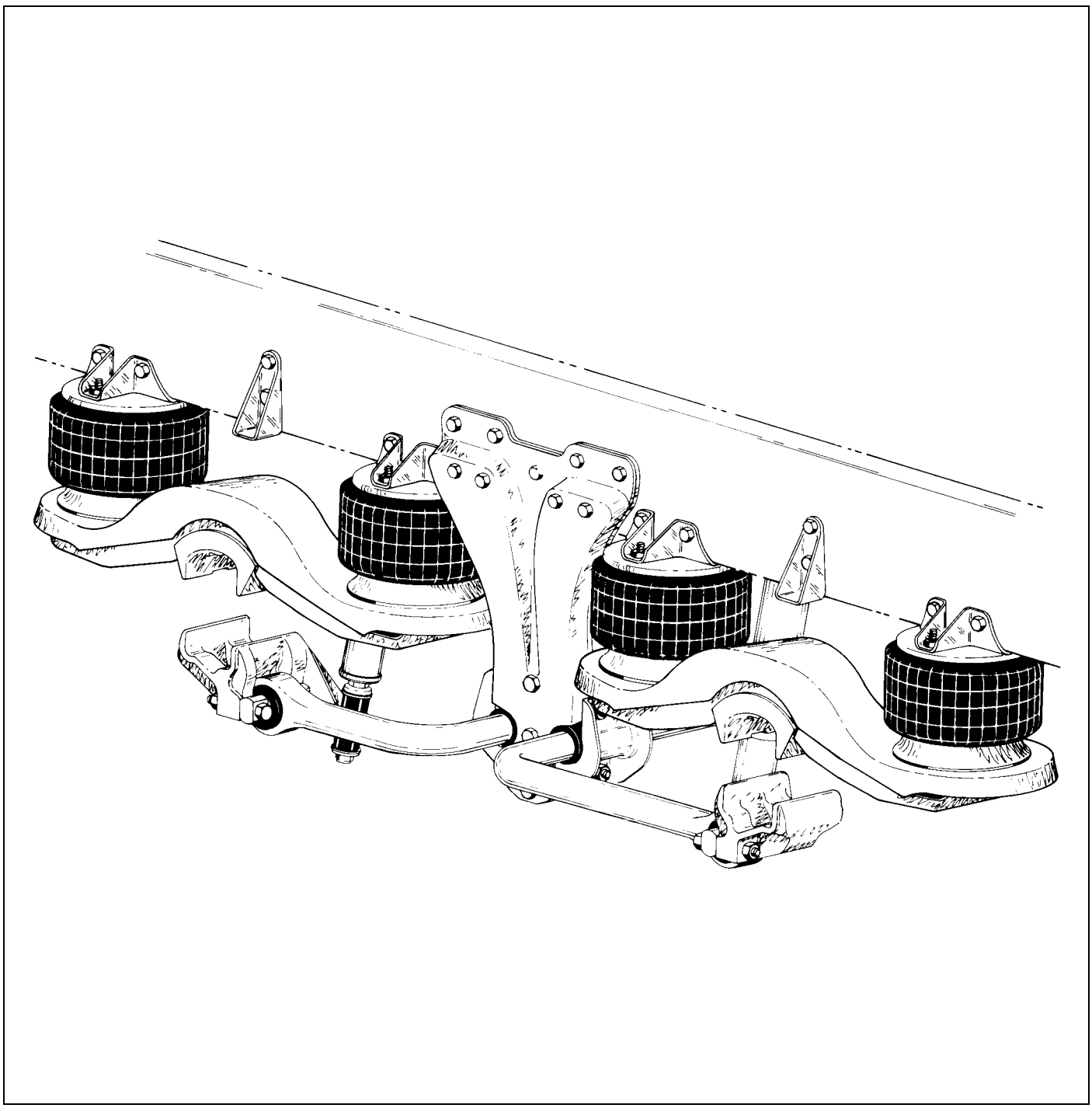
Airglide 100 Air-Spring Suspension



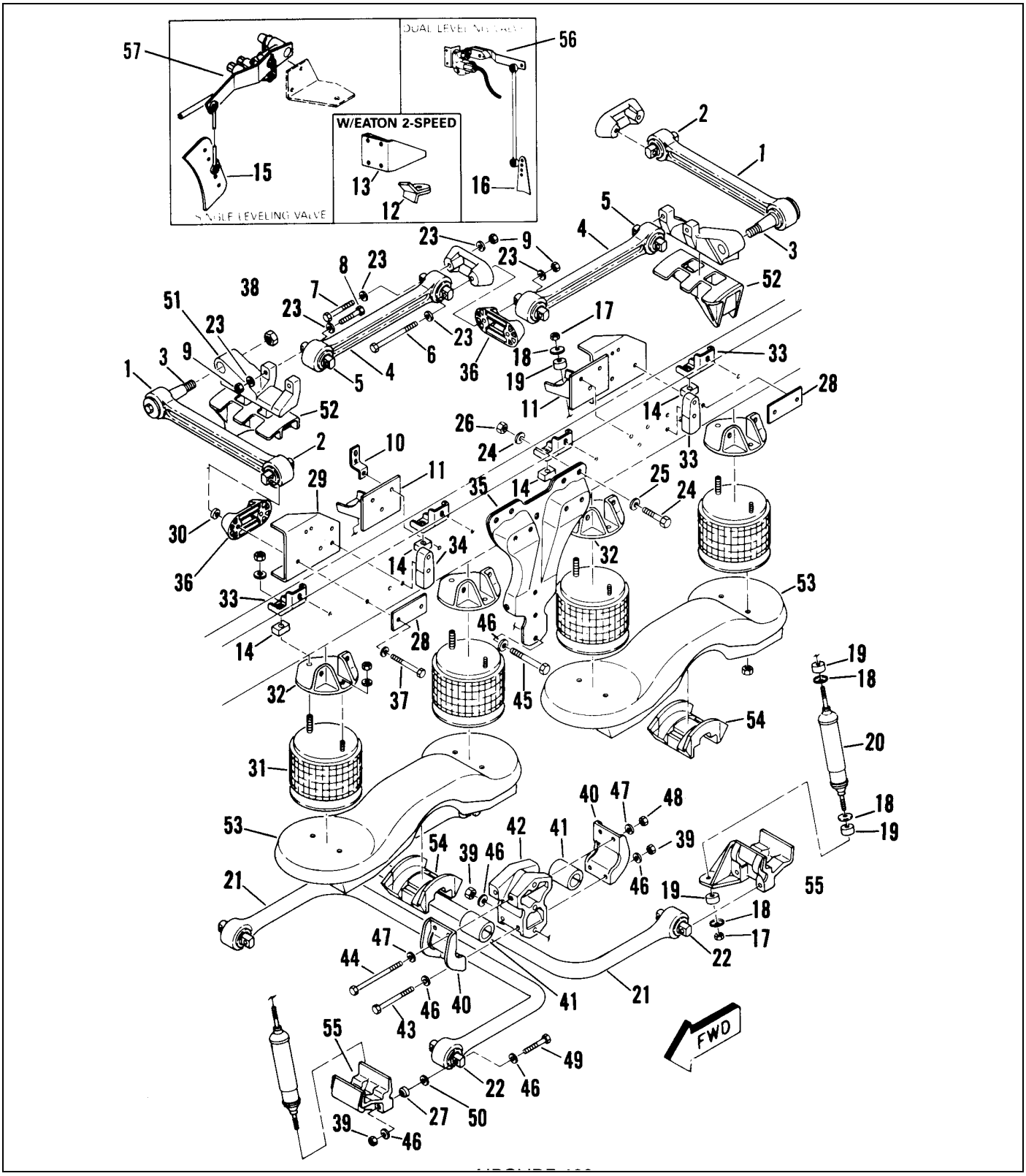
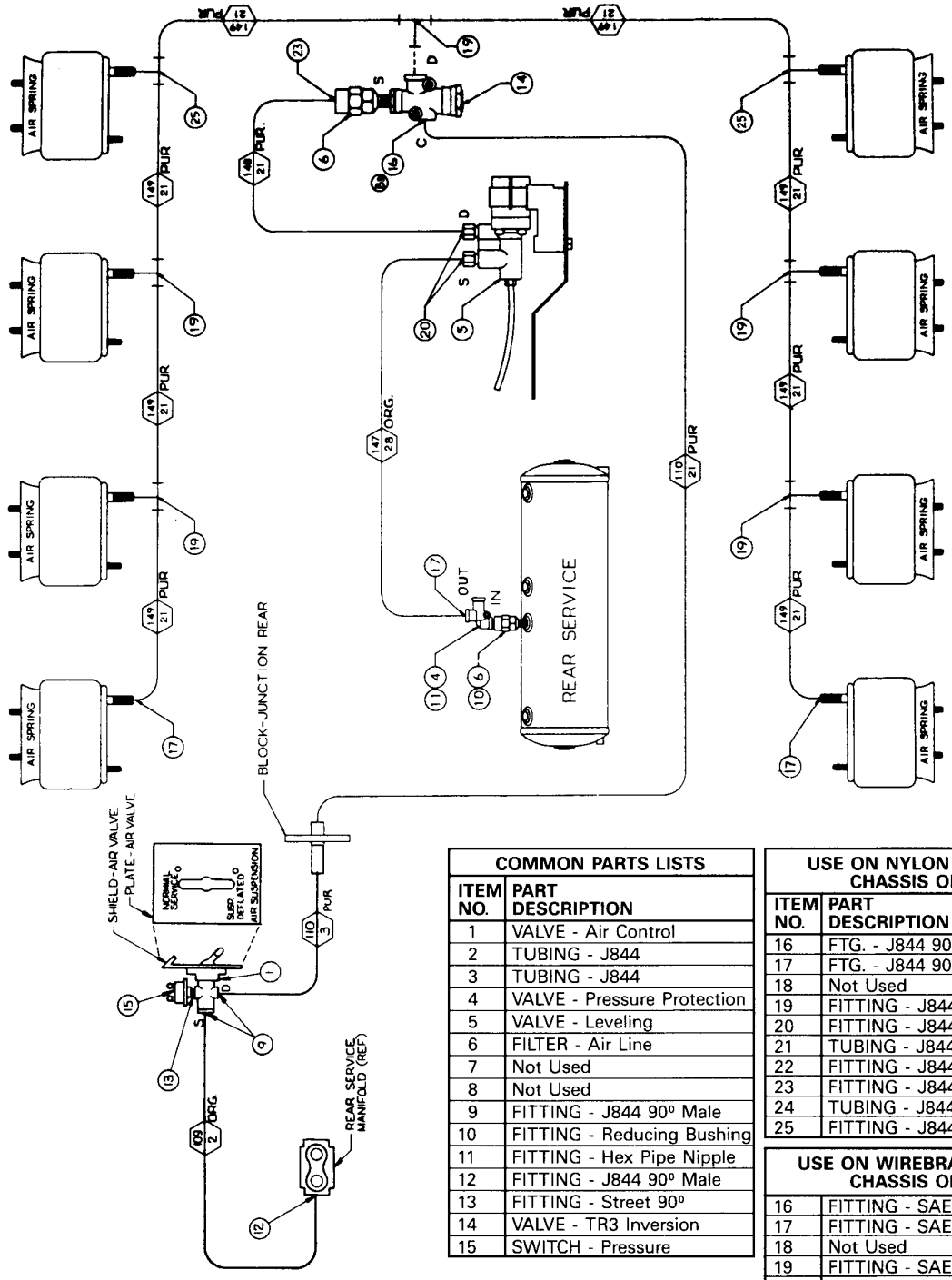


Figure 17-1 AIRGLIDE 100 (L.H. Side Shown)

Airglide 100 Air-Spring Suspension

ITEM NO.	PART DESCRIPTION
1	TRANSV TORQUE ROD ASSY.
2	BUSHING & PIN ASSEMBLY
3	BUSHING & PIN ASSY. (Tapered)
4	TORQUE ROD ASSEMBLY
5	BUSHING & PIN ASSEMBLY
6	SCREW - Cap (M16 x 2 x 240)
7	SCREW - Cap (M16 x 2 x 140)
8	SCREW - Cap (M16 x 2 x 100)
9	NUT - Hex (M16 x 2)
10	BRACKET - Air Fitting (Dual)
11	BRACKET - Shock Absorber
12	BRACKET - Shock Absorber
13	BRACKET - Shock Absorber
14	SPACER
15	ANCHOR - HT Cont. Valve
16	ANCHOR - HT Cont. Link
17	NUT - Plain (5/8-18)
18	RETAINER - 8-Bag
19	BUSHING - Rubber
20	ABSORBER - Shock
21	STABILIZER Torque Rod
22	BUSHING & PIN ASSEMBLY
23	WASHER
24	BOLT - Hex Hd (M20 x 2.5 x 60)
25	WASHER (M20)
26	NUT, Hex - Esna (M20 x 2.5)
27	SPACER
28	REINFORCEMENT - Track Rod
29	REINFORCEMENT - Track Rod Bracket

ITEM NO.	PART DESCRIPTION
30	SPACER - Torque Rod
31	AIR SPRING ASSEMBLY
32	BRACKET - Air Spring
33	REINFORCEMENT - Air Spring
34	STOP - Axle
35	OUTER BRACKET ASSEMBLY
36	BRACKET - Torque Rod
37	BOLT - Hex (M16 x 2 x 140)
38	NUT - Lock (1-1/4-12)
39	NUT - Hex (M16 x 2)
40	CAP - Frame Bracket
41	BUSHING - Rubber
42	REINFORCEMENT - Rear Front Bracket
43	BOLT - Hex (M16 x 2 x 150)
44	BOLT - Hex (M20 x 2.5 x 240)
45	BOLT - Hex (M16 x 2 x 170)
46	WASHER (5/8)
47	WASHER (M20)
48	NUT - Hex (M20 x 2.5)
49	BOLT - Hex (M16 x 2 x 120)
50	SPACER - Torque Rod
51	BRACKET - Torque Rod
52	ADAPTER - Torque Rod
53	BEAM ASSEMBLY
54	ADAPTER - Air Spring Beam
55	SEAT - Axle Bottom
56	LEVELING VALVE - Dual
57	LEVELING VALVE - Single

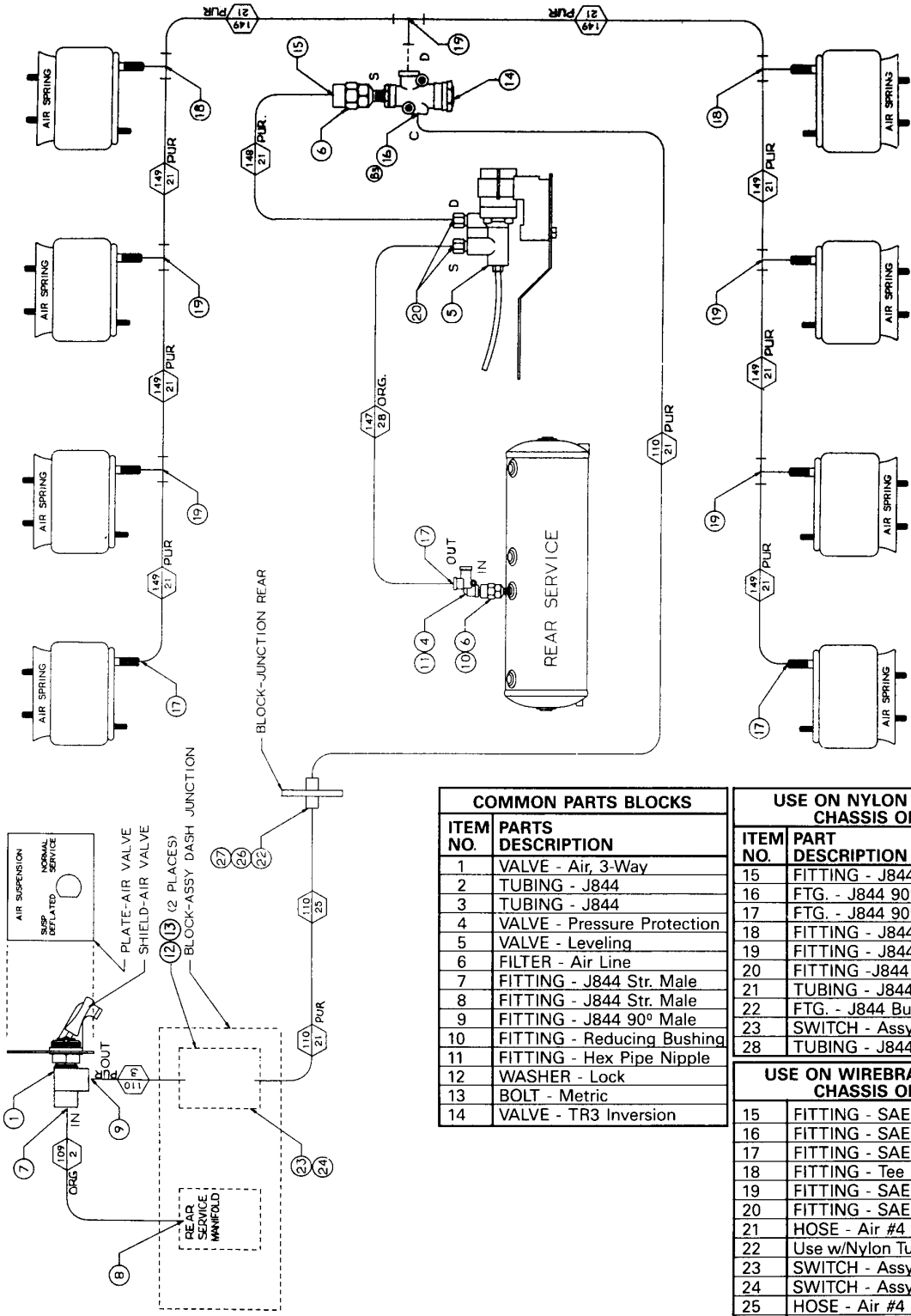


COMMON PARTS LISTS	
ITEM NO.	PART DESCRIPTION
1	VALVE - Air Control
2	TUBING - J844
3	TUBING - J844
4	VALVE - Pressure Protection
5	VALVE - Leveling
6	FILTER - Air Line
7	Not Used
8	Not Used
9	FITTING - J844 90° Male
10	FITTING - Reducing Bushing
11	FITTING - Hex Pipe Nipple
12	FITTING - J844 90° Male
13	FITTING - Street 90°
14	VALVE - TR3 Inversion
15	SWITCH - Pressure

USE ON NYLON TUBING CHASSIS ONLY	
ITEM NO.	PART DESCRIPTION
16	FTG. - J844 90° Male Elbow
17	FTG. - J844 90° Male Elbow
18	Not Used
19	FITTING - J844 Branch Tee
20	FITTING - J844 Str. Male
21	TUBING - J844
22	FITTING - J844 Union
23	FITTING - J844 Str. Male
24	TUBING - J844
25	FITTING - J844 Run Tee

USE ON WIREBRAID HOSE CHASSIS ONLY	
16	FITTING - SAE 90° Male
17	FITTING - SAE 90° Male
18	Not Used
19	FITTING - SAE Branch Tee
20	FITTING - SAE Str. Male
21	HOSE AIR #4 Type D
22	FITTING - J844/SAE Union
23	FITTING - SAE Str. Male
24	HOSE - Air #4 Type D
25	FITTING - Tee Pipe Run

Figure 17-2 K100E PIPING DIAGRAM (With Single Leveling Valve)

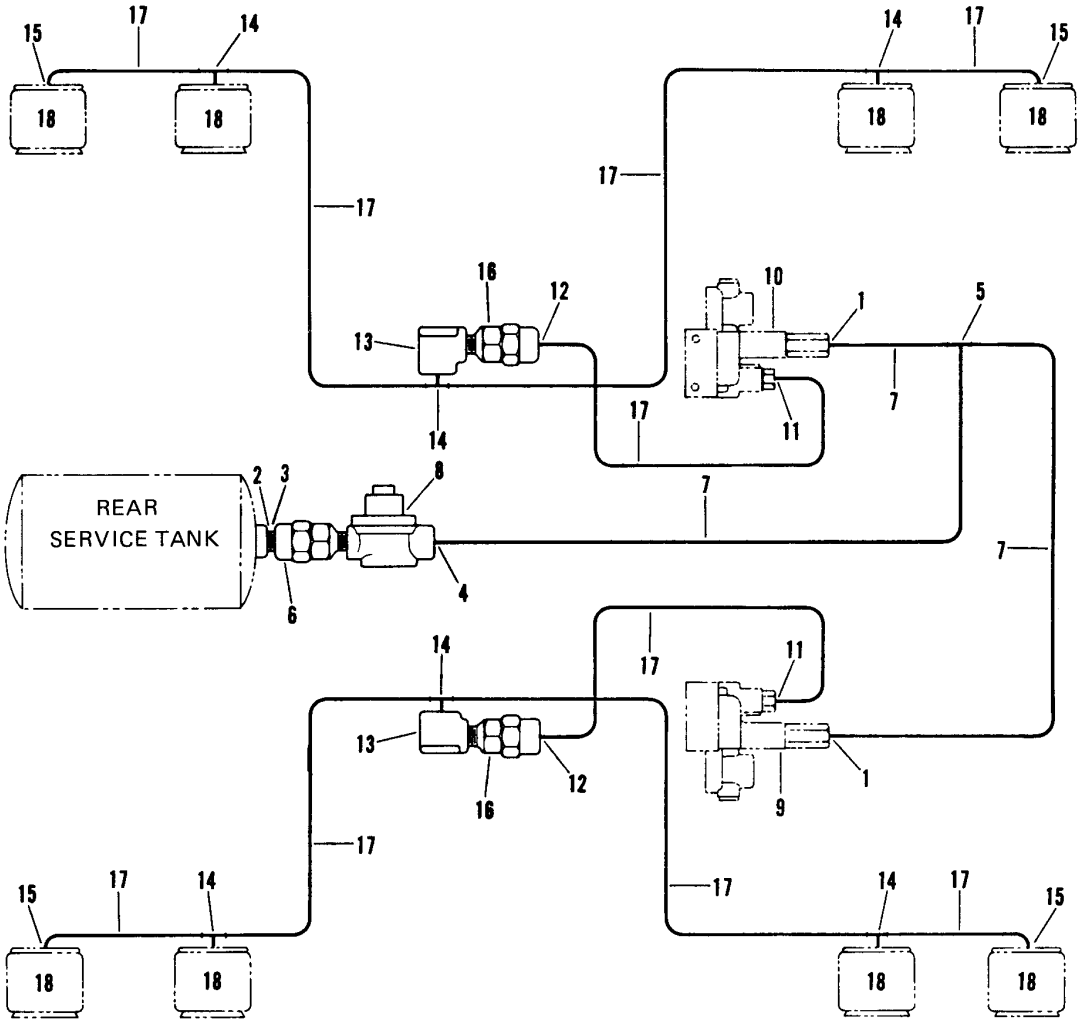


COMMON PARTS BLOCKS	
ITEM NO.	PARTS DESCRIPTION
1	VALVE - Air, 3-Way
2	TUBING - J844
3	TUBING - J844
4	VALVE - Pressure Protection
5	VALVE - Leveling
6	FILTER - Air Line
7	FITTING - J844 Str. Male
8	FITTING - J844 Str. Male
9	FITTING - J844 90° Male
10	FITTING - Reducing Bushing
11	FITTING - Hex Pipe Nipple
12	WASHER - Lock
13	BOLT - Metric
14	VALVE - TR3 Inversion

USE ON NYLON TUBING CHASSIS ONLY	
ITEM NO.	PART DESCRIPTION
15	FITTING - J844 Str. Male
16	FTG. - J844 90° Male Elbow
17	FTG. - J844 90° Male Elbow
18	FITTING - J844 Run Tee
19	FITTING - J844 Branch Tee
20	FITTING -J844 Str. Male
21	TUBING - J844
22	FTG. - J844 Bulkhead Union
23	SWITCH - Assy. Junction
28	TUBING - J844

USE ON WIREBRAID HOSE CHASSIS ONLY	
15	FITTING - SAE Str. Male
16	FITTING - SAE 90° Male
17	FITTING - SAE 90° Male
18	FITTING - Tee Pipe Run
19	FITTING - SAE Branch Tee
20	FITTING - SAE Str. Male
21	HOSE - Air #4 Type D
22	Use w/Nylon Tubing Chassis
23	SWITCH - Assy. Junction
24	SWITCH - Assy. Junction
25	HOSE - Air #4 Type D
26	FTG. - SAE Bulkhead Union
27	FTG. - J844/SAE Bhd. Union
28	HOSE - Air #4 Type D

Figure 17-3 W900B / T600A / T800 PIPING DIAGRAM (With Single Leveling Valve)



PIPING DIAGRAM

ITEM NO.	PART DESCRIPTION
1	ADAPTER - Fitting
2	FITTING - Reducing Bushing
3	FITTING - Close Pipe Nipple
4	FITTING - Straight Male
5	FITTING, Tee - Union
6	FILTER - Line
7	HOSE - Air (3/16 I.D.)
8	VALVE - Pressure Protection
9	VALVE - Leveling
10	VALVE - Leveling
11	ADAPTER - Fitting
12	FITTING - Straight Male
13	FITTING - Anchor Elbow
14	FITTING - Tee Pipe Branch
15	FITTING - 90° Male Elbow
16	FILTER - Line
17	HOSE - Air (3/16 I.D.)
18	SPRING - Air

HEIGHT CONTROL VALVE

ITEM NO.	PART DESCRIPTION
1	VALVE ASSY.-Height Cont.
2	ADAP. ASSY-Intake Check
3	ADAP. ASSY-Wheel Resvr.
4	FSTN.-Travel Body Plug
5	FILTER - Exhaust
6	GASKET-Whl. Resvr. Adap.
7	LEVER - Control
8	NUT
9	PLUG, Nylon - Exhaust
10	SCREEN - Wheel Resvr.

Figure 17-4 PIPING DIAGRAM (With Dual Leveling Valves)

Airglide 100 Air-Spring Suspension

Description

Kenworth's Airglide 100 Suspension is a lightweight design using four air springs on each axle for load support. The chassis rides directly upon air springs, and not upon mechanical connections which would transmit vertical road shock forces directly to the chassis.

Each axle is securely located to the chassis by two torque rods and a torque rod stabilizer. Two shock absorbers mounted on each axle dampen vertical road shocks.

The air suspension system consists mainly of the air springs, the height control valves and a pressure protection valve.

Air pressure in the air springs is automatically regulated to keep the frame level and at normal ride height under all loads within the GAWR.

Ground load capacity for the Airglide 100 Suspension is 17 237 to 19 958 kg (38,000 to 44,000 lbs.) for the tandem axle suspension and 8 164 to 9 996 kg (18,000 to 22,0900 lbs.) for the single axle suspension. Actual ground load capacity depends upon the axles installed.

Operation

The service tank supplies air pressure to the air springs which are mounted between the frame and spring beam at each axle end. When the truck encounters bumps, shocks are absorbed by the contraction and expansion of the air springs which provide a flexible support between the frame and axle.

During operation, as the load on the chassis is varied the frame is automatically leveled at normal ride height through the operation of height control valve(s). Mounted on the frame rails, two height control valves were installed on chassis built before November, 1986. Mounted on a crossmember, one height control valve is installed on chassis built after October, 1986. When the chassis load is increased, the distance between the frame and axle decreases. This movement operates control linkage which actuates the height control valve(s). Air is released by the valve(s) until the frame rises to its normal ride height. When the chassis load is decreased, air is exhausted from the air springs by the height control valve(s) until the frame descends to its normal ride height.

With the 2 valve system, the valves operate independently and are designed to operate only after the chassis load is increased or decreased.

The 1 valve and 2 valve system incorporate a delay mechanism which prevents unnecessary actuation resulting from minor, irregular motions between the axles and frame.

Two torque rods and an anti-sway bar align each axle with the frame. One torque rod is parallel to the centerline of the frame. This torque rod limits axle rotation as well as fore and aft movement of the axle. The other torque rod is transversely mounted and prevents lateral axle movement. The anti-sway bar, which connects each axle to the center suspension frame bracket:

- aligns the axle.
- limits fore and aft axle movement.
- prevents axle rotation.
- stabilizes the chassis when the vehicle is turning or cornering.

The pressure protection valve prevents a complete loss of air pressure in the brake system in the event of an air leak in the air suspension system.

- Midland Ross

  Opens when increasing pressure reaches 448 kPa ± 34 kPa (65 psi ± 5 psi).

  Closes when decreasing pressure reaches 310 kPa ± 34 kPa (45 psi ± 5 psi).

- Sealco

  Opens when increasing pressure reaches 616 kPa ± 34 kPa (90 psi ± 5 psi).

  Closes when decreasing pressure reaches 552 kPa

Maintenance

The Kenworth Airglide 100 Suspension requires little regular maintenance other than air line filter service and routine inspection. Normal air system maintenance must be performed because dirt or other contaminants in the air suspension system can damage the system.

Do Not Lubricate

No lubrication of this suspension is necessary because of the rubber bushings of the torque rods and anti-sway bar. Lubrication of these components is detrimental to their operation and service life.

Torque Values

After the first 3 218 km (2,000 miles) or first week of operation, and periodically thereafter, check the torque values for the following fasteners:

IMPORTANT: Torque all fasteners on the nut end.

M16 bolts

All Metal Nuts . . . . . 203-250 Nm (150-185 lb.-ft.)
Nylon-Insert Nuts . . . . . 63-217 Nm (120-160 lb.-ft.)

- Torque Rod Stabilizer Mounting
- Torque Rod Mounting

M20 Bolts

All Metal Nuts . . . . . 427-475 Nm (315-350 lb.-ft.)
Nylon-insert Nuts . . . . . 354-462 Nm (260-340 lb.-ft.)

- Center Frame Bracket

1 1/4 in. Dia. Transverse Torque Rod Pin
544-680 Nm (400-500 ft.-lbs.)

Air Spring Mounting Bolts
1/2-13 45-50 Nm (33-37 ft.-lbs.)
3/4-10 68-82 Nm (50-60 ft.-lbs.)

Air Tanks

Dally Drain Air Tanks by activating the Moisture Ejector Valve.

NOTE: The air supply to the air suspension must be free of moisture and compressor oil. If excess moisture is encountered, check for proper operation of the moisture ejector valve. If excess oil is encountered overhaul the air compressor.

Filter Service

Air Line Filters

Replace the filter elements in the three air line filters at least once a year. There are three air line filters in the two valve system and two air line filters in the one valve system.

Height Control Valve Filters

Check periodically to verify that the two small filter elements located in the height control valve(s) are clean. The outlet adapter and inlet adapter are equipped with a screen. If the inlet adapter screen is clogged, replace the complete intake adapter assembly.

Air Leakage Test

Periodically check the air suspension system for leaks. With the vehicle loaded and the air system at normal operating pressure, apply a coating of soap and water solution to all air line connections, valves and air springs. Soap bubbles at any point in the air system will reveal air leakage.

NOTE: Observe closely the pressure protection valve. This valve protects the air brake pressure reserve.

Pressure Protection Valve Test

When the air brake system air pressure is reduced to a predetermined amount the pressure protection valve will close. The pressure protection valve will allow no air to flow into the air suspension system until the brake system air pressure rises to a predetermined amount.

To check the pressure protection valve:

1. Identify the manufacturer of valve installed in the system.
2. Increase the air system pressure to 690 kPa (100 psi) or more.
3. Remove the supply hose at the outlet of the pressure protection valve.

NOTE: Air should exhaust until rear service pressure gauge in cab shows:

515-586 kPa (75-85 psi) for Sealco valve.

276-345 kPa (40-50 psi) for Midland Ross valve.

If air continues to exhaust, the valve is malfunctioning and should be replaced.

4. Connect and tighten supply hose after check is completed.

Height Control Valves

Periodically check the adjustment as outlined in Height Control Valve Adjustment.

Inspection 80 450 km (50 000 miles)

- Air Springs

  Inspect for cracks, gouges, distortions, bulges and chafing. Replace defective assemblies.

- Shock Absorbers

  Check for:

  - leaking.
  - worn cylinders.
  - worn rubber bushings.

- Torque Rod Stabilizer and Torque Rods Check the condition of the rubber bushings.

- Axle Connection Welds

  Check visually for cracks.

Air Leakage Test

NOTE: If either valve does not function during adjustment, check for restricted air lines. See "Troubleshooting" section.

- With Valve Mounted On Vehicle

  Periodically check the valve for leaks. With the vehicle loaded and the air system at normal operating pressure, apply a coating of soap and water solution to all air line connections. Soap bubbles reveal air leakage. Replace valve if leak is revealed.

- With Valve Removed From Vehicle

  1. Clean exterior of height control valve thoroughly.
  2. Connect pressure line to intake port and apply air pressure 690-827 kPa (100-120 psi).
  3. With overtravel lever in neutral position no air should escape. If bubbles appear at intake port, replace intake check valve adapter. If bubbles escape from exhaust port, replace exhaust valve assembly.
  4. If bubbles appear around edge of cover plate, replace gasket.
  5. Remove height control valve from water and actuate control lever to expel any water from unit.
  6. Release air pressure and remove pressure line from air spring port.
  7. Connect air spring to air intake port.
  8. Apply air pressure and actuate control lever to expel any remaining water.

Before replacing a height control valve suspected of malfunctioning, follow these steps to check its operation.

1. Increase the air supply in excess of 616 ± 34 kPa (90 ± 5 psi).
2. Disconnect the link from the axle to the height control valve control lever.
3. Move the control lever up and hold for at least 10 seconds. Note the delay time. Air should flow to the springs.
4. Move the control lever to the neutral position. All air flow should be shut off.
5. Move the control lever down to the exhaust position. Check the delay time which should be identical to the intake delay time. See step 3.

If the valve performs normally during function checks 3, 4 and 5, it is operational. Malfunctioning height control valves should be replaced with new units because overhaul time usually exceeds the cost of a new valve.

Height Control Valve Adjustment

Checking The Adjustment

1. Park the vehicle on a level surface, preferably with a normal load, and increase the air system pressure to 758 kPa (110 psi) or more.
2. Securely block the wheels.
3. Measure the height of the right and left rearmost air springs with the aid of calipers or dividers. This measurement must be 203 mm ± 3 mm (8 in ± 1/8 in.)

and is taken from end to end on the air spring from the top of the spring mounting plate to the bottom of the spring pedestal. See Figure 17-5.

NOTE: The height measurements from the right and left sides of the suspension must be within 6 mm (1/4 in.) of each other.

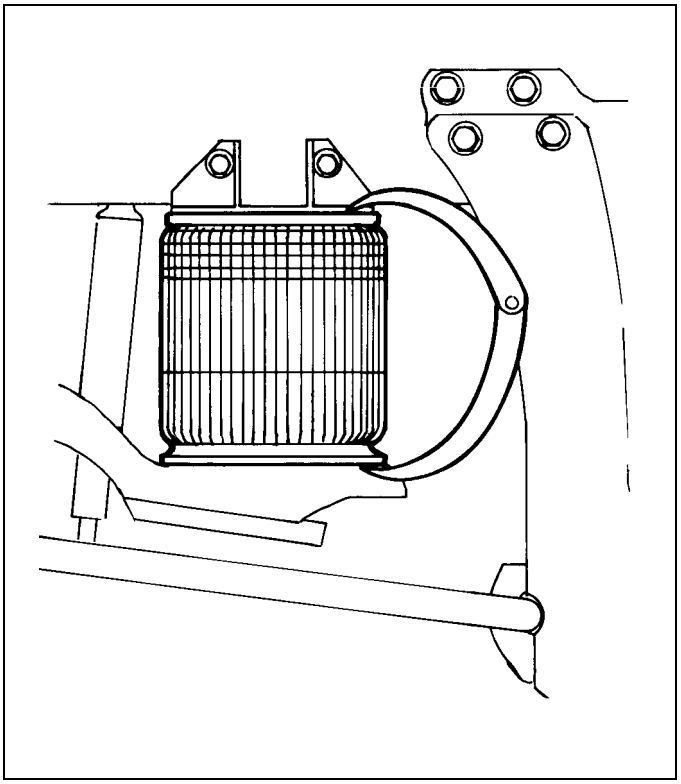


Figure 17-5

Adjusting The Height Control Valve

- For Chassis With 2 Leveling Valves

NOTE: If replacement of a height control valve is required, use the same brand valve as installed on the opposite side of the suspension. Do not mix brands of leveling valves because operating characteristics may vary slightly.

1. With the truck on a level surface, bring the air system up to 758 kPa (110 psi) or more.
2. On each side, unbolt the connecting link from the leveling valve arm.
3. Move both valve arms down to exhaust the air springs to a height of 165 mm ± 6 mm (6 1/2 in. ± 1/4 in.).

NOTE: When operating the leveling valve, expect a delay of 2 to 9 seconds before air flow begins.

4. On one side, raise the valve arm until the rear air spring on that side measures 203 mm ± 3 mm (8 in. ± 1/8 in.).
5. Loosen the nut of the leveling valve, see Figure 17-6.

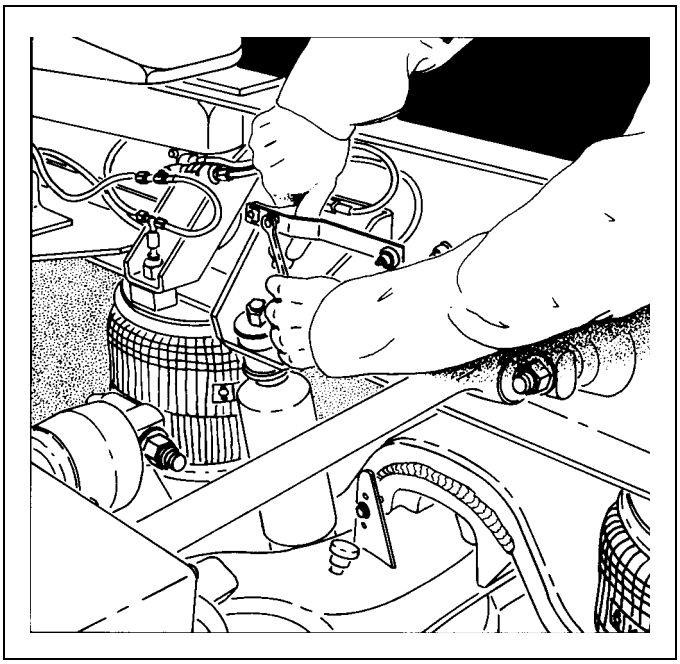


Figure 17-6

6. Temporarily attach the link to the valve arm, using a bolt without a nut.
7. - For Leveling Valves Without Dead Band Center Position Pin Locator

     Tighten the nut at the nylon block.

     NOTE: Be sure that the nylon block is at the center of the dead band before tightening the nut To do this, quickly move the nylon block up and down 15° each way several times.

   - For Leveling Valves With Dead Band Center Position Pin Location

     To locate nylon block at the center of the dead band before tightening the nut, install the locator pin through the locator pin guides on the valve body and on the nylon block. Remove pin. See Figure 17-7.

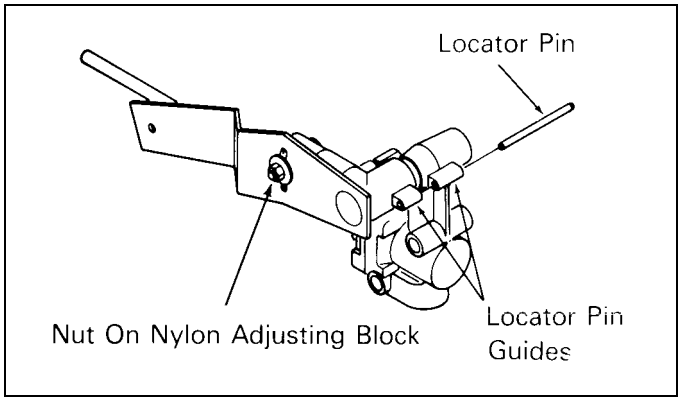


Figure 17-7

8. Disconnect the link and move the valve arm down to exhaust the air springs to 165 mm ± 6 mm (6 1/2 in. ± 1/4 in.).
9. Repeat steps 4 through 8 for the other side of the chassis.
10. With both sides lowered to 165 mm ± 6 mm (6 1/2 in. ± 1/4 in.), bolt both links to the respective valves.

    NOTE: If the air spring measurement exceeds 210 mm (8 1/4 in.) during adjustment, exhaust the air spring to 165 mm ± 6 mm (6 1/2 in. ± 1/4 in.) and start over.
11. Check the air spring heights. If each is not 203 mm ± 3 mm (8 in. ± 1/8 in.) and within 6 mm (1/4 in.) left to right, return to step 4 and adjust again.

- For Chassis With One Leveling Valve

1. Loosen the nut on the height control valve adjusting block.
    - For Leveling Valves Without Dead Band Center Position Pin Locator

      NOTE: Be sure that the nylon block is at the center of the dead band before tightening the nut. To do this, quickly move the nylon block up and down 15° each way several times.
    - For Leveling Valves With Dead Band Center Position Pin Locator

      To locate nylon block at the center of the dead band before tightening the nut, install the locator pin through the locator pin guides on the valve body and on the nylon block. Remove pin. See Figure 17-7.

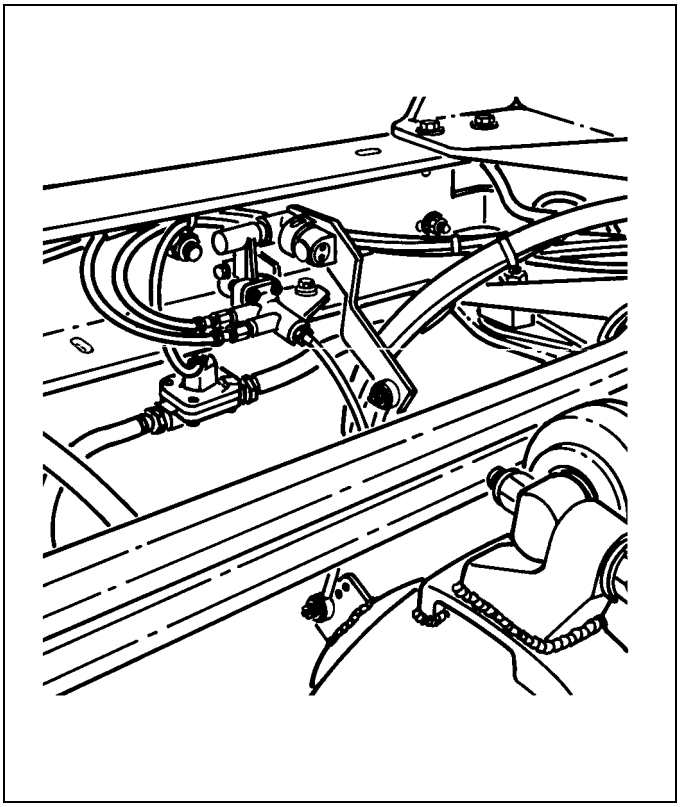


Figure 17-8

2. Turn the adjusting block until the forward axle air spring on the left side reaches 203 mm ± 3 mm (8 in. ± 1/8 in.).
3. Measure the left rear axle air spring height. If the left rear axle air spring height exceeds 203 mm ± 3 mm (8 in. ± 1/8 in.), lower the forward axle air spring half the excess amount.

   NOTE: The average height of the forward and rear air springs will then be 203 mm ± 3 mm (8 in. ± 1/8 in.).

Tuning The Air Suspension

If an air suspension is difficult to adjust or exhibits hard ride, the heights of all 8 air springs should be checked. If the air spring heights on any given air spring beam are not within 6 mm (1/4 in.) of each other, check the following:

1. Rear axle alignment. Adjust as necessary.
2. Rear axle slants. Adjust as necessary.

   NOTE: The truck must be on a level surface.

These adjustments can have a major effect on the air spring heights. If, after adjusting the rear axle alignment and rear axle slants, the air spring heights on an air spring beam are not within 6 mm (1/4 in.) of each other, contact your Regional Service representative. Additional field adjustments will not improve the adjustability of the suspension.

Disassembly / Assembly

Axle

Disassembly

The following procedure may be used to remove an air spring, air line, or an entire axle assembly. Refer to Figure 17-1 and the appropriate air piping diagram.

1. Disconnect the shock absorbers.
2. Disconnect the height control valve linkage.
3. Jack up the rear of the vehicle by placing jacks under each frame rail. Raise the vehicle until the load is removed from the air springs.
4. Exhaust all air from the suspension system by pulling down on the height control valve arms.

At this point, air lines and air spring assemblies may be removed.

To remove the axle, continue with Steps 5 through 9.

5. Disconnect the driveline.
6. Unbolt the bases of the air springs from the air spring beam assemblies.
7. Disconnect the torque rod stabilizer and the torque rod which runs lengthwise with the frame.
8. Disconnect the transverse torque rod and remove the axle.
9. Disconnect the air lines and unbolt the air springs from the frame brackets.

Assembly

Observe the following procedure to replace a complete axle assembly. Refer to Figure 17-1 and the appropriate air piping diagram.

1. Jack up the rear of the vehicle.
2. Bolt the air springs to the frame brackets. Tighten the 1/2 in. bolts to 45-50 Nm (33-37 ft.-lbs.) and the 3/4 in bolts to 68-82 Nm (50-60 ft.-lbs.).
3. Position the axle and the air spring beams under the air springs.
4. Connect the torque rod stabilizer to the frame brackets and axle. Leave the bolts loose enough at this time so the torque rod stabilizer can rotate within the bushing.

   NOTE: Airglide 100 suspensions manufactured in late 1983 and thereafter have an important product improvement which should be incorporated into older chassis when they are disassembled for repair or maintenance. The two upper center frame bracket bolts, bolt 44 in Figure 17-1, have been changed to M20 (3/4 in.). To modify older chassis for the M20 bolts, drill out the existing holes.

5. Raise or lower the vehicle frame as required to seat the air springs into the beam assemblies. Tighten the M12 bolts to 88 ± 13 Nm (65 ± 10 ft.-lbs.).
6. Install the torque rod which runs lengthwise with the frame. Tighten the bolts to 190 ± 27 Nm (140 ± 20 ft.-lbs.).
7. Install the transverse torque rod. Tighten the bolts to 190 ± 27 Nm (140 ± 20 lb.-ft.). Tighten the 1 1/4 in. diameter tapered pin to 544-680 Nm (400-500 ft.-lbs.).
8. Install M20 bolts securing the torque rod stabilizer and tighten as follows:

   All Metal Nuts . . . . . .427-475 Nm (315-350 lb.-ft.)
   Nylon-Ins. Nuts . . . . . .354-462 Nm (260-340 lb.-ft.)

   NOTE: Position the split in the rubber bushing as illustrated in Figure 17-9. To prevent any gap between the cap and the frame bracket, tighten the top two bolts on each side first.

IMPORTANT: The upper bolt securing the torque rod stabilizer, bolt 44 in Figure 17-1, must be maintained at proper torque.

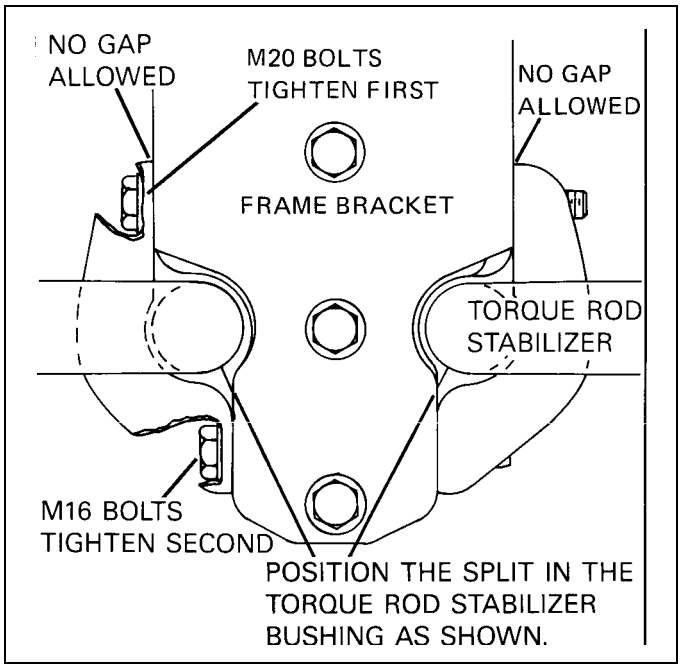


Figure 17-9

9. Connect the driveline.
10. Connect the air lines and the height control valve linkage.
11. Adjust the height control valve. See “Height Control Valve Adjustment.”
12. Align the axles. See “Axle Alignment.”

Airglide 100 Air-Spring Suspension

Retrofitting Aluminum Brackets

NOTE: Mixing steel and aluminum brackets is not recommended.

1. Remove existing steel center frame brackets and lower bogie gusset. See Figure 17-10.

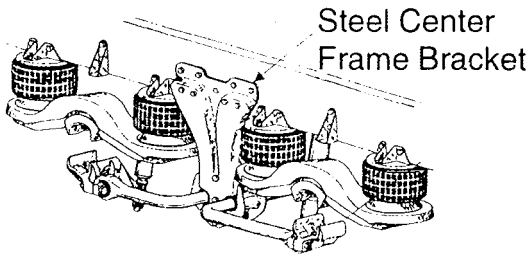


Figure 17-10

2. Ream out four frame rail holes (per bracket) from17.2 mm to 21.2 mm. See Figure 17-11.

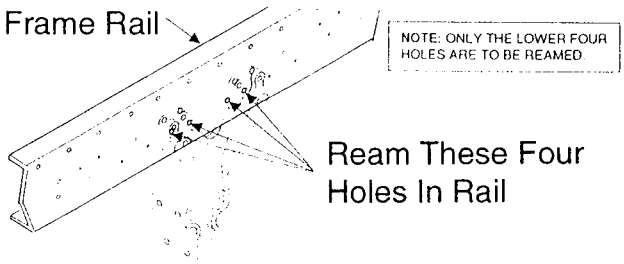


Figure 17-11

3. Install aluminum center frame bracket and lower bogie gusset with new fasteners.

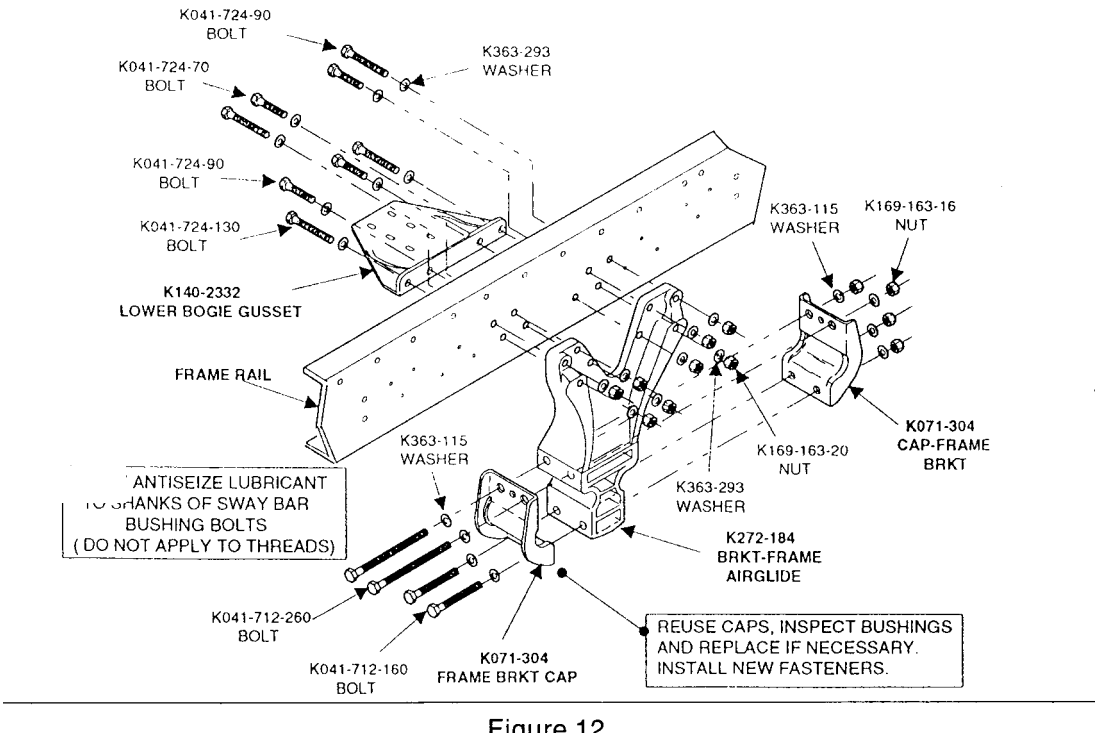


Figure 17-12

Axle Alignment

Alignment should be checked after replacing an axle assembly or suspension system components. Also check the alignment if excessive tire wear occurs which is not caused by improper tire operation. See Tires, Section 1 of the Kenworth Maintenance Manual.

1. On a clean, level floor, move the truck backward and forward in a straight line to allow the axles to assume their neutral position.
2. On both sides of the vehicle, suspend a plumb bob from the zerk fitting in the forward spring drive pin of the steering axle suspension.
3. Lay a straight edge across the frame as close as possible to the dual tires. The straight edge must extend beyond the outside edge of the rear tires.
4. Near the frame on each side, suspend a plumb bob from the straight edge. On each side of the vehicle, measure the distance A between the plumb bob at the front spring drive pin (steering axle) and the plumb bob at the straight edge. See Figure 17-9. Adjust the straight edge until the dimensions from left to right are equal. Clamp the straight edge to the frame, then recheck the measurements. They must be equal.
5. Using a trammel bar, place the pointers in each axle center on one side of the vehicle. Allow the bar to extend forward under the straight edge. While holding the trammel bar in this position, suspend a plumb bob from the straight edge so that it passes next to the trammel bar at the intersecting point. See Figure 17-9.
6. Record dimensions B1 and C1. Repeat step 5 for the opposite side and record dimensions B2 and C2.
7. Corresponding measurements from both sides of the truck, B1 and B2 and C1 and C2, should not vary by more than the acceptable tolerance of 3 mm (1/8 in.).
8. Refer to Table 17-1 for suspension adjustment procedures for out-of-tolerance conditions.
9. To adjust axle alignment, add or subtract the hardened washers (spacers) between the antisway bar ends and the axle brackets. See Key No. 27, Figure 17-1.

CAUTION: Maintain clearance between end of torque rod stabilizer and axle bottom seat.

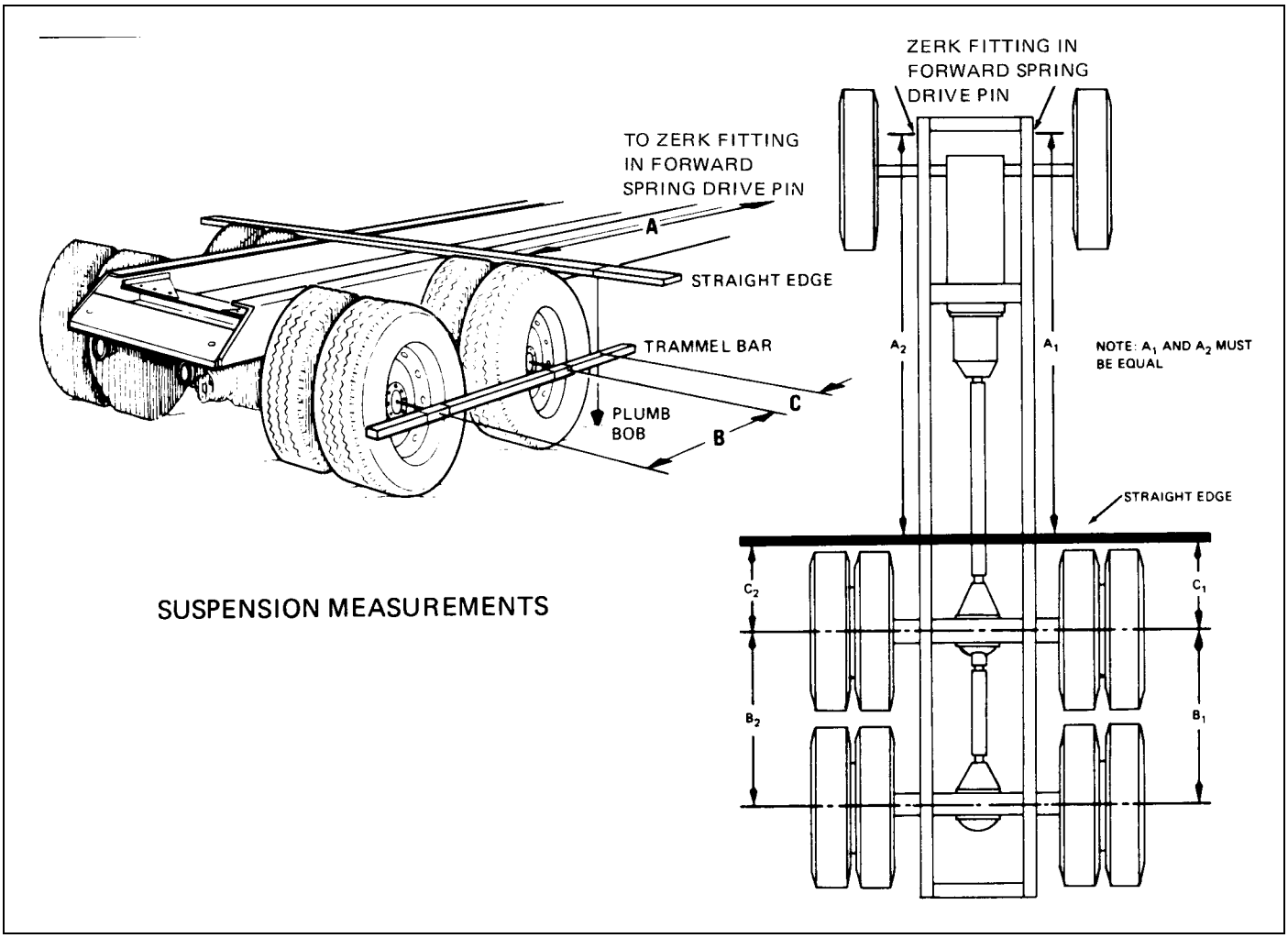


Figure 17-13

Table 17-1 ADJUSTMENT PROCEDURES

CONDITION	CORRECTION PROCEDURE
B1 and B2 out of tolerance and C1 and C2 within tolerance. (Forward-drive axle square with frame, but tandem axles not parallel with each other.)	1. Adjust rear drive axle to bring within tolerance with forward drive axle. 2. Recheck dimensions.
B1 and B2 within tolerance and C1 and C2 out of tolerance. (Tandem axles parallel with each other, but not square to frame.)	1. Adjust forward drive axle to bring C dimensions within tolerance. 2. Adjust rear drive axle to bring B dimensions back in tolerance, if necessary. 3. Recheck dimensions.
B1 and B2 out of tolerance and C1 and C2 out of tolerance. (Tandem axles not parallel with each other and not square with frame.)	1. Adjust forward and/or rear axle to bring B and C dimensions within tolerance. 2. Recheck dimensions. *NOTE: B dimensions must be within tolerance before C dimensions can be accurately verified.*

Height Control Valve Overhaul

It is usually more economical to replace a malfunctioning Height Control Valve, rather than invest the labor time to overhaul the valve. For information on height control valve overhaul, refer to the valve manufacturer's service manual.

Driving The Vehicle With Deflated Air Springs

If an air spring is ruptured, the vehicle may be driven a limited distance at reduced speed on the axle stops. First disconnect the air suspension piping and plug the air tank. Then, exhaust the air springs on the opposite side of the ruptured spring by disconnecting and pulling down on the opposite height control valve control lever. Do not release the parking brake or attempt to move the vehicle until the air system has increased to the governed pressure of 827 kPa (120 psi).

Towing The Vehicle

When the vehicle is towed with the rear axles hanging free of the ground, it will be necessary to chain the axles to the frame. This will prevent damage to the shock absorbers and the air springs.

Jacking Up The Vehicle

Place blocks between the axle and frame before jacking up the vehicle at the axles. This precaution will prevent a sudden drop in the frame, should air accidentally exhaust from the air suspension system.

Troubleshooting

PROBLEM	PROBABLE CAUSE
All air springs flat.	Insufficient air pressure to the suspension: build air pressure to 448 kPa (65 psi) or more, check air compressor, check all air connections. Defective pressure protection valve. Height control valve fitting clogged. Leak in system.
Air spring flat on one side of suspension. (Two Valve Suspension)	Height control valves out of adjustment. Ruptured or leaking air spring. Insufficient air supply to springs: check height control valve inlet for clogging.
Air springs deflate overnight.	Defective check valve assembly. Defective exhaust valve assembly. Leak in air line and/or air springs. Defective cover gasket (rear) or o-rings (front).
Air springs raise to full height but do not exhaust.	Exhaust filter clogged. Combination clogged exhaust filter and malfunctioning air inlet valve assembly.
Suspension deflates rapidly when parked.	Leak in air suspension lines. Leaking air spring.
Suspension will not maintain height during operation.	Clogged air filters. Check all three. Moisture in air tank. Clogged filter screens in height control valve.
Vehicle body fails to level to satisfactory ride height.	Overtravel lever not adjusted properly.
Main air pressure gauge drops to 448 kPa (65 psi).	Stop the vehicle. Check for a ruptured air spring or leaking air lines in the suspension system.
Excessive sway or lean.	Air spring flat or leaking on one side: check firmness of the air springs. Insufficient air supply to springs: check height control valve inlet for clogging.
Intermittent hissing noise from height control valve during operation.	Loss of fluid from delay valve chamber.
Erratic valve action.	Dirt or foreign matter in air valve lever chamber.