

High pressure pipe between pump and rail: Removal - Refitting

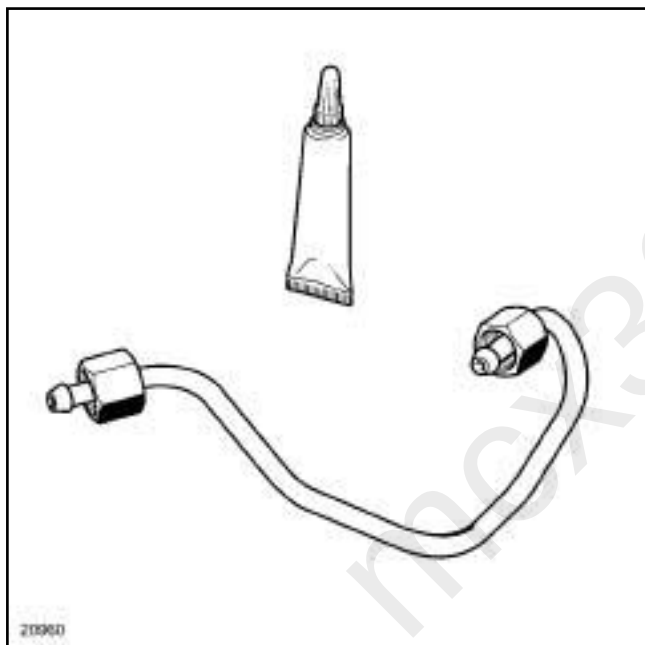
K9K, and 750 or 752 or 766 or 768

II - REMOVAL OF THE PART CONCERNED

- ☐ Clean the high pressure pipe between the pump and the rail (see **13B, Diesel injection, Diesel injection: Precautions for the repair**, page **13B-1**).
- ☐ Undo:
 - the high pressure pipe nut at the pump end using the **(Mot. 1746)**,
 - the high pressure pipe nut at the injector rail end using the **(Mot. 1746)**.
- ☐ Fit blanking plugs into the openings.

REFITTING

I - REFITTING PREPARATION OPERATION



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WARNING

Before fitting a new high pressure pipe, lightly lubricate the nut threads with oil from the applicator provided with the new part.

Be careful not to allow oil into the high pressure pipe.

Do not lubricate high pressure pipes supplied without an applicator, as these high pressure pipes are self-lubricating.

WARNING

Do not remove the blanking plugs from each component until the last moment.

II - REFITTING PART CONCERNED

- ☐ Remove the blanking plugs.
- ☐ Insert the high pressure pipe olive in the high pressure pump high pressure outlet taper.
- ☐ Insert the high pressure pipe olive into the injector rail inlet taper.
- ☐ Fit, without tightening, the high pressure pipe nuts by hand, starting with the nut at the rail end.
- ☐ Slightly pretighten the high pressure pipe nuts.
- ☐ Tighten to torque the **high pressure pipe between the pump and the rail (24 N.m)** using the **(Mot. 1746)**.

III - FINAL OPERATION

- ☐ Connect the accelerometer connector.
- ☐ Insert the dipstick.
- ☐ Refit the dipstick bolts **(5)**.

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☐ Refit:

- the turbocharging pipe **(2)**,
- the air inlet duct **(4)**.

- ☐ Tighten the air inlet duct clip **(3)**.

☐ Refit the engine cover.

☐ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

☐ Prime the diesel circuit using the priming pump.

WARNING

Check that there are no diesel leaks:

- check the sealing after repair (see **13B, Diesel injection, High pressure pipe: Check**, page **13B-99**),
- let the engine run at idle speed until the engine cooling fan starts to operate,
- accelerate several times at no load,
- carry out a road test,
- Switch off the ignition.

High pressure pipe between rail and injector: Removal - Refitting

K9K, and 764 or 772

Special tooling required

Mot. 1746	Offset wrench for tightening High Pressure pump pipes.
Mot. 1566	Tool for removing high pressure pipes.

Equipment required

Diagnostic tool

Tightening torques

injection rail mounting nuts	28 Nm
high-pressure pipe nuts	24 Nm
mounting nut of the air pipe at the intercooler inlet on the alternator	8 Nm

WARNING

Before starting work on the vehicle, make sure you have:

- a new blanking plug kit (**part no. 77 01 476 857**),
- cleaning wipes (**part no. 77 11 211 707**),
- cleaning product (**part no. 77 11 224 188**).

WARNING

Parts always to be replaced:

- all the high-pressure pipes which have been removed.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a lift (see **Vehicle: Towing and lifting**).

- ☐ Switch off the ignition and wait **30 seconds** before starting work on the injection system.

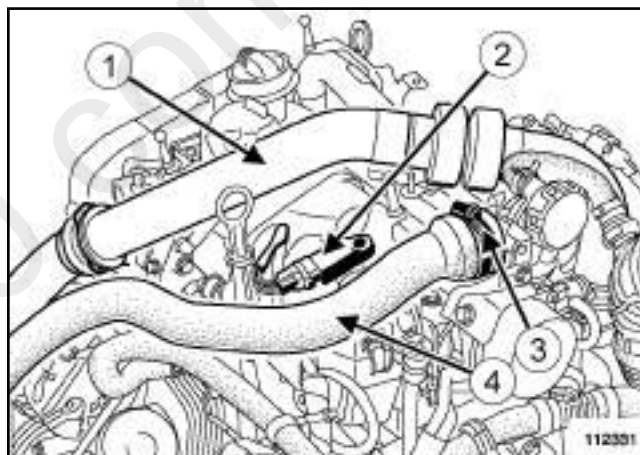
IMPORTANT

Before carrying out any work on the injection system, check using the **Diagnostic tool** :

- that the rail is not under pressure,
- that the fuel temperature is not too high.

It is essential to respect the safety and cleanliness advice whenever work is carried out on this system (see **13B, Diesel injection, Diesel injection: Precautions for the repair**, page **13B-1**) .

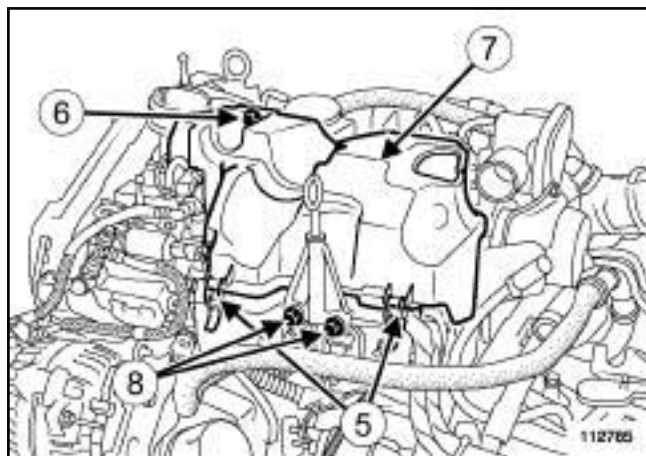
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) .
- ☐ Remove the engine cover.



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- ☐ Remove the upper part (1) of the turbocharger duct
- ☐ Disconnect the air inlet pressure sensor (2)
- ☐ Loosen the clip (3) .
- ☐ Move the inlet duct to one side (4) .

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- ☐ Unclip the clips (5) from the injection rail protector cover.
- ☐ Remove:
 - the injection rail protector cover mounting bolts (6) ,
 - the injection rail protector cover (7) ,
 - the dipstick,
 - the dipstick pipe mounting bolts (8) .
- ☐ Push the dipstick pipe to one side.
- ☐ Protect the alternator from fuel outflow.
- ☐ Pour cleaning product into a container.

IMPORTANT

Wear protective gloves when using cleaning product.

- ☐ Soak the brush with cleaning product, then clean the high-pressure pipe unions between the injection rail and the injectors
- ☐ Blast the cleaned areas with compressed air, then wipe them with new cleaning wipes.

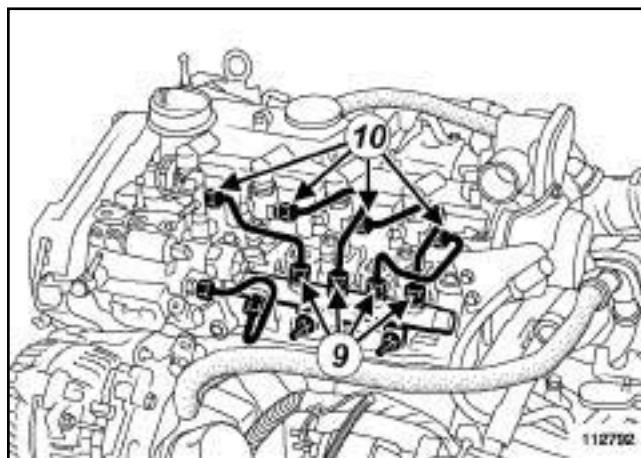
IMPORTANT

Wear protective glasses

WARNING

Do not blast with compressed air once the fuel circuit is open, otherwise impurities may enter the system. Use wipes if necessary.

II - REMOVAL OF PART CONCERNED

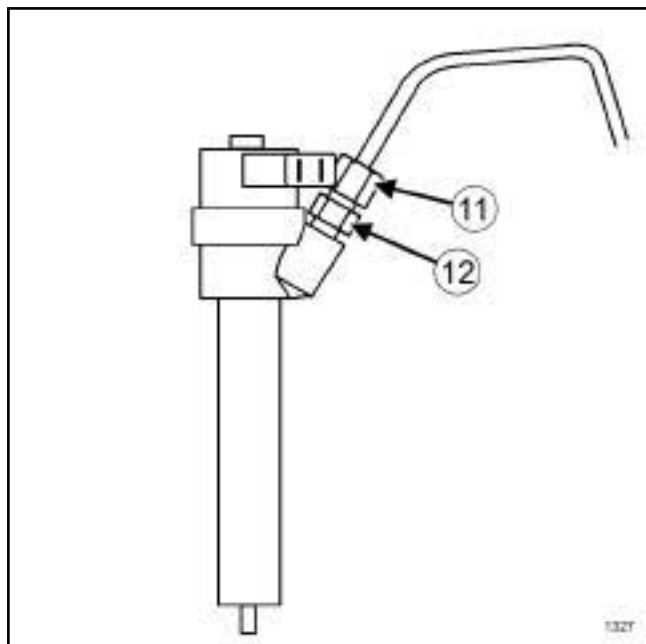


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- ☐ Undo:
 - the nut securing the high-pressure pipe between the injection rail and the injector at the rail end (9) ,
 - the nut securing the high-pressure pipe between the injection rail and the injector at the injector end (10) ,

High pressure pipe between rail and injector: Removal - Refitting

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WARNING

When the high-pressure pipe unions (11) on the injector holder are loosened, it is imperative to hold the filter rod retaining nut (12) with a lock wrench.

- ☐ Remove the high-pressure pipe in question and discard it.

Note:

Be prepared for fuel outflow. Clean with new wipes.

- ☐ Insert the correct blanking plugs.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ If replacing the four high-pressure pipes:
 - remove the anti-splash cover mounting,
 - Undo the injection rail mounting nuts by a few turns (the injection rail should be loose).

II - REFITTING PART CONCERNED



WARNING

Only remove the blanking plugs immediately before connecting the fuel circuit pipes.

The plugs are single-use. Do not reuse them.

- ☐ Take the new high-pressure pipe out of its plastic bag.
- ☐ Remove the blanking plugs from:
 - the injection rail
 - the injector fuel inlet.

Note:

If the new pipe kit does not contain an applicator, lubrication of the nut threads will be unnecessary (as they are self-lubricating pipes).

- ☐ Finger tighten the high-pressure pipe nuts as much as possible, starting at the injection rail end.
- ☐ If replacing the four high-pressure pipes:
 - Tighten to torque the **injection rail mounting nuts (28 Nm)**,
 - Refit the injection rail mounting.
- ☐ Tighten to torque the **high-pressure pipe nuts (24 Nm)** using (**Mot. 1746**) or (**Mot. 1566**) starting at the injection rail end.

III - FINAL OPERATION

- ☐ Refit:
 - the dipstick pipe mounting bolts.
 - the dipstick,
 - the injection rail protector cover,
 - the injection rail protector cover mountings.
- ☐ Loosen the mounting nut of the air pipe at the inter-cooler inlet on the alternator.
- ☐ Fit the air duct between the turbocharger and the inter-cooler air inlet pipe.
- ☐ Lock the air duct onto the turbocharger and the inter-cooler air inlet pipe.
- ☐ Tighten the bolt of the air duct on the rocker cover.
- ☐ Tighten to torque the **mounting nut of the air pipe at the intercooler inlet on the alternator (8 Nm)**.
- ☐ Refit the air inlet duct and tighten its clip.
- ☐ Connect the inlet air pressure sensor

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- ☐ Reprime the fuel circuit using the priming bulb.
 - ☐ Connect the battery (see **Battery: Removal - Refitting**).
 - ☐ Confirm that there is no diesel fuel leak:
 - check the sealing after repair (see **13B, Diesel injection, High pressure pipe: Check**, page **13B-99**),
 - accelerate several times at no load,
 - check for leaks and for diesel fuel outflow.
 - ☐ Use the **Diagnostic tool** to check for stored faults.
 - ☐ Clear them if necessary.
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High pressure pipe between rail and injector: Removal - Refitting

K9K, and 750 or 752 or 766 or 768

Special tooling required

Mot. 1746 Offset wrench for tightening High Pressure pump pipes.

Equipment required

Diagnostic tool

Tightening torques

injector rail nuts	28 N.m
pump-rail high pressure pipe nuts	24 N.m
rail-injector high pressure pipe nuts	24 N.m
nuts of the neck on the rail	21 N.m
nut mounting the inter-cooler inlet air pipe on the alternator	8 N.m

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IMPORTANT

Before carrying out any work on the injection system, check using the **Diagnostic tool** :

- that the injector rail is not under pressure,
- that the fuel temperature is not too high.

It is essential to respect the safety and cleanliness advice whenever work is carried out on this system.

Loosening a high pressure pipe union when the engine is running is prohibited.

WARNING

Before starting work on the vehicle, obtain:

- a new set of blanking plugs (part no.: **77 01 206 804**),
- cleaning cloths (part no.: **77 11 211 707**),
- cleaning product (part no.: **77 11 224 188**).

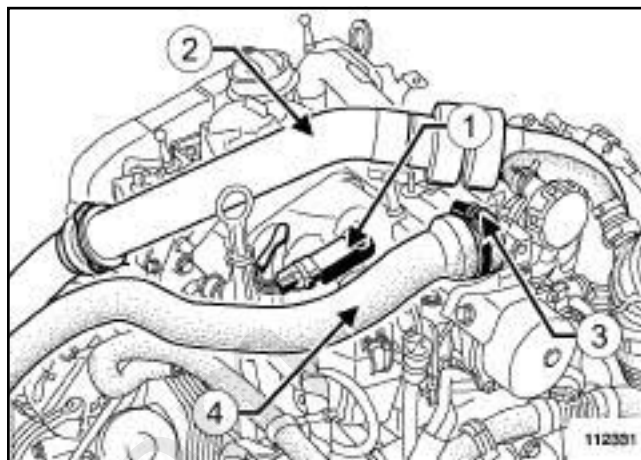
Note:

Vehicles equipped with the K9K*768 engine may or may not be equipped with an intercooler.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) 392, 80A, Battery).



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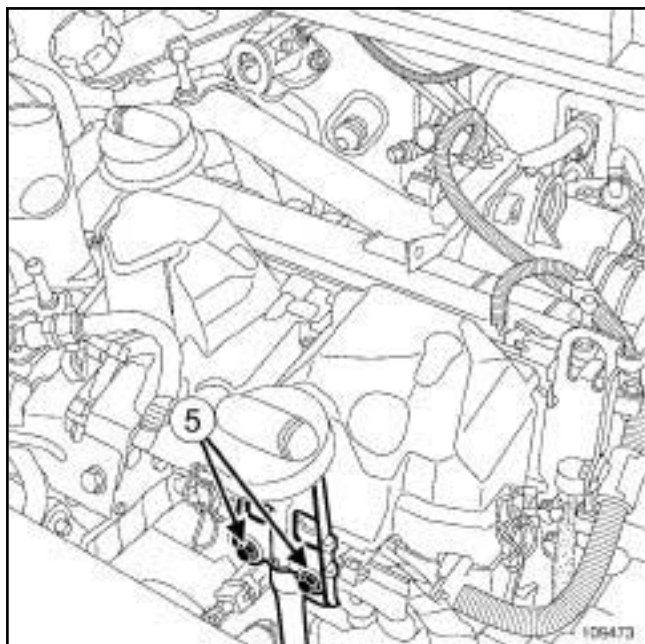
- ☐ Disconnect the inlet air pressure sensor (1) .

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- ☐ Remove the upper section of the turbocharger air duct (2) .
- ☐ Loosen the clip (3) .
- ☐ Move the inlet duct to one side (4) .

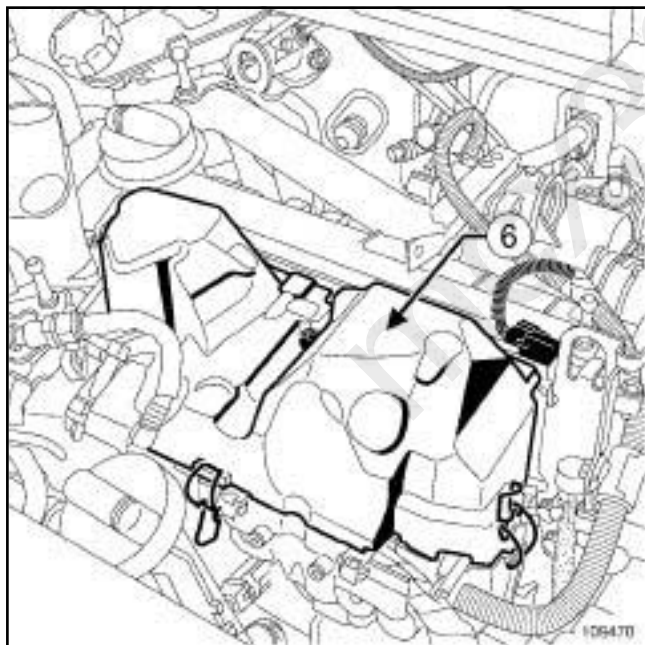
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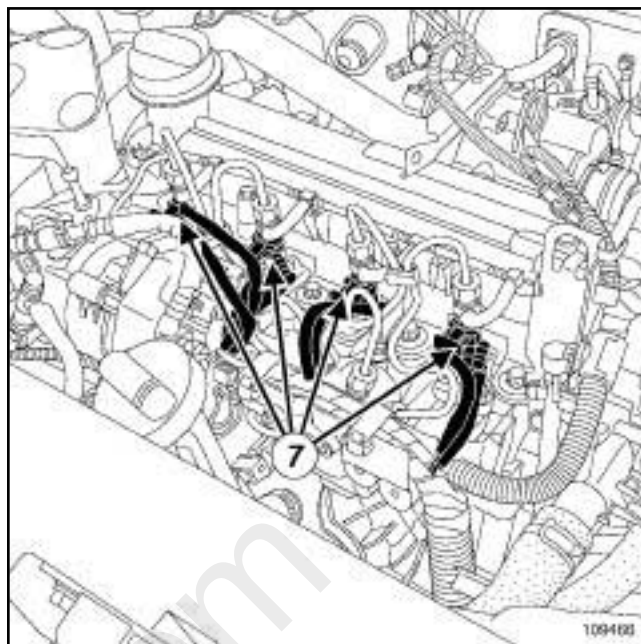
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- ☐ Remove the dipstick bolts (5) .
- ☐ Put the dipstick to one side.



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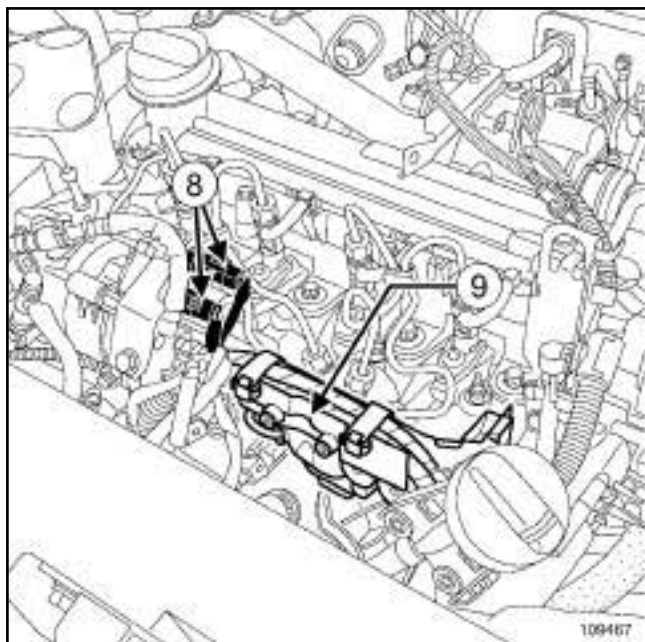
- ☐ Remove the injector rail protector cover (6) .



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- ☐ Disconnect the following connectors (7) :
 - the heater plugs,
 - the injectors.

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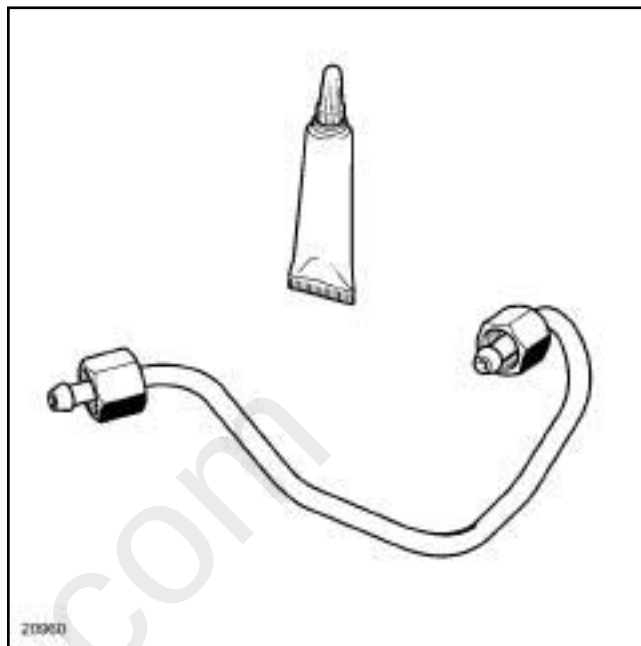
- ☐ Disconnect the high pressure pump electrical connectors (8) .
- ☐ Remove the bolts mounting the neck (9) onto the spherical injector rail.
- ☐ Move the electric wiring harness and neck to the side as shown by the arrow.
- ☐ Loosen the injector rail nuts by several turns.
- ☐ Remove the clips connecting the high pressure pipes.

II - REMOVAL OF THE PART CONCERNED

- ☐ Undo:
 - the high pressure pipe nut at the injector end using the (Mot. 1746),
 - the high pressure pipe nut at the injector rail end using the (Mot. 1746).
- ☐ Fit blanking plugs into the openings.

REFITTING

I - REFITTING PREPARATION OPERATION



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WARNING

Before fitting a new high-pressure pipe, lightly lubricate the nut thread with oil from the applicator supplied in the new part.

Be careful not to allow oil into the high pressure pipe.

Do not lubricate high pressure pipes supplied without an applicator, as these high pressure pipes are self-lubricating.

WARNING

Do not remove the blanking plugs from each component until the last moment.

- ☐ If replacing the four high pressure pipes:
 - remove the anti-splash cover mounting,
 - loosen the injector rail nuts by a few turns (the injector rail should be loose).

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Remove the blanking plugs.
- ☐ Insert the high pressure pipe olive in the injector high pressure inlet taper.