NEW FLYER

MASCO - BOSTON

OPERATOR'S GUIDE

XCELSIOR® DIESEL 40FT. TRANSIT BUS

This operator's guide is effective for only those coaches with the following Identification Numbers:

SR1786

Vehicle Identification Number	Unit Number
5FYD8FV19EB044251	1401
5FYD8FV10EB044252	1402
5FYD8FV12EB044253	1403
5FYD8FV14EB044254	1404
5FYD8FV16EB044255	1405
5FYD8FV18EB044256	1406
5FYD8FV1XEB044257	1407
5FYD8FV11EB044258	1408
5FYD8FV13EB044259	1409
5FYD8FV1XEB044260	1410
5FYD8FV11EB044261	1411
5FYD8FV13EB044262	1412
5FYD8FV15EB044263	1413

SR1786 continued

Vehicle Identification Number	Unit Number
5FYD8FV17EB044264	1414
5FYD8FV19EB044265	1415
5FYD8FV10EB044266	1416
5FYD8FV12EB044267	1417
5FYD8FV14EB044268	1418
5FYD8FV16EB044269	1419
5FYD8FV12EB044270	1420
5FYD8FV14EB044271	1421
5FYD8FV16EB044272	1422
5FYD8FV18EB044273	1423
5FYD8FV1XEB044274	1424
5FYD8FV11EB044275	1425
5FYD8FV13EB044276	1426
5FYD8FV15EB044277	1427
5FYD8FV17EB044278	1428
5FYD8FV19EB044279	1429
5FYD8FV15EB044280	1430

Revision Index

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Current Revision Indicated by:

Rev	Section/Pages Affected	Date

The information contained in this manual is updated periodically. While great care is taken in compiling the information contained in this manual, New Flyer Industries Canada ULC cannot assume liability for losses of any nature arising from any errors and/or omissions.
The information and specifications contained throughout this manual are up to date at the time of publication. New Flyer Industries Canada ULC reserves the right to change the content of this manual at anytime without notice.

Printed in Canada

☞ **NOTE:**

The National Highway Traffic Safety Administration (NHTSA) has requested that the following statement be provided for your information.

If the property believes that its vehicle has a defect which could cause a crash or could cause injury or death, inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying New Flyer Industries Canada ULC.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you and New Flyer Industries Canada ULC.

To contact NHTSA either call the Auto Safety Hotline toll-free at 1-888-327-4236 (or 366-0123 in the Washington, DC area) or write to: NHTSA, U.S. Department of Transportation, Washington, DC 20590. Other information about motor vehicle safety can be obtained from the Hotline.

NEW FLYER

Table of Contents

1. INTRODUCTION

This manual describes the operating features and safety equipment of the New Flyer transit vehicle. All personnel involved in the operation of the vehicle should be acquainted with this manual and should familiarize themselves with the vehicle, before providing any public service. Knowing the contents of this booklet and following its recommendations will help to assure safe and trouble-free operation.

It is not the intention or responsibility of this manual to give instruction in the use of common sense, basic skills and rules of driving; therefore, it is assumed that you, the operator, are fully qualified to operate a public transit vehicle.

This manual and any other supplied should be considered a permanent part of the vehicle and remain with the vehicle at all times. The information and specifications throughout this manual are up to date at time of publication. New Flyer reserves the right to change the content of this manual at any time without notice. Any malfunction which interferes with the safe operation of the vehicle should be reported immediately to the appropriate service personnel.

☞NOTE:

New Flyer urges you the driver to read this publication carefully, as well as the following manuals which are readily available from the respective manufacturer.

- *Allison Transmission* B400R Operator's Manual
- *Cummins* ISL9L (EPA 2013) Series Engine Owner's Manual

Vehicle Patent Information

This New Flyer product and its components, and methods of manufacturing thereof, may be protected by one or more of the following patents, design registrations and patent applications. In addition, such products, components, and/or methods may be protected by one or more patent and design applications which may have not been published as of the date of this manual, in the United States, Canada, and elsewhere. Please direct all inquiries to our Corporate Offices. For a current listing of applicable patents, please refer to our Legal Notice at our corporate website, http://www.newflyer.com.

New Flyer Products	Patents, Patent Applications, Design Registrations & Design Applications
Xcelsior® Bus[1]	U.S.: 6,343,908; 6,397,965; 6,416,094; 6,556,899; 6,611,739; 6,681,174; 6,695,366; 8,109,551; 8,548,669; D637520; D639712; D660761; D678818; D680670; D687593; D692360; published applications 2012/0161469; 2013/0181679 Canada: 2,317,237; 2,455,153; 2,652,352; 2,794,822; 2,825,732; design registrations 129599; 132413; 132414; 132415; 132416; 132417; 133389; 133391; 133392; 133598; 133599; 133600; 133645; 133646; 133647; 133648; 133649; 133650; 133651; 136,266; 139456; 139757
MiDi® Bus[1]	U.S.: 6,343,908; 6,556,899; 6,611,739; 6,681,174; 6,556,899; 6,611,739; 6,681,174; 8,548,669 Canada: 2,306,413; 2,689,744
Invero® Bus[1]	U.S.: 6,257,652; 6,340,202; 6,343,908; 6,375,249; 6,397,965; 6,416,094; 6,416,116; 6,556,899; 6,611,739; 6,681,174; 6,695,366; 6,726,271; 8,548,669 Canada: 2,297,618; 2,297,623; 2,297,625; 2,297,719; 2,306,413; 2,317,237; 2,455,153
High Floor Bus[1]	U.S.: 6,343,908; 6,397,965; 6,416,094; 6,556,899; 6,611,739; 6,681,174; 6,695,366; 8,548,669 Canada: 2,317,237; 2,455,153
Low Floor Bus[1]	U.S.: 6,343,908; 6,397,965; 6,416,094; 6,556,899; 6,611,739; 6,681,174; 6,695,366; 8,548,669 Canada: 2,317,237; 2,455,153

New Flyer Products	Patents, Patent Applications, Design Registrations & Design Applications
Electric Bus	U.S.: published application 2013/0181679 Canada: 2,794,822
Passenger Ramps	U.S.: 6,343,908 Canada: 2,306,413
Energy Absorbing Bumpers	U.S.: 6,416,094; 6,695,366 Canada: 2,455,153
Engine Mounts	U.S.: 6,397,965 Canada: 2,317,237
New Flyer Connect™ Products & Services	U.S.: 6,556,899; 6,611,739; 6,681,174; 6,556,899; 6,611,739; 6,681,174; 8,548,669 Canada: 2,689,744
Note 1: Not all buses have features covered by all patents. Contact Legal@newflyer.com for further information.	

Vehicle Identification

The New Flyer vehicle identification plate is located in the driver's area of the vehicle interior. The plate lists the Gross Vehicle Weight Ratings (GVWR), the Vehicle Identification Number (VIN) and the Gross Axle Weight Ratings (GAWR) for all axles.

Danger, Warning, Caution & Note

Four types of headings are used in this guide to attract your attention. These notations will be highlighted with the icons below.

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

Used when an operating procedure or practice, if not correctly followed, could result in personal injury or loss of life.

Used when an operating procedure or practice, if not strictly observed, could result in damage to or destruction of equipment.

☞NOTE:

Used to provide additional information that requires special attention by the operator.

Contacting New Flyer

If additional information is required, contact the Publications Department of:

New Flyer Industries Canada ULC
76-630 Kernaghan Ave.
Winnipeg, Manitoba
Canada
R2C 5G1
tel: (204) 982-8437
fax: (204) 667-5769

VEHICLE SPECIFICATIONS

VEHICLE TYPE	
Model	New Flyer XD40 transit bus
Customer	MASCO - Boston - SR1786
Build Year	2014
ENGINE	
Engine	*Cummins* ISL 9L (EPA 2013)
Horsepower	280 HP
Torque	900 ft-lb.
FUEL	
Fuel	Ultra low sulphur diesel
Usable Fuel Capacity	100 U.S. gallons (378 liters)
TRANSMISSION	
Transmission	*Allison* B400R
Transmission Controls	5th Generation
Self-Contained Retarder	3 stage - 25% accelerator, 66% rear brake, 100% front brake activated
DIMENSIONS	
Length (over bumpers)	41 ft. (12.5 m)
Width	8.5 ft. (2.6 m)
Height	10.5 ft. (3.2 m)
Wheelbase	23.6 ft. (7.2 m)
Turning Radius	44 ft. (13.4 m)
Approach/Departure Angle	9°
Vehicle Weight (approx.)	28,125 lbs. (12,755 kg)
Gross Vehicle Weight Rating (GVWR)	42,540 lbs. (19,290 kg)

AXLES & SUSPENSION	
Front Axle	*MAN* VOK-07-F
Front Gross Axle Weight Rating (GAWR)	14,780 lbs. (6,700 kg)
Front Axle Ride Height	4" (102 mm)
Suspension Air Springs	*Firestone*
Suspension Shock Absorbers	*Koni*
Rear Axle	*MAN* HY-1350-F (4.56:1)
Rear Gross Axle Weight Rating	27,760 lbs. (12,590 kg)
Rear Axle Ride Height	3.8" (97 mm)
Suspension Air Springs	*Firestone*
Suspension Shock Absorbers	*Koni*
Driveshaft	*Prop Shaft Supply* 1710 with crosstooth flange & half-round connections
STEERING	
Steering Gear	*R.H. Sheppard* M110 with remote miter box
Oil Flow	3.6 gal/min
Pressure Relief	1850 psi
Steering Column	*Douglas* Autotec 9204 Series
WHEELS & TIRES	
Tires	*Firestone*
Tire Size	305/70R22.5
Inflation Pressure	120 psi
Rim Mounting	10 bolt hub piloted
Wheels	Aluminum
Maximum Load (single tire)	7,390 lbs. @ 120 psi
Maximum Load (dual tires)	6,940 lbs. @ 120 psi

BRAKE SYSTEM	
Brakes, Mechanical (front)	*Knorr-Bremse* SN7000 air-actuated sliding caliper disc brakes
Brakes, Mechanical (rear)	*Knorr-Bremse* SN7000 air-actuated sliding caliper disc brakes
Service Brake Chamber (front)	*MGM* with e-Stroke
Service Brake Chamber (rear)	*MGM* with e-Stroke
Antilock Braking System (ABS)	*Meritor Wabco* ABS on all wheels
Automatic Traction Control (ATC)	*Meritor Wabco* ATC on rear wheels
Parking Brake Application	Spring brake chamber applied with push/pull control valve located on side console
Parking Brake Release	Spring brake chamber released with application of air from push/pull control valve located on side console
Emergency Brake Application	Spring brake chamber applied with loss of reservoir pressure, modulated with brake treadle application
Emergency Brake Release	Released with push/pull control valve located on side console
Brake Monitoring System	*MGM* e-Stroke display module located inside the electronic equipment enclosure. e-Stroke brake sensor on all brake chambers & a brake alert indicator on the instrument panel.
HVAC SYSTEM	
HVAC Unit	*Thermo King* RLF1-M13 rooftop unit
Defroster	*Mobile Climate Control*
Floor Mounted Heaters	2 *Mobile Climate Control* in passenger area
Entrance Heater	*Mobile Climate Control*
Coolant Heater	*Spheros/Webasto* Thermo 300
COOLING SYSTEM	
Engine Radiator	*Engineered Machined Products (EMP)* MH8 Radiator/CAC assembly with Fil-11 pusher-type fans
Transmission Oil Cooler	*Rocore* oil to water heat exchanger located in the engine compartment
Power Steering Reservoir	*Cummins* reservoir
Power Steering Pump	*Ixetic*

AIR SYSTEM	
Compressor	*Wabco* twin compressor 11 tooth
Governor	*Bendix* D2 narrow band (117 to 131 psi)
Air Dryer	*Bendix* AD-IP tandem air dryer with 12V heater
STARTING SYSTEM	
Starter	*Delco Remy* 42MT, 24 Volt
CHARGING SYSTEM	
Alternator	*Engineered Machined Products (EMP)* 450
Alternator Voltage	24 Volt
Alternator Current	450 Amp
Alternator Cooling	Air
Voltage Regulator	*Delco-Remy* 50 VR
Batteries (2)	*DEKA/East Penn Manufacturing*
Battery Type	High cycle
Battery group size	8D
Battery Charge Voltage	27.5 ± 0.3 Volts
EXTERIOR LIGHTING	
Headlights	Integrated unit with 12 Volt LED low beam, H11 incandescent high beam, & amber LED turn lights
Exterior Stop/Tail Lights	12 Volt LED
Side Turn/Marker Lights	12 Volt LED
Clearance Lights	12 Volt LED
INTERIOR LIGHTING	
Aisle Lights	*TCB* 24 Volt LED lights with dimmable Gen 3 clever boards

INSTRUMENTATION	
Instrument Panel	*Parker-Vansco* electronic
	User programmable inputs, outputs, gauges, telltales & LCD display
	2 Controller Area Network (CAN) ports for J1939 chassis/drive train networks
	USB device port for communicating with a PC
Overhead Recess Panel	Destination sign controller
	Fire suppression monitor & manual actuator
MULTIPLEXING SYSTEM	
Multiplexing Module (VMM) System with J1939 Network Communication	*Parker-Vansco* VMM 1615 modules (6)
Instrument Panel	*Parker-Vansco* electronic
AVA/AVL SYSTEM	
Driver/Vehicle Monitoring System	*New Flyer* Connect™ System
DESTINATION & ROUTE SIGNS	
Sign Control	*Luminator* Operator Display Keyboard 4 (ODK 4)
Front Destination	*Luminator* SMT series
Side Destination	*Luminator* SMT series
DOORS	
Entrance Door	*Vapor* Gen 4, slide glide
Entrance Door Opening size	Medium
Limit Switches	Mechanical microswitches
Exit Door	*Vapor* slide glide
Exit Door Opening Size	Wide
Limit Switches	Mechanical microswitches
Driver's Door Control	5-position door controller located on the side console
Door Entry Control	Door control toggle switch mounted behind cover in the front mask

Passenger Door Control	Exit door driver operated
WINDOWS	
General	*Arow Global*, top tip-in
Mounting	Flush
Frame	Black anodized aluminum
Glazing	Tempered glass
Tinting	Grey, 44% light transmittance
Driver's Window	Front slider with interior & exterior handles
Glazing	Tempered glass
Tinting	Green, 75% light transmittance
Emergency Escape	2 curbside & 3 streetside identified with labels
SEATING	
Driver's	*Recaro* Ergo Metro AM80
Passenger	*American Seating* Insight
Passenger Seating Quantity	39
Wheelchair Stations	2 (seats fold up & lock)
FLOOR & SUBFLOOR	
Subfloor	Plywood
Flooring	*Altro* Strada
Sealant	*Altro* pewter grey
SAFETY FEATURES	
Emergency Escape Exits	2 curbside windows identified with labels
	3 streetside windows identified with labels
	2 roof hatches
Fire Extinguisher	5 lb. ABC rating
Fire Extinguisher Location	Curbside luggage rack, in equipment box
Safety Triangles Location	Curbside luggage rack, in equipment box

First Aid Kit	Driver's barrier, in driver's box
Bloodborne Pathogen Kit	Curbside luggage rack, in equipment box
Entrance Door Emergency Release	Rotary valve located in baseplate above entrance door
Exit Door Emergency Release	Rotary valve located behind breakable cover, forward of exit door
Accelerator & Brake Interlocks	Entrance or exit door is open
	Exit door emergency release is actuated
	Vehicle is kneeling
	Wheelchair ramp is not stowed
	Parking brake is applied
	Loss of air pressure at exit door
	Loss of brake signal to engine ECM while selecting drive [D]
	Brake drag alert system is activated
Sensitive Edges	Exit door panels
Fire Suppression System	*Amerex* modular III system
ACCESSIBILITY FEATURES	
Wheelchair Ramp	*New Flyer* hydraulic unit with patented hydraulic cylinder/chain drive mechanism
Wheelchair Ramp Width	Flip-out aluminum 32"
Wheelchair Ramp Slope Ratio	1:7
Wheelchair Ramp Max. Load Capacity	600 lbs. (272 kg.)
Kneeling	Front suspension, rapid recovery

2. EMERGENCY INFORMATION

Vehicle Evacuation & Shutdown

In the event of an emergency, pull the vehicle over to a safe location. Evacuate and secure the vehicle using the following procedure in the following sequence shown:

1. Apply the parking brake
2. Open the front and rear passenger doors.
3. Evacuate all passengers to a safe area, away from the vehicle.
4. Alert the transit authority of the emergency.
5. Shutdown the vehicle by setting the Master Run switch to the STOP-ENGINE position.

WARNING

Assess the situation to determine whether it is safe to approach the rear curbside area of the vehicle before proceeding with the following steps.

6. Approach the rear curbside area of the vehicle and open the Battery Disconnect access door.
7. Shut off all 12/24 VDC electrical power to the vehicle by setting the Battery Disconnect switch to the OFF position. See “Figure 1: Battery Disconnect Switch” on page 13.
8. Wait for emergency response personnel to arrive and assist them by providing details of the emergency and the features of the bus that could be of concern to the first responders.

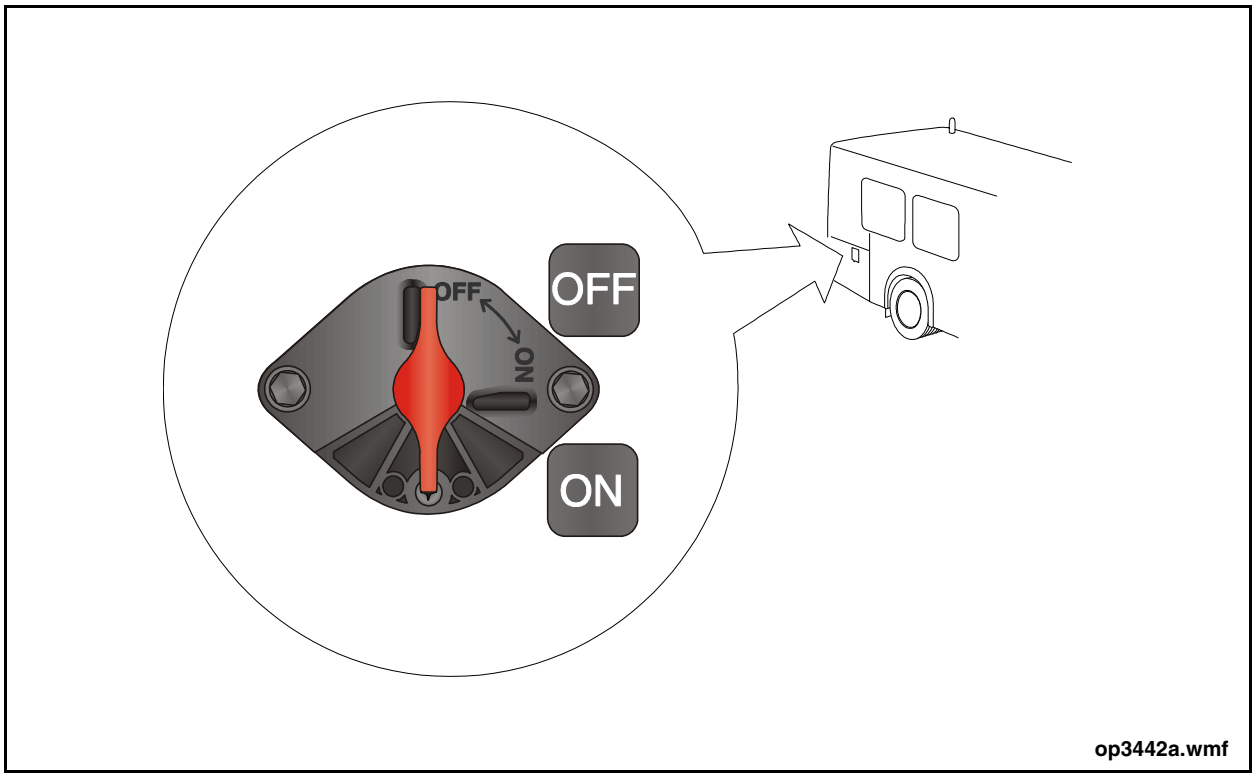

Figure 1: Battery Disconnect Switch

Escape Exits

Side Windows

The windows which function as emergency exits are identified by labels.

To operate the emergency window, pull the red handle down and hold. Push out on the bottom of the window frame. The window will open on hinges at the top of the frame. To close, release the handle and slam window shut. See “Figure 2: Window Emergency Handle” on page 14.

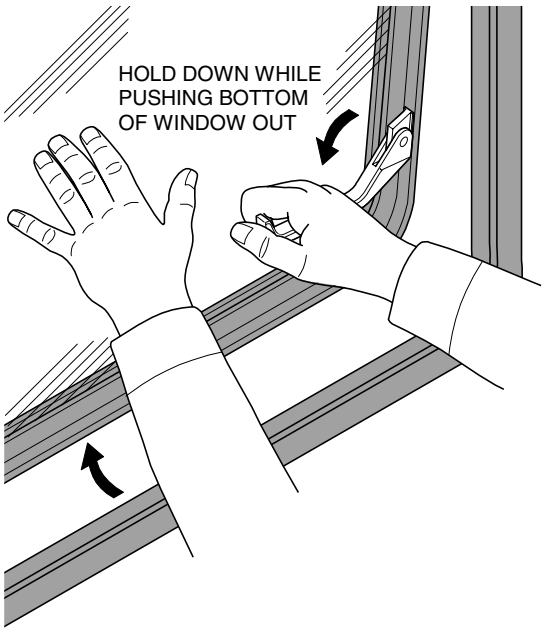

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Figure 2: Window Emergency Handle

Roof Hatches

Both roof hatches function as emergency exits and are identified by decals on the hatch panel. Proceed as follows to operate the emergency exit: See “Figure 3: Roof Hatch Emergency Exit” on page 15.

1. Push the hatch up to the full OPEN venting position.
2. Turn the release latch knob 90° left or right to unlock.
3. Push the handle outward so the hatch swings open on the fixed hinge.
4. To close, return the hatch to its full OPEN position. Line up and push the separated hinge halves together. Turn the latch knob to the latched position.
5. Push up on the hatch to ensure proper engagement. Pull the hatch downwards to close.

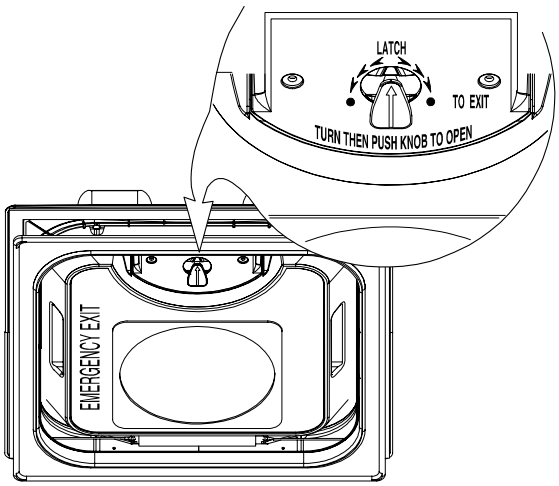

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Figure 3: Roof Hatch Emergency Exit

Emergency Release Control Valve - Entrance Door

The entrance door emergency release control valve is located behind a breakable window in the door mechanism access cover. In an emergency, break the window to access the control valve knob. Rotate the knob 90° counter-clockwise to release air pressure from door operator, then push the doors open. As the doors open they activate the header and curb lights. See “Figure 4: Entrance Door Emergency Release Control Valve” on page 16.

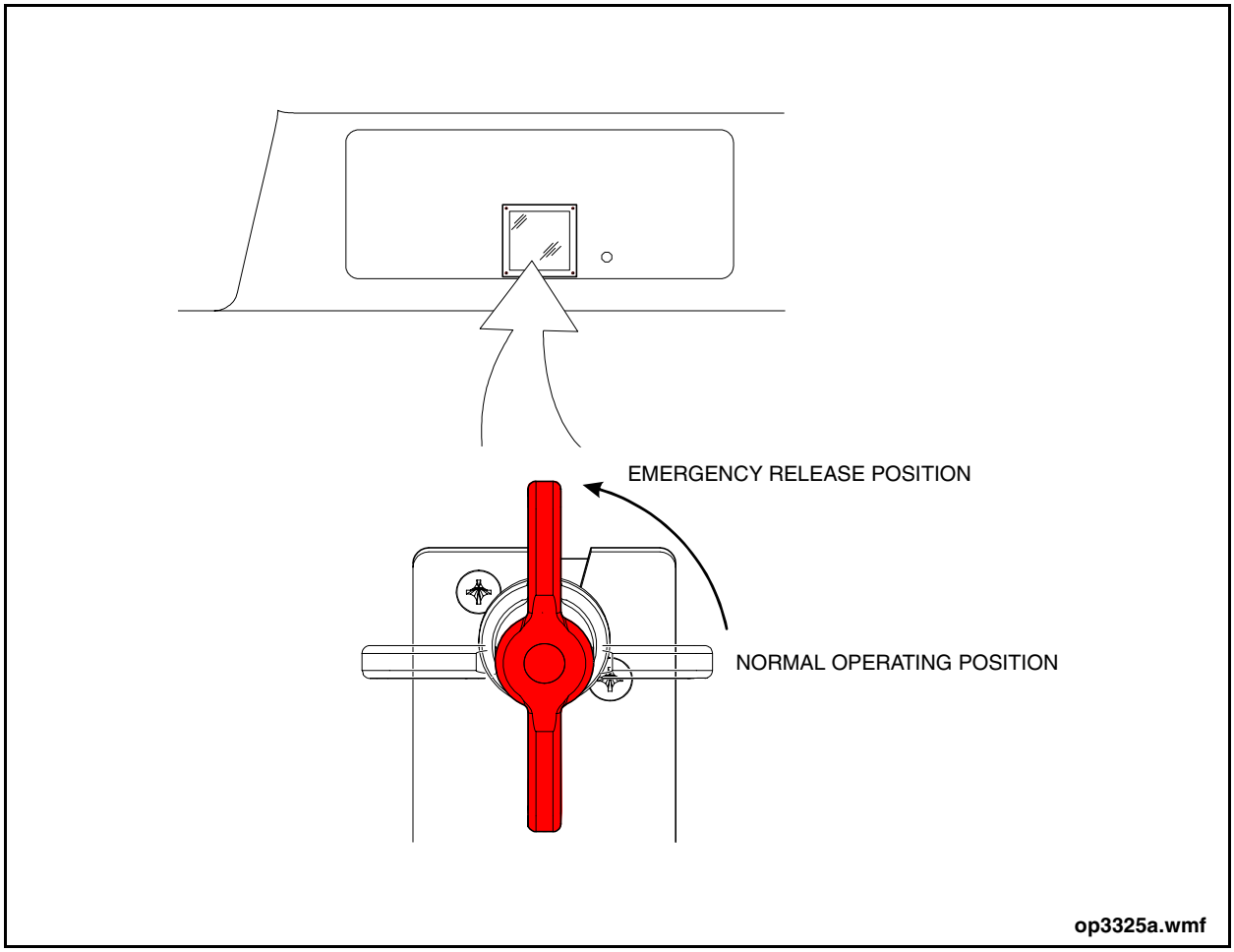

Figure 4: Entrance Door Emergency Release Control Valve

Emergency Release Control Valve - Exit Door

The exit door emergency exit control valve is located to the left of the exit door header, behind a hinged window. In an emergency, pull the window open to access the control valve knob. Rotate the control valve knob 90° counter-clockwise to release air pressure from the door operator, then push the doors open. As the doors open they activate the header and curb lights, the brake interlocks, and the Rear Door Open indicator. See “Figure 5: Exit Door Emergency Release Control Valve” on page 17.

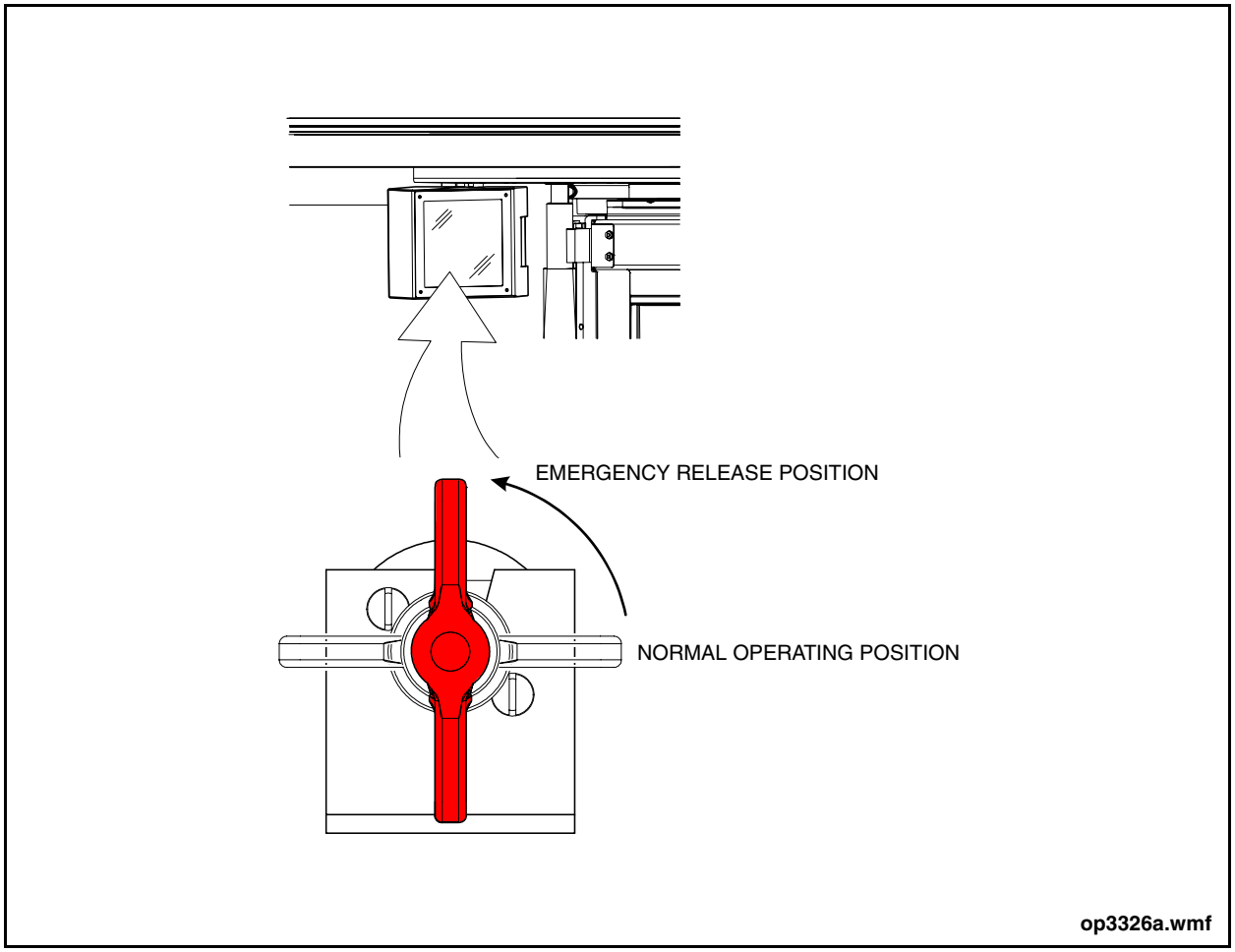

Figure 5: Exit Door Emergency Release Control Valve

3. SAFETY INFORMATION

Safety Procedures

Do not drive the vehicle if:

- Indicators, instruments or gauges show that a major vehicle operating system is malfunctioning.
- Exhaust fumes seep into the passenger compartment.
- Beneath the vehicle, puddles of engine oil, hydraulic fluid, or coolant have formed.
- Seating stanchions and grab rails are loose or damaged.
- Driving mirrors are broken, missing or cannot be properly adjusted.
- Any exterior or interior light is broken, discolored, or malfunctioning.

Report the occurrence of any of the above to maintenance personnel so the vehicle can be serviced before beginning revenue service.

- Do not operate the vehicle without fastening the seat-belt.
- Make sure obstructions do not block or interfere with your safe range of driving and operating vision.
- Have any debris or garbage removed from the passenger area and the doors. This is important to eliminate any foot obstructions that could cause tripping or falling.
- Make sure all exterior and interior access doors and panels are securely shut and latched.
- Do not smoke around the fuel storage areas, the fuel filling area or during refueling. Do not smoke in areas where fuel, hydraulic fluid, transmission oil or any other flammable fluid has leaked.

Safety Equipment

The following safety equipment is supplied with this vehicle:

- Hand-held fire extinguisher - Use the extinguisher only after the vehicle is in a safe location, and all passengers are evacuated. Use only if there is no risk to your personal safety. See “Figure 6: Safety Equipment - 1” on page 19.
- Safety triangles - Position the triangles at the front and rear of the vehicle to warn other drivers during emergency situations.
- First aid kit - Become familiar with the contents of the kit before using it. See “Figure 7: Safety Equipment - 2” on page 20.
- A bloodborne pathogen kit contains items to help protect against diseases transmitted through bodily fluids. Consult your local transit authority for instructions on the use of the bloodborne pathogen kit.

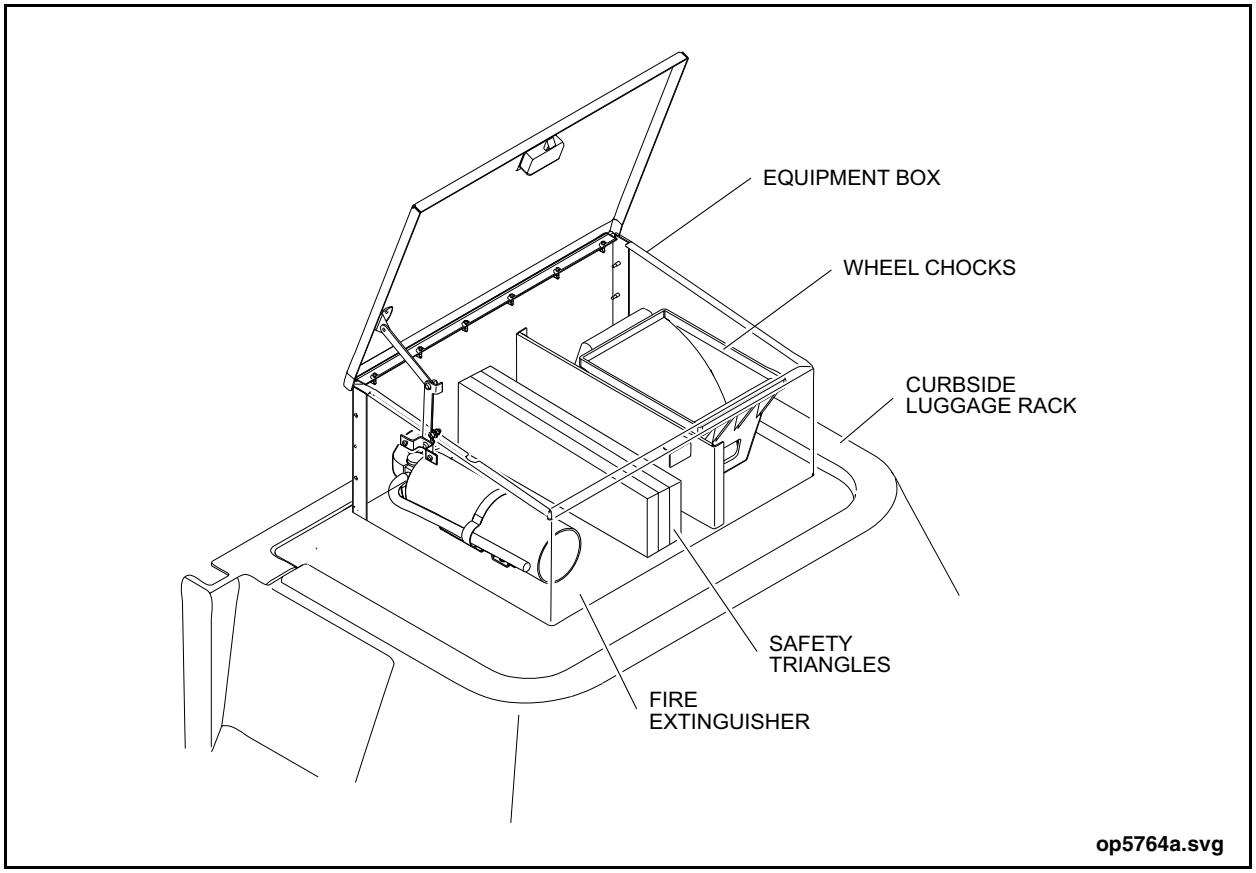

Figure 6: Safety Equipment - 1

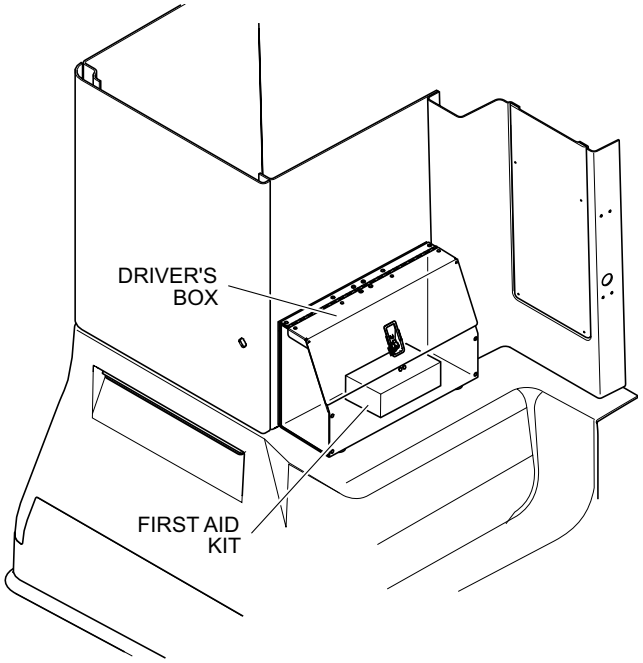

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Figure 7: Safety Equipment - 2

Fire Suppression System

The vehicle is equipped with a Fire Suppression System. The system protects the passengers and vehicle against fire. If a fire is detected in the engine compartment an extinguishing agent is discharged to suppress the fire.

The Fire Suppression System components that are located in the driver's area include the Manual Actuator switch and alarm panel. Refer to "10. FIRE SUPPRESSION SYSTEM" on page 88 in this manual for a description of these components and the system operation.

☞NOTE:

An alarm sounds and the engine shuts down when the Fire Suppression System is activated.

Exit Door Sensitive Edges

Pressure sensitive rubber seals are mounted to the leading edges of the exit door panels. If they encounter an object or passenger during door closure, an alarm sounds and the doors fully reopen. The doors will again close once they have fully reopened.

☞NOTE:

The Interlock System prevents the vehicle from moving until the exit doors have fully closed.

Interlock System

Interlocks disable the accelerator and apply the brakes. The interlocks function only when the Master Run switch is in DAY-RUN or NIGHT-RUN position, the Door Master switch is in the ON position, the vehicle speed is below 2 mph, and any of the following conditions occur:

- Entrance or exit doors are open.
- Exit door emergency valve is actuated.
- Vehicle is kneeling.
- Wheelchair ramp is not stowed.
- Parking brake is applied.
- Loss of air pressure at exit door.
- Loss of brake signal to engine ECM while selecting drive [D].
- Brake Drag Alert System is activated.

The Interlock System is intended to protect passengers from inadvertent vehicle movement. The Door Master switch can be used to disable the system for maintenance purposes or in an emergency. Refer to “ Door Master Switch” on page 85 in this manual for further information on switch operation.

☞NOTE:

The brake treadle drops slightly when the interlock system applies. When the interlocks apply, the Multiplexing System logs the application pressure in the brake lines. To release the interlocks, the operator must “push through” the interlock application, exceeding the logged pressure by 10 psi. When released, the treadle will return with the operator’s foot to its normal position.

4. TO ENTER THE VEHICLE

1. Locate the front door open switch compartment.
2. Open the access door and move the switch to open the door.
3. If the entrance door does not open, exhaust air from the entrance door cylinder as follows:
   a. Slide the front portion of the driver's window back to gain access to the door manual control valve. See "Figure 8: To Enter the Vehicle" on page 22.
   b. Reach over the side console to the valve handle and turn it to the OPEN position.
   c. Open the door manually by pushing on the door panels' outside edges.

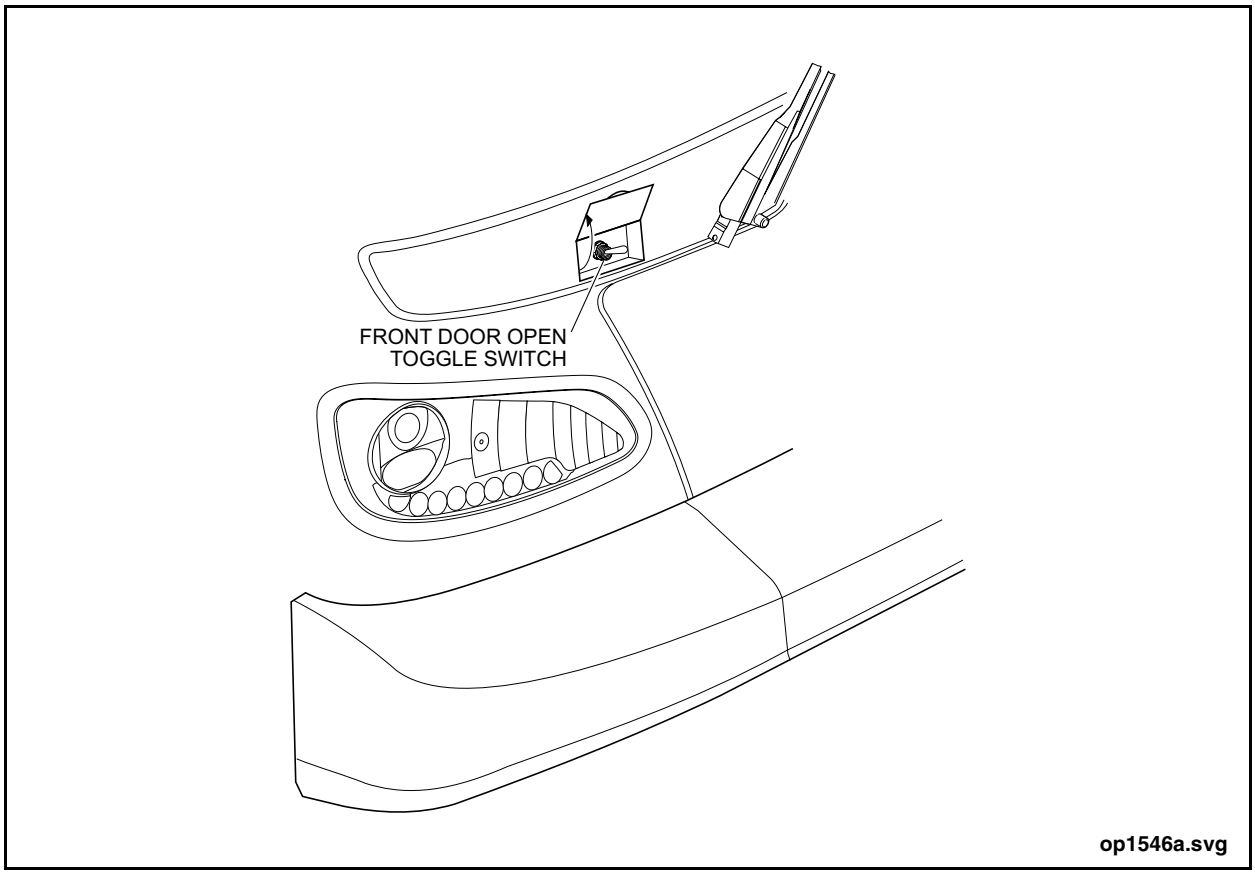


Figure 8: To Enter the Vehicle

5. DRIVER'S CHECK LIST

Check the following before putting the vehicle into transit service. Any problems discovered should be brought to the attention of the service personnel.

Exterior

General

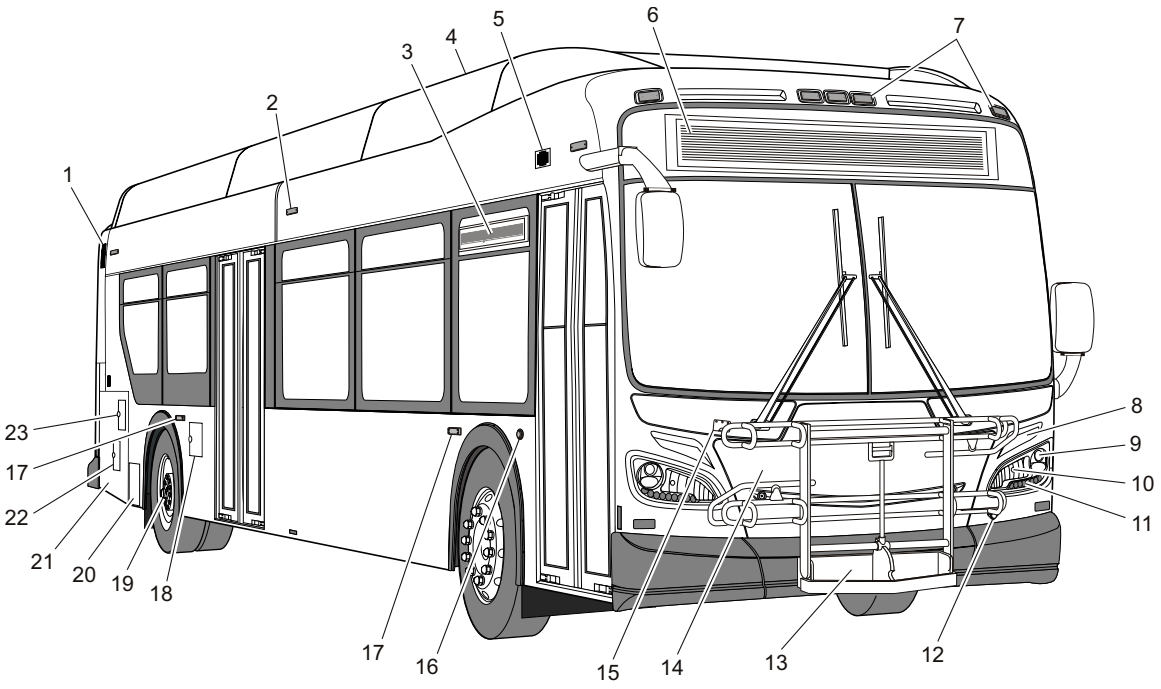
- Battery Disconnect switch is in the ON position.
- Engine Run switch in engine compartment is in the FRONT position.
- Check for any fluid puddles under the vehicle.
- Check all exterior panels for any visible damage.
- Check the air intake grille and the exhaust tailpipe for any blockage.
- Bumpers are securely mounted and no damage is evident.
- Bike rack is securely mounted and functions properly (if equipped).

Access Doors

- Visually inspect door panels for any evidence of damage.
- Check that the access doors unlatch and open easily. Ensure gas struts function properly and maintain door in opened position (where applicable).
- Inspect door panel interior rubber bumpers condition or whether missing.
- All access doors must be closed and securely latched (where applicable) prior to operating vehicle.

Windows

- Check that all windows are closed.
- Ensure window glass is clean and no visible evidence of cracks or other damage.
- Inspect condition of window frames and seals for any damage.



1. Engine Air Intake Grille
2. Side Marker Light
3. Side Destination Sign
4. HVAC Unit
5. Exterior Speaker
6. Front Destination Sign
7. Clearance Marker Lights
8. Driver's Lower Vent
9. Headlight, Low Beam
10. Headlight, High Beam
11. Front Turn Light
12. Towing Electrical Connector
13. Bike Rack
14. Defroster/Wiper Access Door
15. Front Door Open Switch
16. Kneeling/Ramp Warning Light
17. Side Turn Light
18. Fuel Filler Access Door
19. Hubodometer
20. Battery Access Door
21. Fusebox Access Door
22. Battery Cutoff Switch Access Door
23. Diesel Exhaust Fluid Manual Fill Access Door

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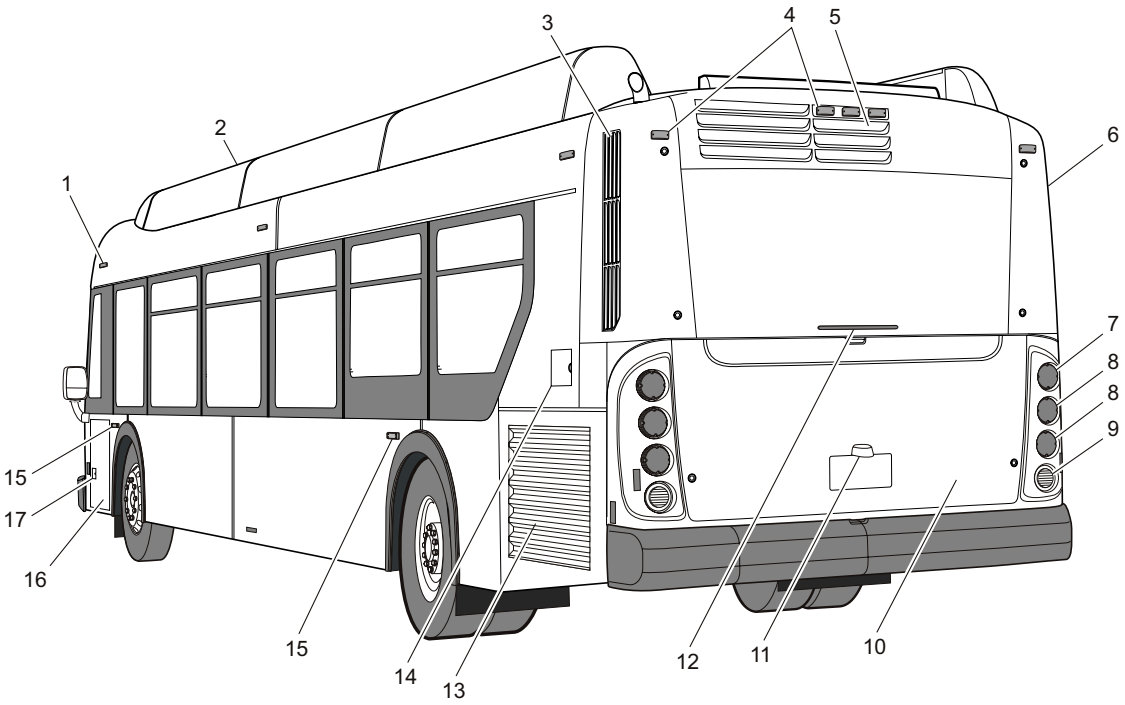
Figure 9: Front Exterior View



1. Side Marker Light
2. HVAC Unit
3. Muffler Access Door
4. Clearance Marker Lights
5. Exhaust Component Grille
6. Air Intake Access Door
7. Turn Signal Light
8. Stop/Tail Light
9. Backup Light
10. Engine Access Door
11. License Plate Light
12. Center Stop Light
13. Radiator Access Door
14. Surge Tank Access Door
15. Side Turn Light
16. Side Console Access Door
17. Windshield Washer Filler

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Figure 10: Rear Exterior View

Mirrors

- Inspect condition of mirror housing, glass, and mounting brackets.
- Check that mirror head can be easily rotated for adjustment (where applicable).

Lights

- Ensure all lights are clean and not obstructed in any way.
- Check that lights are securely mounted with no missing attaching hardware.
- Inspect lenses for cracks or other damage.

Tires

- Check tire air pressure and ensure it is within the manufacturer's recommended range.
- Inspect tire tread for abnormal wear, cuts, separation, missing tread, or any other visible defects.
- Inspect tire sidewalls for bulges, cuts, gouges, abrasions, or any other visible defects.

Wheels

- Check for any missing or loose wheel nuts.
- Closely inspect condition of wheel studs if any wheel nuts were found to be loose or missing.
- Visually inspect wheel for any evidence of dents, cracks, deformation, or other damage.
- Inspect wheel surface for pitting or excessive corrosion.

Interior

General

- Ensure farebox is securely mounted and operates properly.
- Check all interior panels for any visible damage.
- Ensure front and side destination signs are securely mounted.
- Sunvisors and/or roller blinds are securely mounted and function properly.
- Check that roof hatches open in all ventilation positions and close properly.
- Ensure that roof hatches function properly in the emergency release position.
- Visually inspect condition of passenger signal system and verify operation.
- Ensure door controller moves freely through all operating positions and doors open/close accordingly.
- Door Master switch is in the ON position.
- Check that all driver's seat adjustments function properly and maintain position.
- Inspect condition of driver's seat-belt and ensure that it functions properly.
- Inspect condition of wheelchair restraint system and ensure that all mechanisms function properly.
- Check steering wheel operation with engine running. Steering should operate smoothly without binding or erratic movement.
- Check steering wheel tilt/telescope lever functions properly.
- Ensure that the wheelchair ramp functions properly and that the alarm sounds when stowing or deploying the wheelchair ramp.

Fire Suppression System

- Ensure the safety pin on the Manual Actuator switch is securely installed.
- Ensure all indicators on the fire suppression control panel illuminate properly.

Access Doors

- Visually inspect interior door panels for any evidence of damage.
- Check that the access doors unlatch and open easily. Ensure gas struts function properly and maintain door in opened position (where applicable).
- Check for any missing or damaged rubber bumpers on the inside of the door panel.
- All access doors must be closed and securely latched (where applicable) prior to operating vehicle.

Seats

- Ensure seats are clean and there is no evidence of cuts, tears, or other damage.
- Ensure seats are securely mounted to seat rail and floor (where applicable).

Floor

- Check overall condition of flooring for cleanliness.
- Inspect flooring for any evidence of excessive wear, cuts, or other damage.
- Inspect edges of flooring and nosing for evidence of lifting or separation.
- Ensure the wheelchair ramp is fully stowed flush with the flooring surface and does not provide a tripping hazard.

Windows

- Check that windows are clean and undamaged.
- Check operation of emergency release mechanism on all windows so equipped. Ensure windows release from the frame and open fully outward for emergency egress.
- Check operation of all windows equipped with slider or tilt openings. Windows should slide or tilt easily and not be loose in the frame.

Mirrors

- Check condition of mirror glass for cracks or other damage.
- Ensure mirrors are securely mounted and maintain their adjusted position.
- Ensure mirrors offer a clear view and are not obstructed.

Passenger Doors

- Check that doors open/close properly.
- Check door panels for dents, deformation or other damage.
- Inspect door panel glass for cleanliness and ensure glass is not cracked or otherwise damaged.
- Inspect door edges and seals for condition and proper sealing.

Modesty Panels/Barriers

- Inspect condition of panels for sharp edges, cracks, or any other damage.
- Ensure panels are securely mounted to stanchions and vehicle structure.

Stanchions & Grab Rails

- Inspect for bent or cracked tubing, rails, or any other damage.
- Ensure that all stanchions and grab rails are securely mounted.
- Inspect for any sharp edges.
- Inspect for any missing attaching hardware.
- Inspect condition and secure mounting of grab straps (where applicable).

Lights

- Ensure all lights are clean and not obstructed in any way.
- Check that lights are securely mounted with no missing attaching hardware.
- Inspect lenses for cracks or other damage.

Indicator Lights

☞NOTE:

From this point on, items on the driver's check list require activating the vehicle's Multiplexing System and starting the engine. Turning the Master Run switch on the side console to DAY-RUN or NIGHT-RUN activates the Multiplexing System. Wait for the system to activate before starting the engine. Refer to "11. VEHICLE OPERATION" on page 92 *in this manual for details on engine starting.*

- The Stop Request indicator illuminates when the passenger signal system is activated.
- The W/C Stop Request indicator illuminates when the wheelchair passenger signal system is activated.
- The Parking Brake indicator illuminates when the parking brake is applied.
- The Stop indicator illuminates when the brakes are applied.
- The Turn indicator illuminates and flashes when the turn signal switch is activated or the Hazard switch is turned on.
- The Rear Door Open indicator illuminates when the exit door is open.
- The High Beam indicator illuminates when the high beam headlights are on.
- The Kneel indicator illuminates when the kneeling system is activated.
- The No Gen and Stop Engine indicators illuminate momentarily, then extinguish.
- The remaining indicators relate to vehicle operation concerns and should be checked by service personnel.

Electrical Control Systems

- The Master Run switch controls the electrical circuits. Refer to "9. INSTRUMENTATION & CONTROLS" on page 52 in this manual for more information.
- Light switches, located inside the service compartments, activate the compartment lights.
- Windshield washers spray washer fluid onto windshield.
- Wipers operate (on wet windshield) without streaks, scraping or noisy operation.
- Hazard lights function with the Master Run switch in any position.
- Horn sounds when horn button on steering wheel pressed.
- Rear brake lights illuminate when the brake pedal is applied.
- Destination/route sign circuits function with the Master Run switch in DAY-RUN, NIGHT-RUN or NIGHT-PARK positions.
- All side console control switches function.
- Passenger signal and chime circuits function.
- Accelerator treadle accelerates the engine.
- Shift Selector switch functions.
- Backup lights illuminate when the transmission is shifted to reverse.
- HVAC System functions when the engine is running.
- Speedometer functions when the vehicle is moving.

Air Control Systems

- Normal vehicle operation pressure ranges from 117 to 131 psi (807 to 903 kPa).
- Low Air indicator illuminates and an alarm sounds if the air system pressure drops below 75 psi (517 kPa).
- Entrance and exit doors open and close smoothly.
- Brake treadle application slows and stops the vehicle smoothly.
- Parking brake valve application holds the vehicle stationary when level or on a 20% maximum incline grade when on dry concrete.
- Door manual control valve, located below the side console, shuts off the air supply to the entrance door mechanism. When in the OFF position, the doors can be pushed open.
- Splash guards clear the ground (vehicle on level surface) with the air system pressure at or above 117 psi (807 kPa).
- Compressor cuts in when the air system pressure drops to approximately 117 psi (807 kPa) and shuts off at approximately 126 to 131 psi (869 to 903 kPa).

6. DRIVER'S AREA

The driver's area includes the first eight feet of interior space measured from the front windshield. This section describes the controls and components within the driver's area. A brief outline of the functions and operating procedures of each accompanies the description. See "Figure 11: Driver's Front Area" on page 31. See "Figure 12: Driver's Side Area" on page 32.

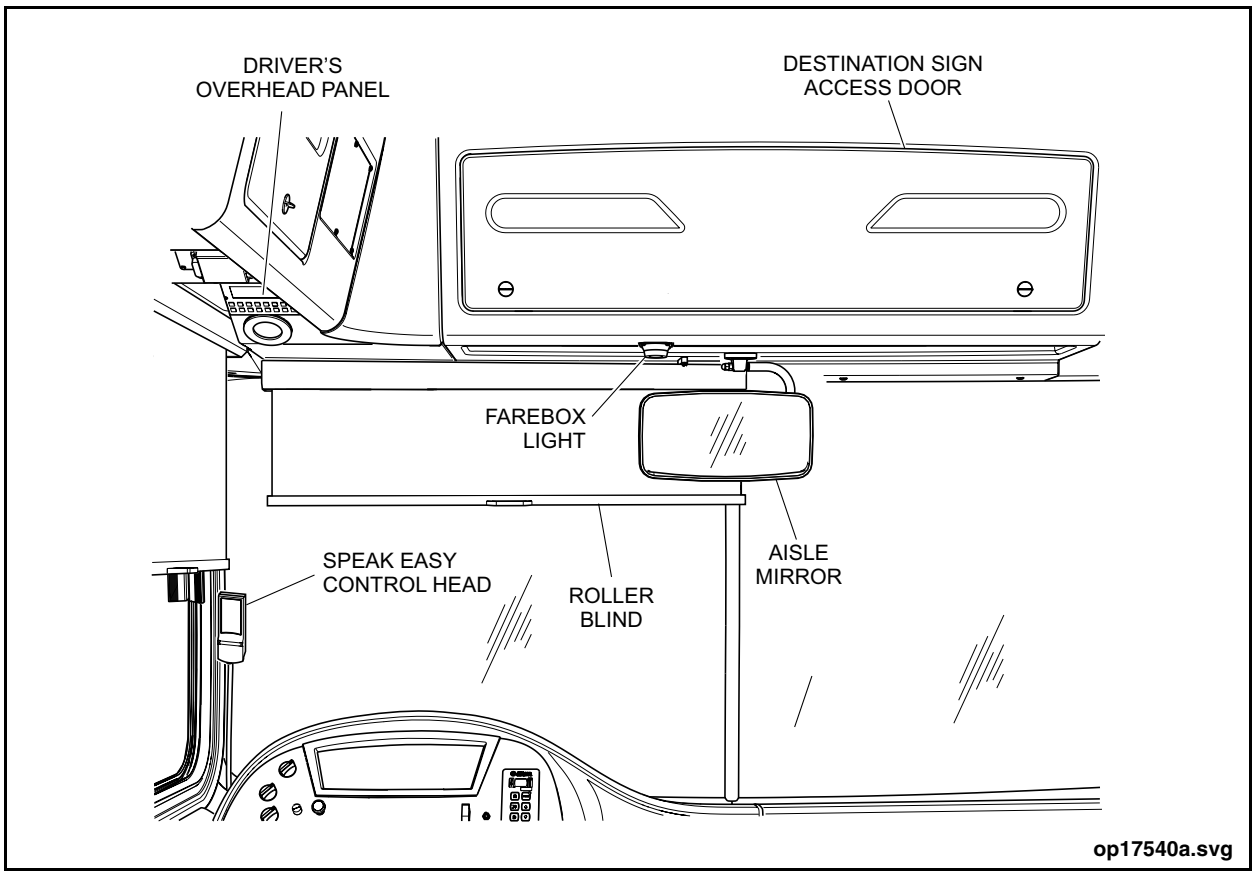


Figure 11: Driver's Front Area

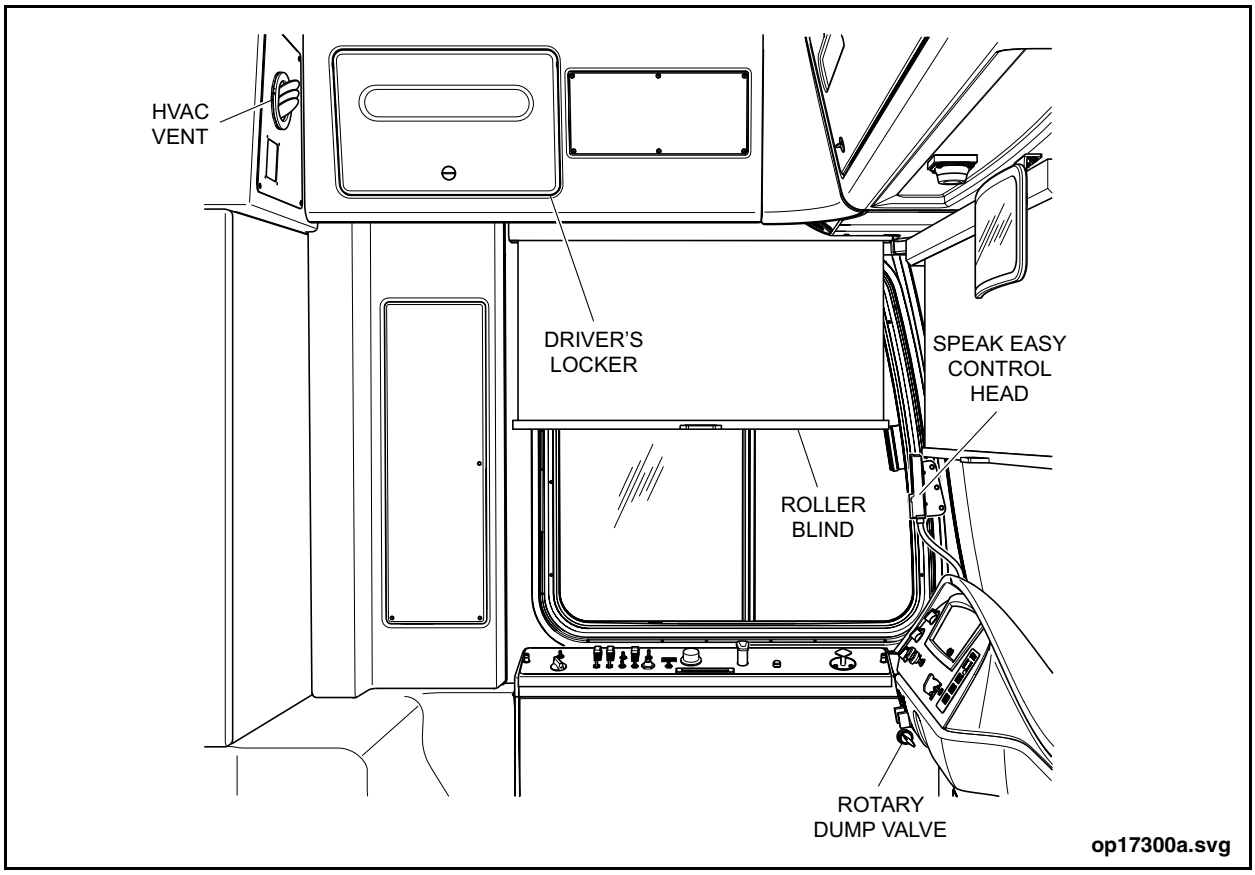


Figure 12: Driver's Side Area

Driver's Window

Front Portion

Pull the sash handle back to open the front portion of the window. Push the handle forward to close.

Mirrors

The vehicle is equipped with the following mirrors:

Aisle Mirror

The aisle mirror is located under the front destination sign closeout. Its convex glass surface provides a wide view of the entrance door and passenger area.

Upper Right Mirror

Located to the right of the aisle mirror, the upper right mirror is used to view the rear mirror.

Exit Door Area Mirror

The exit door area mirror is located on a stanchion at the exit door. It provides a view of the exit door area when looking through the upper right mirror from the driver's seat.

Roller Blinds

There are two roller blinds in the driver's area; one for the front windshield and the other for the driver's window. The blinds can be extended or retracted by either pushing or pulling on their handles.

Electronic Equipment Enclosure

The electronic equipment enclosure is located on the streetside wheelhousing and is used for storing the vehicle communication and monitoring equipment. The lockable access door provides security for the stored contents and the slide-out trays provide easy access for servicing the electronic equipment.

Driver's Locker

Located above the driver's window, the driver's locker is for storing personal belongings.

Driver's Overhead Panel

The driver's overhead panel is a recessed panel located above the driver that contains the destination sign controller, fire suppression display panel and fire suppression manual actuator. See "Figure 13: Driver's Overhead Panel" on page 35.

Refer to " Destination/Route Signs" on page 43 in this manual for information on the operation of the destination sign controller. Refer to "10. FIRE SUPPRESSION SYSTEM" on page 88 in this manual for a description of the fire suppression components and the system operation.

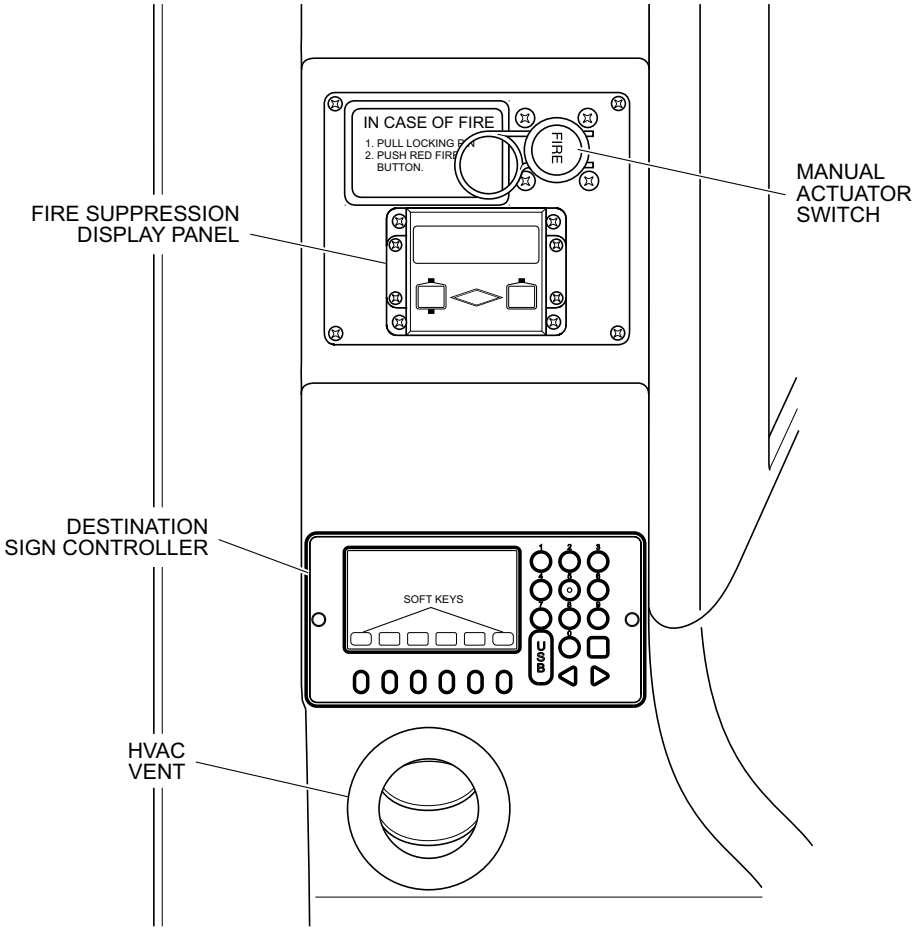


Figure 13: Driver's Overhead Panel

Driver's Seat

The Recaro Ergo Metro AM80 driver's seat is an adjustable air suspension seat consisting of a steel frame base and back panel and molded foam cushions. The seat-belt retracts to holders beside the seat cushion. See "Figure 14: Driver's Seat" on page 36.

Nine controls adjust the positioning of the seat and seat cushions to suit the needs of the individual. Make position adjustments to provide for the best driving visibility and control. See "Figure 15: Driver's Seat Switch Panel" on page 37.

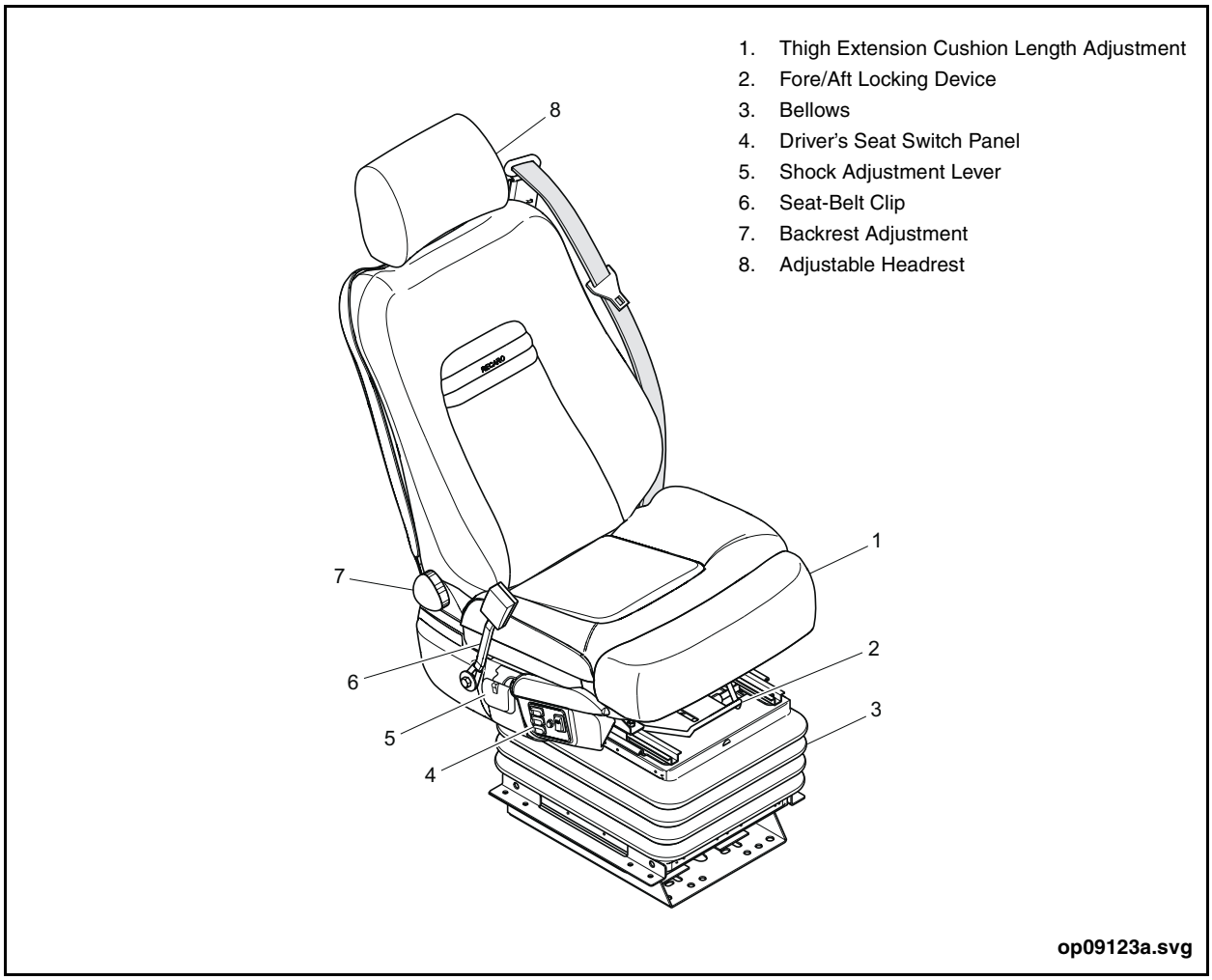


Figure 14: Driver's Seat

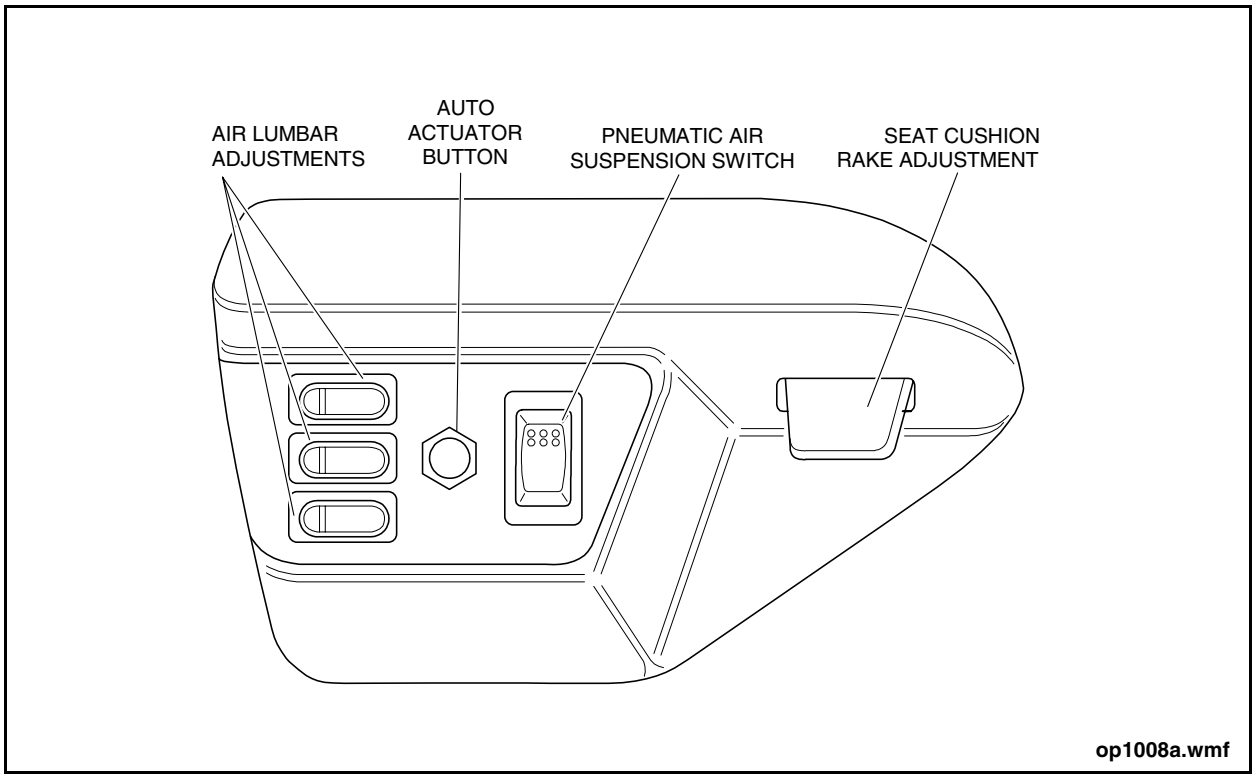


Figure 15: Driver's Seat Switch Panel

Headrest Support

Horizontal and vertical adjustments can be made to the headrest. Pull up from the bottom or push down on the top of the headrest until the desired height is obtained. To adjust the tilt, pull forward or push back on the top of the headrest until it pivots to the desired angle.

Thigh Extension Cushion Length Adjustment

The front part of the seat cushion can be extended up to 2" (50 mm) by pulling the front of the thigh extension forward or backward to a desired length.

Back Recline Adjustment

Adjust the backrest to the desired recline position by turning the control knob located at the bottom of the backrest.

Switch Panel Air Lumbar Adjustments

Three rocker switches control each of three air lumbar support cells. Push switch forward to inflate; rearward to deflate.

Switch Panel Auto Actuator Button

To release tracks and move the seat fore and aft, push Auto Actuator button and shift body for desired distance.

Switch Panel Pneumatic Air Suspension Switch

Push the Pneumatic Air Suspension switch up to raise seat suspension. Push this switch down to lower seat suspension.

Switch Panel Seat Cushion Rake Adjustment

The front part of the seat can be adjusted from a 0 to 20° angle by pulling the seat cushion rake adjustment handle up and moving the thigh extension up and down to the desired angle.

Seat Back Release Button

The seat back can be tilted forward. Slide either the left or right button upward to release the seat back.

⚠ WARNING

There is a danger of electric shock if the seat heating mats are damaged. DO NOT place any sharp or heavy object on the seat or stand or kneel on the seat. DO NOT use decorative overs or any other covers on the seat. Doing so can cause overheating.

Heat Switch

Position the switch up for HIGH heat. Position the switch down for LOW heat. Position the switch in the CENTER to switch off the heating mats.

Steering Wheel & Horn

Steering Wheel

WARNING

DO NOT make adjustments to the tilt steering while the vehicle is in motion.

CAUTION

DO NOT turn the steering wheel if the engine is not operating except in emergency situations.

CAUTION

DO NOT OPERATE THE VEHICLE if any of the following conditions exist:

- **Binding or resistance in the steering wheel operation (with the vehicle in motion).**
- **Unusual noises related to steering.**
- **Steering wheel vibration.**
- **Looseness, binding or resistance in the tilt/telescopic mechanism.**

A hydraulic powered steering system turns the front wheels when moving the steering wheel left or right (the engine must be operating to power the system). The tilt/telescopic steering column offers a range of positions for the steering wheel. A lever on the left of the column controls both tilt and telescopic functions. Push to telescope and pull to tilt. See "Figure 16: Steering Wheel Adjustment" on page 40.

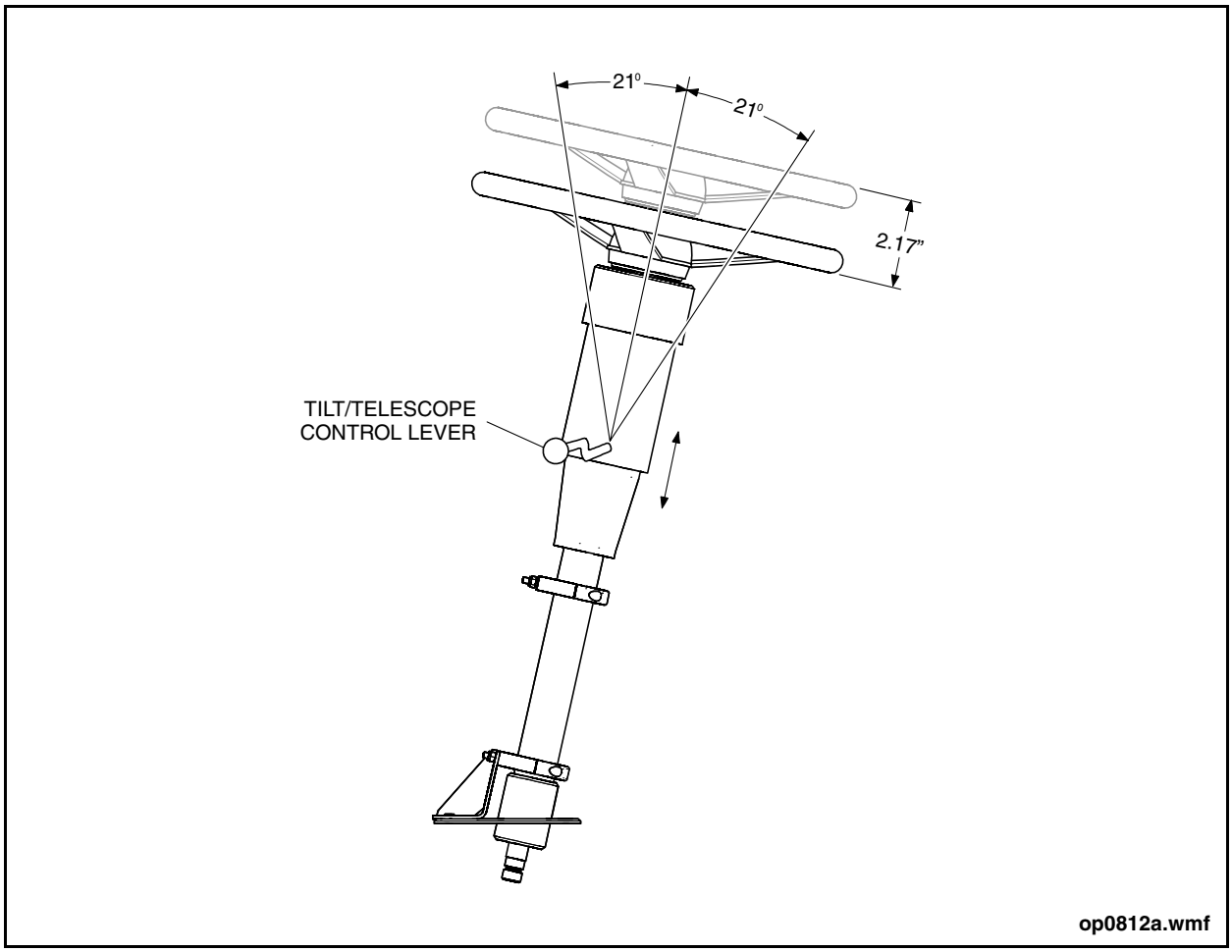


Figure 16: Steering Wheel Adjustment

Horn

The horn button, located in the center of the steering wheel, operates the dual horn.

Public Address System

The Public Address System (P.A.) allows the communication of messages to the public both inside and outside the vehicle. Components of the system include: See "Figure 17: P.A. System Layout" on page 41.

- A speakeasy control head located at the left windshield pillar.
- Six interior speakers located above the side windows.
- An exterior speaker located above the entrance door.
- Floor mounted P.A. switch.

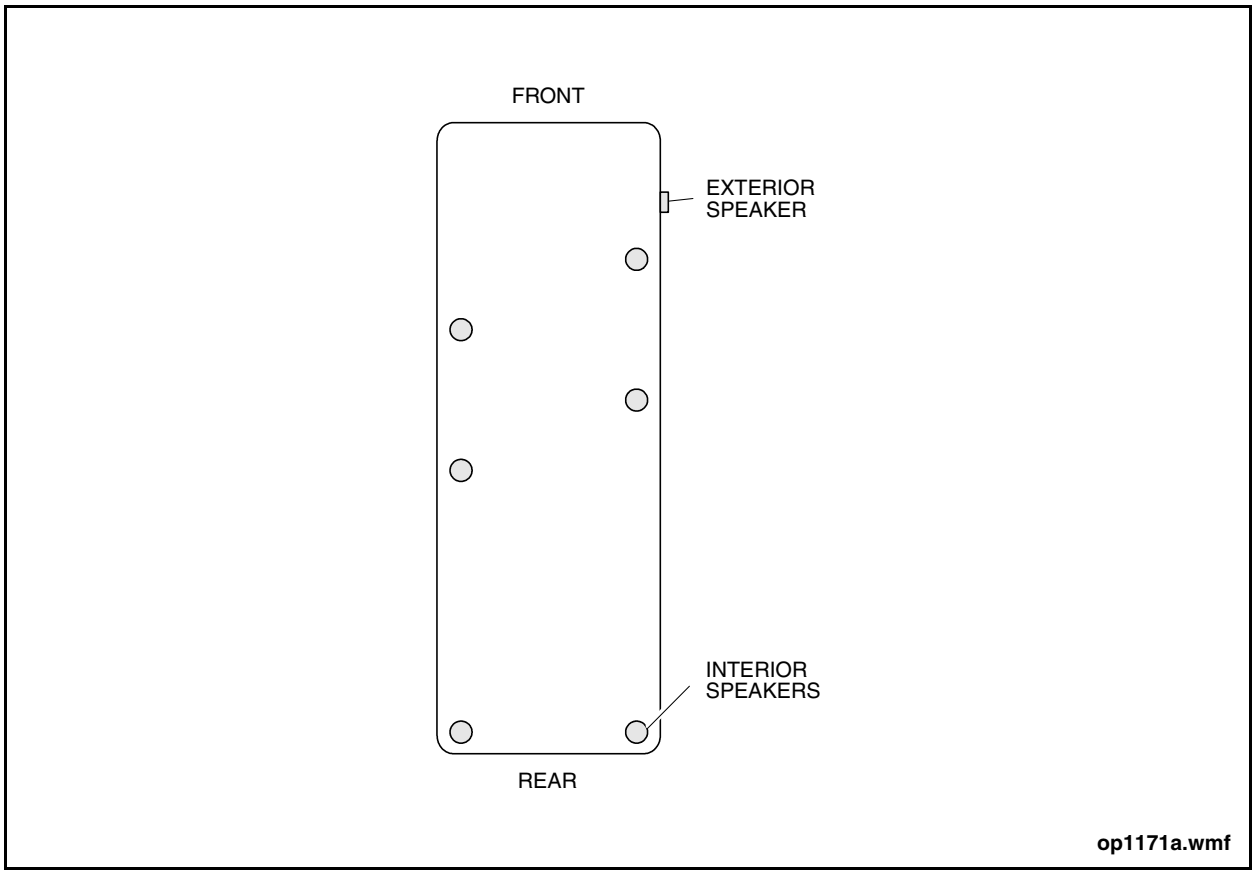


Figure 17: P.A. System Layout

Speakeasy Control Head

The control head is a hands free digital microphone and recorder with integral P.A. amplifier. The control panel has switches with LED indicators for speaker selection (INSIDE, OUTSIDE, or BOTH), mute and record functions. The panel also has volume control buttons. See "Figure 18: Control Head" on page 42.

Public address mode operation is used to make standard announcements through the inside speakers, outside speakers, or both. Initially the driver presses the INSIDE, OUTSIDE, or BOTH speaker switch to select to which speakers the communication will be directed. The corresponding LED indicator light will illuminate to indicate the selected speakers. The driver then records the message by depressing and holding the P.A. foot switch while speaking into the microphone. When the switch is released, the message will be played over the selected speakers.

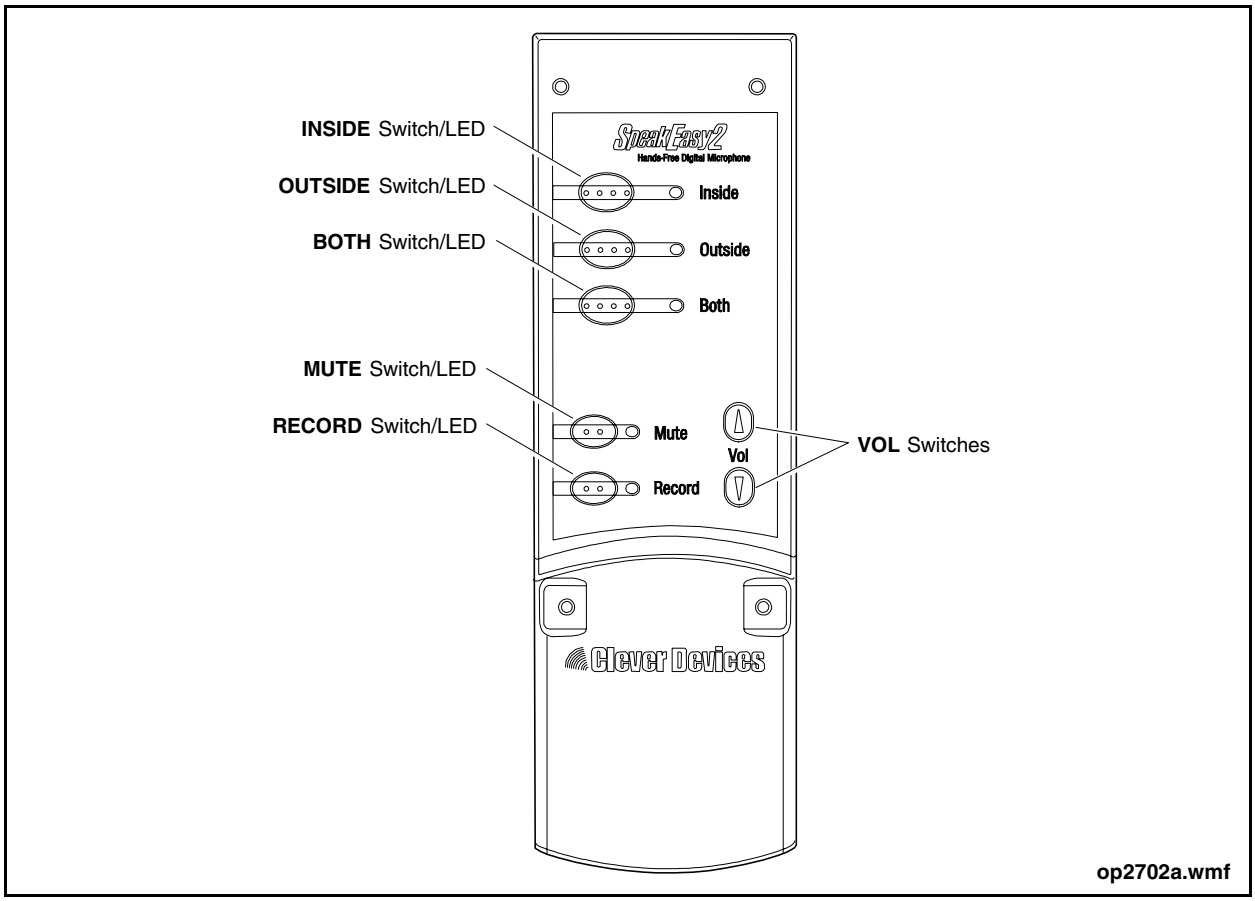


Figure 18: Control Head

Automated outside messages are used to convey route information to waiting passengers at

bus stops. The driver records a message by pressing and holding the RECORD switch on the control panel while speaking into the microphone. The corresponding LED indicator will remain illuminated as long as the switch is held. After releasing the RECORD switch, the message is automatically played back on the outside speaker at each bus stop as the entrance door is opened. The message will remain in memory until the Master Run switch is set in the OFF position or a new message is recorded. A message can be erased by quickly pressing and releasing the RECORD switch.

Destination/Route Signs

☞NOTE:

The following information provides basic introductory information on ODK and Luminator Destination Sign System operation. Your transit authority management establishes policies about system operation and should be consulted before its use. Manuals are available from Luminator which provide more information about the Operator's Display Keyboard and the Luminator Destination Sign System.

System Description

The vehicle's destination/route signs are controlled by an Operator's Display Keyboard (ODK4) located in the panel of the front destination sign access door. The ODK consists of a liquid crystal display (LCD) display screen with six soft keys, six corresponding hard keys, keypad with numbered (0-9) switches, enter key, and left/right arrow keys.

The sign system is controlled through programmed instructions stored in ODK memory through its liquid crystal display (LCD) touchscreen and keypad. Messages displayed on the vehicle signs can also be displayed on the ODK touchscreen.

☞NOTE:

The touch sensitive soft keys labeled on the LCD touchscreen will vary per the menu being displayed and are functionally identical to the blue hard keys located directly beneath them and can be used interchangeably.

The codes translate into message writing data preprogrammed into the system's memory. The message writing data then controls the signs to display the selected information.

The system data processor begins sending and updating message writing data for the ODK to display when the system is powered-up. Turning the Master Run switch from STOP-ENGINE to DAY-RUN or NIGHT-RUN will power-up the system. Boot and application code versions momentarily display when power is applied to the ODK, followed by a brief system initialization message. The last message entered before power shutdown then displays on the ODK.

Powering-down occurs when the Master Run switch is turned to STOP-ENGINE. Upon powering-down, front and side destination signs will blank immediately or after a preset delay.

Operating the ODK4

Basic operation of the Sign System involves presetting transit authority message codes into the sign system using the ODK. The message codes correlate to preprogrammed destination names, public relations messages, and route numbers unique to each transit authority. If required, multiple sets of message codes may be entered to allow for a quick and complete sign change while in route. Key function and basic operation instructions are described in the two sections that follow.

ODK4 Operating Keys

Six soft keys are located on the bottom of the LCD display screen. The function of these soft-keys is identical to the corresponding hard keys located directly below the display screen. The soft keys and hard keys can be used interchangeably. The keys function as follows:

- MENU - used to access advanced programming (some may require a password).
- RUN - used to enter run number. This function is determined by transit authority programming.
- ROUTE - used to enter route number. This function is determined by transit authority programming.
- P/R - used to enable public relations message code entry. This switch may be disabled if public relation messages are not available.
- ROUTE - press to enable route number entry. Route number entry may be either coded or be the actual route number for display.
- DEST A and DEST B - used to enable respective destination message code entry for message display change. These switches are permanently enabled.

All destination and public relations (P/R) messages can be set an viewed from the ODK. See "Figure 19: Operator's Display Keyboard (ODK)" on page 45.

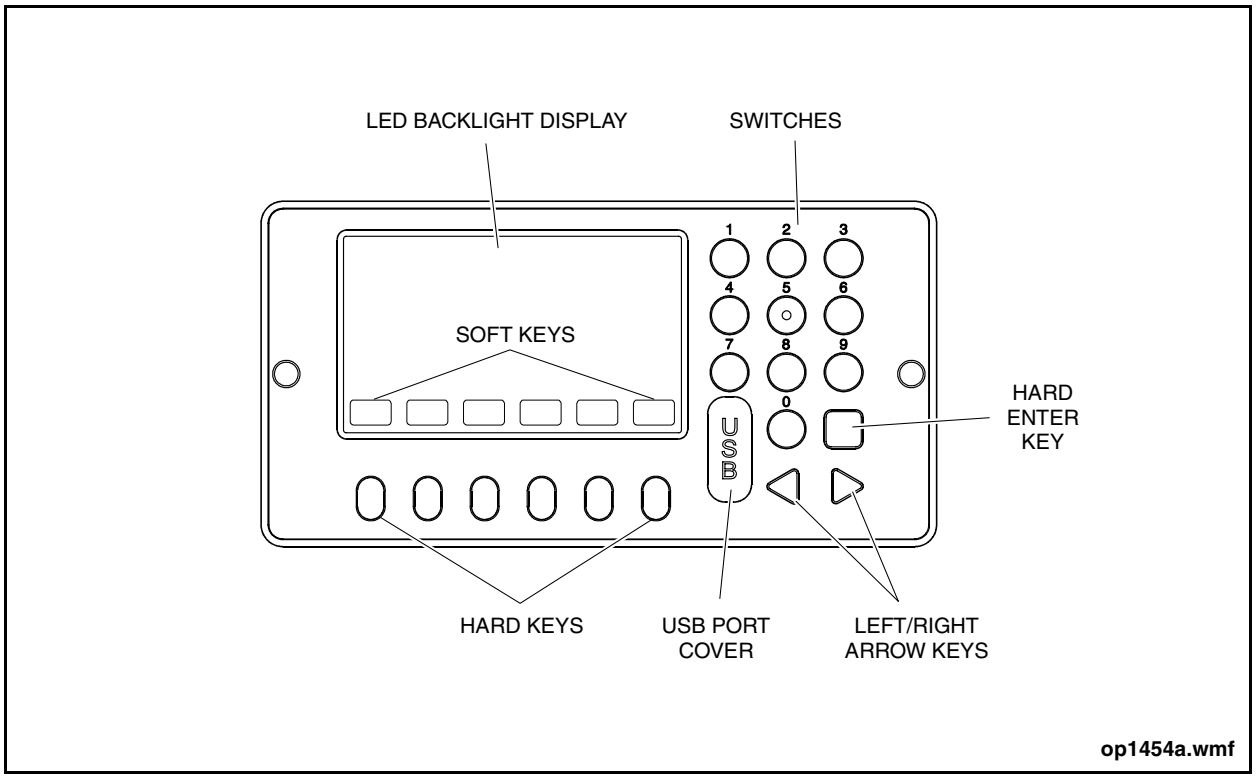


Figure 19: Operator's Display Keyboard (ODK)

Basic Operating Procedures

Basic operating procedures are as follows:

- Set RUN number - press the RUN key on the default screen. Enter the run number via the ODK number pad and then press ENTER. The message "RUN button not used" will appear if the manual entry feature has been disabled.

☞NOTE:

To change a RUN number, use the left/right arrow keys to highlight a number and then press CLEAR (or press DEL to delete an entire string).

- Set ROUTE number - press the ROUTE key on the default screen. Use the ODK keypad to enter a route number or left/right arrow keys to highlight a letter, then press SELCT to select it. After entering the route number, press the hard ENTER key. The route number just entered will be displayed on the ODK as well as on the route signs. This route number will persist when you go from DEST A to DEST B without having to re-enter it.

☞NOTE:

To change a ROUTE number, use the right arrow key to move the square cursor to the end of the string and then use the left arrow key to move cursor back to the left to erase existing numbers (you cannot simply overwrite them).

- Set Public Relations (P/R) message - press the P/R key on the default screen. Enter the P/R message code number via the ODK number pad and press ENTER. The P/R code number will display on the ODK display screen and the route signs approximately 5 seconds after it is entered.

☞NOTE:

To change a P/R code number (or clear the message altogether) use the left/right arrow keys to highlight a number and press CLEAR to erase it (or press DEL to delete an entire string) then press ENTER.

- Set Destination A or B message - press the DestA key on the default screen to set the DestA message. Enter the destination code number via the OKD number pad and press the hard ENTER key. The destination code number will display on the ODK display screen and the route signs approximately 5 seconds after it is entered. Setting Destination B is performed in the same manner as setting Destination A.

☞NOTE:

To change a destination number, use the right arrow key to move the square cursor to the end of the string and then use the left arrow key to move cursor back to the left to erase existing numbers (you cannot simply overwrite them).

- Set Display Brightness Level - press MENU on the default screen to access menu options. From the MENU screen press the PREF key. From the PREF screen press the BRGHT key. From the BRGHT screen touch the brightness level bar at the top of the screen or use the left/right arrow keys to set the brightness level, then press OK.

☞NOTE:

To return the display to the original factor default brightness level press the DFLTS key from the PREF screen, then press YES

- Set Aisle Light Dimming Level - press MENU on the default screen to access menu options. From the MENU screen press the DIMNG key. From the DIMNG screen touch the dimming level bar at the top of the screen or use the keypad left/right arrow keys to set the dimming level, then press OK.

Driver/Vehicle Monitoring System

The New Flyer Connect™ Driver/Vehicle Monitoring System measures and records vehicle operating parameters and location in real time. The system consists of:

- A Main Board Unit (MBU) located in the electronic equipment enclosure.
- A GPS/Data Modem Unit mounted on the ceiling of the vehicle, above the driver.

The Driver/Vehicle Monitoring System is connected to the vehicle's J1939 and J1587 networks. Information from these networks is monitored and transmitted, in real time, to allow transit authorities to monitor driver performance and vehicle condition.

The Main Board Unit contains a 3-axis accelerometer to monitor hard acceleration and braking and fast turning.

7. ENTRANCE DOOR AREA

The entrance door area includes the following components: See “Figure 20: Entrance Door Area” on page 49.

- A slide glide style door that is air-opened and air-closed.
- An entrance door emergency release valve.
- An entrance door header light.

Placing the door controller in positions #2, #3, or #5, will open the entrance door.

When the master run switch is in DAY-RUN, the door header lights will illuminate when the entrance door is open and the wheelchair ramp is deployed. In NIGHT-RUN or NIGHT-PARK the door header lights will illuminate when the entrance doors are opened.

Boarding passengers can use the door mounted handles to assist in entering the vehicle.

In the event of an emergency situation with an inoperable door, the emergency release valve located behind the mechanism access door, can be operated to release air pressure from holding the door closed. Refer to “2. EMERGENCY INFORMATION” on page 12 in this manual for emergency release valve operating instructions.

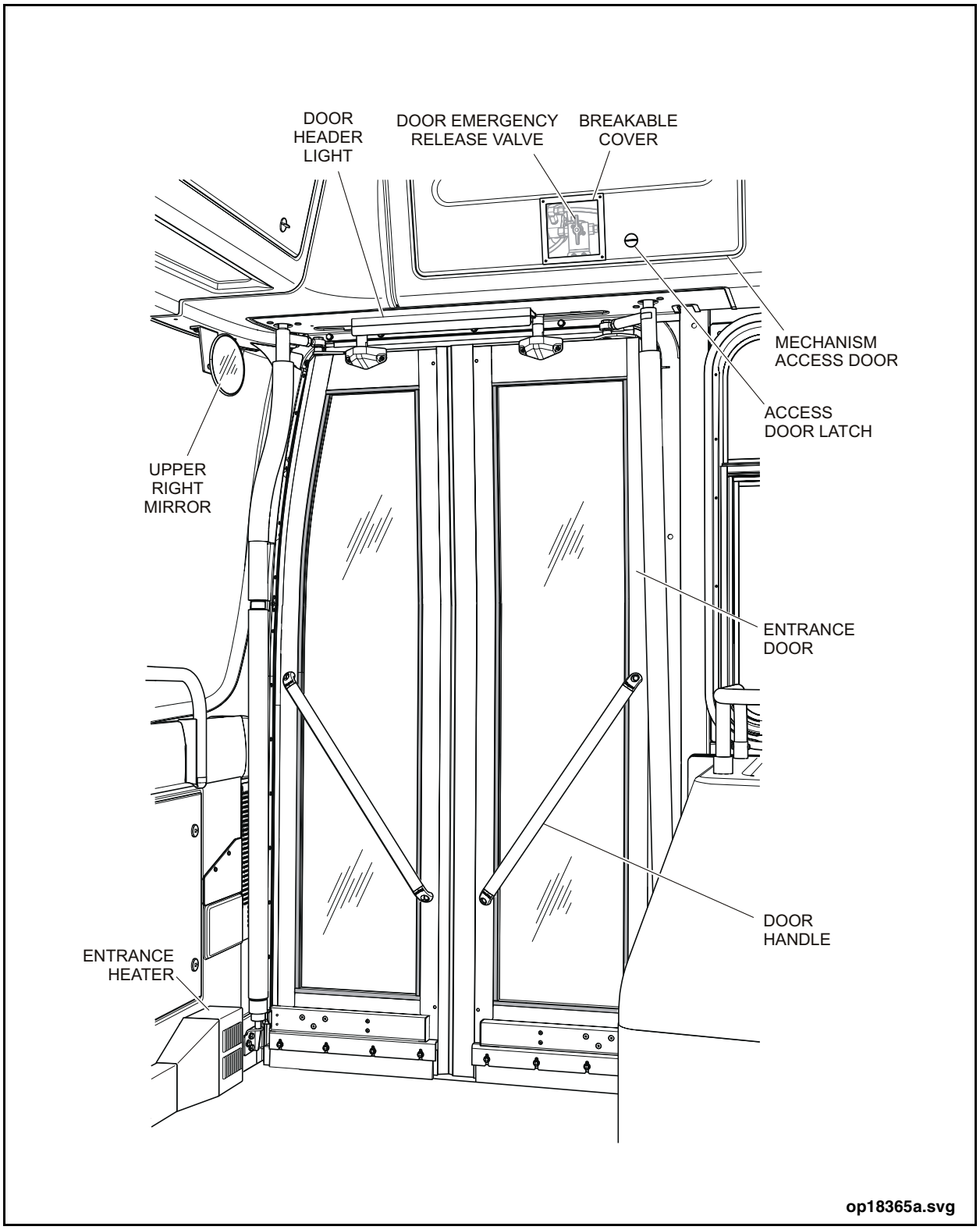


Figure 20: Entrance Door Area

8. EXIT DOOR AREA

The exit door area includes the following components: See “Figure 21: Exit Door Area” on page 51.

- A slide glide style door that is air-opened and air-closed.
- An exit door emergency release valve.
- A green LED exit door enabled light.
- Stop request buttons on the exit door stanchions.

Placing the door controller in positions #3, #4, or #5, will open the exit door. The green overhead light will illuminate when the exit door is open. The door header lights will illuminate as soon as the exit door is open and will remain illuminated for five seconds after the door closes.

In the event of an emergency situation with an inoperable door, the emergency release valve located in the upper left corner can be operated to release air pressure from holding the door closed. Refer to “2. EMERGENCY INFORMATION” on page 12 in this manual for emergency release valve operating instructions.

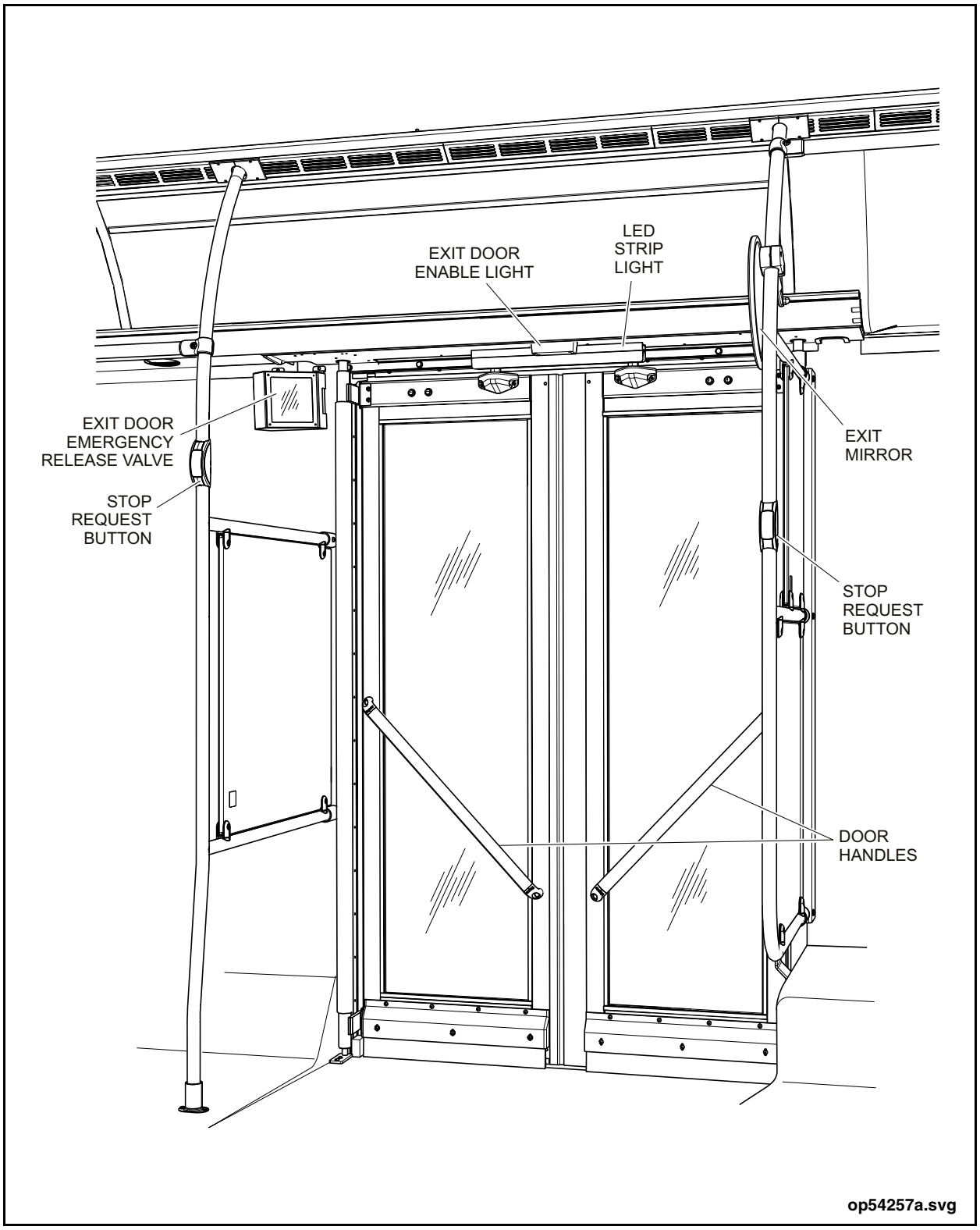


Figure 21: Exit Door Area

9. INSTRUMENTATION & CONTROLS

Instrument Panel

The instrument panel is located directly in front of the driver and provides a visual display of the vehicle operating systems as well as providing controls for the various systems. The instrument panel cluster is a programmable electronic unit with diagnostic capabilities. See “Figure 22: Instrument Panel” on page 53.

Turn Indicators (Green)

WARNING

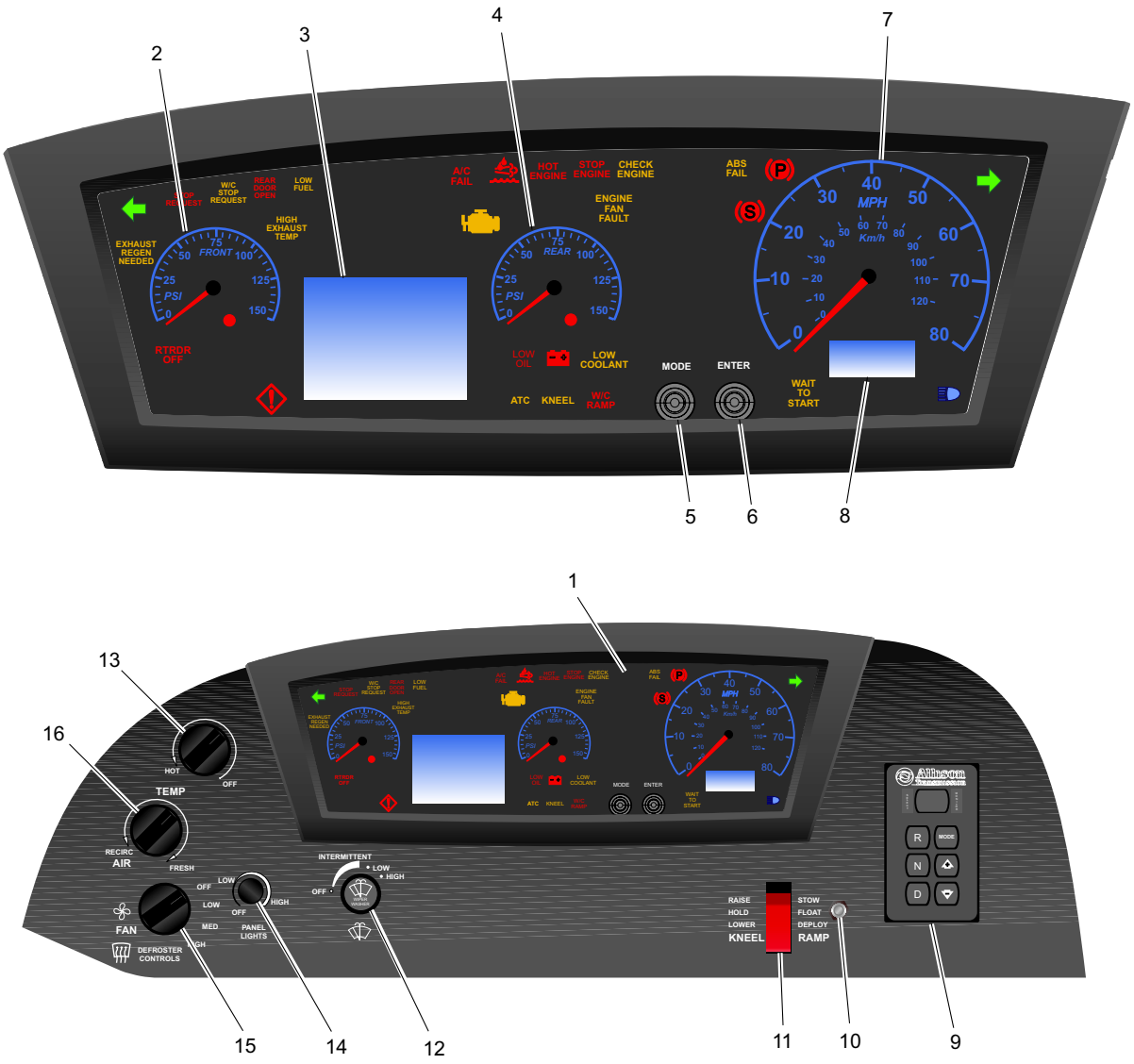
If turn signal indicators do not operate as described, DO NOT OPERATE THE VEHICLE.

The turn indicators, symbolized by directional arrows, flash on either side of the instrument panel when the right-hand or left-hand floor-mounted turn signal switch is pressed.

When the Hazard switch is activated, both turn indicators flash together. Failure of these lights to flash normally indicates that the flasher module is not functioning.

Stop Request Indicator (Red)

The Stop Request indicator illuminates when the passenger signal system has been activated.



1. Instrument Cluster
2. Front Air Pressure Gauge
3. LCD Screen
4. Rear Air Pressure Gauge
5. Mode Button
6. Enter Button
7. Speedometer
8. LCD Odometer
9. Shift Selector
10. Ramp Switch
11. Kneel Switch
12. Wiper/Washer Control
13. Defroster Temperature Control
14. Panel Lights Dimmer Switch
15. Defroster Fan Control
16. Defroster Air Recirculation Control

op03453a.svg

Figure 22: Instrument Panel

W/C Stop Request Indicator (Amber)

The Wheelchair Stop Request indicator illuminates when the wheelchair passenger signal system has been activated.

Rear Door Open Indicator (Red)

The Rear Door Open indicator illuminates when the door controller is turned to position #3, #4 or #5 and the exit door opens.

Low Fuel Indicator (Amber)

The Low Fuel indicator illuminates when the diesel fuel in the tanks has reached the minimum level for reliable vehicle operation.

A/C Fail Indicator (Red)

The A/C Fail indicator illuminates if the heating, ventilating and air conditioning (HVAC) unit malfunctions.

Diesel Exhaust Fluid (DEF) Indicator (Amber)

The DEF symbol will illuminate to indicate that the fluid level in the tank is low and needs to be refilled. Notify maintenance personnel if this indicator illuminates.

Hot Engine Indicator (Red)

The Hot Engine indicator will illuminate if the engine exceeds its normal operating temperature and overheats. The Hot Engine indicator is accompanied by a warning buzzer.

☞NOTE:

If this indicator remains illuminated, the Engine Protection System engages, initiating an automatic engine shutdown sequence.

Stop Engine Indicator (Red)

The Stop Engine indicator illuminates if an engine operating condition occurs that will result in damage to the engine. The indicator is controlled by the vehicle's Multiplexing System which monitors engine sensor output. If the Multiplexing System illuminates the indicator it also initiates an engine shut-down sequence.

As an operation check, the Stop Engine indicator should remain illuminated momentarily when the engine is started.

☞NOTE:

If this indicator remains illuminated, the engine will continue running for 30 seconds. Use the time to drive out of traffic to a safe area.

Check Engine Indicator (Amber)

CAUTION

If after engine start-up the Check Engine indicator remains illuminated, advise service personnel. Avoid extended periods of operation with this indicator illuminated.

The Check Engine indicator illuminates if the engine requires service. The indicator is controlled by the vehicle's Multiplexing System which monitors engine sensor output. The Multiplexing System will illuminate the indicator if sensor output signals fall outside of a predetermined range.

ABS Fail Indicator (Amber)

The ABS Fail indicator illuminates if the ABS System requires service. Engine start-up illuminates the indicator momentarily as part of a system check. It is also used during diagnostics to display the blink code. Refer to "11. VEHICLE OPERATION" on page 92 of this manual for further information.

Parking Brake Indicator (Red)

The parking brake indicator, symbolized by a circled letter "P" illuminates when the parking brake control valve is applied. Activating the parking brake illuminates the stop lights indicator and all red stop lamps.

☞NOTE:

The parking brake indicator will begin to flash if the Brake Drag Alert System activates.

Exhaust Regen Needed Indicator (Amber)

This indicator will either illuminate steady or flash and may illuminate in combination with the Check Engine indicator to indicate the various stages of soot buildup in the muffler particulate filter. Refer to the following chart for a description of various conditions and actions required when this indicator illuminates.

EXHAUST REGEN NEEDED INDICATOR FUNCTION

DPF Soot Level	Exhaust Regen Needed Indicator	Check Engine Indicator	Stop Engine Indicator	Engine Derate	Procedure
Low to Medium	On	Off	Off	None	Increase vehicle duty cycle to allow mobile active regeneration.
Medium to High	Flashing	Off	Off	None	Increase vehicle duty cycle to allow mobile active regeneration.
High	Flashing	On	Off	Derate (Note 1)	Notify service personnel. Perform stationary regeneration (Note 3)
Severe	Off	Off	On	Severe Derate (Note 2)	Stop engine at earliest opportunity & notify service personnel. (Note 3)

Note 1: Moderate derate of engine torque.
Note 2: Severe derate or engine speed.
Note 3: Stationary regeneration will be disabled.

High Exhaust Temp Indicator (Amber)

⚠WARNING

If the High Exhaust Temp indicator on the instrument panel illuminates, ensure the exhaust outlet is not located where it could cause damage to persons or any materials which could melt or explode, and that nothing is within 2 feet of the outlet. Ensure no combustible materials are within 5 feet of the outlet. Exhaust outlet temperatures can reach 1500°F (800°C) when this indicator illuminates.

The High Exhaust Temp indicator illuminates during the regeneration process when exhaust temperatures are high.

☞NOTE:

Illumination of this indicator does not signify the need for any kind of vehicle or engine service.

Exhaust Malfunction Indicator (Amber)

The Exhaust Malfunction indicator will illuminate when a malfunction related to the Emissions Control System is detected.

Engine Fan Fault (Amber)

The Engine Fan Fault indicator will illuminate if a fault is detected with the electronically-controlled radiator cooling fans. Notify maintenance personnel if this indicator illuminates.

Stop Lights Indicator (Red)

WARNING

If the stop lights indicator does not operate as described, DO NOT OPERATE THE VEHICLE.

The stop lights indicator, symbolized by a circled letter S, illuminates each time the service brake or parking brake control valve is applied. If under these circumstances the indicator does not illuminate, then any or all rear stop lights are malfunctioning.

☞NOTE:

The stop lights indicator will begin to flash if the Brake Drag Alert System activates.

Retarder Off Indicator (Red)

The Retarder Off indicator illuminates to indicate that the Retarder switch is in the OFF position disconnecting power from the transmission retarder.

Low Oil Indicator (Red)

CAUTION

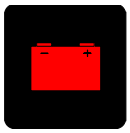
If the Low Oil alarm continues and the indicator lamp remains illuminated, DO NOT OPERATE THE VEHICLE.

The Low Oil indicator illuminates if the engine oil pressure is too low for proper engine lubrication. The Low Oil indicator is accompanied by a warning buzzer.

Before starting the engine, positioning the Master Run switch to DAY-RUN or NIGHT-RUN illuminates the Low Oil indicator and sounds its alarm. This occurs momentarily and is a normal electrical system test.

☞NOTE:

If this indicator remains illuminated, the Engine Protection System engages to initiate an automatic engine shutdown sequence.



No Gen Indicator (Red)

CAUTION

If the no gen indicator remains illuminated while the engine is operating, DO NOT OPERATE THE VEHICLE.

The no gen indicator, symbolized by a battery, illuminates when the alternator is not charging. The no gen indicator illuminates when the Master Run switch is in the DAY-RUN or NIGHT-RUN position and the engine is not operating. The no gen indicator turns off once the engine is operating.

Low Coolant Indicator (Amber)

The Low Coolant indicator illuminates if too little coolant is in the engine to maintain normal engine operating temperature.

☞NOTE:

If this indicator remains illuminated, the Engine Protection System engages to initiate an automatic engine shutdown sequence.

Exclamation Symbol (Red or Amber)

The Exclamation Symbol will illuminate when a text message tell tale appears in the Message Display Screen. The color of the exclamation symbol will change to match the message currently being displayed on the screen.

ATC Indicator (Amber)

The ATC indicator illuminates when the Automatic Traction Control System is operating to limit drive wheel spin on slippery surfaces.

Kneel Indicator (Amber)

The Kneel indicator illuminates when the front suspension is in the kneeling mode and is lowering the vehicle to the curb.

☞NOTE:

The Kneel toggle switch is located on the instrument panel.

W/C Ramp Indicator (Red)

The Wheelchair Ramp indicator illuminates to indicate operation of the wheelchair ramp.

☞NOTE:

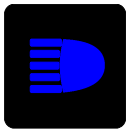
The Ramp toggle switch is on the instrument panel.

Wait to Start Indicator (Amber)

The Wait to Start indicator illuminates before engine start-up with the Master Run switch in the DAY-RUN or NIGHT-RUN position. The indicator will remain illuminated for up to 45 seconds while the intake air heater system operates.

☞NOTE:

The Wait to Start indicator and the intake air heater system will only operate in temperatures below 66°F (19°C).



High Beam Indicator (Blue)

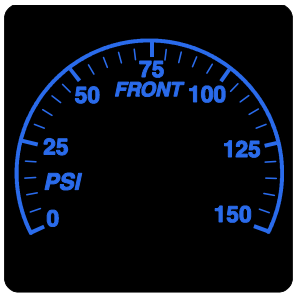
The high beam indicator, symbolized by a lit headlight, illuminates when the vehicle headlights are in the high beam mode of operation. Pressing the dimmer switch returns the headlights to normal low beam operation.

Mode Button

The Mode button is used primarily to navigate between the Message Display Screen and the Odometer/Hourmeter Display Screen and to navigate through the menus and select various options available on the selected screen. The button function is dependent on the length of time it is pressed. Refer to “ Message Display Screen” on page 64 and Refer to “ Odometer/Hourmeter Display Screen” on page 68 in this manual for information on the operation of this button.

Enter Button

The Enter button is used to navigate through the menus on the Message Display Screen and to switch screen formats on the Functional Readout Screen, The Enter button can also be used to reset the tripmeters on the Odometer Display Screen. The button function is dependent on the length of time it is pressed. Refer to “ Message Display Screen” on page 64 and Refer to “ Odometer/Hourmeter Display Screen” on page 68 in this manual for information on the operation of this button.

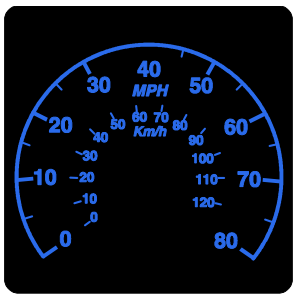


Air Pressure Gauges

Individual analog air pressure gauges are used to monitor the vehicle's front and rear air brake systems. An LED indicator at the bottom of the gauge illuminates and a warning buzzer sounds if air pressure drops below 75 psi (517 kPa). If air pressure exceeds the normal operating range, the LED indicator will flash. Normal operating pressure range is 117 to 131 psi (807 to 903 kPa).

☞NOTE:

The analog-driven gauges will indicate current values and the warning LED indicators in the data gauges will flash if the Master Run switch remains in the DAY-RUN or NIGHT-RUN position without the vehicle being started.



Speedometer

This gauge indicates the vehicle's forward speed. The speedometer will initialize as soon as the Master Run switch is set to the DAY-RUN or NIGHT-RUN position. During this self-test process the gauge will sweep full scale and then return to the zero point.

☞NOTE:

Refer to " Odometer/Hourmeter Display Screen" on page 68 *in this manual for information on the odometer.*

Message Display Screen

The larger of the two LCD screens is located between the air pressure gauges and is used to display text messages to warn the driver of potential problems. The screen will change color, from blue to amber to red, depending on the severity of the warning message.

The message display screen has four separate menus. Navigate through the menus by performing a long press (over 3 seconds) on the ENTER button.

- Function Readout (default screen) - change the readout between bar graph and digital using a short press (1 to 3 seconds) on the ENTER button.
- Active LCD Tell Tale Overview - this screen displays a list of the active tell tale messages.
- IP Software Version - this screen displays the IP software version, configuration file label, and routing table label.
- VMM Query - this screen displays the application and ladder logic version of the VMM multiplexing modules on the vehicle.

☞NOTE:

There are no operator navigable or resettable features in the IP Software Version or VMM Query screens.

Perform a long press (greater than 3 seconds) on the MODE button to navigate between the Message Display Screen and the Odometer/Hourmeter Display Screen. If the Odometer/Hourmeter Display Screen has been selected, then an arrow pointing to it will appear in the lower right-hand corner of the Message Display Screen.

Function Readout Displays

- Diesel Exhaust Fluid Level - displayed on a bar graph as percentage of fluid remaining in the tank. See “Figure 23: Function Readout Screen” on page 65.
- Voltmeter (12V) - the voltmeter indicates the voltage levels in the vehicle’s 12 volt electrical system. The normal operating range is between 11 and 14 volts.

☞NOTE:

Notify service personnel if the readings fall outside of this range.

- Voltmeter (24V) - the voltmeter indicates the voltage levels in the vehicle’s 24 volt electrical system. The normal operating range is between 24 and 28.5 volts.

☞NOTE:

Notify service personnel if the readings fall outside of this range.

- Fuel Level - the fuel gauge indicates the level of fuel, as a percentage, remaining in the tank.

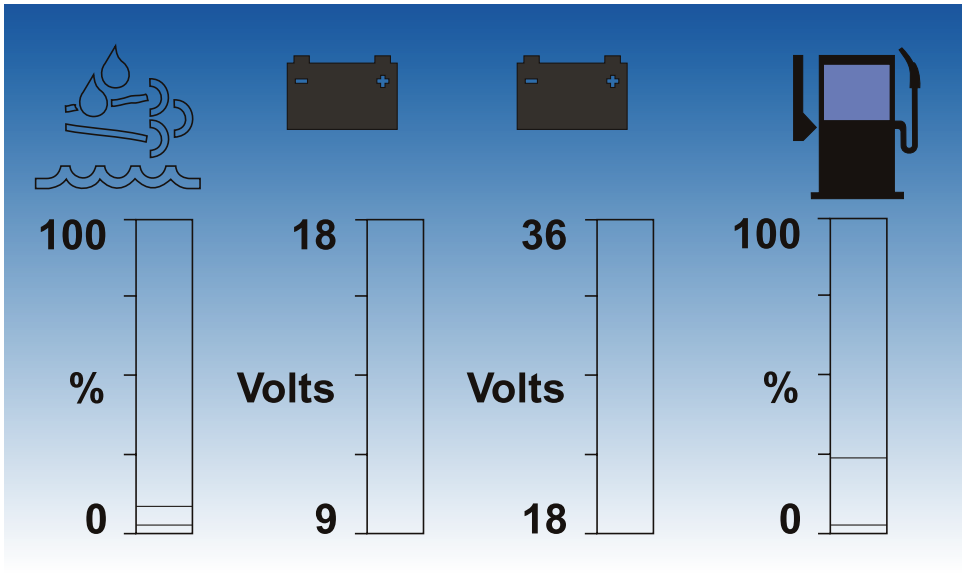


Figure 23: Function Readout Screen

Text Messages

- RH Headlight Fault (Amber) - The RH Headlight Fault message will appear on the LCD screen to indicate a fault with a low beam headlight. Notify service personnel if this message appears on the screen.
- RH Turn Fault (Amber) - The RH Turn Fault message will appear on the LCD screen to indicate a fault with the right-hand turn light. Notify service personnel if this message appears on the screen.
- LH Headlight Fault (Amber) - The LH Headlight Fault message will appear on the LCD screen to indicate a fault with the low beam headlight. Notify service personnel if this message appears on the screen.
- LH Turn Fault (Amber) - The LH Turn Fault message will appear on the LCD screen to indicate a fault with the left-hand turn light. Notify service personnel if this message appears on the screen.
- Hot Trans (Red) - The Hot Trans message will advise that the oil in the transmission exceeds the maximum rated operating temperature. Immediately move the vehicle to a safe area and shut down the system.
- Check Trans (Amber) - The Check Trans message will appear if the transmission electronics has detected a potentially serious problem in the transmission. If this message appears, DO NOT OPERATE THE VEHICLE.
- Starter Lockout (Amber) - this message will appear if an attempt is made to re-engage the starter within four seconds of a previous starter engagement. Allow four seconds to elapse before attempting to re-engage the starter.
- Brake Alert (Amber) - The Brake Alert message appears if an abnormal braking event occurs on any brake such as failure to activate, excessive brake stroke, dragging brakes, or over-heated brake linings.
- Kneel Snsr Fault (Amber) - This message will appear if the kneeling sensors malfunction during the kneeling process.

☞NOTE:

Notify service personnel if this message appears. If the Kneel Snsr Fault message appears, kneeling will continue to function using time-based kneel and raise intervals.

- Interlock Off (Red) - This message will appear on the LCD Screen to indicate the brake interlocks have been disabled with the Door Master switch.
- Rear Door Ajar (Red) - The Rear Door Ajar message appears when the exit door sensitive edge has been activated.
- Auxiliary Heater Fault (Amber) - The Auxiliary Heater Fault message will appear on the LCD screen when fault is detected during auxiliary heater operation.

☞NOTE:

The engine coolant heater operates only when the Master Run switch is in either the DAY-RUN or NIGHT-RUN position.

- Interlock (Red) - The interlock message appears when the interlock system applies the brake interlocks. The message disappears when the interlock system releases.

☞NOTE:

Refer to " Foot Operated Controls" on page 83 *in this manual for information on the brake treadle and interlock operation.*

- Door Alarm (Amber) - This message appears when the exit door sensitive edge has been activated.
- Park Brake Unset (Red) - The Park Brake Unset message will appear if the driver leaves the driver's seat for five seconds without applying the parking brake. The message will also appear if the master run switch is set to STOP-ENGINE or NIGHT-Park and the parking brake has not been applied.
- Brake Drag Alert (Red) - The Brake Drag Alert message appears on the LCD screen and a buzzer sounds, to indicate that brakes are not releasing completely. Notify service personnel if this message appears.
- DRL (Green) - The Daytime Running Lights (DRL) message will appear whenever the vehicle is running and the Master Run switch is in the DAY RUN position. The headlights will operate at 70% intensity under these settings. Setting the Master Run switch to NIGHT RUN will extinguish the DRL message and operate the headlights at full intensity.
- Rear Run Mode (Amber) - The Rear Run Mode message appears when the engine run switch, on the engine compartment switch box, is selected to rear.
- Tail Lamps Fault (Amber) - The Tail Lamps Fault message appears on the LCD screen to indicate a fault with the tail lamps. Notify service personnel if this message appears on the screen.
- Stop Lamps Fault (Red) - The Stop Lamps Fault message appears on the LCD screen to indicate a fault with the stop lamps. Notify service personnel if this message appears on the screen.
- Exterior Lamps Fault (Amber) - The Exterior Lamps Fault message appears on the LCD screen to indicate a fault with the exterior lamps. Notify service personnel if this message appears on the screen.
- Bike Rack (Amber) - The Bike Rack message will appear on the LCD screen to indicate the bike rack is not securely latched.

Odometer/Hourmeter Display Screen

The smaller of the two LCD screens is located directly below the speedometer and contains the odometer, two trip odometers and an engine hour meter. The display screen has four separate menus. Navigate through the menus by performing a quick press (less than 1/2 second) on the MODE button. See “Figure 24: Odometer/Hourmeter Display Screen Options” on page 68.

☞NOTE:

The trip odometers can be reset by navigating to the appropriate screen with the MODE button, and then performing a short press (1 to 3 seconds) on the ENTER button.

Perform a long press (greater than 3 seconds) on the MODE button to navigate between the Message Display Screen and the Odometer/Hourmeter Display Screen.

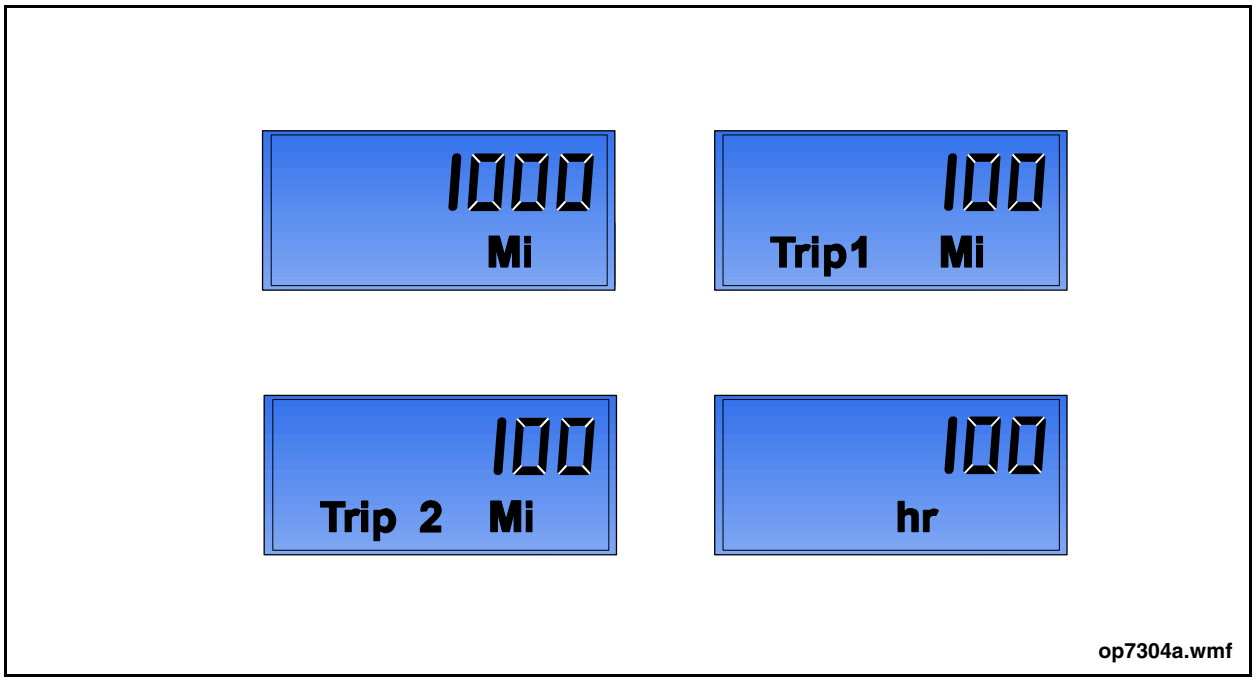


Figure 24: Odometer/Hourmeter Display Screen Options

Shift Selector Operation

WARNING

If you leave the vehicle and the engine is running, the vehicle can move suddenly and you or others could be injured. If you must leave the engine running, do not leave the vehicle until you put the transmission in NEUTRAL, and ensure that the engine is at low idle, and apply the park brake and emergency brakes and make sure they are properly engaged, and chock the wheels and take any other steps necessary to keep the vehicle from moving.

The vehicle service brakes, park brake, or emergency brake must be applied whenever NEUTRAL is selected to prevent unexpected vehicle movement. Selecting NEUTRAL does not apply the vehicle brakes.

- [R] REVERSE - selects Reverse gear.
- [N] NEUTRAL - selects Neutral. The area around the [N] button is a raised ridge so the driver can identify the pushbuttons by touch, without looking at the display. It is not necessary to press this button prior to starting the vehicle.
- [D] DRIVE - selects the highest available forward range. The transmission shifts to the starting gear and will automatically upshift through the gears, as operating conditions permit, until the highest available gear is attained.
- UPSHIFT and DOWNSHIFT Arrow Buttons - these buttons are used to change the range selected to a higher or lower forward range:
    - One press of the DOWNSHIFT button sets range SELECT to the same range as the current range attained, shown in the MONITOR position on the display. This is referred to as Express Preselect.
    - Each subsequent press of the DOWNSHIFT button decreases the range selected by one range.
    - One press of the UPSHIFT button increases the range selected by one range.
    - If the UPSHIFT or DOWNSHIFT button is held continuously, the selected range will continue to change up or down until the button is released or until the highest or lowest possible range of gears is selected.

- MODE Button - pressing the MODE button invokes a secondary shift schedule or a special operating function. Pressing the MODE button also toggles to the next Diagnostic Trouble Code (DTC) while in the DTC display mode. And it clears active and inactive DTCs from the ECU memory.
- Select & Monitor - during normal operation with [D] Drive selected, the SELECT section of the display shows the highest attainable forward range for the shift schedule in use. The MONITOR section displays the gear range that has been commanded in the transmission. Reverse [R] and Neutral [N] are likewise displayed when appropriately selected and in use. The display of any other character in the SELECT or MONITOR section denotes a nonstandard operating condition.

Ramp Switch

⚠CAUTION

The Ramp toggle switch is a momentary type. If pressure is removed, the switch returns to the center FLOAT position and operation ceases.

This is a three-position switch that controls the wheelchair ramp.

DEPLOY

This position activates the ramp from the closed position to the open position.

FLOAT

This position shuts off power to the pump, allowing the ramp to free-fall to either the open or the closed position. Upon cycle completion this becomes an off position.

STOW

This position is used to move the ramp from the open to the closed position.

☞NOTE:

Refer to “12. WHEELCHAIR SYSTEM” on page 112 *in this manual for operating procedures.*

Kneel Switch

⚠CAUTION

When placed in the RAISE position, the Kneel toggle switch will latch and continue to raise the vehicle until full ride height is reached at which point the raising action will automatically stop. In order to interrupt the raising operation during its cycle, the toggle switch must be set to the HOLD position.

This three-position momentary switch is used to operate the vehicle's kneeling system. The kneeling system lowers the front of the vehicle approximately 3 to 4 inches by exhausting air from both front suspension air springs. Boarding the vehicle becomes easier, particularly for small children and the handicapped.

LOWER

This position lowers the vehicle, activating the interlocks, the audible alarm and the exterior warning light. The instrument panel Kneel indicator also illuminates.

☞NOTE:

The Kneel toggle switch is a momentary spring loaded switch that will operate in the LOWER position only as long as pressure on the switch is maintained.

RAISE

This position raises the vehicle automatically to its full ride height. Once the vehicle has reached normal ride height, the interlocks will release (with doors closed), the alarm will silence and the exterior warning light and Kneel indicator will both extinguish.

☞NOTE:

Closing the switch guard locks the switch in the RAISE position.

HOLD

During the kneeling cycle, this position stops kneeling operations, silences the alarms and extinguishes the exterior warning light. The Kneel indicator and the interlocks remain activated.

Wiper/Washer Control

The wiper control switch operates the left-hand and right-hand wiper motors. Rotating the control knob through the intermittent range will vary the delay of the wiper sweep for differing rain conditions. In the low or high position the wipers operate at fixed speeds. Pushing down on the knob operates the windshield washer pump to spray fluid onto the windshield.

☞NOTE:

The windshield washer bottle filler is located near the side console.

Panel Lights Dimmer Switch

The Panel Lights Dimmer switch controls the brightness of the instrument panel lighting. Rotating the dimmer knob clockwise increases the brightness and counter-clockwise decreases the brightness of the panel lights.

Driver's Climate Controls

See "Figure 25: Driver's Area Climate Controls" on page 73.

Defroster Fan Control

The defroster Fan knob on the instrument panel controls the speed of the driver's heater/defroster fan. Turning the knob from the extreme left (OFF position) to the right provides variable fan speed settings.

Defroster Air Recirculation Control

The Air knob on the instrument panel controls the amount of fresh air circulated through the driver's heater/defroster system. This knob can be set to recirculate all or a portion of air entering the heater compartment and admit a corresponding amount of fresh air.

Defroster Temperature Control

The Temp knob on the instrument panel controls the temperature of the air blowing from the defroster. Turn the knob from left to right to decrease temperature and from right to left to increase temperature.

Driver's Vent

The vehicle is equipped with a lower vent that allows outside air to enter the vehicle interior during forward motion. The lower vent inlet is located on the left front corner below the windshield. The vent control is located below the instrument panel. Turn the knob clockwise to increase air flow.

Driver's Floor Heat

The driver's floor heat control is located below the instrument panel and controls the defroster/heater outlet to the floor area of the driver's platform. Turn the knob counterclockwise to increase the foot heat setting.

☞NOTE:

Use the Temperature control knob on the instrument panel to set the floor heat air temperature.

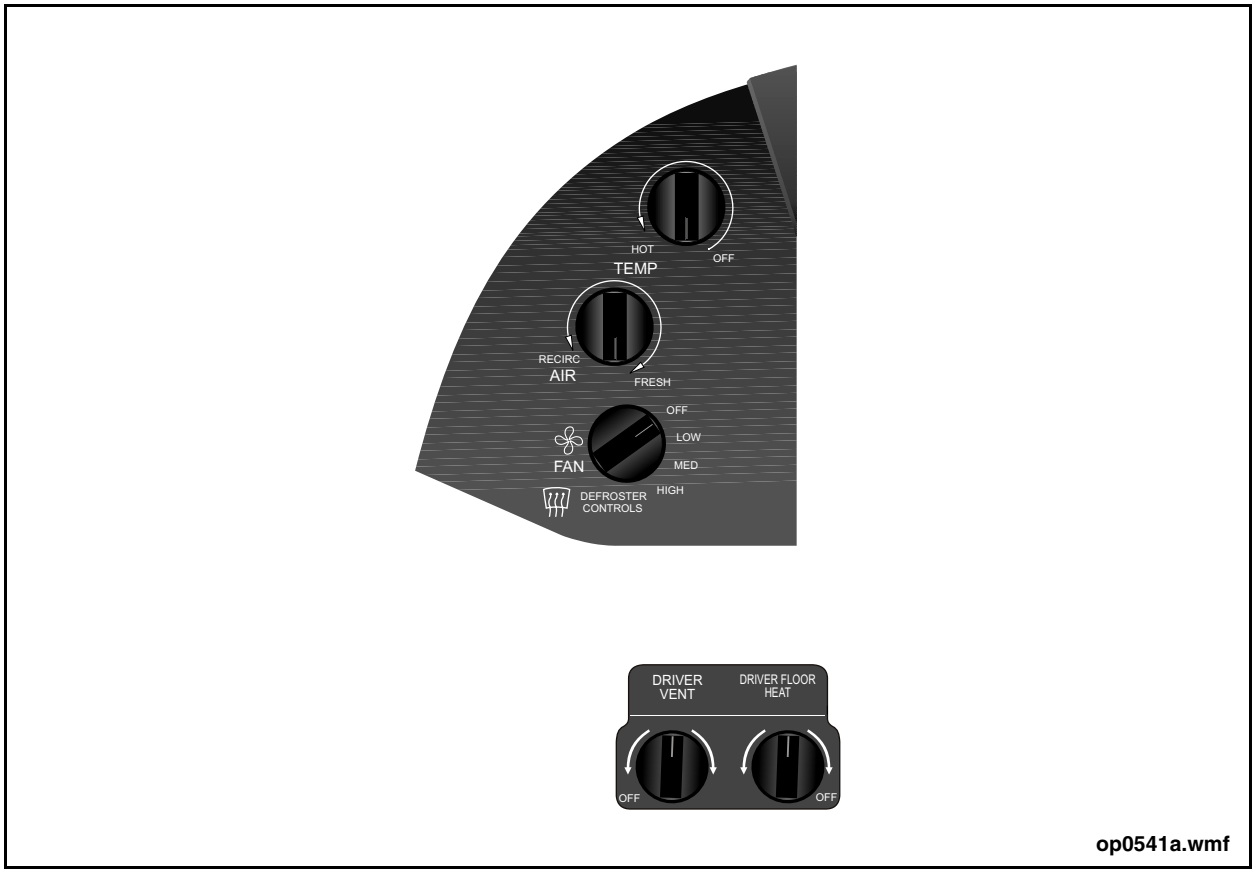


Figure 25: Driver's Area Climate Controls

Side Console Switch Panel

See “Figure 27: Side Console Panel” on page 76.

Card Reader Switch

The Card Reader switch is installed as a provision for the proximity card system, which is to be installed at the property. Contact the system administration for information on using this switch.

Aisle Lights Switch

The following table displays the lights that will be illuminated based on the positions of the Aisle Lights switch and Master Run switch. See “Figure 26: Aisle Lights” on page 75.

AISLE LIGHTS SWITCH OPERATION		
AISLE LIGHTS SWITCH POSITION	**MASTER RUN SWITCH POSITION**	**ILLUMINATED LIGHTS**
ON	DAY-RUN	Streetside (1,2,3,4) Curbside (1,2,3,4)
ON	NIGHT-RUN	Streetside (1,2,3,4) Curbside (1,2,3,4)
ON	NIGHT-PARK	Streetside (1,2,3,4) Curbside (1,2,3,4)
NORMAL	DAY-RUN	Streetside (2,3,4) Curbside (2,3,4)
NORMAL	NIGHT-RUN[1]	Streetside (1,2,3,4) Curbside (1,2,3,4)
NORMAL	NIGHT-PARK	Streetside (2,3,4) Curbside (2,3,4)
OFF	ANY POSITION	Streetside (None) Curbside (None)
1	Light bank 1 on the streetside and curbside will only illuminate when the front entrance door is open	

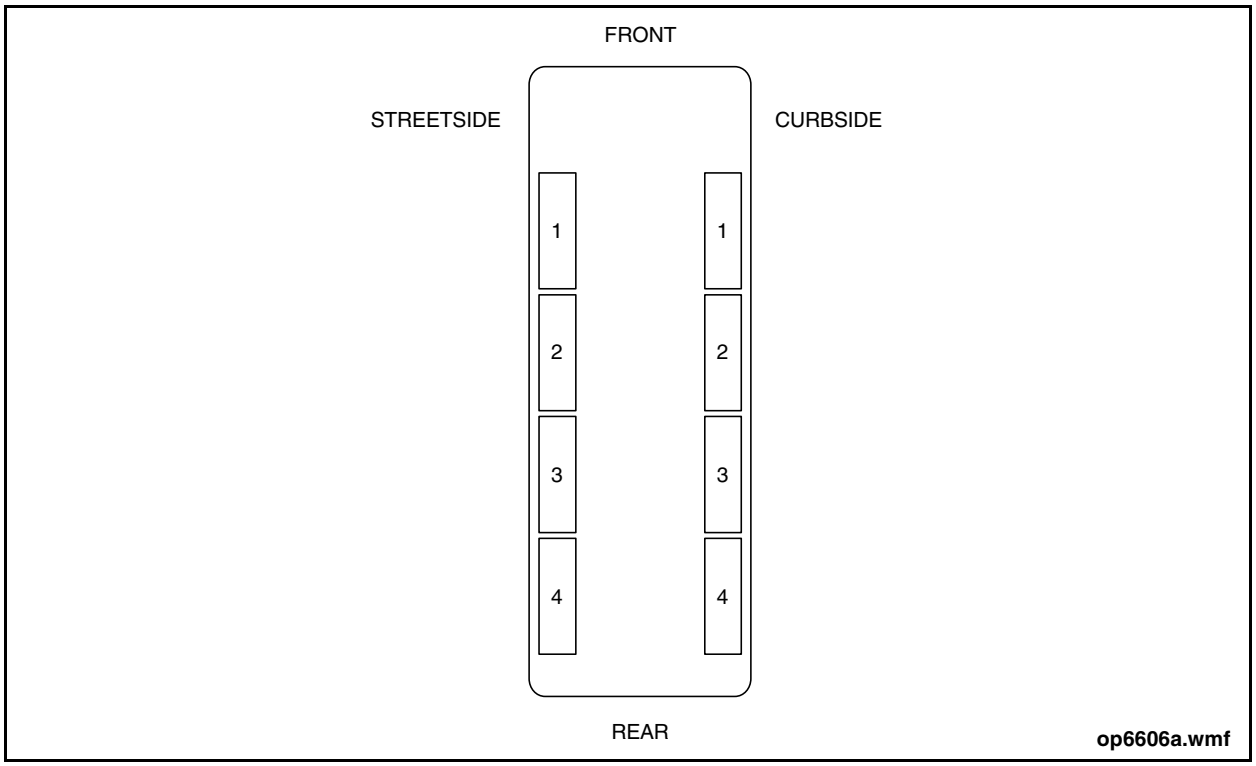


Figure 26: Aisle Lights

Idle Speed Switch

⚠CAUTION

Excessive engine idling is not recommended by the engine manufacturer. Operate engine at fast idle speed if idling for periods longer than 10 minutes. Consult your local transit authority for operating policy.

The Idle Speed toggle switch activates the preset fast idle to increase the engine RPM to maintain optimum engine operating temperature during periods of extended idling. Activating the fast idle following a cold engine start also allows quicker engine warm-up.

☞NOTE:

The FAST position on the Idle Speed switch only operates if the engine is running, the transmission shift selector is in the neutral [N] position and the parking brake is applied.

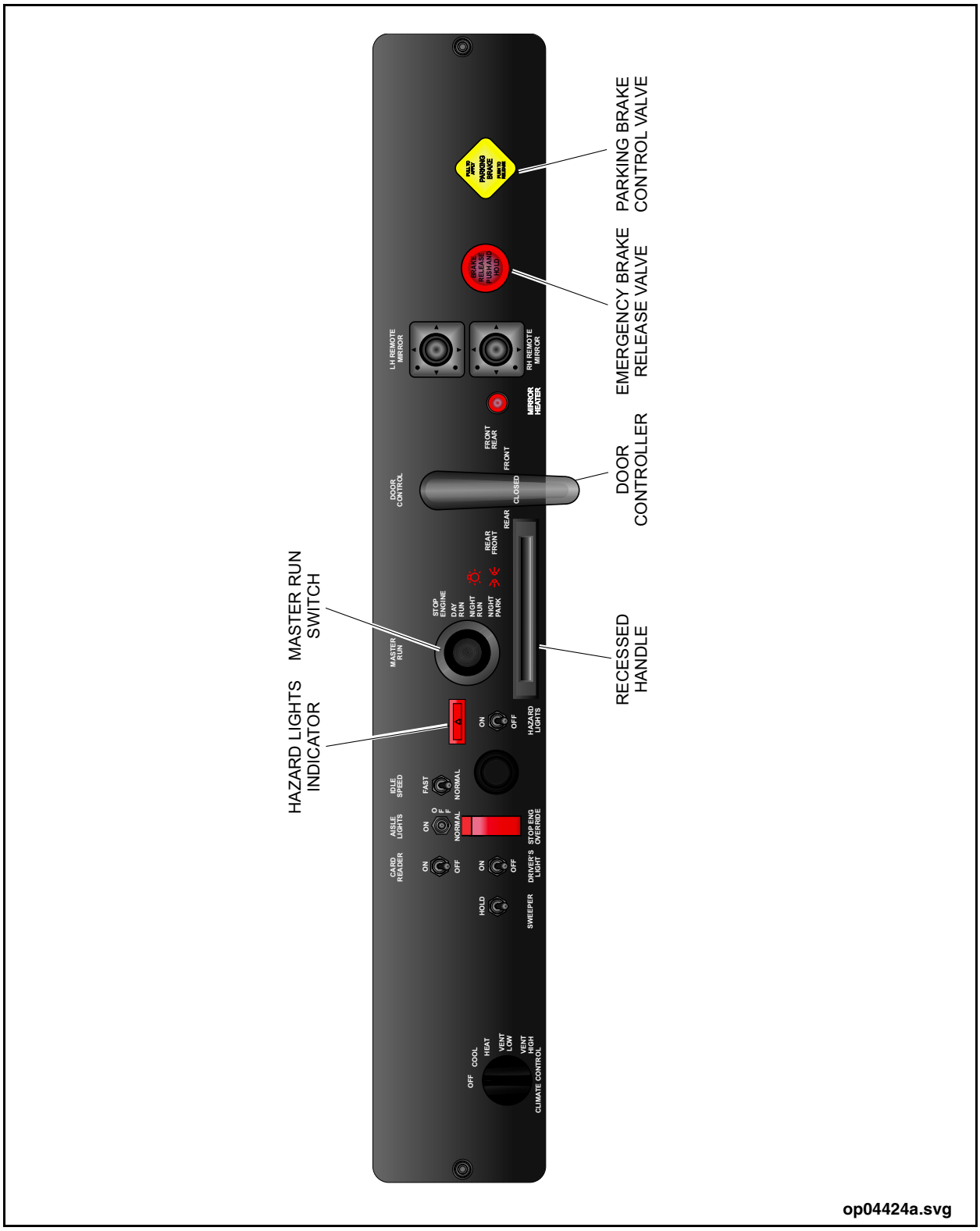


Figure 27: Side Console Panel

Hazard Lights Switch Indicator

The Hazard Lights Switch indicator illuminates when the Master Run switch is in the NIGHT-RUN or NIGHT-PARK position. It serves only to highlight the position of the Four-Way Hazard Lights switch.

Master Run Switch

The Master Run Switch is a 4-position rotary switch. The DAY-RUN, NIGHT-RUN, and NIGHT-PARK positions are used to activate the vehicle Multiplexing System and energize various 12/24V electrical circuits. The STOP-ENGINE position is used to shutdown the engine and de-energize the Multiplexing System and most 12/24V electrical circuits except those associated with safety functions. The Battery Disconnect switch must be set to the OFF position in order to disconnect the remaining 12/24V circuits from the vehicle batteries. The following table provides a list of circuits energized by the various Master Run switch positions:

☞NOTE:

The Multiplexing System is programmed to remain active for 30 minutes after the Master Run Switch is set to the STOP-ENGINE position.

MASTER RUN SWITCH OPERATION

CIRCUIT OR SYSTEM	STOP-ENGINE	DAY-RUN	NIGHT-RUN	NIGHT-PARK
Headlights (low beam)		x	x	
Headlights (high beam)			x	
Four-way hazard lights	x	x	x	x
Turn lights (Note 3)	x	x	x	x
Stop lights		x	x	
Clearance/marker lights			x	x
Tail lights			x	x
License plate light			x	x
Backup lights & alarm		x	x	
Aisle lights (normal) (Note 3)	x	x	x	x
Aisle lights (on) (Note 3)	x	x	x	x

MASTER RUN SWITCH OPERATION

CIRCUIT OR SYSTEM	STOP-ENGINE	DAY-RUN	NIGHT-RUN	NIGHT-PARK
Instrument panel illumination			x	x
Instrument panel dimmer			x	x
Driver's lamp (Note 3)	x	x	x	x
Service compartment lights (Note 3)	x	x	x	x
Entrance & exit door lights with door open (Note 2)		x	x	x
Instrument panel warning indicators		x	x	
Transmission shift selector		x	x	
Brake & accelerator interlocks		x	x	
Destination sign operation		x	x	x
Door controller		x	x	x
Horns	x	x	x	x
Retarder (Note 1)		x	x	
Driver's alarm		x	x	
Fire suppression & alarm	x	x	x	x
Parking brake alarm (Note 3)	x			x
Kneeling operation & alarm		x	x	
Wheelchair ramp & alarm		x	x	x
Passenger signal system		x	x	
Public address system		x	x	
HVAC system (Note 1)		x	x	
Auxiliary heater		x	x	
Wiper control		x	x	
Mirror Heat		x	x	x
Remote mirror		x	x	

Note 1: Engine must be running
Note 2: DAY-RUN also requires W/C ramp deployed
Note 3: Multiplexing System must be active

Door Controller

WARNING

Positioning the Door Master switch to OFF disables the brake interlocks and the exit door controller.

The door controller opens and closes the entrance and exit doors. See “Figure 28: Door Controller” on page 79. The five positions of the controller and the related door functions are as follows:

- Position #1: Entrance door closed, exit door closed.
- Position #2: Entrance door open, exit door closed.
- Position #3: Entrance door open, exit door open.
- Position #4: Entrance door closed, exit door open.
- Position #5: Entrance door open, exit door open.

When the exit door is open, the brake and accelerator interlocks apply automatically and the stop lights indicator illuminates.

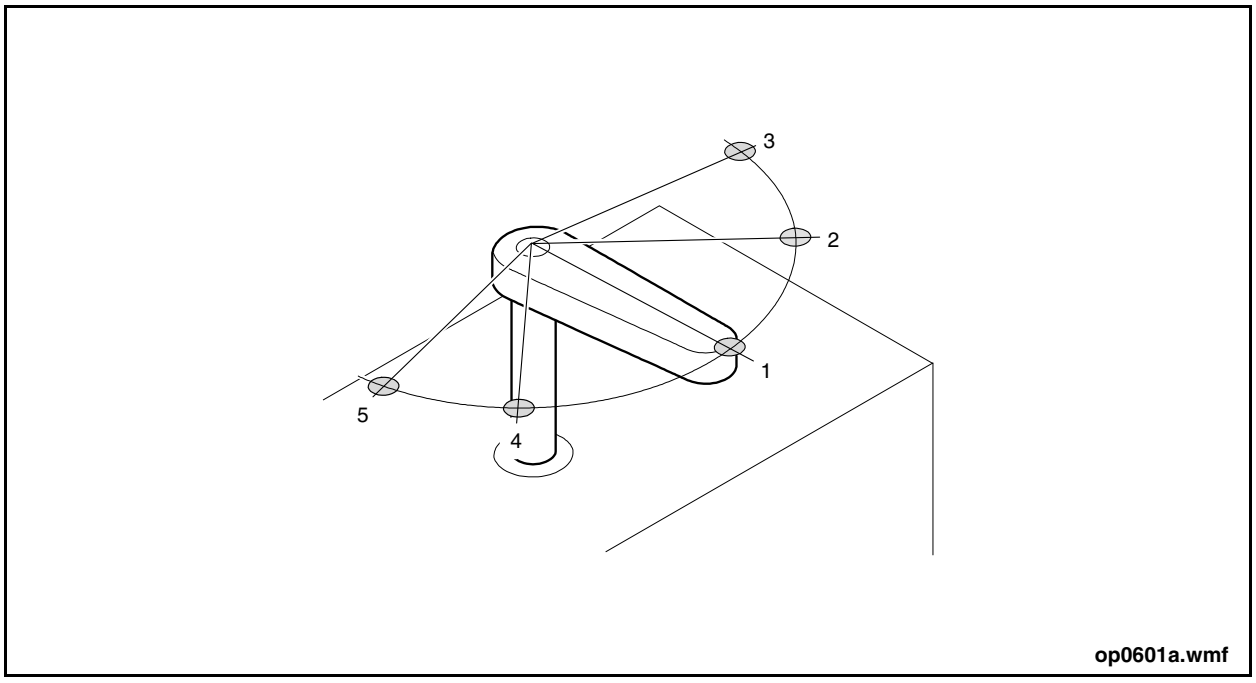


Figure 28: Door Controller

LH Remote Mirror Control Switch

The Remote Mirror Control switch allows the operator to adjust the streetside mirror from the driver's seat.

Parking Brake Control Valve

⚠WARNING

If the air pressure is below 40 psi (276 kPa), the parking brake valve will return to the applied position.

The parking brake control valve controls the application or the release of the parking brake. Pulling up on the control knob applies the parking brake. Pushing down on the knob releases the parking brake.

Emergency Brake Release Control Valve

This valve supplies the air pressure to release the rear brakes if the air system pressure drops below 40 psi (276 kPa) and the rear brakes apply automatically. Pushing down and holding the valve allows the air pressure to release the rear brakes. Releasing the valve knob shuts off the air pressure supply, allowing the rear brakes to re-engage.

☞NOTE:

The emergency brake release is for emergency use only. It allows the operator to move the vehicle away from a potentially dangerous location when the air system has failed. The rear brakes remain released as long as the valve is pressed. The brakes will drag at about 65 psi (448 kPa) even though the parking brake is in the released position.

RH Remote Mirror Control Switch

The Remote Mirror Control switch allows the operator to adjust the curbside mirror from the driver's seat.

Mirror Heater Button

This push button powers the heater elements behind the right and left exterior mirrors. The button illuminates to confirm heater element operation.

Four-Way Hazard Lights Switch

The Hazard Lights toggle switch has an ON and OFF position. When the switch is ON, the instrument panel turn indicators and the exterior signal lights flash.

When the switch is OFF, the exterior signal lights function only as turn signals. The exterior signal lights and instrument panel turn indicators flash when the left or right turn signal foot-switch is pushed and held.

Activate the four-way hazard lights when the vehicle is stopped or parked and may block traffic or present a possible hazard to following or approaching vehicles. Also use the four-way hazard lights when the vehicle is being towed.

Start Push Button

⚠WARNING

Put the shift selector in neutral [N] and apply the parking brake before starting the engine. If the parking brake indicator does not illuminate, DO NOT OPERATE THE VEHICLE.

This momentary Push Button on the side console allows the operator to start the engine without leaving the driver's seat.

☞NOTE:

The Multiplexing System limits continuous starter operation to 14 seconds; the starter circuit is then disconnected for 60 seconds to allow the starter to cool down.

Stop Engine Override Switch

⚠WARNING

Apply the Stop Engine Override Switch only for emergencies, such as moving the vehicle from traffic to a safe stopping area. The override interval is 30 seconds. Repeat the switch cycle to activate a repeat override sequence as necessary.

The Stop Engine Override toggle switch is used to override the engine shutdown system in an emergency. Refer to “11. VEHICLE OPERATION” on page 92 in this manual for more information.

Driver's Light Switch

The Driver's Light toggle switch is a two-position switch that controls the light above the driver.

Sweeper Switch

The Sweeper toggle switch controls the interior aisle lights. With the Master Run switch set in STOP-ENGINE, position the Sweeper switch to HOLD and release to illuminate the lights. A timer keeps them on for 15 minutes.

Climate Control Switch

The Climate Control switch is a four-position rotary switch controlling the heating, ventilating and air conditioning (HVAC) system. In the VENT position, the system draws fresh air into the vehicle. The HEAT position commands the heating system to warm the vehicle interior to a preset temperature. The COOL position commands the air-conditioning system to cool the interior of the vehicle to a preset temperature. Position the switch to OFF to disengage the HVAC System.

Foot Operated Controls

See “Figure 29: Driver’s Foot Controls” on page 84.

Brake Treadle

The brake treadle, located to the left of the accelerator treadle, controls the application and release of the service brakes. The brake treadle also controls the retarder function. Refer to “11. VEHICLE OPERATION” on page 92 in this manual for specific operating procedures on the retarder.

Brake application is proportional to the amount of treadle movement applied. Pressing the brake treadle illuminates the stop lights and the stop lights indicator.

☞NOTE:

The brake treadle drops slightly when the Interlock System applies. To release the brake interlock system, apply sufficient pressure to the brake treadle to “push through” the interlock application. The interlock message will disappear from the instrument panel LCD screen and the treadle will return with the operator’s foot to its normal position.

☞NOTE:

This vehicle incorporates a Brake Drag Alert System which will activate warning indicators if the brakes remain applied after the brake treadle has been released.

Accelerator Treadle

The accelerator treadle, located to the right of the brake treadle, controls the engine throttle. Acceleration of the engine is proportional to the amount of treadle movement applied.

☞NOTE:

Accelerator treadle will be disabled if the vehicle is operated with the Brake Drag Alert indicator on for more than a minute.

Headlight Dimmer Switch

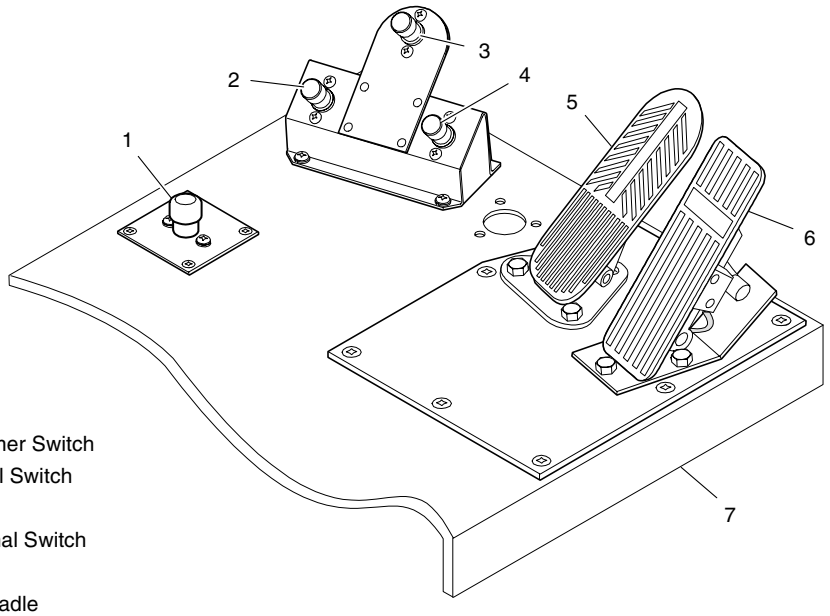
The Headlight Dimmer switch is a heel-activated click-in switch located adjacent to the side console. Pressing the switch changes the headlight operating mode between either high beam or low beam. The blue high beam indicator on the instrument panel indicates the high beam mode.

Turn Signal Switches

Two bracket-mounted, momentary-on switches control the right and left turn signal lights when held depressed. Left or right turn signal indicators on the instrument panel illuminate when respective floor switch is activated.

P.A. System Switch

The P.A. System switch is located between the turn signal switches and is for activating the P.A. System. Push and hold this switch while speaking into the Speakeasy System microphone.



1. Headlight Dimmer Switch
2. Left Turn Signal Switch
3. P.A. Switch
4. Right Turn Signal Switch
5. Brake Treadle
6. Accelerator Treadle
7. Driver's Platform

op0783a.wmf

Figure 29: Driver's Foot Controls

Miscellaneous Controls

See “Figure 30: Miscellaneous Switches” on page 86.

Service Light Switch

The service light switch, located in the destination sign compartment, controls power to the light in the destination sign compartment.

Door Master Switch

WARNING

Greater attention to passenger safety must be given whenever operating the vehicle with the Door Master switch in the OFF position, as this position disables several safety features and will allow the following conditions to occur:

- **Vehicle can be moved with entrance and/or exit door open (brake interlocks disabled).**
- **Vehicle can be shifted without foot on brake treadle.**
- **Vehicle can be shifted and vehicle moved with wheelchair ramp deployed.**
- **Exit doors can be opened at any speed by using the emergency release control valve.**

The Door Master toggle switch controls power to the brake interlocks and exit door. When the switch is in the ON position, the entrance and exit doors are fully functional. In this mode, opening the exit door, kneeling the vehicle or operating the wheelchair ramp engages the interlocks. Engaging the interlocks applies the rear brakes and deactivates the accelerator.

When the switch is In the OFF position, the brake interlocks are released (interlocks will not engage). The entrance door remains fully functional and the exit door does not function. A warning buzzer sounds and the Rear Door Open indicator illuminates on the instrument panel. In this mode, the exit door only opens if the emergency release control valve is activated. The control valve is located behind the breakable window to the left of the exit door.

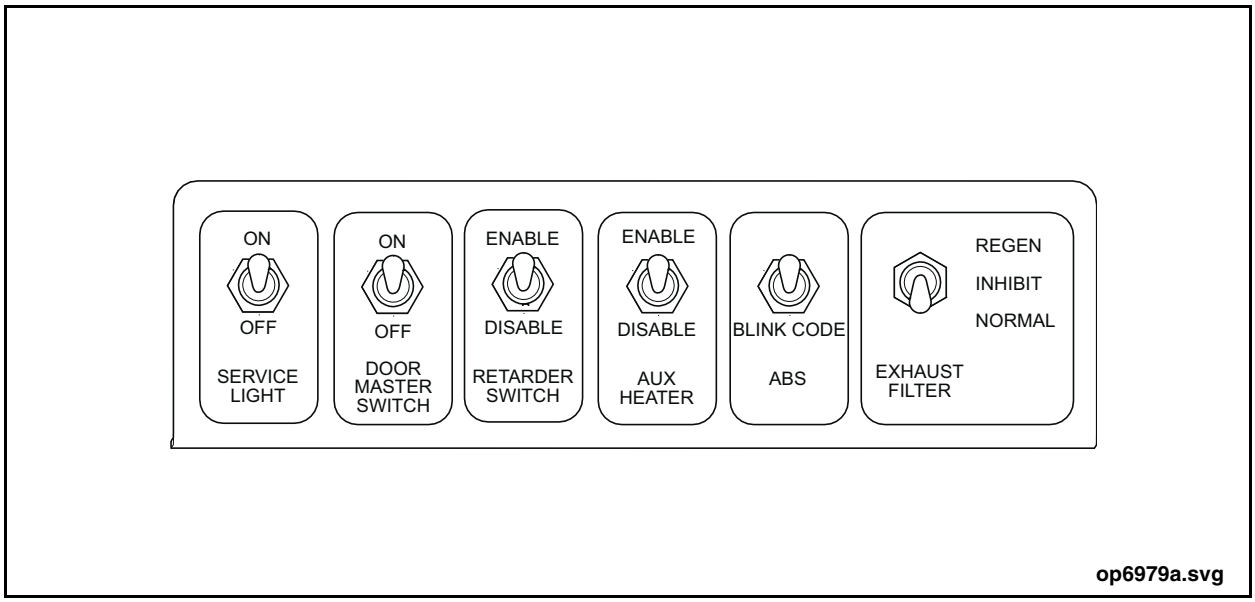


Figure 30: Miscellaneous Switches

Retarder Switch

The Retarder toggle switch controls power to the transmission retarder. Positioning the switch to ON enables the retarder. The OFF position disables the retarder and illuminates the Retarder Off indicator on the instrument panel.

☞NOTE:

Consult your transit authority for specific operating conditions during which the Retarder switch should be used.

Auxiliary Heater Switch

The Auxiliary Heater switch is located in the front destination sign compartment and controls operation of the engine auxiliary coolant heater. Activating the switch alternately enables and disables Auxiliary Coolant Heater operation. When enabled the Auxiliary Coolant Heater will function in response to heat requirements from either the Defroster Temperature Control switch or the Climate Control switch.

ABS Switch

The ABS switch is used by service personnel to troubleshoot the ABS System. Pulling the switch to BLINK CODE and releasing activates the blink code diagnostic capabilities. The blink code sequence displays on the instrument panel ABS Fail indicator.

Exhaust Filter Switch

The Exhaust Filter switch is a 3-way toggle switch with NORMAL, INHIBIT and REGEN positions. This switch is used by service personnel as required to regenerate or burn soot off of the muffler filter. The function of the switch settings is as follows:

- NORMAL - this position is used for everyday vehicle operation. Regeneration will occur as needed while the vehicle is being driven.
- INHIBIT - this position is used when the vehicle is parked inside for servicing or any other situations where the regeneration process must be disabled for safety reasons.
- REGEN - this position is used by service personnel to initiate a forced regeneration when the vehicle is parked in a safe location. The engine speed and exhaust temperature will increase as the muffler filter regenerates.

Entrance Door Manual Control Valve

This air control valve is located beside the driver, just below the side console. Turning it to the OFF position releases the air controlling the entrance door. This allows manual operation of the door for initial vehicle entry. For normal entrance door operation, position the door manual control valve to ON.

10.FIRE SUPPRESSION SYSTEM

Monitoring and operating the Fire Suppression System effectively requires a basic understanding of the components and the operation of each in the system. The following gives a brief explanation of the components and their function.

Major System Components & Location

- Fire Suppression Control Panel (1) - located in the recessed overhead panel
- Heat Sensors (3) - three in engine compartment
- Discharge Nozzles (4) - in engine compartment
- Extinguishing Agent Cylinders (1) - in the streetside light compartments
- Manual Actuator Switch (1) - located in the driver's overhead panel

Description

The Fire Suppression System protects the passengers and vehicle against fire. A dry chemical extinguishing agent discharges through four fixed nozzles to suppress a fire. Driver's area components include:

Manual Actuator Switch

The Manual Actuator switch is located in the driver's overhead panel and is used to manually initiate the discharge of the extinguishing agent. Pulling a safety pin out and pressing down on the switch initiates the discharge. Check that the safety pin is installed before operating the vehicle.

Fire Suppression Control Panel

The control panel is used to inform the operator or service personnel of the fire suppression system status. The LED indicators and audible alarm indicate basic system status. Detailed event text messages are shown on the panel display. The control panel serves as the fire suppression central control and coordinates communication between all modules. Ensure that the "System OK" message is displayed on the panel before operating the vehicle. See "Figure 31: Fire Suppression Control Panel & Manual Actuator Switch" on page 89.

The “System Test Confirm” button tests the audible alarm and LED indicator function. This test button is also used to confirm system configuration. Press and hold the test button for one second to initiate a self-test of the audible alarm and LED indicator lights. This test will take approximately 10 seconds to complete.

Pressing and holding the test button will engage and test all relay operations in addition to testing the audible alarm and LED indicator circuits. Press the Relay Reset button to reset all the relays. Pressing the test button will also display “Vehicle Safety Network, Firmware:, and Configuration:”

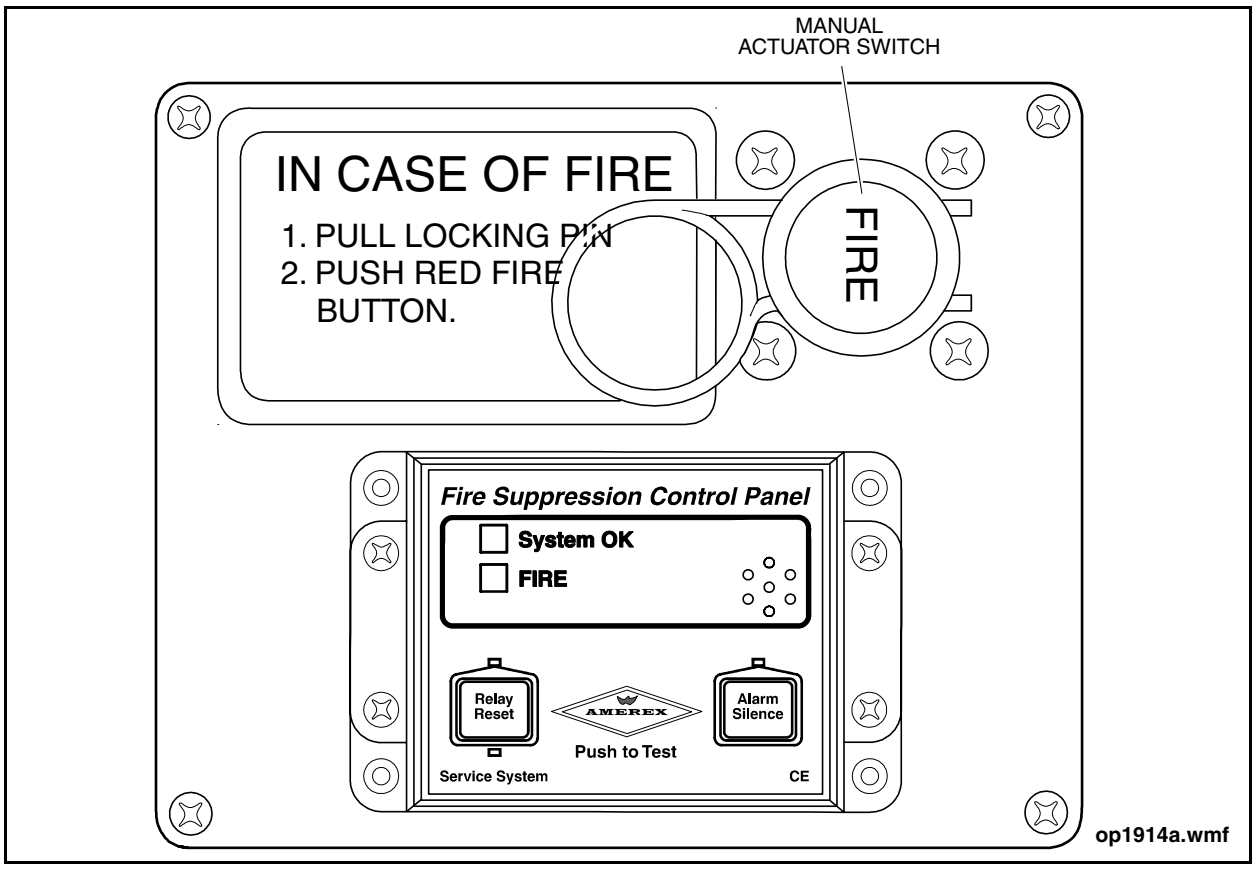


Figure 31: Fire Suppression Control Panel & Manual Actuator Switch

Screen Display Messages

The following table lists the various events that provide a screen display.

SCREEN DISPLAY MESSAGES

EVENT TYPE	EVENT CAUSE	EVENT RECORD	OPERATION DISPLAY	LED INDICATION	AUDIBLE ALARM
Trouble	Communications Error	No Response Invalid Response Invalid Module Missing Module Invalid Command Software Error	Trouble Module# Comm	Yellow Trouble Steady	Pulsed
Trouble	Sensor Trouble	Sensor Missing Sensor Wrong Sensor Disables	Trouble Module# Sensor#	Yellow Trouble Steady	Pulsed
Trouble	Over-Temperature Level 1	Variable Overheat Sensor Level 1 Exceeded		Yellow Trouble Steady	Single Pulse
Trouble	Over-Temperature Level 2	Variable Overheat Sensor Level 2 Exceeded		Yellow Trouble Steady	Steady On
Trouble	Discharge	Open Circuit at Actuator	Trouble Module# Discharge	Yellow Trouble Steady	Pulsed
Trouble	Pressure Low	Open Circuit at Pressure Switch Input	Trouble Module# Press. Low	Yellow Trouble Steady	Pulsed
Fire	Fire	Fire	FIRE Module# Sensor#	Red Fire Steady	Steady On
None	System	Clock Set Configuration Written Configuration Erased Configuration Reset Self-Test Relays Cleared Alarm Silenced Reset (at power-on) User Reset (logo button) Event Log Erased Configuration Mismatch Power Failure Maintenance Schedule Set Maintenance Schedule Reset Maintenance Disabled	None	No	No

Operation

Heat from a fire will close the normally open contacts of one of the heat sensors. This action will short the system's electrical circuit and electrically actuate the solenoid in the agent cylinder. The system can also be manually activated using the manual actuation switch on the driver's side console. The dry chemical extinguishing agent will then be routed to the distributor and released from the discharge nozzles. The control panel in the driver's area will display the current system condition.

Actuation of the Fire Suppression System will also cause the engine protection system to shut down the engine, ensuring that the fuel flow stops. Bring the vehicle to a safe stop and ensure that all passengers exit the vehicle safely.

During system discharge of the suppressant expect a high noise level and possibly a large cloud of extinguishing chemical.

☞NOTE:

Avoid breathing the dry chemical dust. It will irritate the throat and lungs.

11.VEHICLE OPERATION

WARNING

ALWAYS shift the vehicle into neutral [N] and apply the parking brake before leaving the driver's seat for any reason. Failure to apply the parking brake does not properly secure the vehicle from inadvertent movement.

DO NOT rely on the Interlock System alone to secure the vehicle.

Pre-Start Checks & Adjustments

A daily routine inspection of the vehicle should reveal any required repairs or adjustments. These need to be reported to service personnel to maintain the best operating condition of the vehicle. When it is ready for service perform the following steps upon entry.

- Activate the Multiplexing System by turning the Master Run switch to the DAY-RUN or NIGHT-RUN position.
- Adjust the driver's seat for individual comfort.
- Adjust the tilt/telescopic steering column to suit.
- Adjust all mirrors for unobstructed views.
- Check that the Door Master switch is in the ON position.
- Check horn operation.
- Fully kneel the vehicle. Refer to " Kneeling" on page 109 in this section for kneeling procedure.

Transmission Operation

CAUTION

In temperatures below -20°F (-29°C), set the Idle Speed switch on the side console to FAST to warm the transmission. Reset the switch to NORMAL before shifting from neutral [N], to reverse [R] or drive [D].

CAUTION

Be sure to bring the vehicle to a full stop before shifting from drive [D] to reverse [R] or vice versa.

WARNING

NEVER leave the driver's seat while the transmission is in gear.

The push button shift selector is used to select the transmission operating ranges, display transmission oil level, and display diagnostic codes. The LED display panel uses two green alpha-numeric characters to display these functions. The operating range buttons include:

- [R] Reverse - press this button to select reverse. The LED display panel will show [RR].
- [N] Neutral - press this button to select neutral. The LED display panel will show [NN].
- [D] Drive - press this button to select drive. The LED display panel will show [DD].

☞NOTE:

When the vehicle is operating in drive, the display panel will indicate the highest available range and the current operating range. Example: "52" would indicate 5 available forward speeds and operation is currently in the 2nd range.

- (Up) Arrow - press this button when in drive [D] to request the next higher range. Continuously pressing the button will select the highest range available.
- (Down) Arrow - press this button when in drive [D] to request the next lower range. Continuously pressing the button will select the lowest range available.
- Mode - the mode button is used to view and toggle through diagnostic code information when the Diagnostic Code Display mode has been entered. The performance or economy mode feature is not available on this unit.

Operate the transmission using the following procedure:

1. Before starting the engine
   a. Check that the transmission is in neutral [N].
   b. Check that the parking brake is on.
   c. Apply the brake treadle.
2. With the engine running and idling at normal speed, apply firm pressure on the brake treadle and make the desired range selection.
3. Release parking brake and the brake treadle to proceed.
4. To change direction, bring the vehicle to a full stop, apply firm pressure on the brake treadle and make the desired range selection.

☞NOTE:

A back-up alarm activates when selecting reverse [R].

5. When parking or shutting down the vehicle come to a full stop, apply the parking brake, select neutral [N] and release the brake treadle.
6. To upshift or downshift the transmission, use the up or down arrow buttons respectively while in drive [D]. Pressing a button once changes the range by one. The second numeric character on the LED display will show the current operating range.

Retarder Operation

The retarder is used to slow the vehicle and works in conjunction with the service (air) brakes. The retarder, located inside the transmission, is a fluid brake that creates drive-line deceleration. When activated, its housing fills with transmission fluid which impedes rotor and output shaft rotation slowing the vehicle. Retarders improve vehicle economy by extending the service life of the brake linings.

The retarder is supplemental to the operation of the service brakes. Overall braking efficiency (service brakes plus retarder) is affected by vehicle speed, road conditions and condition of the vehicle brakes, tires and mechanical systems. Retarder operation decreases in effectiveness as the vehicle slows down. It is the responsibility of the driver to drive the vehicle in a safe and controlled manner at all times.

The retarder operates in three stages and is only effective at speeds above 5 mph (8 km/h). Releasing the accelerator engages the first stage of retarder operation. Lightly pressing on the brake treadle (the first 5° to 10° of movement) engages the second stage of retarder operation. Further brake application engages the third stage leading to full retarder operation. Releasing the brake treadle and applying the throttle will disengage the retarder. The retarder can be disabled using the Retarder switch on the destination sign closeout panel.

Hitting a bump or pothole may activate the ABS system. The retarder will automatically be turned off if the ABS system is in active operation (ABS event). When the ABS event deactivates, retarder operation will resume in approximately 6 seconds.

Retarder operation is attenuated and high gear is locked out if the transmission fluid becomes overheated. The retarder function is fully restored once the transmission fluid has cooled sufficiently or if the output shaft speed sensor detects a substantial increase in speed with the accelerator fully released (runaway vehicle).

☞NOTE:

Always be prepared to use the service brakes to stop the vehicle.

Anti-Lock Braking System

The Anti-Lock Braking System (ABS) functions to bring the vehicle to a safe, controlled stop during emergency braking situations. Through computer monitoring of wheel speeds the system controls brake pressure to prevent wheel lock-up. If during brake application the ABS system senses imminent wheel lock-up it engages automatically thus increasing vehicle stability and control. The ABS is inactive (no ABS event) whenever wheel deceleration difference remains within programmed limits.

An ABS Indicator on the instrument panel indicates any active faults and is also used by service personnel to retrieve codes.

⚠WARNING

Keep stopping distances the same as those for similar non-ABS equipped vehicles.

To operate under normal conditions use the standard braking technique. For emergency braking apply firm and constant pressure to the brake treadle. If required the ABS system will activate automatically producing a pulsing sensation to the brake treadle and a hissing sound. These are normal indications of ABS system operation. During emergency braking avoid “pumping” the brakes as this defeats the pulsing action of the ABS system and will increase your stopping distance.

☞NOTE:

Under certain operating conditions, the ABS system will override the transmission retarder. Refer to “ Retarder Operation” on page 95 *in this manual for specific operating conditions which apply.*

If the ABS on one wheel malfunctions the system will retain normal braking on that wheel. Should the entire ABS System malfunction the system will also retain normal braking. The ABS Fail indicator on the instrument panel will illuminate if a malfunction occurs.

☞NOTE:

After ABS System service the ABS Fail indicator will remain illuminated at engine start-up. Driving the vehicle above 4 mph (6 km/h) should extinguish the indicator. If the indicator remains illuminated, active faults are still present; contact service personnel.

Automatic Traction Control

The vehicle's Automatic Traction Control (ATC) System activates automatically to prevent drive wheel spin when accelerating or starting the vehicle from a stand still.

The system uses components of the ABS System to apply the brakes to a drive wheel that loses traction and spins. This transfers the engine torque to the wheel with better traction. If both drive wheels spin, the system reduces engine torque to improve traction. The ATC indicator on the instrument panel illuminates to confirm system operation.

Starting the Engine

⚠WARNING

Put the shift selector in neutral [N] and apply the parking brake before starting the engine. If the parking brake indicator does not illuminate, DO NOT OPERATE THE VEHICLE.

To operate the vehicle the Battery Disconnect switches must be in the ON position. Check the switches by opening the battery disconnect access door at the rear of the vehicle. These connect the vehicle electrical circuits to the battery power. See “Figure 32: Battery Disconnect Switch” on page 98.

☞NOTE:

Refer to “5. DRIVER’S CHECK LIST” on page 23 *in this manual before operating the vehicle.*

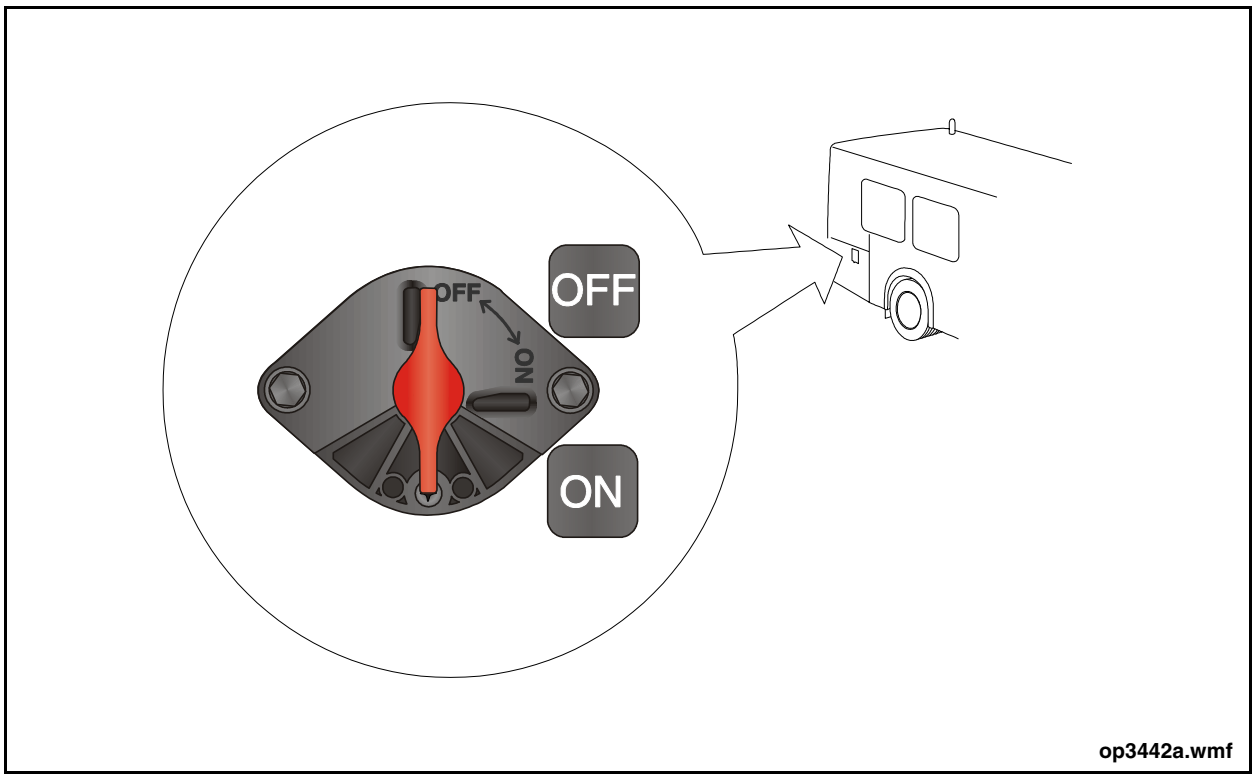


Figure 32: Battery Disconnect Switch

Master Run Switch

Turn the Master Run switch (on side console) to DAY-RUN or NIGHT-RUN position. This activates the vehicle's Multiplexing System. Illuminated indicator lights and sounding alarms signify an active Multiplexing System.

☞NOTE:

When restarting less than 30 minutes after engine shut down, the Multiplexing System responds instantly.

Start Push Button

⚠WARNING

Put the shift selector in neutral [N] and apply the parking brake before starting the engine. If the parking brake indicator does not illuminate, DO NOT OPERATE THE VEHICLE.

With the vehicle's Multiplexing System active, push and hold the Start push button until the engine starts. Release the push button as soon as the engine starts.

If the starter fails to operate, check the following:

- The Master Run switch is in the DAY-RUN or NIGHT-RUN position.
- The Transmission Selector indicator shows neutral [N].
- The engine compartment Engine Run switch is in the FRONT position.
- The parking brake is applied.

☞NOTE:

The Multiplexing System limits continuous starter operation to 14 seconds; the starter circuit is then disconnected for 60 seconds to allow the starter to cool down.

Operational Checks

Once the engine is operating the operator should observe the following:

- The air system pressure is within normal operating range and the suspension is at full height.
- The No Gen indicator is off when the engine is operating.
- Shift selector neutral [N] indicator remains illuminated.
- Parking brake and stop light indicator remain illuminated as long as the parking brake is applied.
- Door controller is operational.
- Position the Door Master switch to the OFF position and attempt to open the exit door by using the side console door controller. The exit door should not be operational; the entrance door should remain operational.
- Return the Door Master switch to the ON position.
- Wiper and washer controls are operational.
- Defroster/heater controls (on dash) are operational.
- Exterior lights operate during exterior light test. To conduct test, ensure engine is running and parking brake is applied, then press both turn switches simultaneously. All exterior lights will illuminate for two minutes. The lights are extinguished by shifting the transmission out of neutral [N]. This feature enables one person to test the exterior light system.
- The destination sign controller is active.

Parking Brake

The parking brake indicator illuminates when the parking brake is applied. If the parking brake indicator is not illuminated, apply the parking brake by pulling up on the parking brake control valve knob. If the parking brake indicator does not illuminate, DO NOT OPERATE THE VEHICLE.

Press the brake treadle before releasing the parking brake. Release the parking brake by pushing down on the control knob. The parking brake indicator extinguishes.

☞NOTE:

Reapply parking brake.

Stop Lights

The stop lights indicator illuminates when the rear stop lights are on. If the indicator is not illuminated, check for rear stop light failure.

Low Air

The Low Air indicator illuminates to warn of an unsafe air system pressure level. A warning buzzer sounds when the Low Air indicator is activated. DO NOT OPERATE THE VEHICLE until the alarm system is canceled.

The air pressure gauge indicates the air system pressure levels of the air brake system. The air system will maintain pressure levels above the low operating limit of 117 psi (807 kPa) during normal vehicle operation.

Check Engine

The Check Engine indicator on the instrument panel illuminates momentarily before starting. The Check Engine indicator extinguishes before the engine starts. If the Check Engine indicator remains illuminated, DO NOT OPERATE THE VEHICLE.

Shift Selector Display

At engine start-up the shift selector's display shows [NN] to indicate that the transmission is in neutral. This should occur automatically at each engine start-up.

No Gen

When illuminated, the No Gen indicator signals that the alternator is NOT charging. The indicator remains illuminated until the engine starts. If the indicator fails to remain illuminated until the engine starts, DO NOT OPERATE THE VEHICLE.

Operator Display Keyboard (ODK) Messages

Check that the destination sign control unit correctly programs electronic destination sign messages.

Rear Door Open Indicator

Move the door controller to position #3, #4 or #5 to check that the Rear Door Open indicator illuminates when the doors open.

☞NOTE:

Exit doors will open and the interlocks will be engaged.

Turning the door controller handle to position #1 closes the entrance and exit doors and extinguishes the Rear Door Open indicator. Check that the exit doors are closed. If the exit doors are not closed and the Rear Door Open indicator is still illuminated, DO NOT OPERATE THE VEHICLE.

Day-Time Operation

When the engine is operating, check the following:

- The air system pressure is within normal operating range and the suspension is at full height.
- The No Gen indicator is off when the engine is operating.
- Shift selector neutral [N] indicator remains illuminated.
- Parking brake and stop light indicator remain illuminated as long as the parking brake is applied.
- Daytime running lights operation.
- Front, side and rear destination/route sign lights.
- Door controller operation.
- The Door Master switch, when placed in the OFF position, disables the exit door and inhibits the brake interlocks.
- Aisle lights operation.
- Return the Door Master switch to the ON position.
- Wiper and washer controls operation.
- Defroster/heater control (on dash) operation.

Night-Time Operation

For night-time operations, ensure the Master Run switch is placed in the NIGHT-RUN position. Check the following in addition to the day-time checks:

- Instrument panel illumination lights.
- Headlight operation (high and low beam).
- Front and rear identification and marker lights.
- Tail lights.
- License plate light.
- Panel lights dimmer changes the brightness of instrumentation backlights and panel text.
- Interior aisle lights can be turned on using the Aisle Lights switch.

Pre-Trip Brake Test

WARNING

Before driving the vehicle conduct the following test sequence. If the test reveals a fault, advise service personnel and DO NOT OPERATE THE VEHICLE.

Conduct the following test sequence to ensure that the air brake system is functioning properly.

1. Apply the parking brake.
2. Start the engine, set the Idle Speed switch to FAST and check the following:
   a. The low pressure warning devices switch off as the air pressure builds.
   b. If the air pressure gauge reading was below 90 psi (620 kPa), the reading increases back to 90 psi (620 kPa) in less than three minutes.
   c. The air pressure gauge reading levels off at the upper operating range.
3. Release the parking brake.
4. Make multiple light brake treadle applications and check the following:
   a. The air pressure gauge reading stabilizes at the lower operating range as the air compressor begins its pumping cycle.
   b. After continued multiple light brake treadle applications the low pressure warning devices activate as the air pressure gauge reading falls to 75 psi (517 kPa).
5. Release the brake treadle and reapply the parking brake.
6. Allow the air system to fully recharge.
7. Stop the engine and proceed as follows.
   a. Release the parking brake.
   b. Apply the brake treadle fully, hold and check the following:
      - Upon treadle application the air pressure gauge reading does not drop more than 18 psi (124 kPa).

☞NOTE:

Tap the gauge to be sure the needle is not stuck.

      - The air pressure does not drop more than 3 psi (20 kPa) per minute.
      - There are no audible air leaks.
   c. Release the brake treadle and apply the parking brake.

8. Restart the engine.
   a. Set the Fast Idle switch to FAST to recharge the air system.
   b. When the reading levels off at the upper operating range, switch off the fast idle.
   c. Release the parking brake.
9. Move the vehicle slowly and test brake response. Refer to “ Moving the Vehicle” on page 105 of this manual before operating the vehicle.

Moving the Vehicle

1. Fasten driver’s seat-belt.
2. Close the doors by turning the door controller handle to position #1. The Rear Door Open indicator should be off.
3. Apply the brake treadle and release the parking brake. The parking brake indicator extinguishes.
4. Shift the Transmission Selector into the desired gear.

☞NOTE:

The neutral [NN] indicator extinguishes and the appropriate range letter appears in the display.

5. Release the brake treadle and lightly apply the accelerator treadle to slowly move vehicle from the parking area. The stop lights indicator extinguishes.
6. Check the steering wheel for vibrations, looseness or binding while the vehicle is in motion. If any abnormalities are present, DO NOT OPERATE THE VEHICLE.

Parking the Vehicle

WARNING

The parking brake must be applied when parking the vehicle. When parking downhill, be sure the front wheels are turned into the curb; when parking uphill, be sure the front wheels are turned away from the curb. See “Figure 33: Parking on an Incline” on page 106.

1. Bring the vehicle to a complete stop using the brake treadle. The stop lights indicator illuminates. Shift the transmission selector into neutral [N].
2. Apply the parking brake and release the brake treadle. The parking brake indicator illuminates.
3. Open the entrance door by placing the controller in position #2.
4. Turn the Master Run switch to the STOP-ENGINE position.
5. Exit the vehicle.
6. Manually close the doors.

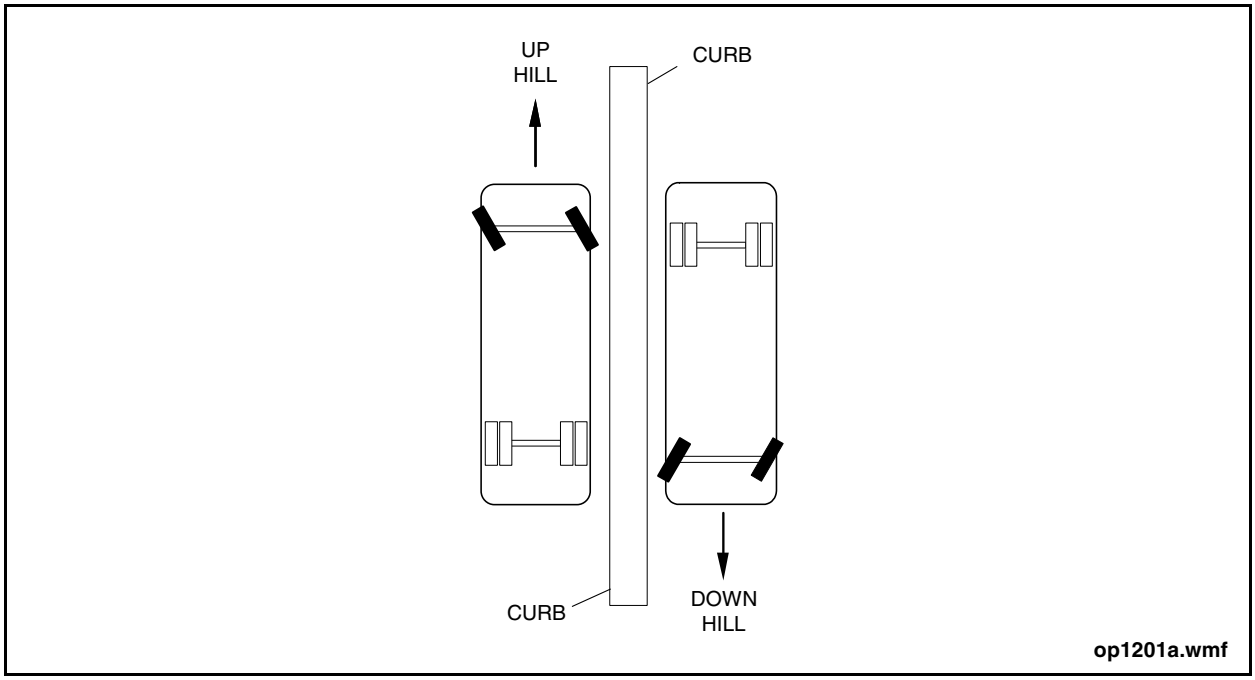


Figure 33: Parking on an Incline

Roof Hatch Ventilation

The roof hatches may be used for ventilating the interior when the vehicle is in motion. Open the front roof hatch so that it draws air into the vehicle and open the rear hatch so that it draws air out of the vehicle. Push firmly on the front or rear hatch handle to tilt the roof hatch to the desired position. See “Figure 34: Roof Hatch Ventilation” on page 107.

⚠CAUTION

Close the roof hatches when passing under low overhead restrictions.

☞NOTE:

Close the roof hatches when the HVAC system is operation or to keep precipitation out.

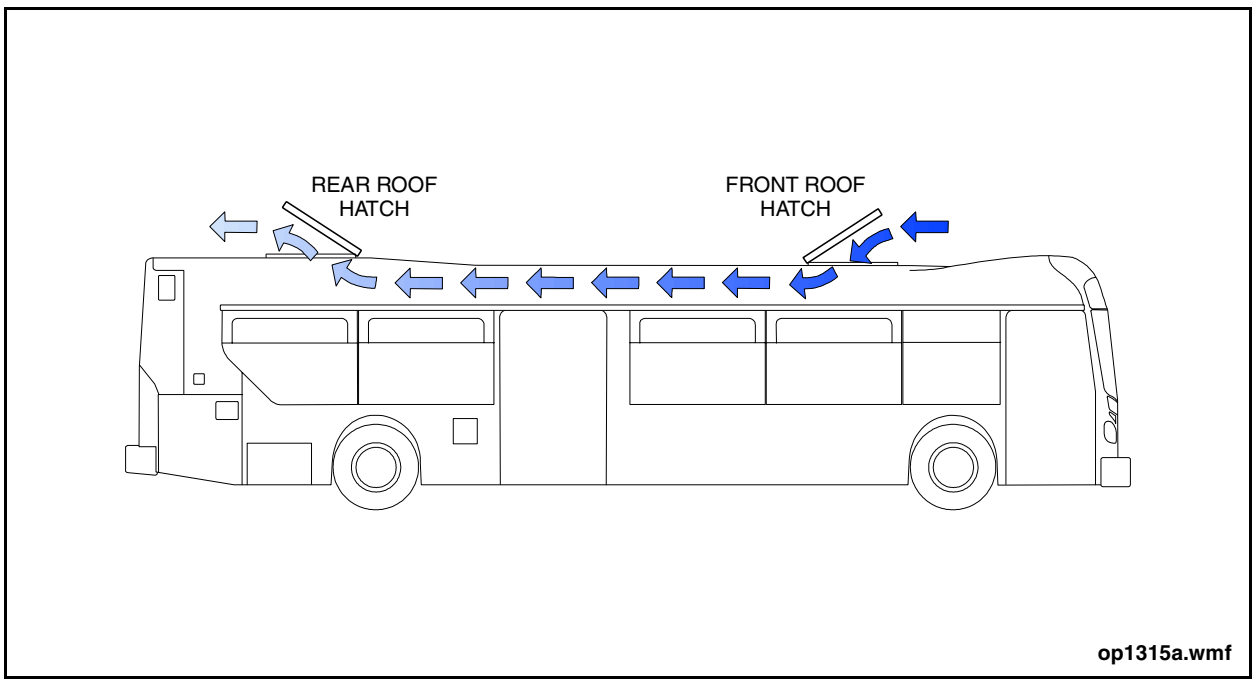


Figure 34: Roof Hatch Ventilation

Jump Start Connection

Behind the battery access door is a jump start connector to supply power to the batteries when normal engine starting is not possible. It uses a quick connect assembly to ensure a safe and correct electrical connection to the battery poles.

☞NOTE:

Advise service personnel if starting difficulties occur.

Engine Protection System

⚠CAUTION

If engine shutdown occurs, DO NOT attempt an engine restart unless absolutely necessary. Continuing engine operation without fault correction may result in engine damage.

The New Flyer vehicle is equipped with an automatic shut down system to prevent engine damage. If the Stop Engine indicator illuminates, the Engine Protection System initiates a power reduction cycle that lasts 30 seconds. After that time the engine will shut down.

☞NOTE:

Use the 30 seconds to remove the vehicle from traffic. Contact service personnel for further instructions.

Fire Suppression System

If a fire activates the fire suppression system, it will immediately shut down the engine. Bring the vehicle to a stop, shut down any electrical systems, set the parking brake and evacuate all passengers from the vehicle. Call transit dispatch for assistance. The engine cannot be restarted until the applicable fault is cleared and the system is reset by service personnel.

☞NOTE:

An alarm sounds when the Fire Suppression System activates.

Kneeling

The vehicle's kneeling operations are controlled by the Kneel switch on the instrument panel. This switch is used to raise, hold, or lower the vehicle.

Kneeling Procedure

1. Bring the vehicle to a complete stop, put shift selector in neutral, apply the parking brake and set the door controller to Position #2 to open the entrance door. Kneeling will not be enabled if the door is closed.

☞NOTE:

Brake and accelerator interlocks engage when the entrance door is open and kneeling is in process.

⚠WARNING

Prior to kneeling the vehicle, ensure that boarding passengers stand clear of the vehicle and no obstructions exist.

2. Lift the switch guard and hold the Kneel switch in the LOWER position until the vehicle is completely kneeled. Boarding passengers must stand clear and wait until the vehicle has lowered, before entering the vehicle.
3. Set the Kneel switch to the RAISE position and close the switch guard once passengers have safely boarded. The vehicle will raise automatically to its full ride height.

Kneeling Signal

An amber lamp located beside the entrance door indicates when the kneeling system is in operation. A warning beep also sounds.

Passenger Signal System

This passenger signal system is activated by the following devices:

- Stop request touch tape.
- Exit door stanchion push buttons.
- Wheelchair area touch tape.

Activating the signal system causes the following to occur:

- Stop request sign illuminates. The sign extinguishes when the system is reset.
- Stop Request indicator on instrument panel remains illuminated until the system is reset.
- A chime sounds once when the passenger signal system is activated. A different tone sounds if the wheelchair passenger signal system is activated.

The system is cancelled (reset) and the lights are extinguished by:

- Opening the entrance door with the door controller.
- Opening the exit door with the door controller.

The stop request sign extinguishes when the entrance or exit doors are fully open.

Stop Request Touch Tape

Vertical strips of touch tape are located on either side of the vehicle interior. Pressing the touch tape will activate the system.

Stop Request Button

A stop request button is located on each exit door stanchion. Pressing the button activates the system.

Wheelchair Stop Request Touch Tape

Stop request touch tape is located under each longitudinal hinged seat in the wheelchair stations. Pushing the tape activates the passenger signal system. A chime sounds a different tone to alert of a wheelchair passenger stop request.

Entrance & Exit Door Lights

The entrance and exit doorways are lit by header lights (above the door), step lights and curb lights. Moving the door controller to open a door activates these lights. The lights extinguish as the doors close.

☞NOTE:

The exit door curb lights extinguish after a five second delay.

12.WHEELCHAIR SYSTEM

The wheelchair system consists of a wheelchair ramp and wheelchair restraint system.

Wheelchair Ramp

The New Flyer vehicle is equipped with a wheelchair ramp system to assist passengers in boarding and exiting the vehicle.

⚠ WARNING

Ensure the following conditions are met prior to operating the wheelchair ramp:

- **Ensure passenger safety during the wheelchair ramp operations. Monitor the passenger's position during the operation cycle.**
- **Loading or unloading the passengers must be performed in a flat, open area. DO NOT deploy the ramp where trees, telephone poles, fire hydrants, or similar obstacles may jeopardize passenger safety or damage the ramp.**
- **Be familiar with ramp functions and operation before operating the equipment.**
- **DO NOT conduct the "STOW" operation with a passenger on the lift.**
- **Passengers are to board the ramp only when it's at ground level, and the "DEPLOY" cycle is complete.**

⚠ CAUTION

Release the switch after the ramp has passed the 90° position. This prevents the oil and pump from overheating.

The switch to control this feature is located on the instrument panel. The three positions of the switch enable the wheelchair ramp mechanism to perform the following operations: See "Figure 35: Wheelchair Ramp Operation" on page 113.

☞NOTE:

When the ramp is in STOW or DEPLOY, the brake interlocks are activated. The vehicle will not move until the ramp is fully stowed and the switch is in the FLOAT position.

DEPLOY

This position activates the ramp from the closed position to the open position.

FLOAT

This position shuts off power to the pump, allowing the ramp to free-fall to either the open or the closed position. Upon cycle completion, this becomes an off position.

STOW

This position is used to move the ramp from the open to the closed position.

☞NOTE:

When the wheelchair ramp is in motion, an audible alarm sounds, and the exterior lift warning light illuminates and flashes.

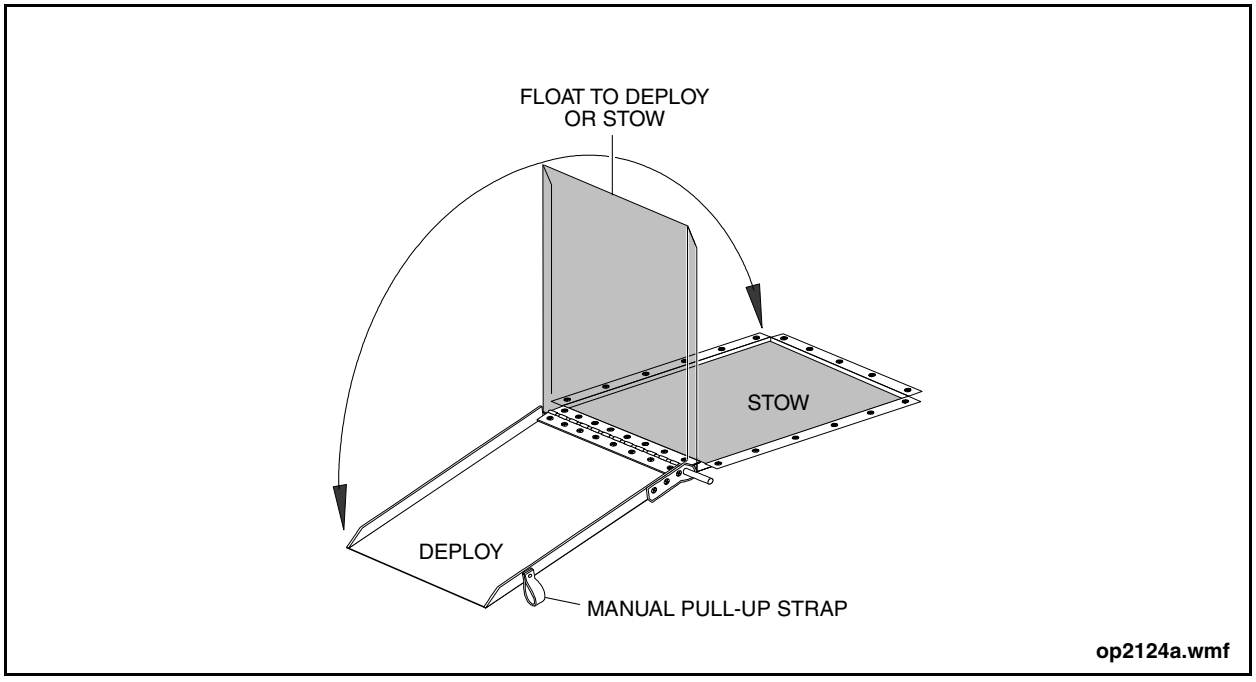


Figure 35: Wheelchair Ramp Operation

Deploying the Ramp

1. Bring the vehicle to a complete stop in a flat, unobstructed area, one to three feet from the curb. Check for obstructions and be certain that there is adequate clearance to deploy the ramp.
2. Apply the parking brake.
3. Place the shift selector in neutral [N].
4. Kneel vehicle if required.

☞NOTE:

Parking brake and stop light indicators on the instrument panel will illuminate.

5. Move the door controller to the door open position.

⚠CAUTION

Make sure the area in which the ramp will DEPLOY is clear of people and any obstructions.

6. Move the Ramp toggle switch to DEPLOY.
7. After the ramp has passed the vertical 90° position, release the switch. The ramp continues to lower until it reaches the ground.

Raising the Ramp

⚠WARNING

Check for obstructions and be sure that all passengers are at a safe distance. Keep objects and passengers off the lift platform during the STOW operation.

1. Once the passenger has boarded the vehicle safely and is clear of the ramp, move the toggle switch to the STOW position.

☞NOTE:

An audible alarm sounds when the ramp is moving.

2. Raise the vehicle from the kneeling position.
3. Close the entrance door.
4. Disengage the parking brake and proceed to the next stop.

Ramp Emergency Procedures

In case the wheelchair ramp power unit fails, the unit may be hand-operated by using a pull-up strap located on the ramp's corner.

Wheelchair Restraint System

The forward seat positions are equipped with a Wheelchair Restraint System for security of handicapped passengers. For optimum passenger safety be sure to follow the operating procedures to complete all the necessary restraint system connections. See “Figure 36: Wheelchair Restraint System” on page 117.

Positioning the Wheelchair

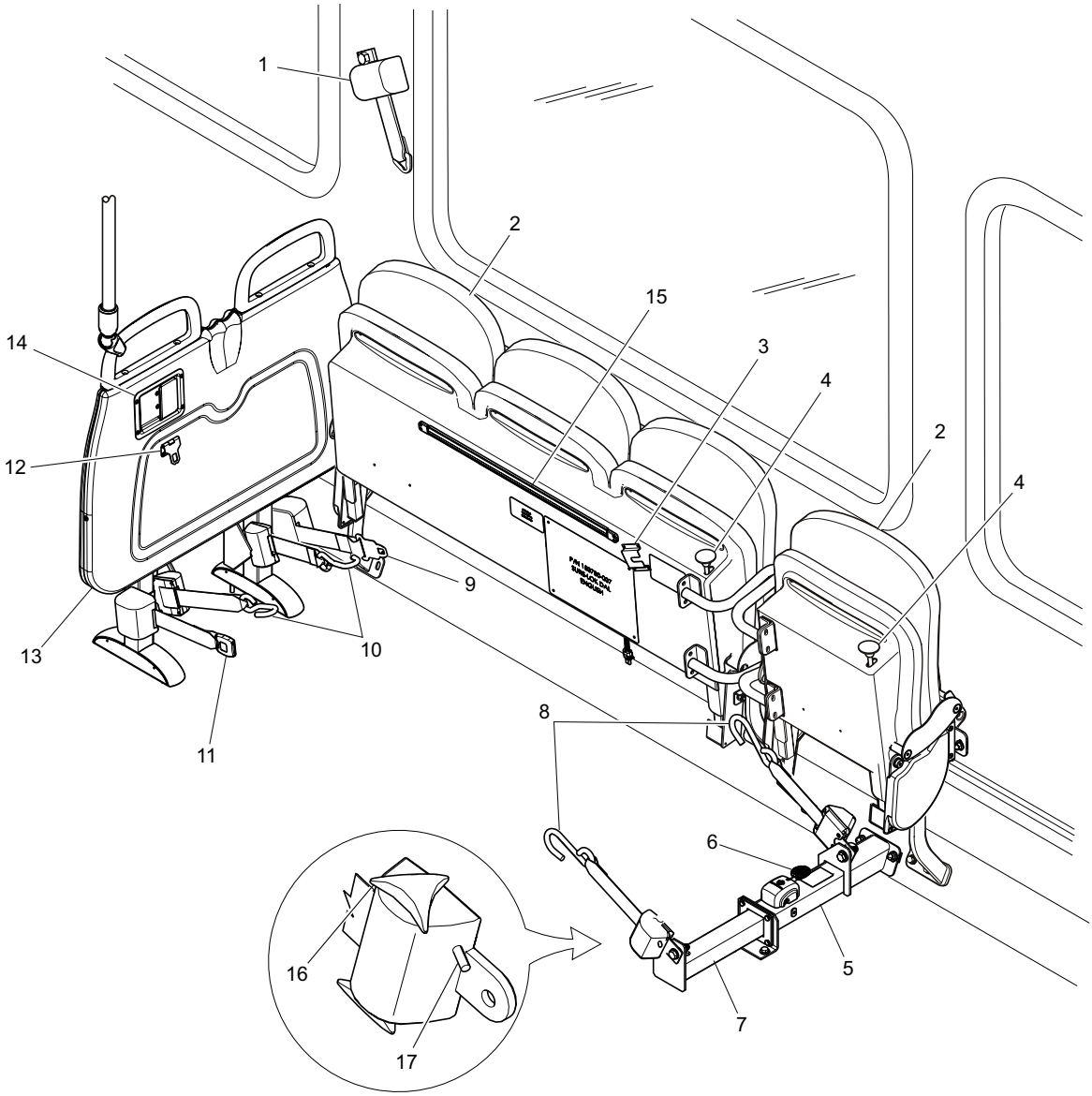
Position the wheelchair in the restraint area as follows:

1. Move the flip-up seat cushions up to the lock position.
2. Extend the passenger belt and temporarily clip it to the belt clip hanger on the barrier. This allows easy access for final securing of the passenger.
3. Extend the lap belt and temporarily clip it to the lap belt hanger on the underside of the flip-up seat assembly. This allows easier access for final securing of the passenger.
4. Back the wheelchair into the restraint area, in front of the flip-up seats, facing forward (facing driver's area).
5. Set the wheelchair brake.

Rear Wheelchair Restraints

Attach the rear wheelchair restraint belts as follows:

1. Pull the belt release handle on the barrier and pull wheelchair restraint belts to extend.
2. Attach the extended ends to solid rear frame members of the wheelchair.
3. Take up the belt slack by pulling the belt release handle again.



1. Shoulder Belt
2. Flip-Up Seat Assembly
3. Lap Belt Hanger
4. Flip-Up Mechanism Release Knob
5. Restraint Arm Assembly
6. Slide Arm Release Pedal
7. Slide Arm
8. Front Wheelchair Restraint Belts
9. Lap Belt
10. Rear Wheelchair Restraint Belts
11. Passenger Belt Clip
12. Belt Clip Hanger
13. Barrier
14. Rear Belt Release Handle
15. Touch Tape
16. Belt Retractor Knob
17. Retractor Release Button

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Figure 36: Wheelchair Restraint System

Front Wheelchair Restraints

Attach the front wheelchair restraint belts as follows:

1. Press the pedal to release the slide arm.
2. Pull the slide arm out as far as possible and release the pedal to lock slide arm in place.
3. Press the retractor release button and pull the belt to extend
4. Attach the belt hook around a solid front frame member of the wheelchair.
5. Press the retractor release button again to take up the belt slack.
6. Turn the belt retractor knob until tight.

Passenger Securement

⚠ WARNING

Restraints should not be held away from body by wheelchair components.

1. Secure wheelchair occupant as follows:
2. Extend both ends of lap belt and connect together at occupant's hip area on aisle side. Do not place belt over armrest.
3. Extend window-side shoulder belt and connect to stud on lap belt.
4. Ensure that belt clips and buckle are securely engaged.

13.BIKE RACK SYSTEM

WARNING

Loading or unloading bike from the streetside endangers the passenger. LOAD OR UNLOAD THE BIKE FROM THE CURBSIDE ONLY.

The bike rack system allows the passenger to load and unload a bike without driver assistance. In the case of children under ten, however, have an adult assist in loading and unloading the bike.

Be sure to load and unload the bike from either the front of the rack or from the curbside.

Loading Operation

CAUTION

To ensure safe vehicle operation, NEVER load a bike onto the bike rack which will in any way obstruct the headlamps. ALWAYS verify that the headlamps are unobstructed whenever a bike has been loaded onto the bike rack.

1. Remove water bottles, pumps or other loose items from bike prior to loading.
2. Squeeze bike rack handle UP to release latch.
3. Fold down bike rack.
4. Lift bike onto rack, fitting wheels into proper wheel slots.
5. Raise the support arm over the front tire so that the hook rests at the highest point on the front wheel. Bike is now held firmly in place.

Unloading Operation

1. Unload from curb or from in front of vehicle.
2. Raise support arm off the tire.
3. Lift bike out of wheel slots and set down.
4. If there are no other bikes on the rack, lift it until the rack swings into the lock position against the vehicle.

14.NOTES

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