LEVEL RIDE

AIRRIDE & HYDRAULICS MFG ™

Installation Manual

Introduction

The purpose of this Level Ride Air Suspension fitting instructions is to provide the purchaser with the Step-by-Step guide to installation. This installation covers utilizing our touchscreen controller and/or the application found on the app store or google play store.

Notation Explanation

Hazard notations appear in various locations in these fitting instructions. Information which is highlighted by one of these notations must be observed to help minimize risk of personal injury or possible improper installation which may render the vehicle unsafe. Notes are used to help emphasize areas of procedural importance and provide advice. The following definitions explain the use of these notations as they appear throughout this guide.

2022 NEW VALVE CONFIGURATION MANUAL (06.16.2022)

⚠ DANGER

DANGER: Indicates immediate hazard which will result in severe injury or death

⚠ CAUTION

CAUTION: Indicates immediate hazards which will result in damage to the machine or minor personal injury

Check out our YT install playlist with the QR code below!

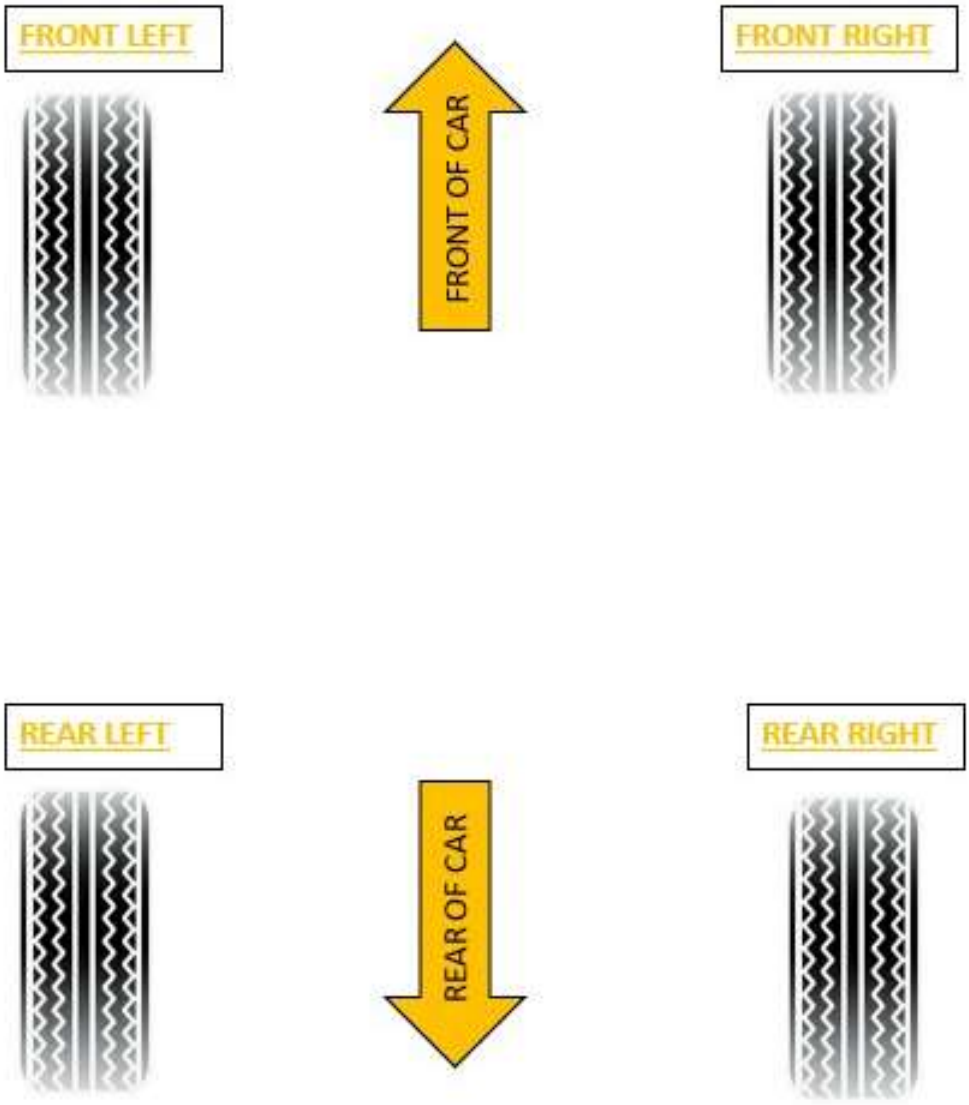
Instagram QR

LEVEL_RIDE_AIR_SUSPENSION

Table of Contents

General Reference

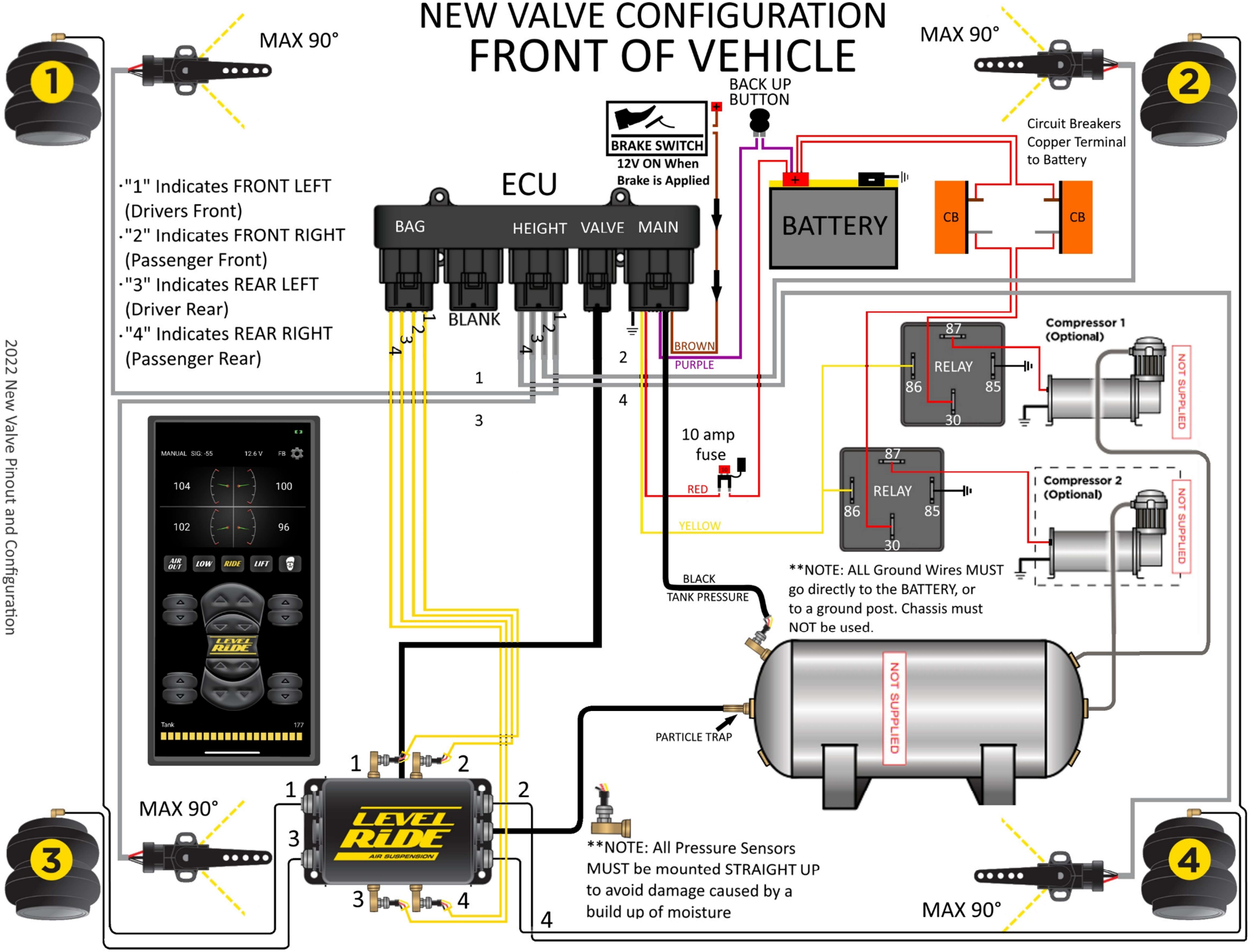
For simplicity of use and understanding we refer to the four wheels of a vehicle by using “Front Left” or “Front Right,” etc. and whenever noted, “Driver Side” or “Passenger Side” we are emitting that of a left-hand drive vehicle. Refer to the following diagram for labeling.



New Manifold Configuration

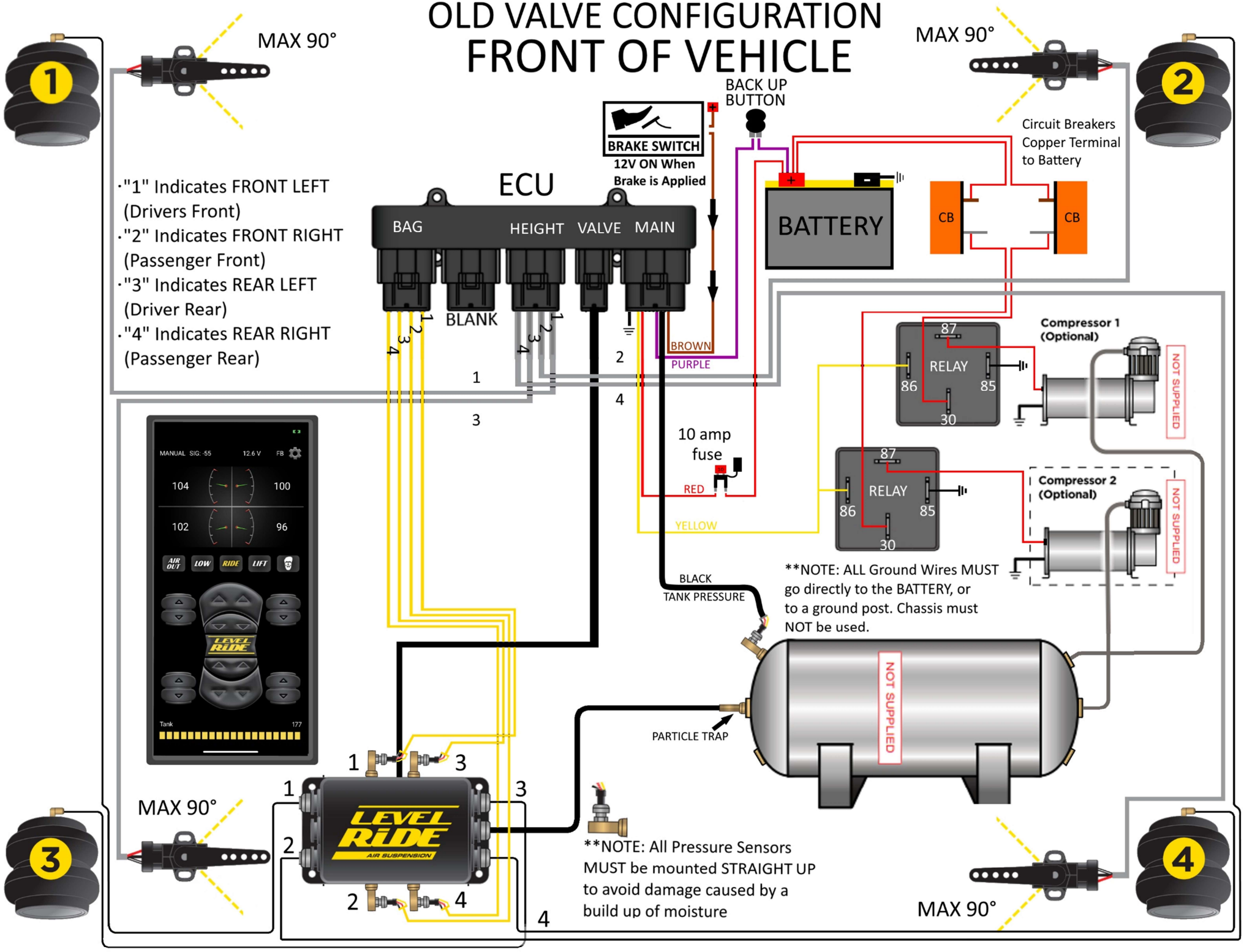
Below you will see two diagrams of our system. The first one is NEWEST and has the NEW valve configuration. The second diagram page is our OLD configuration. **This new configuration only affects kits purchased with our manifold**. Any kits purchased after June 17th, 2022, directly from Level Ride, with **OUR MANIFOLD** will have this newer set up. For any confusion, please check your valve harness pinning and compare below

NEW VALVE CONFIGURATION
FRONT OF VEHICLE



2022 New Valve Pinout and Configuration

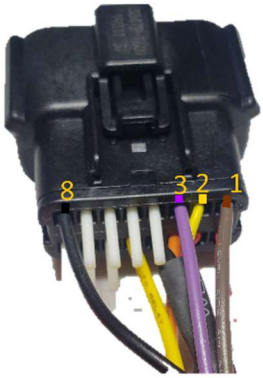
OLD VALVE CONFIGURATION
FRONT OF VEHICLE



Make sure you do not press on the face of the ECU directly, only support weight on the edges, the face of the ECU may break if direct force is applied.

MAIN HARNESS

Please note the orientation of the **CLIP (facing **UP**). We refer to this as the "TOP ROW"



PIN NUMBER	COLOR	DESCRIPTION
#1	Brown	Connect to 12V ON, when Brake is **APPLIED** Must be connected for system to operate correctly. If you have a later model car with CanBus usually models after 2005 came out with this. The brake signal is 3.5v pulsing so it cannot be used, the Third Brake light will need to be used in this case for the 12V on when Brake is pressed.
#2	Yellow	5V Signal **IN** from Tank Pressure Sensor
#3	Purple	12V **IN** from Back Up Button, other connection on Back Up Button: 12V constant at **all times**
#8	Black	Ground wire direct to vehicle's battery – **(NEGATIVE TERMINAL)** *Note chassis of vehicle is not considered a proper ground.
#9	Red	12V constant direct to car's battery, **DO NOT USE A SHARED SOURCE**! i.e., compressors or stereo equipment. ***If anything under 12V is received constantly, the ECU will **NOT** be able to pair and connect or **MAINTAIN** a connection
#10	Red	5V Power supply to Tank Pressure Sensor (SAME REQIUREMENTS FOR 12V POWER CABLES NOTED ON NEXT PAGE IN YELLOW)
#11	Orange	Key **ON HOT**/Ignition *must maintain WELL ABOVE 12V while Engine is cranking
#12	Black	Tank Pressure Sensor Ground
#13	Yellow	12V Trigger for Compressor Relays. ***This wire is for **DRIVING** the **RELAYS ONLY** and must not be connected directly to the compressor. Goes to the #86 pin on the relay.
#15	Blue	E-Brake Function (**ONLY AUSTRALIA ECUs are configured for this)**

VALVE HARNESS/PIGTAIL

Please note the orientation of the **CLIP (facing **UP**). We refer to this as the "TOP ROW"

PIN NUMBER	COLOR	DESCRIPTION
#1	Black	FRONT LEFT - UP
#2	Yellow	FRONT RIGHT - UP
#3	Brown	REAR LEFT - UP
#4	Purple	REAR RIGHT - UP
#5	Green	FRONT LEFT - DOWN
#6	Orange	FRONT RIGHT - DOWN
#7	Blue	REAR LEFT - DOWN
#8	White	REAR RIGHT - DOWN
UNUSED	Pink	Illumination for AIR MANIFOLD: 12V **KEY ON**

HEIGHT SENSOR HARNESS (Middle Port)

Please note the orientation of the **CLIP (facing **UP**). We refer to this as the "TOP ROW"

PIN NUMBER	COLOR	DESCRIPTION
#1	White	FRONT LEFT
#2	White	FRONT RIGHT
#3	White	REAR LEFT
#4	White	REAR RIGHT
#5	Black	Ground (-); Common
#6	Black	Ground (-); Common
#7	Red	5V Power (+); Common
#8	Red	5V Power (+); Common
#9	Red	5V Power (+); Common
#10	Red	5V Power (+); Common
#11	Black	Ground (-); Common
#12	Black	Ground (-); Common

**** When routing the Bag Pressure harness AND Height Sensor harness AND TANK PRESSURE HARNESS, ensure to be at least 4 inches away from the compressors, and 2 inches from any main power wires. Our sensors operate between .5v-4.5V. IF THEY ARE TOO CLOSE TO A 12V (UNSHIELDED CABLE) THESE SENSOR WIRES CAN EASILY BE GIVEN A FALSE VOLTAGE SIGNAL.**

BAG PRESSURE HARNESS (End Port)

Please note the orientation of the **CLIP (facing **UP**). We refer to this as the "TOP ROW"

PIN NUMBER	COLOR	DESCRIPTION
#1	Yellow/White	FRONT LEFT
#2	Yellow/White	FRONT RIGHT
#3	Yellow/White	REAR LEFT
#4	Yellow/White	REAR RIGHT
#5	Black	Ground (-); Common
#6	Black	Ground (-); Common
#7	Red	5V Power (+); Common
#8	Red	5V Power (+); Common
#9	Red	5V Power (+); Common
#10	Red	5V Power (+); Common
#11	Black	Ground (-); Common
#12	Black	Ground (-); Common

**** When routing the Bag Pressure harness AND Height Sensor harness, ensure to be at least 4 inches away from the compressors, and 2 inches from any main power wires. Our sensors operate between .5v-4.5V. IF THEY ARE TOO CLOSE TO A 12V (UNSHIELDED CABLE) THESE SENSOR WIRES CAN EASILY BE GIVEN A FALSE VOLTAGE SIGNAL.**

Powers and Grounds Notable Mentions

All kits supplied by Level Ride Air Suspension are expected to be installed by a professional shop and or self-installers with knowledge and experience in automotive electronics and good understanding of powers and grounds. Our Full Management system requires a BARE MINIMUM of about 80 Amps, charging on the alternator at engine idle, we do not recommend you try to install this on a car that's not running as even with the best battery charger you will fall short of the minimum charging requirements to operate properly with the dual compressors. Not to mention all other accessories that might be on the vehicle also drawing amperage, we highly recommend a high amp output at idle alternator. 220-330 max output with minimum 120 amps at engine idle.

- For the cleanest set up, we ALWAYS require our system and components to be grounded to a GROUND post connected directly from a 2-gauge cable ran from the battery to this post, or DIRECTLY TO THE BATTERY. Do not stack multiple grounds to one bolt on your battery, install a distribution block so each ground has its own mount.
- Chassis grounds are **never** guarantees for a clean ground.
- Keep all wiring and ECU away from magnets like in air compressors or subwoofers, as this may cause an electromagnetic field to form around the ECU and cause interference with the Bluetooth signal and may magnetize over time, the aerial for the Bluetooth. Minimum of 3 feet away from magnets.
- Most installations and our instructions are based on the assumption that your vehicle is in running order with the minimum power and ground requirements.

- If the vehicle is in the process of being built, we recommend that you ensure all other components are in good condition, to ensure a clean and proper installation of any Level Ride Air Suspension system. For example, if the vehicle has no engine, please place the battery on a charger that can supply a minimum of 80 amps, and 12 volts. No voltage drop should be visible on the screen voltage meter when the compressors turn on. But in this scenario, a recalibration will be required as the weight of the engine and placement must be present for our system to perform as expected.
- Multimeters are great tools, but unfortunately, they will not pick up micro spikes and micro drops in voltage as it reads **averages** of voltage, resistance, and current. Our system requires a constant 13.8v -14.8v AND PROPER GROUNDING FOR **ALL COMPONENTS**, to have everything operate correctly.
- Avoid bundling power and ground wires, this also may cause interference.
- Please visit our YouTube channel and review the “Grounds and Power Supplies” playlist.

Installation Overview

Air Springs and Suspension Components must be fitted prior to the installation of the Level Ride components. Complete installation in the following order.

- Mount your Valve Block and Bag Pressure Sensor Adapters If ordered. Ensure the pressure sensors are facing straight up (If not possible ensure that they are at least 45 degrees or less than vertical). Ensure you have a good ground. Ground post from battery direct is required, Chassis is not considered perfect ground and may have high resistance.
- Mount ECU. ECU must be 2ft away from compressors and or magnets found in speakers, subwoofer boxes are not insulated from magnetic fields so the ECU should not be mounted next to the box either. Magnets will affect the Bluetooth aerial and over time will magnetize it and maintaining a connection will be limited. This is not covered by the warranty; recommended install layouts will be shown in the FAQ’s page.
- ECU signal strength will also need to be tested prior to final install location of the ECU. The main harness RED, ORANGE and Ground can be connected, and you will be able to find the ECU and connect, signal strength is displayed at the top of the screen as -110 to -40. Ideal signal strength is anywhere between -40 to -65. Any higher than this can cause delays in signal. Ideally the ECU should be inside the cab as the ECU is not waterproof, so must not be mounted under the car or in the engine bay.
- Run 16-Pin Harness and terminate all connections as marked in the wiring diagram Page 5
- Mount your Tank Pressure Sensor facing upwards. See page 4
- The Back Up button is a momentary ON when pressed. The Back Up button has 2 connections. Either connection can go direct to 12 volts on the battery, constant at all times. The other connection goes to the purple wire on the MAIN harness.
- Install your Compressor/Compressors (not supplied by LEVEL RIDE AIR SUSPENSION, please see supplier’s instructions for installation). Yellow Compressor trigger from 16-pin harness connects to the + (positive) 12v trigger wire on your relay, should be number 86 on most relays (See wiring diagrams on Page 4). The yellow wire from the ECU is not used to power the compressor directly, it's only a trigger wire.
- Install Pressure Sensor Harness (see diagram on page 4).

Installation Overview (Continued)

When routing the Bag Pressure harness AND Height Sensor harness, ensure to be at least 4 inches away from the compressors, and 2 inches from any main power wires. Our sensors operate between .5v-4.5V. **IF THEY ARE TOO CLOSE TO A 12V (UNSHIELDED CABLE) THESE SENSOR WIRES CAN EASILY BE GIVEN A FALSE VOLTAGE SIGNAL.**

- Ensure the compressor runs when the car is started.
- Voltage meter on top of the screen indicates what the ECU is receiving. If you cannot maintain at least 12.6v when the compressors are running you may have a ground issue or your alternator isn't charging enough at idle and will need to be upgraded, we recommend high output at idle alternators used by car stereo shops as they put out 140amp at idle or greater which is needed, ideally you should be able to maintain 13.8 - 14.8v at all times.
- Fit Height Sensors (see guide page 14).

Never pull the 12v main power fuse on the ECU while the ECU Main Harness is plugged in. Never pull the main fuse for the ECU if it is running. Doing this may corrupt the start-up menu and default a programmed ECU from the power spike. If you feel your ECU may need to be reset, **please contact technical support FIRST** most issues can be resolved without a reset. Our ECU reset option should be a **LAST RESORT AND ONLY APPROVED BY TECHNICAL SUPPORT**.

Back Up Button Instructions

This momentary button, supplied in your pressure only kit, must be connected for the system to operate correctly, as the rest of our features. Our Back Up Button has two terminals with screws to hold wiring securely in. Firstly, find a position inside the vehicle anywhere accessible to the driver. This switch also includes a backing plate to allow a flush and secure through mount. The switch should fit securely in a 1-inch diameter hole.

Connect the PURPLE wire from your MAIN HARNESS to either terminal and secure the screw. Then the other terminal should be connected to another wire with 12 volts CONSTANT POWER. This should receive 12 volts power at all times, this will not drain your battery. And secure the screw and ensure a strong connection to both terminals on the button.

Purpose/Function

This momentary button once Level Ride has been calibrated has several features

1. With Sleep Mode ON and calibration is completed, you can press this button once and it will take you to RIDE preset if you're not already at RIDE, press it again and it takes you to LIFT preset and press again back to RIDE, it will Loop this RIDE and LIFT Presets, all this will work with the car OFF or ON (if over 12 volts and enough air in the tank).

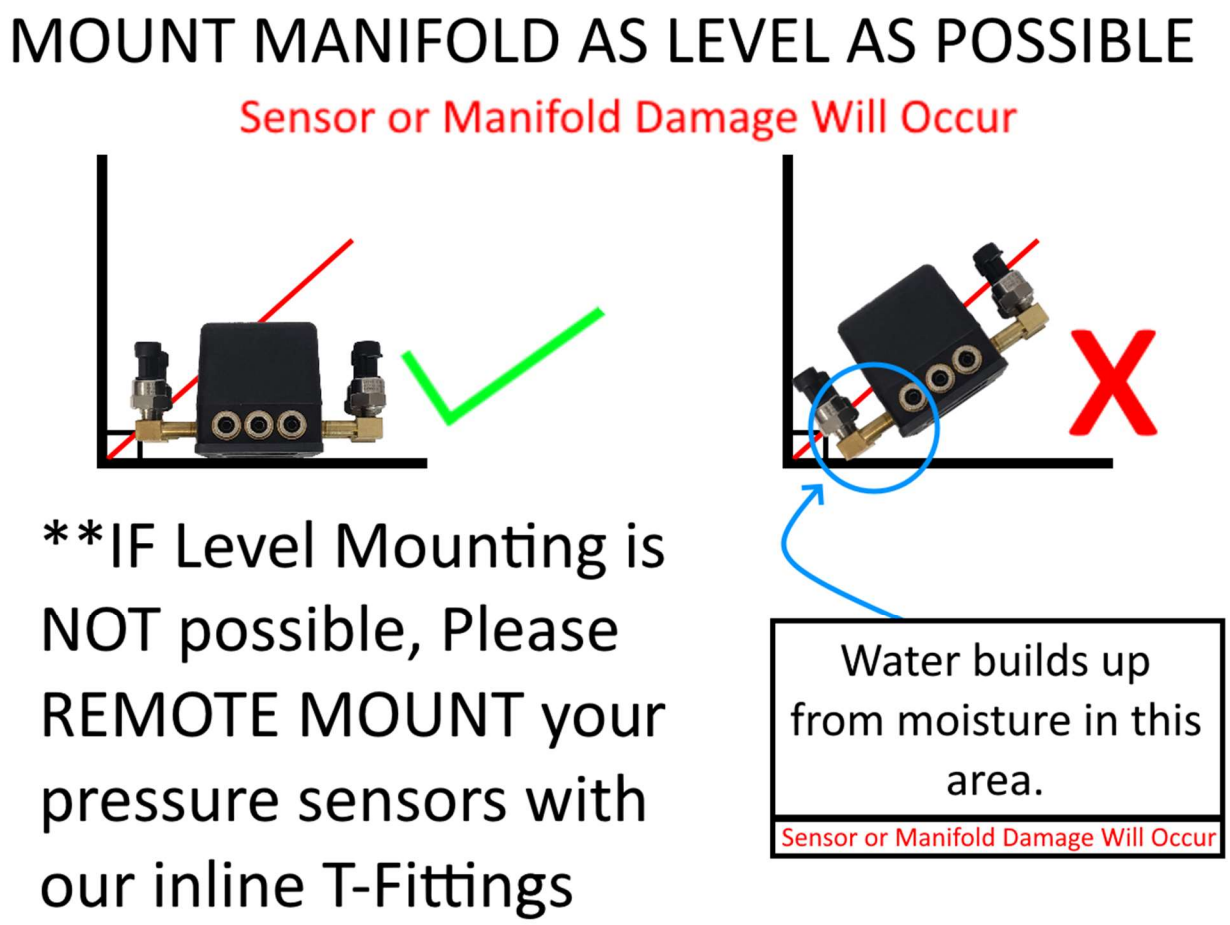
2. When you Valet your car at a hotel, you can turn Ride Height on start OFF and tap save then raise to Lift preset and hand over your vehicle to the Valet. This will remain at the lift height adding extra clearance and stay there even when the vehicle is restarted.

When the vehicle is delivered back to you simply press the Valet button once and it will take you to your RIDE preset and you're ready to go.

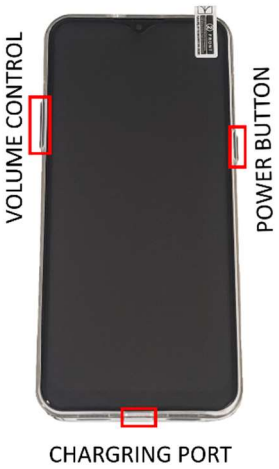
Pressure Sensor Mounting

Step-By-Step

1. Coat the tread of the Pressure Sensor with a thread sealer to prevent air leaks. We strongly recommend an anaerobic thread sealer such as Loctite 569.
2. We don't not recommend using white thread tape as this is for water not air.
3. After tightening the sensor, wipe off the excess thread sealer.



Controller Overview



Our touchscreen controller comes preloaded with the Level Ride Air Suspension application and allows for easy use right out of the box. If you chose not to purchase the Controller from us, please visit either the App Store or Google Play Store to install our latest app version to begin configuring your new system.

Upon arrival of your controller, please ensure that the controller is fully charged. The controller requires a minimum of 3.1amp charge, and NEVER leave it on the charger for extended periods of time after the battery is fully charged. Max charge time from 15% is approx. 3-4 hours These are lithium-ion batteries and leaving the battery on charge past 100% capacity has been well known for the degradation of battery performance, which is NOT covered by manufacturer's warranty. Never run the battery completely dead repeatedly IE not more than twice. This will damage the battery and is not covered by the warranty; the average run time of the controller is 3-5 hours depending on ambient temperature

To check for your battery charge, please power on the controller and have a look at the top right of the screen. The battery icon will have a general fill/empty look, but directly to the RIGHT side of this is the numerical value of charge. In the event of your controller not powering on, please connect the provided charging cable USB Male end to any charging source with an output higher than 3.1 amps and the Micro USB end to the controller. Please note that both ends of the cable are directional, and only fit into ports one direction. (Do NOT force the cable into a port this will cause damage). Allow the controller to fully charge. A completely depleted controller battery can take up to 3-5 hours to fully charge.

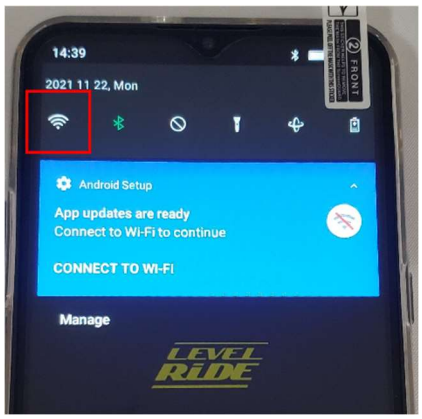
Once your touchscreen controller is fully charged, and powered on, you now need to swipe down from the top edge of the screen, and see the quick settings drop down menu. From this point, please enable Wi-Fi to continue the setup if you are registering your Level Ride kit.

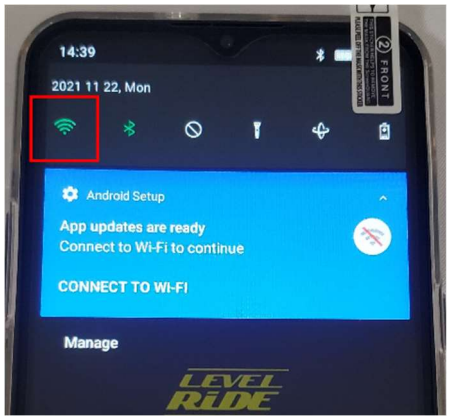
Wi-Fi should be on during initialization of the controller, and during calibration. Beyond this, please turn off Wi-Fi, as this will remove spam and unwanted downloads, and help reduce battery depletion.

- Power On

- Swipe up to begin

- Swipe down from the top to open quick settings menu

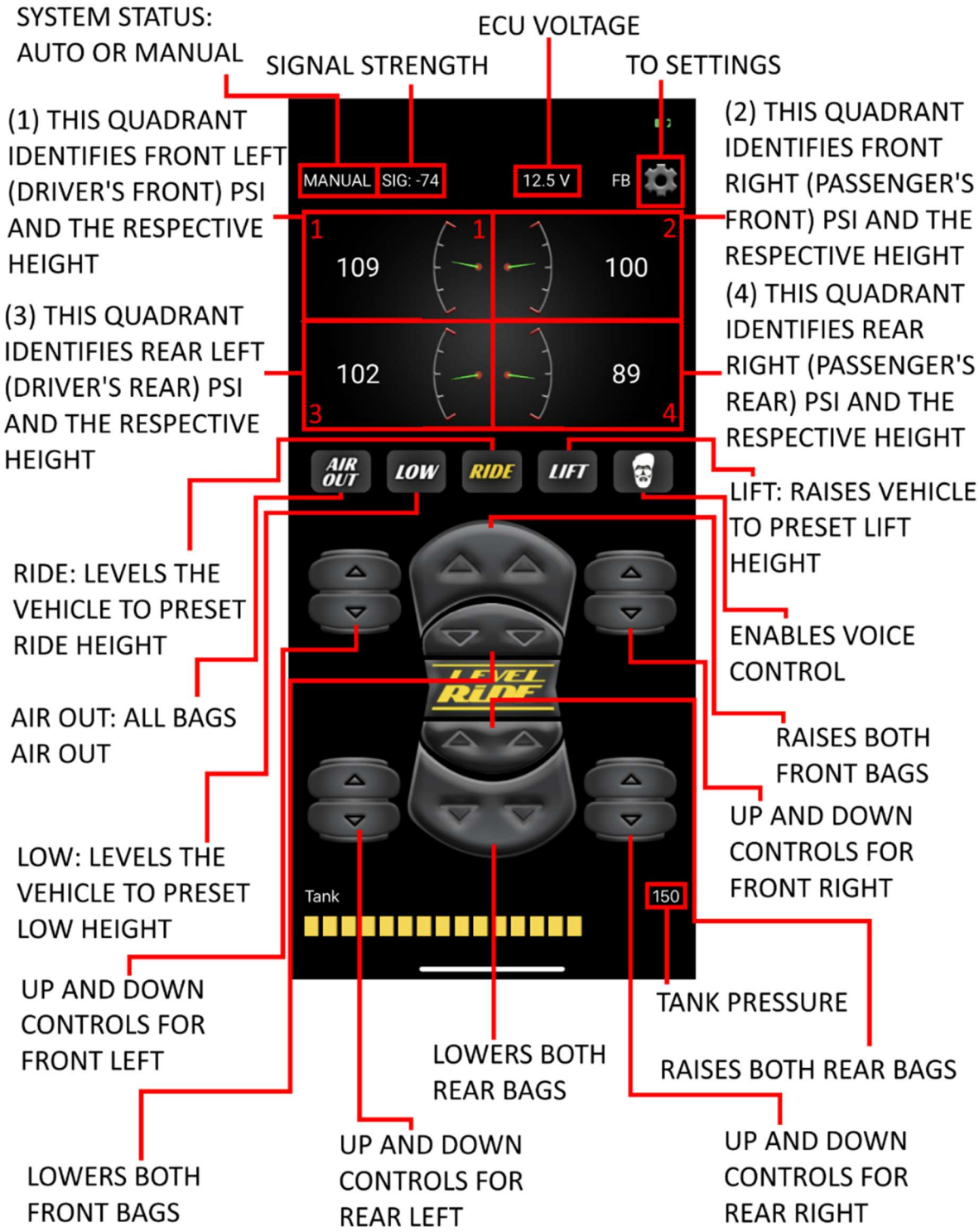




*****The Wi-Fi icon illuminates green when SEARCHING or CONNECTED to a network. IF illuminated white, tap once on the icon to begin scanning for a network.**

*****Reminder: Turn off Wi-Fi after registration and calibration. Tap the icon once to illuminate white, meaning Wi-Fi is disconnected.**

App Overview



First Time Setup

Step 1.

Ensure that you have the wires red (to 12v constant), orange (to key on), and black (to ground), on the MAIN harness and make sure the MAIN harness is plugged into ECU.

Step 2.

Open app (and turn on Bluetooth), (or turn optional touchscreen controller on), until “Let’s begin” appears on the screen.

Step 3.

Turn ignition on, but do NOT start the vehicle.

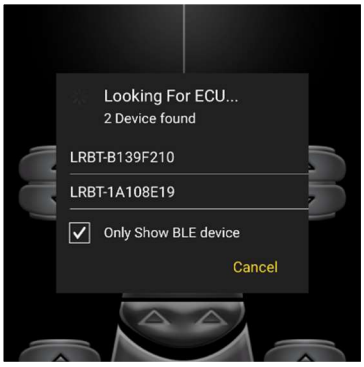
Step 4.

Press “Let’s begin”

Step 5.

Find the ECU name “LRBT-XXXXXXXX” tap on this when it’s displayed, remembering which ECU signal is yours. And follow the prompts to pair the ECU. (See Figure 5).

Figure 5

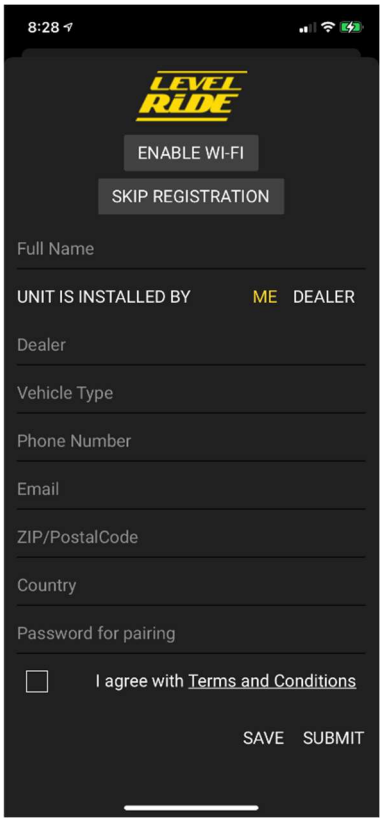


Step 6.

Customers using the app version, tap on settings (Gear icon, top right), Then scroll down to “Upgrade ECU” and you will see a couple of pop ups walking you through the updating process.
NOTE: Current App Version is 1.0.7 for IOS. For Android, please view the play store for the least downloaded app at this time (estimated downloads at the moment 100+). The older ECU’s (identifiable by the **YELLOW logo on the ECU cover) is compatible with the app with 1,000+ downloads. **NEW ECU’s ARE NOT COMPATIBLE WITH THE OLDER APP**. New ECU’s have the **BLACK** Level Ride logo.

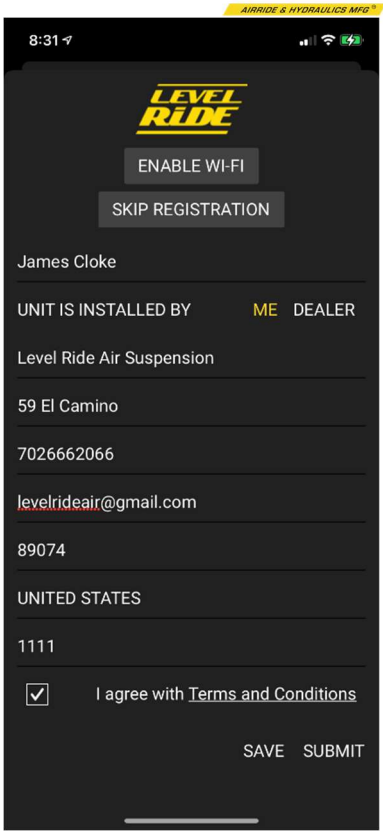
Step 7.

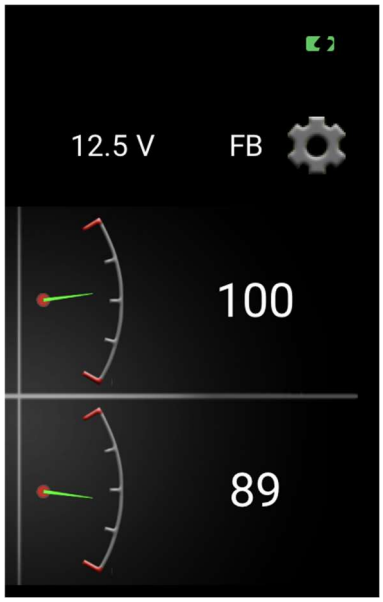
Users with our touchscreen controller must turn on the Wi-Fi and check that you have a good connection to the ECU, and a good Wi-Fi connection. The first-time setup and updating process can take up to 15 mins. Be sure to not leave the area with the controller whilst the update process is ongoing. If the process is interrupted, it must be repeated.



First Time Registration (Step 8)

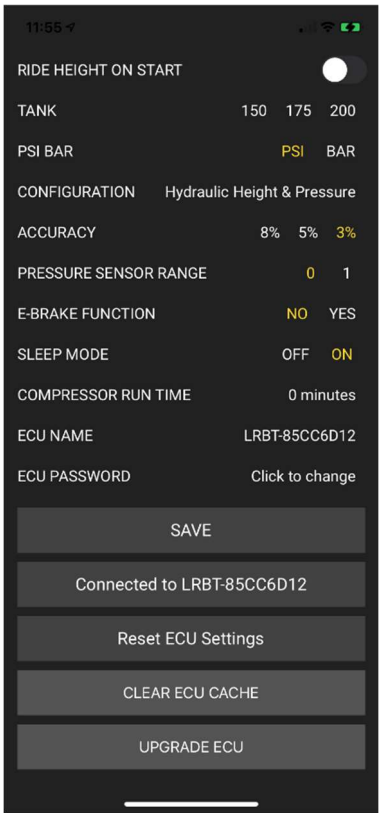
When this screen appears, please fill it out to the best of your knowledge, this data is sent only to Level Ride Air Suspension and is only used for technical support. You will need to accept the Terms and Conditions, clicking the link will let you read them. Then you must tap the submit button to register the product. If you chose to skip the registration, you will need a copy of your invoice for warranty purposes. This data registers the device and allows LEVEL RIDE AIR SUSPENSION to see what version of software you're running and helps us troubleshoot.





Settings Page (Navigation)

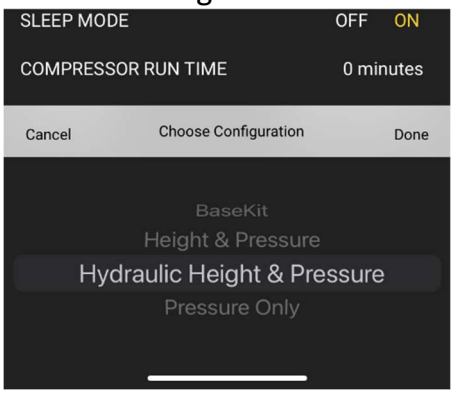
Clicking on the gear icon at the top right of the main screen will display this new screen (see right). The Settings page allows you to turn off ride height on start, change tank pressure, display of pressure reading, configuration, accuracy, pressure sensor range, sleep mode, compressor run time and displays the ECU name and password. All changes made in the settings must be followed by a tap to the "Save" button at the bottom of the screen for the changes to take effect. If the tank pressure configuration is changed after calibration, it will send you to a new calibration.



Step 9.

All ECUs are shipped as pressure only, unless purchased as height and pressure kit direct from Level Ride. Navigating to the settings page will allow you to set your system configuration.

Figure 8



Updating from Pressure ONLY to Height and Pressure requires an unlock code from Level Ride. This procedure due to time zone will take anywhere between 24 to 48 hours, so plan before updating.

Step 10. (Make sure Pressure Sensors mounted straight up and connected to the correct corners in relation to the vehicle see page 4).

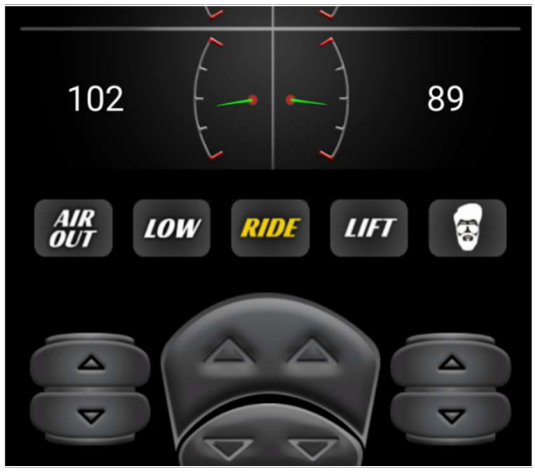
Tank Pressure Mode

Set on Controller Touch Screen settings before calibration.

Your system was programmed with the Tank Pressure Mode set at 150 PSI. If you have High Pressure Compressor(s) rated to 200psi you can change the Tank Pressure Mode to 175 PSI or 200 PSI on the setup page on the Touch Screen. Any changes won't take effect until the SAVE button is tapped.

Screen Examples:

Calibrated



Uncalibrated

***Note that the **PRESETS** are illuminated when calibrated.

Procedure for Pressure ONLY configuration/calibration

- Ensure vehicle is on level ground, have a full tank of gas, and have a driver in the vehicle. This is very important for a pressure only system to calibrate. If you do not have an extra person, then the driver seat should be weighted to match the driver. If you are running fast valves, you may need to run slowdowns in the exhaust valves, as Pressure Only is ran off timers. If your vehicle takes less than 2 seconds to drop from max height to AIR OUT, you will need slowdowns.
- Raise the vehicle front and rear to the maximum pressure **ONLY** required to reach maximum height.
- Exceeding the amount of pressure necessary will affect the calibration, as Pressure Only is calibrated using timers.

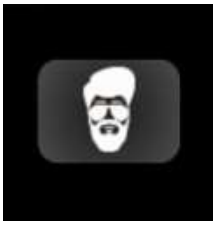
Danger: for the next step ensure you, and any obstructions are clear of the vehicle, as it will drop immediately if the tank is full. If the tank is not full the vehicle will drop after tank is done filling.

- When ready, you will need to go to the settings page and select a calibration. Follow the prompts on the screen and press “start” when ready. (Ensure you are clear of the vehicle, as it will drop immediately if the tank is full. If the tank is not full the vehicle will drop after tank is done filling).
- Once the vehicle drops and pressure is below 5 psi, the system will lift to approximately 50-70% of your starting pressure. The compressor will come back on to refill the tank, and once it refills the tank, it will continue pulsing individual corners for approximately 30 seconds. It will then lift the vehicle, and 5-10 seconds later will drop back, making a few more adjustments. This should complete the calibration and a “success” will pop up on the screen and the presets will no longer be grayed out (AIR OUT, LOW, RIDE, LIFT, VOICE CONTROL).
- Next you will be saving your presets. Please leave key ON or the vehicle running.
- The procedure for saving your presets is as follows.
    - First air out the vehicle completely with the driver in the vehicle, raise the front only, to your low setting pressure.
    - Do not go past the pressure and bleed back down, only make upward adjustments.
    - When you have the front correct, use the same procedure for the rear.
    - When happy with your low pressure setting, press and hold LOW until the manual icon on top left of screen changes to “auto” indicating that it has saved.
- Next you will save RIDE pressure setting, using the same procedure above, coming up first with the front, then the rear, with only upward adjustments.
- Once you’ve completed the steps for your RIDE height, repeat the same procedure for LIFT.

Danger: for the next step ensure you, and any obstructions are clear of the vehicle, as it will drop.

- Double tap AIR OUT.
- When the vehicle has aired out, single tap ride. When vehicle reaches ride pressure setting, and compressor has refilled the tank, double tap AIR OUT once again, then tap RIDE. Repeat this procedure 4 times in total and wait for compressor to refill tank each time. THIS WILL TEACH THE SYSTEM THE REQUIRED PULSE LENGTH TO REACH YOUR RIDE PRESSURE SETTING.

Voice Control



Once your system has been calibrated, then the voice control can be used. On the right-hand side of the screen in the middle, there is a face (please view page 12), to turn it on or off simply press and hold it for 1-2 seconds, when it's off it will be white. When it is on it will be yellow. This will allow you to voice control your 4 presets. When it is turned on use "Okay Level Ride", it will return with "Ok, what do you want me to do" then wait 1-2 seconds for a chime. Then say any one of your presets, Air Out, Low, Ride, or Lift. In a quiet environment, this feature works best. Sometimes in louder environments it will be harder for the microphone to pick up your commands. Never have this on while driving.

Level Ride Wiring Harness Installation Considerations

Height Sensor Harness

The height sensor harness goes into the center plug on the ECU. Again, make sure you do not press on the face of the ECU directly, only support weight on the edges, the face of the ECU may break if direct force is applied.

The Harness is universal and not vehicle specific. Corners 1 & 2 are 20ft long 3 & 4 and 10ft long.

Make sure to press all connectors on firmly until an audible "click" sound can be heard from the lock.

Route all wiring away from exhaust or other high-temp areas and all power supply cables for car and audio. Never run the wiring parallel to power supplies, cross over at 90 degrees if no alternative route is available.

When routing the Height Sensor harness, ensure to be at least 4 inches away from the compressors, and 2 inches from any main power wires.

Use rubber grommets for areas where sharp metal could eventually wear through the wire.

If needed, you can de pin the harness at the ECU end only to aid in running the height sensor harness plugs.

Terminals can also be purchased if you need to shorten the harness at the ECU end only. Do not coil up unused sections of the harness, either cut it to length and crimp new terminals on or solder the cable back together and use heat shrink to cover the solder joints.

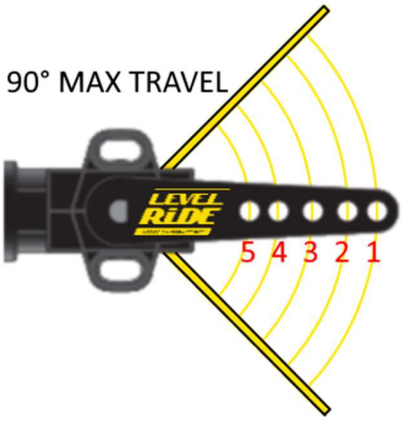
System Set-Up for Height Sensors

Now that many of your system components are installed, plumbed, and wired (Mechanical Air Suspension Components, Compressor(s), Tank(s), Tank Pressure Sensor, Bag Pressure Sensors, Valves, Air Line, and ECU), it is time to test the system and begin the Height Sensor installation.

PLEASE NOTE that when mounting the height sensors, it is good practice to mount with the wires leading straight down, or either side horizontally, but never mount the sensor with the wires feeding in from the top. This can create a small pocket for water to sit and cause damage to the sensor or wiring in the long run.

Setting up Height Sensors

Understanding suspension movement is the key to sensor mounting. The term “vertical travel” means the amount of up and down distance that a point on a suspension arm moves as it rotates. If you mount a sensor too far out of range, it will travel too far and damage or break the sensor. The outer hole is 4.5” and inner is 1.8” travel, see the following diagram (Next Page) for an illustration of this theory.



Starting with the outer most hole (1), (furthest from the center point of travel). The chart specifies decending order of travel to the hole closest to the center point (5) and their respective lengths.

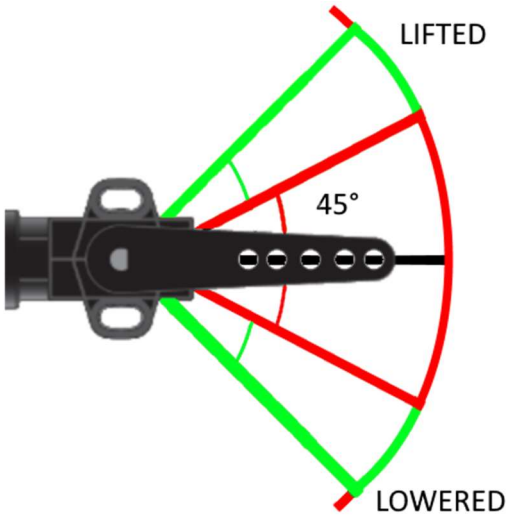
HOLE NUMBER	DISTANCE
1	4.5” = 11.43cm
2	3.75” = 9.52cm
3	3.125” = 7.93cm
4	2.25” = 5.71cm
5	1.75” = 4.44cm

DANGER

DANGER: Sensor installation requires viewing suspension movement from underneath the vehicle. This must be done on a lift/hoist for safety. Do not attempt to get under the vehicle while it is on the ground, jack stands must be used for this process!!!

Height Sensor Installation

Level Ride has on screen guidance for the travel required to calibrate.



The needles will turn green when you're in the correct range at the lift position and in the lowered positions. Between this is the red zone which is the min 50% required to calibrate. If you go past the 90 degrees of travel the needle will turn red also indicating, you're out of range and the sensor will not read in this position.

Height Sensor Indexing

The height sensors can also be indexed. The center screw on the arm can be removed and the boss (the arm mounts on) has a small nib sticking out, at mid-point of travel this will face the sensor cable.

Indexing is required for a couple reasons.

1. The cable routing is tight and indexing the sensor enables better access.
2. In cold climates it's recommended you index the cable so it is facing down so ice cannot sit on the sensor seal.
3. The height sensor mounting area is tight.

Step 1.

Choose a stationary mounting point on the frame where to mount the sensor we use masking tape to cover the area we are using so as not to draw directly onto a painted frame (mark a dot here). All the following measurements will be taken from this point.

Step 2.

Mark a dot on the moving suspension arm directly under the dot from Step 1. This will be your target rod end mounting point. With the vehicle at the top of its travel jacked up so the suspension is hanging (you may need to add air to push it to max travel), measure from this point up to the center of your first dot. We will call this distance "A". When mounting the height sensors, **please note the needles must stay in the green areas depicted on the previous page**.

Step 3.

Exhaust the air to move to the very bottom of its travel. You may need a jack to do this and decouple the sway bar. Now remeasure from the same position on the suspension arm, up to your first dot. We will call this distance "B." Calculate the sensor travel by subtracting B from A (sensor travel = A-B). The needles should read green at the minimum height.

If the sensor Is red at any point of the "lifted" or "lowered" travel, the system will NOT calibrate.

Step 4.

If your sensor travel is less than the indicated travel for the hole on the arm you're using, then move farther away from the pivot point of your suspension arm and repeat Step 1-Step 3. If your sensor travel is more than max, then either move the hole on the suspension closer to the pivot of your suspension arm or repeat Step 1 – Step 3. (We understand that getting the sensor travel right can take time and

some might require trying another position or extending the threaded rod to reach the mounting point, the rod used is 10/32 UNF or 5mm can also be used as it's the same thread pitch and diameter).

Step 5.

Once you have established your rod end mounting point that yields the required travel, drill and tap or bolt through, to attach the supplied bolt and/or bracket at this exact point.

Step 6.

With the sensor rod end installed on the sensor arm and the vehicle at the middle of the travel, hold the sensor apparatus up as if it were attached to the rod end that you installed in Step 5. Determine if you will need to shorten the linkage. If not, continue to Step 8. If so, unscrew the rod ends and cut the threaded rod (make sure to restart the threads). You want 3/8" worth of thread engagement on each end. Then reassemble the rod. Note that the end links do not need to get tight on the rod because, once installed, the rod end prevents them from rotating loose.

Step 7.

Attach the lower rod end to the suspension. With the vehicle about halfway through the travel, find the exact sensor mounting point that keeps the mounting holes and linkage rod **vertical**. Once established, trace the outline of the sensor to the frame. Note the diagram below, as it shows the maximum angle of the connecting rod before it will bind the rod end/heim joint. EXCEEDING THIS **WILL** BREAK THE SENSOR.

Step 8.

With the vehicle at the very bottom of the travel, hold the sensor at the same location traced on the frame in Step 7. Either rotate the sensor slightly or use the indicator on the Touch Screen to show you where the arm is in its travel so you're in the green zone.

Step 9.

With the vehicle at the very top of the travel, compare the clearance found in Step 8 to the clearance between the lower plastic stop and the rotating arm. Repeat Step 8 and Step 9 until the upper and lower clearance is approximately equal.

Step 10.

Use the final sensor location to mark the two mounting holes to be drilled through the frame or drilled and tapped 10/32, Drill the holes and install the sensor mounting hardware. (BE CAREFUL NOT TO OVERTIGHTEN! Never use an Impact drill.

Step 11.

Now that the sensor is mounted, repeat Step 8 and Step 9 to make sure that the clearance is still equal. Adjust the linkage if necessary so you're in the green zone.

Height and Pressure Calibration

Before the system will operate, it must be calibrated to learn the vehicle characteristics. This process should only be repeated if any air suspension components get changed, or a height sensor if it is replaced, would require a new calibration but otherwise only one calibration is required.

CAUTION: The system will automatically lower/raise the vehicle in the next procedure. Remove all obstructions and keep clear of the vehicle before proceeding. The vehicle needs to be on level ground with the wheels pointed straight ahead. Leave the vehicle running to charge the car's battery and power the compressor(s) during this procedure. Raise to maximum height using the controller touch screen with ONLY the pressure required to obtain this height and be in the green zone. Adding too much pressure will affect the calibration: the vehicle must start to drop as soon as the exhaust valves open.

- Ensure vehicle is on level ground, have a full tank of gas, and have a driver in the vehicle. This is very important for a Height and Pressure system to calibrate. If you do not have an extra person, then the driver seat should be weighted to match the driver.
- Raise the vehicle front and rear to the maximum height **ONLY** required to reach maximum height. And ensuring that the height sensor displays the needles in the designated green areas depicted previously.
- Exceeding the amount of pressure necessary will affect the calibration, as Height and Pressure is calibrated using timers.

Danger: for the next step ensure you, and any obstructions are clear of the vehicle, as it will drop immediately if the tank is full. If the tank is not full the vehicle will drop after tank is done filling.

- When ready, you will need to go to the settings page and select a calibration. Follow the prompts on the screen and press “start” when ready. (Ensure you are clear of the vehicle, as it will drop immediately if the tank is full. If the tank is not full the vehicle will drop after tank is done filling).
- Once the vehicle drops and pressure is below 5 psi, the needles must be in the green zone. The system will lift to approximately 50% of your starting height. The compressor will come back on to refill the tank, and once it refills the tank, it will continue pulsing individual corners for approximately 30 seconds. It will then lift the vehicle, and 5-10 seconds later will drop back, making a few more adjustments. This should complete the calibration and a “success” will pop up on the screen and the presets will no longer be grayed out (AIR OUT, LOW, RIDE, LIFT, VOICE CONTROL).
- Next you will be saving your presets. Please leave key ON or the vehicle running.
- The procedure for saving your presets is as follows.
    - First air out the vehicle completely with the driver in the vehicle, raise the front only, to your LOW height setting.
    - Do not go past the height and bleed back down, only make upward adjustments.
    - When you have the front correct, use the same procedure for the rear.
    - When happy with your LOW height setting, press and hold LOW until the manual icon on top left of screen changes to “auto” indicating that it has saved, and the LOW icon will change to yellow.

- Next you will save RIDE height setting, using the same procedure above, coming up first with the front, then the rear, with only upward adjustments.
- Once you complete your RIDE height complete the same procedure for LIFT.

Danger: for the next step ensure you, and any obstructions are clear of the vehicle, as it will drop.

- Double tap AIR OUT.
- When the vehicle has aired out, single tap RIDE. When vehicle reaches RIDE height setting, and compressor has refilled the tank, double tap AIR OUT once again, then tap RIDE. Repeat this procedure 4 times in total and wait for compressor to refill tank each time. THIS WILL TEACH THE SYSTEM THE REQUIRED PULSE LENGTH TO REACH YOUR RIDE HEIGHT SETTING.
- NOTE: With LIFT do not set this higher than 80% of the travel as it may not be able to achieve it.

Level Ride Tips and Tricks

Tip 1.

If you don't want your car to auto level on start-up you need to turn the ride height on start off. This is in the setup menu. Once you turn it off you need to tap the SAVE button for it to become effective.

Tip 2.

Back Up Button/Valet Button has three purposes.

- When the vehicle is off, but sleep mode is on, and your vehicle is not sitting at your RIDE preset. A single push of the backup button will raise the vehicle to your RIDE preset. Assuming you have 12v and enough air in the tank.
- When driving at your ride preset, a single tap of the backup button, will take the vehicle to your LIFT preset, allowing for extra clearance without having to reach for your controller. A second press will return you to your RIDE preset.
- If you valet your vehicle, you can turn RIDE HEIGHT ON START **OFF**, and tap save to make this change effective. Raise the vehicle to your LIFT preset and when the valet parks your vehicle, you will have extra clearance, the vehicle will remain at the lift setting, until the valet returns the vehicle to you. You then tap the backup button once and it will take you to your ride setting, so you can quickly drive off, smoking the tires.

Tip 3.

If while driving you don't want LEVEL RIDE AIR SUSPENSION to monitor the car at all, just tap any of the manual bag switches once. The word manual will appear top left of the screen and the RIDE button will not be illuminated. This will take it out of ride monitor mode. To come back to monitor mode, just tap the RIDE button once.

Tip 4.

Brake sensing: As a further measure to keep your car's saved ride height setting, LEVEL RIDE AIR SUSPENSION has added Brake Monitor Mode. This must be connected for our system to operate as designed.

When you're braking, sitting in traffic, or just slowing down for a corner, brake monitor mode pauses any adjustments that could throw out your saved height.

Tip 5.

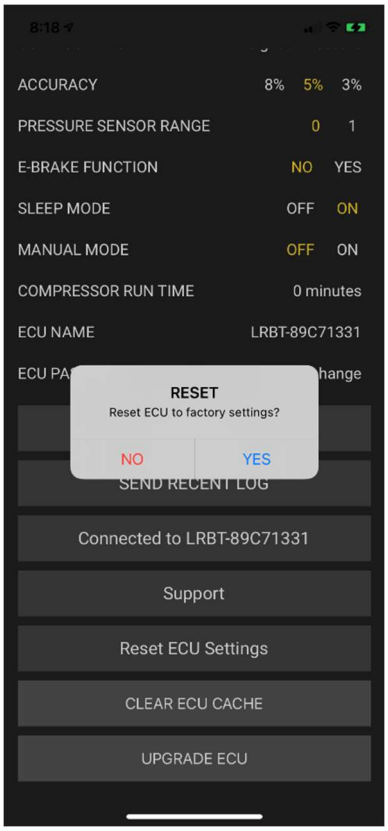
If you park on uneven ground, you don't have to worry about the car becoming cross-jacked like in height-only systems. Terrain sensor will kick in and stop any adjustments before it gets to cross-jacked. When the car is back on flat ground it will readjust. Alternatively, you can also tap LIFT to get you over the uneven ground. If your daily parking spot is uneven ground, turn Ride Height on Start OFF. This will prevent unnecessary adjustments also.

Tip 6.

Make time to weekly drain any moisture from the tank drain. Valve Blocks and Pressure Sensors can clog up from lack of weekly maintenance. Ensure you have a particle trap between the tank and the valve block. (Pressure Sensors' water damage is not covered under the warranty.) MOUNT PRESSURE SENSORS FACING STRAIGHT UP.

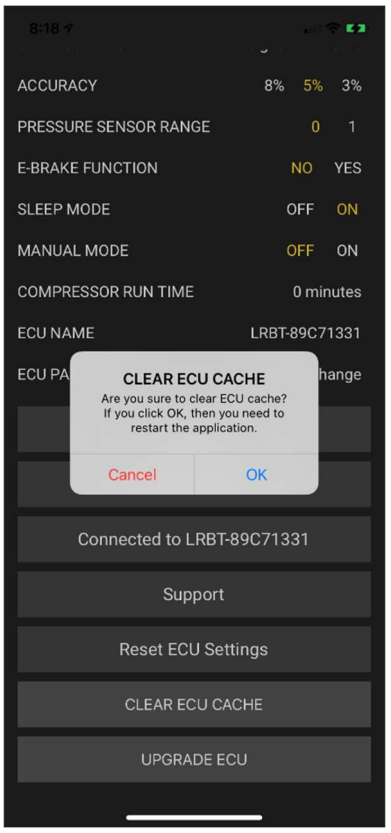
Tip 7.

System voltage when the car is running at idle should essentially be no less than 12.6 volts. Most cars will maintain this if the charging system (the alternator) is producing enough voltage at idle to keep up with the demands of the compressor(s). If you notice the LOW VOLTAGE warning coming up on your screen, that's a sign you're in need of an upgraded alternator. The LEVEL RIDE AIR SUSPENSION system is protected against this but will shut down if the voltage doesn't increase.



Resetting the ECU

Resetting the ECU should be a last resort for resolution of errors. These errors do not include calibration errors, and or sensor faults. Once this operation has been completed, you will need to restart the first time set up process again and configure height presets again. Closing the application and reopening it, normally will clear any faults that may occur.



Clearing Cache

Clearing the ECU Cache is recommended for customers with multiple Level Ride Air Suspension systems. Without clearing the cache, the system will automatically pair to the previous vehicle, and will not allow for a new search.

Australian ECUs ONLY

Australian E-Brake Function: ECUs purchased from our Australian dealer, will have the E-Brake code installed. The blue cable from the ECU main harness, needs to run to 12v ON when E-Brake is applied. i.e., when you push on or pull up the E-Brake lever, a microswitch will need to be fitted if your E-Brake wire is not 12V already. Note that some E-Brake wires are switched by ground.

To set up the E-Brake function, apply your E-Brake so that 12V out is going to the blue wire on the ECU.

Turn on the E-Brake Function on the settings page, and tap SAVE

Return to main page on your application, and check that your “EB” on the top right of your screen is yellow and when the E-Brake is release, it returns to white. This is the correct configuration for the E-Brake wire.

Warranty

This warranty does not apply and is void if damage or failure is caused by faulty installations, operating the product(s) outside of the instructions, specifications, guidelines, or damage caused by weathering.

LEVEL RIDE AIR SUSPENSION does not represent or warrant that the information available on or through the fitting instructions will be correct, accurate, timely, or otherwise reliable. LEVEL RIDE AIR SUSPENSION may make changes to the features, functionality, or content of the fitting instructions at any time. LEVEL RIDE AIR SUSPENSION reserves the right to make changes, improvements, edit or delete to its products, publications, documents, and information at any time.

Warranty

LEVEL RIDE AIR SUSPENSION will repair or replace any failed components we manufacture for the life of the vehicle given that the components were installed and operated as intended by LEVEL RIDE AIR SUSPENSION. Items such as height sensors and pressure sensors and the controllers are covered up to 12 months by the manufacturer. Upon the return of a failed component(s), LEVEL RIDE AIR SUSPENSION will determine the cause of failure. If it is due to improper installation, or misuse of the system, a repair charge will be assessed, and the customer will be contacted before work is performed or replacement parts are shipped. If the failure is due to faulty parts, then LEVEL RIDE AIR SUSPENSION will repair or replace the failed components at their own discretion and in a timely manner.

Legal Disclaimer

LEVEL RIDE AIR SUSPENSION's products must be installed by a qualified professional installation facility as recommended by LEVEL RIDE AIR SUSPENSION. System operation and installation is at the CUSTOMER's own risk. LEVEL RIDE AIR SUSPENSION accepts no liability for damage of property or persons caused by its products caused by incorrect installation causing a failure of any of the components, accessories, installation instructions or otherwise. LEVEL RIDE AIR SUSPENSION accepts no responsibility for systems, products, or components provided by other manufacturers for use with or around the LEVEL RIDE AIR SUSPENSION system. For components other than LEVEL RIDE AIR SUSPENSION's, follow the manufacturer's instructions for installation and operation.