XOS

Briana Green <briana.green@xostrucks.com>

REC-001-22 Technical Instructions and Parts Process

1 message

Jessica Savage <jessica@xostrucks.com> Mon, Dec 26, 2022 at 1:32 PM
Bcc: briana.green@xostrucks.com

Xos Dealer Partners,

Please see attached for the Technical Instructions for voluntary REC-001-22 related to brake lines. These instructions are now also posted on the Xosphere Dealer Portal in the knowledge center under Service.

If you are receiving this email, you have vehicles on site and/or in your AOR that this recall pertains to.

You will be sent the parts for the front rubber brake hose- all vehicles fix (OP Code 04016) in the next 7-10 days.

Upon vehicle inspection, please open a service case in Xosphere if parts are required to complete any of the other items for the recall. Note: these are not being sent proactively as they do not apply on all vehicles, an inspection is needed to determine if these remaining items are necessary.

Once the Xos Support team receives your case, we will have the parts sent out in a timely manner. We will wait a day or two to kit as many parts together as possible for you.

When you have finalized the work, please file for warranty as you normally would via the Xosphere dealer portal.

Please reach out to myself or support@xostrucks.com for any questions or concerns.

Thanks,

REC-001-22 Technical Instructions.pdf

Jessica Savage
Director, Distribution Development

XOS

312.848.8834

jessica@xostrucks.com

xostrucks.com

Los Angeles, CA

Xos Safety Recall REC-001-22

Brake Lines Improperly Routed

IMPORTANT - Read this document carefully and completely to understand the applicability of this Recall and the related repair procedure(s). Failure to follow the instructions correctly may result in incomplete repairs and duplication of efforts.

Repair Overview:

1. Confirm VIN is applicable under this Safety Recall
2. Perform vehicle inspections to determine necessary repairs
    a. Front rubber brake hose inspections (Both sides)
    b. Front brake caliper bracket inspection (Both sides)
    c. Routing of right front steel brake line
    d. Routing of right rear steel brake line
3. Perform applicable repairs

NOTE: All vehicles must have brake line brackets installed on both sides regardless of inspection results

4. Test drive vehicle to confirm proper operation
5. Submit warranty claim to close recall for applicable VIN

Vehicle Applicability:

Model Year	Model	Body Application
2021 - 2022 2021	SV05 RM01	Morgan Olson CITE Utilimaster

Parts Information:

Repair Type	Part Number	Part Name	QTY
Front Rubber Brake Hose - All Vehicles	RM01-EB-M0078	Bracket, Stepvan, Driver Side Brake Line	1
	RM01-EB-M0077	Bracket, Stepvan, Passenger Side Brake Line	1
	HD10-HH-M0235	Clamp, Loop-Cushioned, 5/8" ID, 1/4" Mounting Hole	3
	HD30-HH-M0005	Flange Nut, M6-1, Class 10, Zinc Plated	5
	HD20-HH-M0006	Flange Bolt, M6-1 x 20mm, Class 10.9, Zinc Plated	5
	HD30-HH-M0007	Flange Nut, M10-1.5, Class 10, Zinc Plated	1
Front Rubber Brake Hose - See inspection criteria	RM01-EB-A0002	Flexible Brake Line, Front	2
	RM01-EB-M0058	Brake Caliper Bracket, Rear LH & Front RH	1
	RM01-EB-M0059	Brake Caliper Bracket, Rear RH & Front LH	1
	HD20-HH-M0036	Flange Bolt, 5/16"-18 x 0.5", Grade 8, Black-Phosphate	2
	HD10-HH-M0012	Loom Clamp, 5/8" Width 3/8" Diameter	2
	HD20-HH-M0200	Flange Bolt, 5/16"-18, Grade 8, Zinc Plated	2
	HD30-HH-M0094	Serrated Flange Locknut, 5/16"-18, Zinc Plated	2
Right Front Brake Line - See inspection criteria	RM02-EB-A0001	Right Front Brake Line	1
Right Rear Brake Line - See inspection criteria	RM01-EB-A0019	Right Rear Brake Line, Front Section, ABS To Wheel	1
Varies	N/A	DOT 3 Brake Fluid	As Needed

Warranty Information:

Model	Operation Code	Operation Description	Time (Hours)	Impacted Part #
SV05	04016	Install frame-side brake hose brackets (Both Sides) and perform inspections	1	RM01-EB-M0077
	04026	Replace front brake hose (Drivers side)	.75	RM01-EB-A0002
	04036	Replace front brake hose (Passengers side)	.75	RM01-EB-A0002
	04046	Replace front brake hose caliper bracket (Drivers side)	.5	RM01-EB-M0059
	04056	Replace front brake hose caliper bracket (Passengers side)	.5	RM01-EB-M0058
	04066	Replace right front brake line	4.5	RM02-EB-A0001
	04076	Replace right rear brake line (Front section)	4.5	RM01-EB-A0019

Required Special Tools & Equipment:

Tool/Equipment Description	Specification	Example
Mobile Column Lifts	>5,000 lbs capacity per lift (Required for center pack removal)	
Heavy Duty Jack Stands	>5,000 lbs capacity each	
Forklift w/fork extensions	>5,000 lbs capacity with 60” extensions for battery handling	
Mobile Scissor Lift Platform Table	>1,000 lb capacity recommended for Lyra battery pack removal and replacement	

Vehicle Inspection Procedure:

Front rubber brake hose inspection

1. Visually inspect both front rubber brake hoses
2. Check the rubber brake hose shape to determine if the vehicle has Hose A (Figure 1) or Hose B (Figure 2) currently installed.
    a. Hose A must be replaced with the correct style, Hose B - **Refer to repair Section 1 - Front Rubber Brake Hose Replacement**
    b. Hose B must be inspected for any abrasion caused by contact with the tire (Figure 3). Any visible damage caused by the tire must be resolved by replacing the hose(s) as needed. If no abrasion is noted, proceed to the next inspection - If needed, Refer to repair **Section 1 - Front Rubber Brake Hose Replacement**

Figure 1 - Hose A (Incorrect)

Figure 2 - Hose B (Correct)

Figure 3 - Tire abrasion/Damage on Hose

3. Check the brake caliper-to-hose support clamp (Figure 4) or bracket (Figure 5)
    a. Clamp-only applications must be replaced with the correct bracket - **Refer to repair Section 2 - Brake Caliper Bracket Installation**
    b. Vehicles with brackets installed require no repair, proceed to the next inspection

Figure 4 - Caliper-to-hose clamp (Incorrect)

Figure 5 - Caliper-to-hose bracket (Correct)

Right Front Brake Line Inspection

1. Visually inspect the right front brake line at the ABS Assembly. The right front (RF) brake line is the 3rd fitting when counting front-to-back located on the top of the ABS Assembly (Figure 6).

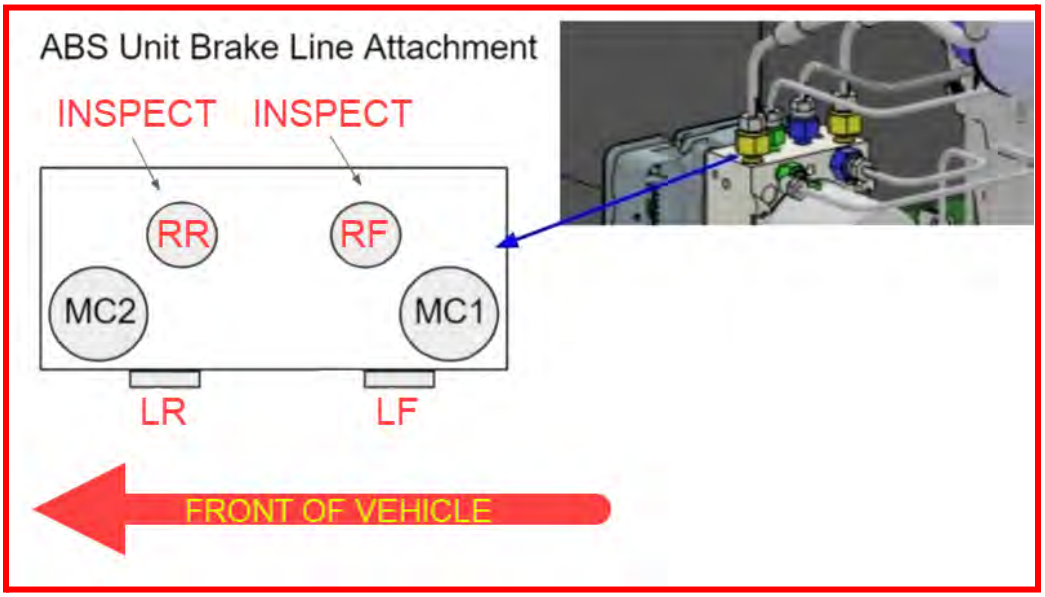


Figure 6 - ABS Assembly & Brake Line Locations

2. Check the routing of the brake line for clearance away from the hydraulic brake assist motor and master cylinder assembly.
    a. Brake line routing towards the hydraulic brake assist motor (Figure 7) must be replaced - Refer to **Section 3 - Right Front Brake Line Replacement**
    b. Brake line routing in the opposite direction of the hydraulic brake assist motor (Figure 8) does not require replacement.

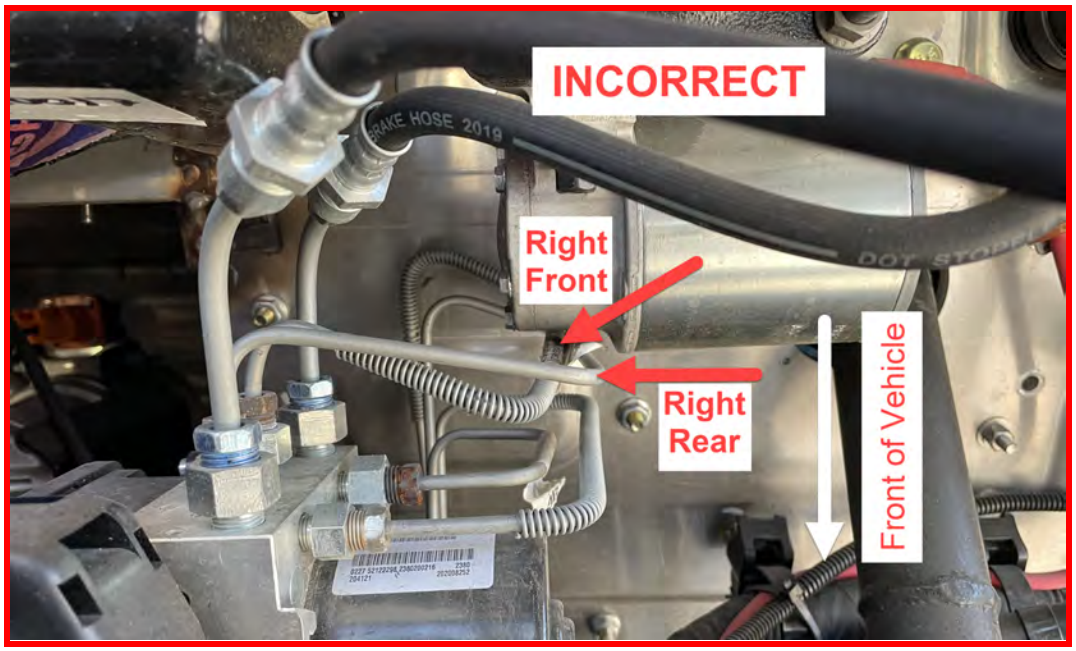


Figure 7 - INCORRECT Brake Line Routing (Right Front & Right Rear)

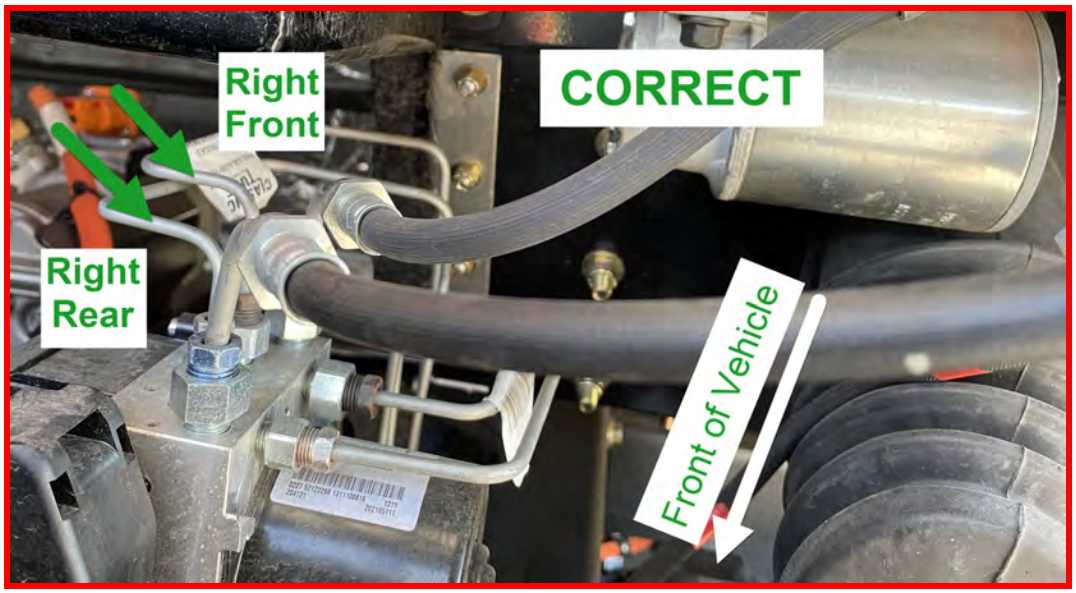


Figure 8 - CORRECT Brake Line Routing (Right Front & Right Rear)

Right Rear Brake Line (Front Section) Inspection

1. Visually inspect the right rear brake line at the ABS Assembly. The right rear (RR) brake line is the 2nd fitting when counting front-to-back located on the top of the ABS Assembly (Figure 6).

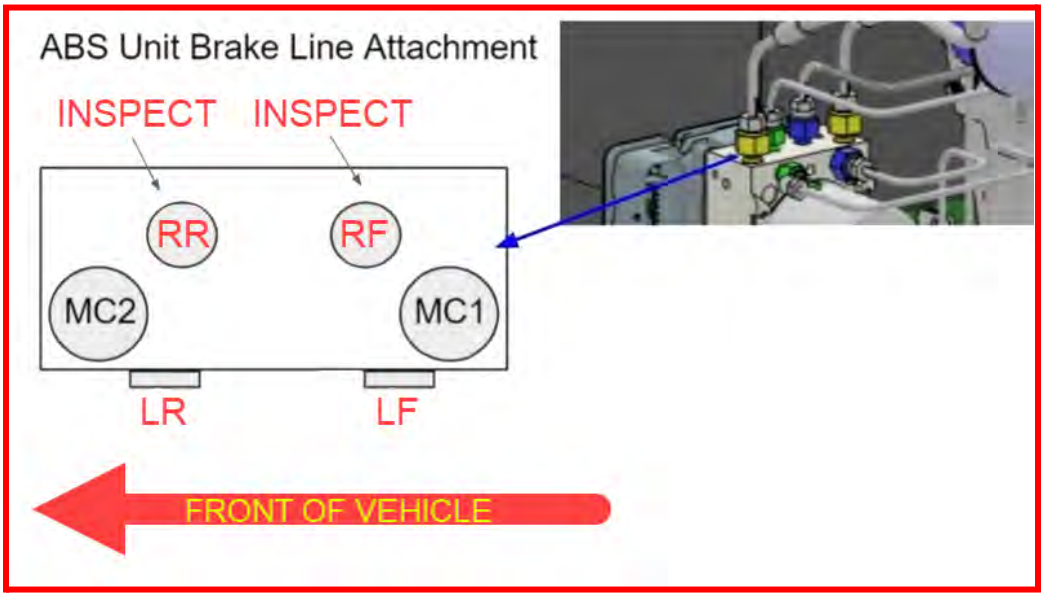


Figure 6 - ABS Assembly & Brake Line Locations

2. Check the routing of the brake line for clearance away from the hydraulic brake assist motor and master cylinder assembly.
    a. Brake line routing towards the hydraulic brake assist motor (Figure 7) must be replaced - Refer to **Section 4 - Right Rear Brake Line Replacement**
    b. Brake line routing in the opposite direction of the hydraulic brake assist motor (Figure 8) does not require replacement.

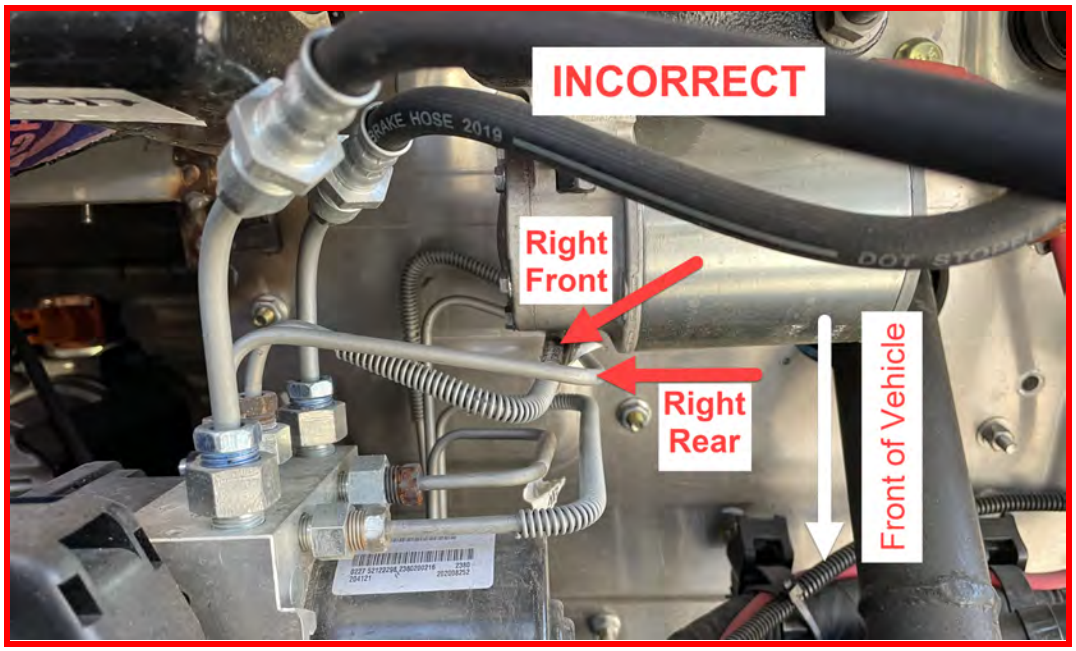


Figure 7 - INCORRECT Brake Line Routing (Right Front & Right Rear)

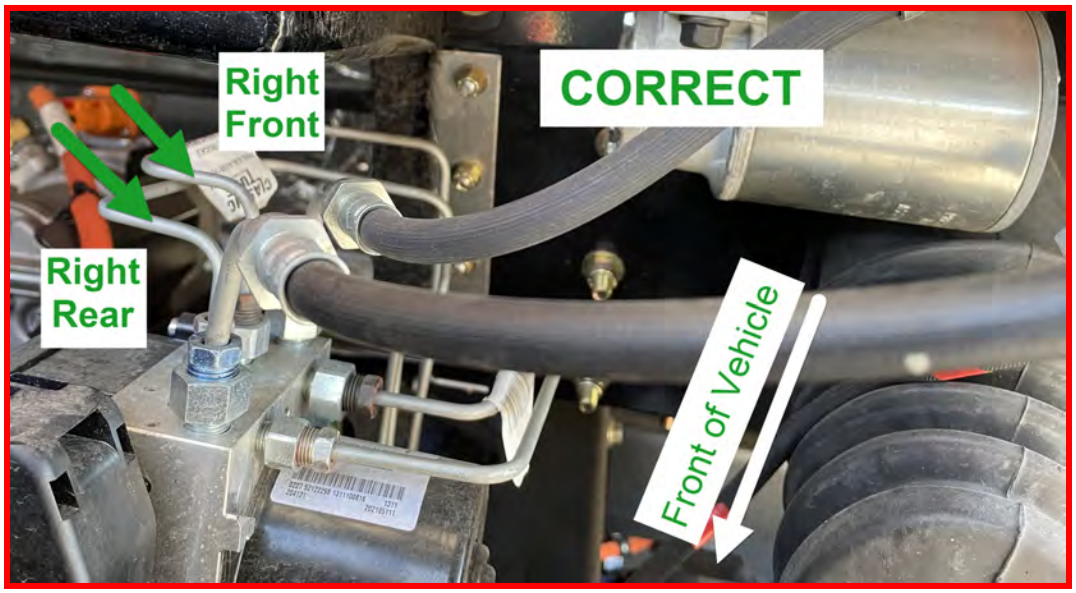


Figure 8 - CORRECT Brake Line Routing (Right Front & Right Rear)

Repair Procedures:

ALL VEHICLES - Add brake line brackets on both sides

1. Remove p-clamp and frame clip from the drivers side frame rail. Discard. (Figure 9)

Figure 9 - Drivers Side Frame Rail

2. Locate the two (2) holes in the power steering motor bracket (Figure 10), these will be used to mount the drivers side brake line bracket.

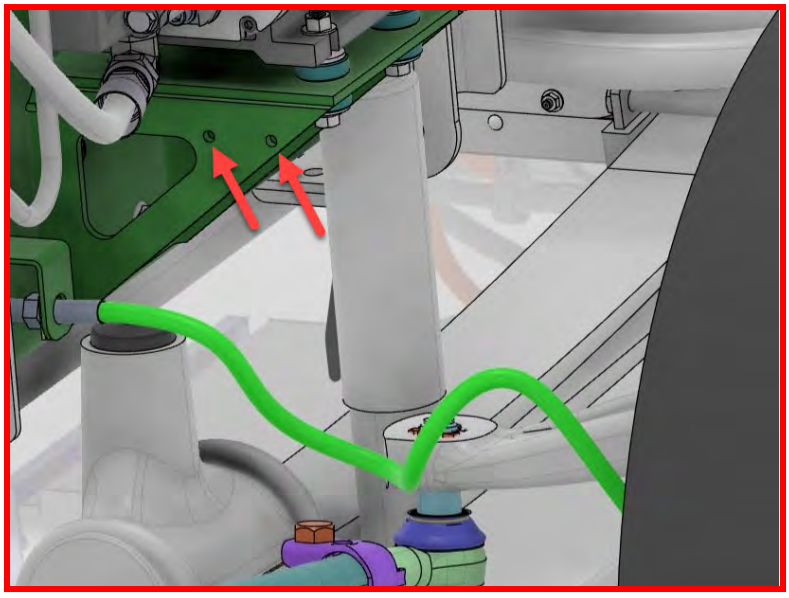


Figure 10 - Mounting Holes for Drivers Side Brake Line Bracket

3. Install drivers side brake line bracket using two bolts (HD30-HH-M0006) and two nuts (HD30-HH-M0005). Torque to 25 Nm. (Figure 11 & 12)

Figure 11 - Front Side of Bracket

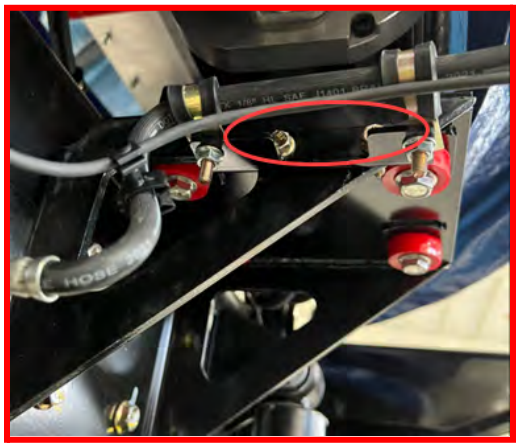


Figure 12 - Rear Side of Bracket

4. Route the drivers side rubber brake line through two p-clamps (HD10-HH-M0235) using two bolts (HD30-HH-M0006) and two nuts (HD30-HH-M0005). Torque to 25 Nm. (Figure 12)

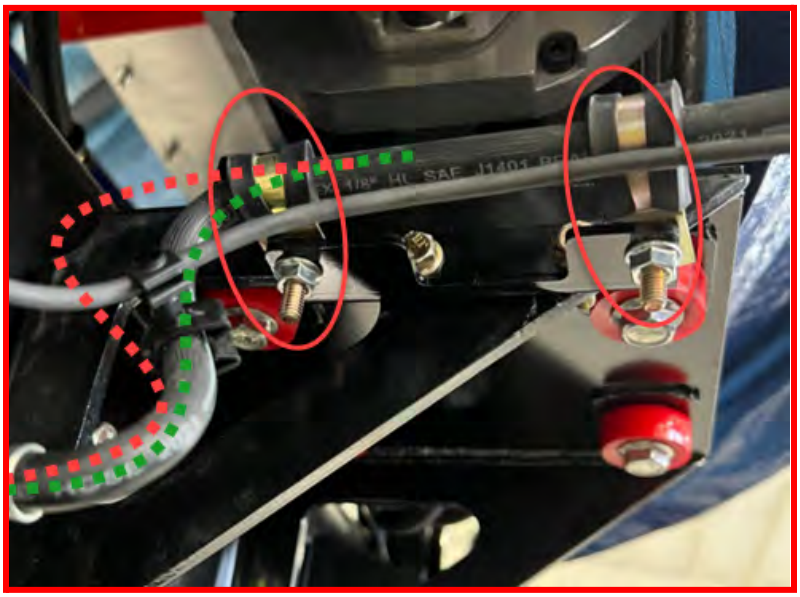


FIgure 12 - P-Clamps Securing the Rubber Brake Line

Gradual Bend (Green) vs Sharp Bend (Red)

IMPORTANT - If the rubber brake hose requires replacement per the inspection criteria, complete that repair FIRST.

CAUTION- Routing of the rubber brake hose should be gradual (Green dotted line) and not sharp, which may kink the hose (Red dotted line) (Figure 12 above)

5. Confirm proper retention of the ABS speed sensor wire along the rubber brake hose, using existing clips, as shown (Figure 13).

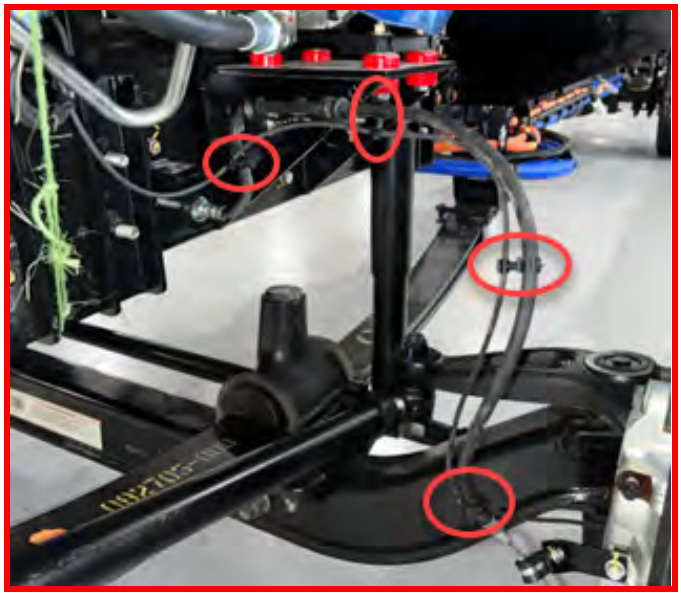


Figure 13 - Drivers Side Speed Sensor/Rubber Brake Hose Retention

6. Locate the protruding fastener on the passenger side frame rail (Figure 14). Install the passenger side brake line bracket using the M10 nut (HD30-HH-M0007). Torque to 90 Nm.

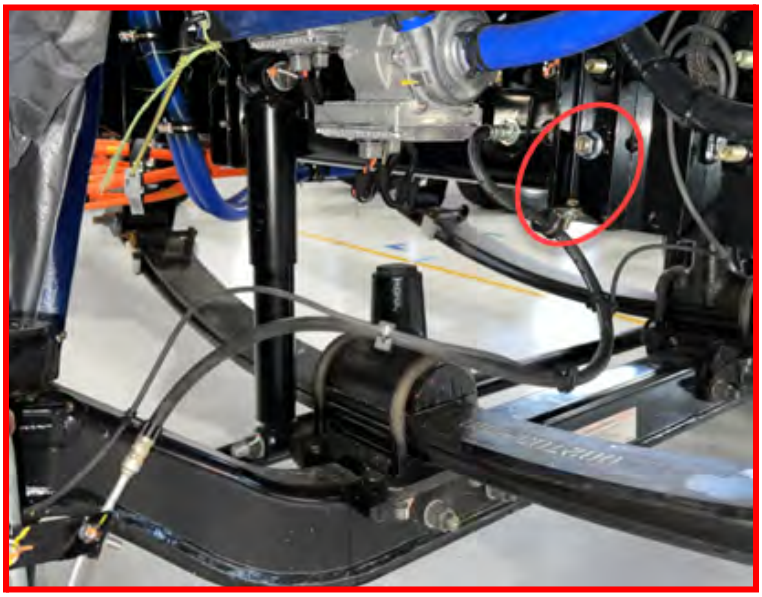


Figure 14 - Passenger Side Brake Line Bracket Mounting Location

7. Route the passenger side rubber brake line through the p-clamps (HD10-HH-M0235) using a bolt (HD30-HH-M0006) and a nut (HD30-HH-M0005). Torque to 25 Nm. (Figure 15)

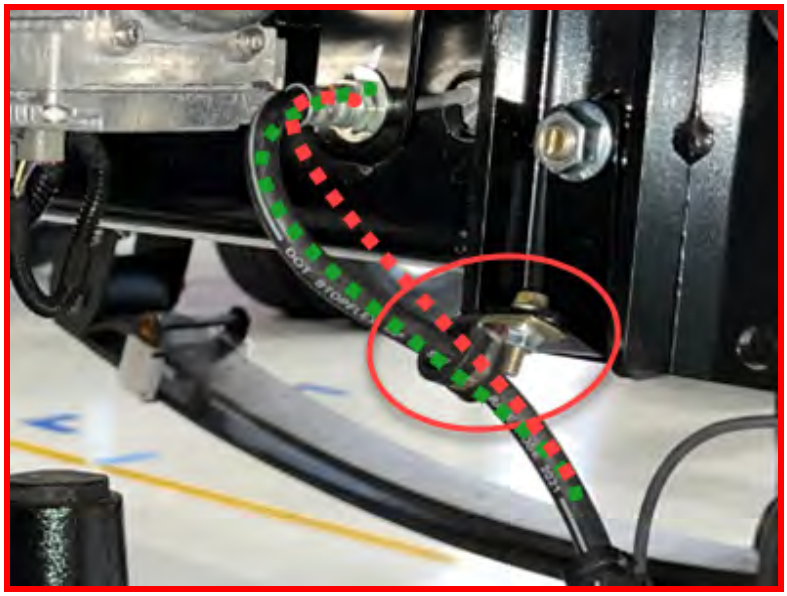


FIgure 15 - P-Clamp Securing the Rubber Brake Line

Gradual Bend (Green) vs Sharp Bend (Red)

IMPORTANT - If the rubber brake hose requires replacement per the inspection criteria, complete that repair FIRST.

CAUTION- Routing of the rubber brake hose should be gradual (Green dotted line) and not sharp, which may kink the hose (Red dotted line) (Figure 12 above)

8. Confirm proper retention of the ABS speed sensor wire along the rubber brake hose, using existing clips, as shown (Figure 14).

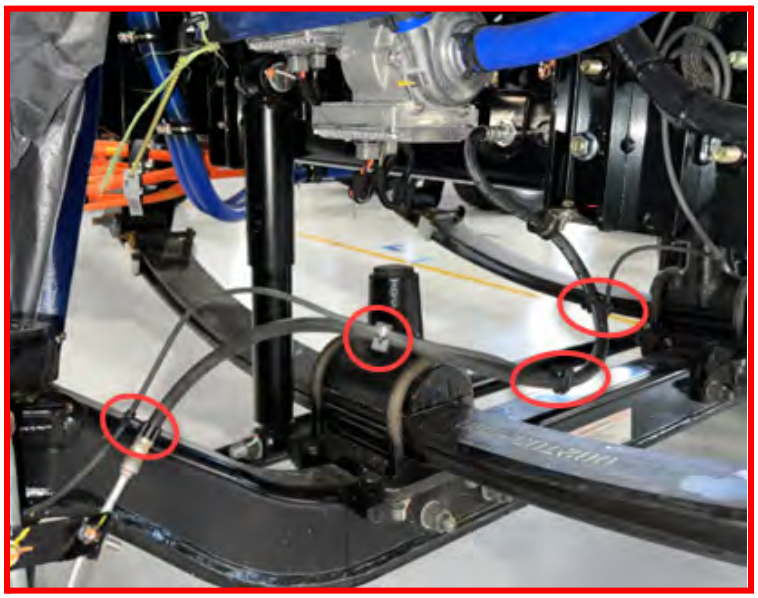


Figure 14 - Passengers Side Speed Sensor/Rubber Brake Hose Retention

9. Test drive the vehicle to confirm proper operation

Inspection-based Repair Procedures

Section 1 - Front Rubber Brake Hose Replacement (Same procedure for both sides)

1. Remove the front rubber brake hose fitting from the caliper (Figure 16). Use a rubber cap, or equivalent, to reduce brake fluid leakage during the repair.

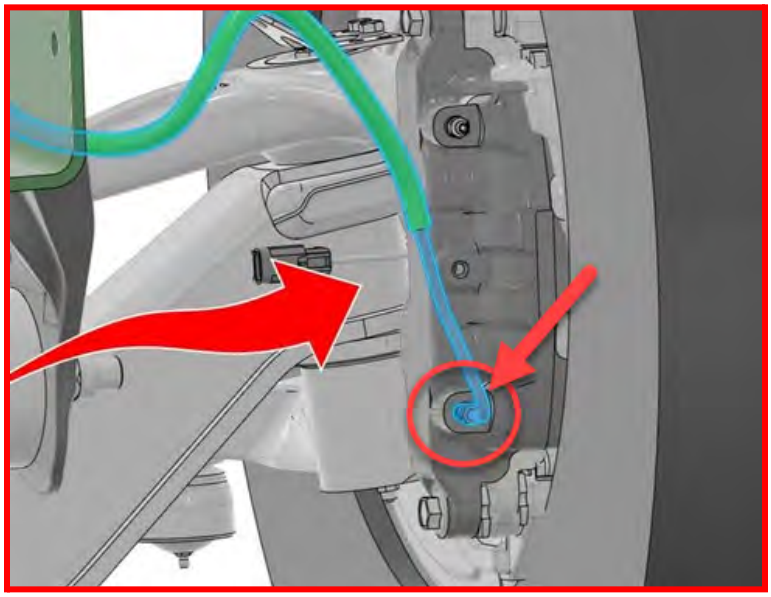


Figure 16 - Rubber Brake Hose-to-Caliper Fitting

2. Remove the brake caliper bracket bolt from the caliper

NOTE: Disregard if the correct brake line bracket is not installed.

3. Remove the brake hose clamp bolt from the bracket (or caliper if bracket is not present) (Figure 4)

Figure 4 - Incorrect Caliper P-Clamp

4. Remove the retention clips from the brake hose, leaving the other side clipped to the ABS speed sensor wire. (FIgure 13 & 14)

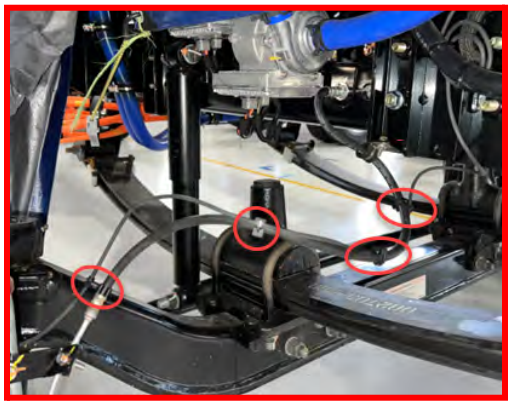


Figure 13 - Retention Clips

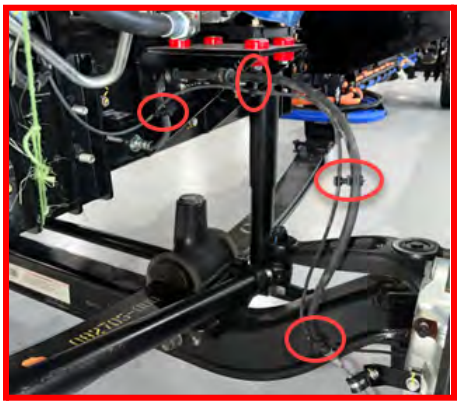


Figure 14 - Retention Clips

5. Remove the brake line clip from the frame-side bracket (Figure 16)

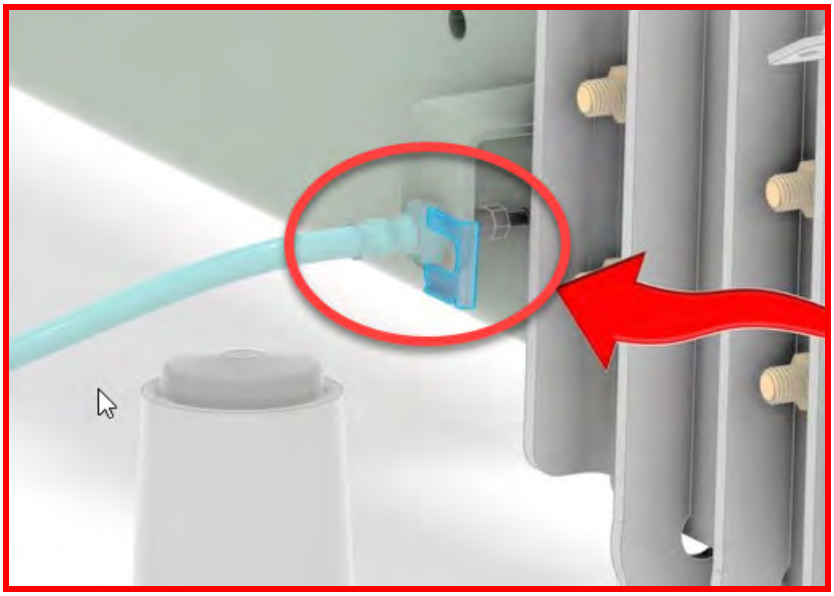


Figure 16 - Front Brake Line Clip

6. Remove the front rubber brake line from the steel brake line. Move the rubber cap, or equivalent, from the end of the rubber brake hose to the steel brake line to reduce brake fluid leakage during the repair.
7. Install the new rubber brake hose to the steel brake line. Torque to 16 Nm.
8. Install the brake line clip to secure the steel line and front brake rubber hose to the frame-side bracket.
9. Install the front rubber brake hose to the caliper (Figure 17) - DO NOT TIGHTEN.

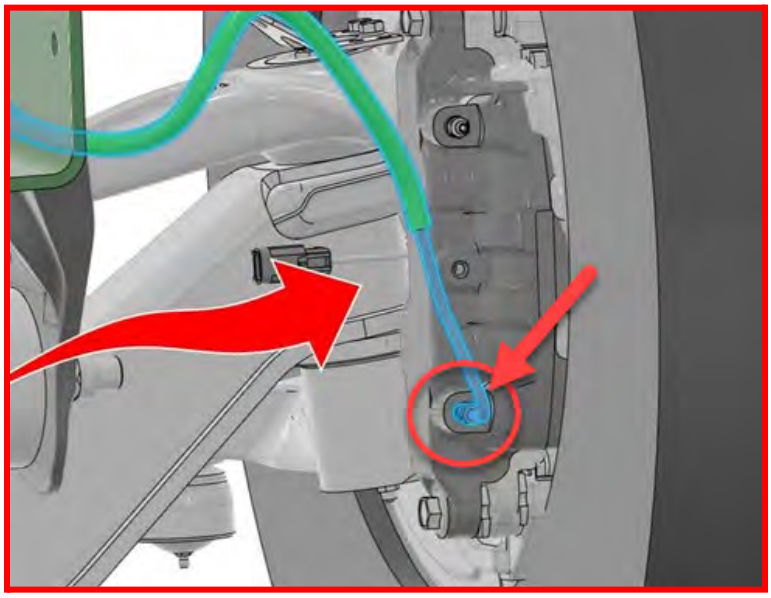


Figure 17 - Rubber Brake Hose-to-Caliper Fitting

10. Install the correct brake caliper bracket (Figure 18), adding if necessary, to the caliper reusing the same bolt. Torque to 24 Nm.

a. Drivers side brake caliper bracket - RM01-EB-M0078
b. Passenger side brake caliper bracket - RM01-EB-M0077

Figure 18 - Brake Caliper Bracket - Caliper Bolt

11. Route the front rubber brake hose through the new loom clamp (Figure 19) (HD10-HH-M0012) and secure the loom clamp to the brake caliper bracket using bolt (HD20-HH-M0200) and nut (HD30-HH-M0094). Torque to 24 Nm.

Figure 19 - Brake Caliper Bracket - P-Clamp Bolt

12. Torque the front rubber brake hose-to-caliper fitting to 16 Nm.
13. Confirm proper routing of the front rubber brake hose through the newly installed brake line brackets.
    a. Drivers side - Reference Figure 12

b. Passenger side - Reference Figure 15

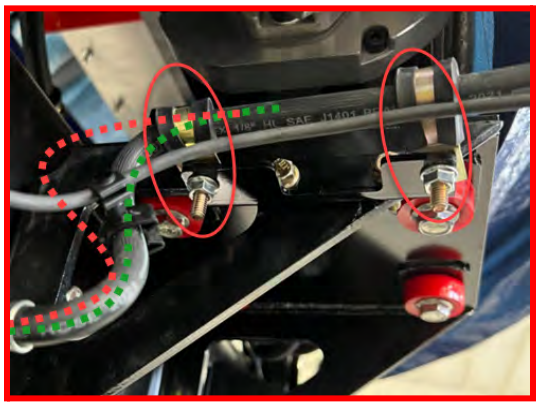


Figure 12 - Proper Routing

Figure 15 - Proper Routing

14. Confirm proper placement of the retention clips between the front rubber brake hose and ABS speed sensor wire.

NOTE: Only perform steps 15-18 after ALL brake hose and brake line repairs have been completed. It is NOT necessary to perform these steps between Repair Sections 1, 3 and 4.

15. Bleed the brakes to remove any potential trapped air.
16. Refill the brake master cylinder with DOT 3 brake fluid to the proper level.
17. Test drive vehicle to confirm proper operation.
18. Perform post-drive inspection to confirm there are no brake fluid leaks.

Section 2 - Brake Caliper Bracket Installation (Same procedure for Both Sides)

1. Loosen the front brake rubber hose fitting at the caliper (Figure 16) enough (Likely less than one full turn) to allow the steel line to rotate without deforming the steel line.

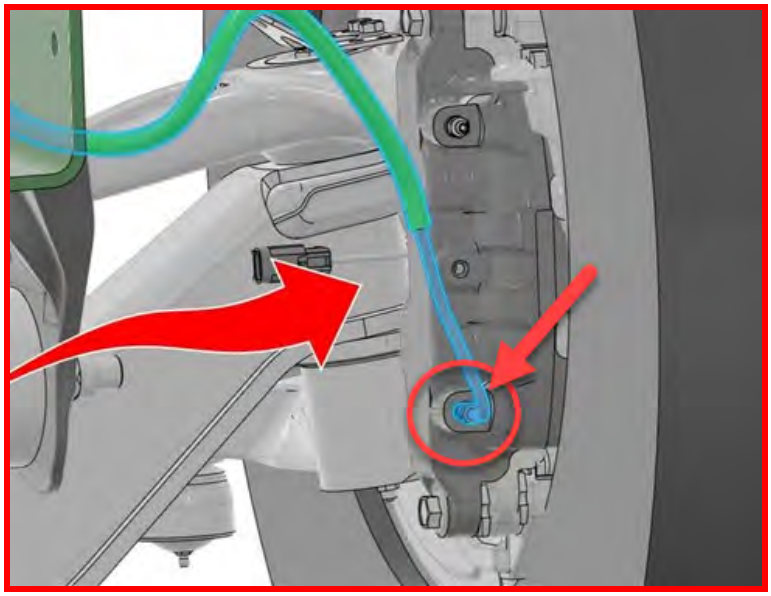


Figure 16 - Rubber Brake Hose-to-Caliper Fitting

2. Remove the bolt securing the incorrect clamp to the caliper.
3. Install the correct brake caliper bracket to the caliper (Figure 17) using a bolt (HD20-HH-M0036). Torque to 24 Nm.
    a. Drivers side brake caliper bracket - RM01-EB-M0078
    b. Passenger side brake caliper bracket - RM01-EB-M0077

Figure 17 - Brake Caliper Bracket - Caliper Bolt

4. Route the front rubber brake hose through the new loom clamp (Figure 18) (HD10-HH-M0012) and secure the loom clamp to the brake caliper bracket using bolt (HD20-HH-M0200) and nut (HD30-HH-M0094). Torque to 24 Nm.

Figure 18 - Brake Caliper Bracket - P-Clamp Bolt

5. Torque the front rubber brake hose-to-caliper fitting to 15 Nm.

NOTE: Only perform steps 6-9 after ALL brake hose and brake line repairs have been completed. It is NOT necessary to perform these steps between Repair Sections 1, 3 and 4.

6. Bleed the brakes to remove any potential trapped air.
7. Refill the brake master cylinder with DOT 3 brake fluid to the proper level.
8. Test drive vehicle to confirm proper operation.
9. Perform post-drive inspection to confirm there are no brake fluid leaks.

Section 3 - Right Front Brake Line Replacement

1. Position the vehicle in the service shop with adequate space to operate the recommended forklift around the front of the vehicle. The front battery pack can be removed and installed with a forklift OR the recommended lift table.
2. Unlatch both side hood latches
3. Raise the hood, confirming the passenger side strut engages the lock
4. Turn the master switch OFF and apply appropriate lock-out/tag-out devices to ensure a safe working environment while HV system components are being serviced.
5. Remove the front bumper assembly and set it aside, taking appropriate measures to avoid paint damage.
6. Remove the front crossmember
7. Remove the front battery pack mid-pack connector
8. Disconnect the HV positive (+), HV negative (-) and low voltage data connectors from the front battery pack
9. Using either the forklift or lift table, provide adequate support under the front battery pack to allow removal of the battery-to-frame hardware.

SERVICE TIP - Use 2”x4” or 4”x4” wood blocks to minimize battery case scratches and improve maneuverability between the forklift/lift table and battery pack.

10. Once the front battery pack is properly supported, remove the battery-to-frame mounting hardware from BOTH brackets on the passenger side of the vehicle. Leave the battery mounts in position, it is not necessary to remove them completely.

SERVICE TIP - Remove all fasteners from the mount-to-frame side and battery-to-mount side of each bracket to improve maneuverability.

11. Carefully remove the front battery pack from the vehicle and set it aside in a properly designated area to maintain proper HV safety protocols.
12. Remove the right front (RF) brake line fitting from the ABS assembly as shown (Figure 6)

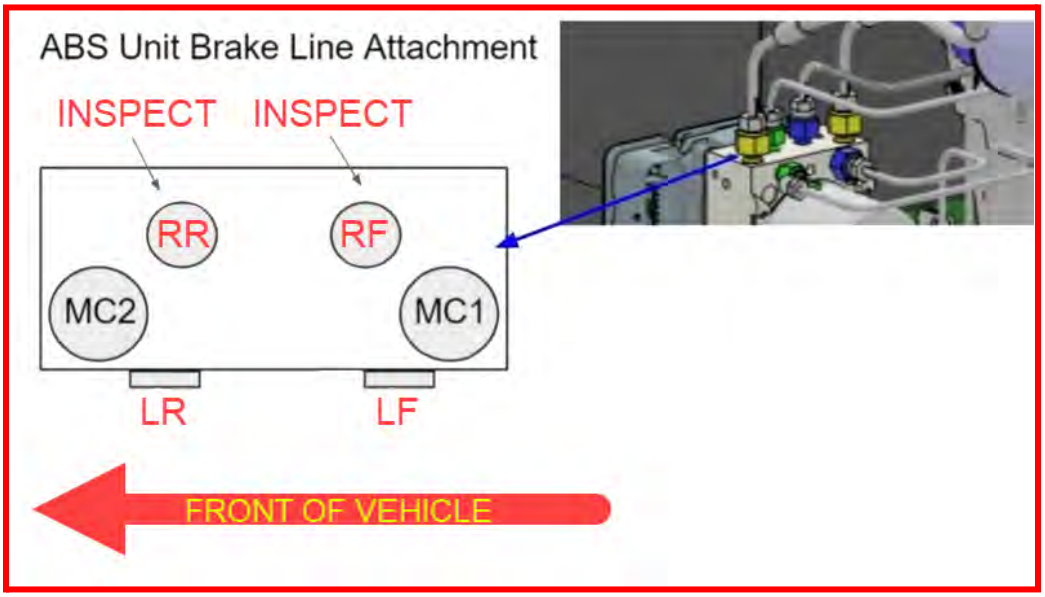


Figure 6 - ABS Assembly & Brake Line Locations

13. Remove the brake line clip from the frame-side bracket (Figure 16)

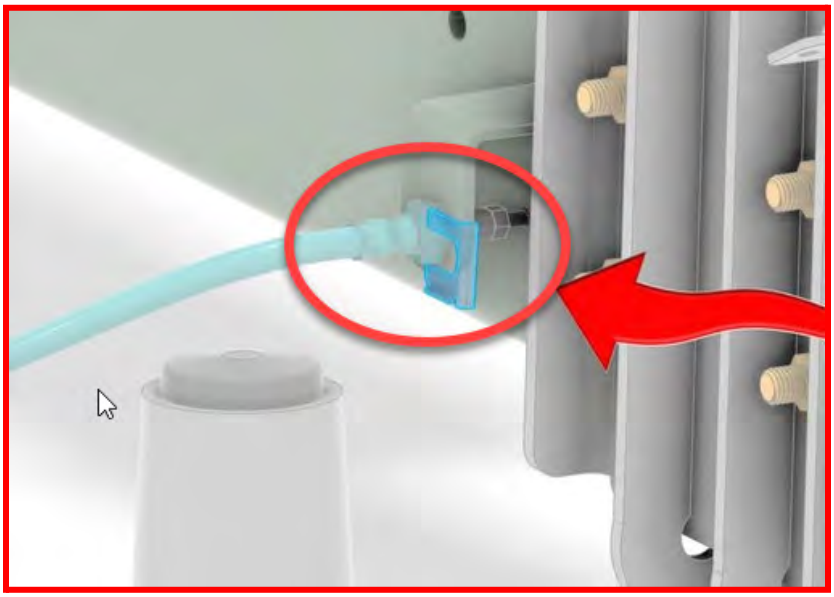


Figure 16 - Front Brake Line Clip

14. Remove the front rubber brake line from the steel brake line (Figure 19)

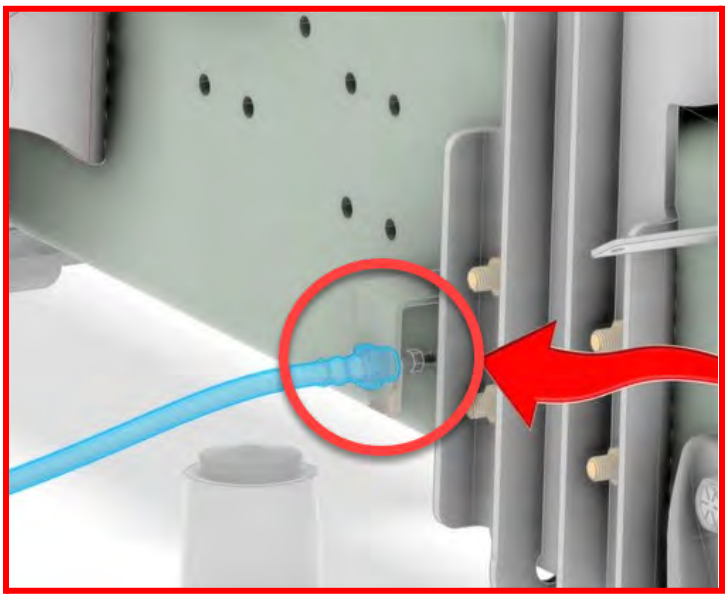
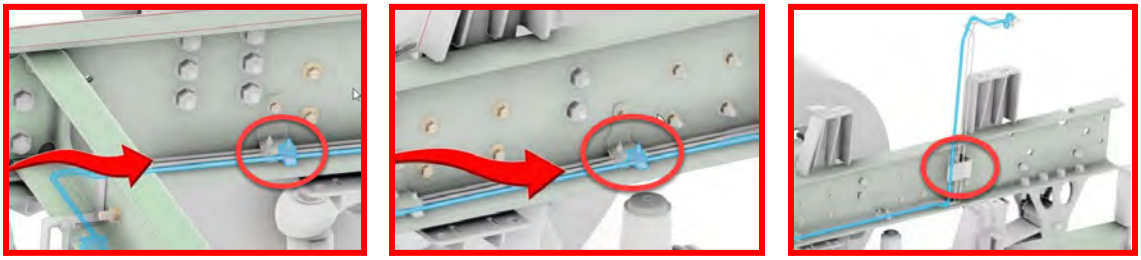
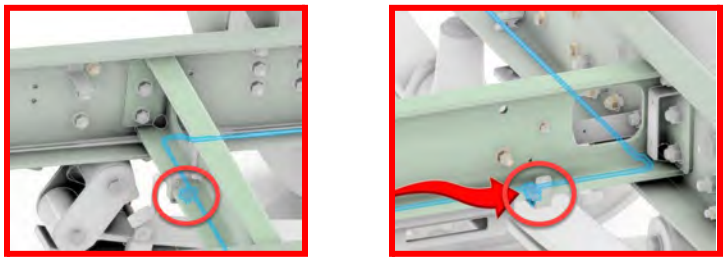


Figure 19 - Front Rubber Brake Hose to Steel Line Transition

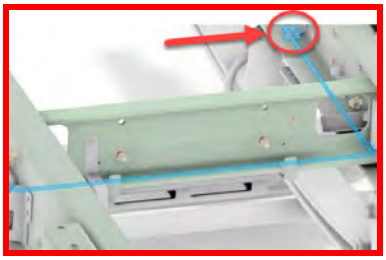
15. Separate the right front brake line assembly from the six (6) brake turing clips along the routing of the brake line.
    a. Three (3) clips on the drivers side frame rail



    b. Two (2) clips on the second crossmember



    c. One (1) clip on the passenger side frame rail



16. Remove the brake line clamp near the ABS Assembly (Figure 20)

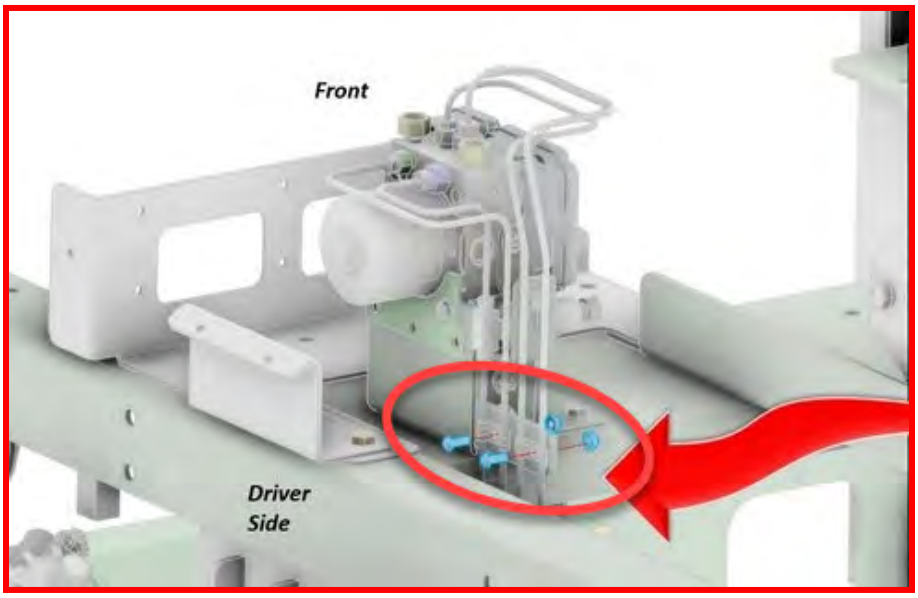


Figure 20 - Brake Line Clamp near ABS Assembly

17. Remove the right front brake line assembly.
18. Install the new right front brake line assembly using caution not to deform the pre-bent shape during this process.
19. Attach the six (6) brake turing clips to secure the right front brake line assembly.
    a. Three (3) clips on the drivers side frame rail
    b. Two (2) clips on the second crossmember
    c. One (1) clip on the passenger side frame rail
20. Install the brake line clamp near the ABS Assembly. Torque to 5.5 Nm.
21. Connect the right front brake line to the right front rubber brake hose. Torque to 15 Nm.
22. Install the brake line clip in the frame-side bracket.
23. Connect the right front brake line to the ABS assembly. Torque to 16 Nm.

SERVICE TIP - If also replacing the right rear brake line assembly, DO NOT reinstall the front battery pack at this time. Move to the Step 7 of Section 4 and proceed with the repair procedure.

24. Bleed the brakes to remove any potential trapped air.
25. Refill the brake master cylinder with DOT 3 brake fluid to the proper level.

26. Confirm there are no brake fluid leaks before proceeding with reinstallation of the front battery pack.
27. Install the front battery pack
    a. Torque battery-to-mount bolts to 108 Nm
    b. Torque mount-to-frame fasteners to 95 Nm
28. Install the front crossmember. Torque fasteners to 81 Nm
29. Install the front bumper. Torque fasteners to 81 Nm
30. Connect the HV positive (+), HV negative (-) and low voltage data connectors from the front battery pack.
31. Remove lock-out/tag-out devices from the master switch and turn to the ON position. Wait for self-check to complete successfully.
32. Close and latch the hood. Make sure the passenger side strut is properly disengaged before lowering the hood.
33. Test drive vehicle to confirm proper operation.
34. Perform post-drive inspection to confirm there are no brake fluid leaks.

Section 4 - Right Rear Brake Line Replacement

1. Position the vehicle in the service shop with adequate space to operate the recommended forklift around the front and sides of the vehicle. The vehicle must be lifted approximately 30” off the ground for this repair procedure. Mobile column lifts and heavy duty jack stands can be used to support the front and rear axle. A suitable drive-on lift may also be used if the clearance between ramps is sufficient for the lift table and battery pack to fit between them. The center battery pack can be removed and installed with the recommended lift table. A forklift is NOT recommended for this repair procedure.
2. Unlatch both side hood latches
3. Raise the hood, confirming the passenger side strut engages the lock
4. Turn the master switch OFF and apply appropriate lock-out/tag-out devices to ensure a safe working environment while HV system components are being serviced.
5. REFER TO SECTION 3, Steps 2 - 11, to remove the front battery pack.
6. Raise and support the vehicle at least 30” off the ground to provide sufficient clearance for the center battery pack removal
7. Disconnect the HV positive (+), HV negative (-) and low voltage data connectors from the center battery pack
8. Using the lift table, provide adequate support under the center battery pack to allow removal of the battery-to-frame hardware.

SERVICE TIP - Use 2”x4” or 4”x4” wood blocks to minimize battery case scratches and improve maneuverability between the lift table and battery pack.

9. Once the center battery pack is properly supported, remove the battery-to-frame mounting hardware from BOTH brackets on the passenger side of the vehicle. Leave the battery mounts in position, it is not necessary to remove them completely.

SERVICE TIP - Remove all fasteners from the mount-to-frame side and battery-to-mount side of each bracket to improve maneuverability.

10. Carefully lower the center battery pack from the vehicle and set it aside in a properly designated area to maintain proper HV safety protocols.
11. Remove the right rear (RR) brake line fitting from the ABS assembly as shown (Figure 6)

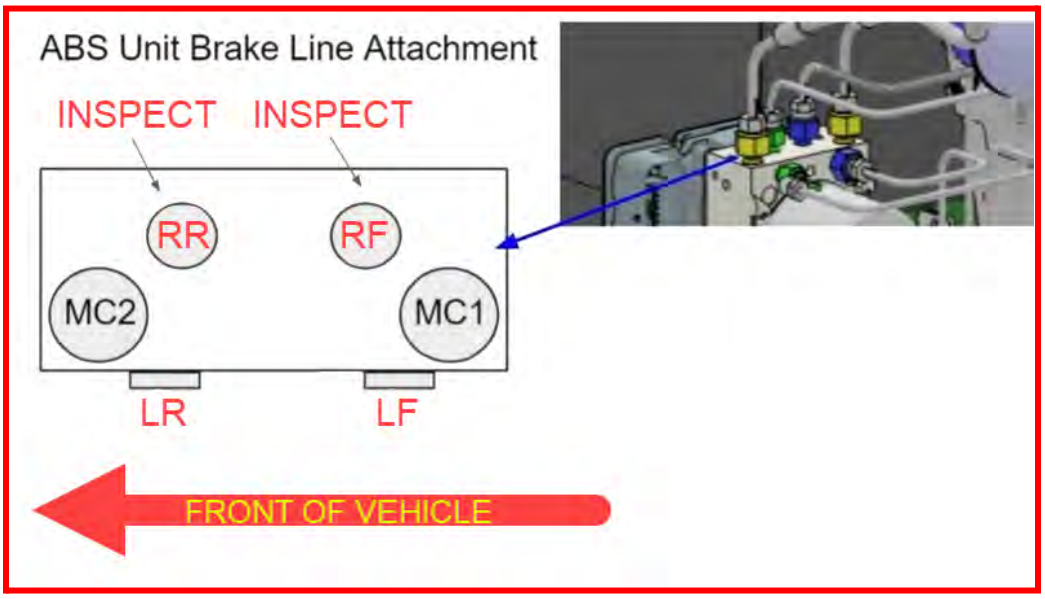


Figure 6 - ABS Assembly & Brake Line Locations

12. Separate the front fitting ONLY from the union connecting the front section of the right rear brake line to the rear section of the brake line. (Figure 21)

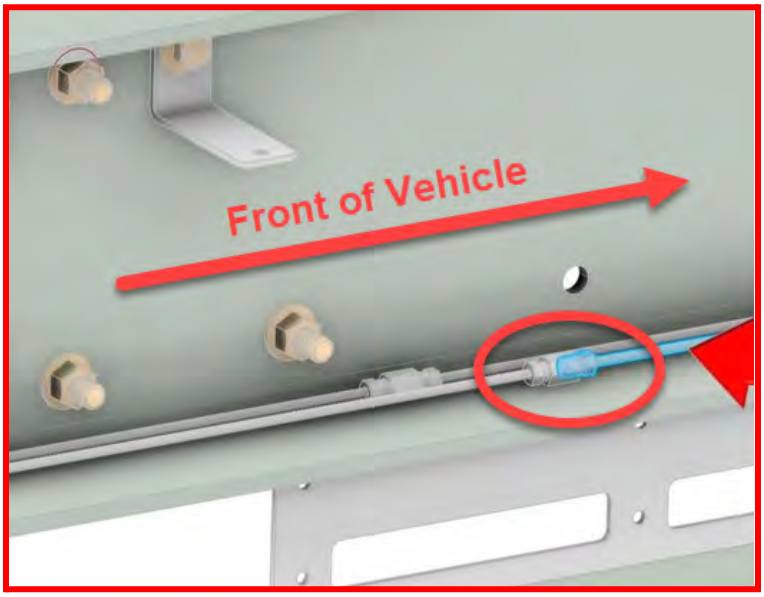
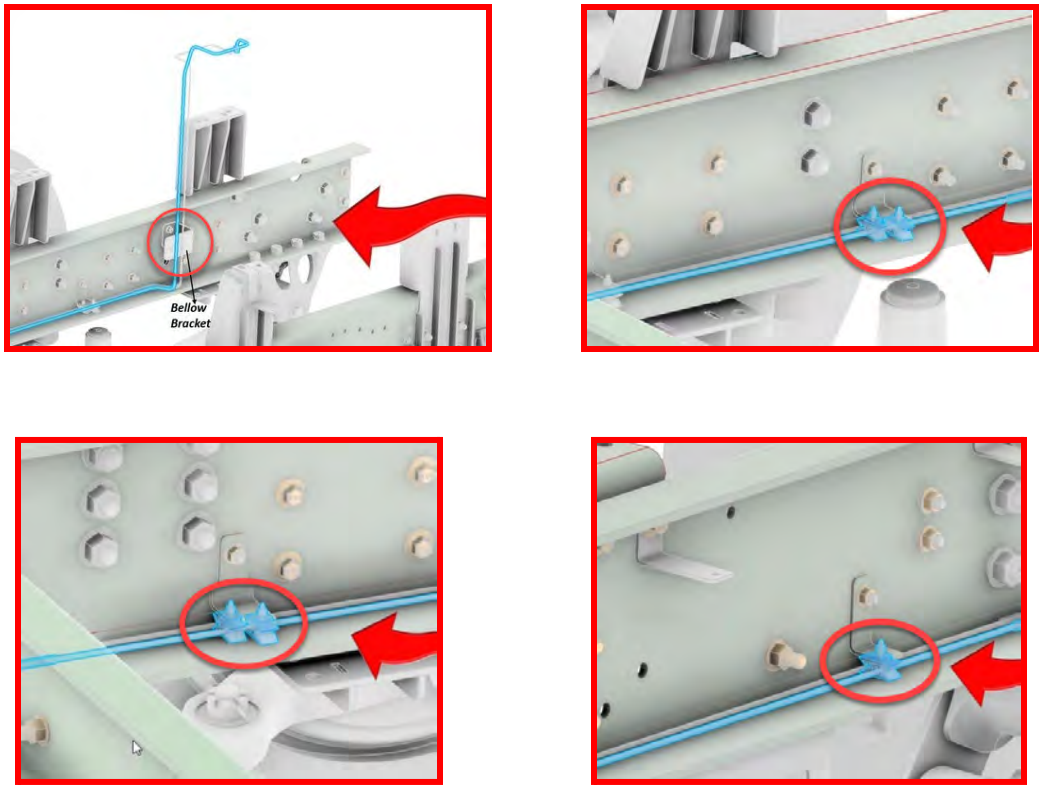


Figure 21 - Right Rear Brake Line Front/Rear Section Split

13. Separate the right rear brake line assembly from the six (6) brake turing clips along drivers side of the frame rail



14. Remove the brake line clamp near the ABS Assembly (Figure 20)

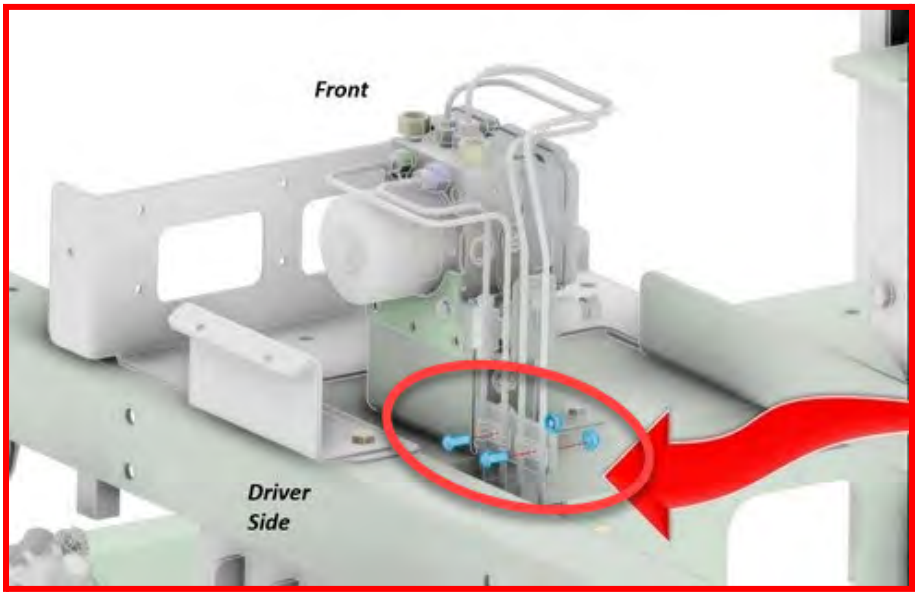


Figure 20 - Brake Line Clamp near ABS Assembly

15. Remove the right rear brake line assembly
16. Install the new right rear brake line assembly using caution not to deform the pre-bent shape during this process.
17. Attach the six (6) brake turing clips along drivers side of the frame rail
18. Install the brake line clamp near the ABS Assembly. Torque to 5.5 Nm.

19. Connect the right rear brake line to the union taking caution not to loosen, or further tighten, the fitting going to the rear of the vehicle. Torque to 16 Nm.
20. Connect the right rear brake line to the ABS assembly. Torque to 16 Nm
21. Bleed the brakes to remove any potential trapped air.
22. Refill the brake master cylinder with DOT 3 brake fluid to the proper level.
23. Confirm there are no brake fluid leaks before proceeding with reinstallation of either the center or front battery pack. **Pay close attention to the union located mid-vehicle. It will NOT be accessible with the center battery pack installed.**
24. Install the center battery pack
    a. Torque battery-to-mount bolts to 108 Nm
    b. Torque mount-to-frame fasteners to 95 Nm
25. Connect the HV positive (+), HV negative (-) and low voltage data connectors from the center battery pack
26. REFER TO Section 3, Steps 27-34, to complete the repair procedure.