



Service Bulletin No. 1087

Circulate to listed addressees

COACH MODEL	: T900, T 2100 and C2000 Series
BULLETIN TYPE	: Field Change Program: NHTSA campaign number 01V-175
MANUAL & SECTION	: Maintenance Manual: Chapter 5 - Brakes Spare Parts Manual: Section 673809 – Accessories
PARTS BOOK REVISION	: Yes
DATE	: July 25th, 2001
SUBJECT	: Brake hoses – D3 brakes
TERMS & CONDITIONS	: Refer to the customer notification letter. Parts and labor allowance will be provided as per warranty information in this Bulletin.

APPLICATION:

The retrofit action subject of this Bulletin is applicable to Van Hool units equipped with D3 type disc brakes and neoprene brake hoses on the front axle.

For affected vehicles, refer to the VIN lists in the Service Information section on page 3 of this Bulletin.

For brake type identification, refer to the Figures on page 6 of this Bulletin.

DESCRIPTION:

Van Hool have found that a defect relating to motor vehicle safety may exist in certain T900, T2100 and C2000 Series coaches. Specifically, the hoses of the front axle brakes show signs of premature aging, due to the high-radiated heat output of the brake discs. To remedy this issue, the neoprene front brake hoses on all affected coaches must be replaced with EPDM brake hoses.

As an additional countermeasure, the hose to steering knuckle mounting brackets and the hose clamps must also be replaced to bring all coaches up to the latest specification.

A quick reference chart on page 22 and the following show what changes are involved.

The procedure in this Bulletin provides the necessary installation instructions to retrofit D3 brake systems with and without ABS.

Service personnel: please read, initial and circulate.

Service Manager	Parts Manager	Warranty Administrator	Workshop Foreman	Service Technician

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SERVICE INFORMATION:

- **Vehicle Identification Numbers (VIN) of coaches without ABS, on which 3.9 ft (1200mm) brake hoses must be replaced.**

Model	Engine	Brakes	VIN
T900/ S945	Cummins	D3	27691 → 27695 28480 → 28485 28572 → 28600 29013 → 29185 29301 → 29451 29701 → 29719
T2140	Cummins Detroit Diesel	D3	40000 → 40060 40501 → 40520
T2145	Cummins Detroit Diesel	D3	43000 → 43051 43501 → 43580

- **Vehicle Identification Numbers (VIN) of coaches equipped with ABS, on which 2.6 ft (800 mm) brake hoses must be replaced.**

Model	Engine	Brakes	VIN
T900/ S945	Cummins	D3 + ABS	29186 → 29200 29452 → 29500 29720 → 29763 29901 → 29986 42001 → 42037 42101 → 42150
T2140	Cummins Detroit Diesel	D3 + ABS	40061 → 40147 40521 → 40610
T2145	Cummins Detroit Diesel	D3 + ABS	43052 → 43499 44001 → 44027 43581 → 43920 44501 → 44507 44513 → 44514
C2045	Cummins Detroit Diesel	D3+ ABS	45001 → 45005 45501 → 45504

- Service Bulletins are issued to supplement or supersede information in the Van Hool manuals. Note Service Bulletin number, date and subject on the register at the end of the relevant chapter(s). File Service Bulletin separately for future reference.

PARTS:

Old parts

Part No.	Description	Qty.
VH 10559958	Front brake hose, 3.9 ft (1200 mm), neoprene, D3 w/o ABS	2
VH 10592705	Front brake hose, 2.6 ft (800 mm), neoprene, D3 w/ ABS	2
VH 660555508	Spherical sleeve	2
VH 637318020	Long nut	2
VH 637100190	Hose clamp, 22x15 mm	6

Quantities per coach

New Parts

D3 brakes without ABS 3.9 ft (1200 mm) hoses

- Order one kit VH 10761664 for one coach to modify. The kit is suited for T900, S945, T2140 and T2145 models without ABS and contains the following parts:

Part No.	Description	Qty.
VH 10758684	Front brake hose, 3.9 ft (1200 mm), EPDM, D3 w/o ABS	2
VH 660555508	Spherical sleeve	2
VH 637318020	Long nut	2
VH 637100140	Hose clamp	6
VH 10761391	Hose mtg bracket, left hand, to suit angular air spring mtg plate	1
VH 10631266	Hose mtg bracket, right hand, to suit angular air spring mtg plate	1

D3 brakes with ABS (800 mm hoses)

- Order one kit VH 10761668 for one coach to modify. The kit is suited for T900, S945, T2140, T2145 and C2045 models featuring ABS and contains the following parts:

Part No.	Description	Qty.
VH 10758753	Front brake hose, 2.7 ft (835 mm), EPDM, D3 w/ ABS	2
VH 660555508	Spherical sleeve	2
VH 637318020	Long nut	2
VH 637100140	Hose clamp	4
VH 10761390	Hose mtg bracket, left hand, to suit angular air spring mtg plate	1*
VH 10675802	Hose mtg bracket, left hand, to suit round air spring mtg plate	1*
VH 10631266	Hose mtg bracket, right hand, to suit angular air spring mtg plate	1
VH 660634715	Spacer, ABS valve to chassis, 13/64 inch (5 mm)	2
VH 660634716	Spacer, ABS valve to chassis, 19/64 inch (7.5 mm)	2
VH 660634717	Spacer, ABS valve to chassis, 13/32 inch (10 mm)	2
VH 660634718	Spacer, ABS valve to chassis, 19/32 inch (15 mm)	2
VH 660634719	Spacer, ABS valve to chassis, 25/32 inch (20 mm)	2
VH 660634720	Spacer, ABS valve to chassis, 1 inch (25 mm)	2
VH 660634721	Spacer, ABS valve to chassis, 1-3/16 inch (30 mm)	2
VH 660243501	ABS valve mtg bolt, M8x1.25x100 mm	4
VH 660203201	Nut, M8x1.25	4
VH 660636400	Lock washer	4

* Install as applicable

- Parts will be forwarded to customers, free of charge.
- Old and new parts are directly interchangeable.
- Only new parts will be offered as service replacements for this application.
- **EPDM hoses can be identified by the VH part # embossed on the fitting shell.**
- Always use genuine maintenance products and parts. Do not accept imitations.

PROCEDURE:

To replace neoprene brake hoses by EPDM brake hoses

1. General:

- The time required to replace front brake hoses and hose mounting brackets on coaches equipped with D3 brakes but no ABS is approximately 2 hours.
- The time required to replace front brake hoses and hose mounting brackets on coaches featuring D3 brakes and ABS is approximately 2 hours.
- For the sake of clarity, many photographs have been taken on a test bench and only information essential to the procedure has been pictured.

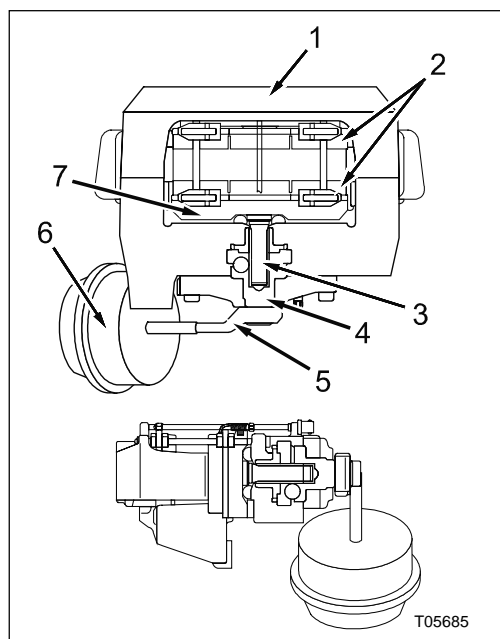
Procedure continued on next page.

2. D3 v. D-ELSA disc brake caliper comparison:

see Figures 1 and 2.

CAUTION: The procedures in this Bulletin are applicable to D3 brake systems only.

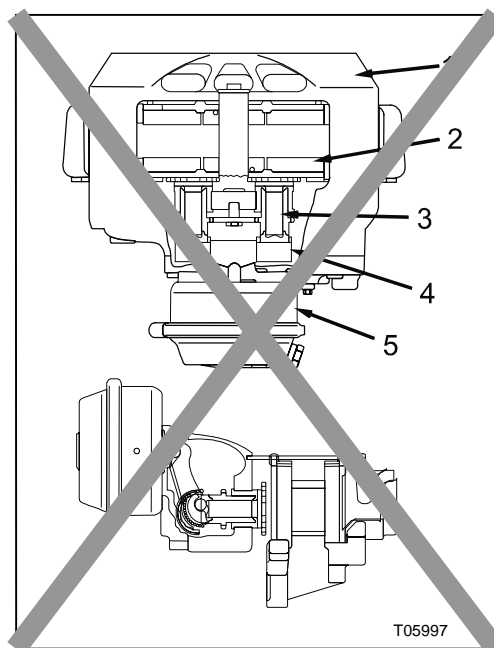
**Figure 1: D3 lever-operated brake
Applicable**



1. Caliper
2. Pads
3. Tappet
4. Ball & ramp mechanism
5. Lever
6. Brake chamber
7. Spreader plate

- The brake chamber is attached to the caliper through a separate bracket.
- The brake chamber push-rod operates a lever attached to an internal ball and ramp mechanism.
- The cam transmits force to the inboard pad through a tappet and a spreader plate.

**Figure 2: D-ELSA direct actuated brake
For reference only**



1. Caliper
2. Pads
3. Tappet
4. Lever/camshaft
5. Brake chamber

- The brake chamber is fitted directly to the caliper.
- The brake chamber push-rod operates an internal lever/camshaft assembly.
- The camshaft applies force to the inboard pad through two tappets.

3. Special tools/equipment:

The procedure requires the use of a service pit. If no service pit is available, coach should be chocked, jacked and blocked to provide for front road wheel removal.

4. Preparations:

- Park the coach on a level-surfaced service pit.
- Set the suspension to the normal ride height.
- Apply the parking brake and shut down the engine.
- Switch off all systems and turn off the battery master switch.
- Chock the road wheels.
- Put a “DO NOT OPERATE” tag on the instrument panel.
- Read the entire procedure before beginning to work.

5. Hose installation guidelines:

- 1) Before installing a hose, be sure to blow it out with compressed air to remove any dirt, which may have been allowed to enter while the hose was in storage. Cap the hose while routing it during installation.
- 2) Replacement hoses should be installed free of strain, twist or torsion. Avoid acute bending and stretching (see Figures 3, 4 and 5).

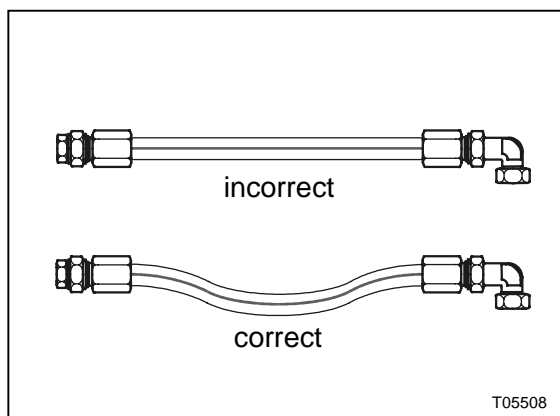


Figure 3: Hose stretching

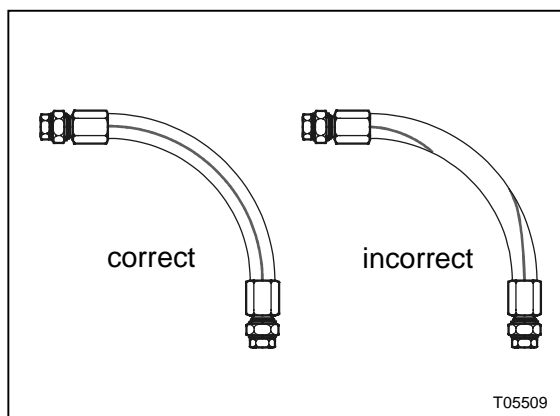


Figure 4: Hose twisting

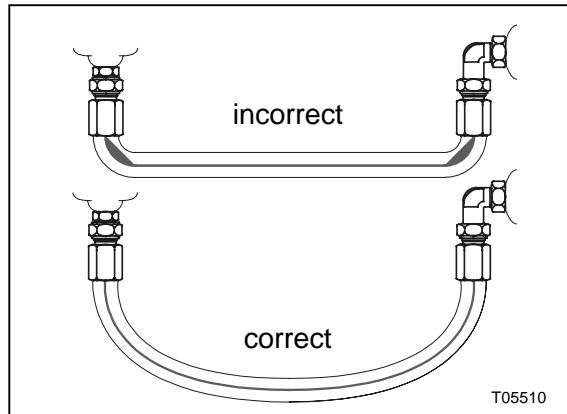


Figure 5: Acute bending

- 3) Make sure there is adequate clearance between the hose and anything it might be able to contact. When turning the front wheels from lock to lock, hoses should be able to move through the entire suspension travel without touching anything.
- 4) When tightening hose fittings, tighten the swivel end last. Always support one portion with one wrench, while tightening with another to prevent twisting the hose. Do not over tighten the hose ends onto the adapter fittings or ports.
- 5) To secure a hose, always use rubber cushioned support clamps having the same diameter as the hose being installed.

6. Adjusting SAE fittings:

In the step-by-step instructions below, adjustment of SAE elbow and tee fittings is required. When turning these fittings counter clockwise (undo), the thread seal is broken and the fittings may leak. To properly adjust these fittings, proceed as follows:

- 1) Undo the fitting completely.
- 2) Thoroughly clean both male and female threads.
- 3) Apply a few drops of Loctite 542 adhesive on the male thread.
- 4) Run up the male fitting until finger tight.
- 5) Tighten the male fitting using a wrench while holding the female fitting steady with another wrench. Complete one turn at first and continue tightening until the desired position is achieved.
- 6) Allow adhesive to cure.

7. To remove 3.9 ft (1200 mm) neoprene brake hoses VH 10559958 (D3 w/o ABS):

- 1) Underneath the coach, locate the quick release valve (see Figure 6) in the chassis section ahead of the front axle wishbones.

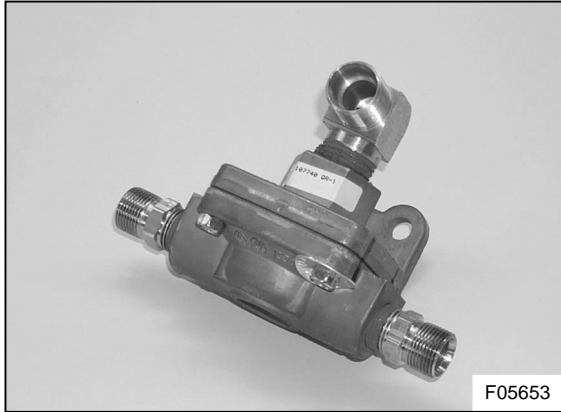


Figure 6: Quick release valve (shown with fittings but without hoses)

- 2) To disconnect the right hand brake hose, proceed as follows. At the valve body, undo the nut of the brake hose with one wrench while holding the body of the valve connector steady with a second wrench. Tap on the nut to release the hose nipple and sleeve from the connector body. Withdraw the hose from the quick release valve.
- 3) Undo and remove the two bolts securing the hose clamp to the chassis angle bracket shown in Figure 7. Save the bolts for re-use. Discard clamp VH 637100190.

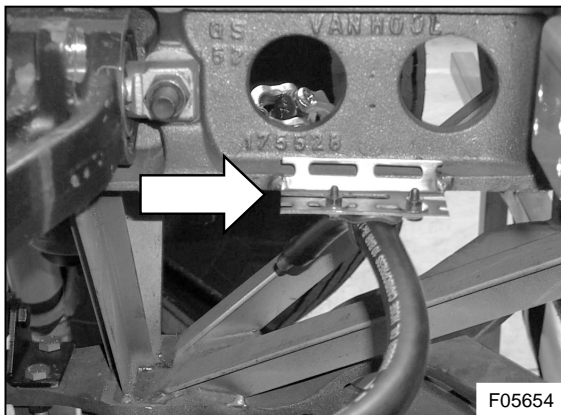


Figure 7: Right hand hose to chassis mounting bracket and clamp

- 4) Undo and remove the bolts securing the hose clamps to the hose to steering knuckle mounting bracket (see Figure 8). Remove the clamp(s) from the hose. Save the bolts for re-use and discard clamp(s) VH 637100190.

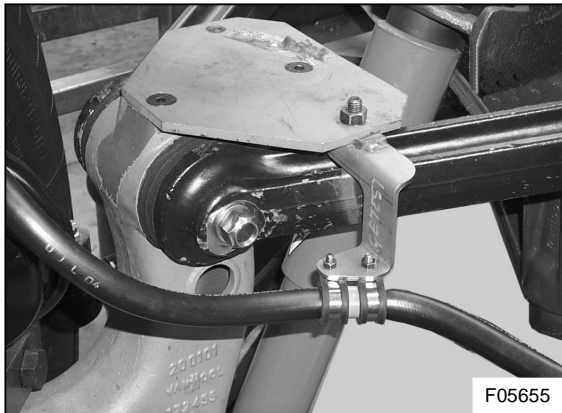


Figure 8: Right hand hose to steering knuckle mounting

- 5) Undo the hose at the brake chamber tee connector(see Figure 9) with one wrench while holding the tee body steady with a second wrench.

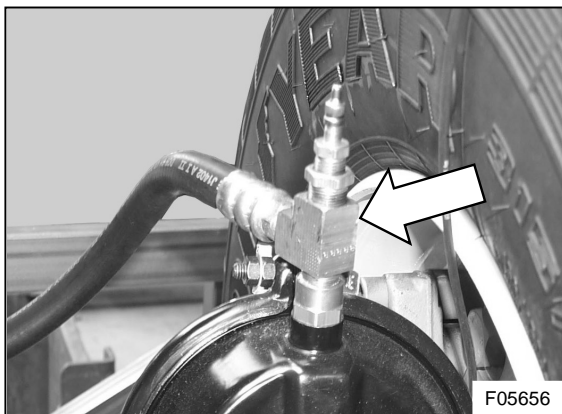


Figure 9: Hose to brake chamber connection

- 6) Render the hose useless by cutting it in half, and discard it. Thoroughly clean the threads of the brake chamber tee connector and the quick release valve stud connector.

Viewed from the top, check that the right hand tee connector points in the 11 o' clock direction. (see Figure 10). Adjust if necessary.

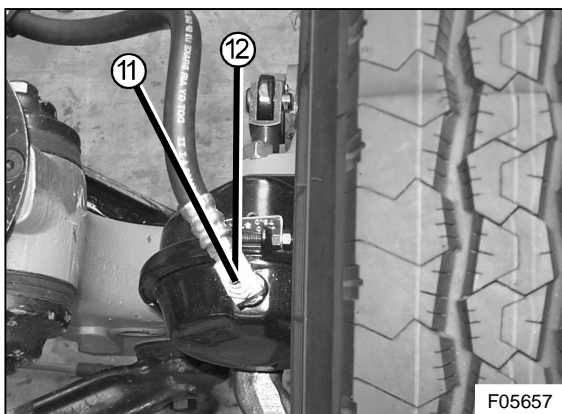


Figure 10: Right hand tee fitting in 11 o' clock position

- 7) Undo and remove the bolt securing the right hand hose to steering knuckle mounting bracket to the angular air spring mounting plate. Discard the bracket and replace it by bracket VH 10631266 from the kit (installation shown in Figure 8). Run up the bolt and tighten to a torque of 45 to 60 ft.lbf (60 to 80 Nm).
- 8) To remove the left hand brake hose proceed as follows:
 - Repeat steps 1 through 6 as per right hand brake hose. Adjust the tee connector to point in the 1 o'clock direction (see Figure 11).

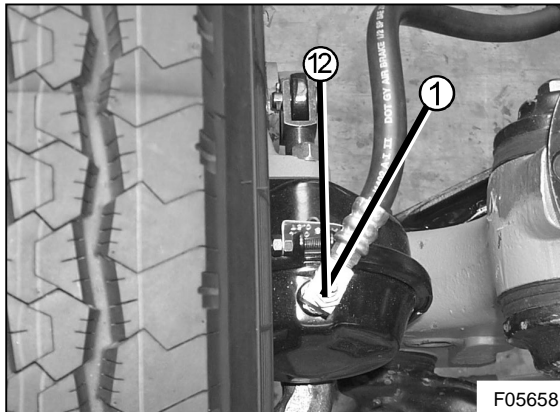


Figure 11: Left hand brake chamber tee connector in 1 o'clock position.

- Disconnect the rubber coupling which attaches the front axle leveling valve linkage to the brake hose to steering knuckle bracket.

CAUTION: When disconnecting the rubber coupling, the leveling valve linkage will drop and the suspension will lower.

- Undo and remove the bolt securing the hose to steering knuckle mounting bracket to the angular air spring mounting plate.
- Take note of the leveling valve anchor bracket installation and remove it from the hose to steering knuckle mounting bracket. Save the leveling valve anchor bracket for re-use
- Discard the bracket and replace it by bracket VH 10761391 from the kit (installation shown in Figure 12). Run up the bolt and tighten to a torque of 45 to 60 ft.lbf (60 to 80 Nm).

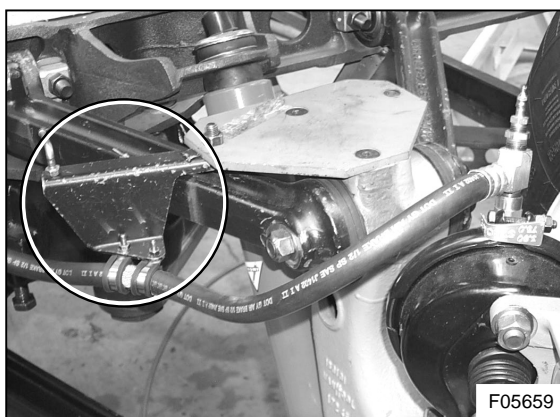


Figure 12: Hose to steering knuckle bracket VH 10761391

- Reinstall the leveling valve anchor bracket and adjust it to the correct length. Reconnect the leveling valve linkage.

8. **To install 3.9 ft (1200 mm) EPDM brake hoses VH 10758684 (D3 w/o ABS):**

NOTE: The steps below apply to both left and right hand brake hoses.

- 1) Before installing a new hose, blow it out with compressed air to remove any dirt, which may have been allowed to enter while the hose was in storage. Cap the hose while routing it during installation.
- 2) Put the hose on a flat surface. Determine and mark the clamping point using a tape measure and a piece of red tape.
The hose length measured between the tee connector on the brake chamber and the section between the two steering knuckle hose clamps (see Figure 13) should be: 18 7/64 inch (460 mm).

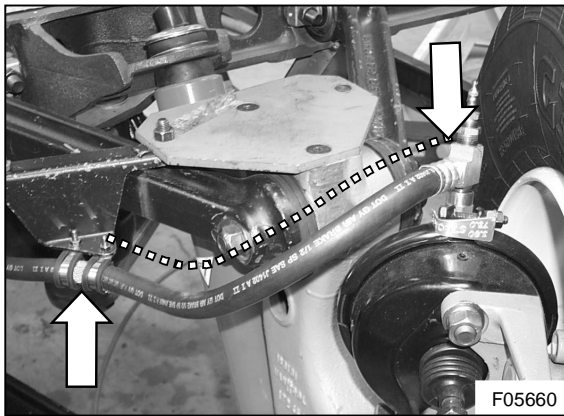


Figure 13: Critical hose length between tee connector on brake chamber and section between hose clamps (left hand shown).

- 3) Apply a few drops of Loctite 542 on the threaded hose end. Run the threaded hose end up the brake chamber tee connector until finger tight. Continue tightening two more turns with a wrench while holding the tee connector with a second wrench.
- 4) Route the hose to the quick release valve avoiding any twist, torsion or strain.
- 5) Slide the nut, followed by the sleeve, on the hose nipple (see Figure 14). Insert the nipple in the appropriate connector body of the quick release valve, until it bottoms on the seat.

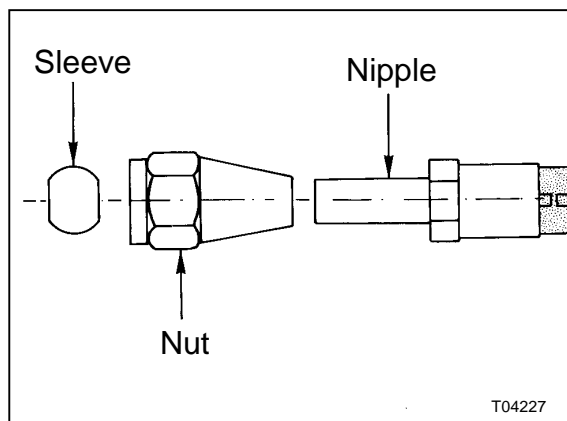


Figure 14: Hose nipple, sleeve and nut

- 6) While holding the nipple in, run up the nut finger tight. Using a wrench, bring up the nut, until the sleeve just grabs the nipple. The gripping action can be determined by rotating the nipple by hand as the nut is being drawn. When the nipple can no longer be turned by hand, the sleeve has started to grab it.
- 7) To tighten, give the nut two more additional turns while holding the valve connector body with a second wrench.

NOTE: Attach the hose to the steering knuckle carrier and the chassis as per the hose installation guidelines.

- 8) Attach the hose to the steering knuckle bracket using two new clamps VH 637100140 and the recovered M6 bolts and nuts. Make sure the red mark has been positioned between the two clamps (see Figure 13). Tighten to a torque of 7 ft.lbf (10 Nm).
- 9) Attach the hose to the chassis angle bracket using a new hose clamp VH 637100140 and one of the recovered bolts and nuts. Tighten to a torque of 7 ft.lbf (10 Nm).

CAUTION: Do not use an external air supply during step 10. Suspension should be at system pressure only. Neglecting this rule may cause suspension damage.

- 10) With the aid of an assistant, check the hose installation. Proceed as follows. Disconnect the rubber coupling, which attaches the front axle leveling valve linkage to the suspension (see Figure 15). Cycle the suspension from high to low by moving the control arm up and down with the retaining rod. Check that the brake hose installation is free of twist, torsion or strain. Correct as necessary. Reconnect the rubber coupling. Turn the front wheels from lock to lock. Check installation again for twist, torsion or strain. Correct as necessary.

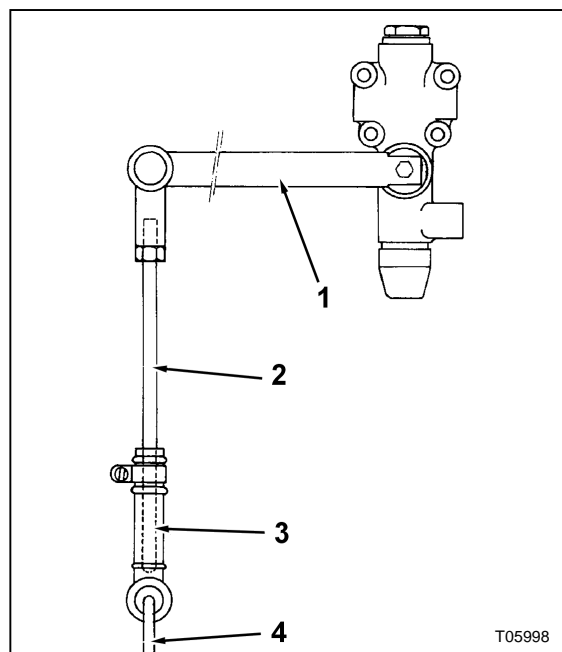


Figure 15: Leveling valve linkage

1. Control lever
2. Retaining rod
3. Rubber coupling
4. Anchor bracket

9. To remove 2.6 ft (800 mm) neoprene brake hoses VH 10592705 (D3 w/ ABS):

- 1) Underneath the coach, locate the left and right hand ABS valves (see Figure 16) in the chassis section ahead of the front axle wishbones.

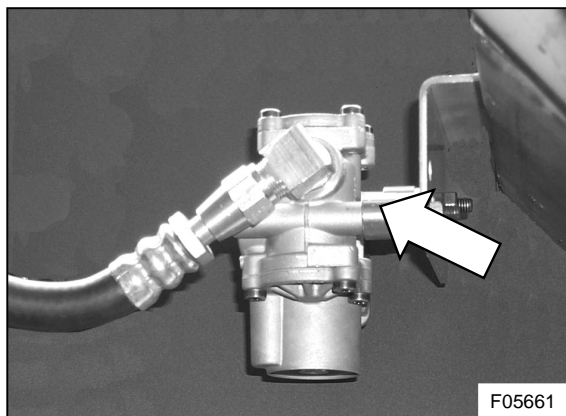


Figure 16: ABS valve (right hand shown)

- 2) To disconnect the right hand brake hose, proceed as follows. At the valve body, undo the nut of the brake hose with one wrench while holding the body of the valve connector steady with a second wrench. Tap on the nut to release the hose nipple and sleeve from the connector body. Withdraw the hose from the ABS valve.
- 3) Undo and remove the bolts securing the hose clamps to the hose to steering knuckle mounting bracket (see Figure 17). Remove the clamp(s) from the hose. Save the bolts for re-use and discard the clamp(s) VH 637100190.



Figure 17: Right hand hose to steering knuckle mounting

- 4) Undo the hose at the brake chamber tee connector (see Figure 18) with one wrench while holding the tee body steady with a second wrench.

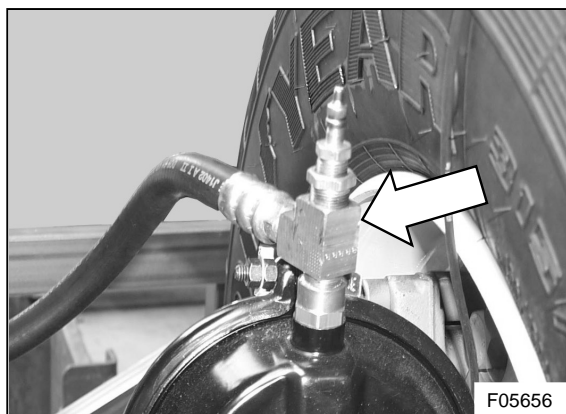


Figure 18: Hose to brake chamber connection

- 5) Render the hose useless by cutting it in half, and discard it. Thoroughly clean the threads of the brake chamber tee connector and the ABS valve stud connector. Viewed from the top, check that the right hand tee connector points in the 11 o' clock direction (see Figure 19). Adjust if necessary.

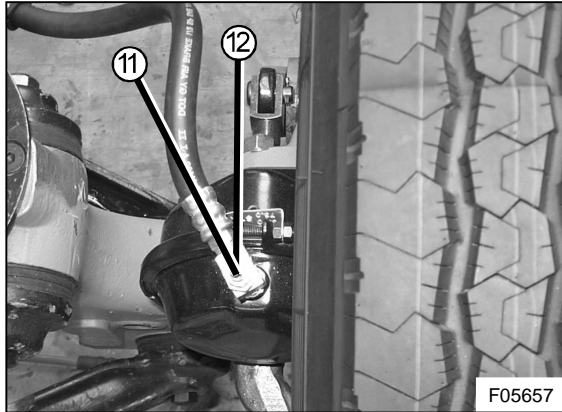


Figure 19: Right hand tee fitting in 11 o' clock position

- 6) Undo and remove the bolt securing the right hand hose to steering knuckle mounting bracket to the angular air spring mounting plate. Discard the bracket and replace it by bracket VH 10631266 from the kit (installation shown in Figure 8). Run up the bolt and tighten to a torque of 45 to 60 ft.lbf (60 to 80 Nm).
- 7) To remove the left hand brake hose proceed as follows:

- Repeat steps 1 through 6 as per right hand brake hose. Adjust the tee connector to point in the 1 o'clock direction (see Figure 20).

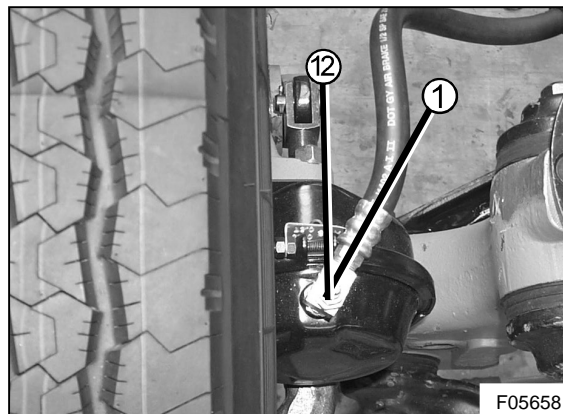


Figure 20: Left hand brake chamber tee connector in 1 o'clock position.

- Disconnect the rubber coupling which attaches the front axle leveling valve linkage to the brake hose to steering knuckle bracket.

CAUTION: When disconnecting the rubber coupling, the leveling valve linkage will drop and the suspension will lower.

- Undo and remove the bolt(s) securing the hose to steering knuckle mounting bracket to the air spring mounting plate.

- Take note of the leveling valve anchor bracket installation and remove it from the hose to steering knuckle mounting bracket. Save the leveling valve anchor bracket for re-use.
 - Discard the bracket.
 - Install bracket VH 10761390 from the kit in case the coach is equipped with an angular mounting plate (installation shown in Figure 21).
 - Install hose to steering knuckle bracket VH 10675802 in case the coach is equipped with a round air spring mounting plate (installation shown in Figure 22).
- Run up the bolt(s) and tighten to a torque of 45 to 60 ft.lbf (60 to 80 Nm).

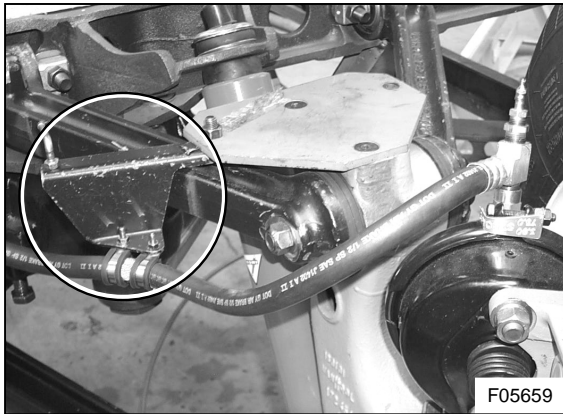


Figure 21: Hose to steering knuckle bracket VH 10761391 installation (angular air spring mounting plate)

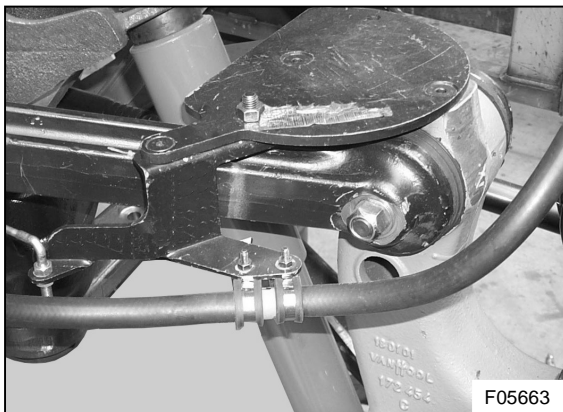


Figure 22: Hose to steering knuckle bracket VH 10675802 installation (round air spring mounting plate)

- Reinstall the leveling valve anchor bracket and adjust it to the correct length. Reconnect the leveling valve linkage.

10. To adjust the ABS valve position:

The fore-and-aft position of the ABS valves should be adjusted so that the distance between the center of valve ports #1 and #2 and the edge of the triangulated box section to which the valve mounting bracket is attached, is 2 61/64 inch (75 mm) (see Figure 23).

Adjustment may be achieved using the spacers provided in the kit. It may be necessary to install longer bolts VH 660243501 to secure the valves. Take note that left and right hand ABS valves have been installed in reverse manner with respect to one another. Port #1 of each valve should always face the coach center axis.

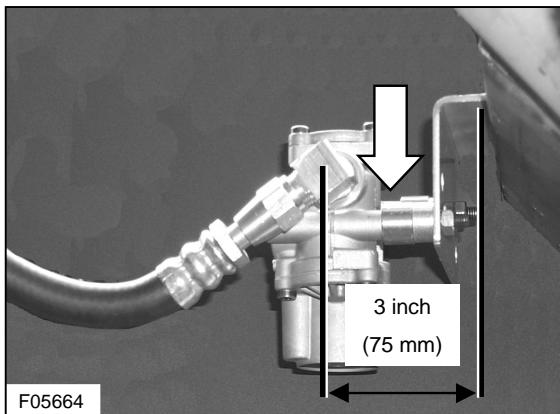


Figure 23: fore-and-aft ABS valve installation dimensions

11. To adjust the #2 port elbow connector position of the the ABS valve :

Viewed from the wheel well the port # 2 elbow stud connector should be positioned as follows:

- The connector of the right hand ABS valve should be in the 8 o' clock position (35° down from the horizontal). Refer to Figure 24.
- The connector of the left hand ABS valve should be in the 4 o' clock position.

Adjust as necessary.

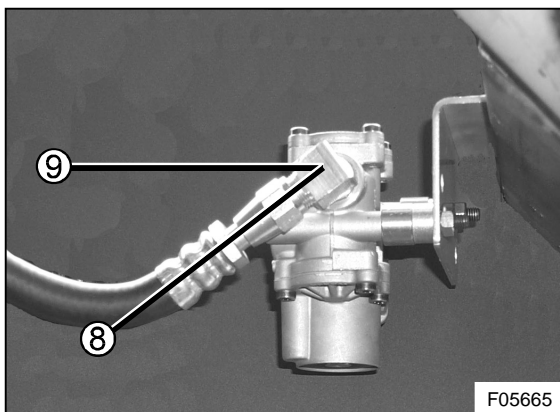


Figure 24: Port #2 elbow stud connector of right hand ABS valve in 8 o' clock position

12. To install 2.7 ft (835 mm) EPDM brake hoses VH 10758753 (D3 w/ ABS):

NOTE: The steps below apply to both left and right hand brake hoses.

- 1) Before installing a new hose, blow it out with compressed air to remove any dirt, which may have been allowed to enter while the hose was in storage. Cap the hose while routing it during installation.
- 2) Put the hose on a flat surface. Determine and mark the clamping point using a tape measure and a piece of red tape.
The hose length measured between the tee connector on the brake chamber and the section between the two steering knuckle hose clamps (see Figure 25) should be: 18 7/64 inch (460 mm).

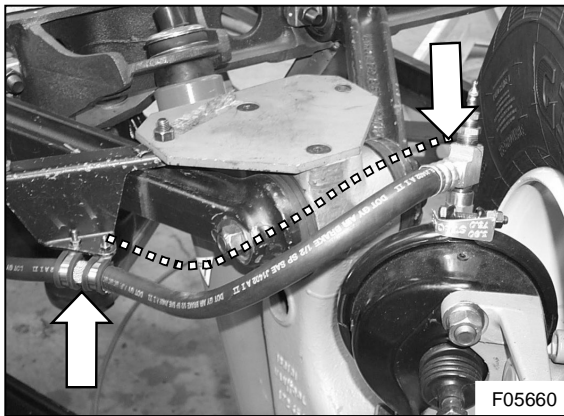


Figure 25: Critical hose length between tee connector on brake chamber and section between hose clamps (left hand shown with angular air spring mounting plate).

- 3) Apply a few drops of Loctite 542 on the threaded hose end. Run the threaded hose end up the brake chamber tee connector until finger tight. Continue tightening two more turns with a wrench while holding the tee connector with a second wrench.
- 4) Route the hose to the ABS valve avoiding any twist, torsion or strain.
- 5) Slide the nut, followed by the sleeve, on the hose nipple (see Figure 26). Insert the nipple in the appropriate connector body of the ABS valve, until it bottoms on the seat.

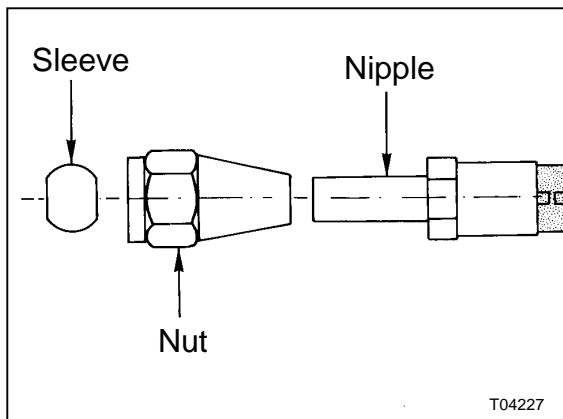


Figure 26: Hose nipple, sleeve and nut

- 6) While holding the nipple in, run up the nut finger tight. Using a wrench, bring up the nut, until the sleeve just grabs the nipple. The gripping action can be determined by rotating the nipple by hand as the nut is being drawn. When the nipple can no longer be turned by hand, the sleeve has started to grab it.

- 7) To tighten, give the nut two more additional turns while holding the valve connector body with a second wrench.

NOTE: Attach the hose to the steering knuckle carrier as per the hose installation guidelines.

- 8) Attach the hose to the steering knuckle bracket using two new clamps VH 637100140 and the recovered M6 bolts and nuts. Make sure the red mark has been positioned between the two clamps (see Figures 22 and 25). Tighten to a torque of 7 ft.lbf (10 Nm).

CAUTION: Do not use an external air supply during step 9. Suspension should be at system pressure only. Neglecting this rule may cause suspension damage.

- 9) With the aid of an assistant, check the hose installation. Proceed as follows. Disconnect the rubber coupling, which attaches the front axle leveling valve linkage to the suspension (see Figure 27). Cycle the suspension from high to low by moving the control arm up and down with the retaining rod. Check that the brake hose installation is free of twist, torsion or strain. Correct as necessary. Reconnect the rubber coupling. Turn the front wheels from lock to lock. Check installation again for twist, torsion or strain. Correct as necessary.

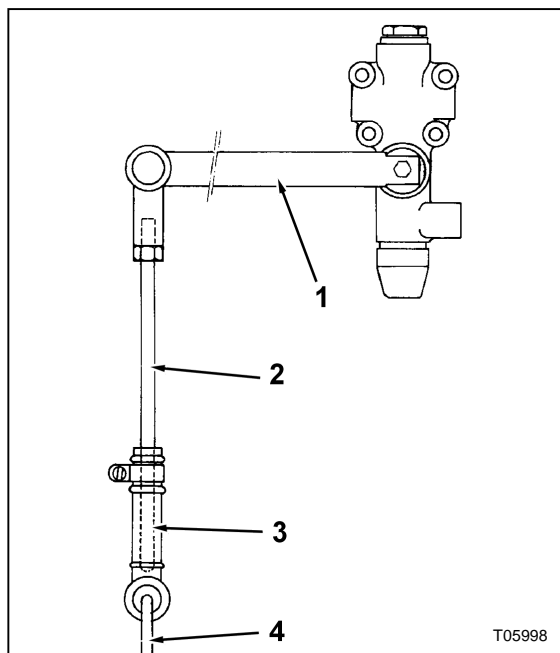


Figure 15: Leveling valve linkage

1. Control lever
2. Retaining rod
3. Rubber coupling
4. Anchor bracket

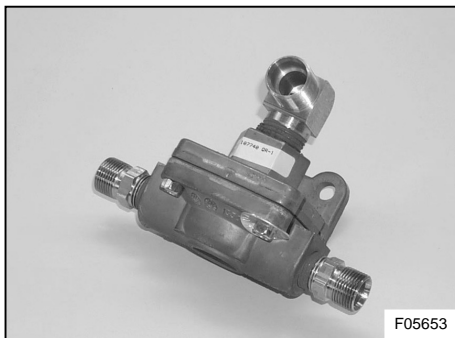
Procedure complete.

QUICK REFERENCE CHART – 3.9 FT (1200 MM) BRAKE HOSES

FEATURES

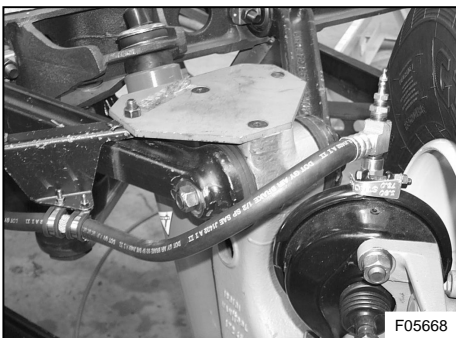


**Applicable to
D3 brake systems**



**Special feature:
Quick release valve
No ABS valves**

Left hand hose installation



Right hand hose installation

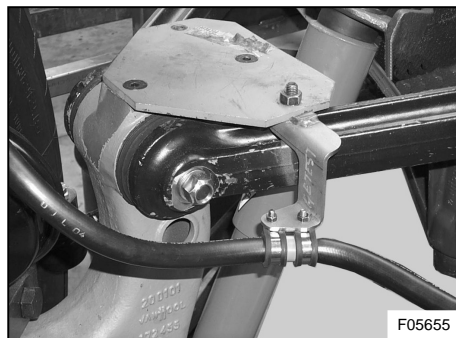
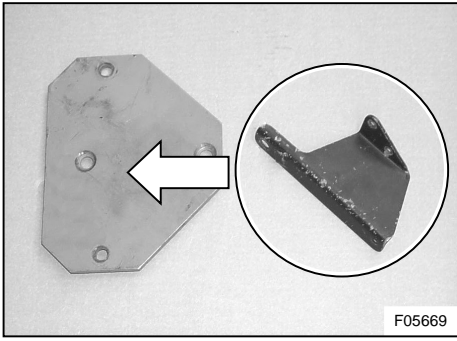
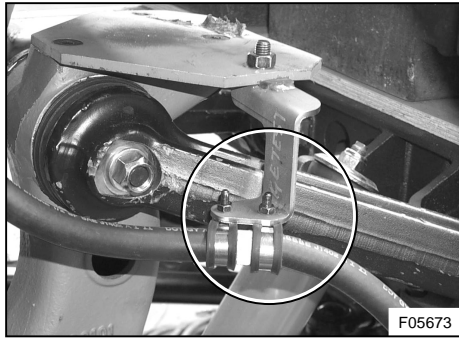
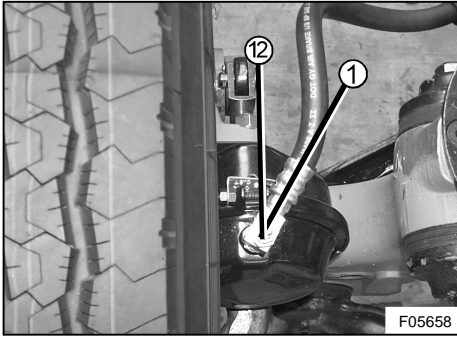
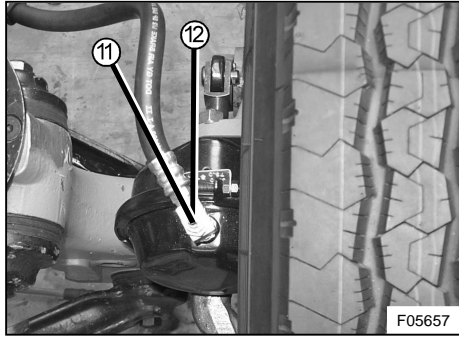
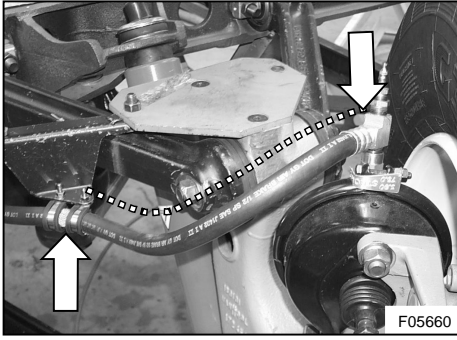
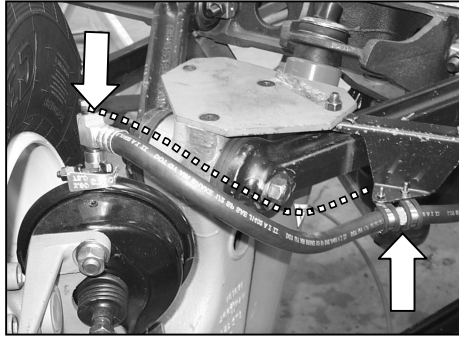
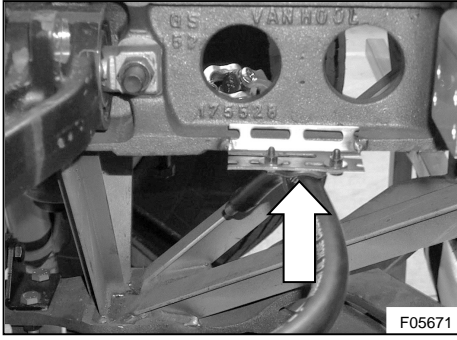
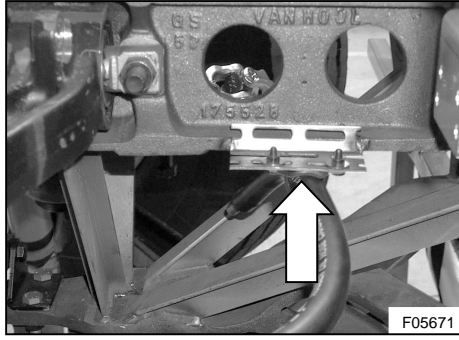


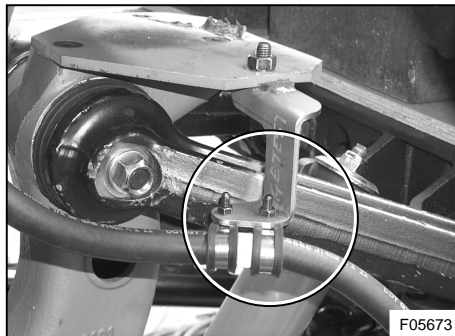
Chart continued on next page.

<p>Change</p> <p>1. Change hose to steering knuckle mounting bracket to VH 10761391</p>  <p>F05669</p>	<p>Change</p> <p>1. Change hose to steering knuckle mounting bracket to VH 10631266</p>  <p>F05673</p>
<p>2. Adjust brake chamber T-connector</p>  <p>F05658</p>	<p>2. Adjust brake chamber T-connector</p>  <p>F05657</p>
<p>3. Change hose to VH 10758684</p> <p>4. Hose length steering knuckle clamps to brake chamber T-connector: 1.5 ft</p>  <p>F05660</p>	<p>3. Change hose to VH 10758684</p> <p>4. Hose length steering knuckle clamps to brake chamber T-connector: 1.5 ft</p>  <p>F05660</p>
<p>5. Change hose clamp to chassis angle bracket to VH 637100140</p>  <p>F05671</p> <p><i>Chart continued on next page.</i></p>	<p>5. Change hose clamp to chassis angle bracket to VH 637100140</p>  <p>F05671</p> <p><i>Chart continued on next page.</i></p>

6. Change hose clamps to steering knuckle mounting bracket to VH 637100140



6. Change hose clamps to steering knuckle mounting bracket to VH 637100140



7. **CAUTION:** Check installation

3.9 ft hose quick reference chart complete.

7. **CAUTION:** Check installation

3.9 ft hose quick reference chart complete.

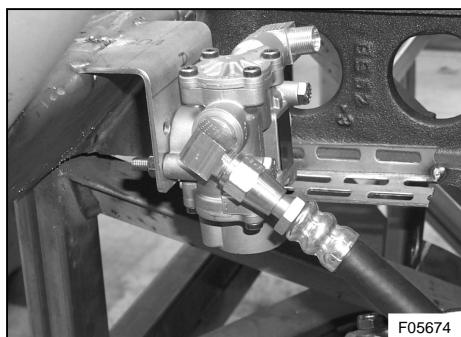
QUICK REFERENCE CHART – 2.6 FT (800 MM) BRAKE HOSES

FEATURES

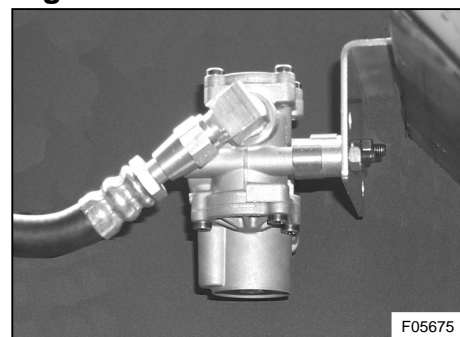


**Applicable to
D3 brake systems**

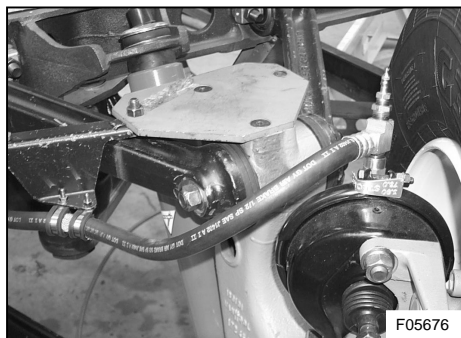
**Special feature:
Left hand ABS valve. No QR1**



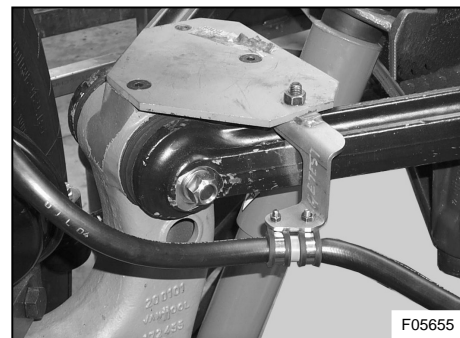
**Special feature:
Right hand ABS valve. No QR1**



Left hand hose installation (early)



Right hand hose installation



Left hand hose installation (late)

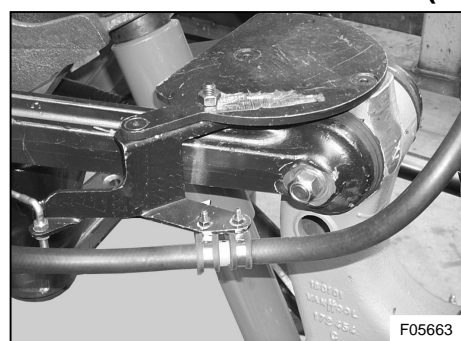
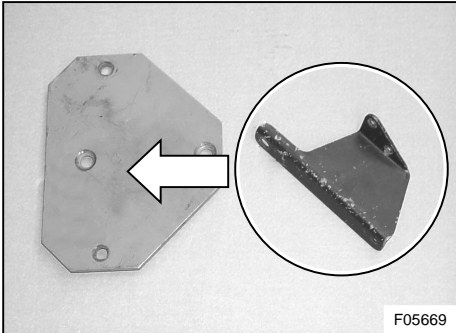


Chart continued on next page.

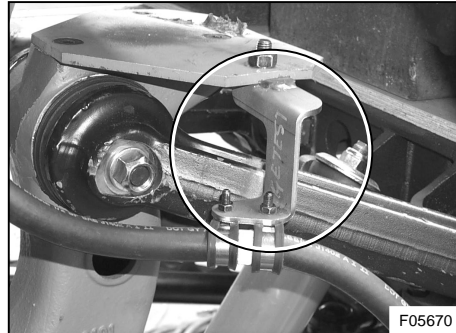
Change

1.1 Change hose to steering knuckle mounting bracket to VH 10761390 to suit angular air spring mounting plate

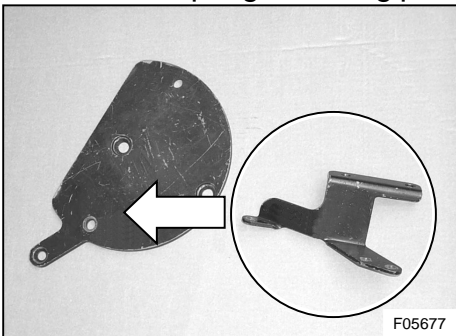


Change

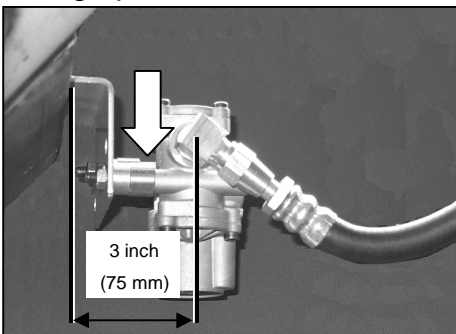
1. Change hose to steering knuckle mounting bracket to VH 10631266



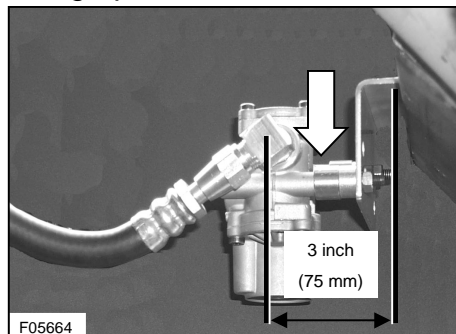
1.2 Change hose to steering knuckle mounting bracket to VH 10675802 to suit round air spring mounting plate



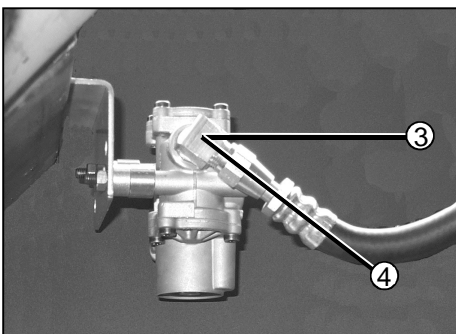
2. Change position of ABS valve



2. Change position of ABS valve



3. Change position of port #2 elbow stud connector on ABS valve



3. Change position of port #2 elbow stud connector on ABS valve

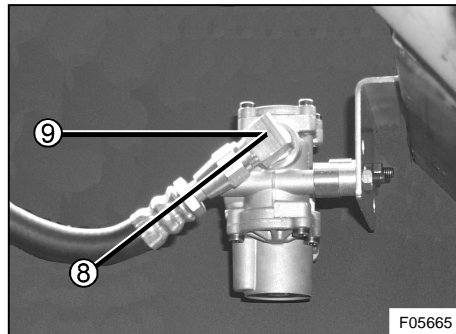
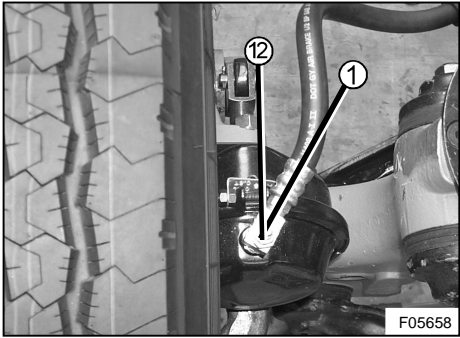
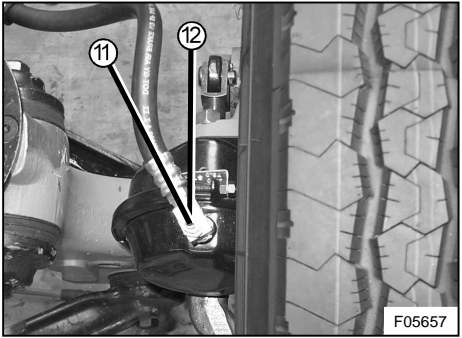
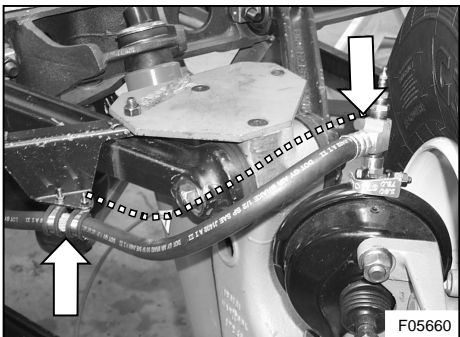
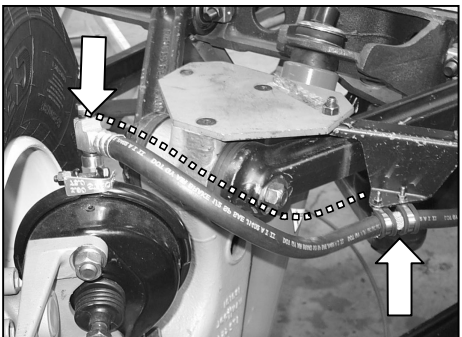

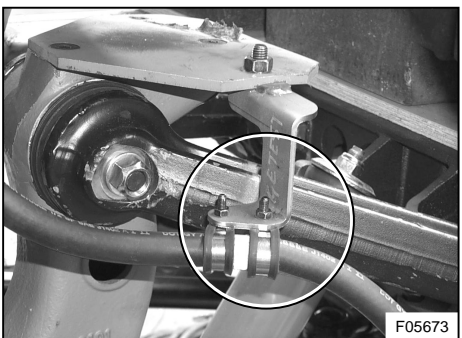


Chart continued on next page.

Chart continued on next page.

<p>4. Adjust brake chamber T-connector</p> 	<p>4. Adjust brake chamber T-connector</p> 
<p>5. Change hose to VH10758753</p>	<p>5. Change hose to VH10758753</p>
<p>6. Hose length steering knuckle clamps to brake chamber T-connector: 1.5 ft</p> 	<p>6. Hose length steering knuckle clamps to brake chamber T-connector: 1.5 ft</p> 
<p>7. Change hose clamps to steering knuckle mounting bracket to VH 637100140</p> 	<p>7. Change hose clamps to steering knuckle mounting bracket to VH 637100140</p> 
<p>8. CAUTION: Check installation</p> <p>2.6 ft hose quick reference chart complete.</p>	<p>8. CAUTION: Check installation</p> <p>2.6 ft hose quick reference chart complete.</p>

WARRANTY INFORMATION:

- Causal parts: VH 10592705 and VH 10559958
- Job code: G10108V
- Parts disposition: discard according to applicable environmental regulations.
- Owners are required to certify on the standard notification document attached to this Bulletin that the recall remedy has been executed in accordance with the manufacturer's instructions.

Van Hool will accept warranty claims for this repair as follows:

- Parts will be forwarded to customers, free of charge.
- Labor allocation: 2 hours per coach
- Expiration date: December 31st, 2002.

Contact ABC Coach Inc. for guidance on claim submission.