

# Installation Manual



## **PREMIUM** **IN-CAB CONTROL KIT**

**w/ 325 SERIES AIR COMPRESSOR**  
*(for vehicles without a preexisting air system)*

**10231\***     **SIMULTANEOUS ACTIVATION**  
Paddle Valve w/ Digital Gauge

**10256\*\***     **INDEPENDENT ACTIVATION**  
Paddle Valve w/ Digital Gauge

***Thank you & congratulations on the purchase of a Premium In-Cab Control Kit with simultaneous or independent air spring activation via a Digital Paddle Valve switch.***

- This Premium Kit is for vehicles without an existing onboard air system. Basic kits are available for those with a pre-existing air system on their vehicle.
- **Simultaneous Kits\* (10231)** are designed to fill and exhaust both air springs to the same pressure simultaneously.
- **Independent Kits (10256)** are designed to fill and exhaust each air spring independently to its own pressure.
- *Air Spring Kit sold separately.*

**\*IMPORTANT**

This kit is not recommended for vehicles carrying slide in campers or other loads which the load is above the cab. Air spring inflation kits that simultaneously fill both air springs through one supply / discharge line do not prevent air transfer from one air spring to the other when cornering.

*If this is a concern to the customer, contact Customer Service at 800.663.0096 for an **Independent Air Spring Inflation Kit** option.*

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## BEFORE STARTING THE INSTALLATION:

1. Read through this manual and ensure you can complete the installation once started.
2. Ensure the kit you received contains all the items shown in the kit layout photo on the following page.
3. It is recommended to use a good quality anti-seize on all fasteners. This will reduce the chance of corrosion on the fasteners and will help facilitate removal, if required at a later date.

**PLEASE NOTE:**

***This kit contains push-to-connect fittings; using scissors or wire cutters to cut the nylon airline will distort the line and cause the connection to leak. THE AIRLINE MUST BE CUT OFF SQUARELY WITH THE NYLON HOSE CUTTER PROVIDED IN THIS KIT OR A SHARP UTILITY KNIFE.***

## KIT CONTENTS / LAYOUTS

**10231 Kits** - Ensure the kit you received contains all the items *shown in Figure A*.

**10256 Kits** - Ensure the kit you received contains all the items *shown in Figure A & Figure B*.

**PLEASE NOTE: The 10256 kit will not contain the 'single paddle switch gauge bracket' that is shown in Figure A.**

**FIGURE A: 10231 / 10256 KITS**



**FIGURE B: 10256 KITS ONLY**



**PLEASE NOTE:**

***Some of the items provided in these kits may not be used in all installations.***

## 1 ASSEMBLY PREPARATION

**Install the air spring assemblies (if not previously installed).**

Follow the instructions provided within the air spring kit – with the exception of airline routing.

## 2 COMPRESSOR MOUNTING

**NOTE: Thread sealant or teflon tape must be applied to all the fitting threads installed throughout the installation to prevent air leaks.**

Install the check valve into the air compressor head (as shown in Figure 2A).

**If a simultaneous kit (10231) is being installed,** install the straight tube fitting into the check valve (as shown in Figure 2A).

**If an independent kit (10256) is being installed,** install the brass tee fitting into the check valve.

**PLEASE NOTE:** The compressor makes an audible pumping noise when activated. Consider this when choosing a mounting location. The location should be in a clean, dry area to maintain a long compressor life.

Using the compressor as a template, mark and drill three 13/64" diameter holes.

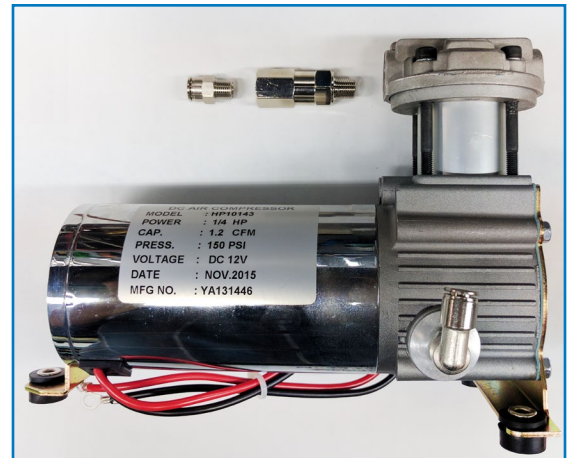
Secure the compressor to the desired location using three #10 socket head cap screws, three nuts and six flat washers provided in the kit.

Install the air filter by inserting one end of the 1/4" black nylon hose into the elbow fitting on the inlet of the compressor.

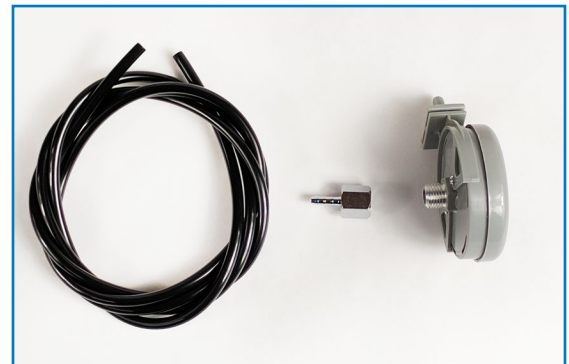
Insert a barbed tube to the NPT fitting into the other end of the hose and screw the it into the air filter

Secure the air filter in a dry location, away from heat sources and any debris.

To maximize air filter life and prevent blockages, ensure that the air filter inlet slots are not facing upwards.



2A



2B



### 3 MOUNT THE RELAY RECEPTACLE

Provided in the kit is a pre-wired relay receptacle. Locate it and find a convenient location to mount the relay receptacle close to the positive battery terminal.

Use the provided self-tapping screw to secure the relay receptacle to the chosen location, (see Figure 3). Install the relay into the relay receptacle.



3

### 4 WIRING THE RELAY, COMPRESSOR & PADDLE SWITCH

***Refer to the wiring and plumbing diagrams on Pages 14 & 15 for the following instructions.***

Provided in the harness are two red 14 gauge wires connected to the relay receptacle. Locate one of the wires, route it to the positive terminal of the battery and cut it to length.

Use the supplied blue heat shrinkable butt connector to connect the large 30 amp fuse holder to the end of the red wire. Heat the connector to create a sealed connection. Insert a 30 amp fuse into the fuse holder.

Connect the other end of the fused link to the positive terminal of the battery with a yellow ring terminal.

Locate the other red 14 gauge wire and route it to the compressor. Cut it to length and use a blue heat shrinkable butt connector to attach it to the red compressor wire. Heat the connector to create a sealed connection.

Locate the black wire of the compressor and use a yellow ring terminal to connect it to a good chassis ground or the negative terminal of the battery.

Use the supplied convoluted loom to cover the exposed wires.

Locate the 18 gauge red with white stripe wire of the relay harness. Route it into the cab through the firewall boot.

Use a red heat shrinkable butt connector to attach the end of the red with white stripe wire to the 5 amp fuse holder. Heat the connector to create a sealed connection.

Insert a 5 amp fuse into the fuse holder.

Attach a red spade terminal to the other end of the fuse holder.

*...Step continues on the following page*

Use either the blue (16-14 AWG) or red (22-18 AWG) T-tap connector to tap into a 12 VDC ignition power source.

Connect the red spade terminal on the end of the fuse holder to the T-tap.

**NOTE:** *Test the ignition power source with a voltmeter prior to attaching the T-tap. Some ignition circuits are less than 12 VDC which may not be enough to activate the relay coil.*

**NOTE:** *(Optional) This wire can be connected through an ON/OFF switch to override the compressor activation and operate the compressor independent of the ignition switch. (Switch not provided in the kit, but available separately).*

Insert the paddle switch(es) into the supplied bracket.

Locate the white wire on the relay harness and route it into the cab through the firewall boot.

Use a red heat shrinkable butt connector to connect the white wire on the relay to one of the white wires from each of the paddle switches. Heat the connector to create a sealed connection.

Crimp a white wire from each paddle switch and a black wire from the digital air gauge to a blue ring terminal. Connect the ring terminal to a good chassis ground or the negative terminal of the battery.

**NOTE:** *The negative terminal of the battery is the preferred location for the ground.*

## 5 ASSEMBLE & MOUNT THE MANIFOLD



**CAUTION:** The manifold utilizes NPT fittings. Finger tighten the fittings and turn an extra 1.5-3.0 turns to tighten the fittings. Never back off an installed NPT fitting as it will corrupt the seal and contribute to leakage and failure.

**NOTE:** *Apply thread sealant or Teflon tape to all the fitting threads installed into the manifold to prevent air leaks.*

**If a simultaneous kit (10231) is being installed,** complete Step 5A (on the following page) and then proceed onto Step 6.

**If an independent kit (10256) is being installed,** skip Step 5A and complete Step 5B (on the following page), then proceed onto Step 6.

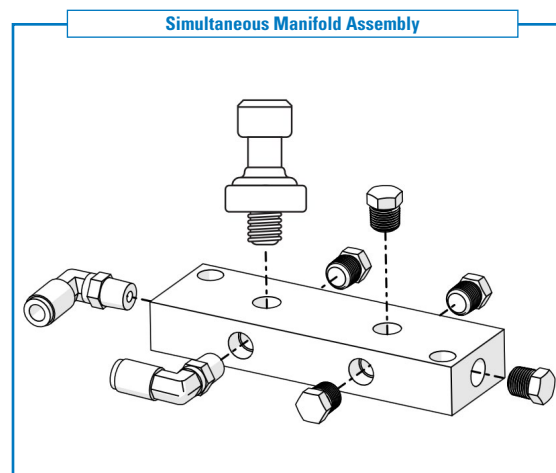
*...Step continues on the following page*

### 5A SIMULTANEOUS AIR SPRING ACTIVATION MANIFOLD ASSEMBLY (10231 KITS ONLY)

Install the pressure sensor into the top port of the manifold.

Install two 1/8" air fittings into the side ports.

Provided in the kit are five 1/8" brass plugs. Install them into the remaining ports of the manifold.



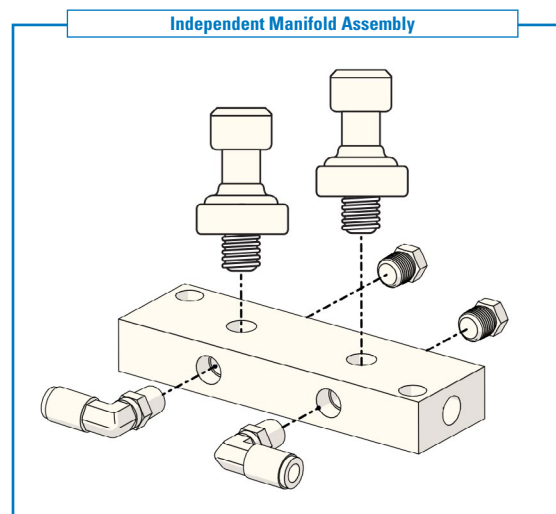
5A

### 5B INDEPENDENT AIR SPRING ACTIVATION MANIFOLD ASSEMBLY (10256 KITS ONLY)

Install the pressure sensors into the top ports of the manifold (as shown in Figure 5B).

Install four 1/8" air fittings into the manifold.

Install two 1/8" brass plugs into the remaining ports.



5B

## 6 MOUNT THE MANIFOLD

Choose a location on the frame to mount the manifold. Preferably near the air springs and away from any debris, moving components or heat sources.

**NOTE: The manifold must be mounted in a location where a 19ft length of wire can reach the manifold from the pressure gauge.**

Using the manifold as a template, mark and drill two 13/64" holes.

Secure the manifold to the chosen location using two #10-32 x 1 1/4" socket head cap screws, two #10 flat washers, and two #10 nyloc nuts.

## 7 AIRLINE CONNECTIONS

**NOTE:** Before cutting the airline, ensure that there's enough red and black airline to complete the following steps. Adjust the manifold, compressor, relay, or gauge mounting locations if there is not enough airline.

If a simultaneous kit (10231) is being installed, complete Step 7A (below) and then proceed to Step 8.

If an independent kit (10256) is being installed, skip Step 7A, complete Step 7B (on the following page), and then proceed to Step 8.

### 7A SIMULTANEOUS AIR SPRING ACTIVATION AIRLINE CONNECTIONS (10231 KITS ONLY)

**Refer to the wiring and plumbing diagram on Page 14 for the following instructions:**

Install the paddle switch into the supplied control panel bracket. The switch must be installed such that the delivery (DEL) port is above the supply (SUP) port.

Connect one end of the red airline to the paddle switch port marked "DEL".

Connect one end of the black airline to the paddle switch port marked "SUP".

Route the other end of both the red and black airlines through the firewall boot and into the engine compartment.

Route the black airline to the compressor, cut it to length and connect it to the air fitting on the outlet port of the compressor.

Route the red airline to the manifold, cut it to length, and connect it to the air fitting on the manifold.

Attach the remaining red airline to the air fitting on the manifold and route it near the air springs. The red airline is connected to both air springs using the supplied tee fitting.

Use the tie straps provided in the kit to secure all the airlines away from any moving components, debris, or heat sources.



## 7B INDEPENDENT AIR SPRING ACTIVATION AIRLINE CONNECTIONS (10256 KITS ONLY)

***Refer to the wiring and plumbing diagram on Page 15 for the following instructions:***

Install both paddle switches into the supplied control panel bracket.

The switches must be installed such that the delivery (DEL) port is above the supply (SUP) port.

Using the supplied T-Fitting, hose cutter cut the Black hose length and connect the T-Fitting to allow the "Supply" air to come from the compressor to the T-Fitting and out to each switch port labeled "SUP" (See diagram on Page 15)

Locate the length of red airline and connect it to the LEFT paddle switch ports marked "DEL"

Locate the length of green airline and connect it to the RIGHT paddle switch ports marked "DEL"

Route green, red and black airlines through the firewall and into the engine bay.

Route the black airline to the compressor. Cut it to length with the provided tube cutter, and connect it to the fitting on the outlet of the compressor.

Route the red airline to where the manifold was installed. Cut the airline to length and connect it to one of the air fittings on the end of the manifold.

***NOTE: this will now be the end of the manifold that controls the "LEFT" hand air spring.***

Route the green airline to where the manifold is installed. Cut the airline to length and connect it to one of the air fittings on the other end of the manifold.

***NOTE: this will now be the end of the manifold that controls the "RIGHT" hand air spring.***

Use the remaining red & green airline to connect the air fittings on the "respective side of the manifold to each air spring.

***NOTE: In order to ensure that the system operates correctly it is imperative that the red airline attached to the left paddle switch is connected to the air fitting that supplies air to the left air spring, and vice versa for the other side. See the diagram on Page 15.***

## 8 MOUNT THE CONTROL PANEL

The control panel consists of a digital air gauge, paddle switch(es), control panel bracket and its associated fasteners.

Mount the gauge (according to the Figure 8). Use two #10 Phillips head screws, four flat washers and two nuts to secure the control panel to the chosen mounting location.

**NOTE:** When installing the gauge cover ensure that the flat face is flush against the bracket. If you do not wish to use the gauge cover assemble the kit according to Option 1. If glare is affecting the legibility of the digital gauge, assemble the kit according to Option 2 (see Figure 8).

### 8A SIMULTANEOUS AIR SPRING ACTIVATION GAUGE HARNESS CONNECTIONS (10231 KITS ONLY)

Refer to the wiring diagram on Page 14:

Install the pressure gauge into the panel control bracket. Insert the supplied gauge harness into the back of it. (Refer to Figure 8).

The wires on the gauge harness need to be extended in order to reach the pressure sensors on the manifold. Locate the blue, green and two black wires on the gauge wiring harness.

Provided in the kit are heat shrink butt connectors, and 12ft of black, green, and blue 20 AWG wire.

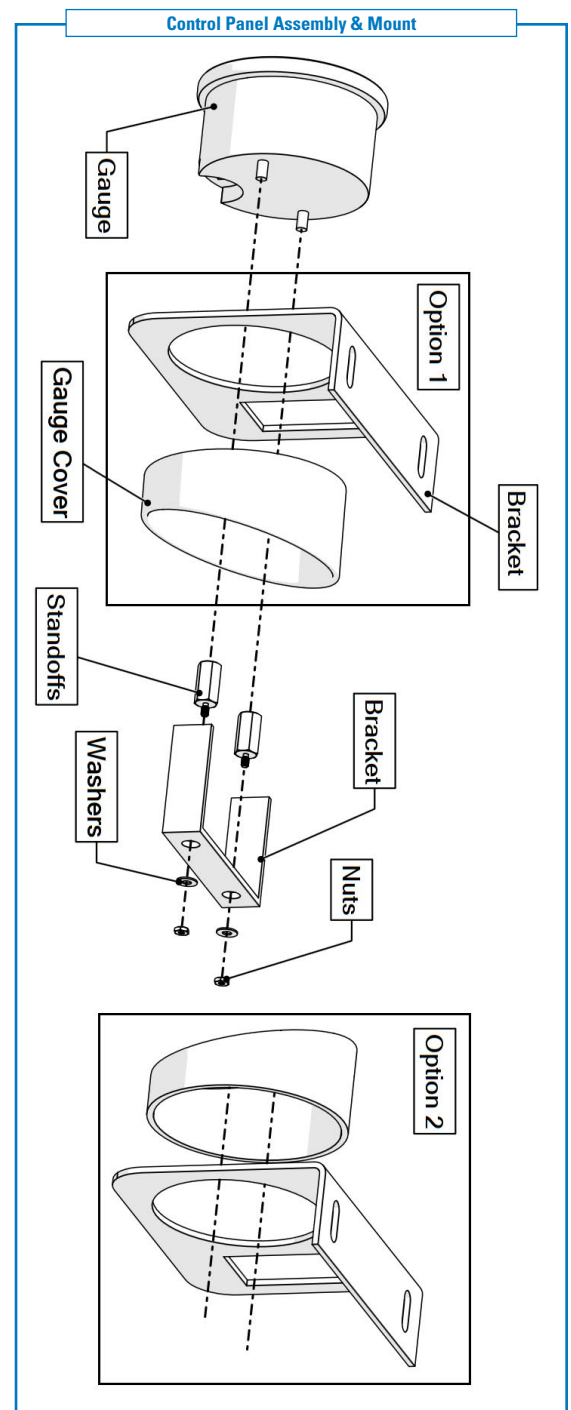
Insert the green and blue wires on the pressure gauge wiring harness into one end of the heat shrinkable butt connector. Insert the supplied 20 AWG green wire into the other end of the connector. Crimp and heat both ends to create a sealed connection.

Insert both brown wires on the pressure gauge wiring harness into one end of the heat shrinkable butt connector. Insert the supplied 20 AWG brown wire into the other end of the connector. Crimp and heat both ends to create a sealed connection.

Insert 2 of the 3 black wires on the pressure gauge wiring harness into one end of the heat shrinkable butt connector. Insert the supplied 20 AWG black wire into the other end of the connector. Crimp and heat both ends to create a sealed connection.

Attach the connector to the pressure sensor as shown in the diagram on Page 14.

Use the supplied loom to cover the exposed wires and route the wires to the pressure sensor on the manifold.



## 8B INDEPENDENT AIR SPRING ACTIVATION GAUGE HARNESS CONNECTIONS (10256 KITS ONLY)

*Refer to the wiring diagram on Page 15:*

Install the pressure gauge into the panel control bracket. Insert the supplied gauge harness into the back of it. (Refer to Figure 8 on the previous page).

The wires on the gauge harness need to be extended in order to reach the pressure sensors on the manifold. Locate the blue, green and two black wires on the gauge wiring harness.

Provided in the kit are heat shrink butt connectors, and 12ft of black, green, and blue 20 AWG wire.

Insert the green wire on the pressure gauge wiring harness into the one end of the heat shrinkable butt connector. Insert the supplied 20 AWG green wire into the other end of the connector. Crimp and heat both ends to create a sealed connection.

Repeat this step for the two black wires and one blue wire on the wiring harness.

Attach each connector to the pressure sensors as shown in the diagram on Page 15.

Use the supplied loom to cover the exposed wires and route the wires to the pressure sensor on the manifold.

## 9 TESTING THE SYSTEM

Turn the ignition ON, move the paddle switch to the UP position. The gauge should show air pressure being delivered to the air springs raising the vehicle.

Then move the paddle switch to the lower position. The gauge should show the air pressure dropping and lowering the vehicle.

If the pressure gauge cannot read the pressure sensor signal the gauge will count down to "0" and begin flashing.

Check to ensure that the system is wired correctly.

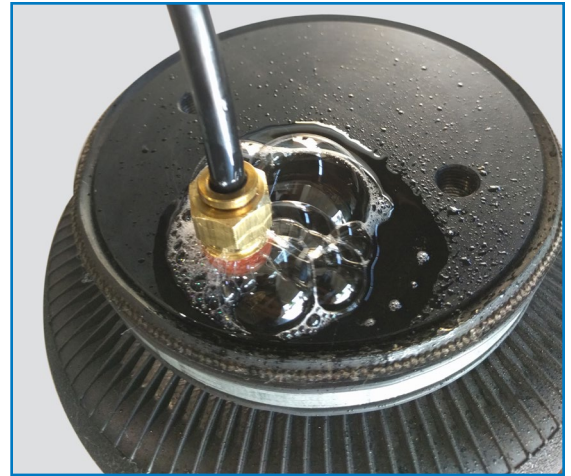
## 10 CHECK SYSTEM FOR LEAKS

Inflate both air springs to 90 psi (60 psi for in-coil bags) and then use a mixture of dish soap and water on all air line connections to detect any air leaks. Large, expanding bubbles indicate a leak (as shown in Figure 10).

**Repair as necessary and retest.**

Inflate air springs to a predetermined value and on following day recheck pressure. If one or both of air springs have lost pressure, an air leak is present.

**⚠ Leak must be repaired, and then retested until no leaks exist.**



*\*Air Spring & NPT Air Fitting may differ between kits*

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## AFTER COMPLETING THE INSTALLATION

- The air spring must have clearance between itself and the surrounding components to prevent any contact when spring is inflated or compressed. Trimming off excess bolt length may also be required to ensure no contact with the spring or other suspension components can be made once installed.
  - If removed, re-install the wheels and torque fasteners to the manufacturer's specifications. Re-torque all fasteners after the first 500 miles of driving.
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## OPERATING YOUR VEHICLE WITH AIR SUSPENSION

Air springs have minimum and maximum recommended pressure requirements:

PART #	SPRING STYLE	SPRING TYPE	MIN PSI	MAX PSI
HP10189	In-Coil	STANDARD DUTY	5 PSI	70 PSI
HP10560		STANDARD DUTY		
HP10001	Sleeve Style	STANDARD DUTY	10 PSI	100 PSI
HP10173		STANDARD DUTY		
HP10199		STANDARD DUTY		
HP10083	Single Convolute	HEAVY DUTY	5 PSI	100 PSI
HP10083J		HEAVY DUTY with JOUNCE BUMPER	0 PSI* / 5 PSI	100 PSI
HP10000	Double Convolute	HEAVY DUTY	5 PSI	100 PSI
HP10000J		HEAVY DUTY with JOUNCE BUMPER	0 PSI* / 5 PSI	100 PSI
HP10068	Large Double Convolute	HEAVY DUTY	5 PSI	100 PSI
HP10438	Double Convolute	EXTREME DUTY	5 PSI	100 PSI
HP10438J		EXTREME DUTY with JOUNCE BUMPER	0 PSI* / 5 PSI	100 PSI

\* Springs with a jounce bumper can be run at zero PSI when vehicle is unloaded only

For safe and proper operation, never operate the vehicle over the maximum listed PSI in the air springs. Staying under the pressure limit will ensure maximum air spring life. **Failure in doing so may result in damage to your vehicle and/or a void warranty.**

**!** *It is recommended to check the air pressure in your air springs daily for first couple of days to ensure a leak has not developed.*

Air springs are designed to maintain the vehicle's stock ride height with a load. Do not use the air springs as a means to lift vehicle with no load. This will result in a harsh ride.

## SERVICING YOUR VEHICLE WITH AIR SUSPENSION

When lifting the vehicle with a floor jack or hoist on the frame, never allow the air spring to limit the travel of the axle. Try to always jack the vehicle on the axle. Suspending the axle with the air spring limiting the axle travel will damage the air spring and void the air spring warranty.

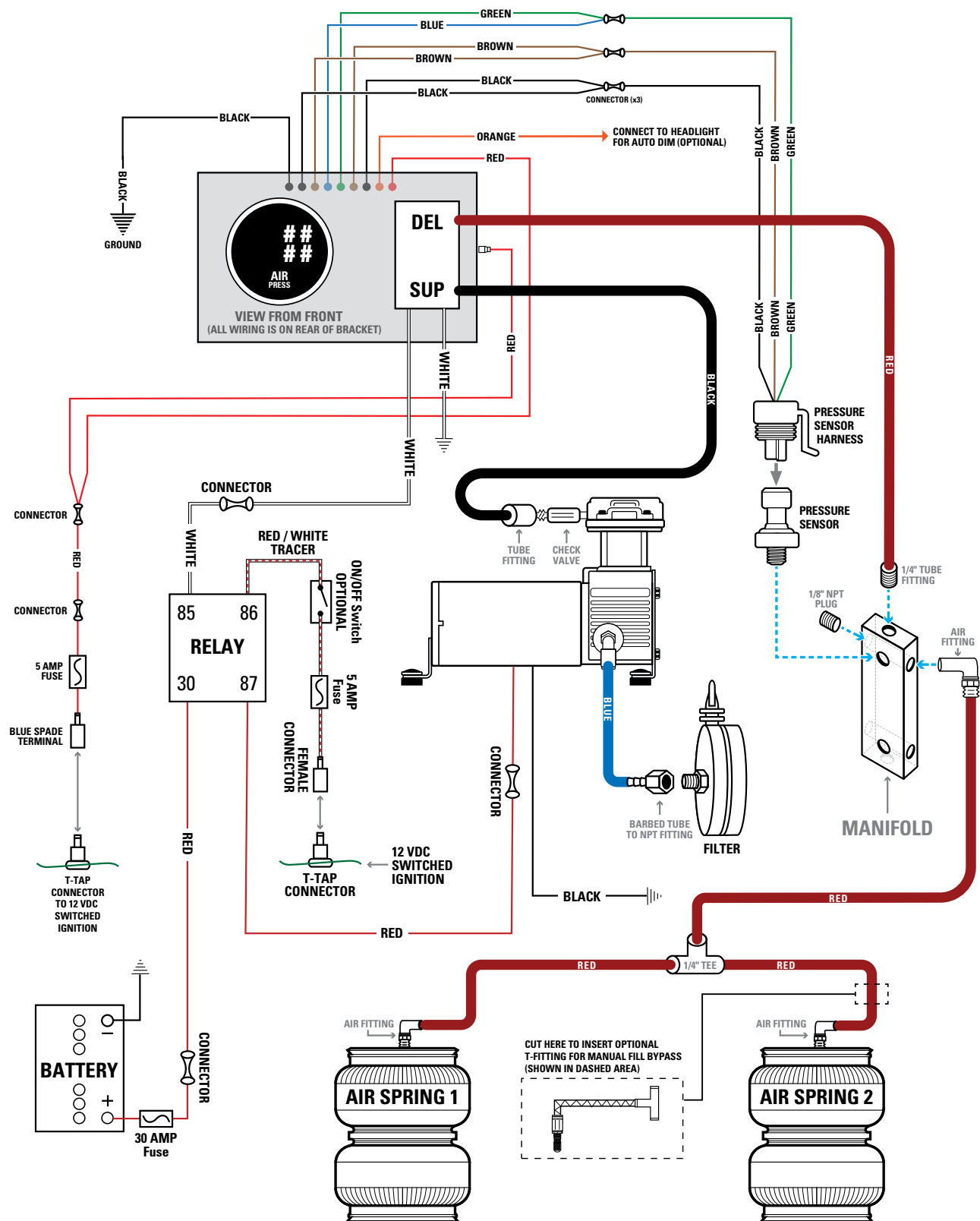
## WARRANTY

**See additional warranty included with this kit for details.**

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## WIRING &amp; PLUMBING DIAGRAM

## SIMULTANEOUS AIR SPRING ACTIVATION (10231 KITS)





## WIRING & PLUMBING DIAGRAM

### INDEPENDENT AIR SPRING ACTIVATION (10256 KITS)

