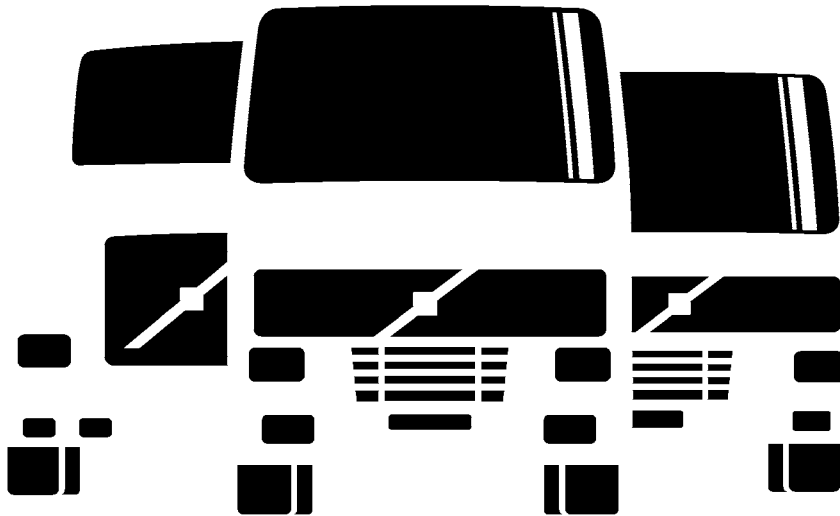


# Service Manual Trucks

Group **560–500**

Compressed Air Brake Schematics

VHD



# Foreword

The descriptions and service procedures contained in this manual are based on designs and methods studies carried out up to April 2001.

The products are under continuous development. Vehicles and components produced after the above date may therefore have different specifications and repair methods. When this is believed to have a significant bearing on this manual, supplementary service bulletins will be issued to cover the changes.

The new edition of this manual will update the changes.

In service procedures where the title incorporates an operation number, this is a reference to an S.R.T. (Standard Repair Time).

Service procedures which do not include an operation number in the title are for general information and no reference is made to an S.R.T.

The following levels of observations, cautions and warnings are used in this Service Documentation:

**Note:** Indicates a procedure, practice, or condition that must be followed in order to have the vehicle or component function in the manner intended.

**Caution:** Indicates an unsafe practice where damage to the product could occur.

**Warning:** Indicates an unsafe practice where personal injury or severe damage to the product could occur.

**Danger:** Indicates an unsafe practice where serious personal injury or death could occur.

**Volvo Trucks North America, Inc.**  
Greensboro, NC USA

**Order number: PV776-TSP144276**

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# General

## Air Brake System

This information is provided to help troubleshoot the brake and air systems from point to point without having to trace the actual tubing. Except for Schematics A, B and C, each schematic describes a particular section of the vehicle with all air lines and components. Schematics A, B and C describe the complete brake system from a functional standpoint (locations of components do not reflect actual locations in vehicle).

This information should be used together with detailed information in Group 56 on each component, along with information on specifications, troubleshooting and test procedures.



# Specifications

## Air Brake System

### General

Type ..... Compressed air brakes

Working pressure ..... 760 to 895 kPa (110 to 130 psi)

**Note:** Additional tank for Holset twin cylinder compressor (120 to 140 psi)

Variants:

4X2, tractor

4X2, truck

6X4, tractor

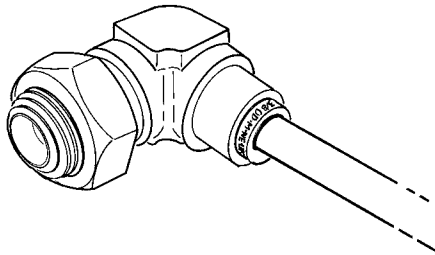
6X4, truck

8X4, truck

10X4, truck

12X4, truck

### Air Tubing and Fittings



### **TUBING**

Material ..... Nylon (polyamide)

Standard ..... SAE J844 & FMVSS 106

Sizes:

Unreinforced ..... 1/4 in. OD

Reinforced with fiber filament ..... 3/8, 1/2, 5/8 and 3/4 in. OD

Safety factor, minimum ..... 5.3:1

System working pressure, maximum ..... 1030 kPa (150 psi)

System working temperature range ..... -40 to +90 °C (-40 to +200 °F)

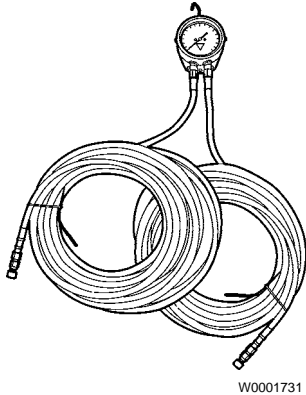




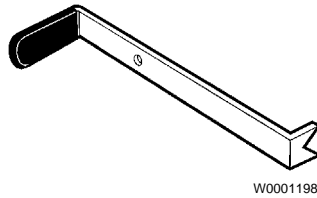
# Tools

## Special Tools

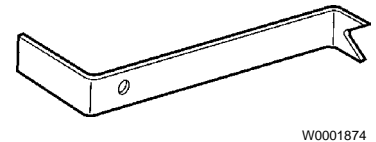
The following special tools are used when checking air system pressure or safely disconnecting air lines. The tools are available from Kent-Moore (1-800-328-6657).



**J-44399**  
Dual air pressure gauge



**J-42189**  
Air line disconnect tool,  
for 3/8 in. OD and smaller

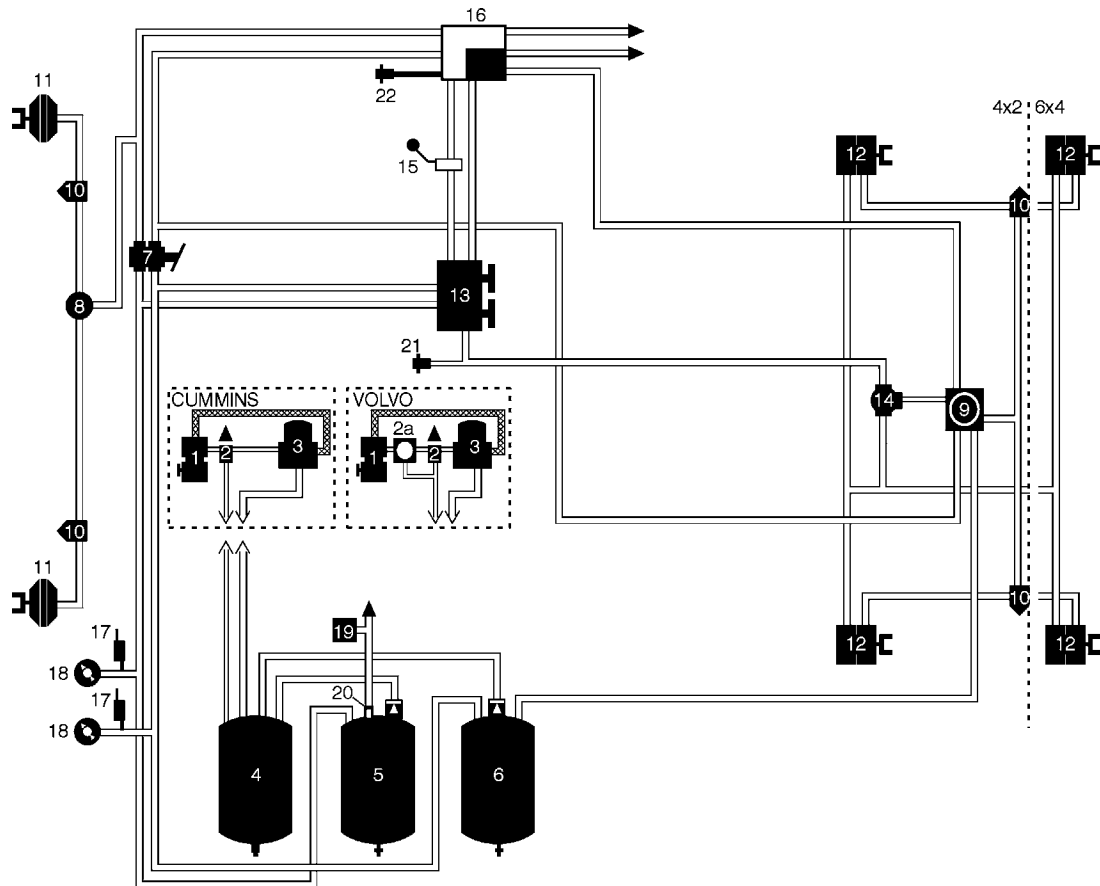


**J-44773**  
Air line release tool,  
for 1/2 and 5/8 in. OD



# Design and Function

## Air Brake System



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- |                                     |   |
|-------------------------------------|---|
| 1 Compressor                        | 12 Brake Chamber                        |
| 2 Governor; 2a Governor Servo Valve | 13 Dash Manifold Valve                  |
| 3 Air dryer                         | 14 Quick Release Valve                  |
| 4 Wet Tank                          | 15 Trailer Hand Brake Valve             |
| 5 "B" System Tank                   | 16 Manifold Tractor Protection Valve    |
| 6 "A" System Tank                   | 17 Low Air Pressure Switch              |
| 7 Foot Valve                        | 18 Air Pressure Gauge                   |
| 8 Quick Release Valve               | 19 Accessory Manifold                   |
| 9 Relay Valve                       | 20 Pressure Protection Valve            |
| 10 ABS Modulator Valve              | 21 Parking/Daytime Running Light Switch |
| 11 Spring Brake Chamber             | 22 Stop Light Switch                    |

A basic compressed air brake system is separated into two parts: a supply system and a control system. The supply system produces, stores and supplies compressed air to the various brake valves in the system and to any air powered accessories. The control system is on the downside of an operating valve. The valve is regulating the amount of air going to an actuator or other valve. Main operating valves are Foot Valve(7), Trailer Hand Brake Valve(15) and Dash Manifold Valve(13). They regulate air pressure going to the wheel brake chambers when operated.

Other operating valves outside the brake system connect to the B System Tank(5). A Pressure Protection Valve(20) protects the brake system from draining, should a problem occur in an accessory supply line. A main supply line goes to the cab, supplying air to cab components, and to the Accessory Manifold(19), located in the frame, supplying air to chassis components.

The circuit diagram above shows components for an ABS brake system. Components 8 and 9 change depending on application and vendor types. See Group 59 for more ABS information.

## Air Tubing and Fittings

The illustrations starting on page 21 represent the brake system as a schematic layout or show actual routing in the vehicle. Color images A, B and C are schematics of the entire brake system. Schematic A shows a 4x2 or 6x4 tractor, color image B shows a truck with auxiliary axles, and color image C shows a tractor with one pusher. All other illustrations show the brake system valves and tubing in different sections of the vehicle. All color on tubing and in the schematic layouts conforms to the standardized color scheme listed to the right.

The tubing in the illustrations is colored the same as the actual tubing in the vehicle. This helps the identification and troubleshooting process and reduces the possibility of error.

All tubing is made of nylon and sizes are always measured as an outer diameter (OD). The 1/4-inch tubing is a solid core, single-ply extrusion. All other sizes are made of a solid core, covered with a protective, colored layer with fiber reinforcement between the layers. The cover is treated for heat and sunlight resistance.

In areas where great flexibility is needed, air is routed in rubber hoses, for example, between the frame and the axles. A hose is comprised of three layers of rubber and reinforcement. Hoses are specifically made for each installation in the correct length with crimped-on fittings on either end.

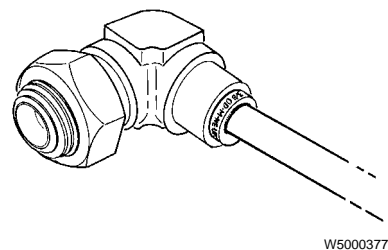
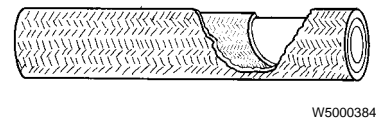
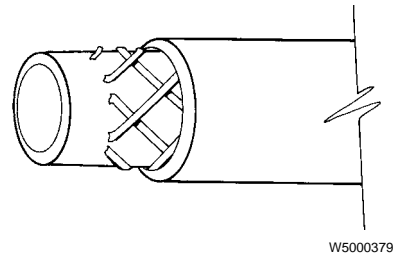
Fittings are typically of the push-connect type. Connecting and disconnecting tubing is very easy, which simplifies troubleshooting in the air system. New, simple test gauges have been introduced for testing the valves and pressures. See Group 56 for more information.

### TUBING COLOR, PRIMARY

BLUE	Supply System Circuit
RED	Front Service Brake Circuit
GREEN	Rear Service Brake Circuit
ORANGE	Parking Brake Circuit

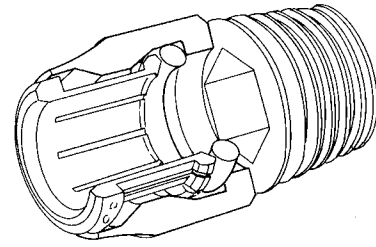
### TUBING COLOR, SECONDARY

BLUE (1/4 in.)	Air Suspension Exhaust
GREY (1/4 in.)	Diff. Lock, Interaxle
GREY (3/8 in.)	Trailer Hand Control
BROWN (1/4 in.)	Diff. Lock, Interwheel
YELLOW (1/4 in.)	Fifth Wheel Air Cylinder
YELLOW (3/8 in.)	Compressor Supply; Exhaust
ORANGE (1/4 in.)	Bobtail Balance Control
BLACK (1/4 in.)	Air Seat; Options Supply



The fitting body is made of brass. An internal O-ring seals on the outside diameter of the tubing and the retaining collar holds the tubing firmly in place. Straight fittings have an internal hex grip; most others have an external hex grip. A number of valves also come with push-type connectors already installed in the valve body.

The fitting is designed to let the tubing rotate to eliminate kinks. The fitting IS NOT designed for locations with continuous movement, such as between frame and axle. Threads are pre-applied with sealant. A fitting can be reused in the same port up to five times before new sealant needs to be applied.



W5000378

### *Air Fitting Types*

- Straight, thread to tube. Cyl. threads with O-ring seal.
- Straight, thread to tube. Pipe threads.
- Straight, tube to tube.
- Straight, tube to tube. Bulkhead (at pedal plate).
- Plugs for bulkhead fitting.
- 90° , thread to tube.
- 90° , thread to tube. (Hex grip around base).
- 45° , thread to tube.
- Branch Tee, thread to tube and tube.
- Branch Tee, thread to tube - tube (Hex grip around base).
- Branch Tee, 90° , thread to tube - tube.
- Branch Tee, tube to tube - tube.
- Run Tee, thread to tube - tube. (Tube 1 - straight; tube 2 - 90°).
- Run Tee, thread to tube - tube. (Tube 1 - straight; tube 2 - 90°). (Hex grip around base).
- Run Tee, tube to bulkhead to tube - tube. (Used for stoplight switch if vehicle is equipped with brake application gauge.)

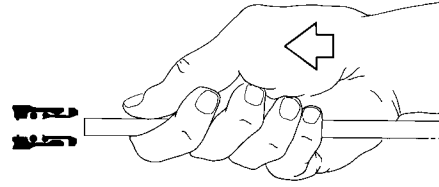
### *Air Tubing Installation*

To ensure a tight seal between tubing and fitting, the tubing end needs to be cut straight. Also, inspect tubing that has been removed for "teethmarks" around the perimeter where the retaining collar holds the tubing in place. If the marks are too deep, that is, can be easily seen or a depression can be felt by running a fingernail across the mark, recut the tubing before reinstalling.



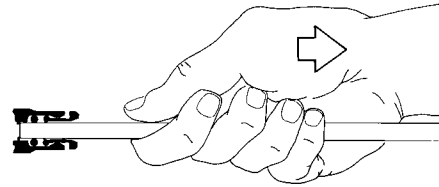
W5000380

Installation is done by aligning tubing in a straight line with the fitting opening. Push until the tubing stops against the bottom of the fitting.



W5000381

When the tubing has bottomed in the fitting, pull back to make the collar retaining teeth engage the tubing. Do not pull too hard, only enough to ensure that the collar has gripped the tubing.



W5000382

### Air Tubing Removal



#### DANGER

Before working on a vehicle, set the parking brakes, place the transmission in neutral, and block the wheels. Failure to do so can result in unexpected vehicle movement and can cause serious personal injury or death.

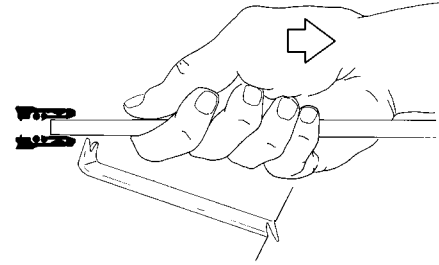


#### WARNING

Always make sure that all compressed air is removed from the air system before removing tubing or components. Compressed air has great force and can cause serious personal injury.

To make removal easier, remove tubing when valve or component is still in place.

To disconnect, push the tubing into the fitting until it bottoms. Push in the collar and then pull out tubing while holding the collar. Use release tool J-42189 for small tubing and tool J-44773 for tubing with 1/2" or 5/8" OD.



W5000580

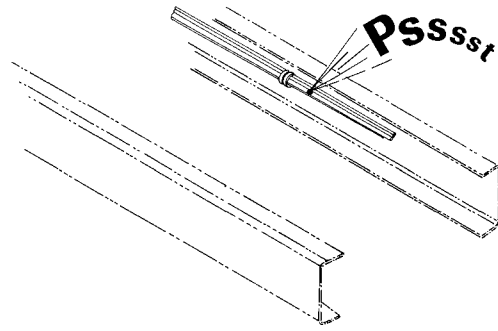
## Air Tubing Repair

In the event that tubing has been severed as a result of an accident or if tubing needs to be lengthened for rerouting, there are certain procedures that must be followed.

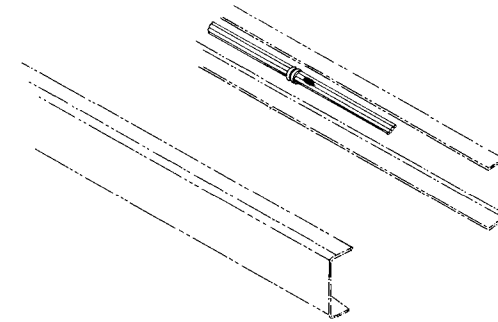
In general, there are no restrictions on repairing tubing versus replacing it. Repaired tubing has the same integrity as the rest of the system if the repairs are done properly. Tube-to-tube fittings are available for 1/4, 3/8 and 1/2-inch tubing.

Damage to one tube is repaired so that the repair fitting is close to a bracket for support. Prepare the tubing as outlined on the previous page. Push the tubing ends into the fitting. Leak test fitting at full pressure after system pressure has been established again.

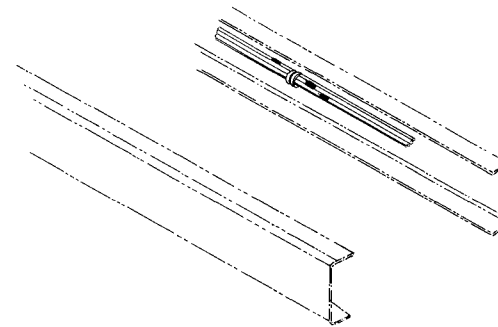
If a whole bundle of tubing needs to be repaired or lengthened, make sure the fittings are staggered instead of installed at the same length. Put the larger fittings close to a bracket for support and the smaller fittings farther away.



W5000582



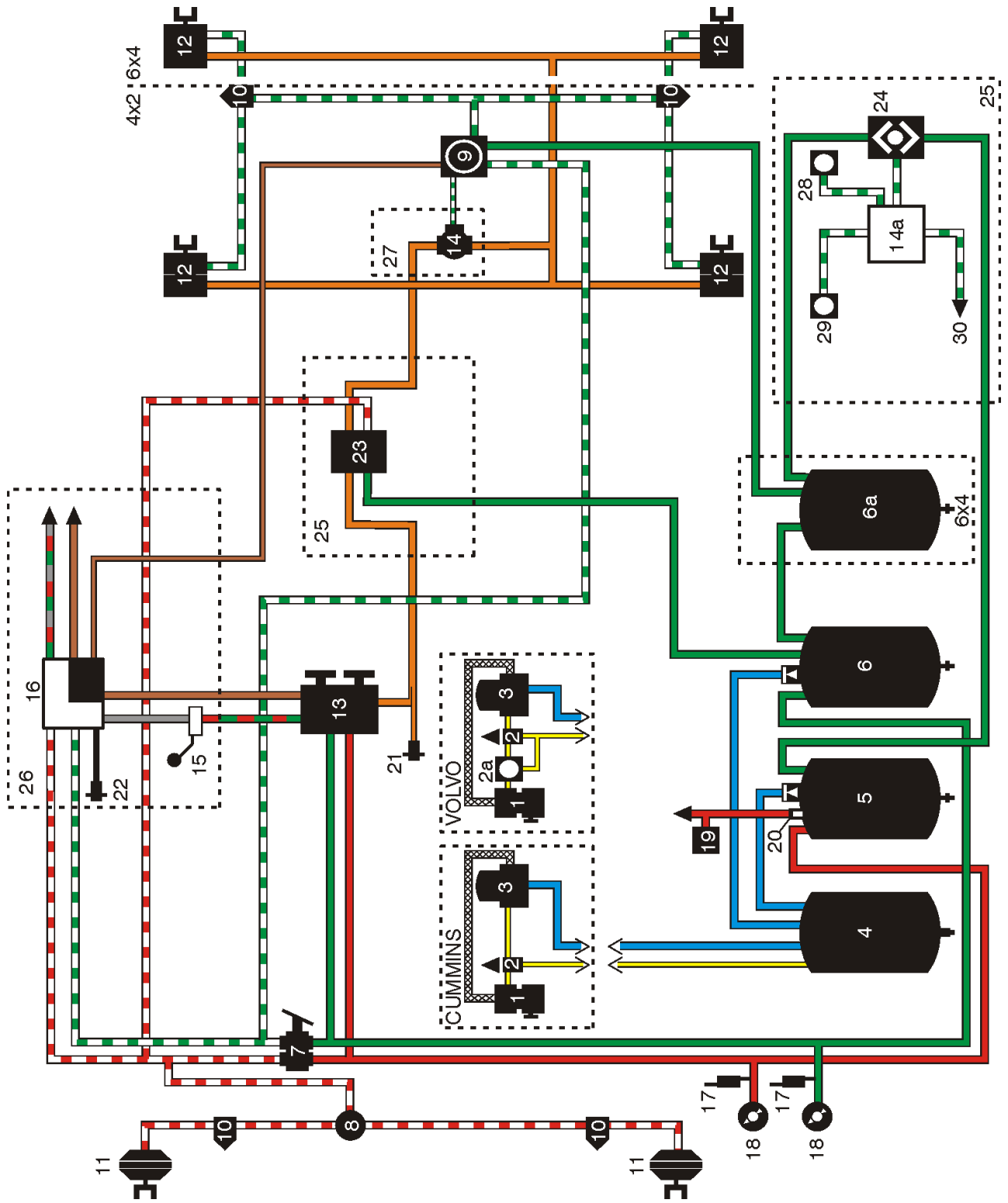
W5000583



W5000584



Air Brake System Schematics: Schematic A - 6x4 or 4x2



V65001219

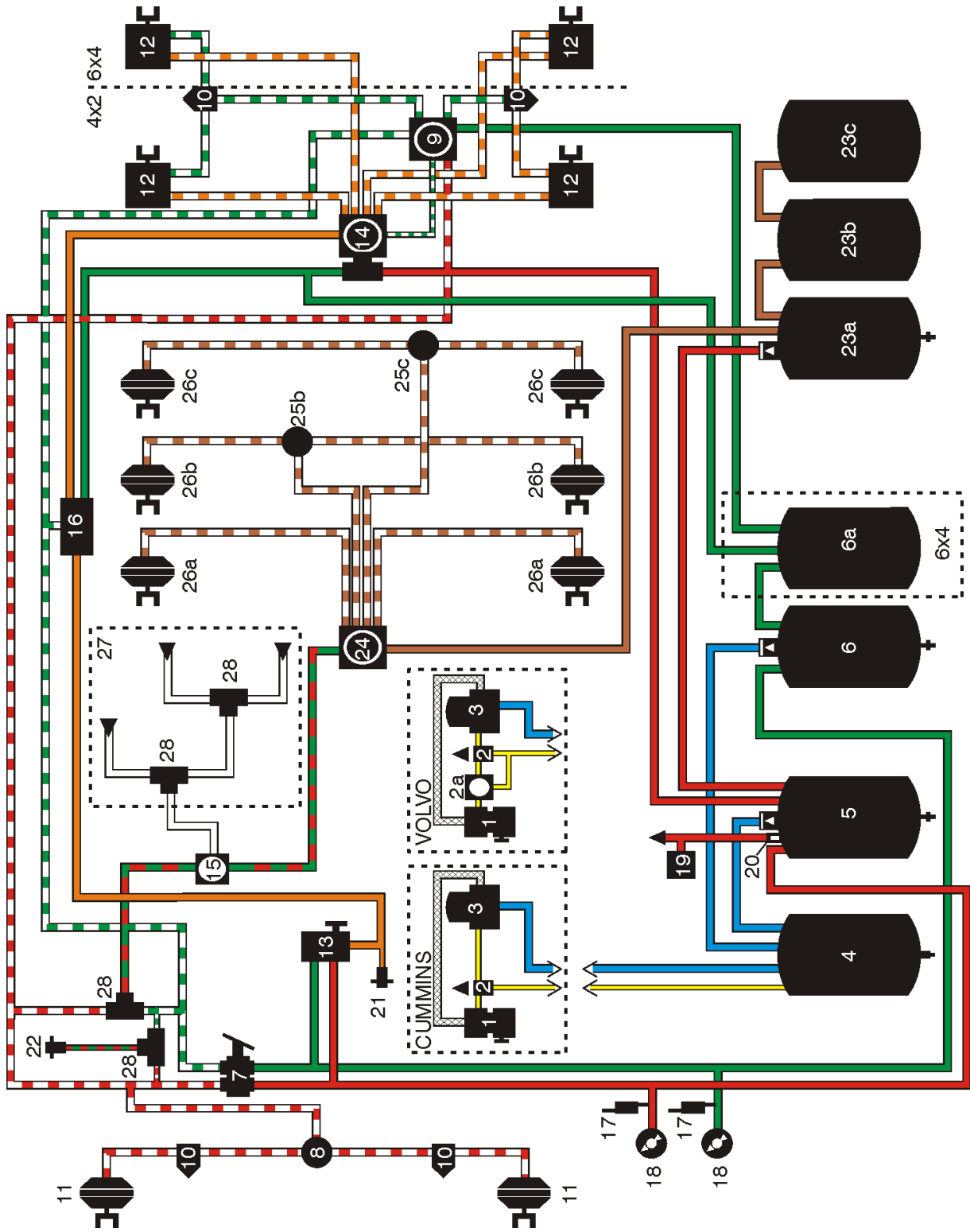
1. Compressor	10. ABS Modulator Valve	20. Pressure Protection Valve
2. Governor	11. Front Brake Chambers	21. Parking/Daytime Running Light Switch
2a. Governor Servo Valve	12. Parking/Rear Brake Chambers	22. Stop Light Switch
3. Air Dryer	13. Dash Manifold Valve	23. Inversion Valve
4. "Wet" Tank	14. 2-Way Check and Quick Release Valve	24. Double-check Valve
5. "B" Tank (Front Circuit)	14a. Relay Valve	25. For Trucks
6. "A" Tank (Rear Circuit)	15. Trailer Hand Brake Valve	26. For Tractors or end-of frame air connection
6a. Air Tank (6x4)	16. Tractor Protection Valve	27. For Tractors
7. Foot Brake Valve	17. Low Pressure Switches	28. From #9 (Relay Valve)
8. Quick Release Valve	18. Air Gauges	29. From #23 (Inversion Valve)
9. ABS Relay Valve	19. Accessory Manifold	30. To #12 (Parking/Rear Brake Chambers)

This schematic describes the air brake system. All colors are as they appear on the tubing in the vehicle. Components are grouped together so that the left portion of the schematic represents the front of the vehicle and the right portion represents the rear of the vehicle. Other locations are not representative of true location in the vehicle.

Use the schematic for troubleshooting and understanding the air brake system function. To separate the supply and operation systems, the operation system is shown with broken lines. In the vehicle, all tubing is solid colored.

BLUE — Supply System Circuit  
 RED — Front Service Brake Circuit  
 GREEN — Rear Service Brake Circuit  
 ORANGE — Parking Brake Circuit  
 BROWN — Trailer Supply Circuit  
 GREY — Trailer Hand Control Circuit  
 SOLID lines indicate Supply.  
 BROKEN lines indicate Operation.

Air Brake System Schematics: Schematic B - Auxiliary Lift Axles



W5001220

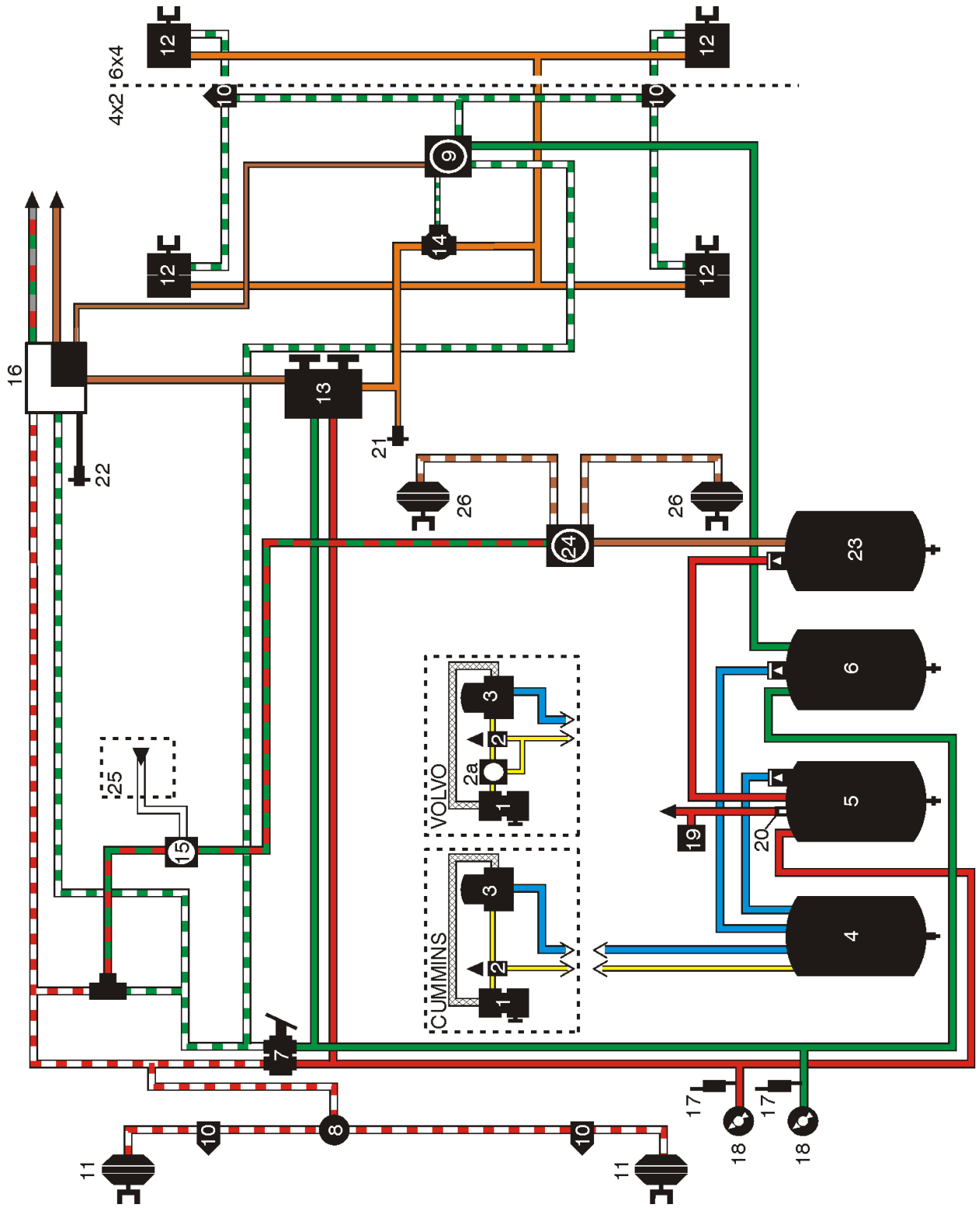
1. Compressor	10. ABS Modulator Valve	21. Park/Daytime Running Light Switch
2. Governor	11. Front Brake Chambers	22. Stoplight Switch
2a. Governor Servo Valve	12. Parking/Rear Brake Chambers	23. a,b,c. Tanks for Auxiliary Axles 1,2 or 3
3. Air Dryer	13. Dash Manifold Valve	24. Relay Valve
4. "Wet" Tank	14. Double Check Valve AND Spring Brake Relay	25. b,c. Quick Release Valves for Axles 2 or 3
5. "B" Tank (Front Circuit)	15. Synchro Valve	26. a,b,c. Brake Chambers for Auxiliary Axles
6. "A" Tank (Rear Circuit)	16. Spring Brake Inversion Valve	27. Auxiliary Axle Air Suspension. See Group 76.
6a. Air Tank (6x4)	17. Low Pressure Switches	28. Double Check Valve
7. Foot Brake Valve	18. Air Gauges	
8. Quick Release Valve	19. Accessory Manifold	
9. Service Brake Relay	20. Pressure Protection Valve	

This schematic describes the air brake system. All colors are as they appear on the tubing in the vehicle. Components are grouped together so that the left portion of the schematic represents the front of the vehicle and the right portion represents the rear of the vehicle. Other locations are not representative of true location in the vehicle.

Use the schematic for troubleshooting and understanding the air brake system function. To separate the supply and operation systems, the operation system is shown with broken lines. In the vehicle, all tubing is solid colored.

BLUE — Supply System Circuit  
 RED — Front Service Brake Circuit  
 GREEN — Rear Service Brake Circuit  
 ORANGE — Parking Brake Circuit  
 BROWN — Trailer Supply Circuit/Auxiliary Axle Supply  
 GREY — Trailer Hand Control Circuit  
 SOLID lines indicate Supply.  
 BROKEN lines indicate Operation.

Air Brake System Schematics: Schematic C - Tractor with One Pusher



W5001221

1. Compressor	10. ABS Modulator Valve	19. Accessory Manifold
2. Governor	11. Front Brake Chambers	20. Pressure Protection Valve
2a. Governor Servo Valve	12. Parking/Rear Brake Chambers	21. Park/Daytime Running Light Switch
3. Air Dryer	13. Dash Manifold Valve	22. Stoplight Switch
4. "Wet" Tank	14. Relay Valve	23. Tank for Auxiliary Axle
5. "B" Tank (Front Circuit)	15. Synchro Valve	24. Relay Valve
6. "A" Tank (Rear Circuit)	16. Inversion Valve	25. Auxiliary Axle Air Suspension. See Group 76.
7. Foot Brake Valve	17. Low Pressure Switches	
8. Quick Release Valve	18. Air Gauges	
9. Service Brake Relay		

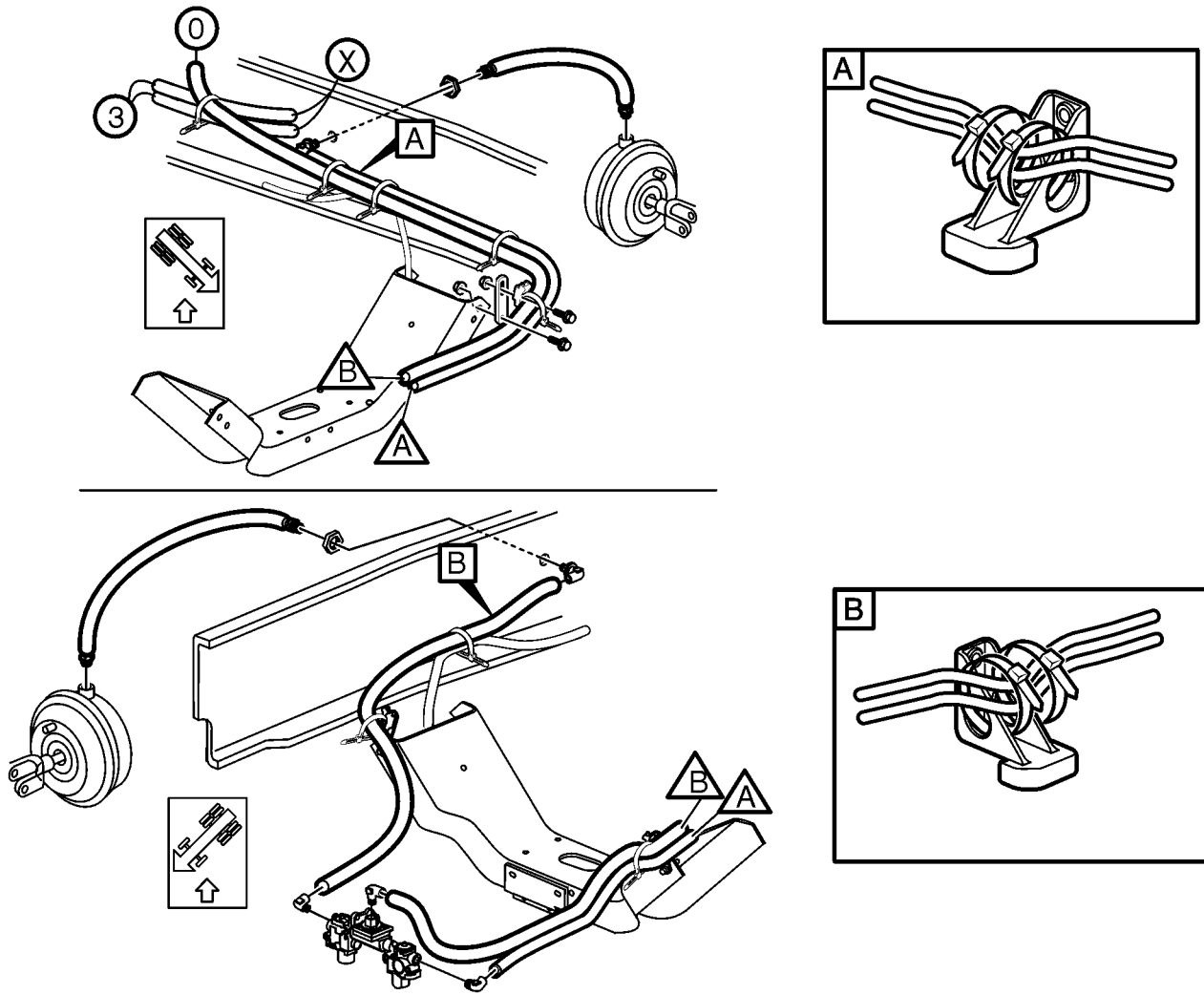
This schematic describes the air brake system. All colors are as they appear on the tubing in the vehicle. Components are grouped together so that the left portion of the schematic represents the front of the vehicle and the right portion represents the rear of the vehicle. Other locations are not representative of true location in the vehicle.

Use the schematic for troubleshooting and understanding the air brake system function. To separate the supply and operation systems, the operation system is shown with broken lines. In the vehicle, all tubing is solid colored.

BLUE — Supply System Circuit  
 RED — Front Service Brake Circuit  
 GREEN — Rear Service Brake Circuit  
 ORANGE — Parking Brake Circuit  
 BROWN — Trailer Supply Circuit  
 GREY — Trailer Hand Control Circuit  
 SOLID lines indicate Supply.  
 BROKEN lines indicate Operation.

# Air Brake Routing Schematics

## Front Brake Valves



0  
To Pedal Valve

2  
See "Bulkhead" page 22

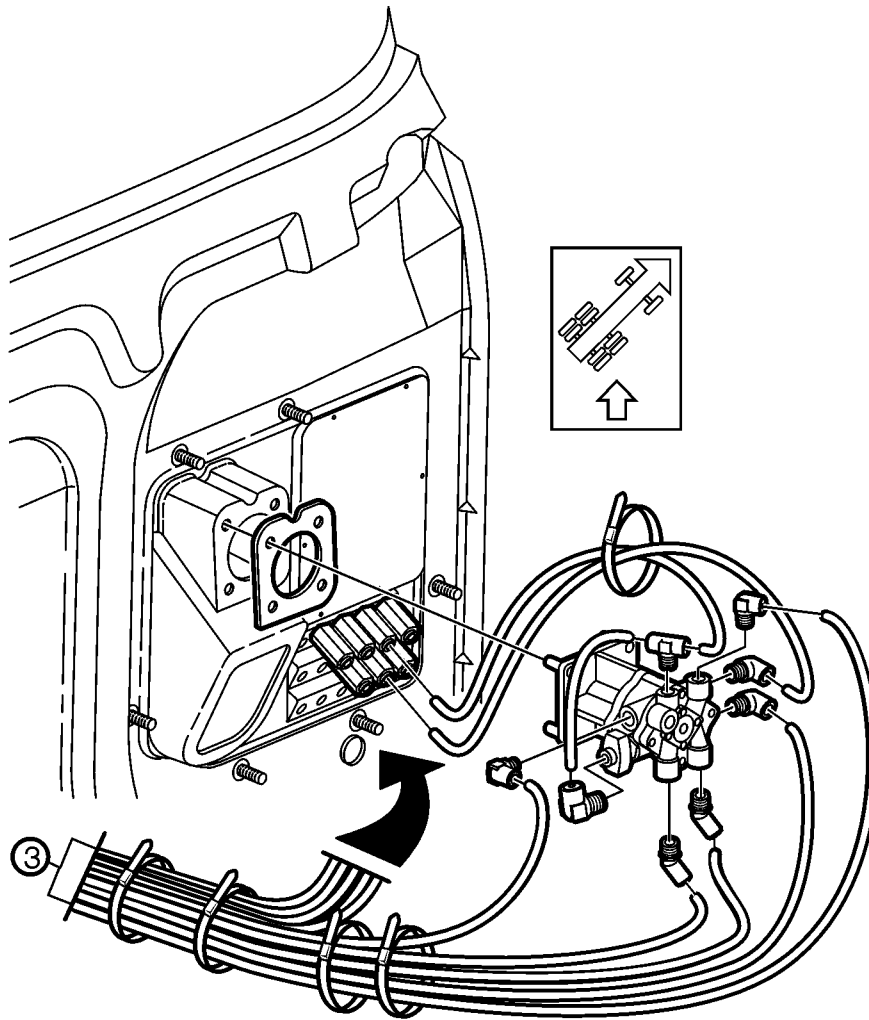
3  
See "Front Section, Battery Box Left Side Behind Front Fender" page 23  
See "Front Section, Battery Box Left Side Behind Fuel Tank" page 24  
See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Forward, Air Tanks Right Side" page 27

W5001272

See "Front Section, Battery Box Right Side, Muffler Horizontal, Air Tanks Left Side (102" Wide, 22" Fuel Tank or 96" Wide, 26" Fuel Tank)" page 28  
See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Back, Air Tanks Right Side" page 26  
See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Vertical Left/Vertical Right/Vertical Dual" page 25

X  
To Governor

## Bulkhead

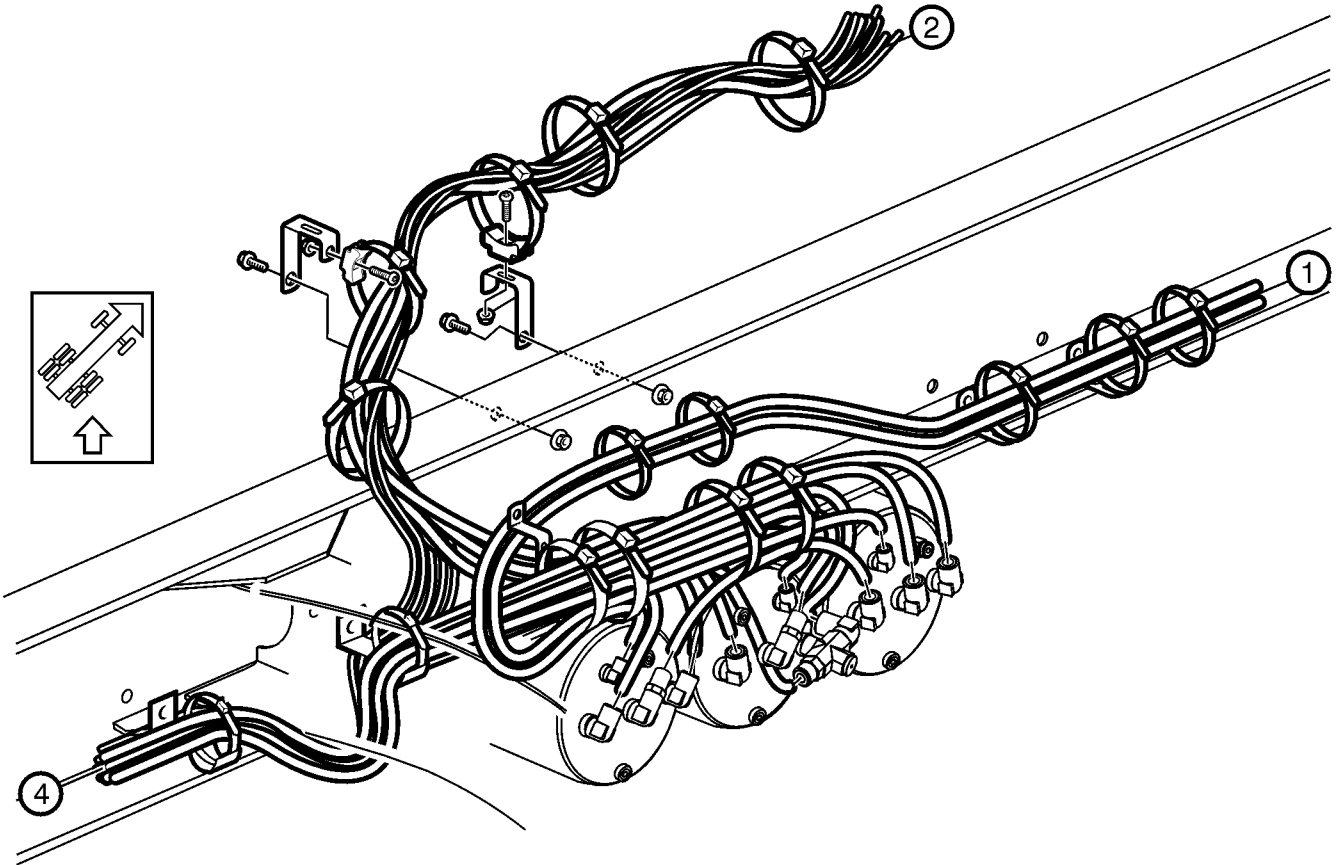


3  
 See "Front Section, Battery Box Left Side Behind Front Fender" page 23  
 See "Front Section, Battery Box Left Side Behind Fuel Tank" page 24  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Forward, Air Tanks Right Side" page 27  
 See "Front Section, Battery Box Right Side, Muffler Horizontal, Air Tanks Left Side (102" Wide, 22" Fuel Tank or 96" Wide, 26" Fuel Tank)" page 28

W5001273  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Back, Air Tanks Right Side" page 26  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Vertical Left/Vertical Right/Vertical Dual" page 25



## Front Section, Battery Box Left Side Behind Front Fender



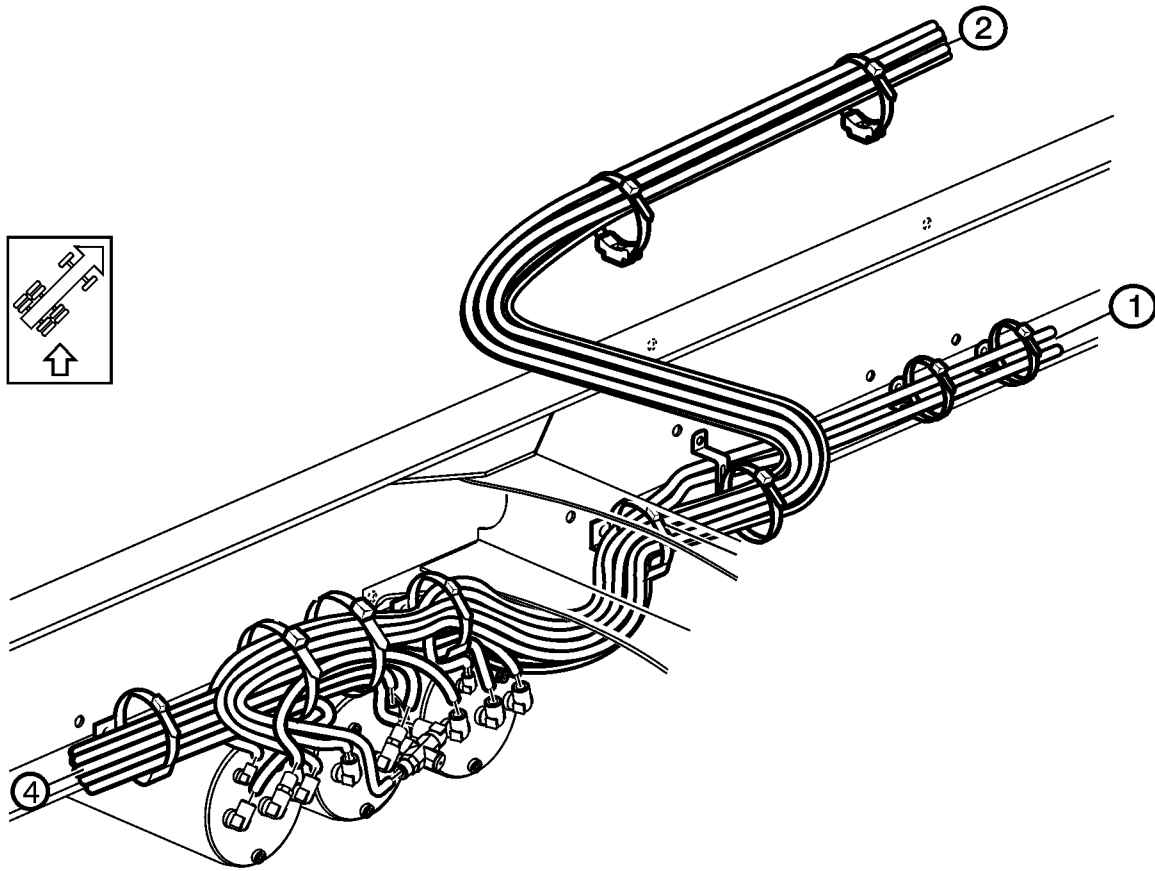
1  
See "Front Brake Valves" page 21

2  
See "Bulkhead" page 22

4  
See "Middle Section, No Pushers" page 32  
See "Middle Section, 8x4, Two Driven Axles, One Pusher Axle or 6x2, One Driven Axle, One Pusher Axle" page 31  
See "Middle Section, 10x4, Two Driven Axles, Two Pusher Axles" page 30  
See "Middle Section, 12x4, Three Pusher Axles, Two Driven Axles" page 29

W5001274

## Front Section, Battery Box Left Side Behind Fuel Tank



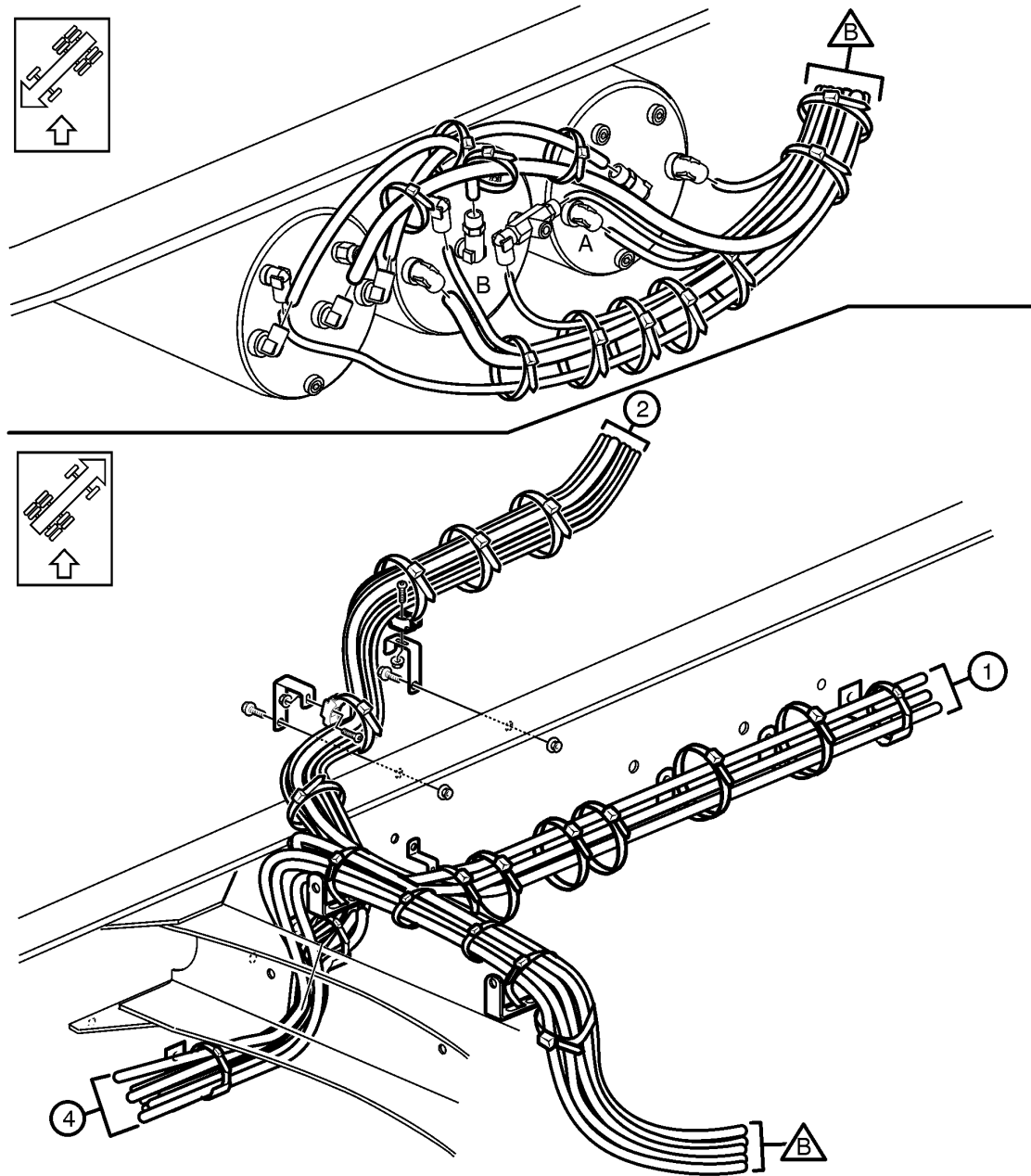
W5001275

1  
See "Front Brake Valves" page 21

2  
See "Bulkhead" page 22

4  
See "Middle Section, No Pushers" page 32  
See "Middle Section, 8x4, Two Driven Axles, One Pusher Axle or 6x2, One Driven Axle, One Pusher Axle" page 31  
See "Middle Section, 10x4, Two Driven Axles, Two Pusher Axles" page 30  
See "Middle Section, 12x4, Three Pusher Axles, Two Driven Axles" page 29

# Front Section, Battery Box Right Side Behind Front Fender, Muffler Vertical Left/Vertical Right/Vertical Dual

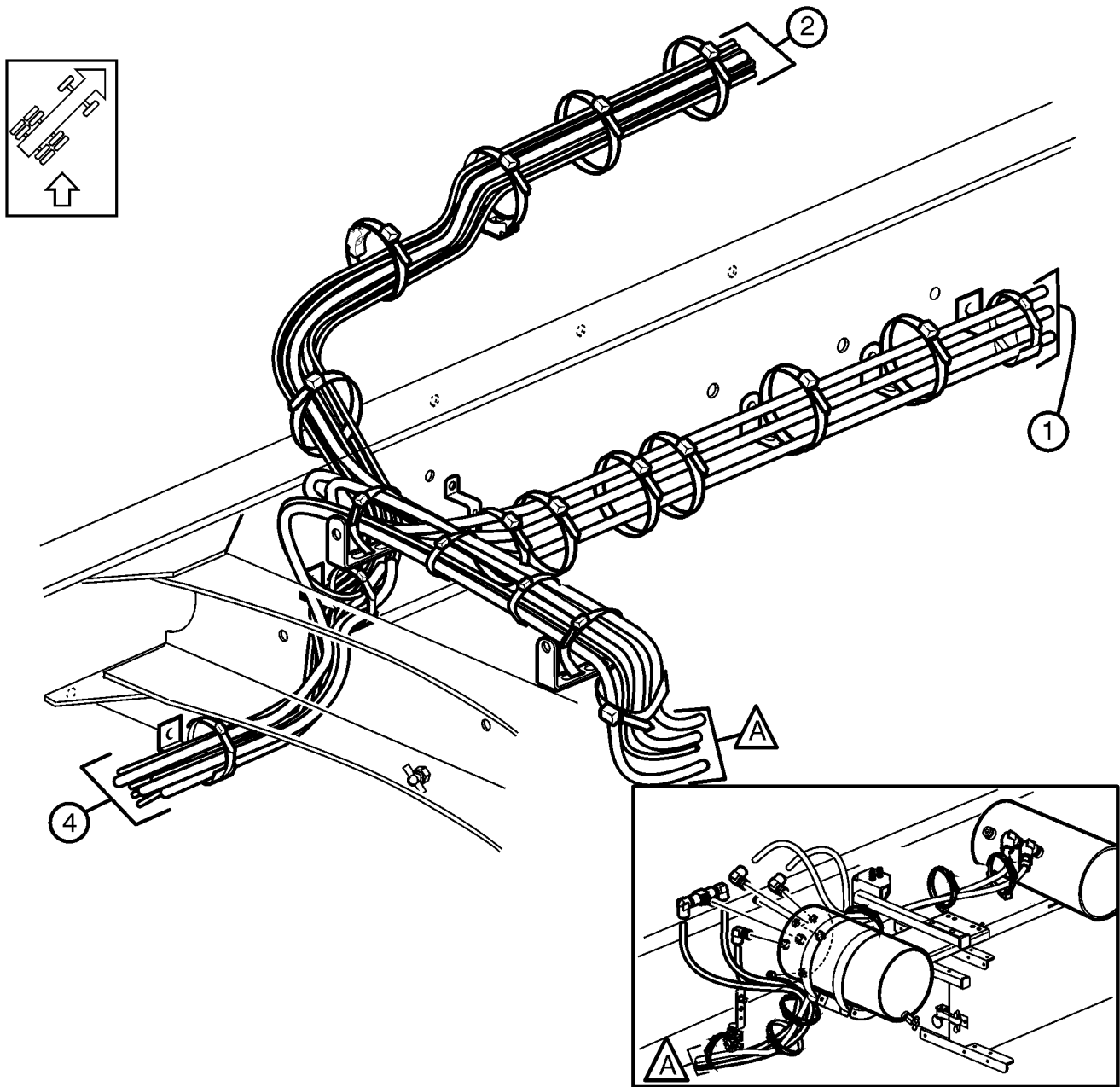


W5001276

- 1  
See "Front Brake Valves" page 21
- 2  
See "Bulkhead" page 22

- 4  
See "Middle Section, No Pushers" page 32  
See "Middle Section, 8x4, Two Driven Axles, One Pusher Axle or 6x2, One Driven Axle, One Pusher Axle" page 31  
See "Middle Section, 10x4, Two Driven Axles, Two Pusher Axles" page 30  
See "Middle Section, 12x4, Three Pusher Axles, Two Driven Axles" page 29

Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Back, Air Tanks Right Side



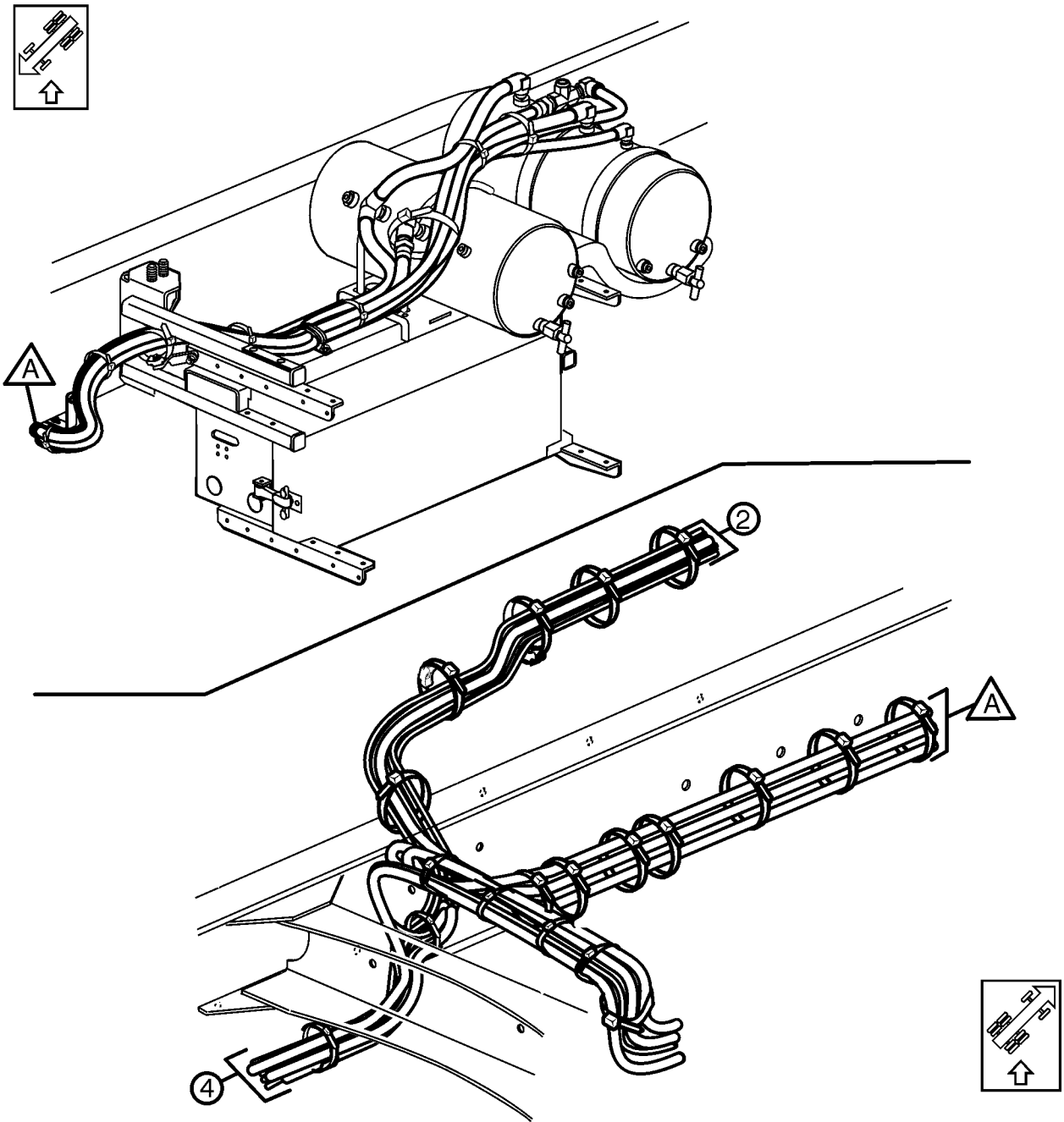
W5001277

1  
See "Front Brake Valves" page 21

2  
See "Bulkhead" page 22

4  
See "Middle Section, No Pushers" page 32  
See "Middle Section, 8x4, Two Driven Axles, One Pusher Axle or 6x2, One Driven Axle, One Pusher Axle" page 31  
See "Middle Section, 10x4, Two Driven Axles, Two Pusher Axles" page 30  
See "Middle Section, 12x4, Three Pusher Axles, Two Driven Axles" page 29

# Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Forward, Air Tanks Right Side

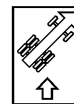
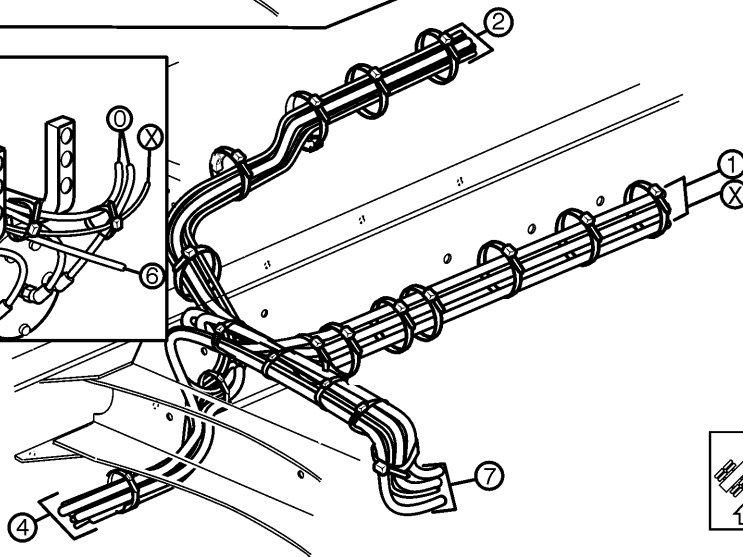
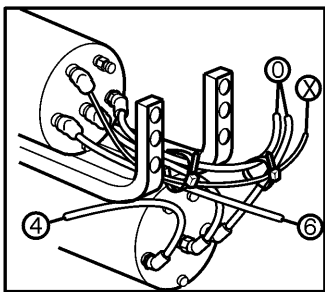
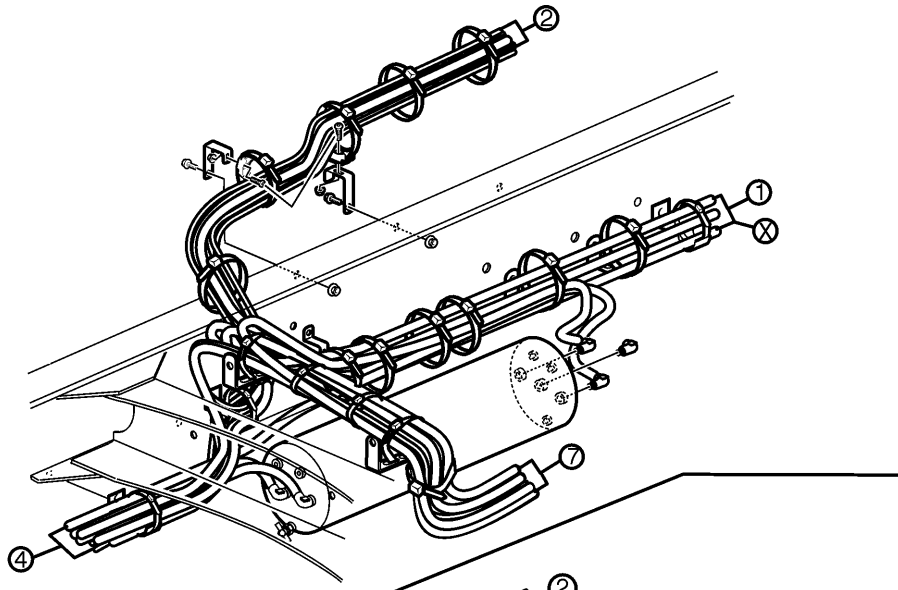
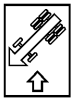


2  
See "Bulkhead" page 22

4  
See "Middle Section, No Pushers" page 32  
See "Middle Section, 8x4, Two Driven Axles, One Pusher Axle or 6x2, One Driven Axle, One Pusher Axle" page 31  
See "Middle Section, 10x4, Two Driven Axles, Two Pusher Axles" page 30  
See "Middle Section, 12x4, Three Pusher Axles, Two Driven Axles" page 29

W5001278

# Front Section, Battery Box Right Side, Muffler Horizontal, Air Tanks Left Side (102" Wide, 22" Fuel Tank or 96" Wide, 26" Fuel Tank)



W5001286

0  
To Pedal Valve

1  
See "Front Brake Valves" page 21

2  
See "Bulkhead" page 22

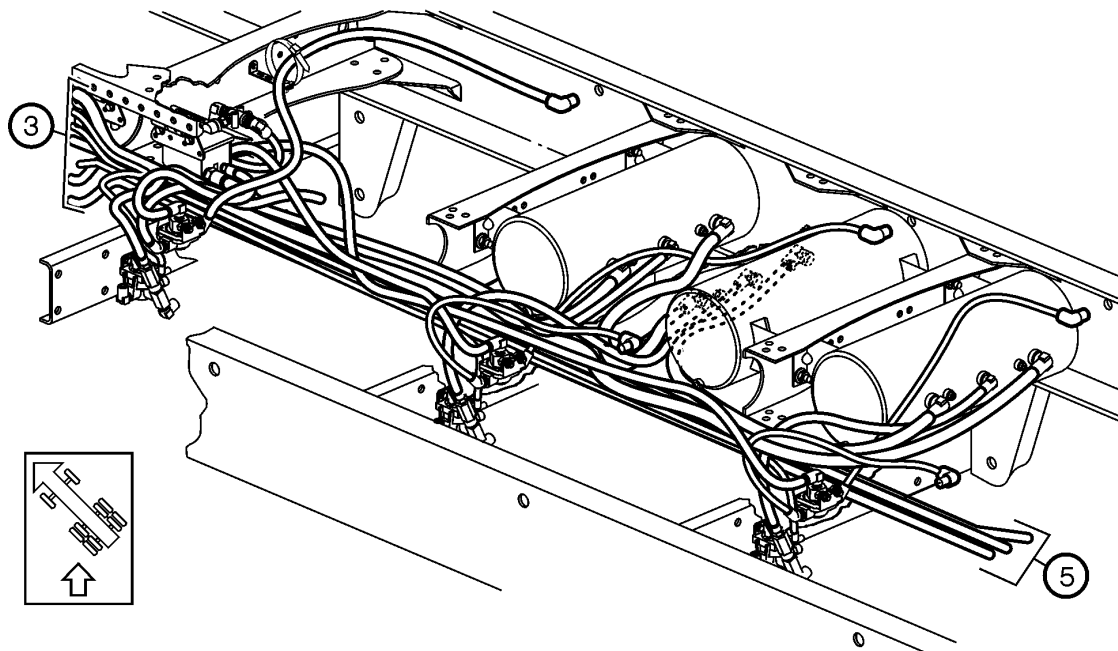
4  
See "Middle Section, No Pushers" page 32  
See "Middle Section, 8x4, Two Driven Axles, One Pusher Axle or 6x2, One Driven Axle, One Pusher Axle" page 31  
See "Middle Section, 10x4, Two Driven Axles, Two Pusher Axles" page 30  
See "Middle Section, 12x4, Three Pusher Axles, Two Driven Axles" page 29

6  
To Air Dryer

7  
To Battery Box

X  
To Governor

## Middle Section, 12x4, Three Pusher Axles, Two Driven Axles



W5001279

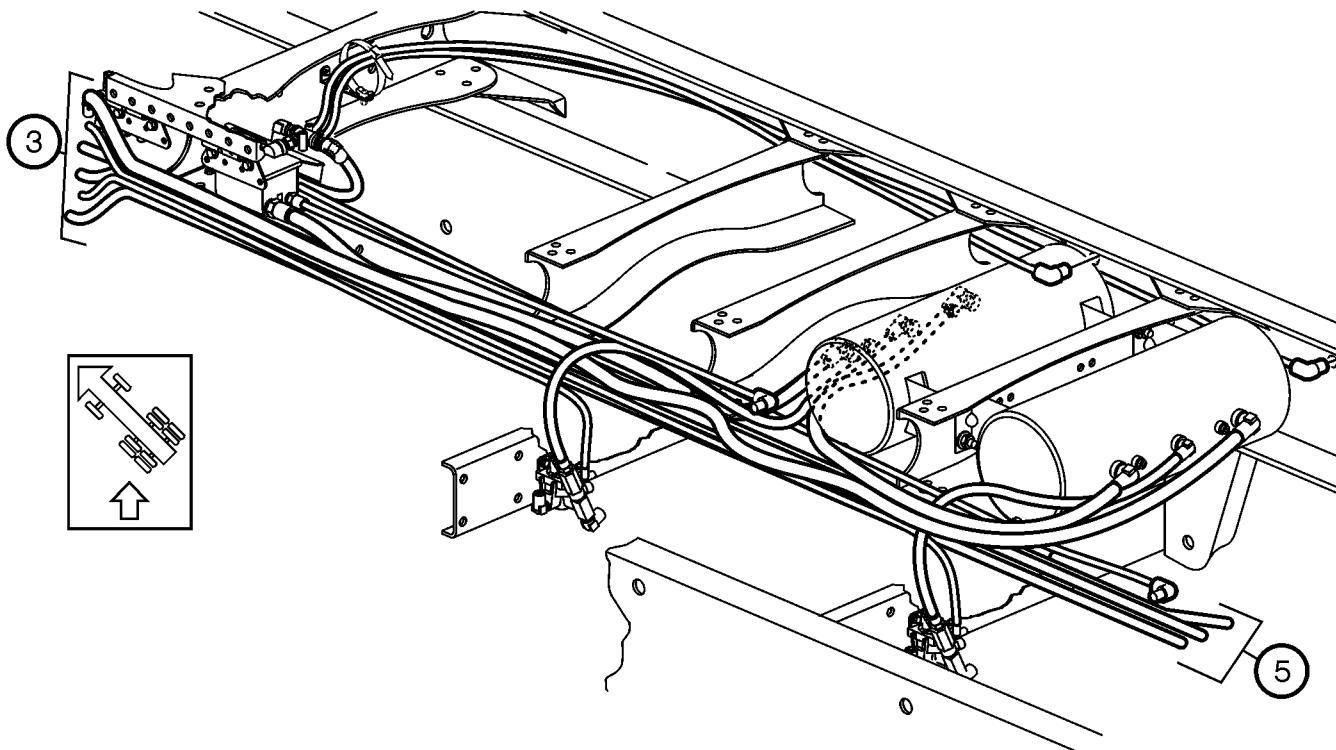
3

See "Front Section, Battery Box Left Side Behind Front Fender" page 23  
 See "Front Section, Battery Box Left Side Behind Fuel Tank" page 24  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Forward, Air Tanks Right Side" page 27  
 See "Front Section, Battery Box Right Side, Muffler Horizontal, Air Tanks Left Side (102" Wide, 22" Fuel Tank or 96" Wide, 26" Fuel Tank)" page 28  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Back, Air Tanks Right Side" page 26  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Vertical Left/Vertical Right/Vertical Dual" page 25

5

See "Truck, Volvo Suspension" page 33  
 See "Truck, Hendrickson A4H Suspension" page 35  
 See "Truck, Hendrickson HN/RT Suspension" page 34

## Middle Section, 10x4, Two Driven Axles, Two Pusher Axles

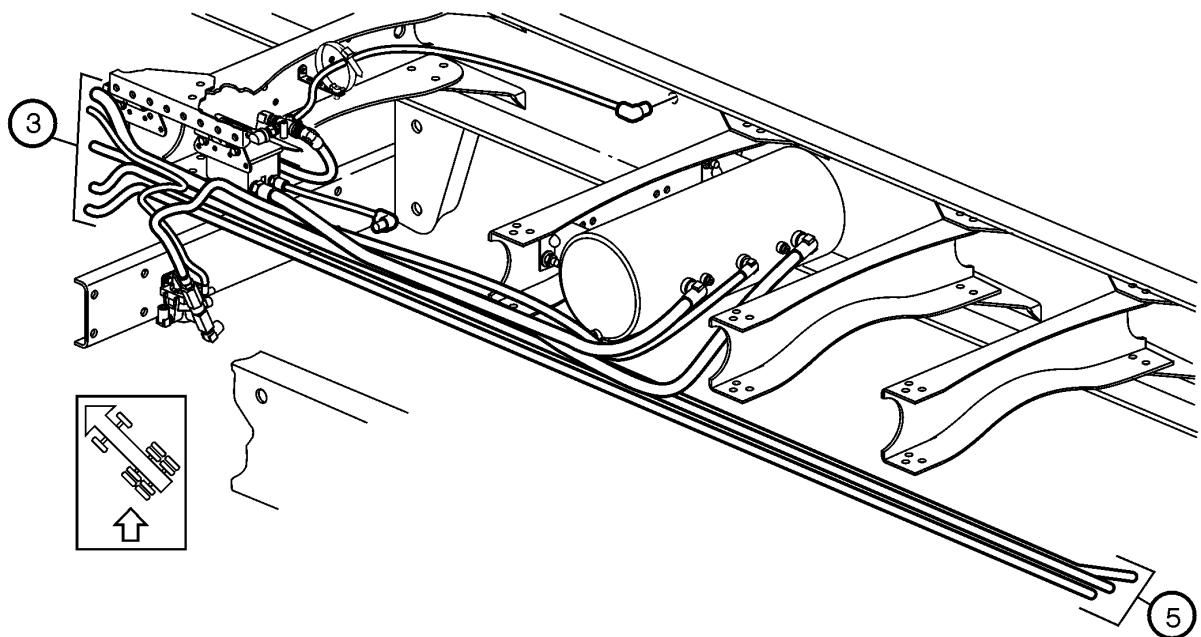


W5001280

- 3  
 See "Front Section, Battery Box Left Side Behind Front Fender" page 23  
 See "Front Section, Battery Box Left Side Behind Fuel Tank" page 24  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Forward, Air Tanks Right Side" page 27  
 See "Front Section, Battery Box Right Side, Muffler Horizontal, Air Tanks Left Side (102" Wide, 22" Fuel Tank or 96" Wide, 26" Fuel Tank)" page 28  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Back, Air Tanks Right Side" page 26  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Vertical Left/Vertical Right/Vertical Dual" page 25
- 5  
 See "Truck, Volvo Suspension" page 33  
 See "Truck, Hendrickson A4H Suspension" page 35  
 See "Truck, Hendrickson HN/RT Suspension" page 34



## Middle Section, 8x4, Two Driven Axles, One Pusher Axle or 6x2, One Driven Axle, One Pusher Axle



W5001281

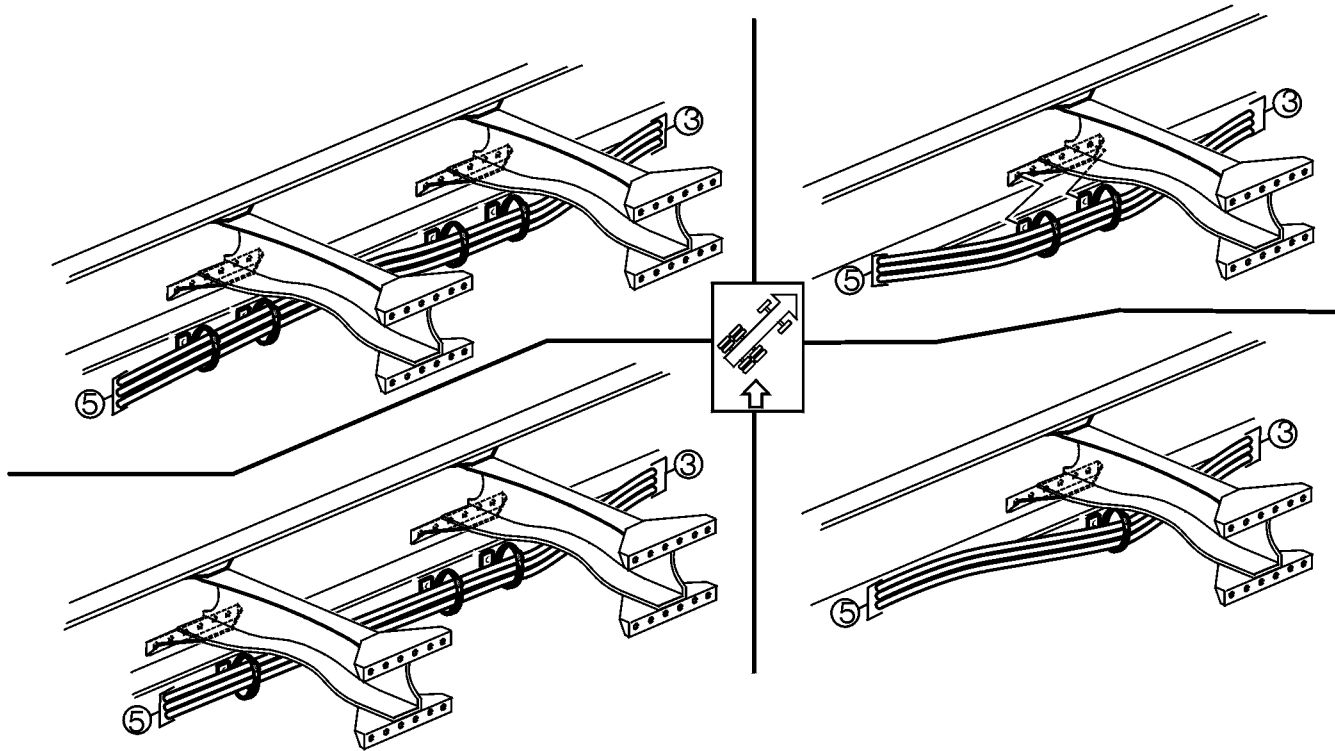
3

See "Front Section, Battery Box Left Side Behind Front Fender" page 23  
 See "Front Section, Battery Box Left Side Behind Fuel Tank" page 24  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Forward, Air Tanks Right Side" page 27  
 See "Front Section, Battery Box Right Side, Muffler Horizontal, Air Tanks Left Side (102" Wide, 22" Fuel Tank or 96" Wide, 26" Fuel Tank)" page 28  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Back, Air Tanks Right Side" page 26  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Vertical Left/Vertical Right/Vertical Dual" page 25

5

See "Truck, Volvo Suspension" page 33  
 See "Truck, Hendrickson A4H Suspension" page 35  
 See "Truck, Hendrickson HN/RT Suspension" page 34

# Middle Section, No Pushers

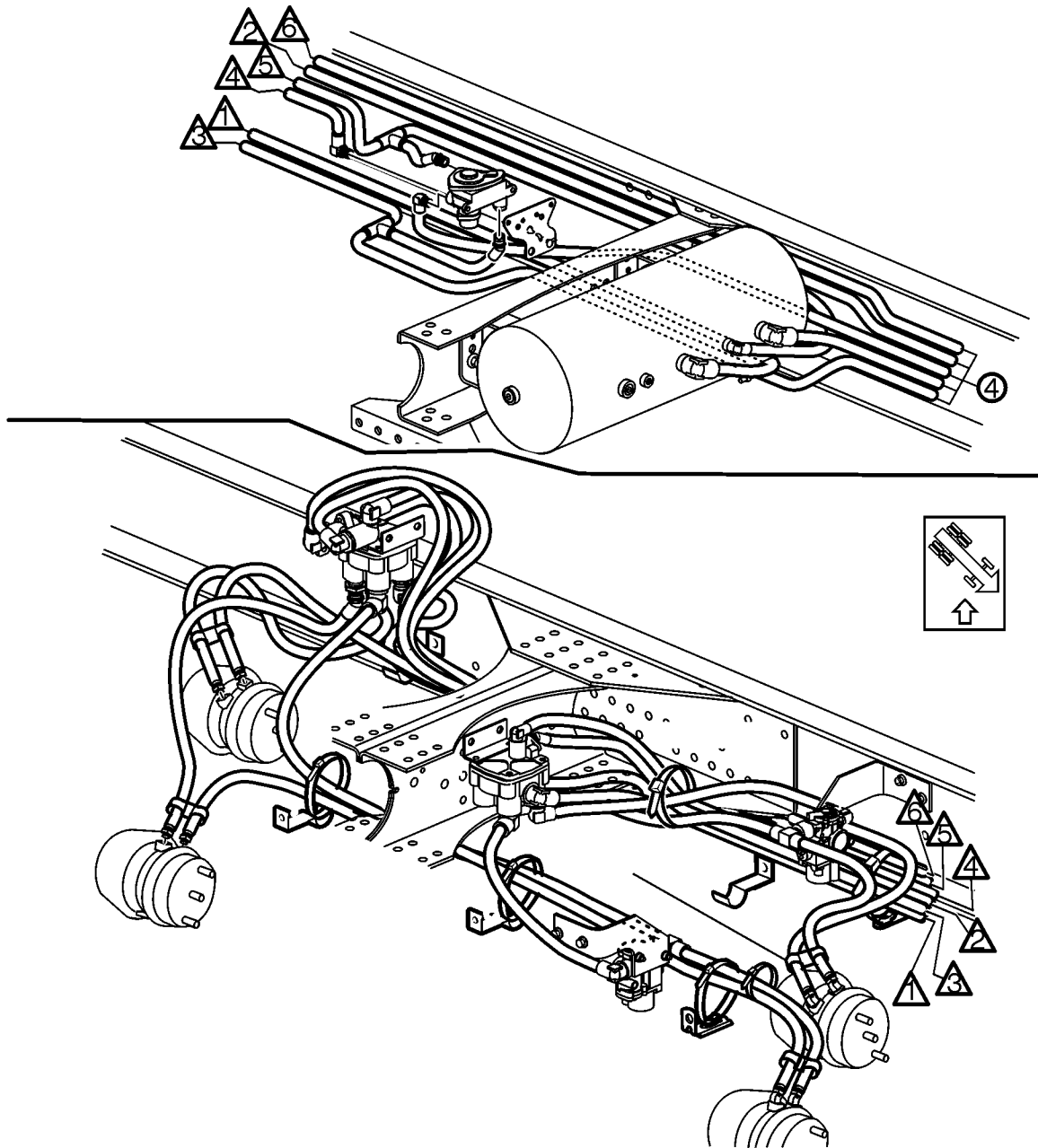


3  
 See "Front Section, Battery Box Left Side Behind Front Fender" page 23  
 See "Front Section, Battery Box Left Side Behind Fuel Tank" page 24  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Forward, Air Tanks Right Side" page 27  
 See "Front Section, Battery Box Right Side, Muffler Horizontal, Air Tanks Left Side (102" Wide, 22" Fuel Tank or 96" Wide, 26" Fuel Tank)" page 28  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Horizontal, Axle Back, Air Tanks Right Side" page 26  
 See "Front Section, Battery Box Right Side Behind Front Fender, Muffler Vertical Left/Vertical Right/Vertical Dual" page 25

5  
 See "Truck, Volvo Suspension" page 33  
 See "Truck, Hendrickson A4H Suspension" page 35  
 See "Truck, Hendrickson HN/RT Suspension" page 34

W5001160

## Truck, Volvo Suspension

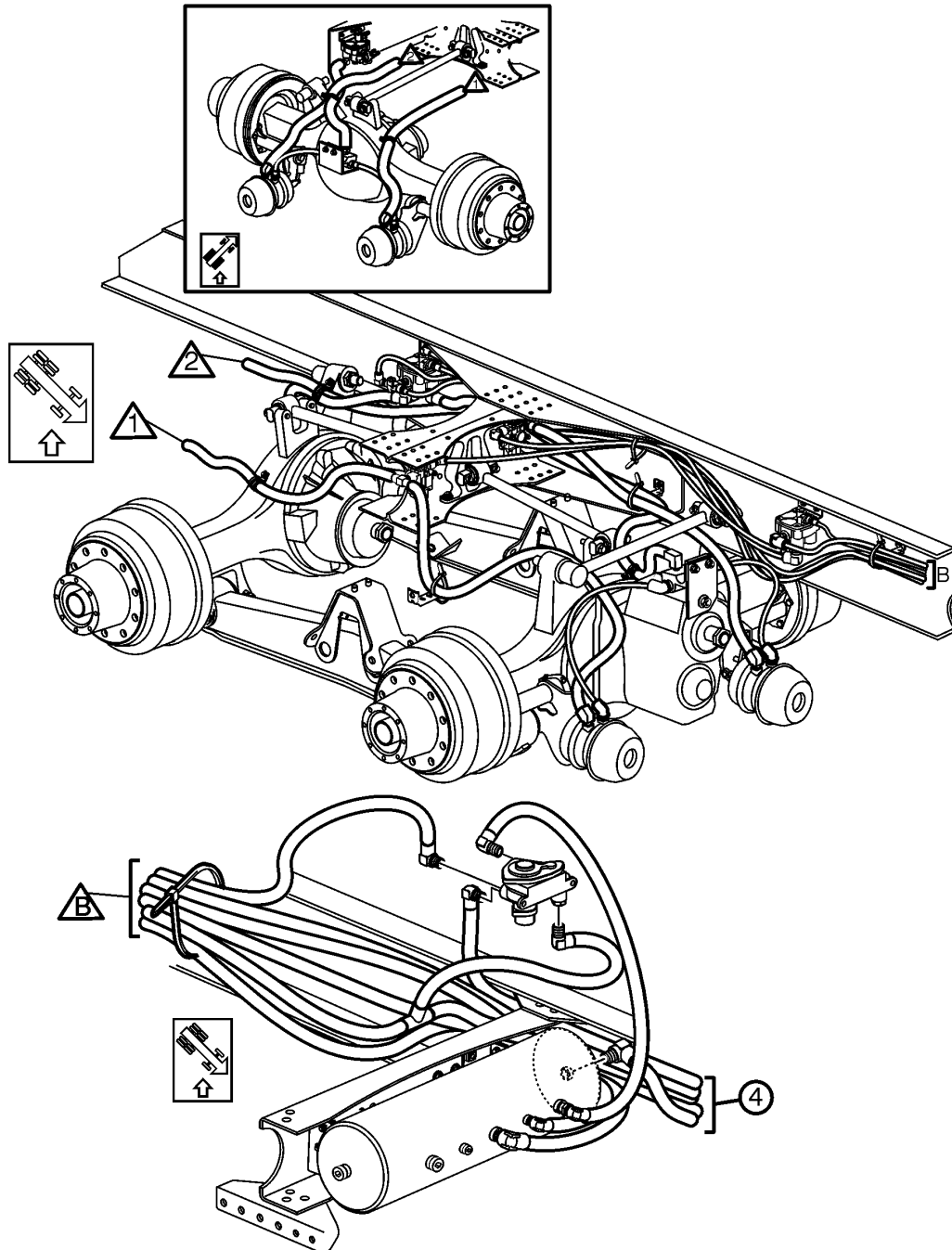


4

See "Middle Section, No Pushers" page 32  
 See "Middle Section, 8x4, Two Driven Axles, One Pusher Axle or 6x2, One Driven Axle, One Pusher Axle" page 31  
 See "Middle Section, 10x4, Two Driven Axles, Two Pusher Axles" page 30  
 See "Middle Section, 12x4, Three Pusher Axles, Two Driven Axles" page 29

W5001285

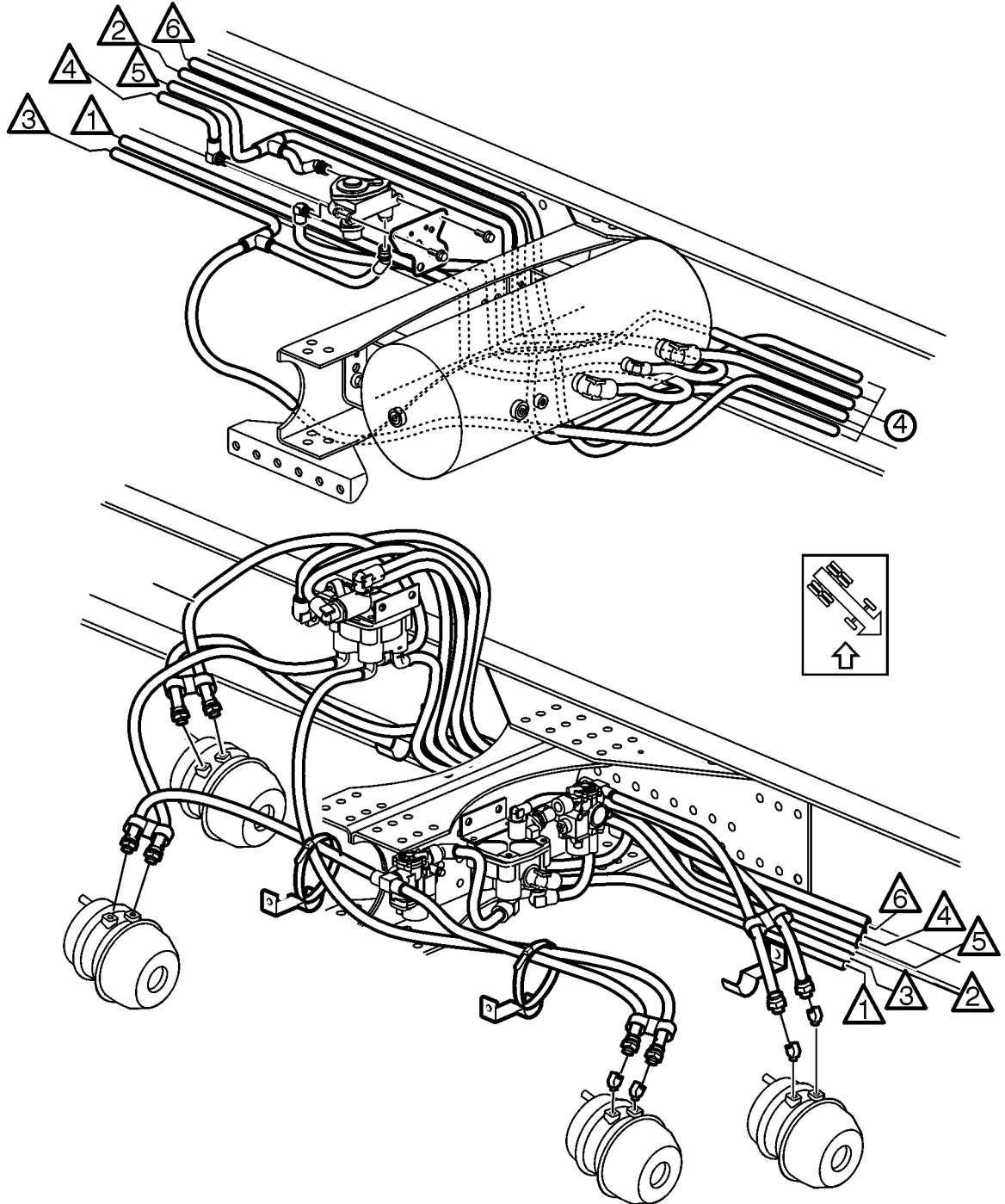
# Truck, Hendrickson HN/RT Suspension



W5001282

- 4  
 See "Middle Section, No Pushers" page 32  
 See "Middle Section, 8x4, Two Driven Axles, One Pusher Axle or 6x2, One Driven Axle, One Pusher Axle" page 31  
 See "Middle Section, 10x4, Two Driven Axles, Two Pusher Axles" page 30  
 See "Middle Section, 12x4, Three Pusher Axles, Two Driven Axles" page 29

# Truck, Hendrickson A4H Suspension



4  
 See "Middle Section, No Pushers" page 32  
 See "Middle Section, 8x4, Two Driven Axles, One Pusher Axle or 6x2, One Driven Axle, One Pusher Axle" page 31

See "Middle Section, 10x4, Two Driven Axles, Two Pusher Axles" page 30  
 See "Middle Section, 12x4, Three Pusher Axles, Two Driven Axles" page 29

W5001283





**VOLVO**

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