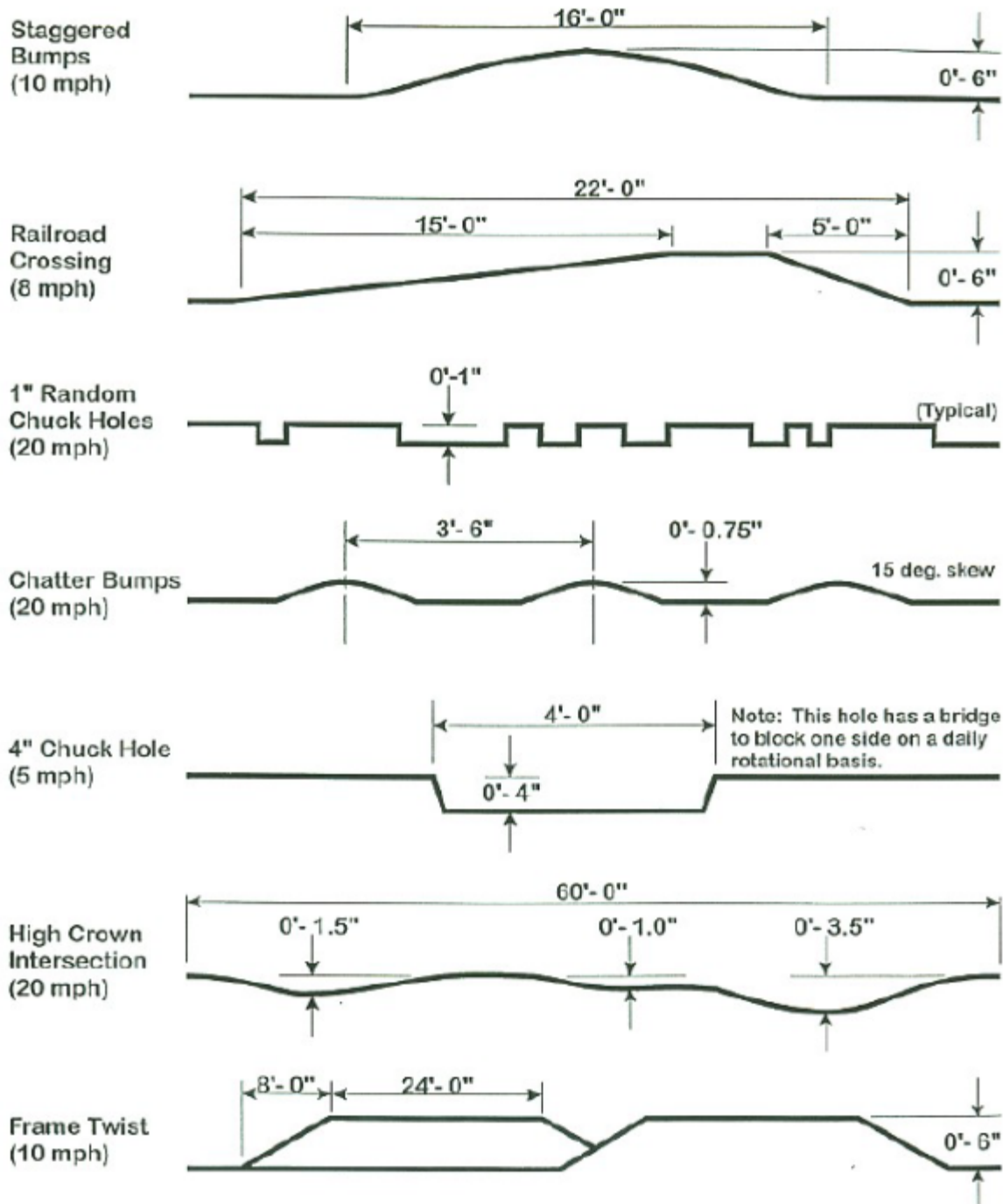
**Full-Scale Research Facilities at
the Larson Transportation Institute**



Track 1 (Track 2 has similar layout)

The Larson Transportation Institute

Penn State



Durability Element Profiles

The Larson Transportation Institute
 Penn State

Unscheduled Maintenance
Micro Bird Inc. / Micro Bird USA LLC Bus# 2025-03
(Page 1 of 5)

Date	Test Miles	Issue	Action	Labor Hours	Sub-system	Class
07/25/25	334	Fluid leaking onto durability track.	Front, streetside shock absorber was found to be leaking. Removed and replaced shock absorber.	0.50	Suspension	3
08/07/25	1,815	The box that houses the pump/electricals for the ADA lift that is mounted to the side of the ADA lift broke off.	Removed and replaced the broken box and transferred the components to the new box. Resecured with extra washers.	2.00	ADA System	3
08/07/25	1,815	The seatbelt bracket for the ADA lift broke off.	Removed the remnants of the old bracket and installed the new bracket.	0.25	ADA System	3
08/08/25 To 08/22/25	2,268	Bus shut off on the durability track and had to be towed. The instrument panel would light up but the bus would not start.	A broken wire was found where the wiring harness passes through the firewall. Repaired the harness with a connector. Repairs done at local Ford dealer	4.13	Electrical	2
08/08/25 To 08/22/25	2,268 To 2,282	Grille support bracket on the streetside of the bus is cracked.	Removed the front grille assembly and installed a new OEM bracket on the streetside.	0.25	Body	3
08/26/25 To 09/17/25	2,646 To 4,457	ADA door light has been coming on intermittently. On 09/15/25, 09/16/25 and 09/17/25, transmission would not come out of park.	On 09/04/25 it was found that the door switch bracket is moving. On 09/15/25, fuses and the switch cover over the ADA ramp were checked and the light went out, and the bus was operable. On 09/16/25 the door was wiggled, and the transmission was able to be moved out of park. On 09/17/25 the manufacturer sent in a new, modified ADA door switch and mount. Old one was removed and the new switch and a new upper rod that attaches to the door latch was installed. The new switch has a lever style actuator vs. button style actuator. The new switch mount is also longer than the original mount.	1.75	ADA System	2

Unscheduled Maintenance
Micro Bird Inc. / Micro Bird USA LLC Bus# 2025-03
(Page 2 of 5)

Date	Test Miles	Issue	Action	Labor Hours	Sub-system	Class
08/27/25	2,930	Grille support bracket on the curbside of the bus broke.	Removed the front grille assembly and installed a new OEM bracket on the curbside.	0.25	Body	3
08/28/25	2,930	Three broken rivets on the rear side of the 12-volt auxiliary battery box, located on the curbside, middle of the bus.	Replaced the three steel rivets.	0.25	Body	3
08/28/25	2,930	Rivets are loose on the rear most driveshaft loop.	Drilled out the two ¼ steel rivets and replaced them with new ¼ steel rivets.	0.25	Chassis	3
08/28/25	2,930	Missing rivet on the curbside rear fender flare.	Drilled out the broken rivet and replaced with a new 3/16 rivet.	0.25	Body	3
09/04/25	3,817	Both the streetside and curbside front grille support brackets are broken.	Removed and replaced both brackets with new brackets.	0.50	Body	3
09/05/25 To 09/09/25	4,206 To 4,298	Broken curbside, rear inboard barrier bracket for the ADA lift.	It was found that both brackets were broken. Both the front and rear brackets were replaced.	0.50	ADA System	2
09/09/25	4,298	One broken rivet on the exterior, curbside of bus at the top of the entrance door and one broken rivet on the curbside, rear of the bus next to the rear bumper.	Broken rivets were replaced with 3/16 large head stainless steel rivets.	0.25	Body	3
09/09/25	4,298	A latch is missing on the access door for fuse panel located above the driver's seat.	New latch was installed.	0.25	Interior	3
09/10/25	4,298	The seatbelt bracket for the ADA lift broke off.	Installed new bracket.	0.25	ADA System	3
09/11/25	4,345	Grille is cracked and loose.	Removed and replaced grille. The new grille is an older style; however, the mounting points are the same. Part number 9C2Z 8200 AA.	0.08	Body	3

Unscheduled Maintenance
Micro Bird Inc. / Micro Bird USA LLC Bus# 2025-03
(Page 3 of 5)

Date	Test Miles	Issue	Action	Labor Hours	Sub-system	Class
09/23/25	4,750	Multiple cracks in the curbside inner fender structure.	Removed curbside outer fender, both main and auxiliary 12V batteries, headlight and curbside mirror assembly on outer fender. Glove box and inner panel on curbside dash also had to be removed. Cracks #8, 9 and 10 were welded. While doing this repair, an additional crack, crack #12, was identified and welded as well. Crack #12 is located on the curbside inner fender below crack #8. All removed components were reinstalled.	3.50	Body	3
09/23/25	4,750	The 12-volt auxiliary battery box rivets that were previously replaced have broken.	The rivets were replaced with 1/2 x 20 bolts and nylock nuts, per the manufacturer's representative.	0.25	Body	3
09/23/25	4,750	Washer fluid leaks when filling fluid.	It was found that the hose came off of the washer tank. Reconnected the hose. The battery needed to be removed for access.	0.50	Wiper and Washer	3
09/24/25 To 10/10/25	4,888 To 6,356	Transmission would not come out of park. Wheelchair lift is not working. ADA door switch is broken.	09/24/25 - The ADA door switch was disconnected until a new switch was delivered. 10/10/25 - Removed and replaced the ADA door switch with a new modified switch. The bus manufacturer added a piece of metal (2 3/8 x 1/2") to the switch activation lever for added strength.	0.25	ADA System	2
09/25/25	5,064	Catalytic converter is broken off at the flange located under the bus in the center behind the cab area.	Catalytic converter was replaced at the local Ford dealership.	0.50	Exhaust/ Emissions	3
09/25/25	5,064	Excessive movement in the driveshaft carrier bearing located in the center under the bus.	Carrier bearing was replaced at the local Ford dealership.	1.00	Driveline	3

Unscheduled Maintenance
Micro Bird Inc. / Micro Bird USA LLC Bus# 2025-03
(Page 4 of 5)

Date	Test Miles	Issue	Action	Labor Hours	Sub-system	Class
10/02/25 To 10/07/25	5,512 To 6,008	The ADA mounting bolt is broken where the ramp bolts to the floor of the bus. The bolt and shims were found on the durability test track.	10/03/25 - This bolt was replaced with a temporary bolt until the OEM bolt could be shipped by manufacturer's representative. 10/07/25 - OEM bolt received and temporary bolt was replaced with OEM 3/8" -16 x 4 1/2 carriage bolt.	0.25	ADA System	3
10/03/25	5,512	The mounting rivets on the rearmost driveshaft loop are broken.	Replaced the mounting rivets with bolts, washers, and lock nuts per manufacturer's representative.	0.25	Chassis	3
10/03/25	5,512	ADA ramp stop bracket is bent.	Removed bracket, straightened bracket and reinstalled.	0.08	ADA System	3
10/07/25	6,008	Broken rivet on exterior of the bus at the top of the curbside entrance door.	Replaced the rivet with a large head stainless steel 3/16 rivet.	0.08	Body	3
10/10/25	6,356	Streetside hood hinge is broken and curbside hood hinge is cracked.	Removed and replaced both hood hinges.	1.00	Body	3
10/17/25	6,540	Wheelchair platform broke where the inner barrier attaches to it at the lower right-hand corner when facing the lift.	Removed the broken platform along with the platform legs and inner and outer barriers. Installed new platform, platform legs and inner and outer barriers.	2.00	ADA System	2
10/20/25	6,954	Curbside fender is broken under the hood near the hood hinges.	Fender was temporarily repaired with a fender washer per the bus manufacturer's representative.	0.08	Body	3

Unscheduled Maintenance
Micro Bird Inc. / Micro Bird USA LLC Bus# 2025-03
(Page 5 of 5)

Date	Test Miles	Issue	Action	Labor Hours	Sub-system	Class
10/22/25 To 10/29/25	7,552	Multiple cracks were identified on bus during testing.	Removed the curbside outer and inner fender, plastic liner, curbside fender mirror assembly, both low voltage batteries and the curbside headlight assembly to prep the vehicle for welding. In addition, both front tires and the panel above the driver's seat at the fuse box had to be removed. The floor liner was pulled back, the interior engine cover, the dash panel under the steering wheel, the panel under the glove box and the bolt on the streetside core support needed to be removed to prep for welding. Cracks #1, 2, 3, 4, 5, 6, 7, 8, 1, 9, 10, 1, 11, 12, 1, 13, 14, 15, 16, 17, 18, 19, 20, and 21 were welded. Crack #22 was discovered and repaired during welding repairs. It is located on the streetside floor area under the floor mat by the fender well. The temporary repair to the broken curbside fender was welded, as well as the outer to inner fender bracket, and the cracks around the ADA door frame. All removed components were reinstalled.	11.92	Body	3
10/28/25	7,552	Spring guide is broken off on the rear streetside spring.	Welded the spring guide.	0.08	Suspension	3
10/29/25	7,552	Both rear upper shock absorber bushings are cracked and have pushed out.	Removed and replaced both shock absorber bushings.	0.25	Suspension	3

UNSCHEDULED MAINTENANCE



**FRONT, STREETSIDE SHOCK ABSORBER IS LEAKING
(334 TEST MILES)**



**SEATBELT BRACKET FOR ADA LIFT WAS REPLACED
(1,815 TEST MILES)**

UNSCHEDULED MAINTENANCE CONT.



**BROKEN WIRE IN THE WIRING HARNESS
(2,268 TEST MILES)**



**STREETSIDE GRILLE SUPPORT BRACKET IS CRACKED
(2,282 TEST MILES)**

UNSCHEDULED MAINTENANCE CONT.



**CURBSIDE GRILLE SUPPORT BRACKET IS CRACKED
(2,930 TEST MILES)**



**THREE RIVETS REPLACED ON REAR SIDE OF
12-VOLT AUXILIARY BATTERY BOX
(2,930 TEST MILES)**

UNSCHEDULED MAINTENANCE CONT.

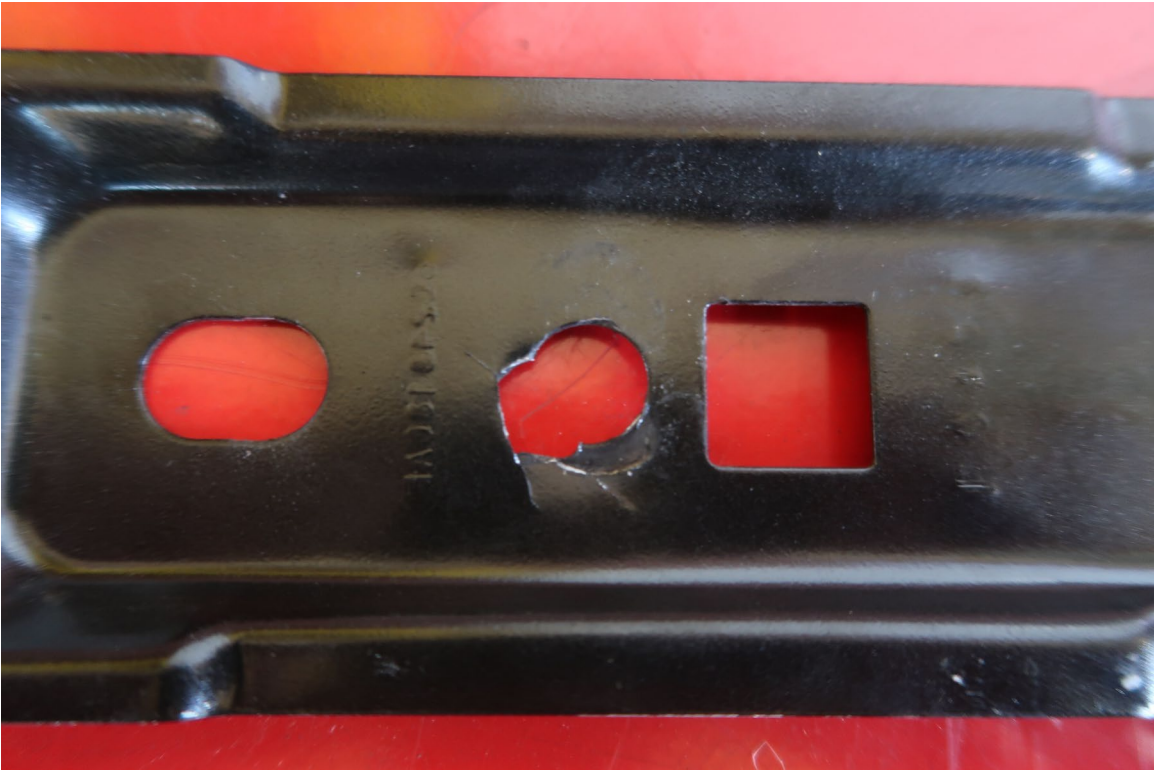


**RIVETS REPLACED ON THE REAR MOST DRIVESHAFT LOOP
(2,930 TEST MILES)**



**STREETSIDE GRILLE SUPPORT BRACKET IS CRACKED
(3,817 TEST MILES)**

UNSCHEDULED MAINTENANCE CONT.



**CURBSIDE GRILLE SUPPORT BRACKET IS CRACKED
(3,817 TEST MILES)**



**CURBSIDE, REAR ADA LIFT INBOARD BARRIER BRACKET IS BROKEN
(4,298 TEST MILES)**

UNSCHEDULED MAINTENANCE CONT.



**BROKEN RIVET ON CURBSIDE REAR OF BUS
(4,298 TEST MILES)**



**MISSING LATCH ON FUSE PANEL LOCATED ABOVE DRIVER'S SEAT
(4,298 TEST MILES)**

UNSCHEDULED MAINTENANCE CONT.



**SEATBELT BRACKET FOR ADA LIFT IS BROKEN
(4,298 TEST MILES)**



**GRILLE REPLACED; TOP IS ORIGINAL, BOTTOM IS REPLACEMENT
(4,345 TEST MILES)**

UNSCHEDULED MAINTENANCE CONT.



**ADA DOOR SWITCH REPLACED WITH MODIFIED VERSION;
OLD SWITCH (LEFT), NEW SWITCH (RIGHT)
(4,457 TEST MILES)**



**CRACK #8 – CRACK IN CURBSIDE INNER FENDER
(4,750 TEST MILES)**

UNSCHEDULED MAINTENANCE CONT.

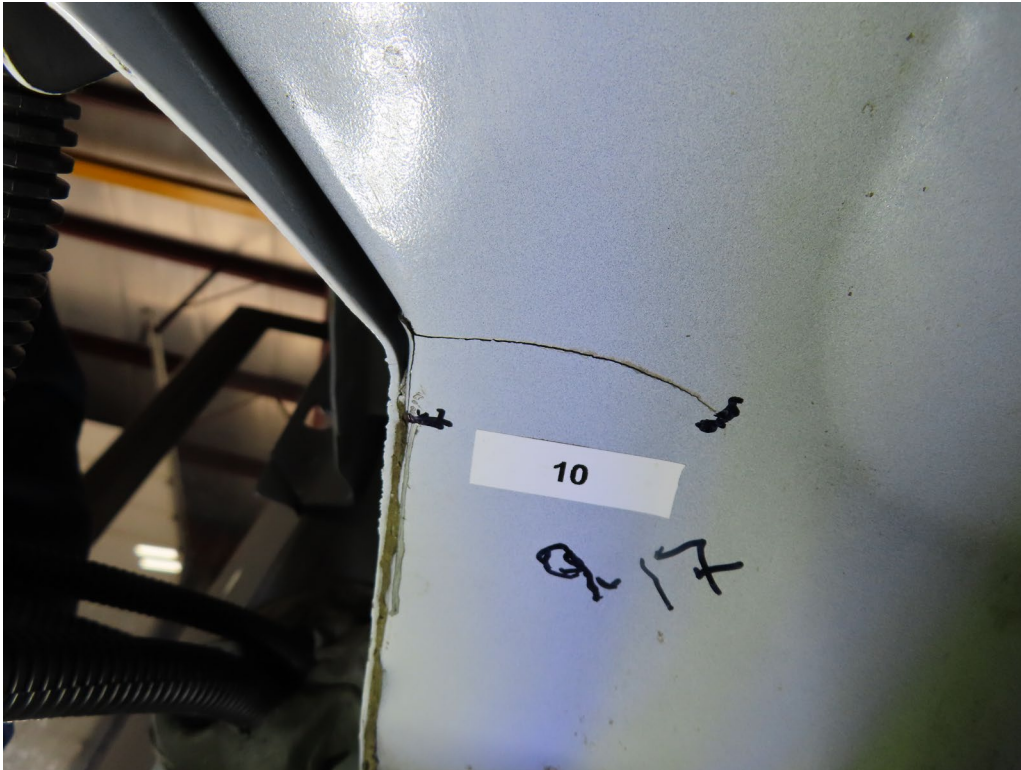


**CRACK #8 – WELDING REPAIR
(4,750 TEST MILES)**



**CRACK #9 – CRACK IN INNER FENDER STRUCTURE ABOVE
CURBSIDE FRONT TIRE
(4,750) TEST MILES**

UNSCHEDULED MAINTENANCE CONT.

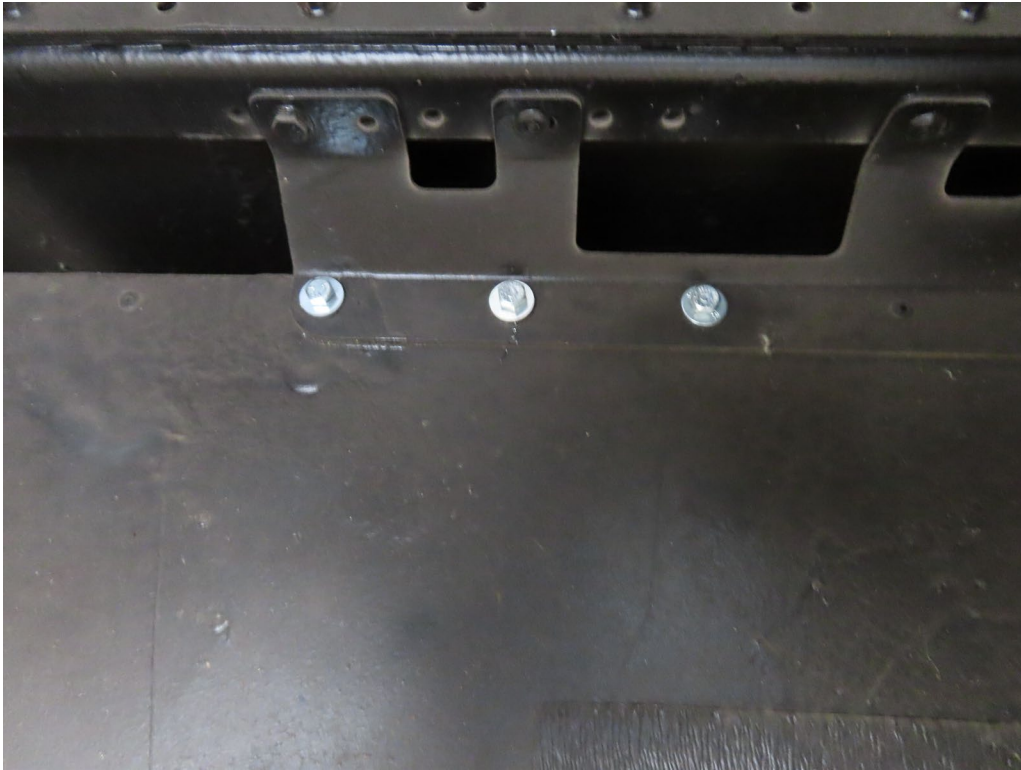


**CRACK #10 – CRACK IN INNER FENDER STRUCTURE ABOVE
CURBSIDE FRONT TIRE
(4,750 TEST MILES)**



**CRACK #12 – WELDING REPAIR OF CRACK IN INNER FENDER
(4,750 TEST MILES)**

UNSCHEDULED MAINTENANCE CONT.



**12-VOLT AUXILIARY BATTERY BOX RIVETS REPLACED
WITH BOLTS AND NYLOCK NUTS
(4,750 TEST MILES)**



**RIVETS ON THE REAR MOST DRIVESHAFT LOOP REPLACED WITH BOLTS,
WASHERS AND LOCK NUTS
(5,512 TEST MILES)**

UNSCHEDULED MAINTENANCE CONT.

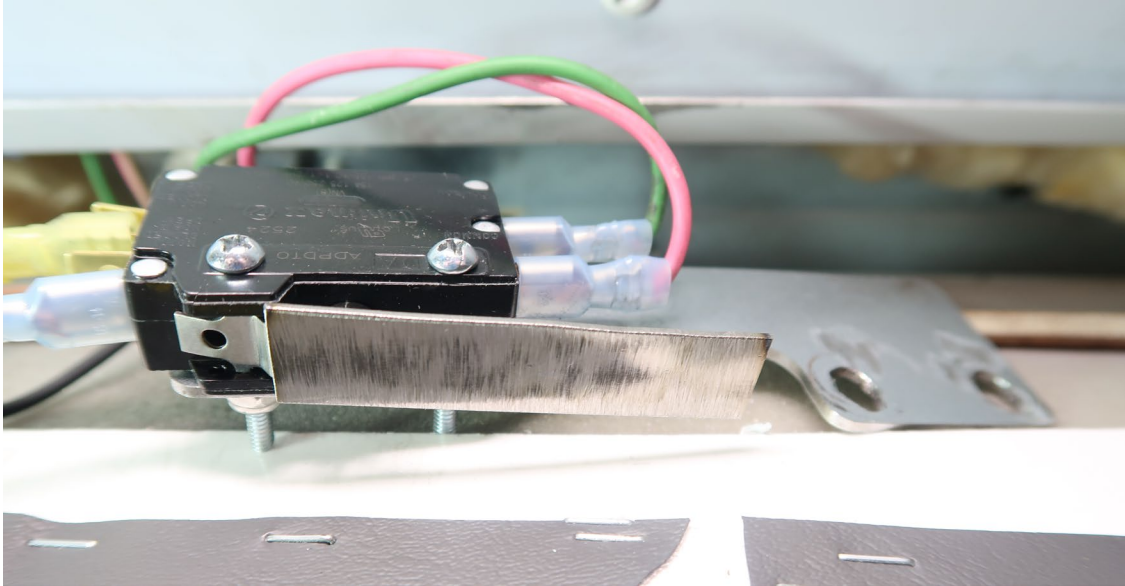


**ADA RAMP STOP BRACKET IS BROKEN
(5,512 TEST MILES)**



**ADA MOUNTING BOLT BROKE AND FELL OUT
(6,008 TEST MILES)**

UNSCHEDULED MAINTENANCE CONT.



**MODIFIED ADA DOOR SWITCH
(6,356 TEST MILES)**



**STREETSIDE HOOD HINGE IS BROKEN
(6,356 TEST MILES)**

UNSCHEDULED MAINTENANCE CONT.



**WHEELCHAIR PLATFORM BROKEN WHERE THE INNER BARRIER ATTACHES
(6,540 TEST MILES)**



CRACK #1; CRACK ON SPOT WELDS ON THE STREETSIDE CORE SUPPORT

UNSCHEDULED MAINTENANCE CONT.



CRACK #3; CRACK IN THE BODY UNDER THE STEP



CRACK #4; CRACK UNDER FRONT CORE SUPPORT ON STREETSIDE IN FRONT OF STREETSIDE FRONT WHEEL

UNSCHEDULED MAINTENANCE CONT.



CRACK #5; CRACK IN CURBSIDE INNER FENDER STRUCTURE IN FRONT OF CURBSIDE FRONT ENTRANCE STEPS

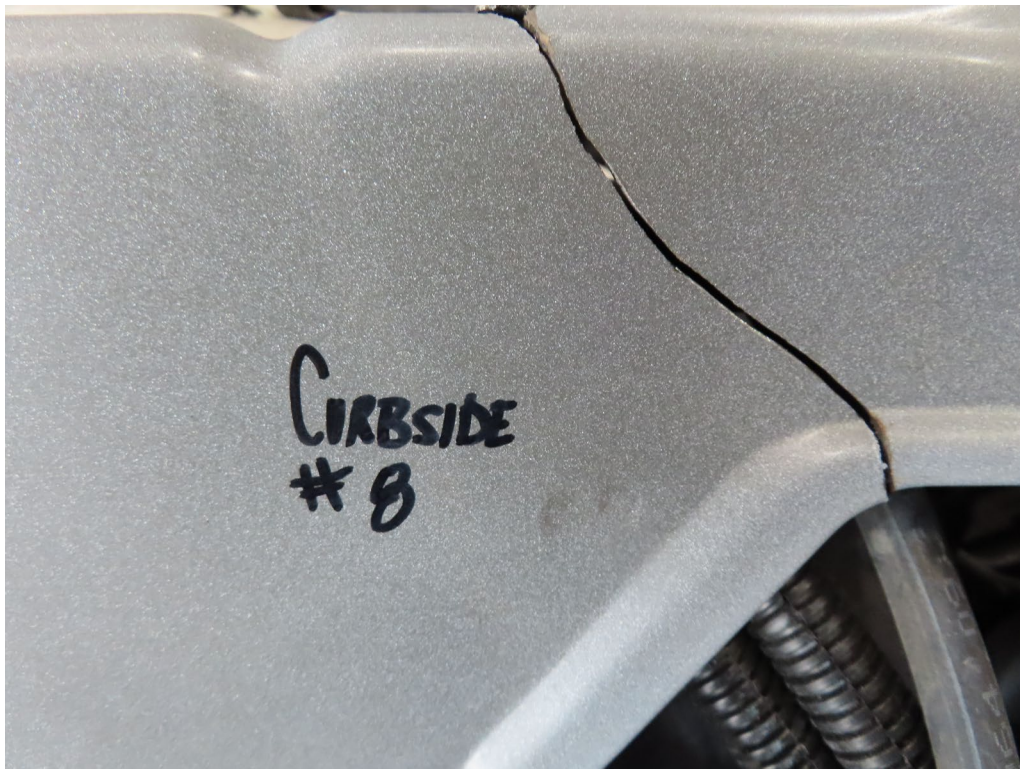


CRACK #6; CRACK IN THE CURBSIDE INNER FENDER STRUCTURE IN FRONT OF THE CURBSIDE ENTRANCE DOORSTEPS

UNSCHEDULED MAINTENANCE CONT.



CRACK #7; CRACK ON CURBSIDE UNDER THE SEAL OF THE ENGINE ACCESS COVER

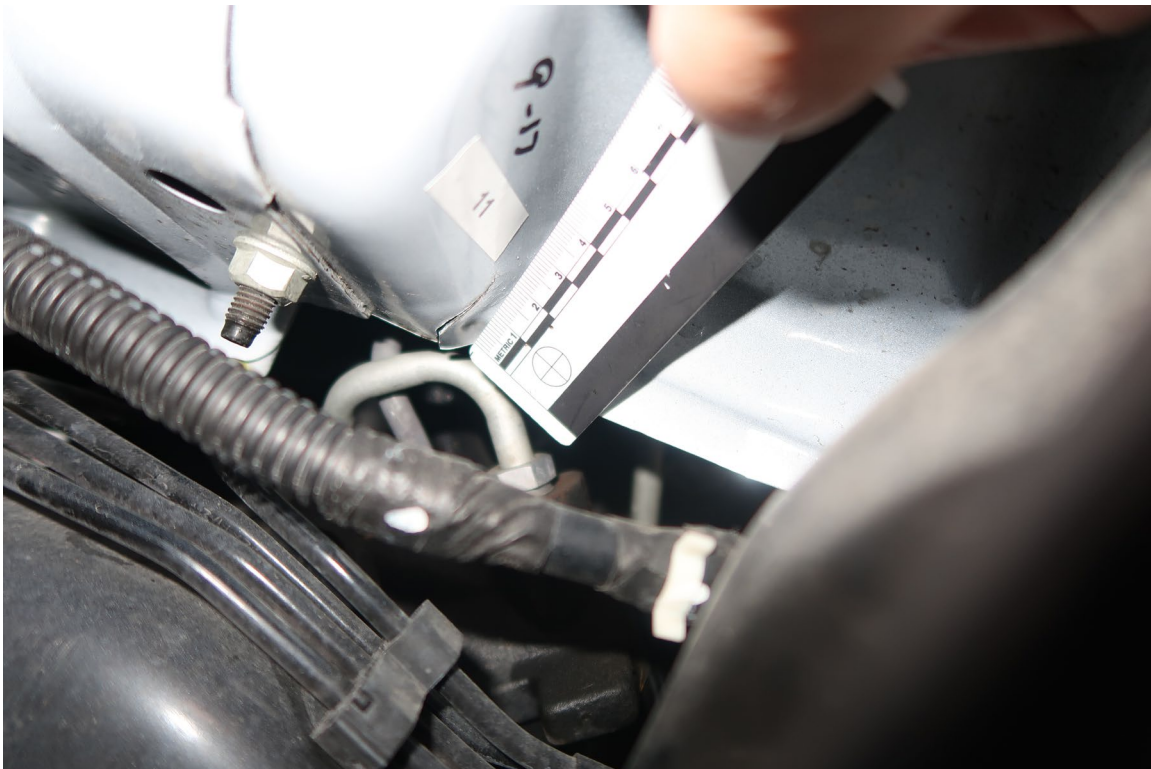


CRACK #8; CRACK ON THE CURBSIDE INNER FENDER UNDER THE HOOD

UNSCHEDULED MAINTENANCE CONT.



CRACK #8-1; WELDED REPAIR OF CRACK #8 ON THE CURBSIDE INNER FENDER UNDER THE HOOD HAS CRACKED



CRACK #11; CRACK ON STREETSIDE INNER FENDER STRUCTURE ABOVE THE FRAME RAIL NEAR THE POWER STEERING BOX

UNSCHEDULED MAINTENANCE CONT.



CRACK #12; CRACK ON THE CURBSIDE INNER FENDER

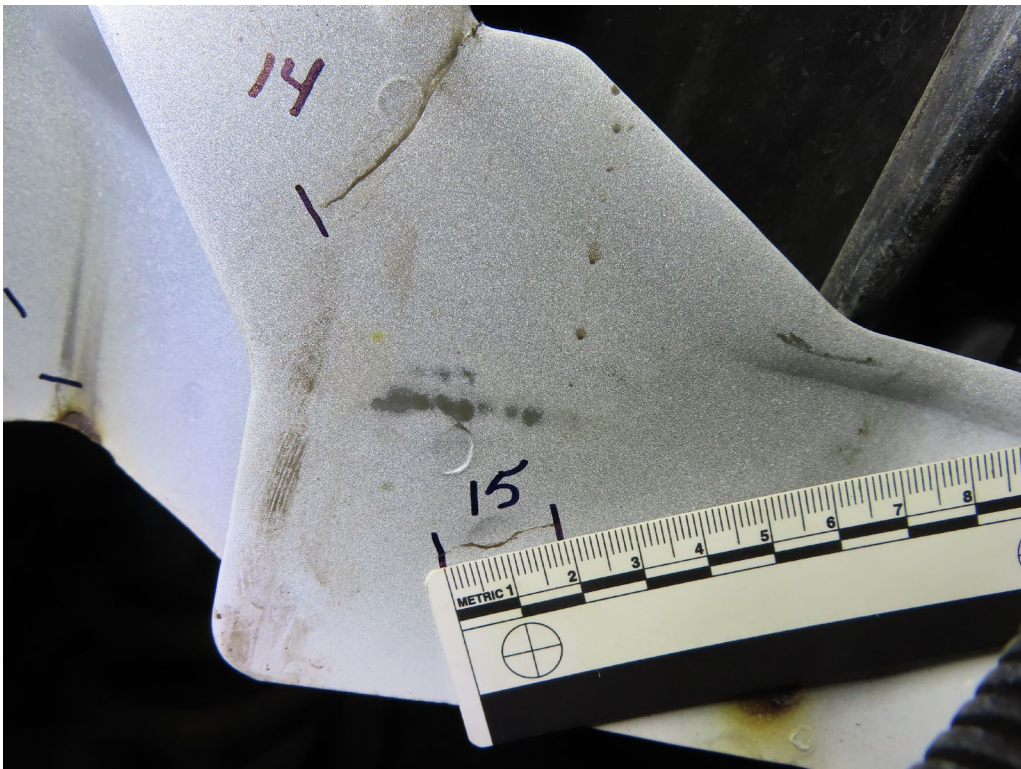


CRACK #12-1; WELDED REPAIR OF CRACK #12 ON THE CURBSIDE INNER FENDER HAS CRACKED

UNSCHEDULED MAINTENANCE CONT.



CRACK #13; CRACK JUST BELOW THE CORNER OF THE WINDSHIELD UNDER THE FENDER



CRACKS #14 & 15; CRACKS ON THE CURBSIDE INNER FENDER

UNSCHEDULED MAINTENANCE CONT.



CRACK #17; CRACK ON THE STREETSIDE BELOW THE WINDSHIELD ON THE BODY UNDER THE WIPER COWL

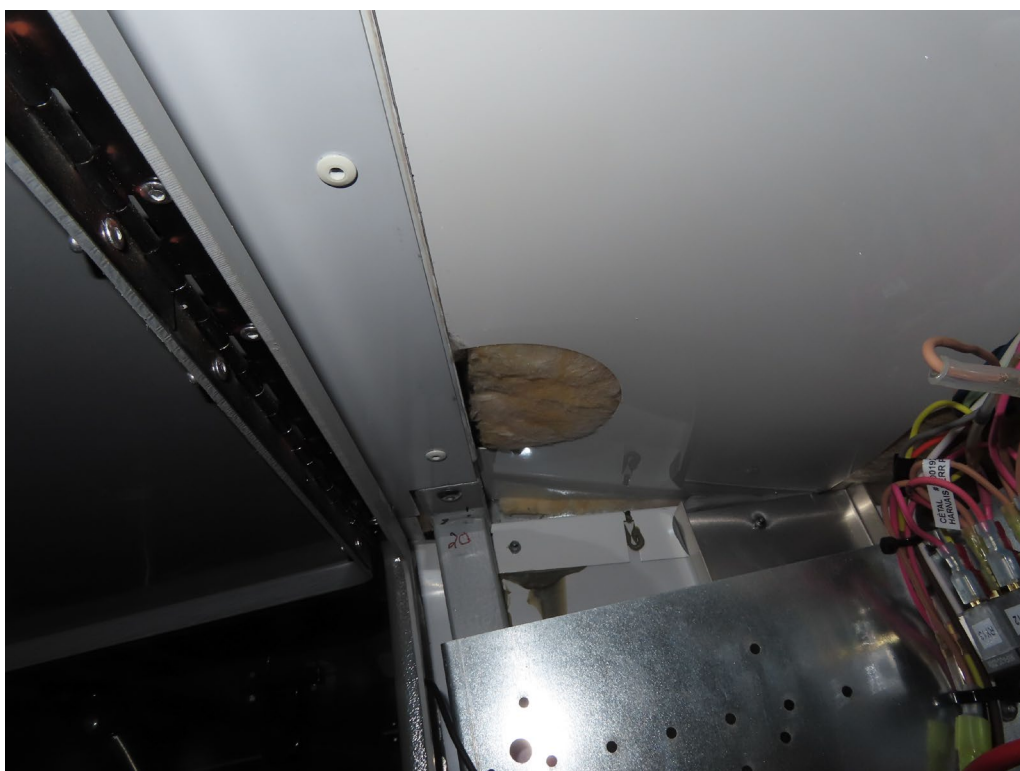


CRACK #18; CRACK ON STREETSIDE INNER FENDER WELL BEHIND PLASTIC LINER ABOVE THE TIRE

UNSCHEDULED MAINTENANCE CONT.



CRACK #19; CRACK UNDER THE DOG BOX



CRACK #20; CRACK IN THE FUSE BOX ABOVE THE DRIVER

UNSCHEDULED MAINTENANCE CONT.



CRACK #21; CRACK ON THE STREETSIDE DRIVER FLOOR AREA



CRACK IN THE ADA LIFT DOOR FRAME

UNSCHEDULED MAINTENANCE CONT.



CLOSE UP OF CRACK IN THE ADA LIFT DOOR FRAME

6. FUEL ECONOMY TEST - A FUEL CONSUMPTION TEST USING AN APPROPRIATE OPERATING CYCLE

6-I. TEST OBJECTIVE

The objective of this test is to provide accurate comparable fuel consumption data on transit buses produced by different manufacturers. This fuel economy test bears no relation to the calculations done by the Environmental Protection Agency (EPA) to determine levels for the Corporate Average Fuel Economy Program. EPA's calculations are based on tests conducted under laboratory conditions intended to simulate city and highway driving. This fuel economy test, as designated here, is a measurement of the fuel expended by a vehicle traveling a specified test operating profile, under specified operating conditions that are typical of transit bus operation. The results of this test may not represent actual mileage in transit service but will provide data that can be used by FTA Grantees to compare the efficiency of buses tested using this procedure.

6-II. TEST DESCRIPTION

This test was performed in the emissions bay of the LTI Vehicle Testing Laboratory. The Laboratory is equipped with a Horiba 500 HP, large-roll (72-inch diameter) chassis dynamometer suitable for heavy-vehicle emissions testing. The driving cycles are the Manhattan cycle, a low average speed, highly transient urban cycle (Figure 1), the Orange County Bus Cycle, a medium average speed transient urban cycle (Figure 2), and the EPA HD-UDDS Cycle, which consists of urban and highway driving segments (Figure 3). A fuel economy test was comprised of two runs for the three different driving cycles, and the average value was reported.

The test procedure for liquid-fueled buses such as this one uses a calibrated fuel weighing scale. The weighing scale system includes heat exchangers to maintain temperature in diesel and common-rail injection systems.

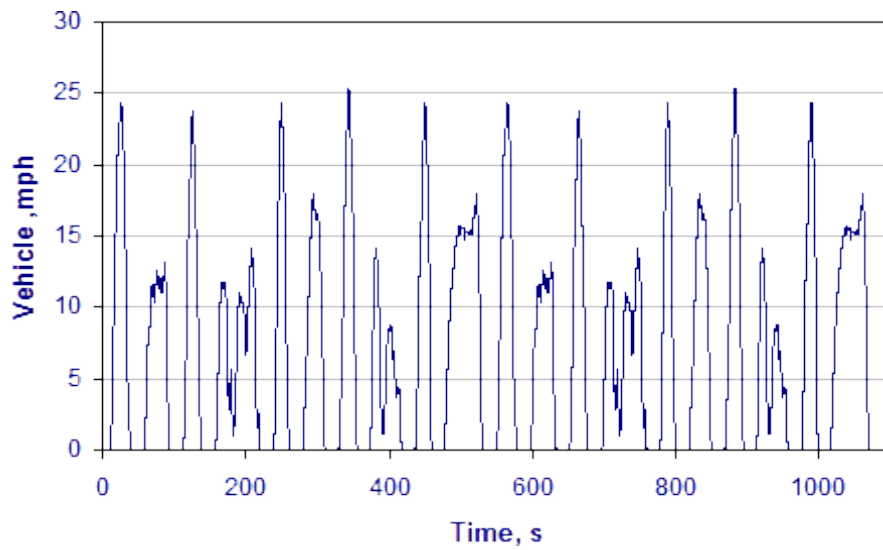


Figure 1. Manhattan Driving Cycle (duration 1089 sec, Maximum speed 25.4 mph, average speed 6.8 mph)

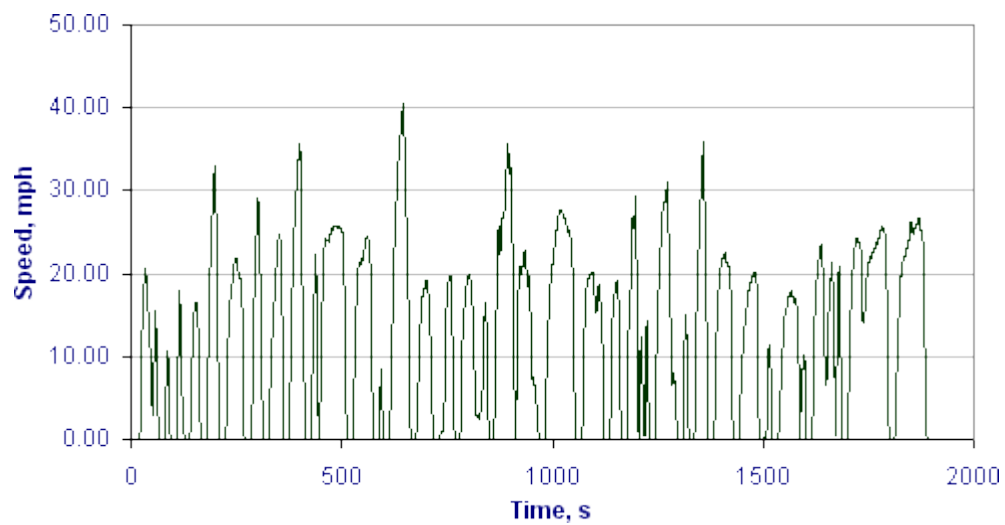


Figure 2. Orange County Bus Cycle (Duration 1909 Sec, Maximum Speed 41 mph, Average Speed 12 mph).

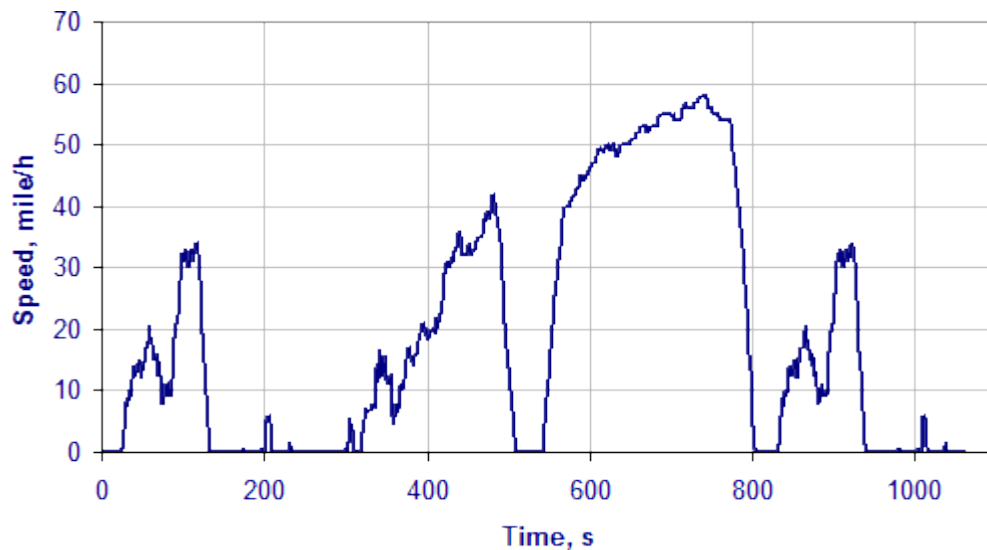


Figure 3. HD-UDDS Cycle (duration 1060 seconds, Maximum Speed 58 mph, Average Speed 18.86 mph).

6-III. DISCUSSION

The driving cycle consists of three simulated transit driving cycles: Manhattan, Orange County Bus Cycle and the HD-UDDS, as described in 6-II. The fuel consumption for each driving cycle and idle was measured.

An extensive pretest maintenance check was made including the replacement of all lubrication fluids. The details of the pretest maintenance are given in the first three Pretest Maintenance Forms. The fourth sheet shows the Pretest Inspection Form. Finally, the summary sheet provides the average fuel consumption for the three test cycles and for a 20-minute idle. **The average fuel consumption for the Manhattan, OCBC and the HD-UDDS were 4.52 mpg, 6.58 mpg and 7.93 mpg respectively. For idle, the fuel consumption was 0.63 gal/hr.**

FUEL ECONOMY PRE-TEST MAINTENANCE FORM

Page 1 of 3

Bus Number: 2025-03	Date: 09/29/25	SLW (lb.): 12,650
Personnel: R.M., F.T., T.G. & J.M.		

FUEL SYSTEM	OK
Install fuel measurement system	✓
Replace fuel filter	N/A
Check for fuel leaks	✓
Specify fuel type (gasoline)	✓
Remarks: No issues found with the fuel system.	
BRAKES/TIRES	OK
Inspect hoses	✓
Inspect brakes	✓
Check tire inflation pressures (mfg. specs.)	✓
Check tire wear (less than 50%)	✓
Remarks: No issues with brakes or tires. Tires filled to manufacturer's specs and tread is above 50%.	
COOLING SYSTEM	OK
Check hoses and connections	✓
Check system for coolant leaks	✓
Remarks: No leaks or issues with cooling system.	

FUEL ECONOMY PRE-TEST MAINTENANCE FORM

Page 2 of 3

Bus Number: 2025-03	Date: 09/29/25
Personnel: R.M., F.T., T.G. & J.M.	
ELECTRICAL SYSTEMS	OK
Check battery	✓
Inspect wiring	✓
Inspect terminals	✓
Check lighting	✓
Remarks: No issues found with the electrical system.	
DRIVE SYSTEM	OK
Drain transmission fluid	N/A
Replace filter/gasket	N/A
Check hoses and connections	✓
Replace transmission fluid	N/A
Check for fluid leaks	N/A
Remarks: No issues found with drive system.	
LUBRICATION	OK
Drain crankcase oil	✓
Replace filters	✓
Replace crankcase oil	✓
Check for oil leaks	✓
Check oil level	✓
Lubricate all chassis grease fittings	✓
Lubricate universal joints	✓
Replace differential lubrication including axles	N/A
Remarks: Replaced engine oil and filter. Also greased all fittings.	

FUEL ECONOMY PRE-TEST MAINTENANCE FORM

Page 3 of 3

Bus Number: 2025-03	Date: 09/29/25
Personnel: R.M., F.T., T.G. & F.T.	
EXHAUST/EMISSION SYSTEM	OK
Check for exhaust leaks	✓
Remarks: No exhaust leaks found.	
ENGINE	OK
Replace air filter	N/A
Inspect air compressor and air system	N/A
Inspect vacuum system, if applicable	N/A
Check and adjust all drive belts	✓
Check cold start assist, if applicable	N/A
Remarks: No issues found with engine or drive belt.	
STEERING SYSTEM	OK
Check power steering hoses and connectors	✓
Service fluid level	✓
Check power steering operation	✓
Remarks: No issues found with the steering system.	
	OK
Ballast bus to seated load weight during coast down	✓
TEST DRIVE	OK
Check brake operation	✓
Check transmission operation	✓
Remarks: No issues on test drive	

FUEL ECONOMY PRE-TEST INSPECTION FORM

Page 1 of 1

Bus Number: 2025-03	Date: 09/30/25
Personnel: R.M., F.T., T.G. & J.M.	
PRE-WARM-UP	If OK, Initial
Fuel Economy Pre-Test Maintenance Form is complete	R.M.
Cold tire pressure (psi): Front <u>75</u> Middle <u>N/A</u> Rear <u>80</u>	R.M.
Engine oil level	R.M.
Engine coolant level	R.M.
Fuel economy instrumentation installed and working properly.	R.M.
Fuel line -- no leaks or kinks	R.M.
Bus is loaded to SLW during coast down	R.M.
WARM-UP	If OK, Initial
Air conditioning off	D.T.
Interior and exterior lights on	D.T.
Defroster off	D.T.
Windows and doors closed	D.T.
Do not drive with left foot on brake	D.T.

FUEL ECONOMY DATA FORM

(Gaseous and Liquid fuels)

Page 1 of 1

Bus Number: 2025-03	Manufacturer: Micro Bird	Date: 09/30/25
Fuel Type: Gasoline	Personnel: D.T., M.W. & S.I.	
Temperature (°F): 83	Humidity (%): 43	Barometric Pressure (in.Hg): 28.9
SLW (lb.): 12,650		

Cycle	Manhattan	Orange County	HD-UDDS	Idle
Fuel Consumption mpg	4.52	6.58	7.93	0.63 G/hr

Comments: None noted.

7. NOISE

7.1 INTERIOR NOISE AND VIBRATION TESTS

7.1-I. TEST OBJECTIVE

The objective of these tests is to measure and record interior noise levels and check for audible vibration under various operating conditions.

7.1-II. TEST DESCRIPTION

During this series of tests, the interior noise level was measured at several locations with the bus operating under the following three conditions:

1. With the bus stationary, a white noise generating system provided a uniform sound pressure level equal to 80 dB(A) on the left, exterior side of the bus. The engine and all accessories (including HVAC) were switched off and all openings including doors and windows were closed. This test was performed at the LTI Test Track Facility.
2. The bus was accelerated at full throttle from a standing start to 35 mph on a level pavement. All openings were closed and all accessories (including HVAC) were operating during the test. This test was performed on the track at the LTI Test Track Facility.
3. The bus was operated at various speeds from 0 to 55 mph with and without the air conditioning and accessories on. Any audible vibration or rattles were noted. This test was performed on the test segment between the LTI Test Track and the Bus Testing Center.

All tests were performed in an area free from extraneous sound-making sources or reflecting surfaces. The ambient sound level as well as the surrounding weather conditions were recorded in the test data.

7.1-III. DISCUSSION

For the first part, the overall average of the six measurements was 49.2 dB(A); ranging from 48.2 dB(A) at the driver's seat to 49.6 dB(A) at the front passenger seats, and in line with the middle and rear speakers. The interior ambient noise level for this test was less than 30 dB(A).

For the second part, the interior noise level ranged from 73.6 dB(A) at the front passenger seats to 76.0 dB(A) at rear passenger seats. The overall average was 74.9 dB(A). The interior ambient noise level for this test was less than 30 dB(A).

No vibrations or rattles were noted during the third part of this test.

This bus passed this section of the test.

INTERIOR NOISE TEST DATA FORM

Test Condition 1: 80 dB(A) Stationary White Noise

Page 1 of 3

Bus Number: 2025-03	Date: 09/15/25
Personnel: T.G., S.R., J.M. & G.C.	
Temperature (°F): 67	Humidity (%): 66
Wind Speed (mph): 6	Wind Direction: ENE
Barometric Pressure (mbar): 1022	
Interior Ambient Noise Level dB(A): less than 30	Exterior Ambient Noise Level dB(A): 36.2
Microphone Height During Testing (in): 48.0	

Reading Location	Measured Sound Level dB(A)
Driver's Seat	48.2
Front Passenger Seats	49.6
In Line with Front Speaker	49.5
In Line with Middle Speaker	49.6
In Line with Rear Speaker	49.6
Rear Passenger Seats	48.8

Comments: None noted.

INTERIOR NOISE TEST DATA FORM
Test Condition 2: 0 to 35 mph Acceleration Test
Page 2 of 3

Bus Number: 2025-03	Date: 09/16/25
Personnel: S.R., F.T., P.D., J.M., R.M & B.C.	
Temperature (°F): 72	Humidity (%): 63
Wind Speed (mph): 3	Wind Direction: ENE
Barometric Pressure (mbar): 1023	
Interior Ambient Noise Level dB(A): less than 30	Exterior Ambient Noise Level dB(A): 38.7
Microphone Height During Testing (in): 48	

Reading Location	Measured Sound Level dB(A)
Driver's Seat	74.5
Front Passenger Seats	73.6
Middle Passenger Seats	75.4
Rear Passenger Seats	76.0

Comments: None noted.

INTERIOR NOISE TEST DATA FORM

Test Condition 3: Audible Vibration Test

Page 3 of 3

Bus Number: 2025-03	Date: 07/22/25
Personnel: S.R., J.M. & J.S.	
Temperature (°F): 72	

Describe the following possible sources of noise and give the relative location on the bus.

Source of Noise	Location	Description of Noise
Engine and Accessories	None noted.	None noted.
Windows and Doors	None noted.	None noted.
Seats and Wheelchair lifts	None noted.	None noted.
Other	None noted.	None noted.

Comment on any other vibration or noise source which may have occurred
that is not described above: No significant or unusual noise or vibrations noted.
Comments: None noted.

7.1 INTERIOR NOISE TEST



**TEST BUS SET-UP FOR 80 dB(A)
INTERIOR NOISE TEST**

7.2 EXTERIOR NOISE TESTS

7.2-I. TEST OBJECTIVE

The objective of this test is to record exterior noise levels when a bus is operated under various conditions.

7.2-II. TEST DESCRIPTION

The Exterior Noise Test determines the noise level generated by the vehicle under different driving conditions and at stationary low and high idle (if applicable), with and without HVAC and accessories operating.

In the exterior noise tests, the bus was operated at a SLW in three different conditions using a smooth, straight and level roadway:

1. Accelerating at full throttle from a constant speed starting from 35 mph.
2. Accelerating at full throttle from standstill.
3. Stationary, with the engine at low idle, high idle, and wide-open throttle, where applicable. In addition, the bus was tested with and without the air conditioning operating.

The test site is at the Larson Transportation Institute Test Track and the test procedures were performed in accordance with SAE Standards SAE J366b, Exterior Sound Level for Heavy Trucks and Buses. The test site is an open space free of large reflecting surfaces. A noise meter placed at a specified location outside the bus was used to measure the noise level.

During the test, special attention was paid to:

1. The test site characteristics regarding parked vehicles, signboards, buildings, or other sound-reflecting surfaces
2. Proper usage of all test equipment including set-up and calibration
3. The ambient sound level

7.2-III. DISCUSSION

The Exterior Noise Test determines the noise level generated by the vehicle under different driving conditions and at stationary low and high idle, with and without air conditioning and accessories operating. The test site is a large, level, bituminous paved area with no reflecting surfaces nearby.

With an outside ambient noise level of 41.7 dB(A), the average of the two highest readings obtained while accelerating from a constant speed was 77.7 dB(A) on the right side and 77.1 dB(A) on the left side.

When accelerating from a standstill with an exterior ambient noise level of 38.4 dB(A), the average of the two highest readings obtained were 77.9 dB(A) on the right side and 78.8 dB(A) on the left side.

With the vehicle stationary and the engine, accessories, and air conditioning on, the measurements averaged 57.1 dB(A) at low idle and 68.5 dB(A) at wide open throttle. With the accessories and air conditioning off, the readings averaged 52.4 dB(A) at low idle and 67.9 dB(A) at wide open throttle. The exterior ambient noise level measured during this test was 40.7 dB(A). This bus does not have high idle capability. This bus passed this section of the test.

EXTERIOR NOISE TEST DATA FORM

Accelerating from Constant Speed

Page 1 of 3

Bus Number: 2025-03		Date: 09/16/25	
Personnel: S.R., F.T., P.D., J.M., R.M. & B.C.			
Temperature (°F): 68		Humidity (%): 70	
Wind Speed (mph): 2		Wind Direction: NE	
Barometric Pressure (mbar): 1023			
Verify that microphone height is 4 feet, wind speed is less than 12 mph and ambient temperature is between 30°F and 90°F: ■			
Initial Sound Level Meter Calibration: 93.9 dB(A)			
Exterior Ambient Noise Level: 41.7 dB(A)			
Accelerating from Constant Speed Curb (Right) Side		Accelerating from Constant Speed Street (Left) Side	
Run #	Measured Noise Level dB(A)	Run #	Measured Noise Level dB(A)
1	78.5	1	74.6
2	75.4	2	77.5
3	76.0	3	76.7
4	75.6	4	74.0
5	76.8	5	74.8
6	N/A	6	N/A
7	N/A	7	N/A
8	N/A	8	N/A
9	N/A	9	N/A
10	N/A	10	N/A
Average of two highest actual noise levels = 77.7 dB(A)		Average of two highest actual noise levels = 77.1 dB(A)	
Final Sound Level Meter Calibration Check: 93.8 dB(A)			
Comments: None noted.			

EXTERIOR NOISE TEST DATA FORM

Accelerating from Standstill

Page 2 of 3

Bus Number: 2025-03		Date: 09/16/25	
Personnel: S.R., F.T., P.D., J.M., R.M. & B.C.			
Temperature (°F): 70		Humidity (%): 65	
Wind Speed (mph): 3		Wind Direction: NE	
Barometric Pressure (mbar): 1023			
Verify that microphone height is 4 feet, wind speed is less than 12 mph and ambient temperature is between 30°F and 90°F: ■			
Initial Sound Level Meter Calibration: 93.8 dB(A)			
Exterior Ambient Noise Level: 38.4 dB(A)			
Accelerating from Standstill Curb (Right) Side		Accelerating from Standstill Street (Left) Side	
Run #	Measured Noise Level dB(A)	Run #	Measured Noise Level dB(A)
1	78.2	1	79.5
2	77.5	2	75.4
3	77.1	3	76.1
4	77.0	4	77.9
5	77.6	5	78.1
6	N/A	6	N/A
7	N/A	7	N/A
8	N/A	8	N/A
9	N/A	9	N/A
10	N/A	10	N/A
Average of two highest actual noise levels = 77.9 dB(A)		Average of two highest actual noise levels = 78.8 dB(A)	
Final Sound Level Meter Calibration Check: 93.8 dB(A)			
Comments: None noted.			

EXTERIOR NOISE TEST DATA FORM

Stationary

Page 3 of 3

Bus Number: 2025-03		Date: 09/16/25	
Personnel: S.R., F.T., P.D., J.M., R.M. & B.C.			
Temperature (°F): 66		Humidity (%): 75	
Wind Speed (mph): 2		Wind Direction: NE	
Barometric Pressure (mbar): 1023			
Initial Sound Level Meter Calibration: 93.9 dB(A)			
Exterior Ambient Noise Level: 40.7 dB(A)			
Air Conditioning ON			
Throttle Position	Engine RPM	Curb (Right) Side dB(A)	Street (Left) Side db(A)
		Measured	Measured
Low Idle	600	56.4	57.8
High Idle	N/A	N/A	N/A
Wide Open Throttle	3000	68.6	68.3
Air Conditioning OFF			
Throttle Position	Engine RPM	Curb (Right) Side dB(A)	Street (Left) Side db(A)
		Measured	Measured
Low Idle	650	53.9	50.8
High Idle	N/A	N/A	N/A
Wide Open Throttle	3000	68.8	66.9
Final Sound Level Meter Calibration Check: 93.9 dB(A)			
Comments: No high-idle capability.			

7.2 EXTERIOR NOISE TESTS



TEST BUS UNDERGOING EXTERIOR NOISE TESTING

8.0 EMISSIONS TEST – DYNAMOMETER-BASED EMISSIONS TEST USING TRANSIT DRIVING CYCLES

8-I. TEST OBJECTIVE

The objective of this test is to provide comparable emissions data on transit buses produced by different manufacturers. This chassis-based emissions test bears no relation to engine certification testing performed for compliance with the Environmental Protection Agency (EPA) regulation. EPA's certification tests are performed on an engine by itself on a dynamometer operating under the Federal Test Protocol.

The Bus Testing Center emissions test is a measurement of the gaseous engine emissions CO, CO₂, NO_x, HC and particulates (diesel vehicles) produced by a complete vehicle operating on a large-roll chassis dynamometer. The test is performed for three differed driving cycles intended to simulate a range of transit operating environments. The test is performed under laboratory conditions in compliance with EPA 1065 and SAE J2711. The results of this test may not represent actual in-service vehicle emissions but will provide data that can be used by recipients to compare the emissions of buses tested under a range of consistent operating conditions.

8-II. TEST DESCRIPTION

This test was performed in the emissions bay of the LTI Vehicle Testing Laboratory. The Laboratory is equipped with a Horiba 500 HP, large-roll (72-inch diameter) chassis dynamometer suitable for heavy-vehicle emissions testing. The emissions laboratory provides capability for testing heavy-duty diesel, gasoline, and alternative-fueled buses for a variety of tailpipe emissions including particulate matter, oxides of nitrogen, carbon monoxide, carbon dioxide, and hydrocarbons. It is equipped with a Horiba full-scale dilution tunnel and a constant volume sampling (CVS) emissions measurement system. The system includes Horiba Mexa 7400 Series gas analyzers and a Horiba HF47 Particulate Sampling System. Test operation is automated using Horiba CDTCS software. The computer-controlled dynamometer is capable of simulating over-the-road operation for a variety of vehicles and driving cycles.

The emissions test was performed as soon as practical after the completion of the GVW portion of the structural durability test. The driving cycles are the Manhattan cycle, a low average speed, highly transient urban cycle (Figure 1), the Orange County Bus Cycle, a medium average speed transient urban cycle (Figure 2), and the EPA HD-UDDS Cycle, which consists of urban and highway driving segments (Figure 3). An emissions test was comprised of two runs for each of the three different driving cycles, and the average values were reported.

Test results reported include the average grams per mile value for each of the gaseous emissions of carbon dioxide, carbon monoxide, oxides of nitrogen, total hydrocarbons and non-methane hydrocarbons. In addition, emissions of particulate matter will also be reported for diesel fuel buses. Testing is performed in accordance with EPA CFR49, Part 1065 and SAE J2711 as practically determined by the FTA Emissions Testing Protocol developed by West Virginia University and Penn State University.

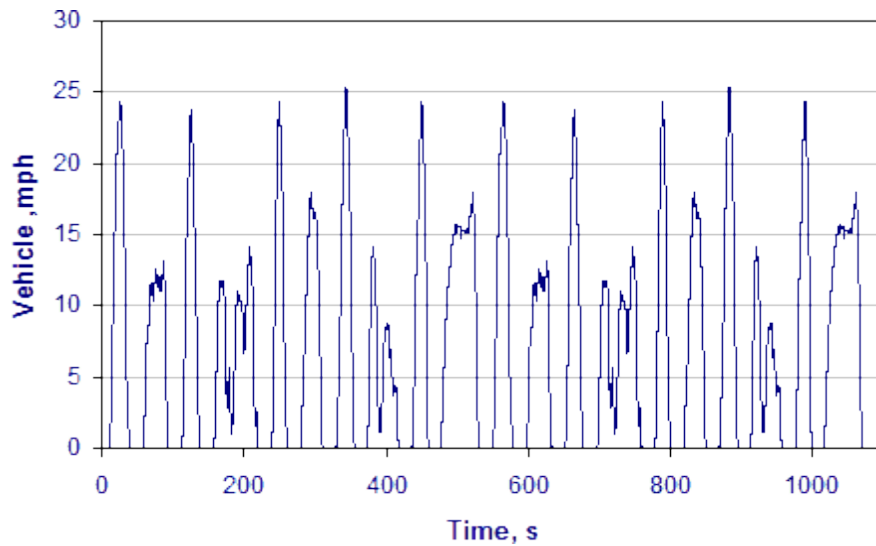


Figure 8.1. Manhattan Driving Cycle (Duration 1089 sec, Maximum Speed 25.4 mph, Average Speed 6.8 mph)

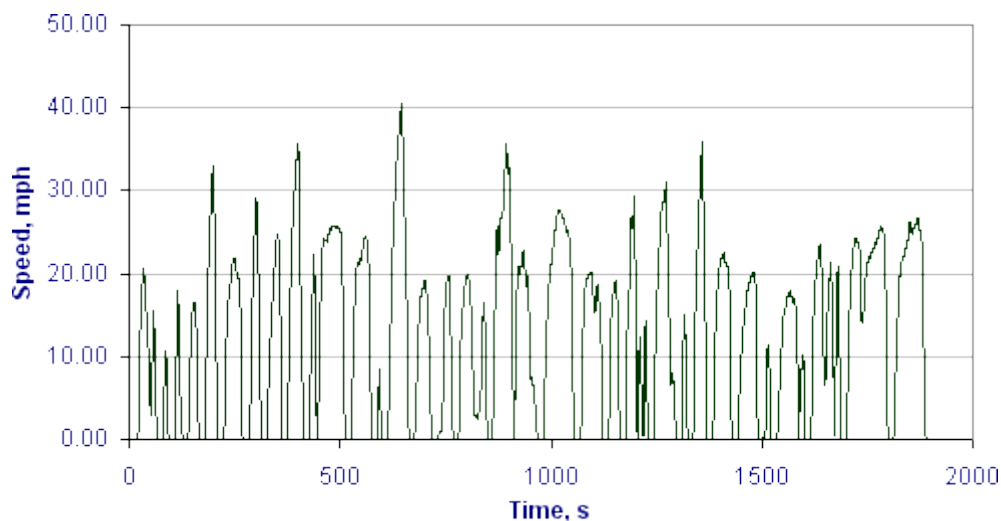


Figure 8.2. Orange County Bus Cycle (Duration 1909 Sec, Maximum Speed 41 mph, Average Speed 12 mph)

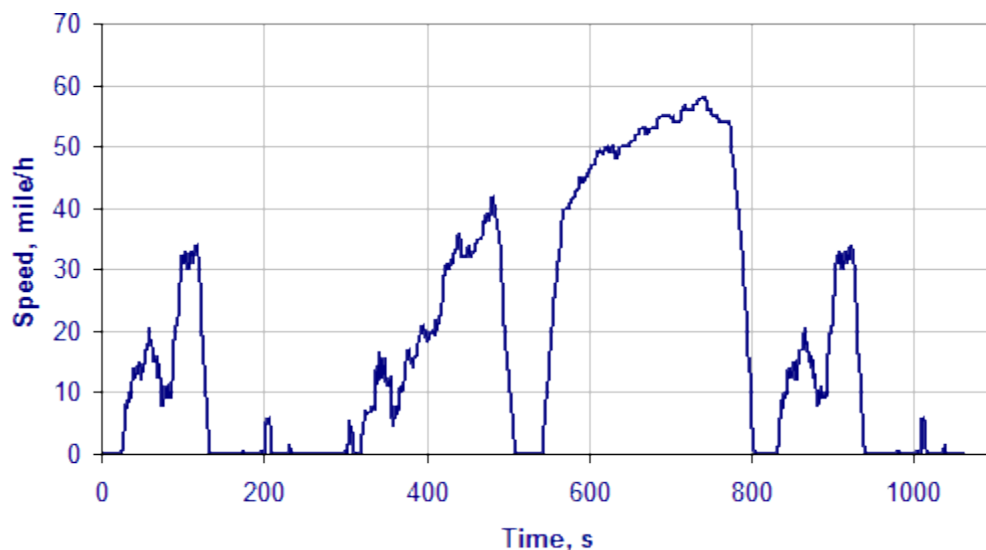


Figure 8.3. HD-UDDS Cycle (Duration 1060 seconds, Maximum Speed 58 mph, Average Speed 18.86 mph)

8-III. TEST ARTICLE

The test article is a Micro Bird, Inc. / Micro Bird USA LLC Manufacturer, G5 model transit bus equipped with a gasoline fueled Ford Motor Company V8 7.3L motor. The bus was tested on September 30, 2025 with the odometer reading 5,269 miles.

8-IV. TEST EQUIPMENT

Testing was performed in the LTI Vehicle Testing Laboratory emissions testing bay. The test bay is equipped with a Horiba 500 HP 72-inch, large-roll chassis dynamometer. The dynamometer is electronically controlled to account for vehicle road-load characteristics and for simulating the inertia characteristics of the vehicle. Power to the roller is supplied and absorbed through an electronically controlled 3-phase ac motor. Absorbed power is returned to the electrical grid.

Vehicle exhaust is collected by a Horiba CVS, full-flow dilution tunnel. The system has separate tunnels for diesel and gasoline/natural gas fueled vehicles. In the case of diesel vehicles, particulate emissions are measured gravimetrically using 47mm Teflon filters. These filters are housed in a Horiba HF47 particulate sampler, per EPA 1065 test procedures. Heated gaseous emissions of hydrocarbons and NOx are sampled by Horiba heated oven analyzers.

Gaseous emissions for CO, CO₂ and cold NO_x are measured using a Horiba Mexa 7400 series gas analyzer. System operation, including the operation of the chassis dynamometer, and all calculations are controlled by a Dell workstation running Horiba CDCTS test control software. Particulate Filters are weighed in a glove box using a Sartorius microbalance accurate to 1 microgram.

8-V. TEST PREPARATION AND PROCEDURES

The test bus was prepared for emissions testing in accordance with the Fuel Economy Pre-Test Maintenance Form. (In the event that fuel economy test was performed immediately prior to emissions testing this step does not have to be repeated.) This is done to ensure that the bus is tested in optimum operating condition. The manufacturer-specified preventive maintenance shall be performed before this test. The ABS system is disabled for operation on the chassis dynamometer. Any manufacturer-recommended changes to the pre-test maintenance procedure must be noted on the revision sheet. The Fuel Economy Pre-Test Inspection Form will also be completed before performing the Emissions test. Both the Fuel Economy Pre-Test Maintenance Form and the Fuel Economy Pre-Test Inspection Form are found in section 6, Fuel Economy Test.

Prior to performing the emissions test, each bus is evaluated to determine its road-load characteristics using coast-down techniques in accordance with SAE J1263. This data is used to program the chassis dynamometer to accurately simulate over-the-road operation of the bus.

Warm-up consisted of driving the bus for 20 minutes at approximately 40 mph on the chassis dynamometer. During emissions testing, the test driver followed the prescribed driving cycle by watching the speed trace and instructions on the Horiba Drivers-Aid monitor which is placed in front of the windshield. The CDCTS computer monitored the test and collected data for calculation of emissions at the end of the test.

This bus was tested for emissions at seated load weight. The emissions data was obtained at the following conditions:

1. Air conditioning off
2. Heater off
3. Defroster off
4. Exterior and interior lights on
5. Windows and Doors closed
6. Seated load weight

The test tanks or the bus fuel tank(s) were filled prior to the fuel economy test with gasoline.

8-VI. DISCUSSION

Table 8.1 provides the emissions testing results on a grams per mile basis for each of the exhaust constituents measured and for each driving cycle performed.

TABLE 8.1 Emissions Test Results

Test Completed at SLW: 12,650 lb.			
Driving Cycle	Manhattan	Orange County Bus	UDDS
CO₂, gm/mi	1934	1287	1051
CO, gm/mi	0.52	0.46	1.03
THC, gm/mi	0.02	0.01	0.00
NMHC, gm/mi	0.02	0.01	0.00
NO_x, gm/mi	0.01	0.00	0.08
Particulates. gm/mi	N/A	N/A	N/A

8. EMISSIONS TEST



BUS TESTED ON CHASSIS DYNAMOMETER FOR PERFORMANCE, FUEL ECONOMY AND EMISSIONS