

# **Component Procedures: Brake Hose/Line**

## **Table of Contents**

1. Parts and Labor (itype\_189)
2. Brake Pipe Replacement (Article 10682)
3. Front Brake Hose Replacement (LFX) (Article 10684)
4. Rear Brake Hose Replacement (LFX) (Article 10700)

# Component Procedures: Brake Hose/Line

## Parts and Labor (itype\_189)

### Parts

Qualifier	Part #	Name	Price	Note
Front Brakes > Flex Hose > R?	92229714	Flex Hose	56.80	
Front Brakes > Flex Hose > L?	23441689	Flex Hose	0.00	
Rear Brakes	23441690	Flex Hose	60.26	

### Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Remove & Replace	Front Brakes > Flex Hose, R&R > One Side	B	0.6	0.0
Remove & Replace	Front Brakes > Flex Hose, R&R > Both Sides	B	0.9	0.0
Remove & Replace	Rear Brakes > Flex Hose, R&R > One Side	B	0.6	0.0
Remove & Replace	Rear Brakes > Flex Hose, R&R > Both Sides	B	0.9	0.0

## Brake Pipe Replacement (Article 10682)

### Special Tools

#### CH-45405 - Brake Pipe Flaring Kit

For equivalent regional tools, refer to Special Tools .

- If sectioning the brake pipe, use replacement pipe of the same type and outside diameter.
  - Use fittings of the appropriate size and type.
  - Only create flares of the same type or design as originally equipped on the vehicle.
  - Inspect the area of brake pipe to be repaired or replaced. Click for full-size image
  - Release the brake pipe to be replaced from the retainers, as required.
  - Select an appropriate location to section the brake pipe, if necessary.
  - Allow adequate clearance in order to maneuver the CH-45405 - Brake Pipe Flaring Kit .
  - Avoid sectioning the brake pipe at bends or mounting points.
  - Using a string or wire, measure the length of the pipe to be replaced including all pipe bends.
  - Add to the measurement taken the appropriate additional length required for each flare to be created.
- Specification 6.35 mm (0.250 in) for 4.76 mm (3/16 in) diameter pipe 9.50 mm (0.374 in) for 6.35 mm (1/4 in) diameter pipe 12.67 mm (0.499 in) for 7.94 mm (5/16 in) diameter pipe
- 6.35 mm (0.250 in) for 4.76 mm (3/16 in) diameter pipe
  - 9.50 mm (0.374 in) for 6.35 mm (1/4 in) diameter pipe
  - 12.67 mm (0.499 in) for 7.94 mm (5/16 in) diameter pipe
- Using the pipe cutter included in the CH-45405 - Brake Pipe Flaring Kit , carefully cut the brake pipe squarely to the measured length.
  - Remove the sectioned brake pipe from the vehicle.
  - Select the appropriate size of brake pipe and tube nuts, as necessary. The brake pipe outside diameter determines brake pipe size.
  - Strip the nylon coating from the brake pipe end to be flared, if necessary. Click for full-size image
  - Select the appropriate blade on the coating stripping tool included in the CH-45405 - Brake Pipe Flaring Kit , by unthreading the blade block from the stripping tool and installing the block with the desired blade facing the tool rollers. Specification 6.35 mm (0.250 in) blade for 4.76 mm (3/16 in) diameter pipe 9.50 mm (0.374 in) blade for 6.35 mm (1/4 in) and 7.94 mm (5/16 in) diameter pipe
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  - 9.50 mm (0.374 in) blade for 6.35 mm (1/4 in) and 7.94 mm (5/16 in) diameter pipe
  - Insert the brake pipe end to be flared into the stripping tool to the depth of the ledge on the tool rollers.
  - While holding the brake pipe firmly against the stripping tool roller ledges, rotate the thumbwheel of the tool until the blade contacts the brake pipe coated surface.
  - Rotate the stripping tool in a clockwise direction, ensuring that the brake pipe end remains against the tool roller ledges.
  - After each successive revolution of the stripping tool, carefully rotate the thumbwheel of the tool clockwise, in order to continue stripping the coating from the brake pipe until the metal pipe surface is exposed.
  - Loosen the thumbwheel of the tool and remove the brake pipe.

- Inspect the stripped end of the brake pipe to ensure that the proper amount of coating has been removed. Specification 6.35 mm (0.250 in) for 4.76 mm (3/16 in) diameter pipe 9.50 mm (0.374 in) for 6.35 mm (1/4 in) and 7.94 mm (5/16 in) diameter pipe
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- Chamfer the inside and outside diameter of the pipe with the de-burring tool included in the CH-45405 - Brake Pipe Flaring Kit . Click for full-size image
- Install the tube nuts on the brake pipe, noting their orientation.
- Clean the brake pipe and the CH-45405 - Brake Pipe Flaring Kit of lubricant, contaminants, and debris.
- Loosen the die clamping screw of the CH-45405 - Brake Pipe Flaring Kit . Click for full-size image
- Select the corresponding die set and install the die halves into the die cage with the full, flat face of one die facing the clamping screw, and the counterbores of both dies facing the forming ram.
- Place the flat face of an unused die (1) against the die halves in the clamping cage and hold firmly against the counterbored face of the dies. Click for full-size image
- Insert the prepared end of the pipe to be flared through the back of the dies until the pipe is seated against the flat surface of the unused die (1).
- Remove the unused die (1).
- Ensure that the rear of both dies are seated firmly against the enclosed end of the die cage.
- Firmly hand tighten the clamping screw (2) against the dies.
- Select the appropriate forming mandrel and place into the forming ram. Click for full-size image
- Rotate the hydraulic fluid control valve clockwise to the closed position.
- Rotate the body of the CH-45405 - Brake Pipe Flaring Kit until it bottoms against the die cage.
- While guiding the forming mandrel into the exposed end of pipe to be flared, operate the lever of the CH-45405 - Brake Pipe Flaring Kit until the forming mandrel bottoms against the clamping dies. Click for full-size image
- Rotate the hydraulic fluid control valve counterclockwise to the open position to allow the hydraulic forming ram to retract.
- Insert the finishing cone into the forming ram. Click for full-size image
- While guiding the finishing cone into the exposed end of pipe to be flared, operate the lever of the CH-45405 - Brake Pipe Flaring Kit until the finishing cone bottoms against the dies.
- Loosen the die clamping screw and remove the dies and pipe.
- If necessary, lightly tap the dies until the die halves separate.
- Inspect the brake pipe flare for correct shape and diameter (a). Click for full-size image Specification 6.74–7.10 mm (0.265–0.279 in) flare diameter for 4.76 mm (3/16 in) diameter pipe 8.57–9.27 mm (0.344–0.358 in) flare diameter for 6.35 mm (1/4 in) diameter pipe 10.42–10.79 mm (0.410–0.425 in) flare diameter for 7.94 mm (5/16 in) diameter pipe
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- 8.57–9.27 mm (0.344–0.358 in) flare diameter for 6.35 mm (1/4 in) diameter pipe
- 10.42–10.79 mm (0.410–0.425 in) flare diameter for 7.94 mm (5/16 in) diameter pipe
- If necessary, using the removed section of brake pipe as a template, shape the new pipe with a suitable brake pipe bending tool.
- Install the pipe to the vehicle with the appropriate brake pipe unions, as required.
- If previously released, secure the brake pipe to the retainers.
- Bleed the hydraulic brake system. Refer to Hydraulic Brake System Bleeding .
- With the aid of an assistant, inspect the brake pipe flares for leaks by starting the engine and applying the brakes.

## **Front Brake Hose Replacement (LFX) (Article 10684)**

### **Removal Procedure**

- Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .
- Remove the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation .
- Remove the brake hose bracket bolt (1) from the strut assembly. Click for full-size image
- Disconnect the brake pipe fitting (1). Click for full-size image
- Cap the brake pipe fitting to prevent brake fluid loss and contamination.
- Remove the brake hose bracket bolt (1) from the wheelhouse panel. Click for full-size image
- Remove the brake hose fitting bolt (1). Click for full-size image
- Remove the brake hose fitting gaskets (2) from the brake hose (3)..
- Discard the brake hose fitting gaskets.
- Remove the brake hose.

### **Installation Procedure**

- Assemble the brake hose fitting bolt (1) with 2 new brake hose fitting gaskets (2) to the brake hose (3).

Click for full-size image

- Install the brake hose assembly to the brake caliper and tighten the brake hose fitting bolt to 40 Nm (30 lb ft) .
- Install the brake hose bracket bolt (1) on the wheelhouse panel and tighten to 9 Nm (80 lb in) . Click for full-size image
- Connect the brake pipe fitting (1) and tighten to 16 Nm (12 lb ft) . Click for full-size image
- Install the brake hose bracket bolt (1) on the strut assembly and tighten to 9 Nm (80 lb in) . Click for full-size image
- Bleed the hydraulic brake system. Refer to Hydraulic Brake System Bleeding .
- Install the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation .

## **Rear Brake Hose Replacement (LFX) (Article 10700)**

### Removal Procedure

- Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .
- Remove the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation .
- Disconnect the brake pipe fitting (1). Click for full-size image
- Cap the brake pipe fitting to prevent brake fluid loss and contamination.
- Remove the brake hose bracket bolt (1) from the wheelhouse panel. Click for full-size image
- Remove the brake hose bracket bolt (1) from the upper suspension arm. Click for full-size image
- Remove the brake hose fitting bolt (1). Click for full-size image
- Remove the brake hose fitting gaskets (2) from the brake hose (3).
- Discard the brake hose fitting gaskets.
- Remove the brake hose.

### Installation Procedure

- Assemble the brake hose fitting bolt (1) with 2 new brake hose fitting gaskets (2) to the brake hose (3). Click for full-size image
- Install the brake hose assembly to the brake caliper and tighten the brake hose fitting bolt to 40 Nm (30 lb ft) .
- Install the brake hose bracket bolt (1) to the upper suspension arm and tighten to 9 Nm (80 lb in) . Click for full-size image
- Install the brake hose bracket bolt (1) to the wheelhouse panel and tighten to 9 Nm (80 lb in) . Click for full-size image
- Connect the brake pipe fitting (1) and tighten to 16 Nm (12 lb ft) . Click for full-size image
- Bleed the hydraulic brake system. Refer to Hydraulic Brake System Bleeding .
- Install the tire and wheel assembly. Refer to Tire and Wheel Removal and Installation .