

<b>PRODUCT INFORMATION BULLETIN</b>		
<b>DATE ISSUED</b>		<b>PIB #</b>
<b>01/24/11</b>	<b>ATWOOD LEVEL LEGS SERVICE TRAINING MANUAL</b>	<b>009</b>
<b>YEAR / BRAND / TYPE / MODEL #</b>		
<b>This information is for all Newmar models that currently have Atwood's Auto Position Levellegs system installed.</b>		
<b>PRODUCT INFORMATION</b>		
<p><b>These current Newmar models include:</b></p> <ul style="list-style-type: none"><li>• 2007 - Current Bay Star, Class A</li><li>• 2007 – Current Canyon Stars Class A, under 38' of length</li><li>• 2006 – Current Dutch Star, Diesel Pusher</li><li>• 2006 – 2011 Ventana, Diesel Pusher, under 39' of length</li></ul> <p>Please reference the attached instructions from Atwood when installing, programming, operating or troubleshooting their Auto Position Levellegs system.</p>		



# Atwood Mobile Products

Auto Position  
Levellegs™

---

Revised 03/26/07

# Leveleg Training & Service Outline

<u>Page(s)</u>	<u>Topic</u>
3	What is the Atwood Leveleg™ System? Leveleg Models
4-7	Leveleg System Components
8	Recommended Tools and Equipment
9-12	Installation Recommendations/Procedures
13-17	Initial programming
18	Operating Procedure
19	Entering manual air dump
20-26	Trouble Shooting
27	Wiring Diagram
28-29	Replacement Parts List
30	Return Goods Policy
31	Warranty

# What is the Atwood Leveleg System?

- Class A Auto Position Electromechanical Jack System

- Electric Ball Screw Jacks

- 66280 - 7.5K Lifting capacity jack w/ 15" of travel

- 66302 - 7.5K Lifting capacity jack w/ 13" of travel

- 66334 - 7.5K Lifting capacity jack w/ 15" of travel, 4" taller

- 66070 - 10K Lifting capacity jack w/ 15" of travel

- Auto Position Controls

- 66272 - Auto position controls kit for Ford chassis

- 66276 - Auto position controls kit for Workhorse chassis

- Jack Mounting Bracket Kits

- One of the following for each Jack

- 61023 - Bolt on universal kit, 7.5K (same as 61025 but has bolts)

- 61025 - Weld on universal kit, 7.5K (61011 jack bracket side slots)

- 61030 - Weld on universal kit, 7.5K (61031 jack bracket front slots)

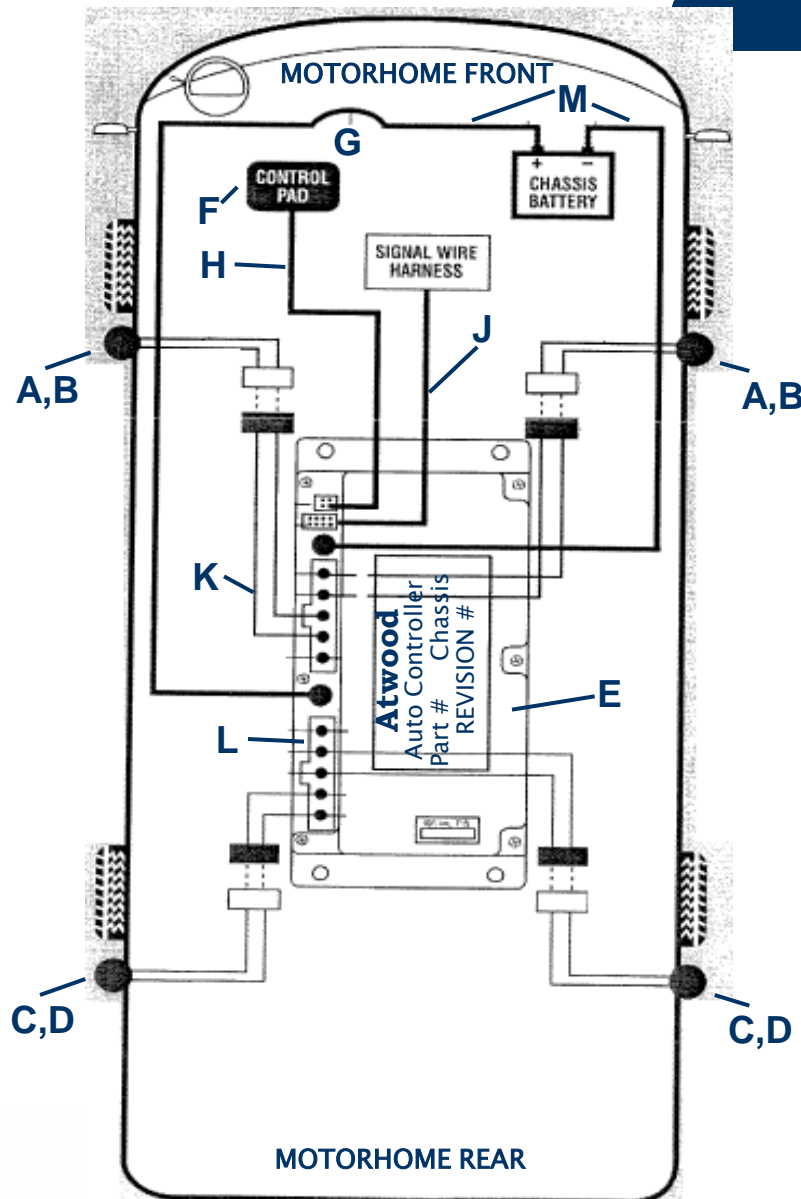
- 66031 - Weld on P chassis rear kit, 7.5K

- 66032 - Weld on P chassis front kit, 7.5K

- 61039 - Bolt on '06 F53 chassis front kit, 7.5K

- 66060 - Bolt/Weld on universal kit, 10K

# Leveleg System Components



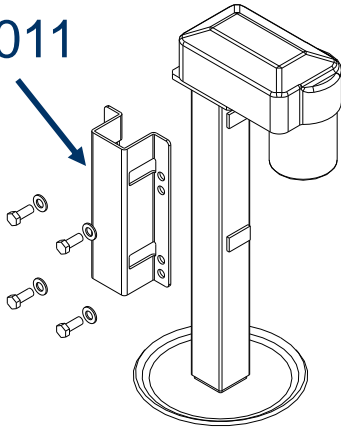
## Components List

- A** – Front Leveleg (2)
- B** – Front Leveleg mounting bracket kit (2)
- C** – Rear Leveleg (2)
- D** – Rear Leveleg mounting bracket kit (2)
- E** – Auto Position control module
- F** – Keypad
- G** – 120 Amp circuit breaker
- H** – 4-Pin connector cable (wire harness)
- J** – 8-Pin connector cable (wire harness)
- K** – Front Leveleg harness
- L** – Rear Leveleg harness
- M** – Power wiring

# Leveleg Components Continued

## Jack bracket

61011

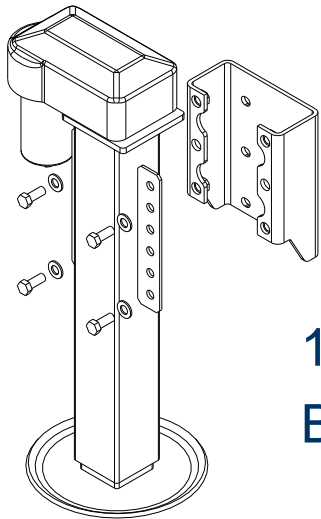


7.5K – Frame  
bracket - 61022

7,500 lbs. Leveleg and mounting brackets

## A,C – Leveleg

- 7.5K or 10K rating per Leveleg
- Two brackets Frame and Jack
- Square tube, ball screw system
- Typically matched fronts and matched rear levelers based on axle rating



10K – Frame  
Bracket - 66060

10,000 lbs. Leveleg and mounting bracket

## B,D – Mounting Bracket Kits

- Frame Bracket can be Welded or Bolted
- Four Bolts to Remove Leveler
- Built in Vertical Adjustment in Leveler Bracket
- Four Inches in 7.5K System
- Three Inches in 10K System

# Leveleg Components Continued

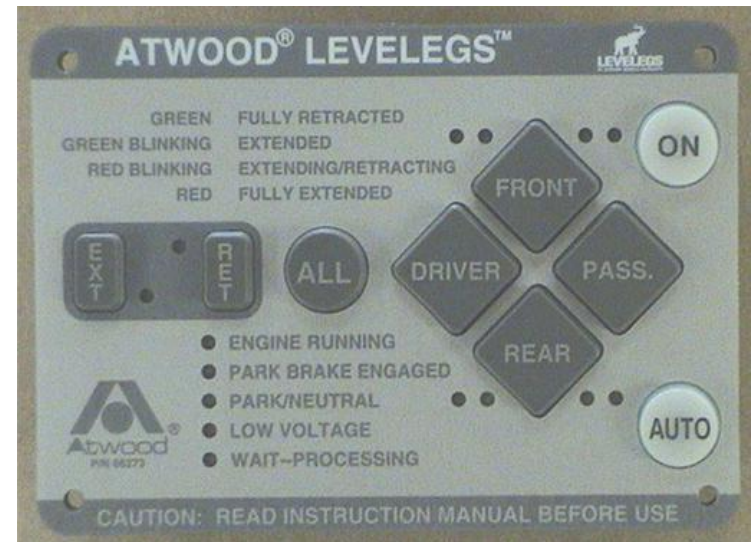


## E - Control Module

- Either 66274 used on Ford Chassis or 66275 used on Workhorse Chassis (difference in transmissions signals)
- Contains Electrolytic Fluid for Auto Position
- Must Mount Up and Forward
- Connections are Molex Style

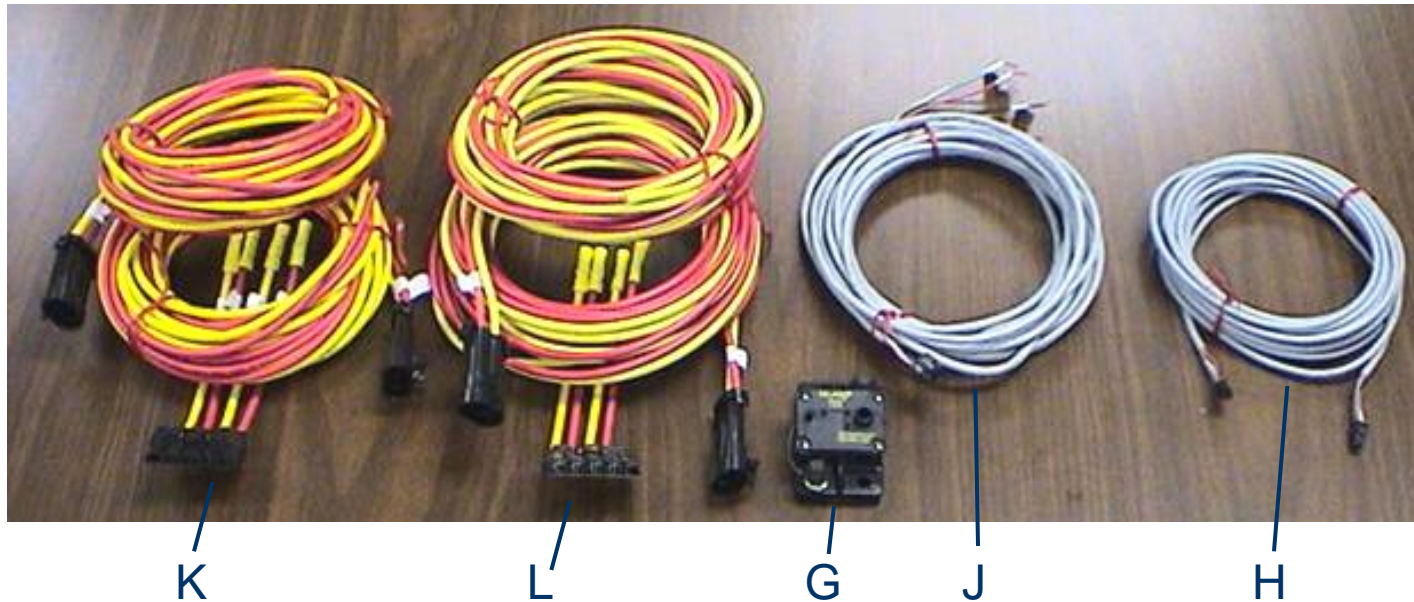
## F - Key Pad

- User Interface with System
- Screw Mounts to Dash Board
- Shows Safety State of System
- Shows Jack Position





# Leveleg Components Continued



- G - 120 Amp Breaker – On (+) battery Lead(2 gage wire recommended)
- H - Keypad Wiring – (4) pin connector at control board and keypad
- J - Coach Wiring – (8) pin connector at control board and to coach for Ignition, Transmission signal, Parking brake, and Foot brake
- K/L - Leveleg Wiring – 10 gage wire connecting to leveler motor with watertight connector and to control board with quick connector for both front or both rear levelers



# Recommended Tools and Equipment

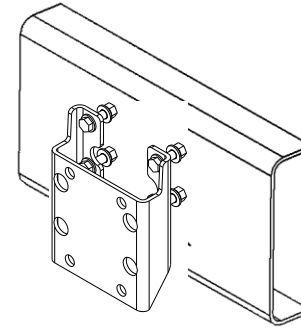
## Equipment and tools

- Welder and welding supplies(optional bracket mounting method)
- (2) 3/4 Inch wrenches
- 3/4 Inch socket and ratchet
- Torque wrench (65 foot lbs. min.)
- 7/16 Inch nut driver
- Wire cutters
- Wire strippers and crimpers
- Phillips screwdriver
- Standard screwdriver
- 20 feet of red #2 wire
- 20 feet of black #2 wire

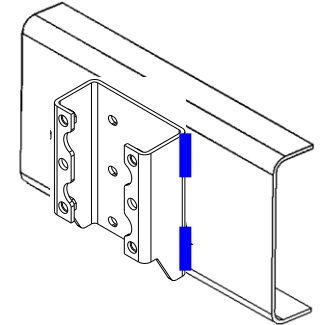
# Installation

- Mounting Brackets

- (4) ½”-13 x 1-1/2” Grade 8 bolts (at widest spread possible) or weld to frame (min. 6” of weld per side)
- Brackets reversible for Leveleg height adjustment
- 7.5K has reversible Leveleg bracket which holds Leveleg and bolts to mounting bracket with (4) ½”-13 bolts
- 10K Bolts directly to mounting bracket with (4) ½”-13 x 1-1/2” Grade 8 bolts
- Some frames do require specific mounting bracket kit



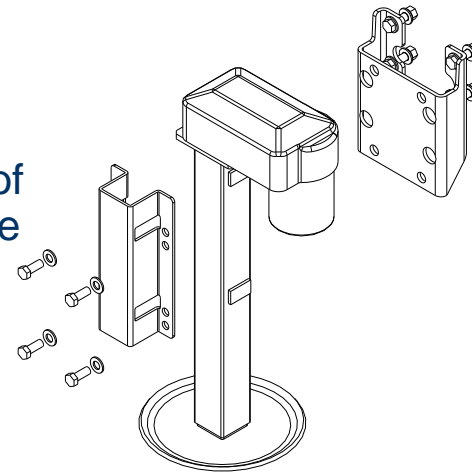
7.5K Mounting bracket bolted



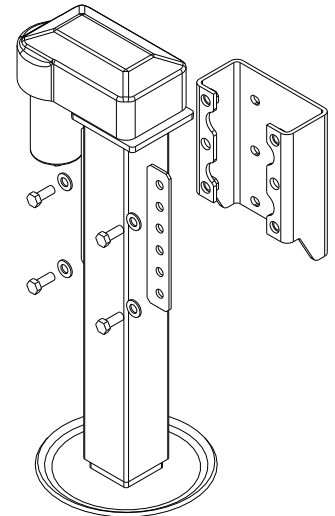
10K Mounting bracket welded

- Levelegs™

- Motor mounted toward front or rear of coach also available for motor to face out from frame
- Recommended 3” of clearance to outside of leg for service removal
- Ground clearance requirement is 7”-10” on a loaded coach.
- 7.5K Leveleg 2.5” square tube and 10K Leveleg 3” square tube



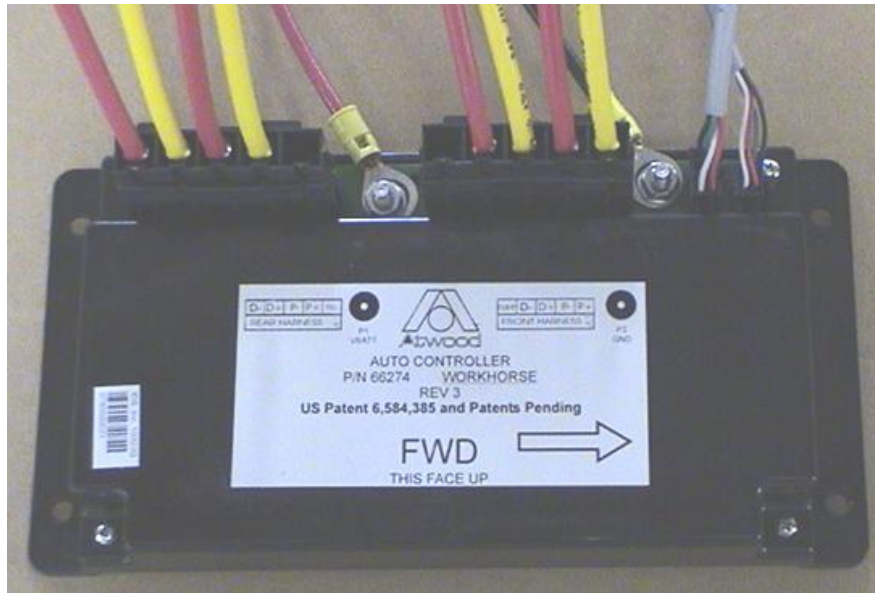
7.5K Leveleg



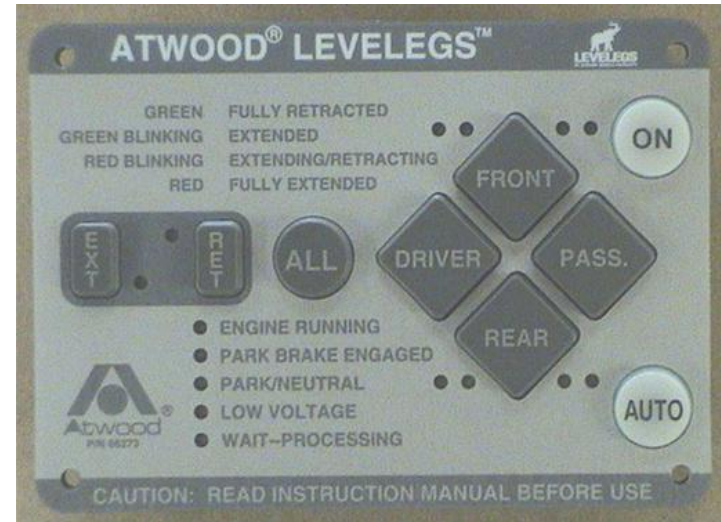
10K Leveleg

# Installation Continued

- Control Module
  - Mount securely by (4) mounting holes in corners in a dry stable compartment. For best leveling results mount over frame between front and rear axles of coach.
  - Control must be mounted face up within 8 degrees of level and the arrow pointing toward the front of the coach.
- Keypad
  - Mount near driver using (4) mounting holes in corners. Snug tight only, use of air tools could damage keypad.
  - Single 4-pin connector from control board to keypad.



Control Module  
10

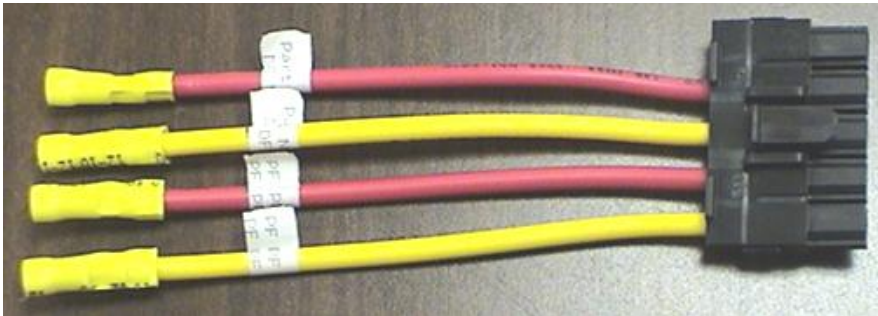


Keypad

# Installation Continued

- **Power and Leveling Wiring**

- Connect watertight connector for each 2-wire Leveling harness to each of the Leveling motors. Route harness back to control module leaving some disconnect slack and avoiding sharp edges and moving parts.
- Cut, and strip wires at control board. Crimp to appropriate molex connector lead as marked on short wires. (DR, PR, DF, PF and match lead color)
- If installing system with air dump connect fill lead to extra connection point of rear harness and dump lead to extra connection point of front harness.
- Snap Molex™ connectors into control module as marked on control module.
- 2 gage power wires with ring terminal connections recommended for supplying power and ground. The Battery (+) side connects to the P1 post on the board using a nut. The 120 amp breaker is required in this (+) line approximately 18 inches from the battery. Ground wire connects to the P2 post. Both lines are recommended directly from the battery.



Leveling harness Molex connection



120 Amp breaker

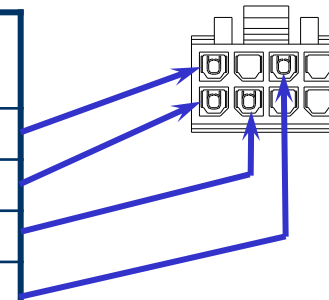
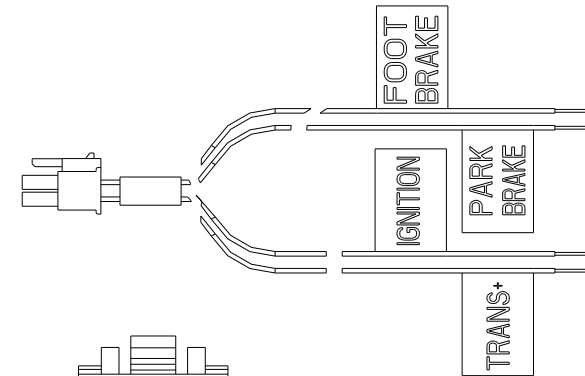
# Installation Continued

## ● Signal Wiring

- Coach wiring, 8-pin connector
  - Connect at control module and coach
  - Signal Wiring:

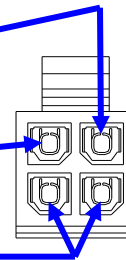
## ● All signals are ground except “Workhorse” transmission is positive.

Wire Color	Ford Connection	Workhorse Connection	Wire
Red	#3 IP (-)	F-6 (-)	Foot Brake
Yellow / White	#15 IP (-)	D-4 (-)	Park Brake
Blue / Green	14401 Crank enable”(-)	C-9 (+)	Transmission
Black	#5 IP (& 3 amp fuse) (+)	F-5 (& 3 amp fuse) (+)	Ignition



## ● Keypad wiring, 4-pin connector

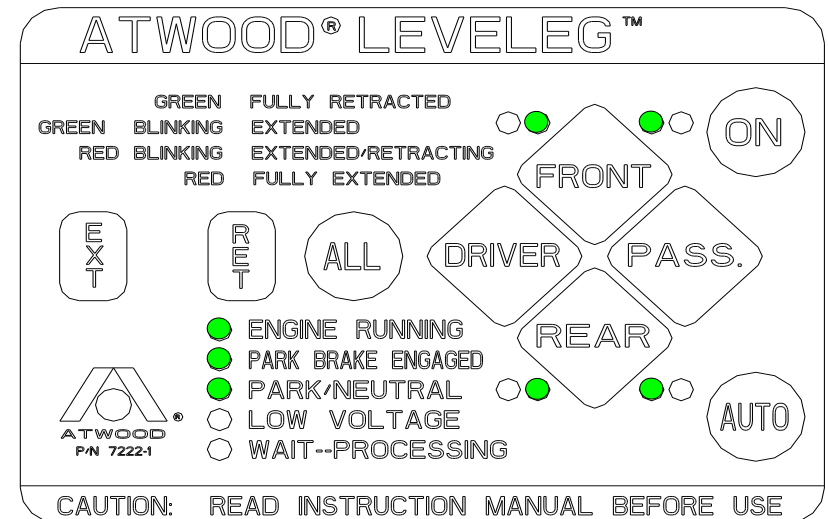
- Connect at control module (right) and keypad (pg.10)
- (1) Ground wire
- (1) 12 volt wire
- (2) Signal wires (0 – 12 volts)



4 & 8 Pin connectors at control module

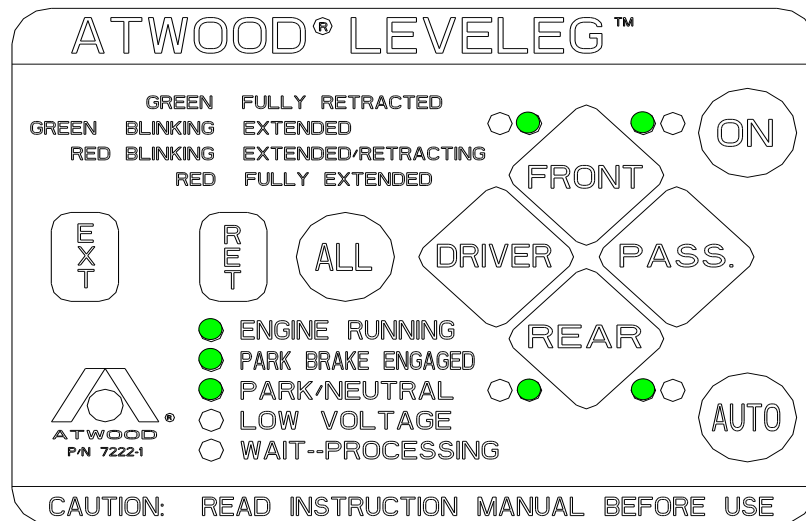
# Initial Setup

- Insure Three Green Lights on Key Pad
  - Engine Running
  - Park Brake Set
  - Park/Neutral Engaged
- No Low Voltage Light
- Control Module Shipped in Error State
  - All Leveler Lights Blinking
- Press ALL and RET to get out of Error Mode





# Initial Setup Continued

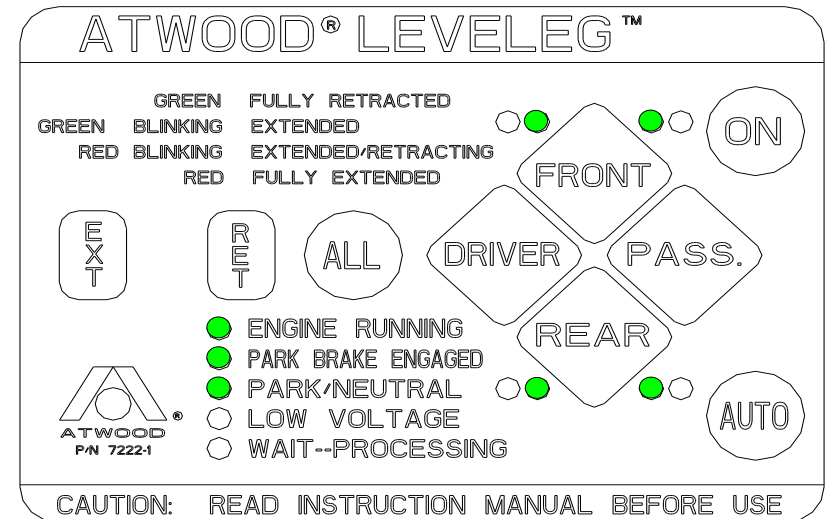


- Press and Release EXT and ALL
  - All Levelers will go down and Touch Ground
- Press and Release EXT Button
- Press and Hold Leveler Buttons
  - Levelers always work in Pairs
  - For every 6 seconds of extension opposite pair will retract for 2 seconds
- Press and Release RET Button to put into Retract Mode if Needed.

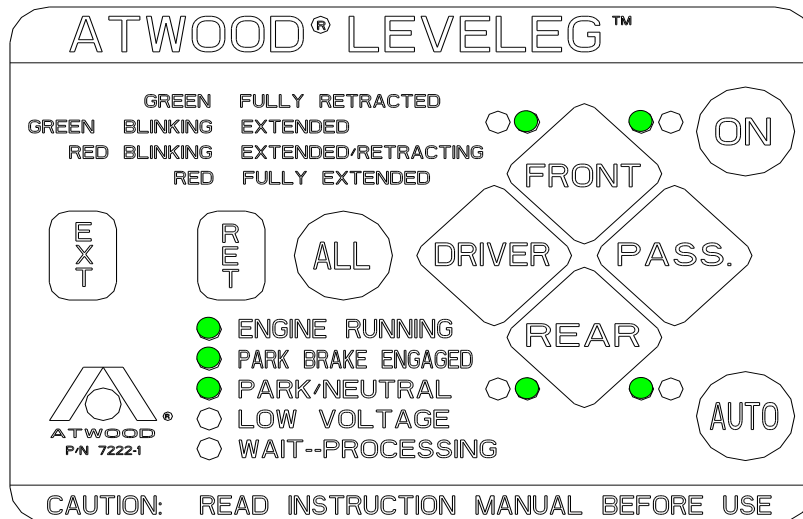


# Initial Setup Continued

- To Set Auto Position Memory - Once Coach is in Desired Position
  - Press On to Turn Key Pad Off
  - Press EXT Button 5 Times
  - Press RET Button 5 Times
    - All Lights will Blink
  - Press ALL 3 Times
    - All Lights will Turn Off



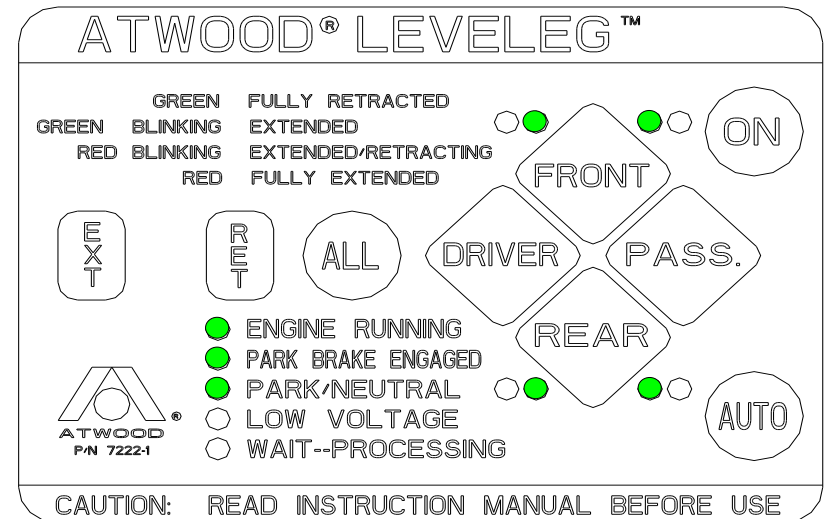
# Initial Setup Continued



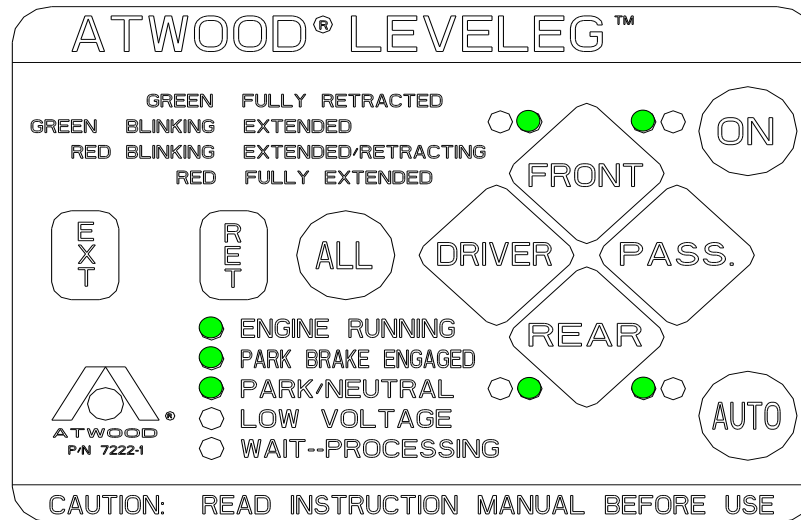
- Diesel Auto Air Dump Setup
  - Once Auto Position is set up for the First Time
    - Levelers' Lights will Scroll Back and Forth
    - Press PASS Button 3 Times to Turn Off
    - Press DRIVER Button 3 Times to Turn On
    - This will only happen the first time the Auto Position is set.
  - To Return to Air Dump Setup mode:
    - Turn keypad off
    - Press EXT (10) times
    - Press RET (10) times
    - Leveler lights will scroll back and forth
    - Press DRIVER (3) times to turn on or PASS (3) times to turn off

# Initial Setup Continued

- To Retract Levellegs
  - Press and Release the ALL and RET Buttons Together
  - All Levellegs will come up and turn off
- Emergency Stop
  - Press any Button While Levellegs are Moving
  - All Levellegs will Stop Moving
  - Must Retract Levellegs Once Emergency Stop is Pressed



# Operating Procedure – Auto Mode



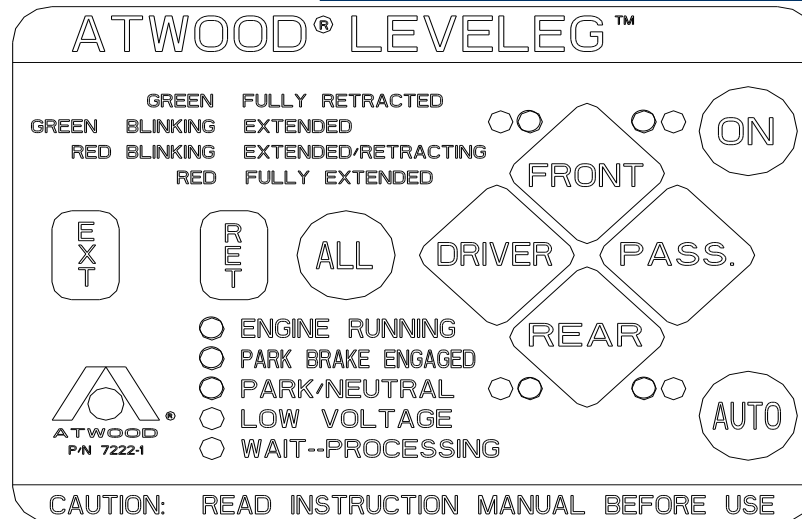
## Ready to Level:

- Turn Keypad ON and Press AUTO
- Levelers will go down and touch ground
- Then they will Auto Position the Coach
- Once Positioned – System will insure all levelers are on the ground
- Turn unit off, or the unit will go off on its own after 5 minutes

## Ready to Leave:

- Turn Keypad on and Press RET and ALL
- Levelers will come up to fully retracted position and lights will indicate fully retracted
- Turn unit off, or the unit will go off on its own after 5 minutes

# Entering - manual air dump



- 1.) Turn Level Leg Key pad off.
- 2.) The engine is running depress foot brake.
- 3.) The park brake is released.
- 4.) The transmission in gear ( Drive or Reverse).
- 5.) The following three buttons push simultaneously on the key pad, Front, Rear, and All.
- 6.) This will momentarily dump the air bags to allow the vehicle to be driven through a door way that was too low for the vehicle to be driven through with the air bags filled.

# Levelog Trouble Shooting

**No LED's and no response from keypad**

Check 120 amp fuse,  
Check 3 amp fuse

TRIPPED

Reset 120 amp breaker,  
Or change 3 amp fuse

OKAY

Check battery voltage.  
(12.5 Volts minimum)

LOW

Correct low battery issue.  
(System required voltage)

OKAY

Check ignition wire voltage.  
(12 volts on pin 7 w/ RV on)

NO

Check ignition voltage at RV  
connection (12 volts w/ RV on)

YES

Fix or Replace 8 Pin  
connection cable

NO

Fix or Replace 4 wire  
cable

12V to board

Check 4 Pin connector  
voltage at keypad.  
(3 with 12 volts, 1 ground)

NO

Check 4 Pin connector  
voltage at control board  
(3 w/ 12 volts, 1 ground)

YES

Fix or Replace 4 Pin  
connection cable

NO

Replace control board, see  
Determining Service Kit

OKAY

Check for moisture on or near  
control board or keypad.

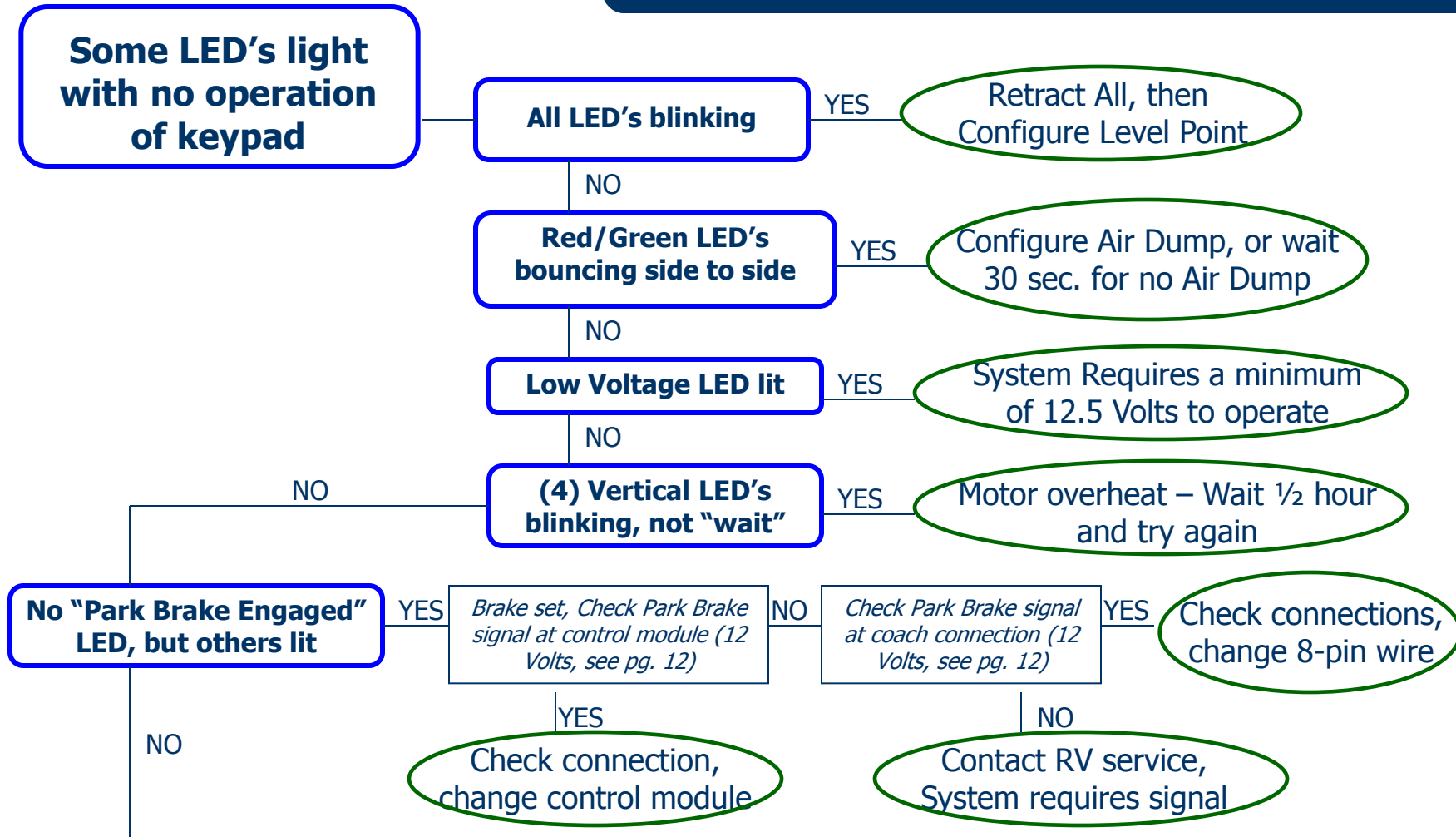
YES

Allow control  
board/keypad to dry

NO

Replace keypad, see  
Determining Service Kit

# Leveling Troubleshooting



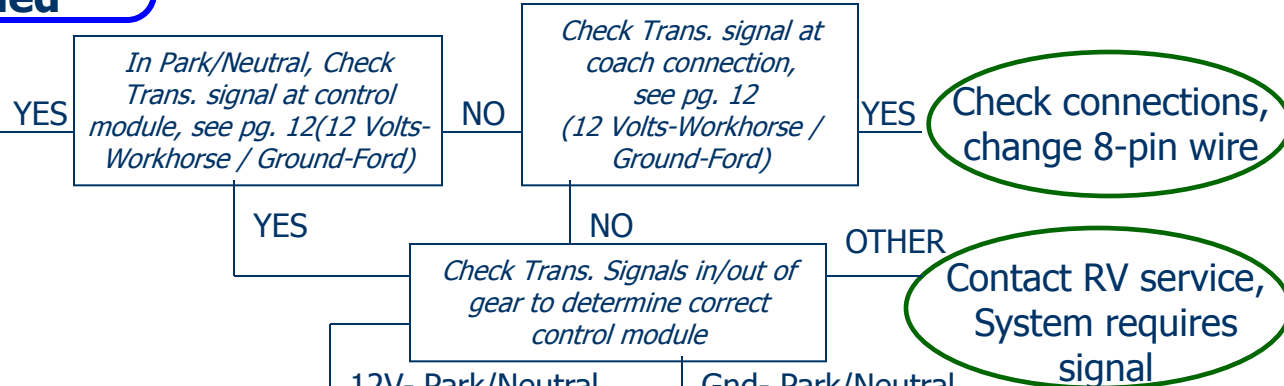
Continued next page



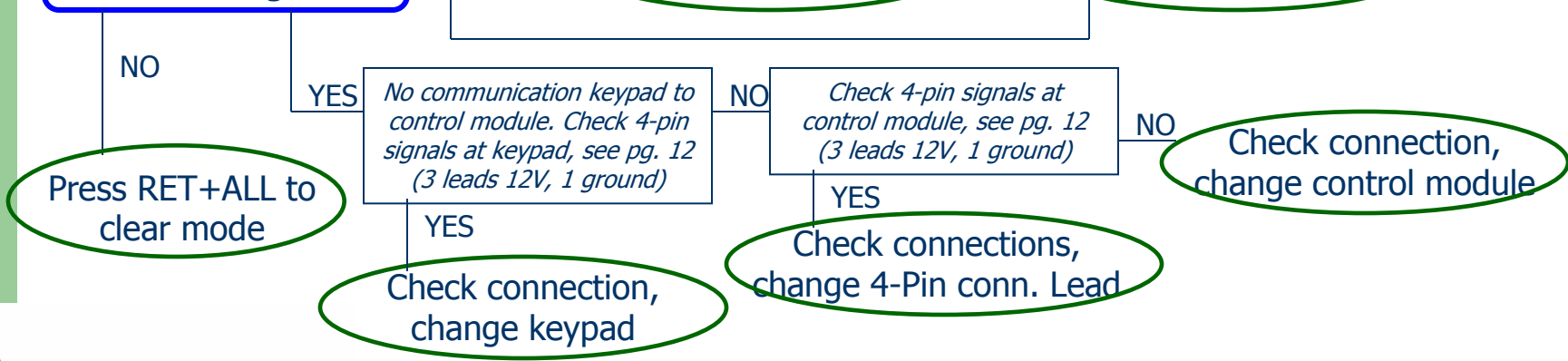
# Levelog Trouble Shooting

**Some LED's light with no operation of keypad, Continued**

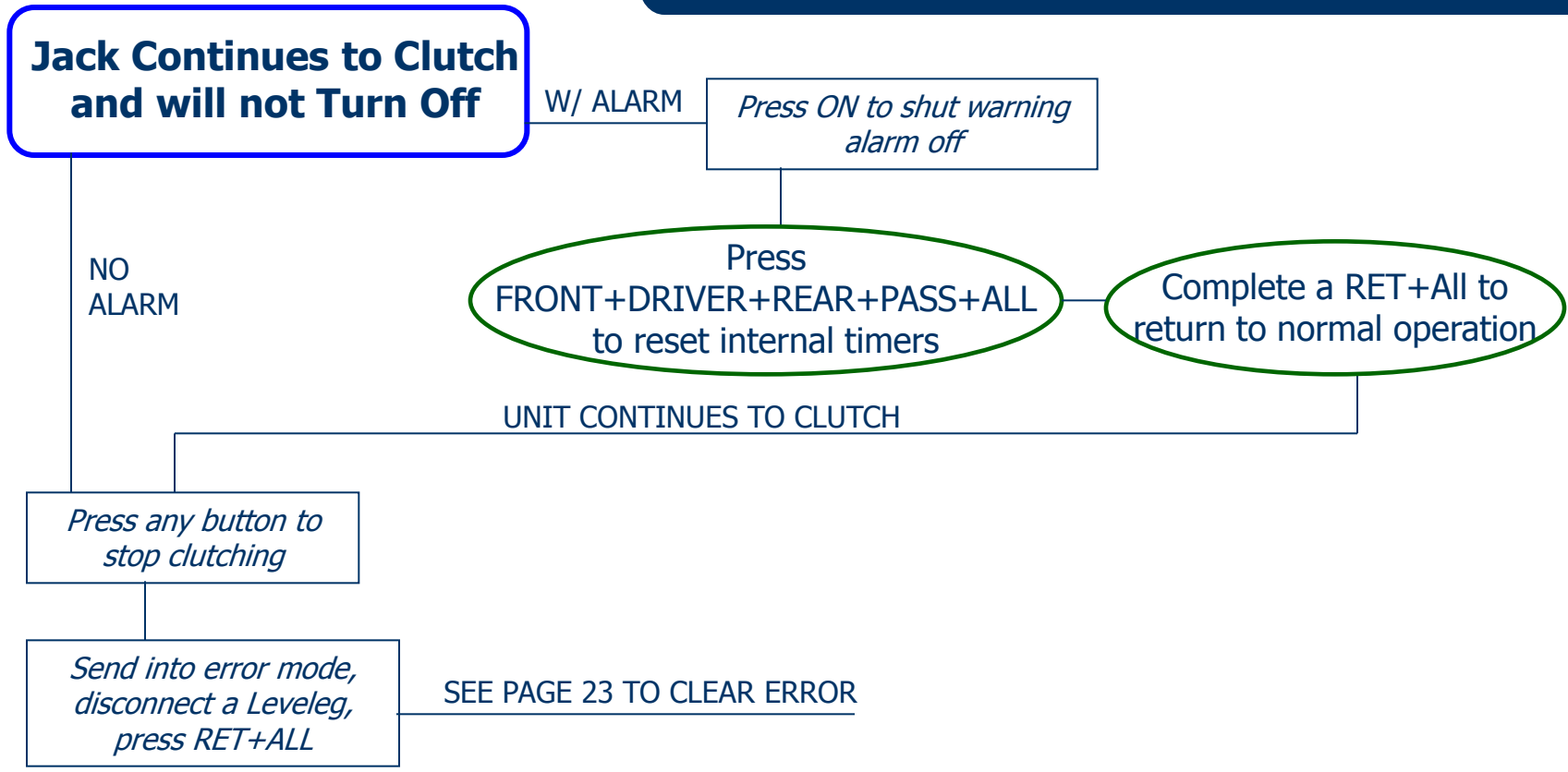
**No "Park/Neutral" LED, but others lit**



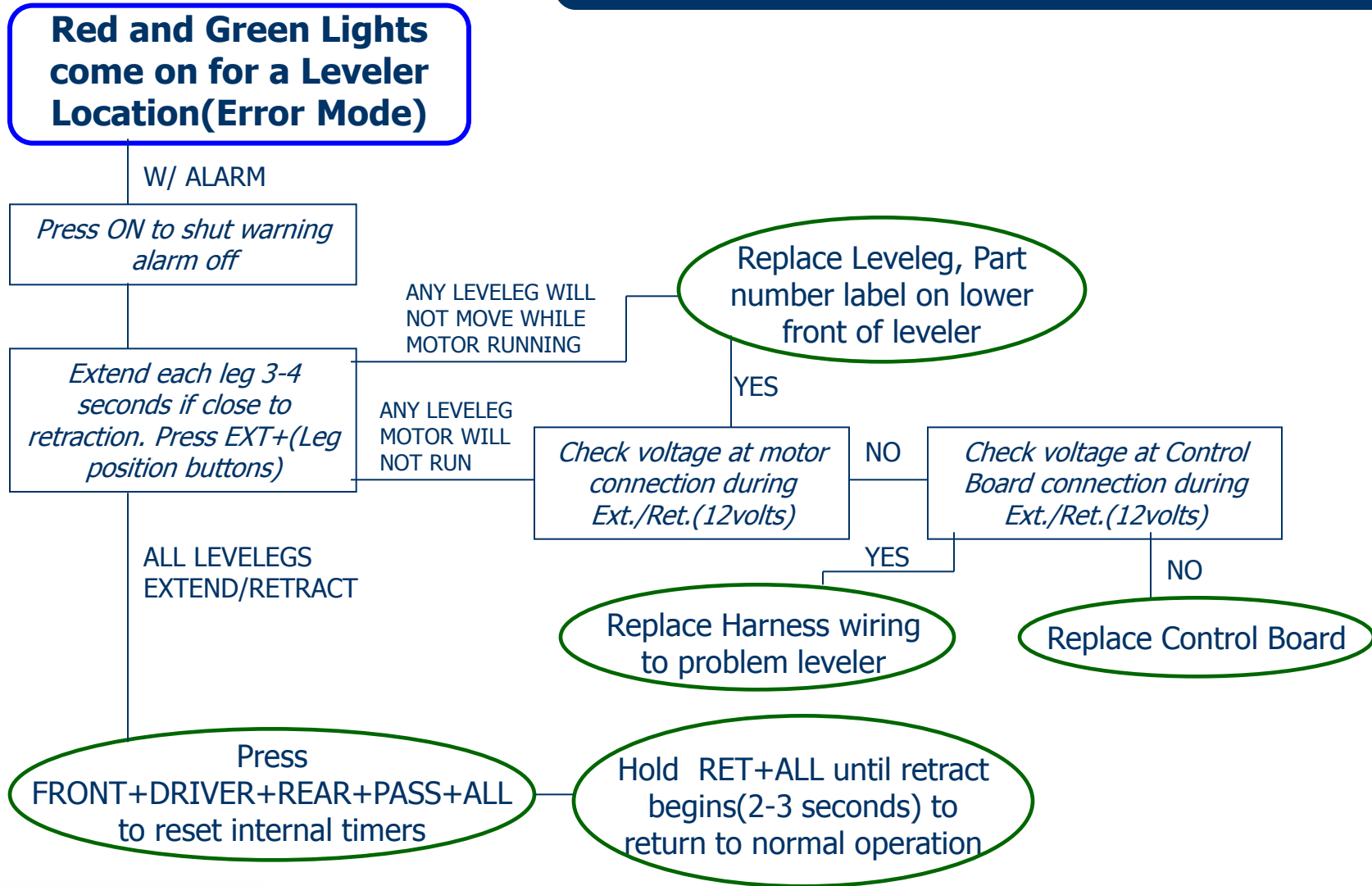
**(5) Vertical LED's blinking**



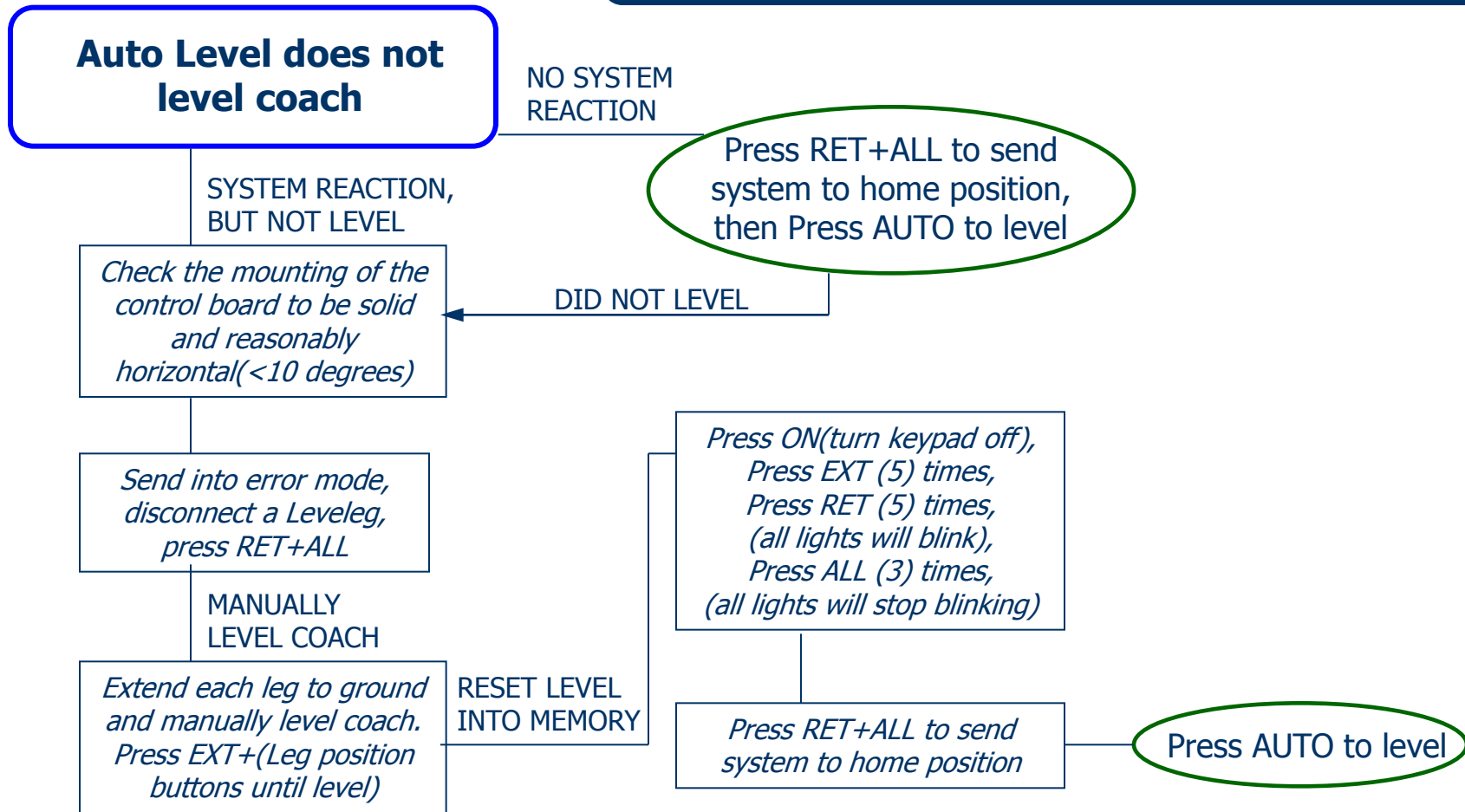
# Leveleg Trouble Shooting



# Leveleg Trouble Shooting



# Leveling Trouble Shooting



# Leveleg Trouble Shooting

Notes: \_\_\_\_\_

\_\_\_\_\_

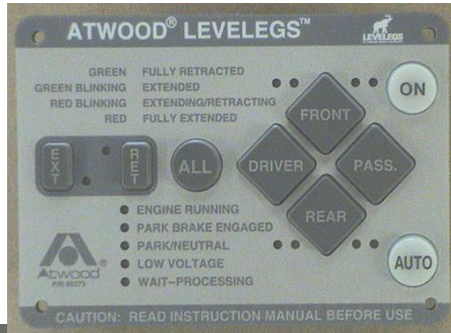
\_\_\_\_\_

\_\_\_\_\_

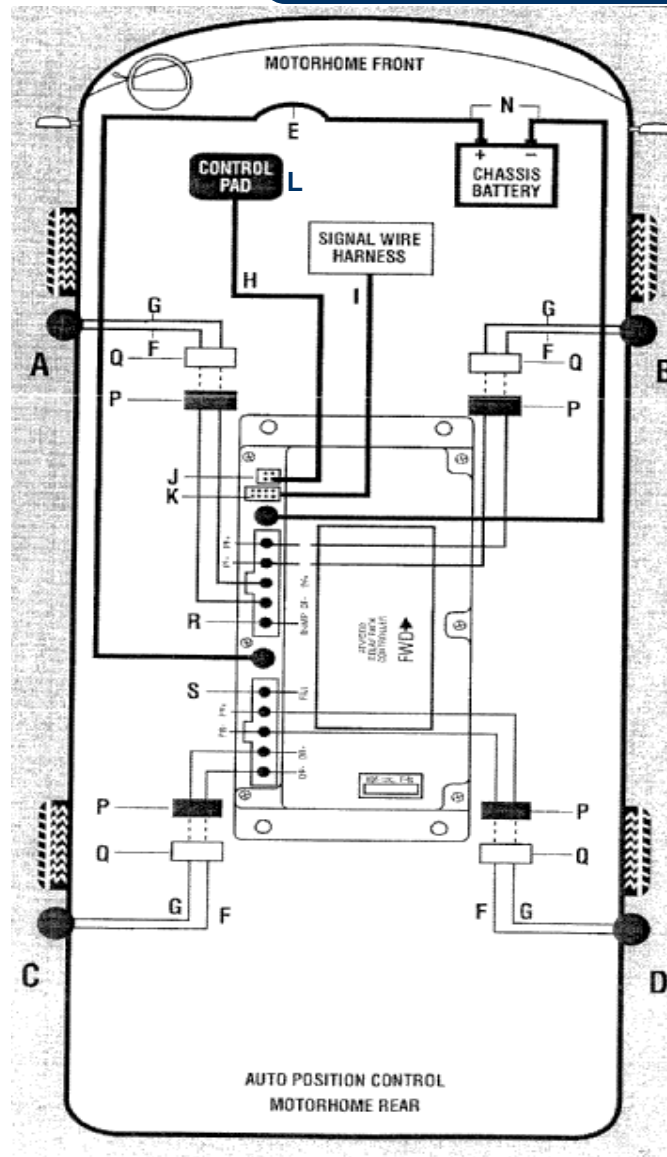
\_\_\_\_\_

\_\_\_\_\_

# Wiring Diagram



L - Keypad



## WIRING DIAGRAM KEY

- A – Driver Front Leveleg
- B – Passenger Front Leveleg
- C – Driver Rear Leveleg
- D – Passenger Rear Leveleg
- E – 120 Amp reset breaker
- F/G – Motor leads
- H – Keypad wiring, 4-Pin connector
- I – Coach wiring, 8-Pin connector
- J – 4-Pin connection at control module
- K – 8-Pin connection at control module
- L – Keypad
- M –
- N – Power Leads, 2 Gage
- P – Wire harness Molex connector
- Q – Motor Molex connector
- R – Air Bag dump connection point (opt.)
- S – Air Bag fill connection point (opt.)

# Replacement Parts List

## Single Pack Levelers

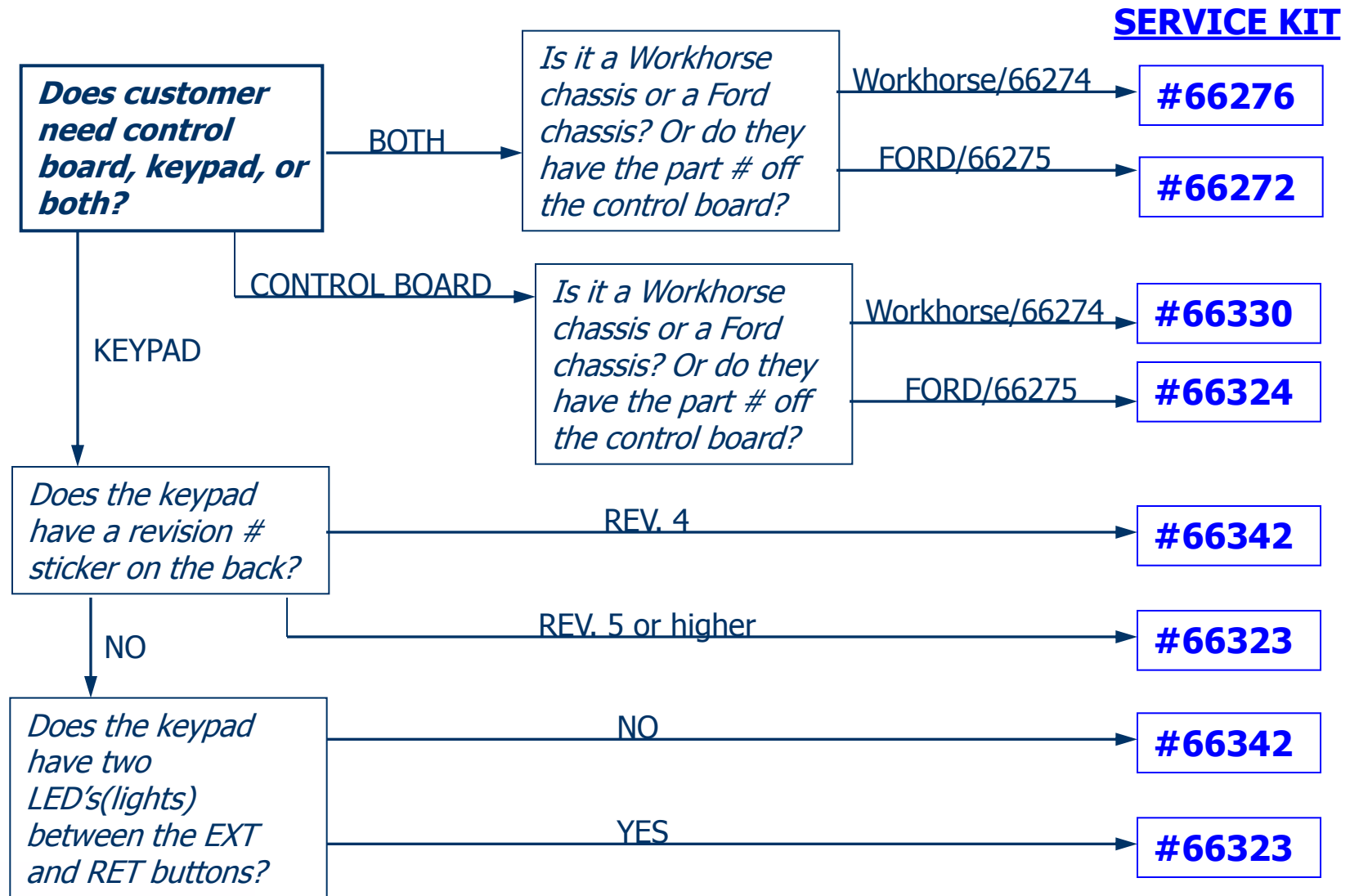
66331	Single Screw, Sq Tube, 15"	7,500	15" Travel. Boxed 66280.
66335	Single Screw, Sq Tube, 13"	7,500	13" Travel. Boxed 66302
66324	Ford Relay Control Service Kit (includes control module and IOM)		
66330	Workhorse Relay Control Service Kit (includes control module and IOM)		
66323	Keypad Service Kit Rev. 4 and before (includes keypad/IOM; for either Ford or Workhorse)		
66342	Keypad Service Kit Rev. 5 and after (includes keypad/IOM; for either Ford or Workhorse)		

## Accessories

66017	Wiring Harness for 5th wheels
66021	Control Board Bracket Kit
66023	Wiring Harness for motorhomes
66024	Cross Brace Kit
66026	8 pin Signal Wire
66027	4 pin Control Pad Wire
66341	Wiring Harness for Diesel Air Dump/Fill
71600	Cross brace - 5th Wheel, outboard
71610	Cross brace - 5th Wheel, inboard



# Replacement Parts Board/Keypad Determination



# Return Goods Policy and Warranty

Atwood warrants that our products will be free of defects of material or workmanship for a period of two years from the original date of purchase. Our liability is limited to the replacement of the product, repair of the product, or replacement with a reconditioned product at our discretion.

In the event of a warranty claim, you must contact, in advance, either an authorized Atwood Service Center, or the Atwood Service Department at 564-262-2655.

Return parts must be shipped prepaid to Atwood Mobile Products, 800 Hwy 150 S, West Union, IA 52175. The Return Goods Number (RGN) must be clearly marked on the paperwork and on the carton. No returns will be accepted without an RGN.

The returned parts become the property of Atwood. We will inspect the parts and determine causality. If it is a defect in material or workmanship, Atwood will replace the product at no charge, pay all reasonable labor charges in accordance with our Hardware Flat Rate Schedule, and freight. Damage or failure resulting from misuse (including failure to seek proper repair service), misapplication or alterations are the owner's responsibility.



# Atwood Mobile Products

Auto Position  
Levelers

---

Questions