RENAULT

2 Transmission

20A CLUTCH

21A MANUAL GEARBOX

21B SEQUENTIAL GEARBOX

23A AUTOMATIC GEARBOX

29A DRIVESHAFTS

X85

NOVEMBER 2009 **EDITION ANGLAISE**

CLIO III - Chapitre 2

Contents

Contents

Clutch: Precautions for the repair

Special tooling required	
Emb. 1518	Set of clutch plate centring mandrels
Emb. 1780	Set of clutch plate centring mandrels.

Before removing the clutch, check:

- The direction of fitting for the clutch plate.

Before refitting the clutch, check:

- The flywheel friction track (no scratches or blue stains),
- The crankshaft bearing (no sticking),
- The engine and gearbox seals (replace if necessary),
- The sliding action of the clutch plate on the output shaft,
- The guide of the thrust bearing and clutch fork (no wear or scratches).

WARNING

To prevent the clutch from juddering or slipping, do not grease the output shaft or the clutch plate hub.

During refitting:

Check the direction of the clutch plate.

Centre the clutch plate using the **(Emb. 1518)** or **(Emb. 1780)**.

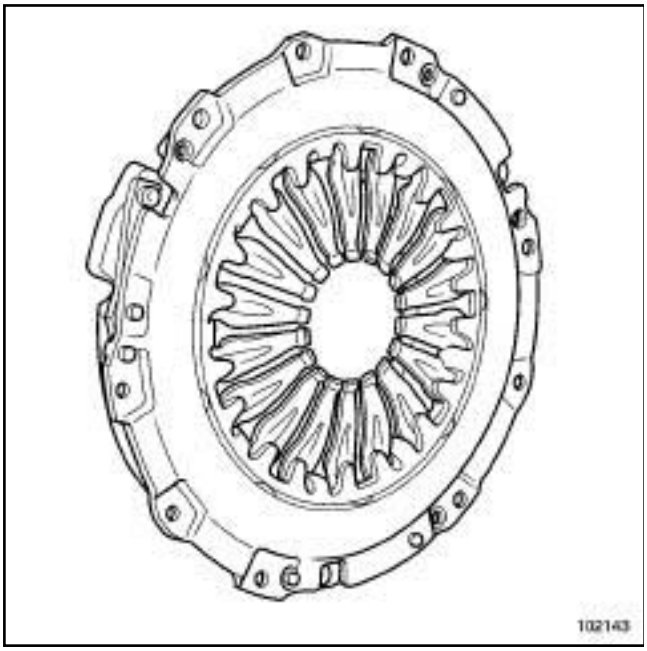
Gradually torque tighten the clutch pressure plate bolts.

After refitting, check:

- The clutch play (for a cable operated vehicle),
- Bleeding of the hydraulic circuit (for vehicles with hydraulic controls).

D4F, and 740 or 742 or 764

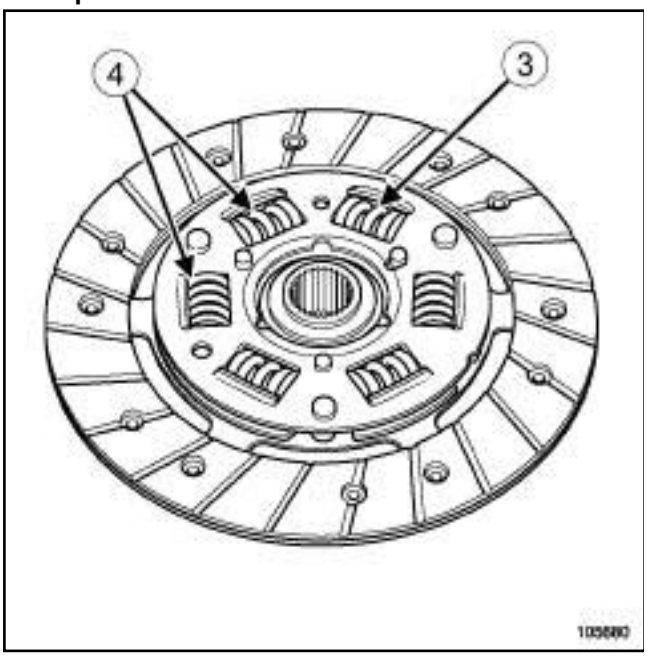
Pressure plate



102143

Pressure plate part no: 180 CPOE 3300

Drive plate



105680

Plate external diameter: **181.5 mm**

Plate thickness: **6.7 mm**

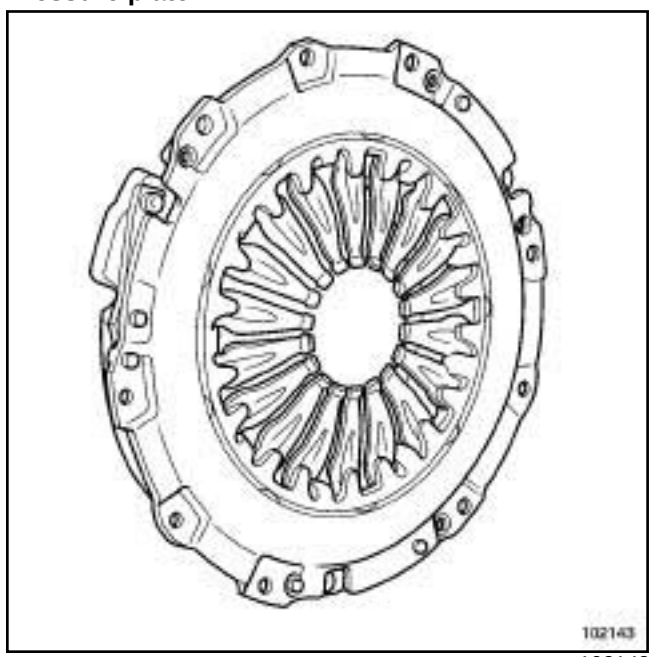
Number of splines: **26**

Colour of springs (**3**) : Grey

Colour of springs (**4**) : Black

D4F, and 784 or 786

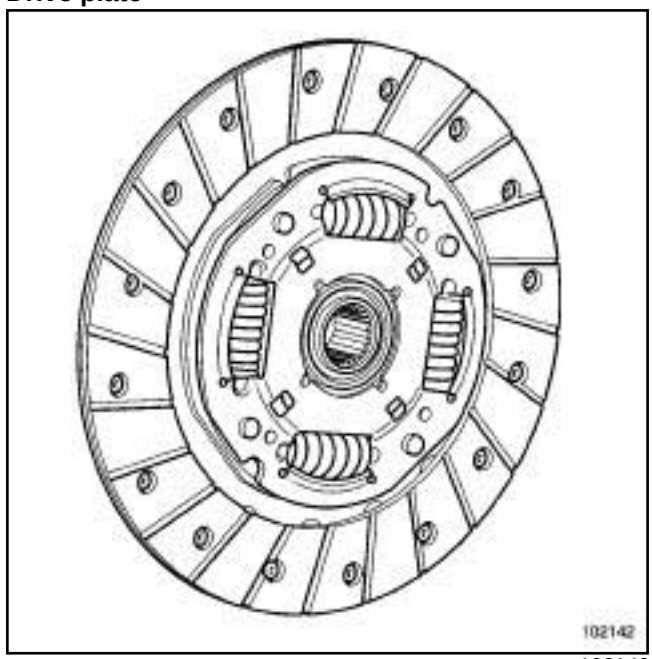
Pressure plate



102143

Pressure plate part no.: **200 CPOE 3900**

Drive plate



102142

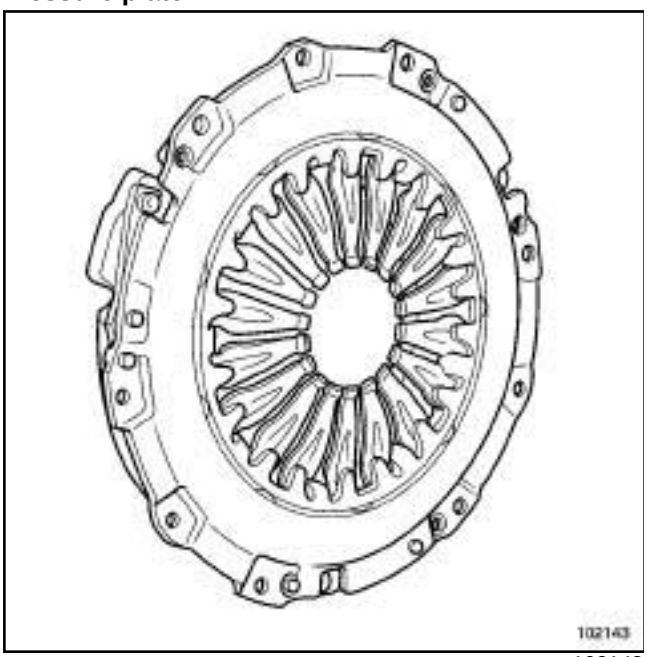
Plate external diameter: **200 mm**

Plate thickness: **7 mm**

Number of splines: **26**

F4R or K4J or K4M

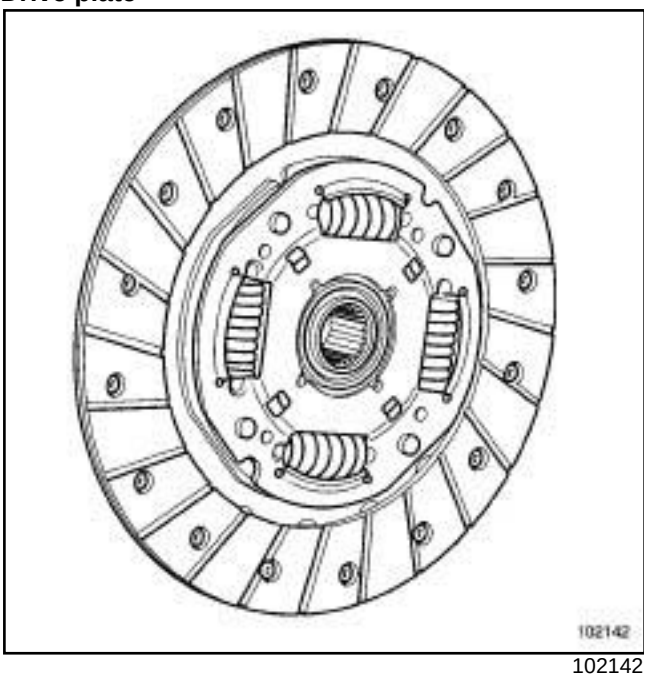
Pressure plate



102143

Pressure plate part no: 200 CPOEH 3900

Drive plate



102142

Plate external diameter: **200 mm**

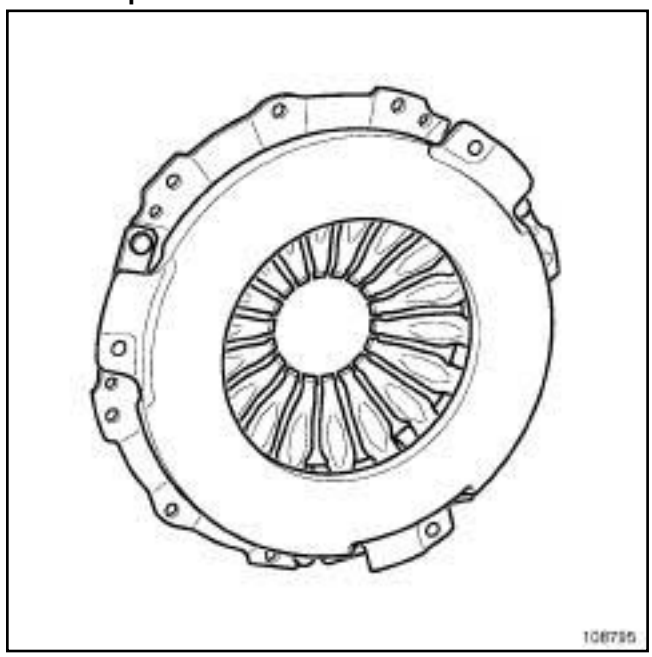
Plate thickness: **6.9 mm**

Number of splines: **26**

Colour of springs: Grey

K9K

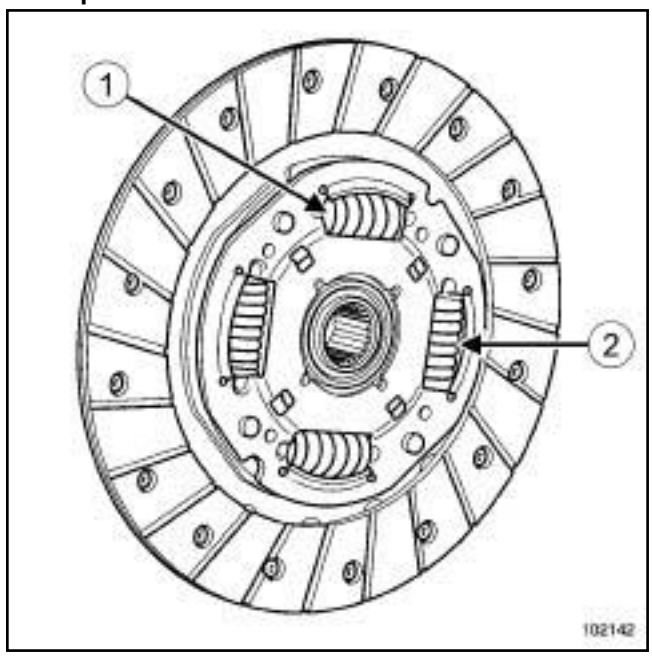
Pressure plate



108795

Pressure plate part no: 215 CPoVK 4400

Drive plate



102142

Plate outer diameter: **215 mm**

Plate thickness: **6.9 mm**

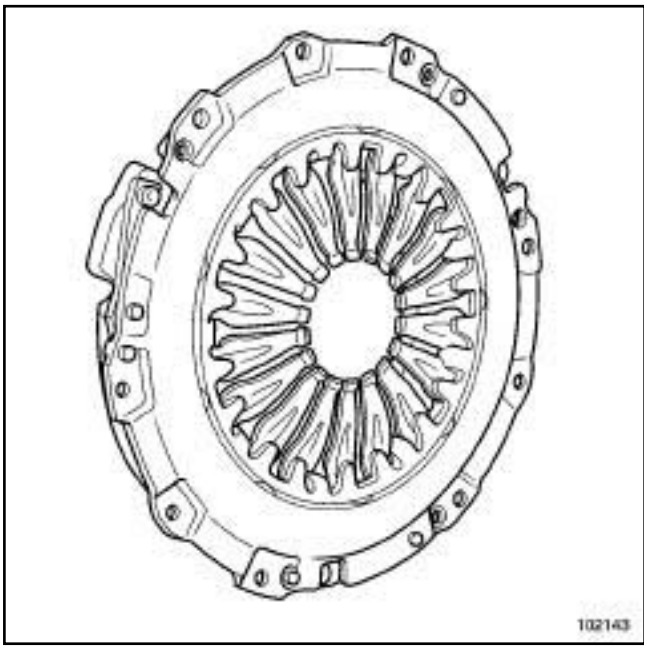
Number of splines: **26**

Colour of springs (**1**) : Red and Black

Colour of springs (**2**) : Grey

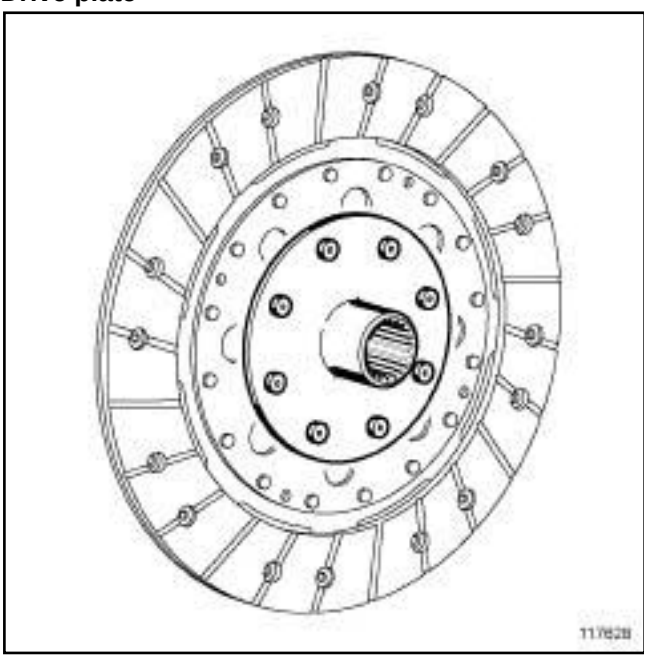
M4R, and TL4

Pressure plate



102143

Drive plate



117628

Plate outer diameter: **215 mm**

Plate thickness: **6.7 mm**

Number of splines: **26**

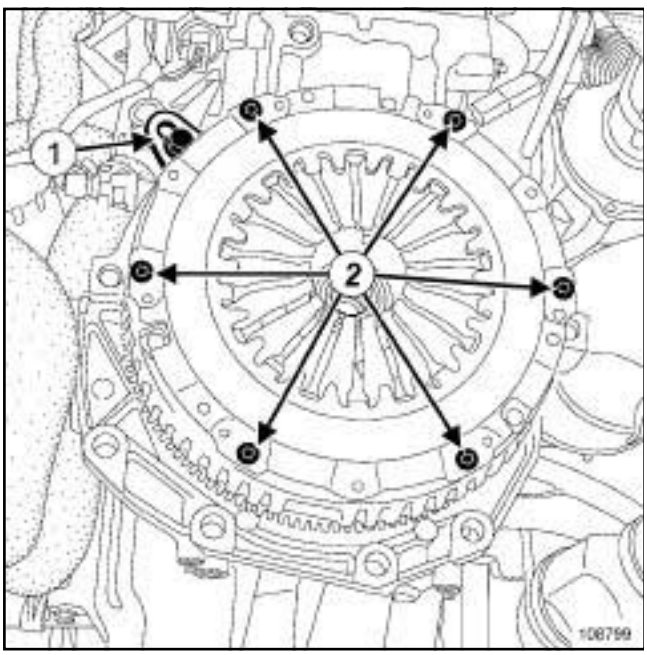
D4F or K4J or K4M or K9K, and 750 or 752 or 760 or 762 or 766 or 768, and JH3 or JR5

Special tooling required	
Mot. 582-01	Flywheel locking tool.
Emb. 1518	Set of clutch plate centring mandrels

Tightening torques ▽	
pressure plate mounting bolts	**20 N.m**
pressure plate mounting bolts	**15 N.m**

REMOVAL

❑ Remove the gearbox ((see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**)).



108799

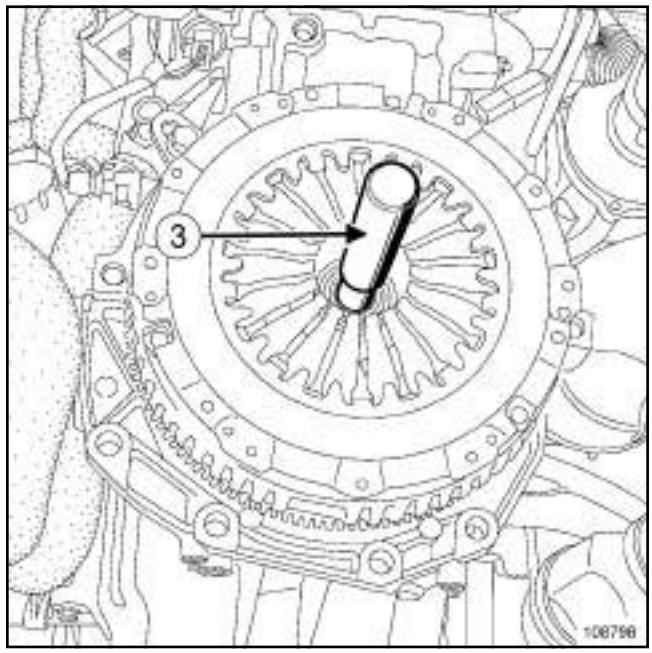
❑ Lock the engine using the **(Mot. 582-01)** (**1**) .

❑ Remove the pressure plate mounting bolts (**2**) .

❑ Remove the friction plate.

❑ Replace any faulty parts.

REFITTING



108798

❑

WARNING
- Degrease the flywheel friction face.
- Clean the clutch shaft splines.
- Refit the assembly without lubricant.

❑ Position the clutch plate.

❑ Centre the clutch plate using the **(Emb. 1518)** (**3**) .

❑ Screw into place gradually in a radial pattern.

D4F or K4J or K4M

❑ Torque tighten:

- **pressure plate mounting bolts (20 N.m)**,

K9K, and 750 or 752 or 760 or 762 or 766 or 768

❑ Torque tighten:

- **pressure plate mounting bolts (15 N.m)**,

❑ Remove the tool **(Mot. 582-01)**.

❑ Refit the gearbox ((see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**)).

F4R, and TL4

Special tooling required	
Mot. 582-01	Flywheel locking tool.
Emb. 1780	Set of clutch plate centring mandrels.

Tightening torques ▽	
mechanism mounting bolts	**20 N.m**

REMOVAL

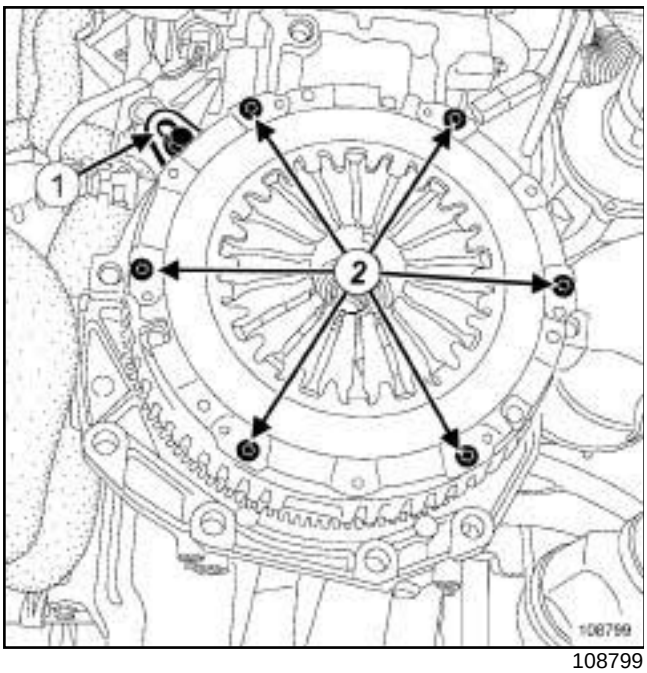
I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❏ Disconnect the battery (see) (MR 392, 80A, Battery).

❏ Remove the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



108799

❏ Lock the engine using the **(Mot. 582-01)** (**1**) .

❏ Remove the pressure plate mounting bolts (**2**) .

❏ Remove the pressure plate and the friction plate.

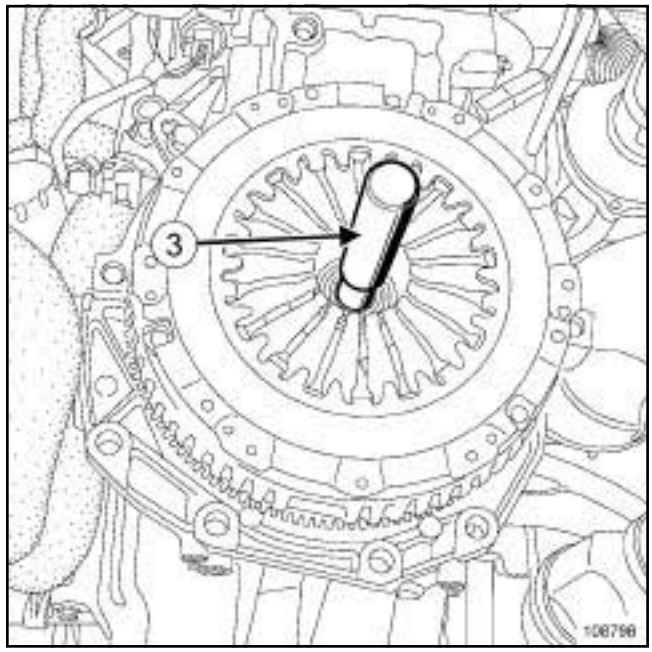
REFITTING

I - REFITTING PREPARATION OPERATION

❏ Degrease the flywheel friction face.

❏ Clean the clutch shaft splines.

II - REFITTING OPERATION FOR PART CONCERNED



108798

❏ Position the clutch plate.

❏ Centre the clutch plate using the **(Emb. 1780)** (**3**) .

❏ Fit the pressure plate.

❏ Gradually tighten the clutch pressure plate mounting bolts radially.

❏ Torque tighten the **mechanism mounting bolts (20 N.m)**.

III - FINAL OPERATION

❏ Remove the **(Mot. 582-01)** and **(Emb. 1780)**.

❏ Refit the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**) .

❏ Connect the battery (see) (MR 392, 80A, Battery).

M4R, and TL4

Special tooling required	
Mot. 1677	Flywheel locking tool.
Emb. 1780	Set of clutch plate centring mandrels.

Tightening torques ▽	
clutch mechanism bolts	**initial torque: 15 Nm**
clutch mechanism bolts	**25 Nm**

REMOVAL

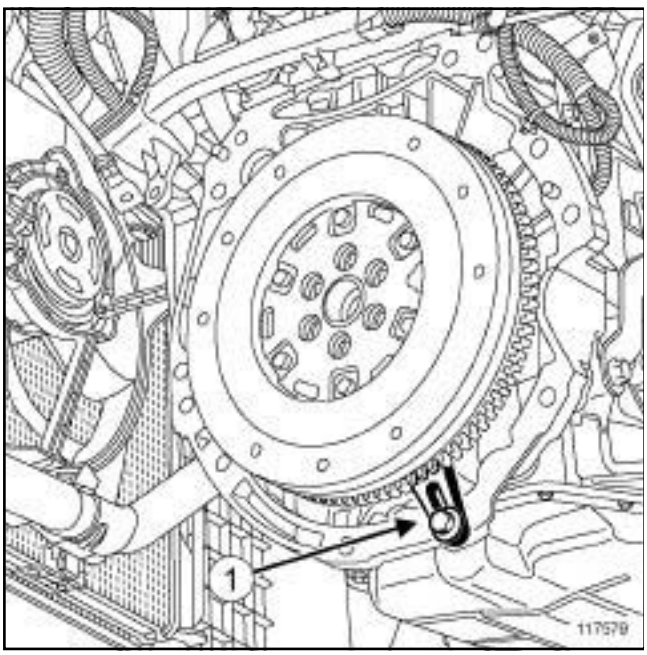
I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❏ Disconnect the battery (see) (MR 392, 80A, Battery).

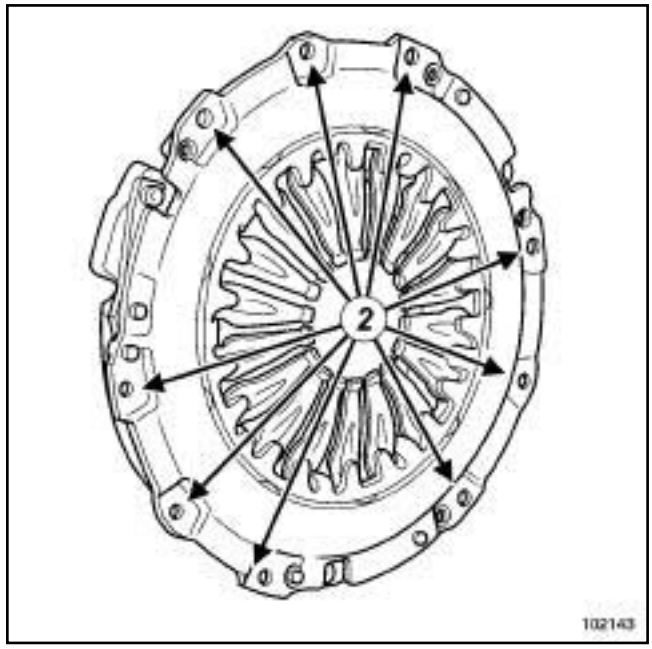
❏ Remove the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



117579

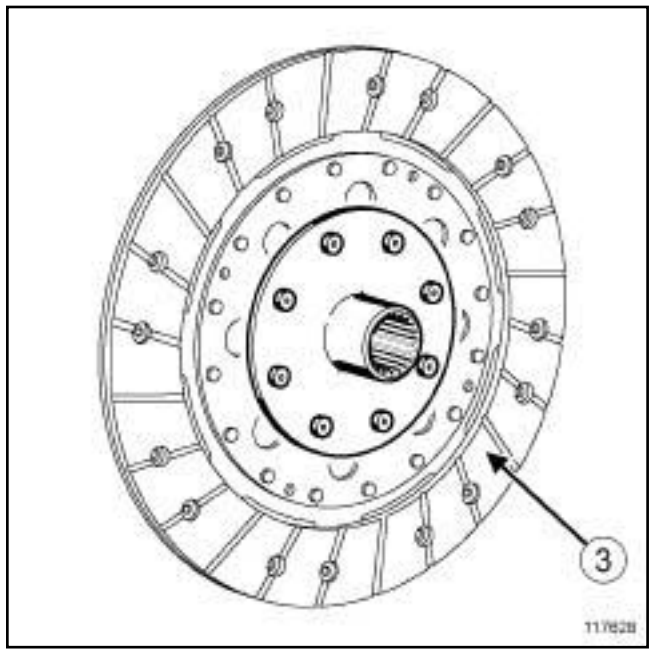
❏ Lock the engine using tool **(Mot. 1677)** (**1**) .



102143

❏ Slide the bolts (**2**) out of the mechanism.

❏ Remove the mechanism.



117628

❏ Remove the clutch plate (**3**) .

REFITTING

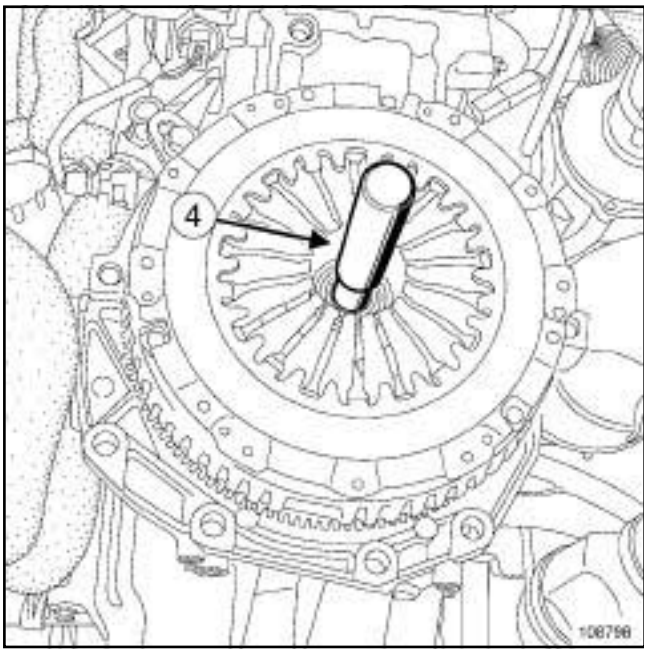
I - REFITTING PREPARATION OPERATION

❏ Degrease the flywheel friction face.

❏ Clean the clutch shaft splines.

M4R, and TL4

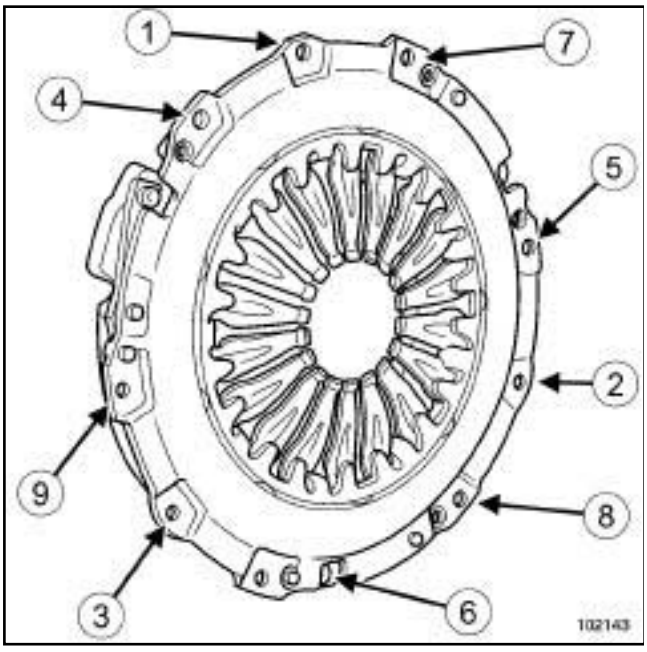
II - REFITTING OPERATION FOR PART CONCERNED



108798

❏ Position the clutch driven plate.

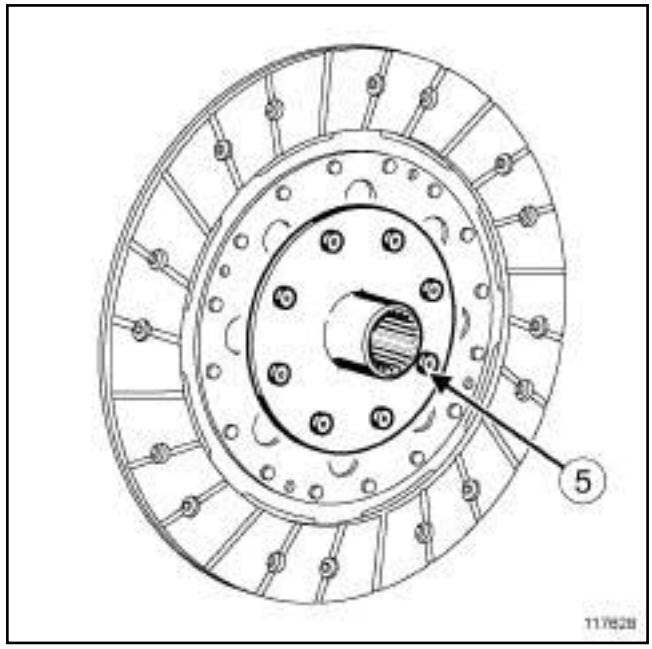
❏ Centre the clutch plate using tool **(Emb. 1780)** (**4**) .



102143

❏ Pretighten to torque and in order the **clutch mechanism bolts (initial torque: 15 Nm)**.

❏ Torque tighten the **clutch mechanism bolts (25 Nm)**.



117628

❏

Note:

Position the clutch plate with the section (**5**) against the flywheel.

III - FINAL OPERATION

❏ Remove the **(Mot. 1677)** and **(Emb. 1780)**.

❏ Refit the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**) .

❏ Connect the battery (see) (MR 392, 80A, Battery).

K9K, and TL4

Special tooling required	
Mot. 582-01	Flywheel locking tool.
Emb. 1780	Set of clutch plate centring mandrels.

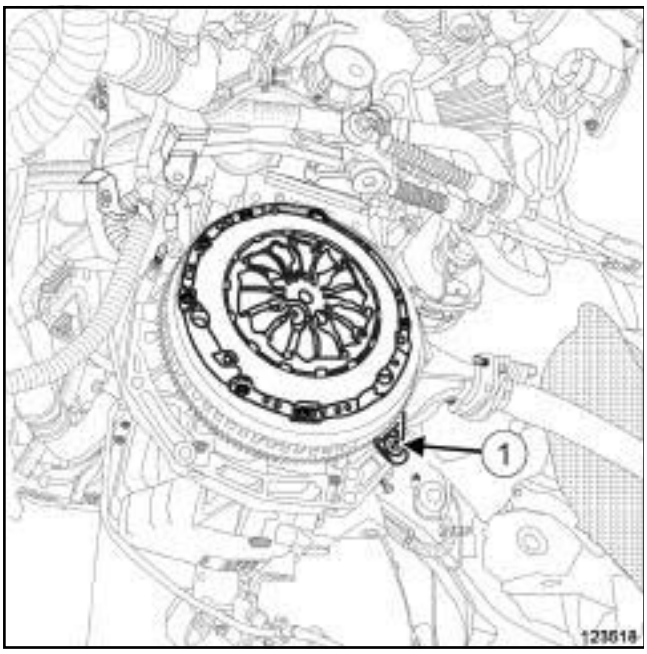
Tightening torques ▽	
clutch pressure plate bolts	**12 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

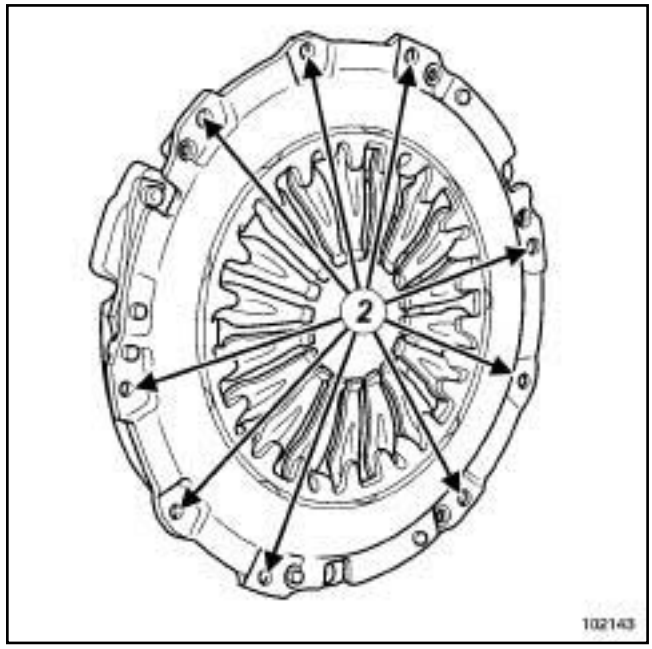
❑ Remove the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



123518

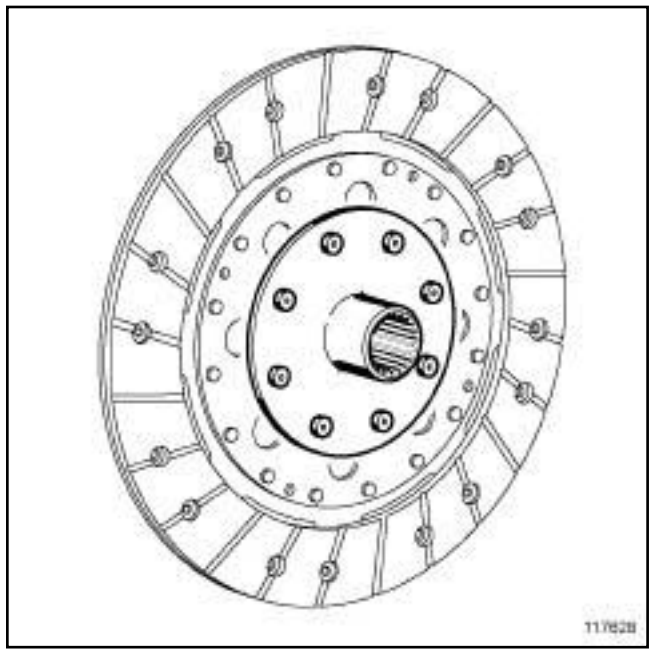
❑ Lock the engine using the (**1**) **(Mot. 582-01)**.



102143

❑ Slide the bolts (**2**) out of the mechanism.

❑ Remove the mechanism.



117628

❑ Remove the clutch plate.

REFITTING

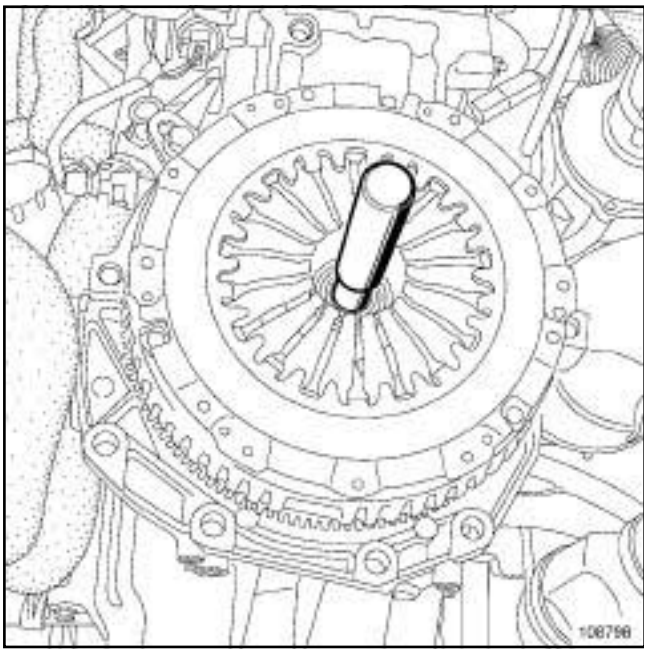
I - REFITTING PREPARATION OPERATION

❑ Degrease the flywheel friction face.

❑ Clean the clutch shaft splines.

K9K, and TL4

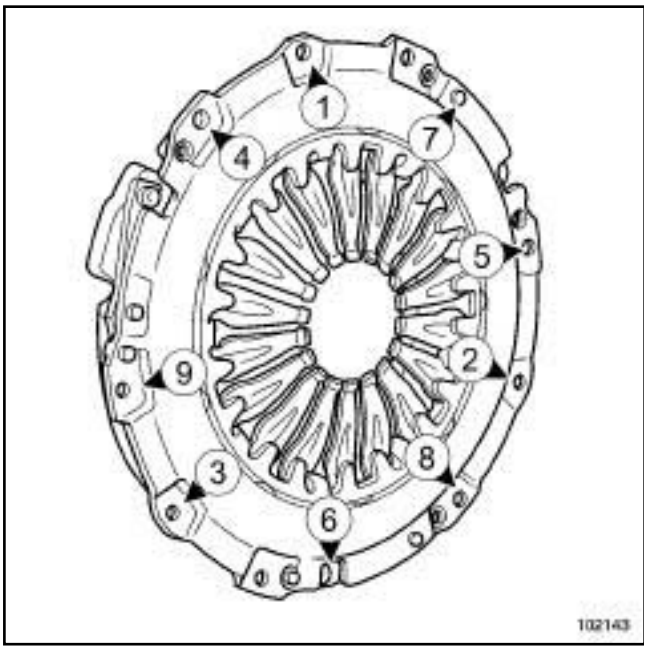
II - REFITTING OPERATION FOR PART CONCERNED



108798

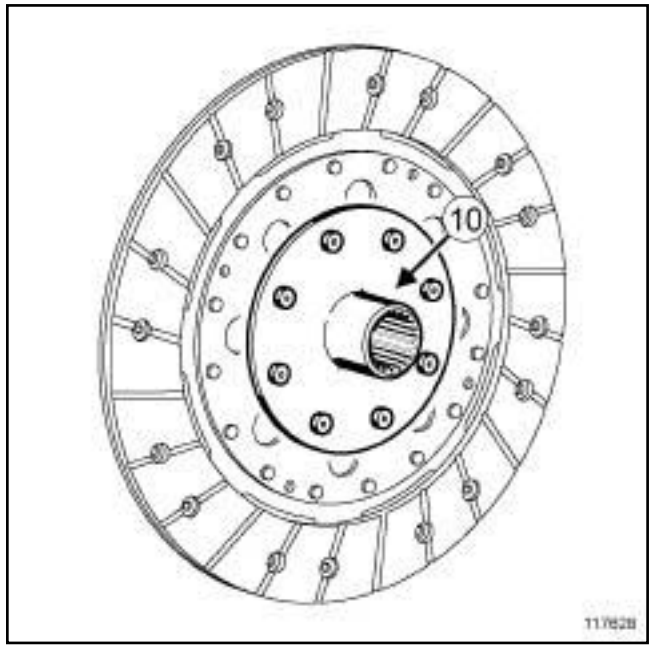
❏ Position the clutch plate.

❏ Centre the clutch plate using the **(Emb. 1780)**.



102143

❏ Tighten to torque and in order the **clutch pressure plate bolts (12 N.m)**.



117628

❏ Position the clutch plate with the section (**10**) against the flywheel.

III - FINAL OPERATION

❏ Remove the **(Mot. 582-01)** then the **(Emb. 1780)**.

❏ Refit the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**) .

Tightening torques ▽	
bolts mounting the clutch thrust bearing on the clutch housing	**21 Nm**

The thrust bearing is connected to the clutch slave cylinder.

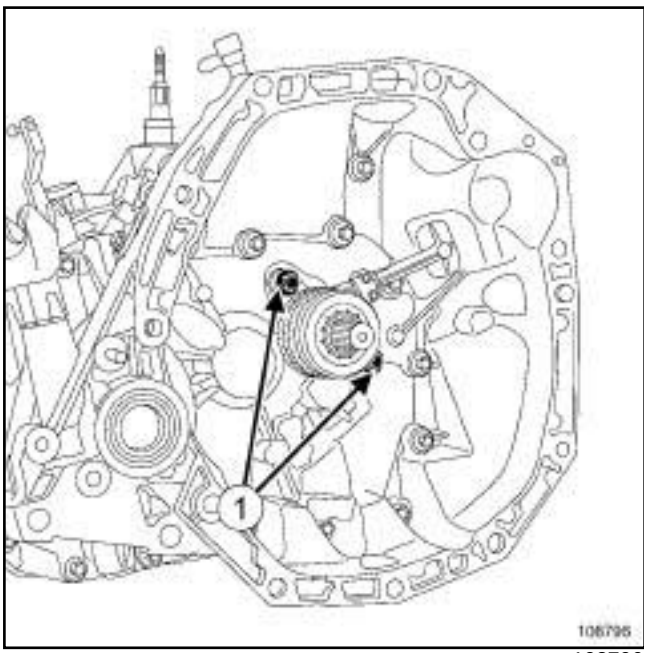
REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Drain the brake reservoir using a syringe to remove the clutch thrust bearing and control.

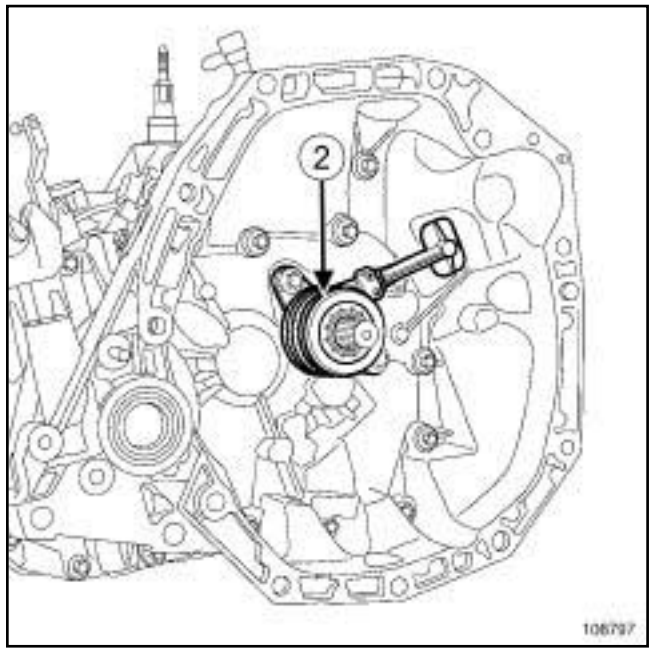
❏ Remove the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**) .

II - REMOVAL OF PART CONCERNED



108796

❏ Remove the two clutch thrust bearing mounting bolts (**1**) on the clutch housing.



108797

❏ Remove the clutch thrust bearing (**2**) .

REFITTING

I - REFITTING PART CONCERNED

❏ Refit the clutch thrust bearing ***(2)*** .

❏ Torque tighten the **bolts mounting the clutch thrust bearing on the clutch housing (21 Nm)** ***(1)*** .

WARNING

To avoid damaging the clutch slave cylinder, do not lubricate the clutch shaft.

Never operate the system while the slave cylinder is removed.

II - FINAL OPERATION

❏ Refit the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**) .

❏ Bleed the clutch control (see **Clutch circuit: Bleed**) (MR 392, 37A, Mechanical component controls).

TL4

Tightening torques ▽	
clutch thrust bearing bolts	**21 Nm**

REMOVAL

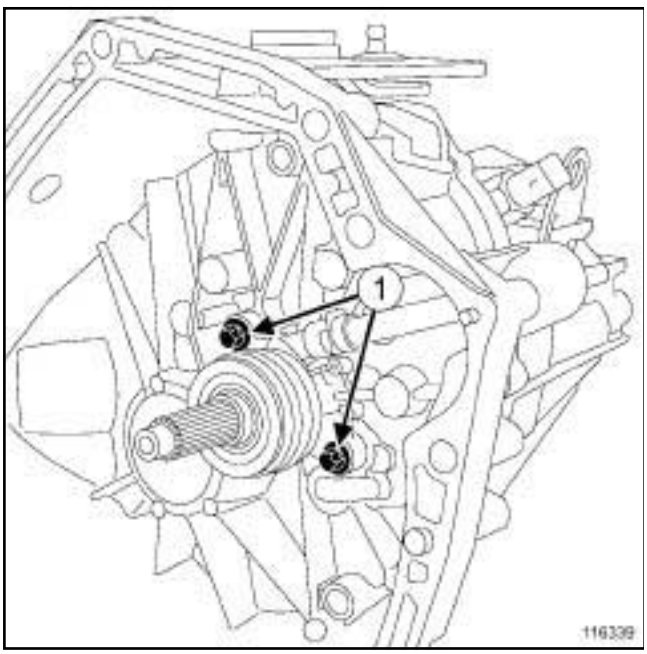
I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❏ Disconnect the battery (see) (MR 392, 80A, Battery).

❏ Remove the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



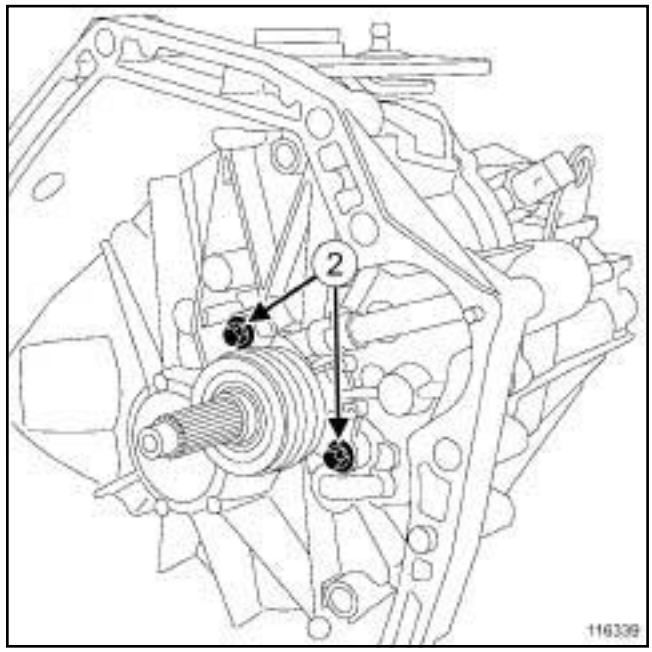
116339

❏ Remove:

- the bolts (**1**) from the clutch thrust bearing,
- the clutch thrust bearing.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED



116339

❏ Refit:

- the new clutch thrust bearing,
- the bolts (**2**) from the clutch thrust bearing.

❏ Torque tighten the **clutch thrust bearing bolts (21 Nm)**.

II - FINAL OPERATION

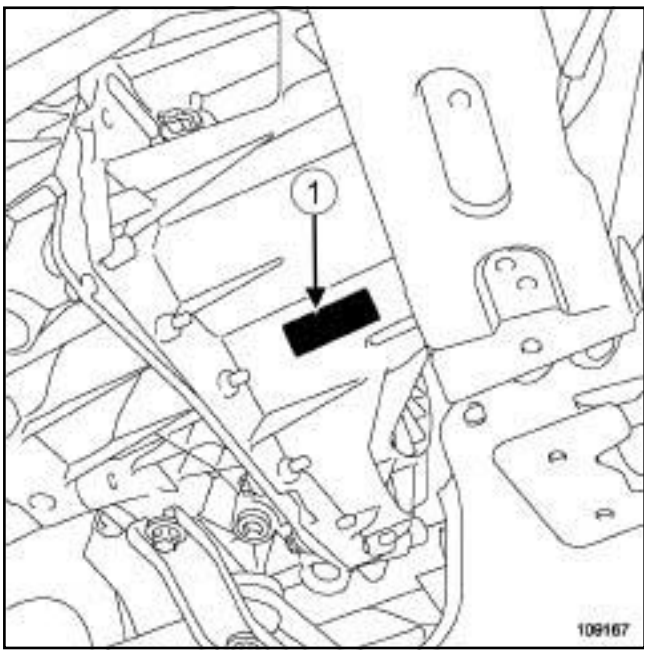
❏ Refit the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**) .

❏ Connect the battery (see) (MR 392, 80A, Battery).

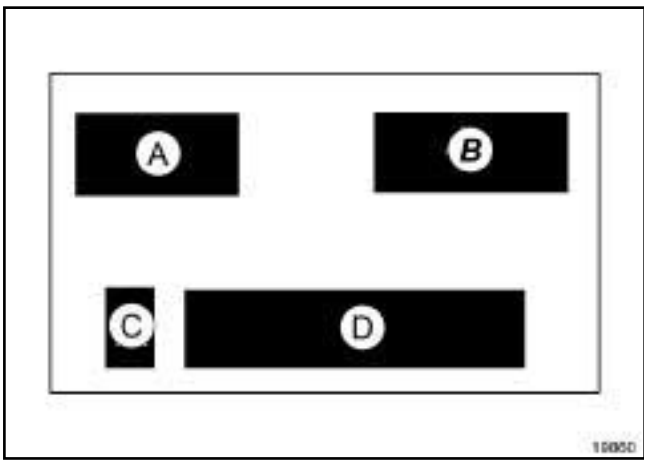
JA3 or JA5 or JH3 or JR5

K4J / K4M / K9K / D4F engines are fitted with type JH and JR manual gearboxes.

A marking (**1**) on the gearbox casing indicates:

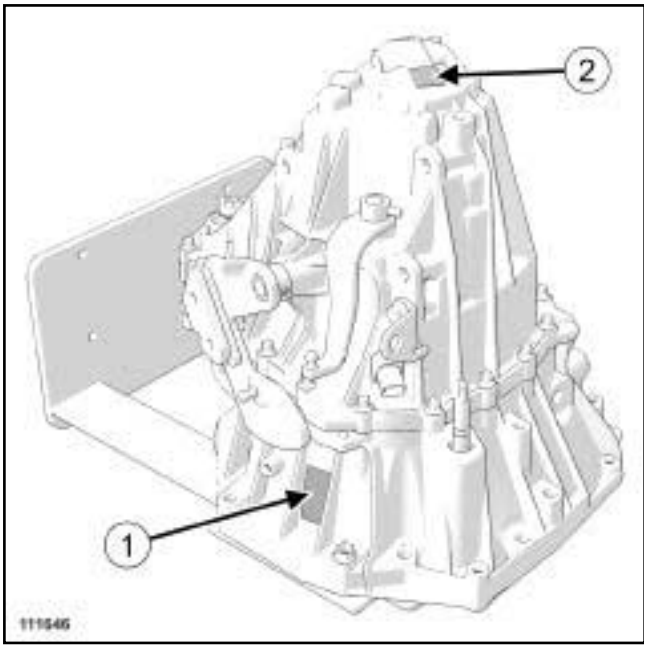


109167



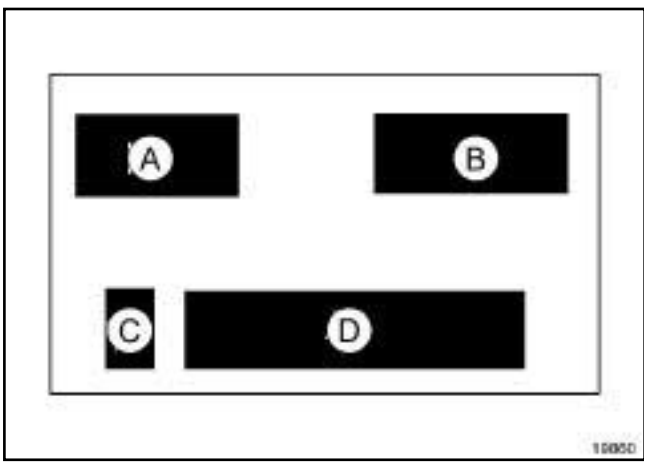
19860

(**A**)	Gearbox type
(**B**)	Gearbox suffix
(**C**)	Production plant
(**D**)	Production number



111646

(**1**) Identification plate
(**2**) Engraving



19860

(**A**) Gearbox type
(**B**) Gearbox suffix
(**C**) Production plant
(**D**) Production number

JH3 or JR5

Capacity (in litres)

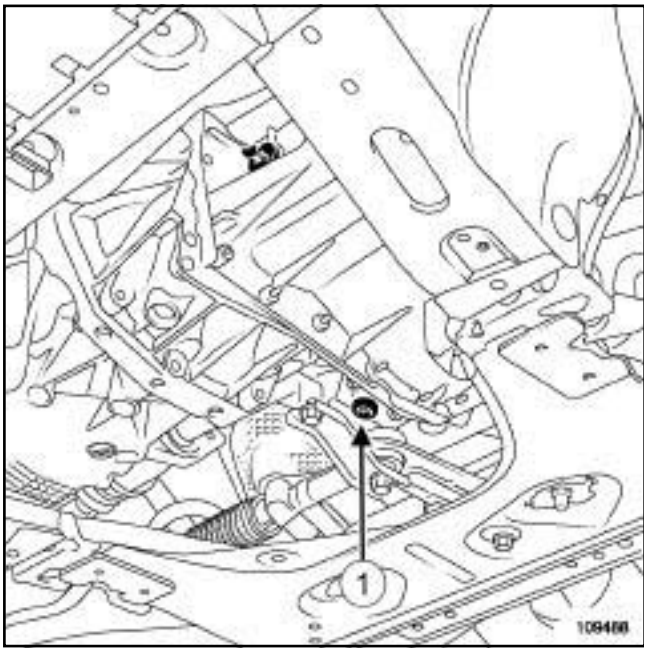
JR5	2.5
JH3	2.8

DRAINING

❑ Remove:

- the engine undertray mounting bolts,
- the engine undertray.

JH3



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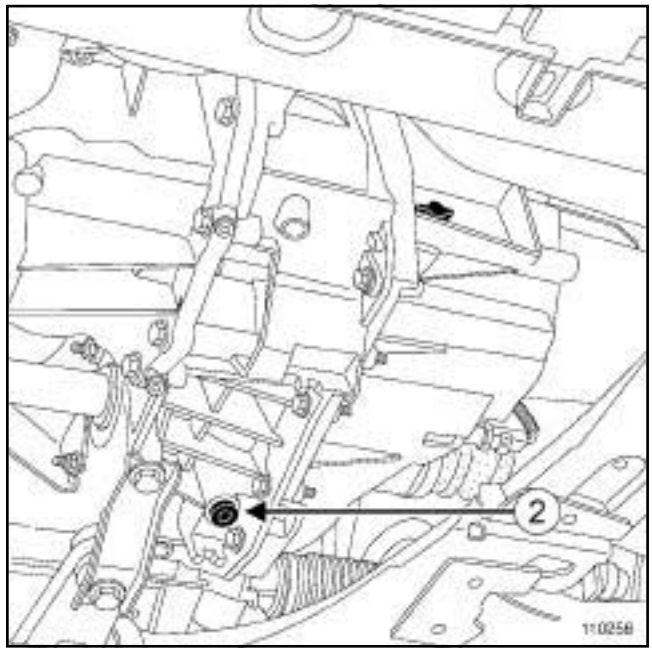
❑ Remove the drain plug (**1**) .

JR5



110256

❑ Remove the drain plug (**2**) .

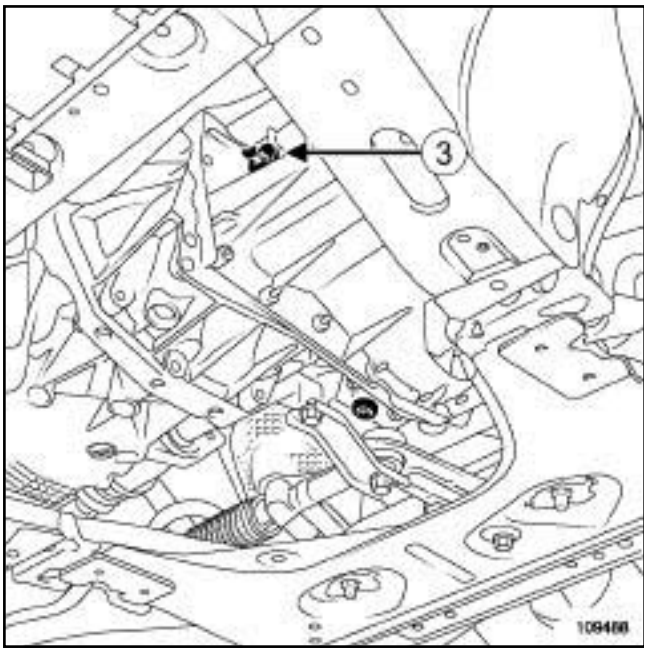
FILLING

❑ It is essential to replace the drain plug seal.

❑ Refit the drain plug.

JH3 or JR5

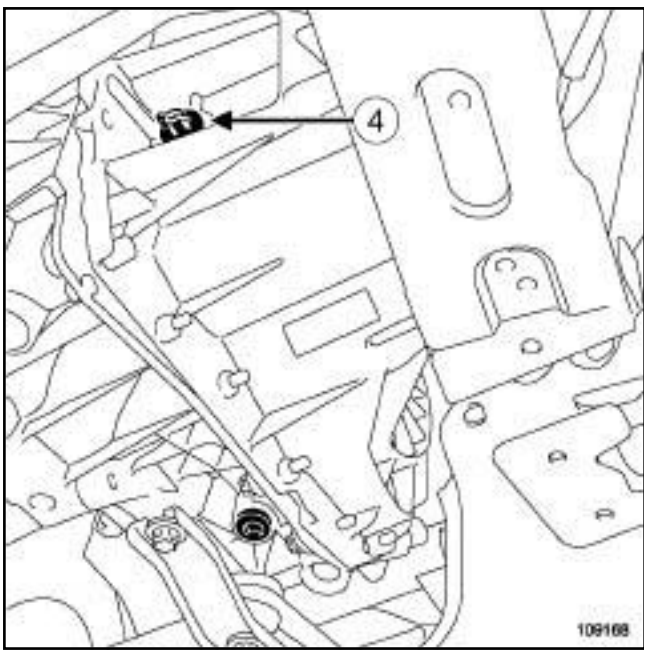
JH3



109488

❑ Remove the filler cap (**3**) .

JR5



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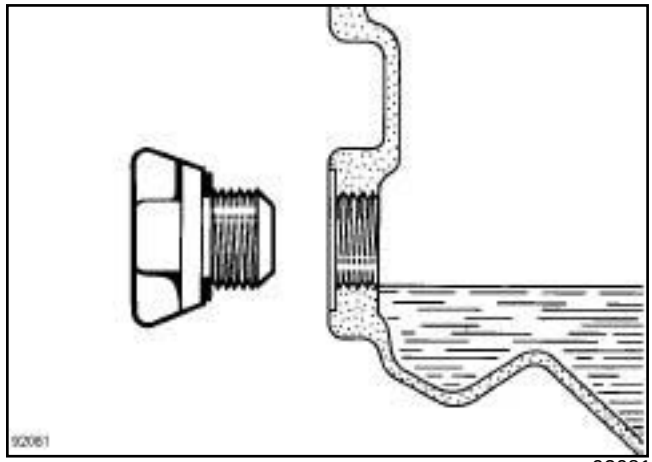
❑ Remove the filler cap (**4**) .



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❑ Fill up to the level of the opening with oil recommended by the manufacturer (see **Manual gearbox oil: Specifications**) (Technical Note 6012A, 04, Lubricants).

❑ Refit the filler cap.

❑ Refit:

- the engine undertray,

- the engine undertray mounting bolts.

Manual gearbox: Specifications

JA3 or JA5 or JH3 or JR5

GEAR RATIOS

Suffix	First	Second	Third	Fourth	Fifth	Reverse gear	Final drive	Tacho meter
JA3 sequential gearbox								
JA3-001	11/41	21/43	28/39	34/35	39/32	11/39	14/61	None
JA5 sequential gearbox								
JA5-001	11/41	21/43	28/37	35/34	41/31	11/39	16/55	None
JH1 manual gearbox								
JH1 -004	11/37	22/41	28/37	34/35	39/32	11/39	14/59	21/19
JH1 -013	11/37	22/41	28/37	34/35	39/32	11/39	15/61	21/19
JH1 -014	11/37	22/41	28/37	30/29	39/32	11/39	15/58	21/19
JH1 -015	11/37	22/41	28/37	30/29	41/31	11/39	15/56	21/19
JH1 -016	11/37	22/41	28/37	34/35	39/32	11/39	14/59	None
JH1 -017	11/37	22/41	28/37	34/35	39/32	11/39	15/61	None
JH1-019	11/37	22/41	28/37	34/35	39/32	14/59	14/59	21/19
JH1 -018	11/37	22/41	28/37	30/29	41/31	11/39	15/56	21/19
JH1 -020	11/41	21/43	28/39	34/35	39/31	11/39	14/59	None
JH1-021	11/41	21/43	28/39	34/35	39/31	11/39	14/59	None
JH1 -053	11/41	21/43	28/39	34/35	39/31	11/39	14/59	22/18
JH1-054	11/41	21/43	28/39	34/35	39/31	11/39	15/56	21/19
JH1-055	11/37	21/41	28/37	34/35	39/31	11/39	16/55	21/19
JH3 manual gearbox								
JH3-050	11/41	21/43	28/39	34/35	39/31	11/39	15/56	21/19
JH3-052	11/41	21/43	28/39	34/35	39/32	11/39	14/59	22/18
JH3-053	11/37	22/41	28/37	30/29	42/41	11/39	15/58	22/18
JH3-054	11/41	21/43	28/37	30/29	41/31	11/39	14/63	22/18
JH3-055	11/41	21/43	28/37	30/29	39/31	11/39	14/63	22/18
JH3-056	11/41	21/43	28/37	30/29	41/31	11/39	14/61	22/18
JH3-057	11/41	21/43	28/39	34/35	39/31	11/39	14/59	None
JH3-058	11/41	21/43	28/39	34/35	39/32	11/39	14/59	22/18
JH3-059	11/45	22/47	28/39	34/35	37/33	11/39	14/69	22/18

Manual gearbox: Specifications

JA3 or JA5 or JH3 or JR5

Suffix	First	Second	Third	Fourth	Fifth	Reverse gear	Final drive	Tacho meter
JH3-060	11/41	21/43	28/39	34/35	39/31	11/39	14/59	22/18
JH3-061	11/41	21/43	28/39	34/35	39/31	11/39	14/61	22/18
JH3-062	11/41	21/43	28/39	34/35	39/31	11/39	14/61	22/18
JH3-063	11/41	21/43	28/39	34/35	39/32	11/39	14/61	22/18
JH3-064	11/41	21/43	28/39	34/35	39/32	11/39	14/59	22/18
JH3-065	11/41	21/43	28/39	34/35	39/32	11/39	14/59	22/18
JH3-066	11/41	21/43	28/29	34/35	39/31	11/39	14/63	22/18
JH3-067	11/37	22/41	28/37	34/35	39/32	11/39	14/63	22/18
JH3-068	11/41	21/43	28/39	34/35	39/32	11/39	14/59	22/18
JH3-071	11/41	21/43	28/37	30/29	39/31	11/39	14/63	22/18
JH3-072	11/41	21/43	28/37	34/35	39/32	11/39	14/59	22/18
JH3-105	11/41	21/43	28/39	31/34	37/33	11/39	14/59	None
JH3-106	11/41	21/43	28/39	34/35	39/32	11/39	14/63	None
JH3-128	11/41	21/43	28/39	34/35	39/32	11/39	14/61	None
JH3-129	11/41	21/43	28/39	31/34	37/33	11/39	15/61	None
JH3-131	11/41	21/43	28/39	31/34	37/33	11/39	15/58	None
JH3-132	11/37	22/41	28/37	30/29	42/41	11/39	15/58	None
JH3-137	11/41	21/43	28/39	31/34	37/33	11/39	14/59	None
JH3-141	11/37	22/41	28/37	30/29	42/41	11/39	15/58	None
JH3-142	11/41	21/43	28/39	31/34	37/33	11/39	15/61	None
JH3-143	11/41	21/43	28/39	31/34	37/33	11/39	15/61	None
JH3-144	11/41	21/43	28/39	31/34	37/33	11/39	15/61	None
JH3-145	11/37	22/41	28/37	30/29	42/31	11/39	16/57	None
JH3-150	11/37	22/41	28/37	30/29	42/41	11/39	15/58	None
JH3-154	11/41	21/43	28/39	31/34	37/33	11/39	16/61	None
JH3-155	11/41	21/43	28/39	31/34	37/33	11/39	15/58	None
JH3-156								
JH3-160	11/41	22/41	28/37	30/29	42/31	11/39	15/58	22/18
JH3-166	11/41	21/43	28/37	30/29	42/31	11/39	16/55	None
JH3-169	11/41	21/43	28/39	34/35	39/31	11/39	14/59	None

JA3 or JA5 or JH3 or JR5

Suffix	First	Second	Third	Fourth	Fifth	Reverse gear	Final drive	Tacho meter
JH3-170	11/41	21/43	28/39	34/35	39/32	11/39	14/63	None
JH3-171	11/37	22/41	28/37	34/35	39/31	11/39	15/61	None
JH3-172	11/41	21/43	28/39	31/34	37/33	11/39	15/61	None
JH3-173	11/41	21/43	28/39	31/34	37/33	11/39	15/61	None
JH3-174	11/37	22/41	28/37	30/29	42/31	11/39	15/68	None
JH3-175	11/37	22/41	28/37	30/29	42/31	11/39	15/68	None
JH3-176	11/41	21/43	28/39	34/35	39/32	11/39	14/61	None
JH3-177	11/41	21/43	28/39	31/34	37/33	11/39	15/61	None
JH3-179	11/41	21/43	28/39	31/34	37/33	11/39	15/68	None
JH3-183	11/41	21/43	28/39	34/35	39/32	11/39	14/59	None
JH3-184	11/41	21/43	28/39	34/35	39/32	11/39	15/58	None
JH3-185	11/41	21/43	28/39	34/35	39/32	11/39	15/58	None
JH3-186	11/41	21/43	28/39	34/35	39/32	11/39	15/58	None
JH3-187	11/41	21/43	28/39	34/35	39/32	11/39	15/58	None
JH3-189	11/37	22/41	28/37	30/29	42/31	11/39	15/56	None
JH3-190	11/37	22/41	28/37	30/29	42/31	11/39	15/56	None
JH3-193	11/41	21/43	28/37	30/29	42/31	11/39	16/55	None
JH3-199	11/41	21/43	28/39	34/35	39/32	11/39	14/59	None
JH3-309	11/41	21/43	28/39	34/35	39/32	11/39	15/58	None
JH3-312	11/41	21/43	28/37	30/29	42/31	11/39	16/57	None
JH3-313	11/41	21/43	28/37	30/29	42/31	11/39	16/57	None
JH3-315	11/41	21/43	28/37	30/29	42/31	11/39	16/57	None
JH3-321	11/41	21/43	28/39	34/35	39/31	11/39	14/59	22/18
JR5 manual gearbox								
JR5-003	11/37	22/41	28/37	34/35	39/32	11/39	15/61	None
JR5-004	11/41	21/43	28/37	35/34	41/31	11/39	16/55	None
JR5-008	11/41	21/43	29/39	31/34	37/33	11/39	15/58	None
JR5-015	11/41	21/43	28/39	31/34	37/33	11/39	15/58	None
JR5-016	11/41	21/43	28/37	35/34	41/31	11/39	16/55	None
JR5-017	11/41	21/43	28/39	31/34	37/33	11/39	15/61	None

JA3 or JA5 or JH3 or JR5

Suffix	First	Second	Third	Fourth	Fifth	Reverse gear	Final drive	Tacho meter
JR5-018	11/37	22/41	28/37	34/35	39/32	11/39	15/61	None
JR5-113	11/41	21/43	28/37	35/34	41/31	11/39	16/57	None
JR5-116	11/41	21/43	28/37	35/34	41/31	11/39	16/55	21/19
JR5-124	11/41	21/43	28/37	35/34	41/31	11/39	16/55	None
JR5-126	11/37	21/41	28/37	35/34	42/31	11/39	15/58	21/19
JR5-144	11/37	21/41	28/37	35/34	42/31	11/39	15/58	21/18
JR5-145	11/41	21/43	28/37	35/34	41/31	11/39	16/55	21/19
JR5-147	11/41	21/43	28/37	35/34	42/31	11/39	15/58	22/18
JR5-149	11/41	21/43	28/39	31/34	42/31	11/39	15/58	22/18
JR5-151	11/41	21/43	28/37	35/34	39/31	11/39	14/63	22/18
JR5-152	11/41	21/43	28/37	35/34	39/32	11/39	14/63	None
JR5-156	11/41	21/43	28/37	35/34	39/32	11/39	15/58	None
JR5-158	11/41	21/43	28/37	35/34	42/31	11/39	15/61	22/18
JR5-165	11/41	21/43	28/37	35/34	42/31	11/39	14/69	22/18
JR5-166	11/41	21/43	28/37	35/34	42/31	11/39	16/57	22/18
JR5-168	11/41	21/43	28/37	35/34	41/31	11/39	14/69	None
JR5-169	11/41	21/43	28/37	35/34	42/31	11/39	14/73	22/18
JR5-170	11/41	21/43	28/37	35/34	42/31	11/39	14/69	22/18
JR5-171	11/41	21/43	28/37	35/34	39/32	11/39	14/63	None
JR5-172	11/41	21/43	28/39	31/34	37/33	11/39	14/63	22/18
JR5-173	11/41	21/43	28/37	35/34	39/32	11/39	14/61	None
JR5-175	11/41	21/43	28/37	34/35	39/32	11/39	15/56	None
JR5-176	11/41	22/41	28/37	35/34	42/31	11/39	15/56	None
JR5-183	11/41	21/43	28/37	35/34	39/32	11/39	14/59	None
JR5-184	11/41	21/43	28/37	35/34	39/32	11/39	15/58	None
JR5-185	11/41	21/43	28/37	35/34	41/31	11/39	17/56	None
JR5-187	11/41	21/43	28/37	35/34	39/32	11/39	14/69	None
JR5-189	11/41	21/43	28/37	35/34	41/31	11/39	14/59	None
JR5-193	11/41	21/43	28/37	35/34	41/31	11/39	1756	None
JR5-301	11/41	21/43	28/37	35/34	41/31	11/39	15/56	None

JA3 or JA5 or JH3 or JR5

Suffix	First	Second	Third	Fourth	Fifth	Reverse gear	Final drive	Tacho meter
JR5-302	11/41	21/43	28/37	35/34	41/31	11/39	14/69	None
JR5-308	11/41	21/43	28/37	31/29	45/31	11/39	18/57	None

TL4

GEAR RATIOS

Suffix	1st	2nd	3rd	4th	5th	6th	Final drive	Reverse gear
000	11/41	19/37	31/41	40/39	38/29	47/30	15/59	11/28
001	11/41	19/37	31/41	40/39	38/29	47/30	15/56	11/28
002	11/41	19/37	31/41	40/39	38/29	47/30	16/57	11/28
003	11/35	19/37	29/43	34/41	38/39	39/34	16/69	11/23
008	11/37	19/37	28/39	35/39	35/32	43/33	15/59	11/25
013	11/41	19/37	31/41	40/39	38/29	47/30	15/59	11/28
014	11/41	19/37	31/41	40/39	38/29	47/30	15/59	11/28
015	11/41	19/40	31/45	35/39	35/32	43/33	16/71	11/28
016	11/41	19/40	31/45	35/39	35/32	43/33	16/71	11/28
017	11/37	19/37	28/39	35/39	35/32	43/33	16/69	11/25
018	11/41	19/37	31/41	40/39	38/29	47/30	16/66	11/28
019	11/41	19/40	31/45	35/39	35/32	43/33	15/71	11/28
020	11/41	19/40	31/45	35/39	35/32	43/33	16/71	11/28
021	11/41	19/40	31/45	35/39	35/32	43/33	15/71	11/28
022	11/41	19/37	31/41	40/39	38/29	47/30	15/59	11/28
024	11/35	19/37	29/43	34/41	35/34	37/30	16/69	11/23
026	11/41	19/37	29/43	40/39	38/29	47/30	15/59	11/28
027	11/41	19/37	31/41	40/38	39/29	47/30	14/59	11/28
028	11/41	19/40	31/45	35/28	39/34	41/30	14/64	11/28
029	11/41	19/40	31/45	38/39	35/32	43/33	15/71	11/28
030	11/41	19/40	31/45	35/39	35/32	41/30	16/71	11/28
031	11/37	19/40	27/41	34/41	35/34	37/30	16/69	11/23
032	11/37	19/37	28/39	35/39	35/32	43/33	16/66	11/28
033	11/37	19/37	28/39	35/39	35/32	43/33	16/69	11/28
034	11/41	19/37	31/41	40/39	38/29	47/30	16/66	11/39
035	11/41	19/40	31/45	35/39	35/32	43/33	16/69	11/28
036	11/41	19/40	31/45	35/38	39/34	41/30	14/64	11/28
037	11/41	19/40	31/45	35/28	39/34	41/30	15/71	11/28

Manual gearbox: Specifications

TL4

Suffix	1st	2nd	3rd	4th	5th	6th	Final drive	Reverse gear
038	11/41	19/40	31/45	35/39	35/32	43/33	14/64	11/28
039	11/37	19/37	28/39	35/39	35/32	43/33	16/69	11/25
040	11/41	19/37	31/41	40/39	38/29	47/30	15/56	11/28
041	11/41	19/37	31/41	40/39	38/29	47/30	16/66	11/39
042	11/41	19/40	31/45	35/39	35/32	41/30	15/71	11/39
045	11/41	19/37	31/41	40/39	38/29	47/30	15/59	11/28

JH3 or JR5

Equipment required
component jack

Tightening torques ▽	
lower gearbox bell housing bolts	**44 N.m**
upper gearbox bell housing bolts	**44 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

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

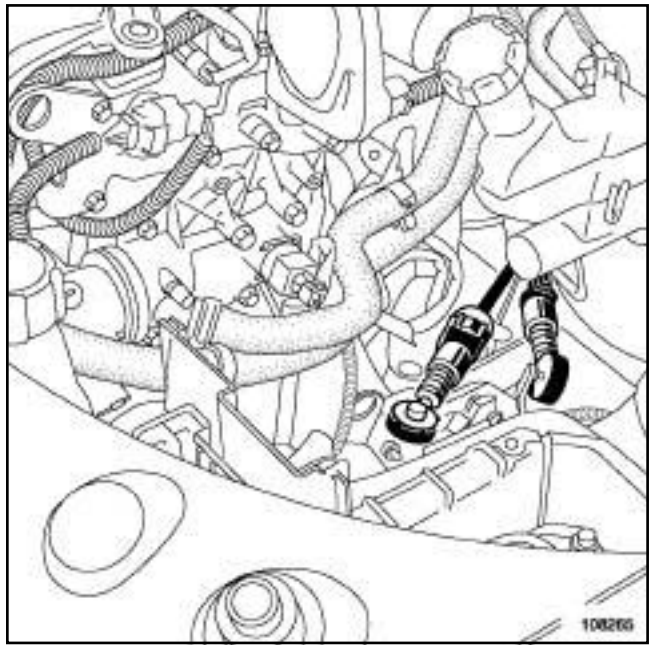
IMPORTANT
During this operation, secure the vehicle to the lift with a strap, to avoid any imbalance.

For strapping the vehicle (see **02A, Lifting equipment, Vehicle: Towing and lifting**).

❏ Remove:

- the battery (see **Battery: Removal - Refitting**) ,
- the battery tray (see) ,
- the air inlet duct,
- the air filter unit (see **Air filter unit: Removal - Refitting**) ,
- the front wheels (see **Wheel: Removal - Refitting**) ,
- the front wheel arch liners (see **MR 393 Bodywork, 55A, Exterior protection, Front wheel arch liners: Removal - Refitting**).
- the engine undertray.

❏ Drain the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .



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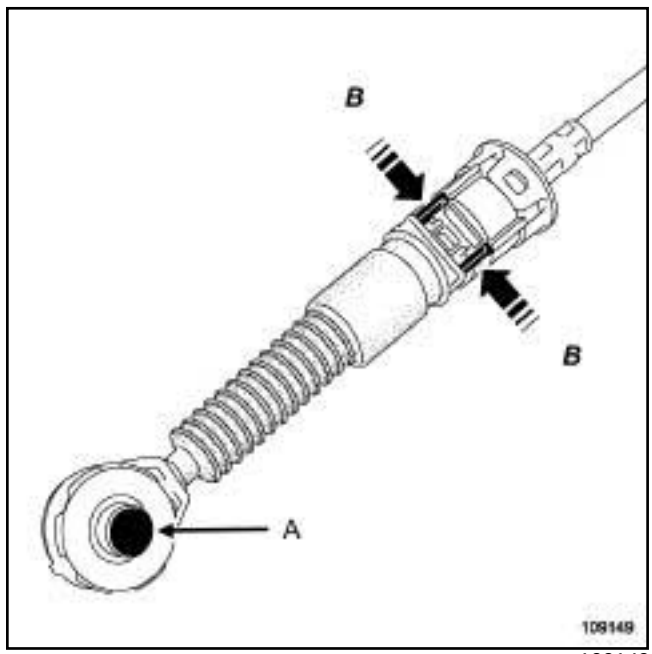

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❏ Remove:

- the gear control cables from the gearbox by pressing at (**A**) ,
- the gearbox control cable sleeve stops by pressing at (**B**) .

❏ Disconnect the anti-lock braking system sensor connectors.

❏ Remove:

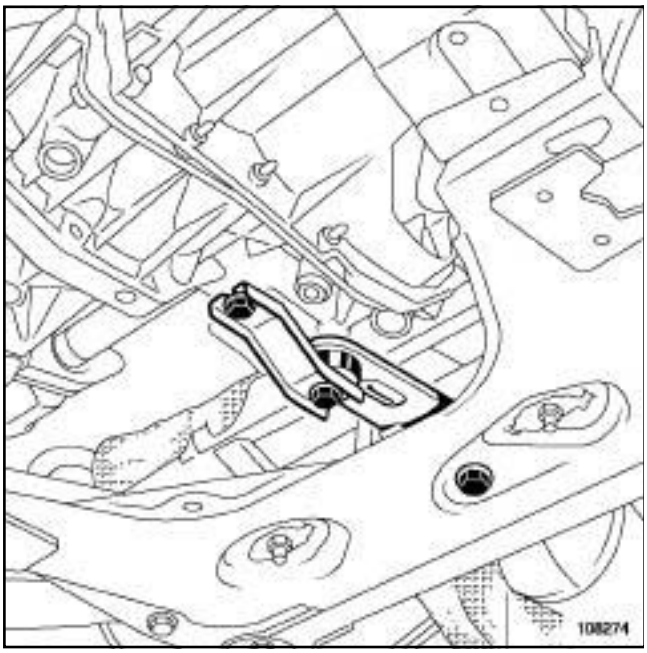
- the left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,

JH3 or JR5

- the right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) .

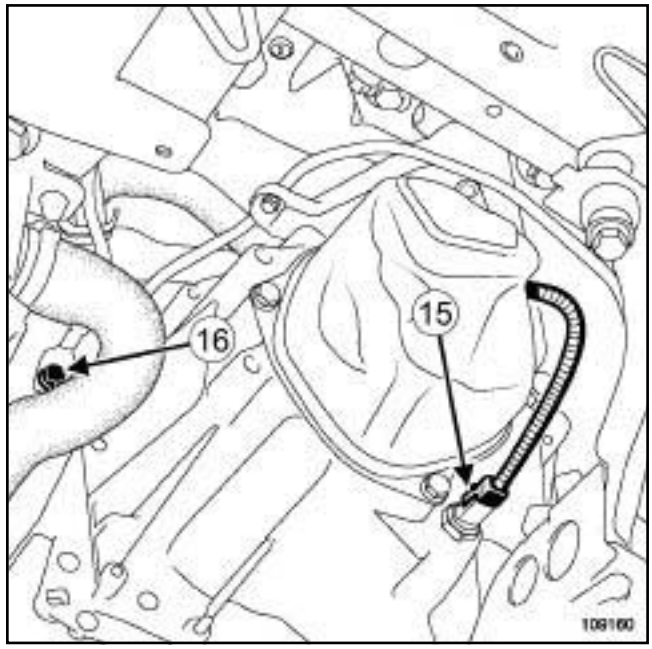
❑ Attach the radiator assembly to the upper cross member.

❑ Remove the radiator support cross member (see **MR 393 Bodywork, 41A, Front lower structure, Radiator support cross member: Removal - Refitting**).



108274

❑ Remove the engine tie-bar with its reinforcement (see **Lower engine tie-bar: Removal - Refitting**) .



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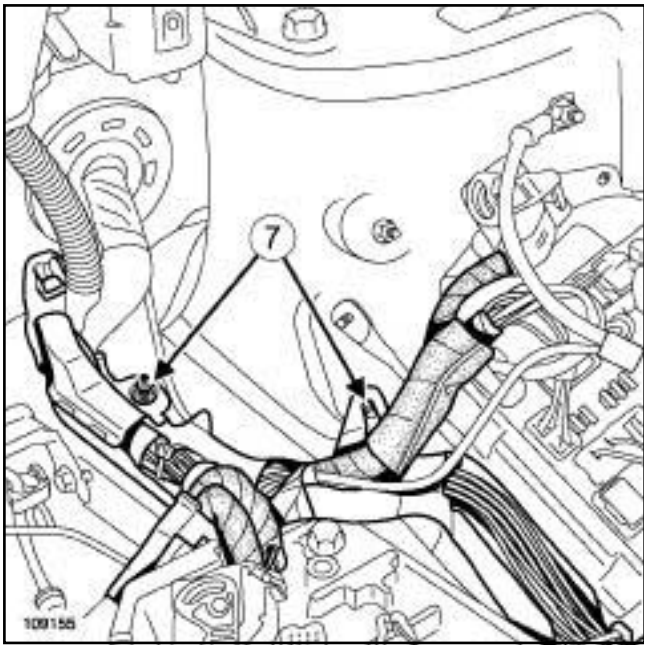
❑ Remove:

- the reverse gear connector (**15**) on the gearbox,
- the earth strap (**16**) from the gearbox.

❑ Remove:

- the starter (see **Starter: Removal - Refitting**) ,
- the TDC sensor,
- the cover of the Protection and Switching Unit,
- the injection computer (see **Petrol injection computer: Removal - Refitting**) ,
- the computer bracket mounting bolts bolts,
- the computer bracket.

JH3 or JR5



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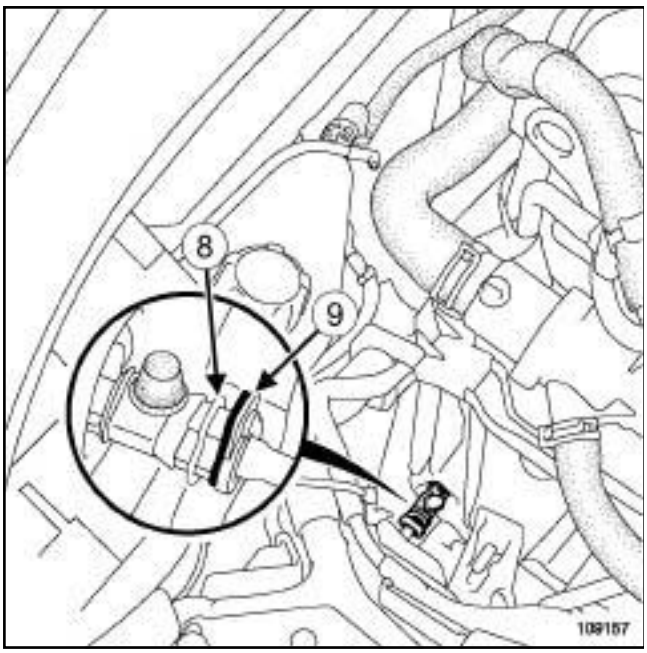
❏ Remove the mounting bolts (**7**) for the wiring duct on the body.

❏ Remove the wiring duct.

❏ Fit a hose clamp between the brake fluid reservoir and the clutch master cylinder.



109157

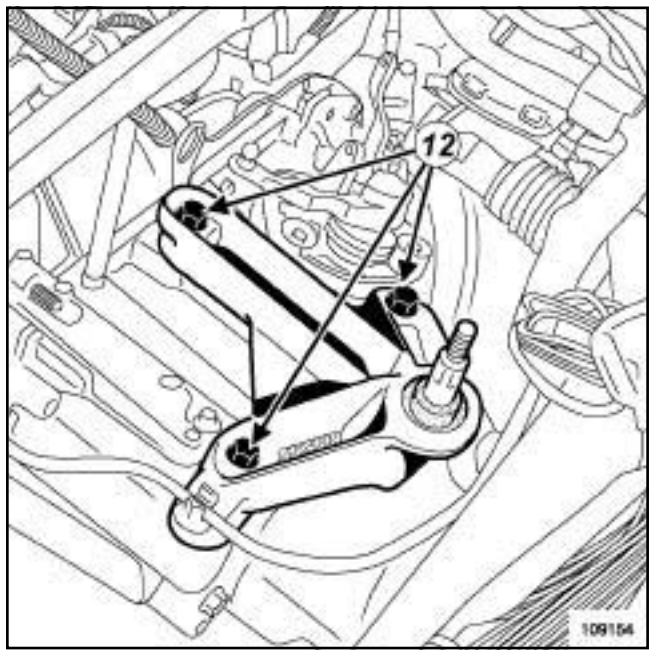
❏ Disconnect the clutch slave cylinder by pulling on the clips (**8**) , (**9**) .

❏ Collect the fluid in a container.

❏ It is essential to place protective plugs in the ends of the hoses.

❏ Remove:

- the scuttle panel grille (see **MR 393 Bodywork, 56A, Exterior protection, Scuttle panel grille: Removal - Refitting**).
- the scoop under the scuttle panel grille (see **393 56A, Exterior equipment, Scoop under scuttle panel grille: Removal - Refitting**).
- the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) .



109154

❏ Remove:

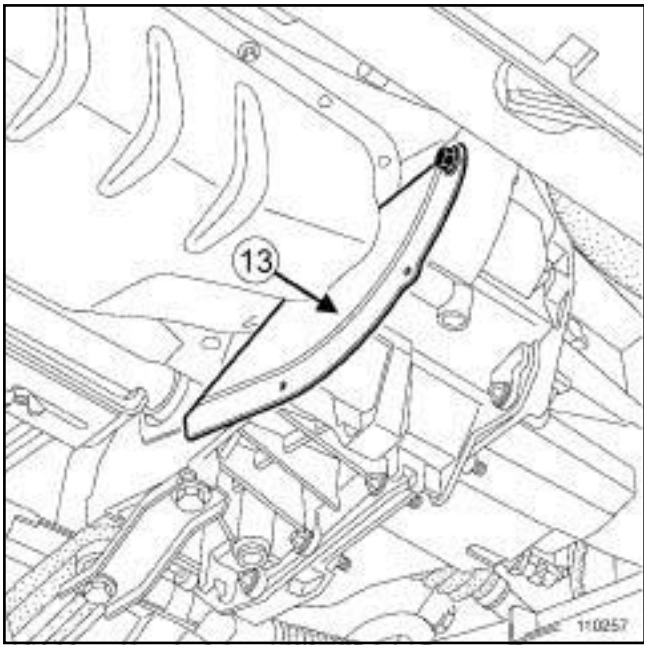
- the bolts (**12**) securing the gearbox support.
- the gearbox support.

II - OPERATION FOR REMOVAL OF PART CONCERNED

❏ Remove the upper gearbox bell housing bolts.

❏ Position the **component jack** under the gearbox.

JH3 or JR5



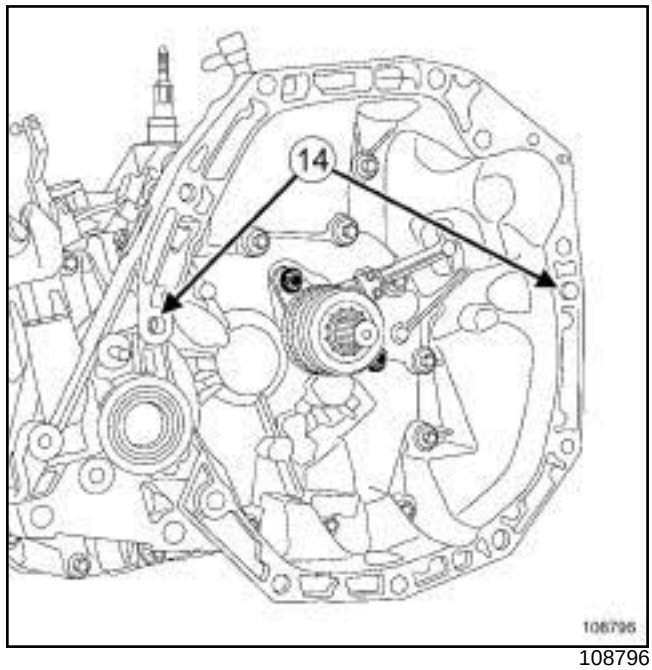
110257

❑ Remove:

- the flywheel cover (**13**) ,
- the lower gearbox bell housing bolts,
- the gearbox mounting studs,
- the gearbox.

REFITTING

I - REFITTING PREPARATION OPERATION



108796

❑ Check that the engine / gearbox centering rings (**14**) are present and correctly positioned.

WARNING

Do not grease:

- the transmission output shaft, so as not to damage the clutch slave cylinder,
- the clutch shaft splines.

Note:

- To avoid leaks, the clutch slave cylinder must always be replaced after the clutch pressure plate is replaced;
- Always replace the right-hand driveshaft circlip with a new one whenever it is removed.
- It is essential to replace the differential seals with new ones every time the driveshafts are removed.

II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the gearbox,
- the gearbox mounting studs,

JH3 or JR5

- the lower gearbox bell housing bolts,
- the flywheel cover.

❏ Tighten to torque the **lower gearbox bell housing bolts (44 N.m)**.

❏ Remove the **component jack** from underneath the gearbox.

❏ Refit the upper gearbox bell housing bolts.

❏ Tighten to torque the **upper gearbox bell housing bolts (44 N.m)**.

III - FINAL OPERATION

❏ Refit:

- the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) ,
- the scoop under the scuttle panel grille (see **393 56A, Exterior equipment, Scoop under scuttle panel grille: Removal - Refitting**).
- the scuttle panel grille (see **MR 393 Bodywork, 56A, Exterior protection, Scuttle panel grille: Removal - Refitting**).

❏ It is essential to remove the protective plugs from the ends of the hoses.

❏ Connect the clutch slave cylinder.

❏ Remove the hose clamp between the brake fluid reservoir and the clutch master cylinder.

❏ Refit:

- the wiring channel on the body,
- the mounting bolts for the wiring duct on the body.
- the earth strap on the gearbox,
- the computer mounting,
- the computer bracket mounting bolts bolts,
- the injection computer (see **Petrol injection computer: Removal - Refitting**) ,
- the reverse gear connector on the gearbox,
- the cover of the Protection and Switching Unit,
- the TDC sensor,
- the starter (see **Starter: Removal - Refitting**) ,
- the engine tie-bar with its reinforcement (see **Lower engine tie-bar: Removal - Refitting**) ,
- the radiator support cross member (see **MR 393 Bodywork, 41A, Lower front structure, Radiator support cross member: Removal - Refitting**).

❏ Detach the radiator assembly from the upper cross member.

❏ Refit:

- the left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,
- the right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) .

❏ Connect the ABS sensor connectors.

❏ Connect:

- the gearbox control cable sleeve stops on the gearbox,
- the gear control cables to the gearbox.

❏ Fill the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

❏ Refit:

- the engine undertray,
- the front wheel arch liners (see **MR 393 Bodywork, 55A, Exterior protection, Front wheel arch liners: Removal - Refitting**).
- the front wheels (see **Wheel: Removal - Refitting**) ,
- the air filter unit (see **Air filter unit: Removal - Refitting**) ,
- the air inlet duct,
- the battery tray (see) ,
- the battery (see **Battery: Removal - Refitting**) .

K9K, and TL4

Special tooling required	
Mot. 1453	Engine anchorage support with multiple adjustments and retaining straps.
Bvi. 1718	Component support plate for removal - refitting of gearboxes.

Equipment required
safety strap(s)
component jack

Tightening torques ▽	
nuts on the studs	**44 Nm**
gearbox bolts	**44 Nm**
exhaust strut bolt on the gearbox	**21 Nm**
exhaust strut nut on the gearbox	**21 Nm**
exhaust strut bolt on the catalytic converter	**21 Nm**
front axle subframe front left-hand bolt	**105 Nm**
tie-rod bolt	**21 Nm**
side stiffener bolts	**21 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

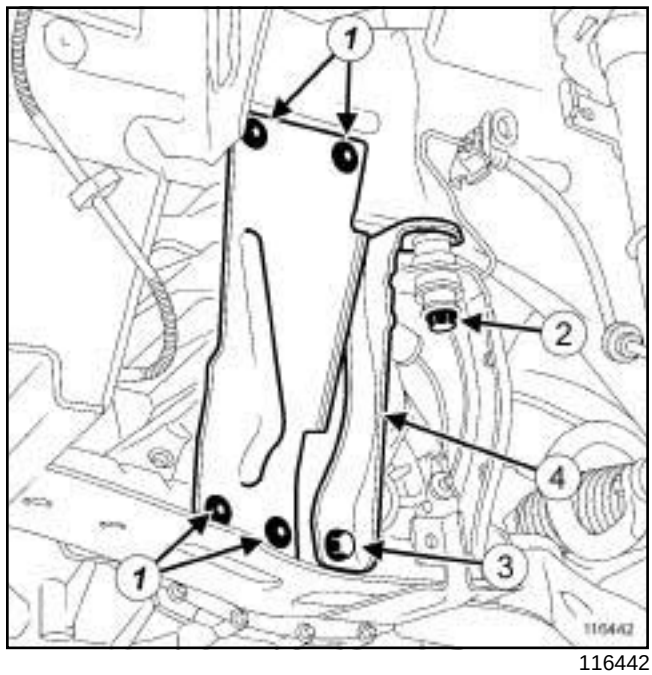
❏ Remove:

- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).
- the front wheels (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front section of the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- the engine undertray,
- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),

❏ Drain the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

❏ Remove:

- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) .



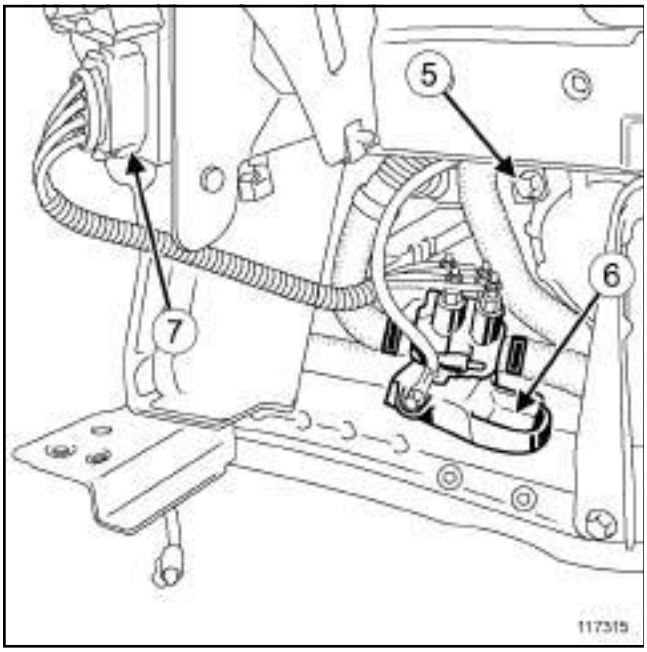
116442

❏ Remove:

- the side stiffener bolts (**1**) ,
- the front axle sub-frame front left-hand bolt (**2**) ,
- the tie-rod bolt (**3**) ,
- the tie rod (**4**) .

K9K, and TL4

K9K, and 772



117315

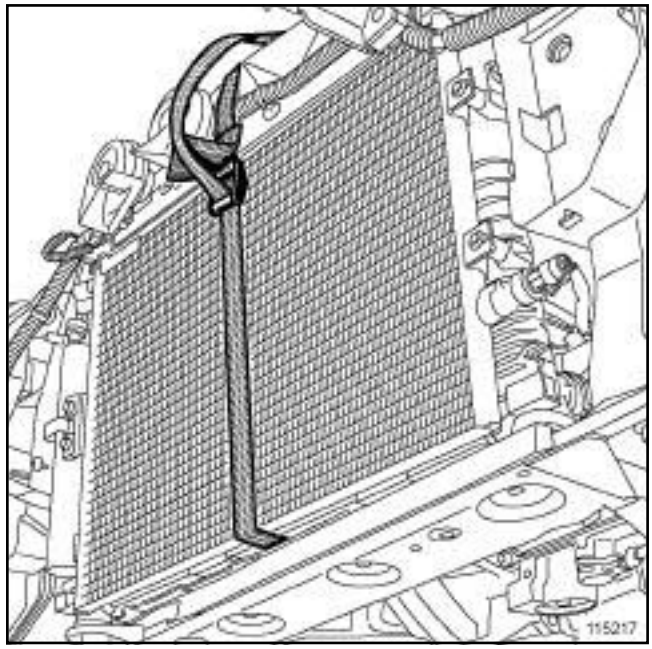
❏ Remove:

- the earth wiring bolt (**5**) ,
- the bolt (**6**) from the heating element and coolant pump support on the radiator mounting cross member.

❏ Disconnect the connector (**7**) from the heating element unit.

❏ Move the heating element and coolant pump support on the radiator mounting cross member to one side.

❏ Undo the radiator mounting cross member bolts (see **Radiator mounting cross member: General description**) (MR 393, 41A, Lower structure).



115217

❏ Attach the « cooling radiator - fan unit » assembly to the upper cross member using a **safety strap(s)**.

❏ Remove the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure).

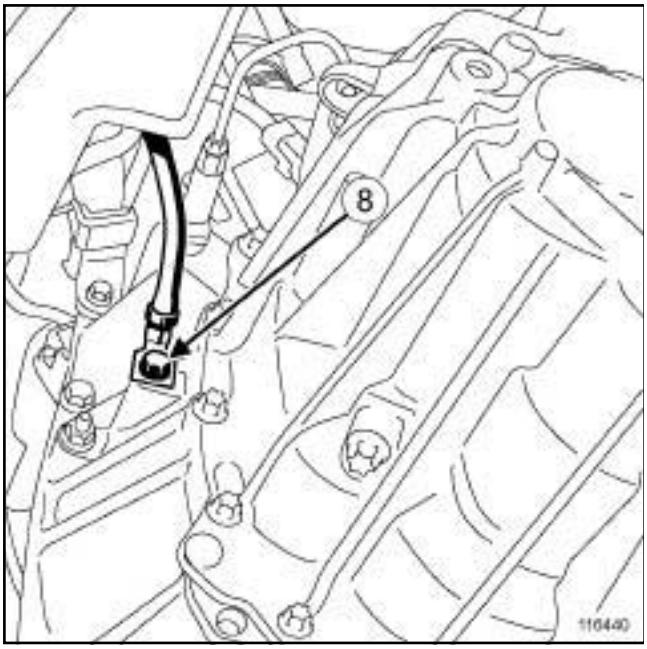
❏ Remove the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (MR 392, 19D, Engine mounting).

IMPORTANT

Having already removed the driveshafts, remove the front axle subframe without removing the lower ball joint nuts.

❏ Remove the front axle sub-frame (see **Front axle subframe: Removal - Refitting**) (MR 392, 31A, Front axle components).

K9K, and TL4



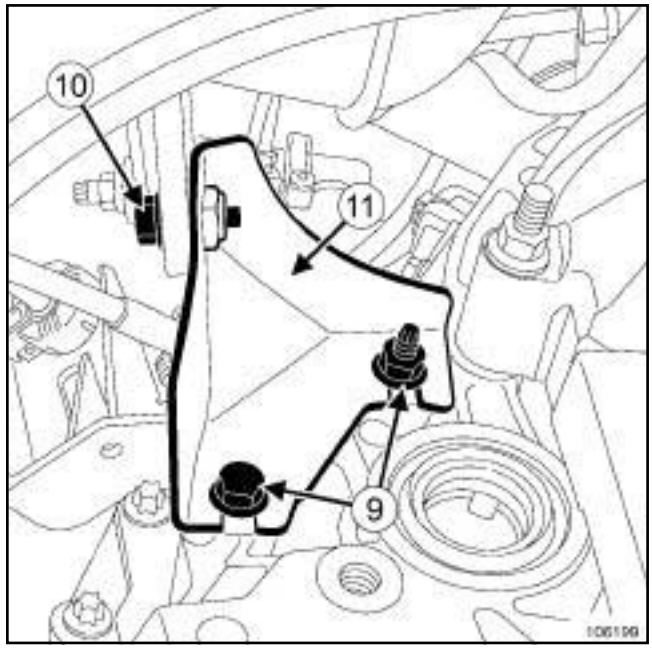
116440

❑ Remove the earth wiring bolt (**8**) .

Note:

Before removing the earth terminal, mark its position using an indelible marker by drawing a line on the earth terminal and on the gearbox casing.

When reassembling, improper positioning of the earth terminal on the gearbox casing could result in damage to the earth terminal or earth wiring.



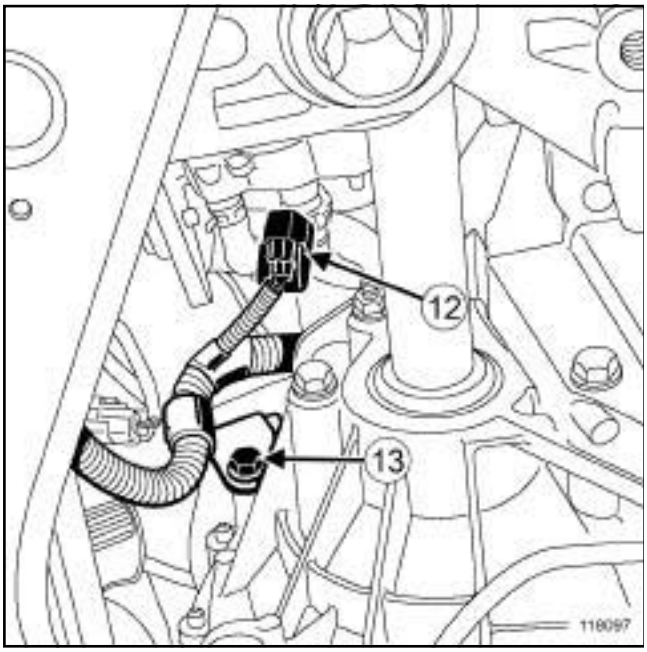
106199

❑ Remove:

- the bolt and the nut (**9**) on the gearbox,
- the bolt (**10**) on the catalytic converter,
- the exhaust strut (**11**) .

K9K, and TL4

K9K, and 772

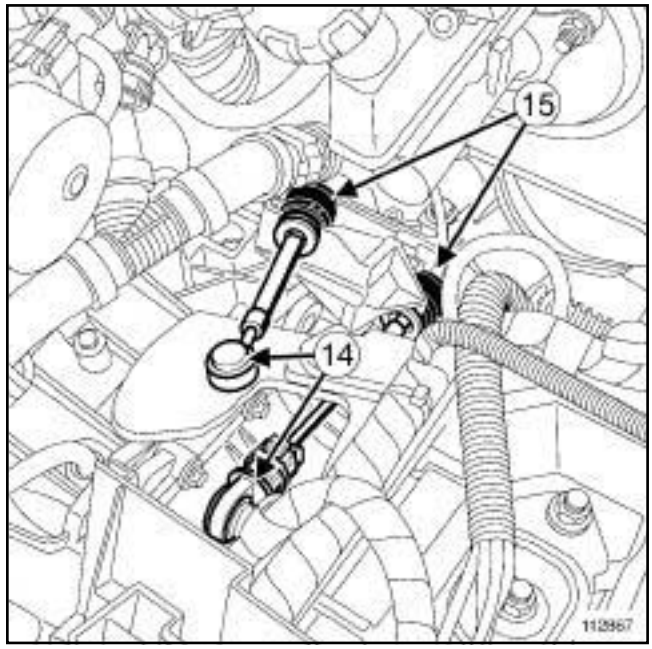


118097

❏ Disconnect the connector (**12**) from the diesel injector.

❏ Remove the bolt (**13**) from the diesel injector wiring harness strut.

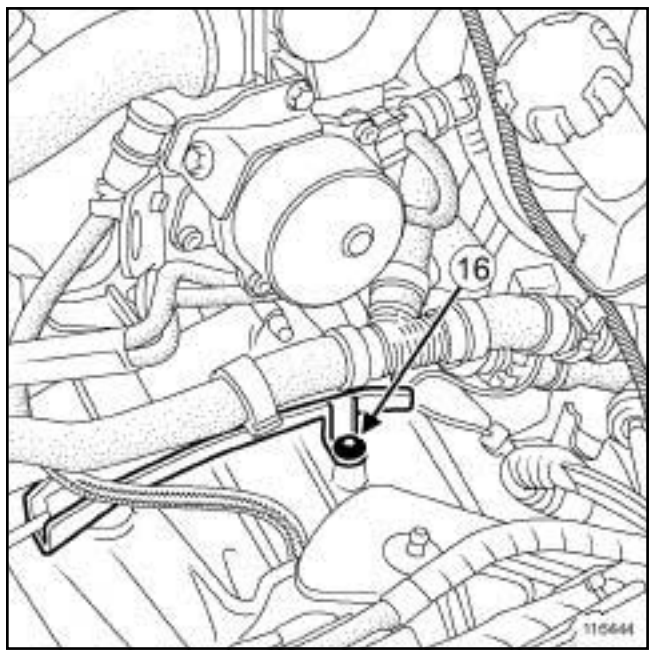
❏ Move the diesel injector wiring harness strut to one side.



112867

❏ Unclip:

- the gear control cables (**14**) from the gearbox using an open ended wrench,
- the gear control cable sleeve stops (**15**) from the gearbox,
- the expansion bottle (see **Expansion bottle: Removal - Refitting**) (MR 392, 19A, Cooling).



116444

❏ Remove the bolt (**16**) from the wiring harness channel on the gearbox.

❏ Remove the wiring harness channel.

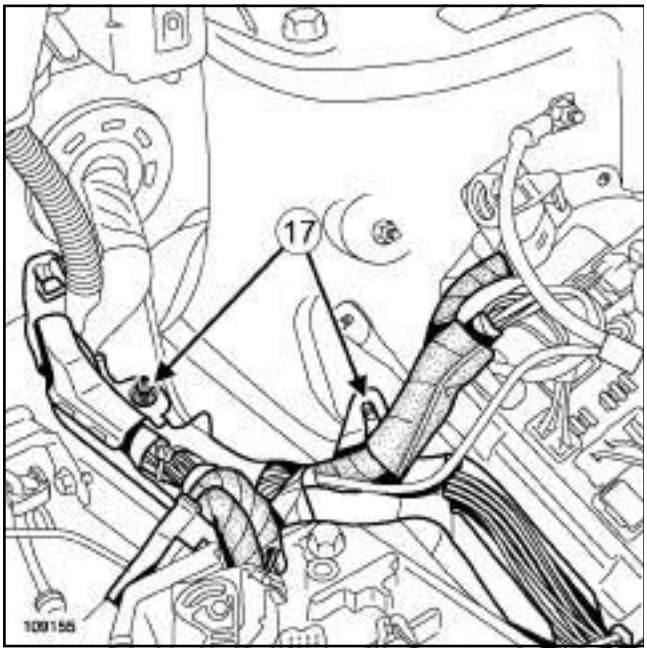
K9K, and TL4

❑ Remove:

- the starter (see **Starter: Removal - Refitting**) (MR 392, 16A, Starting - Charging),
- the engine speed and position sensor (see **Crankshaft position sensor: Removal - Refitting**) (MR 392, 13B, Diesel injection).

❑ Disconnect the coolant temperature sensor.

❑ Remove the injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection).



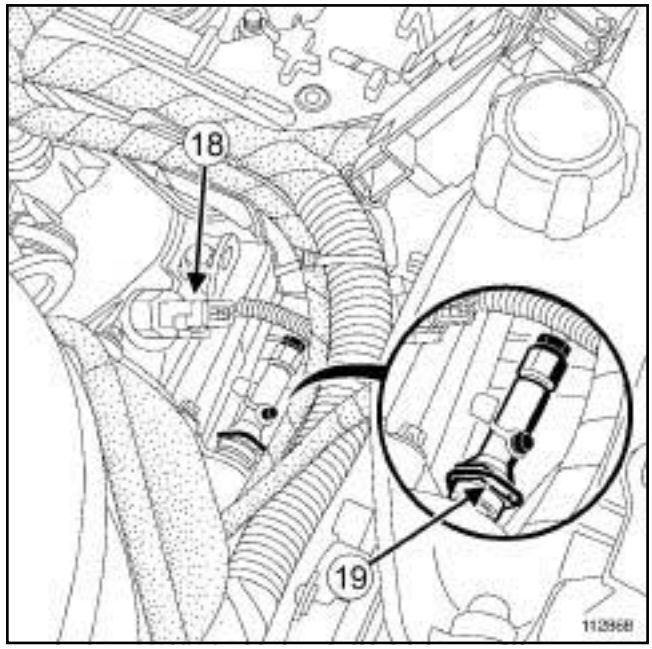
109155

❑ Remove the wiring channel bolts (**17**) on the body.

❑ Remove:

- the computer supporting bracket,
- the wiring channel.

❑ Fit a hose clamp between the brake fluid reservoir and clutch master cylinder.



112868

❑ Disconnect the connector (**18**) from the reversing sensor.

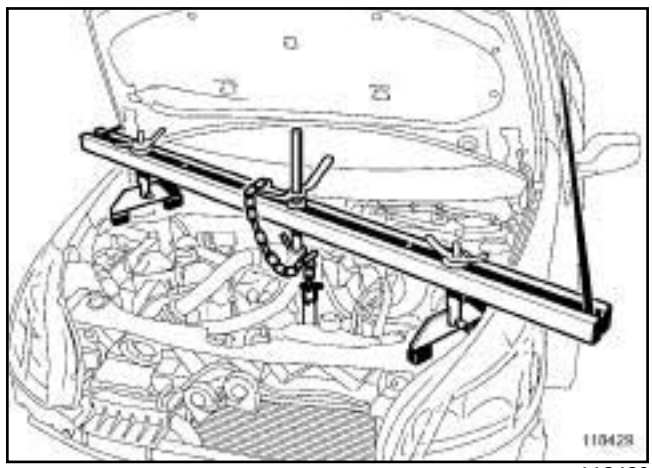
WARNING

Do not pull on the clip, any incorrect handling of the clip will mean that the clutch control pipes will have to be replaced.

❑ Disconnect the clutch slave cylinder by pressing on the clip (**19**) .

❑ It is essential to place protective plugs in the ends of the hoses.

❑ Unclip the breather pipe from the gearbox on the engine.


118429

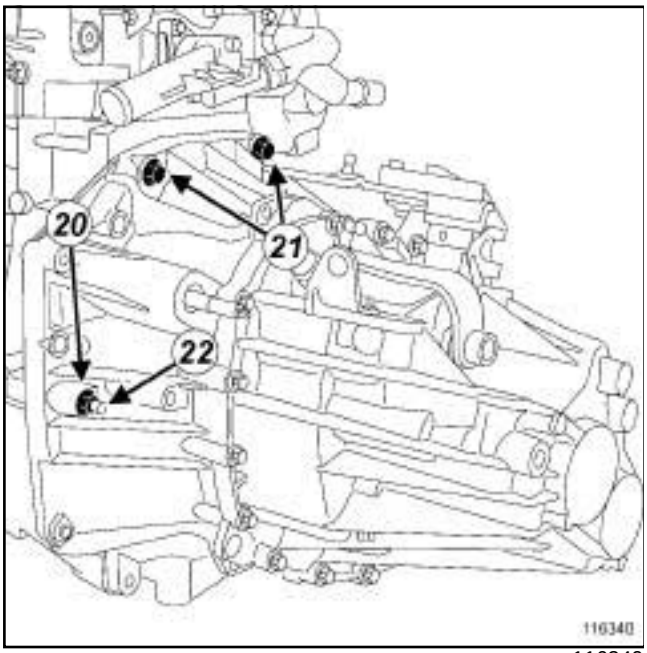
❑ Fit:

- the **(Mot. 1453)**,

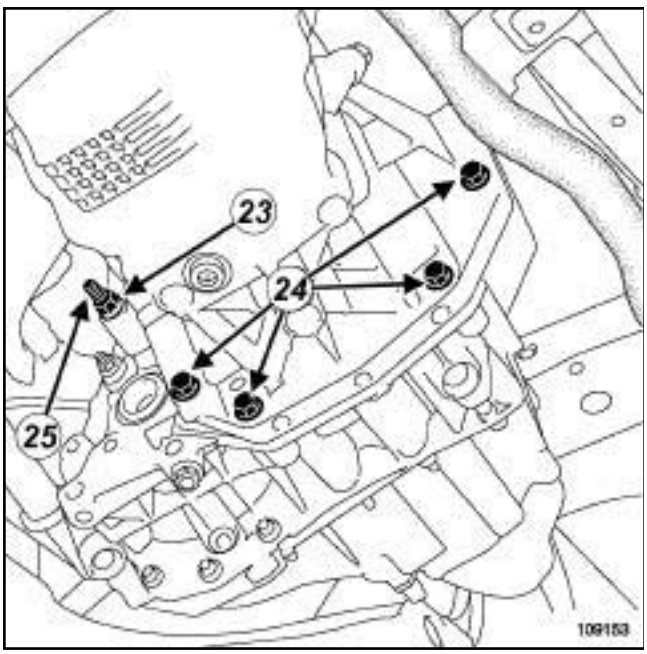
- the **safety strap(s)**.

❑ Remove the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (MR 392, 19D, Engine mounting).

II - OPERATION FOR REMOVAL OF PART CONCERNED



116340

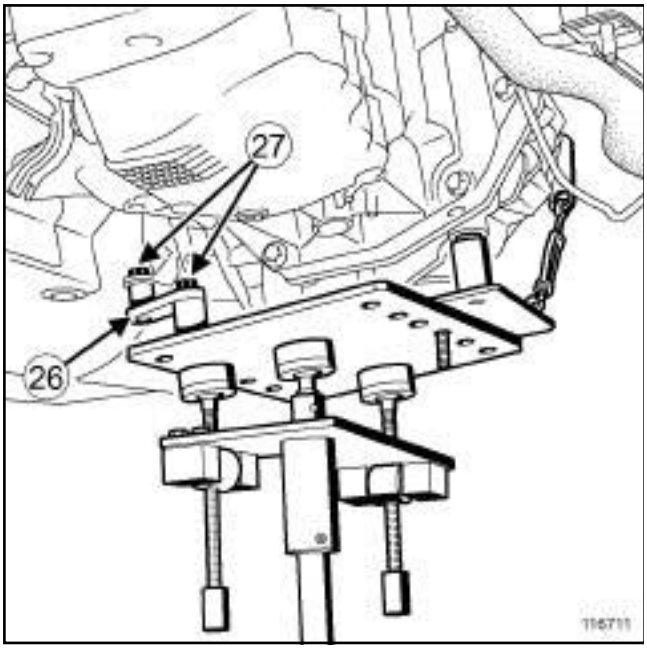


109153

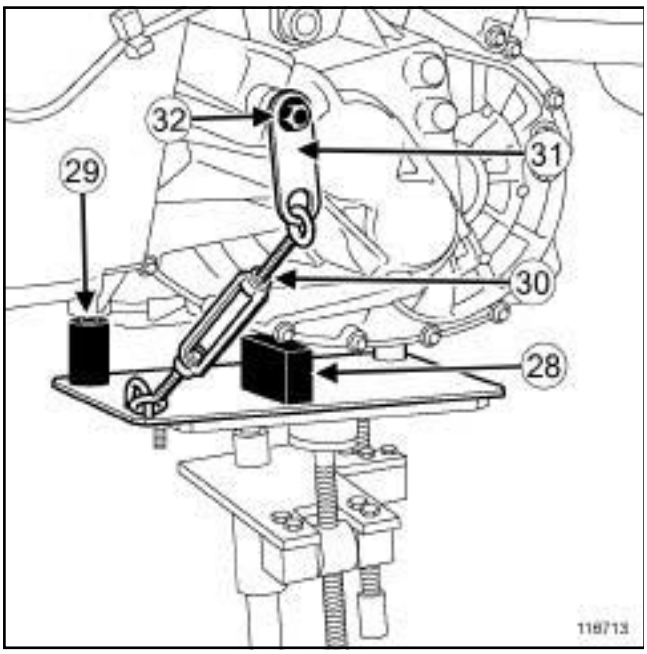
❑ Remove:

- the gearbox nuts (**23**) ,
- the gearbox bolts (**24**) ,
- the gearbox studs (**25**) .

K9K, and TL4



116711



116713

❑ Fit the **(Bvi. 1718)** on a **component jack**.

❑ Fit:

- the **(Bvi. 1718)** and the **component jack** under the gearbox,
- the bracket (**26**) using the nuts (**27**) ,
- the support (**28**) ,
- the pin (**29**) ,
- the rod (**30**) using the bracket (**31**) and the bolt (**32**) .

❑ Tighten the rod (**30**) anti-clockwise in order to avoid tilting the gearbox.

❑ Remove the gearbox using the **(Bvi. 1718)**.

REFITTING

I - REFITTING PREPARATION OPERATION

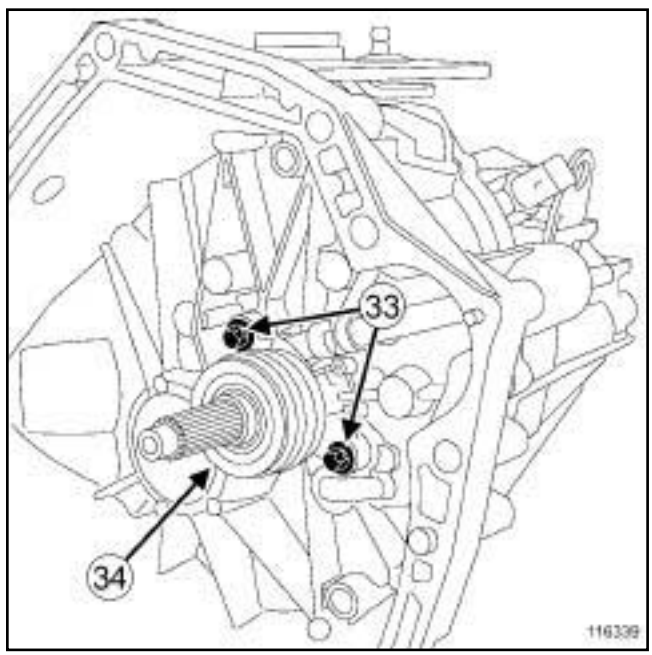
❑

WARNING
To avoid damaging the clutch slave cylinder, do not coat the gearbox output shaft with grease.

WARNING
Do not grease the clutch shaft splines.

WARNING
To prevent leaks, replace the slave cylinder after replacing the clutch pressure plate.

WARNING
It is essential to replace the differential output lip seal each time the driveshafts are removed.



116339

❑ Remove:

- the clutch hydraulic slave cylinder bolts (**33**) ,
- the clutch hydraulic slave cylinder (**34**) .

❑ Check that the engine-gearbox centering ringsare in place and correctly positioned.

K9K, and TL4

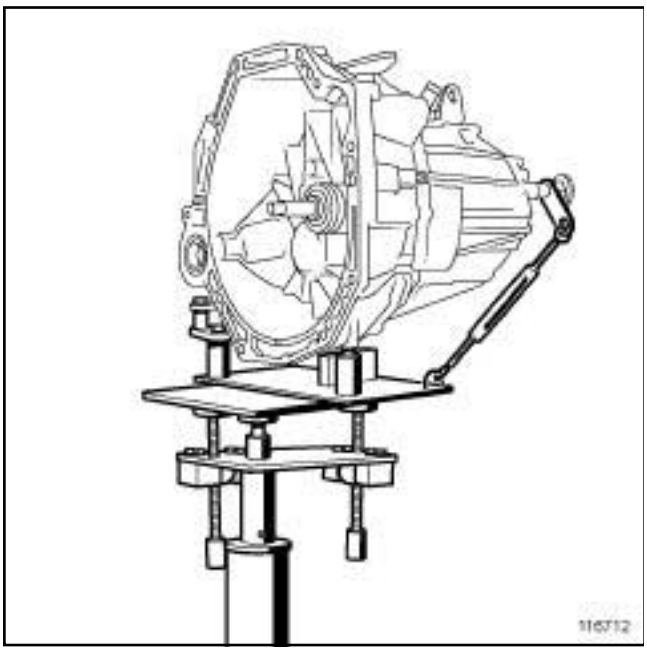
❑ Pre-fill the hydraulic slave cylinder using a syringe.

❑ Position the new clutch hydraulic slave cylinder.

❑ Refit the bolts for the clutch hydraulic slave cylinder.

❑ Replace the left and right-hand differential seals (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-46**) .

Replacing the gearbox



116712

❑

Note:

To fit the tool on the new gearbox, follow the same steps as for the removal operation.

❑ Fit the new gearbox on the **(Bvi. 1718)**.

II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the gearbox using the **(Bvi. 1718)**.

❑ Refit the gearbox studs.

❑ Fit without tightening:

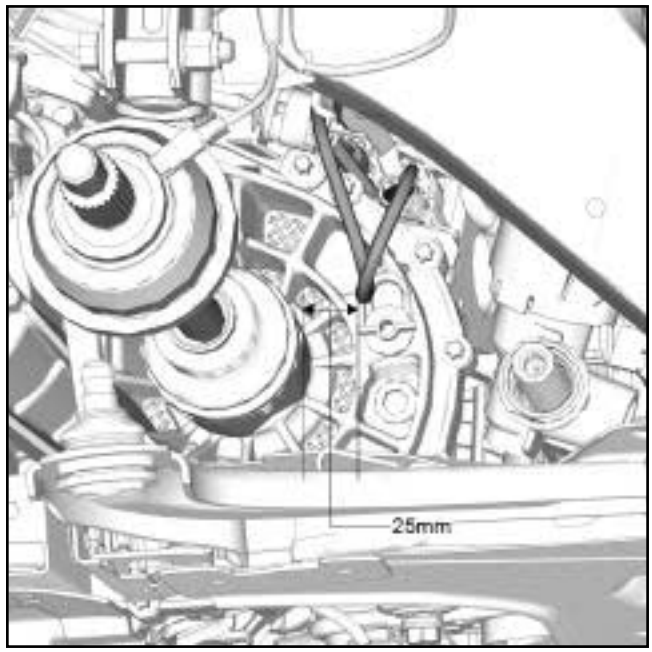
- the gearbox bolts,
- the nuts on the studs.

❑ Remove the **(Bvi. 1718)**.

❑ Tighten to torque:

- the **nuts on the studs (44 Nm)**,
- the **gearbox bolts (44 Nm)**.

III - FINAL OPERATION.



128087

❑

Note:

If equipped with the 5th injector.

After carrying out the operation, check that the dimension between the driveshaft and the hose for the 5th injector is at least 25mm.

To avoid damaging the hose.

❑ Connect:

- the hydraulic slave cylinder,
- the reverse gear connector.

❑ Remove the hose clamp.

❑ Bleed the hydraulic clutch control (see **Clutch circuit: Bleed**) (MR 392, 37A, Mechanical component controls).

❑ Refit:

- the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (MR 392, 19D, Engine mounting),
- the **(Mot. 1453)**,
- the **safety strap(s)**.

❑ Clip the breather pipe from the gearbox on the engine.

❑ Fit:

- the computer supporting bracket,

K9K, and TL4

- the wiring harness channel on the body.

❑ Refit:

- the wiring channel bolts on the body,
- the diesel injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection),

❑ Connect the coolant temperature sensor.

❑ Refit:

- the engine speed and position sensor (see **Crankshaft position sensor: Removal - Refitting**) (MR 392, 13B, Diesel injection).
- the starter (see **Starter: Removal - Refitting**) (MR 392, 16A, Starting - Charging),
- the wiring harness channel mounting on the gearbox.

❑ Clip:

- the expansion bottle (see **Expansion bottle: Removal - Refitting**) (MR 392, 19A, Cooling).
- the gearbox control cable sleeve stops on the gearbox,
- the control cables onto the gearbox.

K9K, and 772

❑ Fit the diesel injector wiring harness strut.

❑ the diesel injector wiring harness strut bolt.

❑ Connect the diesel injector connector.

❑ Fit the exhaust strut.

❑ Fit without tightening the exhaust strut bolts and nut.

❑ Tighten to torque:

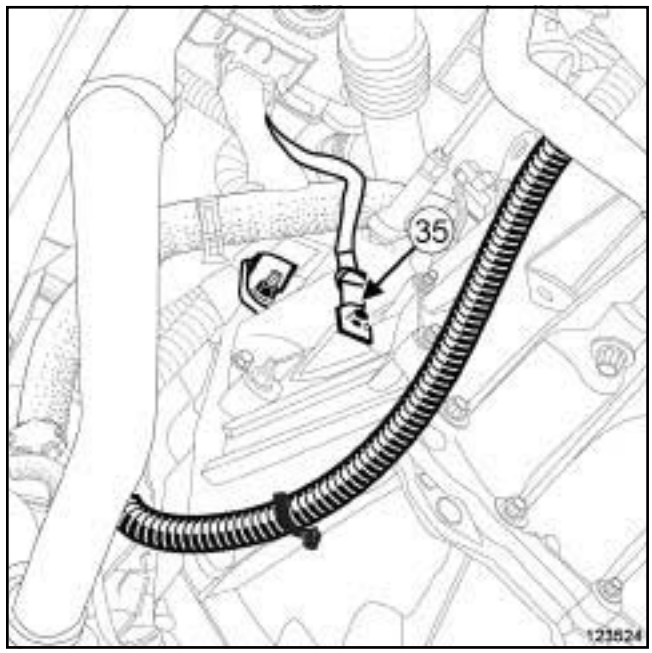
- the **exhaust strut bolt on the gearbox (21 Nm)**,
- the **exhaust strut nut on the gearbox (21 Nm)**,
- the **exhaust strut bolt on the catalytic converter (21 Nm)**.

❑ Refit:

- the tie rod,
- the front axle subframe front left-hand bolt,
- the tie-rod bolt,
- the side stiffener,
- the side stiffener bolts,

❑ Tighten to torque:

- the **front axle subframe front left-hand bolt (105 Nm)**,
- the **tie-rod bolt (21 Nm)**,
- the **side stiffener bolts (21 Nm)**.



123524

❑

Note:

Refit the earth terminal, aligning the indelible marks on the gearbox casing.

When reassembling, improper positioning of the earth terminal on the gearbox casing could result in damage to the earth terminal or earth wiring.

❑ The earth wiring must be refit as shown in the illustration.

❑ Refit the earth wiring bolt (**35**) to the manual gearbox.

❑ Tighten the earth wiring bolt (**35**) on the manual gearbox.

K9K, and TL4

❏ Refit:

- the front axle subframe (see **Front axle subframe: Removal - Refitting**) (MR 392, 31A, Front axle components).
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (MR 392, 19D, Engine mounting).,
- the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure).

❏ Detach the « cooling radiator - fan unit » assembly from the upper cross member.

K9K, and 772

❏ Position the heating element and electric coolant pump mounting on the radiator mounting cross member.

❏ Refit:

- the bolt from the heating element and coolant pump support on the radiator mounting cross member.
- the earth wiring bolt,

❏ Connect the connector to the heating element unit.

❏ Refit:

- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) ,
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) .

❏ Top up the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

❏ Refit:

- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the engine undertray,
- the front section of the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- the front wheels (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment).

F4R, and 830, and TL4

Special tooling required	
Mot. 1453	Engine anchorage support with multiple adjustments and retaining straps.
Bvi. 1718	Component support plate for removal - refitting of gearboxes.

Equipment required
component jack

Tightening torques ▽	
gearbox bell housing mounting bolts	**44 Nm**
gearbox bell housing mounting nuts	**44 Nm**
starter mounting bolts	**40 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❏ Use the lifting eye on the gearbox side and its mounting bolts (see **Lifting eyes: Removal - Refitting**) (MR 392, 11A, Top and front of engine).

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

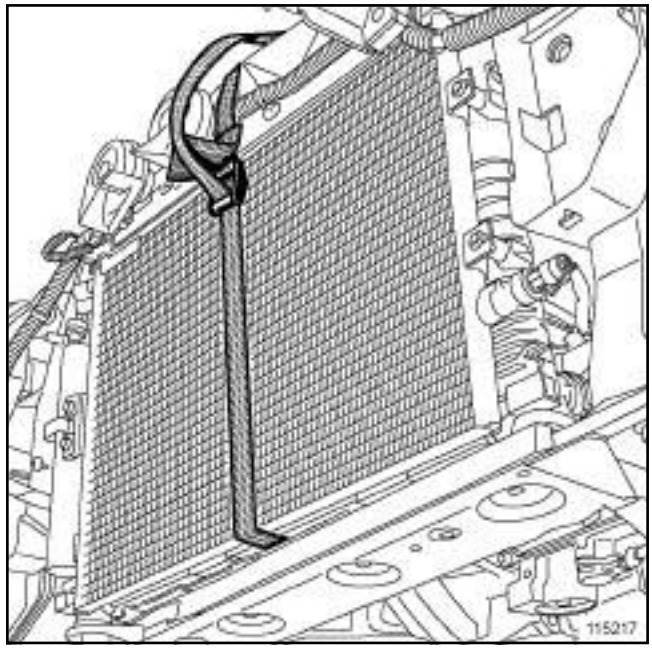
❏ Unclip the breather pipe from the gearbox.

❏ Remove:

- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).
- the battery tray bracket (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the front wheels (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),

❏ Drain the gearbox (see) .

❏ Remove the left-hand and right-hand driveshafts (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) .

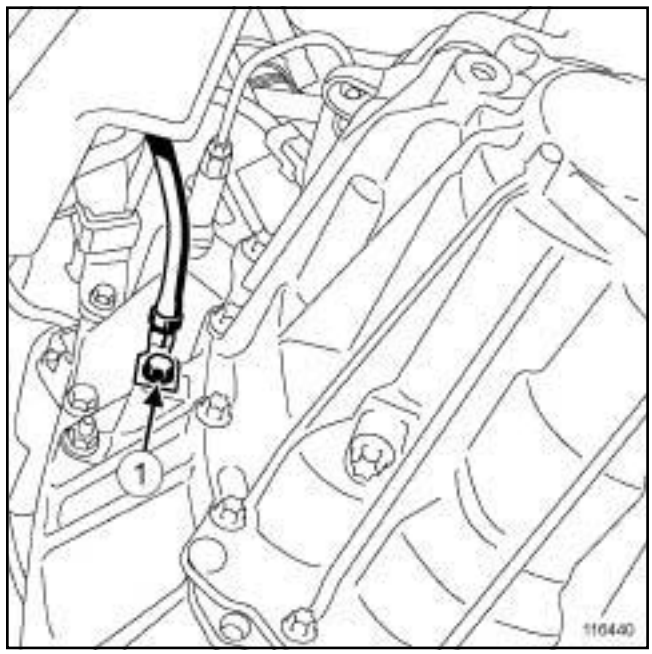


115217

❏ Strap the cooling unit in place.

❏ Remove:

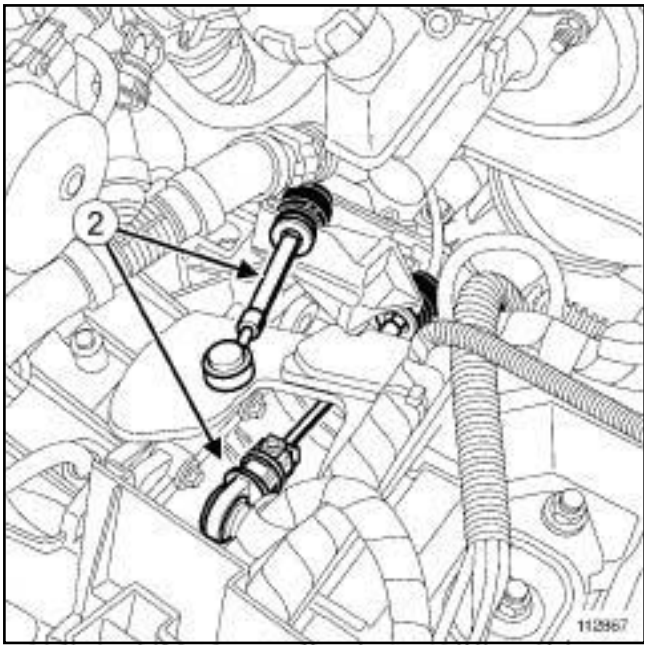
- the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure).
- the front axle sub-frame (see **Front axle sub-frame: Removal - Refitting**) (MR 392, 31A, Front axle components).



116440

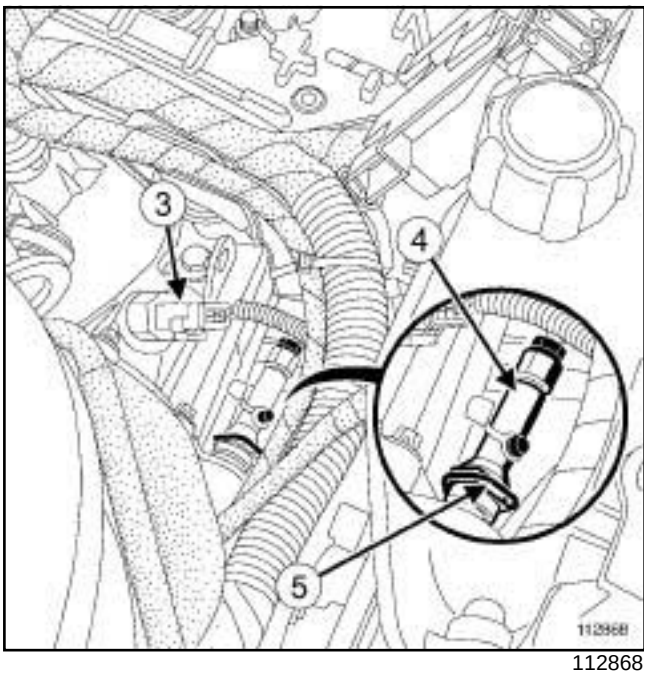
❏ Remove the earth strap mounting bolt (**1**) .

F4R, and 830, and TL4



112867

❏ Unclip the gearbox controls (**2**) .



112868

❏ Disconnect:

- the connector (**3**) from the reverse gear switch,
- the pipe (**4**) from the clutch slave cylinder by pushing on the clip (**5**) .

❏ Fit the lifting eye on the gearbox side (see **Lifting eyes: Removal - Refitting**) (MR 392, 11A, Top and front of engine).

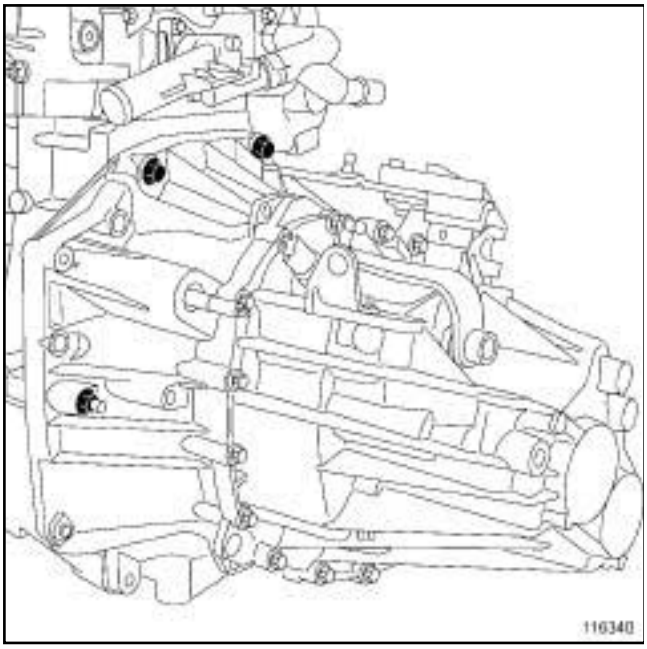
❏ Remove the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment).

❏ Fit the **(Mot. 1453)**.

II - OPERATION FOR REMOVAL OF PART CONCERNED

❏ Remove the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (MR 392, 19D, Engine mounting).

F4R, and 830, and TL4



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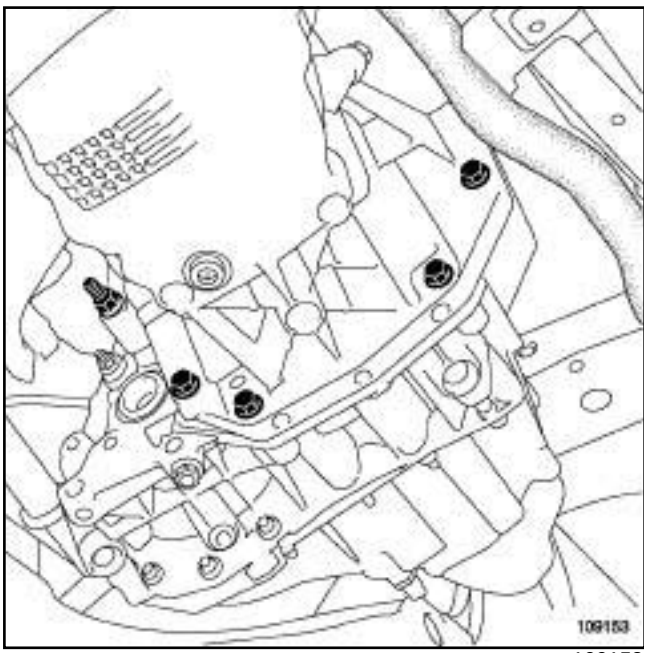


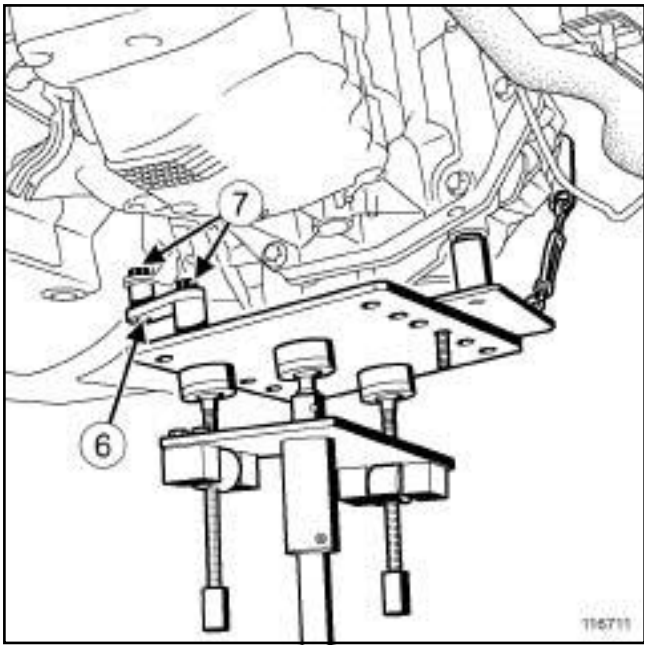
109153

❑ Remove:

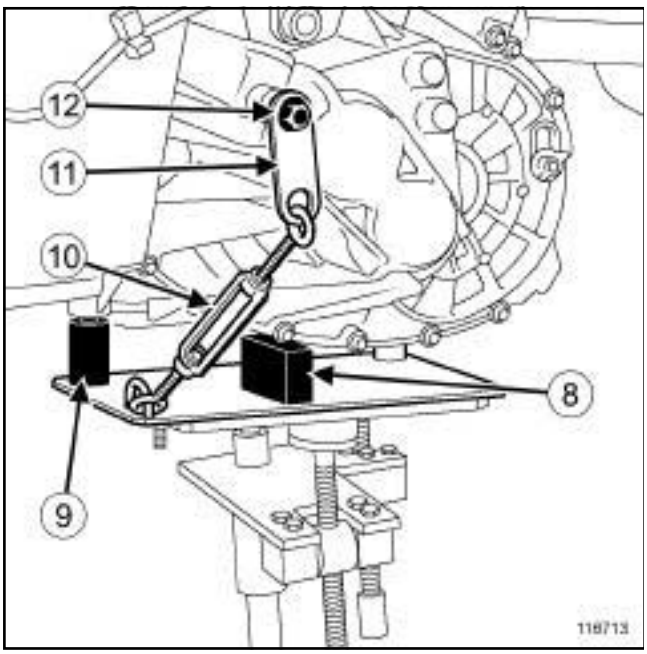
- the starter mounting bolts,
- the gearbox bell housing mounting nuts,
- the gearbox bell housing mounting bolts, leaving one mounting bolt in place,
- the gearbox mounting studs.

❑ Fit the **(Bvi. 1718)** on a **component jack**.

F4R, and 830, and TL4



116711



116713

❑ Fit:

- the **(Bvi. 1718)** and the **component jack** under the gearbox,
- the bracket (**6**) using mounting nuts (**7**) ,
- the support (**8**) ,
- the pin (**9**) ,
- the rod (**10**) using the bracket (**11**) and the mounting bolt (**12**) .

❑ Tighten the rod (**10**) in an anti-clockwise direction to prevent the gearbox from tilting.

❑ Remove:

- the remaining gearbox bell housing mounting bolt,
- the gearbox using the **(Bvi. 1718)**.

REFITTING

I - REFITTING PREPARATIONS OPERATION

❑

WARNING
Do not grease the clutch shaft splines.

WARNING
To prevent leaks, replace the slave cylinder after replacing the clutch pressure plate.

WARNING
It is essential to replace the differential output lip seal each time the driveshafts are removed.

❑ Replace the left-hand and right-hand differential output seals (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-46**) .

❑ Refit the gearbox mounting studs.

❑ Check the condition of the centring devices on the gearbox.

II - REFITTING OPERATION FOR PART CONCERNED

❑ Position the gearbox using the **(Bvi. 1718)**.

❑ Refit one gearbox bell housing mounting bolt.

❑ Remove the **(Bvi. 1718)** from the gearbox.

❑ Refit:

- the gearbox bell housing mounting bolts,
- the gearbox bell housing mounting nuts,
- the starter mounting bolts.

❑ Torque tighten:

- the **gearbox bell housing mounting bolts (44 Nm)**,
- the **gearbox bell housing mounting nuts (44 Nm)**,
- the **starter mounting bolts (40 Nm)**.

❑ Refit the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (MR 392, 19D, Engine mounting).

F4R, and 830, and TL4

❏ Remove:

- the **(Mot. 1453)**,
- the lifting eye on the gearbox side (see **Lifting eyes: Removal - Refitting**) (MR 392, 11A, Top and front of engine).

❏ Connect the clutch slave cylinder pipe.

❏ Refit the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment).

❏ Bleed the hydraulic clutch system (see **Clutch circuit: Bleed**) (MR 392, 37A, Mechanical component controls).

❏ Connect the reverse gear switch connector.

❏ Clip the gear controls into place.

❏ Refit the earth strap and its mounting bolt.

III - FINAL OPERATION.

❏ Refit:

- the front axle sub-frame (see **Front axle sub-frame: Removal - Refitting**) (MR 392, 31A, Front axle components).
- the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure).

❏ Remove the retaining belt from the cooling unit.

❏ Refit:

- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the left-hand and right-hand driveshafts (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) ,
- the front wheels (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the battery tray bracket (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).

❏ Clip the breather pipe onto the gearbox.

❏ Fill the gearbox (see) .

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

M4R, and TL4

Special tooling required	
Mot. 1453	Engine anchorage support with multiple adjustments and retaining straps.
Bvi. 1718	Component support plate for removal - refitting of gearboxes.

Equipment required
safety strap(s)
component jack

Tightening torques ▽	
gearbox bell housing bolts	**44 Nm**
gearbox bell housing nuts	**44 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

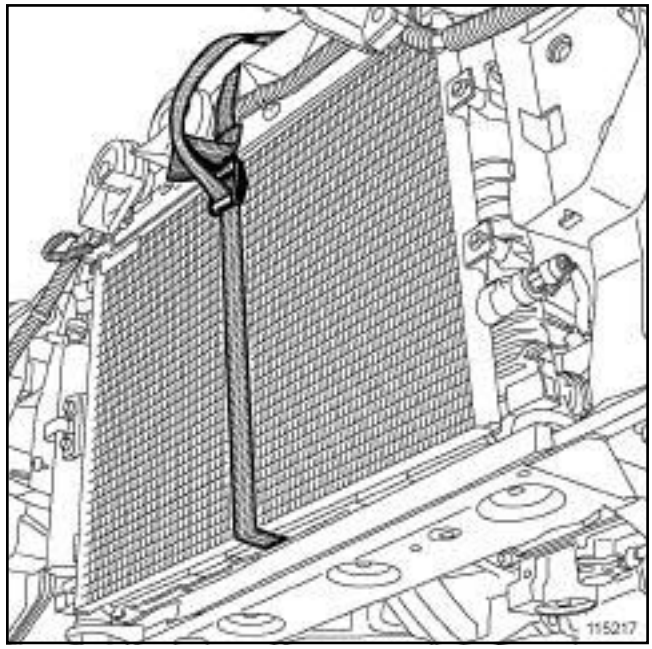
❏ Remove the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

❏ Remove:

- the battery tray bracket (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).
- the front wheels (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front section of the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),

❏ Drain the gearbox (see) .

❏ Remove the left-hand and right-hand driveshafts (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) and (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) .

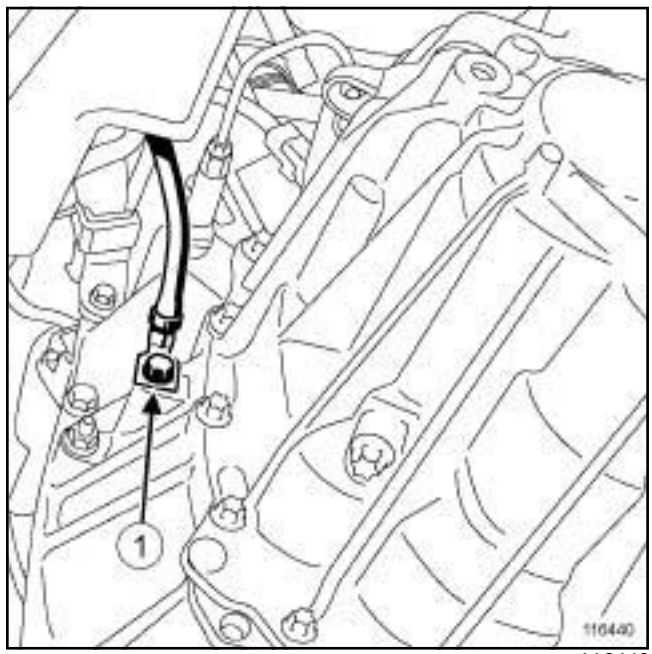


115217

❏ Attach the cooling assembly using a **safety strap(s)**.

❏ Remove:

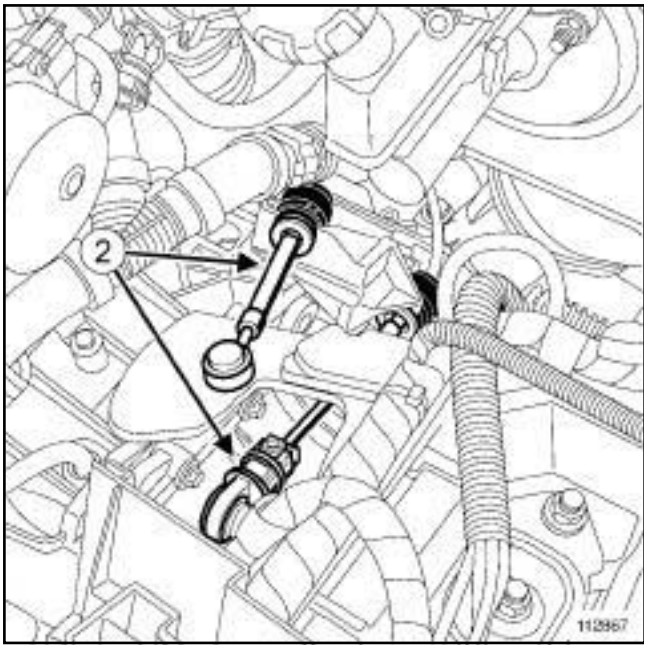
- the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure).
- the front axle sub-frame (see **Front axle sub-frame: Removal - Refitting**) (MR 392, 31A, Front axle components).



116440

❏ Remove the earth wiring bolt (**1**) .

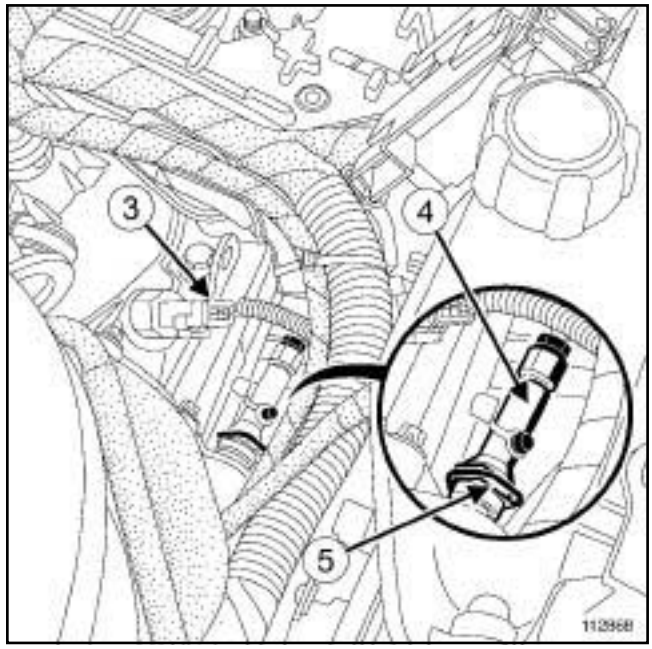
M4R, and TL4



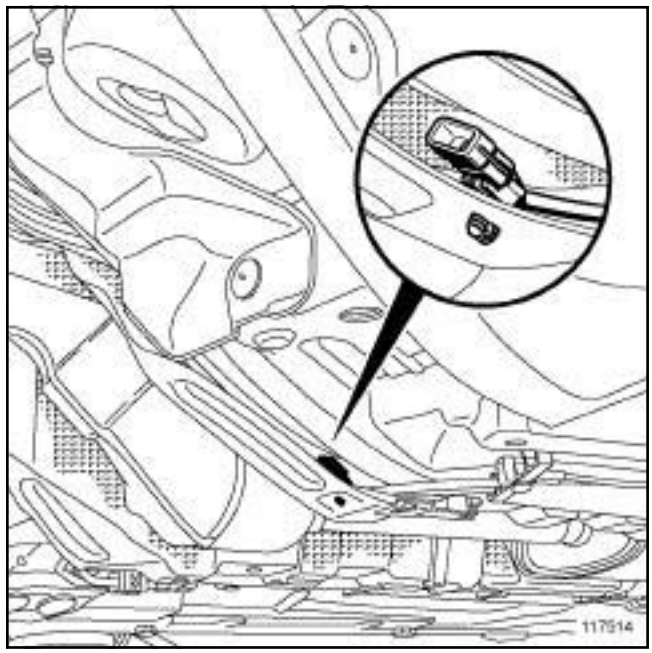
112867

❏ Unclip the gearbox controls (**2**) .

❏ Remove the wiring harness channel bolts.



112868



117514

❏ Disconnect:

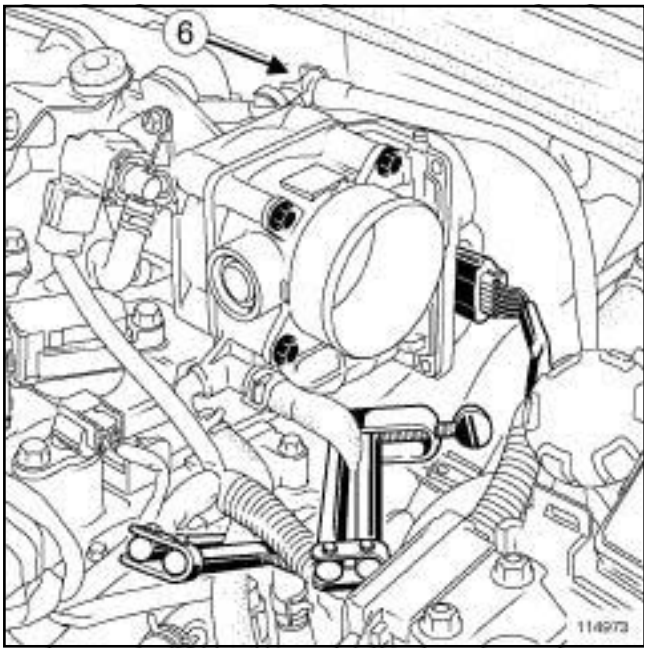
- the connector (**3**) from the reverse gear switch,
- the downstream oxygen sensor connector,
- the clutch control pipes (**4**) by pushing on the clip (**5**) .

❏ Remove:

- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment).

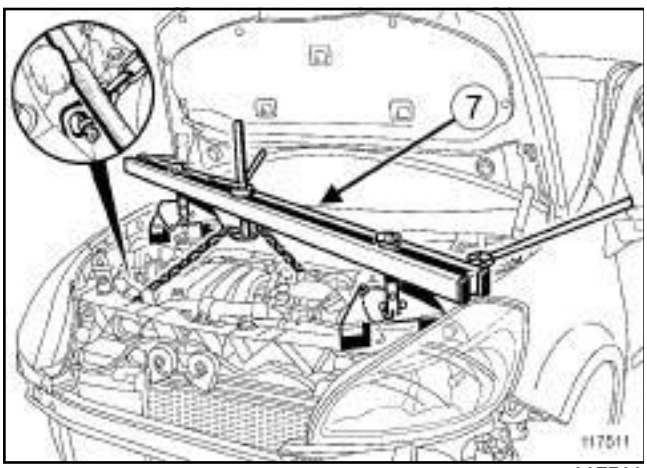
M4R, and TL4

- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment).



114973

❏ Disconnect the union (**6**) from the brake servo pipe on the vacuum pump.



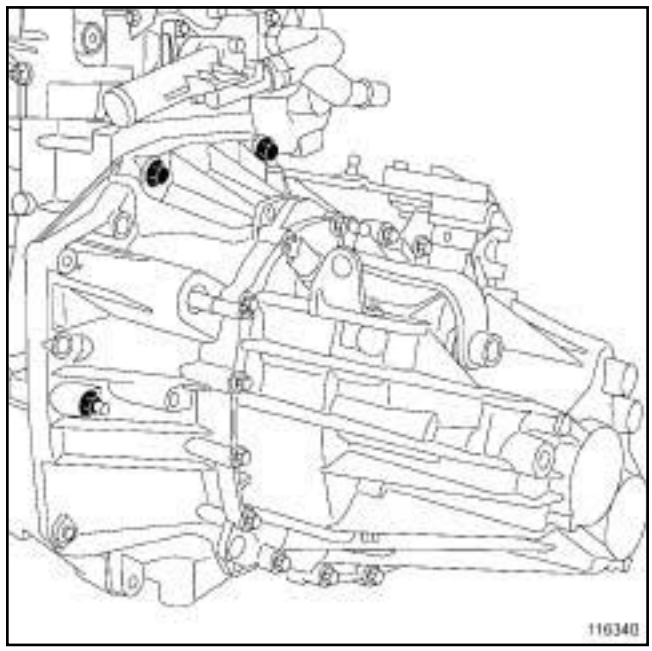
117511

❏ Position the **(Mot. 1453)** (**7**) .

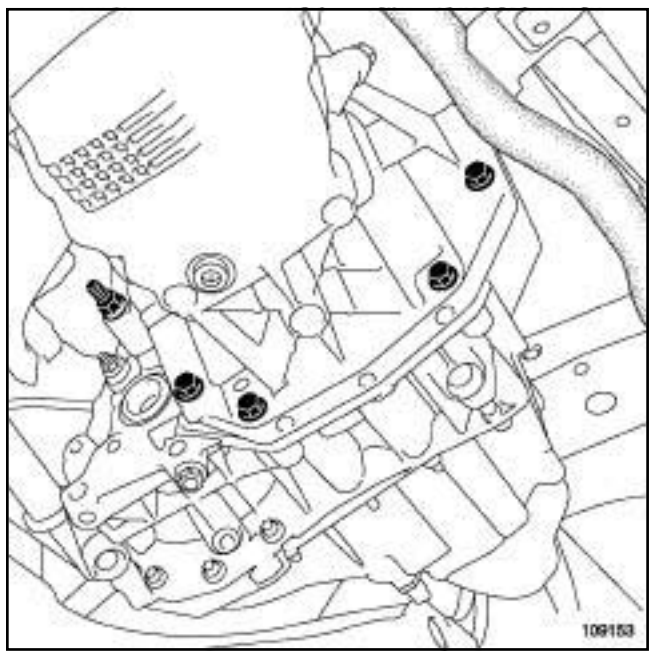
WARNING
Do not deform the air conditioning pipes.

II - OPERATION FOR REMOVAL OF PART CONCERNED

❏ Remove the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (MR 392, 19D, Engine mounting).



116340



109153

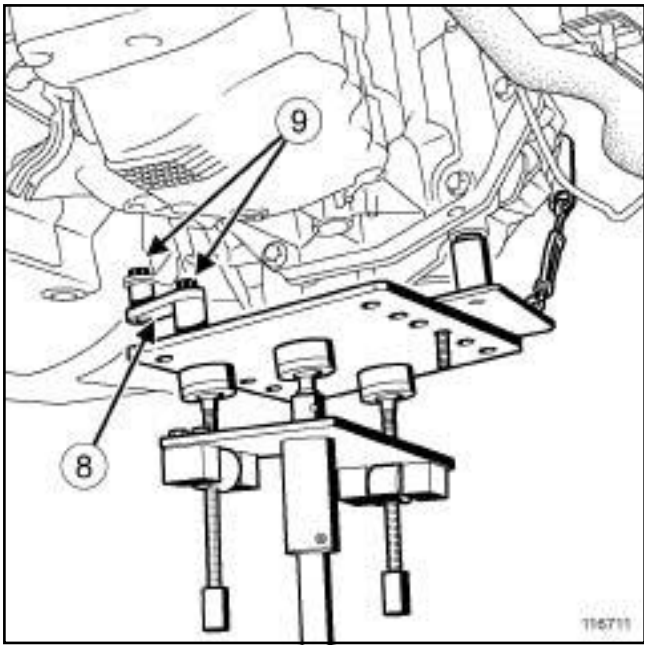
❏ Remove:

- the starter bolts (see **Starter: Removal - Refitting**) (MR 392, 16A, Starting - Charging),
- the gearbox nuts,
- the gearbox bolts, leaving one bolt in place,
- the gearbox studs.

❏ Unclip the breather pipe from the gearbox.

❏ Fit the **(Bvi. 1718)** on a **component jack**.

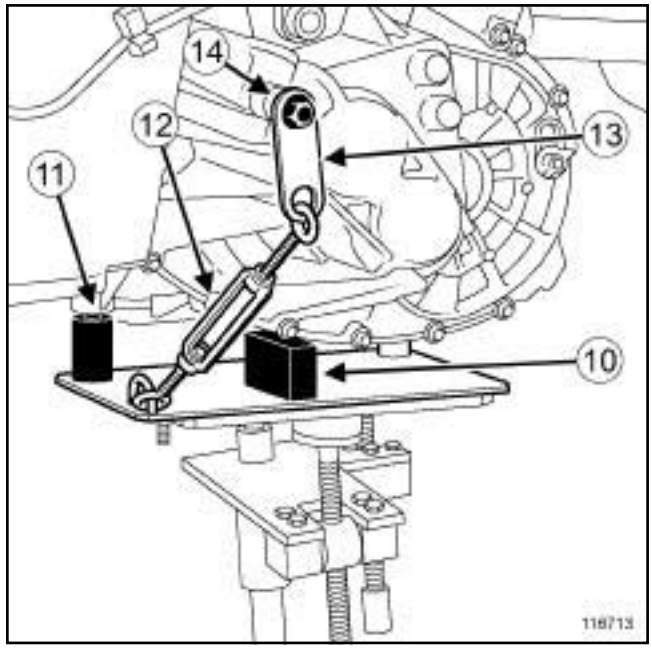
M4R, and TL4



116711

❏ Fit:

- the **(Bvi. 1718)** and the **component jack** under the gearbox,
- the bracket (**8**) using the nuts (**9**) ,



116713

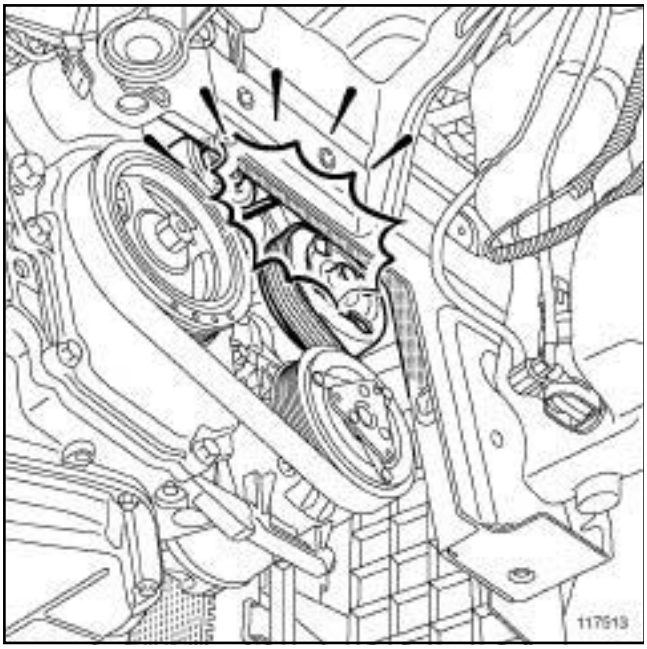
❏ Tap the hole (**14**) using a self-tapping bolt **(Part no.: 77 03 002 244)** to attach the gearbox to the support using the rod (**12**) .

❏ Fit:

- the shim (**10**) ,
- the shim (**11**) ,
- the rod (**12**) using the bracket (**13**) and the bolt (**14**) .

❏ Tighten the rod (**12**) in an anti-clockwise direction to prevent the gearbox from tilting.

M4R, and TL4



117513

❑

Note:

Check that the pulleys on the accessories side are not pressing against the side member on the right-hand side of the vehicle when the engine and transmission assembly is being lowered.

❑ Remove:

- the gearbox bolt,
- the gearbox using the **(Bvi. 1718)**.

REFITTING

I - REFITTING PREPARATIONS OPERATION

❑

WARNING
Do not grease the clutch shaft splines.

WARNING
To prevent leaks, replace the slave cylinder after replacing the clutch pressure plate.

WARNING
It is essential to replace the differential output lip seal each time the driveshafts are removed.

❑ Replace the left-hand and right-hand differential output seals (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-46**) .

❑ Refit the gearbox studs.

❑ Check the condition of the centring devices on the gearbox.

II - REFITTING OPERATION FOR PART CONCERNED

❑ Position the gearbox using the **(Bvi. 1718)**.

❑ Refit a gearbox bell housing bolt,

❑ Remove the **(Bvi. 1718)** from the gearbox.

❑ Refit:

- the gearbox bell housing bolts,
- the gearbox bell housing nuts,
- the starter bolts (see **Starter: Removal - Refitting**) (MR 392, 16A, Starting - Charging),

❑ Torque tighten:

- the **gearbox bell housing bolts (44 Nm)**,
- the **gearbox bell housing nuts (44 Nm)**,

❑ Refit the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (MR 392, 19D, Engine mounting).

❑ Remove the **(Mot. 1453)**.

❑ Refit the hose connected to the brake servo.

❑ Connect the clutch slave cylinder pipe.

❑ Refit:

- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment).
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment).

❑ Bleed the hydraulic clutch system (see **Clutch circuit: Bleed**) (MR 392, 37A, Mechanical component controls).

❑ Connect the reverse gear switch connector.

❑ Clip the gear controls into place.

❑ Refit:

- the wiring harness channel bolt,
- the earth wiring fitted with its bolt.

❑ Reposition the downstream oxygen sensor connector.

M4R, and TL4

III - FINAL OPERATION.

❑ Refit:

- the subframe (see **31A, Front axle component, Front axle subframe: Removal-Refitting**),
- the radiator mounting cross member (see **MR 393 Bodywork, 41A, Lower structure, Radiator mounting cross member: Removal - Refitting**).

❑ Remove the **safety strap(s)** from the cooling unit.

❑ Refit:

- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the left-hand and right-hand driveshafts (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) ,
- the front wheels (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).
- the battery tray bracket (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),

❑ Clip the breather pipe onto the gearbox.

❑ Top up the gearbox (see) .

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

K4M, and TL4

Special tooling required	
Ms. 583	Pipe clamps.
Bvi. 1718	Component support plate for removal - refitting of gearboxes.

Equipment required
indelible pencil
component jack

Tightening torques ▽	
gearbox nuts	**44 N.m**
gearbox bolts	**44 N.m**
front left-hand bolt of the front axle sub-frame	**105 N.m**
earth wiring bolt on the gearbox	**24 N.m**

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

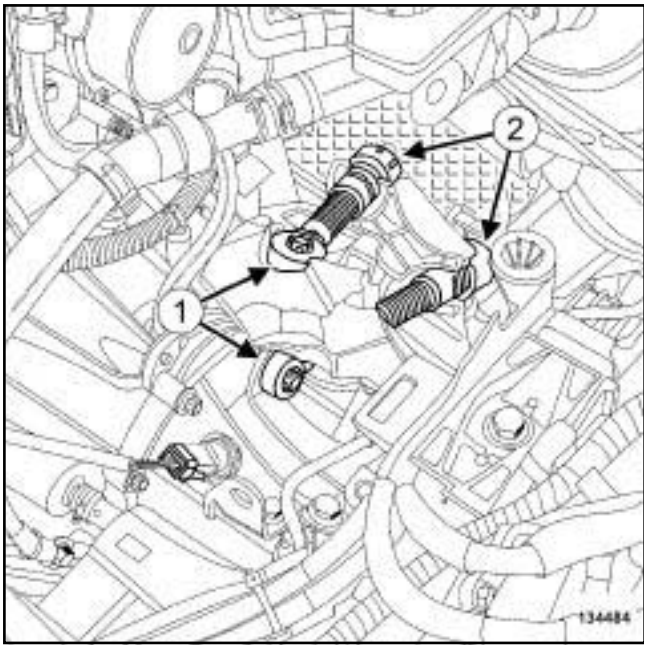
- the engine undertray bolts,
- the engine undertray,
- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

❏ Drain the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

❏ Remove:

- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) ,
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,
- the differential output seals (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-46**) ,
- the air resonator (see **Air resonator: Removal - Refitting**) (12A, Fuel mixture),
- the battery (see) (80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (41A, Front lower structure),
- the starter (see **Starter: Removal - Refitting**) (16A, Starting - Charging),
- the lower engine tie-bar (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting),
- the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (19D, Engine mounting).

K4M, and TL4



134484

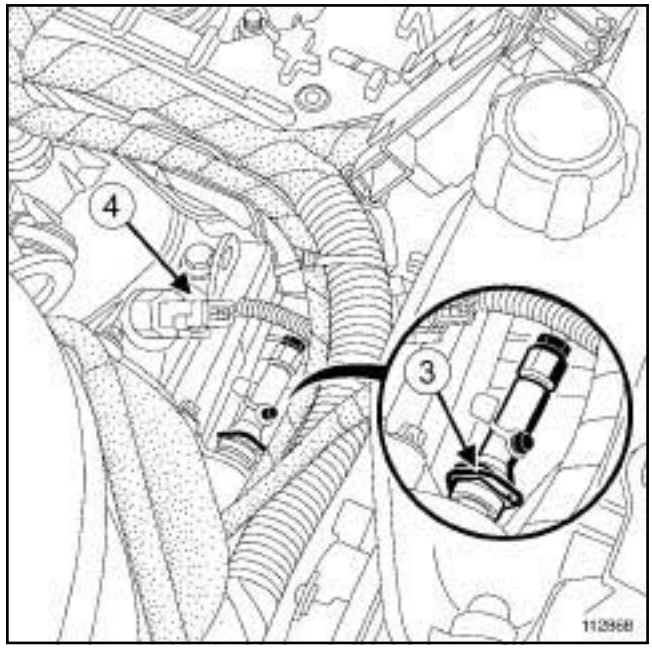
❏ Unclip:

- the gear control cables (**1**) from the selector ball joints using an open-jawed spanner,
- the gear control cables (**2**) from their support.

❏ Fit the tool **(Ms. 583)** between the brake fluid reservoir and the clutch master cylinder.

WARNING

Do not pull the clip. If it is incorrectly handled in any way, the pipe will need to be replaced.



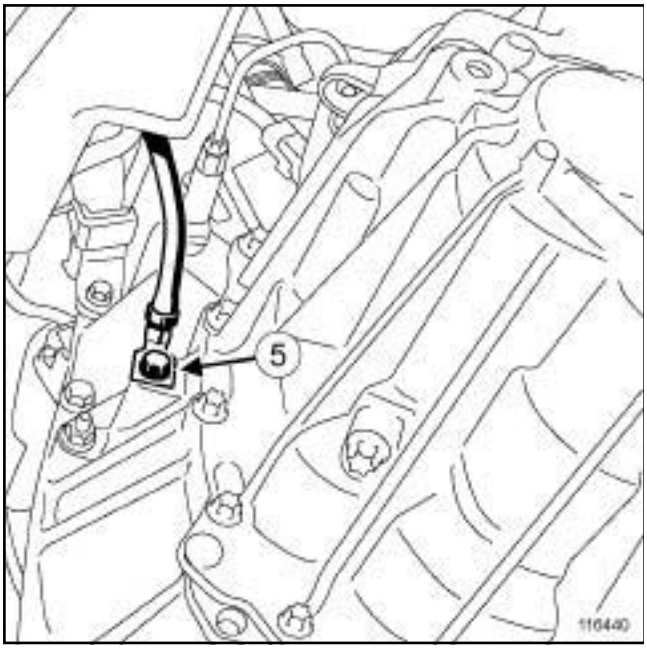
112868

❏ Disconnect:

- the hydraulic clutch control pipe by pressing on the clip (**3**) ,
- the connector (**4**) from the reverse gear switch,

❏ Insert the blanking plugs.

K4M, and TL4



116440

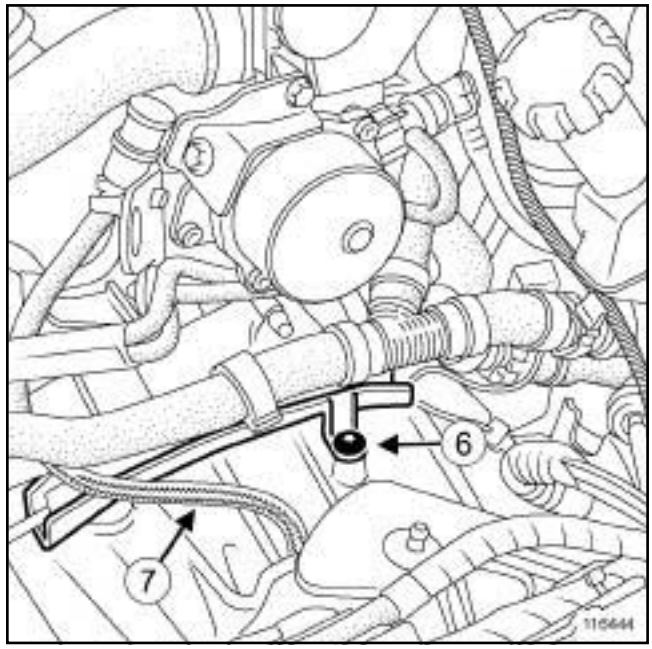
❑

Note:

Before removing the earth terminal, mark its position using a **indelible pencil** by drawing a line on the earth terminal and on the gearbox casing.

When reassembling, improper positioning of the earth terminal on the gearbox casing could result in damage to the earth terminal or earth wiring.

❑ Remove the earth wiring bolt (**5**) .

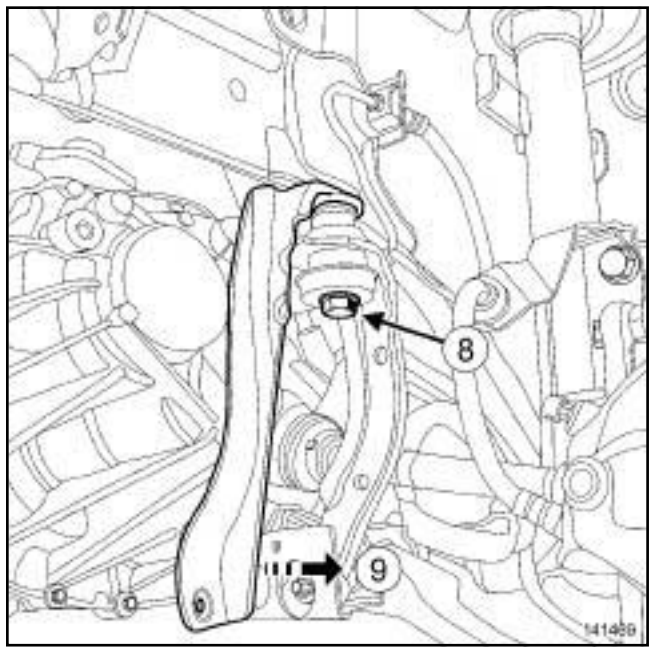


116444

❑ Remove the bolt (**6**) from the wiring harness channel on the gearbox.

❑ Disconnect the breather pipe (**7**) from the gearbox.

❑ Remove the crankshaft position sensor (see **Crankshaft position sensor: Removal - Refitting**) .



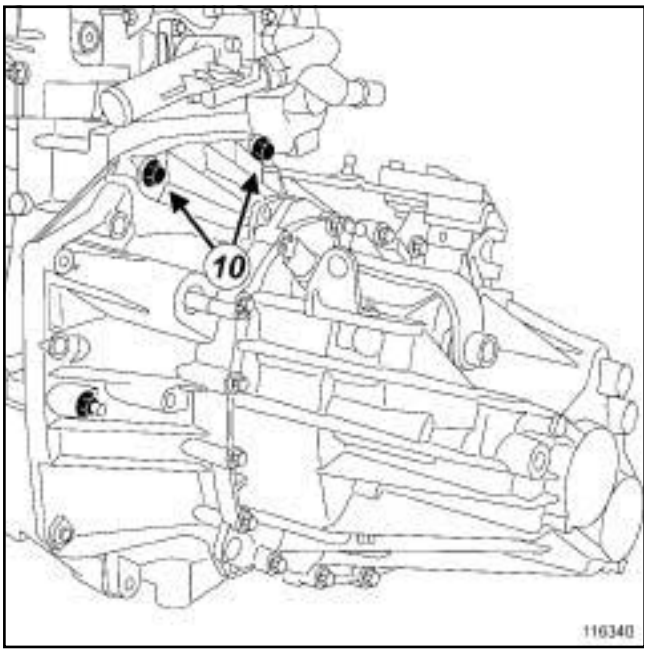
141469

❑ Loosen the front left-hand bolt (**8**) on the front axle subframe.

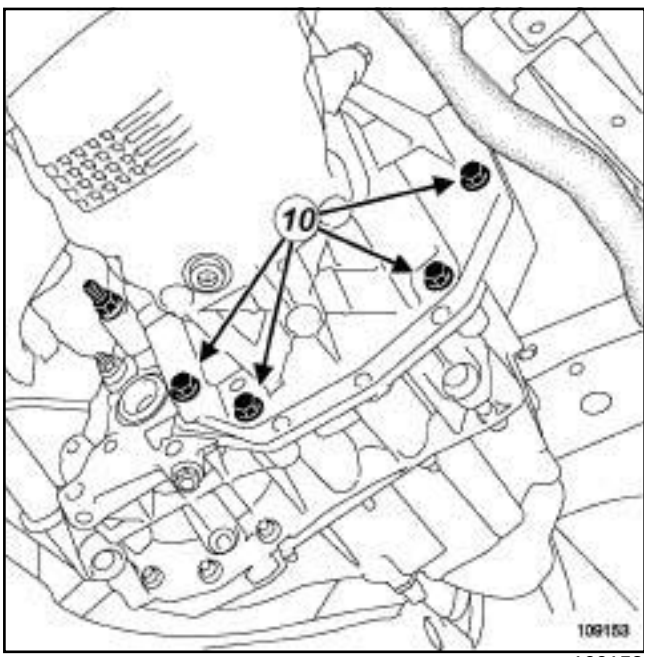
❑ Pivot the tie rod at (**9**) .

K4M, and TL4

II - OPERATION FOR REMOVAL OF PART CONCERNED

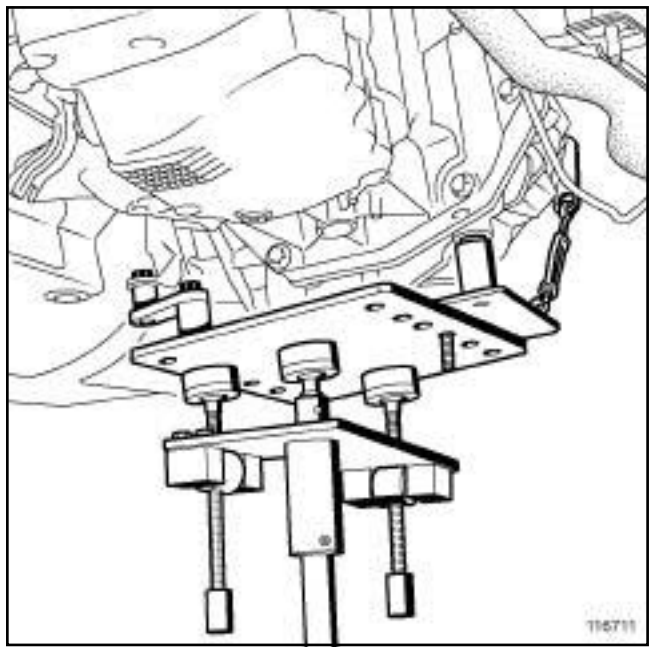


116340

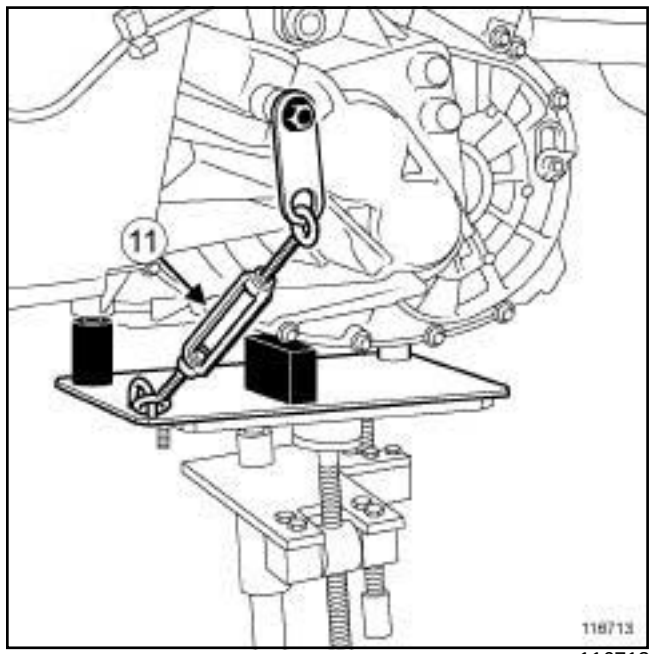


109153

❏ Remove the bolts (**10**) from the gearbox.



116711



116713

❏ Fit the **(Bvi. 1718)** on a **component jack**.

❏ Position the tool **(Bvi. 1718)** and the **component jack** under the gearbox.

❏ Tighten the rod (**11**) anti-clockwise in order to avoid tilting the gearbox.

❏ Remove:

- the gearbox nuts,
- the gearbox using the tool **(Bvi. 1718)**,
- the clutch thrust bearing (see **20A**, **Clutch**, **Clutch thrust bearing: Removal - Refitting**, page **20A-11**) .

K4M, and TL4

REFITTING

I - REFITTING PREPARATION OPERATION

❑ **parts always to be replaced: Clutch thrust bearing**.

❑

> **WARNING**
> To avoid damaging the slave cylinder, do not coat the gearbox output shaft with grease.

> **WARNING**
> Do not grease the clutch shaft splines.

❑ Check that the centring dowelsare in place.

II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- a new clutch thrust bearing (see **20A**, **Clutch**, **Clutch thrust bearing: Removal - Refitting**, page **20A-11**) ,
- the gearbox using the **(Bvi. 1718)**.

❑ Remove the tool **(Bvi. 1718)**.

❑ Tighten to torque:

- the **gearbox nuts (44 N.m)**,
- the **gearbox bolts (44 N.m)**.

III - FINAL OPERATION

❑ Fit the tie-rod.

❑ Refit the front left-hand bolt on the front axle sub-frame.

❑ Torque tighten the **front left-hand bolt of the front axle sub-frame (105 N.m)**.

❑ Refit the crankshaft position sensor (see **Crankshaft position sensor: Removal - Refitting**) .

❑ Connect the gearbox breather pipe.

❑ Refit the wiring channel bolt on the gearbox.

❑ Refit the earth cable respecting the marks made during removal.

❑ Refit the earth wiring bolt on the gearbox.

❑ Torque tighten the **earth wiring bolt on the gearbox (24 N.m)**.

❑ Connect the reverse gear switch connector.

❑ Remove the blanking plugs.

❑ Connect the clutch slave cylinder.

❑ Remove the tool **(Ms. 583)**.

❑ Clip:

- the gear control cables onto their support,
- the gear control cables onto the gear selector ball joints.

❑ Refit:

- the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (19D, Engine mounting),
- the lower engine tie-bar (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting),
- the starter (see **Starter: Removal - Refitting**) (16A, Starting - Charging),
- the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (41A, Front lower structure),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see) (80A, Battery),
- the air resonator (see **Air resonator: Removal - Refitting**) (12A, Fuel mixture),
- the differential output seals (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-46**) ,
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) ,
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),

K4M, and TL4

- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❑ Perform the following operations:

- fill the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) ,
- bleed the clutch hydraulic clutch (see **Clutch circuit: Bleed**) (37A, Mechanical component controls).

❑ Refit the engine undertray.

JH3 or JR5

❑ Replace the lip seal after opening the gearbox (see **Technical Note 3661A, gearbox JH - JR**).

TL4

Special tooling required	
Bvi. 1601	Tool for fitting the primary shaft seal.

REMOVAL

I - REMOVAL PREPARATION OPERATION

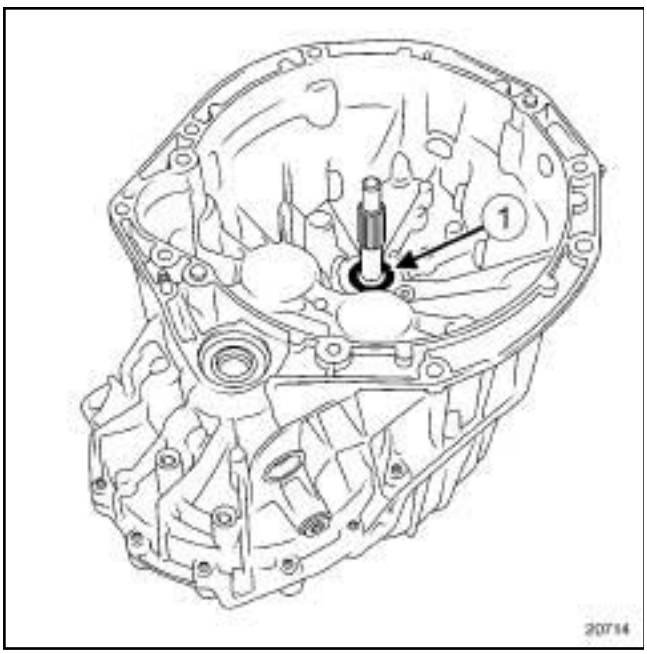
❑ Remove:

- the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**) ,
- the clutch thrust bearing (see **20A**, **Clutch**, **Clutch thrust bearing: Removal - Refitting**, page **20A-11**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Drill a hole in the seal, using a **2.5 mm** drill bit.

WARNING
Do not scratch the shaft or mating face.



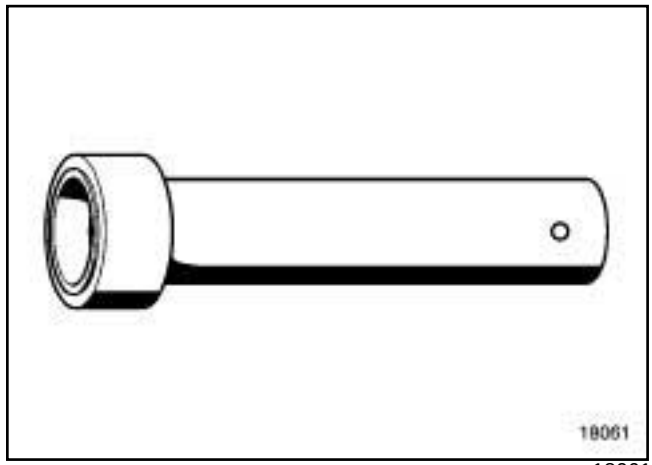
20714

❑ Fit a bolt in seal (**1**) .

❑ Extract the seal (**1**) using pliers.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED



18061

❑ Fit a new seal with its protector using the **(Bvi. 1601)**.

❑ Remove the protector.

II - FINAL OPERATION

❑ Refit:

- the clutch thrust bearing (see **20A**, **Clutch**, **Clutch thrust bearing: Removal - Refitting**, page **20A-11**) .
- the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-12**) .

JH3 or JR5

Special tooling required	
Bvi. 1666	Tool for fitting differential seals.

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

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

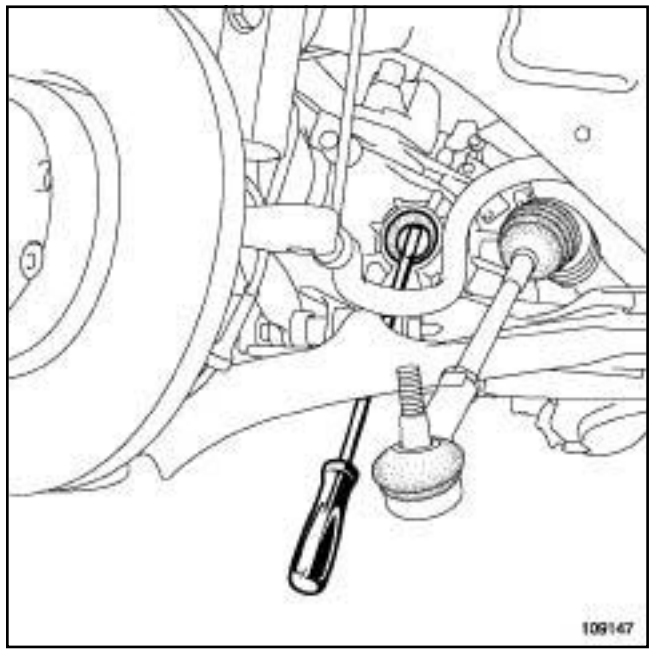
❑ Remove:

- the front wheel from the side in question (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front brake pads from the side in question (see **Front brake pads: Removal - Refitting**) (MR 392, 31A, Front axle components),
- the engine undertray mounting bolts,
- the engine undertray.

❑ Drain the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

❑ Remove the driveshaft from the side in question (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) or (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**)

II - OPERATION FOR REMOVAL OF PART CONCERNED



109147

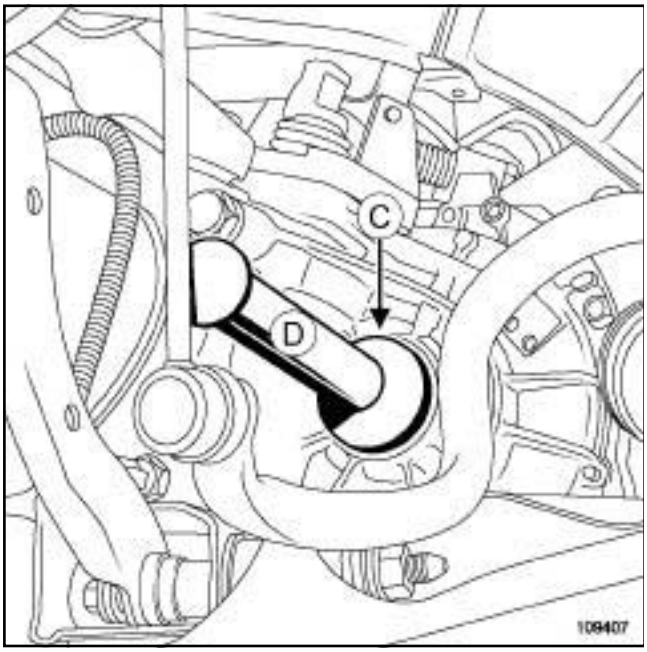
❑ Tap the base of the lip seal using a pin punch and a small hammer to release it and cause it to turn in its housing.

❑ Withdraw the lip seal using a large screwdriver, taking care not to damage the differential housing.

JH3 or JR5

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED



109407

❏ Refit the seal using the **(Bvi. 1666)** (**C**) , suffix **A** on the right-hand side, and suffix **B** on the left-hand side.

❏ Strike the **(Bvi. 1666)** (**C**) with a copper hammer (**D**) to fully seat the differential output seal

II - FINAL OPERATION.

❏ Position the driveshaft in relation to the sunwheel.

❏ Refit the driveshaft on the side in question (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) or (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**)

❏ Fill the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

❏ Refit:

- the engine undertray,
- the engine undertray mounting bolts,
- the front brake pads from the side in question (see **Front brake pads: Removal - Refitting**) (MR 392, 31A, Front axle components),
- the front wheel on the side in question (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),

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

TL4

Special tooling required	
Bvi. 1854	Differential output seal fitting tool TL4

Equipment required
roll pin punch

REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the engine undertray bolts,
- the engine undertray.

❏ Drain the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

1 - When replacing the differential output seal on the left-hand side

❏ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) .

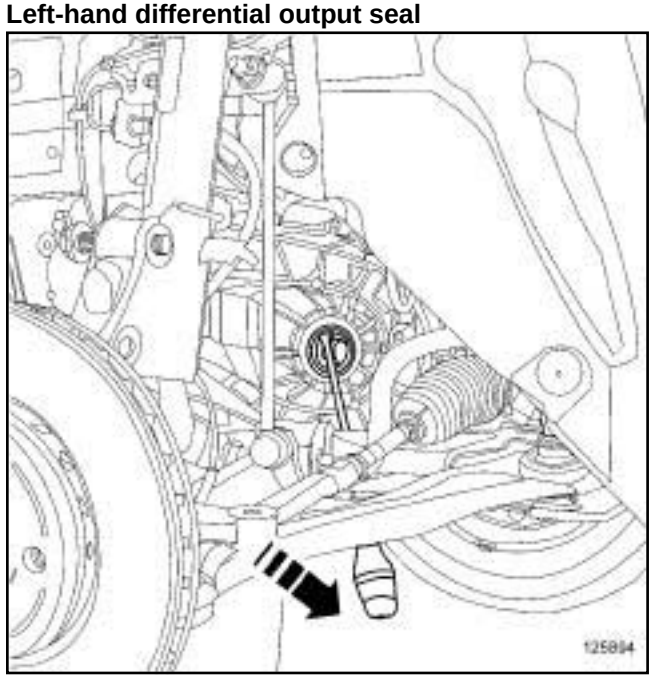
2 - When replacing the differential output seal on the right-hand side

❏ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) .

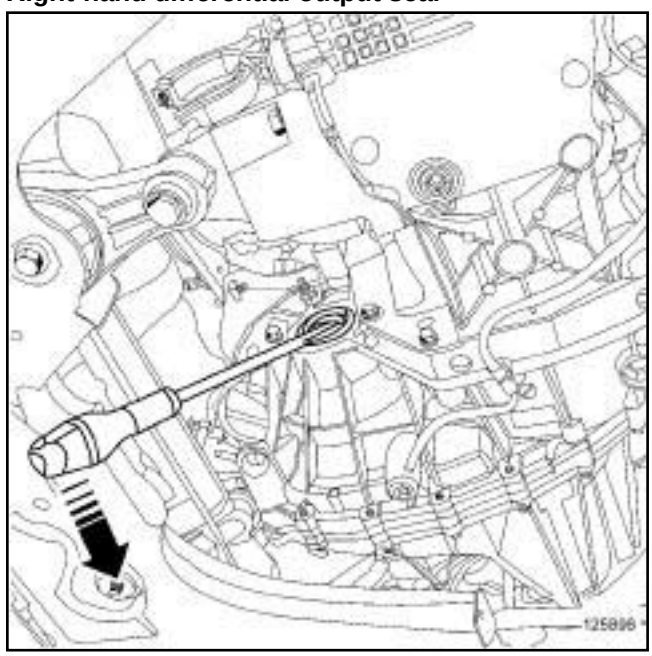
II - REMOVAL OPERATION FOR THE DIFFERENTIAL OUTPUT SEAL

Left-hand differential output seal



125894

Right-hand differential output seal



125896

❏ Tap the base of the lip seal using a **roll pin punch** and a small hammer to release it and make it turn in its housing.

❏ Remove the lip seal using a large screwdriver, taking care not to damage the differential housing.

TL4

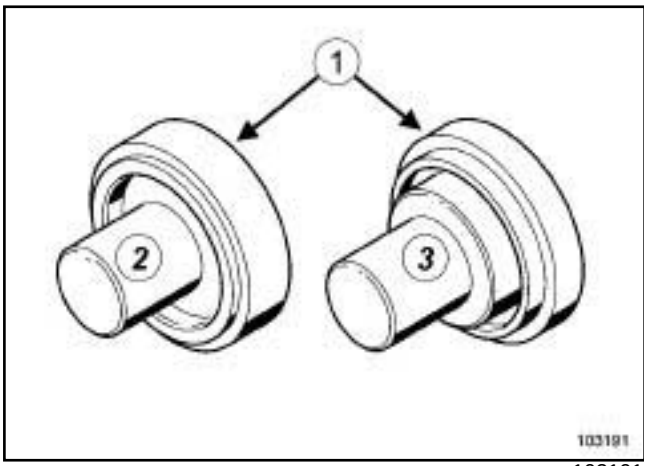
REFITTING

I - REFITTING PREPARATION OPERATION

- **parts always to be replaced: Differential output seal**.

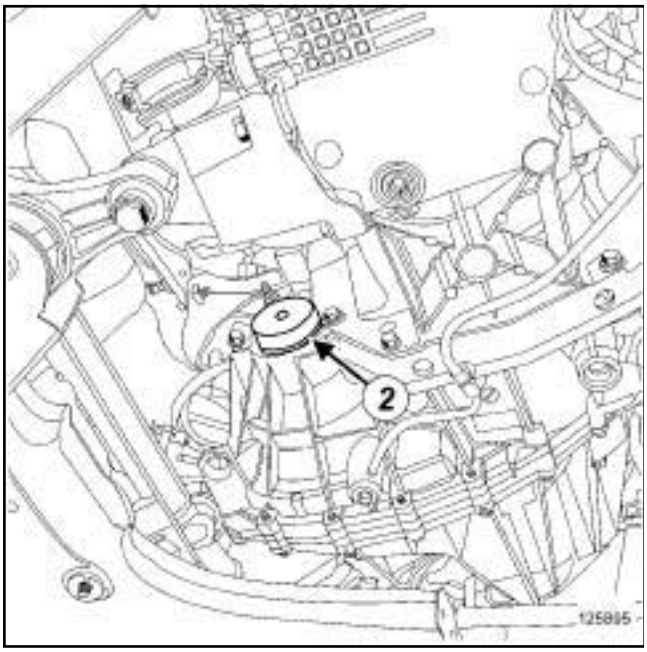
TL4

II - REFITTING OPERATION FOR THE DIFFERENTIAL OUTPUT SEAL



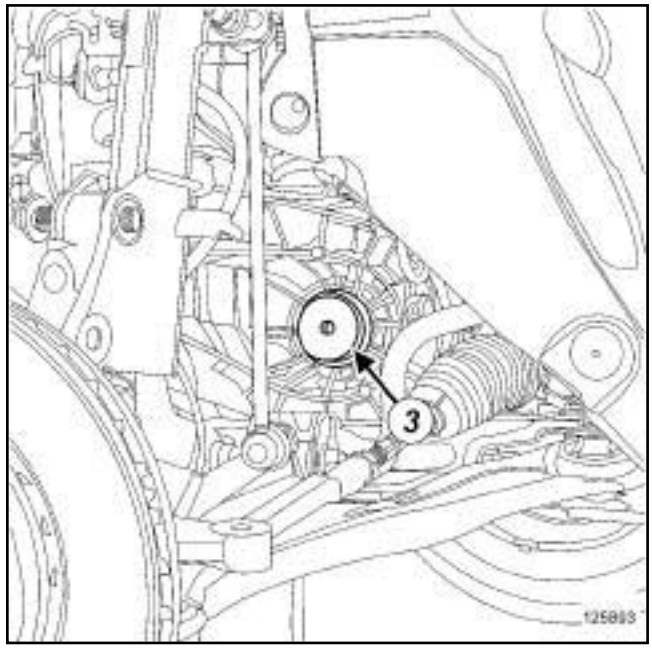
103191

Refitting the right-hand side differential output seal



125895

Refitting the left-hand side differential output seal.



125893

❑ The new differential output seal is refitted using the tool **(Bvi. 1854)** (**1**) consisting of:

- a mandrel (**2**) for the right-hand side,
- a mandrel (**3**) for the left-hand side.

❑ Oil the internal surface of the new differential output seal.

❑ Fit:

- the new differential output seal on the gearbox,
- the mandrel (**2**) or (**3**) of the tool **(Bvi. 1854)** on the new differential output seal.

❑ Tap the tool (**1**) with a copper hammer to fit the new differential output seal fully.

III - FINAL OPERATION

1 - Refitting the left-hand driveshaft

❑ Refit:

- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

2 - Refitting the right-hand driveshaft

❑ Refit:

- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) ,

TL4

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

3 - Final operation

❑ Fill the gearbox and check the level (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

❑ Refit the engine undertray.

TL4

Special tooling required	
Bvi. 1934	Socket for removing/refitting reverse gear switch

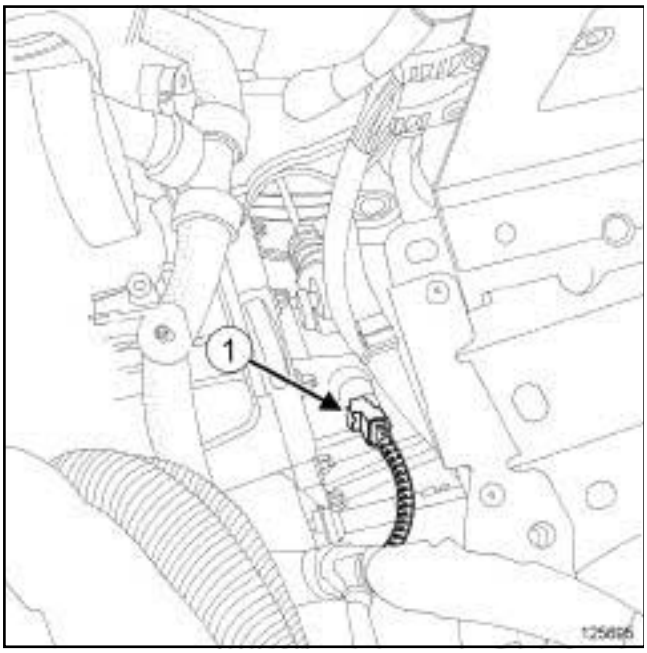
REMOVAL

I - REMOVAL PREPARATION OPERATION

❑ Remove:

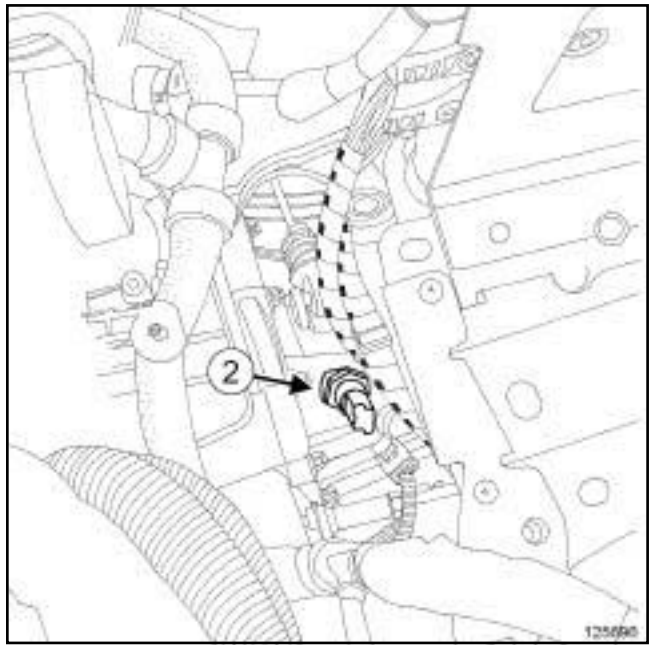
- the battery (see **Battery: Removal - Refitting**) (80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

II - OPERATION FOR REMOVAL OF PART CONCERNED



125695

❑ Disconnect the connector (**1**) from the reverse gear switch.



125696

❑ Remove the reverse gear switch using the socket for removing/refitting the reverse gear switch **(Bvi. 1934)** (**2**) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the reverse gear switch.

❑ Tighten the reverse gear switch using the socket for removing/refitting the reverse gear switch **(Bvi. 1934)**.

❑ Connect the reverse gear switch connector.

II - FINAL OPERATION

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (80A, Battery).

JH3 or JR5

Special tooling required	
Bvi. 1934	Socket for removing/refitting reverse gear switch

Tightening torques ▽	
reverse gear switch	**23 N.m**

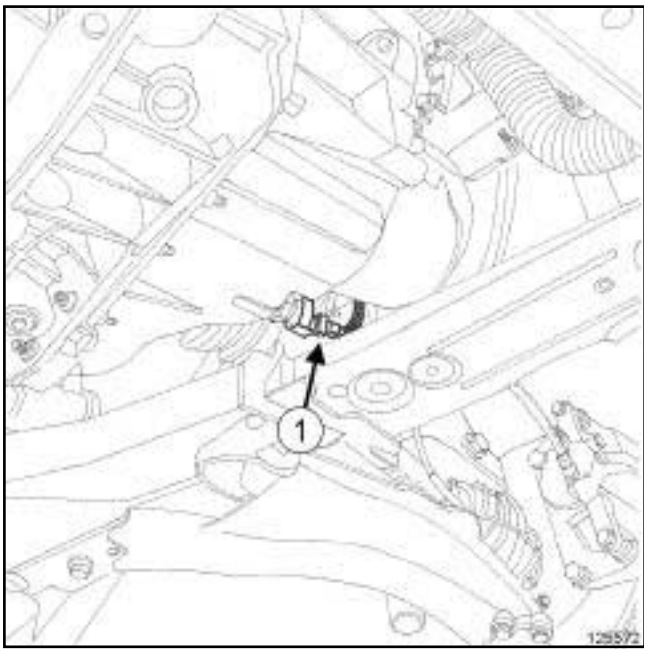
REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

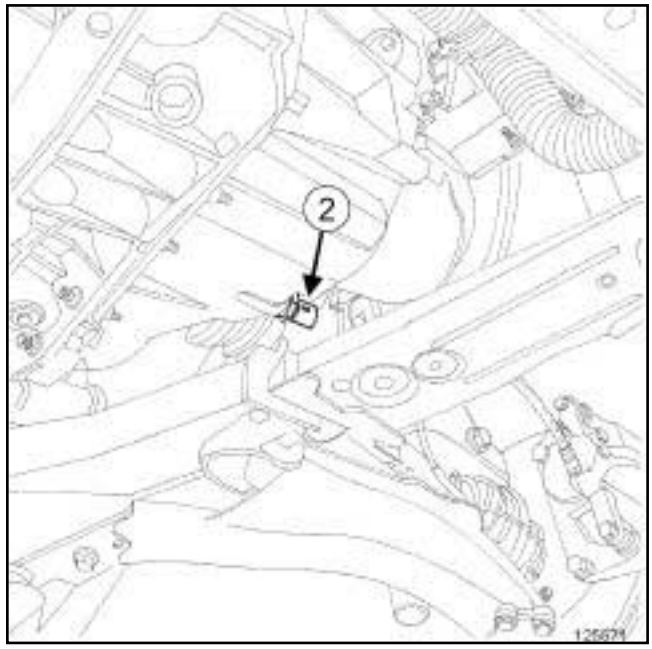
❏ Remove the engine undertray.

II - OPERATION FOR REMOVAL OF PART CONCERNED



125572

❏ Disconnect the connector (**1**) from the reverse gear switch.



125571

❏ Remove the reverse gear switch (**2**) using the **(Bvi. 1934)**.

Note:

Seal the housing of the reverse gear switch while replacing the part.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Apply some **SILICONE ADHESIVE SEALANT** (see **Vehicle: Parts and consumables for the repair**) (04B, Consumables - Products) to the threading of the reverse gear switch.

❏ Refit the reverse gear switch using the **(Bvi. 1934)**.

❏ Torque tighten the **reverse gear switch (23 N.m)**.

❏ Connect the reverse gear switch connector.

II - FINAL OPERATION

❏ Fill the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

❏ Refit the engine undertray.

Sequential gearbox: Precautions for the repair

D4F or K9K, and JA3 or JA5

Equipment required
Diagnostic tool

I - SEQUENTIAL GEARBOX

WARNING

If any operation is carried out on the electro-hydraulic unit, it is essential to clean the unit using a cleaning product and compressed air.

Never leave the circuit open and never use a high pressure cleaner.

II - SEQUENTIAL GEARBOX COMPUTER

To disconnect the computer, switch off the ignition and wait for **1 minute**.

III - ELECTRO-HYDRAULIC UNIT

Discharge the pressure accumulator using the **Diagnostic tool** before any operation on the electro-hydraulic unit.

K9K, and JA5

Special tooling required	
Mot. 445	Oil filter strap wrench.

Equipment required
Diagnostic tool

Tightening torques ▽	
lifting eye nut on the gearbox	**21 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

IMPORTANT

Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

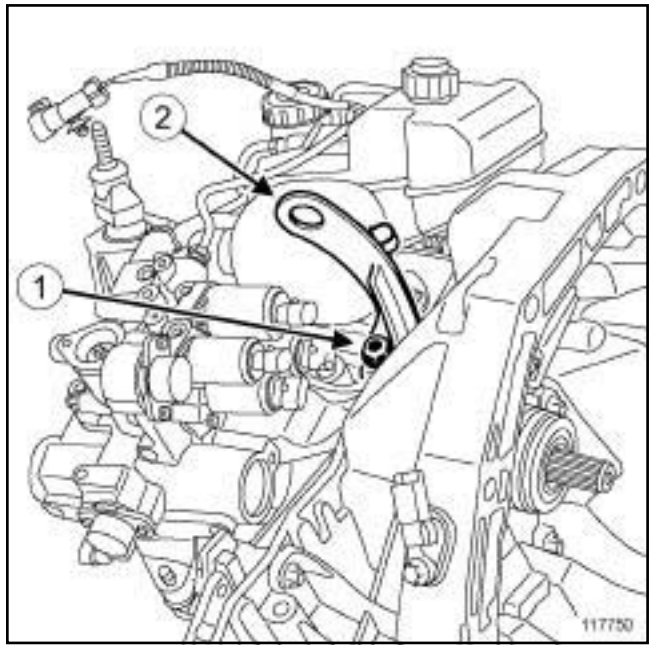
To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Remove:

- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).

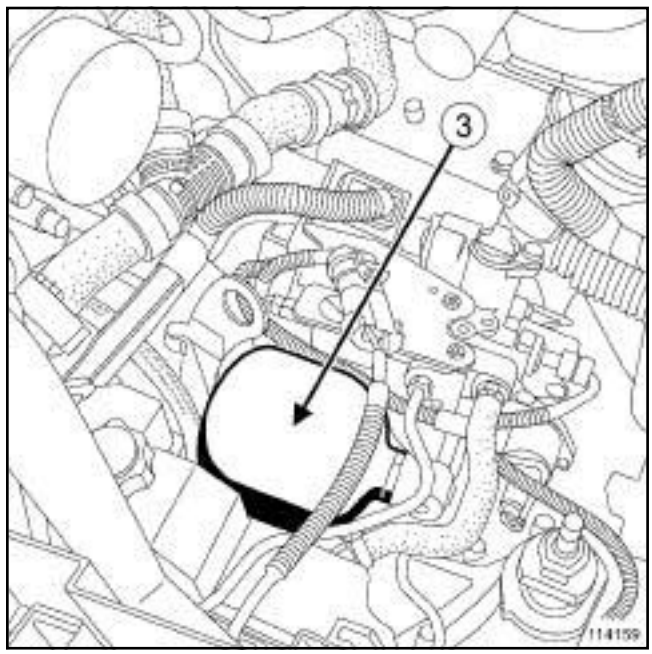


117750

❑ Remove:

- the lifting eye nut on the gearbox (**1**) ,
- the lifting eye on the gearbox (**2**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



114159

❑ Remove the pressure accumulator (**3**) using the **(Mot. 445)**.

K9K, and JA5

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Fit the pressure accumulator.

❏ Tighten the pressure accumulator using the **(Mot. 445)**.

❏ Affix the safety label to the pressure accumulator.

❏ Refit:

- the lifting eye on the gearbox,
- the lifting eye nut on the gearbox.

❏ Tighten to torque the **lifting eye nut on the gearbox (21 Nm)**.

❏ Refit:

- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),

II - FINAL OPERATION.

❏ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

D4F, and JA3

Special tooling required	
Mot. 445	Oil filter strap wrench.

Equipment required
Diagnostic tool

Tightening torques ▽	
lifting eye nut on the gearbox	**21 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

IMPORTANT

Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

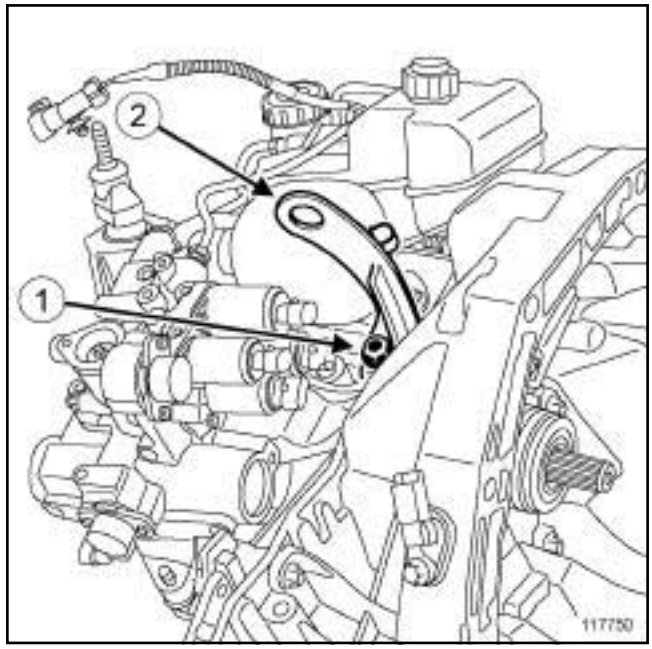
To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Remove:

- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).

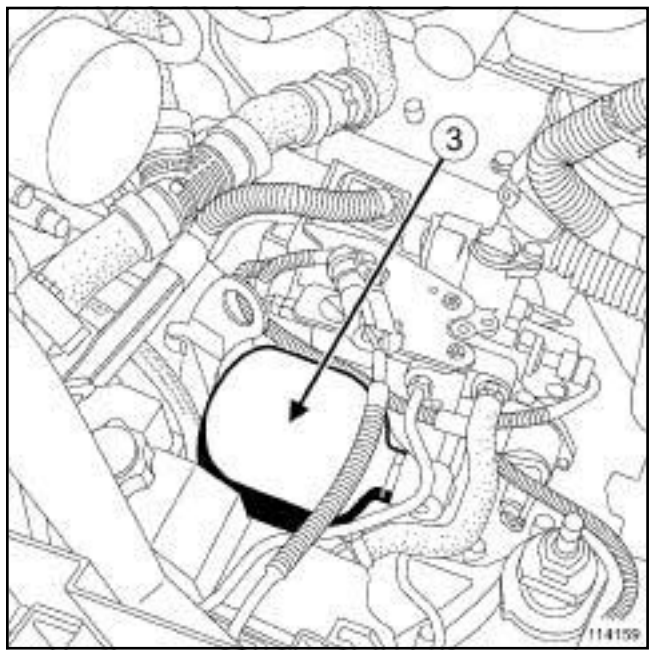


117750

❑ Remove:

- the lifting eye nut on the gearbox (**1**) ,
- the lifting eye on the gearbox (**2**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



114159

❑ Remove the pressure accumulator (**3**) using the **(Mot. 445)**.

D4F, and JA3

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Fit the pressure accumulator.

❏ Tighten the pressure accumulator using the **(Mot. 445)**.

❏ Affix the safety label to the pressure accumulator.

❏ Refit:

- the lifting eye on the gearbox,
- the lifting eye nut on the gearbox.

❏ Tighten to torque the **lifting eye nut on the gearbox (21 Nm)**.

❏ Refit:

- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

II - FINAL OPERATION.

❏ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

K9K, and JA5

Equipment required
Diagnostic tool

Tightening torques ▽	
pump assembly reservoir bolts	**10 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

IMPORTANT
Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

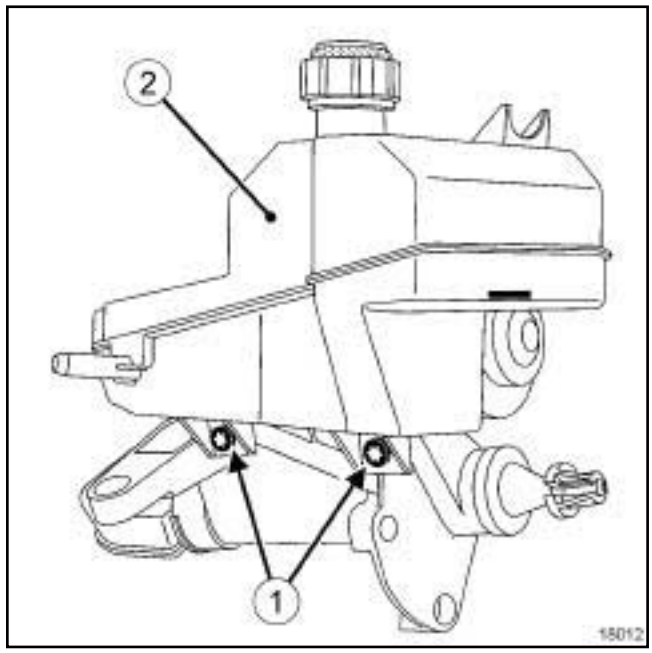
If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❑ Remove the pump assembly (see **21B**, **Sequential gearbox**, **Pump assembly: Removal - Refitting**, page **21B-12**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



18012

❑ Remove:

- the bolts (**1**) from the pump assembly reservoir,
- the reservoir (**2**) from the pump assembly.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the pump assembly reservoir,
- the pump assembly reservoir bolts.

❑ Torque tighten the **pump assembly reservoir bolts (10 Nm)**.

II - FINAL OPERATION.

❑ Refit the pump assembly (see **21B**, **Sequential gearbox**, **Pump assembly: Removal - Refitting**, page **21B-12**) .

D4F, and JA3

Equipment required
Diagnostic tool

Tightening torques ▽	
pump assembly reservoir bolts	**10 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

IMPORTANT
Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

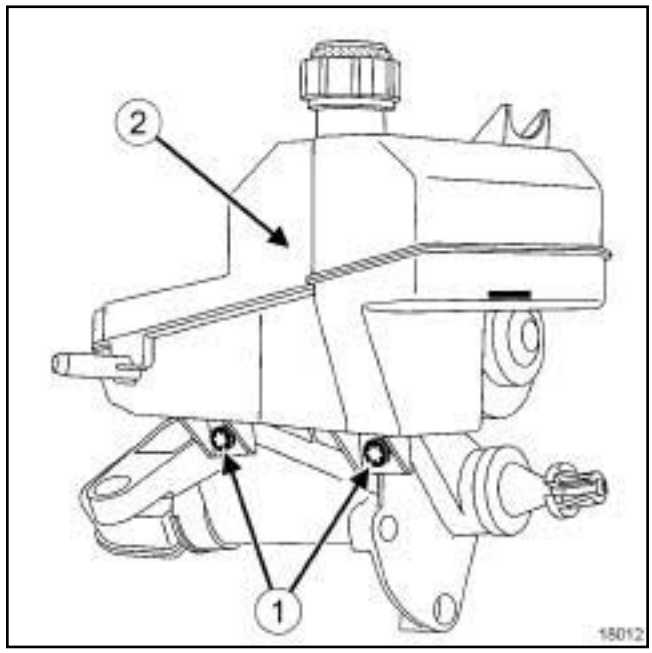
If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❑ Remove the pump assembly (see **21B**, **Sequential gearbox**, **Pump assembly: Removal - Refitting**, page **21B-12**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



18012

❑ Remove:

- the bolts (**1**) from the pump assembly reservoir,
- the reservoir (**2**) from the pump assembly.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the pump assembly reservoir,
- the pump assembly reservoir bolts.

❑ Torque tighten the **pump assembly reservoir bolts (10 Nm)**.

II - FINAL OPERATION.

❑ Refit the pump assembly (see **21B**, **Sequential gearbox**, **Pump assembly: Removal - Refitting**, page **21B-12**) .

K9K, and JA5

Equipment required
Diagnostic tool

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

Note:

When replacing the electric pump assembly, always replace the control relay.

IMPORTANT

Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

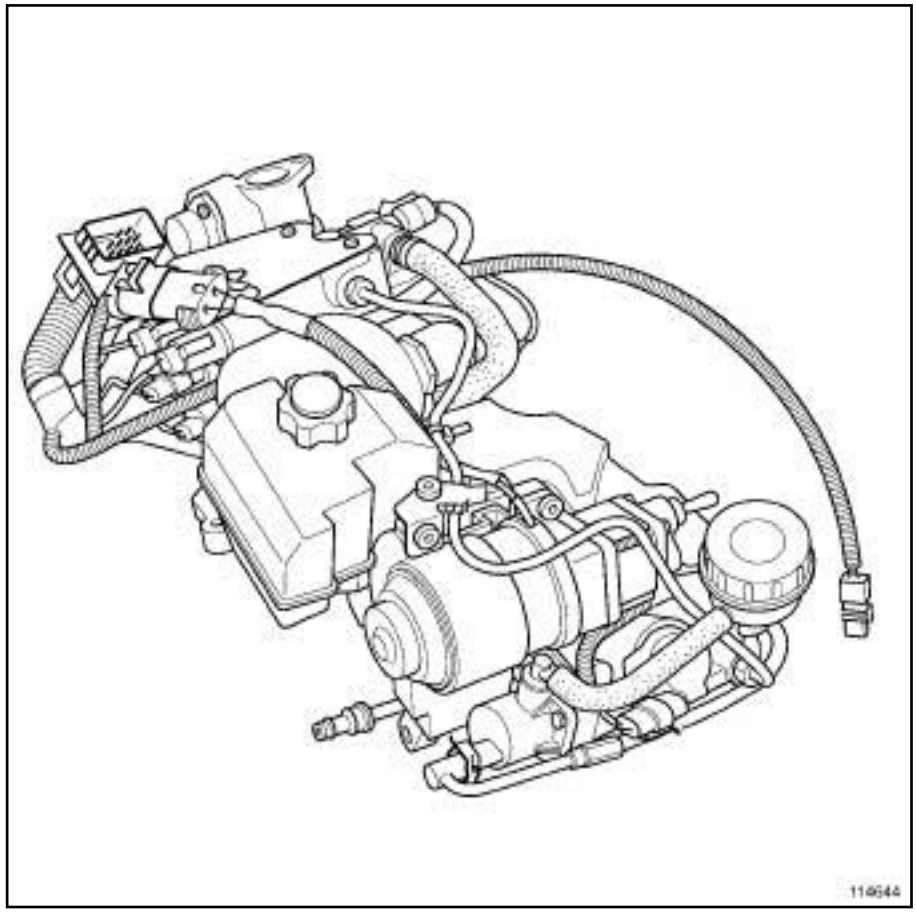
To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

K9K, and JA5



114644

❑

Note:

The electro-hydraulic unit includes the pump assembly and the actuator module.

❑ Remove:

- the pump assembly (see **21B**, **Sequential gearbox**, **Pump assembly: Removal - Refitting**, page **21B-12**) ,
- the actuator module (see **21B**, **Sequential gearbox**, **Actuator module: Removal - Refitting**, page **21B-34**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Remove the electro-hydraulic unit.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the actuator module (see **21B**, **Sequential gearbox**, **Actuator module: Removal - Refitting**, page **21B-34**) ,
- the pump assembly (see **21B**, **Sequential gearbox**, **Pump assembly: Removal - Refitting**, page **21B-12**) .

II - FINAL OPERATION

❑ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

D4F, and JA3

Equipment required
Diagnostic tool

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

Note:

When replacing the electric pump assembly, always replace the control relay.

IMPORTANT

Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

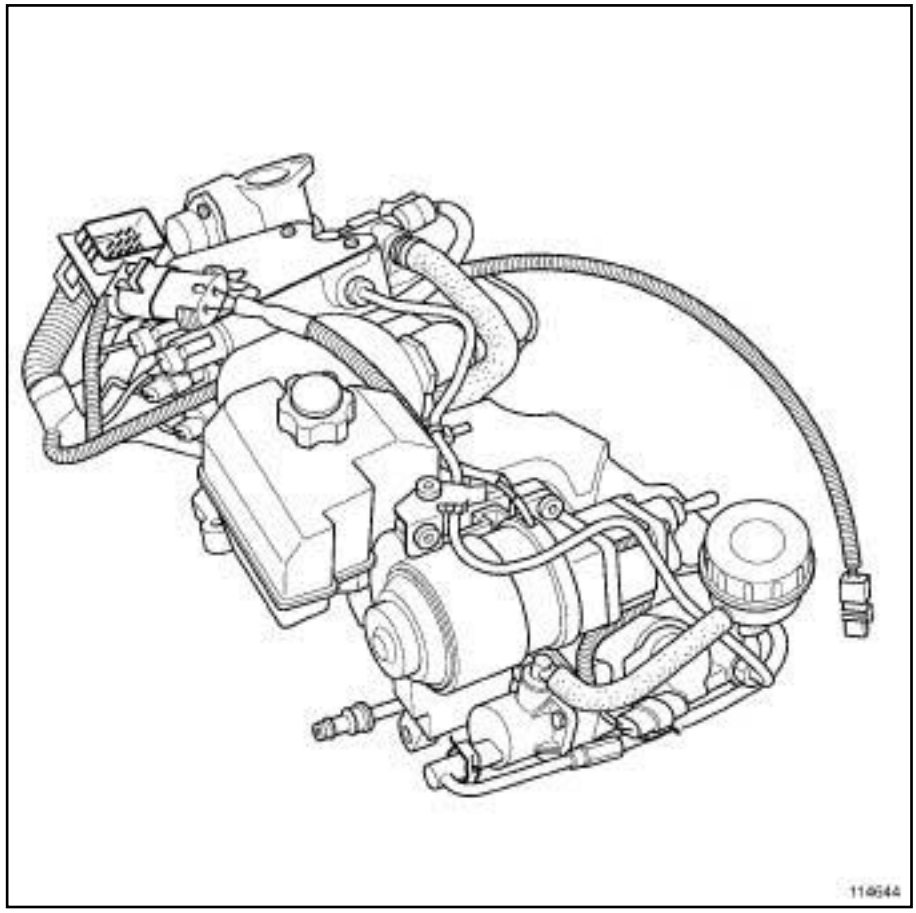
To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

D4F, and JA3



114644

❑

Note:

The electro-hydraulic unit includes the pump assembly and the actuator module.

❑ Remove:

- the pump assembly (see **21B**, **Sequential gearbox**, **Pump assembly: Removal - Refitting**, page **21B-12**) ,
- the actuator module (see **21B**, **Sequential gearbox**, **Actuator module: Removal - Refitting**, page **21B-34**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Remove the electro-hydraulic unit.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the actuator module (see **21B**, **Sequential gearbox**, **Actuator module: Removal - Refitting**, page **21B-34**) ,
- the pump assembly (see **21B**, **Sequential gearbox**, **Pump assembly: Removal - Refitting**, page **21B-12**) .

II - FINAL OPERATION

❑ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

K9K, and JA5

Special tooling required	
Mot. 1453	Engine anchorage support with multiple adjustments and retaining straps.

Equipment required
Diagnostic tool
safety strap(s)

Tightening torques ▽	
pump assembly lower bolts	**24 N.m**
pump assembly upper bolt	**24 N.m**
low pressure pump pipe	**14 N.m**
high pressure pump pipe	**14 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

Note:

When replacing the electric pump assembly, always replace the control relay.

IMPORTANT

Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

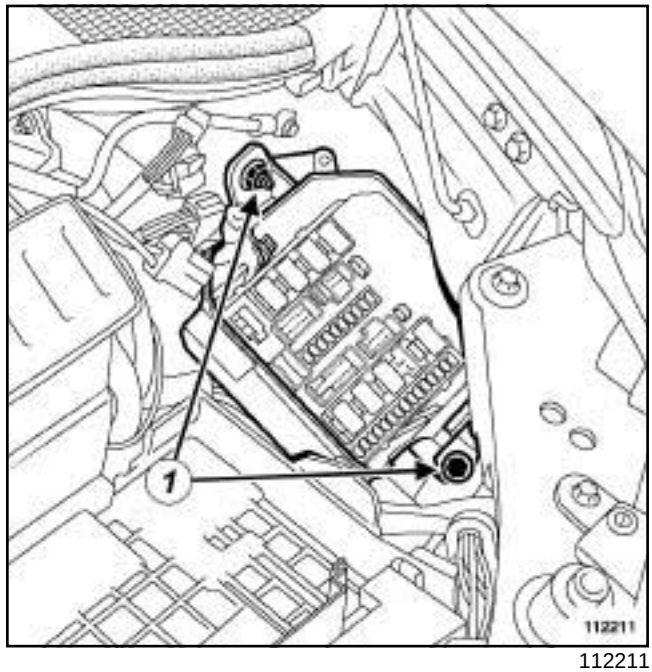
If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❑ Remove:

- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the diesel injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection),
- the wiring harness nut under the injection computer.



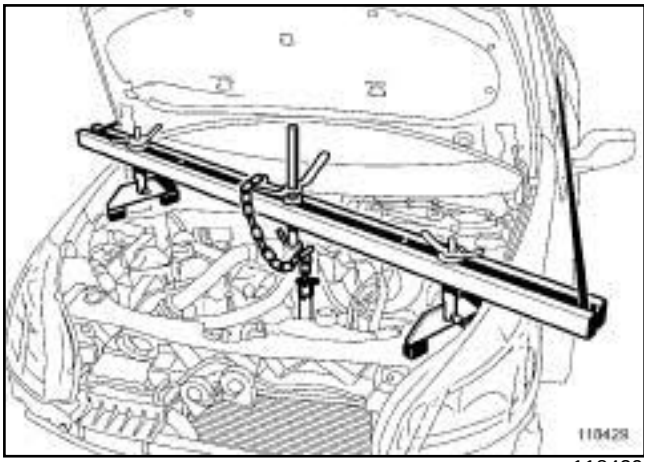
112211

❑ Remove the Protection and Switching Unit bolts (**1**) .

❑ Remove:

- the Protection and Switching Unit,
- the wiring harness under the injection computer.

K9K, and JA5

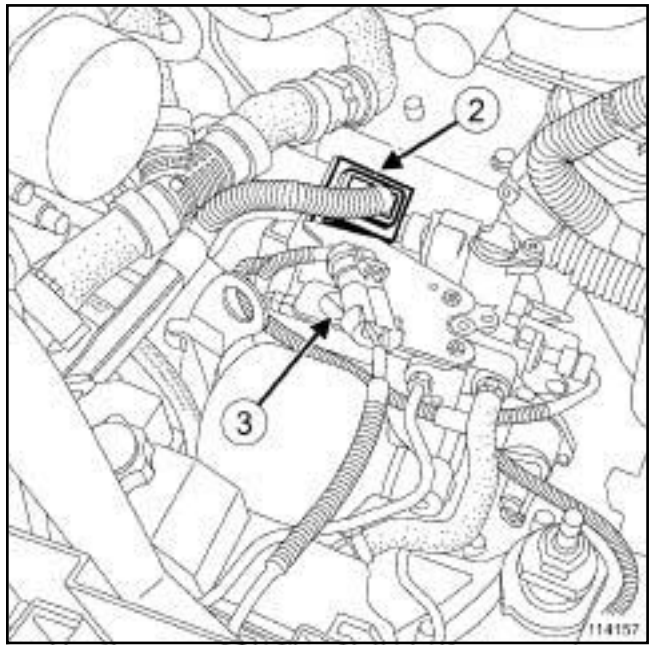


118429

❏ Fit the **(Mot. 1453)** with a **safety strap(s)**.

❏ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- the side stiffener bolts on the left-hand side of the vehicle,
- the side stiffener on the left-hand side of the vehicle,
- the engine undertray,
- the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (MR 392, 19D, Engine mounting).

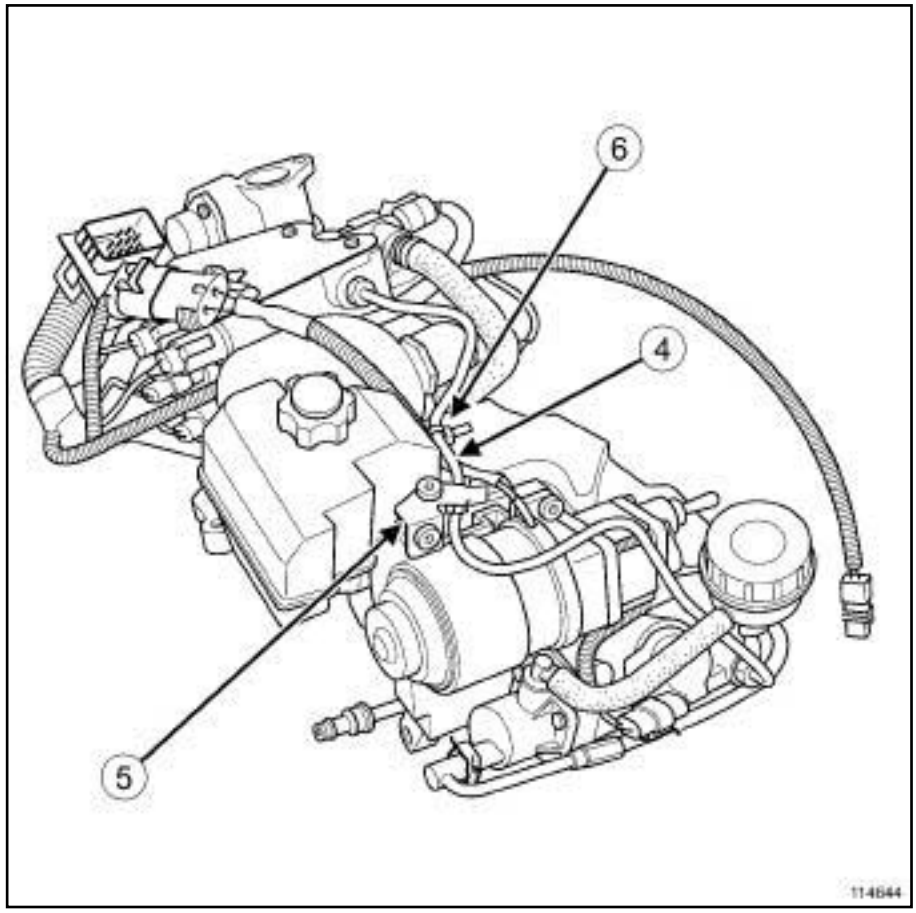


114157

❏ Disconnect:

- the connector (**2**) from the actuator module,
- the connector (**3**) from the pump assembly.

K9K, and JA5



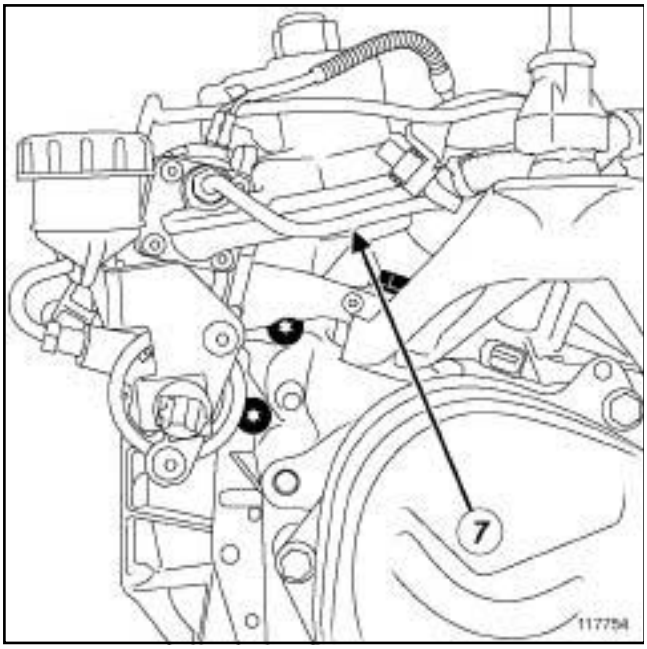
114644

❏ Remove:

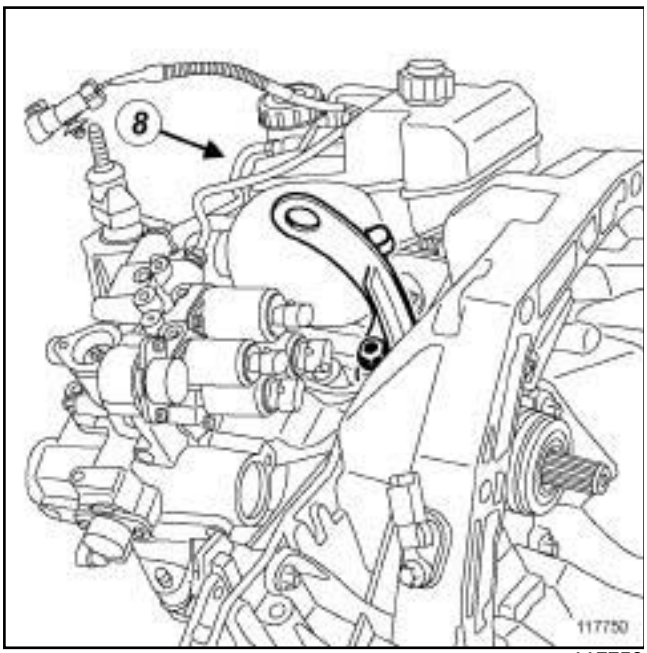
- the clutch pipe (**4**) ,
- the clutch pipe bracket (**5**) .

❏ Cut the clip on the clutch pipe (**6**) .

K9K, and JA5



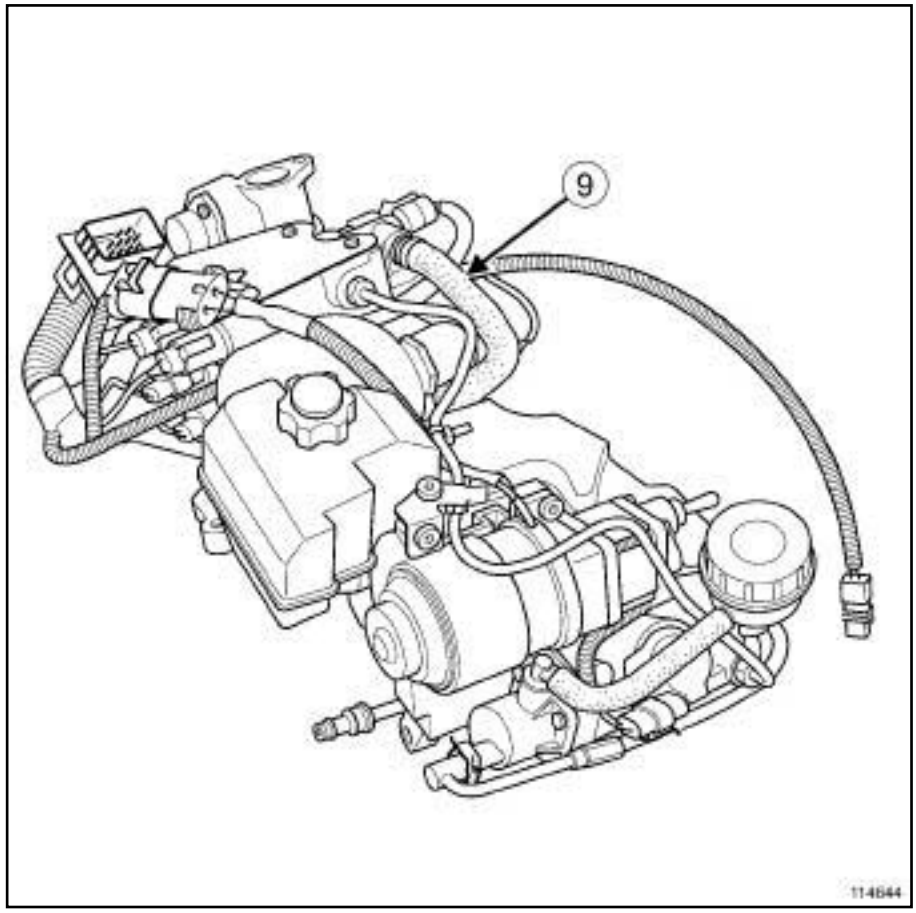
117754



117750

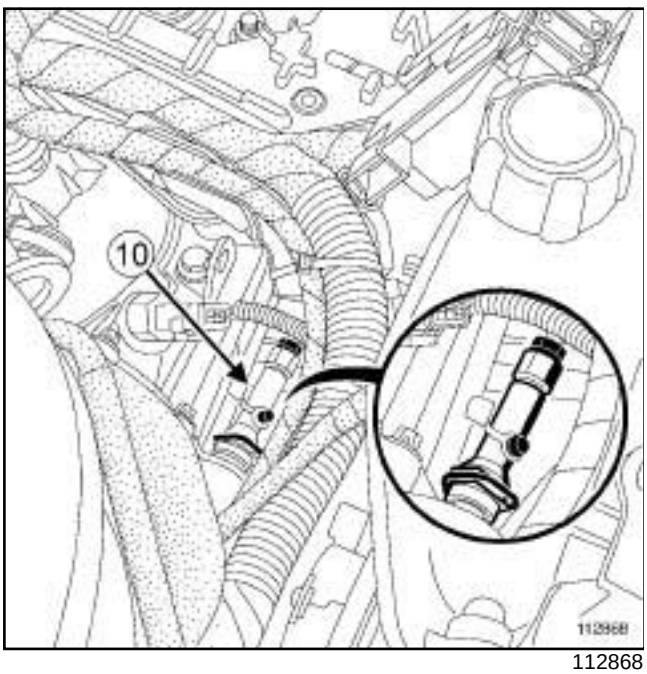
❑ Remove the high pressure pump pipe (**7**) and (**8**) .

K9K, and JA5



114644

❏ Remove the low pressure pump pipe (**9**) .

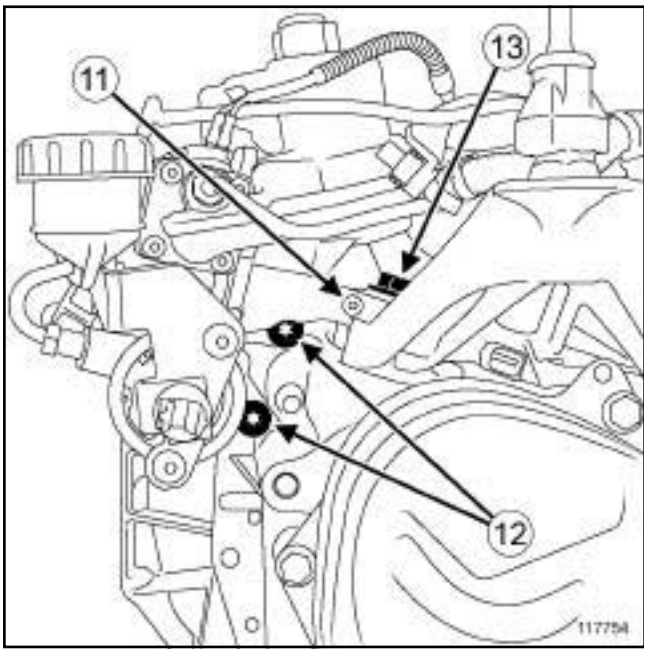


112868

❏ Disconnect the clutch control pipe (**10**) on the hydraulic cylinder by pushing on the clip.

K9K, and JA5

II - OPERATION FOR REMOVAL OF PART CONCERNED



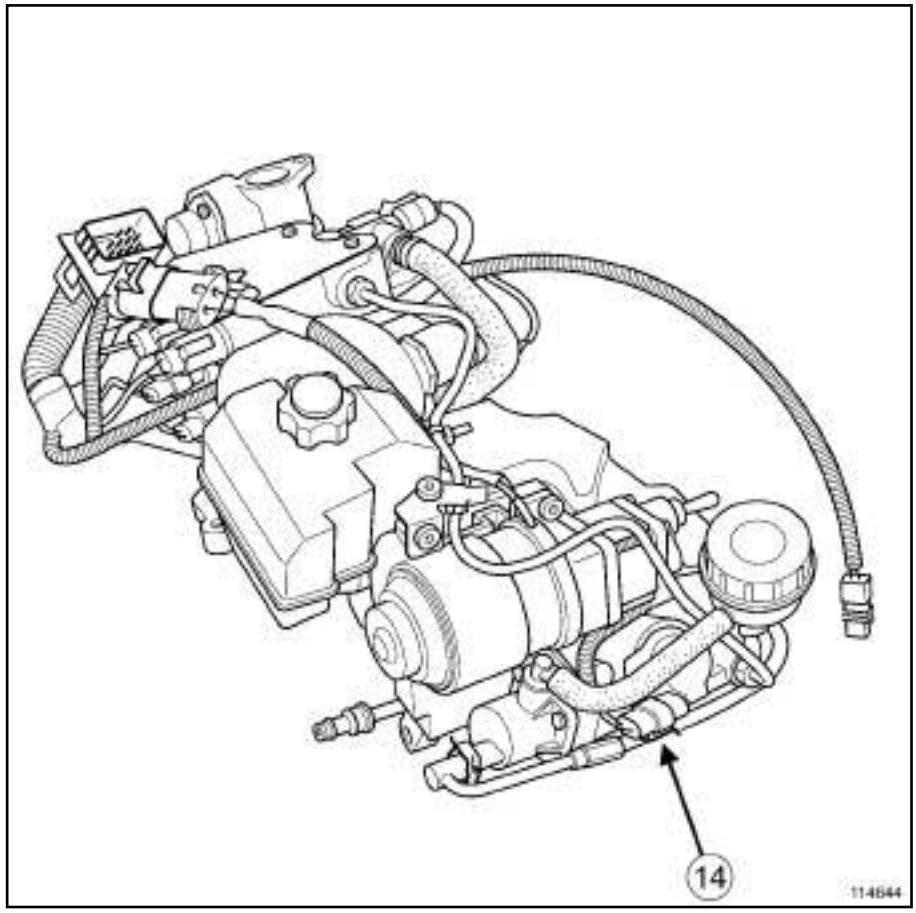
117754

❏ Drain the pump assembly reservoir using a syringe.

❏ Remove:

- the earth strap on the pump assembly (**11**) ,
- the lower bolts from the pump assembly (**12**) ,
- the upper bolt from the pump assembly (**13**) .

K9K, and JA5



114644

❏ Disconnect the connector from the pump assembly (**14**) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Position the pump assembly.

❏ Refit:

- the pump assembly upper bolt,
- the pump assembly lower bolts,
- the earth strap on the pump assembly.

❏ Tighten to torque:

- the **pump assembly lower bolts (24 N.m)**,
- the **pump assembly upper bolt (24 N.m)**.

❏ Connect the clutch control pipe on the hydraulic cylinder.

❏ Refit:

- the low pressure pump pipe,
- the high pressure pump pipe,
- the clutch pipe,
- the clutch pipe bracket,
- a new clip on the clutch pipe.

❏ Tighten to torque:

- the **low pressure pump pipe (14 N.m)**,
- the **high pressure pump pipe (14 N.m)**.

❏ Connect:

- the actuator module connector,
- the pump assembly connector.

❏ Refit the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (MR 392, 19D, Engine mounting).

❏ Remove the **(Mot. 1453)** and the **safety strap(s)**.

❏ Refit:

- the side stiffener bolts on the left-hand side of the vehicle,
- the side stiffener on the left-hand side of the vehicle,

K9K, and JA5

- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).

❏ Connect the electrohydraulic unit connector.

❏ Fill the oil reservoir (see **21B**, **Sequential gearbox**, **Sequential gearbox oil: Specifications**, page **21B-82**) (Technical Note 6012, 04A, Lubricants) to between **32 and 38 mm** above the **MIN** mark.

❏ Refit:

- the Protection and Switching Unit,
- the wiring harness under the injection computer,
- the diesel injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the air filter box (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the engine undertray.

II - FINAL OPERATION

❏ Perform the following operations:

- bleed the clutch circuit (see **21B**, **Sequential gearbox**, **Sequential gearbox: Bleeding**, page **21B-84**) ,
- the necessary programming (see **Fault finding - Replacement of components** (MR 394, 21B, Sequential gearbox).

WARNING
After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

D4F, and JA3

Special tooling required	
Mot. 1453	Engine anchorage support with multiple adjustments and retaining straps.

Equipment required
Diagnostic tool
safety strap(s)

Tightening torques ▽	
pump assembly lower bolts	**24 N.m**
pump assembly upper bolt	**24 N.m**
low pressure pump pipe	**14 N.m**
high pressure pump pipe	**14 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

Note:

When replacing the electric pump assembly, always replace the control relay.

IMPORTANT

Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

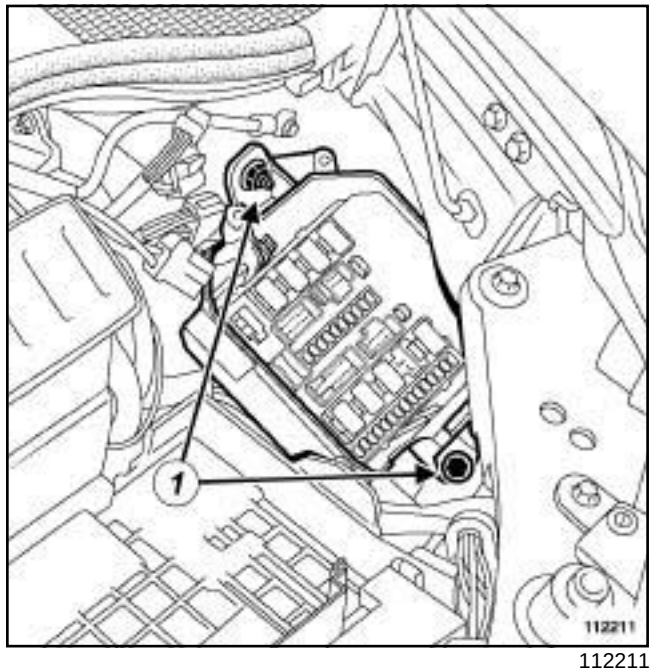
If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❑ Remove:

- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the diesel injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection),
- the wiring harness nut under the injection computer.



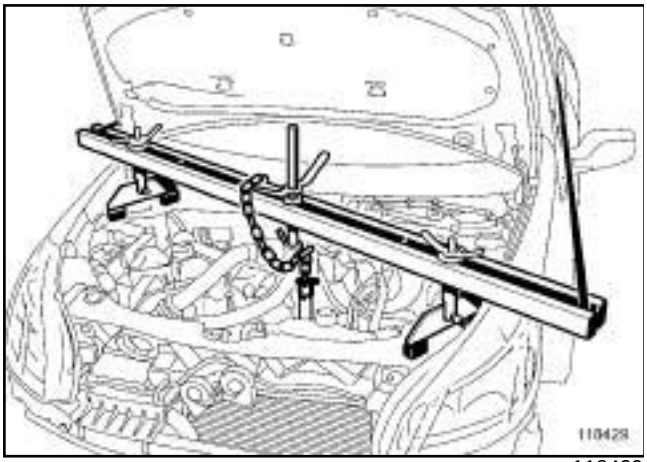
112211

❑ Remove the Protection and Switching Unit bolts (**1**) .

❑ Remove:

- the Protection and Switching Unit,
- the wiring harness under the injection computer.

D4F, and JA3

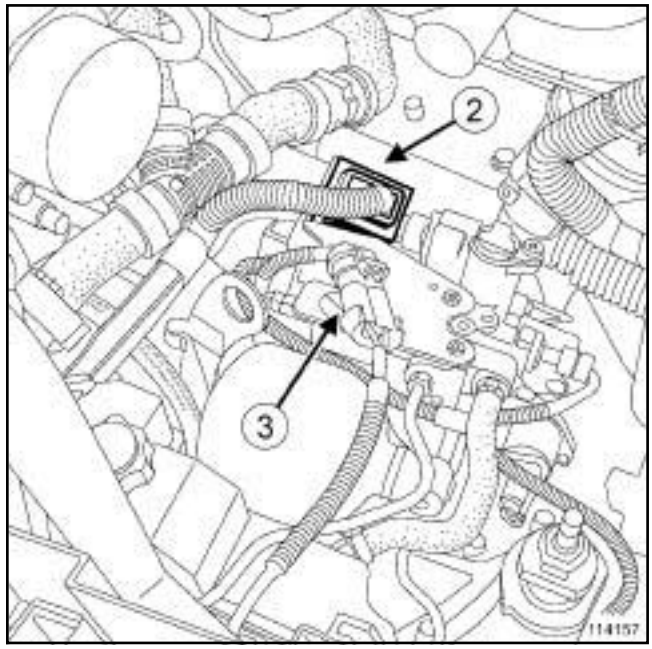


118429

❏ Fit the **(Mot. 1453)** with a **safety strap(s)**.

❏ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- the side stiffener bolts on the left-hand side of the vehicle,
- the side stiffener on the left-hand side of the vehicle,
- the engine undertray,
- the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (MR 392, 19D, Engine mounting).

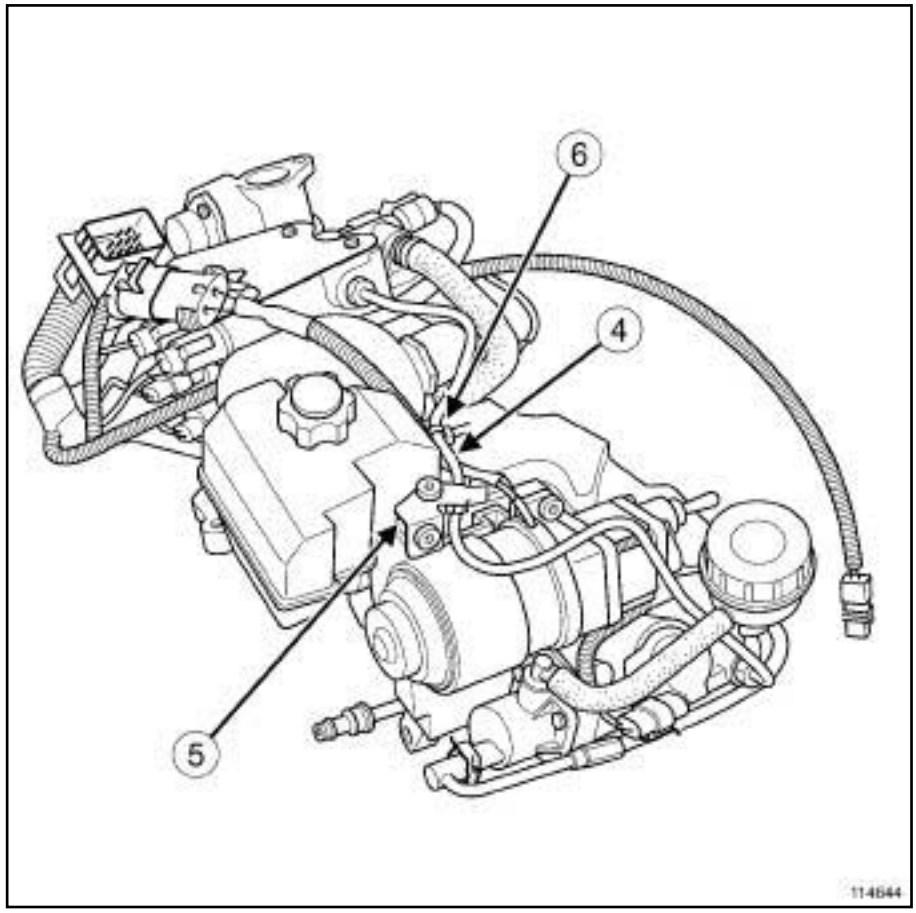


114157

❏ Disconnect:

- the connector (**2**) from the actuator module,
- the connector (**3**) from the pump assembly.

D4F, and JA3



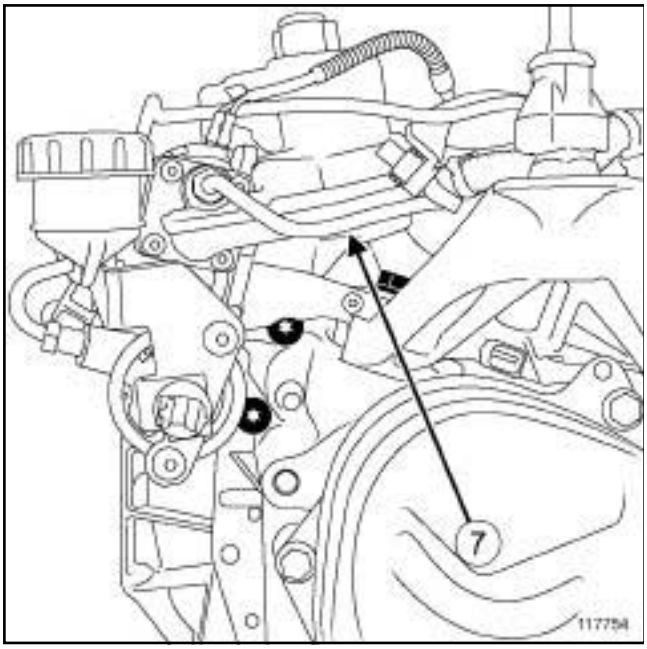
114644

❏ Remove:

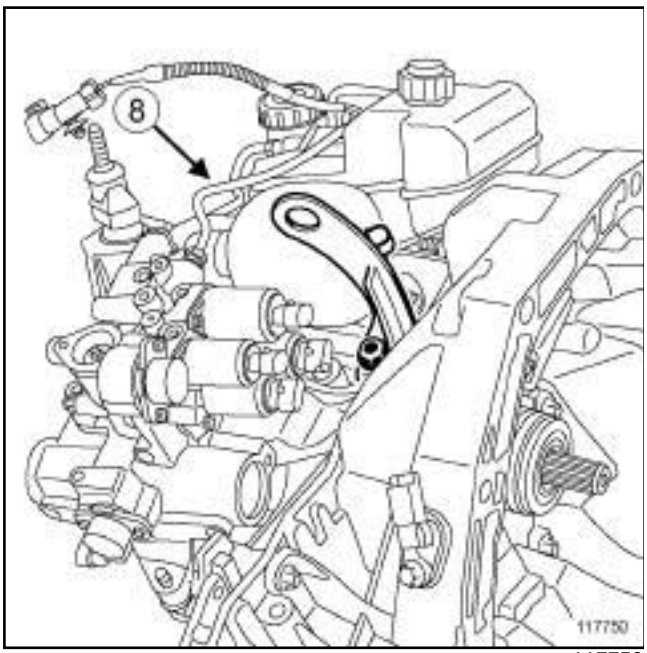
- the clutch pipe (**4**) ,
- the clutch pipe bracket (**5**) .

❏ Cut the clip on the clutch pipe (**6**) .

D4F, and JA3



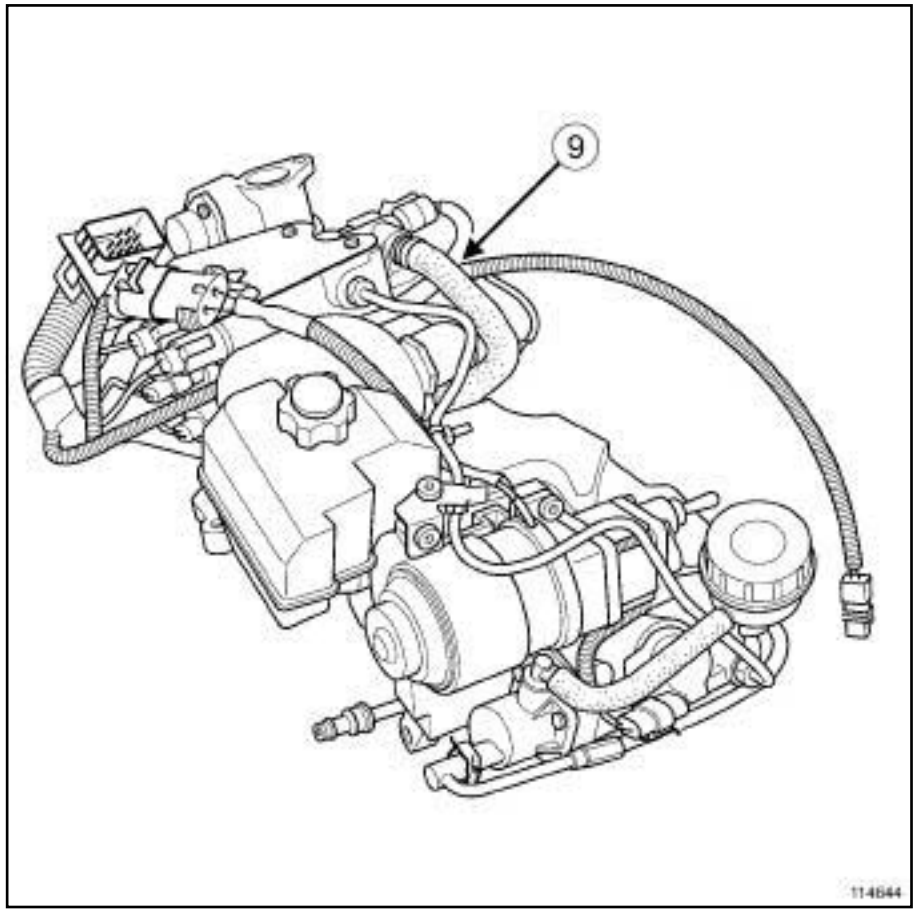
117754



117750

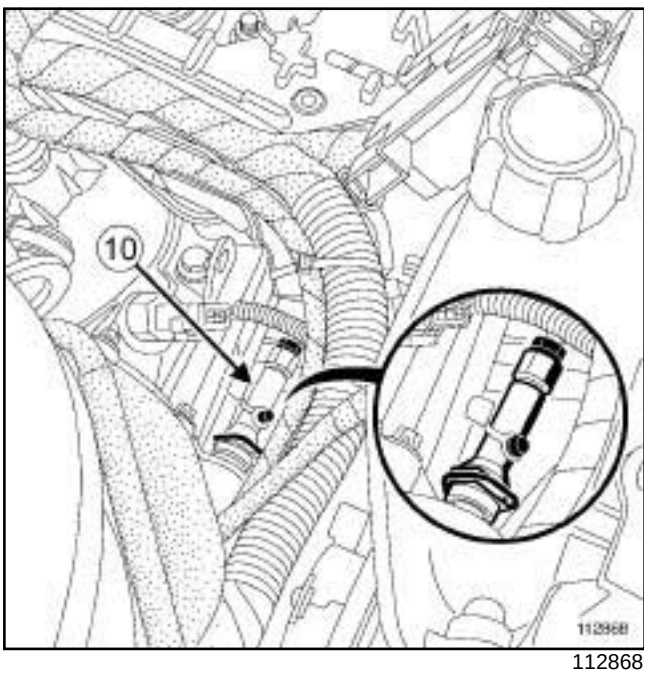
❑ Remove the high pressure pump pipe (**7**) and (**8**) .

D4F, and JA3



114644

❏ Remove the low pressure pump pipe (**9**) .

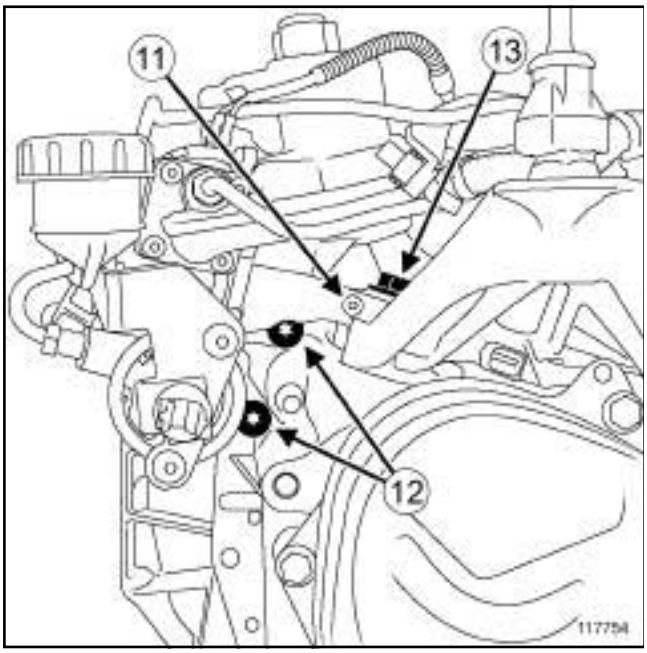


112868

❏ Disconnect the clutch control pipe (**10**) on the hydraulic cylinder by pushing on the clip.

D4F, and JA3

II - OPERATION FOR REMOVAL OF PART CONCERNED



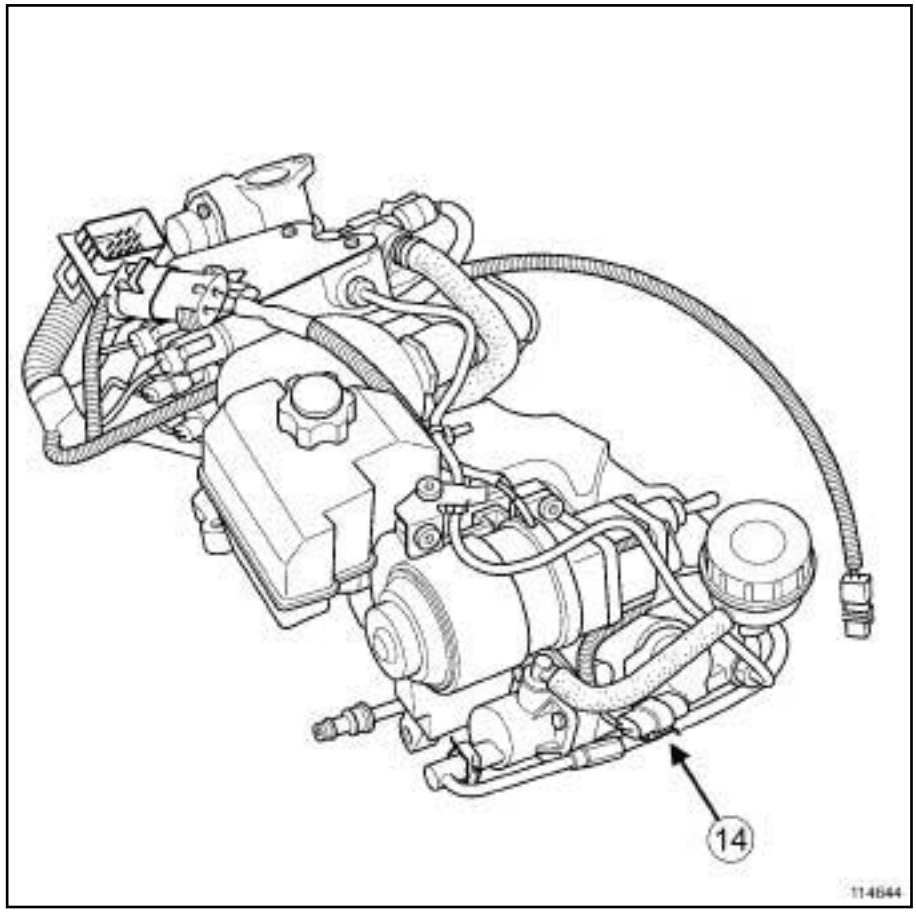
117754

❏ Drain the pump assembly reservoir using a syringe.

❏ Remove:

- the earth strap on the pump assembly (**11**) ,
- the lower bolts from the pump assembly (**12**) ,
- the upper bolt from the pump assembly (**13**) .

D4F, and JA3



114644

❏ Disconnect the connector from the pump assembly (**14**) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Position the pump assembly.

❏ Refit:

- the pump assembly upper bolt,
- the pump assembly lower bolts,
- the earth strap on the pump assembly.

❏ Tighten to torque:

- the **pump assembly lower bolts (24 N.m)**,
- the **pump assembly upper bolt (24 N.m)**.

❏ Connect the clutch control pipe on the hydraulic cylinder.

❏ Refit:

- the low pressure pump pipe,
- the high pressure pump pipe,
- the clutch pipe,
- the clutch pipe bracket,
- a new clip on the clutch pipe.

❏ Tighten to torque:

- the **low pressure pump pipe (14 N.m)**,
- the **high pressure pump pipe (14 N.m)**.

❏ Connect:

- the actuator module connector,
- the pump assembly connector.

❏ Refit the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (MR 392, 19D, Engine mounting).

❏ Remove the **(Mot. 1453)** and the **safety strap(s)**.

❏ Refit:

- the side stiffener bolts on the left-hand side of the vehicle,
- the side stiffener on the left-hand side of the vehicle,

- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).

❏ Connect the electrohydraulic unit connector.

❏ Fill the oil reservoir (see **21B**, **Sequential gearbox**, **Sequential gearbox oil: Specifications**, page **21B-82**) (Technical Note 6012, 04A, Lubricants) to between **32 and 38 mm** above the **MIN** mark.

❏ Refit:

- the Protection and Switching Unit,
- the wiring harness under the injection computer,
- the diesel injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the air filter box (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the engine undertray.

II - FINAL OPERATION

❏ Perform the following operations:

- bleed the clutch circuit (see **21B**, **Sequential gearbox**, **Sequential gearbox: Bleeding**, page **21B-84**)
- the necessary programming (see **Fault finding - Replacement of components** (MR 394, 21B, Sequential gearbox).

WARNING
After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

K9K, and JA5

Equipment required
Diagnostic tool

Tightening torques ▽	
solenoid valve bolts	**4 N.m**
bracket bolts on the actuator module	**4 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

Note:

Before removing the solenoid valves, always mark their respective connectors in order not to mix them up.

IMPORTANT

Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

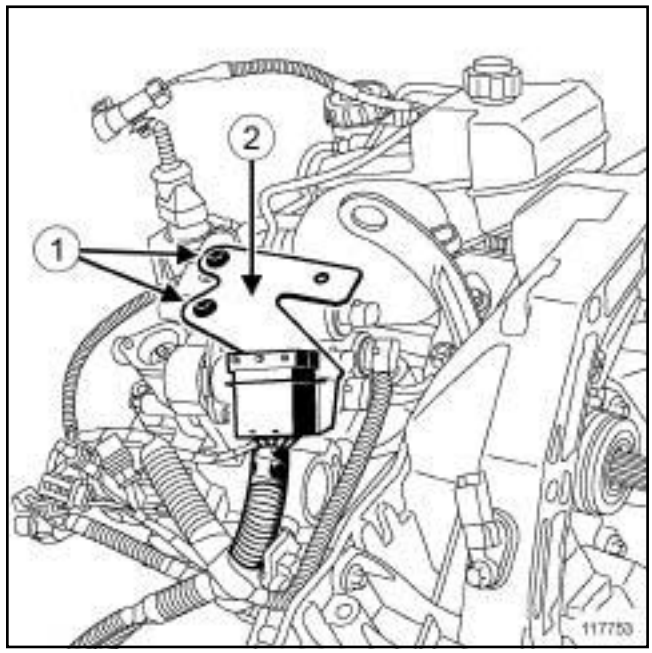
If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❑ Remove the actuator module (see **21B**, **Sequential gearbox**, **Actuator module: Removal - Refitting**, page **21B-34**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED

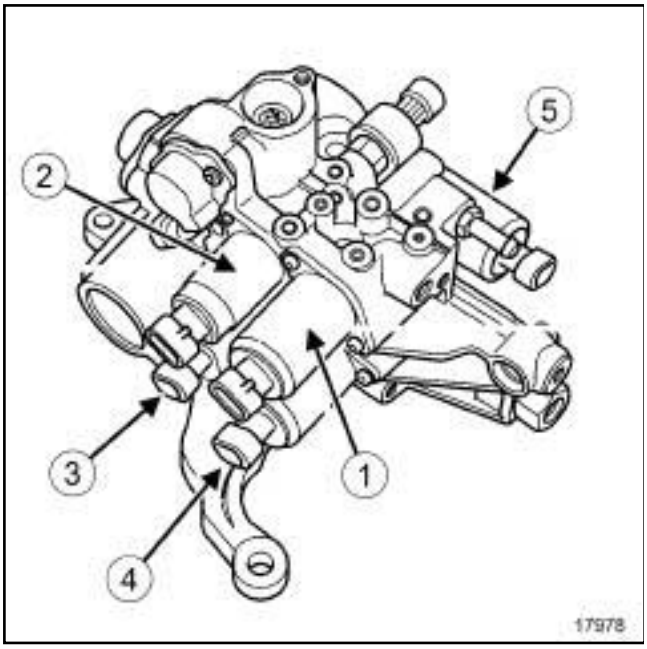


117753

❑ Remove:

- the bracket bolts on the actuator module (**1**) ,
- the actuator module bracket (**2**) .

K9K, and JA5



17978

❑ Remove the solenoid valve affected, following the correct removal order for the solenoid valves:

- (**1**) Clutch solenoid valve
- (**2**) Selection solenoid valve 4
- (**3**) Selection solenoid valve 3
- (**4**) Engagement solenoid valve 1

Note:

Remove engagement solenoid valve 2 (**5**) independently of the other solenoid valves.

REFITTING

I - REFITTING PREPARATION OPERATION

❑ Refit the actuator module (see **21B**, **Sequential gearbox**, **Actuator module: Removal - Refitting**, page **21B-34**) .

II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the solenoid valve affected,
- the bolts from the solenoid valve,
- the actuator module bracket.

❑ Tighten to torque:

- the **solenoid valve bolts (4 N.m)**,
- the **bracket bolts on the actuator module (4 N.m)**.

III - FINAL OPERATION

❑ Perform the following operations:

- bleed the clutch circuit (see **21B**, **Sequential gearbox**, **Sequential gearbox: Bleeding**, page **21B-84**)
- the necessary programming (see **Fault finding - Replacement of components** (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

D4F, and JA3

Equipment required
Diagnostic tool

Tightening torques ▽	
solenoid valve bolts	**4 N.m**
bracket bolts on the actuator module	**4 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

Note:

Before removing the solenoid valves, always mark their respective connectors in order not to mix them up.

IMPORTANT

Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

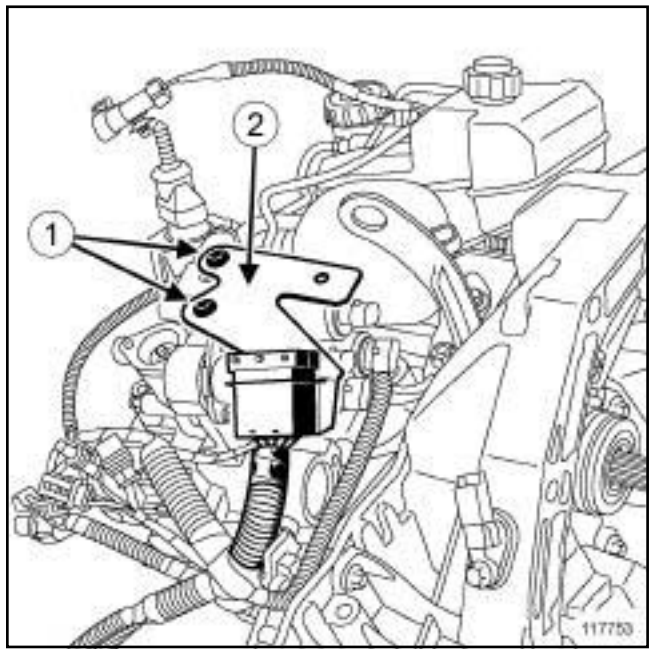
If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❑ Remove the actuator module (see **21B**, **Sequential gearbox**, **Actuator module: Removal - Refitting**, page **21B-34**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED

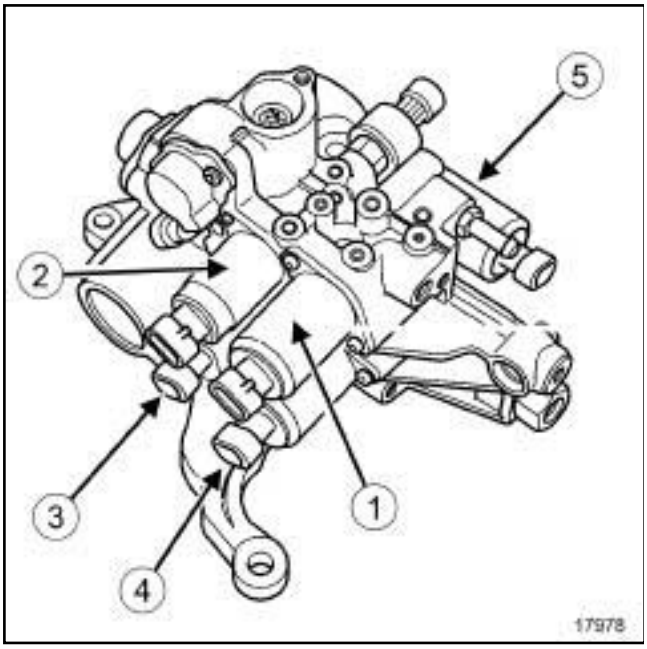


117753

❑ Remove:

- the bracket bolts on the actuator module (**1**) ,
- the actuator module bracket (**2**) .

D4F, and JA3



17978

❑ Remove the solenoid valve affected, following the correct removal order for the solenoid valves:

- (**1**) Clutch solenoid valve
- (**2**) Selection solenoid valve 4
- (**3**) Selection solenoid valve 3
- (**4**) Engagement solenoid valve 1

Note:

Remove engagement solenoid valve 2 (**5**) independently of the other solenoid valves.

REFITTING

I - REFITTING PREPARATION OPERATION

❑ Refit the actuator module (see **21B**, **Sequential gearbox**, **Actuator module: Removal - Refitting**, page **21B-34**) .

II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the solenoid valve affected,
- the bolts from the solenoid valve,
- the actuator module bracket.

❑ Tighten to torque:

- the **solenoid valve bolts (4 N.m)**,
- the **bracket bolts on the actuator module (4 N.m)**.

III - FINAL OPERATION

❑ Perform the following operations:

- bleed the clutch circuit (see **21B**, **Sequential gearbox**, **Sequential gearbox: Bleeding**, page **21B-84**)
- the necessary programming (see **Fault finding - Replacement of components** (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

K9K, and JA5

Tightening torques ▽	
engagement sensor bolts	4 Nm

REMOVAL

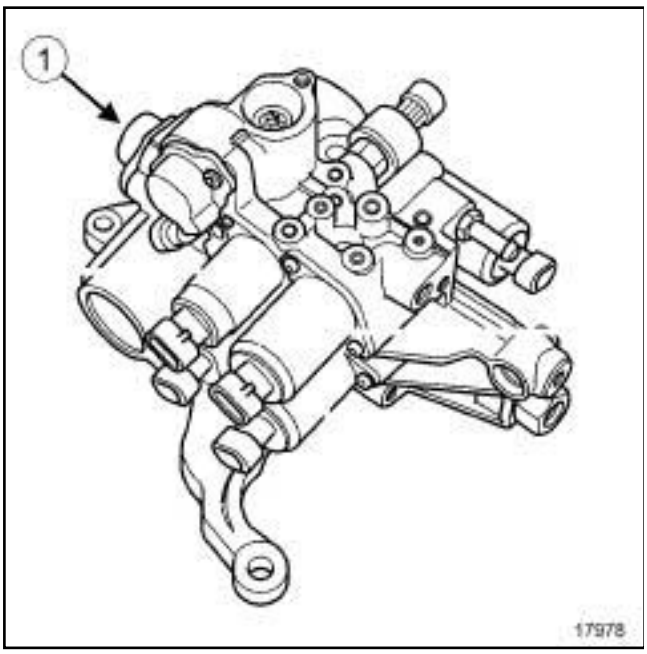
I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

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

❏ Remove the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

II - OPERATION FOR REMOVAL OF PART CONCERNED



17978

❏ Disconnect the engagement sensor connector.

❏ Remove:

- the engagement sensor bolts,

- the engagement sensor (**1**) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the engagement sensor,

- the engagement sensor bolts.

❏ Tighten to torque the **engagement sensor bolts (4 Nm)**.

❏ Connect the engagement sensor connector.

II - FINAL OPERATION.

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

❏ Refit the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

❏ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

D4F, and JA3

Tightening torques ▽	
engagement sensor bolts	4 Nm

REMOVAL

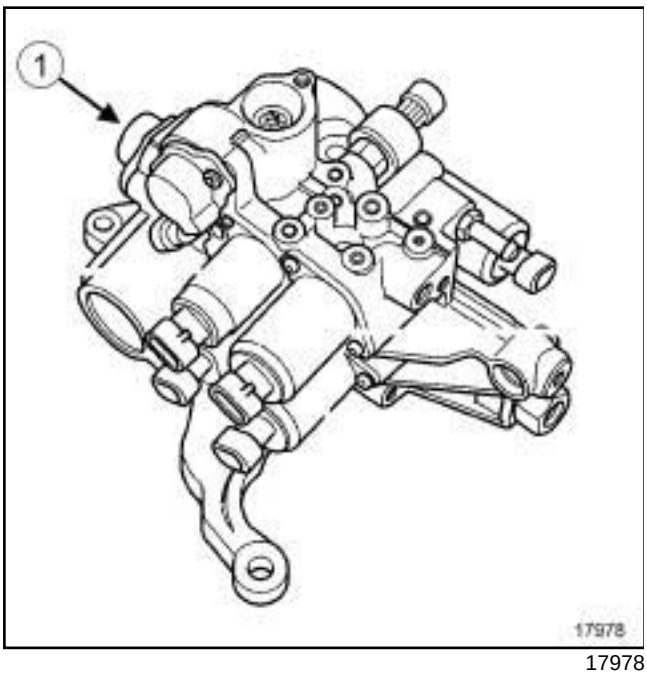
I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

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

❏ Remove the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

II - OPERATION FOR REMOVAL OF PART CONCERNED



17978

❏ Disconnect the engagement sensor connector.

❏ Remove:

- the engagement sensor bolts,
- the engagement sensor (**1**) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the engagement sensor,
- the engagement sensor bolts.

❏ Tighten to torque the **engagement sensor bolts (4 Nm)**.

❏ Connect the engagement sensor connector.

II - FINAL OPERATION.

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

❏ Refit the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

❏ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

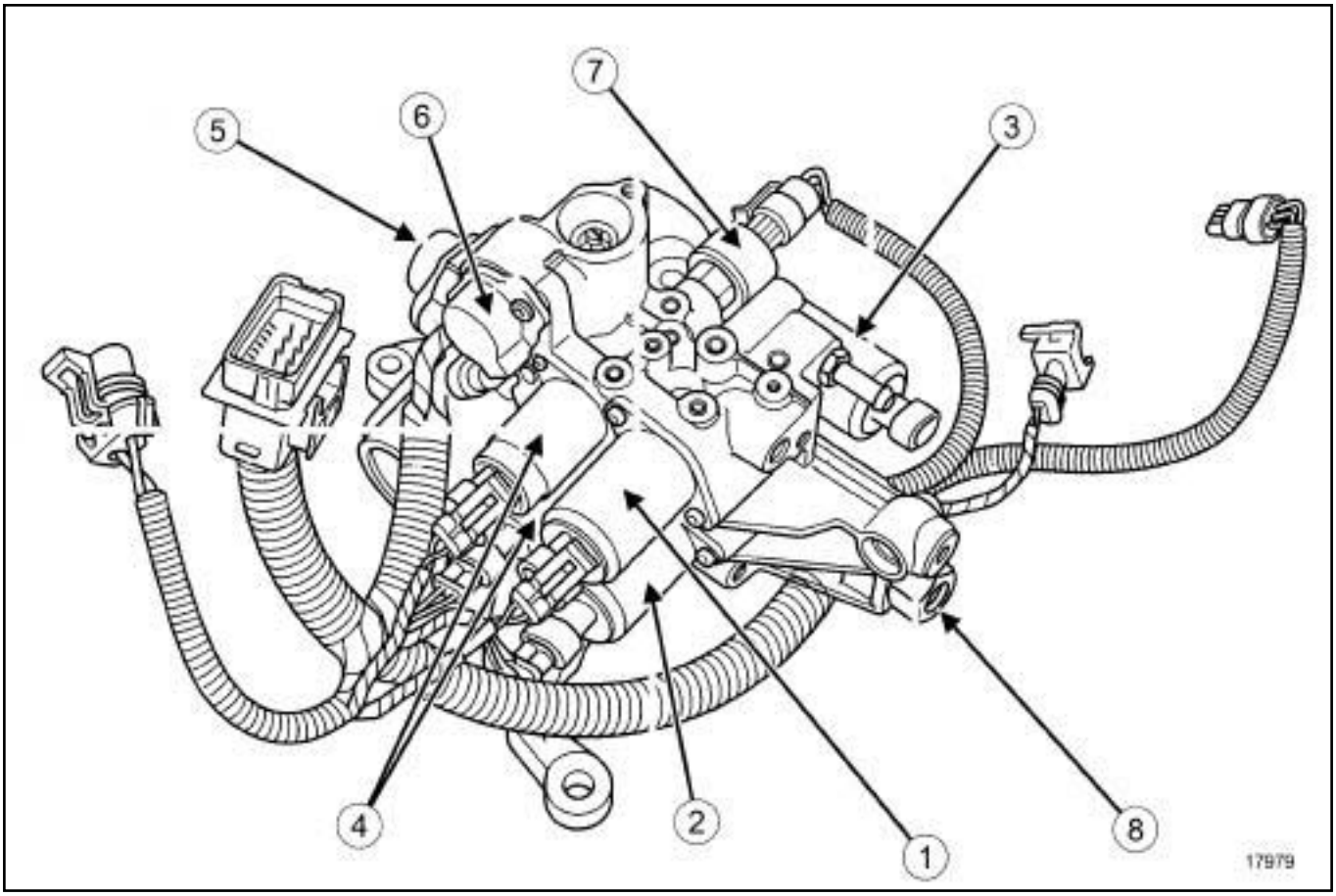
K9K, and JA5

Special tooling required	
Mot. 1453	Engine anchorage support with multiple adjustments and retaining straps.

Equipment required
Diagnostic tool
safety strap(s)

Tightening torques ▽	
clutch pipe nuts	**14 Nm**
high pressure pump pipe nuts	**14 Nm**
gearbox mounting nut	**21 Nm**

Tightening torques ▽	
actuator module nuts	**24 Nm**
bolts mounting the left-hand suspended mounting on the gearbox	**62 Nm**
stud mounting the left-hand suspended mounting on the gearbox (if it has been changed)	**180 Nm**
bolts mounting the left-hand suspended mounting on the body	**62 Nm**
gearbox left-hand rubber pad nut	**62 Nm**



17979

(**1**) Clutch solenoid valve

(**2**) Gear engagement solenoid valve

(**18**) Gear engagement solenoid valve

(**4**) Selection solenoid valve

(**5**) Engagement sensor

(**20**) Gear selection sensor

(**7**) Solenoid valve unit pressure sensor

(**8**) High pressure filter

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

IMPORTANT
Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

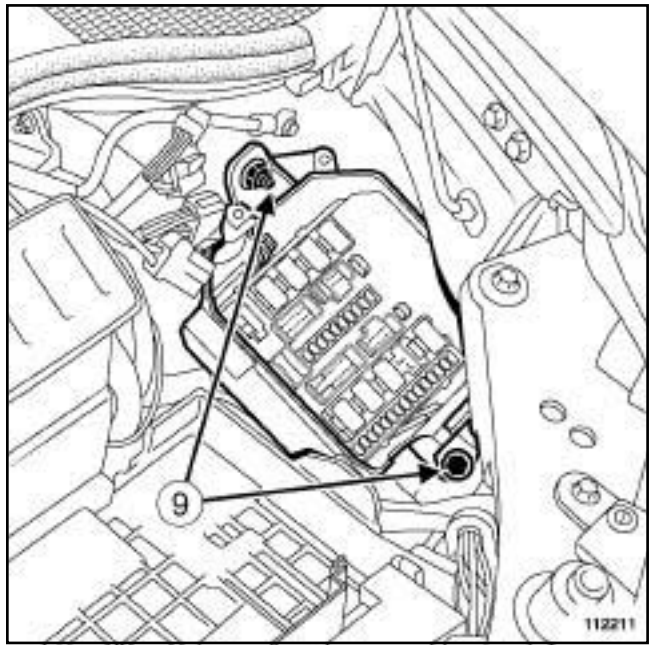
If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❑ Remove:

- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the diesel injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection),
- the wiring harness nut under the injection computer.

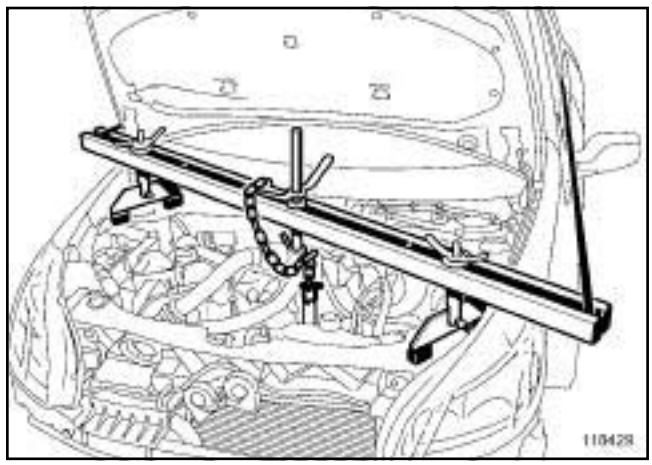


112211

❑ Remove the Protection and Switching Unit (**9**) .

❑ Remove:

- the Protection and Switching Unit,
- the wiring harness under the injection computer.



118429

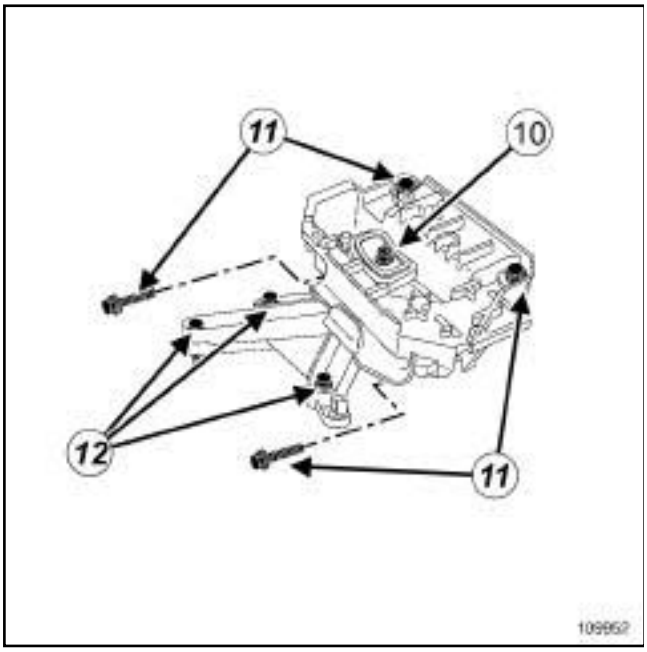
❑ Fit the **(Mot. 1453)** with a **safety strap(s)**.

❑ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- the side stiffener bolts on the left-hand side of the vehicle,
- the side stiffener on the left-hand side of the vehicle,

K9K, and JA5

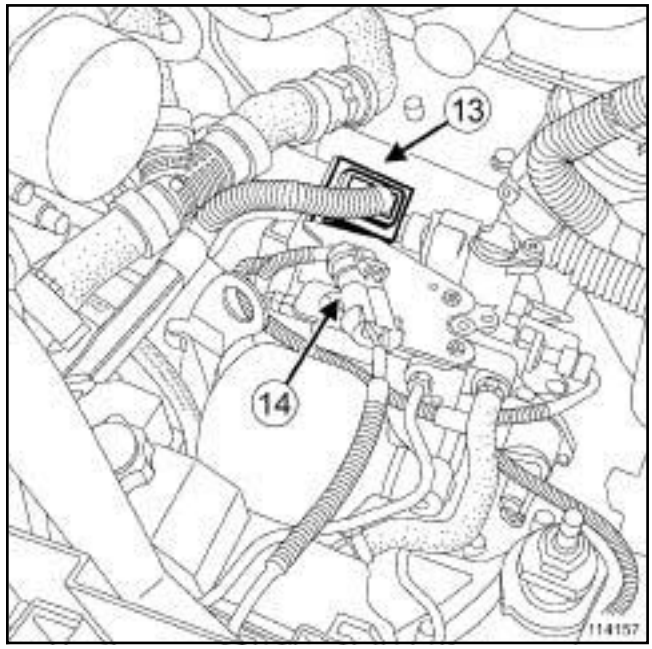
- the engine undertray.



109952

❏ Remove:

- the nut (**10**) from the gearbox left-hand rubber pad,
- the bolts (**11**) from the left-hand suspended mounting on the body,
- the left-hand suspended mounting from the body,
- the bolts (**12**) from the gearbox left-hand suspended mounting,
- the gearbox left-hand suspended mounting.

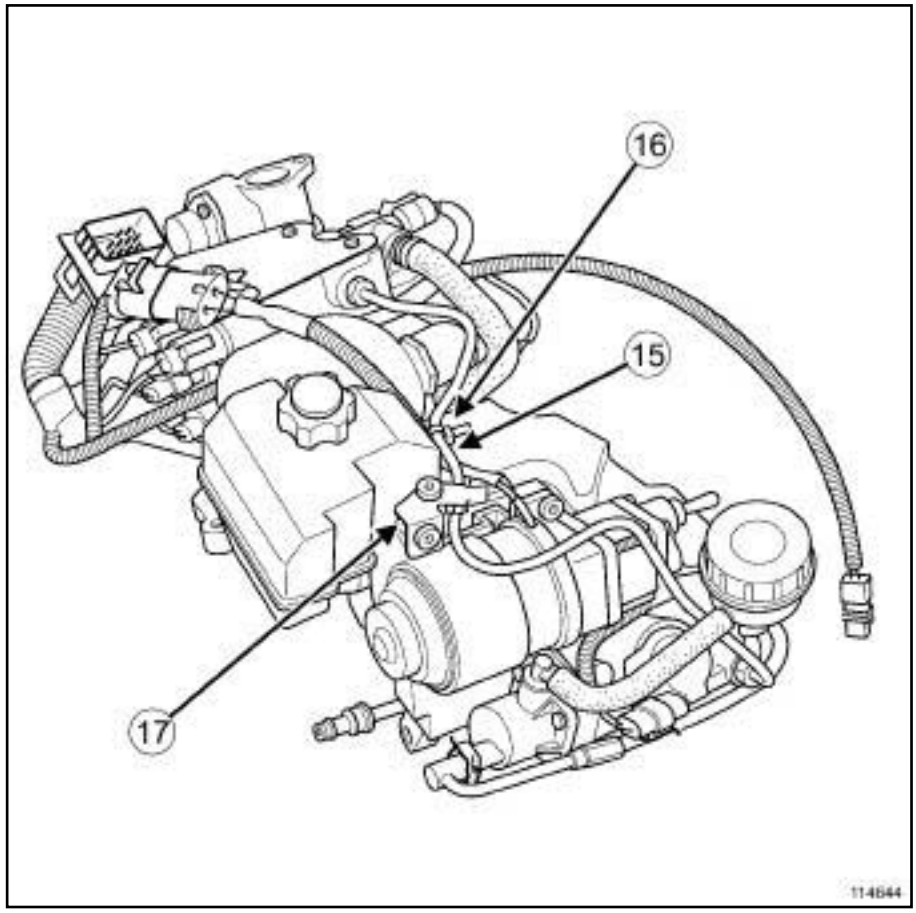


114157

❏ Disconnect:

- the connector from the actuator module (**13**) ,
- the connector from the pump assembly (**14**) .

K9K, and JA5



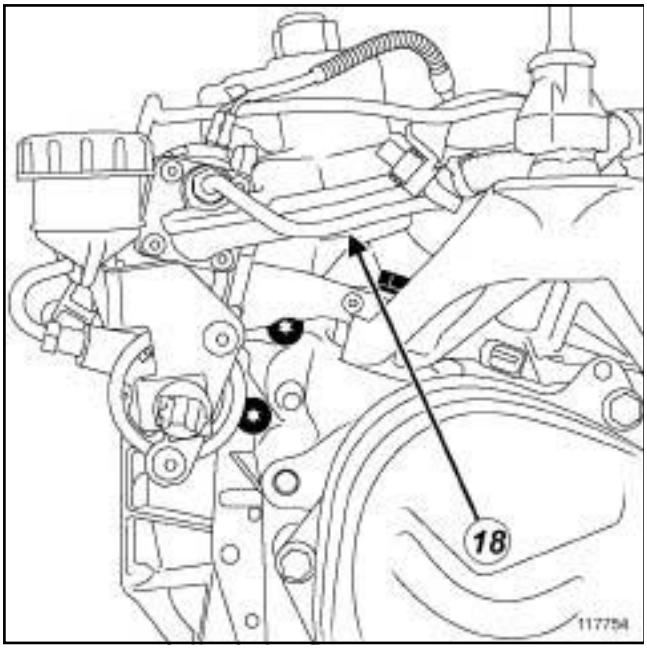
114644

❏ Remove:

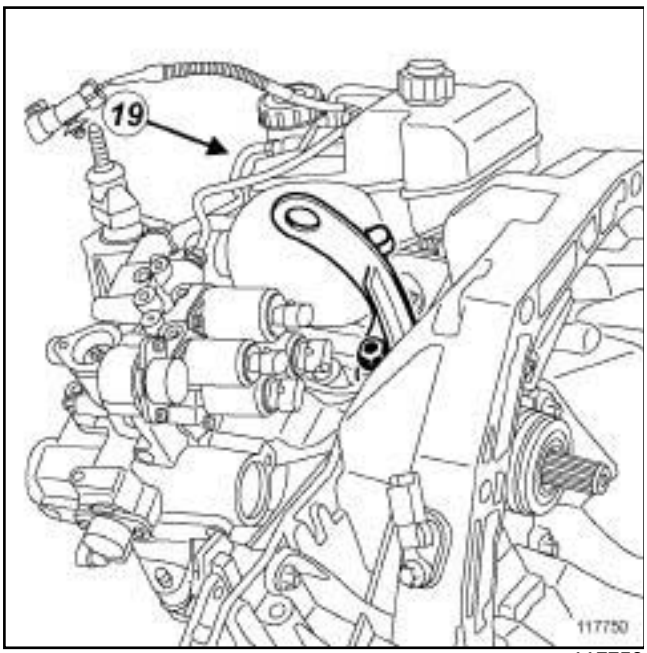
- the clutch pipe (**15**) ,
- the clutch pipe bracket (**16**) .

❏ Cut the clip on the clutch pipe (**17**) .

K9K, and JA5



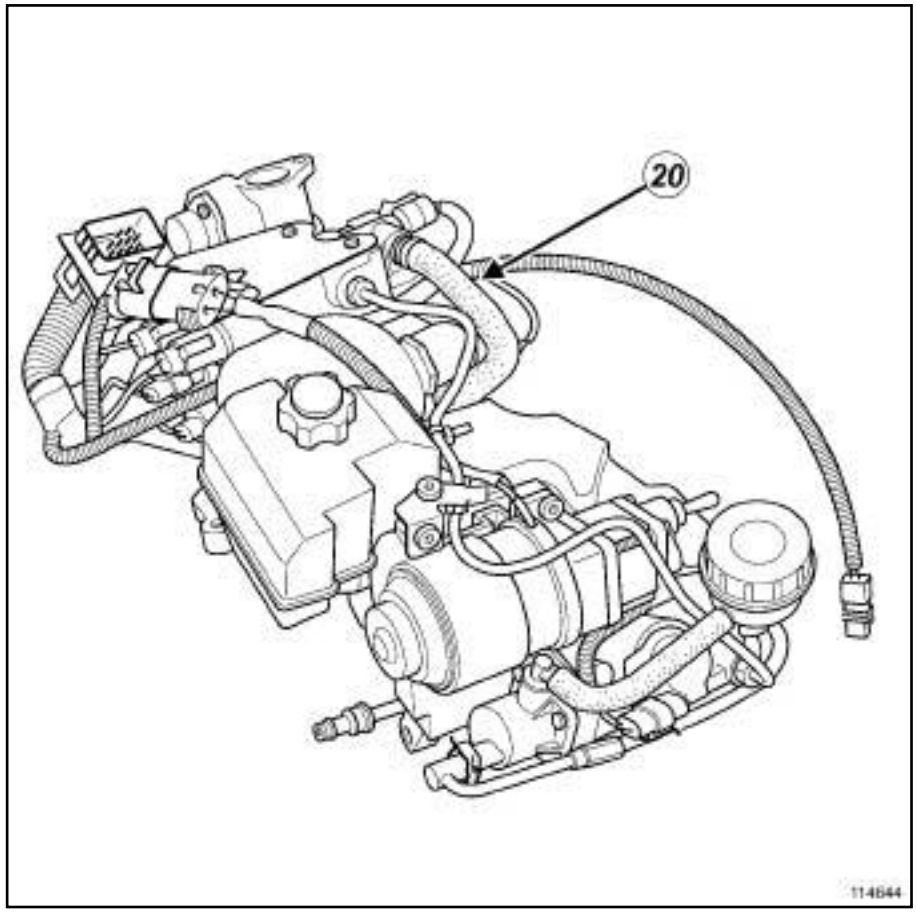
117754



117750

❑ Remove the high pressure pump pipes (**18**) and (**20**) .

K9K, and JA5



114644

❑ Remove the low pressure pump pipe (**20**) .

Note:

To avoid any sequential gearbox malfunction, mark the routing for the solenoid valve and sensor wiring on the actuator module.

II - OPERATION FOR REMOVAL OF PART CONCERNED

❑

Note:

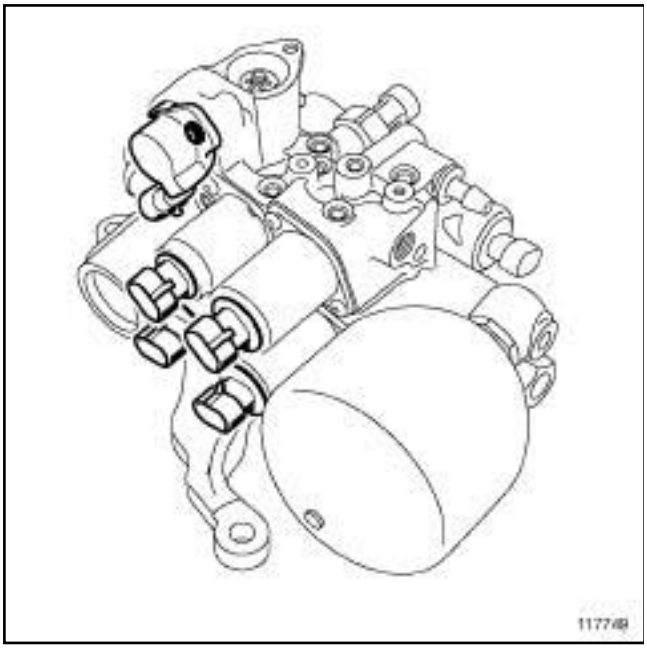
The actuator module can be removed or refitted with the pressure accumulator in place.

❑ Remove:

- the lifting eye on the gearbox,
- the nuts from the actuator module.

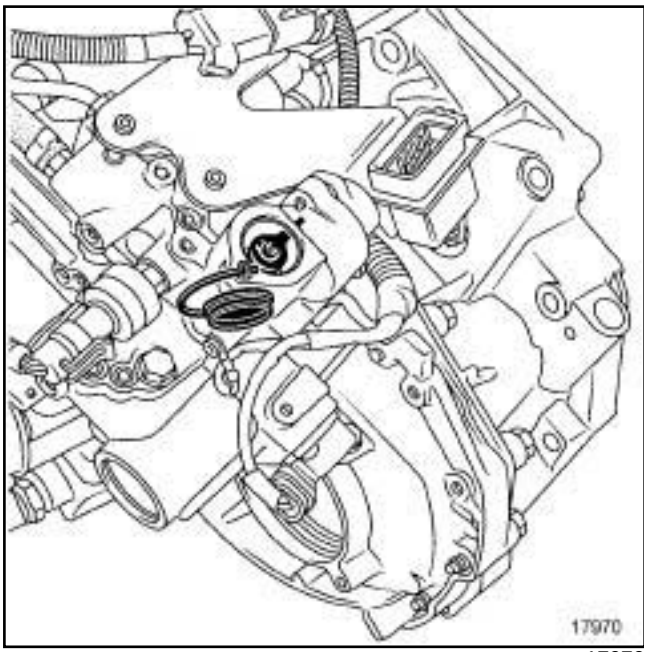
K9K, and JA5

Actuator module



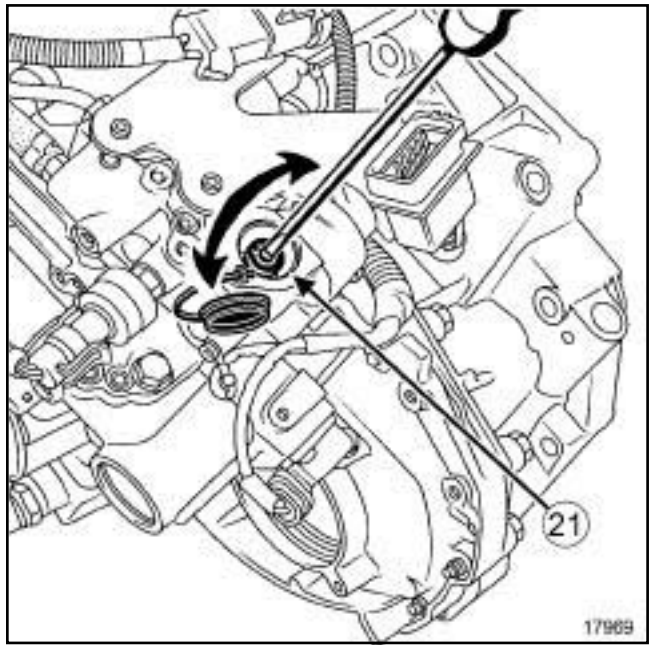
117749

Selector shaft locked



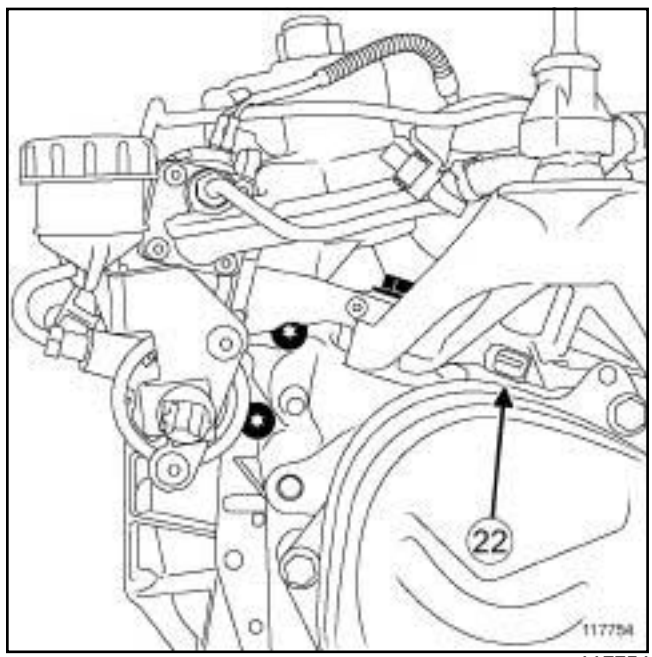
17970

Selector shaft unlocked



17969

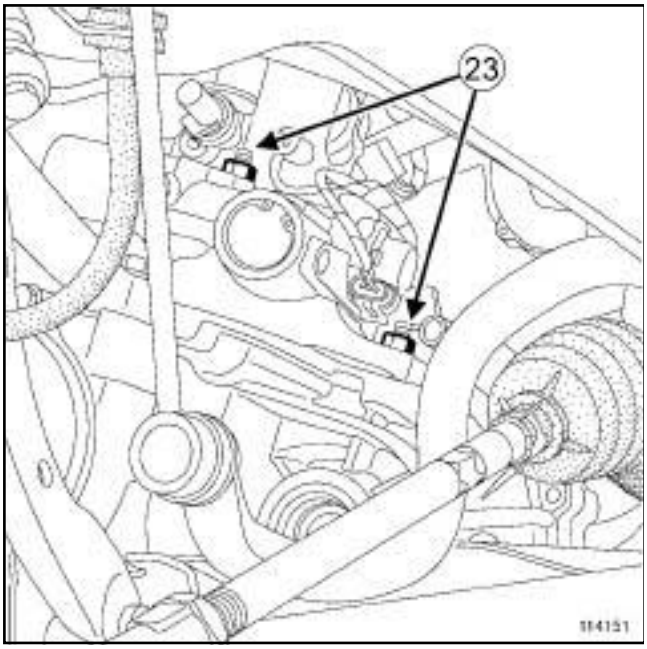
❑ Unlock the gear selector shaft (**21**) by turning the shaft by a quarter of a turn using a screwdriver.



117754

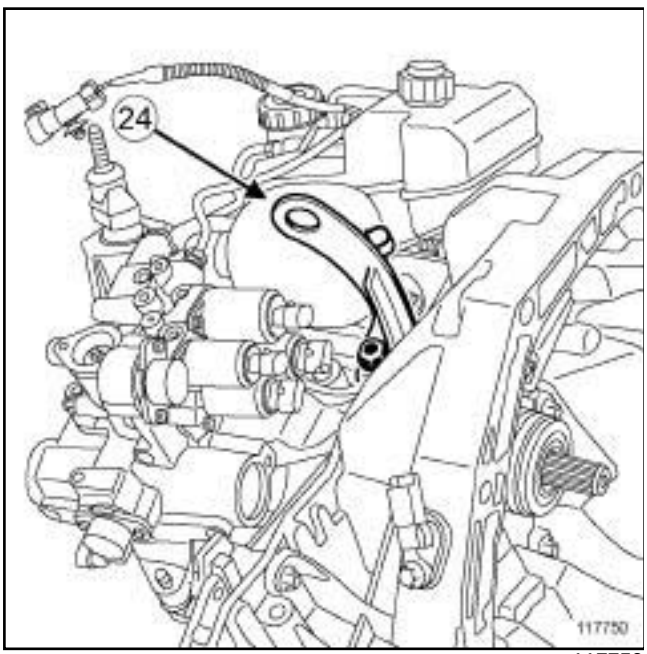
❑ Disconnect the sequential gearbox sensor connector (**22**) .

K9K, and JA5



114151

❏ Remove the nuts (**23**) from the electro-hydraulic unit.



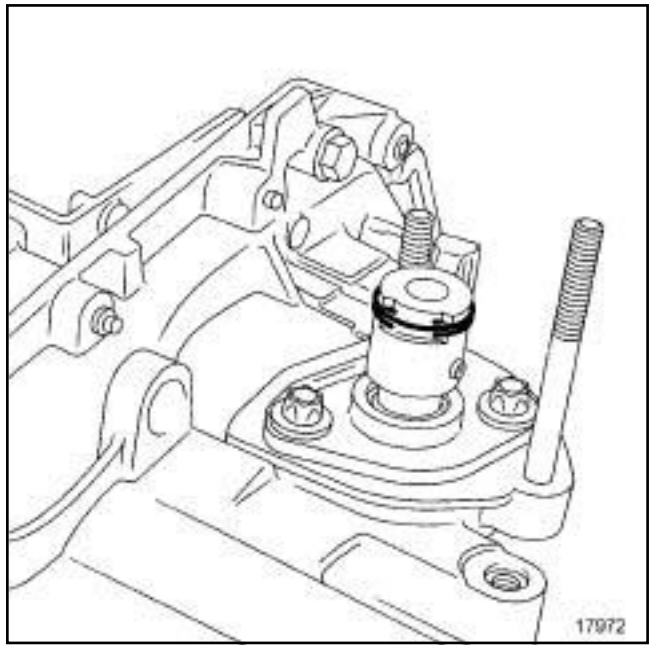
117750

❏ Remove:

- the lifting eye nut on the actuator module,
- the lifting eye (**24**) on the actuator module,
- the actuator module.

I - REFITTING PREPARATIONS OPERATION

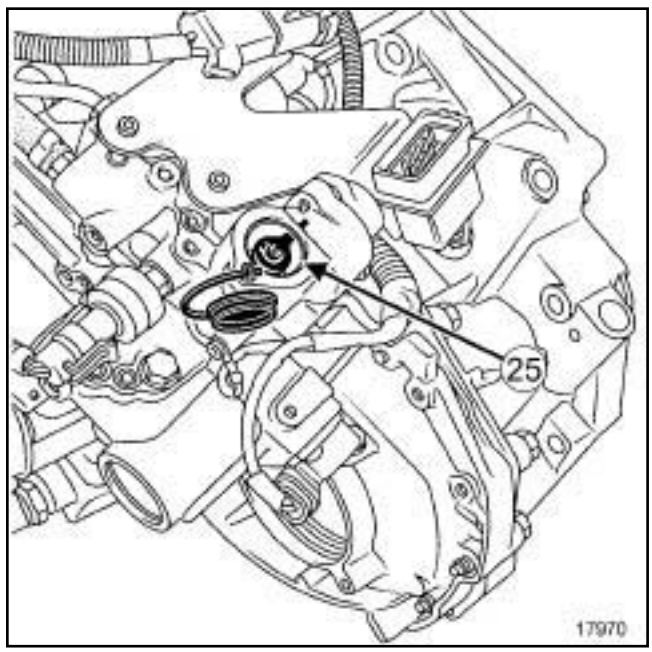
❏ Check that the two half-moons are positioned correctly.



17972

❏ Position the two half-moons and the circlips in the selector shaft neck.

❏ Coat the two half-moons and the selector finger with **MOLYCOTE**.



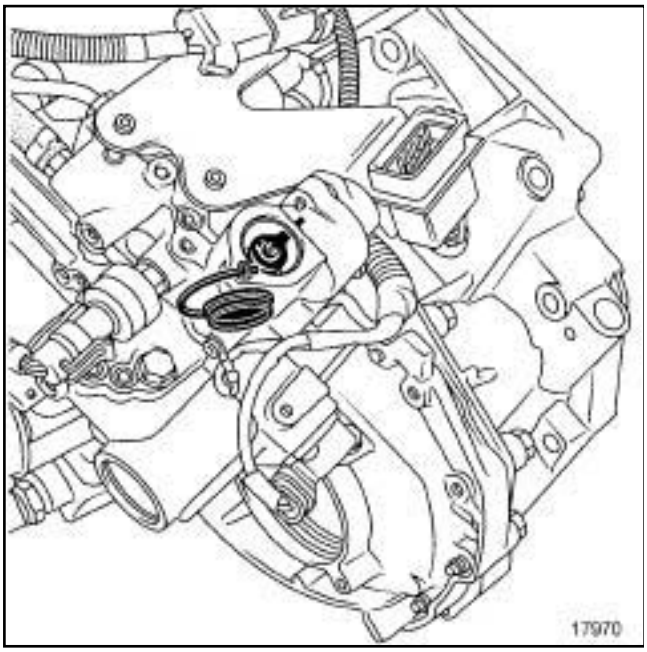
17970

❏ Lock the selector shaft (**25**) .

❏ Position the flat seal.

K9K, and JA5

II - REFITTING OPERATION FOR PART CONCERNED



17970

❏ Using a screwdriver, press on the selector shaft to clip it onto the actuator module.

❏ Refit:

- the low pressure pump pipe,
- the high pressure pump pipe,
- the clutch pipe,
- the clutch pipe bracket,
- a new clip on the clutch pipe,
- the nuts from the actuator module.

❏ Without tightening, fit:

- the clutch pipe nuts,
- the high pressure pump pipe nuts.

❏ Torque tighten:

- the **clutch pipe nuts (14 Nm)**,
- the **high pressure pump pipe nuts (14 Nm)**,
- the **gearbox mounting nut (21 Nm)**,
- the **actuator module nuts (24 Nm)**.

❏ Connect the sequential gearbox speed sensor connector.

❏ Remove the **(Mot. 1453)** and the **safety strap(s)**.

❏ Reposition the left-hand suspended mounting on the gearbox.

❏ Refit the bolts mounting the left-hand suspended mounting on the gearbox.

❏ Torque tighten:

- the **bolts mounting the left-hand suspended mounting on the gearbox (62 Nm)**,
- the **stud mounting the left-hand suspended mounting on the gearbox (if it has been changed) (180 Nm)**

❏ Reposition the left-hand suspended mounting on the body.

❏ Refit the left-hand suspended mounting bolts on the body.

❏ Torque tighten:

- the **bolts mounting the left-hand suspended mounting on the body (62 Nm)**,
- the **gearbox left-hand rubber pad nut (62 Nm)**.

❏ Refit:

- the side stiffener bolts on the left-hand side of the vehicle,
- the side stiffener on the left-hand side of the vehicle,
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- the engine undertray,
- the Protection and Switching Unit,
- the diesel injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),

K9K, and JA5

III - FINAL OPERATION.

❑ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

SEQUENTIAL GEARBOX
Actuator module: Removal - Refitting

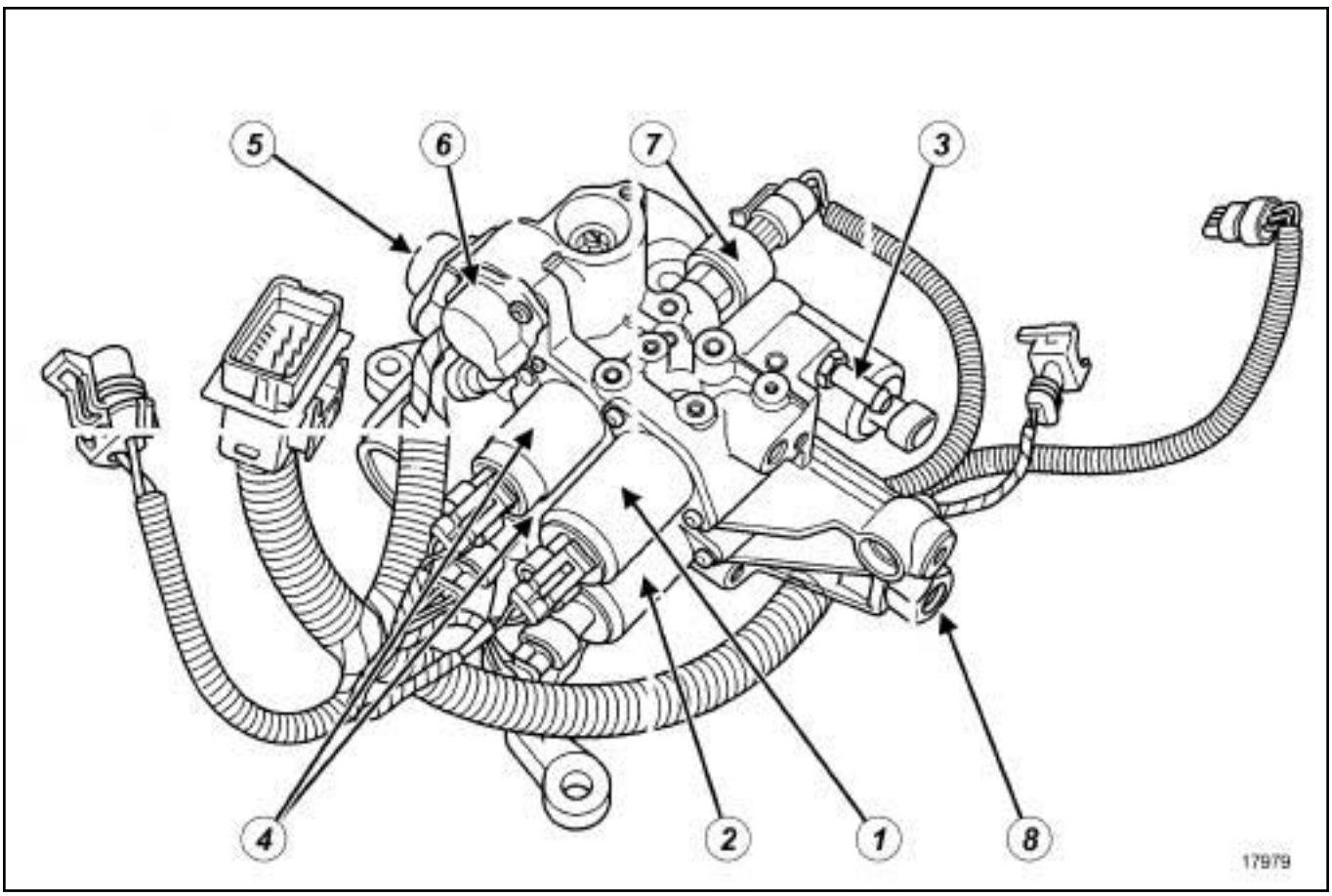
D4F, and JA3

Special tooling required	
Mot. 1453	Engine anchorage support with multiple adjustments and retaining straps.

Equipment required
Diagnostic tool
safety strap(s)

Tightening torques ▽	
clutch pipe nuts	**14 Nm**
high pressure pump pipe nuts	**14 Nm**
gearbox mounting nut	**21 Nm**

Tightening torques ▽	
actuator module nuts	**24 Nm**
bolts mounting the left-hand suspended mounting on the gearbox	**62 Nm**
stud mounting the left-hand suspended mounting on the gearbox (if it has been changed)	**180 Nm**
bolts mounting the left-hand suspended mounting on the body	**62 Nm**
gearbox left-hand rubber pad nut	**62 Nm**



17979

(**1**) Clutch solenoid valve

(**2**) Gear engagement solenoid valve

(**3**) Gear engagement solenoid valve

(**4**) Selection solenoid valve

(**5**) Engagement sensor
(**6**) Gear selection sensor
(**7**) Solenoid valve unit pressure sensor
(**8**) High pressure filter

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

IMPORTANT
Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

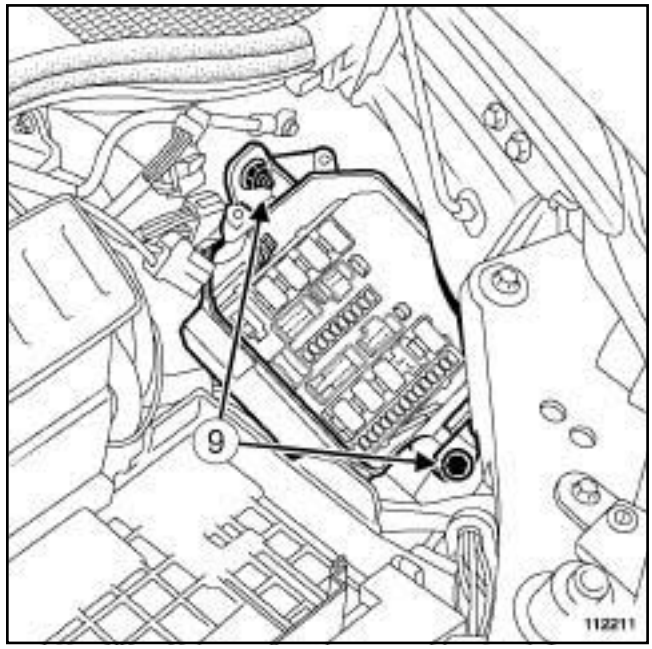
If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❑ Remove:

- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the diesel injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection),
- the wiring harness nut under the injection computer.

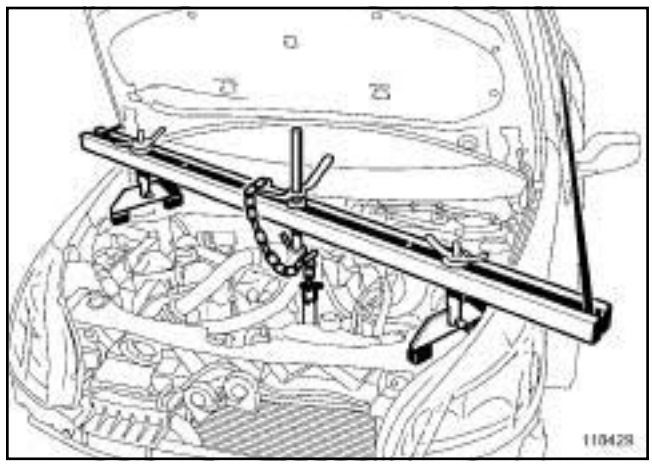


112211

❑ Remove the Protection and Switching Unit bolts (**9**) .

❑ Remove:

- the Protection and Switching Unit,
- the wiring harness under the injection computer.



118429

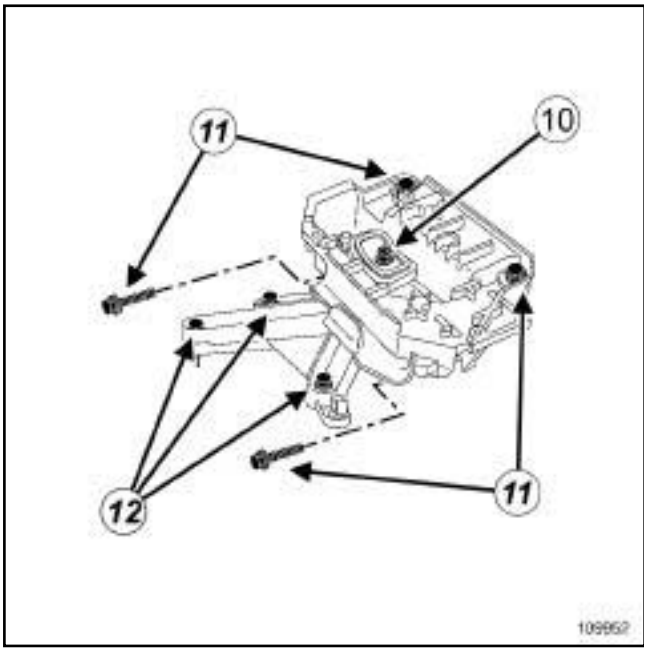
❑ Fit the **(Mot. 1453)** with a **safety strap(s)**.

❑ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- the side stiffener bolts on the left-hand side of the vehicle,
- the side stiffener on the left-hand side of the vehicle,

D4F, and JA3

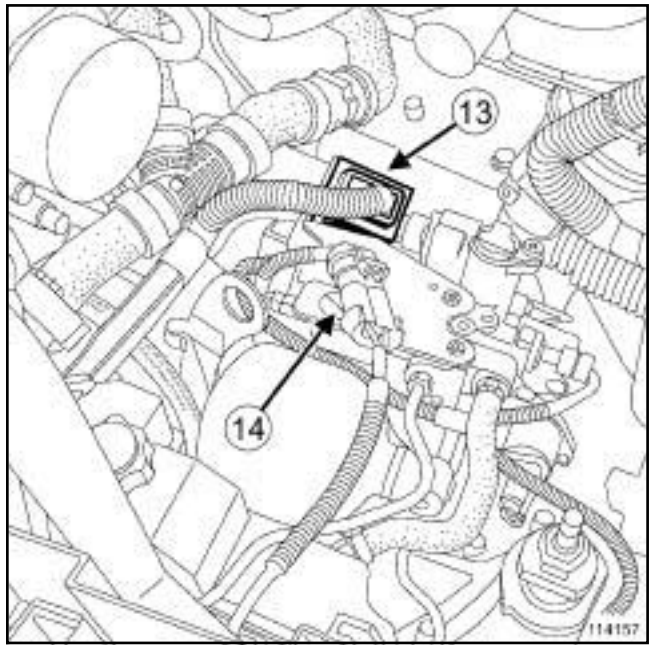
- the engine undertray.



109952

❏ Remove:

- the nut (**10**) from the gearbox left-hand rubber pad,
- the bolts (**11**) from the left-hand suspended mounting on the body,
- the left-hand suspended mounting from the body,
- the bolts (**12**) from the gearbox left-hand suspended mounting,
- the gearbox left-hand suspended mounting.

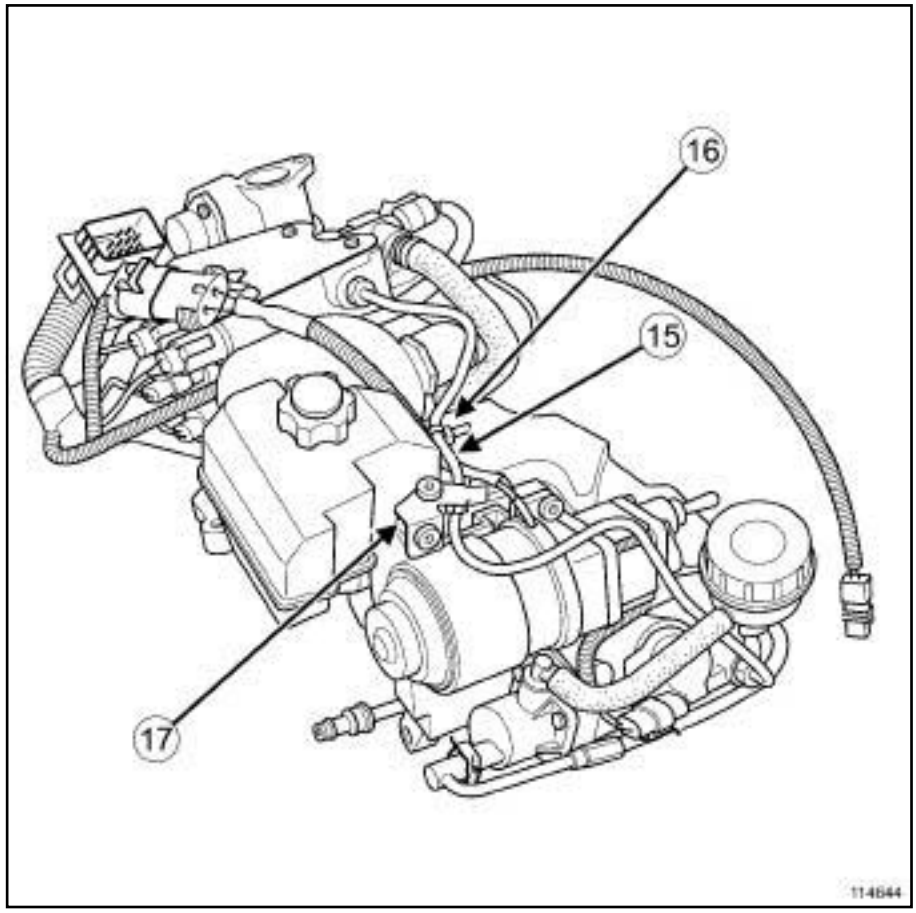


114157

❏ Disconnect:

- the connector from the actuator module (**13**) ,
- the connector from the pump assembly (**14**) .

D4F, and JA3



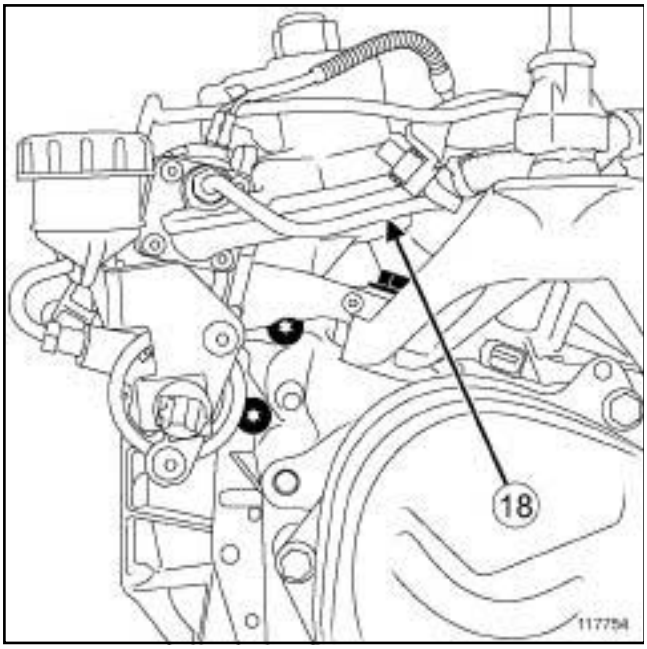
114644

❏ Remove:

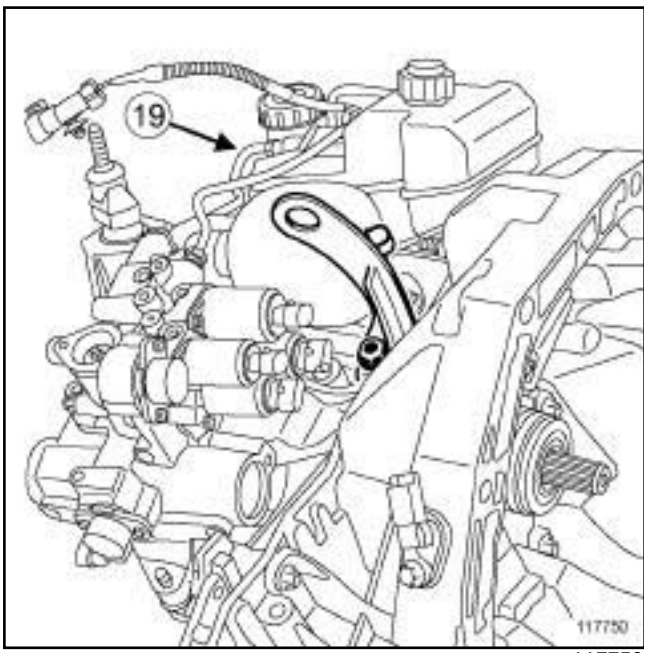
- the clutch pipe (**15**) ,
- the clutch pipe bracket (**16**) .

❏ Cut the clip on the clutch pipe (**17**) .

D4F, and JA3



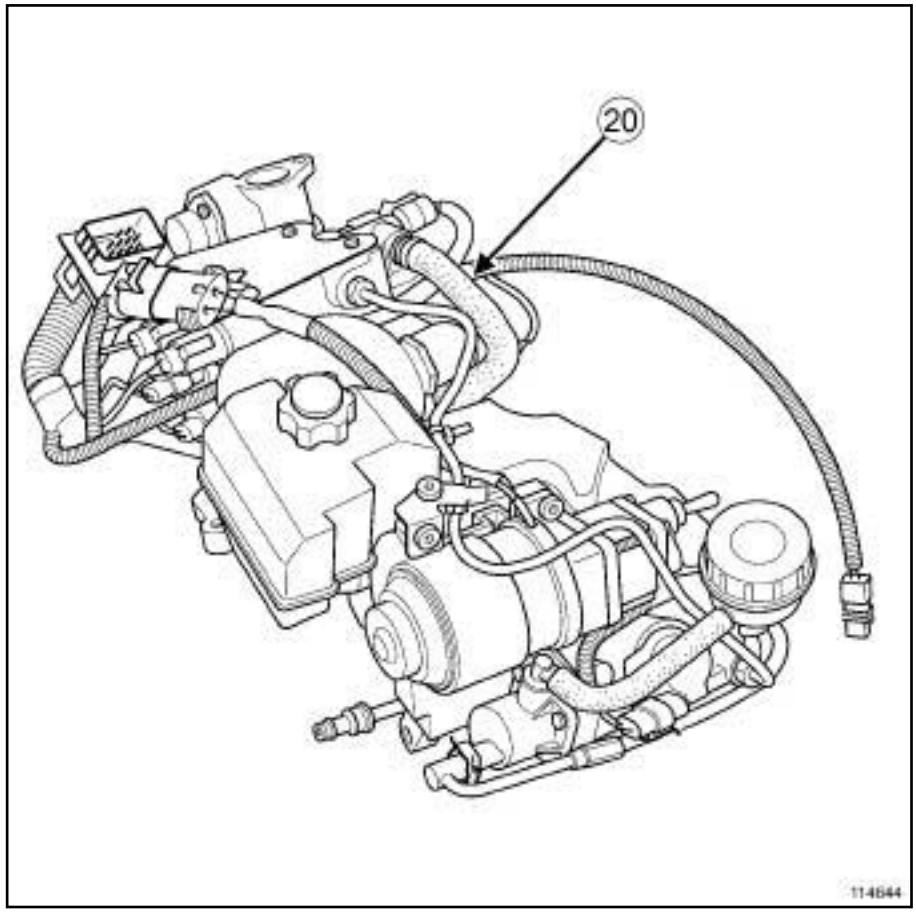
117754



117750

❑ Remove the high pressure pump pipes (**18**) and (**19**) .

D4F, and JA3



114644

❑ Remove the low pressure pump pipe (**20**) .

Note:

To avoid any sequential gearbox malfunction, mark the routing for the solenoid valve and sensor wiring on the actuator module.

II - OPERATION FOR REMOVAL OF PART CONCERNED

❑

Note:

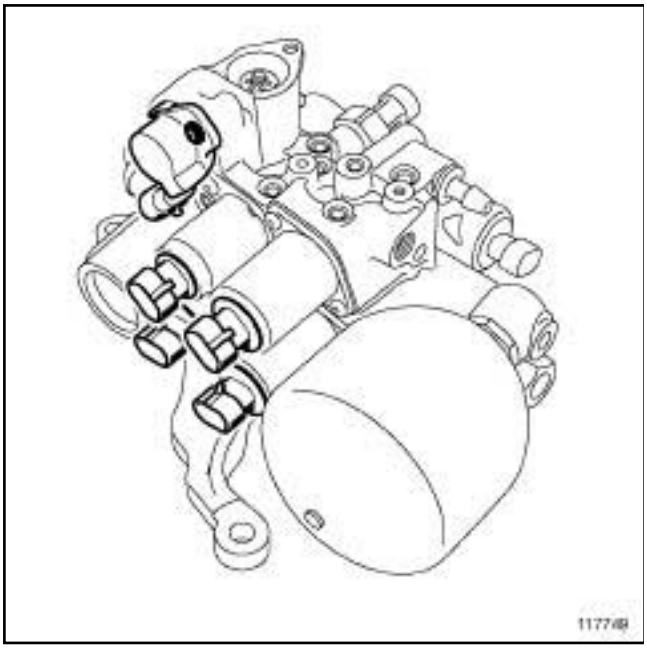
The actuator module can be removed or refitted with the pressure accumulator in place.

❑ Remove:

- the lifting eye on the gearbox,
- the nuts from the actuator module.

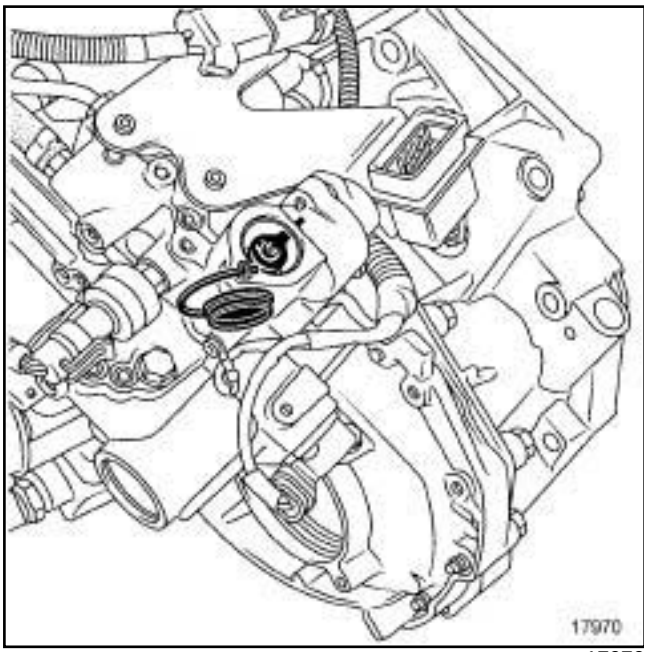
D4F, and JA3

Actuator module



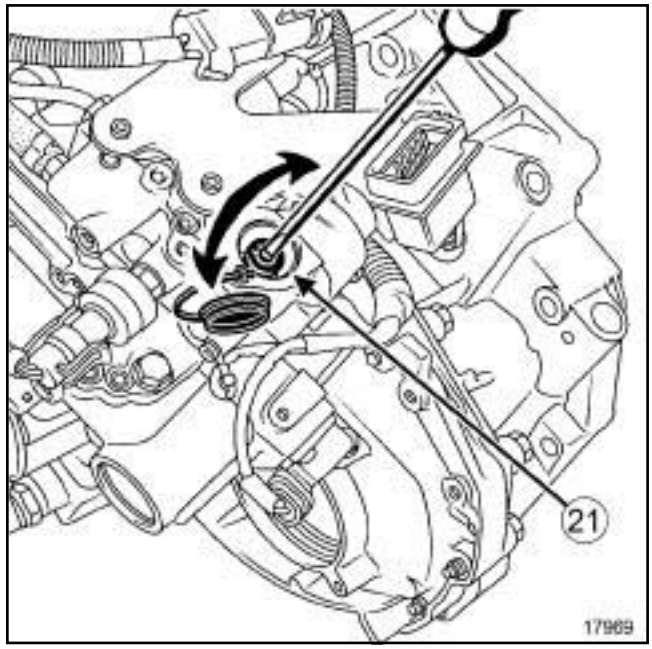
117749

Selector shaft locked



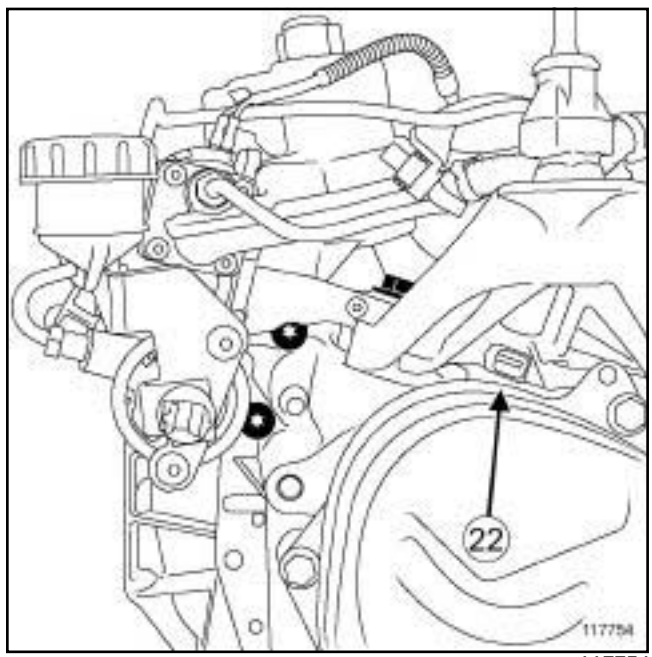
17970

Selector shaft unlocked



17969

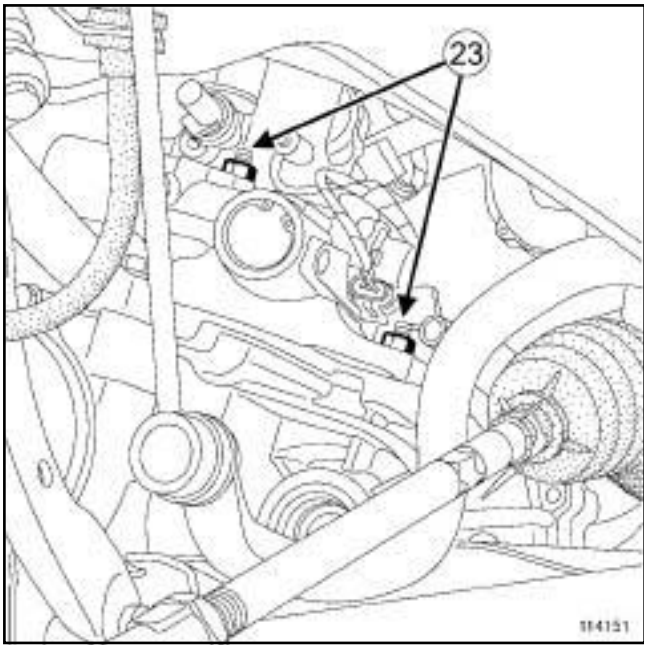
❏ Unlock the gear selector shaft by turning the shaft (**21**) by a quarter of a turn using a screwdriver.



117754

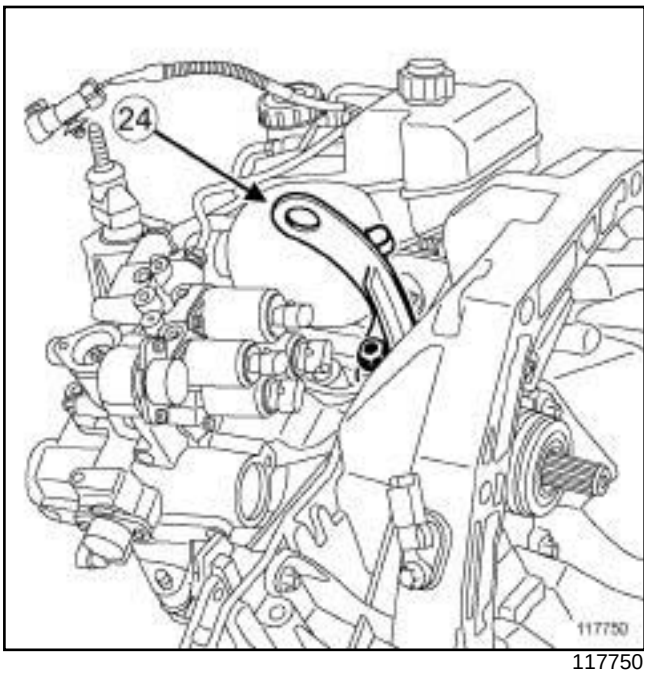
❏ Disconnect the sequential gearbox speed sensor connector (**22**) .

D4F, and JA3



114151

❑ Remove the nuts (**23**) from the electro-hydraulic unit.



117750

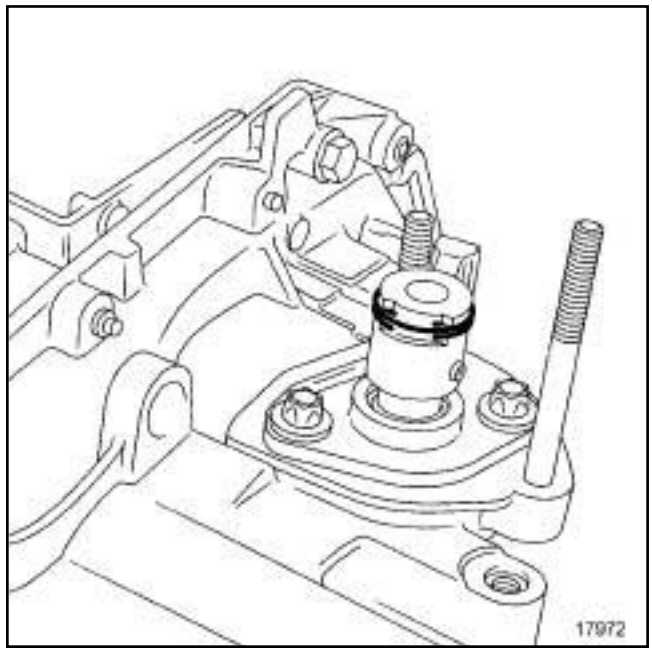
❑ Remove:

- the lifting eye nut on the actuator module,
- the lifting eye (**24**) on the actuator module,
- the actuator module.

REFITTING

I - REFITTING PREPARATIONS OPERATION

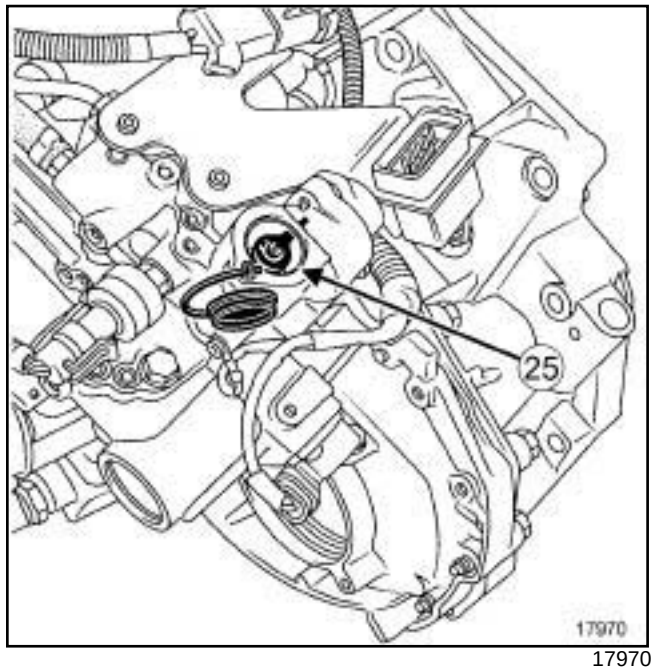
❑ Check that the two half-moons are positioned correctly.



17972

❑ Position the two half-moons and the circlips in the selector shaft neck.

❑ Coat the two half-moons and the selector finger with **MOLYCOTE**.



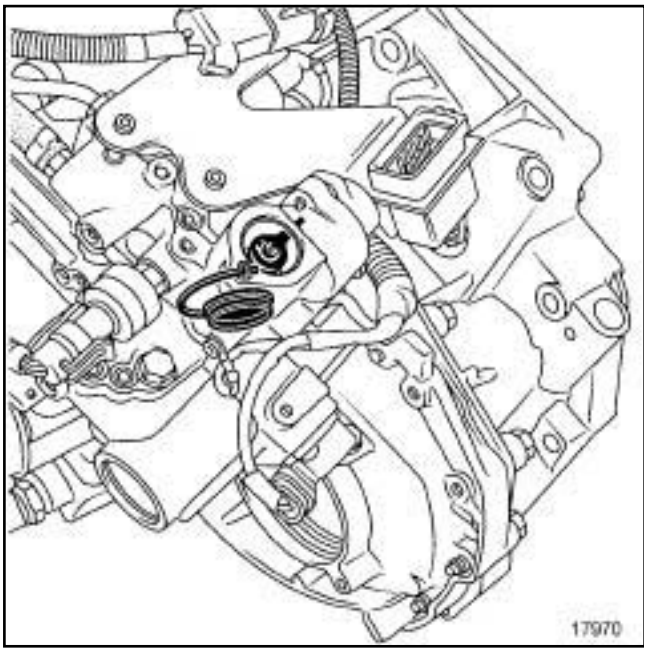
17970

❑ Lock the selector shaft (**25**) .

❑ Position the flat seal.

D4F, and JA3

II - REFITTING OPERATION FOR PART CONCERNED



17970

❏ Using a screwdriver, press on the selector shaft to clip it onto the actuator module.

❏ Refit:

- the low pressure pump pipe,
- the high pressure pump pipe,
- the clutch pipe,
- the clutch pipe bracket,
- a new clip on the clutch pipe,
- the nuts from the actuator module.

❏ Without tightening, fit:

- the clutch pipe nuts,
- the high pressure pump pipe nuts.

❏ Torque tighten:

- the **clutch pipe nuts (14 Nm)**,
- the **high pressure pump pipe nuts (14 Nm)**,
- the **gearbox mounting nut (21 Nm)**,
- the **actuator module nuts (24 Nm)**.

❏ Connect the sequential gearbox speed sensor connector.

❏ Remove the **(Mot. 1453)** and the **safety strap(s)**.

❏ Reposition the left-hand suspended mounting on the gearbox.

❏ Refit the bolts mounting the left-hand suspended mounting on the gearbox.

❏ Torque tighten:

- the **bolts mounting the left-hand suspended mounting on the gearbox (62 Nm)**,
- the **stud mounting the left-hand suspended mounting on the gearbox (if it has been changed) (180 Nm)**

❏ Reposition the left-hand suspended mounting on the body.

❏ Refit the left-hand suspended mounting bolts on the body.

❏ Torque tighten:

- the **bolts mounting the left-hand suspended mounting on the body (62 Nm)**,
- the **gearbox left-hand rubber pad nut (62 Nm)**.

❏ Refit:

- the side stiffener bolts on the left-hand side of the vehicle,
- the side stiffener on the left-hand side of the vehicle,
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- the engine undertray,
- the Protection and Switching Unit,
- the diesel injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),

D4F, and JA3

III - FINAL OPERATION.

❑ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

K9K, and JA5

Tightening torques ▽	
gear selection sensor bolts	4 Nm

REMOVAL

I - REMOVAL PREPARATION OPERATION

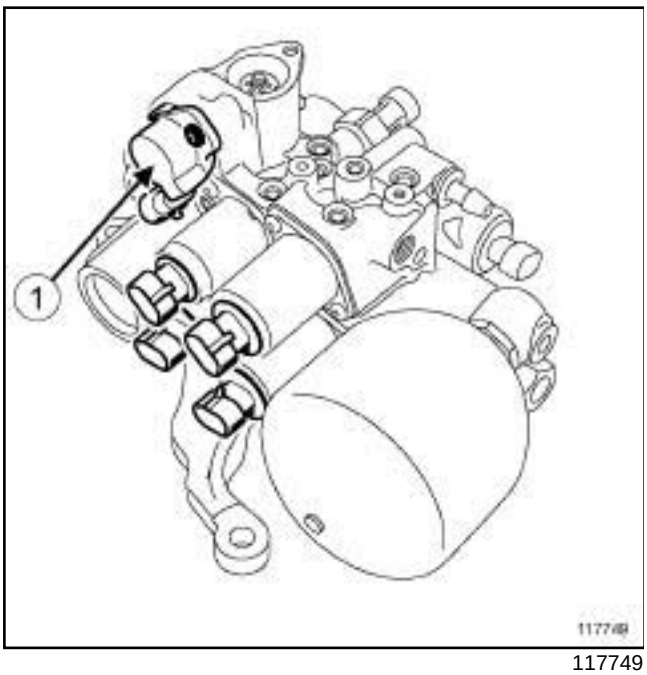
❑

WARNING
To remove the gear selection sensor it is essential that you shift to first gear before removal.

❑ Remove:

- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).

II - OPERATION FOR REMOVAL OF PART CONCERNED



117749

❑ Disconnect the gear selection sensor connector (**1**) .

❑ Remove:

- the gear selection sensor bolts,
- the gear selection sensor (**1**) .

REFITTING

I - REFITTING PREPARATIONS OPERATION

❑ Check that the gear selection sensor is able to rotate freely.

II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the gear selection sensor,
- the gear selection sensor bolts.

❑ Torque tighten the **gear selection sensor bolts (4 Nm)**.

❑ Connect the gear selection sensor connector.

III - FINAL OPERATION.

❑ Refit:

- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),

❑ Carry out the necessary programming (see **Fault finding - Replacement of components** (MR 394, 21B, Sequential gearbox).

D4F, and JA3

Tightening torques ▽	
gear selection sensor bolts	4 Nm

REMOVAL

I - REMOVAL PREPARATION OPERATION

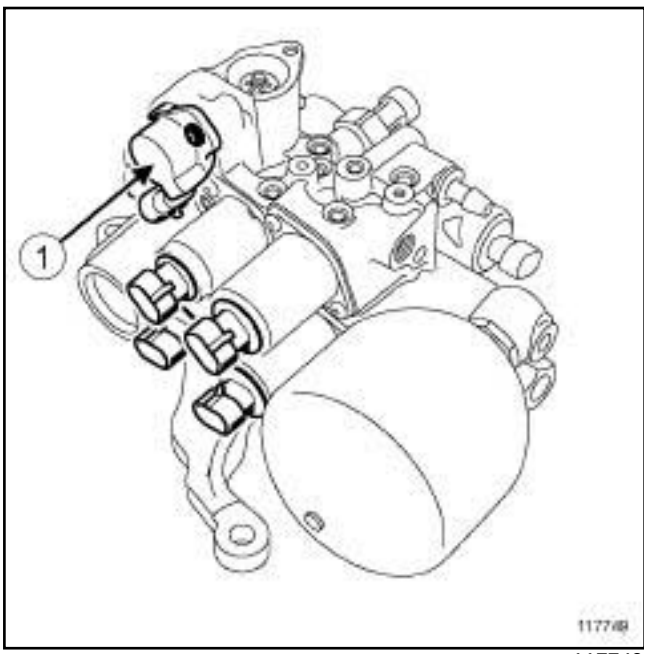
❑

WARNING
To remove the gear selection sensor it is essential that you shift to first gear before removal.

❑ Remove:

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

II - OPERATION FOR REMOVAL OF PART CONCERNED



117749

❑ Disconnect the gear selection sensor connector (**1**) .

❑ Remove:

- the gear selection sensor bolts,
- the gear selection sensor (**1**) .

REFITTING

I - REFITTING PREPARATIONS OPERATION

❑ Check that the gear selection sensor is able to rotate freely.

II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the gear selection sensor,
- the gear selection sensor bolts.

❑ Torque tighten the **gear selection sensor bolts (4 Nm)**.

❑ Connect the gear selection sensor connector.

III - FINAL OPERATION.

❑ Refit:

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

❑ Carry out the necessary programming (see **Fault finding - Replacement of components** (MR 394, 21B, Sequential gearbox).

K9K, and JA5

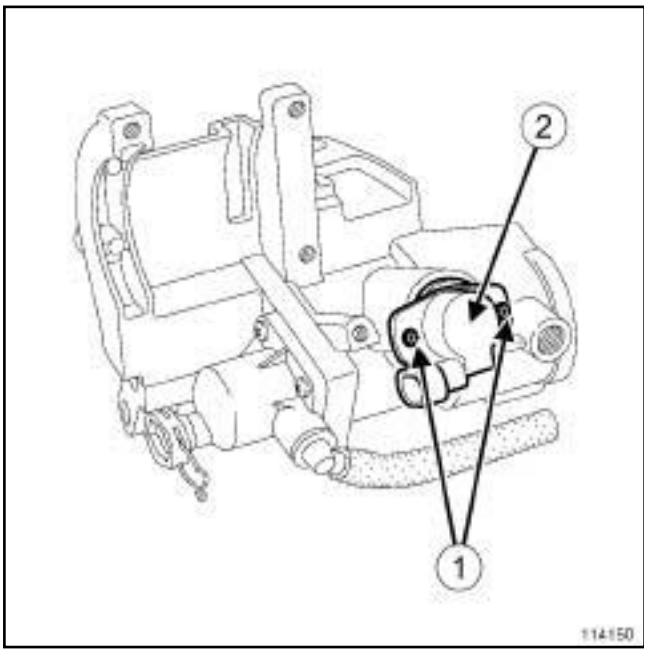
REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

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

II - OPERATION FOR REMOVAL OF PART CONCERNED



114150

❏ Remove the engine undertray.

❏ Disconnect the clutch position sensor connector.

❏ Remove:

- the bolts (**1**) from the clutch position sensor,
- the clutch position sensor (**2**) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the clutch position sensor,
- the clutch position sensor bolts.

❏ Connect the clutch position sensor connector.

II - FINAL OPERATION.

❏ Refit the engine undertray.

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

❏ Carry out the necessary programming (see **Fault finding - Replacement of components** (MR 394, 21B, Sequential gearbox).

D4F, and JA3

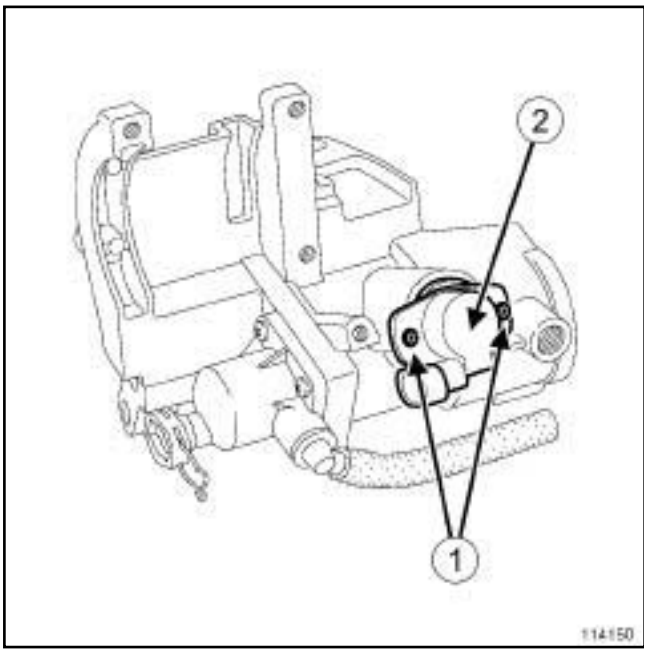
REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

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

II - OPERATION FOR REMOVAL OF PART CONCERNED



114150

❏ Remove the engine undertray.

❏ Disconnect the clutch position sensor connector.

❏ Remove:

- the clutch position sensor bolt (**1**) ,
- the clutch position sensor (**2**) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the clutch position sensor,
- the clutch position sensor bolts.

❏ Connect the clutch position sensor connector.

II - FINAL OPERATION.

❏ Refit the engine undertray.

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

❏ Carry out the necessary programming (see **Fault finding - Replacement of components** (MR 394, 21B, Sequential gearbox).

K9K, and JA5

Equipment required
Diagnostic tool

Tightening torques ▽	
solenoid valve unit pressure sensor	15 Nm

REMOVAL

REMOVAL PREPARATION OPERATION

❑

IMPORTANT
Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

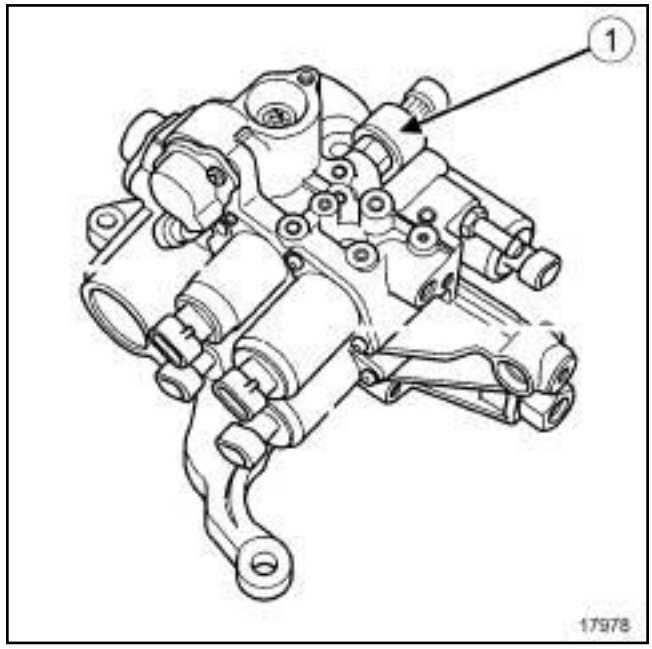
If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❑ Remove:

- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).



17978

❑ Disconnect the solenoid valve unit pressure sensor connector (**1**) .

❑ Remove the pressure sensor from the solenoid valve unit (**1**) using a **long socket**.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Fit the solenoid valve unit pressure sensor.

❑ Finger tighten the solenoid valve unit pressure sensor.

❑ Torque tighten the **solenoid valve unit pressure sensor (15 Nm)**

❑ Connect the solenoid valve unit pressure sensor connector.

II - FINAL OPERATION.

❑ Refit:

- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

K9K, and JA5

❑ Carry out the necessary programming (see **Fault finding - Replacement of components** (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

D4F, and JA3

Equipment required
Diagnostic tool

Tightening torques ▽	
solenoid valve unit pressure sensor	**15 Nm**

REMOVAL

REMOVAL PREPARATION OPERATION

❑

IMPORTANT
Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

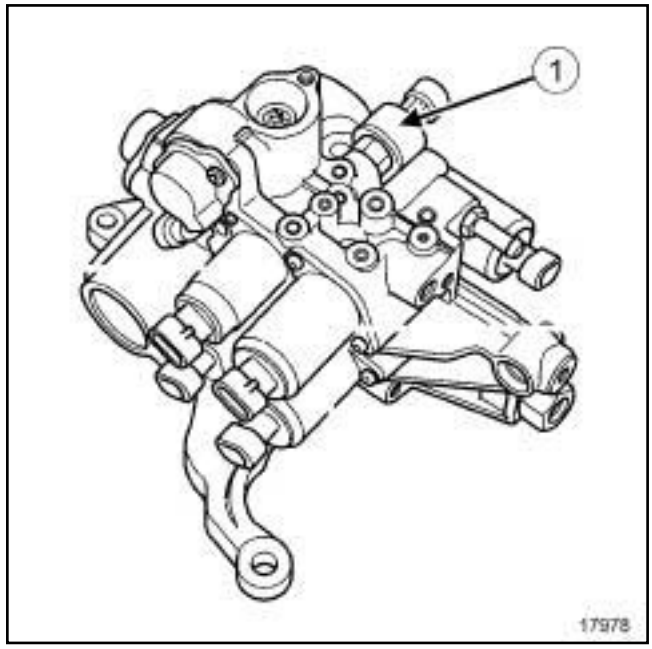
If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❑ Remove:

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



17978

❑ Disconnect the solenoid valve unit pressure sensor connector (**1**) .

❑ Remove the pressure sensor from the solenoid valve unit (**1**) using a **long socket**.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Fit the solenoid valve unit pressure sensor.

❑ Finger tighten the solenoid valve unit pressure sensor.

❑ Torque tighten the **solenoid valve unit pressure sensor (15 Nm)**

❑ Connect the solenoid valve unit pressure sensor connector.

II - FINAL OPERATION.

❑ Refit:

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

D4F, and JA3

❑ Carry out the necessary programming (see **Fault finding - Replacement of components** (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

D4F, and JA3

Equipment required
Diagnostic tool

Tightening torques ▽	
sequential gearbox speed sensor	**15 Nm**
the left-hand suspended engine mounting support bolts on the gearbox	**62 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

IMPORTANT
Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

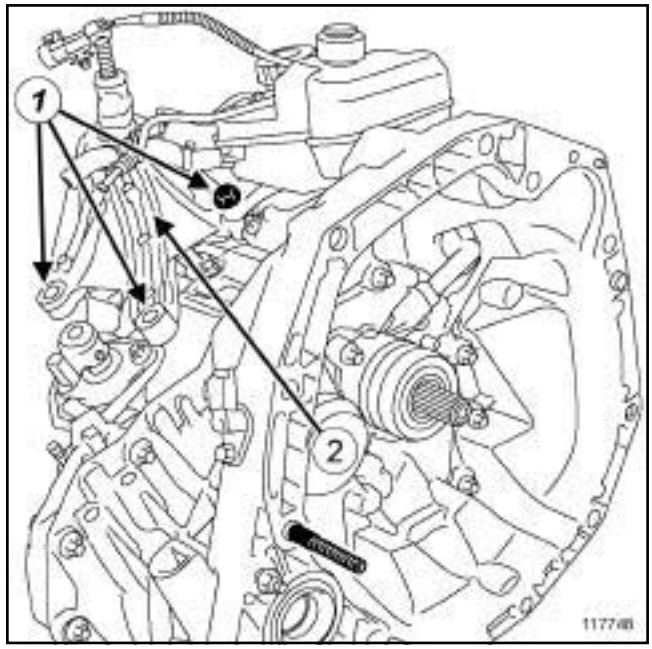
The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

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

II - OPERATION FOR REMOVAL OF PART CONCERNED

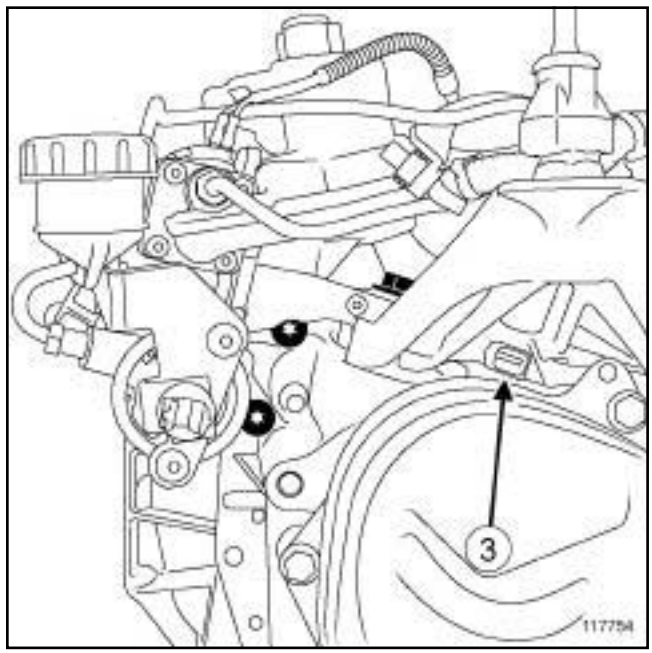
❑ Remove the electro-hydraulic unit (see **21B**, **Sequential gearbox**, **Electro-hydraulic unit: Removal - Refitting**, page **21B-8**) .



117748

❑ Remove:

- the mounting bolts (**1**) from the left-hand suspended mounting on the gearbox,
- the left-hand suspended engine mounting (**2**) on the gearbox.



117754

❑ Disconnect the sequential gearbox speed sensor connector.

❑ Remove:

- the sequential gearbox speed sensor bolt,
- the sequential gearbox speed sensor (**3**) .

D4F, and JA3

III - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the sequential gearbox speed sensor connector.

❏ Refit:

- the sequential gearbox engine speed sensor,
- the sequential gearbox sensor bolt.

❏ Torque tighten the **sequential gearbox speed sensor (15 Nm)**.

❏ Refit:

- the left-hand suspended engine mounting support on the gearbox,
- the left-hand suspended engine mounting support bolts on the gearbox.

❏ Torque tighten the **the left-hand suspended engine mounting support bolts on the gearbox (62 Nm)**.

❏ Refit the electro-hydraulic unit (see **21B**, **Sequential gearbox**, **Electro-hydraulic unit: Removal - Refitting**, page **21B-8**) .

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

❏ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

K9K, and JA5

Equipment required
Diagnostic tool

Tightening torques ▽	
sequential gearbox speed sensor	**15 Nm**
the left-hand suspended engine mounting support bolts on the gearbox	**62 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

IMPORTANT
Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

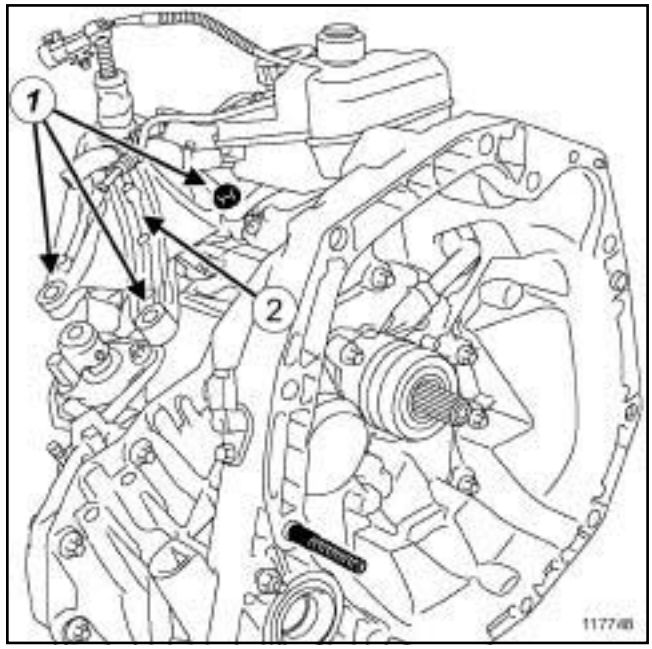
The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

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

II - OPERATION FOR REMOVAL OF PART CONCERNED

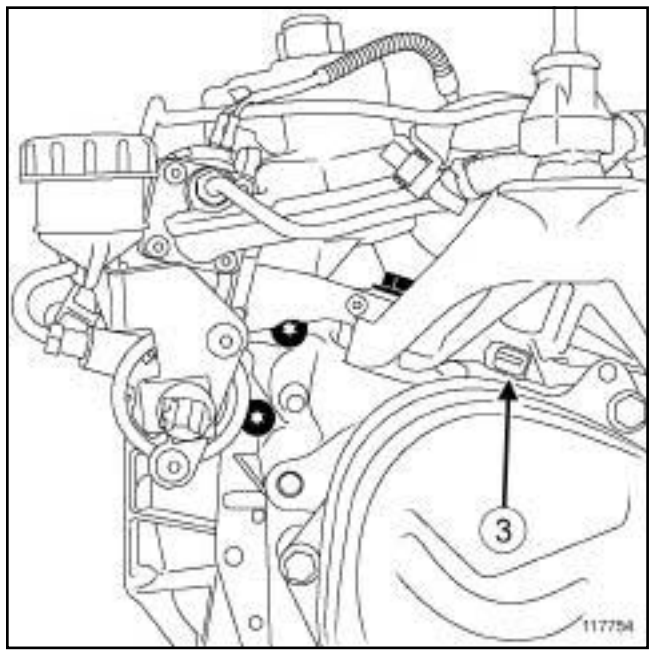
❑ Remove the electro-hydraulic unit (see **21B**, **Sequential gearbox**, **Electro-hydraulic unit: Removal - Refitting**, page **21B-8**) .



117748

❑ Remove:

- the mounting bolts (**1**) from the left-hand suspended mounting on the gearbox,
- the left-hand suspended engine mounting (**2**) on the gearbox.



117754

❑ Disconnect the sequential gearbox speed sensor connector.

❑ Remove:

- the sequential gearbox speed sensor bolt,
- the sequential gearbox speed sensor (**3**) .

K9K, and JA5

III - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the sequential gearbox engine speed sensor,
- the sequential gearbox sensor bolt.

❑ Connect the sequential gearbox speed sensor connector.

❑ Torque tighten the **sequential gearbox speed sensor (15 Nm)**.

❑ Refit:

- the left-hand suspended engine mounting support on the gearbox,
- the left-hand suspended engine mounting support bolts on the gearbox.

❑ Torque tighten the **the left-hand suspended engine mounting support bolts on the gearbox (62 Nm)**.

❑ Refit the electro-hydraulic unit (see **21B**, **Sequential gearbox**, **Electro-hydraulic unit: Removal - Refitting**, page **21B-8**) .

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

❑ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

K9K, and JA5

Special tooling required	
Mot. 1453	Engine anchorage support with multiple adjustments and retaining straps.

Equipment required
Diagnostic tool
safety strap(s)
component jack

Tightening torques ▽	
gearbox bell housing bolts	**44 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

IMPORTANT
Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

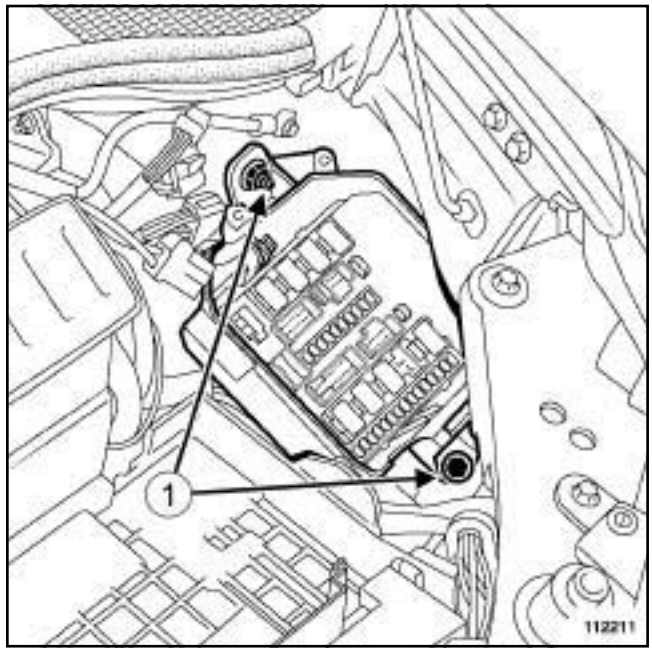
❑ Remove:

- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the engine undertray.

❑ Drain the sequential gearbox.

❑ Remove:

- the front wheels (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) ,
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,
- the diesel injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection),
- the wiring harness nut under the injection computer.



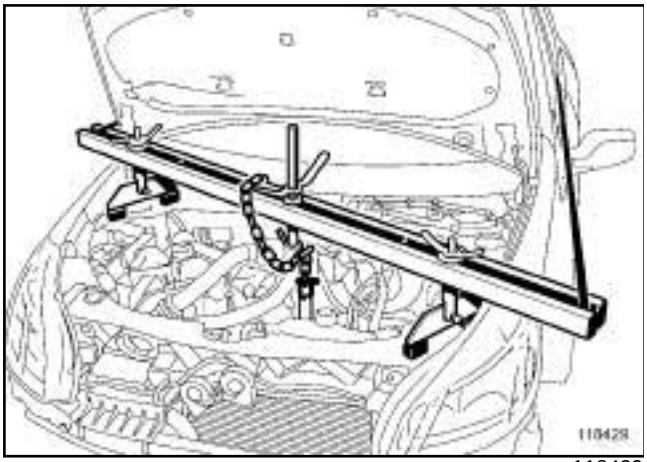
112211

❑ Remove the Protection and Switching Unit bolts (**1**) .

❑ Remove:

- the Protection and Switching Unit,
- the wiring harness under the injection computer.

K9K, and JA5

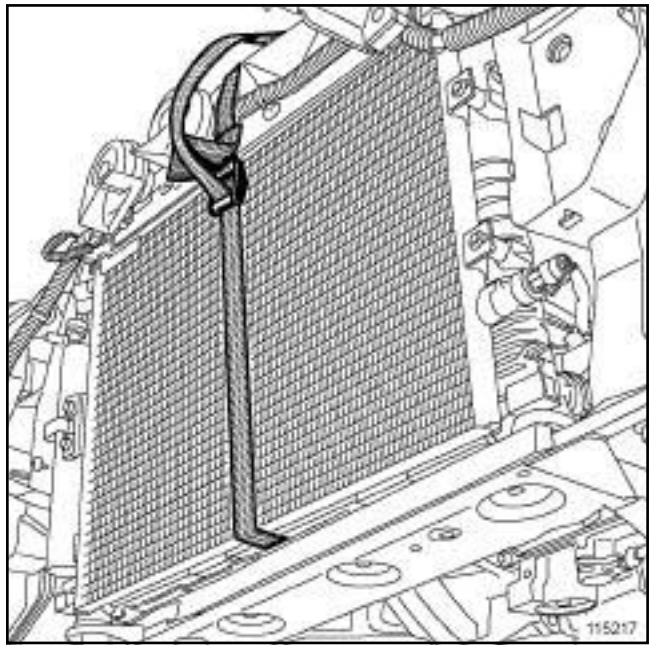


118429

❏ Fit the **(Mot. 1453)** with a **safety strap(s)**.

❏ Remove:

- the side stiffener bolts on the left-hand side of the vehicle,
- the side stiffener on the left-hand side of the vehicle,
- the engine undertray,
- the rear suspended engine mounting (see **19D, Engine mounting, Rear suspended engine mounting: Removal-Refitting**),
- the actuator module (see **21B**, **Sequential gearbox**, **Actuator module: Removal - Refitting**, page **21B-34**) ,
- the pump assembly (see **21B**, **Sequential gearbox**, **Sequential gearbox: Removal - Refitting**, page **21B-66**) .



115217

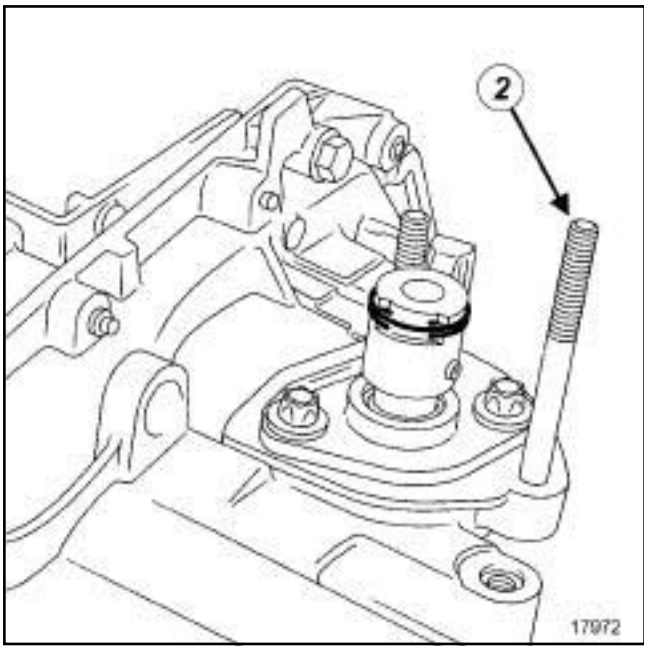
❏ Attach the « cooling radiator - fan unit » assembly to the upper cross member using a **safety strap(s)**.

❏ Remove:

- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure).

K9K, and JA5

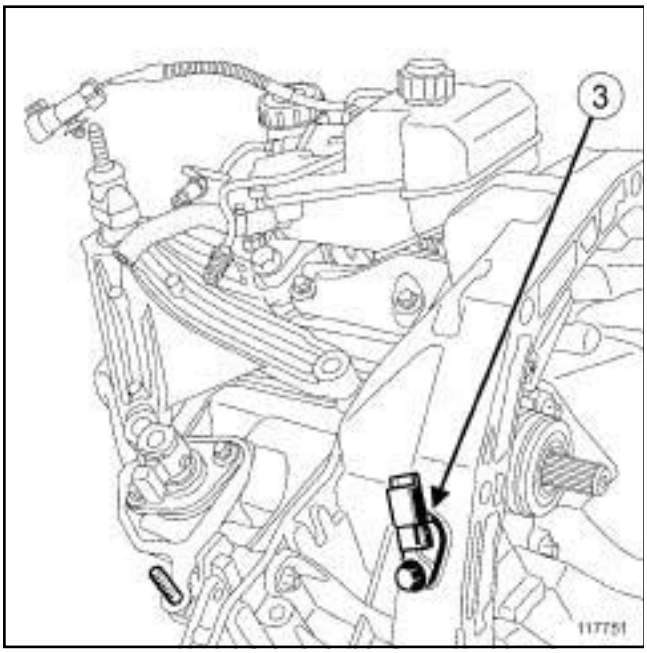
II - OPERATION FOR REMOVAL OF PART CONCERNED



17972

❏ Remove:

- the stud (**2**) from the actuator module on the gearbox,
- the wiring harness channel bolts on the gearbox,
- the earth wiring bolt on the gearbox.

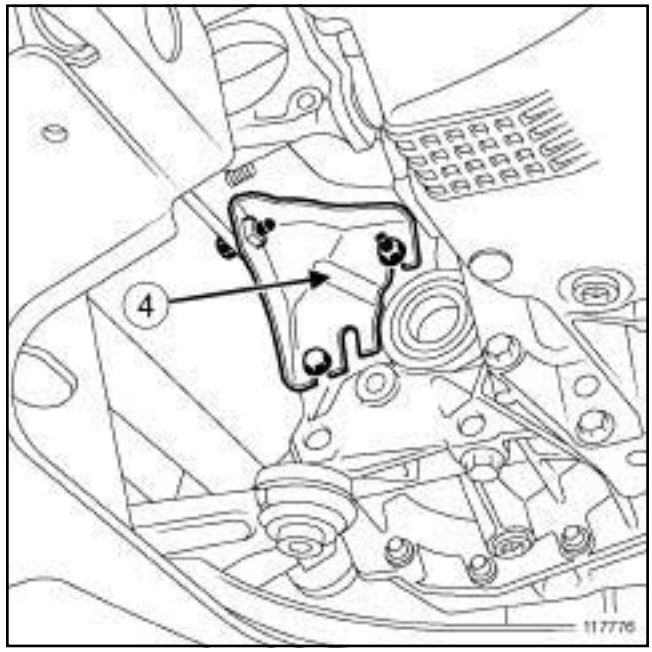


117751

❏ Disconnect the engine speed and position sensor connector.

❏ Remove:

- the bolt from the engine speed and position sensor,
- the engine speed and position sensor (**3**) .

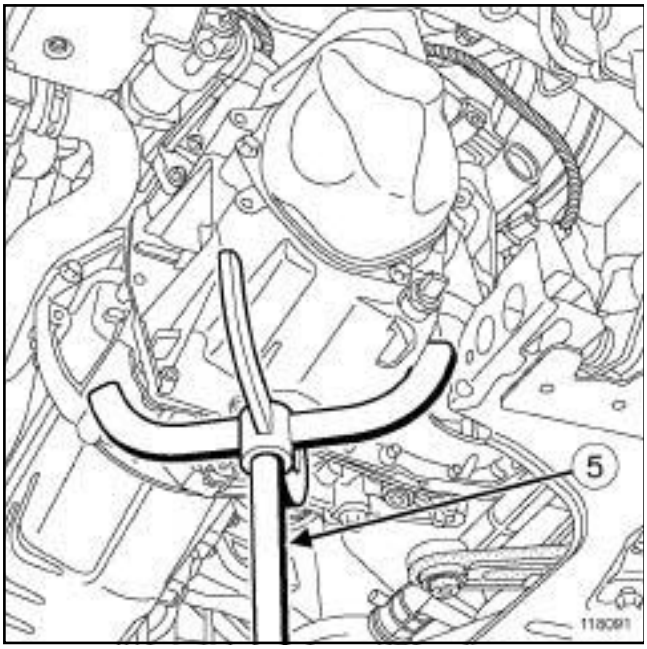


117776

❏ Remove:

- the exhaust bracket bolt on the gearbox,
- the exhaust bracket nut on the gearbox,
- the exhaust bracket (**4**) on the gearbox,
- the starter bolts,
- the gearbox upper bolts,
- the gearbox lower bolts.

K9K, and JA5



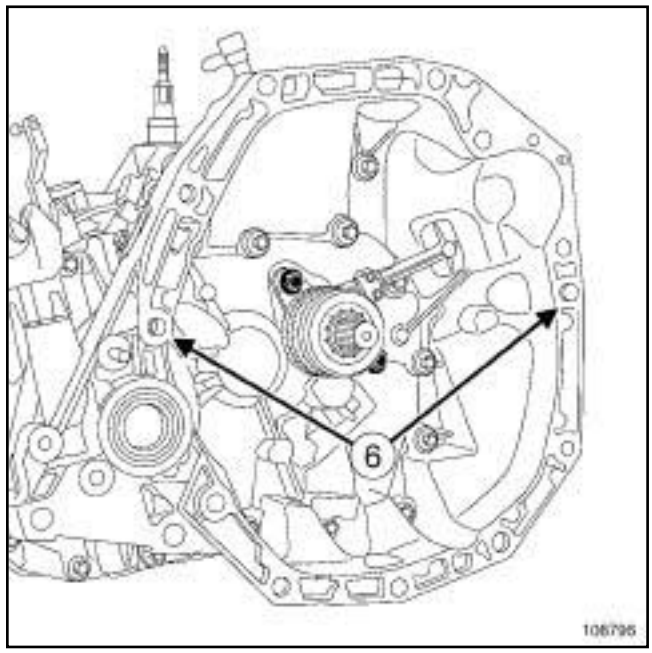
118091

❏ Position the **component jack** (**5**) under the gearbox.

❏ Remove the gearbox.

REFITTING

I - REFITTING PREPARATION OPERATION



108796

❏ Check that the engine/gearbox centring rings are in place and correctly positioned (**6**) .

WARNING
To avoid damaging the slave cylinder, do not coat the gearbox output shaft with grease.

WARNING
To prevent leaks, replace the slave cylinder after replacing the clutch pressure plate.

Note:

- Always replace the right-hand driveshaft snap ring with a new one whenever it is removed.
- Always replace the differential output seals each time the driveshafts are removed.

II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the gearbox,
- the gearbox lower bolts,
- the gearbox upper bolts,
- the actuator module stud on the gearbox.

K9K, and JA5

❏ Torque tighten the **gearbox bell housing bolts (44 N.m)**.

III - FINAL OPERATION

❏ Refit:

- the starter bolts,
- the wiring channel bolts on the gearbox,
- the earth wiring bolt on the gearbox,
- the exhaust bracket bolt on the gearbox,
- the speed and position sensor,
- the exhaust bracket on the gearbox,
- the pump assembly (see **21B**, **Sequential gearbox**, **Pump assembly: Removal - Refitting**, page **21B-12**) ,
- the actuator module (see **21B**, **Sequential gearbox**, **Actuator module: Removal - Refitting**, page **21B-34**) ,
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (MR 392, 19D, Engine mounting),

❏ Remove the **(Mot. 1453)** and the **safety strap(s)**.

❏ Bleed the clutch circuit (see **21B**, **Sequential gearbox**, **Sequential gearbox: Bleeding**, page **21B-84**)

❏ Refit:

- the side stiffener bolts on the left-hand side of the vehicle,
- the side stiffener on the left-hand side of the vehicle,
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- the Protection and Switching Unit,
- the wiring harness under the injection computer,
- the diesel injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the air filter box (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the engine undertray,
- the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection).

❏ Fill the electro-hydraulic unit reservoir with oil (see **21B**, **Sequential gearbox**, **Sequential gearbox oil: Specifications**, page **21B-82**) (Technical Note 6012, 04A, Lubricants) to between **32 and 38 mm** above the **MIN** mark.

❏ Perform the following operations:

- the necessary programming (see **Fault finding - Replacement of components** (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

D4F, and JA3

Special tooling required	
Mot. 1453	Engine anchorage support with multiple adjustments and retaining straps.

Equipment required
Diagnostic tool
safety strap(s)
component jack

Tightening torques ▽	
gearbox bolts	**44 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑

IMPORTANT
Before any operation on the sequential system, discharge the accumulator using the **Diagnostic tool**.

To discharge the accumulator, run command « Discharge pressure accumulator » **AC081**.

To confirm the pressure drop, read the « Hydraulic pressure » parameter for the resulting value.

If there is still pressure in the accumulator, re-run the « Discharge pressure accumulator » command until the pressure is negligible and will not pose a risk when the high pressure pipes are removed.

The pressure reading must be close to zero.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

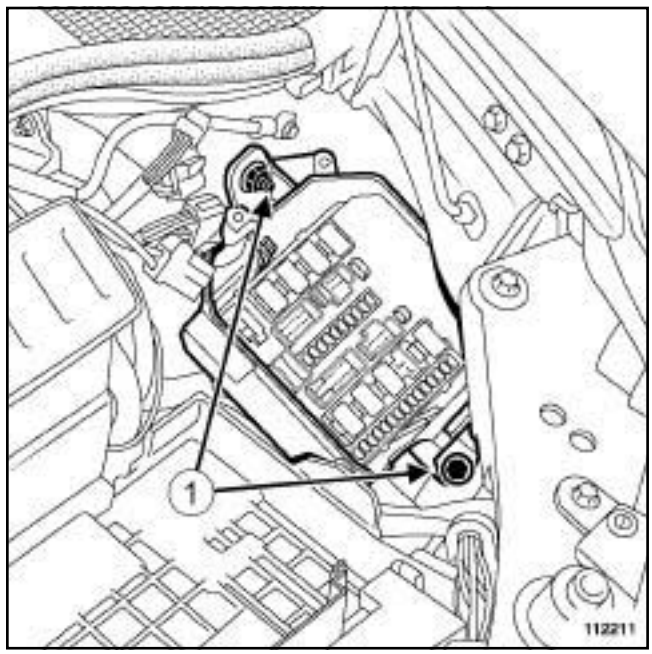
❑ Remove:

- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the engine undertray.

❑ Drain the sequential gearbox.

❑ Remove:

- the front wheels (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) ,
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,
- the diesel injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection),
- the wiring harness nut under the injection computer.



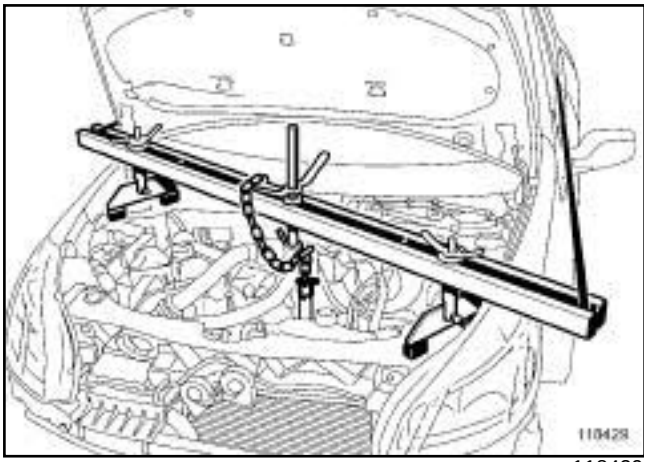
112211

❑ Remove the Protection and Switching Unit bolts (**1**) .

❑ Remove:

- the Protection and Switching Unit,
- the wiring harness under the injection computer.

D4F, and JA3

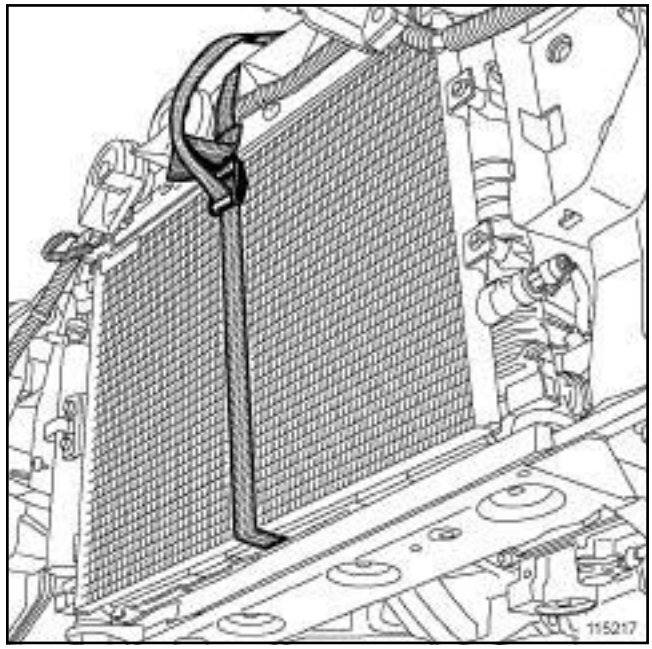


118429

❏ Fit the **(Mot. 1453)** with a **safety strap(s)**.

❏ Remove:

- the side stiffener bolts on the left-hand side of the vehicle,
- the side stiffener on the left-hand side of the vehicle,
- the engine undertray,
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (MR 392, 19D, Engine mounting),
- the actuator module (see **21B**, **Sequential gearbox**, **Actuator module: Removal - Refitting**, page **21B-34**) ,
- the pump assembly (see **21B**, **Sequential gearbox**, **Pump assembly: Removal - Refitting**, page **21B-12**) .



115217

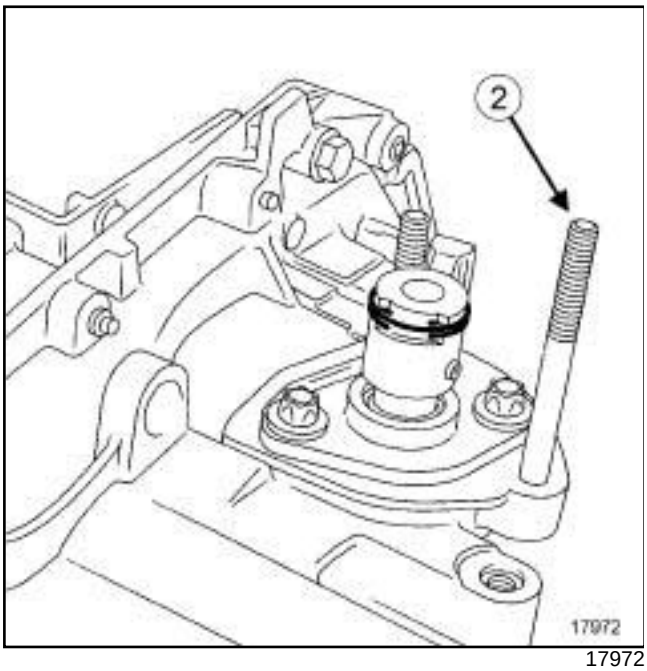
❏ Attach the « cooling radiator - fan unit » assembly to the upper cross member using a **safety strap(s)**.

❏ Remove:

- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure).

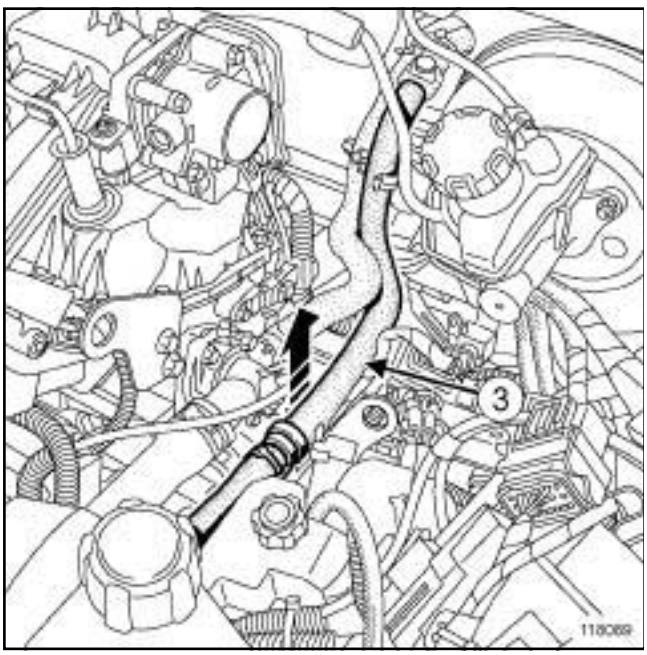
D4F, and JA3

II - OPERATION FOR REMOVAL OF PART CONCERNED



17972

❏ Remove the stud (**2**) from the actuator module on the gearbox.

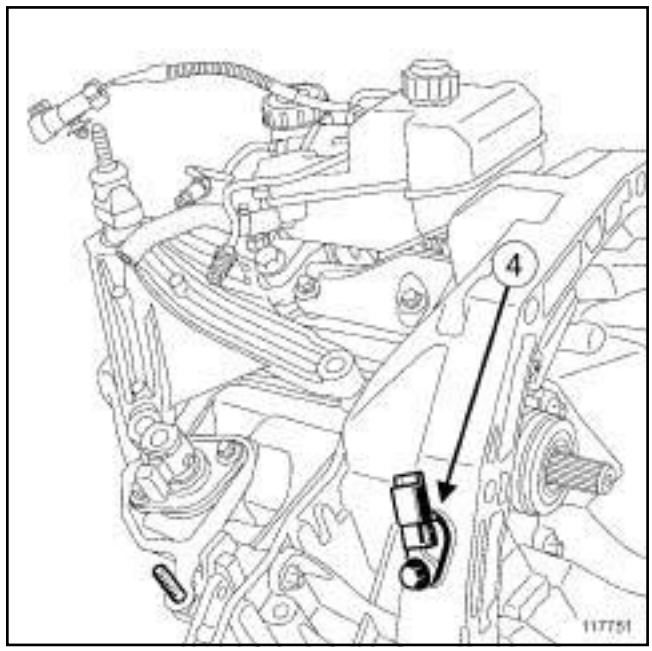


118089

❏ Lift the cooling hose (**3**) to access the wiring harness channel bolts on the gearbox.

❏ Remove:

- the wiring harness channel bolts on the gearbox,
- the earth wiring bolt on the gearbox.

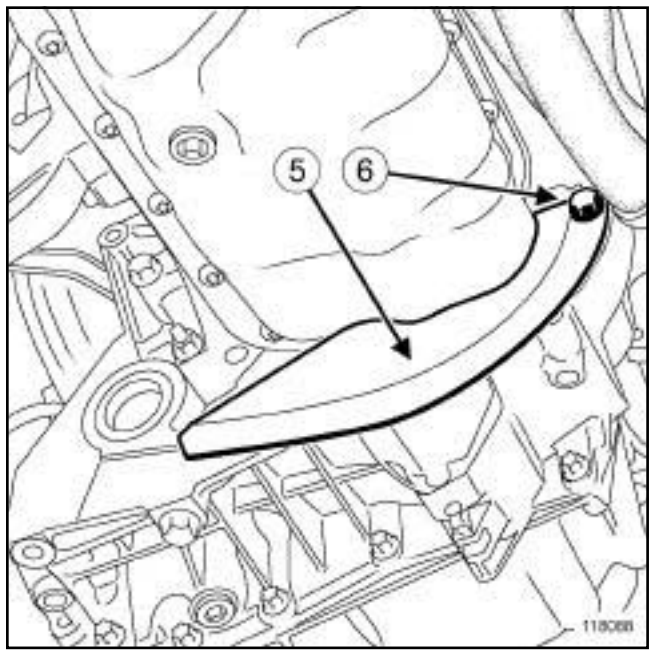


117751

❏ Disconnect the engine speed and position sensor connector.

❏ Remove:

- the bolt from the engine speed and position sensor,
- the engine speed and position sensor (**4**) .

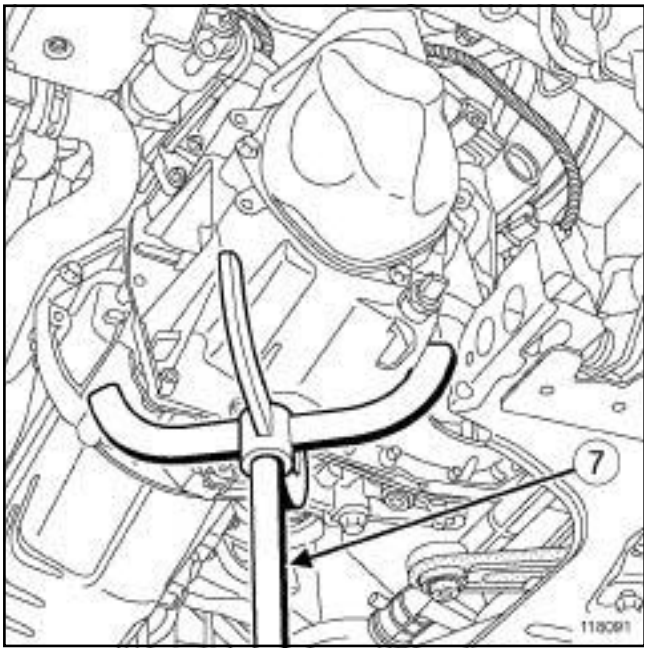


118088

❏ Remove:

- the flywheel protector bolt (**6**) ,
- the flywheel protector (**5**) ,
- the starter bolts,
- the gearbox upper bolts,

- the gearbox lower bolts.



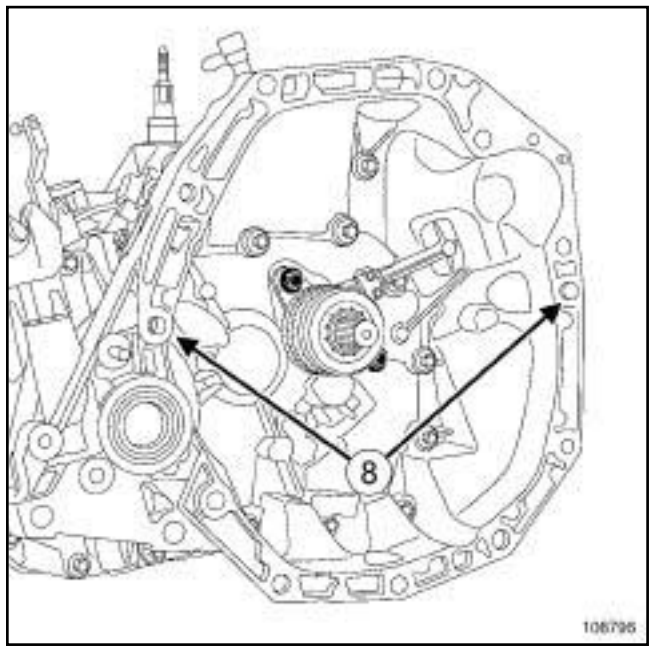
118091

❏ Position the **component jack** (**7**) under the gearbox.

❏ Remove the gearbox.

REFITTING

I - REFITTING PREPARATION OPERATION



108796

❏ Check that the engine/gearbox centring rings are in place and correctly positioned (**8**) .

WARNING
To avoid damaging the slave cylinder, do not coat the gearbox output shaft with grease.

WARNING
To prevent leaks, replace the slave cylinder after replacing the clutch pressure plate.

Note:
- Always replace the right-hand driveshaft snap ring with a new one whenever it is removed.
- Always replace the differential output seals each time the driveshafts are removed.
- Always replace the hydraulic clutch thrust bearing.

II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the gearbox,
- the gearbox lower bolts,

D4F, and JA3

- the gearbox upper bolts,
- the actuator module stud on the gearbox.

❑ Torque tighten the **gearbox bolts (44 N.m)**.

III - FINAL OPERATION

❑ Refit:

- the starter bolts,
- the wiring channel bolts on the gearbox,
- the earth wiring bolt on the gearbox,
- the flywheel protector,
- the speed and position sensor,
- the pump assembly (see **21B**, **Sequential gearbox**, **Pump assembly: Removal - Refitting**, page **21B-12**) ,
- the actuator module (see **21B**, **Sequential gearbox**, **Actuator module: Removal - Refitting**, page **21B-34**) ,
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (MR 392, 19D, Engine mounting),

❑ Remove the **(Mot. 1453)** and the **safety strap(s)**.

❑ Bleed the clutch circuit (see **21B**, **Sequential gearbox**, **Sequential gearbox: Bleeding**, page **21B-84**)

❑ Refit:

- the side stiffener bolts on the left-hand side of the vehicle,
- the side stiffener on the left-hand side of the vehicle,
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).
- the Protection and Switching Unit,
- the wiring harness under the injection computer,
- the diesel injection computer (see **Diesel injection computer: Removal - Refitting**) (MR 392, 13B, Diesel injection),
- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the air filter box (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the engine undertray,
- the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection).

❑ Fill the electro-hydraulic unit reservoir with oil (see **21B**, **Sequential gearbox**, **Sequential gearbox oil: Specifications**, page **21B-82**) (Technical Note 6012, 04A, Lubricants) to between **32 and 38 mm** above the **MIN** mark.

❑ Perform the following operations:

- the necessary programming (see **Fault finding - Replacement of components** (MR 394, 21B, Sequential gearbox).

WARNING

After the accumulator has been fully filled (15 seconds after the ignition has been switched on): the oil is at the **MIN** mark.

K9K, and JA5

REMOVAL

I - REMOVAL PREPARATION OPERATION

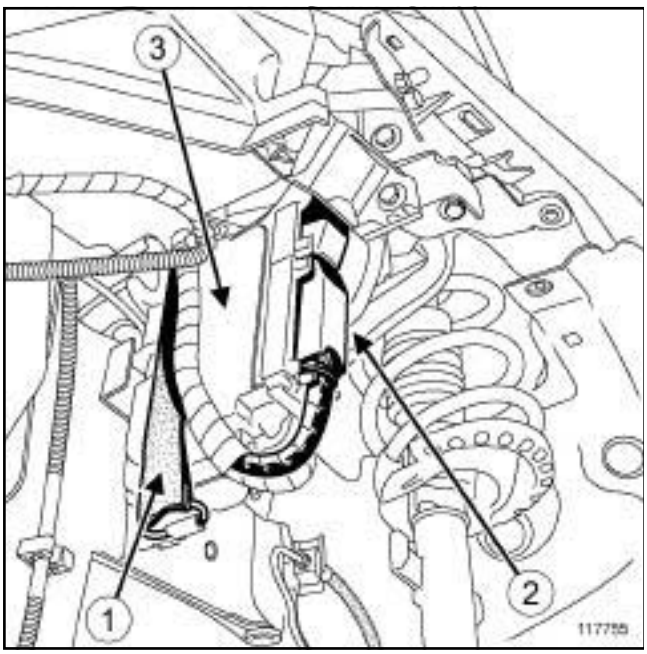
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

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

❑ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Wheel arch liner).

II - OPERATION FOR REMOVAL OF PART CONCERNED



117755

❑ Remove:

- the retaining belt (**1**) from the sequential gearbox computer,
- the sequential gearbox computer connector (**2**) ,
- the sequential gearbox computer (**3**) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the sequential gearbox computer,
- the sequential gearbox computer connector,
- the retaining belt from the sequential gearbox computer,

II - FINAL OPERATION.

❑ Refit:

- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Wheel arch liner).
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),

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

❑ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

D4F, and JA3

REMOVAL

I - REMOVAL PREPARATION OPERATION

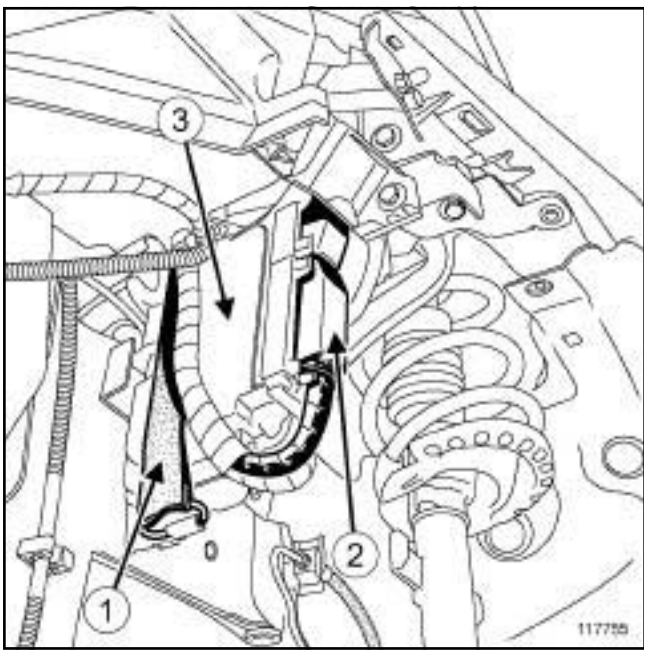
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

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

❑ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Wheel arch liner).

II - OPERATION FOR REMOVAL OF PART CONCERNED



117755

❑ Remove:

- the retaining belt (**1**) from the sequential gearbox computer,
- the sequential gearbox computer connector (**2**) ,
- the sequential gearbox computer (**3**) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the sequential gearbox computer,
- the sequential gearbox computer connector,
- the retaining belt from the sequential gearbox computer,

II - FINAL OPERATION.

❑ Refit:

- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Wheel arch liner).
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),

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

❑ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

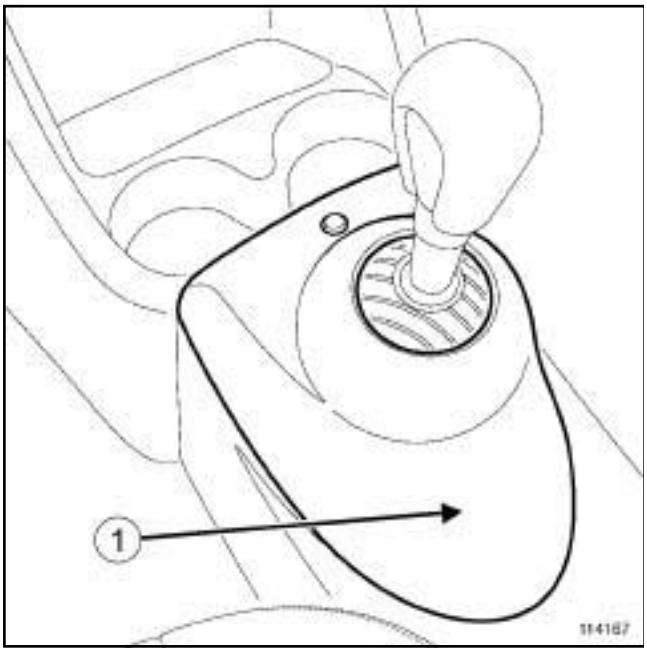
K9K, and JA5

REMOVAL

I - REMOVAL PREPARATION OPERATION

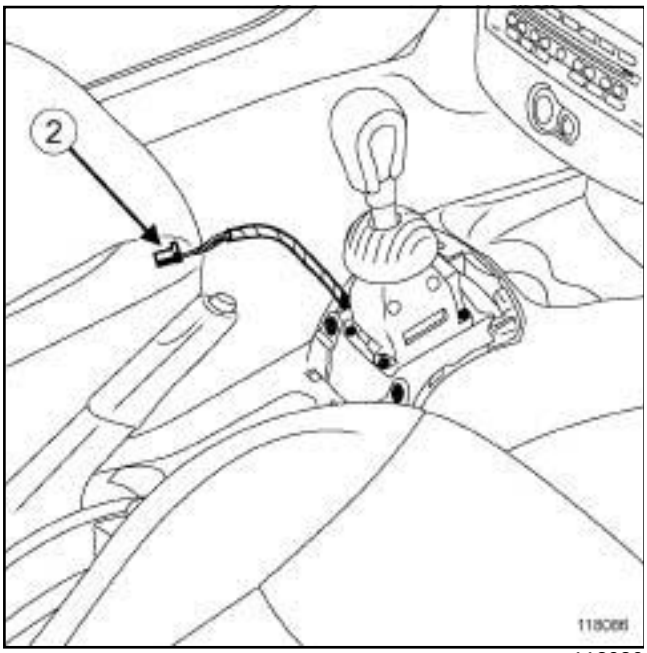
❑ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

II - OPERATION FOR REMOVAL OF PART CONCERNED



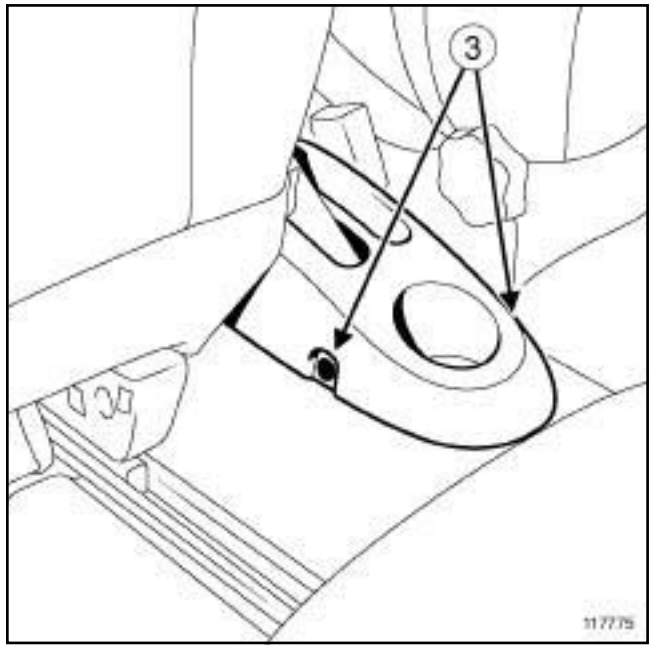
114167

❑ Remove the gear lever cover (**1**) using a screwdriver.

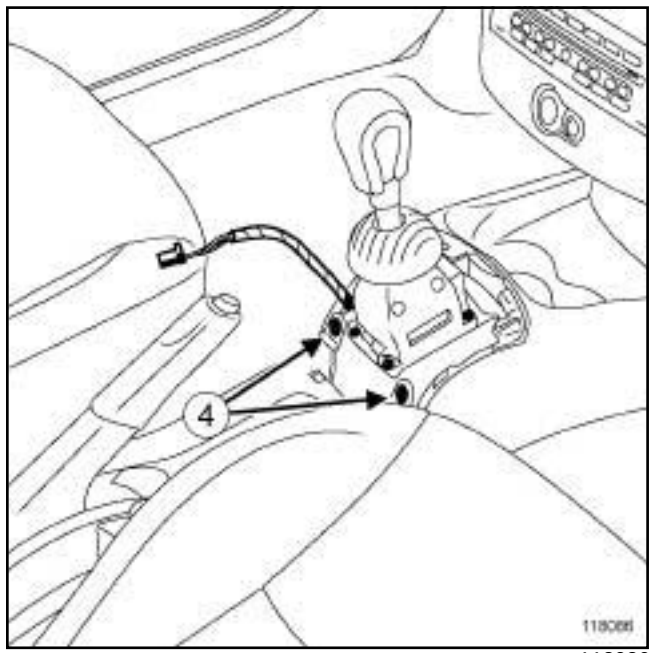


118086

❑ Disconnect the gear lever lighting connector (**2**) .



117775

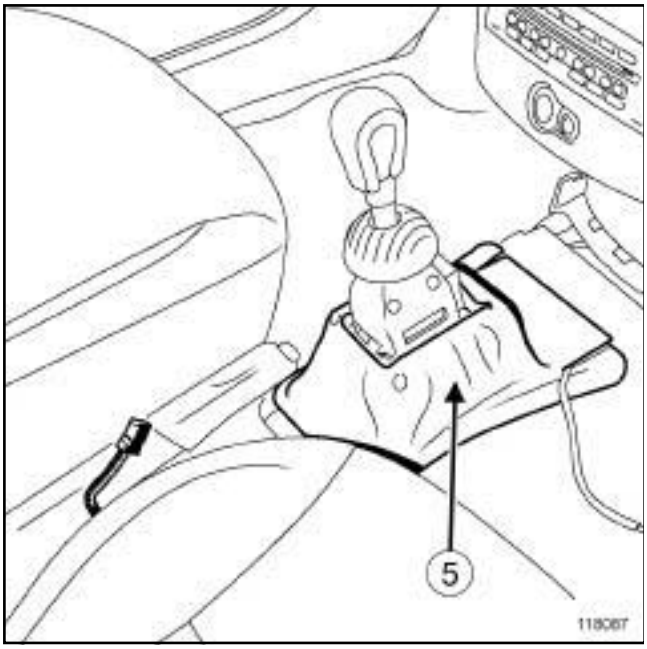


118086

❑ Remove:

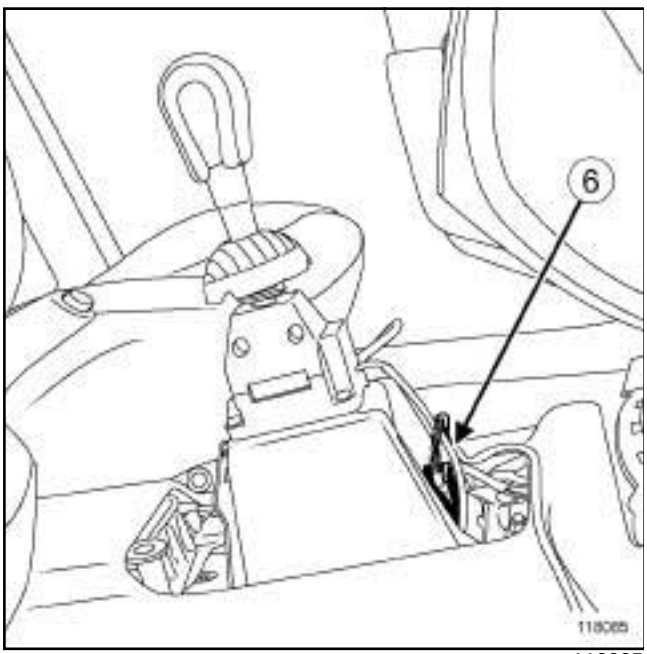
- the rear bolts (**3**) from the centre console,
- the front bolts (**4**) from the centre console.

K9K, and JA5



118087

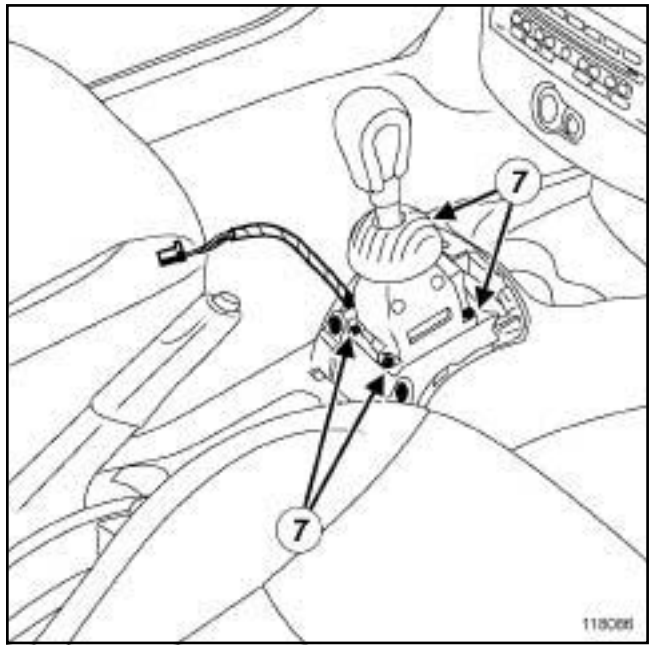
❏ Remove the soundproofing (**5**) from the gear lever.



118085

❏ Detach the connector (**6**) from the gear lever.

❏ Disconnect the gear lever connector.



118086

❏ Remove:

- the bolts (**7**) from the gear lever base plate,
- the gear lever.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the gear lever,
- the gear lever base plate bolts,

❏ Connect the gear lever connector.

❏ Attach the gear lever connector.

❏ Refit:

- the gear lever soundproofing,
- the front bolts to the centre console,
- the rear bolts to the centre console.

❏ Connect the gear lever lighting connector.

❏ Refit the gear lever cover.

II - FINAL OPERATION.

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

❏ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

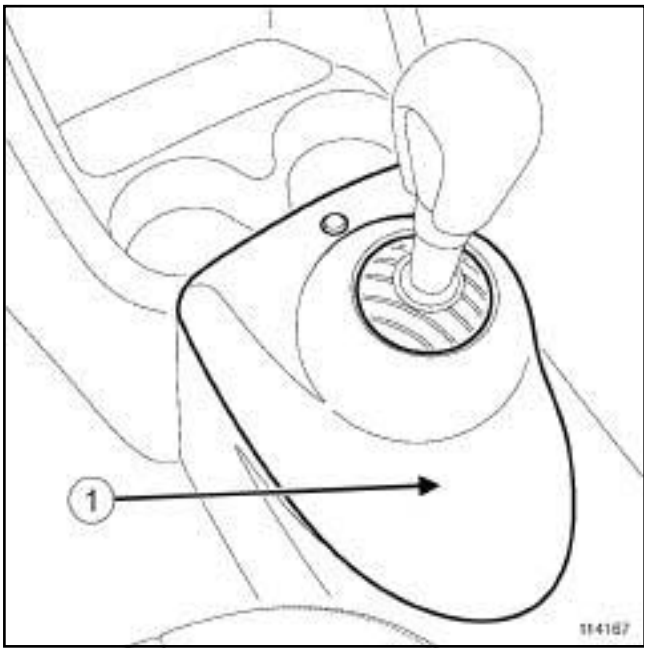
D4F, and JA3

REMOVAL

I - REMOVAL PREPARATION OPERATION

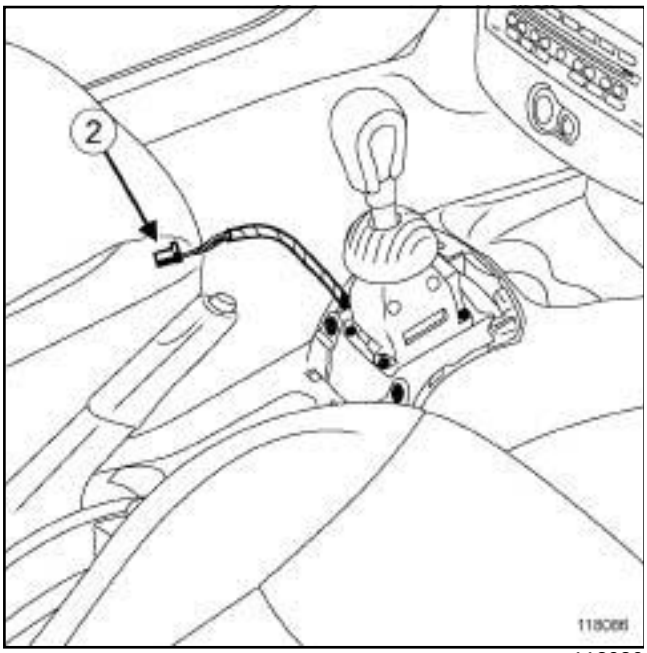
❑ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

II - OPERATION FOR REMOVAL OF PART CONCERNED



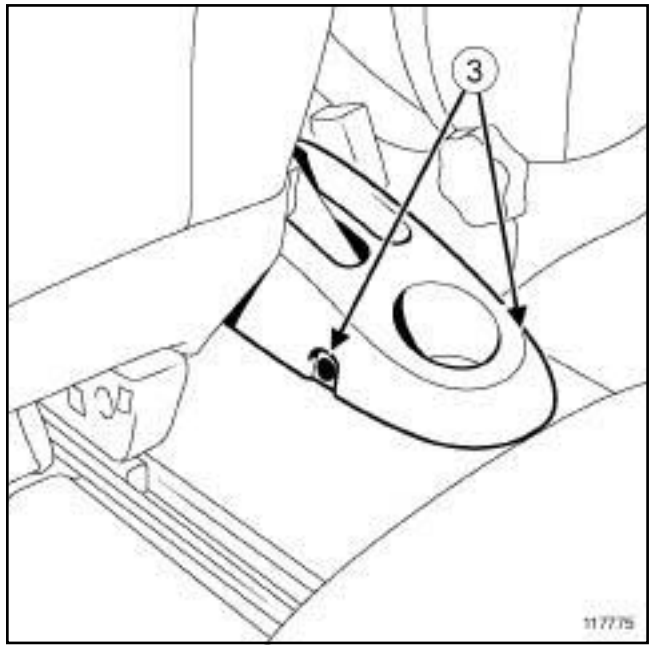
114167

❑ Remove the gear lever cover (**1**) using a screwdriver.

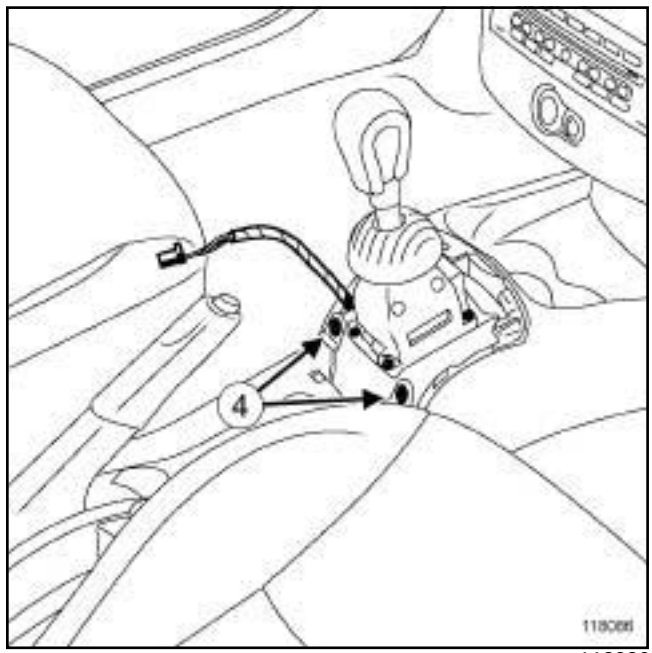


118086

❑ Disconnect the gear lever lighting connector (**2**) .



117775

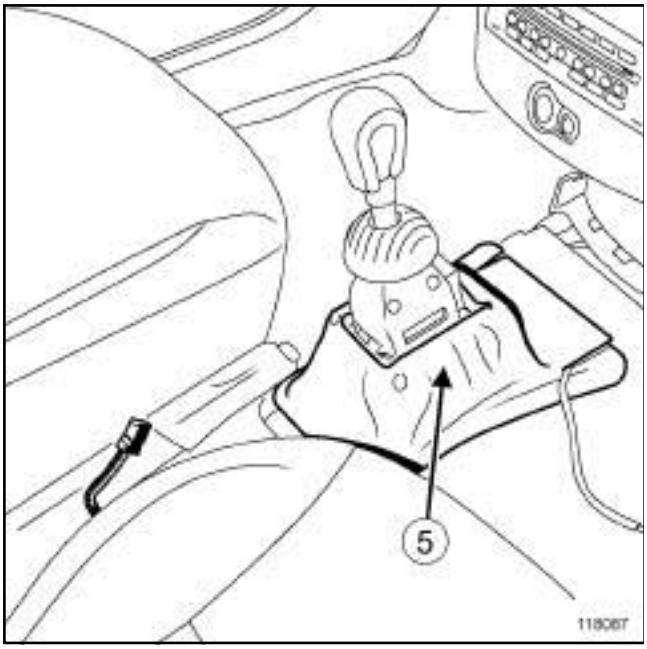


118086

❑ Remove:

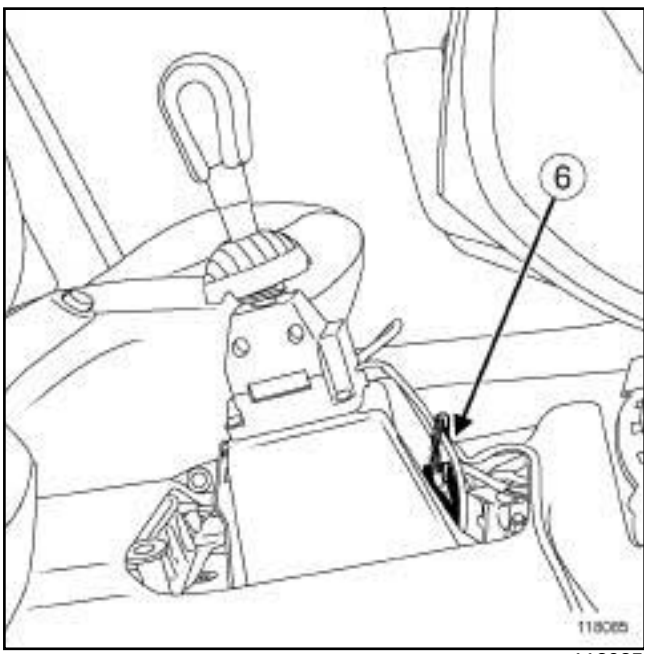
- the rear bolts (**3**) from the centre console,
- the front bolts (**4**) from the centre console.

D4F, and JA3



118087

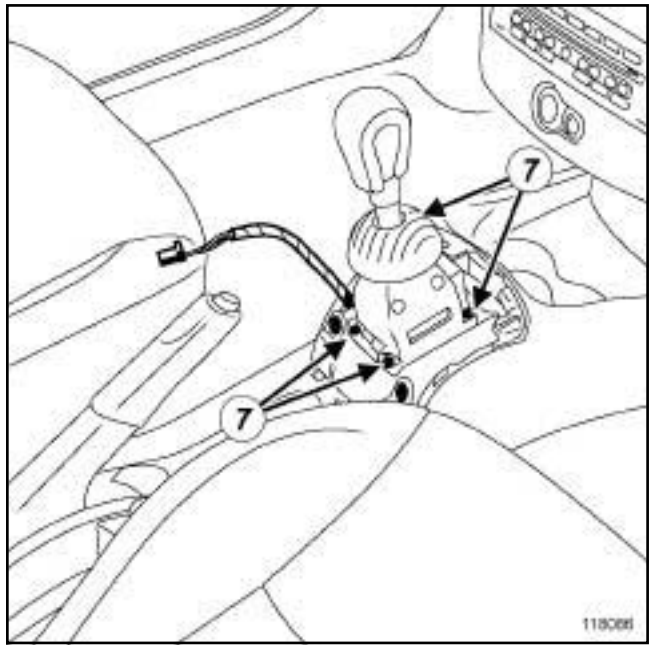
❏ Remove the soundproofing (**5**) from the gear lever.



118085

❏ Detach the connector (**6**) from the gear lever.

❏ Disconnect the gear lever connector.



118086

❏ Remove:

- the bolts (**7**) from the gear lever base plate,
- the gear lever.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the gear lever,
- the gear lever base plate bolts,

❏ Connect the gear lever connector.

❏ Attach the gear lever connector.

❏ Refit:

- the gear lever soundproofing,
- the front bolts to the centre console,
- the rear bolts to the centre console.

❏ Connect the gear lever lighting connector.

❏ Refit the gear lever cover.

II - FINAL OPERATION.

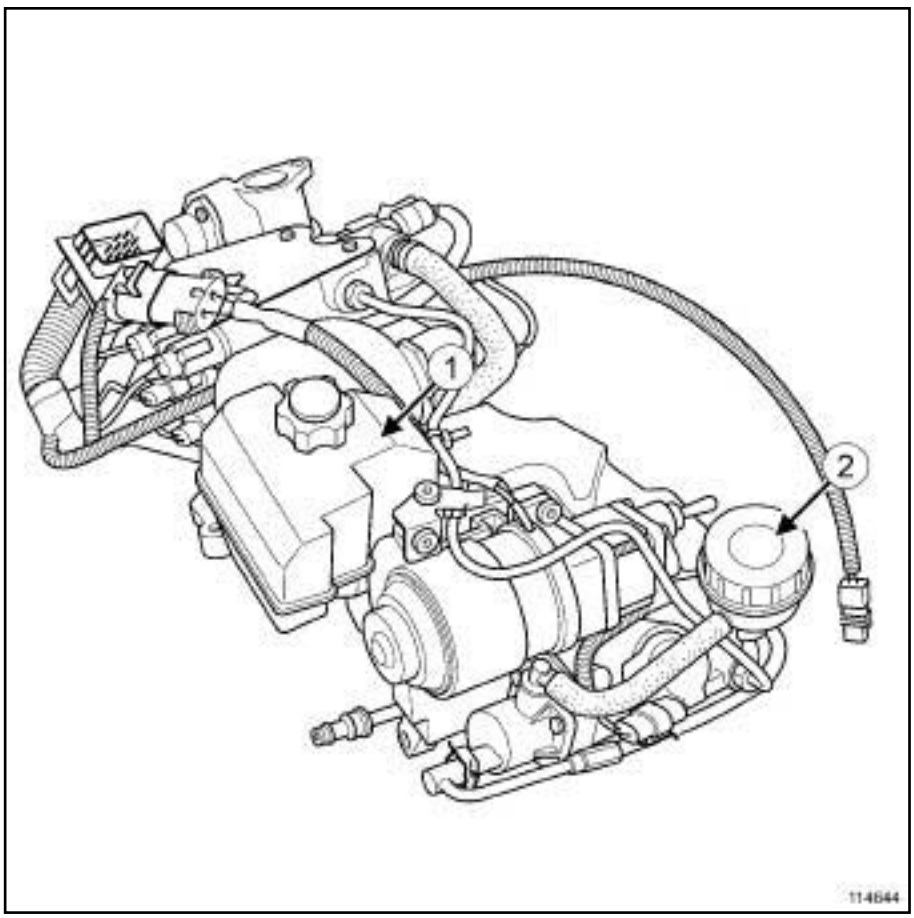
❏ Connect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

❏ Carry out the necessary programming (see **Fault finding - Replacement of components**) (MR 394, 21B, Sequential gearbox).

5-SPEED MANUAL SEQUENTIAL GEARBOX

I - GEARBOX TYPE/OIL TYPE CORRELATIONS:

GEARBOX TYPE	TYPE OF OIL FOR GEAR-BOX	TYPE OF OIL FOR SEQUEN-TIAL UNIT	TYPE OF HYDRAULIC CLUTCH CON-TROL FLUID
JH1	TRANSELF TRJ 75W80 or NFJ75W80	ELF RENAULT-MATIC D3 SYN ***(3)***	-
JA3/JA5	TRANSELF TRJ 75W80 or NFJ75W80	ELF SPEEDMATIC ***(1)***	DOT4 ***(2)***
PA0/PA6	TRANSELF TRX 75W80 or NFP75W80	ELF SPEEDMATIC ***(1)***	DOT4 ***(2)***



114644

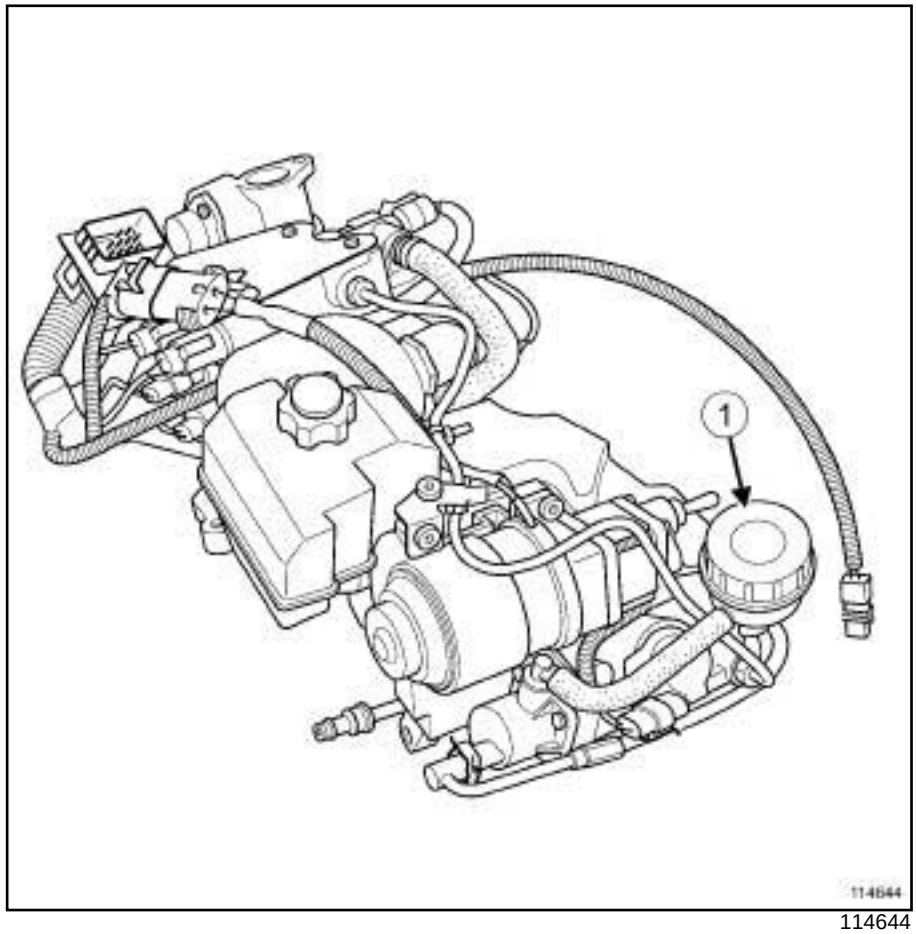
5-SPEED MANUAL SEQUENTIAL GEARBOX

II - STANDARDS AND PART NUMBERS OF THE VARIOUS RECOMMENDED OILS:

DESIGNATION	STANDARD	PART NUMBER
TRANSELF TRX 75W80 OR NFP75W80	APIGL4 MIL-L-2105 C or D	**77 11 143 534** (5 litres)
TRANSELF TRJ 75W80 or NFJ 75W80	APIGL4 MIL-L-2105 C or D	May be ordered from ELF
ELF RENAULTMATIC D3 SYN	DEXRON III	May be ordered from ELF
ELF SPEEDMATIC	ATF	**77 11 228 107** (1 litre)

Equipment required
Diagnostic tool

I - PROCEDURE



114644

❑

WARNING

- Even a tiny air bubble can cause a malfunction.
- Incorrect bleeding may cause fault finding errors and lead to an unnecessary part replacement.

II - GEARBOX REMOVED

❑

WARNING

When removing the hydraulic clutch tappet, fill the tappet with an approved fluid (see **21B**, **Sequential gearbox**, **Sequential gearbox oil: Specifications**, page **21B-82**) before refitting the gearbox, following the procedure described below.

❑ Fill the reservoir ***(1)*** with approved clutch circuit fluid.

❑ Activate the clutch tappet manually (releasing/engaging the clutch) until releasing/engaging the clutch becomes very difficult, without releasing any air bubbles. If necessary use the fluid (DOT4) to fill the reservoir.

III - GEARBOX IN POSITION

❑ Drain the reservoir of approved clutch circuit fluid.

❑ Remove the bleed screw cap.

❑ Connect a transparent tube to the bleed screw, connected to a syringe with an effective volume of **60 cm^3** filled with approved fluid.

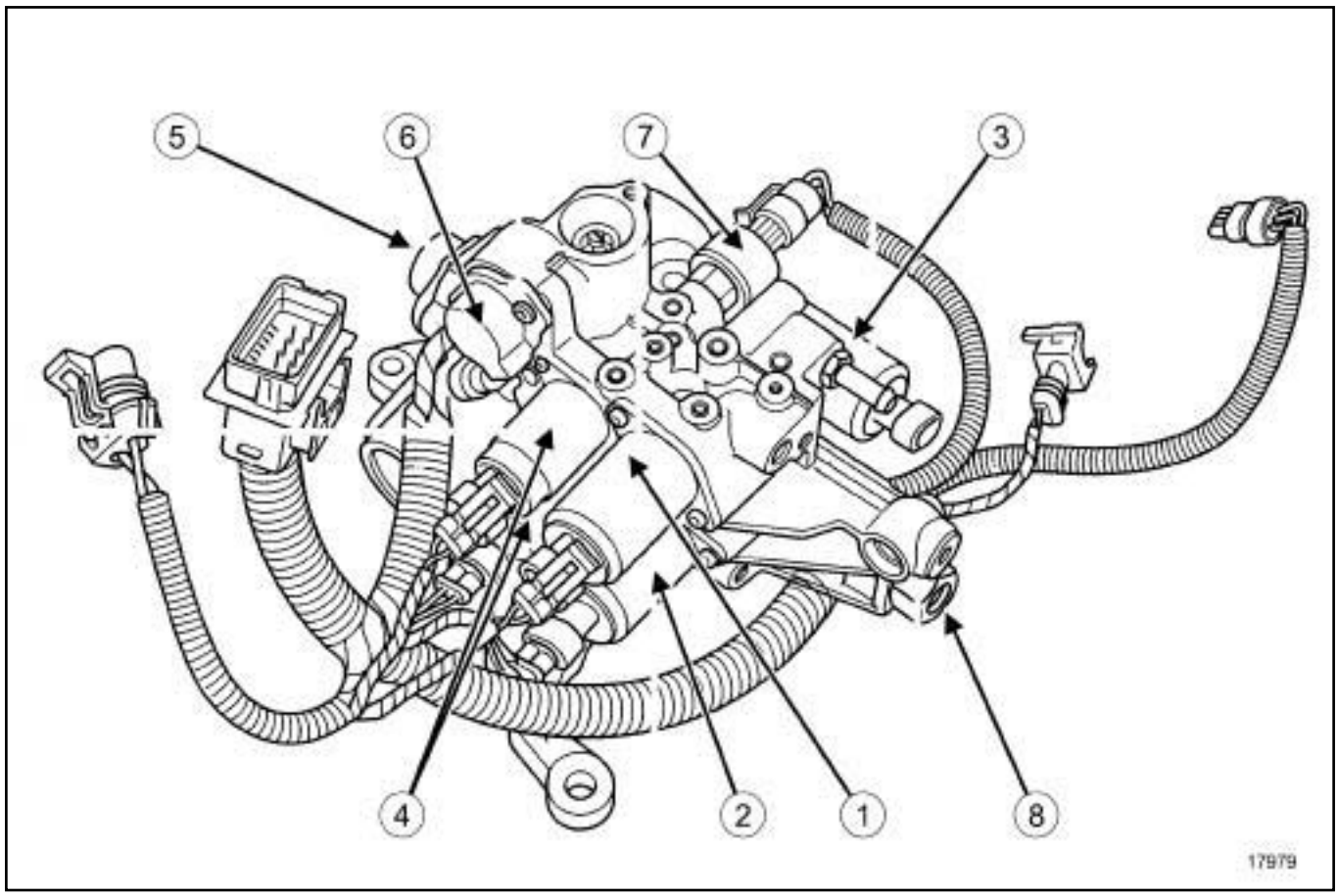
❑ Push the clutch pipe retaining clip and pull the pipe so that it is in the bleed position.

❑ Slowly inject the fluid in the syringe, making sure that the fluid does not overflow out of the reservoir.

❑ Carry out the Intake - Reflux operations slowly using the syringe until all of the air bubbles have disappeared.

- ❏ Push the pipe back into the retaining clip.
- ❏ Perform an auto-bleed using the **Diagnostic tool**.
- ❏ Check that the system is operating correctly by carrying out a road test.
- ❏ The level is correct when the fluid is halfway up the reservoir.

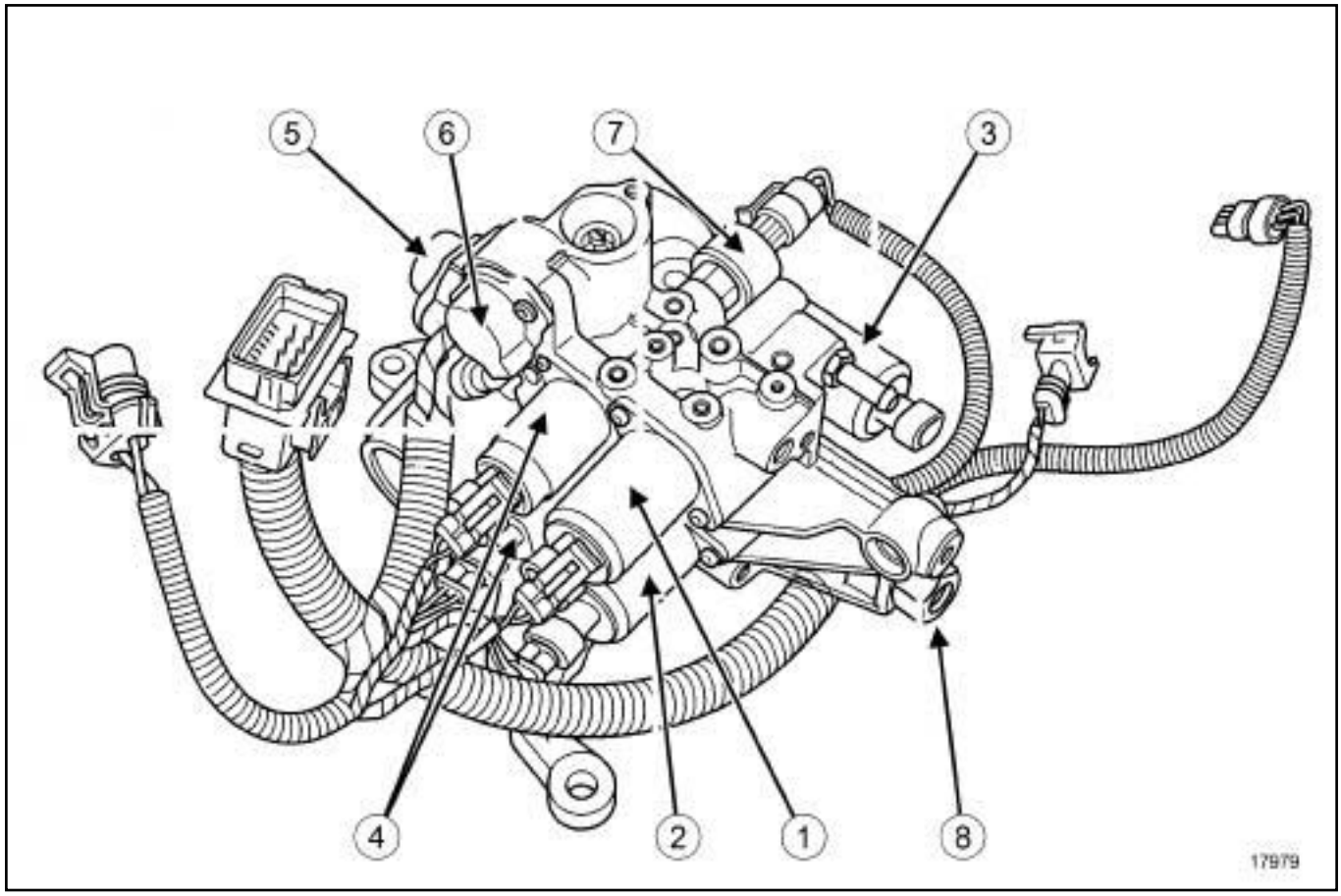
D4F, and JA3



17979

(**1**)	Clutch solenoid valve
(**2**)	Gear engagement solenoid valve
(**3**)	Gear engagement solenoid valve
(**4**)	Selection solenoid valve
(**5**)	Engagement sensor
(**6**)	Gear selection sensor
(**7**)	Solenoid valve unit pressure sensor
(**8**)	High pressure filter

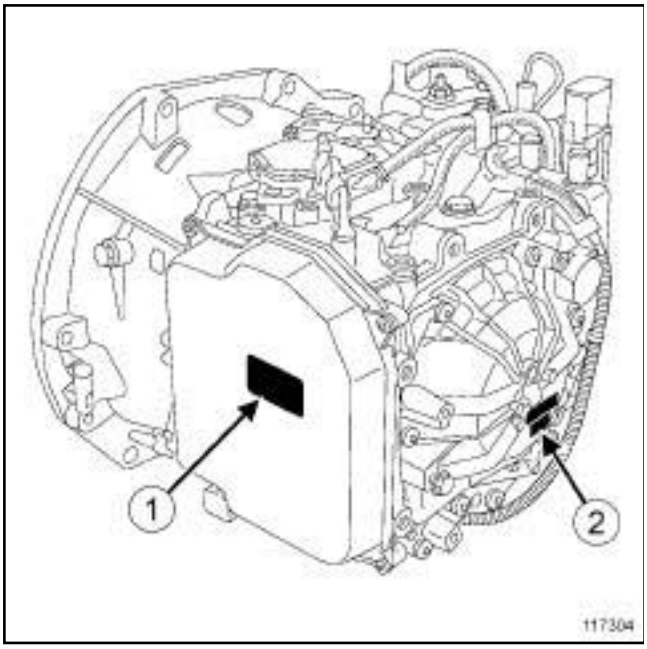
K9K, and JA5



17979

(**1**)	Clutch solenoid valve
(**2**)	Gear engagement solenoid valve
(**3**)	Gear engagement solenoid valve
(**4**)	Selection solenoid valve
(**5**)	Engagement sensor
(**6**)	Gear selection sensor
(**7**)	Solenoid valve unit pressure sensor
(**8**)	High-pressure filter

DP0



117304

The automatic transmission series number can be found in two places: on a label on the hydraulic distributor cover (**1**) and etched onto the outer casing (**2**) on the wheel side.

DP0

Equipment required
Diagnostic tool

Tightening torques ▽	
oil overflow pipe	**9 N.m**
level-setting plug	**35 N.m**
filler cap	**35 N.m**
mounting nuts on the scoop under the scuttle panel grille	**6.5 N.m**

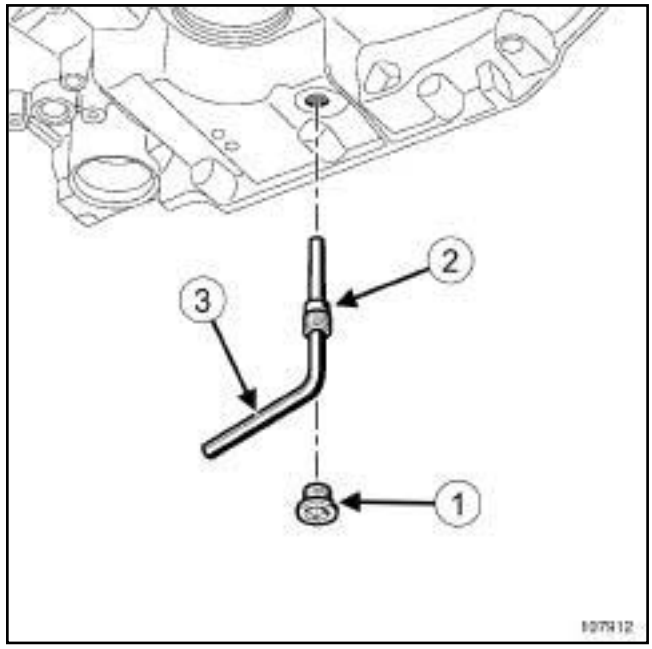
I - OIL SERVICE

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

Note:

Drain the automatic transmission oil when the oil is warm (**60°C maximum**), in order to remove as many impurities as possible.

❏ Remove the engine undertray.



107912

❏ Remove:

- the level-setting plug (**1**) ,
- the oil overflow pipe (**2**) using an **8 mm** Allen key (**3**) .

❏ Let the oil flow.

Note:

Always replace the overflow pipe (**2**) every time it is removed.

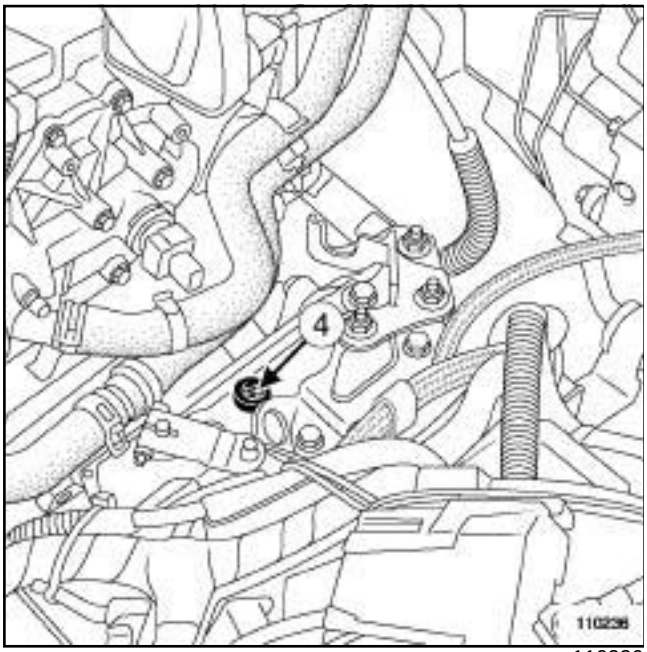
❏ Refit the new spillway.

❏ Torque tighten:

- the **oil overflow pipe (9 N.m)**,
- the **level-setting plug (35 N.m)**.

DP0

II - FILLING



110236

❏ Park the vehicle on level ground.

❏ It is essential to shift the selector lever to the Park position.

❏ Remove:

- the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment),
- the air filter box (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (MR 392, 80A, Battery).

❏ Remove the filler cap (**4**) .

❏ Use a funnel with a **15/100** filter to prevent any impurities from entering the system.

❏ Fill the gearbox with gearbox oil recommended by the manufacturer (see) (Technical Note 6012, 04, Lubricants) using **3.5 litres** of new oil.

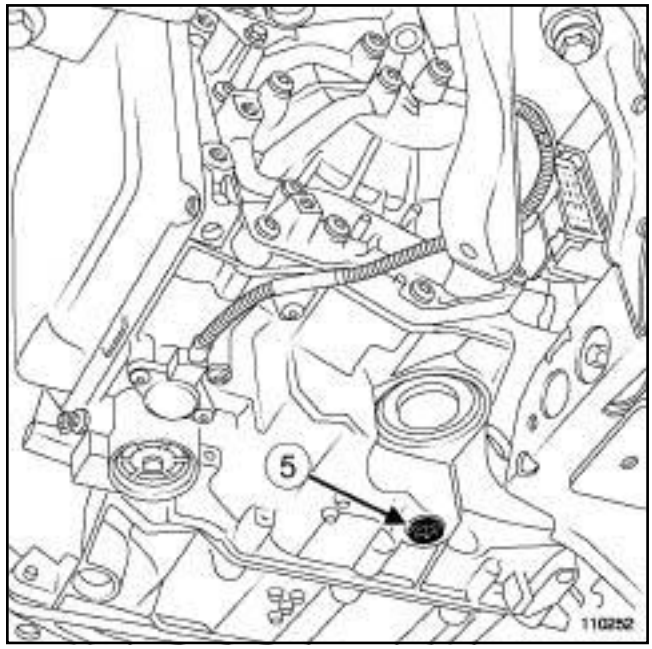
❏ Run the engine at idle speed.

❏ Connect the **Diagnostic tool**.

❏ Establish dialogue with the automatic gearbox computer.

❏ Monitor the gearbox oil temperature parameter.

❏ Wait for the temperature to reach **60˚C ± 1**.



110252

❏ Place a container under the level-setting plug (**5**) .

❏ Open the level-setting plug (**5**) , leaving the engine running.

❏ If the oil does not flow out or the quantity collected is below **0.1 litres** :

- Switch off the engine,
- add **0.5 litre** of oil,
- let the automatic transmission cool to **50˚C**,
- run the engine at idle speed,
- connect the **Diagnostic tool**,
- establish dialogue with the automatic transmission computer,
- monitor the gearbox oil temperature parameter,
- wait for the temperature to reach **60˚C**,
- place a container under the level-setting plug (**5**) .

❏ Repeat these operations until more than **0.1 litres** of oil is recovered in the container.

❏ Refit the level-setting plug (**5**) .

❏ Torque tighten the **filler cap (35 N.m)**.

III - LEVEL

❏ Park the vehicle on level ground.

Note:

The level must be checked according to the procedure described below.

DP0

- ❏ It is essential to shift the selector lever to the **Park** position.
- ❏ Fill the automatic transmission with **0.5 litre** of new oil.
- ❏ Run the engine at idle speed.
- ❏ Connect the **Diagnostic tool**.
- ❏ Establish dialogue with the automatic gearbox computer.
- ❏ Monitor the gearbox oil temperature parameter.
- ❏ Wait until the temperature reaches **60°C ± 1**
- ❏ Place a container under the level-setting plug,
- ❏ open the level-setting plug.
- ❏ If the oil does not flow or if the quantity collected is below **0.1 litres** :
  - Switch off the engine,
  - add **0.5 litre** of oil,
  - let the automatic transmission cool to **50°C**,
  - run the engine at idle speed,
  - connect the **Diagnostic tool**,
  - establish dialogue with the automatic transmission computer,
  - monitor the gearbox oil temperature parameter,
  - wait for the temperature to reach **60°C ± 1**,
  - place a container under the level-setting plug,
  - open the level-setting plug.
- ❏ Repeat these operations until more than **0.1 litres** of oil is recovered in the container.

> Note:
>
> When the oil is replaced, the electronic oil ageing counter must be reset (inside the computer).

- ❏ Refit:
  - the air filter box (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
  - the scoop under the scuttle panel grille (see **Scoop under the scuttle panel grille: Removal - Refitting**) (MR 393, 56A, Exterior equipment).
- ❏ Torque tighten the **mounting nuts on the scoop under the scuttle panel grille (6.5 N.m)**.
- ❏ Enter the date of the oil change using the **Diagnostic tool** (see **Fault finding - Configurations and programming)** (MR 394, 23A, Automatic transmission).

K4M, and 801, and DP0 – M4R, and 701, and DP0, and 021

Vehicle	Engine	Automatic transmission	Automatic transmission suffix	Reduction	Final drive
CROC BROC	M4R 701	DP0	021	52 / 67	21 / 73
CR0B BR0B	K4M 801	DP0	074	52 / 67	20 / 73

DP0

Equipment required
Diagnostic tool

Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

Lift the vehicle until the wheels are raised off the ground by a few centimetres.

Connect the **Diagnostic tool**.

Establish dialogue with the automatic transmission computer.

Monitor the automatic gearbox oil temperature parameter.

Check that the oil temperature is between **60˚C** and **80˚C**.

Start the engine and shift the lever to **D**.

Monitor the engine speed parameter:

Establish dialogue with the computer.

Accelerate fully, keeping the brakes applied. The front wheels should not rotate.

WARNING

- Full load should not be maintained for more than **5 seconds**. Beyond this, there is a high risk of destroying the converter or the automatic gearbox.

- Once the measurement has been taken, release the accelerator and keep the brakes on until the engine speed stabilises to idle speed (there is a risk of damaging the automatic gearbox if this is not done).

The engine speed should stabilise at **2700 rpm**.

A setting point outside the tolerance requires the converter to be replaced.

Note:

A stall point which is too low may be linked to a lack of engine power.

K4M, and DP0

Special tooling required	
Mot. 1453	Engine anchorage support with multiple adjustments and retaining straps.

Equipment required
safety strap(s)
component jack
Diagnostic tool

Tightening torques ▽	
automatic transmission bell housing bolts	**44 Nm**
converter nuts	**25 Nm**
exhaust manifold bracket nuts	**21 Nm**
subframe bolt	**105 Nm**
automatic transmission connector bolts	**20 Nm**

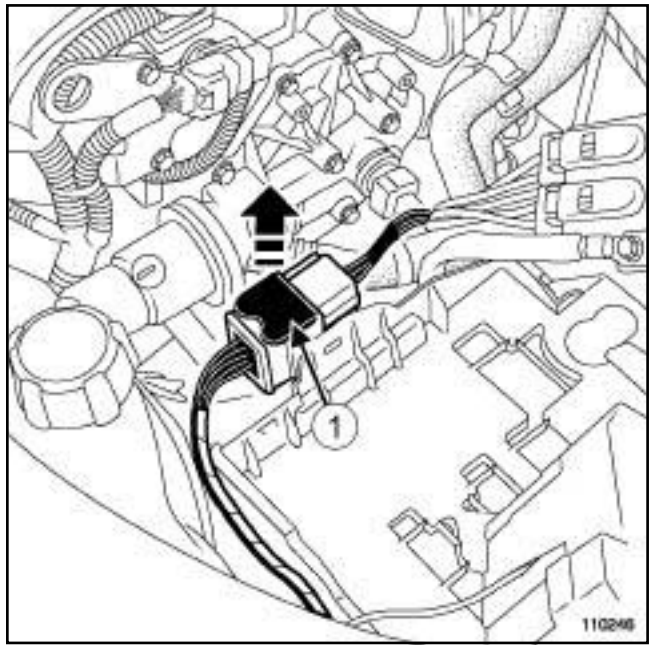
REMOVAL

I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

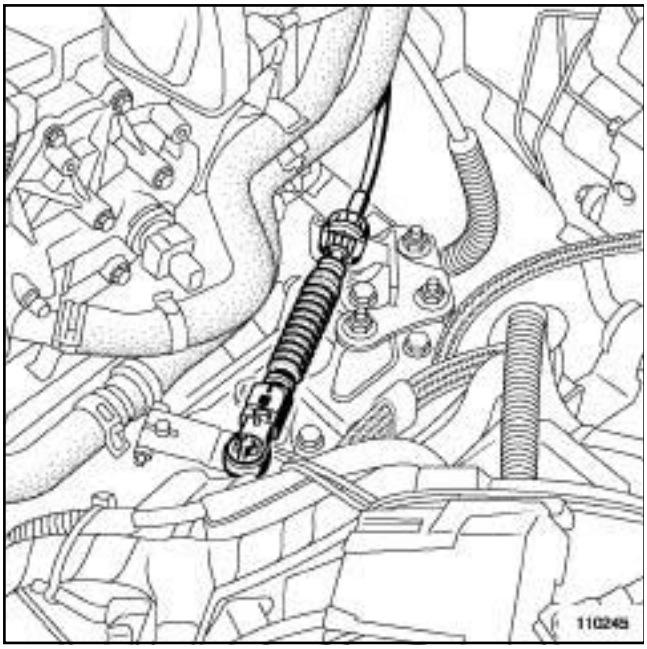
- the engine undertray,
- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the battery (see) (80A, Battery)
- the battery tray (see) (80A, Battery),
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).



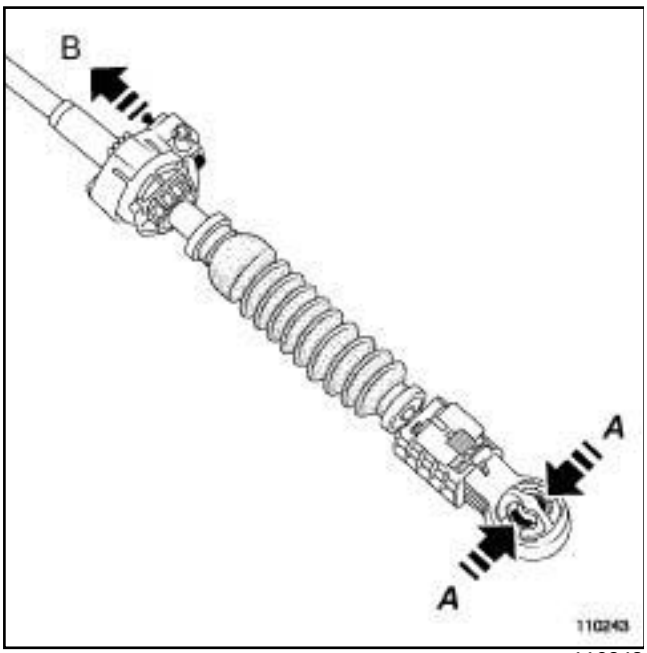
110246

❑ Disconnect the modular connector by pulling the connector slide mechanism (**1**) .

K4M, and DP0



110245



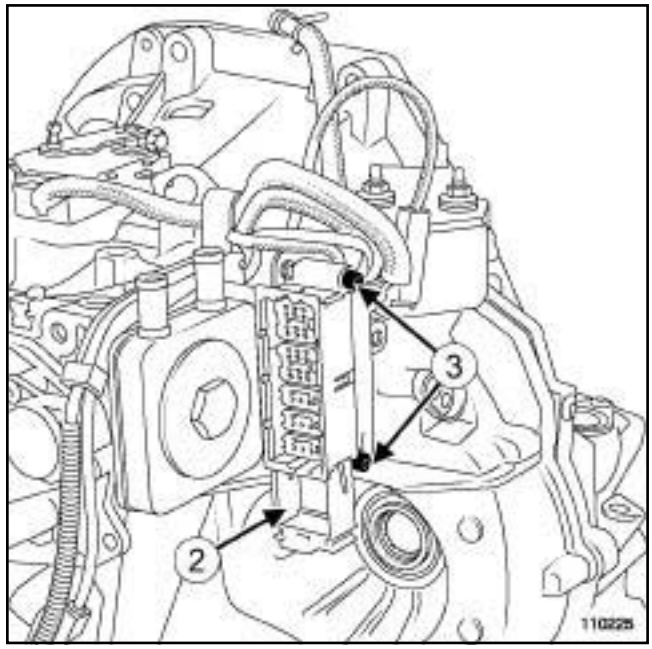
110243

❏ Remove:

- the multifunction switch control cable by pressing at (**A**) ,
- the control cable sheath stop from the gearbox support by pulling the catch at (**B**) .

❏ Disconnect the crankshaft position sensor connector.

❏ Remove the crankshaft position sensor.



110225

❏ Disconnect the automatic transmission connector by pulling out the slide (**2**) .

❏ Remove the bolts (**3**) from the automatic transmission connector and slide it into a waterproof plastic bag.

Note:

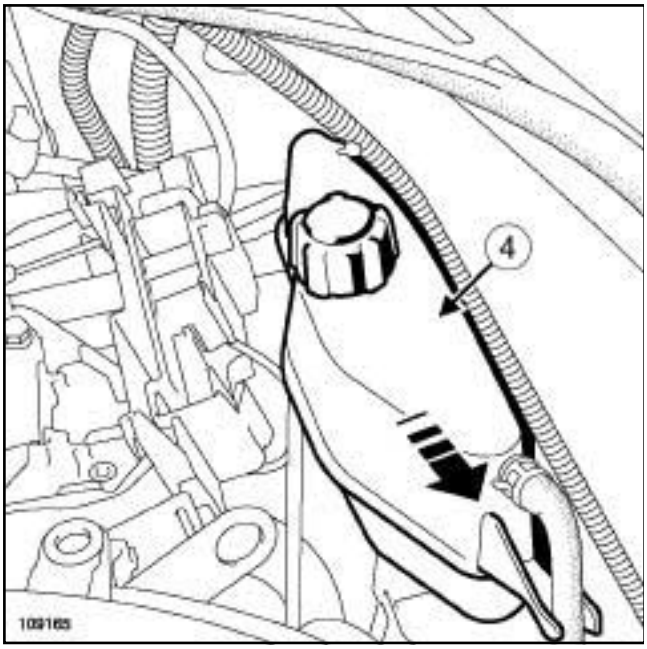
Protect the automatic transmission connector by sliding it into a waterproof plastic bag.

❏ Drain the cooling system (see **Cooling system: Draining - Refilling**) (19A, Cooling).

❏ Disconnect the hoses from the expansion bottle.

❏ Remove the plastic rivet from the expansion bottle.

K4M, and DP0



109165

❏ Remove:

- the expansion bottle (**4**) in the direction of the arrow,
- the air resonator.

❏ Disconnect the automatic transmission cooling hoses.

❏ Remove the bottom cooling hose.

❏ Unclip the top cooling hose from the thermostat.

❏ Disconnect:

- the engine cooling fan,
- the engine fan relay unit,
- the pressostat.

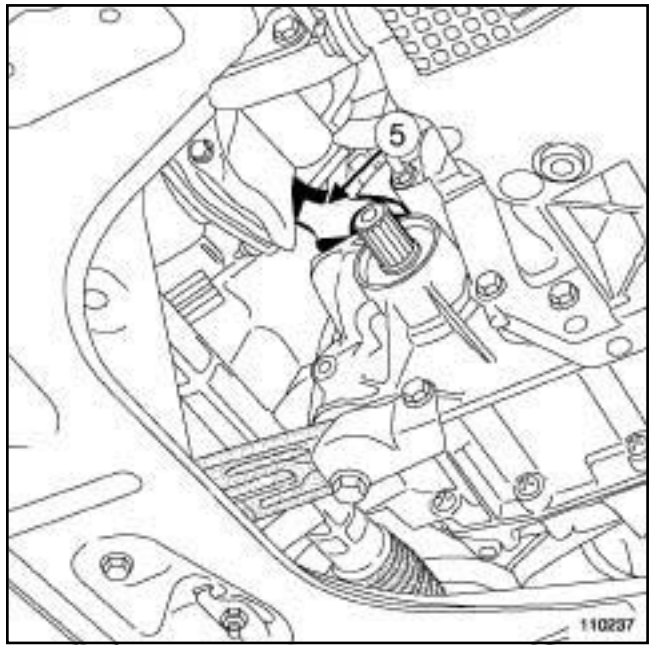
❏ Move the wiring aside.

❏ Unclip the radiator fan unit.

❏ Disconnect the anti-lock braking system sensor connectors.

❏ Remove:

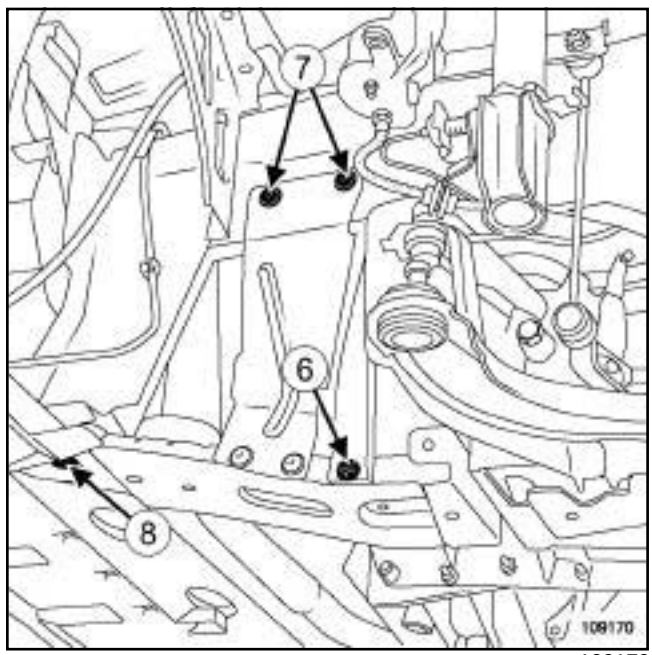
- the left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,
- the right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) .



110237

❏ Remove the catalytic converter stay (**5**) .

❏ Fit the cooling assembly to the upper cross member using a **safety strap(s)**.

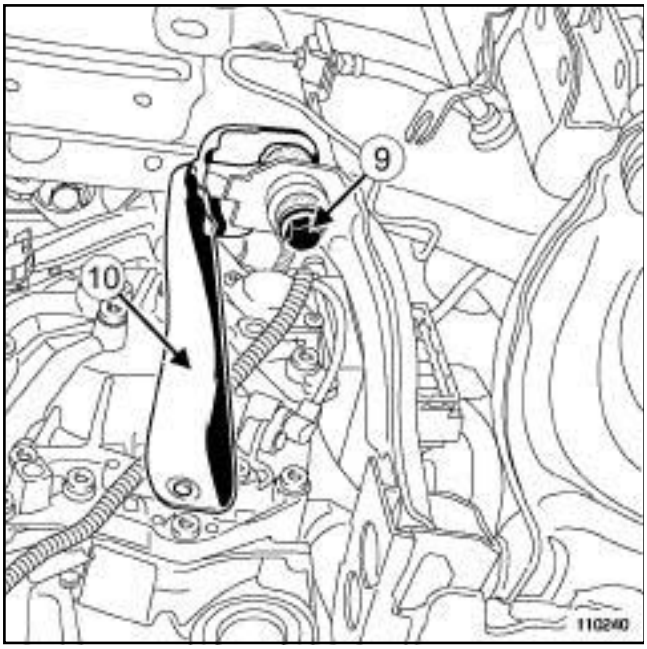


109170

❏ Remove:

- the tie rod bolts (**6**) ,
- the side stiffener bolts (**7**) ,
- the bolts (**8**) on the cooling radiator support cross member,
- the cooling radiator support cross member,
- the fan unit.

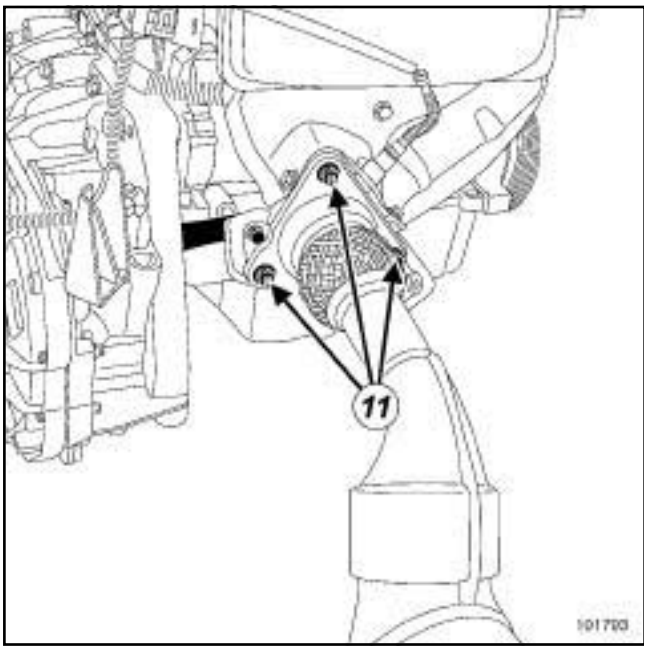
K4M, and DP0



110240

❏ Loosen the subframe bolt (**9**) .

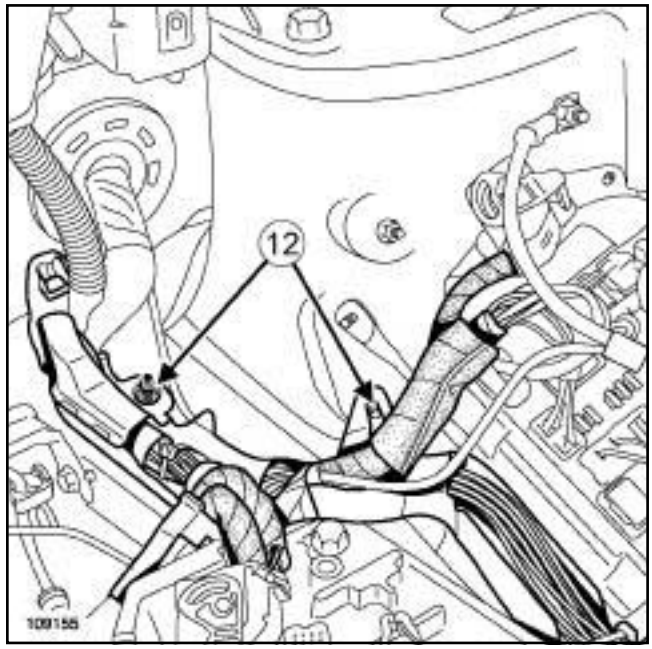
❏ Turn the stay (**10**) towards the rear to free the access to the automatic transmission.



101793

❏ Remove:

- the exhaust manifold bracket nuts (**11**) ,
- the engine tie-bar (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting),
- the petrol injection computer (see **Petrol injection computer: Removal - Refitting**) (17B, Petrol injection).

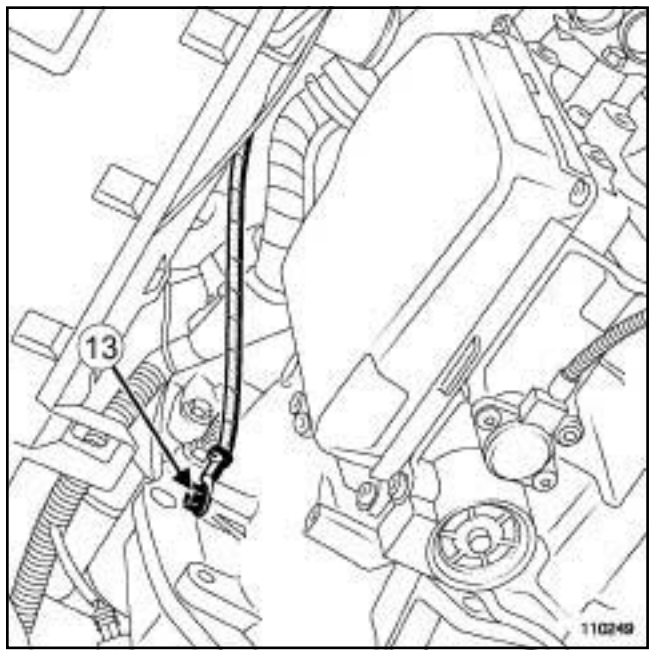


109155

❏ Remove the wiring channel nuts (**12**) on the body.

❏ Attach the wiring channel in order to access the automatic transmission support freely.

❏ Remove the wiring channel nuts on the engine.



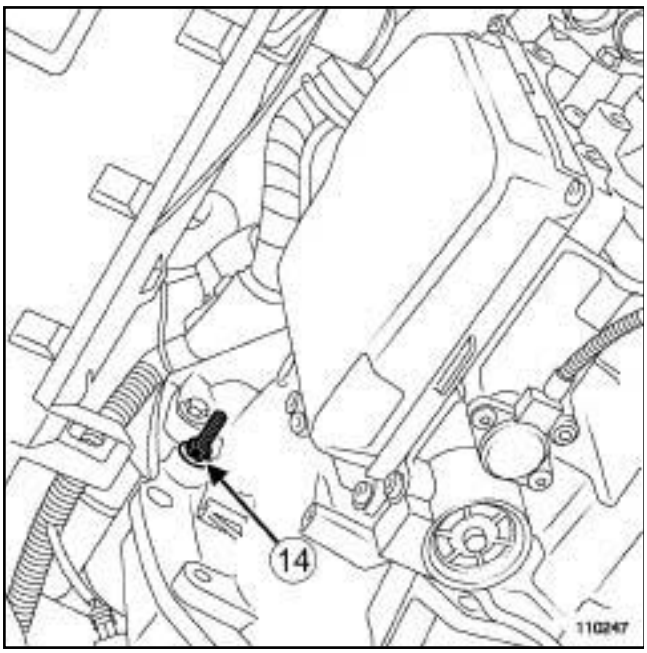
110249

❏ Remove:

- the bolt (**13**) on the automatic transmission earth strap,
- the starter (see **Starter: Removal - Refitting**) (16A, Starting - Charging),
- the converter nuts via the starter aperture.

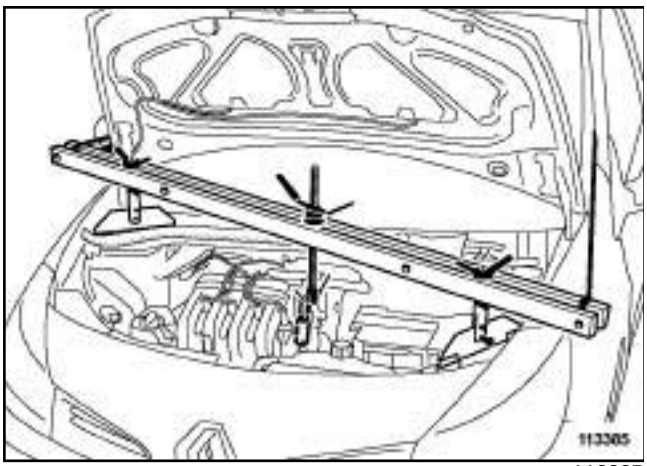
K4M, and DP0

II - OPERATION FOR REMOVAL OF PART CONCERNED



110247

❏ Remove the upper automatic transmission bell housing stud (**14**) .



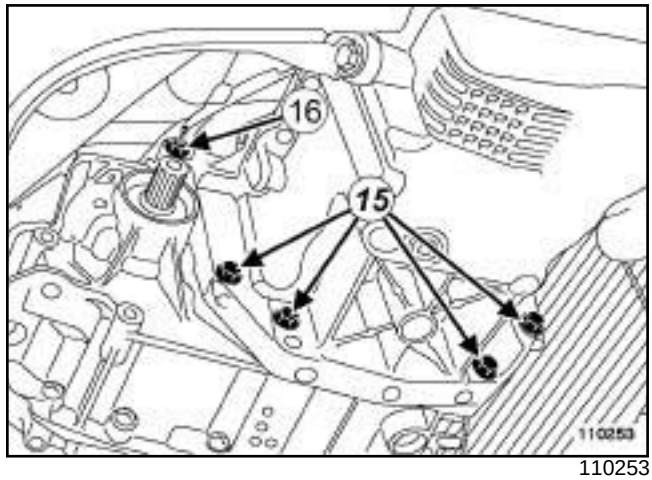
113385

❏ Fit the tool **(Mot. 1453)** with its **safety strap(s)**.

❏ Remove:

- the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (19D, Engine mounting),
- the automatic transmission bell housing upper bolts.

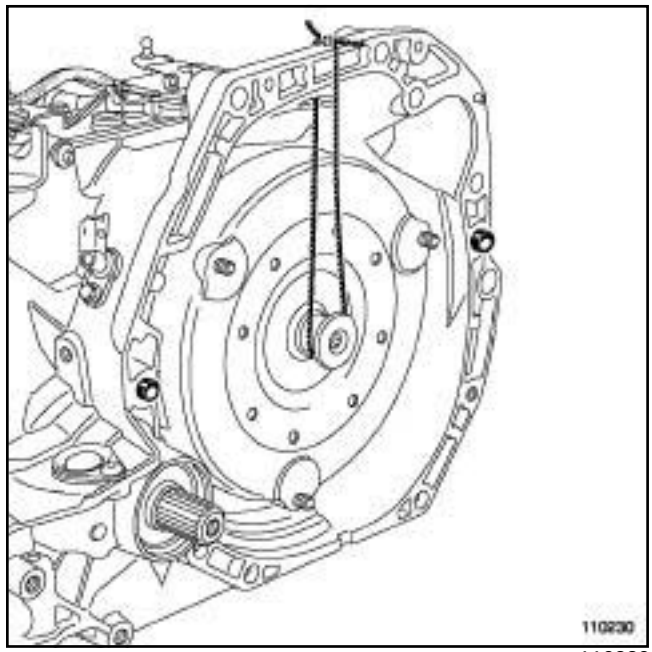
❏ Fit the **component jack** beneath the automatic transmission.



110253

❏ Remove:

- the lower bolts (**15**) on the automatic transmission bell housing,
- the automatic transmission lower stud (**16**) ,
- the automatic gearbox.



110230

❏ Attach the converter with string to stop it being detached.

K4M, and DP0

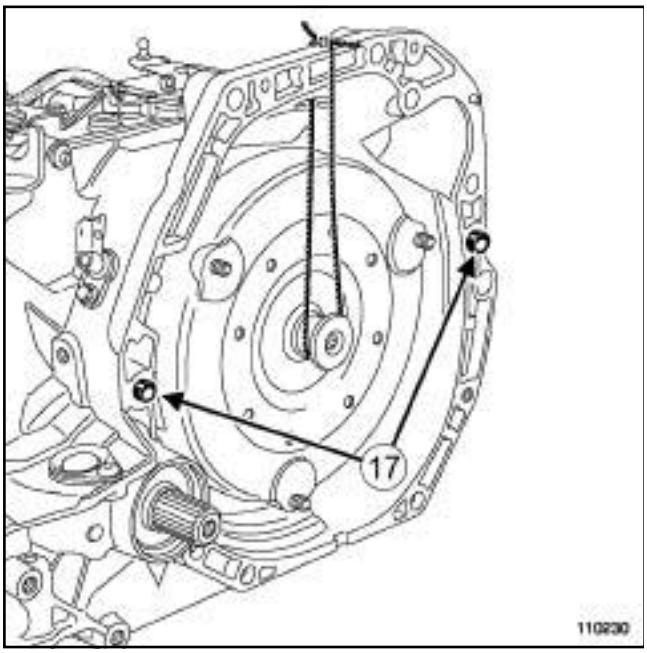
REFITTING

I - REFITTING PREPARATION OPERATION

❑

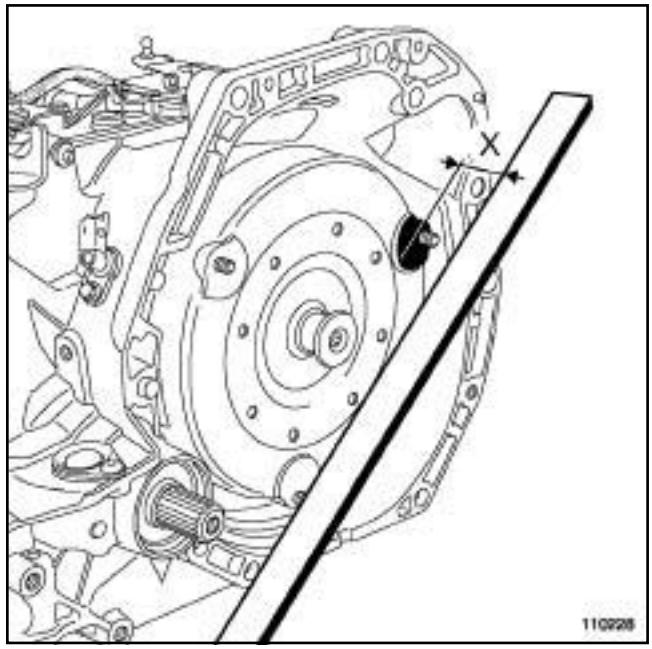
Note:

Do not reuse the converter nuts or the inertia flywheel nuts if they have been removed: always use new nuts.



110230

❑ Check that the centring dowels (**17**) are in place.



110228

❑ Check the positioning of the converter in relation to the engine/automatic transmission coupling face using a ruler and a slide; the value should be (**X**) **= 18.22 mm ± 1**.

II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the automatic gearbox,
- the automatic transmission studs,
- the automatic transmission bell housing lower bolts.

Note:

Ensure that the converter is inserted correctly in the input shaft.

III - FINAL OPERATION.

❑ Remove the tool **component jack** under the automatic transmission.

❑ Refit the automatic transmission bell housing upper bolts.

❑ Torque tighten the **automatic transmission bell housing bolts (44 Nm)**.

❑ Refit the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (19D, Engine mounting).

K4M, and DP0

❏ Remove the tool **(Mot. 1453)** with its **safety strap(s)**.

❏ Refit the converter nuts via the starter aperture.

❏ Torque tighten the **converter nuts (25 Nm)**

❏ Refit:

- the starter (see **Starter: Removal - Refitting**) (16A, Starting - Charging),
- the earth strap bolt on the automatic transmission.

❏ Detach the wiring channel.

❏ Refit:

- the nuts mounting the wiring channel to the body,
- the petrol injection computer (see **Petrol injection computer: Removal - Refitting**) (17B, Petrol injection),
- the engine tie-bar (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting),
- the exhaust manifold bracket.

❏ Torque tighten the **exhaust manifold bracket nuts (21 Nm)**.

❏ Refit the subframe tie-rod.

❏ Torque tighten the **subframe bolt (105 Nm)**.

❏ Refit:

- the fan assembly via the underbody of the vehicle,
- the radiator support cross member,
- the radiator support cross member bolts,
- the side stiffener bolts,
- the tie-rod bolts.

❏ Detach the cooling assembly from the upper cross member.

❏ Refit:

- the catalytic converter stay,
- the left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,
- the right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) .

❏ Connect the ABS sensor connectors.

❏ Clip on the radiator fan assembly.

❏ Connect:

- the pressostat,
- the engine fan relay unit,
- the engine cooling fan.

❏ Fit the thermostat upper cooling hose.

❏ Refit the lower cooling hose.

❏ Connect the automatic transmission cooling hoses.

❏ Refit:

- the air resonator,
- the expansion bottle,
- the plastic rivet of the expansion bottle,
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).

❏ Connect the expansion bottle hoses.

❏ Fill the cooling system (see **Cooling system: Draining - Refilling**) (19A, Cooling).

❏ Take the automatic transmission connector out of the plastic bag.

❏ Refit the automatic transmission connector.

❏ Torque tighten the **automatic transmission connector bolts (20 Nm)**.

❏ Connect the automatic transmission connector by pushing the slide mechanism.

❏ Refit the crankshaft position sensor.

❏ Connect the crankshaft position sensor.

❏ Refit:

- the control cable sheath stop on the automatic transmission mounting,
- the multifunction switch control cable.

❏ Connect the modular connector by pushing the connector slide mechanism.

❏ Refit:

- the battery tray (see) (80A, Battery),
- the battery (see) (80A, Battery)
- the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray.

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

❏ Check the automatic transmission oil level (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Filling**, page **23A-2**) .

K4M, and DP0

- If replacing the oil distributor, clear the auto-adaptive strategies using command **RZ005 Clear auto-adaptive strategies** and reset the oil ageing counter on the automatic transmission computer using the **Diagnostic tool**, run command **CF074 « Write gearbox oil change date »** .

  After running command **RZ005**, it is essential to carry out a test drive performing all gear changes, both up and down, several times to store the new values.

M4R, and 701, and DP0, and 021

Special tooling required	
Mot. 1672	Lower engine support.

Equipment required
component jack

Tightening torques ▽	
automatic gearbox bell housing bolts	**44 Nm**
converter nuts	**25 Nm**
subframe bolt	**105 Nm**
converter nuts	**25 Nm**

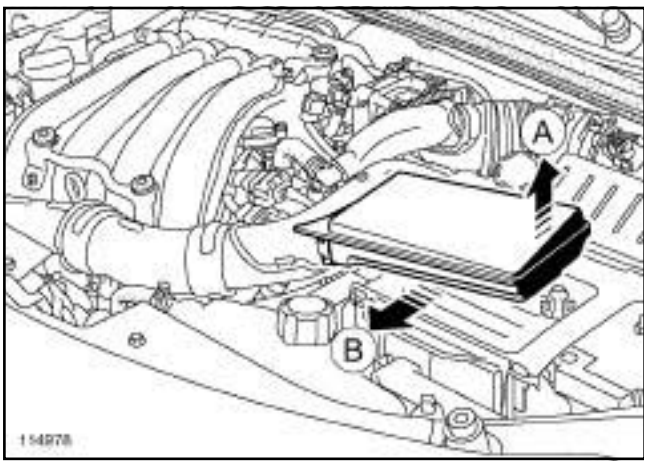
REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

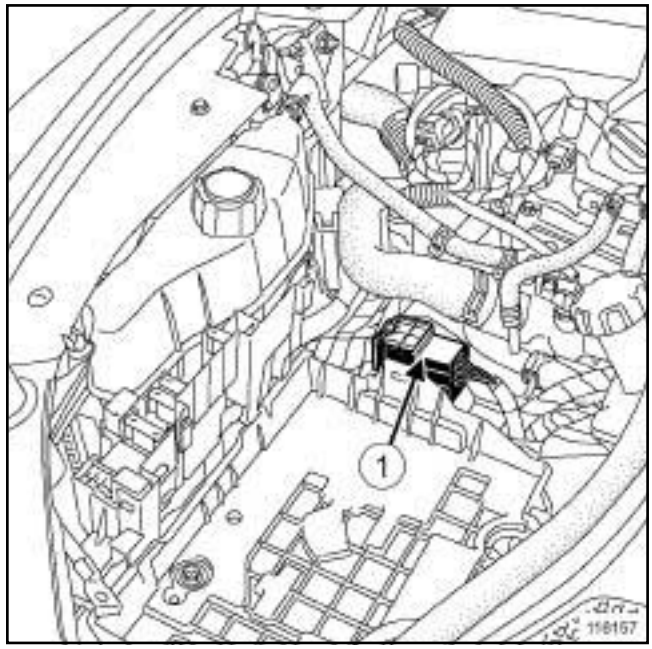
- the engine cover,
- the engine undertray.



114978

❏ Remove the air resonator on the battery following the direction of the arrows (**A**) then (**B**) .

❏ Remove the battery (see **Battery: Removal - Refitting**) (80A, Battery).



116157

❏ Remove:

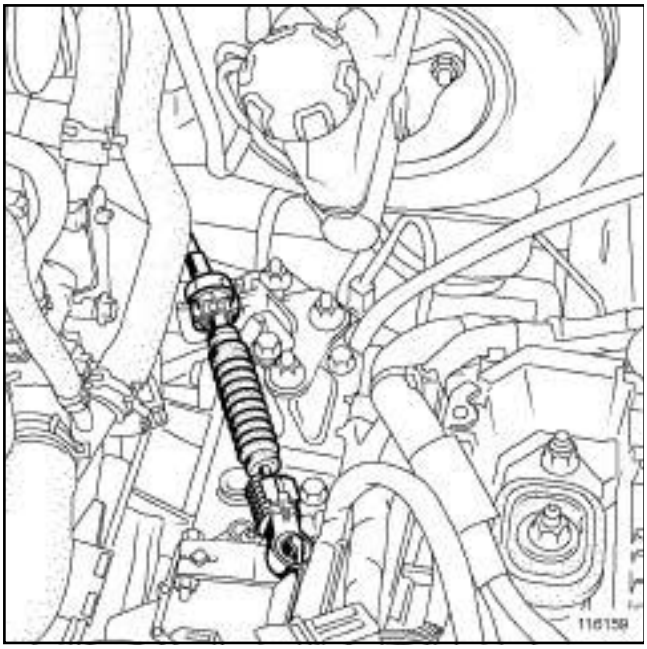
- the modular connector (**1**) ,
- the air filter (see **Air filter: Removal - Refitting**) (12A, Fuel mixture),
- the battery tray (see) (80A, Battery).

❏ Drain the cooling system (see **Cooling system: Draining - Refilling**) (19A, Cooling).

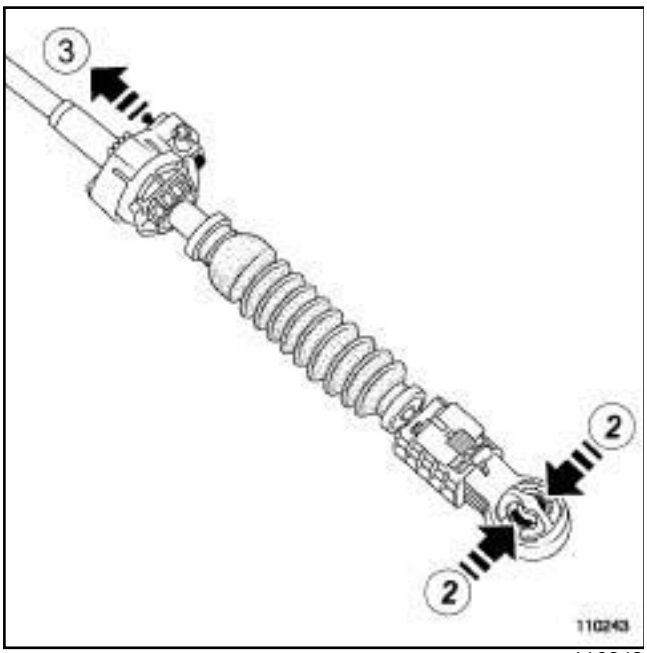
❏ Remove:

- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the headlights (see) (80B, Headlights) or (see **Xenon headlight: Removal - Refitting**) (80C, Xenon bulbs),
- the frontal impact cross member (see **Front impact cross member: Removal - Refitting**) (41A, Front lower structure),
- the front end panel (see **Front end panel: Removal - Refitting**) (42A, Upper front structure),
- the cooling radiator (see **Cooling radiator: Removal - Refitting**) (19A, Cooling).

M4R, and 701, and DP0, and 021



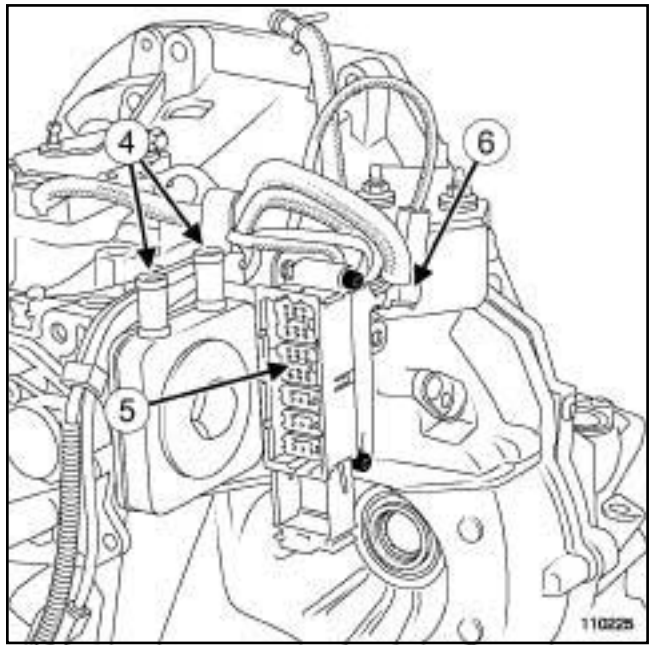
116159



110243

❑ Remove:

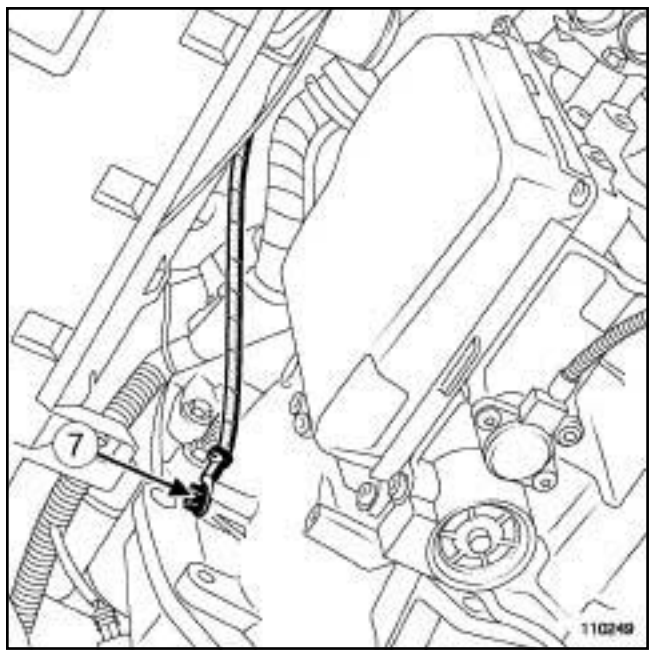
- the multifunction switch control (**2**) ,
- the multifunction switch sheath stop (**3**) .



110225

❑ Disconnect:

- the cooling hoses at (**4**) on the automatic gearbox,
- the automatic gearbox connector (**5**) ,
- the connector (**6**) from the automatic gearbox speed sensor,



110249

❑ Remove:

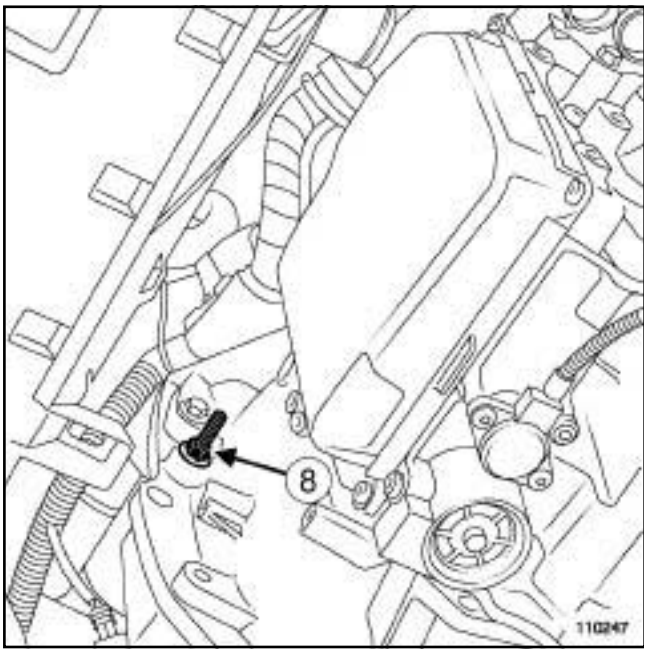
- the bolt (**7**) securing the automatic gearbox earth strap,
- the starter (see **Starter: Removal - Refitting**) (16A, Starting - Charging),

M4R, and 701, and DP0, and 021

- the converter nuts via the starter aperture.

❑ Remove:

- the wiring channel mounting nuts on the body,
- the wiring channel mounting nuts on the engine.

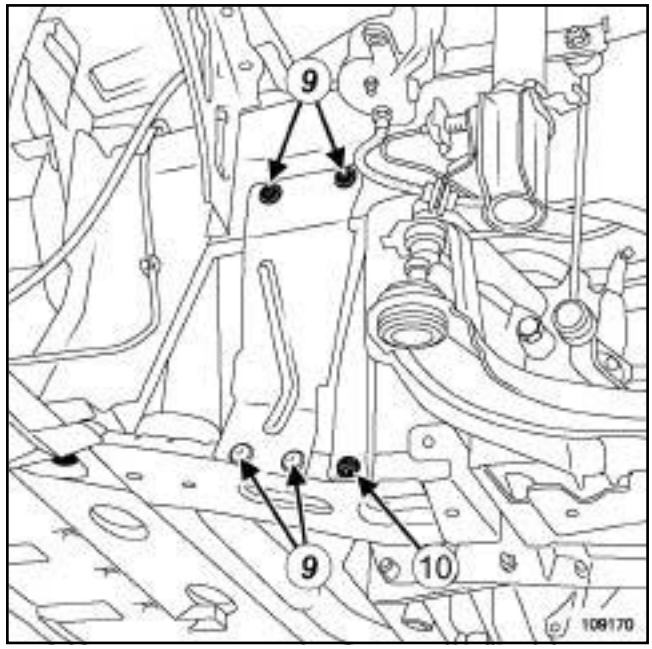


110247

❑ Unscrew the nut (**8**) from the automatic gearbox upper stud.

❑ Remove:

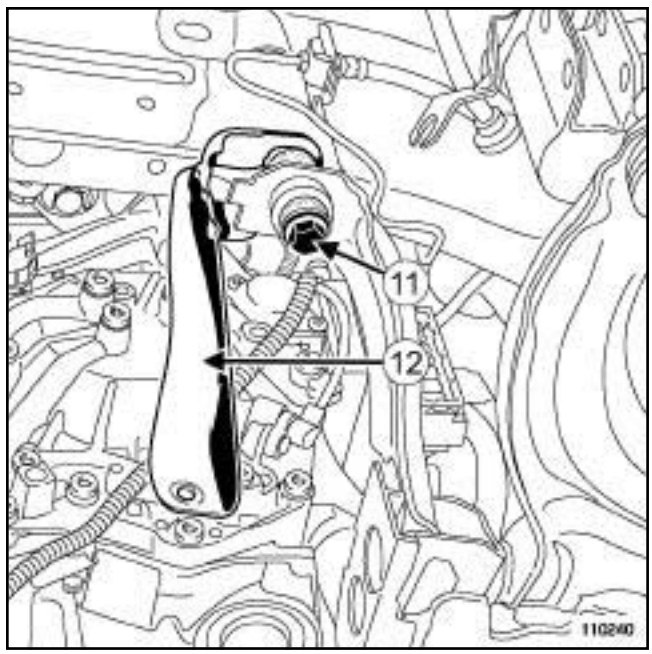
- the left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,
- the right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) .



109170

❑ Remove:

- the side stiffener bolts (**9**) ,
- the side stiffener,
- the tie-rod bolt (**10**) .

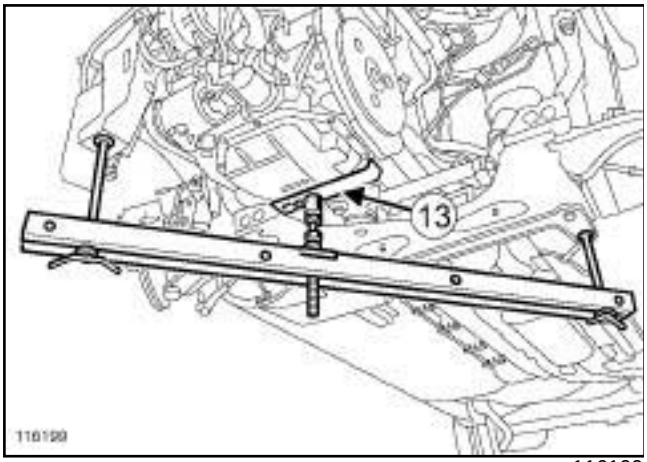


110240

❑ Loosen the subframe bolt (**11**) .

❑ Move the tie rod (**12**) back to enable access to the automatic gearbox.

❑ Remove the radiator support cross member (see **Radiator mounting cross member: Removal - Refitting**) (41A, Front lower structure).



116199

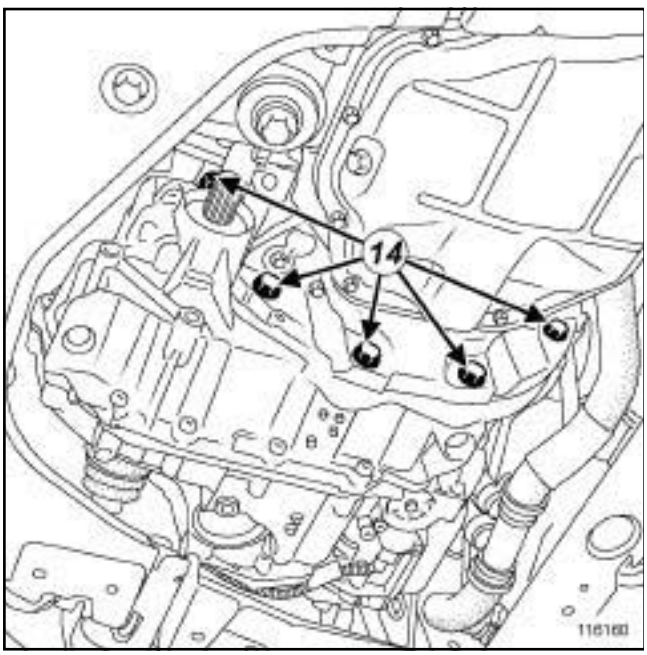
❏ Fit the tool **(Mot. 1672)** making sure that the support (**13**) is positioned as shown on the diagram.

❏ Remove:

- the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (19D, Engine mounting),
- the automatic gearbox bell housing upper bolts.

II - OPERATION FOR REMOVAL OF PART CONCERNED

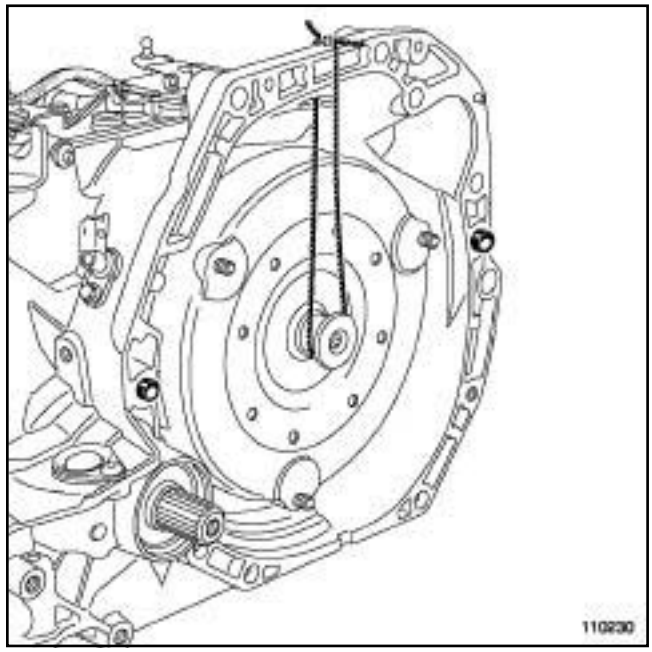
❏ Fit the **component jack** beneath the automatic transmission.



116160

❏ Remove:

- the lower bolts (**14**) on the automatic gearbox bell housing,
- the automatic gearbox.

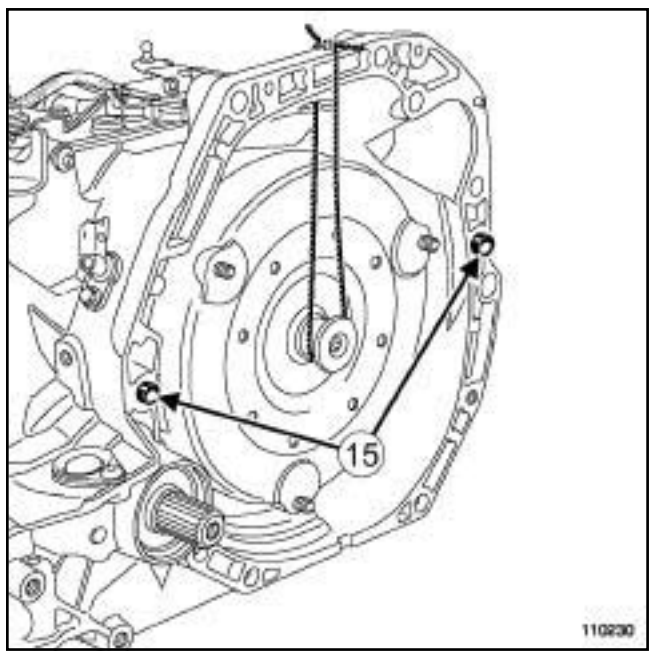


110230

❏ Attach the converter with string to stop it being detached.

REFITTING

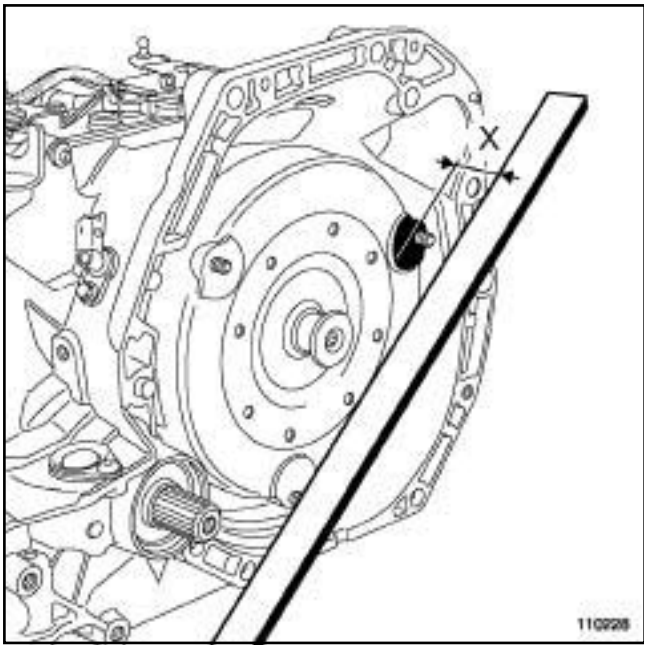
I - REFITTING PREPARATION OPERATION



110230

❏ Check that the centring dowels (**15**) are in place.

M4R, and 701, and DP0, and 021



110228

❏ Check the positioning of the converter in relation to the engine/automatic gearbox coupling face using a rule and a slide; the value should be at least (**X**) **= 18.22 mm ± 1**.

II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the automatic gearbox,
- the lower bolts on the automatic gearbox bell housing,
- the converter nuts via the starter aperture.

Note:

Ensure that the converter is perfectly inserted in the input shaft.

Note:

Do not reuse the converter nuts or the inertia flywheel nuts if they have been removed; always fit new nuts.

III - FINAL OPERATION.

❏ Remove the tool **component jack** under the automatic gearbox.

❏ Refit the automatic gearbox upper bolts.

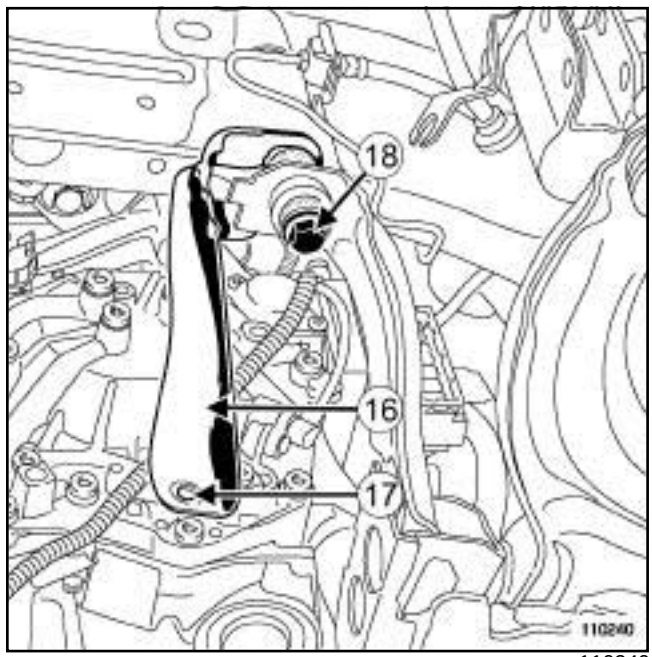
❏ Tighten to torque:

- the **automatic gearbox bell housing bolts (44 Nm)**,
- the **converter nuts (25 Nm)**.

❏ Refit the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (19D, Engine mounting).

❏ Remove the **(Mot. 1672)**.

❏ Refit the radiator support cross member (see **Radiator mounting cross member: Removal - Refitting**) (41A, Front lower structure).



110240

❏ Fit the tie-rod (**16**) .

❏ Refit the tie-rod bolt at (**17**) .

❏ Torque tighten the **subframe bolt (105 Nm)** (**18**) .

❏ Refit:

- the side stiffener,
- the left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,
- the right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) ,
- the wiring channel mounting nuts on the body,
- the wiring channel mounting nuts on the engine.

❏ Torque tighten the **converter nuts (25 Nm)**.

M4R, and 701, and DP0, and 021

❑ Refit:

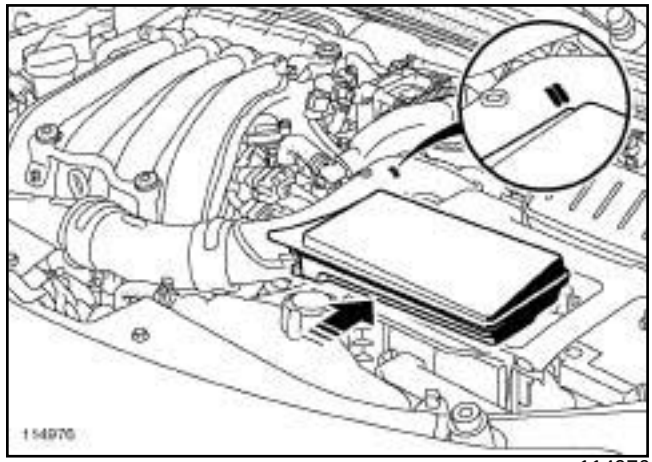
- the starter (see **Starter: Removal - Refitting**) (16A, Starting - Charging),
- the earth strap on the automatic gearbox,
- the automatic gearbox earth strap bolt.

❑ Connect:

- the automatic gearbox connector,
- the automatic gearbox speed sensor connector,
- the cooling hoses on the automatic gearbox.

❑ Refit:

- the multifunction switch sheath stop,
- the multifunction switch control,
- the cooling radiator (see **Cooling radiator: Removal - Refitting**) (19A, Cooling),
- the front end panel (see **Front end panel: Removal - Refitting**) (42A, Upper front structure),
- the frontal impact cross member (see **Front impact cross member: Removal - Refitting**) (41A, Front lower structure),
- the headlights (see) (80B, Headlights) or (see **Xenon headlight: Removal - Refitting**) (80C, Xenon bulbs),
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the battery tray (see) (80A, Battery),
- the air filter (see **Air filter: Removal - Refitting**) (12A, Fuel mixture),
- the modular connector,
- the battery (see **Battery: Removal - Refitting**) (80A, Battery).



114976

❑ Push the air resonator towards the rear of the vehicle so that the corner of the air resonator is between the two lines marked on the air inlet hose.

❑ Press on the air resonator to fit it onto the battery cover.

❑ Perform the following operations:

- fill the cooling system (see **Cooling system: Draining - Refilling**) (19A, Cooling),
- bleed the cooling system (see) (19A, Cooling).

❑ Refit:

- the engine cover,
- the engine undertray.

K4M, and DP0

Special tooling required	
Mot. 582-01	Flywheel locking tool.

Equipment required
Diagnostic tool

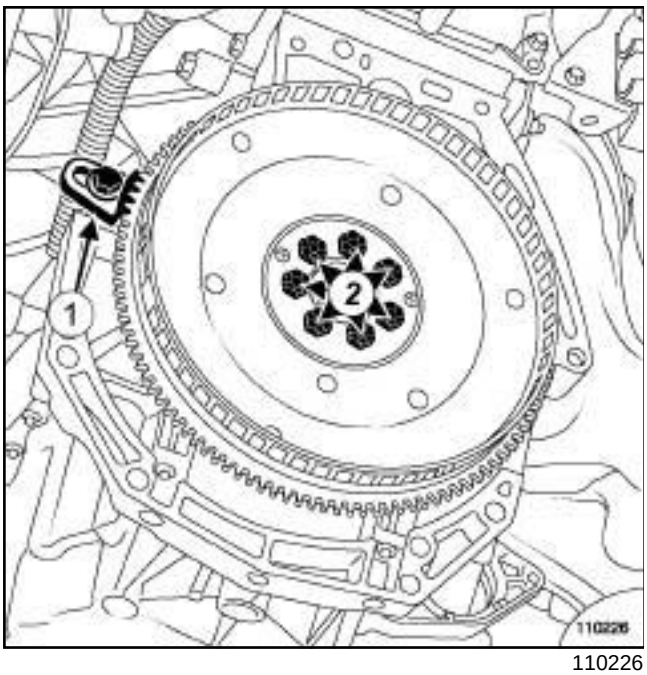
Tightening torques ▽	
drive plate bolts	**55 Nm + 50° ± 5**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑ Remove the gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-7**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



110226

❑ Set up the **(Mot. 582-01)** (**2**) .

❑ Remove:

- the bolts (**2**) ,
- the drive plate,
- tool **(Mot. 582-01)**.

REFITTING

I - REFITTING PREPARATIONS OPERATION

❑ Check that the drive plate is not damaged (run-out tolerance of **0.2 mm** on the outer diameter).

II - REFITTING OPERATION FOR PART CONCERNED

❑ Fit the drive plate, ensuring it is correctly positioned in relation to the centring pins.

❑ Apply **LOCTITE FRENBLOC** to the bolt threads.

❑ Tighten the bolts on the drive plate.

❑ Torque and angle tighten the **drive plate bolts (55 Nm + 50° ± 5)** by immobilising the starter ring using the **(Mot. 582-01)**.

III - FINAL OPERATION.

❑ Refit the gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-7**) .

❑ Connect the **Diagnostic tool** for the conformity check.

M4R, and DP0

Special tooling required	
Mot. 919-02	Flywheel locking tool.

Tightening torques ▽	
drive plate bolts	**108 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

IMPORTANT
During this operation, secure the vehicle to the lift with a strap to prevent it from becoming unbalanced.

❏ Remove:

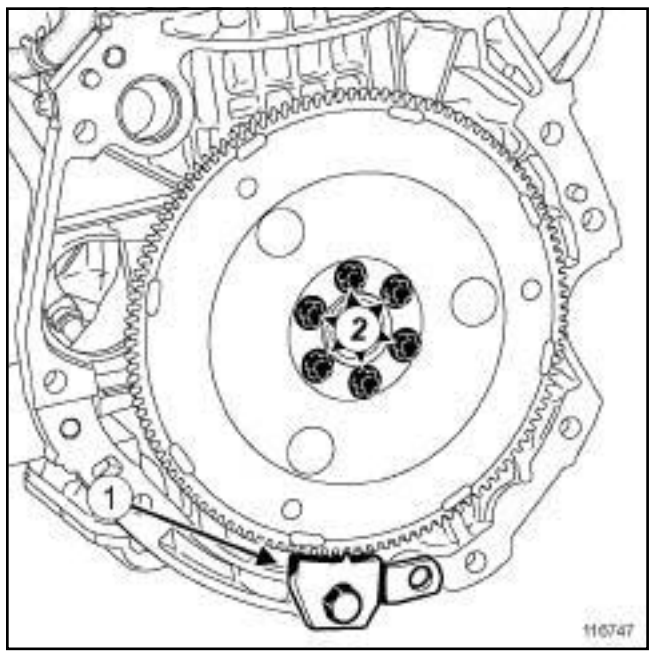
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see) (MR 392, 80A, Battery),

❏ Drain the cooling system (see **Cooling system: Draining - Refilling**) (MR 392, 19A, Cooling).

❏ Remove:

- the front wheels (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the headlights (see) (MR 392, 80B, Headlights) or (see **Xenon headlight: Removal - Refitting**) (MR 392, 80C, Xenon bulbs),
- the frontal impact cross member (see **Front impact cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
- the front end panel (see **Front end panel: Removal - Refitting**) (MR 393, 42A, Upper front structure),
- the cooling radiator (see **Cooling radiator: Removal - Refitting**) (MR 392, 19A, Cooling),
- the starter (see **Starter: Removal - Refitting**) (MR392, 16A, Starting-charging),
- the left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,
- the right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) ,
- the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
- the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (MR 392, 19D, Engine mounting),
- the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-7**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



116747

❏ Set up the **(Mot. 919-02)** (**1**) .

❏ Remove:

- the drive plate mounting bolts (**2**) ,
- the drive plate,
- the **(Mot. 919-02)**.

M4R, and DP0

REFITTING

I - REFITTING PREPARATIONS OPERATION

❏ Check that the drive plate is not damaged (run-out tolerance of **0.2 mm** on the outer diameter).

II - REFITTING OPERATION FOR PART CONCERNED

❏ Fit the drive plate, ensuring it is correctly positioned in relation to the centring pins.

❏ Apply **HIGH RESISTANCE THREAD LOCK** to the bolt threads.

❏ Finger tighten the drive plate mounting bolts.

❏ Torque and angle tighten the **drive plate bolts (108 Nm)** by immobilising the starter ring with the tool.

III - FINAL OPERATION.

❏ Refit:

- the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-7**) ,
- the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (MR 392, 19D, Engine mounting),
- the radiator mounting cross member (see **Radiator mounting cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
- the right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) ,
- the left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) ,
- the starter (see **Starter: Removal - Refitting**) (MR392, 16A, Starting-charging),
- the cooling radiator (see **Cooling radiator: Removal - Refitting**) (MR 392, 19A, Cooling),
- the front end panel (see **Front end panel: Removal - Refitting**) (MR 393, 42A, Upper front structure),
- the frontal impact cross member (see **Front impact cross member: Removal - Refitting**) (MR 393, 41A, Front lower structure),
- the headlights (see) (MR 392, 80B, Headlights) or (see **Xenon headlight: Removal - Refitting**) (MR 392, 80C, Xenon bulbs),
- the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the front wheels (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

❏ Fill the cooling system (see **Cooling system: Draining - Refilling**) (MR 392, 19A, Cooling).

❏ Refit:

- the battery tray (see) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

❏ Bleed the cooling system (see) (MR 392, 19A, Cooling).

Tightening torques ▽	
gearbox connector mounting bolts	**20 Nm**

REMOVAL

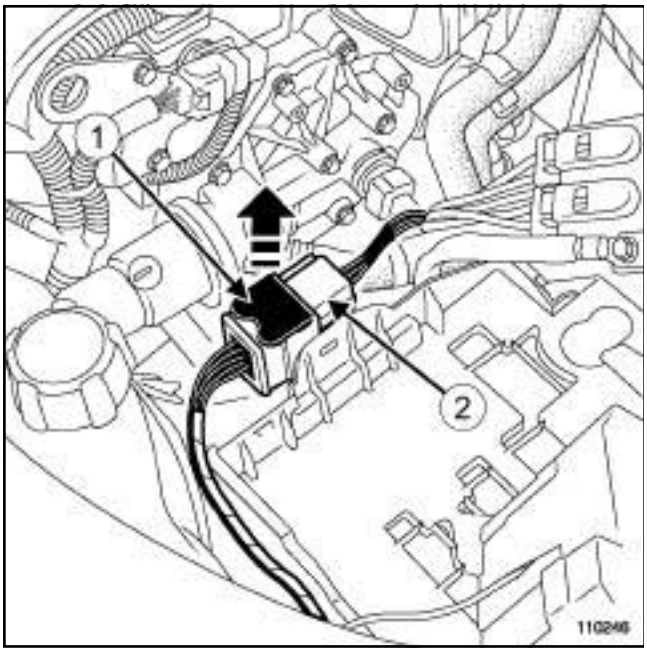
I - REMOVAL PREPARATION OPERATION

❏ Shift the selector lever to **Neutral**.

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

❏ Remove

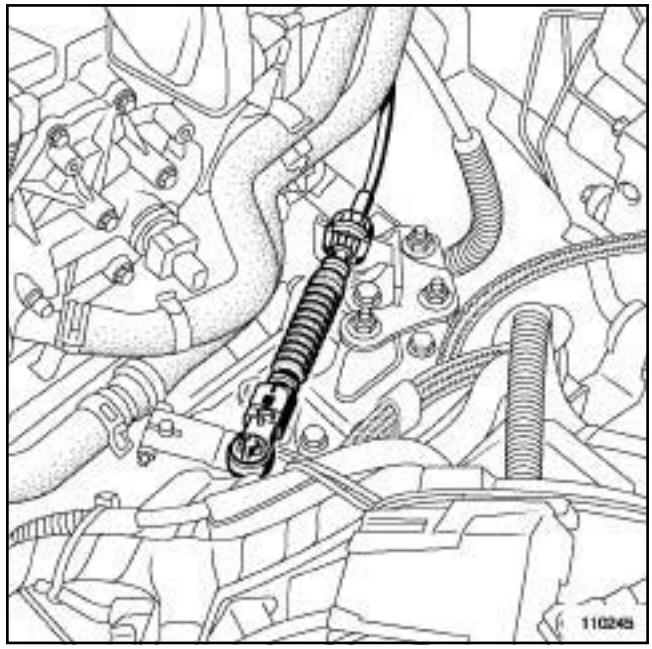
- the battery tray (see) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).



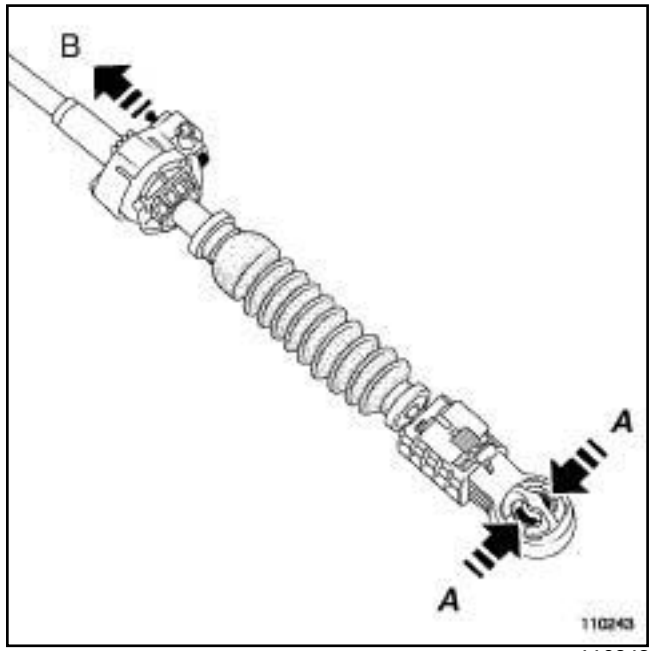
110246

❏ Pull the wiring connector lock (**1**) .

❏ Disconnect the modular connector (**2**) .



110245

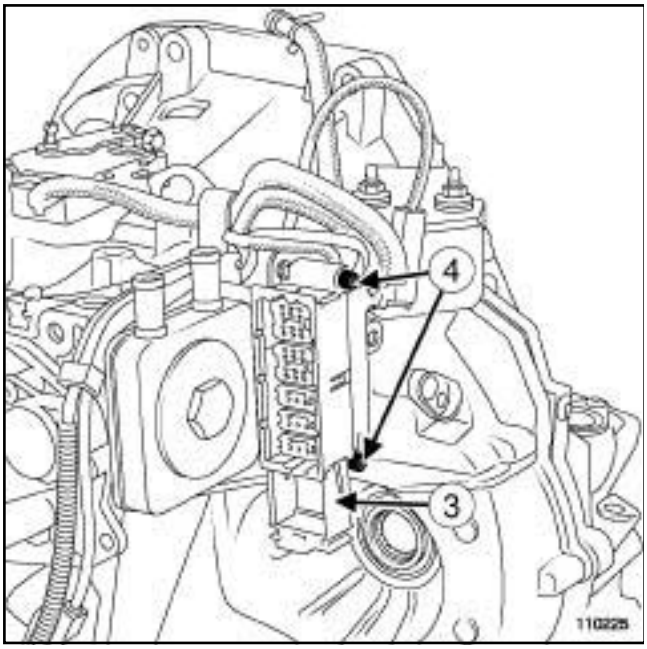


110243

❏ Uncouple the automatic transmission control linkage by pressing (**A**) .

❏ Pull the control cable sleeve stop lock (**B**) .

❏ Move the control cable away from its support.



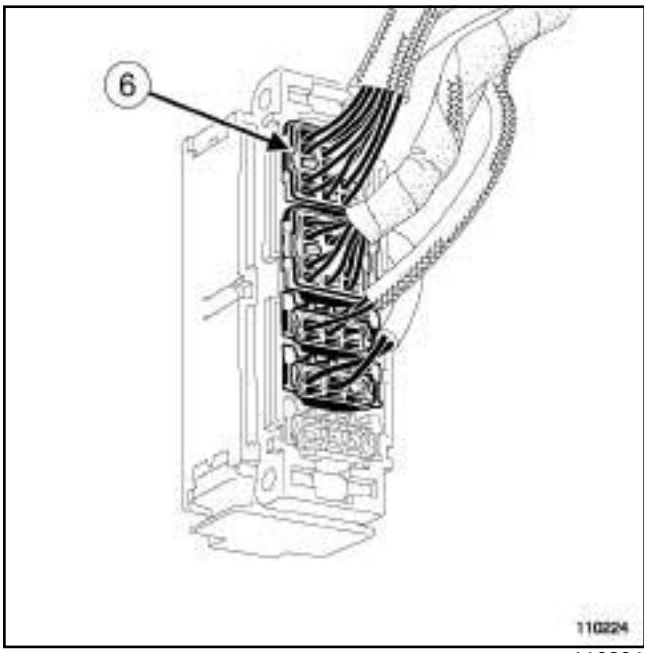
110225

❏ Pull the wiring connector lock (**3**) .

❏ Disconnect the vehicle wiring.

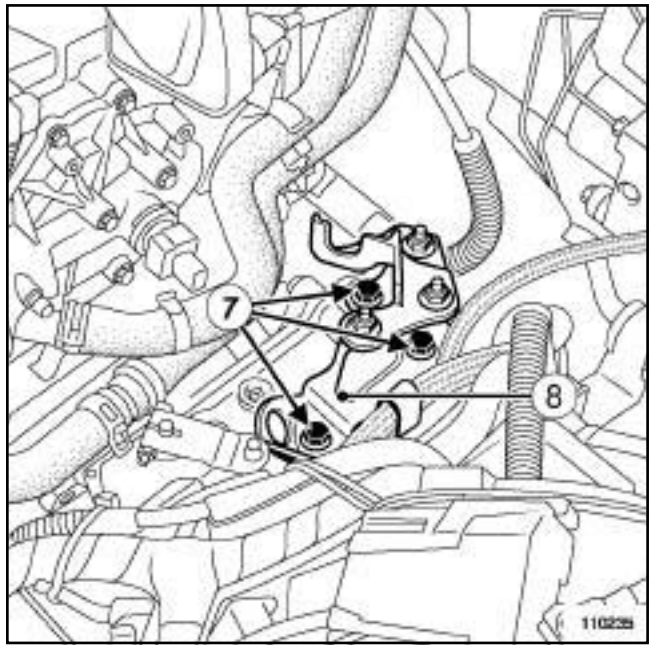
❏ Remove the gearbox connector mounting bolts (**4**) from the support plate.

II - REMOVAL OPERATION FOR THE PART CONCERNED



110224

❏ Remove the green connector (**6**) from the gearbox connector (12 track).



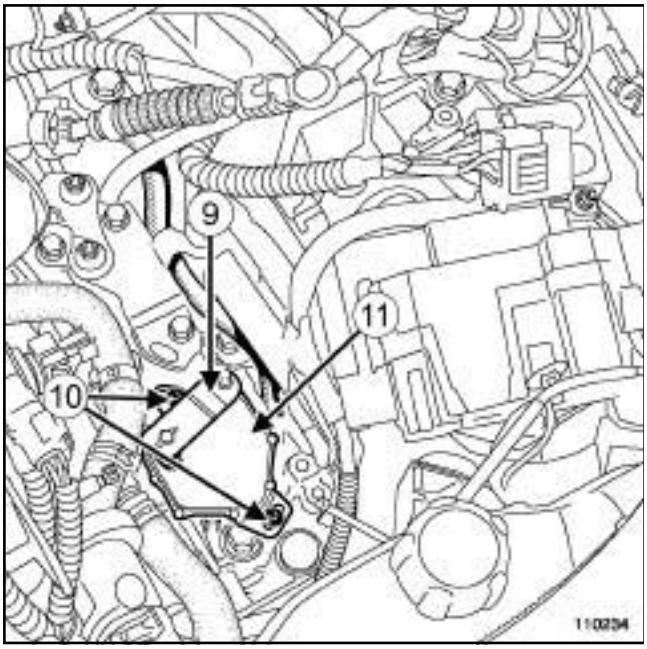
110235

❏ Remove:

- the automatic transmission control cable support mounting bolts (**7**) ,
- the automatic transmission control cable support (**8**) .

❏ Detach the multifunction switch harness from the automatic transmission wiring neck.

❏ Mark the position of the automatic transmission control linkage.



110234

❑

Remove:

- the automatic transmission control linkage (**9**) ,
- the multifunction switch mounting bolts (**10**) ,
- the multifunction switch (**11**) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the multifunction switch into the **Neutral position**.

❑ Finger tighten the multifunction switch mounting bolts until contact.

❑ Refit the automatic transmission control linkage.

❑ Adjust the multifunction switch (see **23A, Automatic transmission, Multifunction switch: Adjustment**).

❑ Refit:

- the automatic transmission control cable support,
- the automatic transmission control cable support mounting bolt.

❑ Fit the green connector into the gearbox connector (12-track).

II - FINAL OPERATION

❑ Refit the gearbox connector mounting board mounting bolts.

❑ Torque tighten the **gearbox connector mounting bolts (20 Nm)**.

❑ Connect the automatic transmission wiring connector.

❑ Push the gearbox connector lock.

❑ Fit the automatic transmission control cable onto the mounting sheath stop.

❑ Push the control cable sheath stop lock.

❑ Connect the modular connector.

❑ Push the modular connector lock.

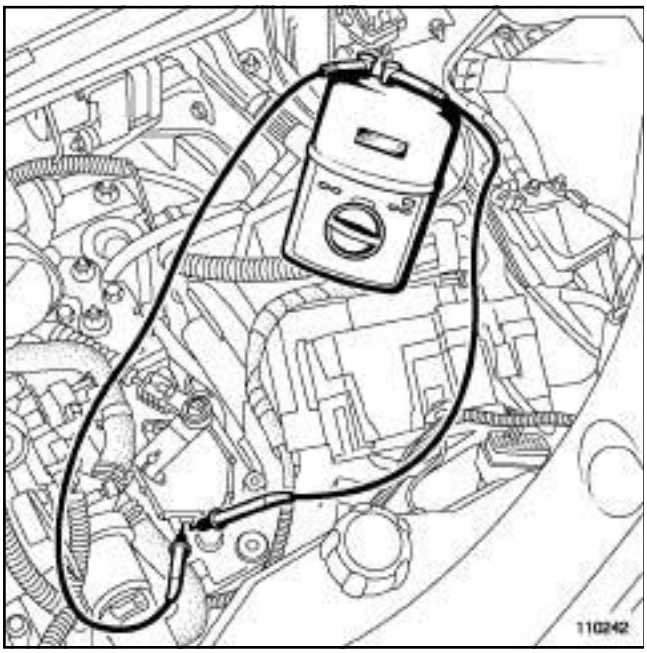
❑ refit:

- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see) (MR 392, 80A, Battery).

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

Tightening torques ▽	
multifunction switch bolts	**10 N.m**

ADJUSTMENT



110242

- ❏ Put the multifunction switch into the Neutral position.
- ❏ Place the test probes of an ohmmeter on the multifunction switch position check tabs.
- ❏ Turn the multifunction switch by hand until the electric contact is closed (resistance at contact terminals to be measured **0 Ω** with a tolerance of **60 Ω**)
- ❏ Torque tighten the **multifunction switch bolts (10 N.m)**.
- ❏ Check that the resistance at the contact terminals is still **0 Ω** with a tolerance of **60 Ω** after tightening.
- ❏ Check that the system and gear selection are working correctly.

Tightening torques ▽	
speed sensor mounting bolt	**10 Nm**
gearbox connector mounting bolts	**20 Nm**

Do not drain or remove the automatic gearbox in order to remove the speed sensor.

The output speed sensor has been deleted and replaced with wheel speed sensors.

REMOVAL

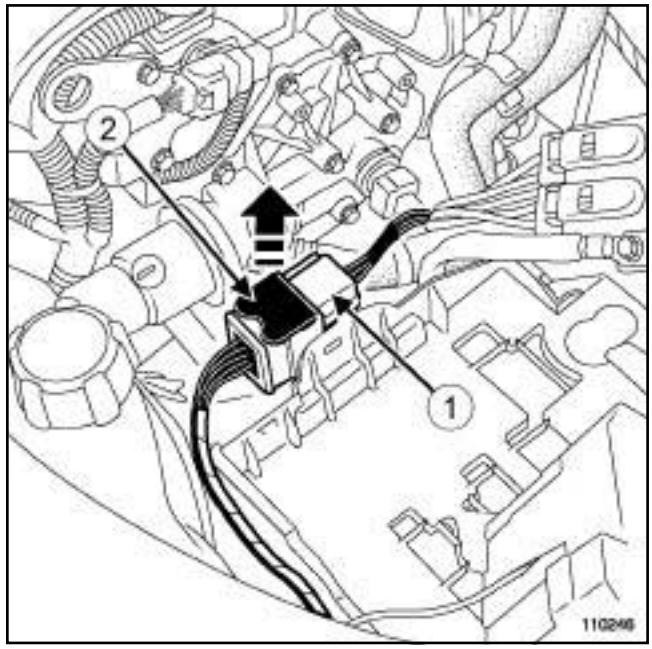
I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❏ Disconnect the battery (see) (MR 392, 80A, Battery).

❏ Remove:

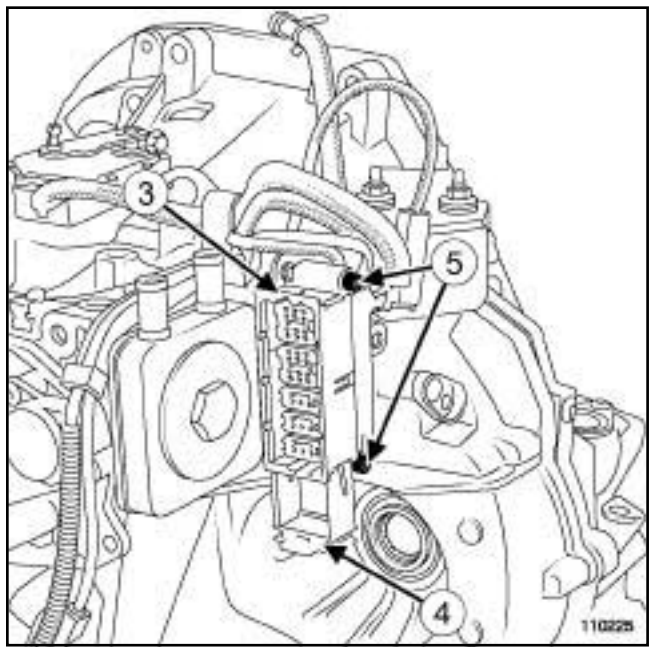
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection,
- the battery tray (see) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).



110246

❏ Disconnect the modular connector (**1**) by pulling the sliding latch (**2**) .

II - REMOVAL OPERATION FOR THE PART CONCERNED

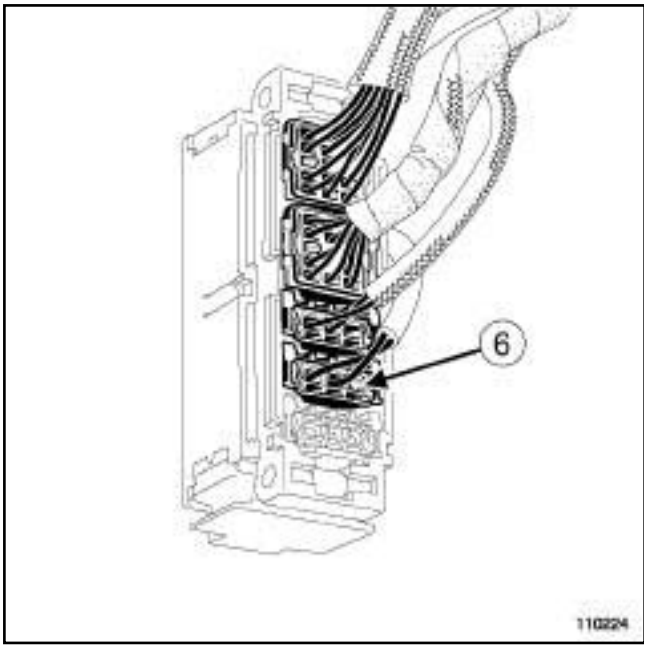


110225

❏ Disconnect the gearbox connector (**3**) by pulling the sliding latch (**4**) .

❏ Remove the gearbox connector mounting bolts (**5**) from the support plate.

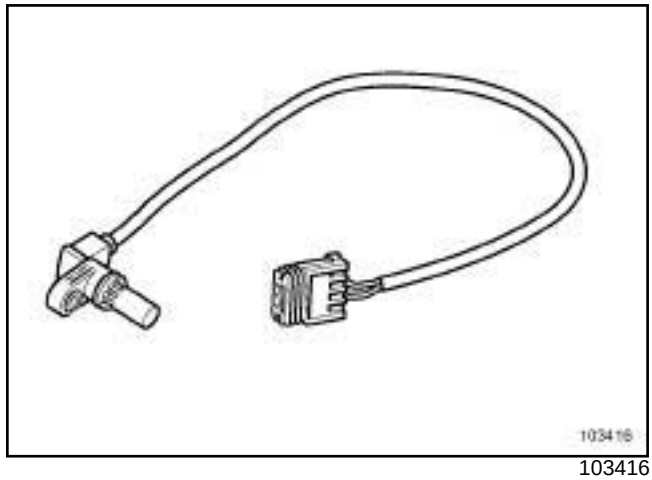
DP0



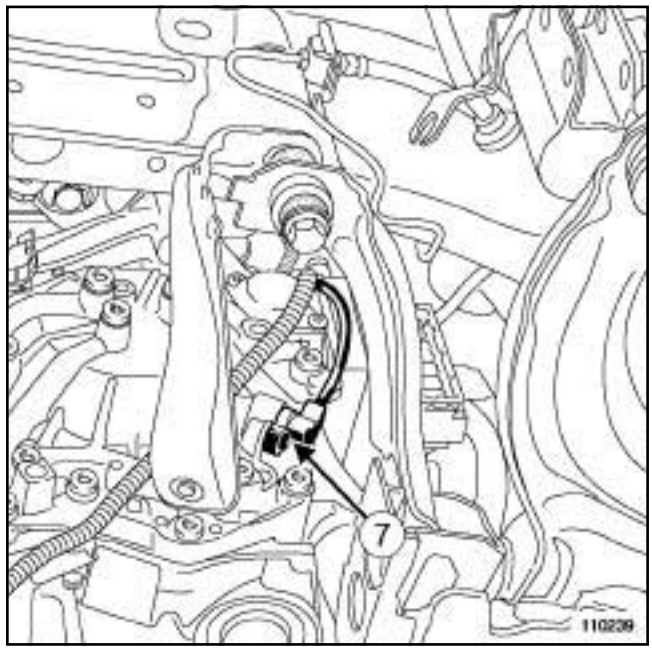
110224

❏ Extract the yellow connector (3-track) (**6**) from the gearbox connector.

❏ Release the speed sensor wiring harness from the automatic transmission wiring duct.



103416



110239

❏ Remove:

- the speed sensor mounting bolt,
- the speed sensor (**7**) .

WARNING
Protect the connector by sliding it into a water-proof plastic bag.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the speed sensor.

❏ Torque tighten the **speed sensor mounting bolt (10 Nm)**).

DP0

❑ Connect the green connector (3-track) of the gearbox connector.

II - FINAL OPERATION

❑ Refit the gearbox connector mounting board mounting bolts.

❑ Torque tighten the **gearbox connector mounting bolts (20 Nm)**.

❑ Connect

- the gearbox connector by pushing in the slide,
- the modular connector by pushing in the slide.

❑ refit:

- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see) (MR 392, 80A, Battery),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection,
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

❑ Connect the battery (see) (MR 392, 80A, Battery).

❑ Check the gearbox oil level (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Filling**, page **23A-2**) .

DP0

Tightening torques ▽	
pressure sensor mounting bolts	**8 N.m**
pressure sensor wiring harness mounting bolts	**8 N.m**
gearbox connector mounting bolts	**20 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on the two-post lift (see **02A, Lifting equipment, Vehicle: Towing and lifting**).

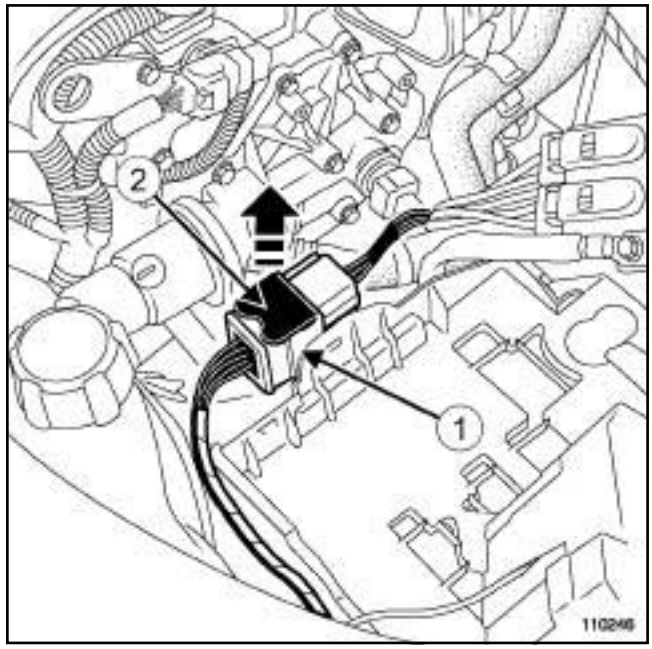
❏ Disconnect the battery (see **80A, Battery, Battery: Removal - Refitting**).

❏ Remove:

- the front left-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**),
- the front left-hand wheel arch liner (see **MR Bodywork, 55A, Exterior protection, Wheel arch liner: Removal - Refitting**),
- the engine undertray.

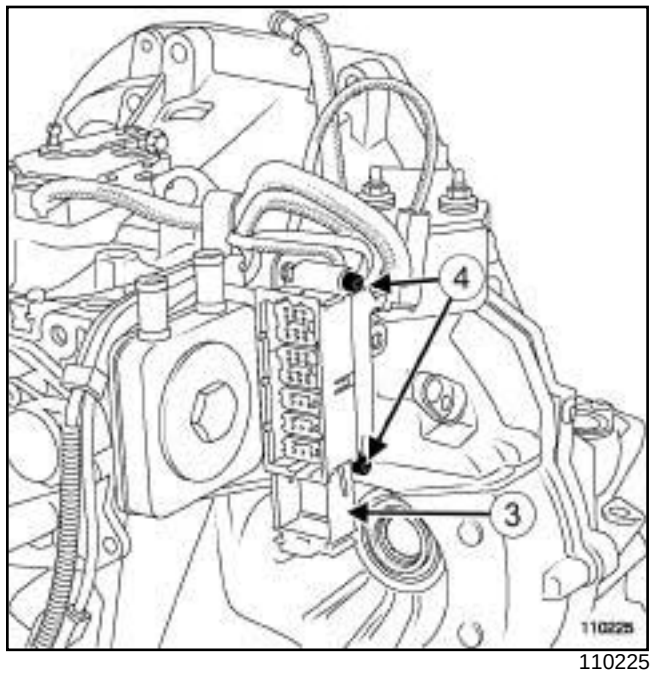
❏ Remove:

- the battery tray (see **80, Battery, Battery tray: Removal - Refitting**),
- the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**).



110246

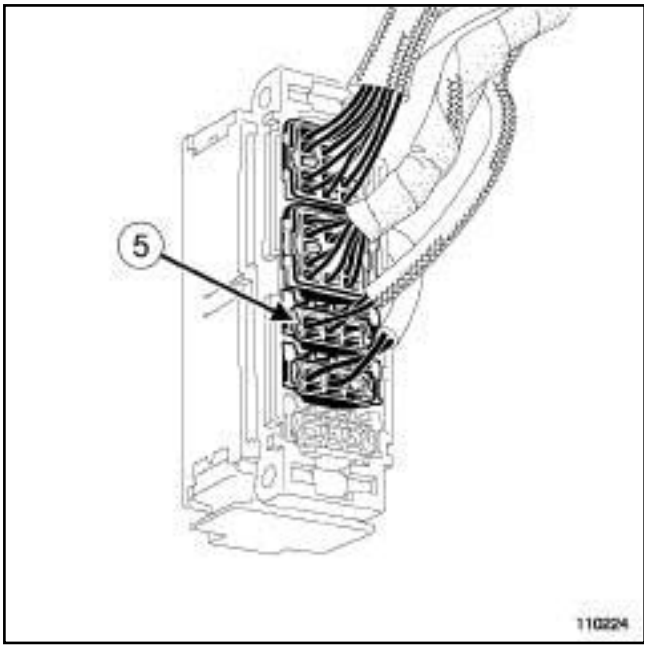
❏ Disconnect the modular connector (**1**) by pulling the sliding (**2**) .



110225

❏ Disconnect the gearbox connector from the mounting plate by pulling the slide (**3**) .

❏ Remove the gearbox connector mounting bolts (**4**) from the plate.

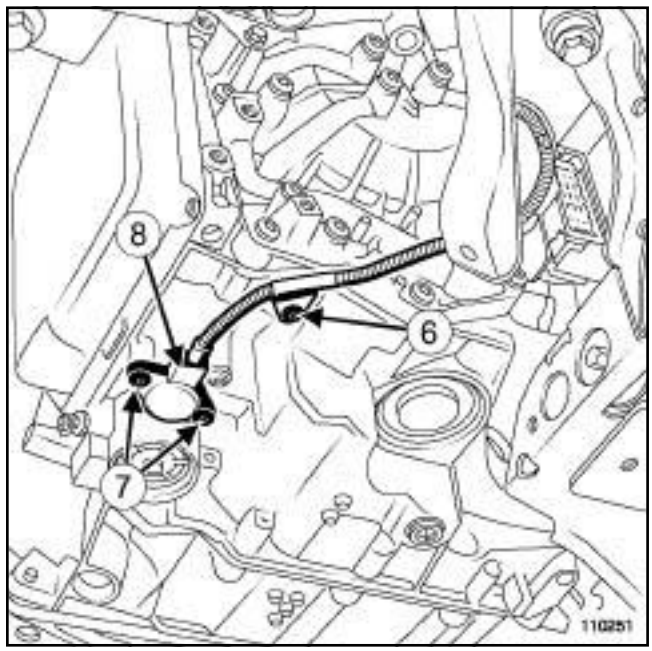


110224

❑ Remove the green connector (3-track) (**5**) from the gearbox connector on the mounting plate.

❑ Release the pressure sensor wiring harness from the automatic transmission wiring duct.

II - OPERATION FOR REMOVAL OF PART CONCERNED



110251

❑ Remove:

- the wiring harness mounting bolt (**6**) ,
- the pressure sensor mounting bolts (**7**) ,
- the pressure sensor (**8**) .

WARNING
Protect the connector by sliding it into a water-proof plastic bag.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the pressure sensor,
- the pressure sensor mounting bolts,
- the wiring harness mounting bolt.

❑ Tighten to torque:

- the **pressure sensor mounting bolts (8 N.m)**,
- the **pressure sensor wiring harness mounting bolts (8 N.m)**.

❑ Connect the pressure sensor harness from the automatic transmission wiring duct.

DP0

II - FINAL OPERATION

❏ Refit the gearbox connector mounting plate mounting bolts.

❏ Torque tighten the **gearbox connector mounting bolts (20 N.m)**.

❏ Connect the gearbox connector on the mounting plate by pulling out the slide.

❏ Refit:

- the air filter unit (see **12A, Fuel mixture, Air filter unit: Removal - Refitting**),
- the battery protective base (see **80A, Battery, Battery tray: Removal - Refitting**),

❏ Connect the modular connector by reinserting the slide.

❏ Refit the battery shield (see **80A, Battery, Battery tray: Removal - Refitting**).

❏ Refit:

- the front left-hand wheel arch liner (see **55A, Bodywork, Exterior protection, Wheel arch liner: Removal - Refitting**),
- the engine undertray,
- the front left-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**).

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

❏ Check the gearbox oil level (see **23A, Gearbox oil: Draining - Filling**).

DP0

Special tooling required	
Bvi. 1462	Locating ball spring adjustment bolt.

Equipment required
Diagnostic tool

Tightening torques ▽	
distributor mounting bolts	**7.5 Nm**
locating ball spring bracket mounting bolt	**9 Nm**
locating ball spring mounting bolt	**8 Nm**
cover mounting bolts	**10 Nm**
reinforcement plate mounting bolts	**21 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❏ Shift the selector lever to **Neutral**.

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

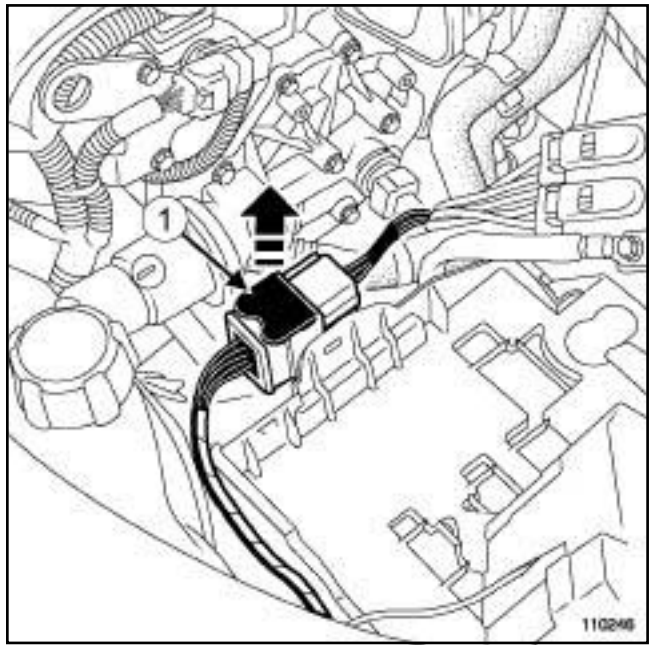
❏ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the engine undertray.

❏ Drain the automatic transmission (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Filling**, page **23A-2**) (MR 392, 23A, Automatic transmission).

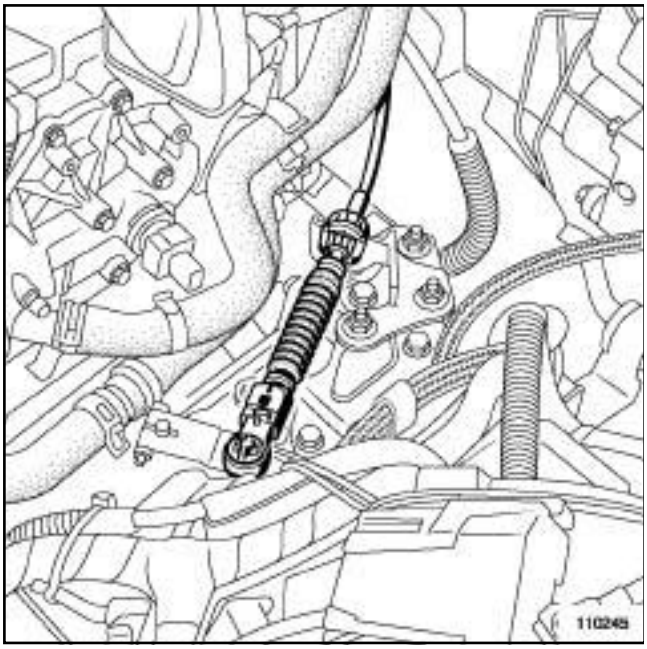
❏ Remove:

- the battery tray (see) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).

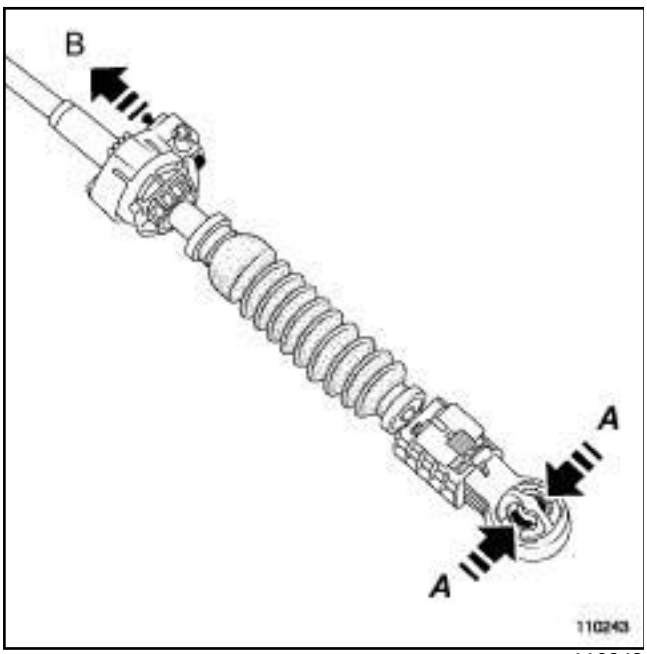


110246

❏ Disconnect the modular connector by pulling the sliding latch (**1**) .



110245



110243

❑ Remove:

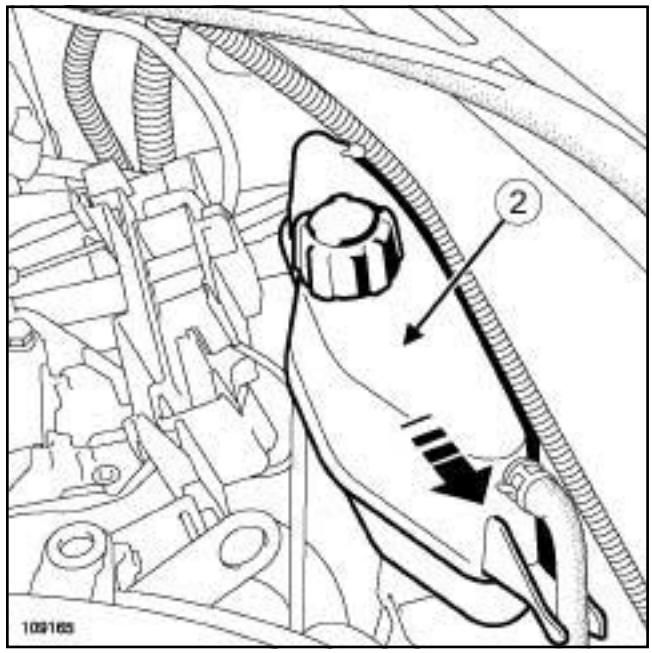
- the multifunction switch control cable by pressing at (**A**) .
- the control cable sleeve stop from the gearbox support by pulling the catch at (**B**) .

❑ Drain the cooling system (see **Cooling system: Draining - Refilling**) (MR 392, 19A, Cooling).

❑ Remove the expansion bottle hose at the radiator end

❑ Remove the front bumper (see **Front bumper: Removal - Refitting**) (MR 393, 55A, Exterior protection).

❑ Remove the plastic rivet of the expansion bottle.



109165

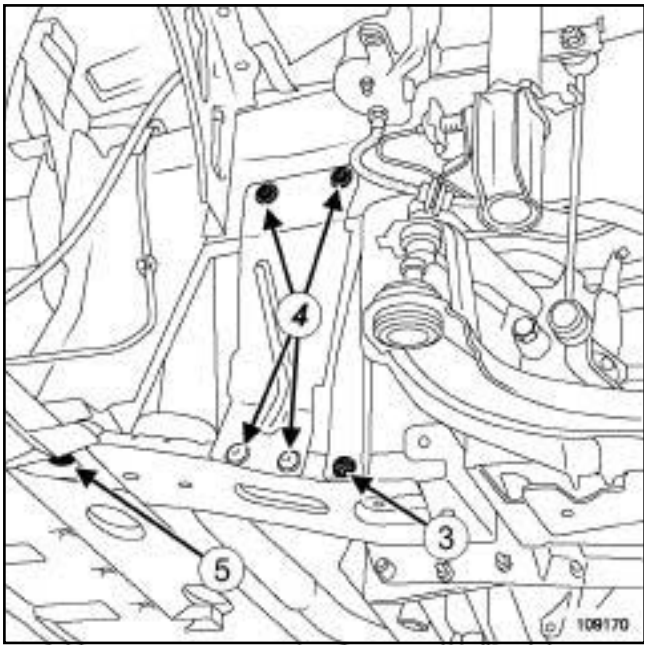
❑ Remove:

- the expansion bottle (**2**) in the direction of the arrow,
- the resonator.

❑ Remove:

- the cooling hoses at the automatic transmission side,
- the bottom cooling hose, to provide free access to the radiator.
- the fan assembly (see **Engine cooling fan assembly: Removal - Refitting**) (MR 392, 19A, Cooling).

❑ Attach the radiator to the upper cross member.

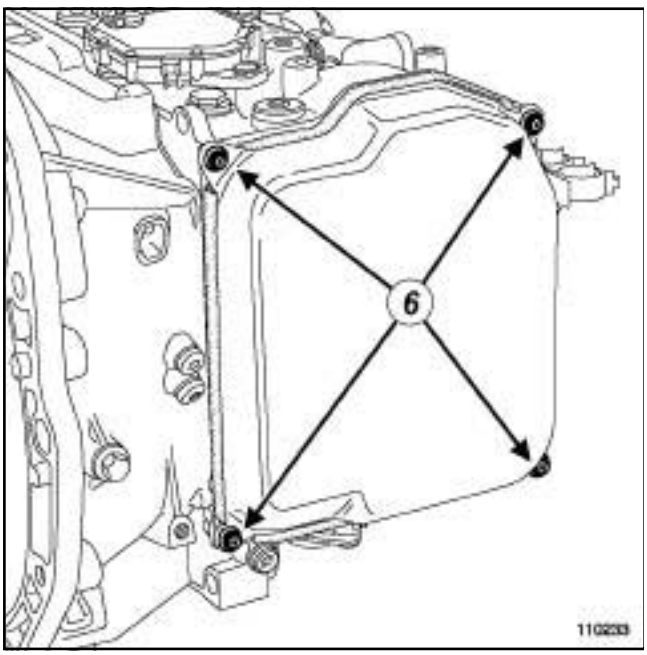


109170

❏ Remove:

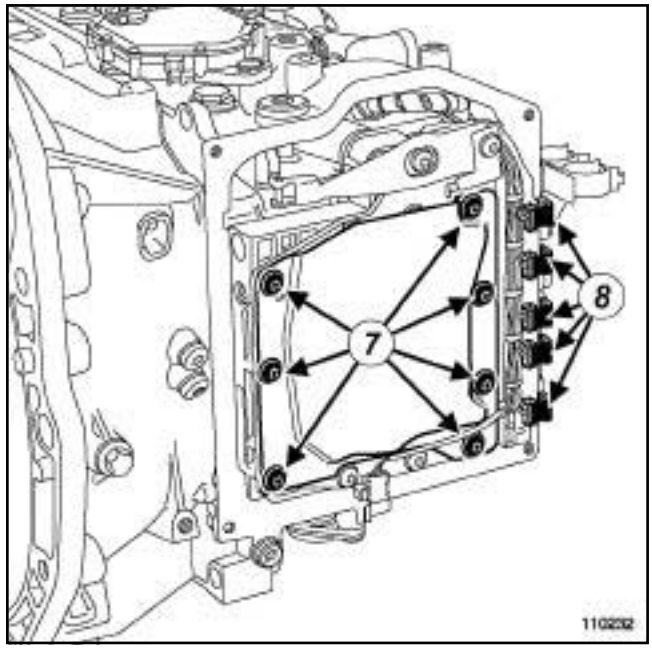
- the tie-rod mounting bolts (**3**) ,
- the mounting bolts (**4**) of the side stiffener,
- the radiator mounting lower cross member mounting bolts (**5**) ,
- the lower radiator cross member.

II - OPERATION FOR REMOVAL OF PART CONCERNED



110233

❏ Remove the hydraulic distributor cover mounting bolts (**6**) (oil may flow out).



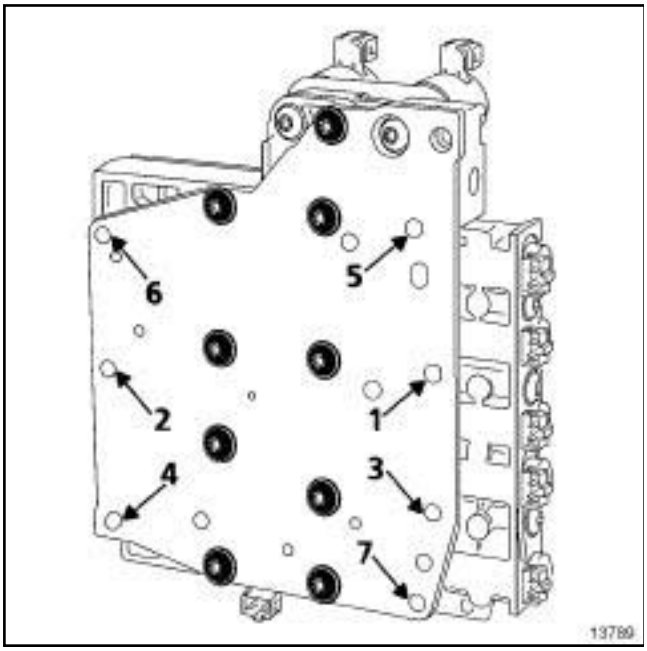
110232

❏ Remove the hydraulic distributor mounting bolts (**7**) .

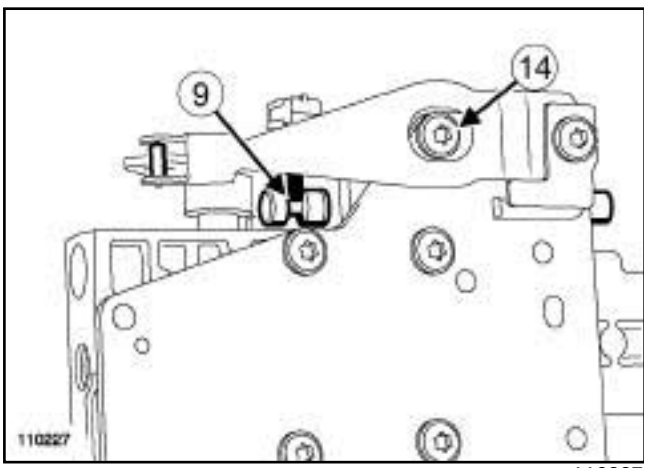
❏ Disconnect the hydraulic distributor solenoid valve connectors (**8**) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED



13789



110227

❑ Fit the distributor with its protection plate, centring it using the bolts ***(4)*** and ***(5)*** .

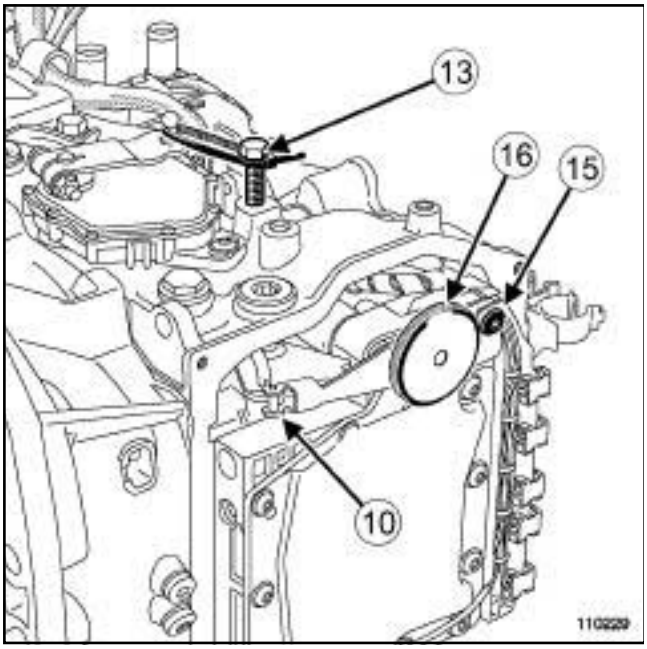
WARNING
Check that the distributor slide is properly engaged with the notched sector lug (**9**) .

❑ Refit the other bolts on the distributor.

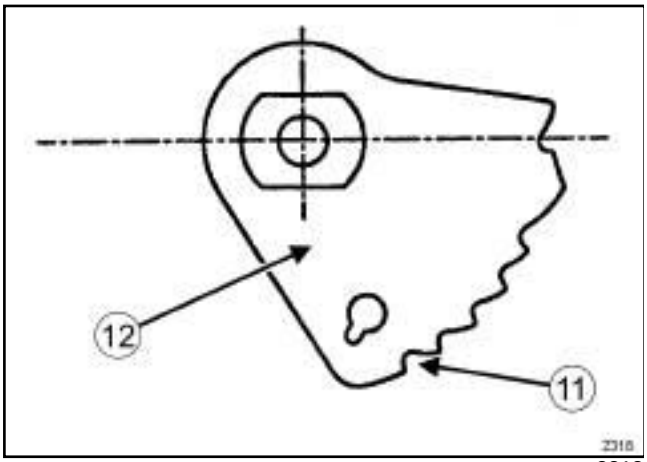
❑ Tighten to torque and in order the **distributor mounting bolts (7.5 Nm)**.

DP0

ADJUSTING THE LEAF SPRING LEVER



110229



2318

❏ Hold the multifunction switch lever in the end position (first selected) using a hose clip and a bolt (**13**) in the mechanism housing.

❏ Remove the bolt ***(14)*** .

❏ Fit the locating ball spring by fitting the bearing (**10**) into the groove (**11**) for the notched sector (**12**) corresponding to first selected.

❏ Fit the locating ball spring bracket mounting bolt (**15**) without tightening it.

❏ Fit the **(Bvi. 1462)** (**16**) in place of the bolt ***(14)*** .

❏ Screw the tool in fully whilst holding the locating ball spring.

❏ Torque tighten the **locating ball spring bracket mounting bolt (9 Nm)** (**15**) .

❏ Remove the **(Bvi. 1462)**.

❏ Refit the locating ball spring mounting bolt ***(14)*** .

❏ Torque tighten the **locating ball spring mounting bolt (8 Nm)**.

❏ Remove the hose clip and the bolt (**13**) .

❏ If the oil distributor is replaced, the auto-adapatives must be reset to zero using command **RZ005** « Clear auto-adaptives» and reset the oil age counter on the automatic transmission computer using the **Diagnostic tool**, run command **CF074** « Enter date of gearbox oil change » .

After running command **RZ005**, it is essential to carry out a test drive performing all gear changes, both up and down, several times to store the new values.

❏ Torque tighten:

- the **cover mounting bolts (10 Nm)**,

- the **reinforcement plate mounting bolts (21 Nm)**.

DP0

II - FINAL OPERATION

❑ Refit:

- the radiator lower cross member,
- the side reinforcement,
- the tie-rod,
- the fan assembly (see **Engine cooling fan assembly: Removal - Refitting**) (MR 392, 19A, Cooling),
- the bottom cooling hose,
- the cooling hoses at the automatic transmission side,
- the resonator,
- the expansion bottle,
- a new expansion bottle plastic attachment rivet,
- the expansion bottle hose,
- the multifunction switch control cable.

❑ Connect the modular connector.

❑ Refit:

- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see) (MR 392, 80A, Battery),

❑ Fill the automatic transmission (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Filling**, page **23A-2**) (MR 392, 23A, Automatic transmission).

❑ Refit:

- the engine undertray,
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

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

DP0

Tightening torques ▽	
heat exchanger flow control solenoid valve mounting bolt	**10 Nm**

Do not drain or remove the automatic gearbox in order to remove the flow control solenoid valve

REMOVAL

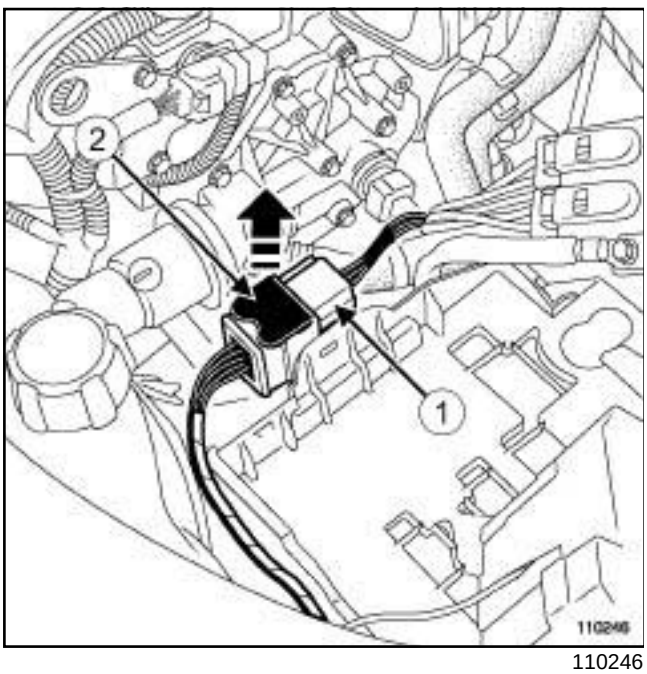
I - REMOVAL PREPARATION OPERATION

❏ Place the vehicle on a two-post lift (see **02A, Lifting equipment, Vehicle: Towing and lifting**).

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

❏ Remove:

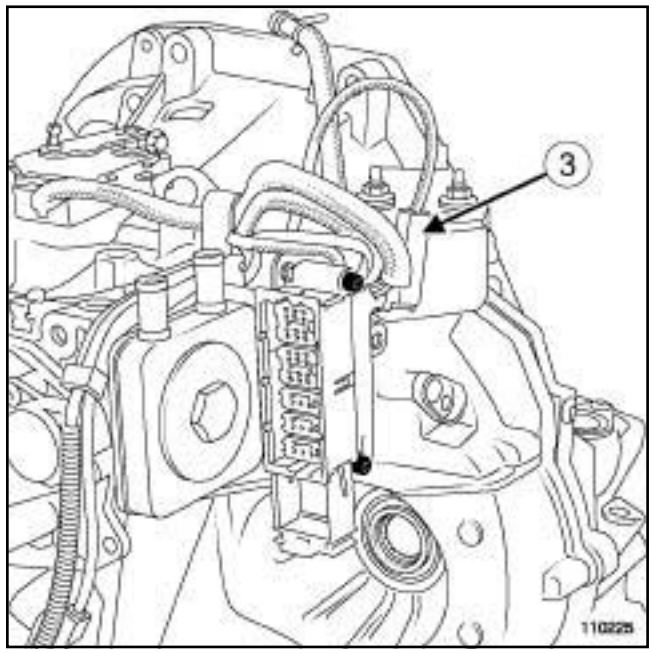
- the front left-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**).
- the front left-hand wheel arch liner (see **MR 393, Bodywork, 55A, Exterior Protection, Wheel arch liner: Removal - Refitting**).
- the battery tray (see **80A, Battery, Battery tray: Removal - Refitting**).
- the air filter unit (see **12A, Fuel mixture, Air filter unit), Removal - Refitting**).



110246

❏ Disconnect the modular connector (**1**) by pulling the connector sliding latch (**2**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



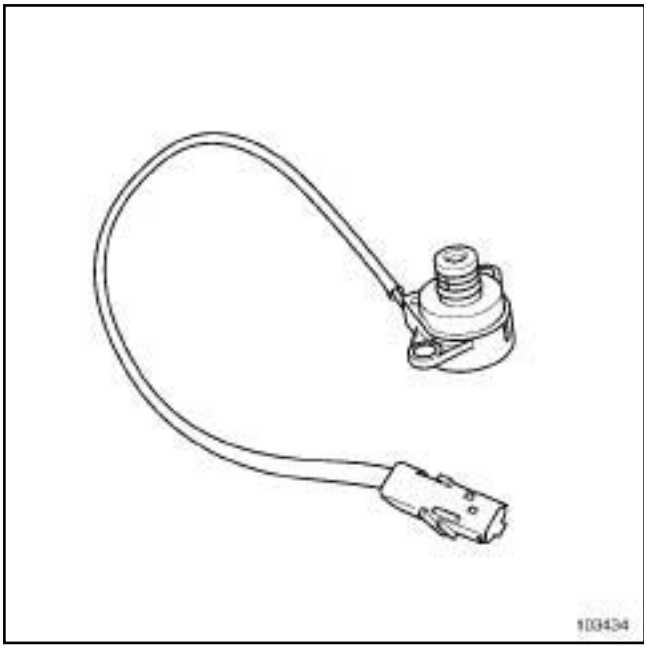
110225

❏ Disconnect the flow control solenoid valve connector (**3**) .

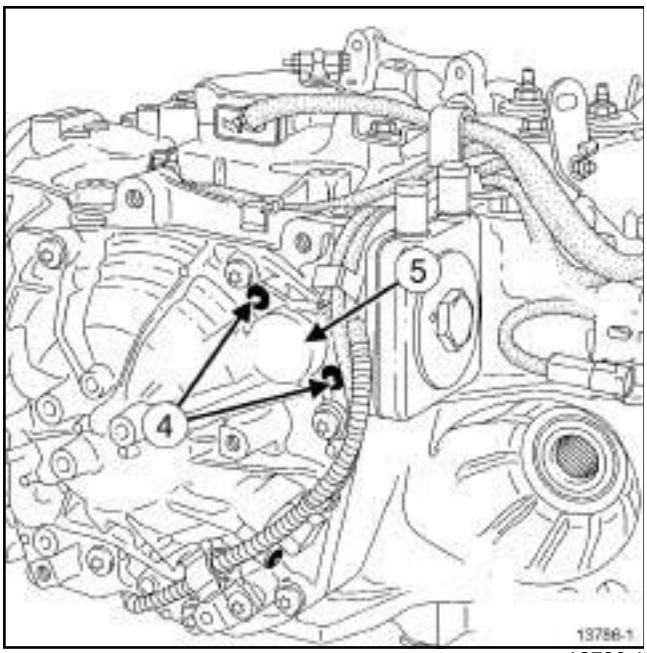
❏ Unclip the flow control solenoid valve connector (**3**) from the gearbox connector support.

❏ Release the flow control solenoid valve wiring harness from the automatic transmission wiring duct.

DP0



103434



13786-1

❑ Remove:

- the solenoid valve mounting bolts (**4**) ,
- the heat exchanger flow control solenoid valve (**5**) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the heat exchanger flow control solenoid valve.

❑ Tighten to torque the **heat exchanger flow control solenoid valve mounting bolt (10 Nm)**.

❑ Clip the flow control solenoid valve connector to the gearbox connector support.

❑ Connect the flow control solenoid valve connector.

II - FINAL OPERATION

❑ Connect the modular connector by pushing the sliding latch.

❑ Refit:

- the air filter unit (see **12A, Fuel mixture, Air filter unit), Removal - Refitting**).
- the battery tray (see **80A, Battery, Battery tray: Removal - Refitting**).
- the front left-hand wheel arch liner (see **MR 393, Bodywork, 55A, Exterior Protection, Wheel arch liner: Removal - Refitting**).
- the front left-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**).

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

❑ Check the gearbox oil level (see **23A, Gearbox oil: Draining - Filling**).

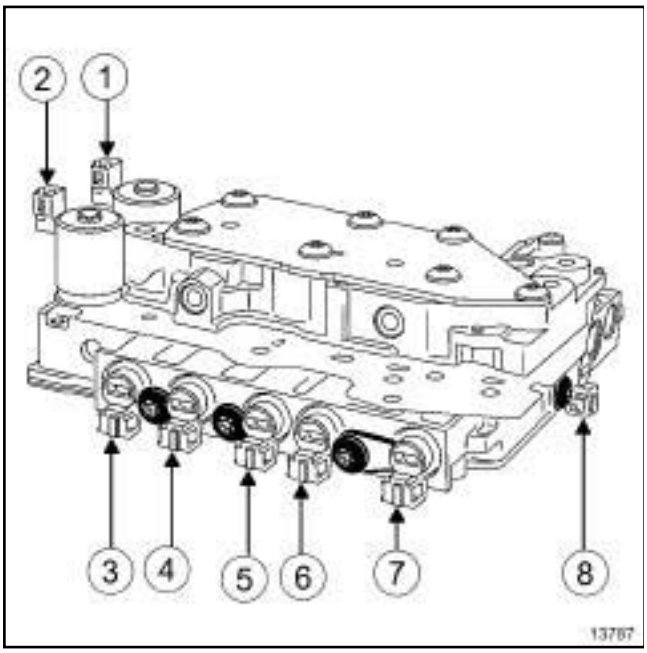
WARNING
Work as cleanly as possible to prevent foreign bodies from entering the system.

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑ Remove the hydraulic distributor (see **23A**, **Automatic gearbox**, **Hydraulic distributor: Removal - Refitting**, page **23A-34**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



13787

(**1**) Modulating solenoid valve
(**2**) « Lock up» solenoid valve (lockup converter)
(**3**) Sequence solenoid valve 4
(**4**) Sequence solenoid valve 3
(**5**) Sequence solenoid valve 1
(**6**) Sequence solenoid valve 2
(**7**) Sequence solenoid valve 6
(**8**) Sequence solenoid valve 5

❑ Remove the hydraulic distributor solenoid valves.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the hydraulic distributor solenoid valves.

II - FINAL OPERATION

❑ Refit the hydraulic distributor (see **23A**, **Automatic gearbox**, **Hydraulic distributor: Removal - Refitting**, page **23A-34**) .

Tightening torques ▽	
gearbox support	**10 Nm**
gearbox connector	**20 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

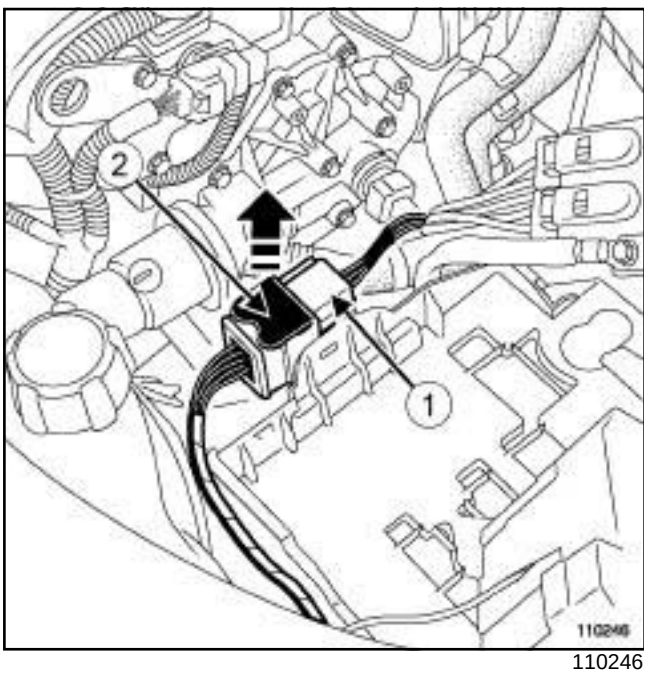
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❑ Shift the selector lever to **Neutral**.

❑ Disconnect the battery (see) (MR 392, 80A, Battery).

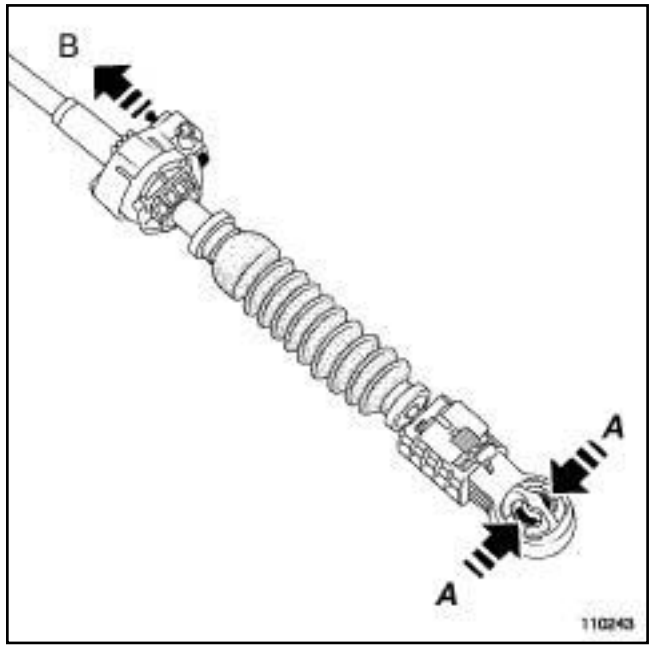
❑ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection,
- the engine undertray,
- the battery tray (see) (MR 392, 80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture).



110246

❑ Disconnect the modular connector (**1**) by pulling the sliding latch (**2**) .

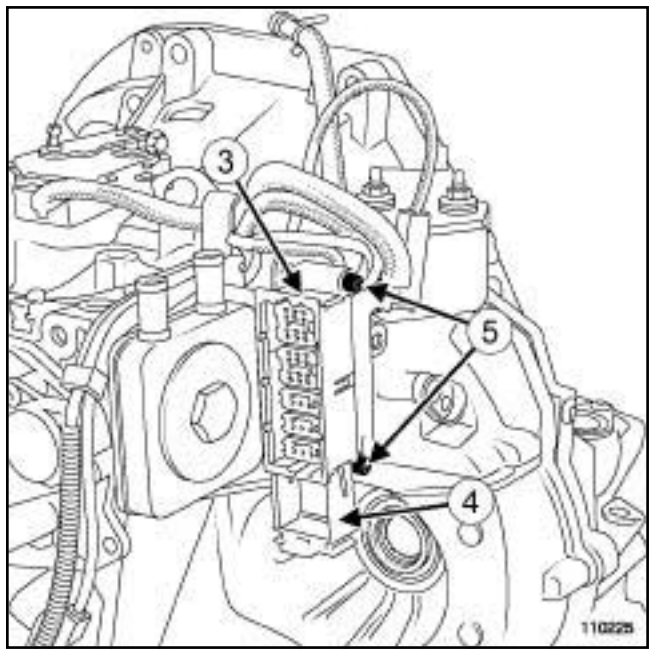


110243

❑ Remove:

- the multifunction switch control cable by pressing at (**A**) ,
- the control cable sleeve stop from the gearbox support by pulling the catch at (**B**) .

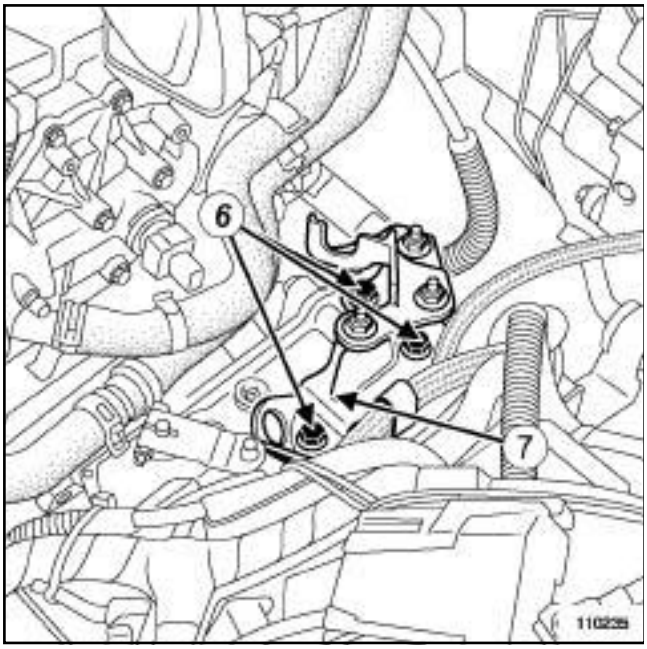
II - OPERATION FOR REMOVAL OF PART CONCERNED



110225

❑ Disconnect the gearbox connector (**3**) by pulling the sliding latch (**4**) .

❑ Remove the gearbox connector mounting bolts (**5**) .

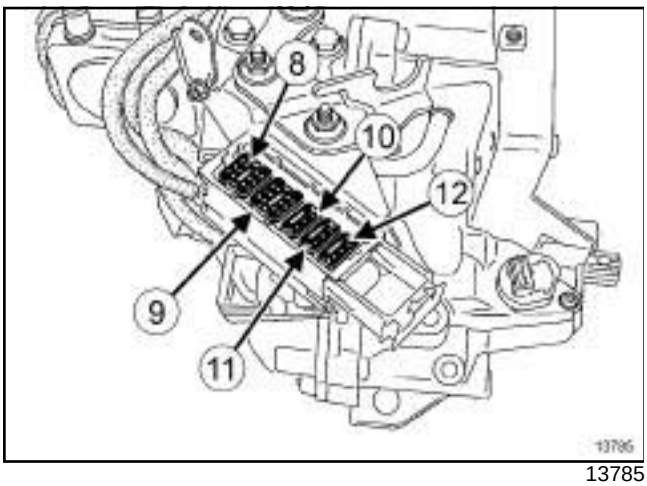


110235

❑ Remove:

- the gearbox connector support mounting bolts (**6**) ,
- the gearbox connector support (**7**) .
- the coloured connector concerned on the gearbox connector.

❑ Follow the five wiring harnesses connected to the gearbox connector.



13785

(**8**)	Green connector (multifunction switch)
(**9**)	Yellow connector (electronic interface)
(**10**)	Green connector (line pressure)
(**11**)	Yellow connector (turbo speed)
(**12**)	Blue connector (exchanger flow control solenoid valve)

❑ Remove the five harnesses (these connectors can be removed separately from the gearbox connector when replacing certain components).

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Connect the five harnesses to the gearbox connector.

❑ Refit the gearbox mounting.

❑ Torque tighten:

- the **gearbox support (10 Nm)**,
- the **gearbox connector (20 Nm)**.

❑ Connect the gearbox connector by pushing in the slide.

❑ Fasten the multifunction switch control cable.

II - FINAL OPERATION

❑ Refit:

- the air filter unit (see **Air filter unit: Removal - Refitting**) (MR 392, 12A, Fuel mixture),
- the battery tray (see) (MR 392, 80A, Battery).

❑ Connect:

- the modular connector reinserting the sliding latch,
- the battery (see) (MR 392, 80A, Battery).

❑ Refit:

- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection,
- the engine undertray,
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

DP0

REMOVAL

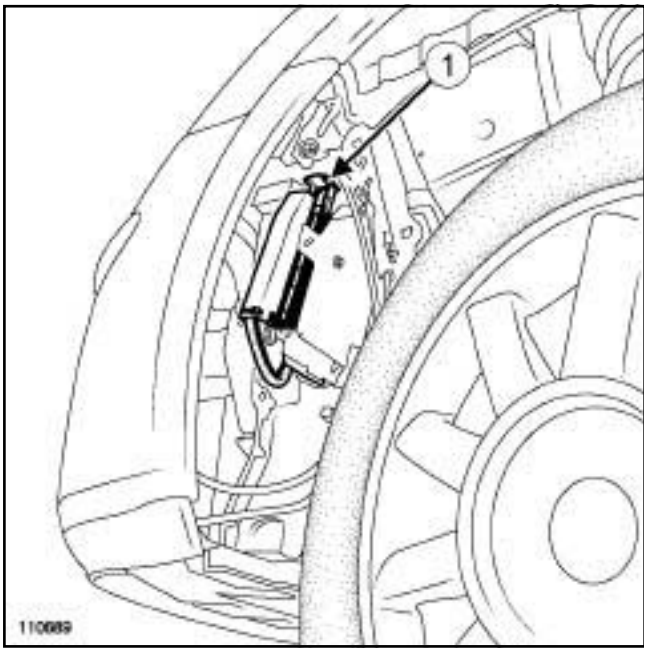
I - REMOVAL PREPARATION OPERATION

❏ Remove the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).

❏ Remove the resonator on the battery.

❏ Disconnect the battery (see) (MR 392, 80A, Battery).

II - OPERATION FOR REMOVAL OF PART CONCERNED



110689

❏ Disconnect the automatic transmission computer connector by pulling out the slide (**1**) .

❏ Unfasten the automatic transmission computer retaining strap.

❏ Remove the automatic transmission computer.

If replacing the automatic transmission computer

❏ Determine the oil age value using parameter **PR133 « Oil age counter »** and make a note of the value.

❏ Copy the value into the memory of the new computer using command **CF320** « Oil age counter transfer » .

❏ Confirm the entry using parameter «Oil age counter » .

❏ Enter the After Sales operation date using command **CF320 « Enter After-Sales operation date »** .

❏ Carry out a road test so that the new computer stores the programming.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the computer.

❏ Fasten the automatic transmission computer retaining strap.

❏ Connect the automatic transmission computer connector by pushing in the slide.

II - FINAL OPERATION.

❏ Refit the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (MR 393, 55A, Exterior protection).

❏ Connect the battery (see) (MR 392, 80A, Battery).

DP0

Special tooling required	
Bvi. 1459	Right-hand driveshaft outlet seal fitting tool.
Bvi. 1460	Left-hand driveshaft outlet seal fitting tool.

REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Place the vehicle on a two-post lift (see **02A, Lifting equipment, Vehicle: Towing and lifting**).

❏ Remove the engine undertray.

❏ Remove the corresponding driveshaft (see **29A, Driveshafts, Front right-hand driveshaft: Removal - Refitting**) or (see **29A, Driveshafts, Front left-hand driveshaft: Removal - Refitting**).

❏ Drain the automatic gearbox (see **23A, Automatic gearbox, Automatic gearbox oil: Draining - Filling**).

II - OPERATION FOR REMOVAL OF PART CONCERNED

❏ Remove the faulty differential output seal using a screwdriver or a hook, taking care not to scratch the contact faces.

WARNING
Do not drop the seal spring into the automatic transmission.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Fit the seal using tool **(Bvi. 1459)** on the left-hand side or tool **(Bvi. 1460)** on the right-hand side.

❏ Guide the assembly until the tool is resting on the automatic gearbox casing.

II - FINAL OPERATION

❏ Refit the corresponding driveshaft (see **29A, Driveshafts, Front right-hand driveshaft: Removal - Refitting**) or (see **29A, Driveshafts, Front left-hand driveshaft: Removal - Refitting**).

❏ Fill and check the gearbox oil level (see **23A, Automatic gearbox, automatic gearbox oil: Draining - Filling**).

DP0

Special tooling required	
Bvi. 1400-01	Tool kit for operations on Aisin Warner type automatic transmission.
Bvi. 1457	Converter lip seal fitting tool.

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

IMPORTANT
During this operation, secure the vehicle to the lift with a strap to prevent it from becoming unbalanced.

❑ Remove the automatic transmission (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-7**) (MR 392, 23A, Automatic transmission).

❑ Remove the converter by withdrawing it as far as possible without deviating from its axis.

Note:
The converter contains a large amount of oil which could escape when it is being removed.

II - OPERATION FOR REMOVAL OF PART CONCERNED

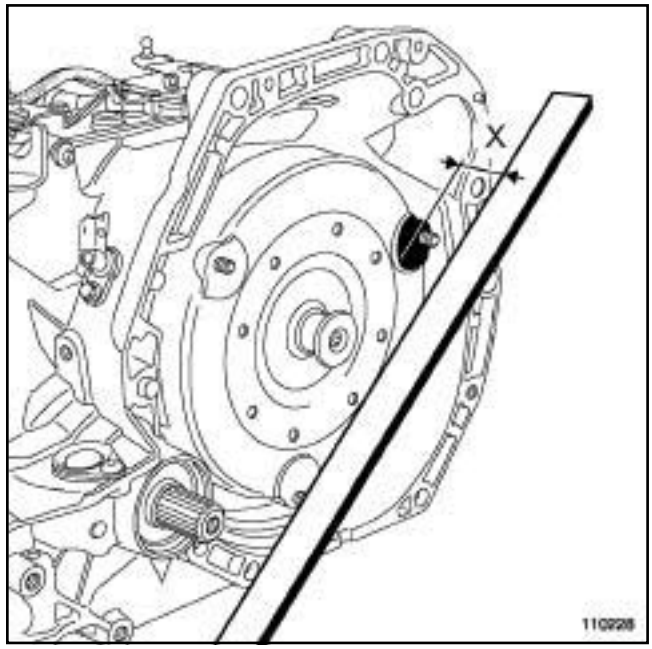
❑ Remove the seal, using the tool **(Bvi. 1400-01)**, taking care not to scratch the contact surfaces.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the new pre-lubricated seal to the stop, using the **(Bvi. 1457)**.

WARNING
Work as cleanly as possible to prevent foreign bodies from entering the system.
Lubricate all the contact faces.



110228

❑ Check the positioning of the converter in relation to the engine/automatic transmission coupling face using a straightedge and a steel ruler; the value should be (**X**) = **18.22 mm ± 1**.

II - FINAL OPERATION.

❑ Refit the automatic transmission (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-7**) (MR 392, 23A, Automatic transmission).

Driveshaft: Precautions for the repair

DP0 or JH3 or JR5 or TL4

WARNING

A gearbox oil leak at the driveshaft may destroy it.

WARNING

Always replace seals whenever the driveshaft is removed.

WARNING

Grease the base of the bearing using **BR 2 +** grease to prevent the bearing from sticking.

Make sure that the O-ring is correctly positioned in the base of the relay bearing, if the bearing has one.

WARNING

Always replace the O-ring, if fitted to the bearing.

WARNING

Always replace the relay bearing support plate.

WARNING

Always replace the left-hand driveshaft locking spring ring, if the driveshaft has one.

WARNING

In order to prevent irreversible damage to the front hub bearing:

- Do not loosen or tighten the driveshaft nut when the wheels are on the ground.
- Do not place the vehicle with its wheels on the ground when the driveshaft has been loosened or removed.

Front left-hand driveshaft: Removal - Refitting

DP0 or JH3 or JR5 – K4M or K9K or M4R, and TL4

Special tooling required	
Rou. 604-01	Hub locking tool.
Tav. 476	Ball joint extractor.

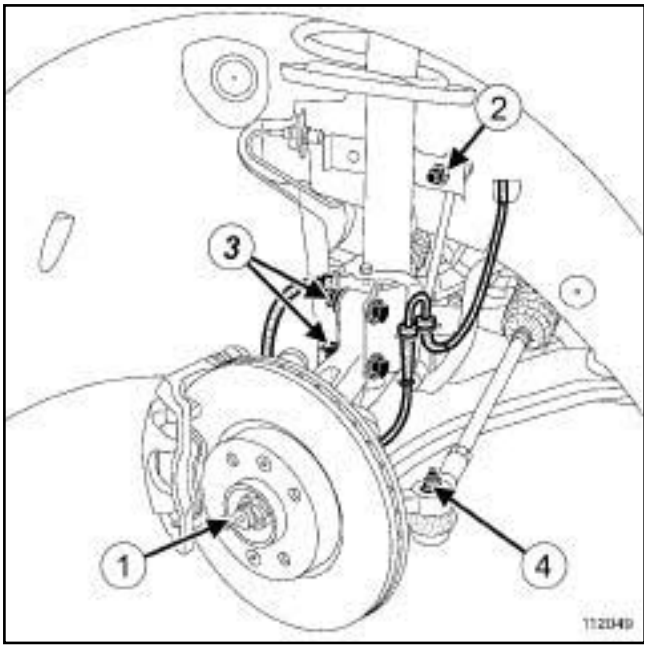
Tightening torques ▽	
hub nut	**280 Nm**
shock absorber base bolts	**110 Nm**
track rod end nut	**37 Nm**
anti-roll bar linkage upper ball joint nut	**37 Nm**
brake calliper support mounting bolts	**105 Nm**

REMOVAL

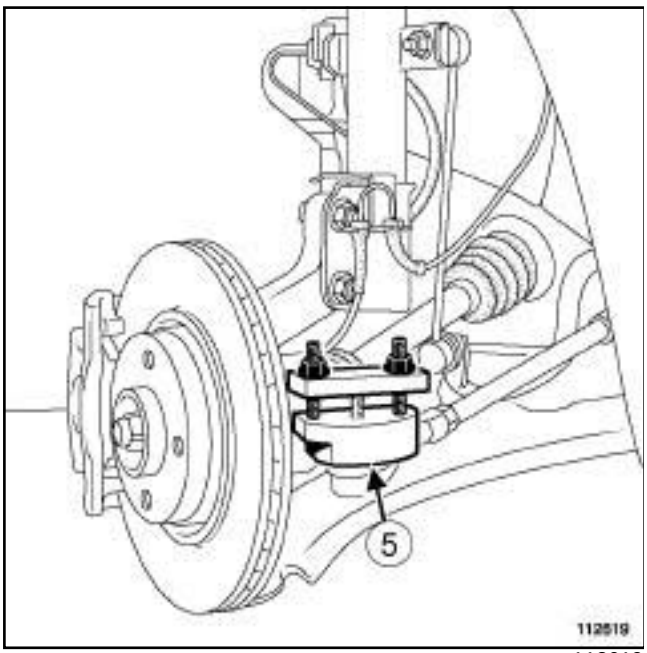
I - REMOVAL PREPARATION OPERATION

- ❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ❏ Remove the engine undertray.
- ❏ Remove the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

DP0 or JH3 or JR5 – K4M or K9K or M4R, and TL4



112049



112619

❑ Unclip the left-hand wheel speed sensor.

❑ Remove:

- the hub nut (**1**) , using the **(Rou. 604-01)**,
- the left-hand steering ball joint (**4**) , using the **(Tav. 476)** at (**5**) ,
- the left-hand upper ball joint of the anti-roll bar linkage (**2**) ,
- the left-hand brake calliper support mounting bolts (see **Front brake calliper mounting: Removal - Refitting**) (MR 392, 31A, Front axle components),
- the left-hand shock absorber lower mounting bolts (**3**) .

❑ Attach the brake calliper to the shock absorber spring.

II - REMOVAL OF PART CONCERNED

❑ Pivot the stub axle carrier to separate the driveshaft from the stub axle carrier.

❑ Remove the driveshaft from the gearbox.

REFITTING

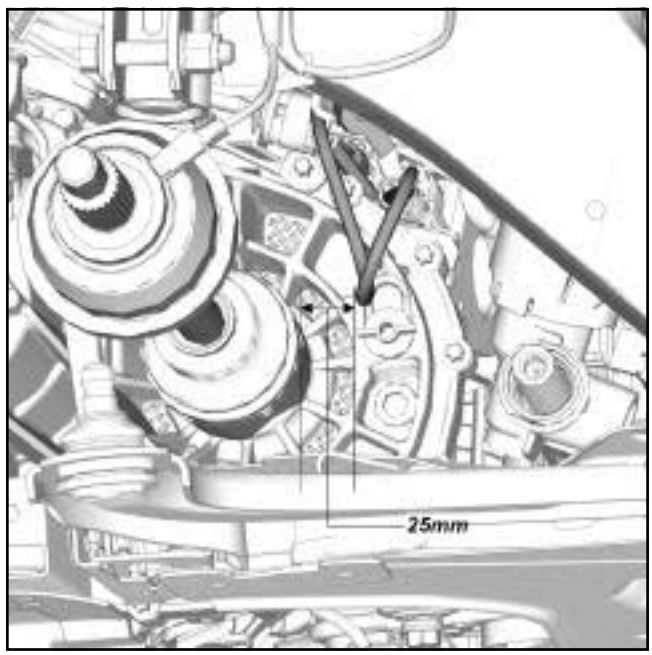
I - REFITTING PART CONCERNED

❑ Insert the driveshaft splines into the differential grooves.

❑ Insert the drive shaft splines in the hub grooves.

❑ Fit the left-hand shock absorber lower mounting bolts.

II - FINAL OPERATION



128087

❑

Note:

If equipped with the 5th injector.

After carrying out the operation, check that the dimension between the driveshaft and the hose for the 5th injector is at least 25mm.

To avoid damaging the hose.

DP0 or JH3 or JR5 – K4M or K9K or M4R, and TL4

❏ Fit:

- the left-hand track rod end,
- the left-hand upper ball joint of the anti-roll bar linkage,
- the left-hand brake calliper support mounting bolts (see **Front brake calliper mounting: Removal - Refitting**) (MR 392, 31A, Front axle components).

❏ Tighten to torque:

- the **hub nut (280 Nm)**, using the **(Rou. 604-01)**,
- the **shock absorber base bolts (110 Nm)**,
- the **track rod end nut (37 Nm)**,
- the **anti-roll bar linkage upper ball joint nut (37 Nm)**,
- the **brake calliper support mounting bolts (105 Nm)** (see **Front brake calliper mounting: Removal - Refitting**) (MR 392, 31A, Front axle components).

❏ Refasten the clips on the wheel speed sensor.

❏ Refit the engine undertray.

❏ Refit the front left-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

F4R, and TL4

Special tooling required	
Rou. 604-01	Hub locking tool.
Tav. 1813	Extraction claw for clip secured type driveshafts

Equipment required
safety strap(s)
component jack

Tightening torques ▽	
front shock absorber turret bolts	**21 N.m**
front brake calliper bolts	**170 N.m**
track rod bolt	**37 N.m**
driveshaft nut	**280 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

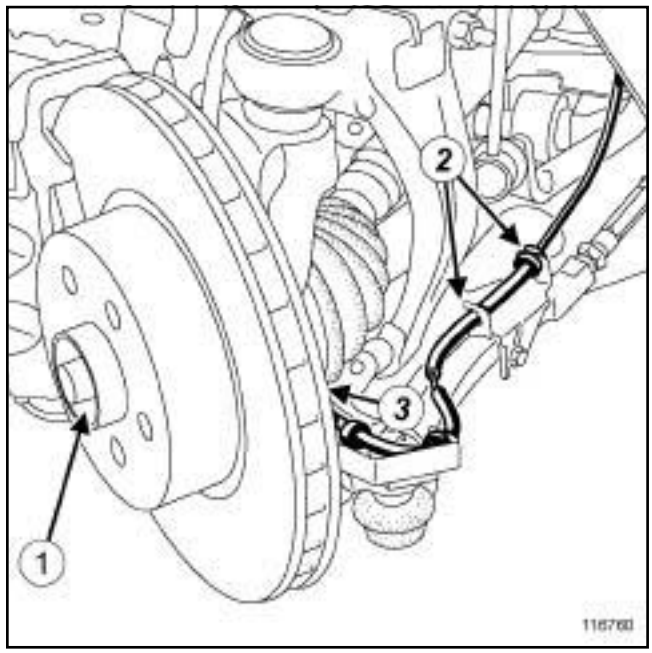
❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the engine undertray bolts,
- the engine undertray,
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❏ Drain the gearbox oil (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



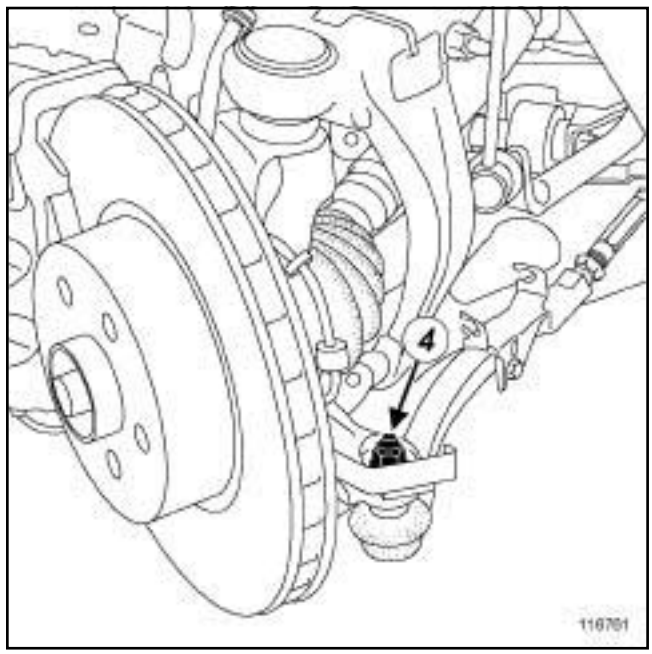
116760

❏ Remove the nut from the front left-hand driveshaft (**1**) using the tool **(Rou. 604-01)**.

❏ Unclip the ABS sensor wiring harness (**2**) .

❏ Remove the ABS sensor bolt (**3**) .

❏ Move the ABS sensor to one side.

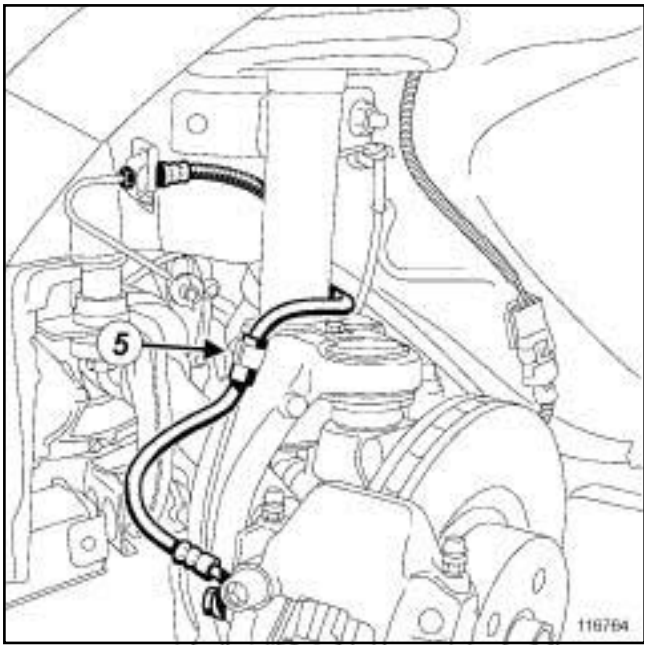


116761

❏ Remove:

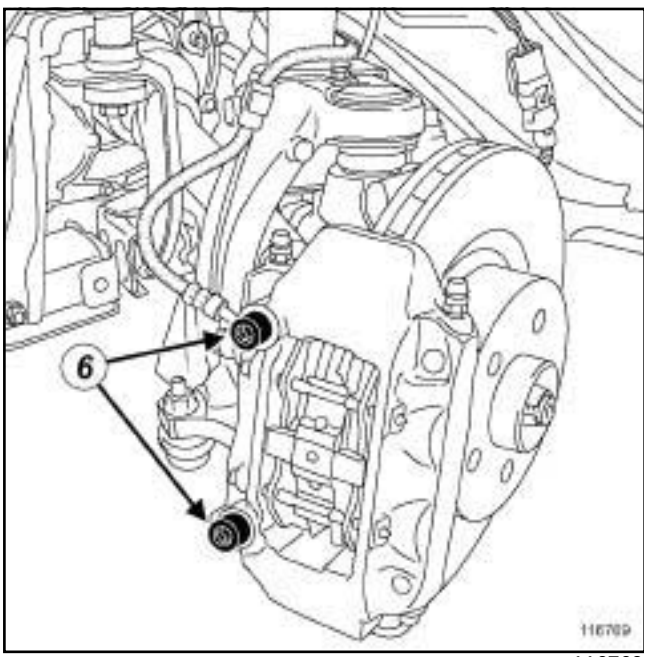
- the track rod nut (**4**) ,
- the track rod.

F4R, and TL4



116764

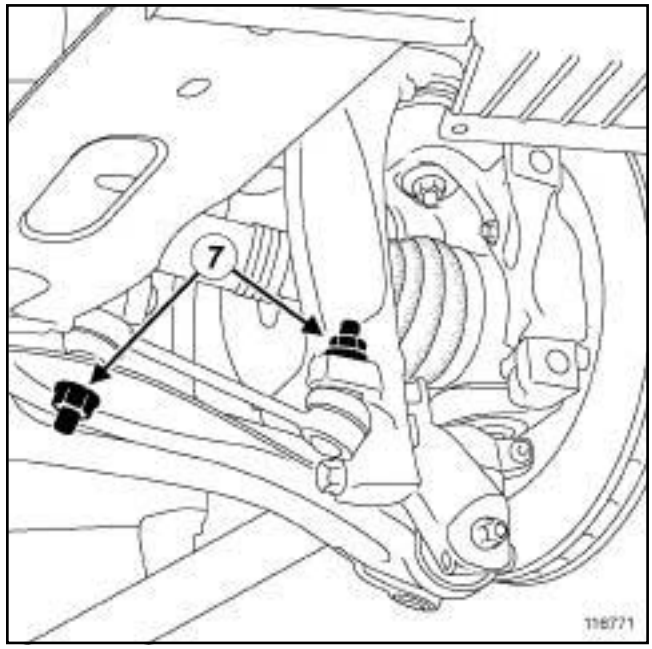
❏ Remove the bolt (**5**) from the clip on the front brake hose.



116769

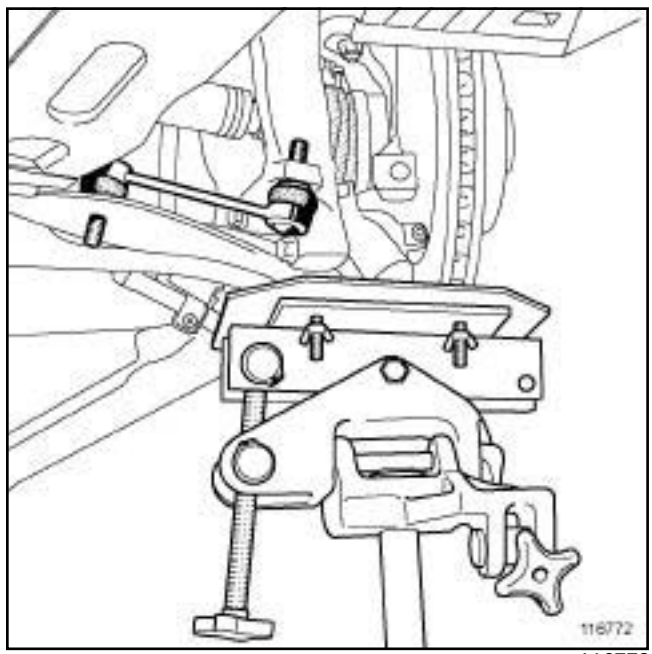
❏ Remove the front brake calliper bolts (**6**) .

❏ Move the front brake calliper away and attach it using a **safety strap(s)** to the spring of the front shock absorber.



116771

❏ Remove the linkage nuts (**7**) .



116772

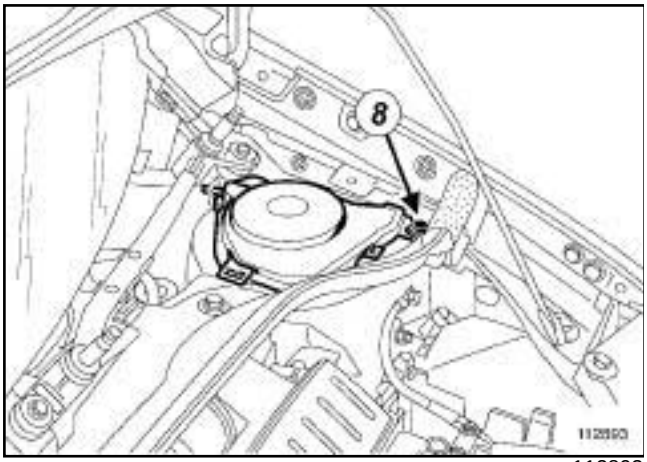
❏ Fit a **component jack** to compress the front suspension.

❏ Remove the linkage.

❏ Remove the **component jack**.

❏ Remove the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

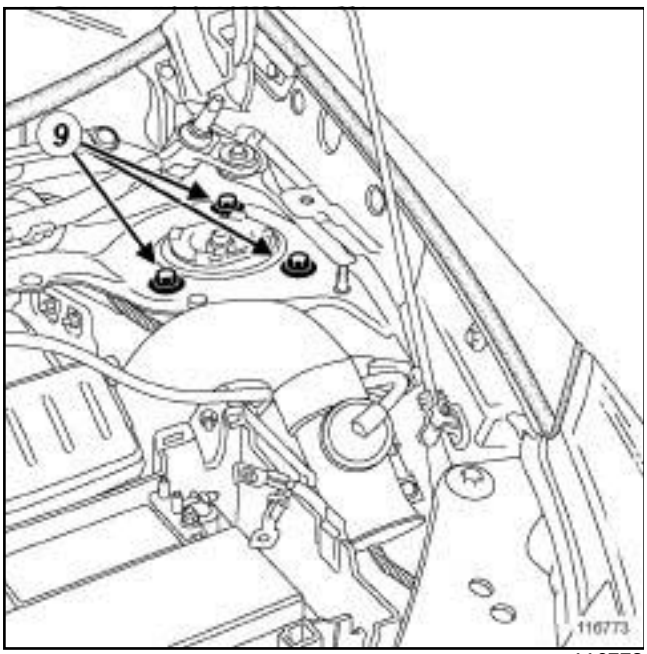
F4R, and TL4



112893

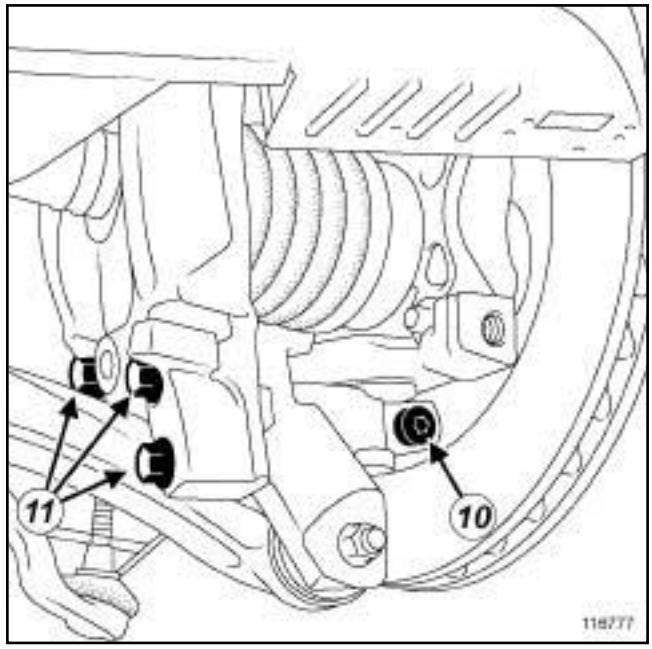
❑ Remove:

- the nut (**8**) from the cover of the front shock absorber turret,
- the cover of the front shock absorber turret.



116773

❑ Loosen the bolts (**9**) on the front shock absorber turret.



116777

❑ Remove:

- the hub carrier lower shaft bolt (**10**) ,
- the bolts (**11**) from the pivot support.

❑ Separate the spring - shock absorber - pivot assembly.

❑ Remove:

- the front left-hand driveshaft from the front left-hand wheel hub,
- the front left-hand driveshaft from the gearbox.

❑ Remove the front left-hand driveshaft using the tool **(Tav. 1813)** and.

REFITTING

I - REFITTING PREPARATION OPERATION

❑ Remove the left-hand side differential output seal (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-46**) .

❑ Refit a new differential output seal on the left-hand side (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-46**) .

II - REFITTING OPERATION FOR PART CONCERNED

❑ Fit the front left-hand driveshaft by inserting it into the gearbox then into the front wheel hub.

❑ Refit:

- the bolts of the pivot support,

- the hub carrier lower shaft bolt.

❑ Torque tighten the **front shock absorber turret bolts (21 N.m)**.

❑ Fit a **component jack** to compress the front suspension.

❑ Refit the linkage.

❑ Remove the **component jack**.

❑ Refit the linkage nuts.

❑ Fit the front brake calliper.

❑ Torque tighten the **front brake calliper bolts (170 N.m)**.

❑ Refit the bolt of the clip on the front brake calliper hose.

❑ Position the track rod.

❑ Refit the track rod nut.

❑ Torque tighten the **track rod bolt (37 N.m)**.

❑ Refit:

- the ABS sensor,
- the ABS sensor bolt.

❑ Clip the ABS sensor wiring harness.

❑ Refit the driveshaft nut using the **(Rou. 604-01)**.

❑ Torque tighten the **driveshaft nut (280 N.m)**.

III - FINAL OPERATION

❑ Refit:

- the cover of the front shock absorber turret,
- the nut for the cover of the front shock absorber turret,
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❑ Top up the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

❑ Refit the engine undertray.

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

JH3 or JR5 – K4M or K9K or M4R, and TL4

Special tooling required	
Rou. 604-01	Hub locking tool.
Tav. 476	Ball joint extractor.

Tightening torques ▽	
driveshaft relay bearing bracket mounting bolts	**21 Nm**
hub nut	**280 Nm**
shock absorber base bolts	**110 Nm**
track rod end nut	**37 Nm**
anti-roll bar linkage upper ball joint nut	**37 Nm**
brake calliper support mounting bolts	**105 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

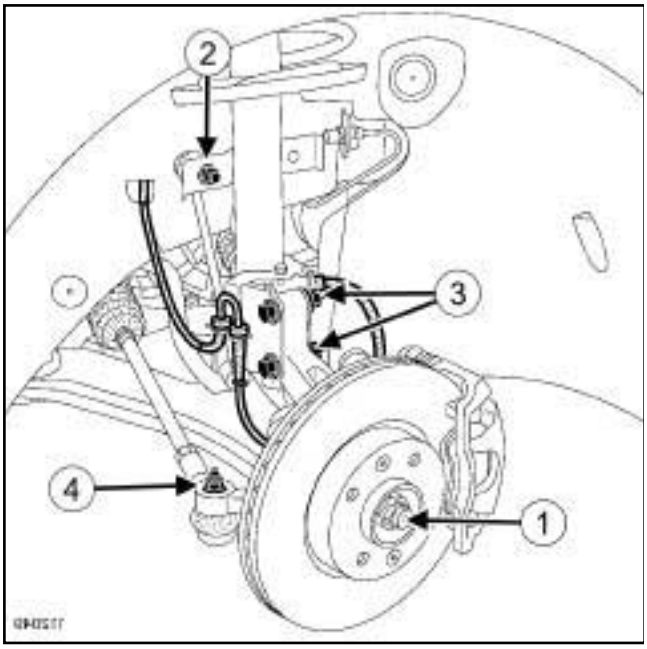
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

❏ Remove the engine undertray.

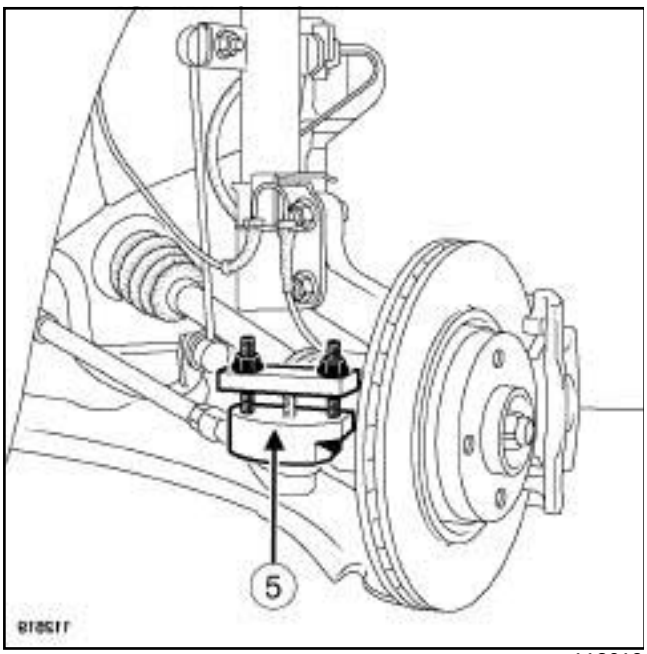
❏ Drain the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

❏ Remove the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR392, 35A, Wheels and tyres).

JH3 or JR5 – K4M or K9K or M4R, and TL4



112049



112619

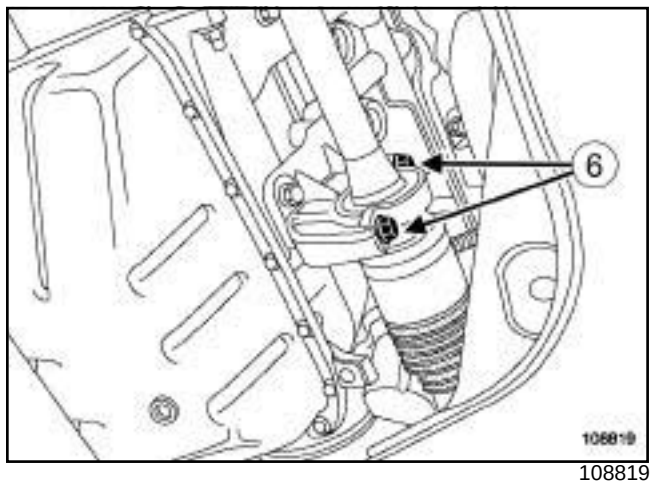
❏ Unclip the right-hand wheel speed sensor.

❏ Remove:

- the hub nut (**1**) using the **(Rou. 604-01)**,
- the anti-roll bar linkage right-hand upper ball joint (**2**) ,
- the right-hand track rod end (**4**) , using the **(Tav. 476)** at (**5**) ,
- the right-hand brake calliper support mounting bolts (see **Front brake calliper mounting: Removal - Refitting**) (MR 392, 31A, Front axle components),
- the right-hand shock absorber lower mounting bolts (**3**) .

❏ Attach the brake calliper to the shock absorber spring.

D4F, and 740 or 742, and JH3



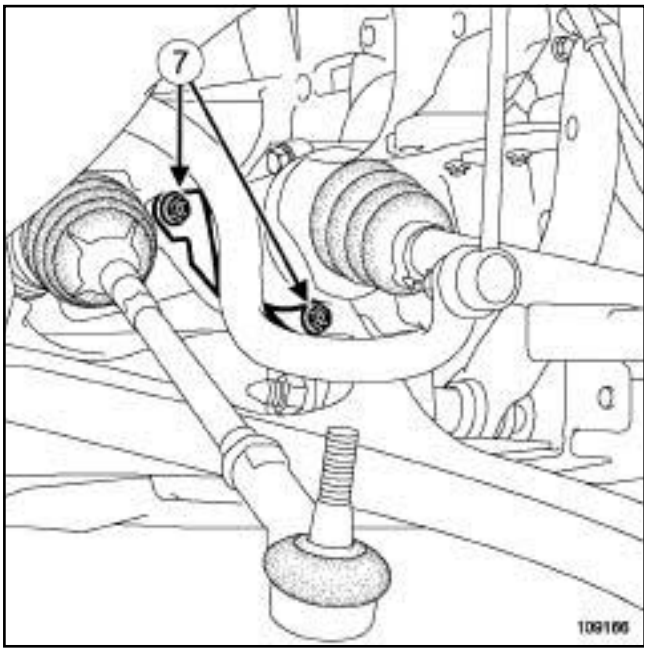
108819

❏ Remove:

- the driveshaft relay bearing bracket mounting bolts (**6**) ,
- the driveshaft relay bearing bracket.

JH3 or JR5 – K4M or K9K or M4R, and TL4

K4J, and 780, and JH3 – K4M, and 800, and JH3 – K9K, and 768, and JH3 – K9K, and 766, and JR5

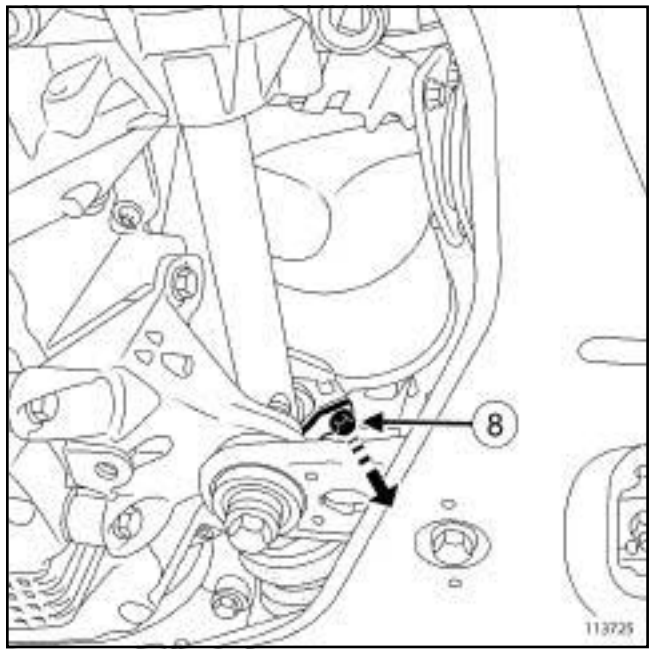


109166

❑ Remove:

- the driveshaft relay bearing bracket mounting bolts (**7**) ,
- the driveshaft relay bearing bracket.

K9K, and 764, and TL4



113725

❑ Remove the driveshaft relay bearing bracket mounting bolt (**8**) .

❑ Pivot the driveshaft relay bearing bracket.

II - REMOVAL OF PART CONCERNED

❑ Pivot the stub axle carrier to separate the driveshaft from the stub axle carrier.

❑ Remove the driveshaft from the gearbox.

REFITTING

I - REFITTING PREPARATION OPERATION

❑ Check the condition of the lip seal mating face on the driveshaft.

WARNING
Do not refit a driveshaft if the lip seal mating face is damaged.

❑ Replace the differential output lip seal (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-46**) .

JH3 or JR5 – K4M or K9K or M4R, and TL4

II - REFITTING PART CONCERNED

❑ Engage the driveshaft splines with the differential splines as straight as possible, so as to not damage the seal.

❑ Engage the driveshaft splines with the hub splines.

III - FINAL OPERATION.

❑ Tighten to torque:

- the **driveshaft relay bearing bracket mounting bolts (21 Nm)**,
- the **hub nut (280 Nm)**, using the **(Rou. 604-01)**,
- the **shock absorber base bolts (110 Nm)**,
- the **track rod end nut (37 Nm)**,
- the **anti-roll bar linkage upper ball joint nut (37 Nm)**,
- the **brake calliper support mounting bolts (105 Nm)** (see **Front brake calliper mounting: Removal - Refitting**) (MR 392, 31A, Front axle components).

❑ Refasten the clips on the wheel speed sensor.

❑ Top up the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

❑ Refit the engine undertray.

❑ Refit the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

DP0

Special tooling required	
Rou. 604-01	Hub locking tool.
Tav. 476	Ball joint extractor.

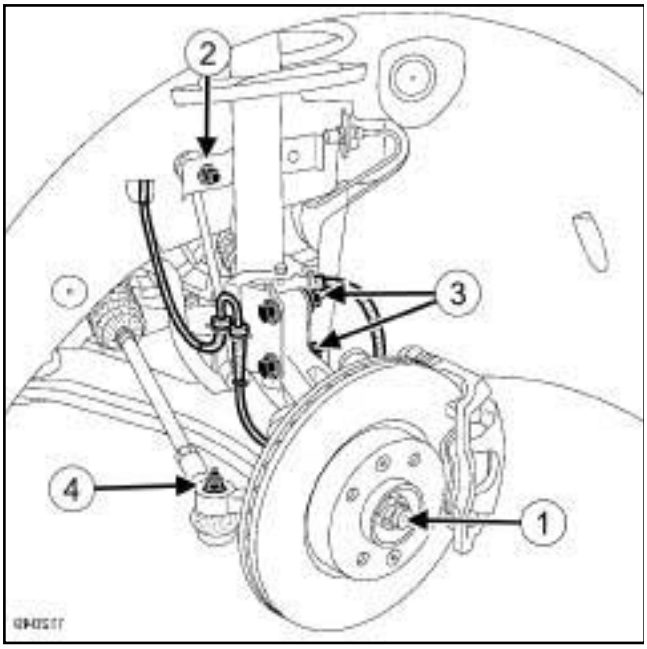
Tightening torques ▽	
driveshaft relay bearing bracket mounting bolt	**21 Nm**
hub nut	**280 Nm**
shock absorber base bolts	**110 Nm**
track rod end nut	**37 Nm**
anti-roll bar linkage upper ball joint nut	**37 Nm**
brake calliper support mounting bolts	**105 Nm**

REFITTING

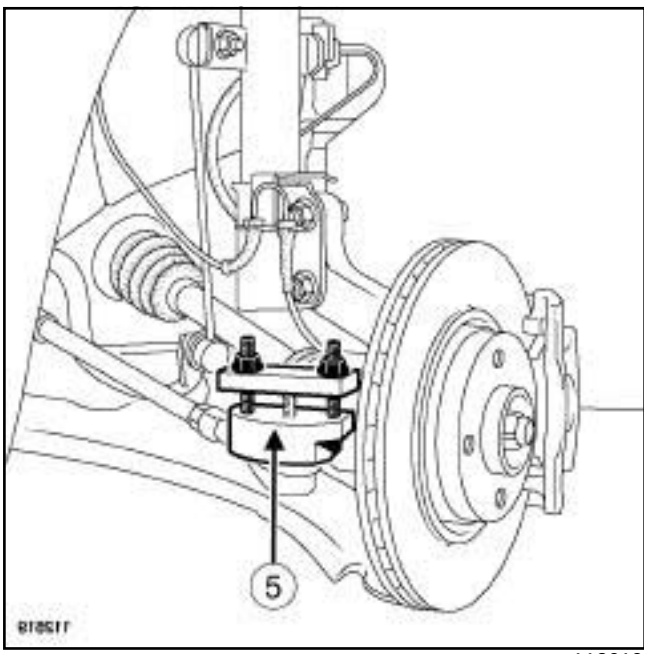
I - REMOVAL PREPARATION OPERATION

- ❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).
- ❏ Remove the engine undertray.
- ❏ Remove the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

DP0



112049



112619

❏ Unclip the right-hand wheel speed sensor.

❏ Remove:

- the hub nut (**1**) using the **(Rou. 604-01)**,
- the anti-roll bar linkage right-hand upper ball joint (**2**) ,
- the right-hand track rod end (**4**) , using the **(Tav. 476)** at (**5**) ,
- the right-hand brake calliper support mounting bolts (see **Front brake calliper mounting: Removal - Refitting**) (MR 392, 31A, Front axle components),
- the right-hand shock absorber lower mounting bolts (**3**) .

❏ Attach the brake calliper to the shock absorber spring.

116200

❏ Remove the driveshaft relay bearing bracket mounting bolt (**6**) .

II - REMOVAL OF PART CONCERNED

❏ Pivot the stub axle carrier to separate the driveshaft from the stub axle carrier.

❏ Remove the driveshaft from the gearbox.

REMOVAL

I - REFITTING PART CONCERNED

❏ Insert the driveshaft splines into the differential grooves.

❏ Insert the drive shaft splines in the hub grooves.

❏ Fit:

- the right-hand shock absorber lower mounting bolts,
- the driveshaft relay bearing bracket.

❏ Refit the driveshaft relay bearing bracket mounting bolt ***(6)*** .

II - FINAL OPERATION

❏ Fit:

- the right-hand track rod end,

DP0

- the anti-roll bar linkage right-hand upper ball joint,
- the right-hand brake calliper support mounting bolts (see **Front brake calliper mounting: Removal - Refitting**) (MR 392, 31A, Front axle components).

❏ Torque tighten:

- the **driveshaft relay bearing bracket mounting bolt (21 Nm)**,
- the **hub nut (280 Nm)**, using the **(Rou. 604-01)**,
- the **shock absorber base bolts (110 Nm)**,
- the **track rod end nut (37 Nm)**,
- the **anti-roll bar linkage upper ball joint nut (37 Nm)**,
- the **brake calliper support mounting bolts (105 Nm)** (see **Front brake calliper mounting: Removal - Refitting**) (MR 392, 31A, Front axle components).

❏ Refasten the clips on the wheel speed sensor.

❏ Refit the engine undertray.

❏ Refit the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

F4R, and TL4

Special tooling required	
Rou. 604-01	Hub locking tool.

Equipment required
component jack

Tightening torques ▽	
driveshaft relay bearing support plate mounting bolts	**21 Nm**
brake calliper mounting bolts	**170 Nm**
track rod mounting bolt	**37 Nm**
driveshaft nut	**280 Nm**

REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

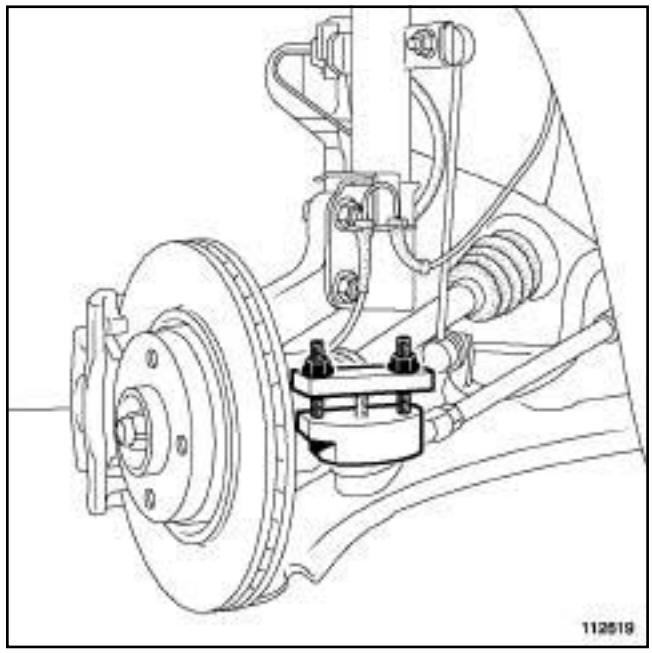
❏ Disconnect the battery (see **Battery: Removal - Refitting**) (MR 392, 80A, Battery).

❏ Remove:

- the engine undertray,
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

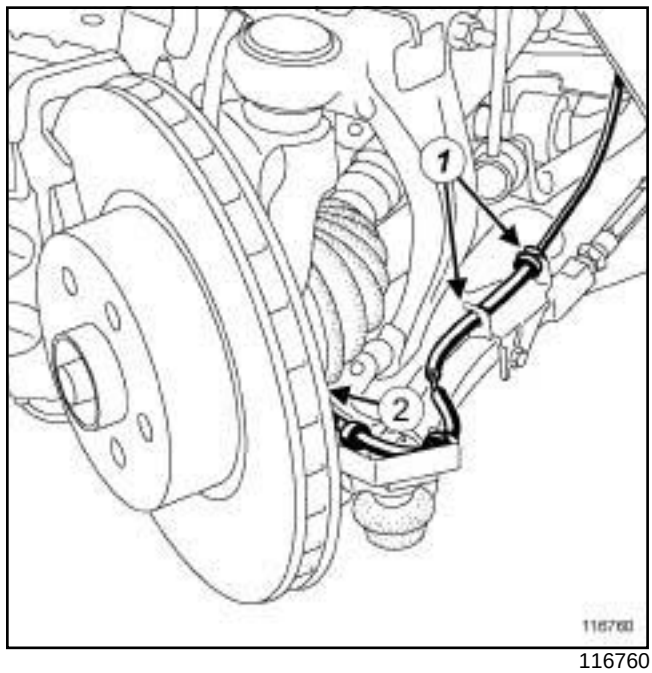
❏ Drain the gearbox oil (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



112619

❏ Remove the driveshaft nut using the **(Rou. 604-01)**.



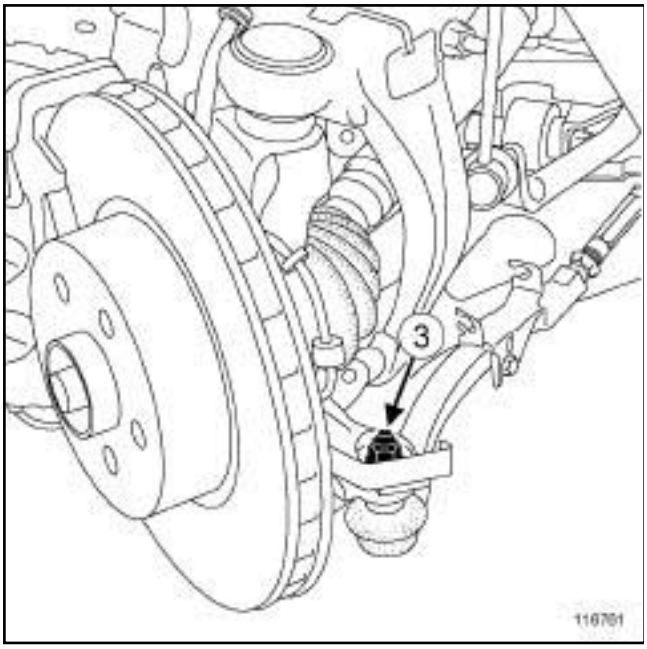
116760

❏ Unclip the ABS sensor wiring harness (**1**) .

❏ Remove the ABS sensor mounting bolt (**2**) .

❏ Move the ABS sensor to one side.

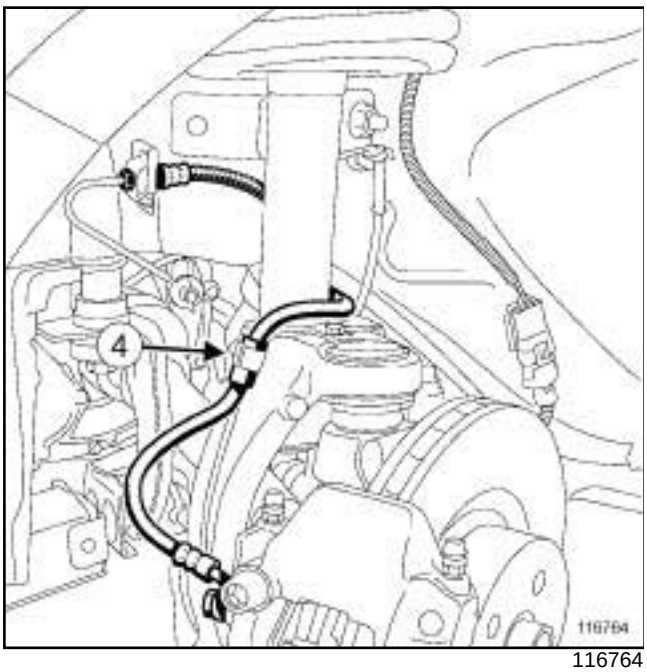
F4R, and TL4



116761

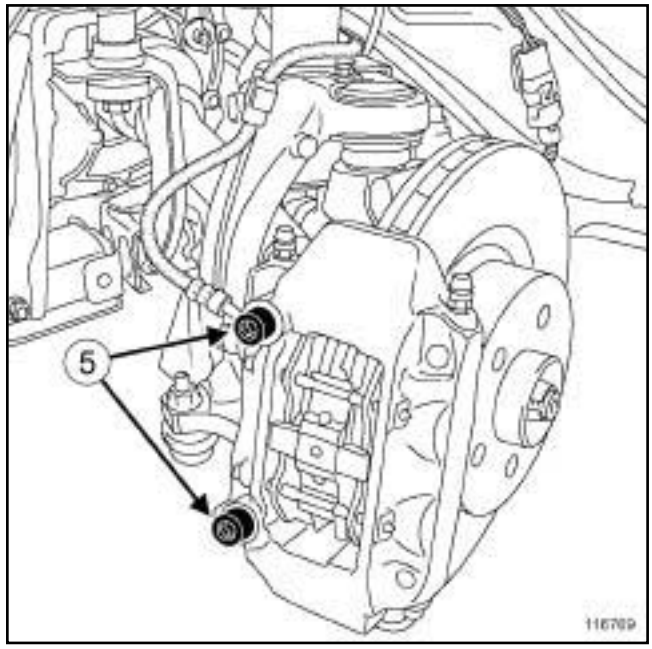
❏ Remove the track rod mounting nut (**3**) .

❏ Remove the track rod.



116764

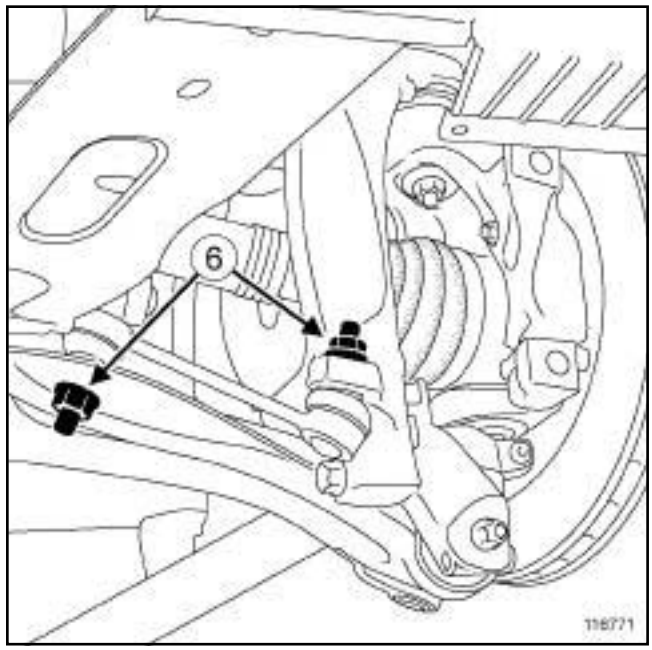
❏ Remove the calliper hose mounting bolt (**4**) .



116769

❏ Remove the brake calliper mounting bolts (**5**) .

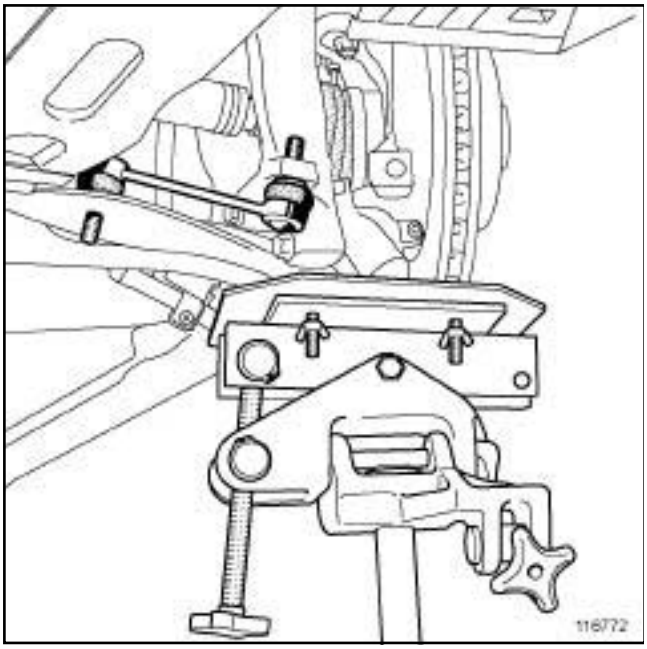
❏ Remove the brake calliper and strap it up (see **Front brake calliper: Removal - Refitting**) (MR 392, 31A, Front axle components).



116771

❏ Remove the linkage nuts (**6**) .

F4R, and TL4



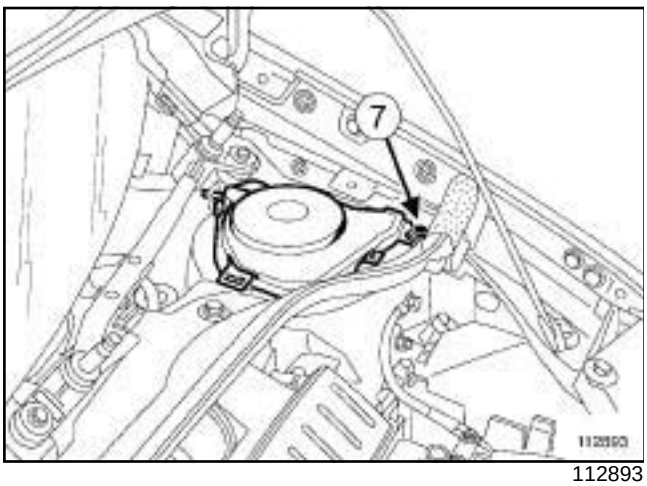
116772

❏ Fit a **component jack** to compress the suspension.

❏ Remove the linkage.

❏ Remove the **component jack**.

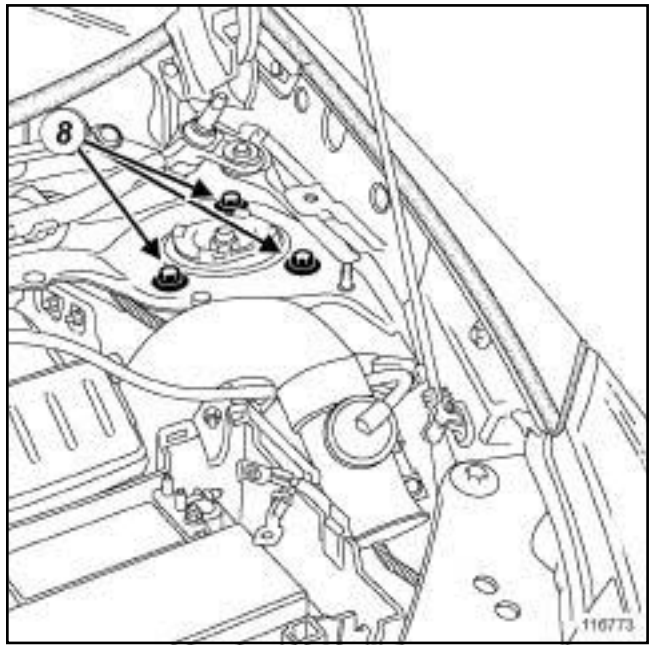
❏ Remove the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 55A, Exterior protection).



112893

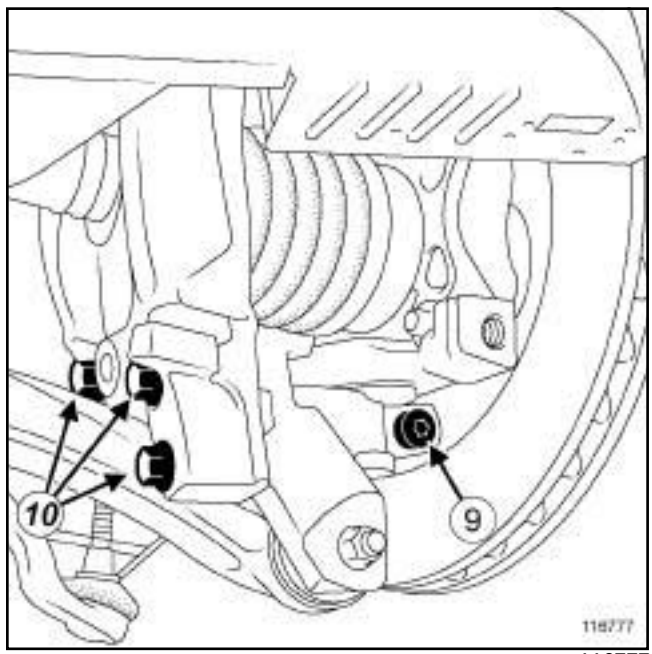
❏ Remove:

- the turret cover mounting nut (**7**) ,
- the turret cover.



116773

❏ Loosen the turret mounting bolts (**8**) .



116777

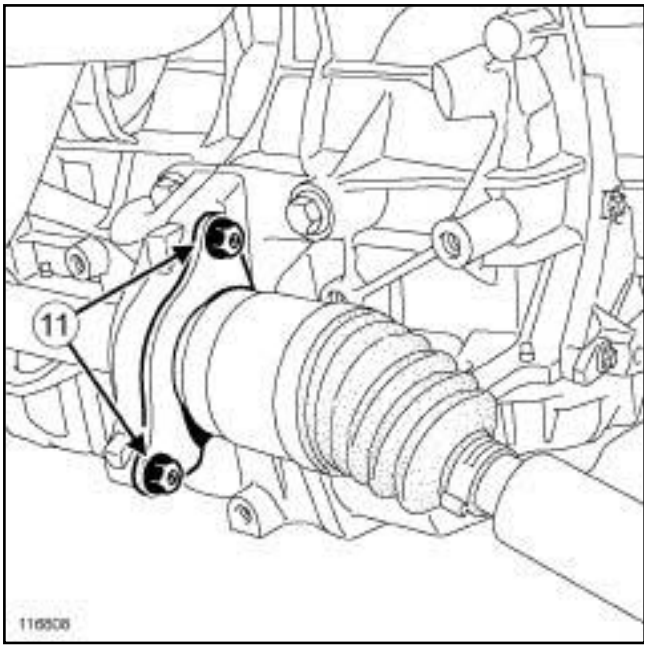
❏ Remove:

- the hub carrier lower axis locking bolt (**9**) ,
- the mounting bolts (**10**) from the pivot mounting.

❏ Remove the "spring - shock absorber - pivot" assembly.

❏ Extract the hub driveshaft.

F4R, and TL4



116808

❑ Remove the right-hand driveshaft relay bearing support plate mounting bolts (**11**) .

❑ Extract the driveshaft from the gearbox.

❑ Remove the right-hand driveshaft.

REFITTING

I - REFITTING PREPARATIONS OPERATION

❑ Replace the differential output seal (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-46**) .

WARNING

Always replace the differential output lip seal with a new one whenever the driveshafts are removed.

II - REFITTING OPERATION FOR PART CONCERNED

❑ Fit the driveshaft by inserting it into the gearbox and then the hub carrier.

❑ Refit:

- the driveshaft relay bearing support plate,
- the driveshaft relay bearing support plate mounting bolts.

❑ Torque tighten the **driveshaft relay bearing support plate mounting bolts (21 Nm)**

❑ Refit:

- the pivot mounting bolts,
- the hub carrier lower axis locking bolt.

❑ Fit a **component jack** to compress the suspension.

❑ Refit the linkage.

❑ Remove the **component jack**.

❑ Refit the linkage mounting bolts.

❑ Refit the brake calliper mounting bolts.

❑ Tighten to torque the **brake calliper mounting bolts (170 Nm)**.

❑ Refit the calliper hose mounting bolt.

❑ Position the track rod.

❑ Refit the track rod mounting nut.

❑ Tighten to torque the **track rod mounting bolt (37 Nm)**.

❑ Refit the ABS sensor.

❑ Clip the ABS sensor wiring harness.

❑ Refit the driveshaft nut using the **(Rou. 604-01)**.

❑ Tighten to torque the **driveshaft nut (280 Nm)**

III - FINAL OPERATION.

❑ Refit:

- the turret cover,
- the turret cover mounting nut,
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (MR 393, 55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (MR 392, 35A, Wheels and tyres).

❑ Top up the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oils: Draining - Filling**, page **21A-3**) .

❑ Refit the engine undertray.

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

M4R, and TL4

REMOVAL

I - REMOVAL PREPARATION OPERATION

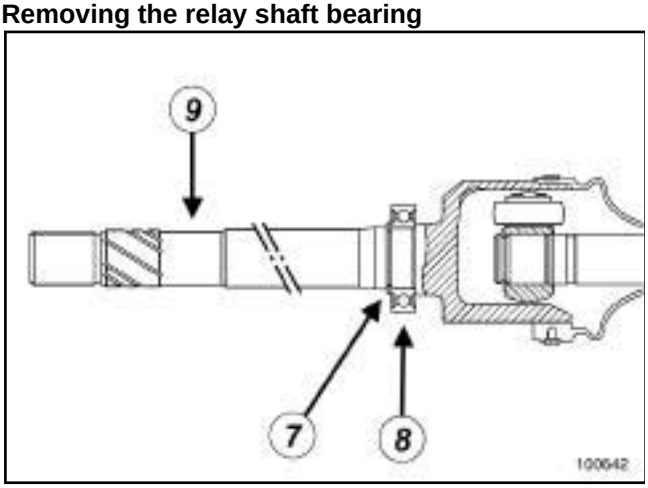
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

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

❑ Remove the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) .

II - REMOVAL OF PART CONCERNED

Removing the relay shaft bearing



100642

❑ Remove the lock ring (**7**) from the bearing (**8**) .

❑ Extract the bearing (**8**) using a press and an extractor.

❑ Take care not to scratch the contact surface of the lip seal on the relay shaft (**9**) .

REFITTING

I - REFITTING PART CONCERNED

❑ Lubricate the contact surface of the shaft into which the bearing is inserted.

❑ Insert the new bearing.

❑ Fit the bearing to the end using a tube, so that it rests on the inner bearing race.

❑ Fit a new lock ring.

❑ Clean and grease the bearing hole into which the bearing will be inserted.

II - FINAL OPERATION.

❑ Refit the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) .

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

M4R, and TL4

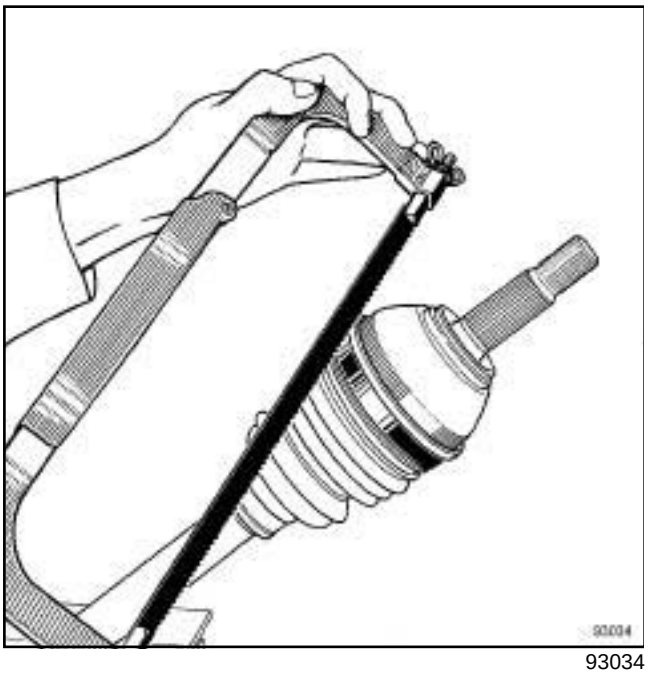
Special tooling required	
Tav. 1796	Driveshaft bowl-shaped spindle extractors
Emb. 880	Pin extractor tool.
Tav. 1784	Pliers for the driveshaft gaiter collar.
Tav. 1168	"Clic" type clip pliers for driveshafts with a thermoplastic gaiter.

REMOVAL

I - REMOVAL PREPARATION OPERATION

❏ Remove the driveshaft on the side concerned (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) or (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) .

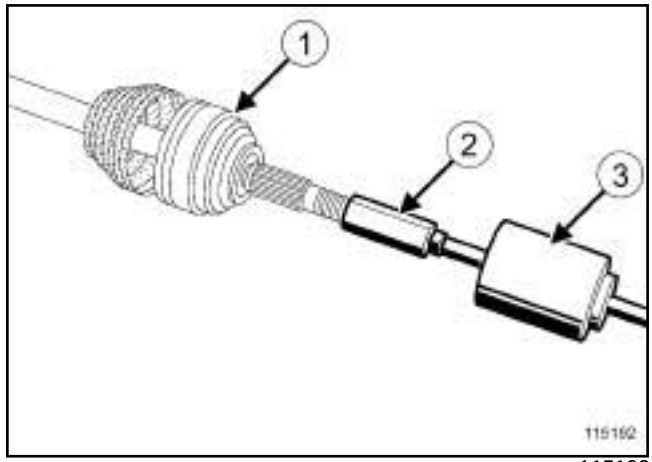
II - OPERATION FOR REMOVAL OF PART CONCERNED



93034

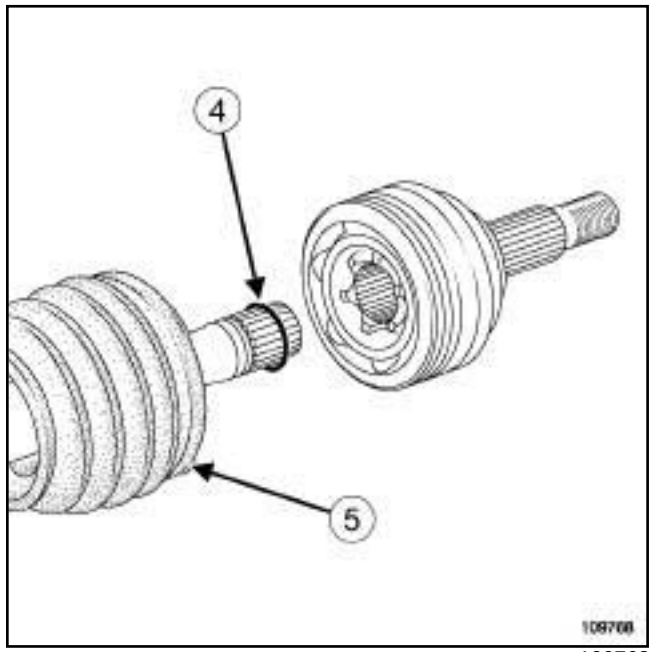
❏ Cut the clips taking care not to damage the groove of the stub axle bowl.

❏ Push back the gaiter to release the stub axle bowl.



115192

❏ Remove the stub axle bowl (**1**) using the **(Tav. 1796)** (**2**) and the extractor **(Emb. 880)** (**3**) .



109768

❏ Remove:

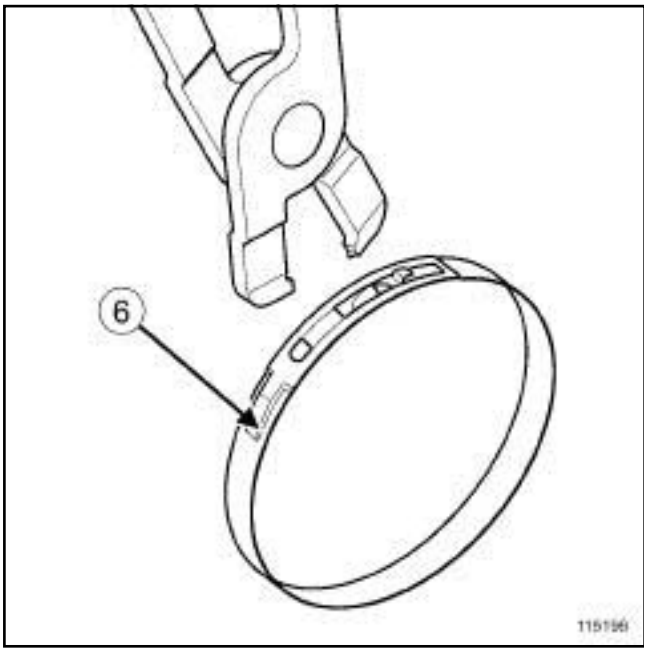
- the locking spring ring (**4**) ,
- the gaiter (**5**) .

❏ Remove as much grease as possible from the stub axle bowl.

M4R, and TL4

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

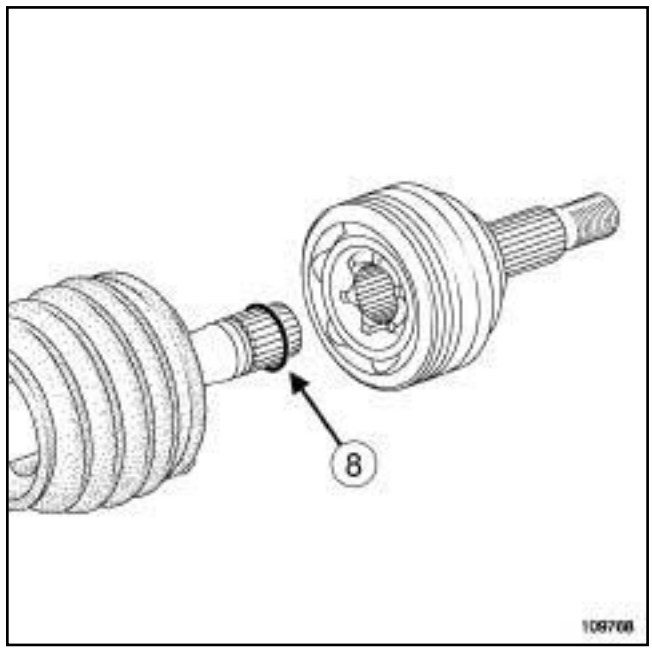


115196

115197

❑ Use:

- the **(Tav. 1784)** for the clip with profile end (**6**) ,
- the **(Tav. 1168)** for the jubilee type clip (**7**) .



109768

❑ Always replace the locking spring ring (**8**) each time the stub axle bowl is removed.

❑ Fit the small clip.

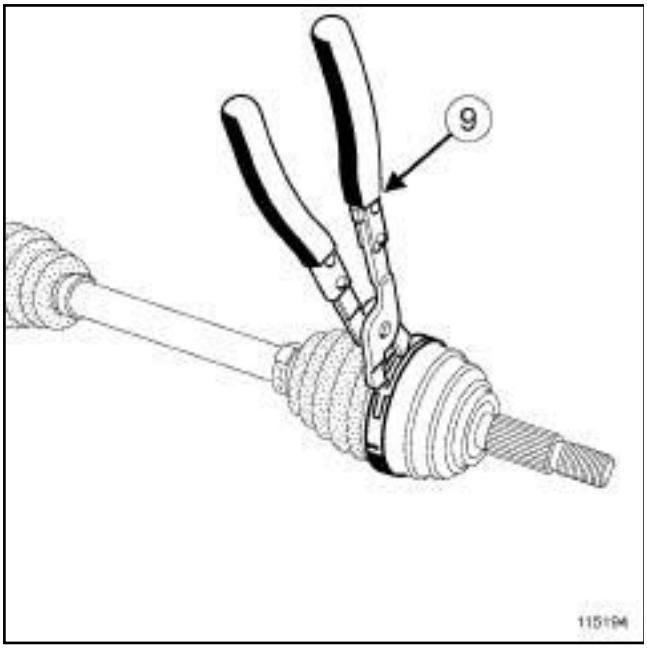
❑ Fit the gaiter.

❑ Fit the stub axle bowl manually until the locking spring ring clicks behind the ball hub.

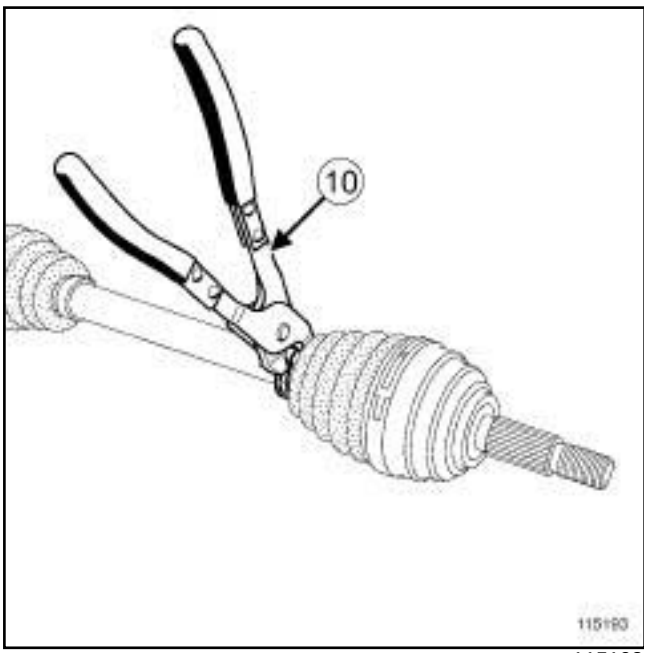
❑ Spread the quantity of grease around the gaiter and the stub axle bowl.

❑ Insert the lips of the gaiter into the grooves of the stub axle bowl and propeller shaft.

M4R, and TL4



115194



115193

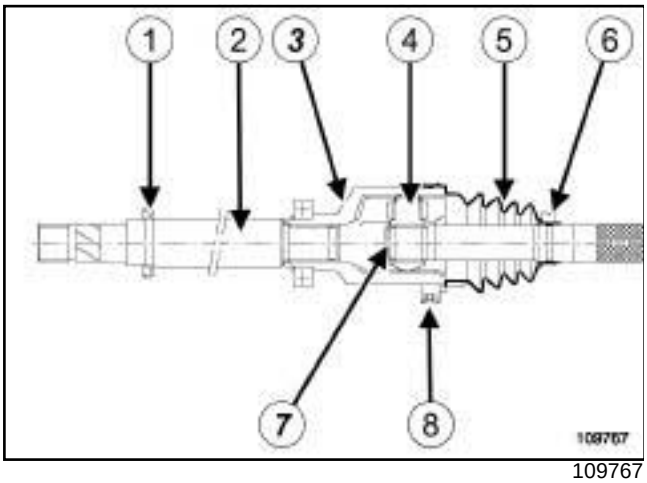
❑ Fit the clips, tightening them using the **(Tav. 1784)** (**9**) or the **(Tav. 1168)** (**10**) depending on the type of clip.

II - FINAL OPERATION.

❑ Refit the driveshaft on the side concerned (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) or (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) .

DP0 or JH3 or JR5 or TL4

Special tooling required	
Tav. 1168	"Clic" type clip pliers for driveshafts with a thermoplastic gaiter.



109767

(**1**) Deflector
(**2**) Propeller shaft
(**3**) Driveshaft yoke sleeve
(**4**) Spider
(**5**) RC gaiter
(**6**) Tightening clip
(**7**) Lock ring
(**8**) Tightening ring

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

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

❑ Remove the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) .

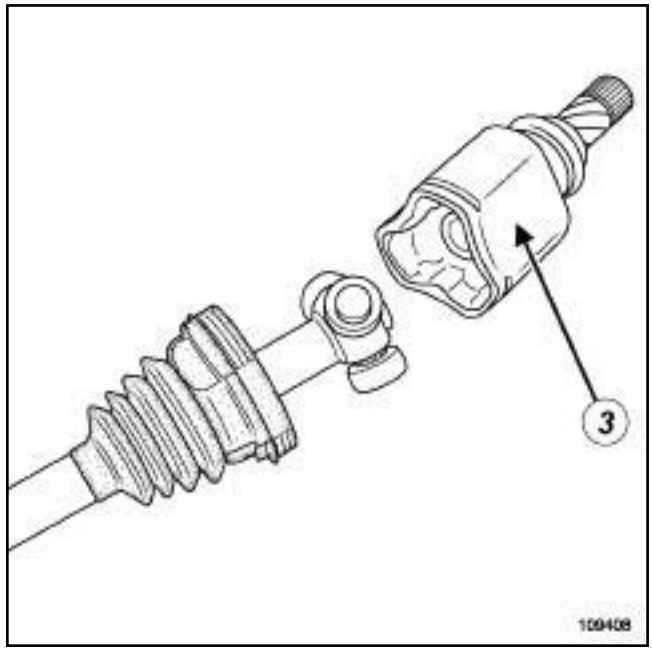
II - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Cut the ring (**8**) and the tightening clip (**6**) using cutting pliers or a metal saw, taking care not to damage the yoke sleeve.

❑ Push back the gaiter (**5**) to release the driveshaft yoke sleeve.

❑ Remove as much grease as possible.

WARNING
Never use thinners to clean the components.



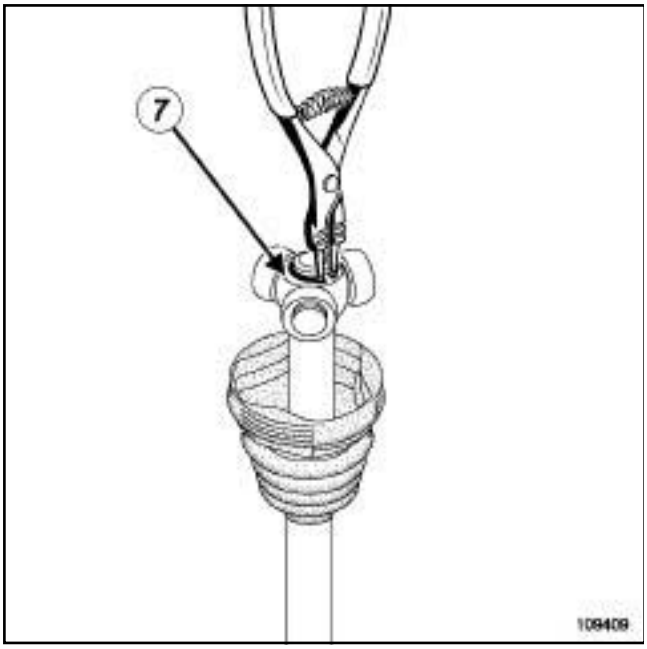
109408

❑ Remove the driveshaft yoke sleeve (**3**) .

Note:

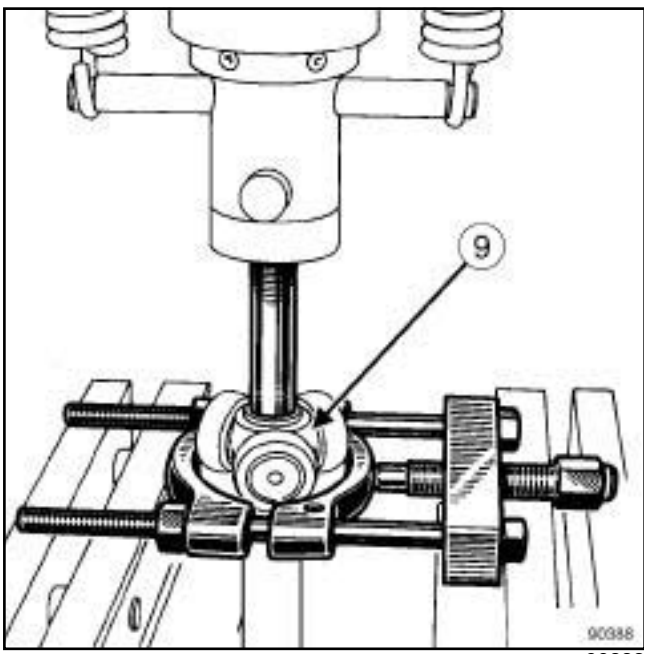
- Since the driveshaft yoke sleeve does not have a stop tab, it can be removed without being forced.
- Do not remove the rollers from their respective bushings as the rollers and needles are matched and should never be interchanged.

DP0 or JH3 or JR5 or TL4



109409

❏ Remove the lock ring (**7**) using the tool.



90388

❏ Extract the spider (**9**) , using a press and a releasing type extractor.

> Note:
>
> Mark the position of the spider before extracting it.

❏ Remove the propeller shaft gaiter.

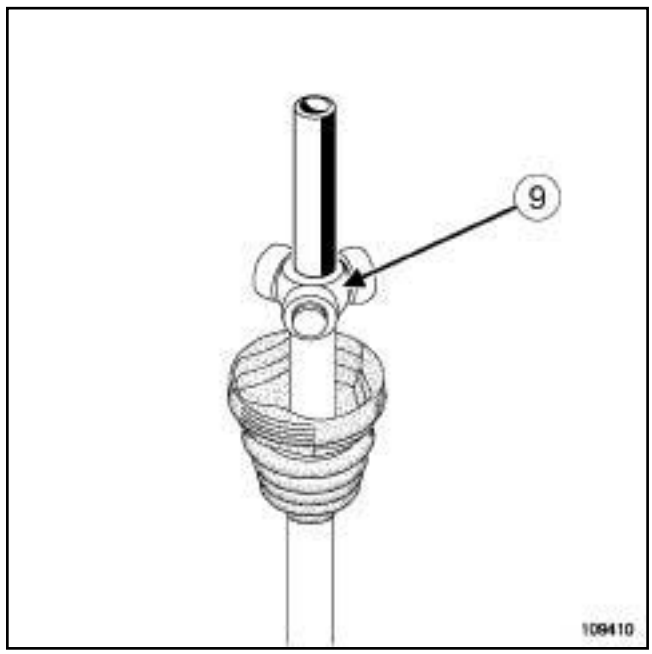
REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❏ Fit the small tightening clip (**6**) to the propeller shaft.

❏ Slightly lubricate the propeller shaft to facilitate fitting the gaiter.

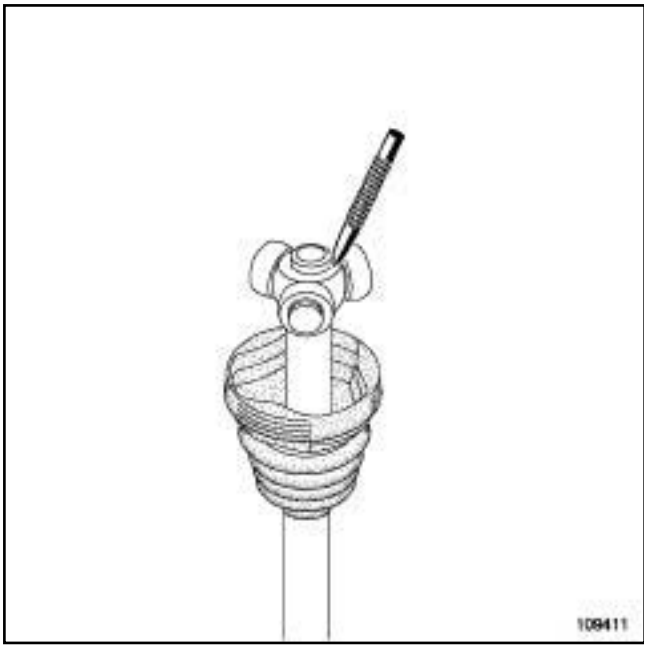
❏ Refit the propeller shaft gaiter.



109410

❏ Refit the spider (**9**) in the position marked during removal.

DP0 or JH3 or JR5 or TL4



109411

❏ Refit the retaining lock ring (**7**) or crimp at three points at **120°** by folding the metal of the splines down onto the propeller shaft.

❏ Lubricate the driveshaft yoke sleeve (**3**) .

❏ Fit the driveshaft yoke sleeve (**3**) onto the spider.

❏ Divide the quantity of grease between the gaiter (**5**) and the driveshaft yoke sleeve (**3**) .

Note:

Be sure to observe the prescribed quantity of lubricant.

❏ Position the lips of the gaiter (**5**) in the grooves of the driveshaft yoke sleeve and the propeller shaft.

❏ Insert a smooth rod with a rounded end between the gaiter and propeller shaft to control the amount of air inside the joint.

❏ Refit the clips, tightening with tool **(Tav. 1168)**.

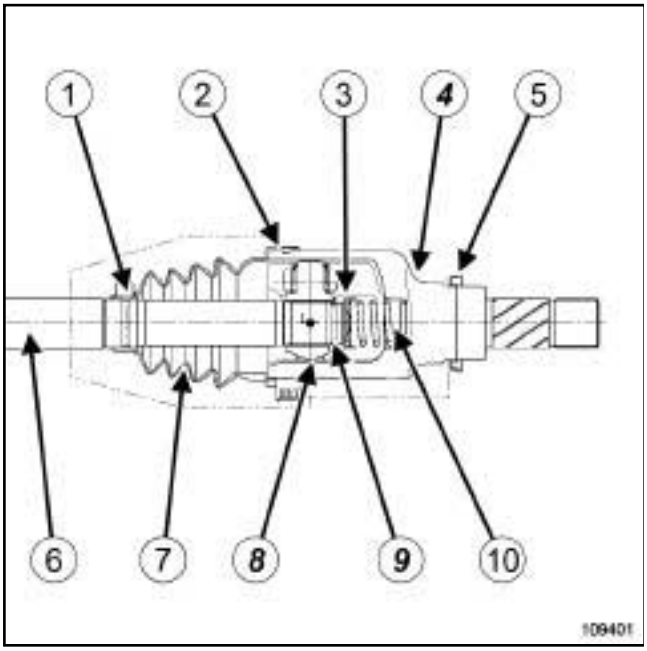
II - FINAL OPERATION.

❏ Refit the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand driveshaft: Removal - Refitting**, page **29A-9**) .

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

DP0 or JH3 or JR5 or TL4

Special tooling required	
Tav. 1168	"Clic" type clip pliers for driveshafts with a thermoplastic gaiter.



109401

(**1**) Tightening clip
(**2**) Tightening ring
(**3**) Cup
(**4**) Driveshaft yoke sleeve
(**5**) Deflector
(**6**) Propeller shaft
(**7**) RC gaiter
(**8**) Spider
(**9**) Lock ring
(**10**) Spring

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 392, 02A, Lifting equipment).

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

❑ Remove the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) .

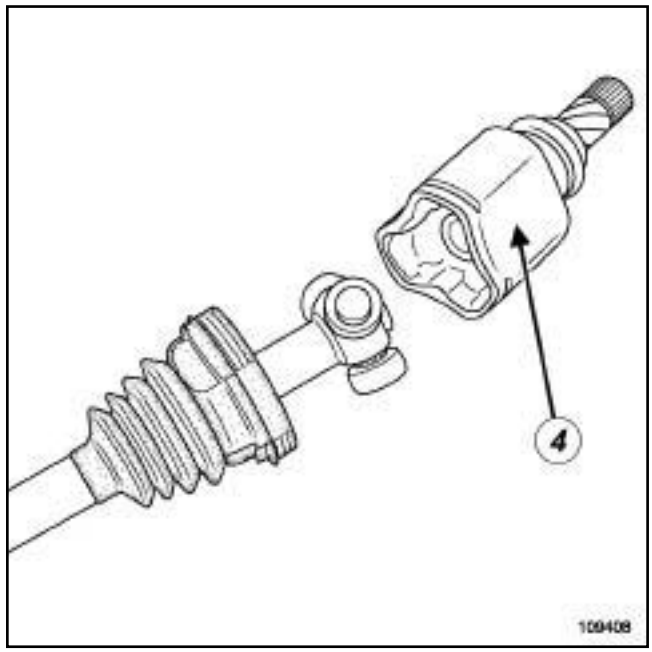
II - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Cut the clip (**1**) and tightening ring (**2**) using cutting pliers or a metal saw, taking care not to damage the driveshaft yoke sleeve.

❑ Push back the gaiter (**7**) to release the driveshaft yoke sleeve.

❑ Remove as much grease as possible.

WARNING
Never use thinners to clean the components.



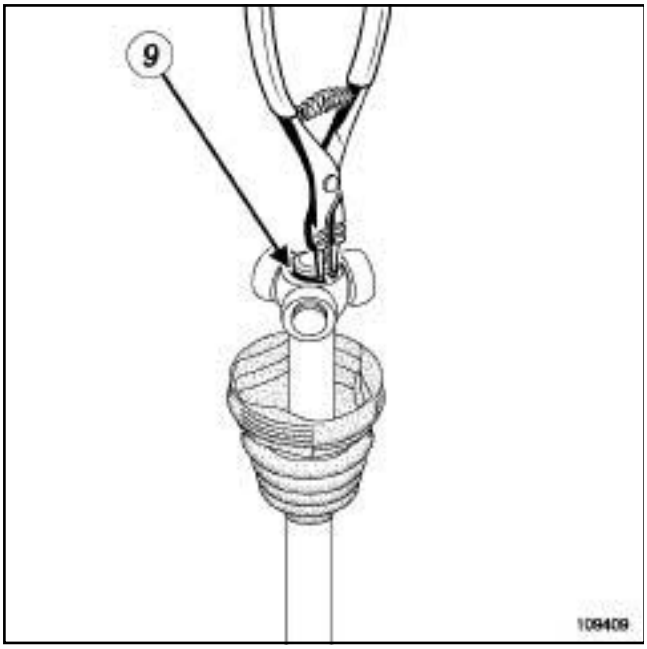
109408

❑ Remove the driveshaft yoke sleeve (**4**) .

Note:

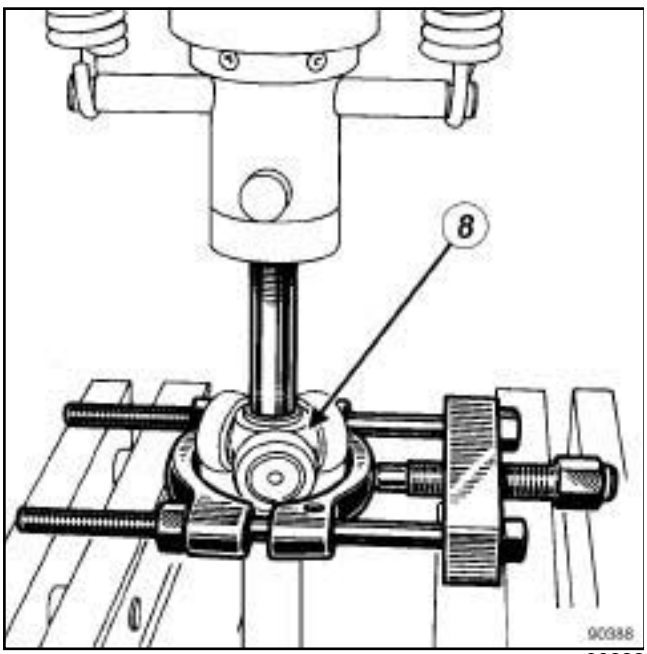
- since the driveshaft yoke sleeve does not have a stop tab, it can be removed without being forced.
- Do not remove the rollers from their respective bushings as the rollers and needles are matched and should never be interchanged.

DP0 or JH3 or JR5 or TL4



109409

❑ Remove the lock ring (**9**) .



90388

❑

Note:

Mark the position of the spider before extracting it.

Extract the spider (**8**) , using a press and a releasing type extractor.

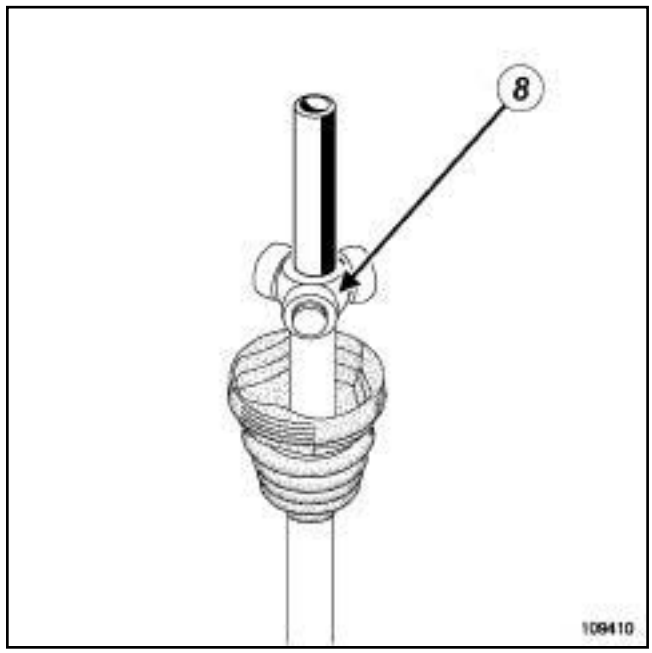
❑ Remove the propeller shaft gaiter.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

❑ Fit the small tightening clip (**1**) to the propeller shaft.

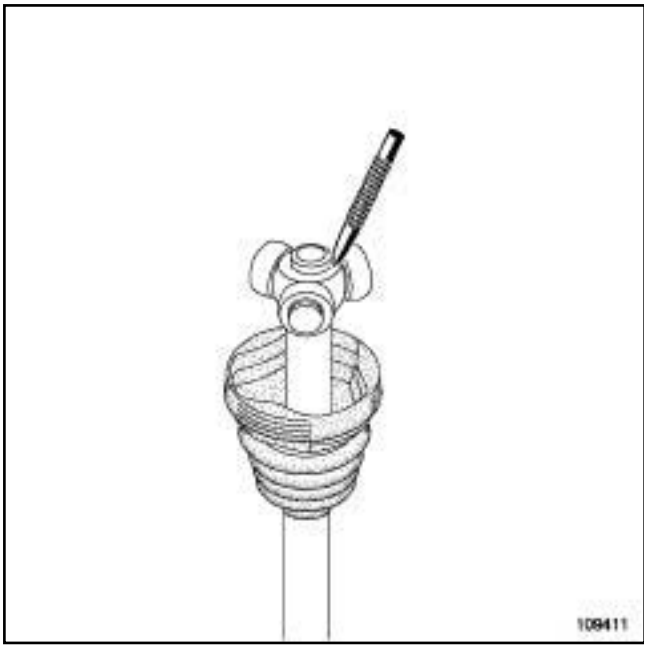
❑ Slightly lubricate the driveshaft to facilitate fitting gaiter (**7**) .



109410

❑ Refit the spider (**8**) in the position marked during removal.

DP0 or JH3 or JR5 or TL4



109411

❏ Refit the lock ring (**9**) .

❏ Lubricate the driveshaft yoke sleeve (**4**) .

❏ Fit the driveshaft yoke sleeve (**4**) onto the spider.

❏ Divide the quantity of grease between the gaiter (**7**) and the driveshaft yoke sleeve (**4**) .

Note:

Be sure to observe the prescribed quantity of lubricant (see) .

❏ Position the lips of the gaiter (**7**) in the grooves of the driveshaft yoke sleeve and the propeller shaft.

❏ Insert a smooth rod with a rounded end between the gaiter and propeller shaft to control the amount of air inside the joint.

❏ Fit the clips, tightening with the **(Tav. 1168)**.

II - FINAL OPERATION.

❏ Refit the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand driveshaft: Removal - Refitting**, page **29A-2**) .

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