e-LEVEL

Operation Manual



Operation Manual e-Level™: TouchPad™ Controller

Congratulations!

Thank you for purchasing the revolutionary e-Level™ system by AccuAir.

This system manages the height of up to 4 Air Springs and offers never before seen accuracy in all applications by constantly learning your vehicle's characteristics. Through the use of advanced height monitoring techniques, this system automatically corrects for changes in load, whether driving or parked, minimizing user input and maximizing accuracy throughout your driving experience. To enhance the entire system's performance and reliability, the AccuAir e-Level™ also manages your Air Compressor(s) to keep onboard air at an ideal pressure for your application.

To maximize functionality, the AccuAir e-Level™ allows you to select from three distinct vehicle heights through a TouchPad™ Controller:

- 1.) Ride Height (The height that you will typically drive your vehicle at).
- 2.) Low/Cruise (Typically set at 10% of your total suspension travel).
- 3.) High/Extra Clearance (Typically set at 90% of your total suspension travel to increase mobility and clear driving obstacles).

At AccuAir, we pride ourselves on thorough customer service, quality products, and a better driving experience through technologically superior design. Please visit our website or call us toll free to let us know if there is any way that we can help improve your AccuAir experience.

> (877) **AIR-DOWN** 247-3696

www.accuair.com



Table Of Contents

Description	<u>Page Number</u>
	_
Terms & Conditions	5
Service Disable & General Understanding	6
General Operation	7-8
Setup Programming	9-21
Operation Trouble Indication & Diagnosis	22-25
System Diagram	26-29



Terms & Conditions:

AccuAir Control Systems, L.L.C. is hereby referred to as **ACCUAIR**. The Purchaser, end-user, or installer is hereby referred to collectively as **CUSTOMER**. By purchasing and installing the **ACCUAIR** products, systems, or components to which this Installation Manual relates, **CUSTOMER** is deemed to agree with and accept the terms and conditions below.

Limited Warranty

ACCUAIR will repair or replace any defective products or components for the life of the vehicle on which they were originally installed, provided that the products or components were installed exactly as instructed herein, not modified or altered, and operated as expressly intended by ACCUAIR. Upon the return of a failed component(s) at CUSTOMER's expense, ACCUAIR will determine the cause of failure. If it is due to improper installation or misuse of the system, as determined by ACCUAIR, 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 defectively manufactured parts, then ACCUAIR will either repair or replace the failed components, at their own discretion and in a timely manner. There are no other warranties, express or implied, except as contained in this paragraph.

Repairs and Returns

A Return Merchandise Authorization Number (RMA) is required for ALL shipments to **ACCUAIR**. This number should be written in large letters on the shipping box. Call **ACCUAIR** to receive an RMA number and send items to:

AccuAir Control Systems, L.L.C.
Attn: Service Department/RMA #

831 Buckley Road
San Luis Obispo, Ca, 93401
USA

Legal Disclaimer (IMPORTANT—PLEASE READ CAREFULLY)

- ACCUAIR's products are intended and designed for off-road use. If a customer chooses to use ACCUAIR's products on a highway, CUSTOMER understands that they do so at their own risk.
- ACCUAIR's products must be installed by a qualified professional installation facility, as recommended by ACCUAIR.
- ACCUAIR's products may void or limit any manufacturer's warranty or service contract covering CUSTOMER's vehicle. ACCUAIR shall have no liability for any effect that installation of its products may have on such warranties or service contracts.
- ACCUAIR's products may drastically alter the performance characteristics of CUSTOMER's vehicle and may cause it to operate in a manner not intended by the vehicle's original manufacturer. System operation and installation is at the CUSTOMER's own risk.
- CUSTOMER is responsible for periodically inspecting any and all ACCUAIR products or components installed on CUSTOMER's vehicle, to ensure they remain safe and functional. ACCUAIR shall have no liability for any loss or injury caused by CUSTOMER's failure to inspect.
- ACCUAIR shall have no liability for damage to property or persons caused by its products, components, accessories, installation instructions, or otherwise. CUSTOMER alone assumes all such risks and liabilities.
- ACCUAIR accepts no responsibility for systems, products or components provided by other manufacturers for use with or around the ACCUAIR system. For components other than ACCUAIR's, follow the manufacturer's instructions for installation and operation.
- ACCUAIR's liability, if any, shall be limited to the replacement cost of the purchased product or component.
- Any and all disputes between ACCUAIR and CUSTOMER relating to the purchase or installation of an ACCUAIR product or component must be resolved through final and binding arbitration, applying the laws of the State of California, and conducted pursuant to the California Arbitration Act (California Civil Code sections 1280, et seq.). Arbitration shall take place in San Luis Obispo, California, and CUSTOMER consents to personal jurisdiction in California.

MARNING: No part of the vehicle should be able to contact the ground when all air is out of the air springs.



Service Disable:

<u>A</u> CAUTION: For all under vehicle maintenance, you must first disable the air system by removing the main system fuse located near the battery.

General Understanding:

For simplicity of use and understanding we refer to the four wheels of a vehicle by number. Instead of using "Left Front", or "Right Front" etc. Refer to the following diagram for labeling:



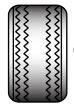
















↑ THE SYSTEM MUST BE CALIBRATED BEFORE USE. SEE PAGE 9

General Operation:



Position #3:

(Usually Raised/Extra Clearance)

While driving or parked, you may choose to press the Position #3 " Button momentarily.

The Position #3 " and become solid once achieved." Indicator Light will flash while adjusting to Position #3 and become solid once achieved.



Position #2: (Ride Height)

NOTE: This is also the height that "Lift-On-Start" adjusts to when enabled.

While driving or parked, you may choose to press the Position #2 " 2" Button momentarily.

The Position #2 " 2" Indicator Light will flash while adjusting to Position #2 (Ride Height) and become solid once achieved.



Position #1: (Usually Low/Cruise)

While driving or parked, you may choose to press the Position #1 " The Button momentarily."

The Position #1 " Indicator Light will flash while adjusting to *Position #1* and become solid once achieved.



⚠ THE SYSTEM MUST BE CALIBRATED BEFORE USE. SEE PAGE 9

General Operation:



All-Down:

While parked, you may choose to automatically lower all four Air Springs to zero height.

Press the All-Down " To Button for 3 seconds.

The All-Down " " Indicator Light will flash while adjusting and turn off once complete.



Automatic System Calibration: (Suggested)

 Λ

WARNING: Do NOT use this procedure for *KELDERMAN* Systems because suspension damage will occur. Use the procedure on the next page.

Maximum Height will be determined by your mechanical suspension limits. (For Manual Range Setting Use Next Page)

Your system must be calibrated to learn your vehicle's characteristics before the automatic leveling features can be used. This process should be repeated if any system components are changed or replaced in the future.

NOTE: Your system was shipped with the *Tank Pressure Mode* set at **150 PSI**. If you have High Pressure Compressor(s) you can change the *Tank Pressure Mode* to **175 PSI** or **200 PSI** using the Procedure on page 19, before calibrating below.

<u>^</u> CAUTION: The system will automatically *Raise/Lower* the vehicle in the next procedure. Remove all obstructions and keep clear of vehicle before proceeding.

The vehicle needs to be on level ground with the wheels pointed straight ahead. Leave the vehicle running to power the Compressor(s) during this procedure.



Automatic Calibration:

With the Ignition ON hold the Program " I " Button & the Position #2 " I Button for 5 seconds until all of the Position Indicators strobe up and down.

The system will then begin adjusting the vehicle throughout its total travel. This process requires no user interaction and should take no more than 15 minutes depending on the size of your Compressor(s) and Tank(s).

All of the Position Indicators will continue to strobe throughout calibration. The Position #2 " Indicator will be on solid when calibration is complete, indicating that the system is at Ride Height (Position #2).

When calibration is complete the positions will be saved as follows:

- Position #1=10% of total suspension travel.
- Position #2=50% of total suspension travel.
- Position #3=90% of total suspension travel. To re-save these heights to your preference, see page 10.

- Page 9 -



Manual Range System Calibration (Alternative to Automatic Calibration):

Maximum Height will be determined by you; instead of your mechanical suspension limits! This procedure should only be used on suspensions that are likely to over extend.

Your system must be calibrated to learn your vehicle's characteristics before the automatic leveling features can be used. This process should be repeated if any system components are changed or replaced in the future.

<u>A CAUTION: The system will automatically Raise/Lower the vehicle in the next procedure. Remove all obstructions and keep clear of vehicle before proceeding.</u>

The vehicle needs to be on level ground with the wheels pointed straight ahead. Leave the vehicle running to power the Compressor(s) during this procedure.



With the Ignition ON, use the Manual Rocker Switches to *Raise/Lower* all four corners until each corner is at your preferred **MAXIMUM TRAVEL** and the vehicle is level from side to side.

Manual Range Teach Calibration:

With the Ignition ON hold the Program " The Button & the Position #3 " The Button for 5 seconds until all of the Position Indicators strobe up and down.

The system will then begin adjusting the vehicle throughout its total travel. This process requires no user interaction and should take no more than 15 minutes depending on the size of your Compressor(s) and Tank(s).

All of the Position Indicators will continue to strobe throughout calibration. The Position #2 " Indicator will be on solid when calibration is complete, indicating that the system is at Position #2 (Ride Height).

When calibration is complete the positions will be saved as follows:

- Position #1=10% of total suspension travel.
- Position #2=50% of total suspension travel.
- Position #3=**90**% of total suspension travel. To re-save these heights to your preference, see page 10.



Manually Raise/Lower:

Manual Adjustment to a New Height:

In order to save a *New Favorite Ride Height*, you must first manually adjust each Air Spring to the height that you wish to save using the procedure outlined below. This procedure should be done with the vehicle sitting on flat, level ground. For the best results, make sure that the fender to ground clearance is less than 1/8" different from side to side. (For racing applications, corner weight scales may be used. Visit www.accuaircs.com for more details). Once you have achieved the desired height on all corners, see "Saving A New Ride Height" on the page 12.



To Adjust Front Air Springs Together (1&2):
Press the Combination #1 & #2 UP "
Button to FILL both Air Springs #1 & #2
together.

Press the Combination #1 & #2 DOWN "
Button to EMPTY both Air Springs #1 & #2
together.



To Adjust Rear Air Springs Together (3&4):
Press the Combination #3 & #4 UP "
Button to FILL both Air Springs #3 & #4
together.

Press the Combination #3 & #4 DOWN "

Button to EMPTY both Air Springs #3 & #4 together.



Manually Raise/LowerCont.:

To Adjust Air Spring #1:
Press the #1 UP " "
Button to FILL the
#1 Air Spring.

Press the #1 DOWN " "Button to EMPTY the #1 Air Spring.



To Adjust Air Spring #2:
Press the #2 UP " "
Button to FILL the
#2 Air Spring.

Press the #2 DOWN " "Button to EMPTY the #2 Air Spring.

To Adjust Air Spring #3:
Press the #3 UP " " "
Button to FILL the
#3 Air Spring.

Press the #3 DOWN " "Button to EMPTY the #3 Air Spring.



To Adjust Air Spring #4:
Press the #4 UP " "
Button to FILL the
#4 Air Spring.

Press the #4 DOWN " "Button to EMPTY the #4 Air Spring.



Saving New Heights Into Memory:

Once you have manually adjusted each Air Spring to the height that you wish to save, hold the *Position Button #1, #2, or #3* (the Position # that you want

the current height saved as), for 3 seconds until the Position Indicator flashes, then becomes solid.

NOTE: This process can be repeated as often as desired.

Re-Saving Position #3:

Press & hold the Position #3 " 3 " Button for 3 seconds.

The Position #3 " Indicator Light will flash, then become solid when saving is complete.



Re-Saving Position #2: (Ride Height)

Press & hold the Position #2 " 2 " Button for 3 seconds.

The Position #2 " 2 " Indicator Light will flash, then become solid when saving is complete.



Re-Saving Position #1:

Press & hold the Position #1 " T " Button for 3 seconds.

The Position #1 " Indicator Light will flash, then become solid when saving is complete.



To check or change any of the programmed settings during operation, press the Program " " " Button momentarily to initiate Programming Mode. WHITE indicates "ON" & RED indicates "OFF" for each of the features listed below:

NOTE: Program Mode will exit after 5 seconds or can be exited by pressing the

NOTE: Program Mode will exit after 5 seconds or can be exited by pressing the Program Button again and your changes will be saved.

Setup Programming:

Setting Indication	White	€	Red
Ride-Height-On-Start ON/OFF. (Description on Pg. 14)	ON:		OFF:
RideMonitor™ Mode ON/OFF. (Description on Pg. 15 & 16)	ON:		OFF:
ActiveStart™ ON/OFF. (Description on Pg. 18)	ON:		OFF:
Tank Pressure Mode: 150 psi = White only 175 psi = White & Red alternating 200 psi = Red only (Description on Pg. 19)	150	175	200

RideMonitor™ Mode Accuracy Level Setting				
Active Adjustment Accuracy #3. (Most Accurate, Most Adjustments) (Description on Pg. 16 & 17)	3			
Active Adjustment Accuracy #2. (Factory) (Description on Pg. 16 & 17)	2			
Active Adjustment Accuracy #1. (Least Accurate, Fewest Adjustments) (Description on Pg. 16 & 17)	1			



Turning Ride-Height-On-Start ON/OFF:

Your system was shipped with *Ride-Height-On-Start* enabled (ON). You may choose to disable (OFF) or re-enable (ON) this feature. When this feature is ON, the system will automatically re-level the vehicle to *Position #2 (Ride Height)* every time that the IGN is switched ON. When this feature is OFF, the system will remain at the last height the vehicle was at when the IGN is switched ON.



To Turn Ride-Height-On-Start (ON)/(OFF):

With the Ignition ON, press the Program " ■ " Button. Next press the #1 UP " ■ " Button to turn Ride-Height-On-Start ON or the #2 UP

" A" Button to turn Ride-Height-On-Start OFF.

When the #1 UP " \(\bigcap \) Arrow is White: Ride-Height-On-Start is **ON**.

When the #2 UP " a" Arrow is Red: Ride-Height-On-Start is **OFF**.





Turning RideMonitor™ Mode ON/OFF:

Your system was shipped with *RideMonitor™ Mode* enabled (ON). You may choose to disable (OFF) or re-enable (ON) this feature. When *RideMonitor™ Mode* is ON, the system will Monitor the vehicle's height whenever the IGN is ON and make adjustments for changes in load when deemed necessary. When this feature is OFF, the system will only adjust when prompted by pressing the height selection switch – It will not Monitor the vehicle's height and will not make adjustments for changes in load automatically.



NOTE: *RideMonitor™ Mode* should be left ON for maximum accuracy. The only case that it should be turned OFF is if you feel that the system is adjusting too often or inaccurately while driving. In this case, first try re-calibrating the system using the instructions on Page 8. If this does not solve the problem, turn the *RideMonitor™ Mode* OFF and contact

AccuAir for further assistance.

To Turn Monitor Mode (ON)/(OFF):

With the Ignition ON, press the Program " ■ " Button. Next press the #1 DOWN " ▼ " Button to turn RideMonitor™ Mode ON and the #2 DOWN " ▼ " Button to turn RideMonitor™ Mode OFF.



When the #1 DOWN " ♥ " Arrow is White: RideMonitor™ Mode is **ON**.

When the #2 DOWN " ♥ " Arrow is Red: RideMonitor™ Mode is **OFF**.



RideMonitor™ Mode Accuracy Level:

RideMonitor™ Mode Accuracy Level will determine the acceptable variation from saved height for your vehicle (in other words, the distance away from saved height that it will not make a correction for). If you decide that you would prefer that the system was more or less accurate, you can use the procedure on the following page to either increase the accuracy by 8% (Level 3), or decrease the accuracy by 15% (Level 1).

NOTE: The only time that this setting should be changed is if you feel that the system is adjusting too often, or not often enough in it's factory setting (Level 2).

1 = Lower Accuracy & Fewest Adjustments.

- 2 = Moderate Accuracy & Moderate Adjustments (Factory Setting).
- 3 = Higher Accuracy & Most Adjustments.



Adjusting Active Accuracy Level:



<u>LEVEL 1</u> = Lower Accuracy & Fewest Adjustments:

With the Ignition ON, press the Program " ■ " Button. Next press the Position #1 " ▼ " Button to turn RideMonitor™ Mode to Accuracy Level 1.

The Position #1 " The Indication will turn on solid.

NOTE: Program Mode will exit after 5 seconds or can be exited by pressing the Program Button again and your changes will be saved.



<u>LEVEL 2</u> = Moderate Accuracy & Moderate Adjustments:

With the Ignition ON, press the Program " ■ " Button. Next press the Position #2 " ② " Button to turn RideMonitor™ Mode to Accuracy Level 2.

The Position #2 " 2 " Indication will turn on solid.



<u>LEVEL 3</u> = Higher Accuracy & Most Adjustments:

With the Ignition ON, press the Program " ■ " Button. Next press the Position #3 " ③ " Button to turn RideMonitor™ Mode to Accuracy Level 3.

The Position #3 " [3] " Indication will turn on solid.



Turning ActiveStart™ Mode ON/OFF:

Once a general height adjustment has been made, the e-Level™ will begin to monitor this position and make corrections if necessary (when *RideMonitor™ Mode* is ON). The first 5 seconds of *RideMonitor™ Mode* is called *ActiveStart™*. For the *ActiveStart™ Mode*, the system holds a tighter tolerance than regular parked mode and makes precise adjustments if necessary. For the most accurate leveling, this feature should be left ON. For applications where this feature could be a nuisance due to frequent starts and stops and where super accurate leveling is not such a concern, this feature can be turned OFF.



To Turn ActiveStart™ Mode (ON)/(OFF):

With the Ignition ON, press the Program " ■ "

Button. Next press the #3 UP " ■ " Button to
turn ActiveStart™ Mode ON and the #4 UP

" ■ " Button to turn ActiveStart™ Mode OFF.

When the #3 UP " \triangle " Arrow is White: ActiveStartTM Mode is **ON**.





Tank Pressure Mode:

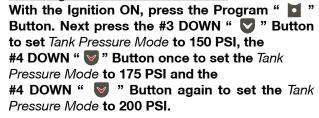


2

Your system was shipped with the *Tank Pressure Mode* set at **150 PSI**. If you have High Pressure Compressor(s) you can change the *Tank Pressure Mode* to **175 PSI** or **200 PSI** using the following Procedure:

NOTE: The new Tank Pressure setting will NOT take affect until the system is RE-CALLIBRATED using the procedure on page 8 or 9.

To Change The Tank Pressure Mode:



When the #3 DOWN " arrow is White:

Tank Pressure Mode is at 15,15,150 PSI.

When the #3 DOWN " ♥ " Arrow and the #4 DOWN " ♥ " Arrow are alternating ON & OFF:

Tank Pressure Mode is at 175 PSI.

150 Mode:

- 110 psi ON / 150 psi OFF 175 Mode:
- 135 psi ON / 175 psi OFF 200 Mode:
- 160 psi ON / 200 psi OFF



When the #4 DOWN " " Arrow is Red: Tank Pressure Mode is at 200 PSI.



Changing TouchPad™ Backlighting Brightness:

The TouchPad™ Controller's backlighting will turn on automatically when the system is on. The Backlighting will change to Nighttime Mode when the headlights are ON. The Brightness of both Modes can be adjusted with the procedure below:

NOTE: With the headlights OFF you will be adjusting Daytime Mode with the following procedure. With the headlights ON you will be adjusting Nighttime Mode with the following procedure.



NOTE: The TouchPad™ Backlighting brightness will adjust UP & DOWN as you change the settings.

To Adjust The Backlighing UP or DOWN:
With the Ignition ON, press the Program " ■ "
Button. Next press the Combination #1 & #2 UP
" → " Button to make the Backlighting
BRIGHTER.

With the Ignition ON, press the Program " The Button. Next press the Combination #1 & #2 DOWN " Button to make the Backlighting DARKER.





Operation Trouble Indication/Diagnosis:

In the unlikely case of a system component failure during operation, the Position " , " , " , & " , " Indications will flash simultaneously and sequentially to indicate the trouble codes outlined below.

NOTE: This is the ONLY time that all 3 of the Position Indications will flash simultaneously during use.

Warning Indication:

Sensor Warning Number Of Flashes between the 2 second pause				
Tank pressure is not increasing after the ECU turns the Compressor(s) ON.				
Verify Compressor circuit wiring connections. Check Compressor fuse F2. Verify Compressor plumbing connections. Check for Compressor relay failure. Check for Compressor failure. Check for Pressure Sensor failure.	2	3		
Ride Height Sensors travel is found to be too small during calibration.	3	2		
Verify Sensor Mechanical Linkage Connections. The Ride Height Sensor needs to be remounted to a point in the suspension with more travel.				
Pressure Sensor is not reading.		1		
Verify wiring to Pressure Sensor. Check Pressure Sensor for failure.	4			
Sensor Corner Association Error.		\bowtie		
Check for the Correct Wiring Harness Orientation at each Ride Height Sensor.	5			



Other operation trouble indication/diagnosis:

Compressor(s) not building pressure (2 FLASHES).

Possibilities:

- 1. Leak in system
- 2. Compressor Failure
- 3. Inadequate Power To Compressors

Start with checking how the system is plumbed, often this has to do with forgetting to plug up second intake port on VU4. However, any leaks in the system can cause this issue and it should be very obvious to diagnose by letting the compressor run and go around the system to see where the leak is coming from. Compressor failure could be tied in as it could leak through the filter. It could also be running very weak. The next step is to check the pressure sensor for correct operation. (reference 4 flashes).

Sensor disconnection warning (red up and down arrows)

- 1. Check if plugs are physically in tact (they need to click in).
- 2. Please contact customerservice@accuair.com for Height Sensor Diagnostics.

Sensor warning during calibration

1. Please contact customerservice@accuair.com for Height Sensor Diagnostics.

Pressure sensor not reading (4 FLASHES)

- 1. Confirm that the sensor harness is plugged in all the way.
- 2. Test pressure sensor for proper voltage. 0.5 volts empty and 3.8 volts at 150psi

Compressor Runs And Does Not Turn OFF

1. Pull 3A Fuse Off Yellow Wire. Does Compressors stop?

YES? This is a ECU-Related Issue

- 1. Check the pressure sensor for proper voltage (green wire)
- 2. If the pressure sensor is stuck at a low voltage despite confirming that there is adequate pressure in the tank, the pressure sensor may have failed and will require replacement.
- 3. If the pressure sensor reading is correct, the compressor output has failed and will need to be swapped.

NO? This is a Relay-Related Issue

1. Check all wiring in system including all grounds. In some cases, tapping the top of the relay will unweld the relay.

Height Sensor Is Reading Outside the .5V-4.5V Range. Or not reading enough travel. (3 FLASHES)

1. PSENS and HSENS all run off a 5V power source. Confirm by testing the red wires on the HSENS and PSENS. Check the voltage, is it reading other than 5V. If it is different, please check the ECU voltage to make sure it is at a reasonable voltage (11~16 volts). There is likely a harness short in the HSENS or PSENS wiring. Physically inspect harnesses for damage. A continunity test between the ground and positive of each lead will help locate the short.

Please contact customerservice@accuair.com for more assistance.



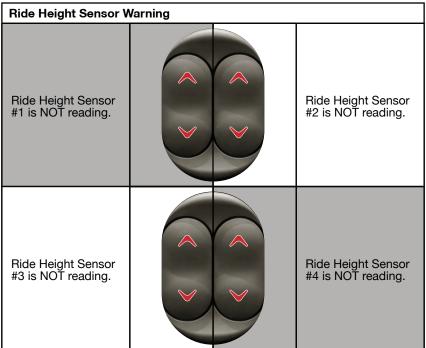
Operation Trouble Indication/Diagnosis:

In the unlikely case of a Ride Height Sensor failure during operation, any pair of the UP " a " & DOWN " " a " Arrow Legends will turn RED to indicate the corner that has failed or become electrically disconnected.

NOTE: This is the ONLY time that a pair of the UP "

Arrow Legends will light up RED during use.

Warning Indication:



Please contact customerservice@accuair.com for more assistance.

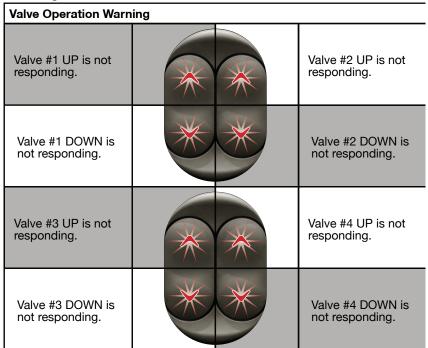


Operation Trouble Indication/Diagnosis:

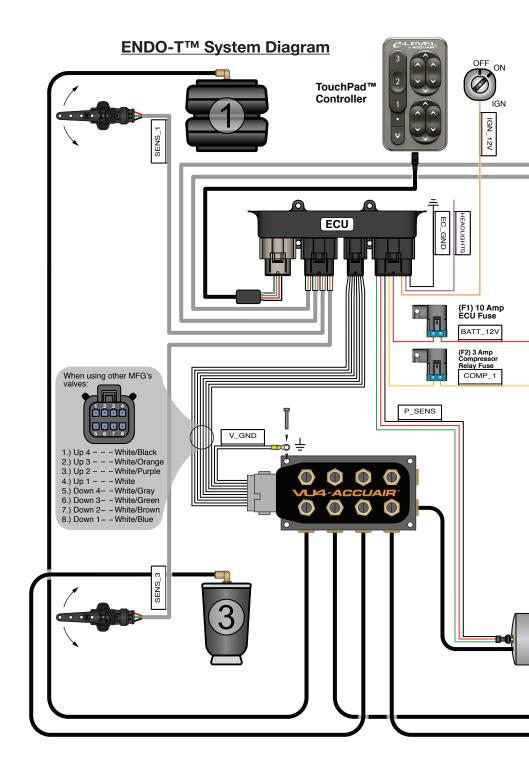
In the unlikely case of a solenoid valve failure during operation, any of the UP " or DOWN " " Arrow Legends will flash RED sequentially to indicate the corner number and direction that has failed.

NOTE: This is the ONLY time that any one of the UP " a" or DOWN " " Arrow Legends will flash sequentially and RED during use.

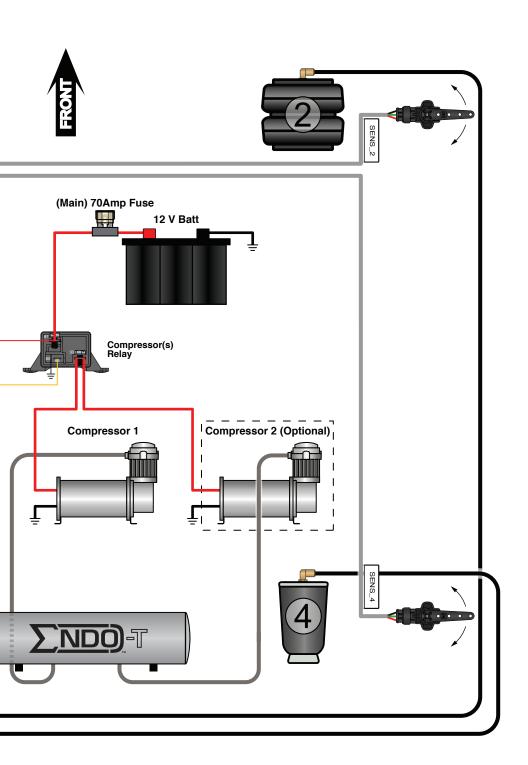
Warning Indication:



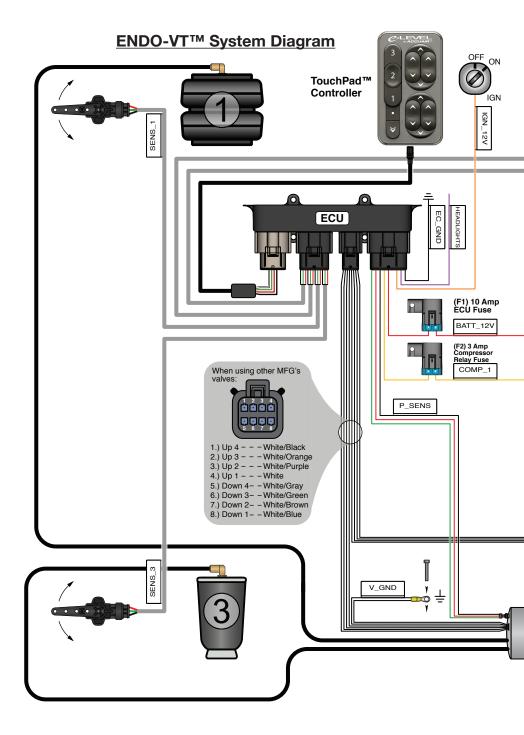
Please contact customerservice@accuair.com for more assistance.



- Page 26 -

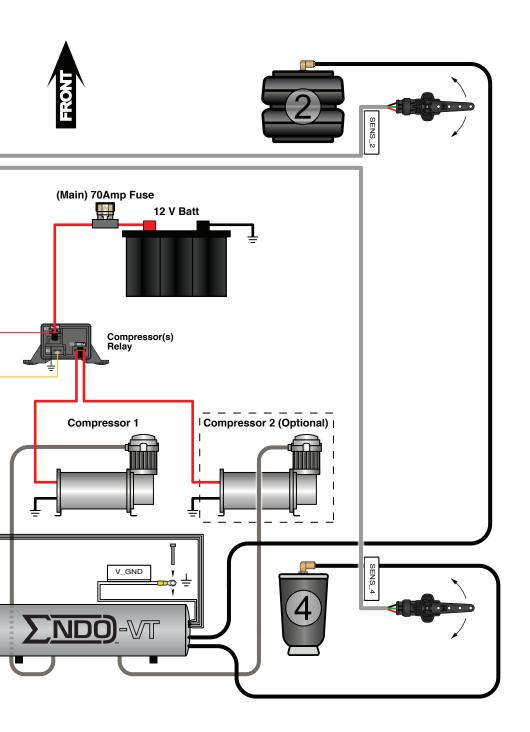


- Page 27 -

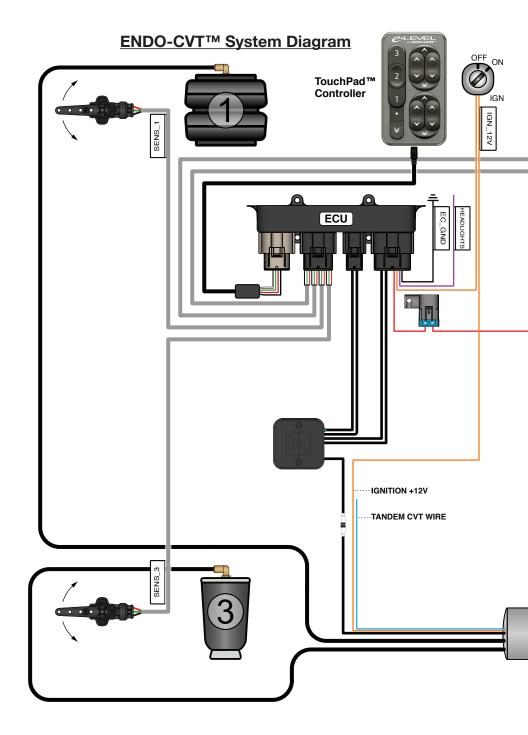


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- Page 28 -

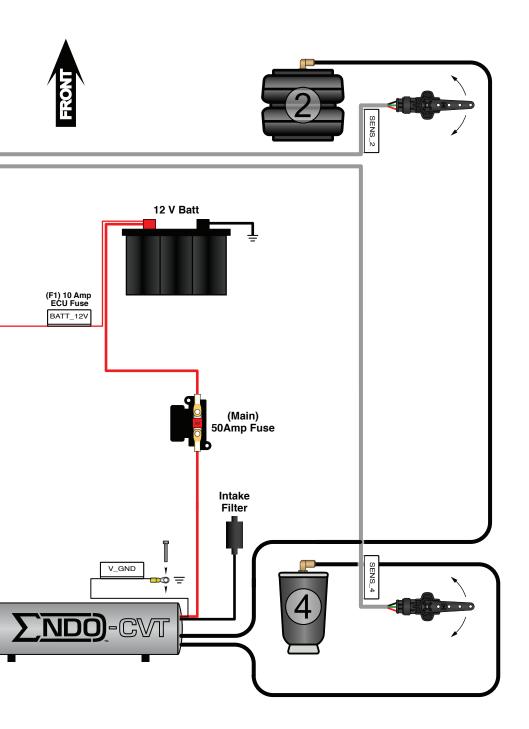


NUAL FOR OTHER ORIENTATION / SETUP EXAMPLES.



*PLEASE REFER TO YOUR ENDO INSTRUCTION MA

- Page 30 -



NUAL FOR OTHER ORIENTATION / SETUP EXAMPLES.

- Page 31 -

