

GRECH

MOTORS LLC

Bus Owner's Manual

GRECH MOTORS LLC

**Congratulations,
and thank you for purchasing a Grech Motors Vehicle.**

You have taken ownership of a true luxury vehicle which is in a class all its own. We are providing this manual to familiarize you with your new Grech Motors vehicle. This manual shall serve as a reference document for the operations and maintenance procedures that shall be required throughout the life of your vehicle. This edition covers all Chassis models, and is designed to be used in conjunction with the original chassis manufacturer's owner's literature, as well as all other component manufacturers literature.

IMPORTANT: PLEASE READ CAREFULLY

For your safety and the safety of others, we ask that you completely familiarize yourself with this manual, and all other operators manuals before you operate this vehicle for the first time.

PLEASE NOTE: Updates to all manuals are online at GRECHMOTORS.COM

Grech Motors, LLC. 6915 Arlington Avenue Riverside, California 92504
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TABLE OF CONTENTS

SAFETY

Pre-Trip Inspection (suggested minimum)	6
General Vehicle Safety Warnings	8
Vapor Door Operational Safety Check List	9
Electric Door Emergency Release Lever	12
Emergency Egress Window Operation	14
Emergency Roof Hatch Exit	16
Dual Overhead Parcel Rack	18

OPERATION

Drivers Overhead Control Panel	19
PROAIR Control Panel	20
Audio/Video PA Control	21
Factory Suspension Dump System Operation	24
Auxiliary Battery Location	25
F650 Heated Mirror Operation	26
Back-Up Camera System	27
Rear Step Operation	28
CAUTION-ADVISORY Regarding Customer Vehicle Alterations	29
General Vehicle Dimensional Specifications	30

TABLE OF CONTENTS

Vehicle ID Lables	31
F450 & F550 Ultra Ride Suspension - Maintenance and Specifications	32
Ride Rite Air Spring - Maintenance and Specifications	33
Preventative Maintenance Schedule	34
Basic Troubleshooting Guide	39
F450 & F550 Vehicle Circuit Board Assy	42
F650 & Freightliner Vehicle Circuit Board Assy	44
Main Wiring Diagrams	46
PARTS - SERVICE - WARRANTY	49
Vendor Reference List	53
GRECH MOTORS LLC LIMITED WARRANTY	54
GRECH MOTORS LLC General Statement	56

Pre-Trip Inspection (suggested minimum)

Any item not passing inspection, must be reported immediately, before operating vehicle

FAILURE OF HIGHLIGHTED ITEM(S) TO PASS INSPECTION WILL CAUSE VEHICLE TO BE GROUNDED

Item	Inspection Procedure	Pass	Fail
1	Check preventative maintenance schedule: for services due at present mileage		
2	Check Side Passenger Entry Door - Emergency Exit Operation & Obstruction Sensing System		
3	Check operation of: drivers seat and seat belt		
4	Check operation of: steering wheel and shift levers		
5	Check operation of: turn indicators		
6	Check operation of: foot pedals and parking brake		
7	Check operation of: all gauges, for normal readings with engine running		
8	Check operation of: dash indicator lights with key on, engine not started, then again with engine started		
9	Check operation of ventilation system: heating, defrosters, fans and air conditioning		
10	Check: horn, wipers, washers, and mirrors for cleanliness, adjustment, operation and damage		
11	Check condition of: fire extinguisher, warning reflectors and first aid kit		
12	Check: all doors, glass and windows: for operation, cleanliness, and damage.		
13	Check: all emergency exits for operation, warning devices, markings, to be free and clear		
14	Check interior lighting: for operation and damage		

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Pre-Trip Inspection (suggested minimum)

Any item not passing inspection, must be reported immediately, before operating vehicle

FAILURE OF HIGHLIGHTED ITEM(S) TO PASS INSPECTION WILL CAUSE VEHICLE TO BE GROUNDED

Item	Inspection Procedure	Pass	Fail
15	Check Side Passenger Entry Door: for damage and proper closing operation		
16	Check exterior lighting: for operation and damage		
17	Check exterior: for cleanliness, markings and damage		
18	Check fuel cap: in place and secure		
19	Check all tires and wheels: for tread depth, cracks & bulges, missing lug nuts, and air pressure 95 psi for F-550, 110 psi for F-650, Freightliner 110 psi		
20	Check: oil level		
21	Check: transmission fluid level		
22	Check: engine coolant level		
23	Check: power steering fluid level		
24	Check: brake fluid level		
25	Check: belts for tension and wear		
26	Check operation of: cameras, if applicable		
27	Check operation of: PA system, if applicable		
28	Check operation of: audio and video system, if applicable		
29	Check wheelchair lift: for proper function or damage and securement station equipment		

GENERAL VEHICLE SAFETY WARNINGS

NO STANDEES ARE ALLOWED, AT ANY TIME, WHILE THE VEHICLE IS IN MOTION.

DISCONTINUE OPERATION OF THE VEHICLE, IF ANY CRITICAL ITEM ON THE PRE-TRIP INSPECTION LIST FAILS TO PASS, OR UNTIL ALL PROBLEMS HAVE BEEN RESOLVED.

DISCONTINUE OPERATION OF THE VEHICLE, IF THE DOOR WARNING BUZZER/DOOR AJAR LIGHT IS ILLUMINATED WHILE VEHICLE IS IN MOTION.

IF A DOOR AJAR WARNING LIGHT IS LIT, CHECK ALL DOORS FOR PROPER CLOSURE. NEVER OPERATE THIS VEHICLE UNTIL THE PROBLEM HAS BEEN RESOLVED.

THIS BUS IS NOT DESIGNED TO TOW ANOTHER VEHICLE OR TRAILER. DO NOT ATTEMPT TO TOW OR PULL ANOTHER VEHICLE WITH THIS BUS.

DISCONTINUE OPERATION OF THE VEHICLE, IF ANY PERSON STANDS IN THE BUS WHILE THE VEHICLE IS IN MOTION.

DISCONTINUE OPERATION OF THE VEHICLE, IF A DOOR OR EMERGENCY EXIT SHOULD OPEN WHILE THE VEHICLE IS IN MOTION.

CAUTION

No standing while
vehicle is in motion.

WARNING



Face cab when climbing
up and down.

Use handholds.

Keep three limbs in
contact with truck.

Do not carry anything.

Follow instructions in
driver's manual.

24-00912-001 REV A

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Vapor Electric Door Operational Safety Check List

This vehicle is equipped with an Electric Actuated Passenger Door
made by Vapor/Wabtec

Electric Door Operation Safety Check List

ATTENTION

The vehicle user should conduct a daily check of each of the following systems when operating a vehicle with an electric actuated passenger door.

Obstruction Sensing

The Obstruction Sensing System - (must be checked on a daily basis)

The electric actuated passenger door system is designed to detect an obstruction that may interfere with door's operation while closing. When the Obstruction Sensing System detects an obstruction while the door is closing, the system will stop the door and then reopen it. After a brief delay, the System again will attempt to close the door. The System will stop and reopen the door if it detects an obstruction again. If the System detects an obstruction on its third attempt to close the door, it will stop with the door coming to rest in the open position. Pressing the door control command button again (ref. pg 11 & 19) will allow the operator to resume the door closing process. If a problem persists, call the Grech Motors SERVICE DEPT., at 1-855-99-GRECH (47324)

Vapor Electric Door Operational Safety Check List

The Obstruction Sensing System Test Procedure

The vehicle driver should test the Obstruction Sensing System every day before putting the vehicle into service. To test the System, the vehicle driver should:

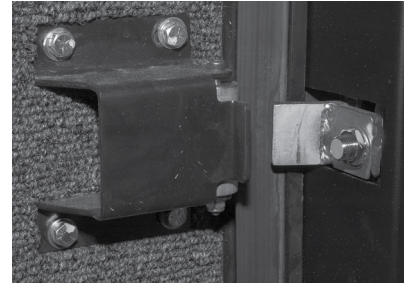
1. Activate the Door Command Button to move the door into its fully opened position;
2. While keeping the passenger doorway clear of objects and passengers, the vehicle driver should create an obstruction in the doorway by placing a piece of wood or other debris in the door's path;
3. Next, the vehicle driver should attempt to close the passenger door by activating the Door Command Button;
4. If the passenger door contacts the obstruction and fails to stop once it makes contact, **call the Grech Motors Service Department at [1-855-99-GRECH \(47324\)](tel:1-855-99-GRECH) and do not operate the vehicle;**
5. If the passenger door stops and re-opens without seeming to contact an obstruction, **call the Grech Motors Service Department at [1-855-99-GRECH \(47324\)](tel:1-855-99-GRECH) and do not operate the vehicle;**
6. If the passenger door contacts an obstruction, stops, re-opens and closes, and if it continues repeating this process without stopping in the open position after the third cycle, **call the Grech Motors Service Department at [1-855-99-GRECH \(47324\)](tel:1-855-99-GRECH) and do not operate the vehicle.**
7. If the passenger door fails to close when the operator puts the vehicle into gear, **call the Grech Motors Service Department at [1-855-99-GRECH \(47324\)](tel:1-855-99-GRECH) and do not operate the vehicle.**

Vapor Electric Door Operational Safety Check List

Electric Door

Auxiliary Door Switch door operation -

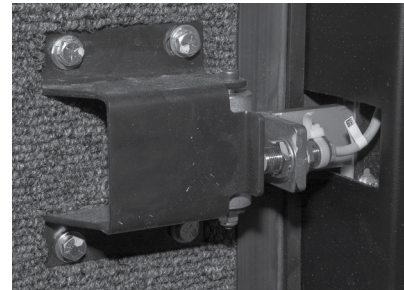
This vehicle is equipped with an Auxiliary Door Switch. The Auxiliary Door Switch allows an operator to open the passenger door when outside the driver's compartment. The Auxiliary Door Switch is located on the pillar behind the passenger seat in driver's compartment.



Side Entry Door in the un-locked Position

The Emergency Release Lever System - (must be checked on a daily basis)

This vehicle is equipped with an Emergency Release Lever that, when actuated, will allow passengers to open the door. The Emergency Release Lever System is actuated by moving the **RED HANDLE** from right to left as indicated on the sticker. See Photo No. 1 on page 13. When the Emergency Release Lever is in the left position, the door can be opened with hand-pressure applied to push the door out and away from the bus.



Side Entry Door in the locked Position

Electric Door Emergency Release Lever

Electric Door

The vehicle driver should test the Emergency Release Lever (ERL) System every day before putting the vehicle into service. To test the System, the vehicle driver should:

1. Actuate the Emergency Release Lever by moving the red handle from the right to the left.
See Photo No. 1 on page 13.
2. Open the door by pushing it out and away from the coach.
3. When released, the door should move freely and with minimal pressure away from the coach and into the door's fully open position.
4. After determining the door opens freely, return the door to its closed position and re-engage the Emergency Release Lever by moving the red-handle from the left to the right. **See Photo No. 2 on page 13.**
5. Confirm that the red-handle moves from the right to the left, and from the left to the right, without obstruction. If the red-handle does not move smoothly and without obstruction, **call the Grech Motors Service Department at [1-855-99-GRECH \(47324\)](tel:1-855-99-GRECH) and do not operate the vehicle.**
6. Confirm that the Emergency Release Lever is in the right position, that it engaged and secured the door against the coach. While the ERL is in the closed and locked position, because the red-handle is in the right position, attempt to push against the door as if to open it. The door should not move. If the door moves while the red-handle is in the right position, **call the Grech Motors Service Department at [1-855-99-GRECH \(47324\)](tel:1-855-99-GRECH) and do not operate the vehicle.**
7. The vehicle should never be driven with the Emergency Release Lever in the left or forward position.

Electric Door Emergency Release Lever



Electric Door Release Lever- Exit Position

Photo 1



Electric Door Release Lever- Closed Position

Photo 2



Emergency Exit Lever Decal

CAUTION!

LEVER MUST BE CHECKED DAILY,
PRIOR TO VEHICLE OPERATION

EMERGENCY USE ONLY

Emergency Egress Window Operation

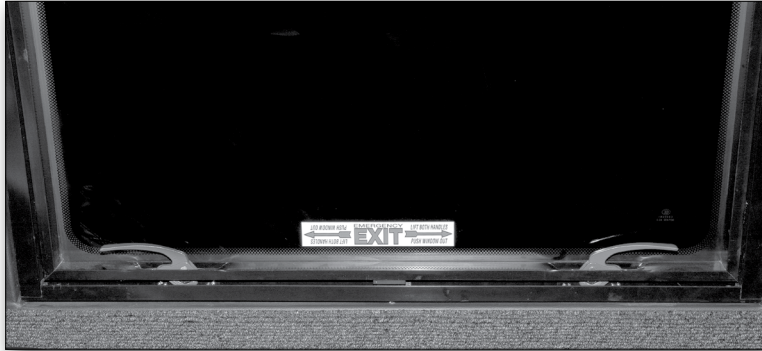
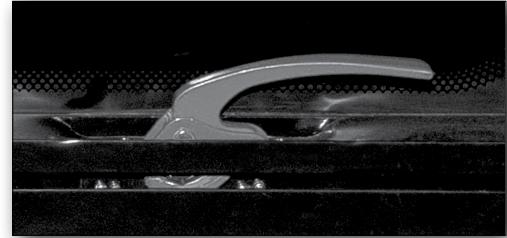


Photo 1



Lift up on lever to disengage latch.

CAUTION!
Check Exit Operation, Daily.



Windows with Emergency Exit stickers are designated Emergency exits. Follow the directions on the sticker.
Lift levers and push window out.

This vehicle is equipped with (multiple) Emergency Egress Windows. These windows serve as supplemental exit points in the event of an emergency. The vehicle has (multiple) Emergency Egress Window on the passenger side and the driver's side of the vehicle.

The Emergency Egress Windows are a vital component in the vehicle's emergency exit system. As such the vehicle driver should test the Emergency Egress Window Operation every day before putting the vehicle into service.
To test the System, the vehicle driver should check the following items:

1. Each Emergency Egress Window is marked by an Emergency Exit sticker at the bottom of each window. Confirm that each Emergency Egress Window is equipped with the sticker designating that window as an

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Emergency Egress Window Operation

emergency exit. If the Emergency Egress Window is missing the Emergency Exit designation sticker, **call the Grech Motors Service Department at [1-855-99-GRECH \(47324\)](tel:1-855-99-GRECH) and do not operate the vehicle.**

2. Each Emergency Egress Window is secured by two latches, at the right and left side of the bottom of the window. Actuate the Emergency Egress Window by releasing both latches. **See Photo No. 1 on page 14.** The latch is in the released position when the handle moves from the horizontal to the vertical position.
3. When both Emergency Egress Window Latches are released, the user can open the window by push the bottom of the window frame. The Emergency Egress Window should swing out and away from the vehicle.
4. If the Emergency Egress Window does not swing open when the latches are released and the window frame is pushed, **call the Grech Motors Service Department at [1-855-99-GRECH \(47324\)](tel:1-855-99-GRECH) and do not operate the vehicle;**
5. Close the Emergency Egress Window and secure it by returning the latches to the horizontal position. Each latch should move into the locking position when the user moves the latch over its receiver. Check to ensure the Emergency Egress Window is secured against the coach by pushing against the window frame while the latches are in the locked, horizontal position.

Emergency Roof Hatch Exit



SEE MANUFACTURERS LITERATURE
FOR ADDITIONAL INFORMATION

SUGGESTED MAINTENANCE

Periodically inspect attaching fasteners for evidence of loosening due to tampering, and regularly clean surface with a mild soap and water.

CAUTION: When removing graffiti, it is the customers responsibility to ensure cleaning solutions are compatible with the materials used on Safety Vents. Solutions containing, acetone, ether, lacquer thinner, or other solvents can destroy the high strength properties of many engineering plastics - [AVOID these cleaners](#)

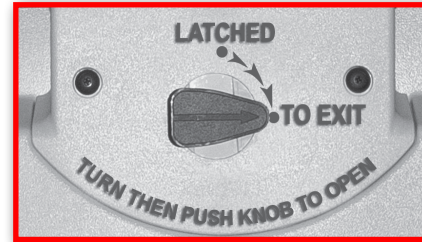


Photo 1

**TURN LATCH AS SHOWN ABOVE,
THEN PUSH KNOB TO OPEN**

CAUTION!
Check Exit Operation, Daily.

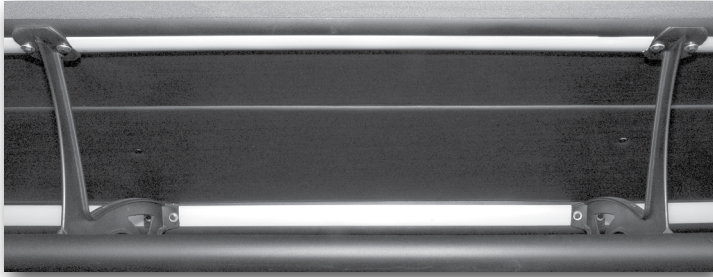
Emergency Roof Hatch Exit

This vehicle is equipped with one Emergency Roof Hatch. This hatch serve as a supplemental exit point in the event of an emergency. The Emergency Roof Hatch is located in the vehicle's roof, above the passenger walkway.

The Emergency Roof Hatch is a vital component in the vehicle's emergency exit system. As such the vehicle driver should test the Emergency Roof Hatch every day before putting the vehicle into service. To test the System, the vehicle driver should check:

1. To ensure that each Emergency Roof Hatch is marked by an Emergency Exit sticker. Confirm that the Emergency Roof Hatch is equipped with the sticker designating the hatch as an emergency exit. If the Emergency Roof Hatch Exit is missing the Emergency Exit designation sticker, **call the Grech Motors Service Department at [1-855-99-GRECH \(47324\)](tel:1-855-99-GRECH) and do not operate the vehicle.**
2. Each Emergency Roof Hatch is secured by one latch. Actuate the Emergency Roof Hatch by turning its latch from the "LATCHED" position to the "TO EXIT" position. [See Photo No. 1 on page 16.](#)
3. When Emergency Roof Hatch latch is released, the user can open the hatch by pushing it away from the vehicle. The Emergency Roof Hatch should swing out and away from the vehicle.
4. If the Emergency Roof Hatch does not swing open when the latch is released and the hatch is pushed, **call the Grech Motors Service Department at [1-855-99-GRECH \(47324\)](tel:1-855-99-GRECH) and do not operate the vehicle.**
5. Close Emergency Roof Hatch and secure it by returning the latch to the "LATCHED" position. Check to ensure the Emergency Roof Hatch is secured against the coach by pushing against the hatch while the latch is in the "LATCHED" position.

Overhead Parcel Rack

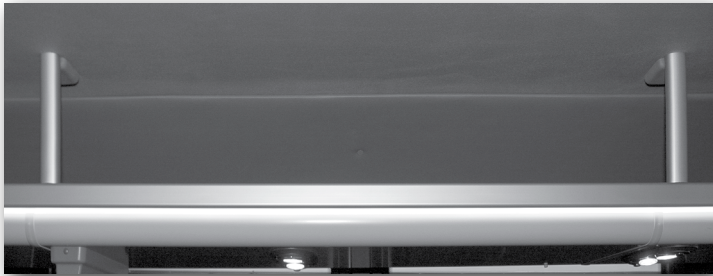


Overhead Parcel Rack - Style 1

CAUTION!

Do not overload Parcel Racks. Do not fasten parcels to retainer bars.

Note: Maximum loading specification for both model parcel racks is either 20 Lbs. per foot or 5 Lbs per passenger.



Overhead Parcel Rack - Style 2

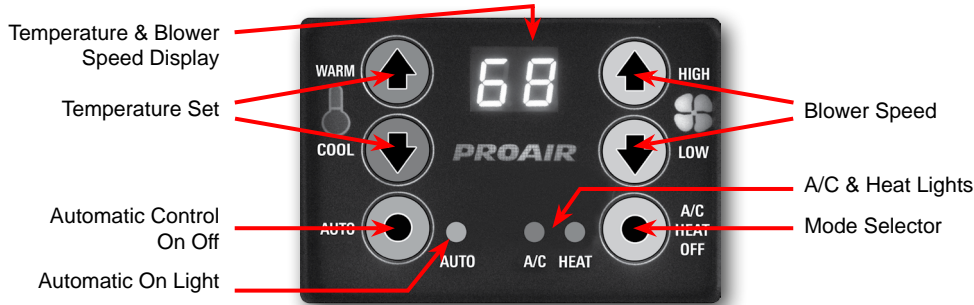
Drivers Overhead Control Panel



1 Door Switch (open or close passenger door)	7 Auxiliary
2 Door Ajar (WARNING DEVICE)	8 Climate Control Fan Speed (High - Med - Low)
3 Reading Lights (optional)	Note: Cool mode = A/C on both front & rear Heat mode = Heat from front unit only (on early models)
4 Rear Door Ajar (WARNING DEVICE)	9 Climate Control Mode Switch (Air - Heat)
5 Interior Lights	10 Climate Control Temperature (Setting Point) <small>Note: 4 sec. after setting, reading shows cabin temp.</small>
6 Exits (WARNING DEVICE)	11 Climate Control Temperature Adjustment (Up or Down)

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PROAIR Control Panel



Mode Selector

Push once for A/C, push again for heat and push once more to turn off.

A/C Mode

Display on, reads and displays probe temperature, blower motor operates. Constant signal from A/C relay above set temperature point and signal off below set temperature point. A/C light will be on.

Heat Mode

Display on, reads and displays probe temperature, blower motor operates. Constant signal from heat relay below set temperature point and signal off above set temperature point. Heat light will be on.

Blower Speed

Select desired blower speed by pressing the up or down arrows, display will indicate set speed, F1 to F3 for the three speeds of operation.

Temperature

Temperature can be set by using the up/down buttons to select the desired level between 50°F and 99°F or 10°C and 37°C. Display will show set temperature for two or three seconds then display will show actual temperature. To switch between Fahrenheit and Celsius press both temperature up and down buttons at the same time for three seconds.

Auto Mode

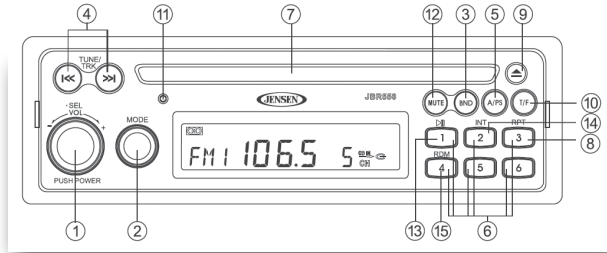
With A/C or heat on press auto to turn on auto 1 or auto 2 temperature control, press once more to shut off. In auto 1 mode temperature is maintained + or - 2° and blower speed is manually set. In auto 2 mode temperature is maintained + or - 2° and blower speed is automatic and cannot be changed. To switch between auto 1 and auto 2 press and hold temperature up button then press and hold auto button for three seconds. Display will show current auto mode (A1 or A2) then switch to the other mode (A2 or A1) .

Preset Operations

Upon cycling of 12vdc supply, the unit will default to previous settings mode and blower speed. All output signals are negative voltage.

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Audio/Video PA Control



SEE MANUFACTURERS LITERATURE FOR ADDITIONAL INFORMATION

NOTE: CD mode will be skipped if no CD is inserted.

Reset

Use a ball point pen or thin metal object to press the RESET button (11). The reset button should be activated for the following reasons:

- initial installation of the unit when all wiring is completed
- function buttons do not operate
- error symbol on the display

Audio Menu

With the radio on, press the SEL button/rotary encoder (1) on the control panel to access the audio menu. You can navigate through the audio menu items by pressing the SEL button repeatedly. Once the desired menu item appears on the display, adjust that option by turning the rotary encoder within 5 seconds. The unit will automatically exit the audio menu after five seconds of inactivity. The following menu items can be adjusted.

BASS Level

Use the rotary encoder to adjust the Bass level range from “-7” to “+7”.

TREBLE Level

Use the rotary encoder to adjust the Treble level range from “-7” to “+7”.

Balance (BAL)

Use the rotary encoder to adjust the Balance between the left and right speakers from “L15” (full left) to “R15” (full right).

Power On/Off

Press the rotary encoder POWER button (1) to turn the unit on. Press and hold to turn the unit off. The unit will resume at the last mode selected (Tuner, Aux, etc.).

Volume Control

To increase the volume, turn the rotary encoder (1) to the right. To decrease the volume, turn the rotary encoder to the left. While adjusting the volume, the LCD displays a numerical representation of the level. The maximum volume setting is “63”.

Mute

Press the MUTE button (12) on the control panel to mute the audio output. Press MUTE again to restore the audio output to the previous level.

Mode

Press the MODE button (2) on the control panel to select a different mode of operation, as indicated on the display panel. Available modes include Tuner (AM/FM), CD, and LINE (optional Auxiliary Input).

Audio/Video PA Control

Fader (FAD)

Use the rotary encoder to adjust the Fader between the rear and front speakers from "R15" (full rear) to "F15" (full front).

LOUD

Use the rotary encoder (1) to turn the LOUD feature "on" or "off". "Off" is the default setting.

Auxiliary Input (LINE)

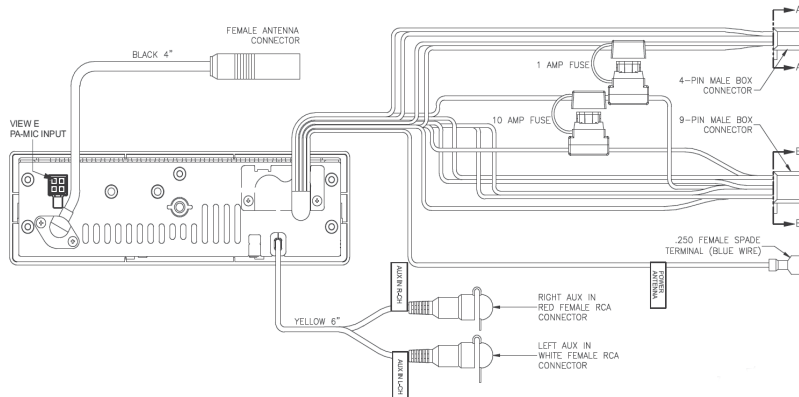
To access an auxiliary device:

1. Connect the portable audio player to the AUX IN input cables on the back of the radio.
2. Press the MODE button (2) to select LINE mode. "LINE" will appear on the display.

3. Press MODE again to cancel LINE mode and go to the next mode.

PA Operation (microphone sold separately)

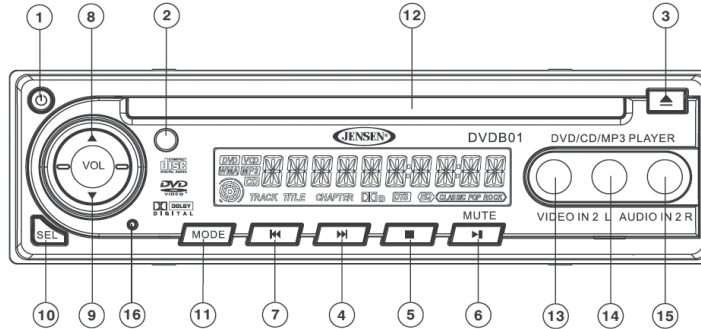
- Connect the PA Microphone with a 4-PIN connector to the 4-PIN socket on the rear of the unit.
- The unit will automatically switch to PA mode when the Mic switch is pushed "ON".
- The PA output level can be adjusted using the rotary volume encoder (1).
- With radio power off, the radio will wake up when PA mic is keyed to make an announcement. Please note that it will take a few seconds before the radio "wakes up" and PA is active. Radio will return to the off state when the PA mic is released.



AM/FM/CD and PA
Wiring Diagram

Audio/Video PA Control

CD/DVD/VCD OPERATION (cont)



CD/DVD/VCD OPERATION

Stopping Play

- Press the stop button (5) on the front panel or remote control to stop disc play.
- Press the >|| button (6) to resume normal playback.
- Press the stop button (5) on the front panel or remote control twice to stop the playback and return to the initial chapter.

Moving Through Chapters/Tracks

- Press the >>| button (4) on the unit or remote control to advance to the next chapter/track.
- Press the |<< button (7) on the unit or remote control to move to the previous chapter/track.

Fast Forward/Fast Backward

Press the >> button (35) on the remote control to fast forward. Keep pressing and releasing the button to increase the rate from “2X” to “4X”, “8X” and “20X”. Press the >|| button (6) to return to regular playback. Press and hold to fast-forward to a specific location. Release to begin playback from that point.

Press the << button (34) on the remote control to fast backward. Keep pressing and releasing the button to increase the rate from “2X” to “4X”, “8X”, and “20X”. Press the >|| button (6) to return to regular playback. Press and hold to fast backward to a specific location. Release to begin playback from that point.

Pausing Playback

Press the >|| button (6) on the unit or the >|| button on the remote control during playback to temporarily stop playback. To return to normal playback, press the >|| button again.

Repeating Playback

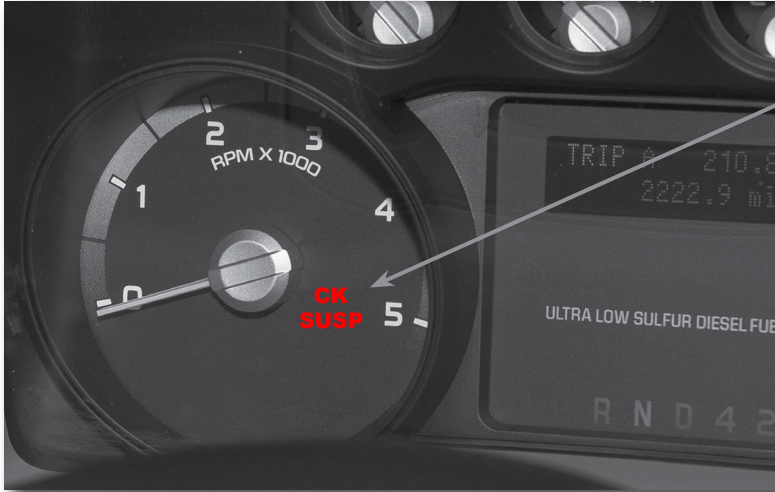
Press the RPT button (20) on the remote control to select the repeat mode as follows:

DVD: CHAPTER > TITLE > REP ALL > OFF

VCD/CD: REP 1 > REP ALL > OFF

- Select CHAPTER to continuously repeat the current chapter.
- Select TITLE to continuously repeat the current title.
- Select REP 1 to continuously repeat the current track.
- Select REP ALL to continuously repeat all chapters/tracks on the current disc. After playing the last chapter/track, the unit will stop and display the elapsed time.

Factory Suspension Dump System Operation



F-650's have a check **suspension indicator** on dash as shown to the left. This indicates the suspension is actively dumped.

CAUTION!

Only in emergency situations should the vehicle be moved with the Suspension System in dump mode.



This in-dash switch located to the right of the dash cluster operates the dump suspension system. Note: This system will only operate when the ignition in the "on position".



Rear Baggage Door Dump Switch

This switch is part of the Suspension Dump system and is located inside the baggage compartment. It operates the dump suspension system to lower the rear for easy access to the baggage compartment.

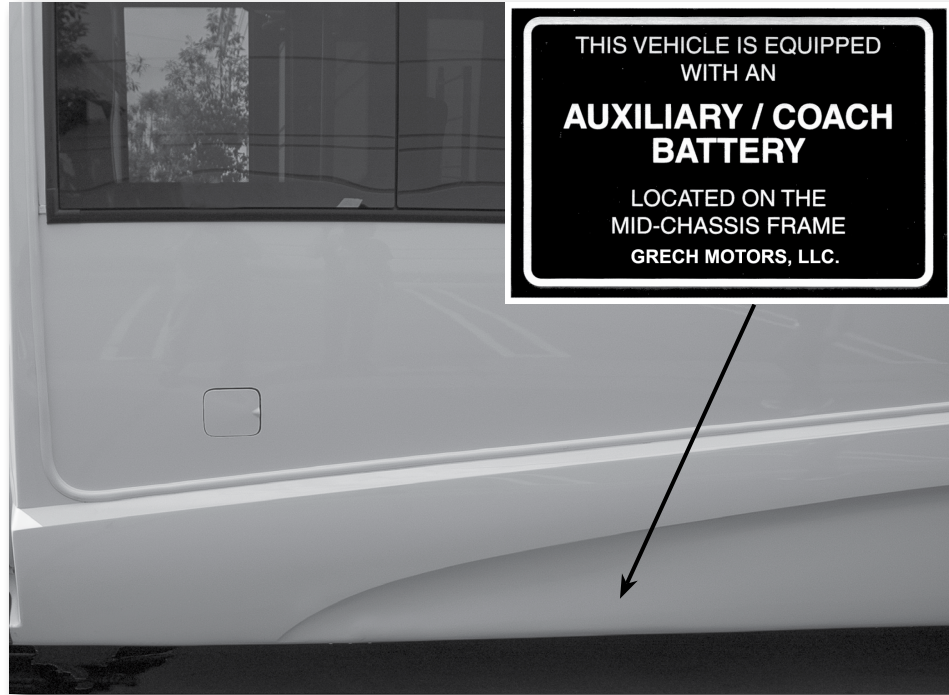
F-650 Chassis are equipped with Suspension Dump Systems to allow for the lowering of the vehicle to accommodate loading and unloading of luggage at the rear baggage door..

CAUTION!

If the vehicle is moved with the Suspension System in dump mode, the suspension may be damaged and/or create an unsafe driving condition. This should never be attempted unless in an emergency situation.

Auxiliary Battery Location

This page references the Auxiliary Battery location on all coaches



On the F-550 the Charge Isolator Solenoid is located under the vehicle next to the battery.

Arrow indicates: approximate location of Auxiliary Batteries on the drivers side of the vehicle

F-650 Heated Mirror Switch and Mirror Control Switch

CAUTION!

Leaving the heated mirror switch on in hot weather, may cause mirror to crack.



Heated Mirror Switch

This switch controls the ON/OFF activation of the heated mirror function.

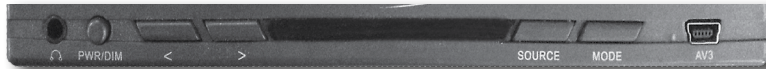
Mirror Control Switch

This switch includes a center toggle switch that allows the operator to switch from right to left mirror. The center position of the toggle defeats all mirror operations.

When either the left or right mirror is engaged, the 4 arrow switches allow the mirror to move in 4 different directions for precise adjustment.

Back-Up Camera Controls and Operation

LCD Monitor



Monitor Controls

1. **Power Button**, glows dimly when system is connected fully manual, becoming bright upon activation
 2. **Source input Select Button**, toggles active display between AV1 & AV2 inputs.
 3. **Picture Adjustment Mode Button**, accesses on-screen-display, to adjust (brightness, contrast, color, tint).
- NOTE:** there will be a slight delay to see the image when shifting into reverse, this is normal operation.

SEE MANUFACTURERS LITERATURE
FOR ADDITIONAL INFORMATION



Back-Up Camera
(located on rear of vehicle)

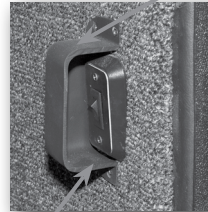
System Operation

This system consists of two major components:
1. LCD Monitor 2. Back-Up Camera

The system may be connected two ways:

1. **Fully manual**, requiring the power button on the LCD Monitor to be pushed to energize the system and activate the monitor.
2. **Automatic**, which activates the monitor whenever the ignition is turned to accessory or the engine is started and in reverse.

Rear Step Operation



Rear Step Switch Guard

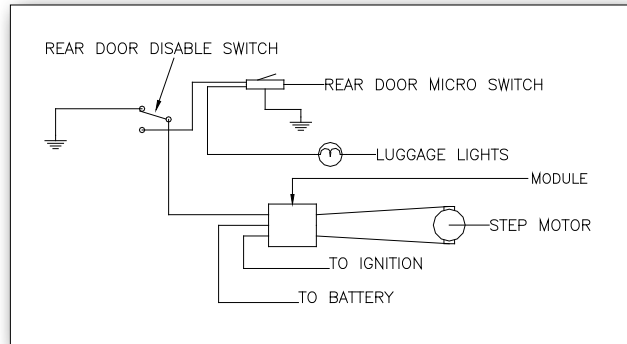
Switch is located on the right side of the rear door opening, as you face the door before entering

For the double rear step (shown above) and the single rear step, operation is the same. The schematic (this page) explains the electrical operation of both steps. The **power switch** allows you to enable or disable step operation. When the step is enabled, opening the rear door automatically extends the step.

Note: See Manufacturers literature regarding periodic lubrication requirements.

SEE MANUFACTURERS LITERATURE
FOR ADDITIONAL INFORMATION

Rear Step Operational Schematic



Advisory Regarding Removing or Adding Vehicle Components

CAUTION!

THE BUS SEATING CONFIGURATION IN THIS VEHICLE HAS BEEN INSTALLED IN ACCORDANCE WITH THE DESIGN PARAMETERS DETERMINED BY GRECH MOTORS, LLC., ENGINEERING DEPARTMENT.

THE ADDING, MOVING OR REMOVING OF THE ORIGINAL SEATING, IS STRICTLY PROHIBITED WITHOUT THE AUTHORIZATION OF GRECH MOTORS, LLC., ENGINEERING DEPARTMENT.

MODIFYING THE SEATING ARRANGEMENT OF YOUR VEHICLE WITHOUT PROPER ENGINEERING SPECIFICATIONS, CAN CHANGE THE **WEIGHT DISTRIBUTION/PAYLOAD CHARACTERISTICS**, OF THE VEHICLE AND POTENTIALLY ENDANGER THE PASSENGERS BY CREATING AN UNSAFE OPERATING CONDITION.

CAUTION!

Do not Alter, Add or Change any components installed in this vehicle. Adding or changing components may adversely affect vehicle stability creating an unsafe vehicle.

General Vehicle Dimensional Specifications-Body & Chassis by Model

Features ↓	Models →	G28G	G33	G33D	G36	G40	G40 M2
	Chassis →	F-450	F-550	F-550	F-650	F-650	Freightliner
GVWR		16,500 #	19,500 #	19,500	29,000 #	29,000 #	
Wheelbase		201 in	250 in	250 in	260 in	308 in	305 in
Overall Length		336 in	396 in	396 in	432 in	480 in	479 in
Turning Radius		29.84 ft	34.75 ft	34.75 ft	35.7 ft	44.9 ft	44 ft
Ground Clearance		11½ in	11½ in	11½ in	12 in	12 in	9 in
Clear Door Opening - Entry Door		91½ x 32¾ in	91½ x 32¾ in	91½ x 32¾ in	91⅝ x 32¾ in	91⅝ x 32¾ in	91⅝ x 32¾ in
Clear Door Opening - Luggage Door		30½" x 68½"	30½" x 68½"	30½" x 68½"	30½" x 68½"	30½" x 68½"	30½" x 68½"
Overall Exterior Height		128 in	128 in	128 in	133 in	133 in	133 in
Exterior Width (with mirrors folded in)		100 in	100 in	100 in	100 in	100 in	100 in
Exterior Width (with mirrors extended)		125½ in	125½ in	126½ in	126 in	126 in	115 in
Interior Height		77¾ in	77¾ in	77¾ in	77¾ in	77¾ in	77¾ in
Interior Width		96 in	96 in	96 in	96 in	96 in	96½ in

Vehicle Manufacturers Identification Label

F-450, F-550, F-650, Freightliner Label

MANUFACTURED BY: GRECH MOTORS, LLC
INCOMPLETE VEHICLE MANUFACTURED BY: FORD
DATE OF MANUFACTURE: [] MO. [] YR. DATE INC. VEH. MANUFACTURED: [] MO. [] YR.
VIN: []
GVWR: [] lbs [] Kg /
GAWR FRONT: [] lbs [] Kg / WITH
[] TIRES.
[] RIMS, # [] PSI [] Kpa / COLD
GAWR REAR: [] lbs [] Kg / WITH
[] TIRES, [] PAINT CODE []
[] RIMS, # [] PSI [] Kpa / COLD VEHICLE TYPE: BUS

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

(Label is located on drivers door jam of each vehicle)

LABEL EXPLANATION

GM # - This is your permanent GRECH Vehicle Identification number.

VIN # - This is your DMV Vehicle Identification Number.

GVWR - This is the gross rated weight capacity of your vehicle

GAWR Front - This is the rated weight capacity of the front axle

GAWR Rear - This is the rated weight capacity of the rear axle

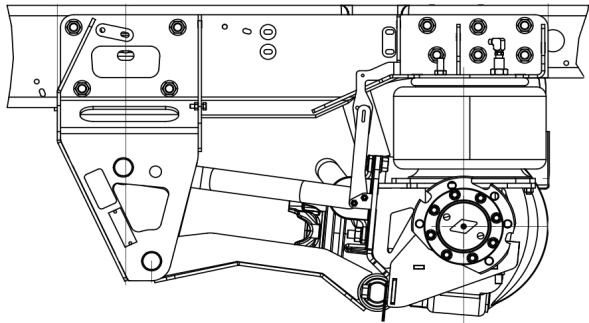
Date Incomplete Vehicle Manufactured - This is the date the chassis was produced by FORD

Date Of Manufacture by GRECH - This is the date the vehicle was completed by GRECH.

Paint Code - This is the master number for the paint specification and color used on your vehicle.

Tires, Rims - This indicates the required tire and rim sizes, and air capacities for your specific vehicle.

Ultra Ride Air Suspension Maintenance and Torque Specs



Maintenance Schedule

Check at every vehicle service interval:

- Check Design Height (8.00 ±¼").
- Check for air leaks all around fittings.
- Check tire pressure.
- Visually check for loose, worn, or damaged components.

Check After the First 1000 Miles:

- Recheck & Tighten an loose fasteners.
- Check for any loose or worn components.

Check Every 30,000 miles

- Check lower control arm, sway bar, and lateral control rod (panhard bar) bushings for wear. Replace if necessary.
- Check and re-torque all fasteners (refer to Torque Table)

Check Annually:

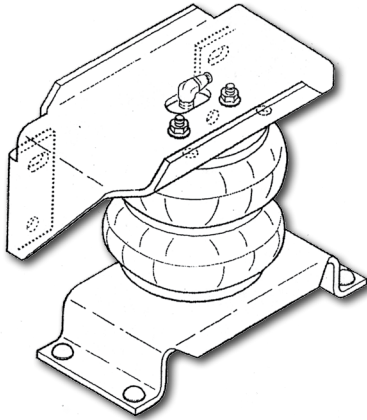
- Check shock absorbers for oil leaks and function

Torque Table

Location	Fastener	Torque
Frame Hanger	9/16 unf nuts	134 Ft-lbs
Frame Hanger	5/8 unc nuts	200 Ft-lbs
Driver Side Axle Bracket at OE D-Bushing Location	10 mm OE Bolts	72 N-m
Axle Bracket (long bolts)	1/2 unc nuts	106 Ft-lbs
Air Spring Adapter Plates	3/8 unc nuts	31 Ft-lbs
Cross member	1/2 unc nuts	100 Ft-lbs
Stabilizer Bar D-Bushing Mounts	5/8 unc nuts	200 Ft-lbs
Lower Control Arm At Axle Bracket	5/8 unc nuts	200 Ft-lbs
Stabilizer Bar Bushing and Control Arm at Frame Hanger	M22 x 2.5 nuts	830 N-m
Lateral Control Rod (Pass.)	M22 x 2.5 nuts	830 N-m
Lateral Control Rod (Driver)	5/8 unc nuts	200 Ft-lbs
Magnet Mounting Plate	1/4 unc Nyloc nuts	8-10 Ft-lbs

Attention: Only Used on F450 & F550

Firestone Ride Rite Air Spring Maintenance and Specs



CAUTION!

Do not inflate this assembly when it is unrestricted. The assembly must be restricted by the suspension or other adequate structure. Do not inflate beyond 100 p.s.i. Improper use or over inflation may cause property damage or severe personal injury.

MAINTENANCE

It is considered normal for air helper springs to lose some air pressure over time. Normal pressure loss should not exceed 3-4 p.s.i. per week when the air springs are inflated to 50 p.s.i. If the pressure is greater than 3-4 p.s.i. per week, there may be a leak in the system. Each time you check the pressure in the air springs, you will lose 1-3 p.s.i. The air pressure should be checked at regular intervals.

NOTE:

Min. Pressure = 5 p.s.i.

Max. (loaded) Pressure = 100 p.s.i.

Refer to original manufacturer owner's manual, for greater detailed information on this product.

NOTE: IT IS RECOMMENDED THAT THE AIR PRESSURE BE CHECKED ACCORDING TO THE FOLLOWING GUIDELINES

- At least monthly intervals during the continuous operation of the vehicle(see above)
- When the vehicle is removed from long term storage

Important Note: For your safety and to prevent possible damage to your vehicle, so not exceed the maximum load recommended by the vehicle manufacturer (GVWR). Although your Air Helper Springs are rated at a maximum inflation pressure of 100 p.s.i., this pressure may allow you to carry too great a load on some vehicles. It is best to have your vehicle weighed once it is completely loaded and compare that weight with the maximum allowed. Check your vehicle owner's manual or data plate on driver's side door for maximum loads listed for your vehicle.

When inflating your Air Helper Springs, add air pressure in small amounts, checking pressure frequently during inflation. The air spring requires much less air volume than a tire and, therefore, inflates much quicker.

PREVENTATIVE MAINTENANCE SCHEDULE

The following Maintenance Schedule is provided as a convenient reference for the specified systems and components, which require periodic service.

These schedules are not intended to be a complete list of all possible services to be performed on a regular basis, nor is it suggested that more frequent services not be considered. We suggest always referring to the Original Chassis Manufacturers Suggested Maintenance Schedule.

Because of the different types of operations coaches are subjected to, the severity of service must be considered when establishing maintenance intervals. Therefore, any such intervals given in the following schedule must be adjusted according to the particular type of operation in which your particular vehicle will be used. The intervals given are Grech Motors, LLC. recommendations and should be considered as maximum intervals. It should be noted that maintenance inspection and service operations of shorter intervals are always preferable to longer intervals.

NOTE:

Check Your Original Owner's Guide Supplement(s), regarding special operating condition and maintenance requirements, that may be applicable due to your specific vehicle operating profile.

PREVENTIVE MAINTENANCE SCHEDULE

THE FOLLOWING PAGES SPECIFY THE MINIMUM REQUIREMENTS THAT ARE NECESSARY TO PROPERLY MAINTAIN YOUR VEHICLES SYSTEMS AND COMPONENTS

CHECK EVERY DAY:

- ▶ all items on Pre-Trip inspection (see pages 6 & 7)
- ▶ side passenger door emergency release operation
- ▶ side passenger entry door, operation, locking, damage, and obstruction sensing system
- ▶ emergency roof hatch
- ▶ emergency egress window latches
- ▶ function of all interior and exterior lights
- ▶ tire pressure, F-450 95 psi, F-550 95 psi, F-650 110 psi, Freightliner 110 psi
- ▶ fluid leaks from, transmission, engine, power steering, engine coolant, gear oil, fuel
- ▶ check all seatbelts for proper function and damage

CHECK EVERY MONTH:

- ▶ door linkage and pivot arm lubrication and worn or damaged components
- ▶ and lube rear Kwikkee step, (if equipped)
- ▶ and clean air intake filter for A/C system

AT 5,000 MILES/600 HOURS DO THE FOLLOWING:

- ▶ inspect tires for wear and inspect tread depth
- ▶ inspect torque specifications on Ultra Ride Suspension System (if equipped)
- ▶ lube door seals with silicon spray, check for proper sealing
- ▶ check the torque of all door hardware on Vapor door systems

SPECIAL NOTE REGARDING AIR CONDITIONING CHARGING:

Always refer to the “Charge Label”
under the vehicle hood.

PREVENTIVE MAINTENANCE SCHEDULE

AT 15,000 MILES/1800 HOURS DO THE FOLLOWING:

- ▶ re-inspect torque settings on Ridewell Suspension System
- ▶ lube door seals with silicon spray, check for proper sealing
- ▶ check air system for leaks, and electrical connections
- ▶ check the torque of all door hardware on Vapor door systems

AT 20,000 MILES/2400 HOURS DO THE FOLLOWING:

- ▶ inspect tires for wear and inspect tread depth
- ▶ rotate tires
- ▶ inspect engine air filter
- ▶ clean battery terminals
- ▶ check the torque of all door hardware on Vapor door systems

AT 25,000 MILES/3000 HOURS DO THE FOLLOWING:

- ▶ inspect tires for wear and inspect tread depth
- ▶ rotate tires
- ▶ inspect engine air filter
- ▶ clean condenser coils
- ▶ check the torque of all door hardware on Vapor door systems.

AT 30,000 MILES/3600 HOURS DO THE FOLLOWING:

- ▶ lube door seals with silicon spray, check for proper sealing
- ▶ re-inspect torque specifications on Ultra Ride Suspension System (if equipped)
- ▶ check the torque of all door hardware on Vapor door systems

**SPECIAL NOTE REGARDING
AIR CONDITIONING CHARGING:**

Always refer to the “Charge Label”
under the vehicle hood.

PREVENTIVE MAINTENANCE SCHEDULE

AT 45,000 MILES/5400 HOURS DO THE FOLLOWING:

- ▶ lube door seals with silicon spray, check for proper sealing
- ▶ re-inspect torque settings on Ultra Ride Suspension System
- ▶ check the torque of all door hardware on Vapor door systems

AT 60,000 MILES/7200 HOURS DO THE FOLLOWING:

- ▶ lube door seals with silicon spray, check for proper sealing
- ▶ re-inspect torque settings on Ultra Ride Suspension System
- ▶ check the torque of all door hardware on Vapor door systems

AT 75,000 MILES/9000 HOURS DO THE FOLLOWING:

- ▶ lube door seals with silicon spray, check for proper sealing
- ▶ re-inspect torque settings on Ultra Ride Suspension System
- ▶ check the torque of all door hardware on Vapor door systems

AT 90,000 MILES/10800 HOURS DO THE FOLLOWING:

- ▶ lube door seals with silicon spray, check for proper sealing
- ▶ re-inspect torque settings on Ultra Ride Suspension System
- ▶ check the torque of all door hardware on Vapor door systems

NOTE: at 100,000 MILES re-implement the initial 5000 mile maintenance routine and follow each mileage milestone as you did in the beginning. Example 100,000 miles, 115,000 miles, 120,000 miles etc...

**SPECIAL NOTE REGARDING
AIR CONDITIONING CHARGING:**

Always refer to the “Charge Label”
under the vehicle hood.

SUPPLEMENTARY PREVENTIVE MAINTENANCE INFORMATION

In addition required Preventative Maintenance information specified by GRECH Motors or the chassis manufacturer, this pages indicates the following specific exceptions should be noted.

Orange/Red Coolant:

Must be changed every 5 years or 100,000 miles (whichever comes first), then after initial change, every 3 years or 50,000 miles.

Rear Axle Lubricant:

Must be changed every 50,000 miles

Transfer Case Fluid:

Must be replaced every 60,000 miles

Change Rear Wheel Drive Axle Fluid:

On Dana axles using synthetic fluid, fluid must be changed every 150,000 miles

NOTE:

Check Your Original Owner's Guide Supplement(s), regarding special operating condition and maintenance requirements, that may be applicable due to your specific vehicle operating profile.

Basic Troubleshooting Guide

The following section details basic troubleshooting techniques that will help you to understand and determine the best course of action regarding some commonly encountered problems.

PROBLEM	POSSIBLE SOLUTIONS
VIBRATION: Noises or Vibration at high speeds only, or in a certain range of speeds:	A certain range of speeds indicates a damaged or otherwise out-of-balance drive line, Contact the Service Dept. Only SELECT drive line shops that are qualified to properly balance the multiple drive line extensions used in your bus. GRECH Motors can recommend one near you.
REAR A/C BLOWER INOPERATIVE	Check to make sure all fuses are good. If the rear A/C is still not working, call the Service Department at GRECH Motors.
EXTERIOR LIGHTING	One or all exterior clearance lights inoperative, please refer to the FORD owner's manual for fuse locations.
PAGING SYSTEM INOPERATIVE	Check the 5 amp fuse on the circuit board behind the driver. Wiring schematics and instructions for the paging system are located in this manual on page 22.
EXTERIOR SEALANTS CRACKING OR LIFTING	If the exterior seams of the bus ever crack or start lifting, simply clean the area with rubbing alcohol or mineral spirits completely. After this has been done you can remove the old silicone by using a sharp knife or razor cutter. Clean the area again with the above cleaners and apply a thin bead of exterior silicone and smooth the bead with your finger for a smooth appearance.

Basic Troubleshooting Guide

PROBLEM	POSSIBLE SOLUTIONS
REAR ELECTRIC STEP INOPERATIVE	Check to make sure the step switch is turned on. This switch is located inside the cargo area on the right hand sidewall. If this will not power up the step, check fuse in electrical panel behind the drivers seat. The rear step should be lubricated every 30 days to ensure proper operation of the step.
REAR STEREO/CD INOPERATIVE	Check to make sure all connections are tight. Also remove the stereo and check the fuse located on the backside of the stereo. Also check the fuses in the OEM fuse panel for Radio.
CANNOT REMOVE WATER FROM LAVATORY	Make sure fresh water tank has water in it and the water pump switch is in the on position. NOTE: Always be sure to turn the water pump switch off when not in use. Failure to do so could cause a steady drain on the auxiliary battery or could cause damage to the water pump. The fresh water fill is located under the bus at the rear of the vehicle.
PASSENGER LIGHTS INOPERATIVE	Check to make sure the switch on the overhead control panel is turned on. NOTE: There is a 5 minute light timer for the interior lights which will automatically turn them off when the door is open. The ignition switch needs to be turned on for at least 10 seconds to reset the timer.
BACK-UP ALARM INOPERATIVE	Check to make sure reverse lights are coming on, if not, check the fuse located in the FORD fuse panels.
SIDE ENTRY DOOR AJAR ALARM	Check to make sure the side door lock is engaged properly.