



AIR COMPRESSOR/AIR CONTROL KIT INSTALLATION AND SERVICE MANUAL

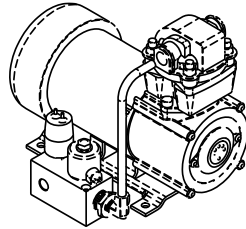


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Each air connection must be airtight to obtain the proper air compressor/system performance. Use liquid thread sealant on all threaded air fittings and torque to 10-12 ft lbs.

Make sure that the length of air line runs provide enough slack to allow for vehicle movement. Use a cutting tool instead of knife or scissors to cut air lines and make sure of a clean, straight cut for installation.

Install close to battery

1. Locate the air compressor as close to the battery as possible so that the length of positive lead wire required is minimized.
2. If the compressor is mounted at a distance from the battery (ex: inside the vehicle), use a larger gauge positive lead wire the length of the run.
3. Make sure that your compressor setup is properly fused. Always locate the fuse as close as possible to the power source. Refer to the manufacturer's specifications for the appropriate fuse size.

Keep the air compressor cool

1. Mount the compressor in a flat, upright and secure location away from heat sources and protected from the elements. The location should provide enough air flow to cool the compressor.
2. If the compressor is to be mounted inside an enclosure, provide at least two holes - one in the side of the enclosure that faces the vehicle front and one in the rear-facing side - so air flow from the vehicle movement will cool the compressor.
3. Remote inlet air filters, if used, should be located in a clean and dry location away from water sources. Install air line tubing between the inlet filter and the air compressor for remote mounting. Filter media should be replaced when dirty.

4. The air tank must be mounted so that the air tank drain is pointing down. Air tank should be drained daily.
5. The air line from the air compressor to the air tank should slope downward so that water condensation collects in the tank.
NOTE: Air line kinks or an upward running air line may cause water to pool and freeze inside.

Test for leaks in the system

1. Connect and test the system by running the air compressor for a short time to build up pressure in the air tank. The compressor will stop when the pressure reaches the "cut-out" pressure of the pressure switch.
2. Inspect all air line connections for leaks with soap and water solution. If a leak is detected, the air line may not be cut squarely or pushed all the way in. Fix leaking connections, as needed.

CAUTION Exhaust all pressure from the air system and wear proper eye protection at all times when working on a vehicle air system.

CAUTION Never touch the air compressor or connected fittings with bare hands during or immediately after use. If necessary, wear heat resistant gloves to handle the fittings, air lines, and leader hose.

The installer is responsible for making sure that the vehicle's air system requirements comply with any appropriate standards, such as the Federal Motor Vehicle Safety Standards.

Preventive Maintenance

Drain the moisture from all air reservoirs during each pre-trip/safety inspection.

- Compressor power switch should be turned OFF when trailer is not in use to avoid damage to the vehicle air system.
- Check battery(ies) on a regular basis. The battery should remain at full charge (12.6 volts) at all times.
- Periodically check all electrical and air-fitting connections. Clean and tighten as needed.
- Replace air filter element at least once per year. Replace at least once a month if used frequently in a dusty environment.
- Regularly clean the dust and dirt from the compressor cooling fins and motor housing.
- Check all compressor/accessory mounting bolts. Tighten as needed.

Refer to these American Trucking Associations' Technology & Maintenance Council (TMC) Recommended Procedure publications for more information on air springs system maintenance:

- RP 617 - Air-System Contaminant Elimination Procedure
- RP 619 - Air-System Inspection Procedure
- RP 634 - Ride Height Adjustment Procedures for Truck/Tractor Air Ride Suspensions
- RP 643 - Air-Ride Maintenance Guidelines

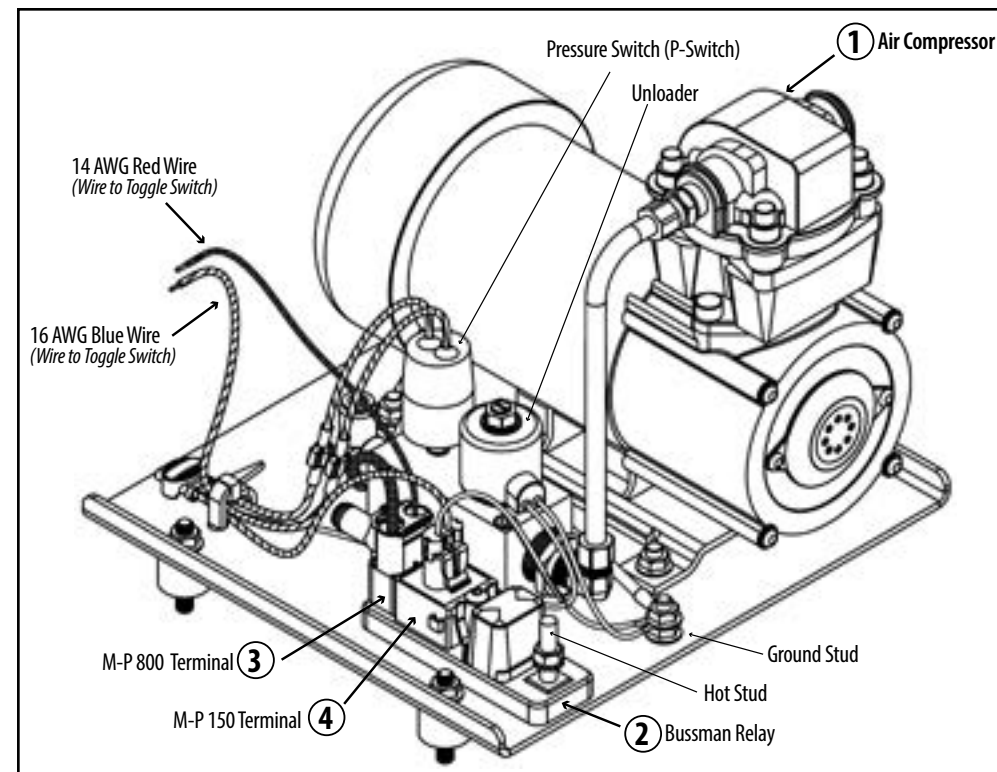


Figure 1.
1220026 Air Compressor Kit

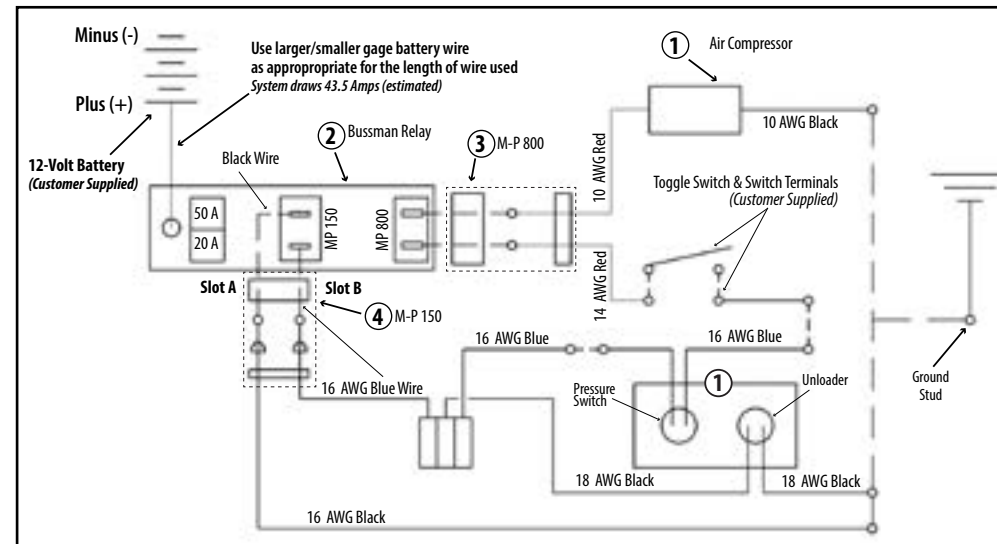


Figure 2.
Wiring Diagram
for 1220026 A/CPSR Kit

DWG NO.	QTY	PART NO.	ITEM DESCRIPTION
1	1	1230236	PACBRAKE AIR COMPRESSOR, 3/4 HP 12V 42A
2	1	1420192	BUSSMANN POWER MODULE RELAY (PRM), 12V 70A
3	1	1420198	METRI-PACK (M-P) 800 FEMALE TERMINAL, 12-14 GAUGE
	1	1420195	METRI-PACK (M-P) 800 FEMALE CONNECTOR, 2-CAVITY, BLACK
	1	1420196	METRI-PACK (M-P) 800 TPA, 2-CAVITY BLACK
	1	1420197	METRI-PACK (M-P) 800 FEMALE TERMINAL, 8-10 GAUGE
4	2	1420152	METRI-PACK (M-P) 150 FEMALE TERMINAL, 18-16 GAUGE
	1	1420142	METRI-PACK (M-P) 150 SECONDARY LOCK, 2-CAVITY
	2	1420146	METRI-PACK (M-P) 150 CABLE SEAL, 18 GAUGE, DARK RED
	1	1420149	METRI-PACK (M-P) 150 FEMALE CONNECTOR, 2-CAVITY, BLACK

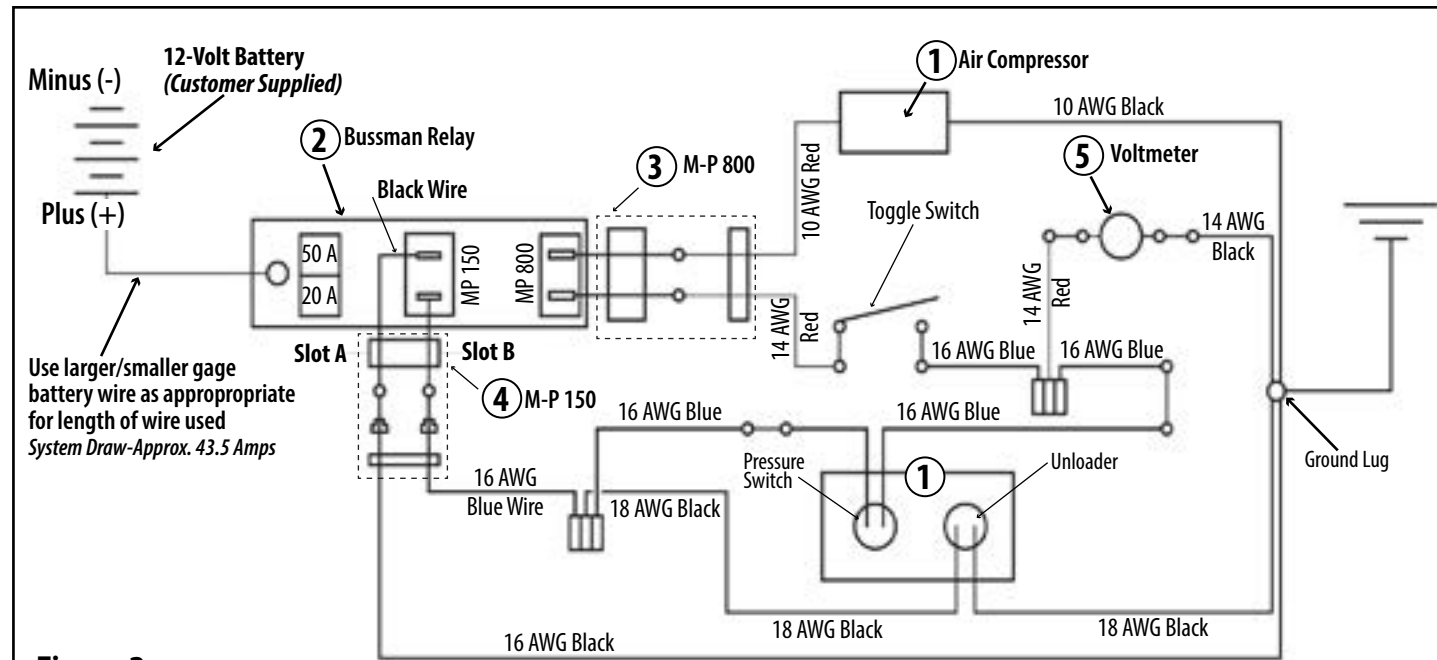


Figure 3.
Air Compressor Kit with Optional Lift and Dump Valves – Wiring Diagram

DWG NO.	QTY	PART NO.	ITEM DESCRIPTION
1	1	1230236	PACBRAKE AIR COMPRESSOR, 3/4 HP 12V 42A
2	1	1420192	BUSSMANN POWER MODULE RELAY (PRM), 12V 70A
3	1	1420195	METRI-PACK (M-P) 800 FEMALE CONNECTOR, 2-CAVITY, BLACK
	1	1420196	METRI-PACK (M-P) 800 TPA, 2-CAVITY BLACK
	1	1420197	METRI-PACK (M-P) 800 FEMALE TERMINAL, 8-10 GAUGE
	1	1420198	METRI-PACK (M-P) 800 FEMALE TERMINAL, 12-14 GAUGE
4	2	1420152	METRI-PACK (M-P) 150 FEMALE TERMINAL, 18-16 GAUGE
	1	1420142	METRI-PACK (M-P) 150 SECONDARY LOCK, 2-CAVITY
	1	1420149	METRI-PACK (M-P) 150 FEMALE CONNECTOR, 2-CAVITY, BLACK
	2	1420146	METRI-PACK (M-P) 150 CABLE SEAL, 18 GAUGE, DARK RED
5	1	1230302	VOLTMETER, 5-48V DC, RED LED

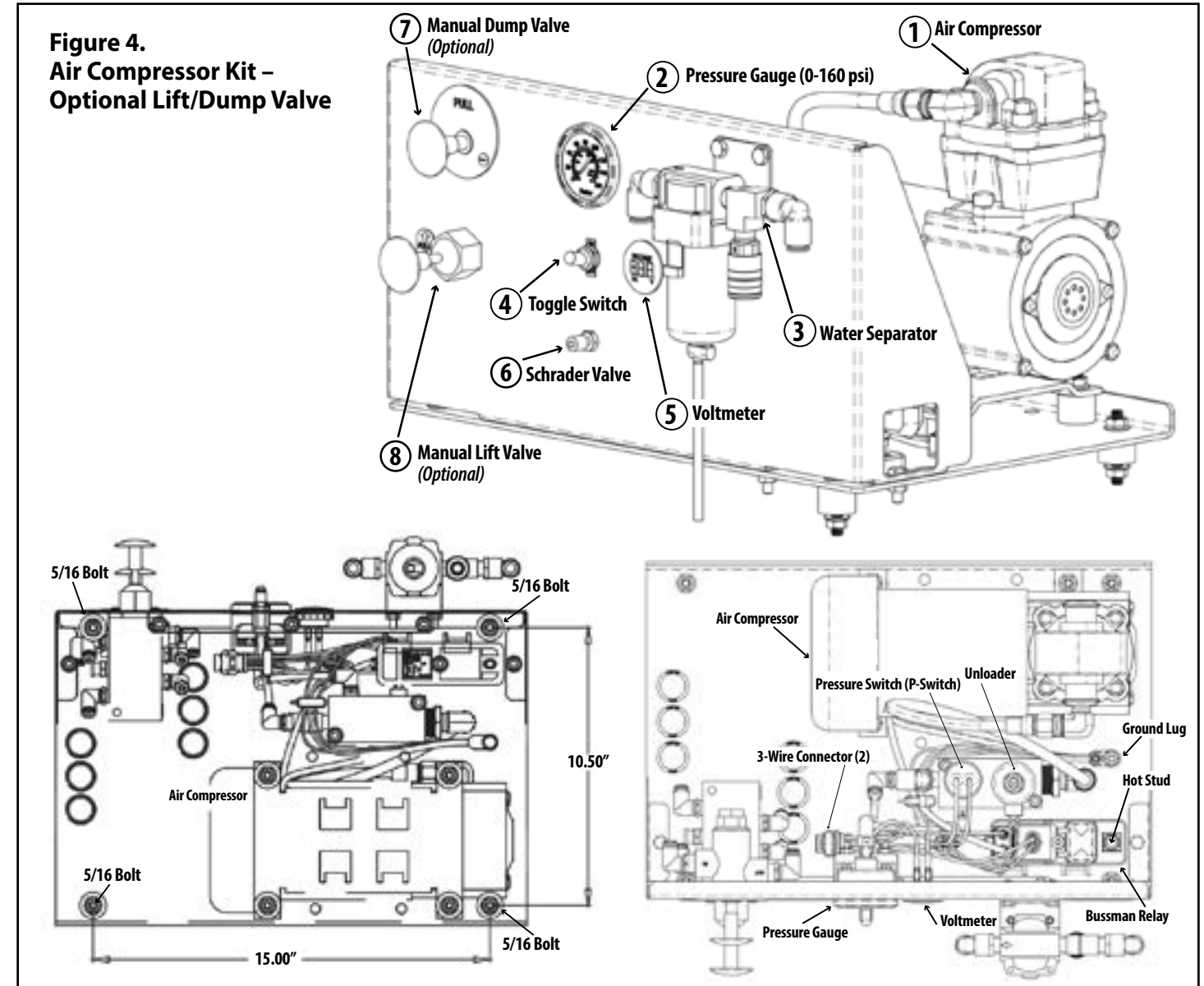


Figure 4.
Air Compressor Kit –
Optional Lift/Dump Valve

DWG NO.	QTY	PART NO.	ITEM DESCRIPTION	1220027 1220028	1220029 1220037	1220038 1220039	1220040 1220041
1	1	1230236	A/CPSR 3/4 HP 12V 42A PACBRAKE	☒	☒	☒	☒
2	1	1230080	PRESSURE GAUGE, 2" PANEL, LIGHT 0-160 PSI	☒	☒	☒	☒
3	1	1230296	WATER SEPARATOR VALVE, 1/4 NPT	☒	☒	☒	☒
4	1	1420094	TOGGLE SWITCH SPST W/QUICK DISCONNECT	☒	☒	☒	☒
5	1	1230302	VOLTMETER, 5-48V DC, RED LED	☒	☒	☒	☒
6	1	1230295	SCHRADER VALVE 1/4" TUBE PANEL MOUNT	☒	☒	☒	☒
7	1	1230243	MANUAL DUMP VALVE - 3-PORT; 2-POSITION	☒	☒		
8	1	1230244	MANUAL LIFT VALVE - 5-PORT; 2-POSITION; DP	☒			☒

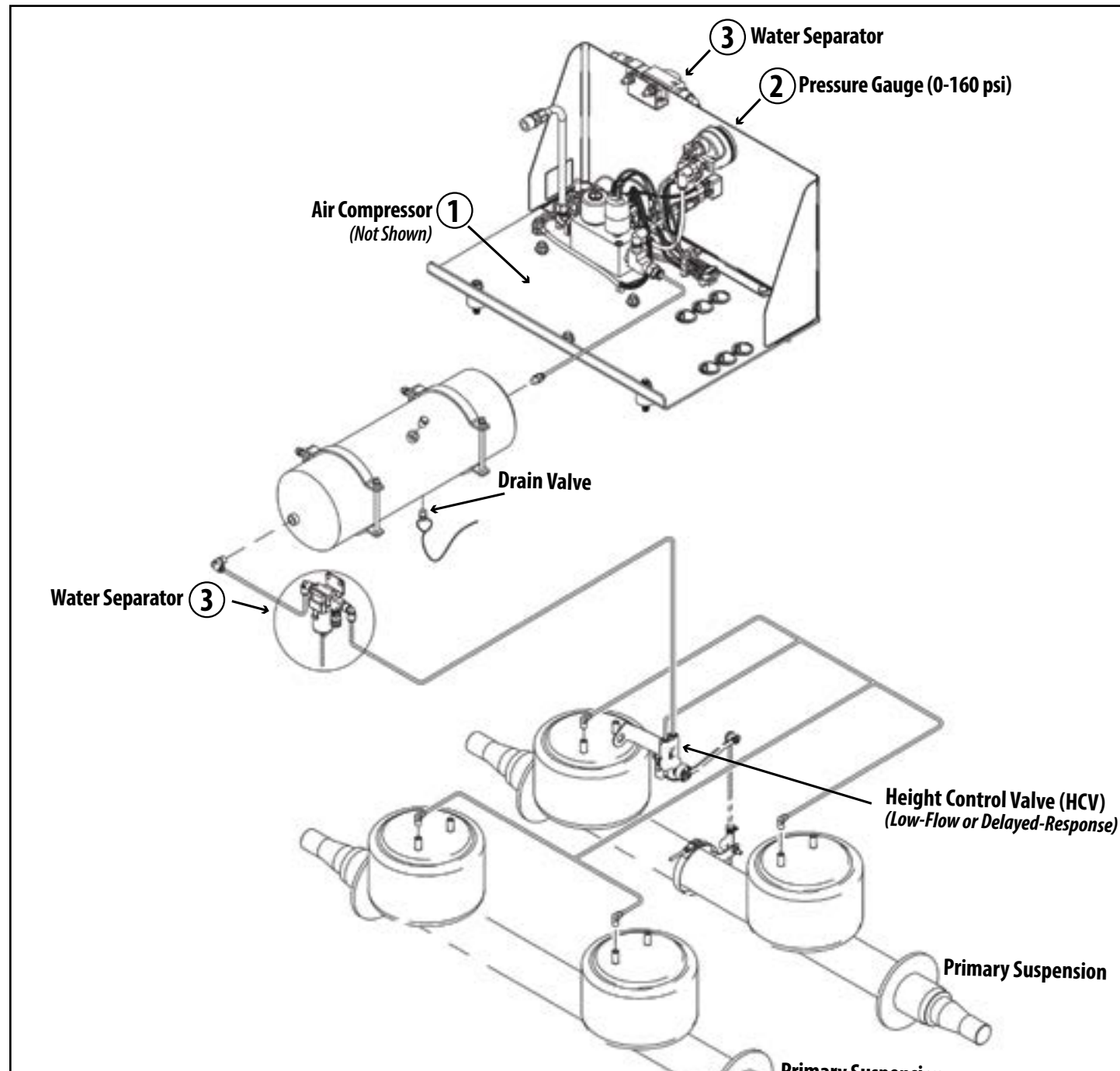


Figure 5.
Tandem-Axle plumbing schematic example.
NOTE: Air compressor systems configured for air springs are not to be used with air brakes.

DWG NO.	QTY	PART NO.	ITEM DESCRIPTION	1220038 1220039
1	1	1230236	A/CPSR 3/4 HP 12V 42A PACBRAKE	<input checked="" type="checkbox"/>
2	1	1230080	PRESSURE GAUGE, 2" PANEL, LIGHT 0-160 PSI	<input checked="" type="checkbox"/>
3	1	1230296	WATER SEPARATOR VALVE, 1/4 NPT	<input checked="" type="checkbox"/>

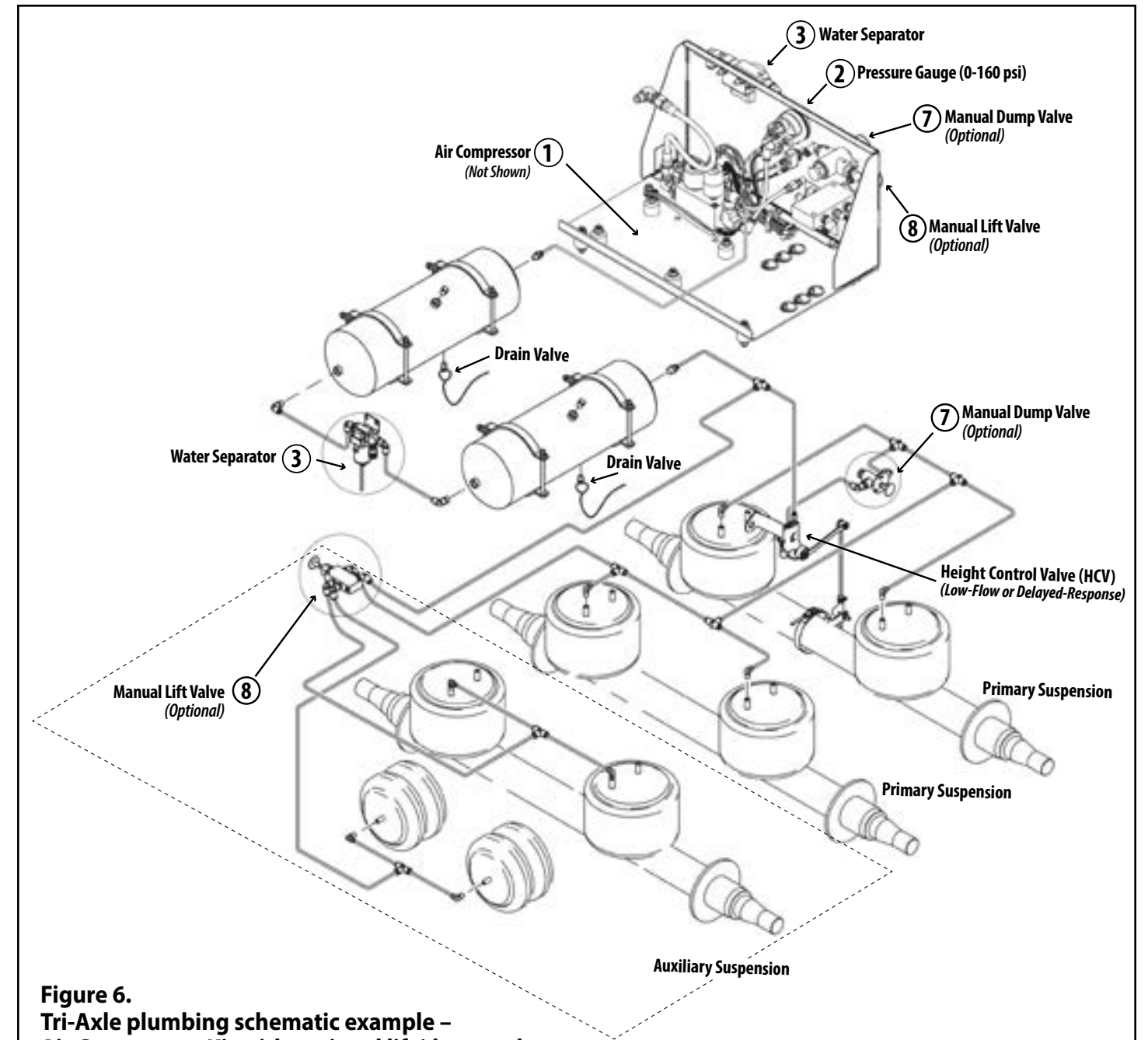


Figure 6.
Tri-Axle plumbing schematic example –
Air Compressor Kit with optional lift/dump valve.
NOTE: Air compressor systems configured for air springs are not to be used with air brakes.

DWG NO.	QTY	PART NO.	ITEM DESCRIPTION	1220027 1220028	1220029 1220037	1220040 1220041
1	1	1230236	A/CPSR 3/4 HP 12V 42A PACBRAKE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	1230080	PRESSURE GAUGE, 2" PANEL, LIGHT 0-160 PSI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	1	1230296	WATER SEPARATOR VALVE, 1/4 NPT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	1	1230243	MANUAL DUMP VALVE - 3-PORT; 2-POSITION	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
8	1	1230244	MANUAL LIFT VALVE - 5-PORT; 2-POSITION; DP	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

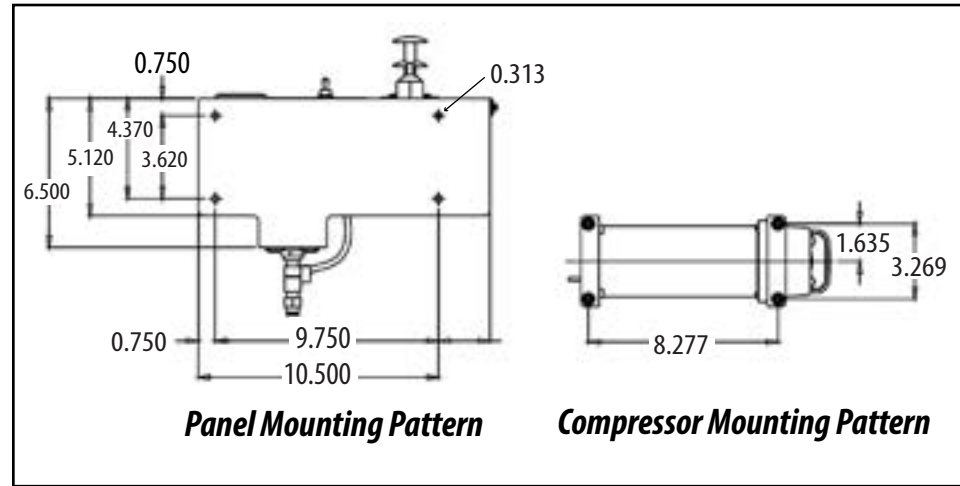
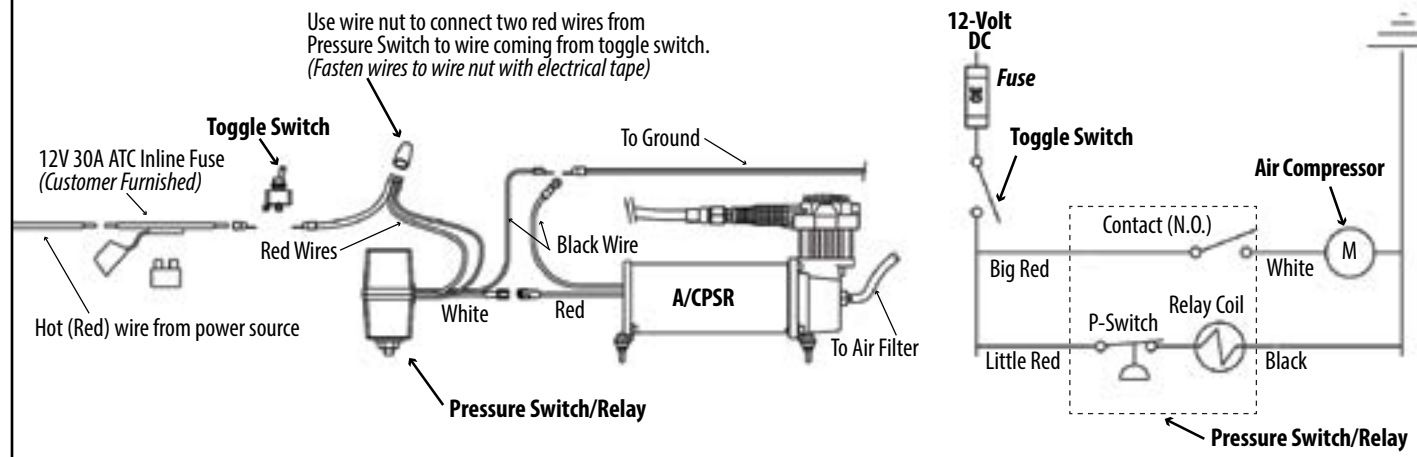


Figure 8.
ViAir Compressor Kit
Mounting Pattern–
Optional Lift and Dump Valves

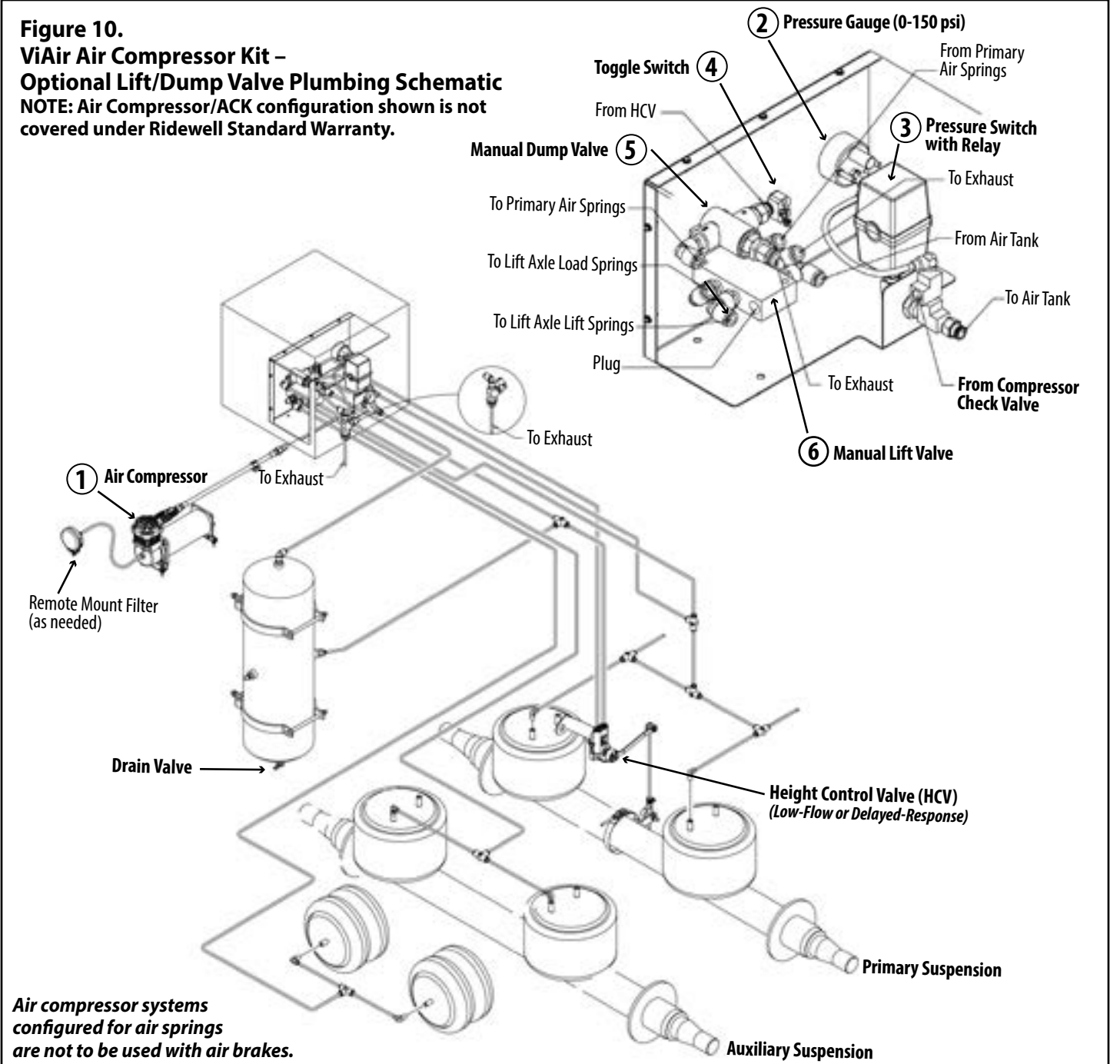
Figure 9.
ViAir Compressor Kit – Wiring Diagram

Pressure Switch/Relay - Wire Designation	
Wire	Tag
Big Red	Connect to: Fused Positive Power Source
Little Red	
White	Connect to: Load or Compressor Power Wire
Black	Connect to: Grounding Point (or Control Switch)



DWG NO.	QTY	PART NO.	ITEM DESCRIPTION	1220018 1220024	1220019 1220025
1	1	1230171	A/CPSR 1/4 HP 12V 23A VIAIR	☒	☒
2	1	1230080	PRESSURE GAUGE, 2" PANEL, LIGHT 0-160 PSI	☒	☒
3	1	1240021	PRESSURE SWITCH (P-SWITCH) WITH RELAY 90-120 PSI	☒	☒
4	1	1420117	TOGGLE SWITCH SPST	☒	☒
5	1	1230243	MANUAL DUMP VALVE - 3-PORT; 2-POSITION	☒	☒
6	1	1230244	MANUAL LIFT VALVE - 5-PORT; 2-POSITION; DP	☒	

Figure 10.
ViAir Air Compressor Kit –
Optional Lift/Dump Valve Plumbing Schematic
NOTE: Air Compressor/ACK configuration shown is not
covered under Ridewell Standard Warranty.



Air compressor systems configured for air springs are not to be used with air brakes.

DWG NO.	QTY	PART NO.	ITEM DESCRIPTION	1220018 1220024	1220019 1220025
1	1	1230171	A/CPSR 1/4 HP 12V 23A VIAIR	☒	☒
2	1	1230080	PRESSURE GAUGE, 2" PANEL, LIGHT 0-160 PSI	☒	☒
3	1	1240021	PRESSURE SWITCH (P-SWITCH) WITH RELAY 90-120 PSI	☒	☒
4	1	1420117	TOGGLE SWITCH SPST	☒	☒
5	1	1230243	MANUAL DUMP VALVE - 3-PORT; 2-POSITION	☒	☒
6	1	1230244	MANUAL LIFT VALVE - 5-PORT; 2-POSITION; DP	☒	

Troubleshooting - Air Compressor Operation

Problem	Possible Cause	Corrective Action
Compressor will not operate	– Power switch in the OFF position or no power to the switch.	– Make sure battery is fully charged and compressor switch is turned to ON. Disconnect compressor from power source, check for blown fuse. Replace fuse, if necessary, and reconnect. Refer to <i>Manufacturer Specification for fuse amperage</i> . Use ohm-meter to check continuity between power source and switch and from switch to compressor.
	– Inadequate grounding.	– Check battery/compressor grounding with voltmeter.
	– Motor overheated.	– Let compressor cool for approximately 30 minutes to allow thermal overload switch to reset.
	– Air tank pressure above the cut-in pressure point.	– Release air pressure until compressor starts.
Fuses burn out repeatedly	– Wrong fuse size.	– Confirm fuses are proper ampere rating.
	– Electrical short to ground.	– Make sure battery/compressor are properly grounded.
Reset mechanism cuts out repeatedly; fuses of proper size burn out.	– Malfunction/improperly adjusted.	– Adjust; repair; or replace compressor.
	– Lack of proper ventilation or ambient temperature too high.	– Move compressor to well-ventilated area or area with lower ambient temperature. If enclosure is used, drill additional holes for venting.
Compressor runs continuously	– Leak in air system beyond standards.	– Pressurize system and spray soapy water solution onto the connections. Check for air bubbles (leaks). Re-cut/reassemble lines. Tighten connections as necessary.
	– Compressor does not stop running (unload) at cut-off pressure point.	– Verify air tank pressure. Check that preset cut-off pressure point has been reached (± 5 PSI). Check pressure switch connections. Repair/replace pressure switch, as necessary.
	– Check-valve may be stuck in closed position (pressure switch installed after the check-valve).	– Drain tank and inspect check-valve. Clean/replace faulty parts.
	– Water in air tank.	– Drain tank.
Air flow lower than normal	– Clogged air filter element.	– Replace filter element.
	– Low voltage	– Verify system voltage with voltmeter.
Tank pressure drops after air compressor shuts off	– Leak in air system over accepted standards.	– Check drain valve and tighten. Spray soapy water solution onto system. Check and repair leaks as needed.
	– Pressure check-valve leaking.	– Bleed tank and disassemble check-valve assembly. Clean or replace faulty parts.
	– Water in air tank.	– Drain tank.

A height control kit (HCK) assembly is a lever arm connected to the Height Control Valve (HCV) and a vertical rod arm (vertical linkage) that is connected to the suspension/axle. Refer to the HCV installation guide for installation. Check the air system after installation for leakage.

CAUTION The installer is responsible for ensuring that the air system complies with the appropriate Federal Motor Vehicle Safety Standards.

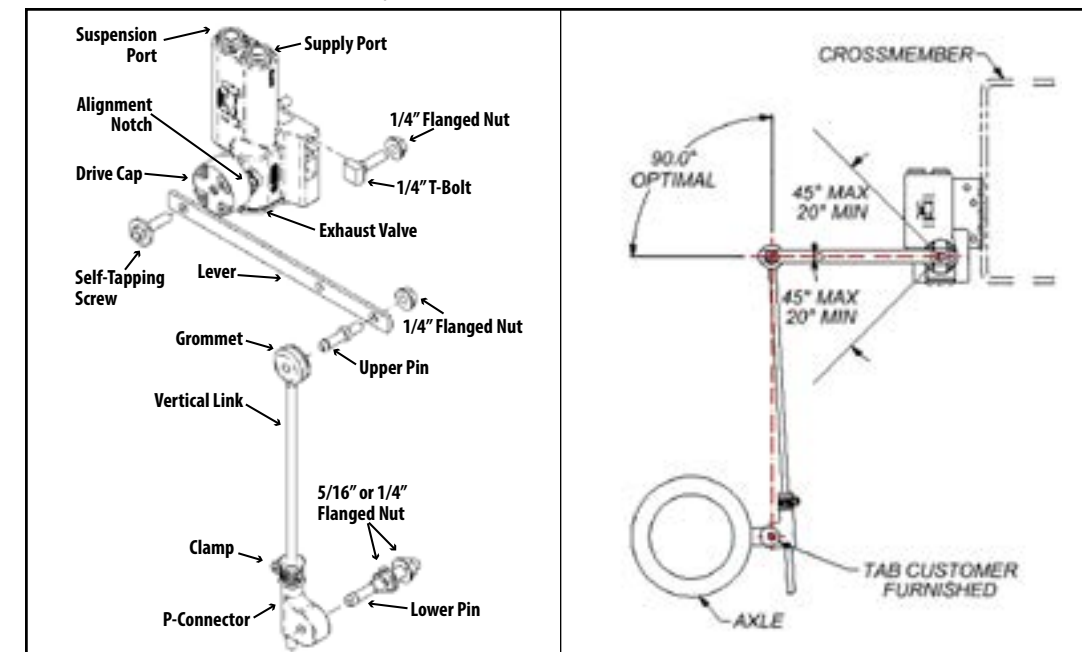


Figure 11. Height Control Kit (HCK) should be installed with the HCV-to-lever angles between 20°-to-45° to provide the maximum valve flow rates throughout the jounce/rebound of suspension travel.

Troubleshooting – Height Control Valve Installation

Problem	Possible Cause	Corrective Action
HCV is not receiving air/ HCV is not delivering air to the air springs.	– Blocked air supply line.	– Verify air lines are pressurized by removing supply line at HCV. Check for pinched lines.
	– Air tank is not filling/ reaching set pressure.	– Verify air tank pressure with manual/in-line pressure gauge.
	– Pressure Protection Valve (PPV) not working correctly.	– Check PPV operation by making sure that valve opens when system reaches the desired pressure setpoint (<i>usually greater than 70 psi</i>).
Air springs fill but do not exhaust.	– Pilot port is not plumbed or is plumbed incorrectly.	– Check HCV configuration – Non-Dump; Pressure-Dump (Normally Open); Zero-Pressure Dump (Normally Closed). Reinstall, if necessary.
	– Obstructed air line.	– Disconnect linkage and rotate actuating lever to down position (exhaust). If springs remain inflated, check for pinched/blocked lines.
	– HCV installed backwards.	– Check installation. Reinstall, if necessary.
Air system leaks down in a short period of time.	– Supply line installed in suspension port	– Move air supply line to HCV supply port.
	– HCV installed backwards.	– Disconnect HCV linkage and rotate actuating lever to the up position (fill). If air springs do not inflate, reinstall HCV.
Air system leaks down in a short period of time.	– Leak in air system beyond accepted standards.	– To find leak in the HCV area, pressurize system and spray soapy water solution onto the valve and lines. Check for bubbles (leaks): No leak found – Do not remove valve, check the rest of the system for leaks. Check that tubing cuts are straight and smooth. Re-cut and reassemble if necessary.

Terms and coverage in this warranty apply only to the United States and Canada.

Ridewell Suspensions warrants the suspension systems manufactured by it to be free of defects in material and workmanship. Warranty coverage applies only to suspensions that have been properly installed, maintained and operated within the rated capacity and recommended application of the suspension. The responsibility for warranty coverage is limited to the repair/replacement of suspension parts. The liability for coverage of purchased components is limited to the original warranty coverage extended by the manufacturer of the purchased part.

All work under warranty must have prior written approval from the Ridewell warranty department. Ridewell has the sole discretion and authority to approve or deny a claim and authorize the repair or replacement of suspension parts. All parts must be held until the warranty claim is closed.

Parts that need to be returned for warranty evaluation will be issued a Returned Materials Authorization (RMA). Parts must be returned to Ridewell with the transportation charges prepaid. The transportation charges will be reimbursed if the warranty claim is approved.

This non-transferable warranty is in lieu of all other expressed or implied warranties or representations, including any implied warranties of merchantability or fitness or any obligations on the part of Ridewell. Ridewell will not be liable for any business interruptions, loss of profits, personal injury, any costs of travel delays or for any other special, indirect, incidental or consequential losses, costs or damages.

Contact the Ridewell Warranty Dept. at 417.833.4565 - Ext. 135, for complete warranty information.