

## **RIDEWELL VEHICLE AIR SUSPENSION**

The RIDEWELL AIR SUSPENSION uses pressurized air, drawn from the conventional vehicle air system, to form the load carrying, shock absorbing springs. Automatic height control valves regulate the air pressure required for varying loads, and maintains a constant vehicle ride height at all times. Its basic characteristics is its ability to provide a cushioned ride through the light to loaded range.

The RIDEWELL AIR SUSPENSION differs greatly from conventional leaf spring suspensions. This manual is presented to provide an understanding of its operation, function, and characteristics, and to assist in applying PREVENTIVE MAINTENANCE AND CORRECTIVE SERVICE, when necessary. The RIDEWELL AIR SUSPENSION is designed and engineered to provide continuing trouble-free operation, requiring the minimum of service and maintenance.

### **PRE-OPERATIONAL CHECK LIST**

Before the vehicle is placed into service in an over-the-road operation, the following items should be inspected:

1. With the vehicle engine running to maintain air pressure in excess of 100 PSI and parked on a level floor, check --
  - A. All air springs should be of equal firmness.
  - B. Dimension from floor to top of frame should be checked.  
Front Frame Height - 37"  
Rear Frame Height - 38"
  - C. The air springs must have a clearance of at least 2" around the rubber air springs.
2. With the engine shut off, check suspension air system for leaks.
3. Check all nuts and bolts for tightness. (See Page 5 for Torque Specifications.)

### **OPERATING INSTRUCTIONS**

The air suspension is controlled by automatic valves that maintain a constant vehicle height by pressurizing or exhausting air in the springs as needed to support the load being carried.

The vehicle-air pressure must be built up and maintained in excess of 100 PSI to inflate the air springs before operating.

Mechanical stability through the suspension system allows careful operation of the loaded vehicle with pressurized air springs on one side only without excessive lean. To deflate and/or cut off pressure to damaged air springs, disconnect the height control valve actuating levers from their link assemblies and rotate to vertical down position.

**IMPORTANT NOTE** --- Most trouble or failures do not put the suspension out of operation. Road repairs are not necessary for anything less than a major breakdown. Temporary steps can be taken to continue careful operation for many miles until such time it is convenient to make repairs. Safe air brake pressure of 65 PSI is automatically maintained by a brake protection valve in the event of an air loss due to a failure in the suspension air system. Rubber bumpers inside the air springs carry the loaded vehicle, should all air springs go flat.

## INSPECTION CHECK LIST

### First 1,000 and 5,000 miles - Physical Inspection

1. Check all-nuts, bolts, and air connections for tightness.
2. Check all air springs for equally inflated firmness.
3. Check ride height dimension.

### Daily - Visual Inspection

1. Check air springs for inflation.
2. Check for loose or broken parts.

### Every 30 Days - Visual Inspection

1. Check all nuts, bolts and air connections for tightness.
2. Check air springs for equally inflated firmness.
3. Check for broken and abnormally worn parts.
4. Check for wear from insufficient clearance around air springs, shock absorbers, air brake chambers and tires.

### Every 90 Days - Physical Inspection

1. Thoroughly check all items listed for 30-day Inspection.
2. Lift rear of vehicle until suspension is fully extended. Check the following:
  - a. Air Springs should be completely deflated.
  - b. Inspect the air spring for wear at the contact area to the pedestal.
  - c. Clean pedestal thoroughly with wire brush.
  - d. Check shock absorbers for oil leakage and worn rubber bushings.
  - e. Repeat procedure for front of vehicle.
3. Remove blocks to let vehicle down. All air springs should equally inflate if height control valves function properly and air reservoir pressure is maintained.

## SERVICE NOTES / TORQUE SPECIFICATIONS

(Lubricated Threads)

### BOLT OR STUD SIZE \*RECOMMENDED TORQUE

- 1/4" at Leveling Valves 5.5 Ft. Lbs.
- 1/2" at Air Spring 25 Ft. Lbs.
- 3/4" at Air Spring 25 Ft. Lbs.
- 7/8" at Tract Bar 400 Ft. Lbs.
- 7/8" at Rear Axle "U" Bolts 350 Ft. Lbs.
- 1 1/4" at Ft. Torque Beams 750 Ft. Lbs.
- 1 1/2" at Rear Torque Beams 1100 Ft. Lbs.

\*All Torque Valve +/-10%

### BRASS AIR FITTING CONNECTIONS

#### BRASS PIPE FITTING - SIZE \*RECOMMENDED TORQUE

- 1/8 N.P.T. 4 Ft. Lbs.
- 1/4 N.P.T. 10 Ft. Lbs.

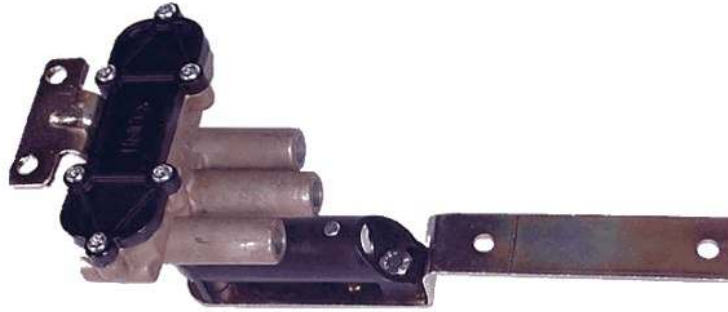
Note: Use Loctite or equivalent sealer at brass pipe fitting connections. Do not allow sealer to enter any valve body or connection.

Lubrication --

Your Ridewell Suspension requires no lubrication at any time.

Lubricate axles according to axle manufacturer's recommendations.

Caution: Because the air suspension is controlled by sensitive valves, the air supply must be kept reasonably free of foreign matter, moisture, and oil. Air tanks should be drained regularly and air compressor rings maintained.



## HEIGHT CONTROL VALVE ADJUSTMENT

Adjust Height Control Valves for proper frame height by setting one valve at a time as follows:

1. Position vehicle on level floor and air compressor running to maintain air pressure while adjusting valves.
2. Disconnect both Height Control Valve Linkage Assemblies from the External Actuating Levers.
3. Move both Actuating Levers to a vertical down position to exhaust all air from the Air Springs.
4. Connect one Valve Actuating Lever only with its respective Link Assembly. Let Air Springs that are controlled by this Valve fill until Valve shuts off.
5. Measure distance from floor to top of frame in the same area that Valve and Link Assembly are located. Adjust Valve by loosening adjustment lock nut and carefully move nylon block until proper height dimension is reached. Tighten Adjustment Lock Nut.  
NOTE: It will require from (2) to (6) seconds after moving nylon block before air starts to flow through Valve due to a built-in time delay.
6. Disconnect Link Assembly again and let Springs deflate about half way. Reconnect Link Assembly to inflate springs. When Valve shuts off, check height dimension again.
7. If necessary, repeat Steps 5 and 6 until proper frame height is accomplished.
8. Disconnect this properly set Height Control Valve and move Actuating Lever to a vertical down position to deflate springs.
9. Repeat Steps 4 through 8 with other Height Control Valve.
10. Connect both valve actuating levers with their respective link assemblies at the same time. When springs are fully inflated and valve shut off, check height dimension again. It should now be proper and both valves synchronized.

NOTE: If it is impossible to obtain proper valve adjustment with the foregoing procedure, check for proper height control valve installation as shown in drawings pertaining to the vehicle specifications.

Frame Heights

Front - 37"

Rear - 38"

FC measurements taken at the bottom of the body to the ground:

Front: Behind Axle - 19 inches

Back: In Front of Axle - 20 inches

**TROUBLE-SHOOTING**

**IMPORTANT --** Most trouble or failures do not put the suspension out of operation. Road repairs are not necessary for anything less than a major breakdown. Temporary steps can be taken to continue careful operation for many miles until such time it is convenient to make repairs.

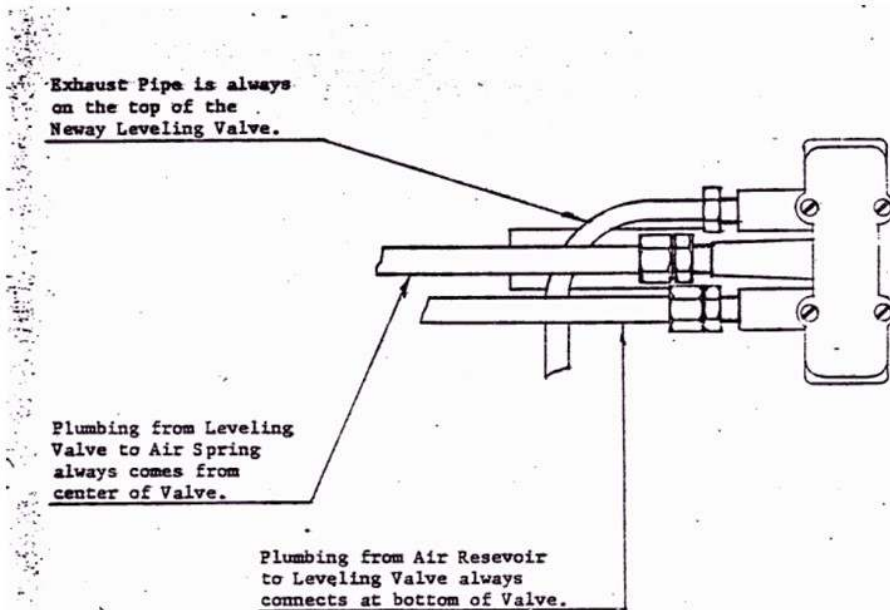
Broken or worn shock absorbers, rubber bushings, or other components should be replaced as soon as conveniently possible.

**POSSIBLE CAUSE POSSIBLE REMEDY**

- All Air Springs Flat  
Insufficient air pressure. Build up air pressure.  
?
- Leak or broken line in air system. Locate and repair.  
?
- Air Filter Clogged. Replace  
?
- Dump solenoid burned out. Replace

**TROUBLE-SHOOTING - Continued**

- ?  
Suspension Deflates Rapidly When Parked  
Leak in Air Suspension System. Locate and repair.  
Leaking Air Spring. Check for puncture or wear; repair or replace  
?
- Air Spring Blown Out  
Punctured or cut. Replace  
Suspension operated without air pressure in springs.  
Check items listed under "All Air Springs Flat".  
Continued or repeated over-extension of Air Spring  
Suspension riding too high.  
Adjust Height Control Valves.  
Shock Absorber broken; replace.  
?
- Vehicle Rides Too High or Low  
Improperly adjusted Height Control Valves.  
Readjust.  
?
- Slow Recovery of Dump System  
Air Filter Clogged Replace



PREFERRED		ALTERNATE		DO NOT SCALE	RELEASED	BLUE BIRD BODY CO	
MILLIMETRE	INCH	MILLIMETRE	INCH			PORT VALLEY, GEORGIA, U. S. A.	
					LET.	WAS	REVISIONS
					DR.	CL.	