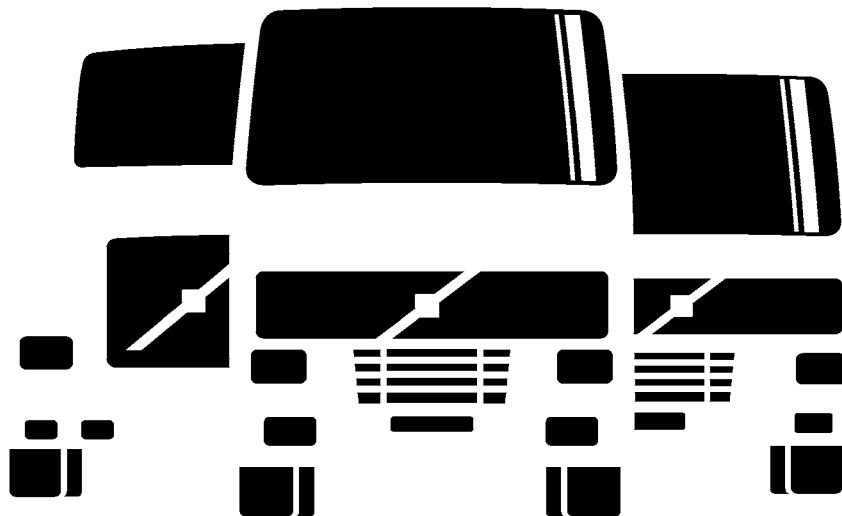


Service Manual Trucks

Group **86**

Front Bumper

VNL, VNM



Foreword

The descriptions and service procedures contained in this manual are based on designs and methods studies carried out up to December 97.

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

The new edition of this manual will update the changes.

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

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

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

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

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

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

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

Volvo Trucks North America, Inc.
Greensboro, NC USA

Order number: PV776-TSP103726/1

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General

Front Bumper



W8000925

Introduction

This service information, covering front bumpers on all VN series VOLVO vehicles, is a revision of:

Service Manual *Front Bumper VNL, VNM,
PV 776–TSP28192*

IMPACT previously released information

This information includes an update of the special tools required for bumper adjustment. Also included are the service procedures for efficient front bumper removal, adjustment and installation.

Front bumper

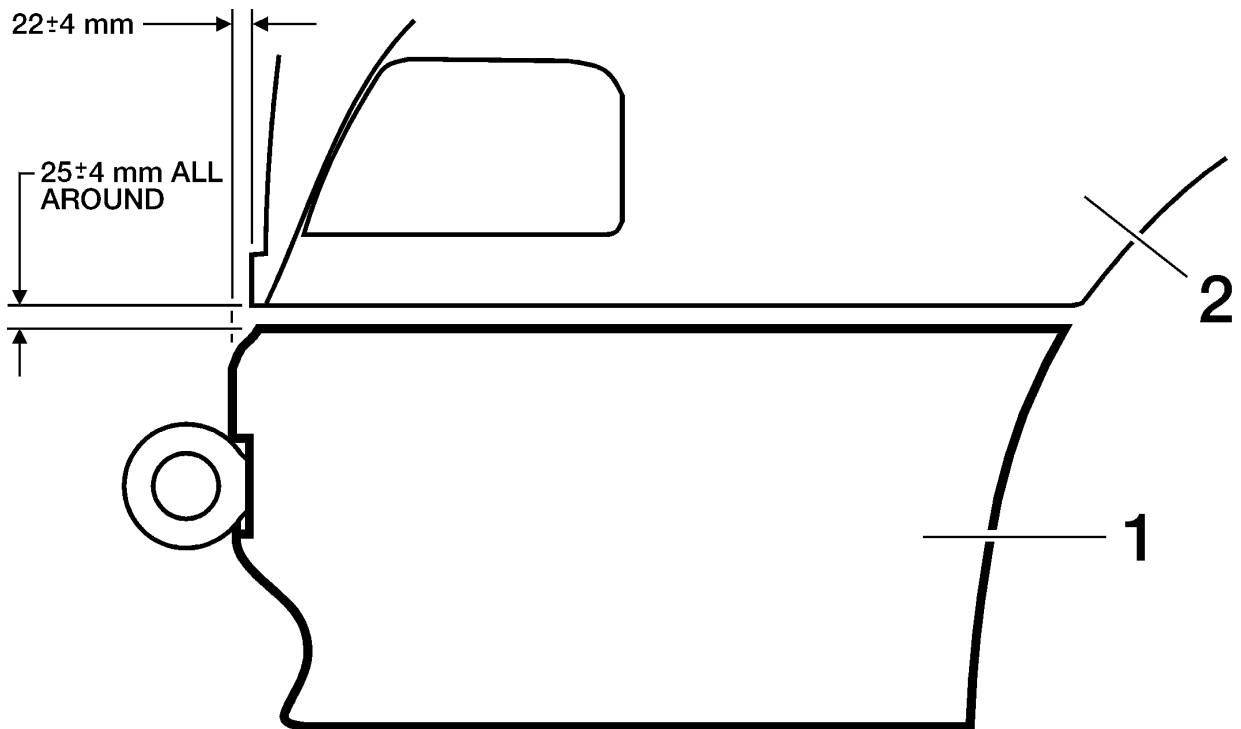
There are two front bumpers available for the VN series vehicles. The standard is the SMC (sheet molded compound) bumper. This bumper is molded from a fiberglass type material. It is exceptionally strong and lightweight. The SMC bumper design is aerodynamic and includes the front air dam and the fog lamp and driving light recesses. Mounting studs have been molded into the material for mounting the bumper to the mounting brackets.

The optional bumper is the steel five-piece bumper. This bumper is bolted on with two bolts and nuts on each side. Its five-piece design consists of replaceable plastic ends and a two-piece removable plastic air dam. The fog lamps and driving lights are mounted to a bracket that mounts under the steel bumper.

Specifications

Front Bumper

SMC front bumper



W8001080

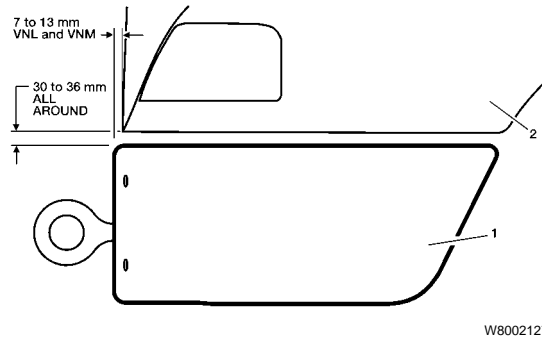
1) SMC front bumper

2) Hood

Specification Chart-SMC Front Bumper	
Bumper to hood gap	25 ± 4 mm
Fore and aft spacing	22 ± 4 mm

Torque Chart-SMC Front Bumper		
Bumper to mounting bracket nuts	85 ± 15 Nm	63 ± 11 ft-lb
Mounting bracket to chassis bolts	200 ± 30 Nm	148 ± 22 ft-lb
Tow eye storage bolts	48 ± 8 Nm	35± 6 ft-lb

Steel front bumper



- 1) Steel bumper
- 2) Hood

Specification Chart - Steel Front Bumper	
Bumper to hood gap	30-36 mm
Fore and aft spacing-VNM, VNL	7-13 mm

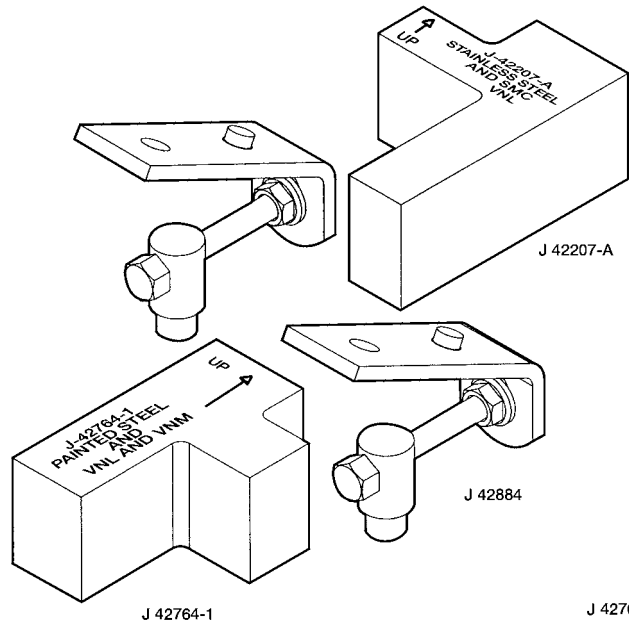
Torque Chart - Steel Front Bumper		
Bumper to mounting bracket bolts and nuts	85 ± 15 Nm	63 ± 11 ft-lb
Mounting bracket to chassis bolts	200 ± 30 Nm	148 ± 22 ft-lb
Fog lamp support bracket	10 ± 1 Nm	84 ± 9 in-lb
Tow eye storage bolts	48 ± 8 Nm	35 ± 6 ft-lb

Tools

Front Bumper, Special Tools

The following tools are required to adjust the VN Series front bumper. To order, contact Kent-Moore at 1-800-328-6657.

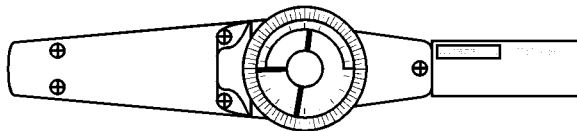
Note: The Stainless Steel bumper, referenced on J42207-A, is not currently available from Volvo Trucks North America.



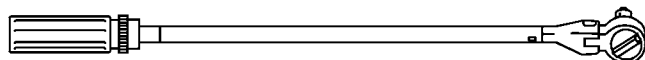
J 42764
W0001507

Kent-Moore Front bumper/hood alignment kit
J-42764

Other special equipment



1



2

W8000993

1 Torque wrench
0 to 68 Nm (0 to 600 in-lb)

2 Torque wrench
41 to 340 Nm (30 to 250 ft-lb)

Design and Function

Front Bumper

Component descriptions

SMC front bumper

The standard VNL series front bumper is the SMC bumper. This bumper is a one-piece molded design that is lightweight, flexible, and aerodynamic. It has built-in recesses for driving lights and fog lamps.

The SMC material allows for easy repair and painting if the bumper is damaged. The wrap around bumper adds to the aerodynamic design and splash and spray protection.

The SMC front bumper attaches to the front bumper mounting brackets with four studs that are molded into the SMC bumper.



W8000937

Steel front bumper

The steel front bumper is a five-piece design with a steel center and a bolt-on plastic cap on each end. The design of the steel bumper allows exceptional strength and durability. The wrap around end caps and lower spoiler also add to the splash and spray protection as well as its aerodynamic qualities.

The steel front cab bumper is attached to the front cab mounting brackets with two bolts and nuts on each side.



W8000936

SMC front bumper mounting brackets

The front mounting brackets attach the bumper to the chassis. The SMC bumper has four studs that are molded into the bumper. The SMC bumper is installed by inserting these four studs into the front mounting brackets and then installing nuts onto the studs. The mounting holes in the front bumper mounting brackets are elongated to allow for side to side adjustment.

The SMC front bumper mounting brackets also have three bolt holes that are used for mounting the front mounting brackets to the chassis rails. These three holes are elongated to allow for fore and aft adjustment.

The three holes in the vehicle chassis are also elongated to allow for the up and down adjustment. This up and down adjustment is for adjusting the bumper to hood gap.



W8000939

Front bumper mounting bracket for SMC bumper



W8000940

SMC bumper mounted to front bumper mounting bracket

Steel front bumper mounting brackets

The steel bumper mounting brackets have two bolt holes for mounting the steel bumper and two bolt holes to mount the mounting brackets to the chassis rails.

The bolt holes in the mounting brackets that mount the brackets to the chassis are elongated to allow for fore and aft adjustment.

The bolt holes in the mounting brackets provided for the front bumper are also elongated to allow for up and down adjustment. This up and down adjustment is for setting the bumper to hood gap.

The mounting holes in the steel bumper are also slightly elongated to allow for side to side adjustment to center the bumper.



W8000938

Front bumper mounting bracket for steel bumper

Front recovery eyes

The front recovery eyes are intended to be used as a point at the front of the vehicle where the vehicle can be pulled during a recovery type operation. The recovery eyes may be used to raise the front of an unloaded vehicle, however the recovery eyes are NOT intended to be used to raise the front of the vehicle for towing purposes.



DANGER

Personnel should never work under the truck while it is being suspended from the recovery eyes. In the event the recovery eye, cable or chain being used to raise the vehicle should break the truck would fall and serious personal injury or death could occur.



W8000941

Front recovery eyes installed

The recovery eyes are inserted into the recovery eye receiver and held in place with tractor type pins. When not in use the tractor pins remain in the receiver pin holes for storage.



W8000934

Recovery eye being installed to front of vehicle

The recovery eyes are stored in the luggage compartment on sleeper model vehicles. They are held in place with storage bolts which are torqued to 48 ± 8 Nm (35 ± 6 ft-lb.)



W8000942

Recovery eye storage location in the luggage compartment

The recovery eyes are stored behind the seats on non-sleeper model vehicles. They are held in place with storage bolts which are torqued to 48 ± 8 Nm (35 ± 6 ft-lb.)

! WARNING

It is important that the recovery eyes always be properly stored using the provided fasteners. In the event the vehicle is involved in an accident, loose recovery eyes could strike occupants and injure them or cause other damage.



W8000943

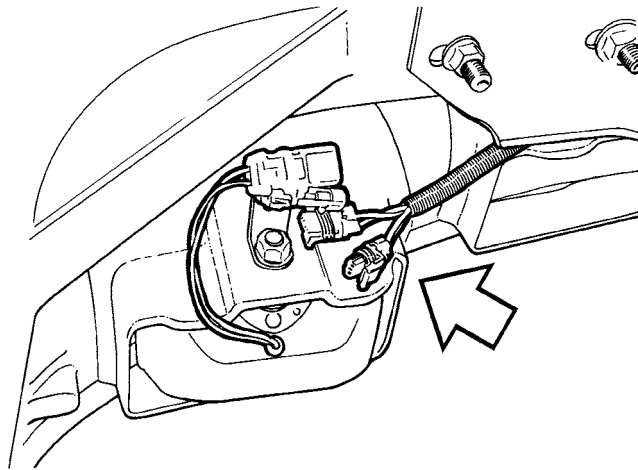
Recovery eye storage location behind the drivers' seat

Service Procedures

8611-03-02-01 Front Bumper, Replacement SMC Bumper

Removal

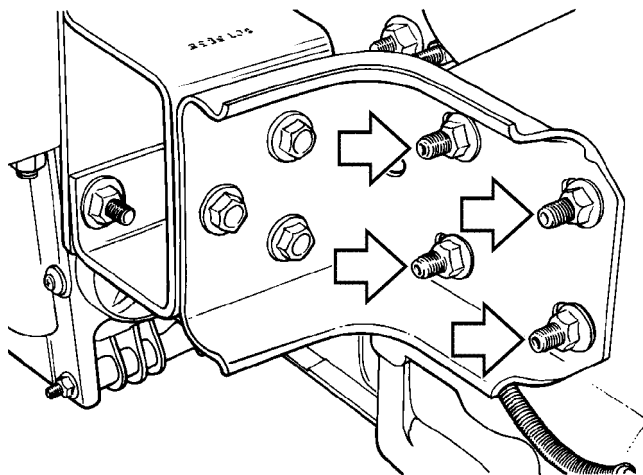
1



W8000970

If the vehicle is equipped with driving lights and/or fog lamps, disconnect the wiring at the connectors before beginning the steps to remove the bumper.

2

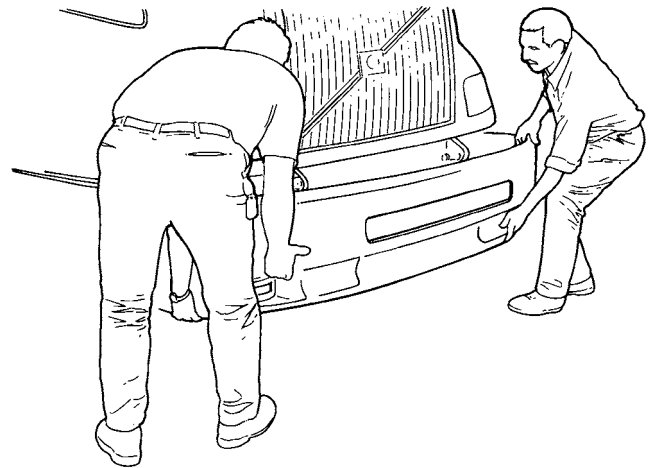


W8000954

Remove the four nuts from the studs on each side and remove the bumper from the bumper mounting brackets.

Installation

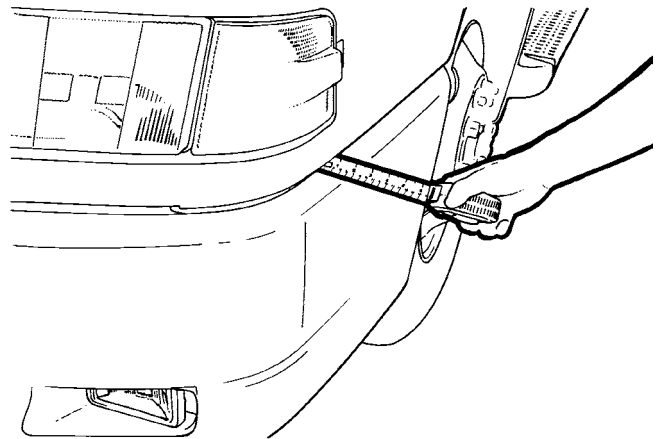
1



W8001087

Install the bumper onto the bumper mounting brackets and install the nuts onto the bumper studs. Do not tighten the nuts at this time.

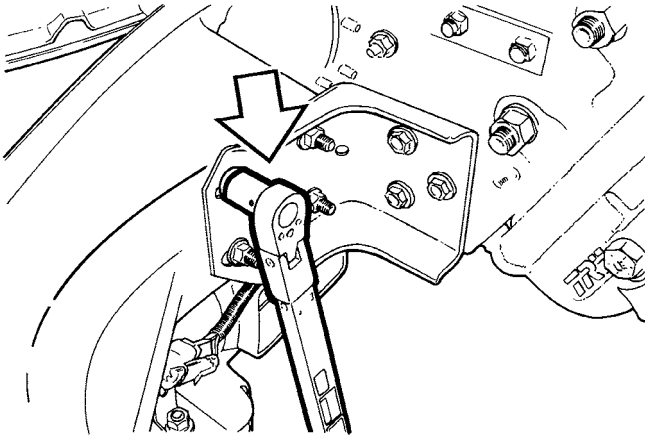
2



W8000967

Center the side to side alignment of the bumper to the hood by measuring the distance from the side of the hood to the side of the bumper. Slide the bumper right or left as necessary until the measurement is equal on both sides.

3

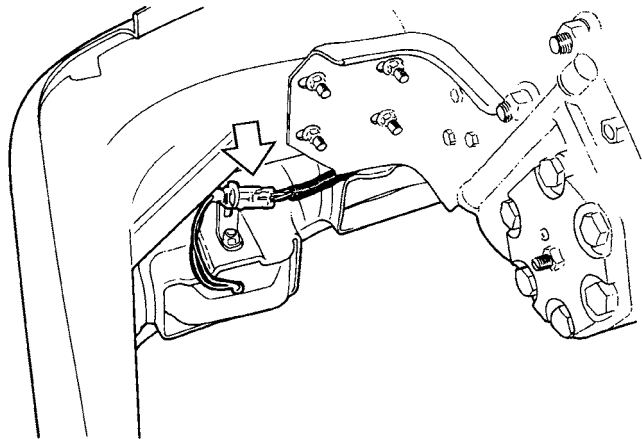


W8000972

After the side to side adjustment has been completed tighten the nuts and then torque them to 85 ± 15 Nm (63 ± 11 ft-lb).

85 ± 15 Nm
(63 ± 11 ft-lb)

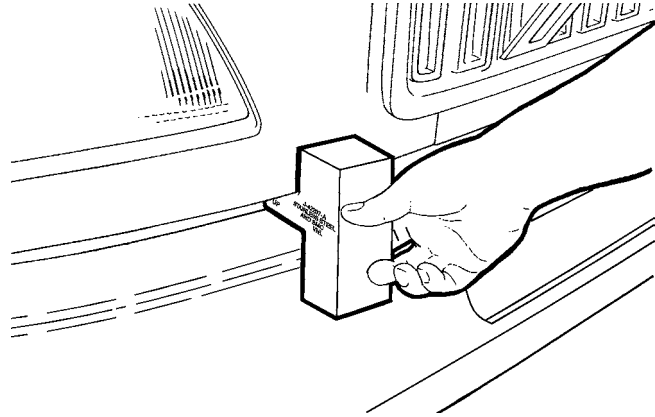
4



W8000971

If the vehicle is equipped with driving lights and/or fog lamps, reconnect the connectors and secure them with tie straps as needed.

5



W8002128

Using the **Kent-Moore J42207-A** gauge block on an SMC bumper (VNL, VNM).

Use the Kent-Moore **J-42207-A** Gauge Block to check for the proper gap between the bumper and the hood and the correct fore and aft spacing of the front bumper from the hood. If the front bumper needs to be adjusted, refer to the Front Bumper Adjustment procedure.

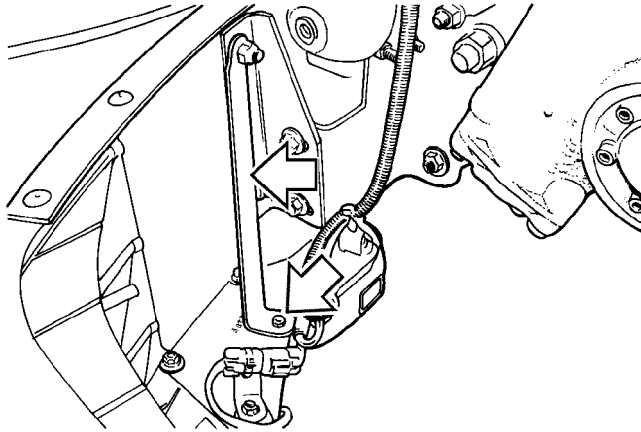
Note: Before checking the bumper to hood gap and the fore and aft spacing the vehicle air system must be at full capacity and the hood must be closed and latched.

Note: To use the Kent-Moore Gauge Block correctly it should be placed at the inside edge of the headlamp on each side while checking the gap and the fore and aft spacing.

8611-03-02-02 Front Bumper, Replacement Steel Bumper

Removal

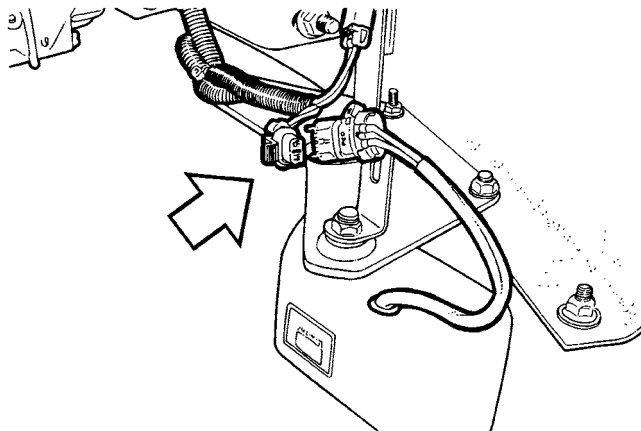
1



W8000951

If the vehicle is equipped with driving lights and/or fog lamps, it will be necessary to remove the bottom bolt from the support bracket that goes from the bumper mounting bolt to the light bracket on each side.

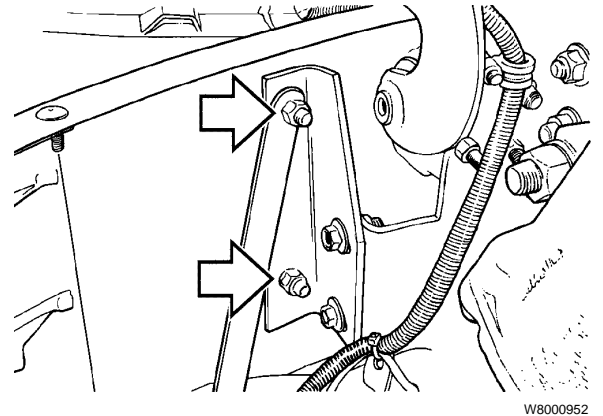
2



W8000968

If the vehicle is equipped with driving lights and/or fog lamps, disconnect the wiring at the connectors.

3



W8000952

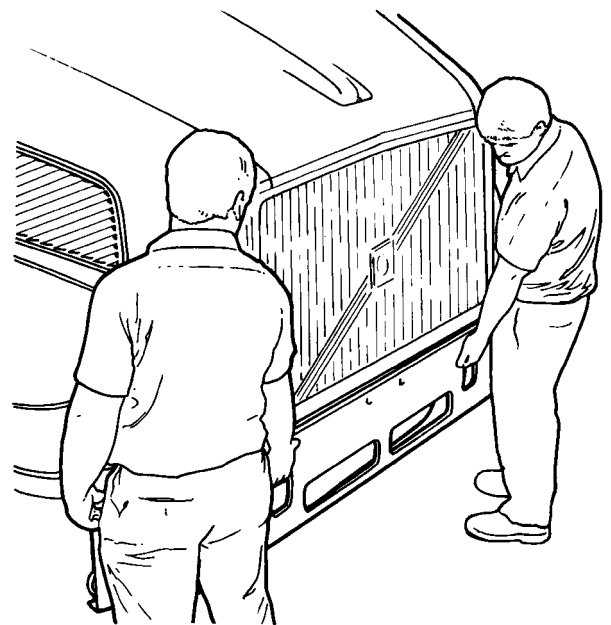
Remove the two nuts on each side from the bolts that attach the bumper to the bumper mounting brackets.

4

Remove the bumper.

Installation

1

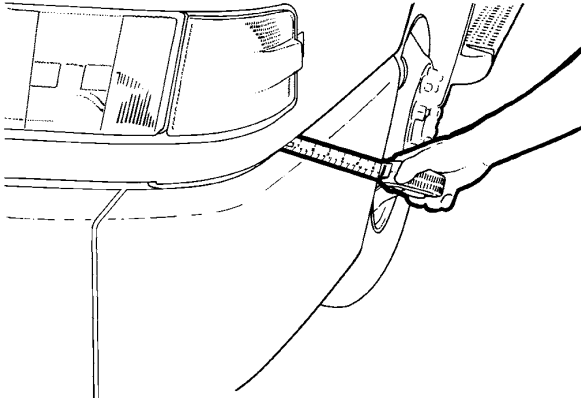


W8001088

Install the bumper onto the bumper mounting brackets, install the bolts through the bumper and install the nuts. Do NOT tighten the nuts at this time.

Note: If the vehicle was equipped with driving lights and/or fog lamps, install the support bracket before installing the nuts.

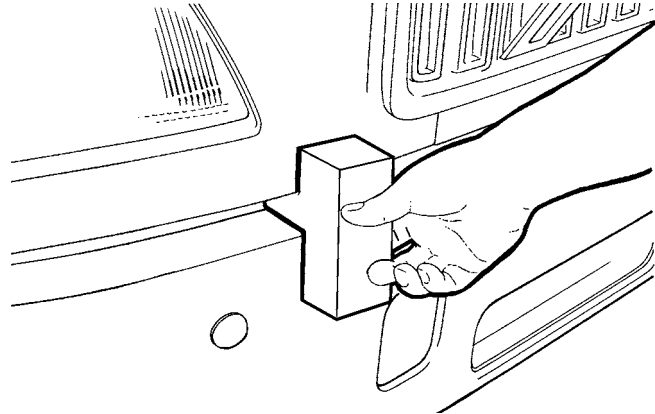
2



W8000992

Center the side to side bumper alignment by measuring the distance from the side of the hood to the side of the bumper. Slide the bumper right or left as necessary until the measurement is equal on both sides.

3



W8002129

Using the **Kent-Moore J-42764-1** gauge block on a VNM steel bumper.

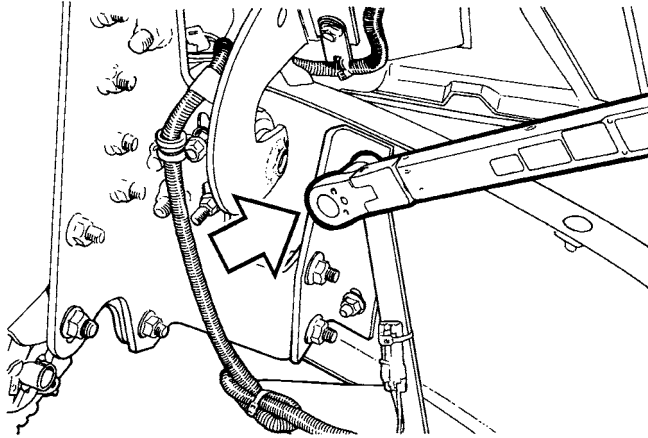
Note: Before checking the bumper to hood gap the vehicle air system must be at full capacity and the hood must be closed and latched.

Use the Kent-Moore **J-42764-1** Gauge Block to set the proper gap between the bumper and the hood.

Note: On all VNL models: Because of a slightly different hood curvature on the VNL, the gauge block should be placed in the **center of the bumper** while checking the gap and fore and aft spacing.

Note: On all VNM models: To use the gauge block correctly it should be placed **at the inside edge** of the headlamp on each side while checking the gap and the fore and aft spacing.

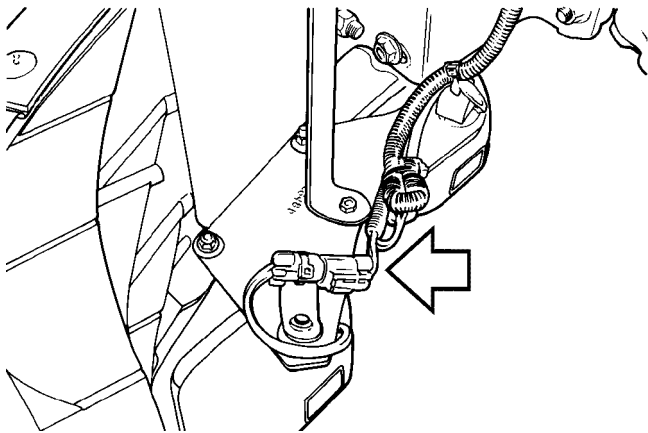
4



After the side to side adjustment has been completed and the bumper gap has been set, tighten the nuts and then torque them to 85 ± 15 Nm (63 ± 11 ft-lb).

W8000973
 85 ± 15 Nm
 (63 ± 11 ft-lb)

5



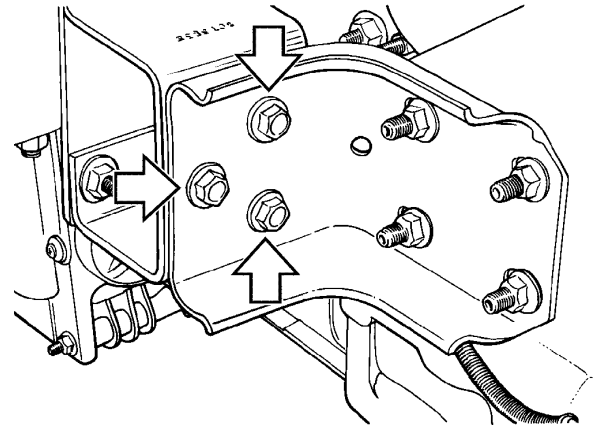
If the vehicle is equipped with driving lights and/or fog lamps, reconnect the connectors and secure them with tie straps as needed. Replace the bolt to the fog lamp support bracket. Torque the bracket nut to 10 ± 1 Nm (89 ± 9 in-lb.).

W8000950
 10 ± 1 Nm
 (89 ± 9 in-lb.)

8611-05-02-01 Front Bumper, Adjustment SMC Bumper

Gap and fore and aft adjustments

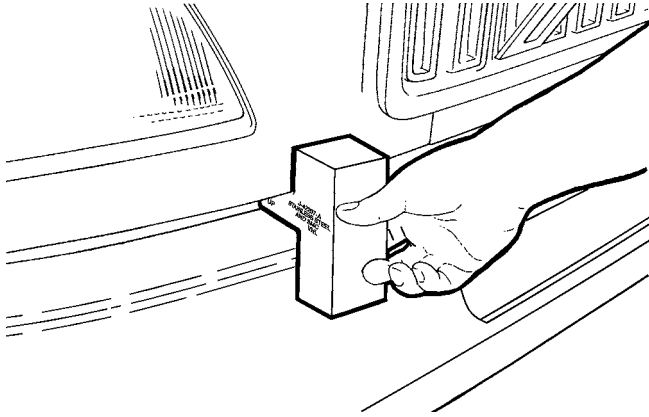
1



W8000953

Loosen the three mounting bolts on each side that bolt the front bumper mounting brackets to the chassis.

2



W8002128

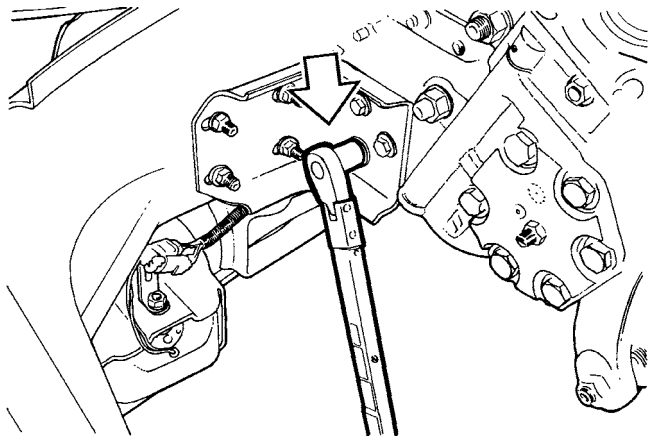
Using the **Kent-Moore J42207-A** gauge block on an SMC bumper (VNL, VNM).

Place the Kent-Moore **J-42207-A** Gauge Block between the cab bumper and the hood. Move the bumper assembly as necessary to attain the proper gap between the bumper and the hood and to attain the proper fore and aft adjustment.

Note: Before checking the bumper to hood gap and the fore and aft spacing the vehicle air system must be at full capacity and the hood must be closed and latched.

Note: To use the Kent-Moore Gauge Block correctly it should be placed at the inside edge of the headlamp on each side while checking the gap and the fore and aft spacing.

3



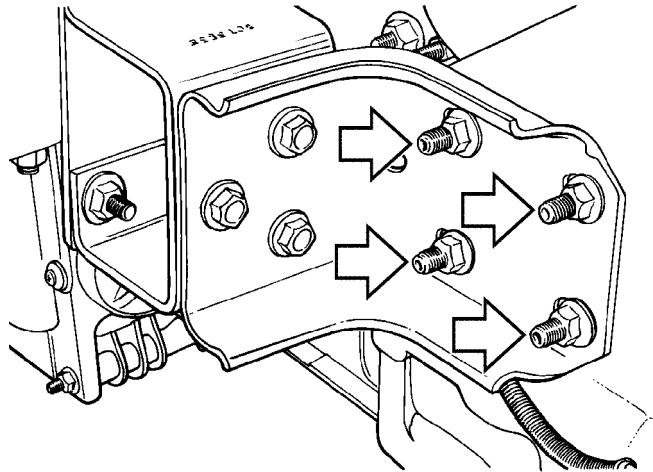
W8000979

Tighten the mounting bolts and then torque them to 200 ± 30 Nm (148 ± 22 ft-lb).

200 ± 30 Nm
(148 ± 22 ft-lb)

Side to side adjustment

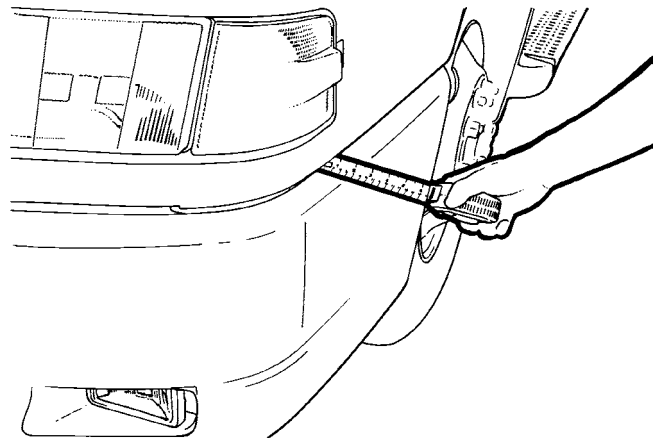
1



W8000954

Loosen the four nuts that attach the front bumper to the bumper mounting bracket.

2



W8000967

Center the side to side alignment of the bumper to the hood by measuring the distance from the side of the hood to the side of the bumper. Slide the bumper right or left as necessary until the measurement is equal on both sides.

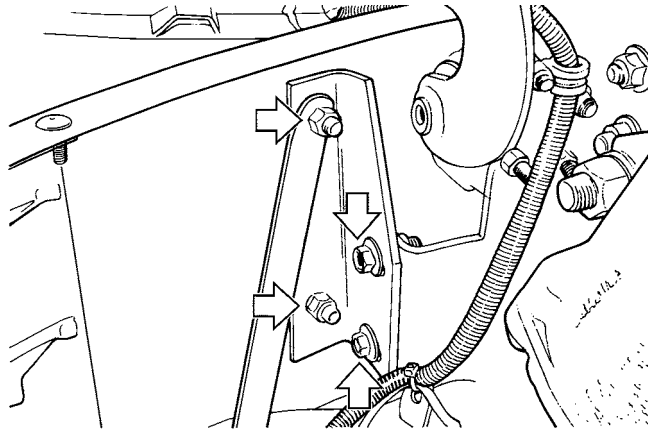
3

After the side to side adjustment has been completed tighten the nuts and then torque them to 85 ± 15 Nm (63 ± 11 ft-lb).

85 ± 15 Nm
(63 ± 11 ft-lb)

8611-05-02-01 Front Bumper, Adjustment Steel Bumper

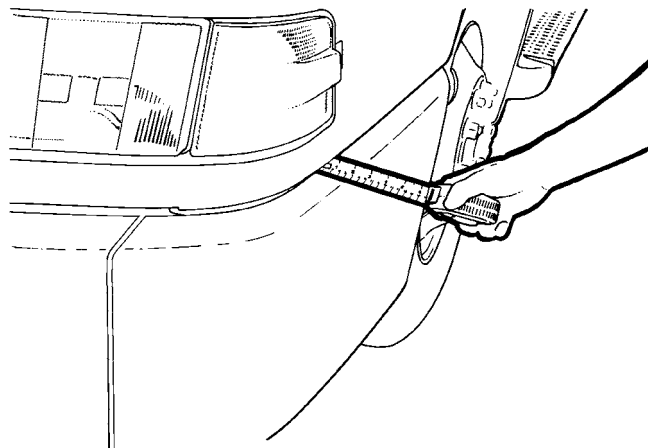
1



W8000991

Loosen the four nuts and bolts on each side that attach the bumper to the bumper mounting brackets and the bumper mounting brackets to the chassis.

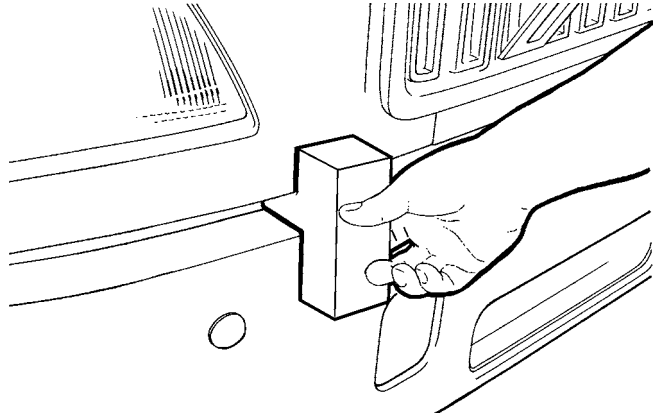
2



W8000992

Center the side to side bumper alignment by measuring the distance from the side of the hood to the side of the bumper. Slide the bumper right or left as necessary until the measurement is equal on both sides.

3



W8002129

Using the **Kent-Moore J-42764-1** gauge block on a VNM steel bumper.

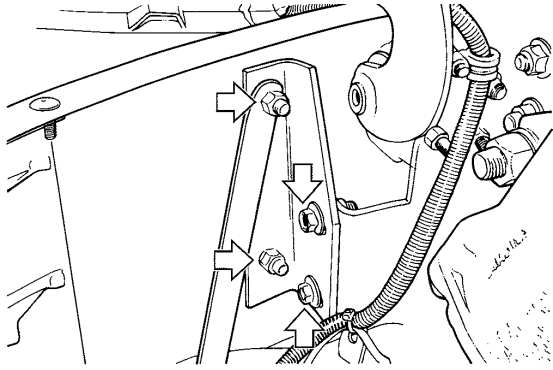
Note: Before checking the bumper to hood gap the vehicle air system must be at full capacity and the hood must be closed and latched.

Using the Kent-Moore **J-42764-1** Gauge Block between the cab bumper and the hood, move the bumper assembly as necessary to attain the proper gap between the bumper and the hood and to attain the proper fore and aft adjustment.

Note: On all VNL models: Because of a slightly different hood curvature on the VNL, the gauge block should be placed in the **center of the bumper** while checking the gap and fore and aft spacing.

Note: On all VNM models: To use the gauge block correctly it should be placed **at the inside edge** of the headlamp on each side while checking the gap and the fore and aft spacing.

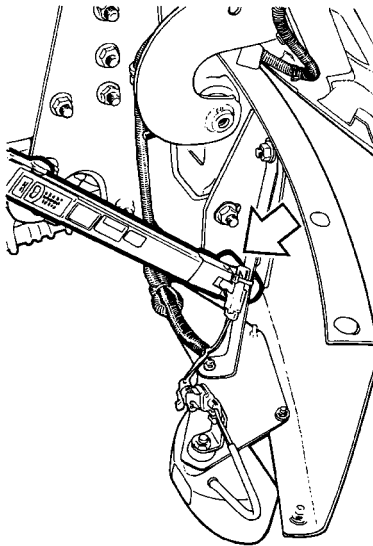
4



W8000991

Tighten the four nuts and bolts that attach the bumper and the bumper mounting brackets.

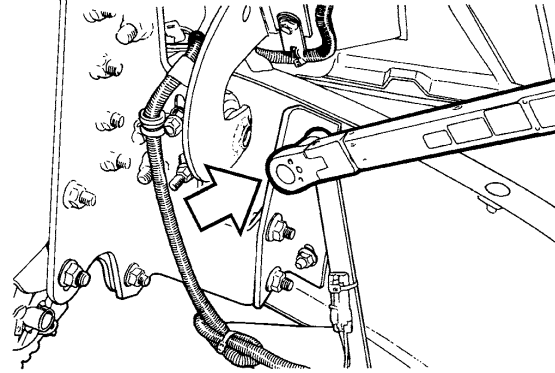
5



W8000978

Torque the nuts and bolts that attach the bumper mounting brackets to the chassis to 200 ± 30 Nm (148 ± 22 ft-lb).

6



W8000973

Torque the cab bumper nuts and bolts to 85 ± 15 Nm (63 ± 11 ft-lb).

85 ± 15 Nm
(63 ± 11 ft-lb)

Feedback

One of our objectives is that workshop personnel should have access to correct and appropriate service manuals where it concerns fault tracing, repairs and maintenance of Volvo trucks.

In order to maintain the high standards of our literature, your opinions and experience when using this manual would be greatly appreciated.

If you have any comments or suggestions, make a copy of this page, write down your comments and send them to us, either via telefax or mailing directly to the address listed below.

To

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Greensboro, NC 27402-6115

USA

Fax (336) 393-3170

From

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Comments/proposals

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Concerns Service Manual:

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