BAL® BY NORCO INDUSTRIES

MADE IN THE USA

EXACT™ AUTO LEVEL

AUTO LEVELING SYSTEM

Travel Trailer Applications







LS 5.3 & 7.3 User Manual

20300635

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⚠ WARNING

NEVER USE THE LEVELING SYSTEM AS A LIFT FOR CHANGING TIRES OR WORKING UNDER THE RV.

KEEP PEOPLE AND PETS CLEAR OF THE RV BEFORE LEVELING THE SYSTEM.

ALWAYS CHOCK THE TIRES BEFORE DISCONNECTING THE RV FROM THE TOW VEHICLE AND/OR OPERATING THE LEVELING SYSTEM.

PARK THE RV ON REASONABLY SOLID SURFACE SO THAT JACKS WILL NOT SINK INTO THE GROUND. ON EXTREMELY SOFT SURFACES USE LOAD DISTRIBUTION PADS UNDER EACH JACK.

PARK THE RV ON REASONABLY LEVEL SURFACE MAKING SURE THAT THE JACK CONTACT LOCATIONS ARE CLEAR OF OBSTRUCTIONS AND DEPRESSIONS BEFORE OPERATING THE SYSTEM.

ALWAYS MAKE SURE THAT THE TOW VEHICLE IS DISCONNECTED AND MOVED COMPLETELY CLEAR OF THE FRONT OF THE RV BEFORE THE LEVELING PROCESS IS STARTED.



ALWAYS CHECK TO ENSURE THAT THE RV IS PROPERLY CONNECTED TO THE TOW VEHICLE BEFORE STARTING THE "TONGUE JACK RETRACT" FUNCTION.



VISUALLY INSPECT ALL JACKS TO ENSURE THAT THEY ARE FULLY RETRACTED AND FOOT PADS ARE RAISED TO THE HIGHEST POSITION BEFORE TOWING THE RV.

FAILURE TO HEED ANY OF THESE WARNINGS MAY CAUSE SERIOUS INJURY OR DEATH OR RESULT IN DAMAGE TO THE RV OR TOW VEHICLE.

LEFT SIDE

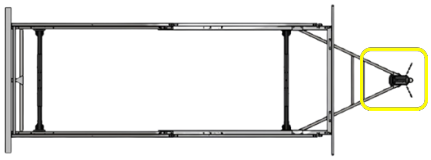
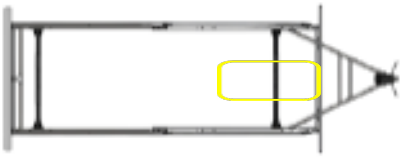
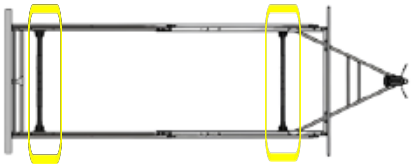
ROAD SIDE
DRIVER'S SIDE
OFF-DOOR SIDE



RIGHT SIDE

CURB SIDE
PASSENGER'S SIDE
DOOR SIDE



IMAGE	DESCRIPTION	LOCATION
 	**TONGUE JACK** Located on the A-frame of the RV. Contains the touch screen for user input to operate all jacks and stabilizers for the leveling system.	
	**CONTROL** Located near the front center of the RV. Functioning as a gyroscope, the control processes the inputs from the touch screen to operate the jacks.	
	**STABILIZER JACK ASSEMBLY** Located near the front of the frame and at the rear of the frame for the LS 7.3. Adds stability to the recreational vehicle after it has been leveled.	
	**LEVELING JACKS** Located behind the axles. Used to lift and adjust the height of the RV to achieve a level or desired position.	

AUTO UNHOOK

1. Lower the tongue jack adjustable foot pad, and chock wheels.



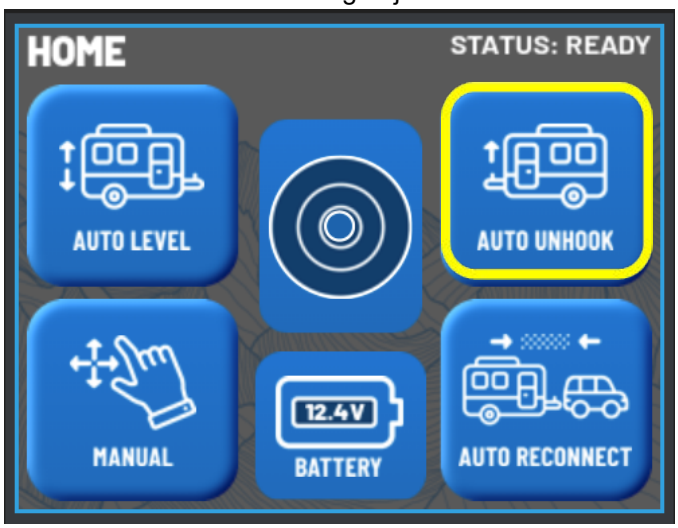


WARNING: Vehicle, people, pets, and obstructions must be completely clear of RV before starting the “AUTO LEVEL” function.

2. Press **AUTO UNHOOK.**

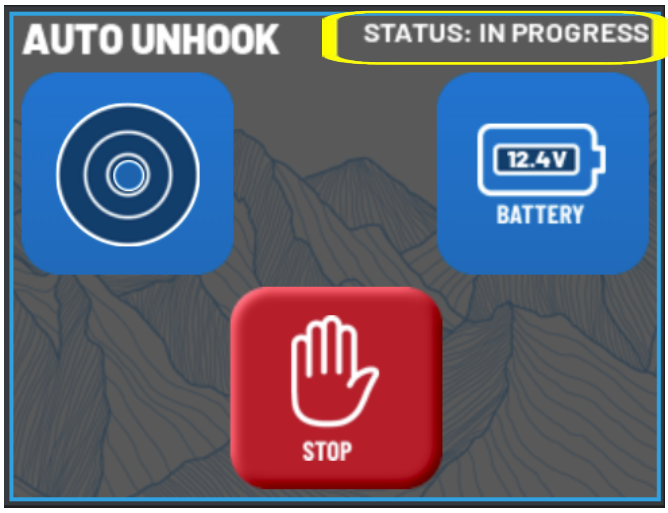
NOTE: The **Home** icon can be pressed to return to the home page.

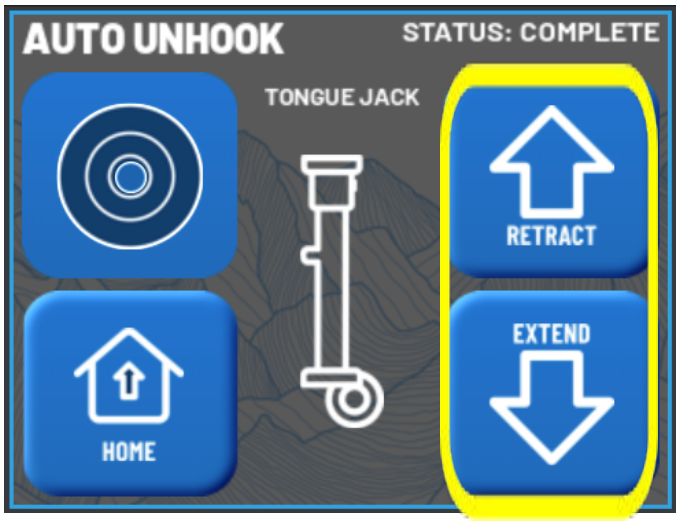
3. Press **PROCEED** and tongue jack will extend until the RV is detached from the tow vehicle.





4. The status will read "IN PROGRESS”. When the system has successfully detached from the tow vehicle, the status will read “COMPLETE" and a success tone will sound.
5. Press **STOP** at any time to abort the auto unhook process.
6. Press **EXTEND** or **RETRACT** if needed to ensure the hitch of the tow vehicle is detached completely from the RV.





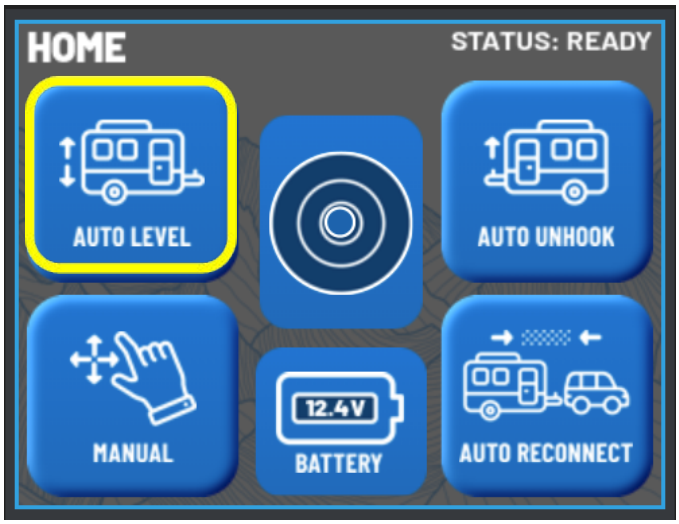
7. Disconnect and pull the tow vehicle completely clear of the RV. Lower the rear leveling jack foot pads and position them so that they are close to the same distance from the ground.

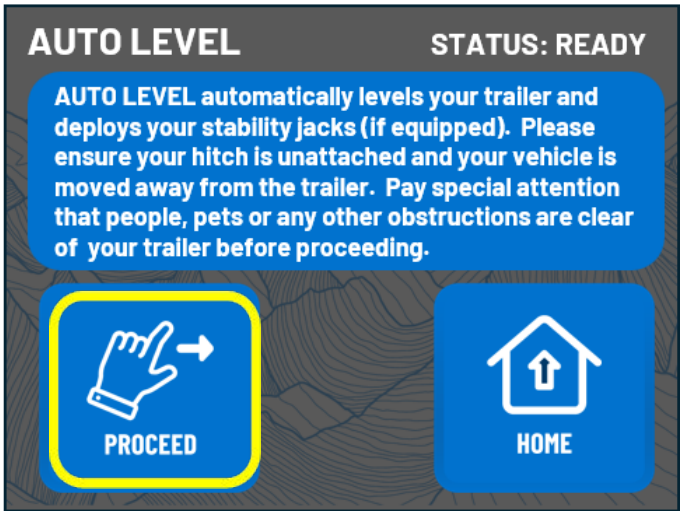
WARNING: Vehicle, people, pets, and obstructions must be completely clear of RV before starting the “AUTO LEVEL” function.

1. Press **AUTO LEVEL**.

NOTE: The **Home** icon can be pressed to return to the home page.

2. Press **PROCEED** to begin AUTO LEVEL.

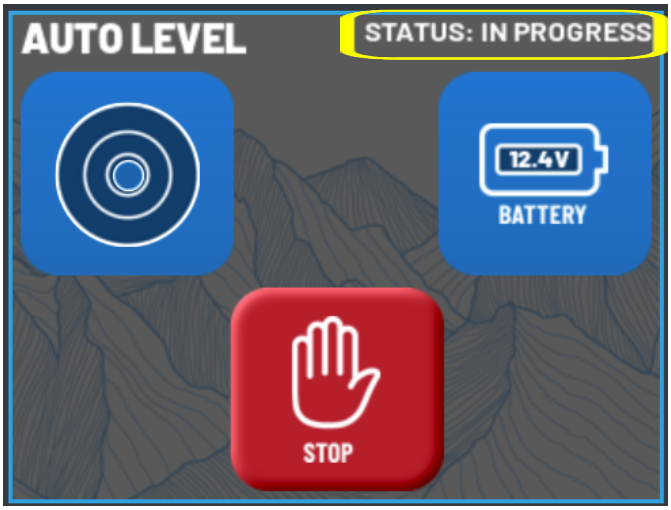


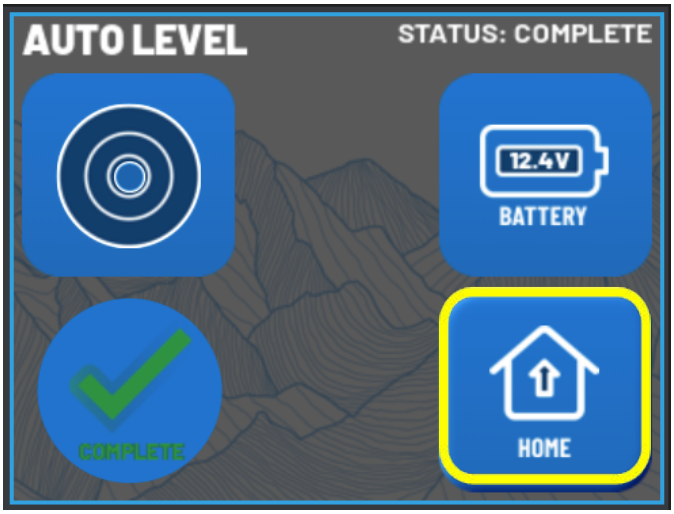


3. The status will read "IN PROGRESS”. When the system has successfully leveled the RV, the status will read “COMPLETE" and a success tone will sound.
4. Press **STOP** at any time to abort the AUTO LEVEL process.

LEVELING SEQUENCE:

- The system will initially level the RV front to back, then side to side.
- This process will repeat as needed in order to find the level position.
- Stabilizer Jacks will **NOT** deploy until the RV is level.
- Once the RV is in the level position, the stabilizer jacks will extend.





5. Press **ON/OFF** to deactivate the display.
6. Close and latch the cover of the touch screen display.

NOTE: If system is unable to achieve the desired level position check the surface of the area under the RV. All lifting jacks must be able to make full contact for the system to function properly.

See Page 9 for Recalibrating the Level Position.

AUTO RECONNECT

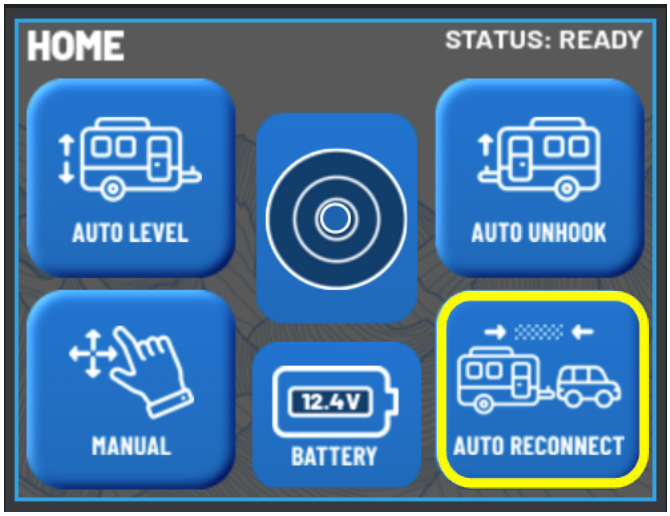
When attaching to the tow vehicle Press **ON/OFF** to activate display.

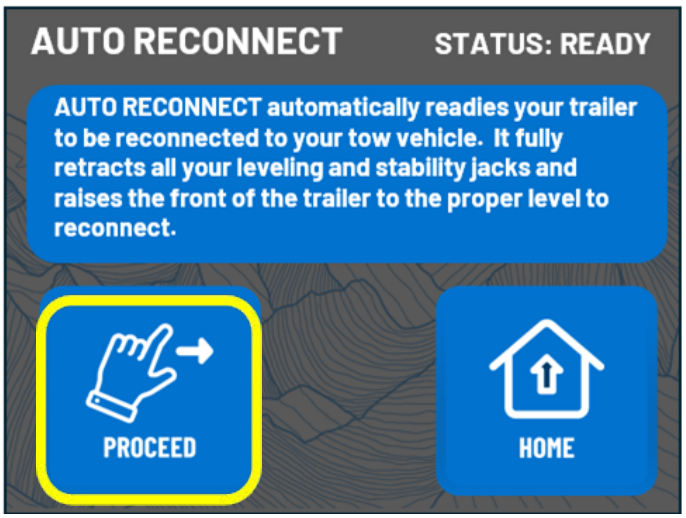
WARNING: Vehicle, people, pets, and obstructions must be completely clear of RV before starting the “AUTO LEVEL” function.

1. Press **AUTO RECONNECT.**

NOTE: The Home icon can be pressed to return to the home page.

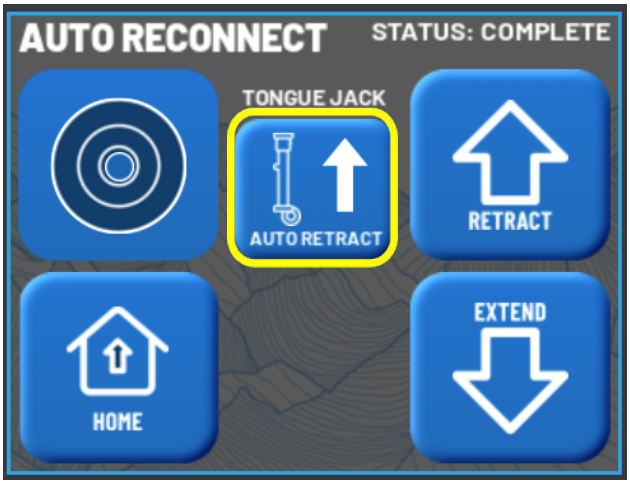
2. Press **PROCEED** to begin AUTO RECONNECT.





3. The system will retract all stabilizer jacks and the rear leveling jacks, then extend or retract the tongue jack until the proper connection height is achieved. The status will read "IN PROGRESS ". When the system has completed the “AUTO RECONNECT” function the status will read “COMPLETE” and a success tone will sound.
4. Press **STOP** at any time to abort the AUTO RECONNECT process.





5. Back the tow vehicle hitch ball under the RV A-frame coupler.
6. Verify that the RV is properly connected to the tow vehicle before **AUTO RETRACTING** the tongue jack.
7. Raise the foot pads for the tongue jack and rear leveling jacks.

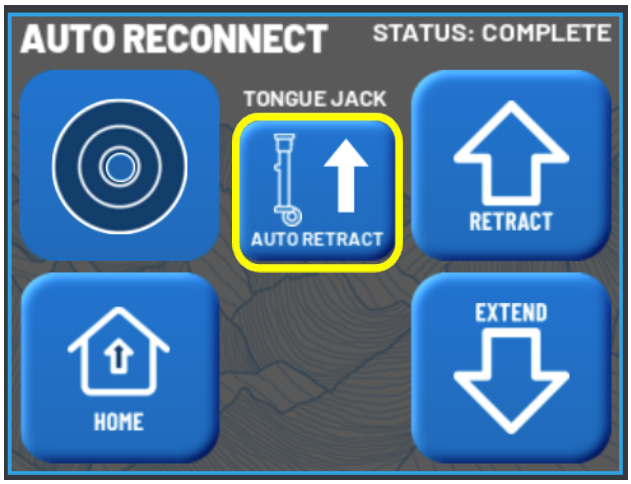
AUTO RETRACT

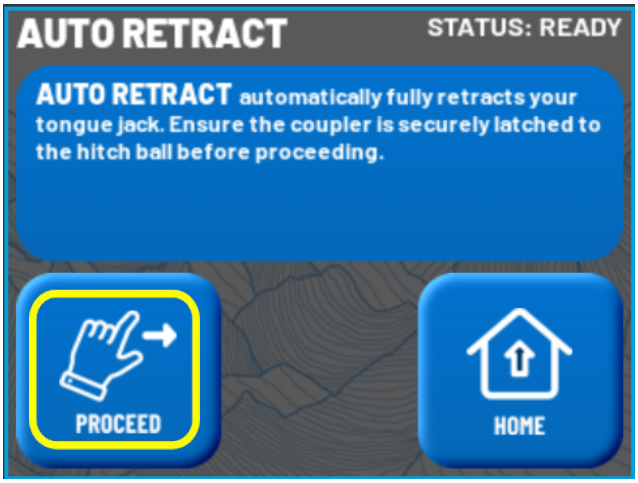
WARNING: Verify that the RV is properly connected to the tow vehicle before AUTO RETRACTING the tongue jack.

1. Press **AUTO RETRACT.**

NOTE: The Home icon can be pressed to return to the home page.

2. Press **PROCEED** to begin AUTO RETRACT.

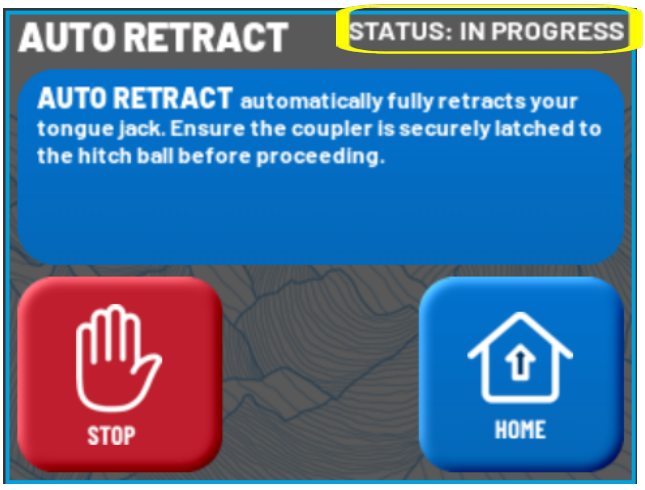


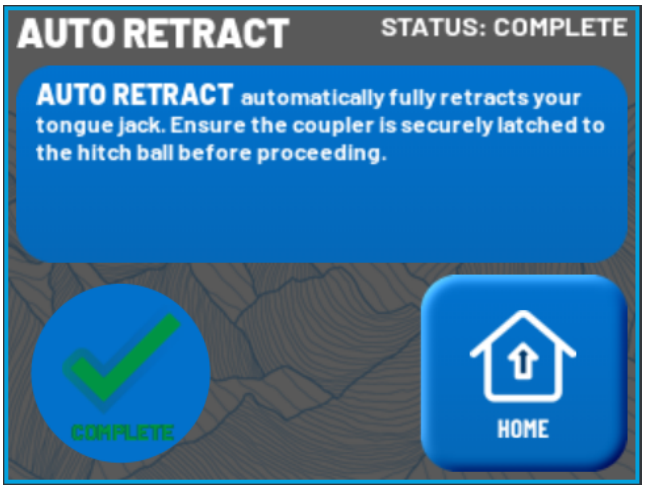


3. The system will retract the tongue jack. The status will read "IN PROGRESS ".

When the system has completed the “AUTO RETRACT” function the status will read “COMPLETE” and a success tone will sound.

4. Press **STOP** at any time to abort the AUTO RETRACT process.



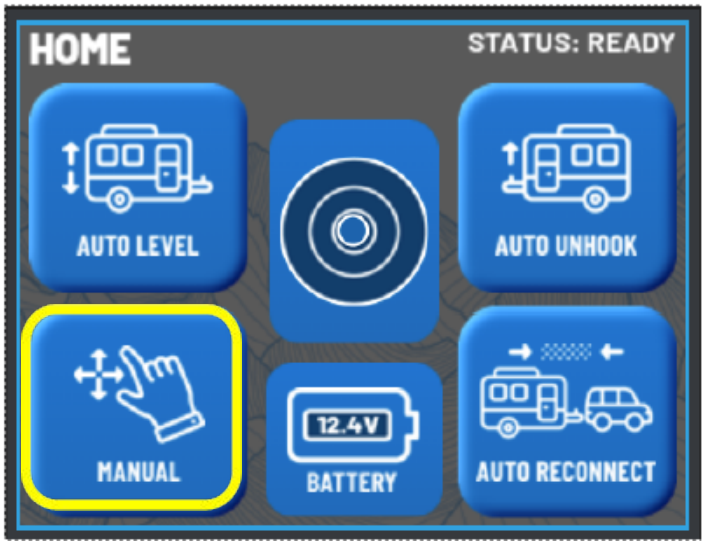


WARNING: Visually inspect all jacks to ensure that they are fully retracted and all foot pads are raised to the highest position with wheel chocks removed.

MANUAL LEVEL

WARNING: Always make sure that the stabilizer jacks are fully retracted before operating the landing legs or rear leveling jacks.

1. Press **MANUAL**.
2. Press and hold **MANUAL LEVEL** to operate one **set of jacks** at a time.





3. Using an external bubble level to assist you in achieving the level position, operate each set of leveling jacks until the RV is level from front to back and side to side.
4. Manually operate each set of jacks to the desired level position.

The jacks will move as follows:

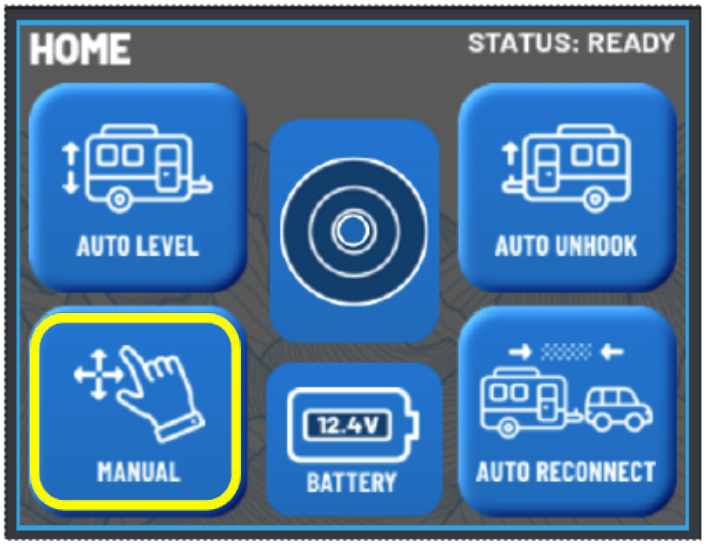
- **FRONT**: Tongue jack on the front of the RV.
- **REAR**: Both leveling jacks on the rear of the RV (closest to the axles).

- **LEFT**: The left rear leveling jack (road side).
- **RIGHT**: The right rear leveling jack (curb side).



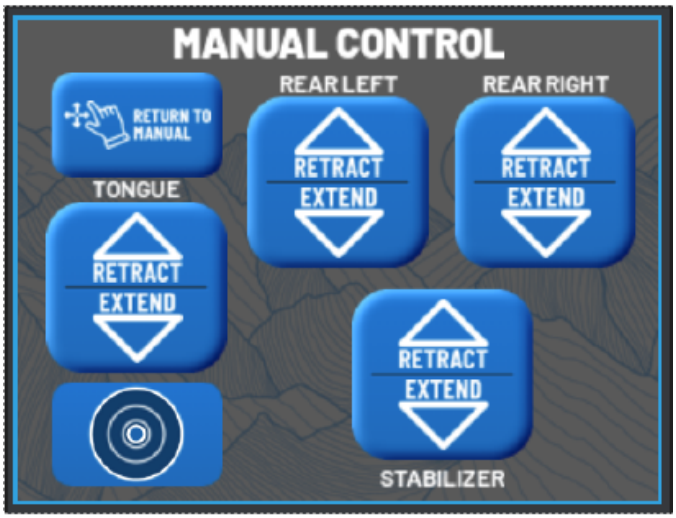
WARNING: Always make sure that the stabilizer jacks are fully retracted before operating the landing legs or rear leveling jacks.

1. Press **MANUAL CONTROL**.
2. Press and hold **EXTEND/RETRACT** to operate **one leveling jack** at a time.





3. Using an external bubble level to assist you in achieving the level position, operate each set of leveling jacks until the RV is level from front to back and side to side.
4. Manually operate each set of jacks to the desired level position.



5.3 Leveling System

- **TONGUE**: Tongue jack on the front of the RV.
- **REAR LEFT**: The roadside leveling jack on the rear of the RV (closest to the axles).
- **REAR RIGHT:** The curbside leveling jack on the rear of the RV (closest to the axles).
- **STABILIZER**: The front stabilizer jack set.



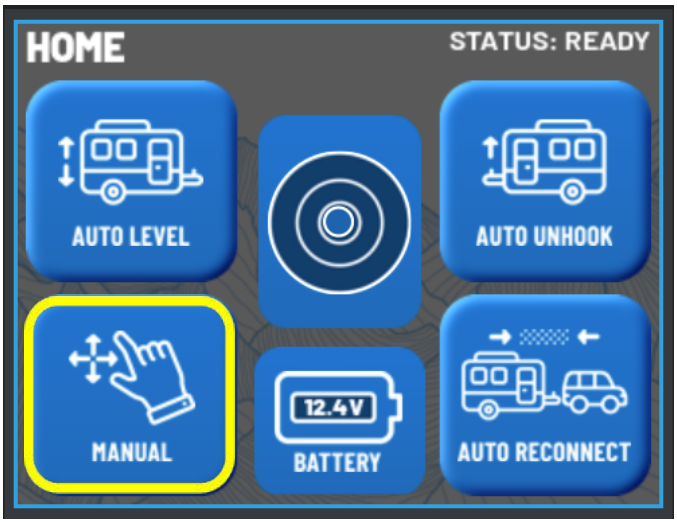
7.3 Leveling System

- **TONGUE**: Tongue jack on the front of the RV.
- **REAR LEFT**: The roadside leveling jack on the rear of the RV (closest to the axles).
- **REAR RIGHT:** The curbside leveling jack on the rear of the RV (closest to the axles).
- **FRONT STAB**: The front stabilizer jack set.
- **REAR STAB:** The rear stabilizer jack set.

RECALIBRATING THE LEVEL POSITION

The Auto Level position is set prior to the installation of the leveling system.
The factory settings can be overridden to fine tune the level position as needed.

1. Press **MANUAL**.
2. Press **MANUAL LEVEL**.





WARNING Stabilizer jacks must be completely retracted before manually operating leveling jacks.

3. Using an external bubble level to assist you in achieving the level position, operate each set of leveling jacks until the RV is level from front to back and side to side.

4. Manually operate each set of jacks to the desired level position.



The jacks will move as follows:

- **FRONT**: Tongue jack on the front of the RV.
- **REAR**: Both leveling jacks on the rear of the RV (closest to the axles).
- **LEFT**: The left rear leveling jack (road side).
- **RIGHT**: The right rear leveling jack (curb side).

5. When the RV has been leveled front to back and side to side. Press **RETURN TO MANUAL.**

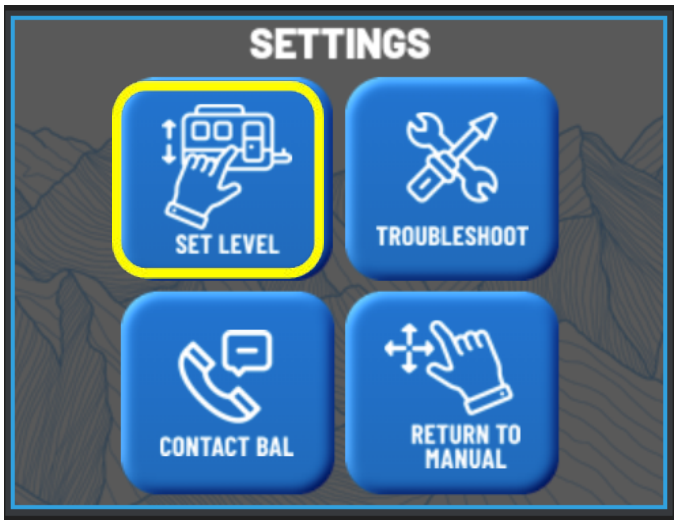


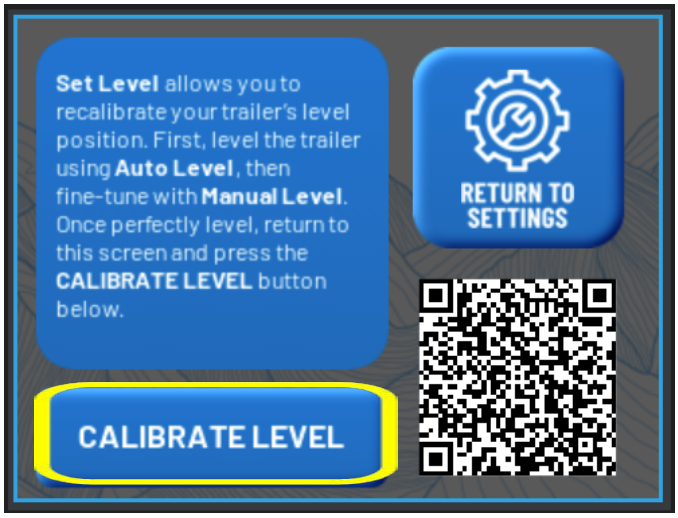
RECALIBRATING THE LEVEL POSITION

5. Press **Settings**



6. Press **SET LEVEL**
7. Press **CALIBRATE**







8. The control sensors are now calibrated to the RV's current position.



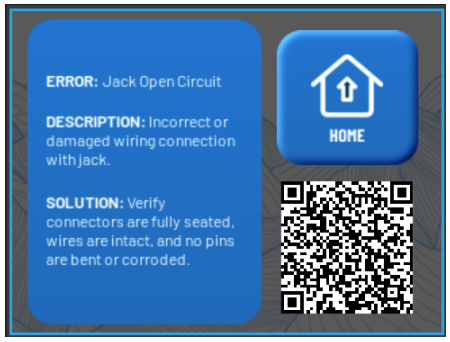
ERROR DISPLAY



- **ERROR**: Low Voltage
  The user panel / touch screen requires 10.2 volts to power on. The jacks require 12 volts to function properly.
- **SOLUTION**: Fully charge the battery and plug the RV into Shore Power.



- **ERROR**: High Voltage
  The power supply to the Leveling System must stay below 16 volts to function properly
- **SOLUTION**: Verify that the power supply is working properly.



- **ERROR**: Jack Open Circuit
  Incorrect or damaged wiring connections with jack.
- **SOLUTION**: Verify connectors are fully seated, wires are intact, and no pins are bent or corroded.



- **ERROR:** Display Communication Timeout
  Display lost communication from the control board.
- **SOLUTION:** Check for loose or damaged communication wiring from control to the touch screen.

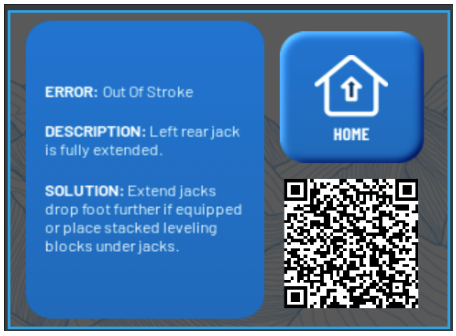


- **ERROR:** Control Communication Timeout
  Control board lost communication from the display.
- **SOLUTION:** Check the distance between the control and the rear jacks. The control must be within 20 feet of the rear jacks to sense movement.

ERROR DISPLAY



- **ERROR**: Excess Angle
  The angle of the RV is too great to perform the operation.
- **SOLUTION**: Relocate the RV to a more level location. Verify that the rear leveling jack legs are not plugged in backwards on the control box by operating them through Manual Jack Control.
- Left is Roadside and Right is Curbside.



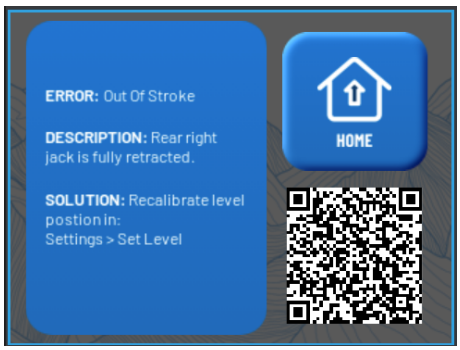
- **ERROR**: Out of Stroke
  Left rear leveling jack is fully extended.
- **SOLUTION**: Extend foot pad or place leveling blocks under the roadside jack foot pad.



- **ERROR:** Out of Stroke
  Rear left jack is fully retracted.
- **SOLUTION:** Verify that the rear leveling jack legs are plugged into the correct location on the control box by operating them through Manual Jack Control. Recalibrate level position.
  Settings > Set Level.



- **ERROR**: Out of Stroke
  Right rear leveling jack is fully extended.
- **SOLUTION**: Extend foot pad or place leveling blocks under the roadside jack foot pad.

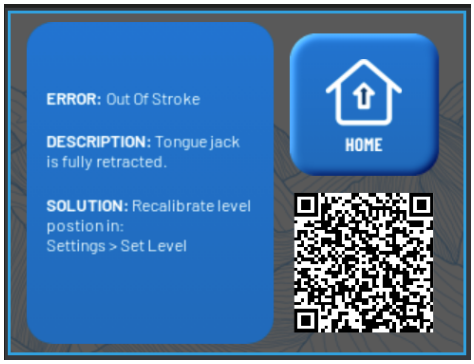


- **ERROR**: Out of Stroke
  Rear right jack is fully retracted.
- **SOLUTION**: Verify that the rear leveling jack legs are plugged into the correct location on the control box by operating them through Manual Jack Control. Recalibrate level position.
  Set~tings > Set Level.

ERROR DISPLAY



- **ERROR:** Out of Stroke
  Tongue jack is fully extended.
- **SOLUTION:** Extend foot pad or place leveling blocks under the tongue jack foot pad.



- **ERROR**: Out of Stroke
  Tongue jack is fully retracted.
- **SOLUTION**: Recalibrate level position. Settings > Set Level.





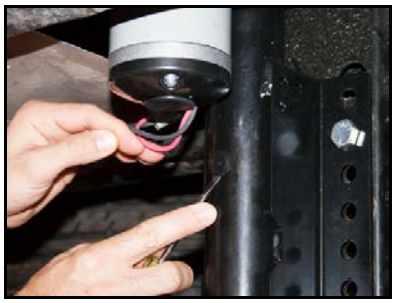
ROUTINE SYSTEM CHECK

The leveling system should be inspected a minimum of twice per year. (Once before starting the camping season and once before storing the RV). Inspect:

- Jacks for dirt and debris. (Clean and lubricate as needed)
  - A high pressure washer is **not** to be used to clean any of the leveling system components.
  - Grease all jacks as shown:
    - **Tongue Jack** – With the jack extended half way remove the plastic plug and apply a small amount of grease on the screw. Reinstall the plastic plug.




    - **Rear Leveling Jacks** – With the jack extended half way remove the plastic plug and apply a small amount of grease on the screw. Reinstall the plastic plug.




    - **Stabilizer Jacks** – With the jacks extended so that they are about an inch from the ground apply some grease on the screw between the motor coupler and the trunnion nut.



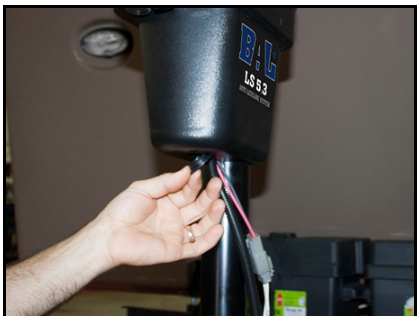

- All jack mounting bolts and nuts for tightness. (Tighten as needed)
  - **Tongue Jack** – 30 ft. lbs.
  - **Rear Leveling Jacks** – 80 ft. lbs.
  - **Stabilizer Jacks** – 30 ft. lbs.

MANUAL JACK OVERRIDE

TONGUE JACK

OPTION A) Locate and remove the rubber plug on the tongue jack to the right of the touch screen to expose a 3/8" square override. Using a drill with a 3/8" square drive tool, rotate the gear box to manually operate the tongue jack.

OPTION B) Locate and remove the rubber plug on the bottom of the tongue jack motor to expose a 5/16" hex override. Using a drill with a 5/16" socket, rotate the motor to manually operate the tongue jack.







WARNING: DO NOT USE PNEUMATIC POWER TOOLS TO OVERRIDE THE JACKS

LEVELING JACKS

Locate and remove the rubber plug on the bottom of the tongue jack motor to expose a 5/16" hex override. Using a drill with a 5/16" socket, rotate the motor to manually operate the tongue jack.





WARNING: DO NOT USE PNEUMATIC POWER TOOLS TO OVERRIDE THE JACKS

STABILIZER JACKS

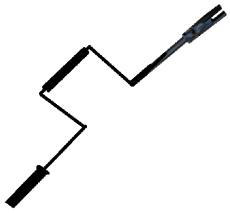
If equipped with a ¾" nut on the out facing end of the stabilizer jack. Use a 3/4 "socket or wrench to raise or lower the jacks.

If equipped with a through pin on the out facing end of the stabilizer jack, use the provided override handle.









WARNING: DO NOT USE **ANY** POWER TOOLS TO OVERRIDE THE JACKS

BAL®
BY NORCO INDUSTRIES

EXACT™ AUTO LEVEL

AUTO LEVELING SYSTEM

BALRVPRODUCTS.COM

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