

# **OPERATOR'S GUIDE**





SR542
King County Dept.
of Transportation
D60HF 1998

# VEHICLE IDENTIFICATION NUMBERS

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

#### **SR500**

Vehicle Identification Number	<b>Unit Number</b>
5FYD2NS07WU018292	2300
5FYD2NS09WU018293	2301

#### **SR542**

Vehicle Identification Number	<b>Unit Number</b>
5FYD2NS02WU019009	2302
5FYD2NS09WU019010	2303
5FYD2NS00WU019011	2304
5FYD2NS02WU019012	2305
5FYD2NS04WU019013	2306
5FYD2NS06WU019014	2307
5FYD2NS08WU019015	2308
5FYD2NS0XWU019016	2309
5FYD2NS01WU019017	2310
5FYD2NS03WU019018	2311
5FYD2NS05WU019019	2312
5FYD2NS01WU019020	2313
5FYD2NS03WU019021	2314
5FYD2NS05WU019022	2315
5FYD2NS07WU019023	2316
5FYD2NS09WU019024	2317
5FYD2NS00WU019025	2318
5FYD2NS02WU019026	2319

# **SR542** continued

Vehicle Identification Number	<b>Unit Number</b>
5FYD2NS04WU019027	2320
5FYD2NS06WU019028	2321
5FYD2NS08WU019029	2322
5FYD2NS04WU019030	2323
5FYD2NS06WU019031	2324
5FYD2NS08WU019032	2325
5FYD2NS0XWU019033	2326
5FYD2NS01WU019034	2327
5FYD2NS03WU019035	2328
5FYD2NS05WU019036	2329
5FYD2NS07WU019037	2330
5FYD2NS09WU019038	2331
5FYD2NS00WU019039	2332
5FYD2NS07WU019040	2333
5FYD2NS09WU019041	2334
5FYD2NS00WU019042	2335
5FYD2NS02WU019043	2336
5FYD2NS04WU019044	2337
5FYD2NS06WU019045	2338
5FYD2NS08WU019046	2339
5FYD2NS0XWU019047	2340
5FYD2NS01WU019048	2341
5FYD2NS03WU019049	2342
5FYD2NS0XWU019050	2343
5FYD2NS01WU019051	2344
5FYD2NS03WU019052	2345
5FYD2NS05WU019053	2346
5FYD2NS07WU019054	2347
5FYD2NS09WU019055	2348
5FYD2NS00WU019056	2349
5FYD2NS02WU019057	2350
5FYD2NS04WU019058	2351
5FYD2NS06WU019059	2352
5FYD2NS02WU019060	2353

# **SR542** continued

Vehicle Identification Number	Unit Number
5FYD2NS04WU019061	2354
5FYD2NS06WU019062	2355
5FYD2NS08WU019063	2356
5FYD2NS0XWU019064	2357
5FYD2NS01WU019065	2358
5FYD2NS03WU019066	2359
5FYD2NS05WU019067	2360
5FYD2NS07WU019068	2361
5FYD2NS09WU019069	2362
5FYD2NS05WU019070	2363
5FYD2NS07WU019071	2364
5FYD2NS09WU019072	2365
5FYD2NS00WU019073	2366
5FYD2NS02WU019074	2367
5FYD2NS04WU019075	2368
5FYD2NS06WU019076	2369
5FYD2NS08WU019077	2370
5FYD2NS0XWU019078	2371
5FYD2NS01WU019079	2372
5FYD2NS08WU019080	2373
5FYD2NS0XWU019081	2374
5FYD2NS01WU019082	2375
5FYD2NS03WU019083	2376
5FYD2NS05WU019084	2377
5FYD2NS07WU019085	2378
5FYD2NS09WU019086	2379
5FYD2NS00WU019087	2380
5FYD2NS02WU019088	2381
5FYD2NS04WU019089	2382
5FYD2NS00WU019090	2383
5FYD2NS02WU019091	2384
5FYD2NS04WU019092	2385
5FYD2NS06WU019093	2386
5FYD2NS08WU019094	2387

# **SR542** continued

Vehicle Identification Number	<b>Unit Number</b>
5FYD2NS0XWU019095	2388
5FYD2NS01WU019096	2389
5FYD2NS03WU019097	2390
5FYD2NS05WU019098	2391
5FYD2NS07WU019099	2392
5FYD2NS0XWU019100	2393
5FYD2NS01WU019101	2394
5FYD2NS03WU019102	2395
5FYD2NS05WU019103	2396
5FYD2NS07WU019104	2397
5FYD2NS09WU019105	2398
5FYD2NS00WU019106	2399
5FYD2NS02WU019107	2400
5FYD2NS04WU019108	2401

#### **SR571**

Vehicle Identification Number	<b>Unit Number</b>
5FYD2NS0XXU019468	2402
5FYD2NS01XU019469	2403
5FYD2NS08XU019470	2404
5FYD2NS0XXU019471	2405
5FYD2NS01XU019472	2406
5FYD2NS03XU019473	2407
5FYD2NS05XU019474	2408
5FYD2NS07XU019475	2409
5FYD2NS09XU019476	2410
5FYD2NS00XU019477	2411
5FYD2NS02XU019478	2412
5FYD2NS04XU019479	2413
5FYD2NS00XU019480	2414
5FYD2NS02XU019481	2415
5FYD2NS04XU019482	2416
5FYD2NS06XU019483	2417

# **SR571** continued

Vehicle Identification Number	Unit Number
5FYD2NS08XU019484	2418
5FYD2NS0XXU019485	2419
5FYD2NS01XU019486	2420
5FYD2NS03XU019487	2421
5FYD2NS05XU019488	2422
5FYD2NS07XU019489	2423
5FYD2NS03XU019490	2424
5FYD2NS05XU019491	2425
5FYD2NS07XU019492	2426
5FYD2NS09XU019493	2427
5FYD2NS00XU019494	2428
5FYD2NS02XU019495	2429
5FYD2NS04XU019496	2430
5FYD2NS06XU019497	2431
5FYD2NS08XU019498	2432
5FYD2NS0XXU019499	2433
5FYD2NS02XU019500	2434
5FYD2NS04XU019501	2435
5FYD2NS06XU019502	2436
5FYD2NS08XU019503	2437
5FYD2NS0XXU019504	2438
5FYD2NS01XU019505	2439
5FYD2NS03XU019506	2440
5FYD2NS05XU019507	2441
5FYD2NS07XU019508	2442
5FYD2NS09XU019509	2443
5FYD2NS05XU019510	2444
5FYD2NS07XU019511	2445
5FYD2NS09XU019512	2446
5FYD2NS00XU019513	2447
5FYD2NS02XU019514	2448
5FYD2NS04XU019515	2449
5FYD2NS06XU019516	2450
5FYD2NS08XU019517	2451

# **SR571** continued

Vehicle Identification Number	<b>Unit Number</b>
5FYD2NS0XXU019518	2452
5FYD2NS01XU019519	2453
5FYD2NS08XU019520	2454
5FYD2NS0XXU019521	2455
5FYD2NS01XU019522	2456
5FYD2NS03XU019523	2457
5FYD2NS05XU019524	2458
5FYD2NS07XU019525	2459
5FYD2NS09XU019526	2460
5FYD2NS00XU019527	2461
5FYD2NS02XU019528	2462
5FYD2NS04XU019529	2463
5FYD2NS00XU019530	2464
5FYD2NS02XU019531	2465
5FYD2NS04XU019532	2466
5FYD2NS06XU019533	2467
5FYD2NS08XU019534	2468
5FYD2NS0XXU019535	2469
5FYD2NS01XU019536	2470
5FYD2NS03XU019537	2471
5FYD2NS05XU019538	2472
5FYD2NS07XU019539	2473
5FYD2NS03XU019540	2474
5FYD2NS05XU019541	2475
5FYD2NS07XU019542	2476
5FYD2NS09XU019543	2477
5FYD2NS00XU019544	2478
5FYD2NS02XU019545	2479
5FYD2NS04XU019546	2480
5FYD2NS06XU019547	2481
5FYD2NS08XU019548	2482
5FYD2NS0XXU019549	2483
5FYD2NS06XU019550	2484
5FYD2NS08XU019551	2485

# **SR571** continued

Vehicle Identification Number	<b>Unit Number</b>
5FYD2NS0XXU019552	2486
5FYD2NS01XU019553	2487
5FYD2NS03XU019554	2488
5FYD2NS05XU019555	2489
5FYD2NS07XU019556	2490
5FYD2NS09XU019557	2491
5FYD2NS00XU019558	2492
5FYD2NS02XU019559	2493
5FYD2NS09XU019560	2494
5FYD2NS00XU019561	2495
5FYD2NS02XU019562	2496
5FYD2NS04XU019563	2497
5FYD2NS06XU019564	2498
5FYD2NS08XU019565	2499

#### **SR584**

Vehicle Identification Number	<b>Unit Number</b>
5FYD2NS0XXU019566	2500
5FYD2NS01XU019567	2501
5FYD2NS06XU020374	2502
5FYD2NS08XU020375	2503
5FYD2NS0XXU020376	2504
5FYD2NS01XU020377	2505
5FYD2NS03XU020378	2506
5FYD2NS05XU020379	2507
5FYD2NS01XU020380	2508
5FYD2NS03XU020381	2509
5FYD2NS05XU020382	2510
5FYD2NS07XU020383	2511
5FYD2NS09XU020384	2512
5FYD2NS00XU020385	2513
5FYD2NS02XU020386	2514
5FYD2NS04XU020387	2515

# **SR584** continued

Vehicle Identification Number	Unit Number
5FYD2NS06XU020388	2516
5FYD2NS08XU020389	2517
5FYD2NS04XU020390	2518
5FYD2NS06XU020391	2519
5FYD2NS08XU020392	2520
5FYD2NS0XXU020393	2521
5FYD2NS01XU020394	2522
5FYD2NS03XU020395	2523
5FYD2NS05XU020396	2524
5FYD2NS07XU020397	2525
5FYD2NS09XU020398	2526
5FYD2NS00XU020399	2527
5FYD2NS03XU020400	2528
5FYD2NS05XU020401	2529
5FYD2NS07XU020402	2530
5FYD2NS09XU020403	2531
5FYD2NS00XU020404	2532
5FYD2NS02XU020405	2533
5FYD2NS04XU020406	2534
5FYD2NS06XU020407	2535
5FYD2NS08XU020408	2536
5FYD2NS0XXU020409	2537
5FYD2NS06XU020410	2538
5FYD2NS08XU020411	2539
5FYD2NS0XXU020412	2540
5FYD2NS01XU020413	2541
5FYD2NS03XU020414	2542
5FYD2NS05XU020415	2543
5FYD2NS07XU020416	2544
5FYD2NS09XU020417	2545
5FYD2NS00XU020418	2546
5FYD2NS02XU020419	2547
5FYD2NS09XU020420	2548
5FYD2NS00XU020421	2549

# **SR584** continued

Vehicle Identification Number	<b>Unit Number</b>
5FYD2NS02XU020422	2550
5FYD2NS04XU020423	2551
5FYD2NS06XU020424	2552
5FYD2NS08XU020425	2553
5FYD2NS0XXU020426	2554
5FYD2NS01XU020427	2555
5FYD2NS03XU020428	2556
5FYD2NS05XU020429	2557
5FYD2NS01XU020430	2558
5FYD2NS03XU020431	2559
5FYD2NS05XU020432	2560
5FYD2NS07XU020433	2561
5FYD2NS09XU020434	2562
5FYD2NS00XU020435	2563
5FYD2NS02XU020436	2564
5FYD2NS04XU020437	2565
5FYD2NS06XU020438	2566
5FYD2NS08XU020439	2567
5FYD2NS04XU020440	2568
5FYD2NS06XU020441	2569
5FYD2NS08XU020442	2570
5FYD2NS0XXU020443	2571
5FYD2NS01XU020444	2572
5FYD2NS03XU020445	2573

# Copyright © 1998 NEW FLYER INDUSTRIES LIMITED. ALL RIGHTS RESERVED.

No part of this manual and/or data herein may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or information recording and retrieval systems, for any purpose, without the express written permission of New Flyer Industries Limited.

"New Flyer" is a tradename of "New Flyer Industries Limited"

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 Ltd. 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 Ltd. reserves the right to change the content of this manual at anytime without notice.

Printed in Canada

#### NOTE:

Effective with this publication, 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 Limited.

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 Limited.

To contact NHTSA either call the Auto Safety Hotline toll-free at 1-800-424-9393 (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.

# **Table of Contents**

INTRODUCTION	1
Vehicle Specifications	2
Vehicle Identification	5
Warnings & Cautions	5
SAFETY INFORMATION	7
Safety Procedures	7
Safety Equipment	
Emergency Exits	8
The Interlock System	
Exit Door Sensitive Edges	12
IMPORTANT ACCESS POINTS	13
Side Console Components	13
Locker Control Switches	
PLC Components	14
Fuel Filler Access Door	14
Engine Access Doors	15
Wheelchair Lift Access Door	15
Sander Access Doors	16
Surge Tank Access Door	16
Articulated Joint Access Doors	16
Battery Access Door	17
Quarter-Turn Latches	17
Towing Connections	
TO ENTER THE VEHICLE	
DRIVER'S CHECK LIST	
Exterior	20
Interior	
DRIVER'S AREA	
Driver's Window	29
Driver's Seat	31

Steering wheel & Horn	33
Public Address System	34
Destination/Route Signs	36
Mirrors	39
Roller Blinds	39
Fire Suppression System	
INSTRUMENTATION & CONTROLS	
Instrument Panel	
Driver's Climate Controls	56
Side Console Switch Panel	57
Foot Operated Controls	65
Miscellaneous Controls	
VEHICLE OPERATION	
Pre-Start Checks & Adjustments	69
Transmission Operation	
Retarder Operation	71
Anti-Lock Braking System Operation	72
Starting the Engine	
Day-Time Operation	76
Night-Time Operation	77
Pre-Trip Brake Test	78
Moving the Vehicle	79
Parking the Vehicle	80
Jump Start Connection	82
Operating the Vehicle in Reverse	82
Engine Protection System	
Fire Suppression System Operation	83
Passenger Signal System	
WHEELCHAIR SYSTEM	
Wheelchair Lift	
Wheelchair Restraint System	97
BIKE-RACK SYSTEM	
Loading Operation	
Unloading Operation	
NOTES 1	00



#### 1. INTRODUCTION

This manual describes the operating features and safety equipment of the New Flyer D60HF Transit Vehicle. All personnel involved in the operation of the vehicle should be acquainted with this manual and should familiarize themselves with the D60HF, 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 control center.

#### 

#### 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 B500R Operator's Manual SA2157H
- Cummins Operation and Maintenance Manual M11 Plus Series Engines

# **VEHICLE SPECIFICATIONS**

# **D60 Foot High Floor Transit Vehicle**

ENGINE & FUEL		
Engine	Cummins M11E	
Horsepower	315 HP- 1040 ft. lb.	
Fuel	No. 2 Diesel	
Fuel Capacity	120 US Gallons, usable	
TRANSMISSION		
Allison World Transmission	B500R	
Self-Contained Retarder	100% Brake Activated	
DIMENSIONS		
Length (over bumpers)	60.7 ft. (18.5 m)	
Width	8.5 ft. (2.57 m)	
Height	10.0 ft. (3.0 m)	
Wheelbase Front	16.8 ft. (5.1 m)	
Wheelbase Rear	25.7 ft. (7.8 m)	
Turning Radius	41 ft. (12.5 m)	
Pivot Angle	40°	
Vehicle weight (approx.)	43,000 lbs (19,505 kg)	
AXLES & SUSPENSION		
Front Axle	Rockwell 17101	
Front load-carrying capacity	14,600 lb. (6,620 kg)	
Rear & Center Axle	Rockwell 61053	
Rear & Center load-carrying capacity.	26,000 lb. (11,790 kg)	
Final Drive Ratio	4.56:1	
Suspension	Air Springs & Shock Absorbers	

# **D60 Foot High Floor Transit Vehicle**

DESTINATION &	ROUTE SIGNS		
Front Destination	Luminator Electronic		
Side Destination	Luminator Electronic		
Street Side Route	<i>Transign</i> Manual		
Run Number	Luminator Electronic		
LIGHTING			
InteriorTrans	smatic – Fluorescent, 24 volt, top lit		
HEATING SYSTEM			
Heater Units 2 Ther	mo King THU8.MB underfloor units		
Auxiliary Heater	obile Climate Control defroster unit		
SEATING			
Driver's	USSC 9110 ALX3		
Passenger	American Seating KC 548		
Seating Capacity	64		
Wheelchair Stations	2 (seats fold up & lock)		
BRAKE SYSTEM			
Mechanical Components	Internal expanded S-Cam type		
	Automatic slack adjusters		
Service Brake	Full air operated		
	ABS & ATC controlled		
Parking Brake	Spring applied, air released		
Emergency Brake	Spring brake applied		
	Brake treadle modulated to control		

# **D60 Foot High Floor Transit Vehicle**

MINDOMO		
WINDOWS		
General Black Anodized Frame – single top tip-in		
(bottom fixed)		
Glazing – laminated glass, 44% grey		
Emergency Escape All side windows		
Driver's Window2 Piece sliding – interior, exterior handle		
DOORS		
EntranceVapor slide glide – 34.0" between lift grabrails		
ExitsVapor slide glide – 38.0" between grabrails		
Driver controlled operation		
Controls		
Door manual control valve		
SAFETY FEATURES		
Emergency Escape Exits All side windows		
3 roof hatches		
Fire Suppression System		
Safety TrianglesRight front wheelhousing		
Fire Extinguisher5 lb. ABC rating		
Exit Door Emergency release control		
Accelerator and brake interlocks		
Sensitive edges		

#### Vehicle Identification

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

# **Warnings & Cautions**

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



NARNING: /



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



CAUTION:



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

### 2. 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 grabrails are loose or damaged.
- Driving mirrors are broken, missing or cannot be properly adjusted.
- Any exterior or interior light is broken, discoloured, or malfunctioning.

Report the occurrence of any of the above to the control center 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 Fire Suppression System protects the passengers and vehicle from an engine fire. The system responds to the heat of fire by discharging a dry chemical extinguishing agent through four fixed engine compartment nozzles to suppress the fire. A valve to the right of the driver's seat allows a manual discharge of agent. Indicators and an audible alarm in the driver's area verify the system is active.



#### NOTE:

An alarm sounds and the engine shuts down if this system is activated.

A hand-held fire extinguisher is located beside the right front dash panel. 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.

Safety triangles, located ahead of the right front wheelhousing, must be used if the vehicle is parked due to failure. Place triangles several yards behind the vehicle to warn oncoming traffic.

## **Emergency Exits**

#### Side Windows

All side windows including the driver's window function as emergency exits.

To operate an 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.

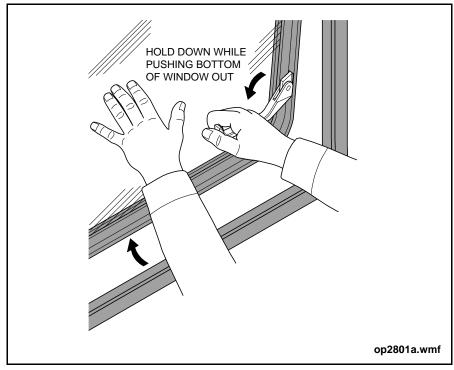


Figure 1: Window Emergency Handle

#### **Roof Hatches**

All three roof hatches are usable for ventilation and/or as emergency exits. The two rear hatches each contain a ventilation fan.

#### For Ventilation

Open the hatch to the desired position by holding the handles and exerting outward pressure toward the end being opened. To close the vent, grasp the handles and pull the hatch downward.

The most effective hatch positions for ventilation are:

- Front hatch forward end open
- Rear hatches rear end open or fully open.

This allows fresh air to enter the front vehicle hatches while warmed, stale air escapes through the rear vehicle hatch. For additional air movement, operate the fans of the two rear hatches.

#### For Emergency Exit

- 1. Push the hatch up to the full OPEN venting position.
- 2. Push back the release tab towards the hinge 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.
- Push up on the hatch to ensure proper engagement. Pull the hatch downwards to close.

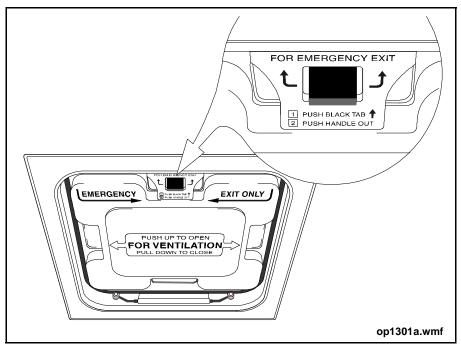


Figure 2: Roof Hatch

#### **Exit Door, Emergency Release Control Valve**

The door emergency exit control valve is located behind a breakable cover on the door mechanism access panel. In an emergency; break the cover, turn the valve's red handle 90° and push the doors open. As the door opens it activates the header lights, stepwell lights, and curb lights and the interlocks.

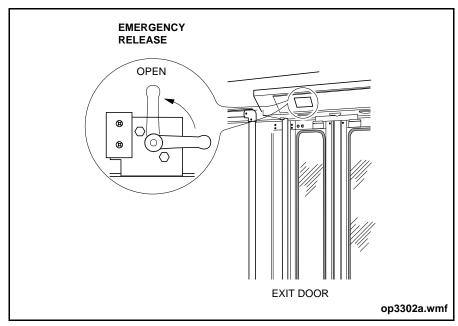


Figure 3: Exit Door Emergency Release

### The Interlock System

This system applies the brakes and disables the accelerator treadle when either of the following occur:

- Opening the exit door
- Operating the Wheelchair Lift
- Exceeding the articulating joint critical angle

The Interlock System is intended to protect passengers from an inadvertent vehicle movement and to protect the articulating joint from component damage. Located in the entrance door mechanism compartment is a toggle switch labeled Door Master. Use this switch to disable the System for maintenance purposes or in an emergency.

### **Exit Door Sensitive Edges**

Mounted to the leading edges of the exit door panels are rubber seals that are sensitive to pressure. If, while closing the doors, they strike an object or passenger, a signal from the sensitive edges sounds an alarm and prompts the doors to fully reopen. Once they fully open the doors will again close.



#### NOTE:

The inlock system prevents the vehicle from moving until the exit door is fully closed.

#### 3. IMPORTANT ACCESS POINTS

While operating the vehicle, quick response to warning indicators may avoid a break down or an emergency condition. Be familiar with the following important access points if instructed by the control center to conduct corrective measures to important vehicle components.

### **Side Console Components**

There are two access points to components of the side console.

The exterior side console access door, located under the driver's window, allows access to air lines, pressure switches and electrical harnesses connected to side console controls. It is held open by (2) gas struts and closed by (2) square key latches.

The side console switch panel lifts for access to electrical and PLC components beneath the panel. Two set screws on either side of the panel turn to release it. Lift at the center handle.

#### **Locker Control Switches**

Within the driver's locker, located above the driver's window, are four control switches. The switches and their basic function are:

- The Retarder switch to enable or disable the retarder.
- The Door Master switch to enable or disable the Door and Interlock Systems.
- ABS switch to initiate ABS System diagnostics.
- Dampening Monitor switch to reset the articulating joint dampening module.

Normal vehicle operating conditions do not require activation of these switches but emergency or fault situations may require their use. For further details refer to the same headings in Section 7: Instrumentation and Controls.

#### **PLC Components**

A computer based Programmable Logic Control System (PLC) controls the vehicle's electrical system. Vital PLC components called input-output blocks (I/O blocks) are located at:

- the rear of the vehicle, above the bench seat,
- above the exit door inside the mechanism compartment,
- behind the instrument panel,
- below the side console panel.

Access the I/O blocks for diagnostics purposes in cases of electrical difficulties and only with the guidance of authorized service personnel. Consult with the control center before accessing PLC components.

#### **Fuel Filler Access Door**

The fuel filler access door is located on the curbside near the center of the vehicle. It is spring-loaded to remain either open or closed. Open the access door for fuel filling or tank inspection.

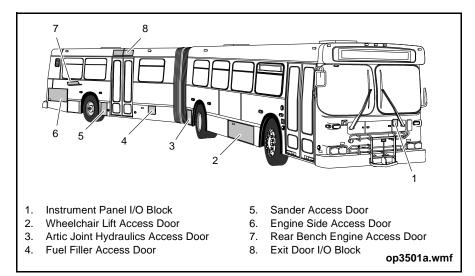


Figure 4: Streetside Access Points

#### **Engine Access Doors**

Engine access doors are located at the back, the rear curbside, and behind the rear bench seat. The doors provide access to the engine assembly, fan drive and power steering reservoirs, alternator, and engine rear switch panel. Quarter-turn latches hold the access doors closed.

The engine access doors at the back and the rear curbside each use two gas cylinders to hold them up. Closing the engine door at the back requires unlocking the streetside gas cylinder.

#### Wheelchair Lift Access Door

The access door to the wheelchair lift hydraulics is located on the curbside of the vehicle, behind the front wheel. Open the access door to operate the wheelchair lift manually or to access its hydraulic components. It is held open by (2) gas struts and closed by (2) square key latches.

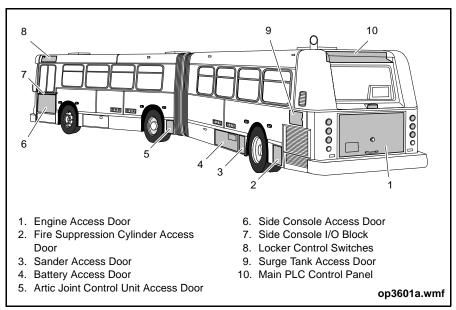


Figure 5: Curbside Access Points

#### Sander Access Doors

Access doors both located directly ahead of the rear axle, on the streetside and the curbside of the vehicle, allow access to the filler caps of the sand hoppers. They are each held open by (2) gas struts and closed by a square key latch.

#### Surge Tank Access Door

The surge tank access door is located above the radiator access door. Open the access door for engine coolant filling or coolant level checks at the sight glass. The door is spring loaded to remain either open or closed.



🕦 WARNING: 🤦



Never open the surge tank cap with the engine running or hot. Consult with the control center before removing the cap.

#### **Articulated Joint Access Doors**

Access doors both located directly behind the center axle, on the streetside and the curbside of the vehicle, allow access to artic joint components. Open the curbside access door for the artic joint hydraulics components. Open the streetside access door for the artic joint control unit. They are each held open by (2) gas struts and closed by (2) square key latches.

### **Battery Access Door**

The battery access door is located on the streetside in front of the rear axle. It allows access to; the batteries, the battery cutoff switch, the jump start connector, and the fuse panel. It is held open by (2) gas struts and closed by (2) square key latches. A smaller spring-loaded door on the battery door provides quick access to the battery cutoff switch and the jump start connector.

#### **Quarter-Turn Latches**

Access doors that are not spring loaded are held closed by quarter turn latches which require a T-handle to operate. The T-handle is a squared key that fits into the square opening of the latches. To lock or unlock a latch, insert the T-handle key into the latch and turn it 90°.

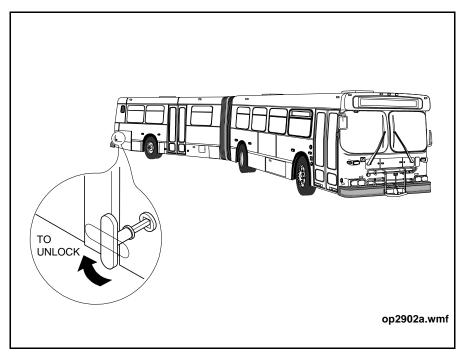


Figure 6: Opening Access Doors

## **Towing Connections**

An electrical connector and two towing eyes are located at the front of the vehicle to permit towing. Refer to the General Information section of your New Flyer Service Manual for towing procedures and applicable caution notes.

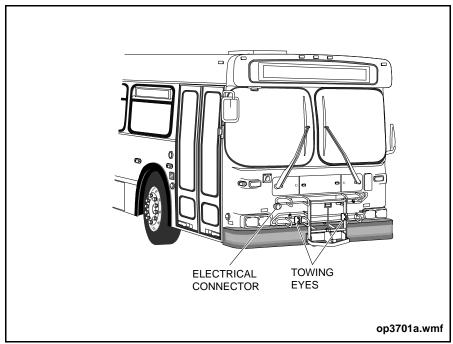


Figure 7: Front Towing Connectors

### 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.

If the entrance door does not open, exhaust air from the entrance door motor as follows:

- 1. Slide the front portion of the driver's window back to gain access to the door manual control valve.
- 2. Reach over the side console to the valve handle and turn it to the OPEN position.
- 3. Open the door manually by pushing on the door panel's outside edges.

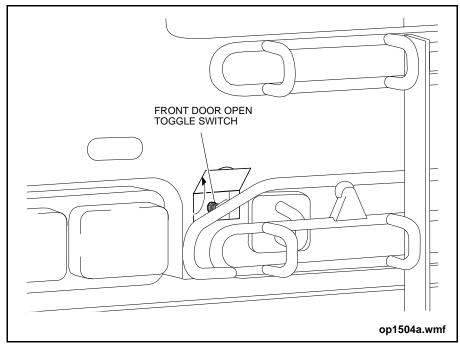


Figure 8: To Enter the Vehicle

#### 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 control center.

#### **Exterior**

#### General

- 12V and 24V battery disconnect switches are in the ON position.
- Engine run switch in engine compartment is in FRONT position.
- Check for any fluid puddles under the vehicle.
- Exterior panels are clean and not cracked, torn, or otherwise damaged. No missing rivets.
- Articulating joint bellows is not torn or cut.
- Exhaust pipe and air intake vent are clear of obstructions.
- No damaged or loose bumpers.

#### **Access Doors**

- Door panels are not bent, torn or otherwise damaged.
- Door springs, hinges and bumpers are not missing.
- Doors are closed and securely latched (where applicable).

#### Windows

- Closed and securely retained in their frames.
- Clear of obstructions.
- Clean.
- Not broken or scratched.

#### **Mirrors**

- Not broken or scratched.
- Securely held in position.
- Clean.
- Clear of obstructions.

#### Lights

- Clean and clear of obstructions.
- Lens not broken.
- No missing lenses or lights.

#### **Tires**

- Tire air pressure matches the manufacturer's recommended range.
- No uneven or unusual tread wear.
- No tread separations indicated by bulges or large bubbles.
- No large cuts in the tire shoulder and tread area. No pieces of tread broken away from the tire casing.
- No side wall cracks, cuts or abrasions.

#### Wheels

- No missing or loose wheel nuts.
- No cracked or warped wheel rims.
- No existing corrosion.
- No broken or missing wheel nut studs.

#### **Interior**

#### General

- Farebox is secure and operates correctly.
- Interior panels are clean and in good condition.

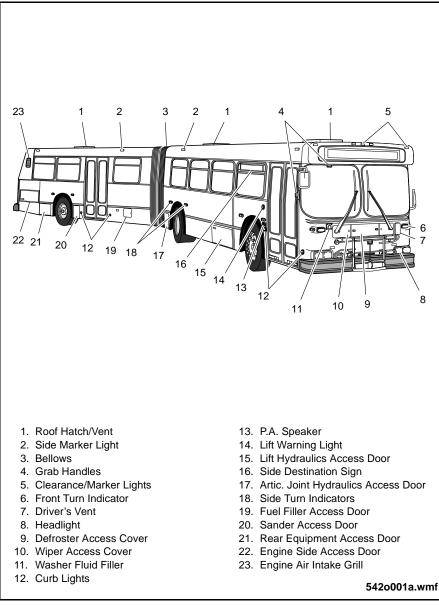


Figure 9: Front Exterior View

- Roller blinds, side sign, and rear sign are secure.
- Roof hatches open and close easily.
- Signal cord and touch tape are in operating condition.
- Door control can be moved to all 5 positions.
- Door Master switch is in the ON position.
- Driver's seat adjusters operate correctly and maintain positioning.
- Seat belt components function properly.
- Steering wheel turns without restriction or hesitation (engine running).
- Tilt/Telescope lever functions properly.
- Wheelchair lift alarm functions when the wheelchair lift is deployed or stowed.

## **Fire Suppression System**

- The safety pin of the manual actuator is securely installed.
- The "Systems OK" indicator of the circuit monitor is illuminated.

### **Access Doors**

- Closed and securely latched.
- Door panels are not bent, torn, or otherwise damaged.

### **Seats**

- Clean.
- Not torn or cut.
- No missing parts.
- Securely fastened to the floor and structure attaching points.

### Floor

- Clean, no debris.
- Not loose or lifting.

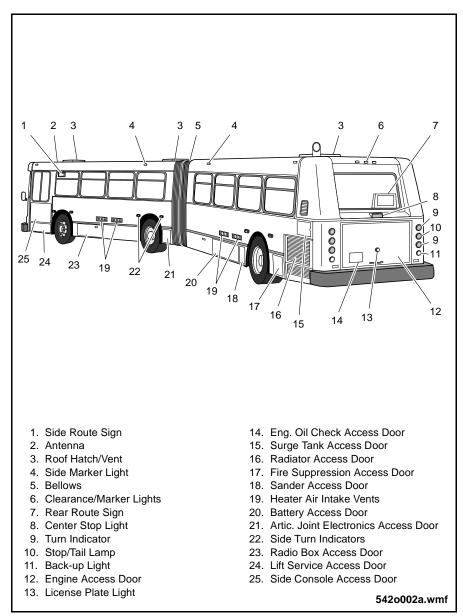


Figure 10: Rear Exterior View

- Not worn or damaged.
- Lift fully stowed, no tripping hazards.

### Windows

- Gas cylinders are attached and functional.
- Latching mechanism holds window shut.
- Seals are present and there is no visible seal damage.
- Driver's window slides without restriction.

### **Mirrors**

- Not broken or scratched.
- Securely fastened to mounting brackets.
- Clean.
- Clear of obstructions.

### **Passenger Doors**

- Clean and unobstructed glass.
- Door panels are not bent or broken.
- Door seals are in place and not torn.

## **Modesty Panels/Barriers**

- Clean
- Secure in retainers.
- Not cracked or broken.
- No sharp edges.

### Stanchions & Grabrails

- No missing parts.
- Secure in retainers.
- Not cracked or broken.
- No sharp edges.

### Lights

- Clean and clear of obstructions.
- Lens not broken.
- No missing lights or lenses.

### **Indicator Lights**



### NOTE:

From this point on items on the driver's checklist requires activating the vehicle's Programmable Logic control (PLC) System and starting the engine. Turning the Master Run switch on the side console to DAY-RUN or NIGHT-RUN activates the PLC system after a six-second "wake-up" interval. Wait for the system to activate before starting the engine. For details on engine starting, refer to Section 8: Vehicle Operation.

- The Stop Request indicator illuminates by activating the passenger signal system.
- The W/C Stop Request indicator illuminates by pressing the wheelchair station touch tape.
- 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 opened and flashes when the Door Master switch is off.
- The High Beam indicator illuminates when the high beam headlights are ON.
- The No Gen and Stop Engine indicators illuminate momentarily, then extinguish.
- The remaining indicators relate to vehicle operation problems and should be checked by service personnel.

## **Electrical Control Systems**

- The Master Run switch controls the electrical circuits as listed in Section 7: Instrumentation & Controls, Side Console Switch Panel.
- Service compartment light switches activate service lights in the exit door mechanism, the rear PLC panel, the engine compartment and the engine compartment fuse box.
- Turn signals and hazard circuits function with the Master Run switch in any position.
- Horn sounds when pressed.
- Rear brake lights illuminate when the brake pedal is applied.
- Destination/Route sign circuits function with the Master Run switch in NIGHT-RUN or NIGHT-PARK positions.
- All side console control switches function.
- Passenger signal and chime circuits function.
- Transmission selector switch functions.
- Back-up lights and the speedometer are functional.
- Heating system is functional when the engine is running.

## **Air Control Systems**

- Normal vehicle operation air pressure ranges from 105-125 psi (724-862 kPa).
- Low Air indicator light illuminates and an alarm sounds if the air system pressure drops below 65 psi (448 kPa).
- Entrance and exit doors open and close smoothly.
- Washers spray washer fluid onto windshield.
- Wipers operate (on wet windshield) without streaks, scraping or noisy operation.
- Brake pedal stops the vehicle (when vehicle is moving).
- Accelerator treadle accelerates the engine.

- Parking brake valve (when applied) holds the vehicle stationary when level or on a 20% maximum incline grade when on dry concrete.
- Door manual valve in the side console shuts off the air pressure 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 105 psi (724 kPa).
- Compressor cuts in when the air system pressure drops to approximately 105 psi (724 kPa) and shuts off at approximately 120-125 psi (827-862 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.

### **Driver's Window**

### **Front Portion**

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

### **Aft Portion**

Pinch the sash handle to release the lock. Pull the handle forward (keeping handle pinched) to open the rear portion of the window.

Push the handle rearward, pinch and release to close and lock the aft sash.

### STATE:

This window also functions as an emergency exit.

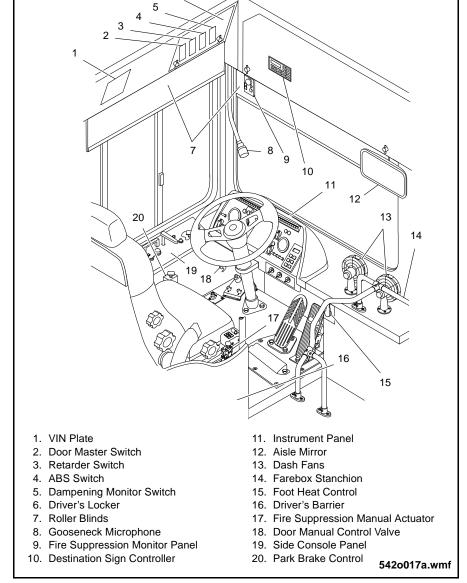


Figure 11: Driver's Area General View

### **Driver's Seat**

The USSC 9110 ALX3 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.

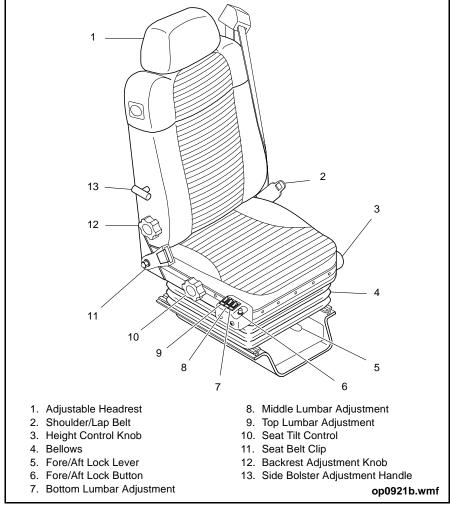


Figure 12: Driver's Seat

Seven controls adjust the positioning of the seat and seat cushions to suit the needs of each individual. Make position adjustments to provide for the best driving visibility and control.

## **Lumbar Adjustment**

Three rocker switches on the right side of the seat adjust the top, middle and bottom lumbar support. The rocker switches admit or release air pressure to the air bags in the seat back. When making adjustments hold siwtches momentarily in position to allow time for air movement.

### **Height Adjustment**

The knob on the left side of the seat adjusts seat height. Turn the knob counterclockwise to raise the seat and clockwise to lower. Pull the knob out to dump air pressure and reset to previous adjustment by pushing the knob in.

## Tilt Adjustment

Adjust fore and aft tilt of the seat with the large control knob on the side of the seat. Turn knob clockwise to tilt forward and counterclockwise to tilt rearward.

## Fore & Aft Track Adjustment

The fore and aft track adjustment has nine position settings. Press the button to unlock the slide lock mechanism and slide seat to desired position. Release the button and move slightly fore or aft to set lock.

### **Back Recline Adjustment**

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

### **Side Bolster Adjustment**

A side bolster adjustment handle is located on the side of the seat back. Turning the handle adjusts the level of side bolster support.

## **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.

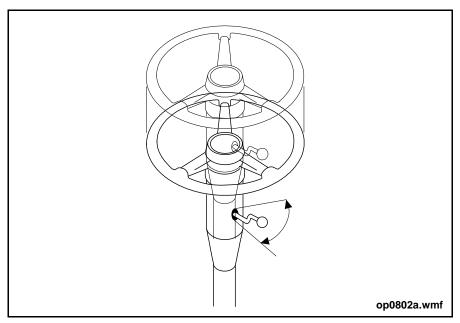


Figure 13: Steering Wheel Adjustment

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.



# 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.
- Loose steering.
- Looseness, binding or resistance in the tilt/telescopic mechanism.

### Horn

The horn button is located in the center of the steering wheel. Press the button down to operate the 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:

- A gooseneck microphone.
- Ten interior speakers located above the side windows.
- An exterior speaker located beside the entrance door.

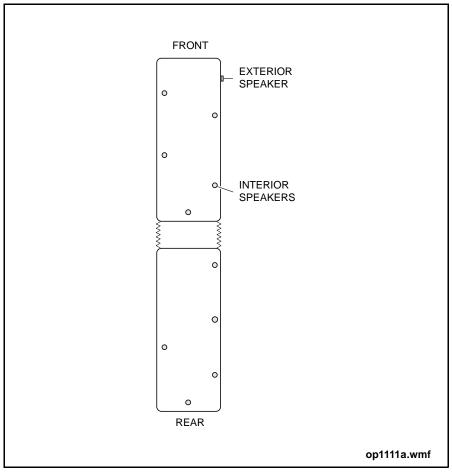


Figure 14: P.A. System Layout

## **Destination/Route Signs**

### 

#### NOTE:

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

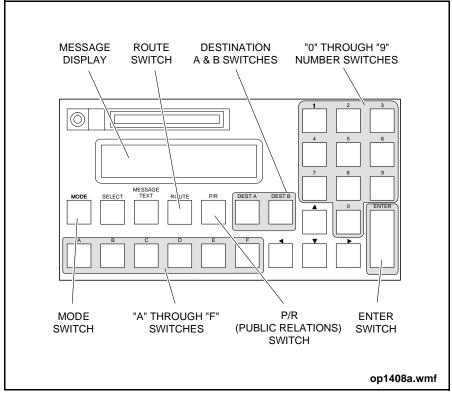


Figure 15: Operator's Display Keyboard (ODK)

### **System Description**

The vehicle's destination/route signs are controlled by an operator's display keyboard (ODK) located in the panel of the front destination sign access door. The ODK functions to control and verify the destination/route sign message display.

Destination sign message codes are entered into the system data processor using the keypad switches on the front panel of the ODK. 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. Powering-down occurs when the Master Run switch is turned to STOP ENGINE.

### Operating the ODK

Basic operation of the GTI® Sign System involves presetting transit authority message codes into the sign system using the ODK. The message codes correlate to reprogrammed 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 code entry instructions are described in the two sections that follow.

### **ODK Keypad Switches**

The ODK contains 28 keypad switches. Certain keypad switches, or groups, may not function if they are not needed for coded entry procedures. Switches that are not enabled either have no affect when pressed, or indicate that particular function is not available. Keypad switch functions are as follows:

P/R — press to enable public relations message code entry.

ROUTE — press to enable route number entry. Route number entry may be either coded or be the actual route number for display.

- DEST A, DEST B press the appropriate key (A or B) to enable destination message code entry and/or message display change.
- 0-9 group key switches are for sequential entering of message or mode test codes.
- A-F group key switches are for sequential entering of message codes that contain letters and numbers. When entering codes with letters first press the SELECT key switch and then the appropriate letter key.
- ENTER press to activate the selected message during code entry and during operation.
- MENU press to advance to the next ODK screen.
- SELECT press to enter letter characters during the code entry procedure.

### S NOTE:

Code entry sequences must be followed to set-up destination sign messages. A "beep" sounds and a visual read-out appears on the ODK display when pressing any enabled keypad switch.

### **Code Entry**

When powering-up the sign system it will display the messages entered previously. If continuing on the same route re-entering new codes may not be required.

To enter a new set of message codes:

- 1. Consult the transit authority code list for the code that corresponds to your route.
- 2. Press the switch DEST A, DEST B, P/R, or ROUTE for the message code you are about to enter.

### S NOTE:

If the message code contains a letter(s) press the SELECT key before entering the letter.

3. For each code press the corresponding switches in the 0 though 9 and/or A through F groupings one at a time and in proper sequence.

- 4. Press the ENTER key switch and allow the ODK to display the actual message.
- 5. Repeat steps 1-4 for each code required for the route.

To change from one preset message to another for a turn-around or while in route press the appropriate DEST A or DEST B switch.

### **Mirrors**

There are four mirrors located throughout the vehicle interior: an aisle mirror, an upper right mirror, a front step mirror and a rear step area mirror.

### **Aisle Mirror**

The aisle mirror is located under the front destination close-out. Its convex glass surface provides a wide view of the 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 step area mirror.

## Rear Step Area Mirror

The rear step area 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.

## Front Step Mirror

The front step mirror, located above the entrance door, provides an inside and outside view of the entrance area 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 side window. To extend a blind, pull on its leading edge and to retract, pull on the release cord.

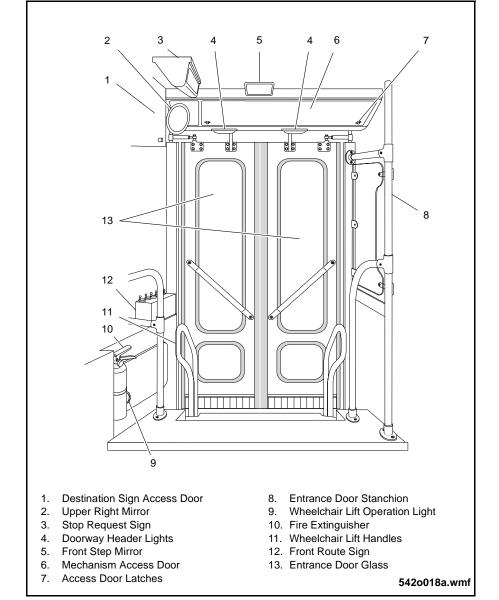


Figure 16: Front Entrance View

## **Fire Suppression System**

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 Valve

The manual actuator valve is located to the right of the driver's seat and is used to manually initiate the discharge of the extinguishing agent. Pulling a safety ring out and striking down on palm button initiates the discharge. Check that the safety pin is installed before operating the vehicle.

### Fire Suppression System Circuit Monitor

The Fire Suppression System Circuit Monitor provides supervision of the system. In the event of a fire or component failure, the circuit monitor provides warning via LED system status indicators and audible alarm. Check that the "System OK" green LED is illuminated before operating the vehicle.

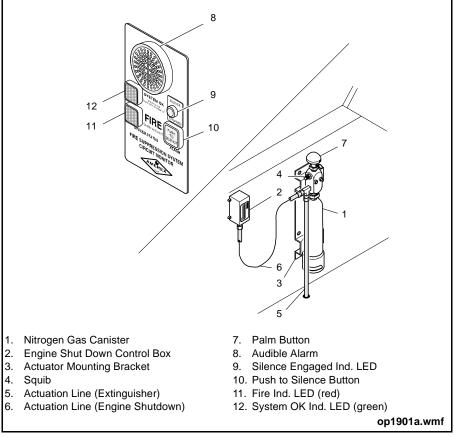


Figure 17: Fire Suppression Controls

## 7. INSTRUMENTATION & CONTROLS

### Instrument Panel

Turn Indicators (Green)



**WARNING:** 



If the Turn Signal indicators do not operate as described, DO NOT OPERATE THE VEHICLE.

Directional arrows symbolize the Turn indicators. They flash on either side of the instrument panel when pressing the right-hand or left-hand floor-mounted turn signal switch.

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.

### Do Not Shift Indicator (Amber)

The Do Not Shift indicator illuminates when the Electronic Control Unit (ECU) has detected a potentially serious problem in the transmission. DO NOT OPERATE THE VEHICLE.

### Hot Trans Indicator (Red)

The Hot Transmission indicator is wired to the transmission control system. This indicator illuminates and a warning buzzer sounds when the temperature sensors detect over-heated transmission fluid.



## **CAUTION:**



If the Hot Transmission Warning indicator lamp illuminates for more than 30 seconds, remove the vehicle from traffic to a safe location, shut the engine down, and apply the parking brake.

## **Engine Fault Indicator (Red)**

The Engine Fault indicator illuminates if the engine protection system detects an engine malfunction. Upon indicator illumination the protection system programming will decide if the fault warrants beginning an engine shut-down sequence to avoid engine damage.



## **CAUTION:**



If the Engine Fault indicator illuminates, notify the control center.

## **Check Engine Indicator (Amber)**

The Check Engine indicator is wired to the engine protection system. When prompted by the Engine Diagnostics toggle switches, the engine protection system translates engine malfunctions into error codes flashed by this indicator.

## Stop Engine Indicator (Red)

The Stop Engine indicator illuminates if the engine protection system begins the engine shut-down sequence due to a potentially damaging engine fault.

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

### NOTE:

If this light remains illuminated, the engine will continue running for 30 seconds. Use the time to drive out of traffic to a safe area. Refer to heading: Engine Protection System, for detailed information.



## **CAUTION:**



If the Stop Engine indicator illuminates, notify the control center before continuing vehicle operation.

### **Coolant Temp Indicator (Red)**

The Coolant Temperature indicator will illuminate if the engine coolant exceeds its normal operating temperature. The indicator is accompanied by a warning buzzer and the Engine Fluids indicator.

### NOTE:

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

## Low Fuel Indicator (Amber)

The Low Fuel indicator lamp illuminates when the level of diesel fuel in the tank has reached the minimum level for reliable vehicle operation. The vehicle requires 120 gallons to fill from empty.

### **Low Coolant Indicator (Amber)**

The Low Coolant indicator illuminates when too little coolant is in the engine to maintain normal engine operating temperature. The indicator is accompanied by a warning buzzer and the Engine Fluids indicator.

### <sup>™</sup> NOTE:

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

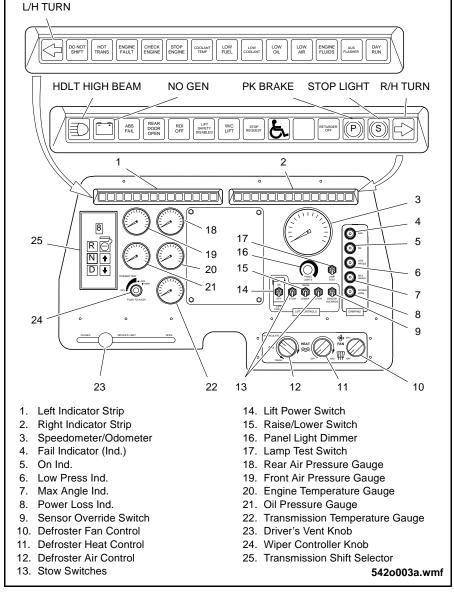


Figure 18: Instrument Panel

## Low Oil Indicator (Red)

The Low Oil indicator lamp illuminates when the engine oil pressure is too low for proper engine lubrication. The indicator is accompanied by a warning buzzer and the Engine Fluids indicator.

Before starting the engine and positioning the Master Run switch to DAY-RUN or NIGHT-RUN, the Low Oil indicator lamp illuminates and the audible alarm sounds. This occurs normally when starting the engine.



# CAUTION:



If the alarm continues and the indicator lamp remains illuminated, DO NOT OPERATE THE VEHI-CLE.



### NOTE:

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

## Low Air Indicator (Red)



## **WARNING:**



Do not operate the vehicle while air pressure is below the normal system pressure.

If the system pressure drops below 65 psi, the rear brakes apply automatically.

The Low Air indicator illuminates and a warning buzzer sounds if the air pressure is insufficient for safe vehicle operation.

### CFF

#### NOTE:

Remove the vehicle from service if a fault is detected.

### **Engine Fluids Indicator (Red)**

The Engine Fluids indicator illuminates if any or all of the following indicators illuminate: Low Oil, Low Coolant, Coolant Temp.



# CAUTION:



If the indicator illuminates, DO NOT OPERATE the vehicle and advise the control center for further instructions.

## Aux Flasher (Amber)

This indicator illuminates when the back-up hazard light and flasher system activates. The back-up system operates if a malfunction in the primary flasher system occurs.



#### NOTE:

Advise the control center if the Auxiliary Flasher indicator illuminates.

## Day Run (Amber)

The Day Run indicator illuminates to indicate operation of the vehicle's daytime running lights while the Master Run switch is positioned to DAY-RUN. In this mode of operation, only the headlights are on. Positioning the Master Run switch to LIGHTS, illuminates the remaining exterior lights and extinguishes the indicator.

### **High Beam Indicator (Blue)**

A lit headlamp symbolizes the High Beam indicator. It 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.

### No Gen Indicator (Red)

A battery symbolizes the No Gen indicator. It 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.



## **CAUTION:**



If the indicator lamp remains illuminated while the engine is operating, DO NOT OPERATE THE VEHICLE.

### **ABS Fail Indicator (Red)**

This 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 ABS diagnostics to display the blink code. For more information refer to Section 8: Vehicle Operation.

### Rear Door Open Indicator (Red)

This indicator light illuminates when the door controller is turned to position 3, 4 or 5 to open the rear door. The indicator will flash when the Door master switch is in the OFF position.

### **RDI Off Indicator (Red)**

The Rear Door Interlock indicator illuminates when the interlock control for the rear doors is disabled. Positioning the Door Master switch to OFF will disable the rear door interlock control.

## Lift Safety Disabled Indicator (Red)

The Lift Safety Disabled indicator illuminates when the safety system of the wheelchair lift has been disabled. Positioning the Sensor Override toggle switch of the Lift Controls group to SENSOR OVERRIDE will illuminate the indicator.

### W/C Lift Indicator (Red)

The Wheelchair Lift indicator illuminates when the Lift Power switch is in the ON position and the wheelchair lift control circuits are powered.

## Stop Request Indicator (Red)

This indicator illuminates when the passenger signal system has been activated by pulling stop request cord.

### W/C Stop Request Indicator (Amber)

A wheelchair symbolizes the indicator and it illuminates when the wheelchair passenger signal system has been activated by pressing a touch tape strip.

### **Retarder Off Indicator (Amber)**

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

### Parking Brake Indicator (Red)

A circled letter P symbolizes the indicator and it illuminates when the parking brake control valve is applied. Activating the parking brake illuminates the stop lights indicator and all red stop lamps.

### Stop Light Indicator (Red)



**WARNING:** 



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

A circled letter S symbolizes the indicator and it illuminates each time the service brake or parking brake control valve is applied. If under these circumstances the light does not illuminate, then any or all rear stop lights are malfunctioning.

### Speedometer

This gauge indicates the vehicle's forward speed in miles per hour and accumulates the distance traveled in miles.

## Fail Indicator (Red)

The Fail indicator illuminates and an alarm sounds if the articulating joint dampening module malfunctions. The indicator flashes if the speed sensor fails. If this occurs, the accelerator interlock activates to limit vehicle speed to 35 mph.

### NOTE:

Pushing the Dampening Monitor switch up may reset the articulating joint dampening module and extinguish the indicator.

### On Indicator (Green)

The On indicator illuminates to indicate articulating joint dampening system operation. The dampening system operates at speeds at or above 30mph and when cornering at pivot angles greater than 30°.

## Low Press Indicator (Red)

The Low Pressure indicator illuminates when the oil pressure within the articulating joint hydraulic system drops due to a leak. An alarm accompanies indicator activation.

### Max Angle Indicator (Red)

The Maximum Angle indicator illuminates when the articulation joint reaches its maximum left or right turning angle during forward or reverse operation. An alarm accompanies indicator activation.

### S NOTE:

The interlocks apply to stop the vehicle if motion continues beyond the maximum angle.

### Self Test Indicator (Red)

The Self Test indicator illuminates for one second after turning the Master Run switch to either the RUN or LIGHTS position. It illuminates to indicate the self testing process of the articulating joint electronics system. The indicator remains illuminated if the self test reveals a fault.



### NOTE:

Remove the vehicle from service if a fault is detected.

### Lamp Test Switch

This toggle switch allows testing of the indicator lights of the instrument panel and side console.

## **Panel Lights Dimmer**

The Panel Lights Dimmer controls the brightness of the instrument and the side console panel lights. Rotating the dimmer knob clockwise increases the brightness of the lights. Rotating the knob counterclockwise decreases their brightness.

### **Sensor Override Switch**

The Sensor override toggle switch deactivates the sensitive edges of the wheelchair lift platform. Position the switch to Sensor Override and hold to bypass the sensitive edge safety feature.



# **CAUTION:**



Unload passengers from the lift before overriding the sensitive edge safety feature.



### NOTE:

For specific operating procedures on the wheelchair lift, refer to Section 9: Wheelchair System.

### Stow Switches

The Stow toggle switches controls the wheelchair lift's mechanism to move the lift platform into storage (stowing). Simultaneous activation of the switches moves the lift platform form any position to fully stowed.

### Raise/Lower Switch

The Raise/Lower toggle switch is a three position momentary switch that controls the wheelchair lift loading and unloading operation. Holding the switch in either position operates the lift until the switch is released.

### Lift Power Switch

The Lift Power switch controls power to the wheelchair lift control circuits. Lifting the switch guard up and position it to ON powers the wheelchair lift control circuits. Lowering the switch guard when lift operation is complete pushes the switch to OFF disconnecting the power.

### **Trans Temperature Gauge**

The transmission temperature gauge indicates the transmission oil temperature in °F. The gauge will read between 160-200° during normal operating conditions. Notify the control center if the reading fall consistently outside of this range.

### **Engine Temperature Gauge**

The engine temperature gauge indicates the engine temperature in °F. The gauge will read 190° during normal operating conditions. Notify the control center if the reading is consistently above or below the normal level.

### Front & Rear Air Gauges

The two dual air pressure gauges monitor the air pressure of air tanks 1, 2, 3, and 4 in pounds per square inch (psi) Normal operating system air pressure ranges from 105-125 psi. If either of the gauges registers a pressure below 65 psi, the Low Air indicator illuminates and a warning buzzer sounds.

- The Front air pressure gauge indicates the air pressure available for the front brakes from tank 2 and the air pressure available for the center brakes from tank 3.
- The Rear air pressure gauge indicates the air pressure available for the rear brakes from tank 1 and tank 4 accessory air pressure.

### Oil Pressure Gauge

The oil pressure gauge indicates the engine oil pressure level in pounds per square inch (psi). The normal engine oil pressure ranges between 12 and 50 psi depending on engine speed. If the gauge consistently registers pressure levels outside of the normal range, advise the control center.

## Wiper Knob

The wiper knob provides simultaneous control of both the windshield wiper operating functions. Turning the knob from the OFF position sets a delayed wiper sweep for light rain. Turning the knob further to the right gradually increases the sweep intervals up to full operation at the LOW position. The extreme right position or HIGH, is the fastest wiper speed setting. Returning to the OFF position stows the wipers to one side of the windshield.

For a spray of windshield washer fluid, push down on the control knob.



#### NOTE:

The windshield washer bottle filler is located near the left headlight.

### Transmission Shift Selector



## **WARNING:**



In temperatures below -20°F position the Idle Speed switch to Fast to warm the transmission above -20°F before operating the vehicle.

The transmission shift selector is located on the left hand side of the instrument panel. The shift selector module has five pushbutton switches and a red LED display. Three switches control the reverse [R] neutral [N] and drive [D] transmission selections. The other switches are MODE. UP arrow and DOWN arrow.

- The UP and DOWN arrows allows shifting the transmission though its drive ranges manually. of The MODE button changes the transmission mode from performance to economy.
- The UP and DOWN arrows also initiate the transmission. diagnostics system when pressed simultaneously. Press them once for diagnostics and twice for oil level readings.
- The MODE button is inoperable.



# ( CAUTION:



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

#### NOTE:

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

### **Driver's Climate Controls**

### **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 Heat Control**

The Heat 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.

### **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 three fan speed settings; LOW, MEDIUM, and HIGH.

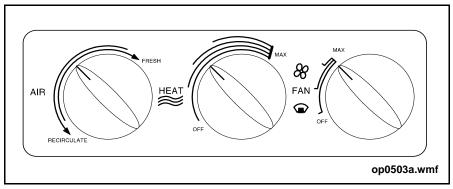


Figure 19: Driver's Area Climate Controls

### **Driver's Vent**

Located at the left front of the vehicle, the vent allows outside air in during forward motion. It is a hand-operated vent that is controlled by a handle located on the bottom left of the instrument panel. To open, move the handle to the right; to close, move the handle to the left.

### **Driver's Foot Heat**

This control lever is located on the front panel to the right of the instrument panel. It regulates air from the defroster to the foot control area. Moving the lever from its highest position down, gradually increases air flow.

### S NOTE:

Use the Heat control knob on the instrument panel to set the foot heat air temperature.

### **Side Console Switch Panel**

### **Dash Fan Switches**

The RH and LH Dash Fan toggle switches control the dash fans. To run a fan, reposition a switch from OFF to either HIGH or LOW for a desired speed.

## **Aisle Lights Switch**

The Aisle Lights toggle switch is a three position switch controlling the lights above the passenger seats. When operating the vehicle, positioning this switch to ON illuminates the aisle lights. The rear curbside lights extinguish when in the PARTIAL position. The OFF position deactivates the lights.

### S NOTE:

The front two light panels and the dome lights illuminate only when the front door is open.

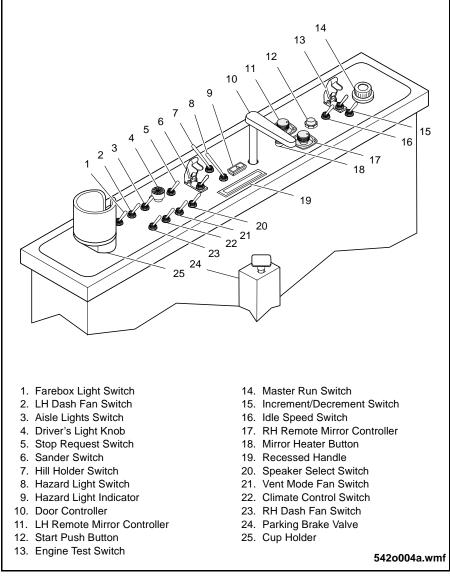


Figure 20: Side Console Panel

#### Climate Control Switch

The Climate Control toggle switch is a three position toggle switch that controls the heating system. In the AUTO position, the system will maintain a preset temperature. In the VENT position, the roof vent fans draw fresh air into the vehicle. The OFF position deactivates the system.

#### Vent Mode Fan Switch

The Vent Mode Fan toggle switch controls the fans of the roof vents. With the Climate Control knob positioned to VENT, position the switch to HIGH or LOW for a desired fan speed.

#### **Driver's Light Knob**

The Driver's Light knob controls the light above the driver's area. Turning the knob from the extreme right [OFF] to high [H] illuminates the light. Setting the knob to a position between high [H] and low [L] adjusts the light's brightness.

#### **Stop Request Switch**

The Stop Request toggle switch controls the stop request indicators of the passenger signal system. Re-positioning the toggle switch from ON to OFF, deactivates the stop request sign, the instrument panel indicator and the chime.

#### **Speaker Select Switch**

The Speaker Select toggle switch controls the interior and exterior speakers of the public address [P.A.] system. Position this toggle switch to INTERIOR or EXTERIOR to direct the P.A. announcement to the desired audience.

#### Sander Switch

The Sander toggle switch is a guarded momentary toggle switch for control of the wheel sanding system. Moving the guard back and pushing the switch up will release sand in front of the rear wheels. Releasing the switch will stop the flow of sand. Lower the switch guard when not in use.

#### Hill Holder Switch

This switch is a guarded momentary switch that operates the brakes. Moving the switch applies the brakes. Release the switch when the propulsion system torque can move the vehicle in the desired direction. Its use prevents unexpected motion when starting on a hill.

#### **Hazard Lights Switch**

The Hazard Lights toggle switch controls the vehicle's four-way flashing lights. Positioning the switch to ON, flashes the exterior signal lights and the turn indicators on the dash. Positioning the switch to OFF, returns the exterior signal lights to the turn signal function. Activate the hazard lights when stopping or parking the vehicle in an area that may block traffic or present a possible hazard to following or approaching vehicles. Also use the hazard lights when towing the vehicle.

#### **Door Controller**



### **WARNING:**



# If the Door Master switch is in the OFF position, the interlocks and the door controller are disabled.

The door controller opens and closes the passenger doors. The five positions of the controller and their related door functions are as follows:

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

Placing the door controller in positions 3, 4, or 5 applies the interlocks and illuminates the Rear Door Open indicator on the instrument panel.

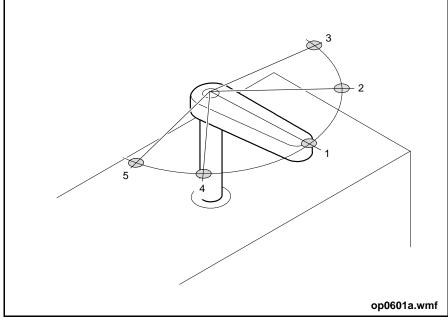


Figure 21: Door Controller

### **Parking Brake Control Valve**

This valve, located adjacent to the side console control panel, controls the application or the release of the parking brake. Pulling up on the control knob will set the parking brake. Pushing down on the knob will release the parking brake.

Park brake application illuminates the rear stop lights and the instrument panel indicators.

#### **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.

#### **Remote Mirror Controllers**

These devices control the upper and lower mirrors of the left and right remote mirror assemblies. Position a controller dial to the mirror requiring adjustment. Then use the four directional tilt functions of the dial to move the mirror into the desired position. Return the knob to the center OFF position when adjustments are complete.

#### **Start Push Button**

The Start momentary push button controls power to the engine starter. Pushing the button turns the starter and cranks the engine. For more information on engine starting procedures refer to Section 8: Vehicle Operation.



#### NOTE:

DO NOT crank the engine starter for more than 14 seconds. Allow a sixty second cooling interval before cranking the starter again.

### **Idle Speed Switch**

The Idle Speed toggle switch is used to activate the preset fast idle to increase the engine RPM. Activating the fast idle will allow for quicker engine warm up.



## **CAUTION:**



### Do not idle the engine longer than 10 minutes.

### **Engine Test Switch**

The Engine Test toggle switch is part of the engine diagnostic system. Lifting the switch guard and pushing the switch up prompts the engine diagnostic system to flash error codes on the Check Engine indicator light.

#### Increment/Decrement Switch

The Increment/Decrement toggle switch is part of the engine diagnostic system. It is a two position switch used to change the sequence of error code presentation while in diagnostics mode. Positioning the switch to INCREMENT presents the codes from first to last and repositioning to DECREMENT reverses the sequence.

#### Master Run Switch

This side console switch is marked with the following four (4) operating positions:

STOP-ENGINE

**DAY-RUN** 

**NIGHT-RUN** 

**NIGHT-PARK** 

The various circuits energized by the Master Run switch positions are as follows:

#### STOP-ENGINE Position

- All service compartment lights.
- Brake lights.
- Driver's light.
- Farebox light.
- Horns.
- Turn and hazard signals: all respective turn indicators and hazard flashers.
- Driver's seat.
- Fire Suppression System.

#### **DAY-RUN Position**

All circuits in STOP-ENGINE plus:

- Windshield wipers.
- Door mechanisms.

- Instrument panel indicators.
- Engine and transmission warning system.
- Safety lighting, and back-up lights/alarm.
- Daytime running lights.
- Passenger and wheelchair passenger signal system.
- Destination signs
- Public address system.
- Wheelchair lift and alarm (with door open).
- Heating system (with engine running).

#### **NIGHT-RUN Position**

All circuits in DAY-RUN plus:

- Tail lights.
- License plate light.
- Clearance and marker lights.
- · Headlights, High Beam indicator light.
- Instrument panel backlights.
- Interior step lights and door header lights.
- Interior fluorescent lights.

#### **NIGHT-PARK Position**

All circuits in STOP-ENGINE plus:

- Door mechanisms.
- License plate light.
- Clearance and marker lights.
- Destination sign lights
- Interior step lights and door header lights.
- Door curb lights.
- Tail lights.

#### NOTE:

In the NIGHT-PARK mode, the engine should shut down.

### **Foot Operated Controls**

#### **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. For specific operating procedures the retarder refer to Section 8: Vehicle Operation.

Brake application is proportional to the amount of treadle movement applied. Pressing the brake treadle illuminates the tail lights and the Stop Light indicator light.

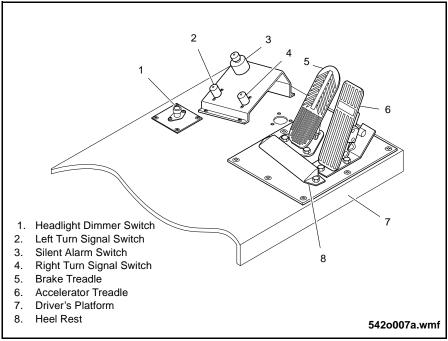


Figure 22: Driver's Foot Controls

#### **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.

### **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 and the exterior light test feature. Pressing one illuminates the respective Turn Signal indicator on the instrument panel. To operate, press and hold the switch down until turn indicating is complete. Vehicle electronics flash lights at regular intervals while applying the switch.



#### NOTE:

Refer to Section 8: Vehicle Operation for exterior light test procedure.

#### Silent Alarm Switch

This switch is located above the Turn Signal switches and is for activating the silent alarm.

#### **Miscellaneous Controls**

#### **Retarder Switch**

Located behind the driver's locker access door, this toggle switch controls power to the retarder. Position the switch to OFF to disable the retarder and ON to enable it.

#### **Door Master Switch**

The Door Master toggle switch controls power to the door and interlock systems. It is located in behind the driver's locker access door.

Position the switch to ON for normal operation of the doors and interlock systems. The following engages the interlocks to apply the rear brakes and deactivate the accelerator:

- Opening the exit doors.
- Operating the wheelchair lift.
- Exceeding the articulating joint critical angle.

Positioning the Door Master toggle switch to OFF, deactivates the door and interlock systems. The doors must then be operated manually.



#### NOTE:

Turn the Door Manual control valve to manually operate the entrance door when in the OFF position.



## **CAUTION:**



The OFF position allows opening the exit door while the vehicle is in motion. Use only if the vehicle is in a dangerous position. When operating in this mode give greater attention to passenger safety.

#### **ABS Switch**

The ABS switch, located in the driver's locker, 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 light.

#### **Dampening Monitor Switch**

Located in the driver's locker, this toggle switch resets the articulating joint dampening module and extinguishes the Fail indicator on the instrument panel.

#### **Door Manual Control Valve**

Located above the foot-operated controls and on the side of the side console panel, this valve when opened releases the air controlling the doors. This allows the doors to be opened manually.

### 8. VEHICLE OPERATION

### **Pre-Start Checks & Adjustments**

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

- Activate the PLC 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.

### **Transmission Operation**

Selection of the automatic transmission operating ranges is by the shift selector module on the instrument panel. There are three operating range selection buttons for reverse, neutral and drive [labeled R, N, D]. The two upshift and downshift arrow buttons allow control of the forward gears. The red LED display will show reverse and neutral selections as R and N and drive will show as the highest forward gear. Operate the transmission using the following procedure:

- 1. Before starting the engine
  - a. Check that the transmission is in neutral.
  - b. Check that the park brake is on.
  - c. Apply the brake treadle.



### **CAUTION:**



In cold conditions (below -20°F) warm the transmission before operating by positioning the Idle Speed switch to FAST until the engine reaches operating temperature.

- With the engine running and idling at normal speed, apply firm pressure on the brake treadle and make the desired range selection.
- 3. Release park 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.



### **CAUTION:**



Stop the vehicle before shifting from drive [D] to reverse [R] or vice versa.

#### 

#### 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]. Release the brake treadle.

To upshift or downshift the transmission, use the up or down arrow buttons respectively while in drive [D]. Pressing a button once changes the gear by one. The red LED display will show the upshifts or downshifts as the gear number selected.

### **Retarder Operation**



### **WARNING:**



## During inclement weather or slippery road conditions, set the Retarder switch to the OFF position.

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 output shaft and rotor rotation slowing the vehicle.

The retarder operates at speeds above 10 mph and engages with brake treadle application. Lightly pressing on the brake treadle (the first 5° - 10° of movement) engages the retarder. Pressing further applies both the retarder and the service brakes. Releasing the brake treadle or decreasing speed to below 10mph will disengage the retarder.

Situations such as slowing the vehicle from high speeds or traveling down long grades are examples of where the retarder is recommended. Its use will save mechanical wear on the service brakes and improve vehicle control. In poor operating conditions such as slippery roads or inclement weather retarder use is not recommended and should be manually disabled at the Retarder switch.



#### NOTE:

The Retarder switch is behind the driver's locker access door.

### **Anti-Lock Braking System Operation**



### **WARNING:**



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

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.

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.

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 should extinguish the indicator. If the indicator remains illuminated, contact the control center.

### Starting the Engine

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 engine starter and vehicle electrical circuits to the battery power.

#### NOTE:

Refer to the Driver's Check List before operating the vehicle.

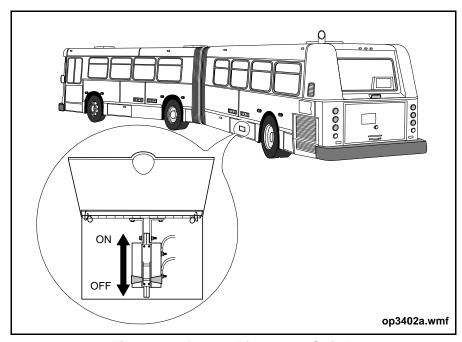


Figure 23: Battery Disconnect Switch

#### Master Run Switch

Turn the Master Run switch (on side console) to DAY-RUN or NIGHT-RUN position. This activates the vehicle's Programmable Logic Control (PLC) System, after a six-second "wake-up" interval. Illuminated indicator lights and sounding alarms signify an active PLC System.

#### NOTE:

When re-starting less than 30 minutes after engine shut down, the PLC System responds instantly.



## **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.

#### Start Push Button Switch

With the vehicle's PLC System active, push the Start push button switch until the engine starter engages and starts the engine.

When the engine starts, release the push button switch.

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 switch indicator lamp shows neutral
- The engine compartment Master Run switch is in the FRONT position.
- The park brake is applied.

#### NOTE:

DO NOT crank the engine for more than 14 seconds at a time. Allow a 60-second cooling interval before cranking the starter again.

### **Parking Brake**

The indicator light 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 light 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 light extinguishes.

#### NOTE:

Re-apply parking brake.

#### **Stop Lights**

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

#### Low Air

When illuminated, the indicator light warns 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 105 psi during normal vehicle operation.

#### Solution Solution Solution Solution NOTE:

When parking for periods less than 10 minutes, position the Idle Speed toggle switch on the side console to FAST.

#### **Check Engine**

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

#### Shift Selector Display

At engine start-up the shift selector's red display shows N 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 stays on until the engine starts. If the indicator fails to stay on 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 light illuminates when the doors open.



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 light. 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 between 105 and 125 psi (724 and 862 kPa) and the suspension is at full height. The Air System requires a working pressure of 105-120 psi (724-827 kPa).
- The No Gen indicator light is off when the engine is operating.
- Transmission Selector neutral [N] indicator light stays on.

- Parking Brake and Stop Light indicator lights stay on as long as the parking brake is applied.
- Headlight operation (low beam only).
- Door controller operation.
- The Door Master switch, when placed in the OFF position, disables the entrance and exit doors and inhibits the accelerator/brake interlocks.
- Return the Door Master switch to the ON position.
- Wiper and washer controls operation.
- Defroster/heater controls (on dash) operation.
- Interior fluorescent lights can be turned on using the Aisle Lights switch.
- Exterior lights operate during exterior light test. To conduct test
  first position the hazard light toggle switch to ON and then
  press both turn switches simultaneously. All exterior lights will
  illuminate for two minutes. Reposition the hazard switch to
  OFF when the test is complete.

### **Night-Time Operation**

For night operations ensure that 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.
- Front, side and rear destination/route sign lights.
- Headlight operation (high and low beams).
- Front and rear identification and marker lights.
- Rear stop and turn tail lights.
- License plate light.
- Panel lights dimmer changes the brightness of instrumentation backlights and panel text.



#### NOTE:

The Panel Lights dimmer operates only when the Master Run switch is in the NIGHT-RUN position.

### **Pre-Trip Brake Test**



### **WARNING:**



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

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

- 1. Apply the park brake and block the wheels.
- 2. Start the engine, set the Idle Speed switch to FAST and check the following:
  - The low pressure warning devices switch off as the air pressure builds.
  - b. If the air pressure gauge reading was below 90 psi, the reading increases back to 90 psi in less than three minutes.
  - c. The air pressure gauge reading levels off at 120-125 psi.
- 3. Release the park brake.
  - a. Make multiple light brake treadle applications and check the following:
    - i. The air pressure gauge reading stabilizes at 105 psi. as the air compressor begins its pumping cycle.
    - ii. After continued multiple light brake treadle applications the low pressure warning devices activate as the air pressure gauge reading falls to 65 psi.
  - b. Release the brake treadle and re-apply the park brake.

- 4. Allow the air system to fully re-charge.
- 5. Stop the engine and proceed as follows.
  - a. Release the park 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.

#### NOTE:

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

- ii. The air pressure does not drop more than 3 psi per minute
- iii. There are no audible air leaks.
- c. Release the brake treadle and apply the park brake.
- 6. Re-start the engine.
  - a. Set the Fast Idle switch FAST to re-charge the air system.
  - b. When the reading levels off at 120-125 psi, switch off the fast idle.
  - c. Remove the wheel blocks.
  - d. Release the park brake.
- 7. Move the vehicle slowly and test brake response.

### Moving the Vehicle

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

#### NOTE:

The neutral [N] light extinguishes and the appropriate range letter appears in the display.

- Release the brake treadle and lightly apply the accelerator treadle to slowly move vehicle from the parking area. The Stop Lights indicator light extinguishes.
- 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

- Bring the vehicle to a complete stop using the brake treadle.
   The Stop Lights indicator light illuminates. Shift the transmission selector into neutral [N].
- 2. Apply the parking brake and release the brake treadle. The Parking Brake indicator light illuminates.
- 3. Turn the Master Run switch to the STOP-ENGINE position.
- 4. Slide the driver's window shut.
- 5. Open the entrance door by placing the controller in position #2.
- 6. Exit the vehicle.
- 7. Locate the front door open switch compartment.
- 8. Open the compartment access door and move the switch to close the door.

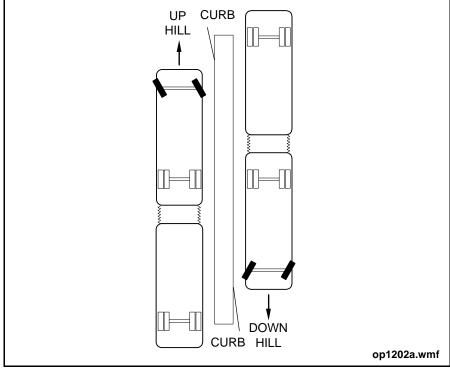


Figure 24: Parking on an Incline



**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.

### **Jump Start Connection**

Behind the battery disconnect 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 the control center if starting difficulties occur.

### Operating the Vehicle in Reverse

Reverse operation of the vehicle requires paying special attention to the articulating joint angle. Just as a trailer can reach a "jack-knife" position the articulating joint can reach a potentially damaging maximum angle position. To reduce this risk, vehicle safety systems limit reverse speed to 3 mph and an alarm warns of articulating maximum angle.

The interlocks apply upon reaching the articulating joint maximum angle to stop further reverse movement. To release the interlocks and allow movement for correction; use the Door Master toggle inside the driver's locker.



### **CAUTION:**



Continuing in reverse after disengaging the interlocks, risks damage to the articulating joint.

### **Engine Protection System**

The New Flyer vehicle is equipped with an automatic shutdown system to prevent engine damage. If the Stop Engine indicator illuminates, the engine protection system will begin the engine shut down sequence. Engine power will be reduced for 30 seconds. After that time the engine will shut down.



#### NOTE:

Use the 30 seconds to remove the vehicle from traffic. Contact the control center for further instructions.

If required, an additional 30 seconds of fueling is available by cycling the Master Run switch. Cycle the switch to STOP-ENGINE and then back to DAY-RUN or NIGHT-RUN position to restart the engine. If the fault corrects itself, the shutdown cycle is cancelled by the engine control unit.



## CAUTION:



Do not attempt an engine re-start unless absolutely necessary. Continuing engine operation without fault correction may result in engine damage.

### Fire Suppression System Operation

The following outlines basic operator component functions and their place in the system. A good understanding of this is required to effectively operate and monitor the system.

#### **Normal Operation**

In a normal situation all circuits are intact and a green LED indicating "System OK" is illuminated on the Fire Suppression System Control Panel. The Fire Suppression System Circuit Monitor located to the left of the destination sign is a connection point for all fire suppression system electrical circuits and serves as a vital source of information. System status LED indicators and an audible alarm provide warning of fire or component failure.

### **Fire Suppression Operation**

In a fire situation, heat will cause contacts in heat detectors to close providing an electrical connection to actuate the fire suppression system. Manual system activation is possible by pulling the pin on the manual actuator and striking the palm button down. When actuated, the cylinder under the manual actuator valve releases nitrogen gas into the actuation lines. These lines lead the nitrogen to the extinguishing agent cylinder valve. The valve opens allowing pressurized dry chemical to flow out lines leading to the discharge nozzles in the engine compartment. Upon system actuation the circuit monitor green "System OK" LED goes out, a red "FIRE" LED illuminates, and an audible alarm sounds. The audible alarm will continue to operate until the system is reset or the alarm silence button (PUSH TO SILENCE) is pushed. When pushed a "Silence Engaged" LED is illuminated. A red indicator on the instrument panel labeled "FIRE" will also be illuminated.

#### S NOTE:

The silence feature cannot be operated in advance of a fire or fault.

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 the discharge of the suppression system 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.

When the fire is extinguished and the heat detector contacts reopen, the green "System OK" LED will again illuminate. Both red and green LED's remain illuminated until the system is serviced.

#### **System Fault Indicators**

If a fault condition occurs, indicator lights on the Fire Suppression System Control Panel will react in one of two ways.

- Both the red "System Activated" and the green "System OK" LEDs illuminate.
- No lights appear on the panel.

Both events indicate that service is required and also represent different fault conditions. Inform the control center if a fault condition occurs.

### **Passenger Signal System**

This passenger signal system is activated by stop request cords placed above the side windows and wheelchair station touch tape. Activating the signal system causes the following to occur:

- The Stop Request sign illuminates. The sign extinguishes when the system is reset.
- Stop Request indicator illuminates and remains illuminated until the system is reset.
- A chime sounds when the stop request cord is used. A different tone sounds if the wheelchair touch tape is used.

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

- Opening and closing either the entrance or exit doors with the door controller.
- Positioning the Stop Request toggle switch to OFF.

The sign extinguishes when the entrance or exit doors return to the fully closed position.

#### Stop Request Cord

Stop request cords are located on either side of the vehicle interior. Pulling on a cord 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 exterior door lights. Moving the door controller to open a door activates these lights. The lights extinguish as the doors close.

#### NOTE:

The exterior exit door lights extinguish after a 5 second delay.

### 9. WHEELCHAIR SYSTEM

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

#### Wheelchair Lift

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

Controls for this feature are located on the instrument panel.



### **WARNING:**



Before this system can be energized, the following conditions must exist on the vehicle:

- Ensure passenger safety during wheelchair lift operations. Monitor passenger's position during operation cycle.
- Perform loading or unloading of passengers in a flat open area. Do not deploy lift where trees, telephone poles, fire hydrants, or similar obstacles may jeopardize passenger safety, or cause damage to the lift.
- Be familiar with lift functions and operation before operating equipment.
- Do not conduct stow operation with a passenger on the lift.
- The lift platform shall be at ground level or level with the vehicle floor before passengers board the lift.
- Ensure barrier plates are in the correct position before operating the lift. Curbside barrier plate is in the UP position at all times, except when the lift platform is resting on

the ground, or in the fully STOWED position. The roadside barrier plate is in the BARRIER position at all times, except at floor level and at stow position.

 Passengers standing on the WCL platform may come in contact with the entrance door header panel while the platform is being raised. Make all passengers aware of the vertical height restriction while the WCL is being operated.

The wheelchair loading system is a high-barrier platform lift. The lift operates using the controls located on the main instrument panel. The Lift Power switch activates the wheelchair lift system, the warning lights, the hazard lights and the interlocks.

#### Wheelchair Lift Controls

The controls are located on the lower right side of the instrument panel. The following describes the function of the switches.



CAUTION:



All switches are of momentary type. If pressure is removed, the switch will return automatically to the OFF position and the mode of operation will cease.



**WARNING:** 



When the ramp is in one of either three modes (STOW/RAISE/LOWER), the brake interlocks are activated. The vehicle will not move until the lift is fully stowed.

When activated to the RAISE position, the lift platform will rise level with the vehicle floor. When activated to the LOWER position, the lift platform will lower to the ground position. Both RAISE and LOWER will deploy the WCL if not already deployed and will control the curbside and roadside barriers automatically.

#### S NOTE:

When the wheelchair lift is in motion, an audio alarm will sound. Both the interior and the exterior lift warning lights will illuminate and flash.

#### Lift Power Switch

This switch provides power to the WCL mechanism and control circuits. Lift Power switch can only be engaged when:

- Entrance doors are fully open
- Transmission Shift Selector switch is in the neutral [N] position.

#### S NOTE:

Brake and accelerator interlocks activate and W/C Lift indicator light on the instrument panel illuminates when the Lift Power switch is positioned to ON.

With the parking brake applied and the engine running, the fast idle mode will energize if Lift Power switch is positioned to ON.

#### Sensor Override Switch



**CAUTION:** 



Do not use the override feature with passengers on the lift platform.

The Sensor Override switch allows bypassing the sensitive edge safety feature.

#### Stow Switches

The Stow toggle switches, located with the wheelchair lift control cluster, activates the stow operation when pressed simultaneously.

#### Raise/Lower Toggle Switch

The Raise/Lower toggle switch operates the wheelchair lift in RAISE or LOWER mode to load or off-load passengers.

#### **Operating Procedures**



### **WARNING:**



# Lock wheelchair brakes to prevent wheelchair movement during lift operation.

#### Stowed Position to Ground

- 1. Bring the vehicle to a complete stop in a flat, unobstructed area, one to three feet from the curb.
- 2. Apply the parking brake.



#### NOTE:

Parking brake and stop lights indicator lights on the instrument panel will illuminate.

- 3. Place transmission shift selector in neutral [N].
- Operate door controller to open the entrance door (position #2, #3 or #5).
- 5. Activate the Lift Power toggle switch.
- Move Raise/Lower toggle switch to the LOWER position until the lift comes to rest on the ground. The curbside barrier will lower, forming a ramp to allow passengers to board.

#### Ground to Vehicle Floor



### **WARNING:**



Ensure proper loading of the passenger during the lift operation. Instruct passenger to back onto the platform, lock the wheelchair brake, and grasp the handrails for added safety.

- 1. Observe the raise operation to ensure passenger is safely secured. All other passengers must be well away from the loading area.
- 2. Place the Raise/Lower switch to RAISE position until the platform is at the vehicle floor and the roadside barrier has formed a bridge to vehicle floor.



Pressing the lift platform sensitive edges will stop the raise operation. Operate function selector to the LOWER position momentarily to reset the sensitive edge relay.

The raise function may be resumed by placing the function selector in the RAISE position.



## CAUTION:



Before leaving the driver's seat to assist in any way, ensure the vehicle is in neutral [N], and the parking brake is applied.

3. After the platform has reached the vehicle floor, instruct the passenger to unlock the wheelchair brake and proceed to the designated seating area.

#### Vehicle Floor to Stowed Position



### **WARNING:**



Stowing the lift with a passenger on the platform could result in serious personal injury to the passenger. No passengers or objects shall be on or near the lift platform during the stow operation.

- Hold both Stow switches in the STOW position until the lift lowers from the floor (the stowed position), and the curbside barrier lowers to the STOP position.
- Release the Stow switches.
- 3. Deactivate the Lift Power switch, close the entrance door, and disengage parking brake to proceed.

#### Stowed Position to Vehicle Floor

- 1. Bring the vehicle to a complete stop in a flat, unobstructed area, one to three feet from the curb.
- 2. Apply the parking brake.

#### NOTE:

The parking brake and stop light indicator lights on the instrument panel will illuminate.

- 3. Shift Transmission Shift Selector switch to neutral [N].
- 4. Operate the door controller to the door open position (position #2, #3, #5).
- 5. Activate the Lift Power toggle switch.
- 6. Move Raise/Lower toggle switch to the RAISE position until the roadside barrier lowers to form a bridge to the vehicle floor. The platform is now ready for off-loading.

#### Vehicle Floor to Ground

1. Load the passenger, facing the doorway, with the wheelchair brake applied.



## WARNING:



Observe the lower operation to ensure passenger safety is being maintained. Keep all other passengers well away from the loading area.

2. Move the Raise/Lower toggle switch to the LOWER position until the lift platform is at ground level. The curbside barrier will now lower to the ramp position, ready for debarking.

#### **Ground to Stowed Position**



## WARNING:



Stowing the lift with a passenger on the platform could result in serious injury to the passenger. No passengers or other objects should be on or near the lift platform during the stow operation.

- 1. With the passenger clear from the platform, hold both Stow switches in the STOW position until the lift rises from the ground level to the stowed position and the curbside barrier lowers to the STOP position.
- Release the Stow switches.
- 3. Deactivate the Lift Power switch, close the entrance door, and disengage the parking brake to proceed.

#### **Emergency Procedures**

In case of WCL power unit failure, the unit may be operated by a hand lever located in the WCL unit access compartment.

#### **Manual Operation**

Manual wheelchair lift operation involves hand pumping the lift's hydraulic oil and manually diverting oil flow to complete each mode of operation. Hydraulic oil flow and pressure is directed to desired functions by operating manual overrides on directional control valves. The hand pump, handle, and directional control valves are located on the power/control assembly which is in a compartment directly behind the right front wheel.

Manual operation is intended as a temporary measure for unloading passengers only.

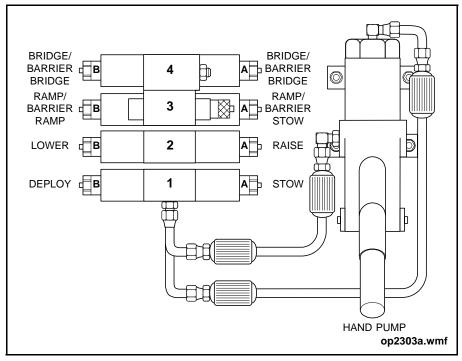


Figure 25: Power/Control Assembly



### WARNING:



Normal safety features and limit switches are bypassed during manual operation, and the lift mechanism can move to hydraulic and mechanical extremes. Be sure wheelchair and passenger are properly secured and placed to prevent injury during operation cycle.

#### **Manual Operating Procedures**

Follow the same procedures for vehicle placement and safe lift operation as outlined in previous section. Refer to illustration for correct position of manual overrides to the directional control valves.



## **WARNING:**



Barriers must be up before lowering lift from floor. Failure to operate in proper sequence could cause the lift to drop and cause serious injury.



## **CAUTION:**



Do not exceed 75 pounds of force on the hand pump handle extension.

#### To Deploy The Lift

Pump the hand pump while pressing the manual override on valve "1B". This will deploy the ramp only.

#### To Operate the Ramp/Barrier

To move the ramp/barrier from stowed position to ramp, pump the hand pump while pressing the manual override valve "3B". Stop when the barrier is vertical if a barrier is desired.

To move the ramp/barrier from ramp back to stow position, pump the hand pump while pressing the manual override valve "3A". Stop when the barrier is vertical if a barrier is desired.

#### To Operate the Bridge/Barrier

To raise the bridge/barrier, pump the hand pump while pressing the manual override valve "4A".

To lower the bridge/barrier, pump the hand pump while pressing the manual override valve "4B".

#### To Raise or Lower the Lift



#### NOTE:

Do not attempt to stow the lift until it is at stow height.

Be sure that the bridge/barrier is in the BRIDGE position.

With the lift at stow height, pump the hand pump while pressing the manual override valve "1A".

When the lift platform is within 12-18" of being fully stowed, check the guide block alignment with the slide channels, raise or lower the lift platform as required.

### **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.

#### **Operating Procedures**

- 1. Move the flip-up seat cushions up to the lock position.
- 2. Back the wheelchair into the station and set the brake.
- Attach the red belts under the flip-up seat to solid rear frame members of the wheelchair.
- 4. Attach the front tie-down belt on the windowside as follows:
  - a. Press the retractor release button and pull the belt to extend.
  - b. Attach the extended end to a solid front frame member of the wheelchair.
  - c. Take up the belt slack by pressing the release button again.
  - d. Turn the belt retractor knob until tight.
- 5. Attach the front tie-down belt on the aisle side as follows:
  - a. Remove the aisle tie-down belt from storage.
  - b. Attach the stud end securely into the floor anchor.
  - c. Press the retractor release button and pull the belt to extend.
  - d. Attach the extended end to a solid front frame member of the wheelchair.
  - e. Take up the belt slack by pressing the release button again.
  - f. Turn the belt retractor knob until tight.
- 6. Secure the passenger by extending the shoulder and lap belts across to the aisle side clip and fasten. The aisle side clip is attached to the seat frame of the flip-up seat.
- 7. Check the belt locks by pulling on each end to be sure they engage.

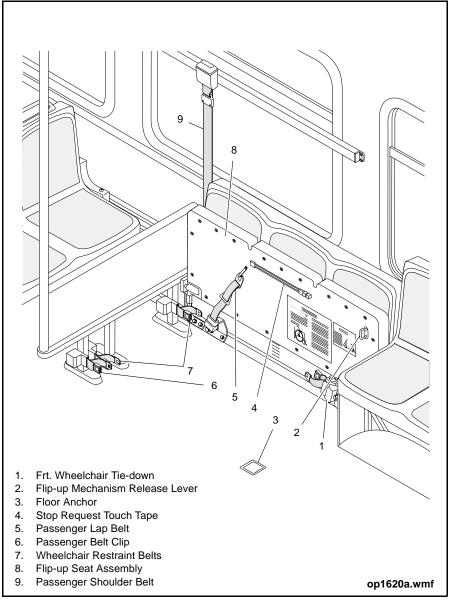


Figure 26: Wheelchair Restraint System

### 10.BIKE-RACK SYSTEM

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.



### **WARNING:**



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

### **Loading Operation**

- Remove water bottles, pumps or other loose items from bike prior to loading.
- 2. Squeeze bike rack handle UP to release latch.
- Fold down bike rack.
- 4. Lift bike onto rack, fitting wheels into proper wheel slots.
- 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.
- 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.

### **11.NOTES**

New Flyer Publications Department 25 DeBaets Street Winnipeg, Manitoba R2J 4G5

> Tel. (204) 982-8431 Fax (204) 667-5769 http://www.newflyer.com

> > Printed in Canada