1.0 INTRODUCTION .............................................................. pg. 4-7
2.0 MOUNTING THE AIR SYTEM ........................................ pg. 8-9
3.0 CONNECTING THE AIR KIT ............................................ pg. 10-17
4.0 AIR SYSTEM OPERATION ............................................... pg. 18-19
5.0 SERVICE & MAINTENANCE .............................................. pg. 20-21

MISCELLANEOUS INFORMATION
   ELECTRICAL SCHEMATIC .................................................. pg. 30-31
   AIR KIT PARTS LIST ......................................................... pg. 22-23
   CONTROL PANEL PARTS LIST .......................................... pg. 24
   OWNERS GUIDELINES ....................................................... pg. 21
   TROUBLE SHOOTING GUIDE ............................................. pg. 32

APPENDIX A
   WIRING DETAIL FOR F-SERIES FORD VEHICLES ............ pg. 33

APPENDIX B
   WIRING DETAIL FOR GMC VEHICLES ......................... pg. 34-35

APPENDIX C
   WIRING DETAIL FOR DODGE/STERLING VEHICLES .... pg. 36-37
1. INTRODUCTION

IMPORTANT! It is important that the entire installation instructions be read thoroughly before proceeding with the installation.

The ULTRARIDE® ELECTRONIC AIR CONTROL KIT is intended ONLY to provide a pressurized air supply for Link ULTRARIDE® Chassis Suspensions and control the dump action of the suspension.

Any other use of these Air Control Products is not authorized. Link accepts no warranty responsibility for damage resulting from misuse.

Items included with the air kit (See Fig. 1-1)

- **Compressor Box.** Contains the compressor, manifold, ECU, relays, pressure switches, and all other components necessary for the operation of the air kit.
- **Air Tank.** Provides a reserve source of pressurized air to manage compressor run time and dump recovery time.
- **5 Wiring Harnesses.** The wiring harnesses connect the Main Air Control Unit the battery to power the compressor, the cab controls to control the function of the air kit, the height sensors, and the brake system.
- **Airline, Air Filter, Corrugated Loom, & Cable Ties & Mounting Hardware.** Extra airline and corrugated loom is included with this kit to connect it to the UltraRide® suspension system and protect the airline from wear. Cable ties are also included to properly secure all loose wires and airline.
- **This Installation Manual & a separate Owner’s Manual.**

Items NOT included with the air kit

- **Height Sensors.** The height sensors are included separately pre-assembled to the appropriate brackets for your model of UltraRide® Suspension.
- **Cab Control Panel.** Many custom installers wish to use their own custom cab switches and lights. For this reason, the UltraRide® air kit does not contain the Link Control Panel. It can be ordered separately as Link PN: 800M1074. Contact your Link representative for availability.
- **Utility remote control unit.** Used to set dump height. It can be ordered separately as Link PN: 800M2155.
  Contact your Link representative for availability.
- **Air Dryer Kit.** The 800M1073 air dryer kit is offered as an option to reduce the amount of moisture collected in the air tank, reducing maintenance requirements and improving system reliability.

![Fig. 1-1](Fig. 1-1)
PRODUCT INSTALLER RESPONSIBILITIES

- Installer is responsible for installing the product in accordance with Link Mfg. specifications and installation instructions.
- Installer is responsible for providing proper vehicle components and attachments as well as required or necessary clearance for suspension components, axles, wheels, tires, and other vehicle components to ensure safe and sound installation and operation.
- Installer is responsible for advising the owner of proper use, service and maintenance required by the product and for supplying maintenance and other instruction as readily available from Link Mfg.

SAFETY SYMBOLS, TORQUE SYMBOL, and NOTES

<table>
<thead>
<tr>
<th>![Safety Alert Symbol]</th>
<th>This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.</th>
</tr>
</thead>
<tbody>
<tr>
<td>![WARNING Symbol]</td>
<td>WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</td>
</tr>
<tr>
<td>![CAUTION Symbol]</td>
<td>CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.</td>
</tr>
<tr>
<td>![CAUTION Symbol]</td>
<td>CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.</td>
</tr>
<tr>
<td>![Torque Symbol]</td>
<td>The torque symbol alerts you to tighten fasteners to a specified torque value.</td>
</tr>
<tr>
<td>![NOTE Symbol]</td>
<td>A Note provides information or suggestions that help you correctly perform a task.</td>
</tr>
<tr>
<td>![Electrical Symbol]</td>
<td>The electrical symbol indicates the presence of electric shock hazards which, if not avoided, may result in injury to personnel or damage to equipment.</td>
</tr>
</tbody>
</table>

Proper tightening of mounting nuts are required for proper operation. The need for proper Torque requirements is indicated by wrench symbol. Failure to maintain proper torque can cause component failure resulting in accident with consequent injury.
Air & Electrical Connections Overview

The UltraRide® Electronic Air Kit provides a number of quick connect air fittings and electrical connectors to easily and reliably interface with UltraRide suspension systems and vehicle controls.

Carefully review figures 1-2 and 1-3 to familiarize yourself with all the various connectors and ports on the UltraRide® Electronic Air Kit as well as their purpose and function.

- **Connector A**: Side A height sensor—connects to the A side height sensor to monitor side A suspension height
- **Connector B**: Side B height sensor—connects to the B side height sensor to monitor side B suspension height
- **Connector C**: Control Panel—connects to the control panel to provide on/off power, +12V dump signal, & warning light signal.
- **Connector P**: Battery Power—connects system directly to the battery via a high amperage connector and cables.
- **Connector H**: Heater (2 connectors)—Provides a convenient power connection location to supply +12 power and ground to auxiliary air kit options that include a heater to prevent freeze-ups.
- **Connector U**: Brake Light & Utility Tool—Connects the air kit to a brake light signal during normal operation. Also used to connect the UltraRide Height Set Utility Tool (sold separately) to set the suspension dump height.
- **Port F**: Remote Air Filter—Compressor air intake tube connected to the air filter.
- **Port T**: To Air Tank—Connects the system with a single 3/8” airline to the reservoir air tank.
- **Port A**: Side A Air Spring—Connects to the side A air spring with a 1/4” airline.
- **Port B**: Side B Air Spring—Connects to the side B air spring with a 1/4” airline.
**NOTE:** Thread sealant should be used on all pipe-thread fittings without pre-applied thread sealant. Failure to properly apply thread sealant will result in air system leaks and reduced system performance and/or failure.

- **OUT Port:** Compressor Output—Compressed air exiting the compressor. Connects to either the IN Port on the air kit or the IN Port on the Air Dryer accessory if used.
- **IN Port:** Air Kit compressed air inlet—Compressed air inlet for the Air Kit. Connects to either the OUT Port on the air kit or the OUT Port on the Air Dryer accessory if used.
- **PILOT Port:** Not used and plugged in normal operation. When installed with the Air Dryer accessory kit, this port connects to the Air Dryer Control Port to control the charge and regenerate cycles of the Air dryer.
2. MOUNTING THE AIR SYSTEM

The UltraRide® Air Kits have been designed for maximum mounting flexibility and ease of installation, allowing them to be used in a variety of applications and body styles. They can be mounted as a complete, one-piece unit OR the compressor box and air tank can be separated and mounted separately where mounting space is limited.

Standard Mounting

- The UltraRide® Air Kit is assembled and shipped as a one-piece unit ready for mounting to the vehicle.
- Mount the air kit to the side of the frame or any other suitable location as shown in Fig 2-1. Use the supplied rubber isolators and 5/16 nuts and bolts to fasten the kit. (Torque to 15-20 FT-LBS). Some drilling may be required. Do not over tighten the fasteners to ensure proper clearance and isolation from the rubber isolators.

Separating the Air Kit

- The UltraRide® Electronic Air Kit can also be separated to mount the compressor box and air tank in different locations.
- Separate the compressor box and air tank by removing the 4 - 3/8" bolts attaching them.
- Mount the compressor box and air tank in any convenient location on the chassis, using the supplied rubber isolators and 5/16 nuts and bolts (Torque to 15-20 FT-LBS). Either the 4 mount holes on the rear of the compressor box, or the 3 holes on the bottom of the compressor box can be used, depending on your preferred mounting configuration and orientation.
- Connect the compressor box and air tank with 3/8" DOT airline (see Fig 2-2).
- The compressor box and air tank can be mounted in any orientation (up, down, sideways, etc.), so long as the drain valve on the air tank is at the bottom to allow proper drainage of moisture in the tank.

Mounting Inside Frame Rail

- With the use of the 80001615 adapter bracket, the UltraRide® Air Kit can be mounted inside the frame rail, providing even more flexibility in mounting options to accommodate a variety of installs (see Fig 2-3). The 80001615 adapter bracket is not included with the UltraRide® Electronic Air Kit. Contact your Link Suspension representative for availability.
Remote mounting the Air Filter (Fig 2-4)

- The air kit is shipped from the factory with fittings, airline, and filter installed for remote air filter location. This allows the air filter to be located in a body or cab compartment for ease of serviceability and to provide a dust-free environment, increasing durability and life of the filter and compressor.

⚠️ NEVER PLACE THE FILTER UNDER THE CHASSIS
where it will be directly exposed to moisture, dust, and debris!!! The Air Filter should be located within a protected area such as inside the cab, or within a body compartment.

Mounting the Height Sensors

- The Electronic Height Sensors (see fig. 2-5) used with this air kit are sold separately as part of the Height Control Kit for each UltraRide Suspension.

- Refer to the Ultra Ride Suspension installation manual for details on mounting the height sensors on the UltraRide® Suspension System.

⚠️ NOTE: NEVER USE THREAD SEALANT ANYWHERE ON THE INTAKE PATH OF THE COMPRESSOR! Doing so may lead to premature compressor failure due to sealant ingestion.
3. CONNECTING THE AIR KIT

**CAUTION!** All wiring and air lines should be routed and secured neatly to avoid any functional or visual issues. Under hood and under-body wire and airline routings should be clear of sharp edges (3/4 inches minimum) and direct sources of heat (4 inches minimum). They should not be routed through wheel well areas where it may be damaged by tire or road debris, and it should not be routed over the exhaust system. They should not contact the brake lines or fuel lines. Always disconnect the battery cables before servicing any electrical components.

The included wiring harnesses for the UltraRide® Electronic Air Kit uses heavy gauge wiring and industry standard, sealed connectors, allowing great flexibility in routing and placement options. The use of industry standard connectors allows these harnesses to be customized to fit your application by modifying the length of the harnesses or even making your own harnesses. See the electrical specifications on pages 26-29 for harness specifications and details to customize your own harnesses.

**Connecting the Air Springs and Height Sensors**

The height sensors and air springs must be connected to the correct harness on the air kit for proper performance (see figure 3-1).

First, determine how the sensors are oriented as mounted on the vehicle. Determine which Sensor Orientation (see Fig. 3-3 through 3-6) applies and connect the Driver and Passenger side sensors and air springs as directed below.

Use 1/4” nylon air line (extra is supplied with the air kit) to connect the air springs to the proper port on the air kit.

Use the height sensor extension harnesses (part number 15050045) to connect the height sensors to the proper connector on the air kit.
For sensor orientations #1 or #2
Driver side height sensor to connector A; Driver side air spring to port A
Passenger side height sensor to connector B; Passenger side air spring to port B

For sensor orientations #3 or #4
Driver side height sensor to connector B; Driver side air spring to port B
Passenger side height sensor to connector A; Passenger side air spring to port A
Connecting the Control Panel and Harness

- Route the Control Harness into the cab, where it can be connected to the air kit controls for easy, in-cab operator control. Route the harness to the driver side of the bulkhead, either passing through an existing grommeted hole behind the dash, or drilling an appropriate hole in the bulkhead to pass the harness through. **NOTE:** use a grommet around the harness and in the bulkhead to reduce noise transmission, keep the harness away from the sharp edges, and seal the cab area against dirt and moisture. For more detailed control harness routing options, see Appendix A for Ford vehicles or Appendix B for GMC vehicles or Appendix C for Dodge/Sterling vehicles.

**Using the optional 800M1074 Control Panel (sold separately):**

- The Control Panel should be mounted somewhere between the driver and passenger seating areas to keep it out of the Passenger Protection Zone (fig. 3-8).
- Connect the Control Harness to the Control Panel pigtail (fig 3-9 & 3-10)
- The white wire on the Control Panel must be connected to a “key hot” signal wire so that it only receives +12V power when the ignition key is in the “RUN” position to ensure that the Air Kit only runs when the key is on, preventing the batteries from draining. For more details on locating a suitable “key hot” wire for your application, see Appendix A for Ford vehicles, Appendix B for GMC vehicles, or Appendix C for Dodge/Sterling vehicles.

**Using your own, custom control panel switches and lights:**

- A 2A fuse, warning indicator light, and dump switch must be installed to complete the control harness circuit. See fig. 3-11. **Note:** the use of a warning indicator device (such as a warning light), is **REQUIRED** and should be included in any custom control interface design. Failure to do so may result in damages not covered by warranty.

- **NOTE:** The warning indicator light MUST be a LED type light with a maximum current draw of **30 milliamps**. An incandescent light or any light exceeding a current draw of 30 milliamps will not function properly.

**Custom dump applications**

- Auxiliary dump switches and locations can be installed to serve special dumping needs of the application (e.g. using a door switch to dump the suspension when the rear doors are opened in an ambulance application).
- To dump the suspension, simply supply a +12V signal to the yellow wire of the 15050041 control harness. See pages 26-29 for electrical harness & connector specifications including pinout functions & descriptions.
UltraRide Air Kit Control Schematic

Duetcsh Series DT Connector
Housing: DT06-3S (QTY 1)
Socket: 1062-16-0122 (QTY 3)
Wedgelock: W3S
Pin 1(A) - +12V Ignition Power
Pin 2(B) - Warning Light
Pin 3(C) - Dump Switch

30 MA LED Light
Dump Switch
2A Fuse
+12V Ignition Power
Connecting the Brake Wire Harness

The UltraRide Electronic Air Kit is equipped with a brake signal input so that it can sense when the brake pedal is being depressed. When the brake pedal is depressed, the air kit reduces its sensitivity so that unnecessary height adjustments are reduced, conserving air and reducing compressor runtime.

NOTE: The Brake Harness connector on the Air Kit Box is shared with the Utility Tool Connector. The utility tool is used to program the dump height of the suspension. When the using the Utility tool, disconnect the brake harness. During normal operation, the brake harness should always be connected.

- Locate a suitable brake signal wire. Consult the body builder’s guide and electrical manuals of your vehicle to best locate a brake signal wire. Possible wires to use are tail-light wires or trailer brake light wires.

- Connect the brake signal wire to the Brake Wire harness (PN 15050048) such that with the brakes applied, a +12V signal is sent to the air kit through the Brake Wire Harness (see fig. 3-12 & 3-13).
Connecting the Battery Wire Harness

Attach the Power Harness to the Air Control Box routing it along the frame to the battery. See Figure 3-15 for details.
Connecting Optional Automatic Drain Valves

Automatic drain valve kits serve to reduce drain service intervals by automatically draining moisture from the air tank on a periodic basis.

There are non-heated and heated drain valves available to reduce valve freeze-ups in cold weather. Please contact your Link representative for availability.

Drain Valve Maintenance

Even with an automatic drain valve installed, the tank should be manually drained of moisture on a weekly basis.

The automatic drain valve must be replaced or rebuilt every 60,000 miles or 12 months, whichever comes first.
Connecting The Air Dryer Kit (800M1073)

The Link Air Dryer Kit reduces drain service intervals and improves system reliability by removing moisture and contamination from the compressed air supply.

Please contact your Link representative for availability.

- Release all pressure from the air tank.
- Mount the Air Dryer either directly to the frame or use the included mounting bracket to mount the dryer to the frame.
  IMPORTANT!!! The dryer MUST be mounted in an upright position with the plastic exhaust port pointing down! Failure to mount the dryer properly will cause the dryer to malfunction.
- Remove the 3/8” tube loop from the OUT & IN Ports on the air kit housing
- Remove the 1/4” plug from the PILOT port on the air kit housing
- Using 3/8” tube, connect the OUT port from the air kit housing to the IN port on the air dryer
- Using 3/8” tube, connect the IN port from the air kit housing to the OUT port on the air dryer
- Using 1/4” tube, connect the PILOT port from the air kit housing to the CONTROL port on the air dryer.

Air Dryer Operation

The Air Dryer removes excess moisture from the compressed air supply leaving the compressor. It is a desiccant style air dryer, absorbing moisture while the compressor runs. When the compressor is not running, the air dryer enters a purge mode in which a small portion of dry air is fed back through the desiccant, where it expands and carries the moisture away.

Air Dryer Maintenance

Even with an air dryer installed, the tank should be manually checked for moisture on a weekly basis. The air dryer unit must be replaced or rebuilt every 60,000 miles or 12 months, whichever comes first.
4. AIR SYSTEM OPERATION

NOTE: Before operating the UltraRide® Air Kit, be sure it has been properly connected to the UltraRide® Chassis Suspension. Make sure the dump switch is OFF.

Powering the system up for the first time

- Using a shop air supply, fill the air tank using the schraeder valve to a pressure of 80-100 psi. This helps keep air compressor run-time to a minimum when the tank is empty.
- Turn the ignition key to the “RUN” position. (You may wish to actually start the vehicle, to prevent draining the batteries while operating the air control kit.)
- The control panel warning light should turn on for a few seconds while the ECU is powering up, then turn off.
- After a few seconds, the compressor in the air control kit should turn on, pressurizing the air tank. After a few minutes, the air compressor will automatically turn off when the air tank reaches full pressure. Using a soapy water solution, check the air tank, air lines, and any connections for leaks.
- Check the Dump function by switching the Dump switch to ON. The suspension will immediately begin to exhaust air from the air springs and begin to drop. The Warning Light will blink once every 2 seconds indicating that the suspension is dumped. With the dump switch ON, the air tank should not lose any pressure.
- Turn the Dump switch OFF. The suspension will fill the air springs and return to its set design height. The compressor may engage to replenish the lost pressure in the air tank.

Setting Suspension Design Height

- Suspension design height is set by adjusting the length of the linkage between the height sensor and the suspension, just as with a traditional mechanical height control valve.
- Power up the air kit and allow the air tank to reach full pressure (the compressor is off).
- Measure design height as specified in your UltraRide suspension installation manual and adjust the linkage on each side of the suspension, shortening the linkage to reduce design height and lengthening it to increase design height.
- Between adjustments wait until the suspension has settled down and recheck the design height settings.
- After design height for both sides has been set, activate the suspension dump, deactivate the dump, and recheck the design height. Repeat the above steps until the correct design height has been achieved.
Programming Suspension Dump Height

A key feature of the Electronic Air Kit is the ability to dump to a programmed height instead of completely exhausting all air from the air springs. By dumping only to a programmed height (not all the way), some air pressure is retained in the air springs. This both speeds dump recovery time up and decreases air consumption and compressor run time.

After setting the suspension design height, the Air Kit ECU (Electronic Control Unit, or computer) needs to be programmed to set the appropriate dump height for each installation.

- First, make sure the suspension design height has been properly adjusted and set.
- Disconnect the Brake harness from connector U and plug in the Utility Tool (Part number 800M2155 sold separately)
- Power up the system and wait until the air tank has reached full pressure (the compressor is not running)
- Dump the suspension
- Using the toggle switch on the Utility Tool, increase or decrease the air suspension dumped height. (Pushing the switch up will increase the dumped height and pushing the switch down with decrease the dumped height).
- Return the suspension to its normal operating ride height.
- Power Down the system
- Remove the height set utility tool from connector U and reconnect the brake signal harness.

Warning Light Error Codes

The Warning light on the UltraRide Air kit control panel displays status indicators and error codes for the UltraRide Electronic Air Kit.

<table>
<thead>
<tr>
<th>LED Blink Code</th>
<th>Description</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steady On</td>
<td>System is booting, or Low Tank Pressure, or ECU Failure</td>
<td>No effect, Indication only</td>
</tr>
<tr>
<td>1 sec. on - 1 sec. off</td>
<td>System is in Setup mode</td>
<td>Fast response mode for adjusting sensors</td>
</tr>
<tr>
<td>¼ sec. per 2 seconds</td>
<td>System is in Dump mode</td>
<td>Vehicle is lowered</td>
</tr>
<tr>
<td>11: 1 blink, 1 blink</td>
<td>Side A Sensor Fault</td>
<td>One side: other sensor used for both, Both sides: operation inhibited</td>
</tr>
<tr>
<td>12: 1 blink, 2 blinks</td>
<td>Side B Sensor Fault</td>
<td></td>
</tr>
<tr>
<td>13: 1 blink, 3 blinks</td>
<td>Pressure Sensor Fault</td>
<td>Compressor and other modes inhibited.</td>
</tr>
<tr>
<td>21: 2 blinks, 1 blink</td>
<td>Compressor Run Timeout</td>
<td>Compressor inhibited for 10 minutes</td>
</tr>
<tr>
<td>22: 2 blinks, 2 blinks</td>
<td>Compressor Duty Cycle</td>
<td>Compressor inhibited for 2 minutes</td>
</tr>
<tr>
<td>23: 2 blinks, 3 blinks</td>
<td>Leak Detect</td>
<td>No effect, Fault indication only</td>
</tr>
<tr>
<td>31: 3 blinks, 1 blink</td>
<td>Side A Valve Time Exceeded</td>
<td>Affected solenoid operation inhibited (turned off) until cleared.</td>
</tr>
<tr>
<td>32: 3 blinks, 2 blinks</td>
<td>Side B Valve Time Exceeded</td>
<td></td>
</tr>
<tr>
<td>33: 3 blinks, 3 blinks</td>
<td>Reservoir Valve Time Exceeded</td>
<td></td>
</tr>
<tr>
<td>34: 3 blinks, 4 blinks</td>
<td>Compressor Time Exceeded</td>
<td></td>
</tr>
</tbody>
</table>
5. SERVICE & MAINTENANCE

The UltraRide® Air Control Kit needs no lubrication and little maintenance. The following components should be checked at the time the truck is being serviced. However, immediate corrective action should be taken if a serious malfunction occurs. See Exploded Assembly on the following pages for details.

**CAUTION!** If maintenance or service is to be done on the air system, be sure to drain all air from system. Serious injury could occur if components are removed while system is full of air.

It is important to release any moisture contained within the air reservoir weekly!

Even with the advanced features of the electronic air kit system along with accessories like automatic drain valves and air dryers, moisture can build up in the air tank and should be checked.

This can be done by pulling on the cable attached to the drain valve. See Figure 5-1. Not releasing the moisture on a regular basis will cause the drain valve to not operate properly, and may cause the air kit to malfunction. Excess moisture in the system can also cause premature failure of other components including the tank itself.

Operational Notes:

- The Warning light can indicate system errors resulting from possible system leaks, electrical failures, and/or mechanical failures
- If the Warning light is flashing an error code, refer to the error code guide on page 19 to determine the fault and take corrective action immediately.

EVERY Week

- Manually drain excess moisture from tank.

EVERY 3,000 miles or every oil change:

- Check for air leaks around fittings
- Check air filter; replace if necessary

EVERY 30,000 miles or 6 months, whichever comes first:

- Replace the air filter

Every 60,000 miles or 12 months, whichever comes first:

- Replace or rebuild air dryer, if so equipped
- Replace automatic drain valve, if so equipped
OWNER GUIDELINES

The UltraRide® Electronic Air Control Kits need no lubrication and little maintenance. However, immediate corrective action should be taken if a serious malfunction occurs.

PRODUCT OWNER RESPONSIBILITIES

- Owner is solely responsible for pre-operation inspection, periodic inspections, maintenance, and use of the product as specified in the particular LINK MFG. instructions available by product model, except as provided in this warranty, and for maintenance of other vehicle components. (see Owner’s manual)

- Owner is responsible for “down time” expenses, cargo damage, and all business costs and losses resulting from a warrantable failure.

CAUTION! If maintenance or service is to be done on the air system, be sure to drain all air from the system. Serious injury could occur if components are removed while system is full of air.
## ULTRARIDE® - 800M2143 PARTS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY</th>
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<tbody>
<tr>
<td>1</td>
<td>1301-0537</td>
<td>VALVE-DRAIN, 20&quot; CABLE</td>
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<td>2</td>
<td>13010065</td>
<td>MANIFOLD-AIR, ELECTRONIC AIR KIT</td>
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<td>3</td>
<td>1302-0090</td>
<td>AIRLINE-NYLON, .250 O.D., BULK</td>
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<td>4</td>
<td>1302-2014</td>
<td>REDUCER, 1/8 F-NPT 1/4 M-NPT</td>
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<td>5</td>
<td>1302-2077</td>
<td>AIR FTG / PLUG (1/4 NPT)</td>
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<td>1302-5049</td>
<td>CONNECTOR-MALE, 3/8 TB, 1/4 NPT</td>
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<td>1302-5104</td>
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<td>UNION-BULKHEAD, 1/4 TB</td>
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<td>13025021</td>
<td>UNION-BULKHEAD, 3/8 TB</td>
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<td>10</td>
<td>13025029</td>
<td>CONNECTOR-FEMALE, 1/2 TB, 1/4 F-NPT</td>
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<td>13025051</td>
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<td>13025180</td>
<td>PLUG-PTC, 1/4</td>
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<td>1303-4000</td>
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<td>AIRLINE-0.25 O.D., (40 FT)</td>
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<td>16</td>
<td>1401-0804</td>
<td>1/4 X 1/2 UNC HEX CAP SCR (GR 5)</td>
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<td>17</td>
<td>1401-0806</td>
<td>1/4 X 3/4 UNC HEX CAP SCR (GR 5)</td>
<td>4</td>
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<tr>
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<td>141A-1014</td>
<td>5/16 X 1 3/4 UNC FLANGE BOLT (GRADE 8) O&amp;P</td>
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<td>19</td>
<td>141A-1208</td>
<td>3/8 X 1 UNC FLANGE BOLT (GRADE 8) O&amp;P</td>
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<tr>
<td>20</td>
<td>1426-0804</td>
<td>1/4 X 1/2 UNC SOCKET HEAD CAP SCREW (GRADE 8)</td>
<td>3</td>
</tr>
<tr>
<td>21</td>
<td>1426-0814</td>
<td>1/4 X 1 3/4 UNC SOCKET HEAD CAP SCREW (GRADE 8)</td>
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<tr>
<td>22</td>
<td>14301203</td>
<td>.375 X .375 SHOULDER BOLT</td>
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<tr>
<td>23</td>
<td>1442004</td>
<td>#8 X .500 CR PAN HEAD MACHINE SCREW</td>
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<td>24</td>
<td>1455-0404</td>
<td>#4 X 1/4 DRIVE SCREW</td>
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<tr>
<td>25</td>
<td>1470-0800</td>
<td>1/4 UNC HEX NUT (GR B)</td>
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<tr>
<td>26</td>
<td>1470-0C00</td>
<td>8-32 UNC HEX NUT (GR B)</td>
<td>25</td>
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<tr>
<td>27</td>
<td>1480-1004</td>
<td>5/16 UNC TOP LOCK FL NUT (GR G) O&amp;P</td>
<td>8</td>
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<tr>
<td>28</td>
<td>1485-0800</td>
<td>1/4 LOCK WASHER</td>
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<td>29</td>
<td>1487-0800</td>
<td>1/4 TYPE A PLAIN WASHER</td>
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<tr>
<td>30</td>
<td>1500-0078</td>
<td>BUMPER-RUBBER</td>
<td>4</td>
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<td>31</td>
<td>1500-0193</td>
<td>FILTER-AIR</td>
<td>1</td>
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<td>32</td>
<td>1500-1305</td>
<td>TAG-SERIAL, CABMATE</td>
<td>1</td>
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<td>33</td>
<td>15000195</td>
<td>COMPRESSOR-AIR, THOMAS</td>
<td>1</td>
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<tr>
<td>34</td>
<td>15000312</td>
<td>GROMMET-RUBBER, 1/2</td>
<td>1</td>
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<tr>
<td>35</td>
<td>15000324</td>
<td>GROMMET-RUBBER, 3/8</td>
<td>4</td>
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<td>36</td>
<td>15001331</td>
<td>LABEL-AIR KIT, WARNING</td>
<td>1</td>
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<td>37</td>
<td>1505-0627</td>
<td>TERMINAL-RING, 5/16 STUD, 12-10</td>
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<tr>
<td>38</td>
<td>15050026</td>
<td>RELAY-SAMS</td>
<td>1</td>
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<tr>
<td>39</td>
<td>15050037</td>
<td>HARNESS-POWER, PANEL, AIR KIT</td>
<td>1</td>
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<td>40</td>
<td>15050038</td>
<td>HARNESS-POWER, AIR KIT</td>
<td>1</td>
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<tr>
<td>41</td>
<td>15050041</td>
<td>HARNESS-CONTROL, AIR KIT, ULTRARIDE</td>
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<td>42</td>
<td>15050044</td>
<td>HARNESS-WIRE, MAIN</td>
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<td>43</td>
<td>15050045</td>
<td>HARNESS-SENSOR, AIR KIT, ULTRARIDE</td>
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<tr>
<td>44</td>
<td>15050048</td>
<td>HARNESS-BRAKE, AIR KIT, ULTRARIDE</td>
<td>1</td>
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<tr>
<td>45</td>
<td>15050049</td>
<td>ECU-KIT, AIR</td>
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<tr>
<td>46</td>
<td>15050051</td>
<td>PLUG-DEUTSCH, DT06-4S</td>
<td>2</td>
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<tr>
<td>47</td>
<td>1506-0081</td>
<td>NYLON CABLE TIE, 11&quot; LONG</td>
<td>15</td>
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<td>48</td>
<td>1506-0411</td>
<td>U-NUT, 1/4-20</td>
<td>4</td>
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<td>49</td>
<td>6000-2019A</td>
<td>FITTING-INLET, AIR</td>
<td>1</td>
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<td>50</td>
<td>80001495</td>
<td>TANK-AIR, WELDMENT</td>
<td>1</td>
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<td>51</td>
<td>80001498</td>
<td>COVER-KIT, AIR, ULTRARIDE</td>
<td>1</td>
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<tr>
<td>52</td>
<td>800M2146</td>
<td>HOUSING-AIR KIT, ULTRARIDE, SPLIT</td>
<td>1</td>
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</table>
# ULTRARIDE® - 800M1074

## OPTIONAL CONTROL PANEL PARTS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>1459-0C07</td>
<td>NO. 8 X .438 PHIL-PAN SHEET</td>
<td>2</td>
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<tr>
<td>2</td>
<td>1500-1255</td>
<td>BOX(4.25 X 2.5 X 8.00)</td>
<td>1</td>
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<tr>
<td>3</td>
<td>15001828</td>
<td>LABEL-AIR CONTROL, ULTRARIDE</td>
<td>1</td>
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<tr>
<td>4</td>
<td>1505-0207</td>
<td>SWITCH-ROCKER</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>1505-1883</td>
<td>FUSE HOLDER,PANEL STYLE</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>15050040</td>
<td>HARNESS-CONTROL, ULTRARIDE</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>15050053</td>
<td>LIGHT-LED, 12V</td>
<td>1</td>
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<tr>
<td>8</td>
<td>15051872</td>
<td>2 AMP FUSE</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>80002161</td>
<td>PANEL-MOUNT, SWITCH</td>
<td>1</td>
</tr>
</tbody>
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---

*UltraRide® - 80001615*

## OPTIONAL INSIDE FRAME MOUNTING ADAPTER BRACKET
## ULTRARIDE® - 800M1073
### OPTIONAL AIR DRYER ACCESSORY KIT

### PARTS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NUMBER</th>
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<th>QTY</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>13010574</td>
<td>DRYER-AIR, WITHOUT GOVERNOR</td>
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</tr>
<tr>
<td>2</td>
<td>13025046</td>
<td>CONNECTOR, 1/4 TB 1/4 M-NPT</td>
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</tr>
<tr>
<td>3</td>
<td>13025056</td>
<td>CONNECTOR-MALE, 3/8 TB, 1/2 NPT</td>
<td>2</td>
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<tr>
<td>4</td>
<td>1303-4000</td>
<td>AIRLINE- NYLON, .375 O.D., BULK</td>
<td>32.5FT</td>
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<tr>
<td>5</td>
<td>13033D55</td>
<td>AIRLINE-0.25 O.D., (40 FT)</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>14071005</td>
<td>HEX CAP SCR, M10 X 1.25 X 25, CLASS 8.8</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>141A-1208</td>
<td>3/8 X 1 UNC FLANGE BOLT (GRADE 8) O&amp;P</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>1480-1204</td>
<td>3/8 UNC TOP LOCK FL NUT (GR G) O&amp;P</td>
<td>4</td>
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<tr>
<td>9</td>
<td>15050047</td>
<td>HARNESS-HEATER, AIR KIT, ULTRARIDE</td>
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<tr>
<td>10</td>
<td>80002145</td>
<td>BRACKET - MOUNT, DRYER</td>
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### ULTRARIDE® - 800M0209 PARTS
OPTIONAL AUTOMATIC DRAIN KIT

<table>
<thead>
<tr>
<th>ITEM</th>
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<tr>
<td>1</td>
<td>13010558</td>
<td>VALVE-DRAIN, AUTOMATIC</td>
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### ULTRARIDE® - 800M0210 PARTS
OPTIONAL HEATED AUTOMATIC DRAIN KIT

<table>
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<tr>
<th>ITEM</th>
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<tbody>
<tr>
<td>1</td>
<td>13010559</td>
<td>VALVE-DRAIN, AUTOMATIC, HEATED</td>
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# Ultraslide® - 800M0202
**Electronic Height Control Kit**

## Parts List

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<th>ITEM</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY</th>
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<tbody>
<tr>
<td>1</td>
<td>1401-0810</td>
<td>1/4 X 1 1/4 UNC HEX CAP SCR (GR 5)</td>
<td>4</td>
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<tr>
<td>2</td>
<td>1478-0800</td>
<td>1/4 UNC HEX NYLOCK NUT (GR B)</td>
<td>4</td>
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<td>3</td>
<td>SEE TABLE</td>
<td>LINKAGE-VALVE, HEIGHT CONTROL, BARKSDALE</td>
<td>2</td>
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<tr>
<td>4</td>
<td>15050050</td>
<td>SENSOR-HEIGHT</td>
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## Linkage Chart

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Linkage</th>
<th>Length</th>
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<tbody>
<tr>
<td>Dodge/Sterling</td>
<td>15000326</td>
<td>12&quot;</td>
</tr>
<tr>
<td>Ford</td>
<td>15000326</td>
<td>12&quot;</td>
</tr>
<tr>
<td>GM</td>
<td>15000327</td>
<td>8.188&quot;</td>
</tr>
</tbody>
</table>
ELECTRICAL HARNESS & CONNECTOR SPECIFICATIONS

15050038—Battery Power Harness—192”

Air Kit End
Deutsch HDP Series Connector
Connector Body: HDP26-18-6SN (1)
Terminals: 0462-203-04141 (2)
Plugs: 114017 (4)
Pin 1(A) - Not Used—Plugged
Pin 2(B) - Not Used—Plugged
Pin 3(C) - +12V Battery Power
Pin 4(D) - Battery Ground
Pin 5(E) - Not Used—Plugged
Pin 6(F) - Not Used—Plugged

Battery End
3/8” Ring terminals for both +12V Battery Power and Battery Ground.
+12V Power cable includes 50A Fuse.

15050041—Control Harness—240”

Air Kit End
Deutsch DT Series Connector
Connector Body: DT06-3S (1)
Terminals: 1062-16-0122 (3)
Wedge Lock: W3S (1)
Pin 1(A) - +12V Ignition Power
Pin 2(B) - Warning Light ground signal
Pin 3(C) - +12V Dump Signal

Control Panel End
Deutsch DT Series Connector
Connector Body: DT04-3P (1)
Terminals: 1060-16-0122 (3)
Wedge Lock: W3P (1)
Pin 1(A) - +12V Ignition Power
Pin 2(B) - Warning Light ground signal
Pin 3(C) - +12V Dump Signal

15050045—Height Sensor Harness—120”

Air Kit End
Deutsch DT Series Connector
Connector Body: DT06-3S (1)
Terminals: 1062-16-0122 (3)
Wedge Lock: W3S-1939 (1)
Pin 1(A) - 5VDC sensor power
Pin 2(B) - Sensor Signal
Pin 3(C) - Ground

Sensor End
Packard WeatherPack Connector
Connector Body: 12110293 (1)
Terminals: 12048074 (3)
Cable Seals: 12048086 (3)
Lock: 12052845 (1)
Pin 1(A) - 5VDC sensor power
Pin 2(B) - Sensor Signal
Pin 3(C) - Ground
15050046—Utility Tool Harness—240”

**Air Kit End**
Deutsch DT Series Connector  
Connector Body: DT06-4S (1)  
Terminals: 1062-16-0122 (3)  
Wedge Lock: W4SB (1)  
Plug: 114017 (1)  
Pin 1(A) - Increase height  
Pin 2(B) - Decrease height  
Pin 3(C) - Ground  
Pin 4(D) - Not used—plugged

15050047—Heater Harness—60”

**Air Kit End**
Deutsch DT Series Connector  
Connector Body: DT06-4S (1)  
Terminals: 1062-16-0122 (2)  
Wedge Lock: W4SA (1)  
Key Pin: 0413-215-1605 (1)  
Plug: 114017 (1)  
Pin 1(A) - +12V Ignition  
Pin 2(B) - Not used—plugged  
Pin 3(C) - Ground  
Pin 4(D) - Not used—plugged

**Heater End**
Deutsch DT Series Connector  
Connector Body: DT06-2S (1)  
Terminals: 1062-16-0122 (2)  
Wedge Lock: W2S (1)  
Pin 1(A) - +12V Ignition  
Pin 2(B) - Ground

15050048—Brake Harness—240”

**Air Kit End**
Deutsch DT Series Connector  
Connector Body: DT06-4S (1)  
Terminals: 1062-16-0122 (1)  
Wedge Lock: W4SB (1)  
Plug: 114017 (3)  
Pin 1(A) - Not used—plugged  
Pin 2(B) - Not used—plugged  
Pin 3(C) - Not used—plugged  
Pin 4(D) - +12V Brake Signal

**Brake connection End**  
Bare wire
ELECTRICAL SYSTEM DIAGRAMS

CONNECTOR PIN-OUTS

(U) Utility Tool / Brake
(H) Heater

(C) Control Harness
(B)-(A) Height Sensor Harness

(P) Battery power harness

ELECTRICAL COMPONENT LOCATIONS

COMPRESSOR
COMPRESSOR RELAY
ECU
IGNITION
POWER RELAY
20 AMP FUSE
15050038 BATTERY POWER HARNESS
800M1074 CONTROL PANEL
15050048 BRAKE SIGNAL HARNESS
800M2155 UTILITY BOX

TO +12V BRAKE LIGHT SIGNAL

Toggle Switch
ADJUST HEIGHT SET POINT DOWN
ADJUST HEIGHT SET POINT UP
GROUND

+12V COMPRESSOR POWER
+12V BATTERY POWER
WARNING LIGHT
DUMP SIGNAL
IGNITION POWER SIGNAL
IGNITION POWER
COMPRESSOR RUN SIGNAL
SIDE A FILL VALVE
SIDE B FILL VALVE
TANK FILL VALVE
SIDE B EXHAUST VALVE
SIDE A EXHAUST VALVE
PRESSURE SENSOR SIGNAL
SENSOR B SIGNAL
5VDC SENSOR POWER
SENSOR A SIGNAL
BRAKE SIGNAL
ADJUST DOWN
ADJUST UP

50A Fuse
NEG (-) BATTERY TERMINAL
POS (+) BATTERY TERMINAL

VALVE BLOCK CONNECTOR
IGNITION POWER RELAY
20A Fuse
2A Fuse
+12V Ignition Power Signal
Dump Switch
30 mA LED Light

15050038 BATTERY POWER HARNESS
## UltraRide® - TROUBLESHOOTING GUIDE

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Causes</th>
<th>CORRECTIVE ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Tank Leaks down*</td>
<td>A. Fittings on air tank leaking</td>
<td>A. Tighten or replace fittings</td>
</tr>
<tr>
<td></td>
<td>B. Damaged Airline between tank &amp; housing</td>
<td>B. Replace Damaged Airline</td>
</tr>
<tr>
<td></td>
<td>C. Faulty Valve manifold</td>
<td>C. Replace valve manifold</td>
</tr>
<tr>
<td>Air Spring(s) Leak down*</td>
<td>A. Fittings on Air Spring Leaking</td>
<td>A. Tighten or replace fittings</td>
</tr>
<tr>
<td></td>
<td>B. Damaged Air Spring</td>
<td>B. Replace air spring</td>
</tr>
<tr>
<td></td>
<td>C. Damaged airline between housing &amp; air spring</td>
<td>C. Replace damaged airline</td>
</tr>
<tr>
<td></td>
<td>D. Faulty Valve manifold</td>
<td>D. Replace valve manifold</td>
</tr>
<tr>
<td>Compressor does not run</td>
<td>A. Ignition Key is not on</td>
<td>A. Turn on the ignition key to power the system</td>
</tr>
<tr>
<td></td>
<td>B. Fuse is blown</td>
<td>B. Check and replace fuses.</td>
</tr>
<tr>
<td></td>
<td>C. Tank is full</td>
<td>C. Nothing wrong, normal operation</td>
</tr>
<tr>
<td>Compressor runs too much</td>
<td>A. Leak in system</td>
<td>A. Find and stop leak</td>
</tr>
<tr>
<td></td>
<td>B. Plugged Air Filter</td>
<td>B. Replace Air Filter</td>
</tr>
<tr>
<td></td>
<td>C. Faulty Compressor</td>
<td>C. Replace Compressor</td>
</tr>
<tr>
<td>Suspension does not dump</td>
<td>A. Ignition Key is not on</td>
<td>A. Turn on the ignition key to power the system</td>
</tr>
<tr>
<td></td>
<td>B. Improper height settings</td>
<td>B. See manual to program the height settings</td>
</tr>
<tr>
<td></td>
<td>C. Loose connections</td>
<td>C. Check all electrical connections.</td>
</tr>
<tr>
<td>Warning Light is on</td>
<td>A. System is starting up</td>
<td>A. Nothing wrong, normal operation.</td>
</tr>
<tr>
<td></td>
<td>B. Low pressure in air tank</td>
<td>B. Check for leaks and check compressor operation.</td>
</tr>
<tr>
<td></td>
<td>C. System malfunction</td>
<td>C. Consult your Link Service representative</td>
</tr>
<tr>
<td>Warning light is blinking 1 second on &amp; 1 second off</td>
<td>A. System is in setup mode</td>
<td>A. Remove the Height Set Utility Tool and un-dump the suspension.</td>
</tr>
<tr>
<td>Warning light is blinking 1/4 second on &amp; 2 seconds off</td>
<td>A. Suspension is Dumped</td>
<td>A. Nothing wrong, normal operation. Undump the suspension to stop warning light from blinking.</td>
</tr>
<tr>
<td>Warning light is blinking Other codes</td>
<td>A. Fault error detected. See Warning Light Error Codes (below).</td>
<td>A. Take action to correct the indicated fault.</td>
</tr>
</tbody>
</table>

**NOTE:** All air systems will always have some inherent leaks and will, over a long period of time, leak down.

<table>
<thead>
<tr>
<th>LED Blink Code</th>
<th>Description</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steady On</td>
<td>System is booting, or Low Tank Pressure, or ECU Failure</td>
<td>No effect, Indication only</td>
</tr>
<tr>
<td>1 sec. on - 1 sec. off</td>
<td>System is in Setup mode</td>
<td>Fast response mode for adjusting sensors</td>
</tr>
<tr>
<td>⅓ sec. per 2 seconds</td>
<td>System is in Dump mode</td>
<td>Vehicle is lowered</td>
</tr>
<tr>
<td>11: 1 blink, 1 blink</td>
<td>Side A Sensor Fault</td>
<td>One side: other sensor used for both, Both sides: operation inhibited</td>
</tr>
<tr>
<td>12: 1 blink, 2 blinks</td>
<td>Side B Sensor Fault</td>
<td></td>
</tr>
<tr>
<td>13: 1 blink, 3 blinks</td>
<td>Pressure Sensor Fault</td>
<td>Compressor and other modes inhibited.</td>
</tr>
<tr>
<td>21: 2 blinks, 1 blink</td>
<td>Compressor Run Timeout</td>
<td>Compressor inhibited for 10 minutes</td>
</tr>
<tr>
<td>22: 2 blinks, 2 blinks</td>
<td>Compressor Duty Cycle</td>
<td>Compressor inhibited for 2 minutes</td>
</tr>
<tr>
<td>23: 2 blinks, 3 blinks</td>
<td>Leak Detect</td>
<td>No effect, Fault indication only</td>
</tr>
<tr>
<td>31: 3 blinks, 1 blink</td>
<td>Side A Valve Time Exceeded</td>
<td>Affected solenoid operation inhibited (turned off) until cleared.</td>
</tr>
<tr>
<td>32: 3 blinks, 2 blinks</td>
<td>Side B Valve Time Exceeded</td>
<td></td>
</tr>
<tr>
<td>33: 3 blinks, 3 blinks</td>
<td>Reservoir Valve Time Exceeded</td>
<td></td>
</tr>
<tr>
<td>34: 3 blinks, 4 blinks</td>
<td>Compressor Time Exceeded</td>
<td></td>
</tr>
</tbody>
</table>

32
APPENDIX A
WIRING DETAIL FOR F-SERIES FORD VEHICLES

Harness Routing:

One option in routing the harness is to run the harness under the floorpan of the passenger's side, and through the grommet in the passenger side floor, if available. The harness can then run under the floor covering and behind the dash. See Figure A-1.

Key Hot Wire Selection:

For ‘99 and newer Ford vehicles, the PTO 12-volt power source wire provides an adequate “key hot” wire for the UltraRide® Air Kit. This wire does not have any terminals attached to it, and is part of the OE supplied Power Take-Off Circuits. To verify the correct wire, use a test light or multimeter. The selected wire should only be “hot” when the ignition switch is on.

For pre-2002 model year vehicles, the wire is Circuit Number 295 and has a wire color of light blue and pink.

For 2002—2007 model year vehicles, the wire is Circuit Number 294 and has a wire color of white and light blue. This wire can be found blunt-cut & taped, on the harness behind the Diagnostic Link Connector (below and to the RIGHT of the steering wheel). See Figures A-2 and A-3.

For 2008 and newer model year vehicles, the wire is Circuit Number CBP44 and has a wire color of purple. This wire can be found blunt-cut & taped, on the harness behind the Diagnostic Link Connector (below and to the LEFT of the steering wheel).
APPENDIX B

WIRING DETAIL FOR GMC VEHICLES

Harness Routing:

Another option in routing the harness is to run the harness from the battery, up through the grommeted hole in the passenger side bulkhead. The harness can then run under the floor covering and behind the dash.

See Figures B-1, B-2, & B-3.
Key Hot Wire Selection:

For GMC vehicles, any wire connected to IGN4 provides an adequate “key hot” wire for the UltraRide® Air Kit. One such wire that can be used is connected to the Clutch Pedal Position Switch located behind the left front kick panel. This wire is hot and fused with the ignition key in the “RUN” position. It may be necessary to remove the kick panel to access this connector. See Figures B-4 and B-5.

To verify the correct wire, use a test light or multimeter. The selected wire should only be “hot” when the ignition switch is on.
APPENDIX C

WIRING DETAIL FOR DODGE/STERLING VEHICLES

This section not yet complete.