ridetech Installation Instructions RidePRO

Part # 30154100 - 5 Gallon RidePro Analog Compressor System

Components:

2	31920020	Thomas 319 Compressor
1	31194000	RidePro 4 Way analog control panel with rocker switches
1	31915100	5 gallon aluminum tank
1	31934001	RidePro 4 Way valve block
1	31980005	Pressure switch – 135 On / 150 Off

Wiring & Hardware:

2	31900022	30 amp relay
2	90002924	Fuse holder
2	90001922	20 Amp fuse
2	31900035	Wiring harness - Control panel to valve
6	99104001	10-24 x 1" phillips screw
6	99102002	10-24 Nylok nut
6	99103001	#10 SAE flat washer
2	90001916	#10 x 5/16 ring terminal
2	90001913	12-10 butt connector
2	90001918	Female spade connector

Airline & Fittings:

2	31940002	1/4" DOT airline - 30 ft. roll - compressor system, air springs
2	31940000	1/8" DOT airline - 25 ft. roll - valve block to gauges
1	31952150	1/8"npt x 1/4" tube female straight - compressor
2	31957003	2" Brass Nipple - compressor
8	31954201	1/4" npt x 1/4" tube Elbow airline fitting
4	31954000	1/4" npt x 1/4" tube Straight airline fitting
4	31952000	1/8" npt x 1/8" tube Straight fitting - manifold to gauge fitting
4	31952201	1/8" npt x 1/4" tube Swivel Elbow airline fitting
4	31957004	1/4" npt plug - plug unused supply ports
1	31954400	1/4" tube "T" fitting - compressor to tank
1	31959301	Check Valve - **SCREWS INTO TANK FOR COMPRESSOR LINE**

Recommended Tools



THE CHECK VALVE SUPPLIED SCREWS INTO THE AIR TANK WITH AN AIR FITTING THREADING INTO IT. THE COMPRESSOR LINE WILL FEED INTO THE CHECK VALVE.

ridetech Installation Instructions RidePRO

Part # 30154100 - 5 Gallon RidePro Analog Compressor System

These are some general guidelines to follow when installing your new RidePro air control system. Depending on the vehicle there are many different ways to plumb the system. Start out by planning a lay out of where you want everything to be mounted. Typically we try to keep the compressor, solenoids, tank, and sending units in a central location, but they can be separated to suit your needs.

Mounting the Compressors/ Pressure Switch

- Remove the negative battery cable before beginning installation.
- All of our compressors are sealed for moisture and dust resistance so they can be mounted anywhere on the vehicle. Although it is best to mount it in a place out of direct contact with rain and snow. It is OK to mount it underneath the vehicle but keep it inside the frame rails away from water and debris thrown off the tire.
- This is a dry compressor; therefore it is maintenance free and can be mounted in any position.
- It is best if mounted to something solid to reduce vibration and noise. If mounting it to sheet metal or the bed of a truck, use sound deadening material between the compressor and the mounting surface.
- Use the rubber grommets supplied on the feet of the compressor to reduce vibration.
- Apply thread sealant to the pressure switch and screw into the tank.
- One spade of the pressure switch will connect to ground the other to the white wire on the relays.

Mounting the Air Tank

- The air tank can be mounted anywhere on the vehicle in any position.
- If your air system is used frequently you may want to remove the tank once a season to drain any excessive accumulation of water.

Mounting the RidePro Air Valves

- The valves, like the compressor, are sealed and can be mounted in the same locations. Although if the vehicle will be exposed to freezing temperatures it is a good idea to mount them in the engine bay if possible to reduce the possibility of freezing.
- They can be mounted in any position.
- Mount the valves higher than the tank to avoid moisture build up. This could cause the air pressure sensors to give a faulty reading.
- Attach the ground strap to a good, clean ground (preferably the frame).
- The exhaust port will be left open.
- The valve is held closed with the pressure in the tank. If tank pressure drops below air spring pressure they will equalize deflating all 4 air springs

Part # 30154100 - 5 Gallon RidePro Analog Compressor System

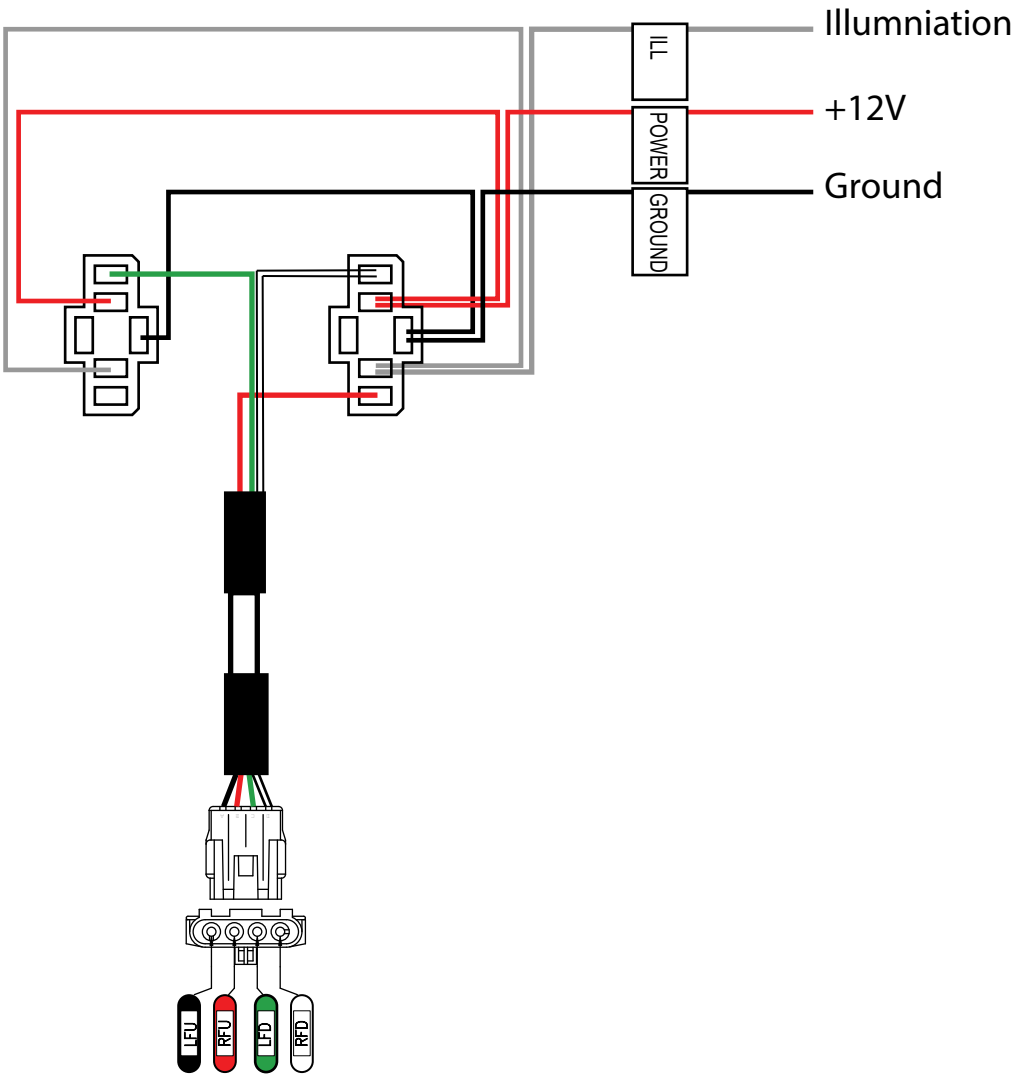
Wiring Harness

Illumination (Gray) - This wire provides power to the switch lights. It should be hooked up to a light circuit in the vehicle (dash lights) or it can be hooked up to a 12 volt switched source.

+12V (Red) - This wire is the main power for the valves. It should be hooked up to a 12 volt switched circuit. It needs 12 volt with the key on and should have no power with the key off.

Ground (Black) – This wire provides ground to the switch lights. It should be hooked up to a good ground source.

Note: The Illumination and Ground wires do not have to be hooked up for the switches to work. They do have to be hooked up for the lights in the switches to work



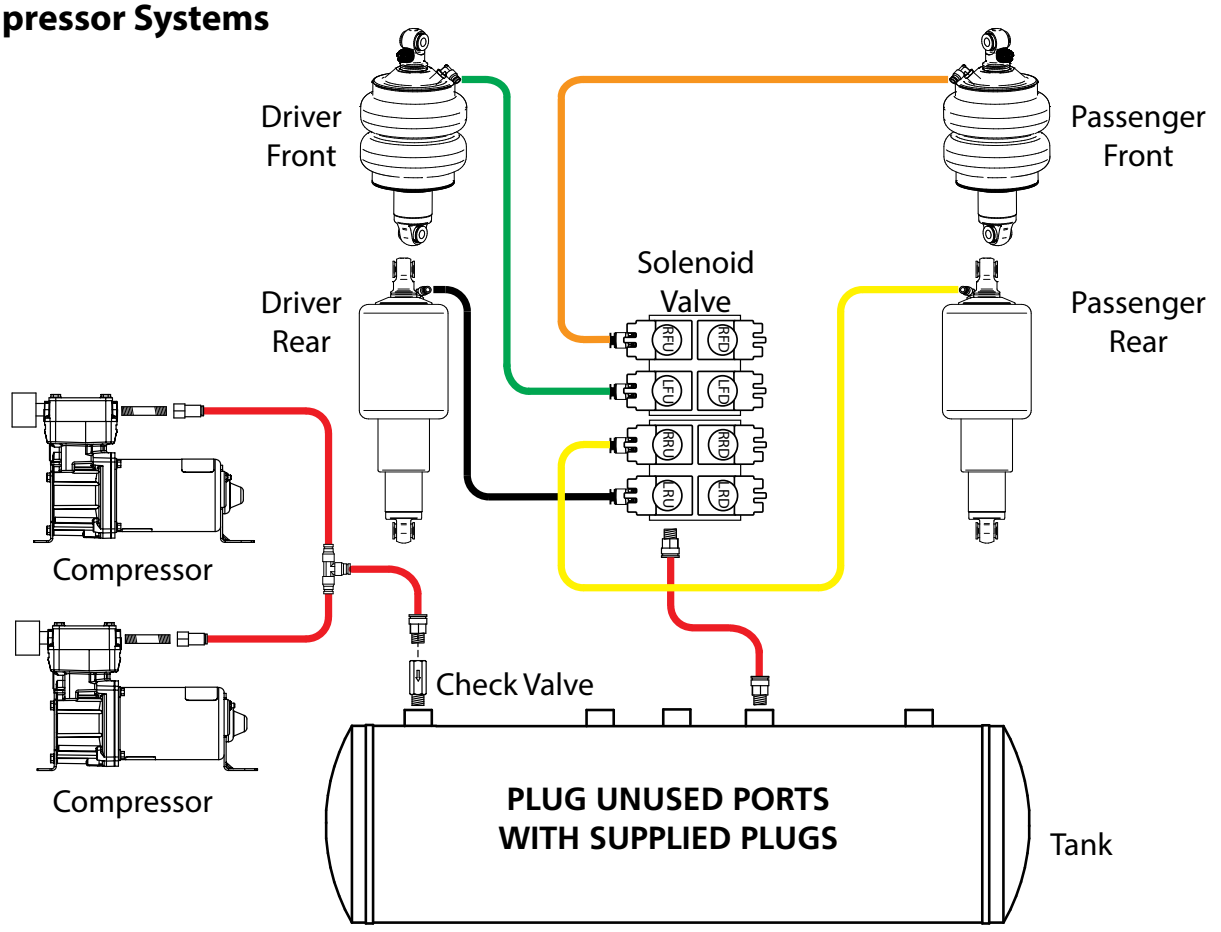
Part # 30154100 - 5 Gallon RidePro Analog Compressor System

Routing the Airline and Fittings

- Make all airline cuts with a razor blade or tubing cutter. It must be clean and straight or it will not seal.
- All fittings are DOT approved push-to-connect style. They are very simple to use and are reusable. Firmly push the airline into the fitting to attach. To release the airline pull the collar on the fitting back towards the fitting and pull the airline out.
- Use thread sealant on all fittings.
- Do not over tighten the fittings. This could result in breaking the fitting or damaging the air spring.
- All of our airlines are DOT approved so they are very strong. But keep them away from any sharp edges. Also when passing through a hole in the frame use a grommet.
- Keep away from intense heat including mufflers and exhaust manifolds.
- Use zip ties or other fasteners to secure the airline.

Plumbing Diagram

Dual Compressor Systems



ridetech Installation Instructions RidePRO

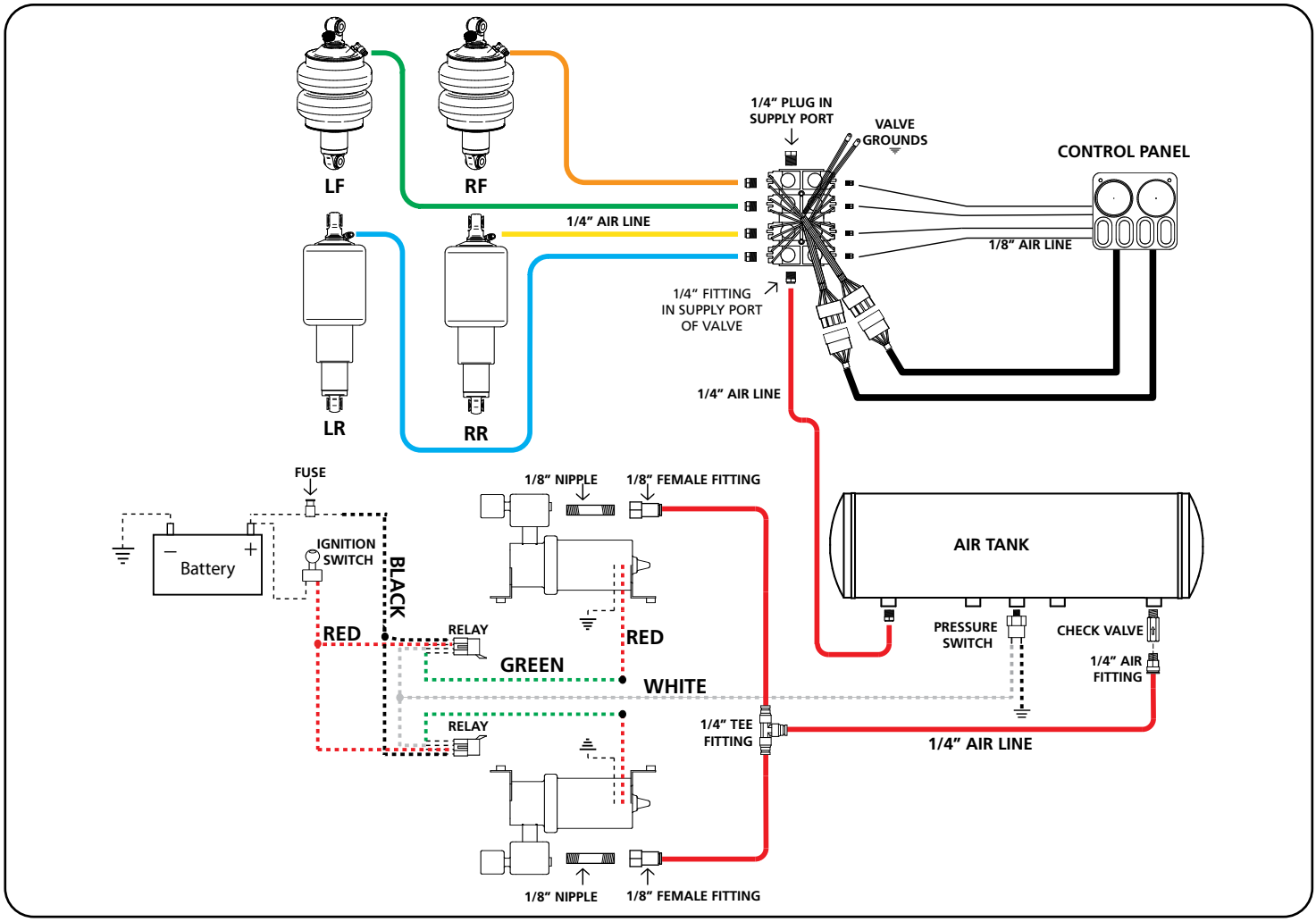
Part # 30154100 - 5 Gallon RidePro Analog Compressor System

Compressor Wiring

- We provided a wire chart below to help select the correct size wire for your install. The air compressorS in this kit draw 19.6 amps max EACH.
- Use the diagram below for wiring the compressor, relay, and pressure switch.

Amps @ 13.8 Volts	LENGTH OF WIRE American Wire Gauge (AWG)						
	0-4 ft	4-7 ft	7-10 ft	10-13 ft	13-16 ft	16-19 ft	19-22 ft
15-20	12 ga	12 ga	12 ga	12 ga	10 ga	8 ga	8 ga
20-35	12 ga	10 ga	10 ga	10 ga	10 ga	8 ga	8 ga
35-50	10 ga	10 ga	10 ga	8 ga	8 ga	8 ga	6 or 4 ga

Wiring & Plumbing Diagram



Troubleshooting Guide

Compressor will not turn on.

Diagnosis A: 12 volts not present at Red wire on compressor.
Solution A: Check fuse and connections. (20 amp fuse on Thomas compressor)

Diagnosis B: 12 volts present at red wire on compressor but still doesn't run.
Solution B: Check connections between Black wire on compressor and ground.

Diagnosis C: 12 volts present at red wire on compressor and good ground, but still doesn't run.
Solution C: The compressor has gotten hot and thermals out. The air compressors have a thermal safety built in. If the compressor gets too hot, it will shut itself off. Let the compressor cool, it should come back on,

Compressor will not turn off.

Diagnosis A: Unhook wire at pressure switch to see if compressor shuts off.
Solution A:
1. If compressor doesn't shut off - Replace relay.
2. If compressor shuts off and you know the system has more than enough air in the tank - Replace pressure switch.

Diagnosis B: Tank pressure builds normally but will not reach 150psi.
Solution B: Replace compressor.

One air spring leaks down over a period of time.

Diagnosis A: Leak between delivery port on valve block and air spring. ALL FITTINGS NEED SOME KIND OF THREAD SEALER.
Solution A: **Air springs almost never leak. Spray all fittings with soapy water. Tighten fitting and/or remove and replace thread sealant. Cut 1" off of end of airline and reinsert.**

Diagnosis B: Exhaust valves leaking. Air seeps past exhaust valve and out exhaust port.
Solution B: Usually caused by debris stuck on valve seat. Inflate and deflate several times or disassemble valve. Information about servicing the valves can be found at: https://www.ridetech.com/tech/solenoid-valve-service/

One air spring leaks up over a period of time.

Diagnosis A: Inflate valves leaking. Air seeps past inflate valve and into air spring.
Solution A: Usually caused by debris stuck on valve seat. Inflate and deflate several times or disassemble valve. Information about servicing the valves can be found at: https://www.ridetech.com/tech/solenoid-valve-service/

The 2 front or all 4 air springs leak down over a period of time.

Diagnosis A: Check tank pressure. There is a leak in the supply side of the system. This could be at the compressor, tank, or supply ports on the valve. **The valves are held closed by the tank pressure.** If the tank pressure gets below the air spring pressure, the air spring will leak down with the tank. An easy way to check this; make sure the compressor runs until it shuts off. Write down the tank pressure and let the vehicle sit over night. If the compressor kicks on right away the next time you turn on the system, you have a leak on the supply side of the system.
Solution A: **Spray all fittings with soapy water. Tighten fitting and/or remove and replace thread sealant. Cut 1" off of end of airline and reinsert.**

Control panel switches do not activate the correct air spring.

Diagnosis : Ex: LF switch actuates the RF air spring.
Solution : Swap the switch harness on the back of the gauge panel.

One corner will not inflate or deflate, but the others inflate and deflate.

Diagnosis A: With the vehicle running, check to see if the valve clicks when the button is pushed.
Solution A: If no click, check the harness going to valves and the grounds at the valve block.

Diagnosis B: With the vehicle running, check to see if the valve clicks when the button is pushed.
Solution B: If no click, check the grounds at the valve block. You can also test the wire of the coil of the solenoid that isn't working. Each coil of the valve block has 2 wires. One wire is ground, the other wire is the control wire. You should see 12 volts on this wire when the button for the solenoid is pushed. Use a volt meter on this wire to see if you have 12 volts when the button is pushed.

Diagnosis C: With the vehicle running, check to see if the valve clicks when the button is pushed.
Solution C: If valve clicks, but does not open. The plunger in the valve is can be badly dimpled and needs replaced. If the plunger is badly dimpled, it can get stuck in the hole in the valve, not allowing it to open. Information about servicing the valves can be found at: https://www.ridetech.com/tech/solenoid-valve-service/

Diagnosis D: System is getting LOW voltage.
Solution D: Start the vehicle and test to see if you are getting at least 12.5 volts at the battery. A battery charger isn't enough to run the system.

Tips & Tricks

When inflating and deflating the vehicle manually, push both buttons for one end of the vehicle at the same time.

Explanation: When you do one corner at a time, it is harder to get the vehicle level at the height you are trying to achieve. By pushing both inflate buttons at the same time, each side of the vehicle works together to lift the vehicle. When you get close to the height you are trying to obtain, then you can adjust the air in each corner individually.

Pressure differential from side to side.

Explanation: **It is not uncommon for a vehicle to have more pressure in one side.** Several things can affect the air pressure from side to side; weight distribution and chassis twist are the two most common causes. Airing up both front or both rear at the same time will help get the vehicle closer to level than trying to do it one corner at a time. A 10-15 psi differential from one side to the other is not uncommon.

Tip: After you have leveled the vehicle, take a look at all 4 pressures. If two corners opposite of each other are your higher pressures, you may be cross loading the vehicle. Example: The Left Front has a higher pressure than Right Front and Right Rear has a higher pressure the Left Rear, there's a good chance the 2 higher pressure air springs are pushing against each other. Try getting the pressures closer to the opposite side of the vehicle on each end and see how the vehicle sits.

Swapping airlines to help diagnose a problem.

Explanation: Air lines can be swapped from one port to the another to help diagnose a problem. This can help you narrow down where a problem may be.

Example: Right rear will not air up, but left rear will - switch the right rear and left rear air lines. The operation of the rear will now be switched at the control panel, but the air pressures will still be correct for the corners. If the right rear will still not air up using the left rear button, your problem is somewhere from the right rear valve to air spring. If the right rear will now air up using the left rear button, the problem is in the wiring controlling the valve.

When checking for air leaks, DO NOT USE DISH SOAP!

Explanation: Today's dish soaps are designed to shed water off of dishes. This causes the soap and water mixture to run off the airline. It can run off the airline before it has a chance to bubble.

Tip: The bubble mixture that kids use to blow bubbles is a great leak detector. Windex also works well for checking for leaks.



TECH TIP

SUSPENSION BIND

Ever noticed that when you lower any vehicle off of a lift or jack stands that it is sitting several inches higher than normal? This condition is due to Suspension Bind, and all vehicles have it. Three dynamics lead to suspension bind:

1. **Tire Scrub - The arc created by the control arm swing will try to push your tires apart or pull them together, (basically) changing the track width). However, friction between the tire and ground does not allow the tires to slide, reducing vehicle movement. This can be especially dramatic with sticky tires and concrete.**
2. **Control Arm Bushing – Friction between the bushing and the frame brackets will also reduce vehicle movement. This is why control arm bolts must be tightened at ride height. Over-tightening the bolts can lead to very excessive suspension bind.**
3. **Shock Absorbers – The shock absorber's job is to reduce suspension movement. The stiffer the shock absorber, the more suspension bind.**

With an air suspension vehicle, it is always best to over inflate the air spring and then deflate back down to the target pressure to alleviate some suspension bind.