

**iLIFT Suspension Lift System**  
**Universal Separate System**  
**Part Number: SYS-UNI-SEP-2WH/4WH**  
**Document Version: 2**



No warranty is made or implied for products sold through Suspension Lift Technologies LLC against protection from damage, injury, or death. Under consideration for the purchase of these components, the buyer agrees to release, indemnify and hold Suspension Lift Technologies LLC harmless for, and assume all risk of any injury or damages that may arise from the installation or use of these components. Installation of these products must be performed by a competent and knowledgeable installer. Some items may only be used off road in some states. User assumes full risk.

### Note:

- This installation manual is intended to supplement, not replace, the factory service manual. Please consult the factory service manual for specifics like shock absorber removal, replacement, component locations, and torque specifications.

### Required:

- Compatible shock absorber & springs (see next page for details).
- Spring compressor for factory shock absorbers (wall-mounted style recommended).
- Standard automotive & electrical tools, including insulated terminal crimper (example: search Amazon.com for "B01N0Q9ZUM").

### Instruction Sections:

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## SYS-UNI: iLift Suspension System - Front Only (2WH)

QTY	ITEM	PART NO.
<b>MAIN SHIPPING BOX - 30x15x15 double wall box</b>		
<b>BOX 1 - Air Compressor &amp; Intake Kit - 12x9x7 box</b>		
1	assembly, compressor w/ 90 degree brackets & thermistor	UNI-COM-ASY
1	air compressor intake & filter kit	COM-INT
<b>BOX 2 - Air Tank &amp; Air Control Assembly (2 WH) - 20x14x8 box</b>		
1	assembly, air tank 5" x 12.5"	UNI-TNK-ASY
1	valve, safety relief valve 225 PSI set point (pre-installed)	KSV10-1-225
1	assembly, 2-wheel manifold (pre-installed)	MAN-2FX-r2
1	assembly, 2 WH air control assembly harness (pre-installed)	UNI-HAR-ACA-2WH-ASY
1	fitting, 90 deg 6mm tube / 1/8" Swift-Fit thread, nickel plated brass (pre-installed)	57110-6-1/8
1	fitting, 90 deg 5/16" tube / 1/8" Swift-Fit thread, nickel plated brass (pre-installed)	89110-05-02
1	plug, 6mm push-to-connect black plastic (pre-installed)	PP 06
1	plug, 5/16" push-to-connect black plastic (pre-installed)	PP 5/16
4	bolt, M5x40 socket cap bolt (18-8 SS) (pre-installed)	91292A194
1	o-ring, manifold sealing (pre-installed)	1302N38
2	mounting clip, DT/DTM (modified for 1/4"/M6 flat fastener) (pre-installed)	MAN-CLP
2	bolt, 1/4"-28x3/8" flat Phillips (18-8 SS) (pre-installed)	91771A555
<b>BOX 3 - Hardware &amp; Accessories - 12x9x3 tuck top box</b>		
Bag 4x6 - air control manifold hardware		
2	fitting, 90 deg 5/16" tube / 1/4" Swift-Fit thread, nickel plated brass	89110-05-04
1	fitting, straight 5/16" tube / 1/4" Swift-Fit thread, nickel plated brass	89000-05-04
1	fitting, 5/16" push-to-connect tee	89230-05
Bag 4x6 - compressor hardware		
4	bolt, M6x20 hex flange (8.8 ZP)	1189106020
4	washer, M6 oversized (18-8 SS)	9029506020
4	nut, M6 hex flange (ZP 10.9)	95003A101
bubble bag - cone installation tool		
1	cone installation tool, AxB (shaft size x thread size)	ASC-AxB
Bag 4x6 - tank hardware		
4	bolt, M6x20 hex flange (8.8 ZP)	1189106020
4	nut, M6 hex flange (ZP 10.9)	95003A101
loose		
1	tube cutter	TC
2	bump stop, 20mm	BMP-20
2	bump stop, 40mm	BMP-40
2	spring bushing, for 63/63, 65, or 70mm springs	SPB-60-XX
20	zip tie 8.5"	7130K54
5	zip tie, 14"	7130K56
<b>BOX 4 - Electrical Harnesses - 12x9x3 tuck top box</b>		
1	assembly, ECU main wire harness	UNI-HAR-ECU
1	assembly, compressor power harness	UNI-HAR-COM-PWR
<b>BOX 5 - Electrical Accessories - 12x9x3 tuck top box</b>		
Bag 4x6 - main harness connector / terminals		
1	connector, DT-compatible 12-way plug (includes wedge)	CKK3121-1.5-21B
14	terminal, DT No. 16, socket, solid, nickel, 16-18 AWG (for plug) (5 spares included)	0462-201-16141
3	seal plug, DT series	0413-217-1605
2	terminal, 1/4 ring 22-18 AWG (uninsulated) (1 spare)	19044-0075
Bag 5x8 - power distribution module & accessories		
1	power distribution module	46095

1 bolt, M6x45 hex flange (8.8 ZP)	1189106045
1 nut, M6 hex flange (ZP 10.9)	95003A101
1 bolt, M5x8 philips pan (18-8 SS)	92000A318
1 fuse, JCASE 40A	46592
<b>Bag 5x8 - piezo beeper &amp; harness</b>	
1 assembly, piezo beeper DTM harness	UNI-HAR-BEE
1 assembly, beeper w/ female connector	HAR-BPR-ASY
2 butt connector, 22-18 AWG nylon insulated	7227K22
<b>Bag 4x6 - thermistor components</b>	
1 assembly, thermistor ECU side harness (includes uninstalled wedge)	UNI-HAR-TRM
2 terminal, DT No. 16, socket, solid, nickel, 16-18 AWG (for plug) (1 spare)	0462-201-16141
2 terminal, 1/4 ring 22-18 AWG (uninsulated) (1 spare)	19044-0075
<b>Bag 4x6 - switch &amp; terminals</b>	
1 switch, dual position up/down rectangle	10003281
4 terminal, 22-18GA insulated 3/16" female tab	30749
<b>Bag 4x6 - power accessories</b>	
7 ring terminal, shrink insulated 1/4" stud 12-10 AWG (two spares)	32903
3 ring terminal, shrink insulated 5/16" stud 12-10 AWG (two spares)	32904
1 inline fuse holder, MIDI	46312
1 fuse, MIDI 40A	46381
1 fuse tap, mini	46044
1 fuse tap, ATO	46045
1 fuse, mini 7.5A	46254
1 fuse, ATO 7.5A	47007
<b>Bag 4x6 - ECU hardware</b>	
2 bolt, M6x35 hex flange (8.8 ZP)	6928106035
2 nut, M6 hex flange (ZP 10.9)	95003A101
1 ECU 18 position connector with plugs (included if auto sensors not purchased)	5810118023/5810000011
<b>Bag 4x6 - compressor solenoid electrical components</b>	
1 connector, DT-compatible 2-way plug (includes wedge)	DT04-2P / W2P
3 terminal, DT No. 16, socket, solid, nickel, 16-18 AWG (for plug) (1 spare)	0462-201-16141
1 assembly, compressor exhaust harness	UNI-HAR-COM-EXH
<b>Bag 4x6 - PDM relay electrical components</b>	
1 assembly, PDM relay harness	UNI-HAR-PDM
1 assembly, PDM relay ECU side harness (includes uninstalled wedge)	UNI-HAR-PDM2
2 terminal, DT No. 16, socket, solid, nickel, 16-18 AWG (for plug) (1 spare)	0462-201-16141
<b>loose</b>	
1 Deutsch Size 16 Terminal Crimp Tool	18880
<b>BOX 6 - ECU Box</b>	
1 assembly, ECU	ECU-ASY
<b>LOOSE IN MAIN SHIPPING BOX</b>	
2 actuator assembly, XXmm (replace XX with shock absorber shaft size)	ACT-XX-ASY
25 tube, 5/16" Nylon (ft)	NB-5-040-0250
10 tube, 6mm Nylon (ft)	NB6x1-0100
10 sleeve, 3/8" (ft)	20401F
20 Split Wire Loom, 1/4 inch, Hi Temp (ft)	SWL-1/4
20 Split Wire Loom, 3/8 inch, Hi Temp (ft)	SWL-3/8
5 Split Wire Loom, 1/2 inch, Hi-Temp (ft)	SWL-1/2

## SYS-UNI: iLift Suspension System - Front & Rear (4 WH)

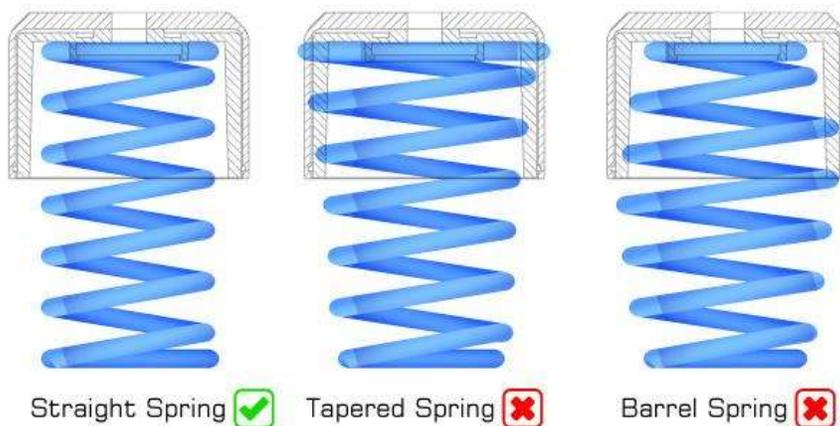
QTY	ITEM	PART NO.
<b>BOX 1 - Air Compressor &amp; Intake Kit - 12x9x7 box</b>		
1	assembly, compressor w/ 90 degree brackets & thermistor	UNI-COM-ASY
1	air compressor intake & filter kit	COM-INT
<b>BOX 2 - Air Tank &amp; Air Control Assembly (4 WH)</b>		
1	assembly, air tank 5" x 12.5"	UNI-TNK-ASY
1	valve, safety relief valve 225 PSI set point (pre-installed)	KSV10-1-225
1	assembly, 4-wheel manifold (pre-installed)	MAN-4FX-r2
1	assembly, 4 WH air control assembly harness (pre-installed)	UNI-HAR-ACA-4WH-ASY
1	fitting, 90 deg 6mm tube / 1/8" Swift-Fit thread, nickel plated brass (pre-installed)	57110-6-1/8
2	fitting, 90 deg 5/16" tube / 1/8" Swift-Fit thread, nickel plated brass (pre-installed)	89110-05-02
1	plug, 6mm push-to-connect black plastic (pre-installed)	PP 06
2	plug, 5/16" push-to-connect black plastic (pre-installed)	PP 5/16
4	bolt, M5x40 socket cap bolt (18-8 SS) (pre-installed)	91292A194
1	o-ring, manifold sealing (pre-installed)	1302N38
2	mounting clip, DT/DTM (modified for 1/4"/M6 flat fastener) (pre-installed)	MAN-CLP
2	bolt, 1/4"-28x3/8" flat Phillips (18-8 SS) (pre-installed)	91771A555
<b>BOX 3 - Hardware &amp; Accessories - 12x9x3 tuck top box</b>		
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1	fitting, straight 5/16" tube / 1/4" Swift-Fit thread, nickel plated brass	89000-05-04
2	fitting, 5/16" push-to-connect tee	89230-05
Bag 4x6 - compressor hardware		
4	bolt, M6x20 hex flange (8.8 ZP)	1189106020
4	washer, M6 oversized (18-8 SS)	9029506020
4	nut, M6 hex flange (ZP 10.9)	95003A101
bubble bag - cone installation tool		
1	cone installation tool, AxB (shaft size x thread size)	ASC-AxB
Bag 4x6 - tank hardware		
4	bolt, M6x20 hex flange (8.8 ZP)	1189106020
4	nut, M6 hex flange (ZP 10.9)	95003A101
loose		
1	tube cutter	TC
4	bump stop, 20mm	BMP-20
4	bump stop, 40mm	BMP-40
4	spring bushing, for 63/63, 65, or 70mm springs	SPB-60-XX
30	zip tie 8.5"	7130K54
10	zip tie, 14"	7130K56
<b>BOX 4 - Electrical Harnesses - 12x9x3 tuck top box</b>		
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1	assembly, compressor power harness	UNI-HAR-COM-PWR
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3	seal plug, DT series	0413-217-1605
2	terminal, 1/4 ring 22-18 AWG (uninsulated) (1 spare)	19044-0075
Bag 5x8 - power distribution module & accessories		
1	power distribution module	46095
1	bolt, M6x45 hex flange (8.8 ZP)	1189106045
1	nut, M6 hex flange (ZP 10.9)	95003A101

1 bolt, M5x8 philips pan (18-8 SS)	92000A318
1 fuse, JCASE 40A	46592
<b>Bag 5x8 - piezo beeper &amp; harness</b>	
1 assembly, piezo beeper DTM harness	UNI-HAR-BEE
1 assembly, beeper w/ female connector	HAR-BPR-ASY
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3 terminal, DT No. 16, socket, solid, nickel, 16-18 AWG (for plug) (1 spare)	0462-201-16141
1 assembly, compressor exhaust harness	UNI-HAR-COM-EXH
<b>Bag 4x6 - PDM relay electrical components</b>	
1 assembly, PDM relay harness	UNI-HAR-PDM
1 assembly, PDM relay ECU side harness (includes uninstalled wedge)	UNI-HAR-PDM2
2 terminal, DT No. 16, socket, solid, nickel, 16-18 AWG (for plug) (1 spare)	0462-201-16141
<b>Bag 4x6 - power accessories</b>	
7 ring terminal, shrink insulated 1/4" stud 12-10 AWG (two spares)	32903
3 ring terminal, shrink insulated 5/16" stud 12-10 AWG (two spares)	32904
1 inline fuse holder, MIDI	46312
1 fuse, MIDI 40A	46381
1 fuse tap, mini	46044
1 fuse tap, ATO	46045
1 fuse, mini 7.5A	46254
1 fuse, ATO 7.5A	47007
<b>Bag 4x6 - ECU hardware</b>	
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2 nut, M6 hex flange (ZP 10.9)	95003A101
1 ECU 18 position connector with plugs (included if auto sensors not purchased)	5810118023/5810000011
<b>loose</b>	
1 Deutsch Size 16 Terminal Crimp Tool	18880
<b>BOX 6 - ECU Box</b>	
1 assembly, ECU	ECU-ASY
<b>LOOSE IN MAIN SHIPPING BOX</b>	
4 actuator assembly, XXmm (replace XX with shock absorber shaft size)	ACT-XX-ASY
50 tube, 5/16" Nylon (ft)	NB-5-040-0250
10 tube, 6mm Nylon (ft)	NB6x1-0100
20 sleeve, 3/8" (ft)	20401F
20 Split Wire Loom, 1/4 inch, Hi Temp (ft)	SWL-1/4
20 Split Wire Loom, 3/8 inch, Hi Temp (ft)	SWL-3/8
5 Split Wire Loom, 1/2 inch, Hi-Temp (ft)	SWL-1/2

## Actuator Fitment Requirements

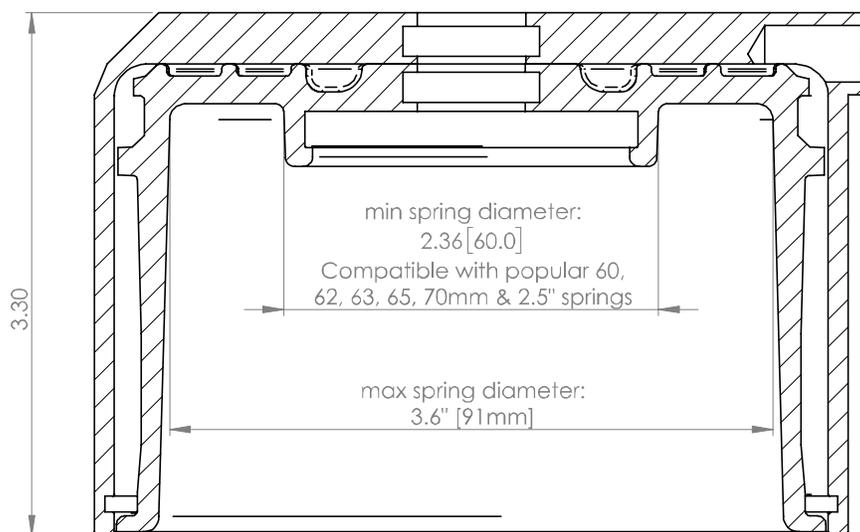
### Straight Springs Required

The iLIFT Suspension Lift System actuators are designed for straight springs as shown. Factory style tapered springs and barrel springs are not compatible with iLIFT Suspension Lift System. Factory springs with a tapered or barrel shape can often be changed to a straight spring - however, this requires knowledge of the existing spring rate and may require a custom lower mount made to work with your shock absorber.



### Spring Fitment in Actuator

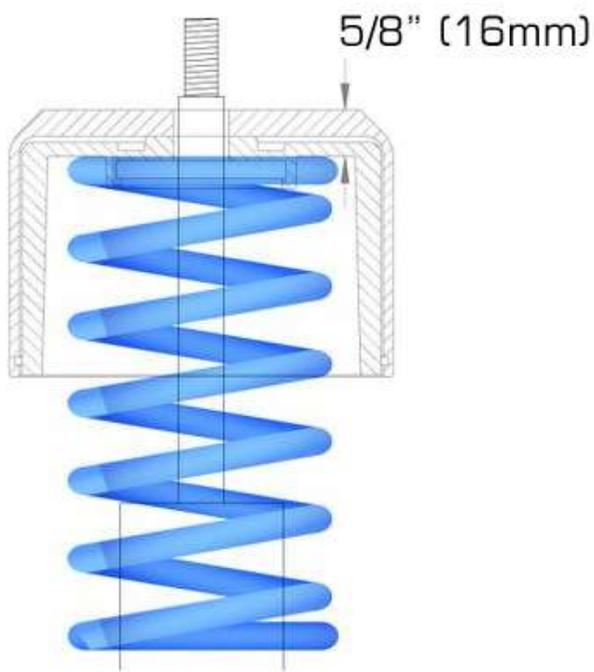
The iLIFT actuator is compatible with springs with an inner diameter of 60-70mm – and is compatible with popular springs including 60mm, 62mm, 63mm, 65mm, and 2.5". To determine your spring inner diameter, measure the inside of the spring with a caliper, or contact your coilover manufacturer. The spring's outer diameter cannot exceed 3.6" (91mm).



SIDE CROSS SECTION

### Installation Height

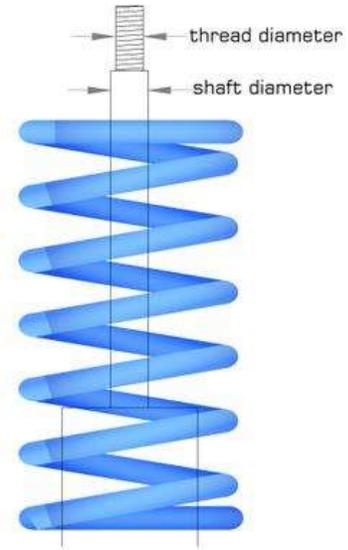
The iLIFT Actuator adds only 5/8" (16mm) of height to your spring. This requires a threaded body shock absorber with enough threads to lower the spring or modification of the lower mount to move the spring down 5/8".



### Compatible Shock Absorber Shaft Diameter

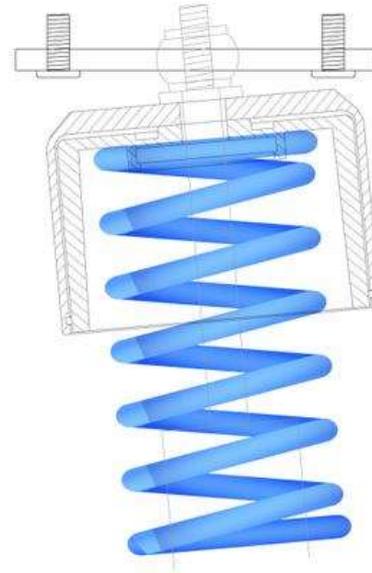
iLIFT Actuators are available for shock absorbers with 12mm, 12.5mm (1/2"), 13mm, 14mm, 15mm, 16mm, 18mm, 20mm, 24mm, and 25mm shaft diameters.

When the iLIFT actuator is installed over the shock absorber shaft, a cone shaped installation tool will be installed over the threaded portion of the shock absorber shaft. This tool will protect the seal from being cut on the threads and expand the seal over the step on the shaft. This information would have been collected when the order was placed, and a proper sized tool will have been provided.



### Top Mount Fitment

The shock absorber's top mount must be able to accommodate the iLIFT Actuator. Because the seals in the iLIFT Actuator ride on the shock absorber's shaft – the actuator must remain parallel to the shock absorber, while the shock absorber must be able to pivot in the top mount to allow the suspension to pivot with suspension's movement. In addition, the top mount's joint must be designed to carry the full load of the suspension – factory designs where the spring mounts to the bottom of the top mount are not compatible. These requirements may require a custom top mount or adapters in order to work with your existing top mount.



## Actuator Installation

### Check Ride Height

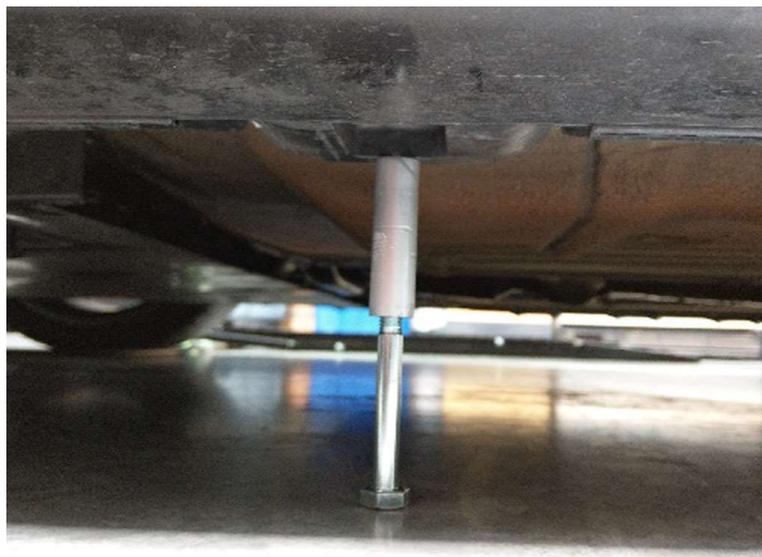
- Before raising vehicle, measure factory ride height at jack points on all four corners on flat level ground. A bolt and threaded shaft as shown can be used to gauge ride height.
- Record ride height:

\_\_\_\_\_ Front Left

\_\_\_\_\_ Front Right

\_\_\_\_\_ Rear Left

\_\_\_\_\_ Rear Right



### Remove Shock Absorbers

- Remove shock absorbers (consult factory service manual for procedures).
- Note that some shock absorbers will require a spring compressor to remove the top mounts.

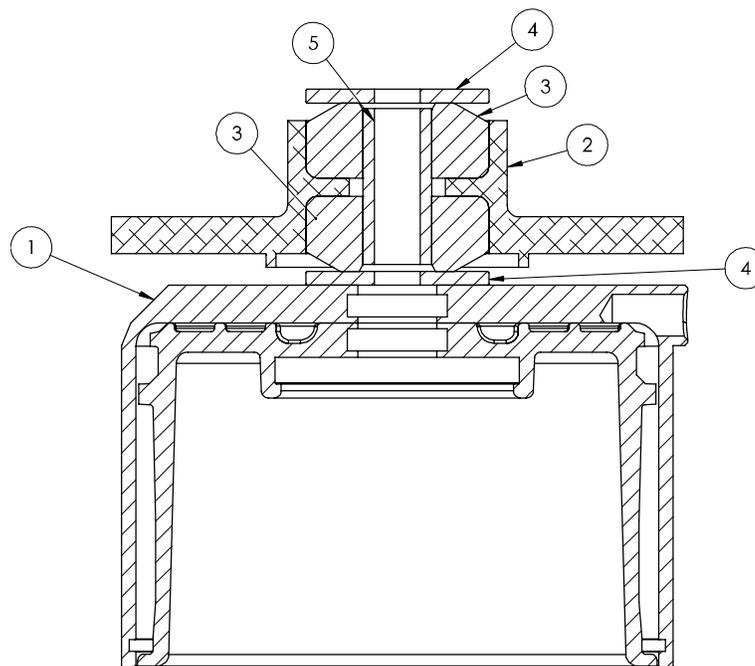
### Assemble Actuators to Shock Absorbers

The top mount & springs must be compatible with the iLIFT actuator (see section "Actuator Fitment Requirements"). This includes spring fitment in the actuator, a threaded perch that allows the lower mount to be lowered by about 16mm to accommodate the thickness of the actuator, a compatible shock shaft, and a top mount that allows the shock to articulate without causing the actuator to contact the top mount, and a top mount that is designed to support the full load of the suspension on its center joint. Do not install the iLIFT actuator with incompatible shock absorbers, springs, or top mounts.

This diagram shows a typical iLIFT actuator installation.

Contact iLIFT Systems with questions before attempting installation.

- 1: iLIFT actuator
- 2: top mount (not included)
- 3: bushing (not included)
- 4: support washers (not included)
- 5: sleeve (not included)



### IMPORTANT!

The top surface of the iLIFT actuator below "4" must be supported by at least a 1.25" washer or flange diameter due to the hollow seal groove below.

- These instructions show a typical shock absorber. Your shock absorber may be different and require different installation steps. Contact iLIFT Systems before attempting installation to prevent damage to actuator seals.

### Prepare shock absorber:

- Measure the current position of the shock absorber adjustable perch. They will need to be lowered by 5/8" / 16mm from the current position when installed to maintain the existing ride height.
- Once measured and recorded, thread the perches down by an inch or two.

### Prepare iLIFT actuator:

- Install the supplied top spring bushing into the spring (for springs larger than 60mm). This locates the spring in the iLIFT actuator piston. A spring bushing is included that is compatible with the spring that you indicated on the iLIFT universal information sheet.
- 20mm and 40mm bump stops are included. These replace the bump stops that may have been installed on your shock absorber previously. Use the size that is closest to your previously installed bump stop.
- Insert the supplied iLIFT bump stops by pushing the bump stop into the bottom of the piston. It will clip into place.

### Install actuator to shock absorber:

- Apply oil (engine oil is acceptable) in the inner diameter of the seal in the piston (black) and in the cylinder (silver aluminum).
- Install the supplied assembly installation cone tool on the shock absorber as shown.
- This cone tool will allow the iLIFT actuator's seal to slide over the shock shaft.
- Carefully slide the actuator over the cone installation tool. The oil applied to the seal should allow the actuator's seals to slip over the shaft with minimal effort.
- If resistance is felt, remove and inspect the actuator and seals. Make sure the cone tool is installed properly and lubricated. Do not allow the seal to catch on the shoulder of the shock absorber or damage to the seal can result.
- Remove cone installation tool.

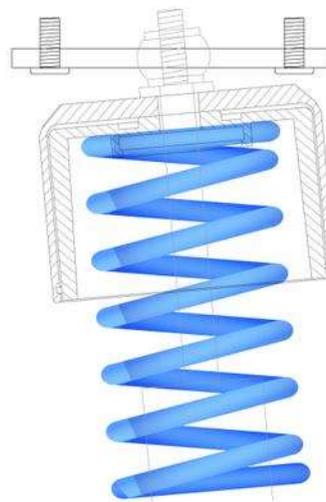


### View these example videos for actuator installation

note: these videos show application specific installations. Some components are not included in universal kits.

- Pin mount top mounts: <https://www.youtube.com/watch?v=iRF8JY0AI1A>
- Eye mount top mounts: <https://www.youtube.com/watch?v=LnesS4OU1is>

- Re-install shock absorbers to vehicle.
- If removed, leave off fender liners to be able to inspect actuators when they are pressure checked.
- Make sure that the shock absorber can articulate in the top mount without the actuator hitting the top mount. See diagram at the beginning of this guide for more information.
- Raise perch to height recorded and lower by 5/8" / 16mm to account for additional thickness of iLIFT actuator.
- Place the actuator's air fittings in a position where an air tube can be installed in a later step.



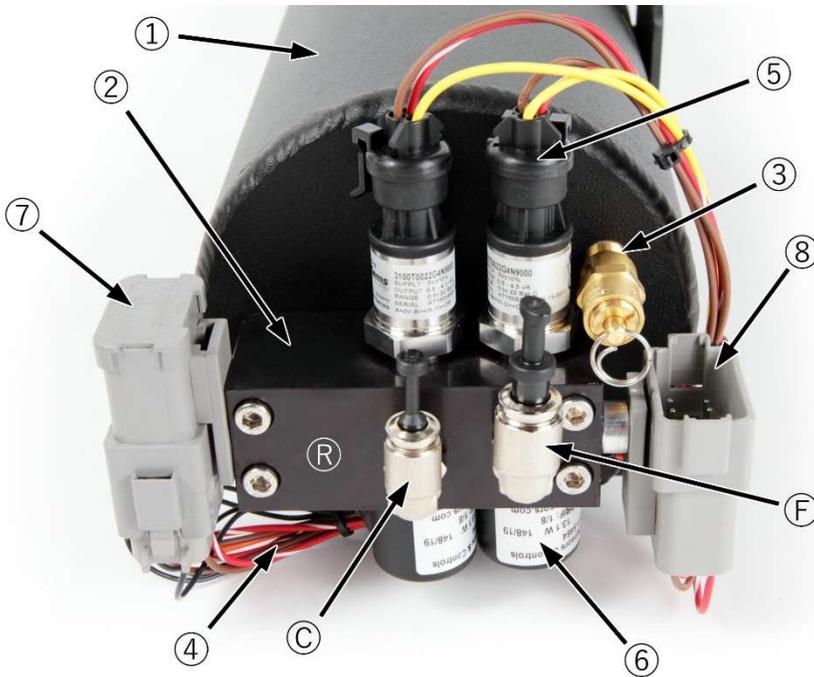
## Air Control Assembly & Air Tank Assembly Overview

The air control assembly consists of the aluminum manifold, solenoid valves, and pressure sensors that regulates the iLIFT system's air flow. A wire harness and connectors attach to the manifold. The manifold can be mounted to the air tank, or mounted separately from the air tank (two 90 degree 5/16" tube fittings and one straight 5/16" tube fitting is included for remote mounting). The air tank stores the air volume used to raise the vehicle.

### Important considerations:

- The air control assembly and air tank assembly can be mounted in the inside of the vehicle (in the trunk for example) or outside of the vehicle (under a fender for example). The components are water resistant.
- The assembly should not be mounted in an area with greater than 140 deg F (60 deg C) temperature. An engine bay is not an acceptable mounting location without adequate ventilation and heat barrier.
- Install the iLIFT Mounted Universal Assembly to a flat surface using the supplied M6x20 flange bolts & M6 flange nuts (a different length bolt may be required depending on where you are mounting the components). Based on installation requirements, different fasteners may be required to suit your application.

### Air Control Assembly & Air Tank



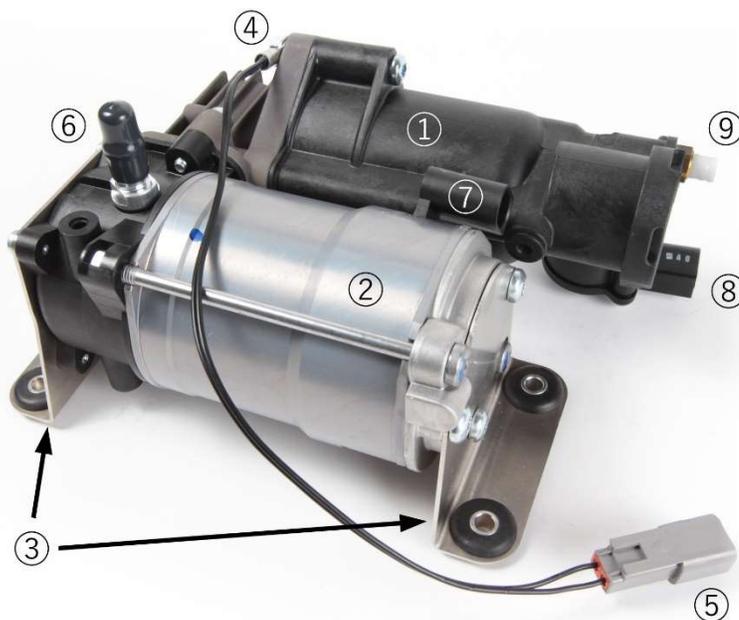
- 1 – air tank
- 2 – air control manifold
- 3 – pressure relief valve
- 4 – air control assembly wire harness
- 5 – pressure sensor
- 6 – valve solenoid
- 7 – buss connector
- 8 – main wire harness connector
- F – front actuator
- C – air compressor
- R – rear (not shown)

## Air Compressor Overview

### Important considerations:

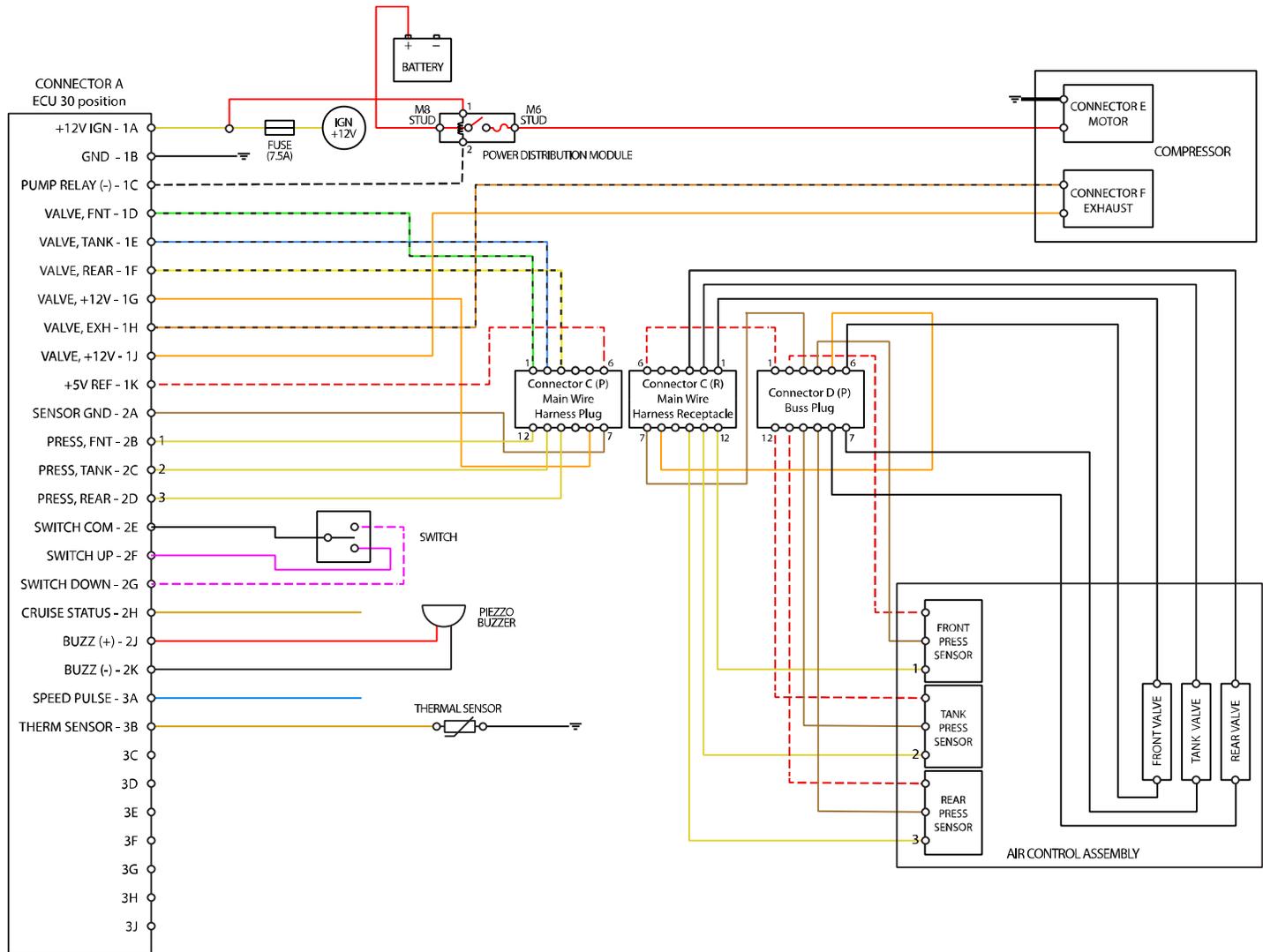
- The air compressor will typically exceed 212 deg F (100 deg C) during use. The assembly should be mounted away from heat sensitive components.
- The air compressor requires access to cool fresh air, such as under the vehicle or in a fender well.
- Enclosed compartments may not have enough ventilation to allow the compressor to run. Provide ventilation (such as ducting, or a fan) to the air compressor if the intended mounting location is enclosed.
- An engine bay is not an acceptable mounting location for the air compressor.
- The assembly should be kept away from an area that sees large amounts of water splashing. Thermal shock of cool water spraying against the hot compressor may result in thermal shock and failure of components.
- The air compressor should not be mounted on the inside of the vehicle's cabin.
- The air compressor can be mounted up to 10' away from the air control assembly. The air control assembly's tank fitting and the air compressor are connected with the supplied 6mm nylon tube (the length can be trimmed to the required length) – see instructions in following steps.
- The air compressor includes pre-installed mounting brackets. A bracket may need to be fabricated to attach these brackets to the vehicle's chassis. Install the air compressor brackets to a flat surface using the supplied M6x20 flange bolts, M6 oversized washers, & M6 flange nuts (a different length bolt may be required depending on where you are mounting the components). Place the washers between the M6 bolt's head and top of the bushing. The back of the bushings must be against a flat surface with holes not larger than 1/4" (so that the bushing's sleeve does not slip through). Based on installation requirements, different fasteners may be required to suit your application.
- The supplied intake hose & filter kit will be installed to the intake fitting. A flush mount banjo fitting is available by optional purchase. The intake hose will be routed to a point where the hose will not be kinked and not ingest water.

### Air Control Assembly & Air Tank



- 1 – air compressor dryer
- 2 – air compressor motor
- 3 – air compressor brackets w/ bushings
- 4 – thermal sensor
- 5 – thermal sensor connector
- 6 – air compressor intake fitting
- 7 – air compressor power connector
- 8 – air compressor exhaust valve connector
- 9 – air compressor outlet (with plug installed)

## Electrical: Wiring Overview



**iLIFT Electrical Diagram**

### System Operation:

- ECU is switched on with ignition power.
- If tank pressure sensor indicates low pressure, the ECU switches on the power distribution module's (PDM) relay and air compressor runs until the tank pressure sensor indicates the air tank is full.
- To prevent the air compressor from over heating, the ECU will allow the air compressor to run for up to 2 minutes or 5 cycles every ten minutes. The ECU will not allow the air compressor to run if the thermal sensor indicates the compressor is too hot. The thermal sensor must be plugged in for the ECU to function properly.
- When the switch is pressed to the up position momentarily, the ECU opens the air tank and front (and optional) rear valve and the vehicle lifts. The piezzo beeper confirms the switch press with a beep. The valves stay open until the front pressure sensor indicates that the actuators have reached their target pressure. The ECU closes the valves. The piezzo beeper will beep twice approximately every 30 seconds while the ECU detects the vehicle is in the raised position.
- When the switch is pressed to the down position momentarily, the ECU opens the exhaust valve and the front (and optional) rear valve. The valves stay open until the pressure sensors indicate that the actuators are empty.

### Crimping Insulated Terminals:

- An insulated crimp tool is required (see example part number on page 1).
- Crimp the terminal in the appropriate colored die.
- For heat shrink terminals (yellow) apply a steady source of heat to shrink the tube to the wire.



### Crimping Deutsch Solid Terminals:

- A Deutsch solid terminal crimper is included.
- Strip 3/16" of jacket off the wire.
- Load the terminal with the long end into the crimper.



- The terminal should be flush to the crimper's top surface as shown.
- Insert the wire into the crimper.
- Fully depress the crimper to create the crimp.



- With the retainer removed, push the terminal in to the connector's orange silicone seal from the back (a small amount of oil may be used if necessary).
- Push the terminal in to the connector until it clicks in place.
- Once all terminals are installed, install the supplied terminal wedge lock.



## Electrical: Battery & PDM

- Remove battery cable.
- Determine placement for power distribution module (PDM), air compressor, and ECU. The PDM is placed between the battery and air compressor. The total distance between the battery and air compressor should not exceed 12' of wire.
- The PDM may be positioned close to the battery or close to the air compressor. Note that the PDM will also attach to the ECU and air compressor. The ECU harness includes 8' of wire. Ideally the ECU will be placed within 8' of the air compressor and PDM, however, the length of wire from the ECU harness may be lengthened if necessary.
- The PDM integrates both a relay and fuse.
- Access the fuse slot by removing the cover (1) by depressing the two retainer tabs.
- The supplied 40A JCASE fuse will be installed in to position (2) at a later step. Do not use the other position (it is constantly powered). Leave the fuse unstalled for now.
- Battery input is secured to the M8 stud (3) using a supplied 5/16" ring terminal.
- The compressor output is secured to the M6 stud (4) using the supplied 1/4" ring terminal.
- The relay connector is secured to (5).
- Mount the PDM to a flat mounting surface. A supplied M6x45 hex flange bolt and M6 hex nut can be used to secure the PDM (6). The hardware may need to change depending on your mounting requirements.
- An M5x8 Phillips pan screw is included which can be optionally used to prevent the PDM from rotating. It is placed under the M8 stud (3).



- Attach the included air compressor power harness connector to the air compressor.
- The black 10 AWG wire (4' included) is attached to chassis ground. The chassis ground location must be a bare metal connection. Alternatively, it may be attached directly to the battery.
- Cut the black wire to length.
- Strip 1/4" from end of black wire.
- Crimp the wire to a supplied 1/4" or 5/16" (depending on bolt size) ring terminal using a non-insulated crimper and heat shrink in place.



- If the power connector on the air compressor needs to be removed, slip a small flat blade screwdriver under the retainer lock, push down on the retainer, and remove the connector as shown.
- Route the red 10 AWG wire (12' included) to the PDM's M6 output stud.
- Cut the wire to length, then strip the wire 1/4" and crimp a supplied 1/4" ring terminal and heat shrink in place. Install to the M6 stud indicated in the prior photo.
- Strip one end of the red 10 AWG wire 1/4" and crimp a supplied 5/16" ring terminal and heat shrink in place. Install to the PDM's M8 stud.
- Route the red wire to the battery.



- If the PDM is not located near the battery (for example: the battery is in the front of the car but the PDM will be installed in the rear) an inline MIDI fuse kit is supplied.
- Use the supplied 1/4" insulated ring terminals to install the optional MIDI fuse & fuse holder.



- Cut the wire to length and install the red wire to the battery's positive post using either a supplied 1/4" or 5/16" ring terminal (depending on bolt size).



### Electrical: ECU Mounting

- The ECU is supplied in a watertight enclosure. The ECU may be placed externally on the vehicle, but it should be mounted away from direct heat sources (maximum 150 deg F / 65 deg C) and mounted in a location free from significant vibration.
- The ECU can be mounted using the supplied M6x35 hex flange bolts and M6 nuts. The hardware may need to be changed depending on the mounting location.
- The ECU has a 30 position and 18 position connector. The supplied main wire harness attaches to the 30 position connector using a 1/4" nut driver.
- Install the supplied 18 position connector with plugs if the optional automatic sensors are not purchased
- Terminal positions are stamped in to the connector.



- The air tank includes a mounting bracket that provides an ideal location for the ECU to be mounted.



## Electrical: ECU Main Wire Harness

### Ignition 12V:

- The ECU should be mounted in its final position before making wire connections.
- Locate terminal 1A (yellow) on the 30 position ECU connector.
- Route wire to an ignition powered source. The ECU must be fused with a 7.5A fuse.
- The supplied fuse taps may be used to tap an existing fuse. An ATO (large) and MINI ATO (small) fuse tap is included. If using one of these taps, find a factory fuse that is powered only when the ignition power is turned on. Install the supplied 7.5A fuse in the top position, inline with the red wire, as shown.
- Place the factory fuse in the remaining slot.
- Route the yellow wire to the butt connector, cut to length, and crimp wire to connector.
- **IMPORTANT!** The tap must be installed where both fuses receive power when the fuse tap is installed (otherwise, the power travels through the factory fuse first, then to the 7.5A fuse). To test this – install the fuse tap into the factory position with out the factory fuse installed. With a test light or multi-meter, verify that the 7.5A fuse is receiving power. If it is not, rotate the fuse tap in the factory fuse slot.



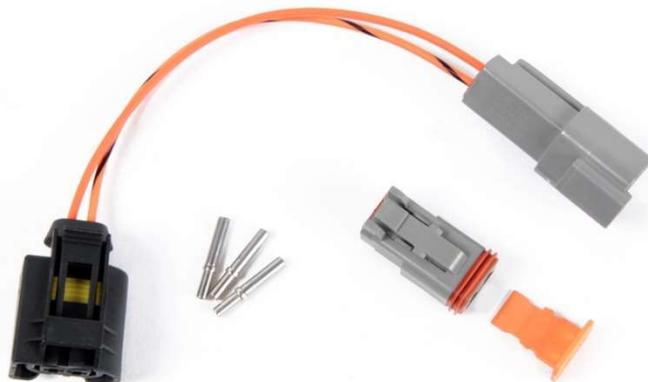
Supplied ATO Mini Fuse Tap w/ 7.5A fuse

### Chassis Ground:

- Locate terminal 1B (black) on the 30 position connector.
- Route this wire to a suitable chassis ground point.
- Cut the wire to length, strip 1/4" from the end, and crimp on the supplied uninsulated 1/4" ring terminal.
- Mount the ring terminal to the ground point.

### Compressor Exhaust Solenoid:

- Attach the supplied compressor exhaust solenoid wire harness connector to the air compressor's exhaust solenoid (item 8 on compressor photo).
- Locate terminals 1J (orange) and 1H (orange/black) on the 30 position connector.
- Route these wires to the compressor exhaust solenoid harness's 2 position female connector and cut to length.
- Strip 3/16" from the 18 AWG wires and crimp the terminals to both wires (1 spare provided).
- With the wedge lock removed (as shown in the photo), install the terminals through the silicone seal. The positions are stamped into the connector.
  - orange/black: 1
  - orange: 2
- Install the wedge lock & mate the connectors. The wire colors should match on the male and female connectors.



Compressor Exhaust Solenoid Electrical Components

**Thermal Sensor:**

- Locate the terminal 3B (tan) on the 30 position connector. Route this wire to the air compressor's thermal sensor connector (item 5 on compressor photo). Cut wire to length.
- Strip 3/16" from the tan 18 AWG wire and crimp terminal to wire (1 spare provided).
- With the wedge lock removed (as shown in the photo), install the terminal through the silicone seal. The positions are stamped into the connector.  
tan: 2
- Install the wedge lock & mate the connectors.
- Route the black wire to a bare metal chassis ground point and cut to length.
- Strip 1/4" from the end of wire and crimp the supplied ring terminal to the wire. Mount ring terminal to chassis ground point.



Thermal Sensor Electrical Components

**PDM Relay**

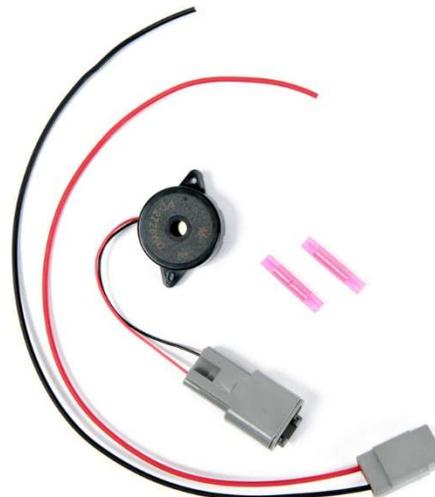
- Attach the supplied PDM relay wire harness connector to the PDM.
- Locate the terminal 1C (black/white) on the 30 position connector. Route this wire to the PDM relay wire harness connector. Cut wire to length.
- Strip 3/16" from the black/white 18 AWG wire and crimp terminal to wire (1 spare provided).
- With the wedge lock removed (as shown in the photo), install the terminal through the silicone seal. The positions are stamped into the connector.  
black/white: 1  
red: 2
- Install the wedge lock & mate the connectors.
- Route the red wire to a 7.5A fused +12V power source (the ECU's position 1A yellow wire may be tapped for this purpose). Do not use the +12V power source to the PDM for this purpose.



PDM Relay Electrical Components

**Piezo Beeper**

- The supplied piezo beeper is placed in the interior for audible signals from the ECU. The piezo beeper is not water tight, and should be mounted in the interior only.
- With the beeper installed in place, mate the connectors.
- Locate the terminal 2J (red) and 2K (black) on the 30 position connector. Route these wires to the unterminated black and red wires from the piezo beeper wire harness connector. Cut wires to length.
- Join the wires with the supplied butt connectors using an insulated terminal crimper's red die.



Piezo Beeper Electrical Components

### Switch Wires

- The iLIFT system can be raised and lowered using the supplied dual position momentary switch. Alternatively, any other momentary single or dual position switch may be used.
- Alternatively, for vehicles with compatible cruise control systems, the cruise control switches can be used instead as to prevent having to drill a hole for a switch. If using cruise control switches, skip next steps and go to next section "Cruise Control Switches".
- Locate terminals 2E (black), 2F (pink), and 2G (pink/white) on the 30 position connector. Route these wires to where the switch will be located (if using cruise control, skip this step).
- Strip off 1/4" from ends of wires, and crimp on the supplied 3/16" female terminals using an insulated crimp tool's red die.

### Cruise Control Switches

- To use factory cruise control switches, the switches must be momentary (ground or +12V), and there must be an electrical signal (ground or +12V) when the cruise control system when it is active. This can be a signal from the vehicle's ECU or a light that turns on. This is required so that when the cruise control system is active, the iLIFT system is deactivated, and the switches can function for cruise control. A factory service manual is recommended.
- Locate terminals 2F (pink), 2G (pink/white), and 2H (tan) and route to where the cruise control system wires will be tapped.
- Locate the wire that is active when the up-position switch (sometimes labeled "resume" or "+") is pressed. Tap this wire and join with the pink wire.
- Locate the wire that is active when the down-position switch (sometimes labeled "set" or "-") is pressed. Tap this wire and join with the pink/white wire.
- Locate the wire that is active when the cruise control system is active. Tap this wire and join with the tan wire.
- Note the voltage polarity of the signals (ground or +12V) for the switches and cruise active status. The iLIFT ECU will be programmed at a later step.

### Speed Signal

- The iLIFT System requires a speed signal to lower the system if it is still in the raised position above 25 mph (and to prevent the system from activating if it is above 25 mph).
- The speed signal can be a pulsed digital signal (such as a signal going to the speedometer/odometer) or through OBD using an optional OBD cable available from iLIFT.
- If using a pulsed signal, locate terminal 3A (blue). Route this wire to where the speed signal will be tapped. Cut to length, and join the blue wire with speed signal wire.

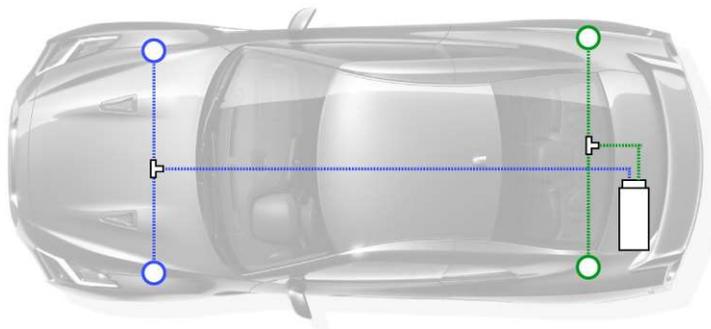
### Air Control Assembly

- Refer to the wire diagram for reference.
- Route the following wires from the 30 position connector to the air control assembly's 12 position main wire harness connector.
  - 1D (green/black)
  - 1E (blue/black)
  - 1F (yellow/black)
  - 1G (orange)
  - 1K (red/white)
  - 2A (brown)
  - 2B (yellow marked with "1")
  - 2C (yellow marked with "2")
  - 2D (yellow marked with "3")
- Cut wires to length. Strip 3/16" from the ends of the 18 AWG wire and crimp the supplied female terminals to the wire.
- With the wedge lock removed, insert the terminals into the silicone seal until the terminal clicks into place.
- Unused wires on the ECU 30 position harness can be clipped at the connector. Extracting the wires instead requires specialized terminal removal tools (contact iLIFT Systems for details).

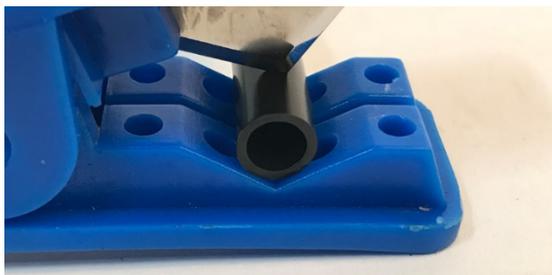


## Air Tube Routing

- The supplied 5/16" air tube will be routed from the mounted assembly to the actuators (25' included with 2 wheel systems, 50' included with 4 wheel systems).
- A typical installation is shown.
- Use the T fittings as shown to join the front or rear actuators.
- Use the supplied fiberglass protective sleeving to shield the tube in high heat locations (such as near the actuators where brake parts may be in close proximity). Do not route tube near very hot components, like exhaust tubing. The maximum temperature of the tube is 200 deg F (93 deg C).



- **Important!** When cutting tube, use only the supplied tube cutter. Do not use a razor or other cutting instruments, which can distort the tube when cutting, causing the o-ring in the fittings to fail.
- When cutting tube, make sure the tip of the blade is centered on the tube before cutting. This will prevent the tube from bending while being cut.



NO

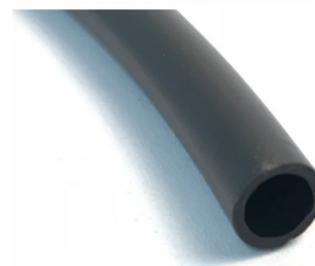


YES

- **Important!** The tube must have a clean, burr-free surface without being distorted in order for the o-ring in the fittings to not be damaged.



NO



YES

- Remove the plugs from the fittings by pushing the plug gently in to the fitting, then hold the metal ring, and pull out the plug.

F – front

C – compressor

R – rear (not shown in this front-only air control manifold).



## Wireless Configuration

- The following configurations need to be programmed to the iLIFT ECU:
  - Front axle weight.
  - Rear axle weight (for systems with optional rear lift).
  - Speed source (Pulsed or OBD).
  - Calibrate speed – if using pulsed speed input, the ECU will be configured when driving at 15 mph.
  - Switch type (single or dual position).
  - Cruise control status input (ground, +12V, or disable if not using cruise control switches).
- To make configuration changes, please visit this website for instructions: <https://liftsystems.com/support/ecu-instructions/>

## Verify Operation & Reassemble

1. The fender liners, interior, and trunk panels will be left off until after start-up and inspection.
2. Replace wheels and lower vehicle and jounce springs by pushing down on the front and rear.
3. If new springs are installed, note that the new springs will settle. Ideally, allow the springs to sit overnight and adjust ride height the following day.
4. Replace battery cable & install supplied 40A fuse in to PDM. Make sure it is installed in the position noted on a prior page.
5. Turn ignition on.
6. Start engine. The air compressor will start after 10-20 seconds. Note that the compressor is designed to start only when the voltage is greater than 12.5v, which usually requires the engine to be running.
7. The air compressor will run for less than 2 minutes to charge the air tanks from 0 PSI to more than 180 PSI. Once the air compressor turns off, shut off the engine and listen for air leaks. If the compressor runs for longer than 2 minutes, turn off the ignition and inspect the system for leaks.
8. Turn the ignition on (engine does not need to be running) and raise the vehicle. Turn off the ignition. Leave the vehicle raised. Listen for air leaks.
9. Once it is verified that the system is not leaking, allow the compressor to sit for 10 minutes to cool. The extended time it runs from 0 PSI is unusual, future fills will already have around 100 PSI in the tanks of reserve air pressure.
10. Replace interior, fender liners, and engine bay panels.
11. Replace trunk panels.

## Operation

### To Raise:

- The system is activated by pressing the up switch while the vehicle is traveling at or below 25 mph with the cruise control system off (if using the cruise control switches).
- Press and release (1-2 seconds) the up-position switch to raise the vehicle. The piezo beeper will signal to confirm the raise command.
- If the vehicle is equipped with the optional rear lift kit, continue pressing up (additional 1-2 seconds) to activate the rear actuators. Note that the system can be programmed to lift the front and rear together. It is suggested to keep the system configured to lift the rear independently (default setting). Lifting the front only uses less air and allows the system to be used for several lifts.
- The system will beep every 15 seconds (default setting) when the system is raised.
- The system will not allow activation with the cruise control system in the on position (if the cruise control switches are used).
- The system will not activate above 25 mph.
- The system will automatically lower itself if you drive above 25 mph.

### To Lower:

- Press & hold the down-position switch.
- The system will automatically lower itself if you drive above 25 mph.

### Compressor Safety Feature:

- The iLIFT system is intended only for intermittent use.
- iLIFT Systems are designed to work intermittently. The system is designed to allow the vehicle to lift and raise approximately ten (4 wheel lift) to twenty (2 wheel lift) times in a 10 minute span (which will require the air compressor to refill the air tank). The iLIFT ECU (electronic control unit) has built in compressor overheat protection. It will allow up to five compressor activations for up to 2 minutes of total run time every 10 minutes. In addition, your system includes a thermal sensor that will prevent the compressor from turning on if it detects the compressor is getting too hot. The iLIFT system will continue to function to raise the vehicle even if the compressor does not run (as long there is sufficient air pressure).

### Mode Control: Toggling between Manual, Automatic, and Disable modes:

- Using the activation switch, the system can be toggled between manual, automatic, and disable.
- To toggle, press and hold the down switch for 5 seconds until you hear a confirmation beep, this enters "mode control".
  - Automatic with Manual Mode: press and hold down one time to activate.
  - Manual Only: press switch down twice, holding on the second press.
  - Disable: press switch down three times, holding on the third press.
- A 1, 2, or 3 beep will be heard to confirm selection. The system saves your selection even if the ignition is turned off, and confirms your current selection each time the ignition is turned on.
- It is recommended to disable the optional automatic sensors when driving in rain / muddy conditions. Sensors should be periodically cleaned.

## Troubleshooting

- **System does not activate when switch is pressed up:**

This may be caused by:

1. Cruise control system is on or cruise control status is not programmed (if using cruise control switches).
2. System is off (see “Mode Control” section above).
3. Vehicle speed is greater than 25 mph or not configured properly.
4. CAN wires installed improperly.
5. A wiring issue exists.

If you have verified these requirements and the system does not activate, please contact iLIFT Systems for assistance.

- **Compressor does not turn off:**

The ECU monitors the air tank pressure, then shuts off the compressor once tank pressure reaches 180 PSI. If the system continues to run, it is because there is a leak and the compressor cannot fully pressurize the tank, or there is a problem with the pressure signal from the tank. If you have verified there are no leaks, contact iLIFT Systems for assistance.

- **Air compressor will not turn on to fill air tanks:**

This may be caused by:

1. Voltage is below 12.6v.  
The system requires a steady 12.6 volts to operate in order to maintain sufficient power to the air compressor. This usually requires the engine to be running. The air compressor uses 18-22 amps while operating. Turn the engine on to supply required voltage. If the tank is not full, and the air compressor does not turn on, check the power distribution module's 6mm output stud. The ECU will attempt to run the compressor for 2 minutes, then turn off the air compressor. If there is voltage, but it is less than 12.6v, you may need to improve the wiring between the PDM and battery. If there is no voltage, check the fuse (it should be located on the same side of the 6mm stud you are checking). Contact iLIFT Systems for assistance.
2. Compressor safety feature has been activated.  
See “Operating Instructions: Compressor Safety Feature”.

- **The automated sensors are activating the system improperly:**

This may be caused by:

1. The calibration is too sensitive.  
Recalibrate the sensors, and move the target closer to the sensors. Also, test increase filtering to reduce false activations.
2. The sensor lens is dirty or wet.
3. Clean the sensor lens with a soft cloth and mild glass cleaner. Driving in the rain may cause false activations, especially if dirty spray is kicked up on the sensors in the wet. Disable automatic activation when driving in the rain (see “Mode Control” in Operating Instructions).