

Installation Manual

PACBRAKE®

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ONBOARD AIR SYSTEM

FOR ALL VEHICLES APPLICATIONS



[illegible]

A collection of various automotive and industrial components, including hoses, cables, a digital display, a solenoid valve, and various fittings and connectors. The items are arranged on a white background. There are several black and orange hoses, a black cable with a digital display, a blue solenoid valve, and various fittings and connectors. A red cable is also visible at the bottom.

A collection of electronic components and wiring for a custom audio system. The items include a black circular speaker, a silver and black AMP (Audio Motor Power) unit, a black digital display with a red power button, a blue solenoid valve, a black pump, and various cables (black, red, green, blue). There are also numerous connectors, including push buttons, toggle switches, and a large number of thin, black, flexible tubes or wires.



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IMPORTANT: These kits include push-to-connect airline fittings. They require the end of the airline to be cut cleanly to ensure the internal seal will not leak air. The airline must only be cut with a sharp knife or hose cutter. Using scissors or wire cutters will distort the airline causing the connection to leak past the o-ring seal.

These kits utilize NPT air fittings. Finger tighten and turn an extra 1.5-3 turns to seal during installation. Never back off an installed air fitting. Loosening the fitting will corrupt the seal and contribute to leakage and failure. Apply thread sealant to the air fitting threads to prevent leaks.

If you are installing a basic air spring activation kit complete steps 6-8. If you are installing a premium air spring activation kit complete steps 1-8. Please read through the entire manual before starting to ensure that you can complete the installation.

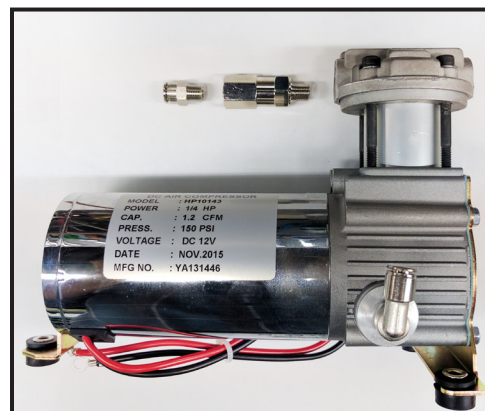
1 ASSEMBLY PREPARATION

- Install the air spring assemblies (if not previously installed). Follow the instructions provided within the air spring kit – with the exception of the airline routing.

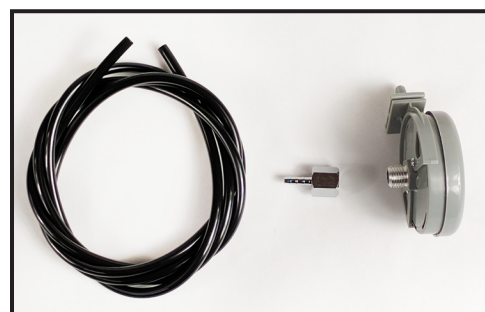
2 AIR COMPRESSOR AND AIR TANK MOUNTING

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 and straight air fitting into the compressor head as shown in figure 2A.
- 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 $\frac{13}{64}$ " 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 $\frac{1}{4}$ " blue airline into the elbow fitting on the inlet of the compressor.
- Insert a barbed tube to NPT fitting into the other end of the blue airline and screw 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.
- Choose a location to mount the air tank. Use the air tank as a template to scribe and drill the mounting holes. Use the supplied $\frac{3}{8}$ " bolts, washers and nuts to secure it to the chosen location.



2A



2B

3 AIR TANK ACCESSORY INSTALLATION

- Refer to figure 4A for instructions. Use the fittings provided to install the pressure switch, and pressure relief valve into the air tank.

Periodic draining of the tank will be necessary. DO NOT INSTALL THE PRESSURE SWITCH OR SOURCE AIR FROM THE BOTTOM PORT OF THE TANK.

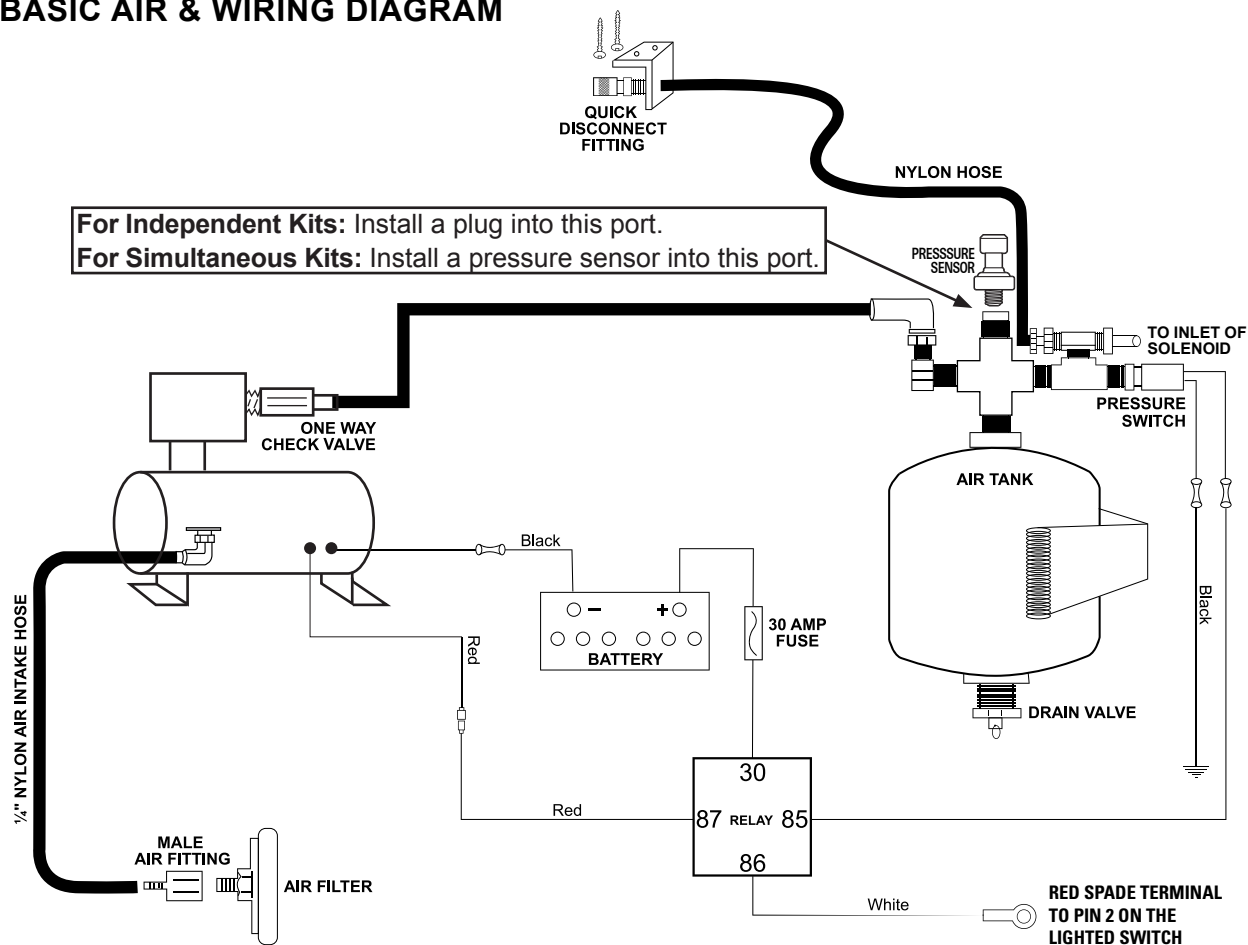
NOTE: The pressure switch included in this kit has a maximum pressure of 130 PSI and a minimum pressure of 110 PSI. Please ensure your accessories are capable of this pressure. A regulator may be necessary for some accessories.

- **For Independent Activation Kits:** Install a plug into the cross fitting.
- **For Simultaneous Activation Kits:** Install the pressure sensor into the air tank. Do not install it into the bottom of the tank.
- Locate the quick disconnect fitting provided. Consult with the vehicle operator for their preference on the mounting location. This location should be away from dirt and moisture which could contaminate the fitting. Use the mounting bracket, self-tapping screws, black airline and fittings to connect it to the air tank.



3A

4 BASIC AIR & WIRING DIAGRAM



4A

5 ELECTRICAL CONNECTIONS

- Provided in the kit is a pre-wired relay receptacle to make this part of the installation easy. Use the provided self-tapping screw to secure the relay receptacle.

NOTE: The red wire (pin 30) on the relay must be within 12" of the positive battery terminal. The red wire (pin 87) on the relay must be able to reach the compressor. The black wire (pin 85) must be able to reach the air tank. Consider this when choosing a mounting location for the relay. Never extend the wiring harness beyond the length supplied.

- Locate the black wire of the relay harness (pin 85), route it to the air tank location. Connect the black wire of the relay harness to one of the two wires of the pressure switch using the supplied blue heat shrink butt connector.
- Use a blue heat shrink butt connector and crimp the remaining black wire on the pressure switch to the supplied piece of black wire with the ring terminal attached to it. Apply heat to the connector to create a sealed connection. Connect the ring terminal to a clean chassis ground.
- Locate the white wire of the relay harness (pin 86) and crimp a red spade terminal onto the end of it. Route the white wire through the firewall and into the cab. Connect the spade terminal to pin 2 of the lighted switch on the control panel.
Refer to the wiring diagram on pages 8-9.
- Locate the red wire of the relay harness (pin 87) and route it to the compressor mounting location. Use a blue heat shrink butt connector to connect the red wire of the relay to the red wire of the compressor. Connect the black wire of the compressor to a good chassis ground. Use the provided convoluted loom to cover the exposed wires and secure it away from any moving objects or heat sources with the tie straps provided.
- Locate the red wire on the relay harness that has a ring terminal and fuse attached to it (pin 30). Connect it to the positive terminal of the battery. Install the supplied 30 A fuse into the fuse holder.



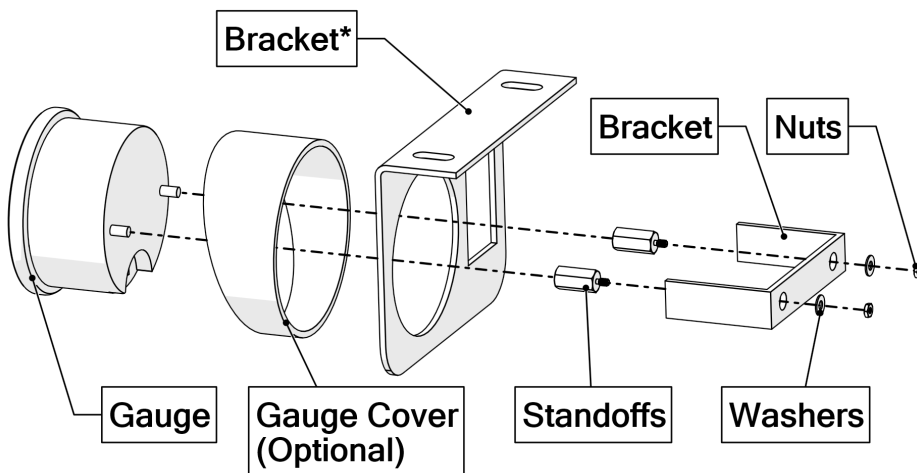
5A

6 CONTROL PANEL INSTALLATION

- The control panel has been pre-assembled for ease of installation. Choose a location to mount the control panel and use the provided two #10 Philips head screws, four flat washers, and two nuts to secure it in place.

NOTE: The gauge cover is hidden from view and mounted on the rear of the control panel. If glare is affecting the legibility of the digital gauge, disassemble the gauge from the control panel by removing the two nuts holding it in place. Reassemble it according to Figure 7A.

* Your kit may contain a different bracket



6A

7 SOLENOID INSTALLATION

Pacbrake's solenoid assemblies are designed to control the raising and lowering of the air springs from inside the cab. Pacbrake's dual input pressure gauge can be used to monitor the pressure in each air spring (HP10261) or to measure air tank pressure and air spring pressure (HP10262).

MOUNTING THE SOLENOID

- For Independent Activation Kits:** Two pressure sensors are provided in the kit. Install each sensor into the two "gauge" ports on the solenoid block. Refer to the Wiring and Plumbing diagram on page 8.
- For Simultaneous Activation Kits:** Install one pressure sensor into the cross fitting on the tank, and install the other pressure sensor into the gauge port of the solenoid block. Refer to the Wiring Diagrams on page 9.
- Choose a location on the frame to mount the solenoid assembly such that the 18 ft harness attached to it can reach the control panel that was installed in the cab. Use the solenoid block as a template and drill four $\frac{5}{32}$ " holes. Use the provided self-tapping screws to secure the solenoid assembly to the frame.

NOTE: Ensure that the solenoid is mounted away from heat sources, or road spray. Do not mount the solenoid with the bronze filter pointing up.

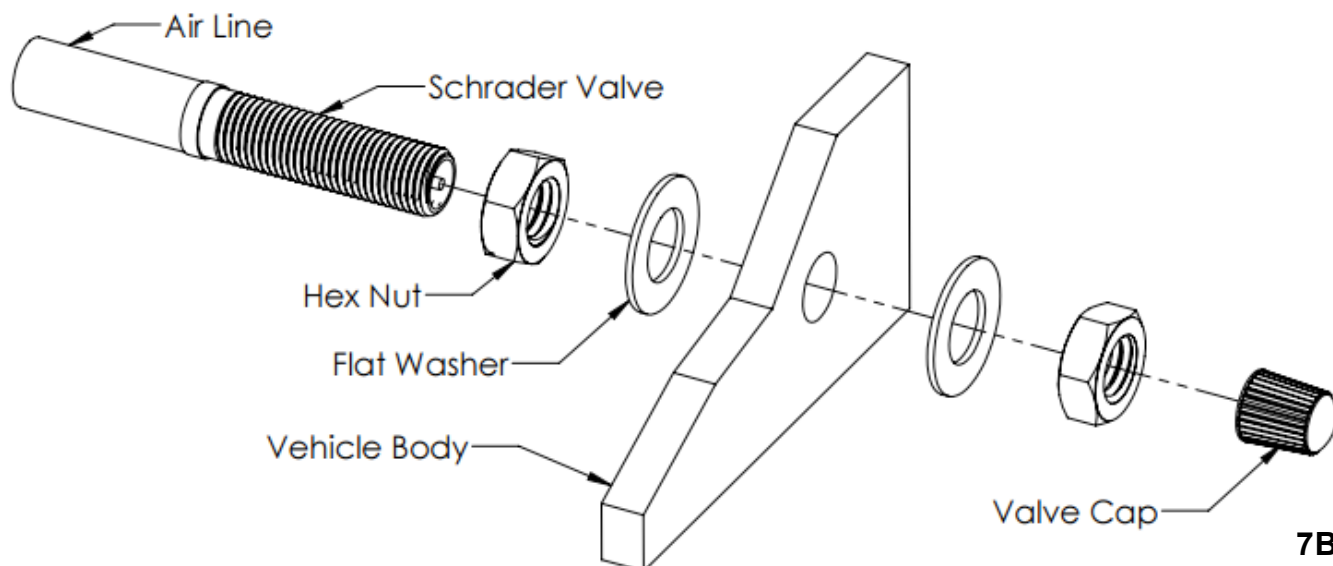
PLUMBING THE SOLENOID

NOTE: This kit contains “push to connect” airline fittings. They require the end of the airline to be round and cut cleanly to ensure the internal seal will not leak air. The airline must only be cut with a sharp knife or the provided hose cutter. Using scissors or wire cutters will distort the end of the airline causing the connection to leak air past the internal o-ring seal.

- The solenoid port marked “inlet” is to supply air to the air spring, and the solenoid port marked exhaust is to deflate the air spring. From the reservoir (air tank) route a black airline to the fitting that is in the port marked “inlet” and connect the airline to it.
- **For Independent Activation Kits:** Connect a red airline from each air spring to one of the two ports marked “bag” on the solenoid. Ensure that the left air spring (drivers side) is connected to the “bag” fitting that supplies air to the left air spring. Refer to the Wiring and Plumbing diagram on page 8.
- **For Simultaneous Activation Kits:** Route a red airline from the “bag” port on the solenoid to the tee fitting provided and from there individual lines must be connected to each air spring. Refer to the Wiring and Plumbing diagram on page 9.
- Two tees and a black airline with Schrader valves have been included in the kit. If you wish to have the option of manually filling the air springs through the Schrader valves then plumb it into the system as shown in the Wiring Diagram on pages 8-9.
- Install the Schrader valves in a convenient location according to figure 7B. The most common place to install the Schrader valves is to replace the license plate fasteners with the fill valves. Secure the airlines are away from any heat sources or moving items with the provided tie straps.



7A



7B



SOLENOID ELECTRICAL CONNECTIONS

- The solenoid has been pre-wired to make this portion of the installation easier. Locate the ring terminal(s) attached to the black wires on the solenoid. Connect the ring terminal(s) to a good chassis ground.
- Route the solenoid harness up into the cab to where the control panel was mounted. Secure the solenoid harness away from any moving parts or heat sources with the provided tie straps.
- **For Independent Activation Kits:** Crimp four red spade terminals to the end of each wire on the solenoid wiring harness. The red and white wires are designated for inflation of the air springs, and the black and green wires are designated for deflation. Attach the spade terminals to the switches on the control board as shown in the wiring diagram on page 8. Ensure that the right switch of the gauge assembly operates the right air spring and the left switch operates the left air spring.
- **For Simultaneous Activation Kits:** Crimp two red spade terminals to the end of the black and white wire of the solenoid wiring harness. The white wire is used to activate the solenoid that inflate the air springs. The black wire is used to activate the solenoid that deflates the air springs. Attach the spade terminals to the switches on the control board as shown in the wiring diagram on page 9.

8 DIGITAL GAUGE ELECTRICAL CONNECTIONS

POWER & GROUND CONNECTIONS

- Locate the red wires connected to the yellow butt connector on the gauge harness. Attach the supplied 12 AWG red wire, yellow butt connector and 12 AWG fuse holder to the wiring harness as shown in the wiring diagram on pages 8-9.
- Attach a blue spade terminal to the other end of the fuse holder. Insert a 5 AMP fuse into the fuse holder.
- Locate a 12 VDC switched ignition source, use either a red (22-18 AWG) or blue (16-14 AWG) T-tap connector to tap into it.
- Insert the blue spade terminal on the fuse holder to the T-tap connected to the switched ignition. See the Wiring diagram on pages 8-9.
- Connect the orange wire to the headlight switch for auto dimming of the gauge (optional).
- Locate the black wires connected to the blue butt connector on the gauge harness. Strip, insert and crimp one end of the supplied 20 AWG black wire into the blue butt connector. Attach the other end to a clean chassis ground with the supplied ring terminal.

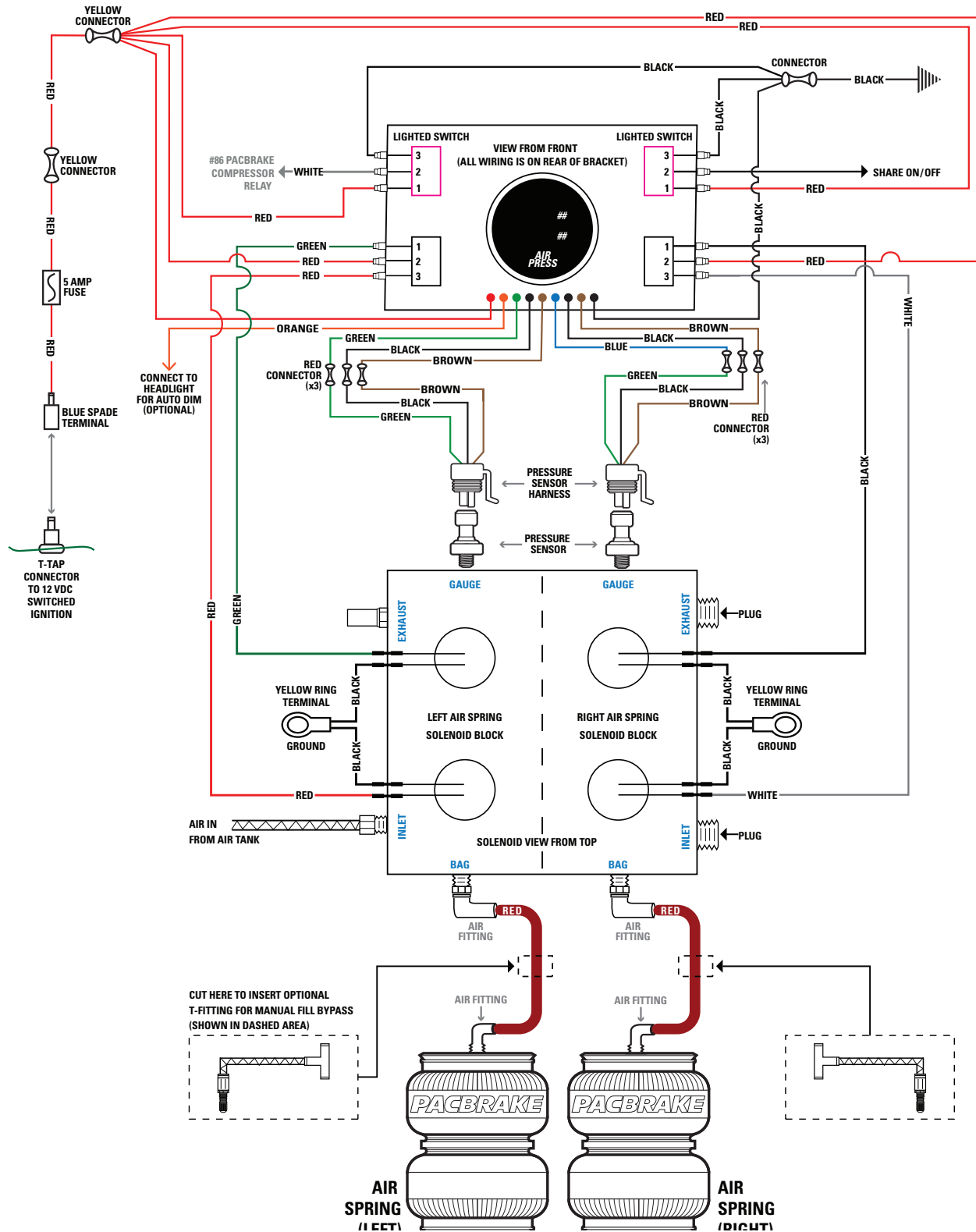
PRESSURE SENSOR HARNESS CONNECTIONS

- Locate two pressure sensor harnesses provided in the kit. Connect each harness to each of the pressure sensors. Depending on your kit, the pressure sensors were installed on either the solenoid or the tank.
- Route both sensor harnesses from the pressure sensors to inside the cab where the control panel was mounted.
- Use six red heat shrinkable butt connectors to connect the wires from the pressure sensor harness to the pressure gauge as shown in the wiring diagrams on pages 8-9.

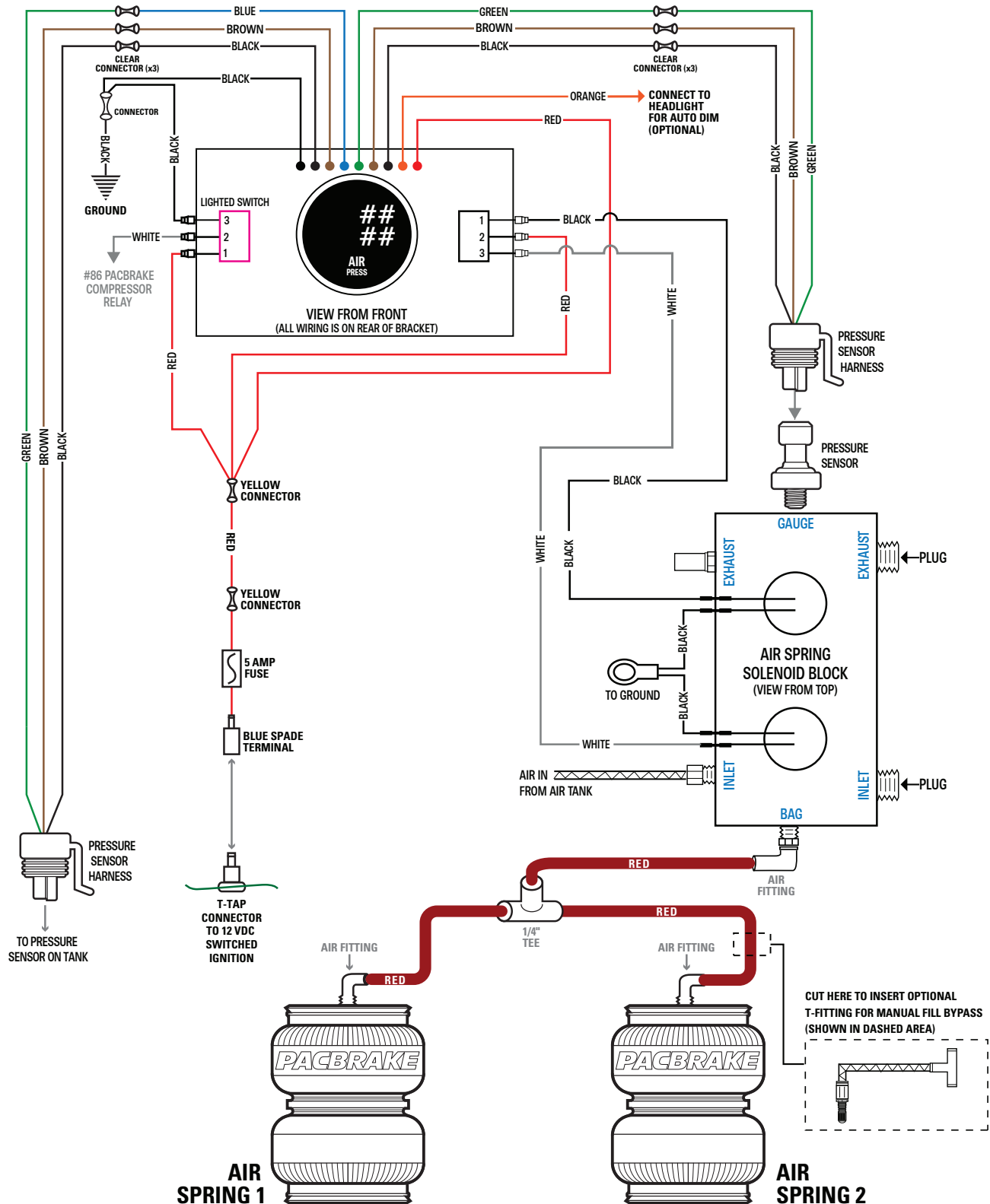
NOTE: The pressure sensor connected to the blue wire on the gauge harness will display on the lower display of the gauge. The sensor connected to the green wire will display on the upper display of the gauge.

- The installation for this kit is complete. Proceed to the following pages for testing instructions.

INDEPENDENT AIR SPRING ACTIVATION WIRING & PLUMBING DIAGRAM



SIMULTANEOUS AIR SPRING ACTIVATION WIRING & PLUMBING DIAGRAM





TESTING THE SYSTEM

Turn the ignition ON, press up on the black switch to inflate the air springs. The gauge should show air pressure being delivered to the air springs and raising the vehicle. Press down on the black switch to deflate the air springs. The gauge should show the air pressure dropping and lowering the vehicle. If a HP10261 kit was installed, ensure that the left switch activates the left air spring (drivers side) and vice versa for the right side. Press the red button connected to the control panel. It should deactivate the compressor if it is running.

If the pressure gauge cannot read the signal from the pressure sensor, the display on the gauge will count down to '0' and begin flashing. Check to ensure that the system is wired correctly.

AIR LEAK CHECK

Inflate the air springs to 90 PSI. Use a dish soap and water mixture on all airline connections to detect air leaks. Repair as necessary and retest. Inflate the air springs to a predetermined value and then the following day recheck the pressure. If the air springs have lost pressure, a leak is present. The leak must be repaired and then retest the vehicle until no leaks exist. **DO NOT EXCEED 100 PSI TO THE AIR SPRINGS AT ANY TIME.**

OPERATING YOUR VEHICLE WITH PACBRAKE AIR SUSPENSION

Air springs have minimum and maximum pressure requirements. Never operate your vehicle with less than 10 PSI in the air spring and never inflate the air springs over 100 PSI. Damage to the air springs will result. Check the air pressure in the air springs daily for the first couple of days to ensure a leak does not develop. The air springs are designed to maintain the vehicles stock ride height with a load. Do not use the air springs as a means to lift the vehicle with no load. A rough ride will result.

SERVICING YOUR VEHICLE WITH PACBRAKE 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

To be eligible for warranty, owner must submit their warranty card or register online with 30 days of purchase.

NOTE: The owners warranty will be void if the air springs run with less than the minimum of 10 PSI