



## Air Brake System Schematics and Routing VN, VHD, VAH Section 5

### Introduction

This document provides information on air brake system schematics and routing in Volvo vehicles.

**Note:** We have attempted to cover as much information as possible. However, this information does not cover all the unique variations that a vehicle may present. Note that illustrations are typical but may not reflect all the variations of assembly.

All data provided is based on information that was current at time of release. However, **this information is subject to change without notice.**

Please note that no part of this information may be reproduced, stored, or transmitted by any means without the express written permission of Volvo Trucks North America.

### Contents:

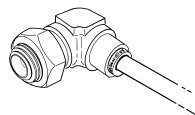
- "Air Tubing and Fittings", page 2
- "Push-In Fitting Assortment Repair Kit", page 20
- "Design and Function", page 22
- "In Frame Air Tank Examples", page 23
- "Brake Literature", page 24

# Specifications

## General

Type ..... Compressed air brakes  
Working pressure..... 100 to 135 psi (689 to 930 kPa)

## 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)

Notes

---

---

---

---

---

<b>FITTINGS</b>			
<b>Type</b>	<b>End 1 Male Thread</b>	<b>End 2 PTC</b>	<b>Part number</b>
Straight	M12x1,5 ISO 6149	1/4	20510630
	1/8 NPTF	1/4	8397718
	1/8 NPTF	3/8	8085303
	1/4 NPTF	1/4	8397719
	1/4 NPTF	3/8	8397720
	1/4 NPTF	1/2	8397721
	3/8 NPTF	1/4	8397722
	3/8 NPTF	3/8	8397723
	3/8 NPTF	1/2	8397724
	3/8 NPTF	5/8	8397725
	1/2 NPTF	3/8	8397726
	1/2 NPTF	1/2	8397727
	1/2 NPTF	5/8	8397728
	1/2 NPTF	3/4	20864112
	M10x1,0	1/4	8397965
Straight, High Temp	M10x1,1	1/4	20566048
Straight	M12x1,5	1/4	8077358
Straight, High Temp	M12x1,6	1/4	20566049
Straight	M12x1,5	3/8	8397850
	M16x1,5	1/4	20448956
Straight, High Temp	M16x1,6	1/4	20566175
Straight	M16x1,5	3/8	20378448
	M16x1,5	1/2	20378446
	M22x1,5	5/8	20575880
45° Elbow	1/8 NPTF	1/4	8397709
	1/8 NPTF	3/8	8397710
	1/4 NPTF	1/4	8397711
	1/4 NPTF	3/8	8397712
	1/4 NPTF	1/2	8397713
	3/8 NPTF	3/8	8397714
	3/8 NPTF	1/2	8397715
	3/8 NPTF	5/8	8096194
	1/2 NPTF	1/2	8397717
	1/2 NPTF	5/8	8085662
	M22x1,5	1/2	21028656
	M22x1,5	5/8	21390071
	5/8-18 UNF 45°	3/8	20435696

Type	End 1 Male Thread	End 2 PTC	Part number
90° Elbow, Composite	3/8 Stem	3/8	20462708
90° Elbow	1/8 NPTF	1/4	8397697
90° Elbow, Swivel	1/8 NPTF	1/4	8397770
90° Elbow, Long Neck	1/8 NPTF 1/8 NPTF	3/8 1/4	8081382 20377383
90° Elbow	1/8 NPTF 1/4 NPTF	3/8 1/4	8084314 8397699
90° Elbow, Swivel	1/4 NPTF	1/4	8397771
90° Elbow	1/4 NPTF	3/8	8397700
90° Elbow	1/4 NPTF	1/2	8397701
90° Elbow, Swivel	1/4 NPTF	1/2	8397773
90° Elbow	3/8 NPTF	1/4	8397702
90° Elbow	3/8 NPTF	3/8	8397703
90° Elbow, Swivel	3/8 NPTF	3/8	8397775
90° Elbow	3/8 NPTF	1/2	8397704
90° Elbow	3/8 NPTF 1/2 NPTF	5/8 3/8	8397705 8397706
90° Elbow, Swivel	1/2 NPTF	3/8	8397777
90° Elbow	1/2 NPTF	1/2	8397707
90° Elbow	1/2 NPTF 1/2 NPTF	5/8 3/4	8397708 8076767
90° Elbow	M12x1,5 M12x1,5 M16x1,5	1/4 3/8 3/8	8082135 20378450 20414623
90° Elbow, Composite	M16x1,5	3/8	20999390
90° Elbow	M16x1,5 M16x1,5 M22x1,5 M22x1,5 M22x1,5 M22x1,5	1/2 5/8 1/4 3/8 1/2 1/2	20515114 20469783 8082136 20551609 20462690 20999384
90° Elbow, Composite			
90° Elbow, w/CV	M22x1,5	1/2	20560349
90° Elbow, w/CV, Comp.	M22x1,5	1/2	20999392
90° Elbow	M22x1,5	5/8	20378449
90° Elbow, Composite	M22x1,5	5/8	20999385
90° Elbow, w/CV	M22x1,5	5/8	20462693

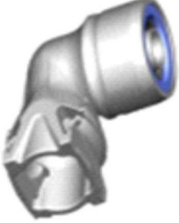
Type	End 1 Male Thread	End 2 PTC	Part number
90° Elbow	M22x1,5	3/4	20462691
90° Elbow, Composite	M22x1,5	3/4	20999388

Type	End 1	End 2	Part number
Straight, Composite	1/4 PTC	1/4 PTC	25155667
	3/8 Stem	1/4 PTC	25154458


Type	End 1 Female Thread	End 2	Part number
Straight	1/8 NPTF	1/4 PTC	25095244
	1/8 NPTF	3/8 PTC	25094466

## Plastic Fittings


### Elbow nipple 90 degree

Size	Part No	 T5195193
Small - 1/4	992277	
Small - 6	992024	
Regular - 3/8	991965	
Regular - 6	60115813	
Small - 8	992025	
Regular - 8	60111657	
Regular - 1/2	991966	
Regular - 12	994000	
Heavy duty - 16	992026	
Heavy duty - 5/8	991967	


### Connection for tube and building block

Size	Part No	 T5195194
Small - 6	991970	
Small - 8	991971	
Regular - 6	991073	
Regular - 8	991074	
Regular - 3/8	60110453	
Regular - 1/2	60113880	
Regular - 12	991075	
Heavy duty - 12	60112926	
Heavy duty - 16	991972	
Heavy duty - 5/8	60113987	


**Elbow nipple 90 degree**

Size	Part No	 T5195195
Regular - Regular	991184	
Heavy duty - Heavy duty	993762	


**45 Degree elbow nipple**

Size	Part No	 T5195196
Small	992248	
Regular	993859	
Heavy duty	992249	


**F - nipples**

Size	Part No	 T5195197
Small	992012	
Regular	992013	
Heavy duty	992014	


**3 - Way nipples**

Size	Part No	 T5195198
Small	992258	
Regular	994117	
Heavy duty	992259	

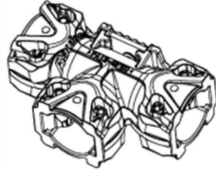
**X - nipples**

Size	Part No	 T5195199
Regular	992021	


**Y- nipples**

Size	Part No	 T5195200
Small	992256	
Regular	992257	


**T- nipples**

Size	Part No	 T5195201
Small	991185	
Regular	991980	
Heavy duty	991981	



**Anti - swivel ring**

Size	Part No	 T5195202
Small - 22 X 18	992950	
Small - 18 X 18	992265	
Small - 16 X 18	992264	
Regular - Hex 28 X 18	991984	
Regular - Hex 22 X 18	991983	
Heavy duty - 28 X 18	992267	
Heavy duty - 22 X 18	992266	

**Port connection swivel**

Size	Part No	 T5195203
Small - Small	992951	
Regular - Small	992952	
Regular - Regular	991080	
Heavy duty - Regular	992270	
Heavy duty – Heavy duty	992271	

**Connection for tube and raufoss port**

Size	Part No	 T5195204
Small	995627	
Small	992308	 T5195549

**Nominal Tubing OD inches (mm)**

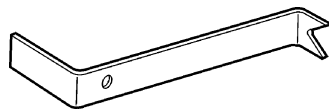
5/32 (4)
3/16 (4.7)
(6)
1/4 (6.4)
5/16 (8)
3/8 (9.5)
(12)
1/2 (12.7)
5/8 (16)
3/4 (19)



# Tools

## Special Tools

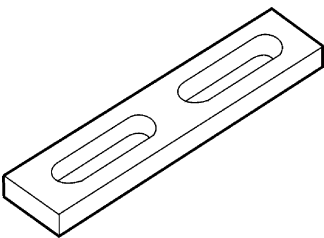
The following special tools are required for fitting repair/replacement. The tool can be ordered from Volvo Trucks North America.



W0001874

**J-44773**

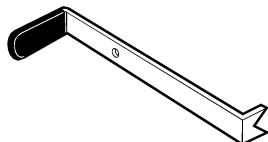
Valve Assembly Fixture



W0001873

**J-44775**

Valve Assembly Fixture



W0001198

**J-42189**

Tubing Release Tool

# Air Tubing and Fittings

Shown is the brake system as a schematic layout or the actual routing in the vehicle on a 4x2 and a 6x4 vehicle or the brake system valves and tubing in separate circuits. All color on tubing conforms to the standardized color scheme. This helps the identification and troubleshooting process with less possibility for mistakes.

## Air Line Numbers and Description

2	Engine with mounting and equipment	Color	Line Size (inches)
21 Exhaust Brake			
21s01	Air Supply to Engine Exhaust Brake	Black	1/4
22 Fan Clutch			
22c01	Fan Clutch Control, Solenoid to Clutch	Green	1/4
22c02	Fan Clutch Solenoid Supply	Black	1/4
23 Air Cleaner			
23c01	Air Cleaner Intake Control	Purple	1/4
25 Emissions Control			
25s01	Diesel Particulate Filter Atomizer Block Supply	Red	1/2
25s02	DRV Valve Supply	Black	1/4
25s03	AHI Regulator Valve Supply	Tan	1/4
25d04	AHI Regulator Valve Delivery to Injector Air Pipe	White	1/4

3	Electrical Lighting and Instruments	Color	Line Size (inches)
31 Switches			
31c01	Stop Light Switch Control	Black, Grey	1/4
31m02	Primary/Secondary Jumper	Grey	3/8
31m03	Hand Control Jumper	Grey	3/8
32 Gauges			
32m01	Rear Bellows Gauge Pressure	Purple	1/4
32m02	Front Bellows Gauge Pressure	Yellow	1/4
32m03	Primary Tank Pressure	Green	1/4
32m04	Secondary Tank Pressure	Red	1/4
32m05	Primary Brake Pressure	Green	1/4
32m06	Secondary Brake Pressure	Red	1/4
32m07	Rear Rear Bellows Pressure	Orange	1/4
32m08	ESP Rear Suspension Pressure	Purple	1/4

4	Power Transmission	Color	Line Size (inches)
<b>41 Clutch</b>			
41s01	Clutch Release Air Assist Supply	Yellow	3/8
41c02	Neutral Switch	Red	1/4
<b>42 Gearbox</b>			
42s01	Gearbox Air Shift	Black	3/8, 1/2
42s07	Transmission Supply	Yellow, Black	3/8, 1/2
<b>43 Rear Axle(s)</b>			
43c01	Inter Axle Lock (Diff Axle)	Grey	1/4
43c02	Inner Wheel Lock (Diff Wheel)	Brown	1/4
<b>44 Power Take-off (PTO)</b>			
44d01	PTO Solenoid Delivery		1/4
44s02	PTO Solenoid Supply	Orange	1/4

5	Brake	Color	Line Size (inches)
<b>51 Compressor, Regulator, Anti-Freezing Unit</b>			
51d01	Delivery from the Compressor		Hose
51m02	Air Dryer to Purge Tanks	Blue	3/8
51c03	Compressor Unload from Governor	Blue	1/4
51s04	Governor Supply from Wet Tank	Yellow	3/8
51d05	Air Dryer Delivery to Wet Tank	Blue	5/8
51c01	Air Dryer Purge Control from Governor	Blue	1/4
51s06	Schrader Valve Supply	Brown	1/4
<b>52 Front Circuit</b>			
52c01	Front Brake Valve to QRV/Tee (BSYS-CON)	Red	1/2
52c03	Redundant Rear Control	Brown	3/8
52c04	ESP Relay to ABS Modulator	Black	1/2
52d04	QRV/Relay to ABS Modulator (ABS Solenoid Valve)	Red	1/2
52d05	ABS Modulator to Brake Chamber	Rubber Hose	1/2
52s12	Front Circuit/ESP Relay Supply	Red	5/8
52s13	Front Circuit Foot Brake Valve Supply from Air Tank	Red	5/8
52m17	Foot Brake Valve to Front Circuit Pressure Sensor	Red	3/8
52d18	Tee to ABS mod LHS	Red	1/2
52d19	Tee to ABS mod RHS	Red	1/2

5	Brake	Color	Line Size (inches)
52d20	Foot Valve to ESP ATC Valve/ESP Relay Control Port	Red	1/2
52s21	ESP ATC Valve Supply	Black	1/4, 1/2
52c22	ESP ATC Valve Control to Relay Control	Black	3/8
52s23	Foot Brake Valve to pass through Supply to Park Valve	Red	3/8
52m24	Foot Brake Valve to SLS DCV, Rigid Only	Grey	3/8
52c25	Hill Start Assist Inversion Valve Secondary Control from Treadle	Red	1/4
<b>53 Rear Circuit</b>			
53c01	Rear Service Relay Control from Treadle Valve	Green	3/8, 1/2
53c02	SBHC Control from Cab to Treadle DCV	Grey	1/4, 3/8
53c03	6S6M QRV Control from Rear Relay	Green	5/8
53d05	Anti-Compounding from Rear Relay	Green	3/8, 1/2
53d06	Relay to ABS Modulators (ABS Solenoid Valve)	Green	5/8
53d09	ABS Solenoid Valve to Brake Chambers (ABS)	Green, Rubber	5/8, Hose
53d10	Service Relay Valve to Brake Chambers (Without ABS)	Green, Rubber	5/8, Hose
53s11	Service Relay Supply from Air Tank	Green	3/4
53s12	Traction Control Supply from Park Valve Control	Green	1/4, 3/8
53s13	Treadle Valve Supply for Rear Circuit from Air Tank	Green	5/8
53m18	SBHC Jumper	Grey	3/8
53m19	SBHC Jumper 2	Grey	3/8
53m20	Treadle Valve to Rear Circuit Pressure Sensor (ESP)	Green	1/4
53m21	Treadle Valve to SLS DCV, Rigid Only	Green	1/4, 3/8
53s22	Treadle Valve to Pass Through Supply to Park Valve	Grey	3/8
53s23	Service Brake Hand Control Supply	Green	3/8
53s24	6S6M Rear Axle ABS Modulator Supply	Green	5/8
53s25	Hill Start Assist Supply	Blue	3/8
53c26	Hill Start Assist Control	Orange	1/4
<b>54 Parking Brake</b>			
54c01	Spring Brake Control	Orange	3/8

5	Brake	Color	Line Size (inches)
54d03	QRV/Relay Valve to Rear Spring Brake Chambers	Rubber	Hose
54d07	Joint Fitting at Rear Axle to LH Spring Brake Chamber	Rubber	Hose
54d08	Joint Fitting at Rear Axle to RH Spring Brake Chamber	Rubber	Hose
54s09	Inversion Relay Secondary Supply	Red	1/2
54s10	Inversion Relay Primary Supply	Blue	1/2
54m16	Park Control Exhaust from Dash Valve	Yellow	3/8
54c19	Redundant Control Line from Treadle Valve	Brown	3/8
54m20	Park Chamber Jumper Lines, Chambers Left to Right	Black	1/2
<b>55 Trailer Brake</b>			
55c01	Hand Control from Cab	Grey, Tan	3/8, 1/4
55c02	Spring Brake Control from Cab	Brown	3/8
55c03	Primary Control from Treadle Valve	Green, Orange	1/4, 1/2
55c04	Secondary Control from Treadle Valve	Red	3/8
55c05	EOFA Trailer Secondary Service Control from Relay	Blue	3/8, 1/2, 5/8
55c06	EOFA Trailer Park Control from Cab	Red	3/8
55m15	Hand Control Exhaust	Yellow	1/4
55c20	Trailer Park Control Tee to DFHC Inversion Control	Brown	3/8
55s22	Hand Control Tee to DFHC Inversion Supply	Grey	3/8
55s23	Control from ESP Trailer Modulator to Trailer Secondary Control	Red	3/8
55c24	Trailer Relay Control	Blue	3/8
55s25	Trailer Relay Supply	Red	1/2
55d26	Trailer Relay Delivery to TPV	Black	1/2
55c30	Spring Brake Control, Cab to Diverter Valve, TBCP-CFM	Brown	3/8
55c31	Spring Brake Control, Diverter to Cab TPV, TBCP, CFM	Brown	3/8
55c32	Spring Brake Control, Diverter to EOF TPV, TBCP-CFM	Brown	3/8
55c33	Treadle Valve to EOF TPV, Primary	Green	1/2
55c34	Treadle Valve to EOF TPV, Secondary	Red	3/8
55c35	Pedal Plate to EOF TPV, Hand Control	Grey	1/4
<b>56 Hydraulic Retarder</b>			

5	Brake	Color	Line Size (inches)
56s001	Manifold for Aux. Equipment to Retarder	Black	3/8
<b>57 Air Tanks</b>			
57s01	Primary Tank Supply	Black	1/2
57s02	Secondary Tank Supply	Black	1/2
57s03	Rear Primary Tank Supply	Green	5/8, 3/4
57s04	Auxiliary Axle Tank Supply	Red	1/2
57s05	Auxiliary Axle Tank Jumper	Green	5/8
57s06	Tag Axle Supply	Black	1/2, 5/8
57m07	Wet Tank Jumper	Black	1/2
57s08	Transmission Air Tank Supply	Red	1/2
57s09	Extra Air Tank Supply	Black	1/2
<b>58 Auxiliary Axle</b>			
58s01	Relay Supply	Red	3/8, 1/2, 5/8
58d02	1st Axle Relay to Bulkhead or Chambers	Red, Rubber	1/2, Hose
58d03	2nd Axle Relay to Bulkhead	Red	1/2
58d04	3rd Axle Relay to Bulkhead	Red	1/2
58c05	Primary/Secondary Control Checked	Green	1/4
58c06	Tag Axle Control	Green	3/8
58c07	Primary Control	Green	1/4
58c08	Secondary Control	Red	1/4
58d09	Quick Release to Bulkheads	Red	1/2
<b>59 Auxiliary Equipment</b>			
59s02	Auxiliary Manifold to Cab (for seat air)	Grey	1/4

6	Wheel, Suspension, Steering	Color	Line Size (inches)
<b>61 Auxiliary Axle Lift Control</b>			
63s01	1st Axle Regulator Supply from Solenoid Pack	Orange	1/4
63s02	2nd Axle Regulator Supply from Solenoid Pack	Blue	1/4
63s03	3rd Axle Regular Supply from Solenoid Pack	Yellow	1/4
63c04	1st Axle Lift Bag Control to Control Valve	Purple	1/4
63c05	2nd Axle Lift Bag Control to Control Valve	Green	1/4
63c06	3rd Axle Lift Bag Control to Control Valve	Brown	1/4
<b>62 Auxiliary Axle Mounted Controls</b>			
64d01	Lift Bag Supply from Control Valve	Blue	1/2
64d02	Ride Bag Supply from Control Valve	Orange	1/2
64s03	Control Valve System Supply from Aux. Air Tank	Black	1/2

7	Frames, Springs, Damping and Wheels	Color	Line Size (inches)
<b>72 Air Suspension Rear Axle(s)</b>			
72s01	Leveling Valve Supply from PPVM	Black	3/8
72d02	Air Bellow Pressure from Tee to Cab	Purple	3/8
72c03	Rear Suspension Dump from Solenoid Pack	Black	1/4
72d04	Front Rear Bellows Pressure 6x2 to Cab	Purple	3/8
72d05	Rear Rear Bellows Pressure 6x2 to Cab	Orange	3/8
72d11	Front Bellows to Rear Bellows	Blue	3/8
<b>73 Air Suspension Front Axle(s)</b>			
73s01	Leveling Valve Supply from PPVM	Black	1/4
73d02	Air Bellow Pressure (left) from Leveling Valve	Yellow	1/4
73d08	Air Bellow Pressure (left) from Tee to Cab	Yellow	1/4

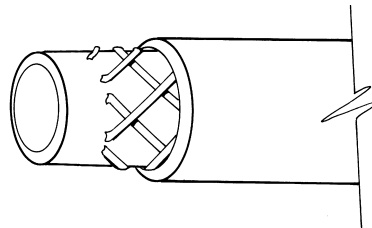
8	Cab	Color	Line Size (inches)
<b>81 Cab Suspension</b>			
81s02	PPV Manifold to Cab Leveling Valve, Rear	Green	1/4
81d05	Cab Leveling Valve (rear) to Rear Bellows LHS	Black	1/4
81d06	Cab Leveling Valve (rear) to Rear Bellows RHS	Black	1/4
<b>82 Seat Suspension</b>			
82s01	Seat Suspension Supply form PPVM	Brown	1/4
<b>83 Air Horn</b>			
83s01	Solenoid Valve Pack to Air Horn	Red	1/4
83d03	Auxiliary Manifold to Air Horn Lanyard Valve	Black	1/4

9	Miscellaneous, Special Functions	Color	Line Size (inches)
<b>91 Fifth Wheel</b>			
91c01	5th Wheel Slide from Solenoid Pack	Yellow	1/4
91c02	Touch Release Park Signal from Rear Park Control Tee	Orange	1/4
91d03	Touch Release Piston Control from 2nd Solenoid	Grey	3/8
91c04	Inversion Supply from 1st Solenoid	Blue	1/4
91m05	2nd Solenoid Jumper from Inversion Valve	Blue	3/8
91d06	Touch Release Control from 2nd Solenoid to 5th Wheel	Grey	3/8
<b>93 Miscellaneous</b>			
93s01	Solenoid Valve Pack Supply from PPVM	Orange	3/8
93s02	PPV Manifold Supply from Secondary Air Tank	Red	1/2



10	Miscellaneous, Inside Cab	Color	Line Size (inches)
R2BK	Secondary Tank Supply, Cab Pass Through to Dash Valve	Red	3/8
R1AK	Primary Tank Supply, Cab Pass Through to Dash Valve	Green	3/8
R1AK/53S23	Supply to Hand Control Valve from Cab Pass Through	Green	3/8
DLE3	Delivery from Hand Control Valve to Cab Pass Through	Grey	3/8
T1C3	Dash Valve Delivery to Cab Pass Through, Trailer Spring Brake Control	Brown	3/8
TRPK	Dash Valve Delivery to Cab Pass Through, Trailer Spring Brake Control	Orange	3/8

All tubing is made of nylon and sizes are always measured as an outer diameter (OD). The 1/4 in. 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.



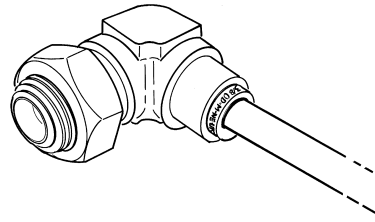
W5000379

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



W5000384

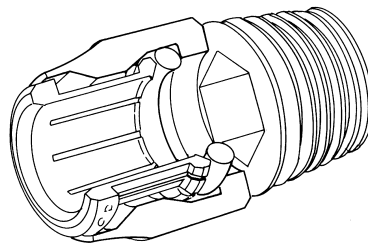
Fittings are typically of the push-connect type. To connect or disconnect tubing is very easy, which simplifies troubleshooting in the air system. New, simple test gauges have been introduced for testing the valves and pressures.



W5000377

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 external hex grip. A number of valves also come with push-type connectors already installed in the valve body.

The fitting is designed for letting the tubing rotate to eliminate kinks. The fitting IS NOT designed for locations with continuous movement, such as, between the 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

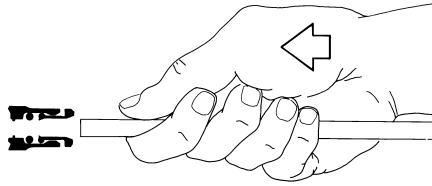
## Air Tubing Installation

To ensure a tight seal between the 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 mark, recut the tubing before reinstalling.



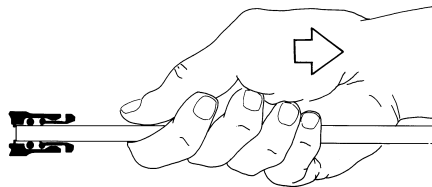
W5000380

Installing 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*

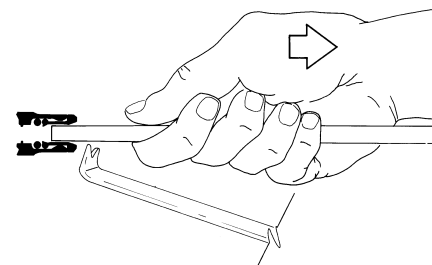
To make removal easier, remove tubing when valve or component is still in place.



#### **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 create serious personal injury.

To disconnect, push the tubing into the fitting until it bottoms. Use release tool J42189 to push in the collar and then pull out tubing while holding the collar in.

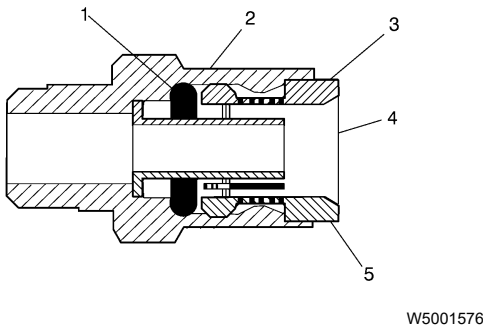


W5000580

Push-In Fitting Assortment Repair Kit

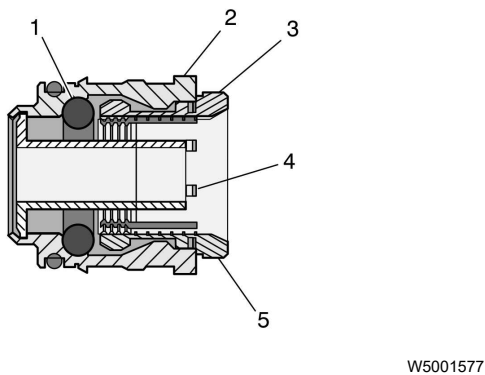
The Push-In Fitting Assortment Repair Kit (PN 85146180) contains replacement O-rings and collets for the most popular Fleetfit and Compact Cartridge Fittings found throughout Volvo's air brake system, as well as the tools necessary to effectively complete a repair.

Assembly with Fleetfit Collet



- 1 Low Nitrite O-ring
- 2 Brass Adaptor
- 3 Multi-tooth Fleetfit Collet
- 4 Rigid Tube Support
- 5 Tube O/D marked on Collet Head

Assembly with Compact Collet



- 1 Low Nitrite O-ring
- 2 Brass Cartridge
- 3 Multi-tooth Fleetfit Collet
- 4 Rigid Tube Support
- 5 Tube O/D marked on Collet Head

**Note:** For tools needed to complete the repair/replacement, see “Tools”, page 9 . These tools come in the fitting kit.

Notes

---

---

---

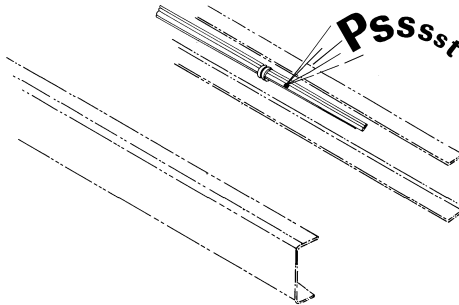
---

---

# Air Tubing Repair

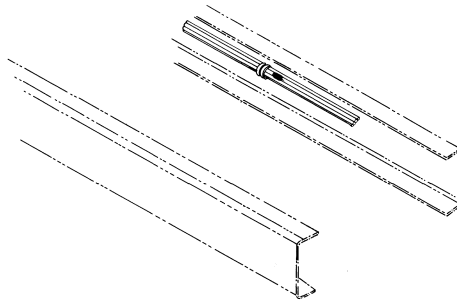
In the event that tubing has been severed as the result of an accident or if tubing needs to be lengthened for rerouting, there are certain procedures that must be followed.

In general, there are no restrictions against repairing tubing versus replacing it. A 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 in. tubing.



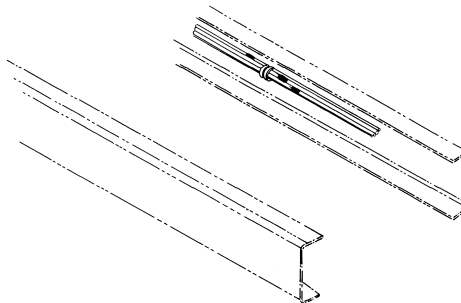
W5000582

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.



W5000583

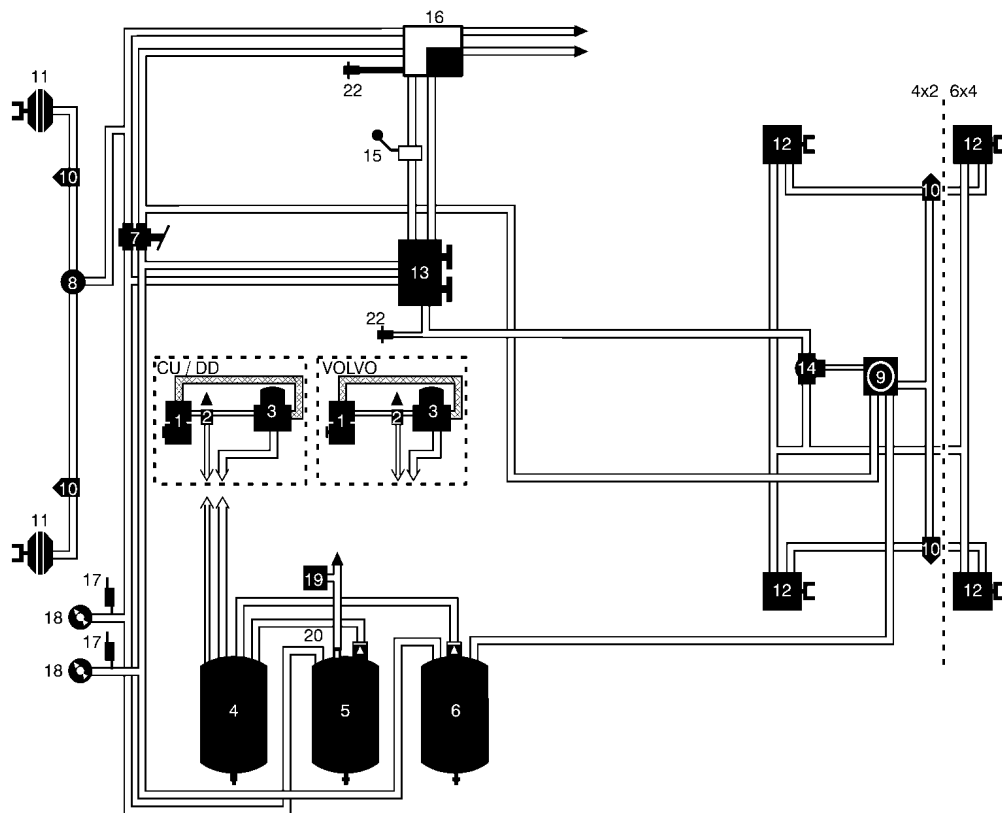
If a whole bundle of tubing needs to be repaired or lengthened, make sure the fittings are staggered instead of installed at the same length. Put the larger fittings close to a bracket for support and the smaller fittings further away.



W5000584

# Design and Function

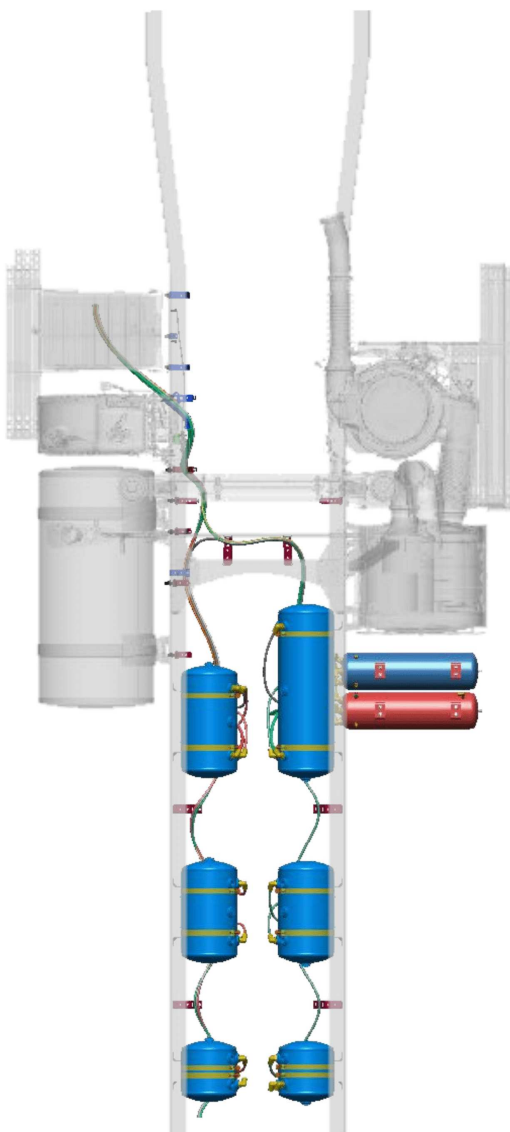
## Air Brake System



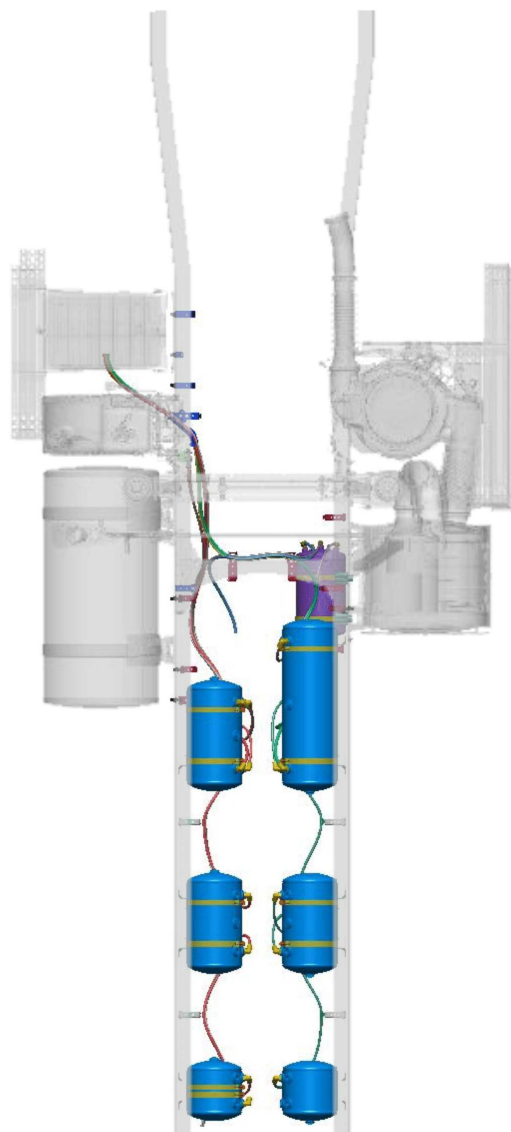
W5001599

- |    |                                   |    |                                      |
|----|-----------------------------------|----|--------------------------------------|
| 1  | Compressor                        | 12 | Spring Brake Chamber                 |
| 2  | Governor; 2a Governor Servo Valve | 13 | Dash Manifold Valve                  |
| 3  | Coalescent 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 | Front Brake Chamber               | 22 | Stop Light Switch                    |

# In Frame Air Tank Examples



W9056240



W9056241

# Brake Literature

## Bendix

Copies of service literature for Bendix components can now be accessed directly from the official internet site of the Bendix Corporation.

To review and download Bendix service literature, please visit:

- <http://www.bendix.com>

## Eaton

Copies of service literature for Eaton components can now be accessed directly from the official internet site of the Eaton Corporation.

To review and download Eaton service literature, please visit:

- <http://www.roadranger.com/rr/CustomerSupport/Support/LiteratureCenter/index.htm>

## Gunit

Copies of service literature for Gunit components can now be accessed directly from the official internet site of the Gunit Corporation.

To review and download Gunit service literature, please visit:

- <http://www.gunit.com/literature/>

## Meritor

Copies of service literature for Meritor components can now be accessed directly from the official internet site of the Arvin Meritor Corporation.

To review and download Meritor service literature, please visit:

- <https://www.meritor.com>

## Norgren

Copies of service literature for Norgren components can now be accessed directly from the official internet site of the Norgren Corporation.

To review and download Norgren service literature, please visit the following site:

- [www.norgren.com/usa](http://www.norgren.com/usa)



# MGM

Copies of service literature for MGM components can now be accessed directly from the official internet site of the Indian Head Industries.

To review and download MGM service literature, please visit the following site:

- <http://mgmbrakes.com/>

# Chicago Rawhide

Copies of service literature for Chicago Rawhide components can now be accessed directly from the official internet site of the SKF corporation.

To review and download Chicago Rawhide service literature, please visit the following site:

- <http://www.vsm.skf.com/usa/Heavyduty/index.html>

## Notes

---

---

---

---

---

**V O L V O**

**Volvo Trucks North America**

<http://www.volvotrucks.com>