

RENAULT

0 General vehicle information

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01C VEHICLE BODYWORK SPECIFICATIONS

01D MECHANICAL INTRODUCTION

02A LIFTING EQUIPMENT

03B COLLISION

04B CONSUMABLES - PRODUCTS

04E PAINT

X44

NOVEMBER 2009

EDITION ANGLAISE

"The repair procedures given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The procedures may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which the vehicles are constructed".

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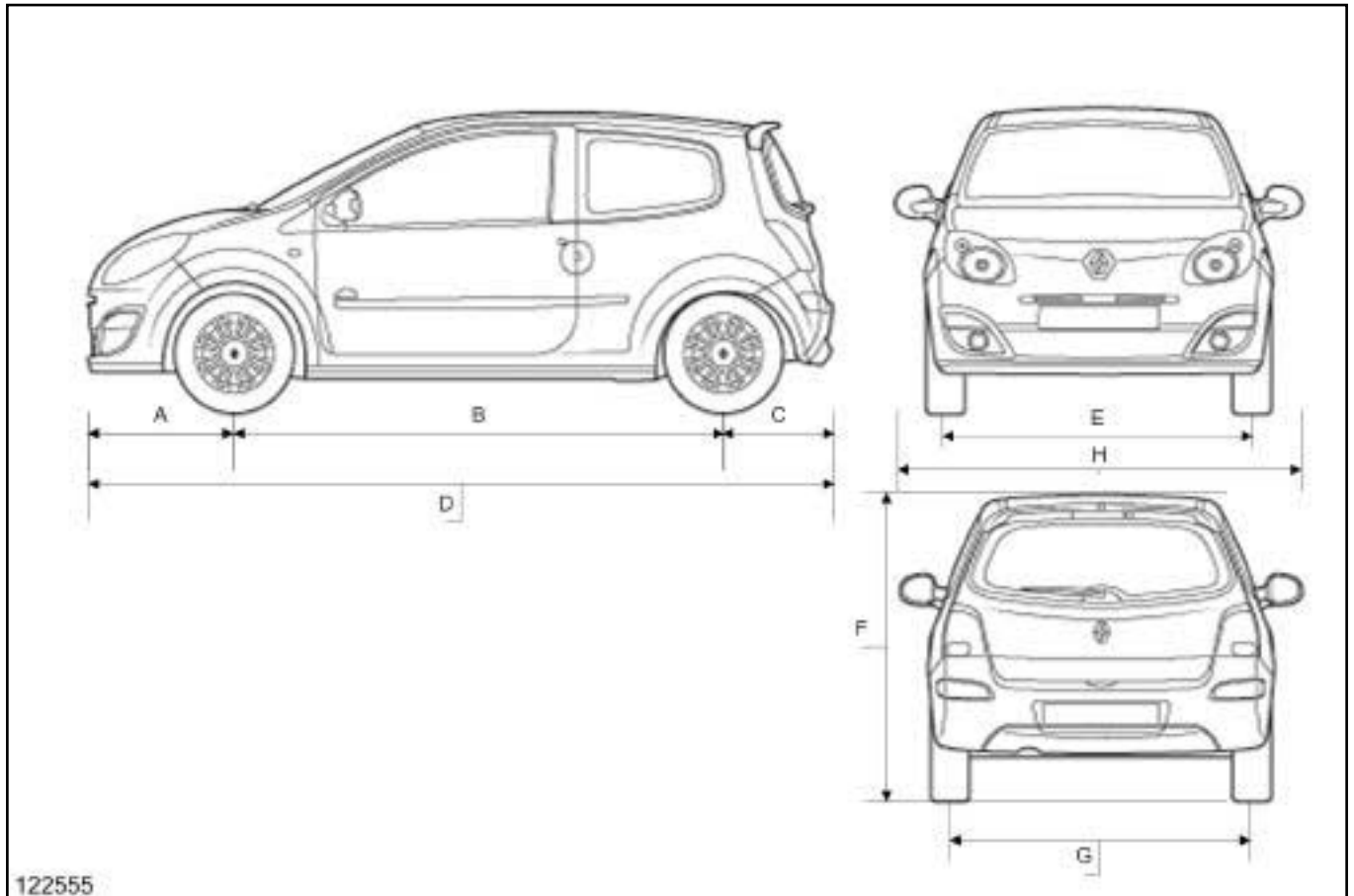
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TWINGO - Chapitre 0

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122555

122555

	Dimensions in metres
A	0.710 / 0.714 (RS)
B	2.367
C	0.525
D	3.602
E	1.400 / 1.414 (GT, RS)
F	1.470 (unladen)
G	1.386 / 1.400 (GT) / 1.430 (RS)
H	1.655

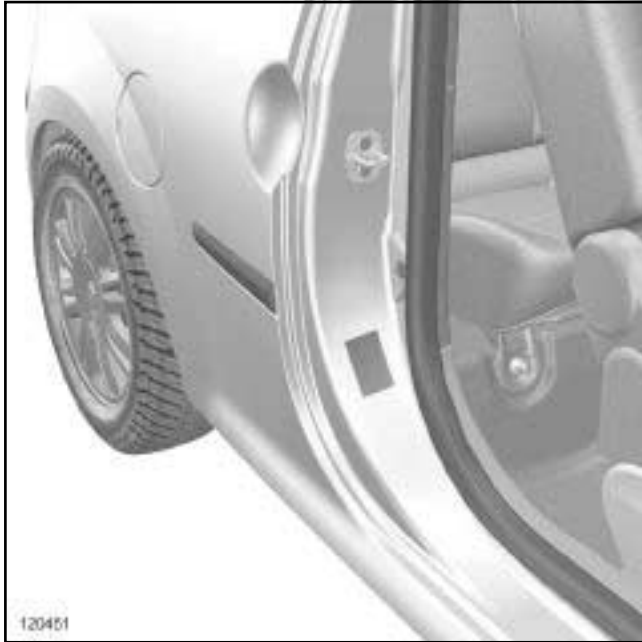
VEHICLE MECHANICAL SPECIFICATIONS

Vehicle: Specifications

01A

Engine type	Engine suffix	Cubic capacity(cc)	Gearbox	Gearbox suffix	Emissions standard
D4F	772	1149	JB1	521	EURO 4
				523	
			524		
			525	EURO 5	
	JH1		020	EURO 4	
			021	EURO 5	
780	JH3	169	EURO 4		
782		309	EURO 5		
D7F	800	1598	JB1	520	EURO 4
K4M	854		JR5	176	
K9K	718		1461	JR5	
	740	JH3		166	

I - LOCATION OF VEHICLE IDENTIFICATION PLATE



120451

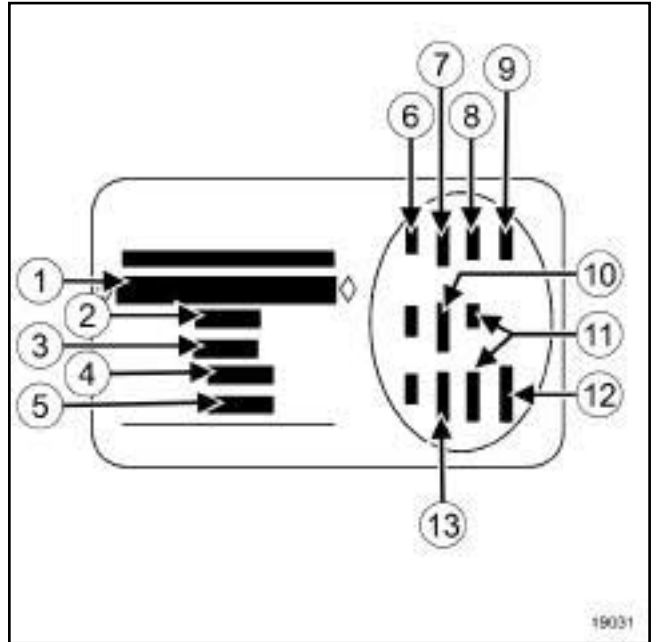
II - LOCATION OF THE VEHICLE IDENTIFICATION NUMBER



120452

III - DETAILED VIEW OF THE VEHICLE IDENTIFICATION PLATE

Plate (A)

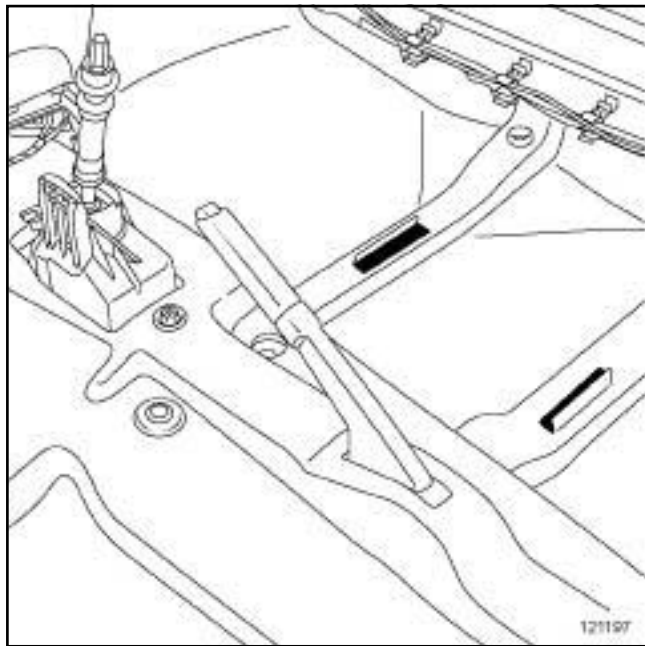


19031

- (1) Vehicle type and type number; this information also appears on marking (B)
- (2) MPAW (Vehicle's Maximum Permissible All-up Weight)
- (3) GTW (Gross train weight, vehicle under load with trailer)
- (4) Maximum permissible front axle load
- (5) Maximum permissible rear axle load
- (6) Technical vehicle specifications
- (7) Paintwork reference number
- (8) Equipment level
- (9) Vehicle type
- (10) Upholstery code
- (11) Additional equipment details
- (12) Production number
- (13) Interior trim code

IV - COLD-MARKING OF THE BODY

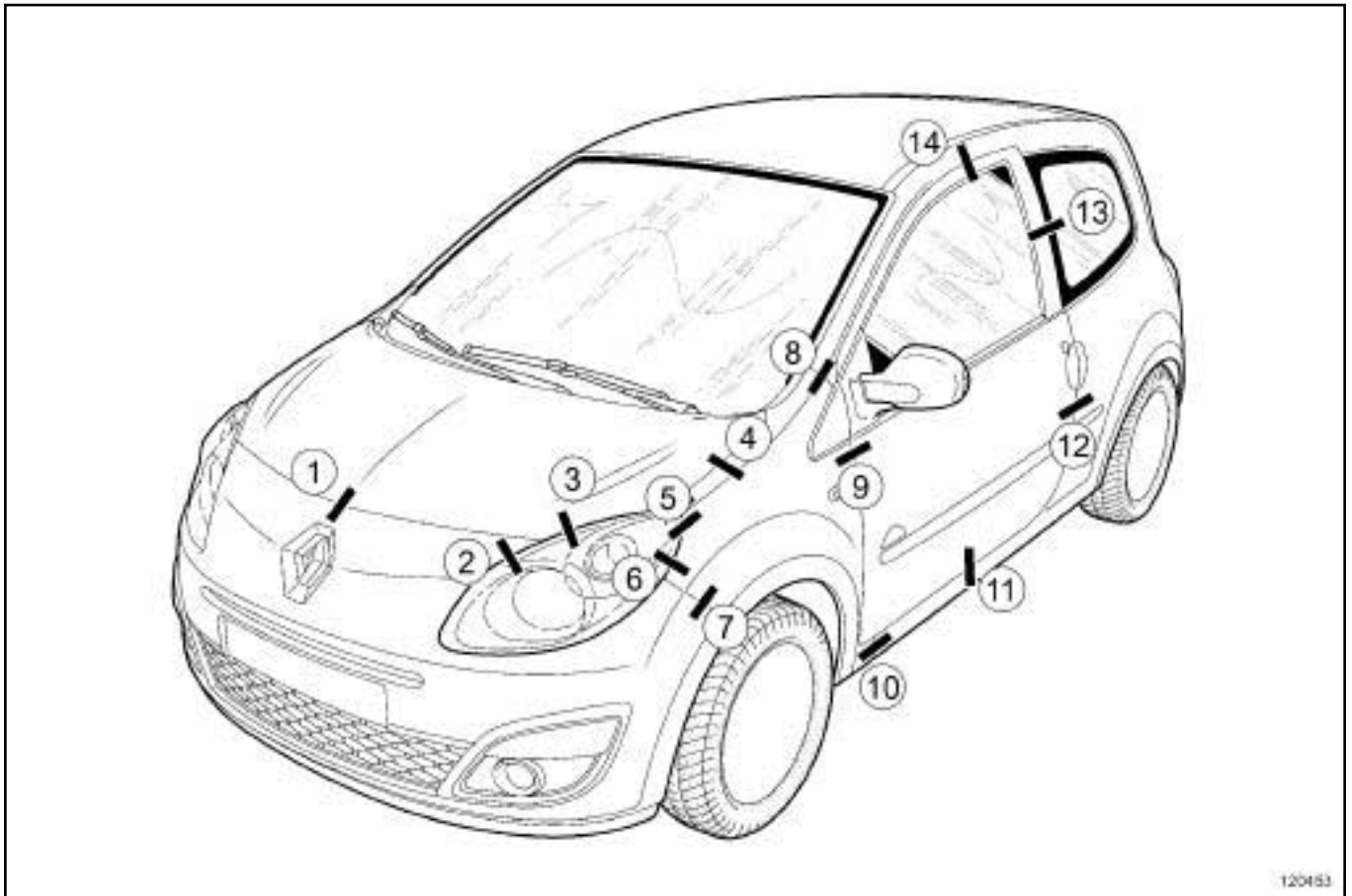
Marking (B)



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Note:

If the complete body is being replaced, it must be marked in compliance with the current regulations.



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WARNING

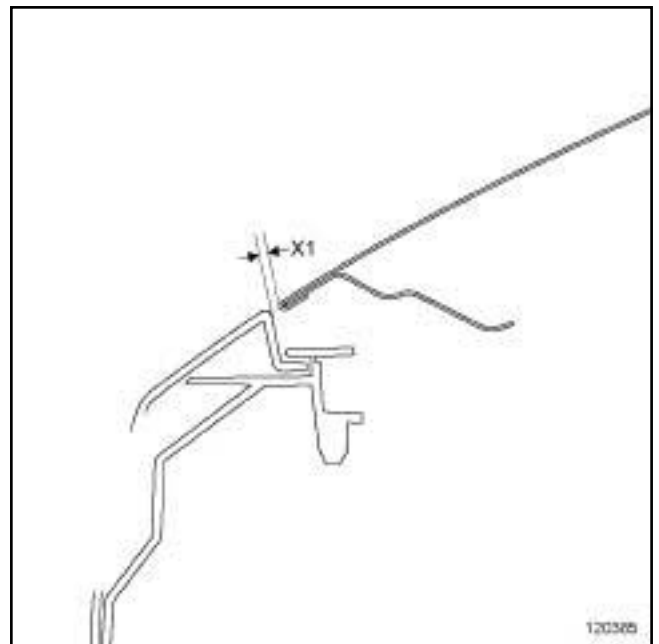
The clearance values are given for information purposes.

When adjusting clearances, certain rules have to be followed:

- maintain symmetry with respect to the opposite side,
- ensure the flush fitting is correct,
- check correct operation of the opening, and water/air-tightness.

All values are given in millimetres.

Section 1

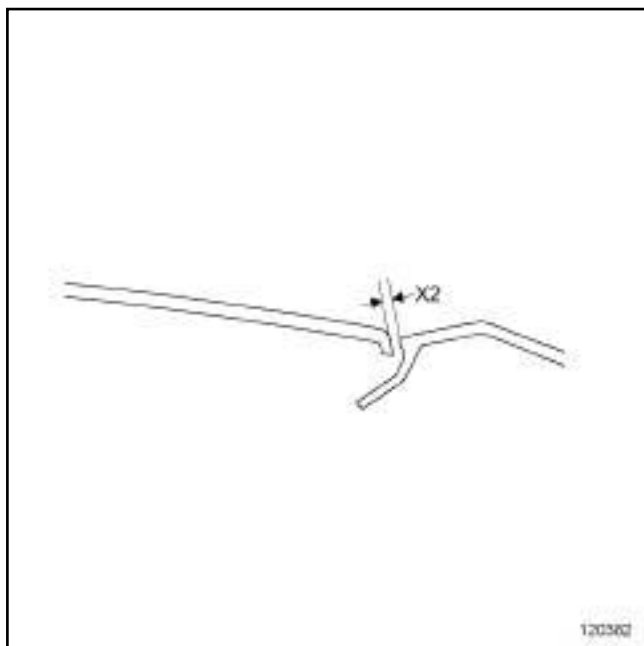


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(X1) = 3.5 ± 1.5

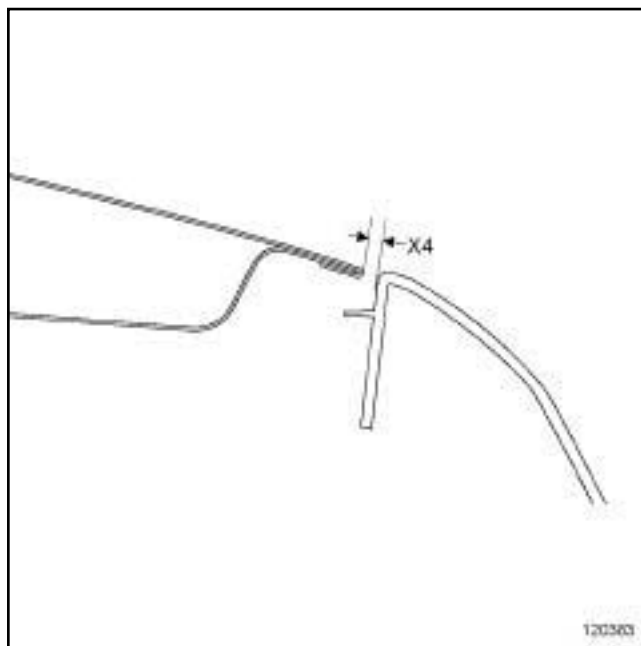
Section 2



120382

$$(X2) = 2 \pm 1.5$$

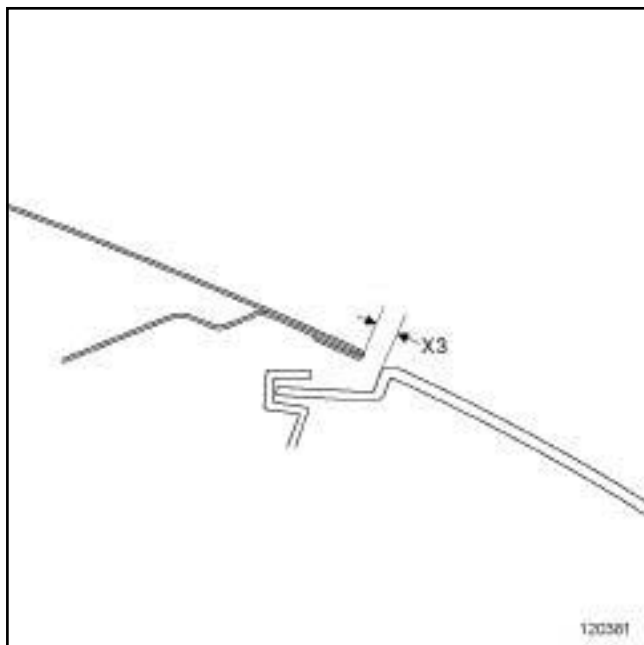
Section 4



120383

$$(X4) = 3.5 \pm 1.5$$

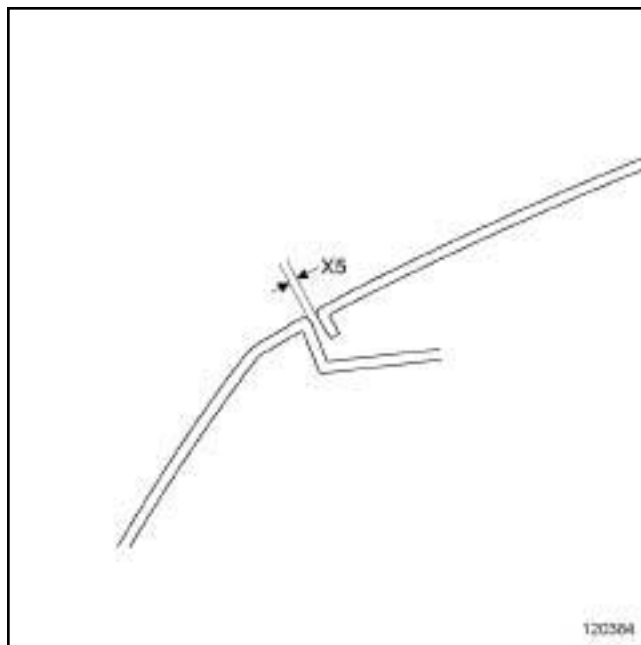
Section 3



120381

$$(X3) = 3 \pm 1.5$$

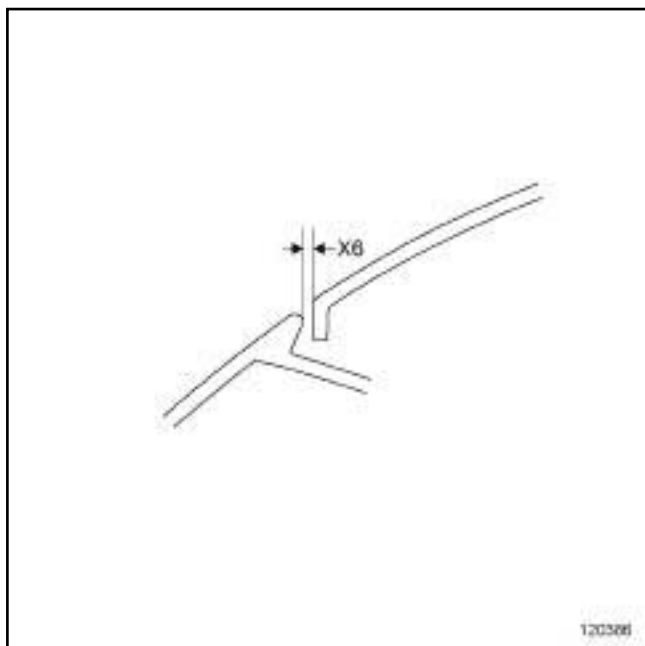
Section 5



120384

$$(X5) = 2 \pm 1.3$$

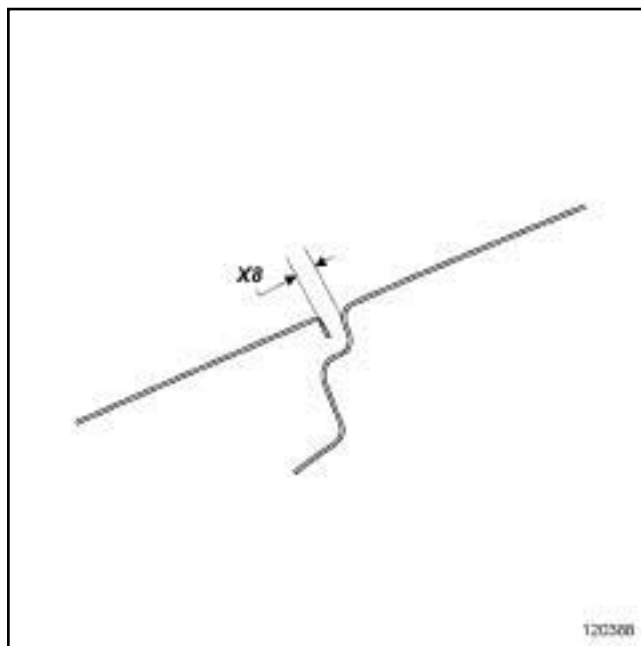
Section 6



120386

$$(X6) = 2 \pm 1.3$$

Section 8

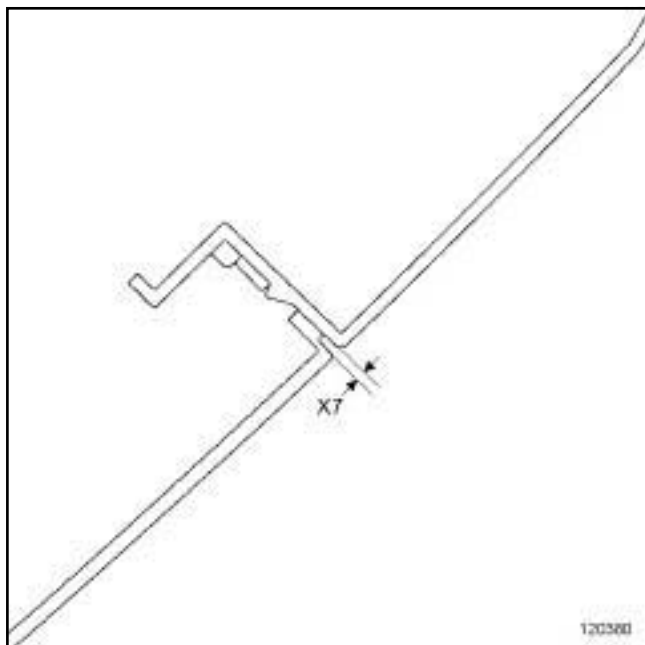


120388

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$$(X8) = 2.5 \pm 1.3$$

Section 7

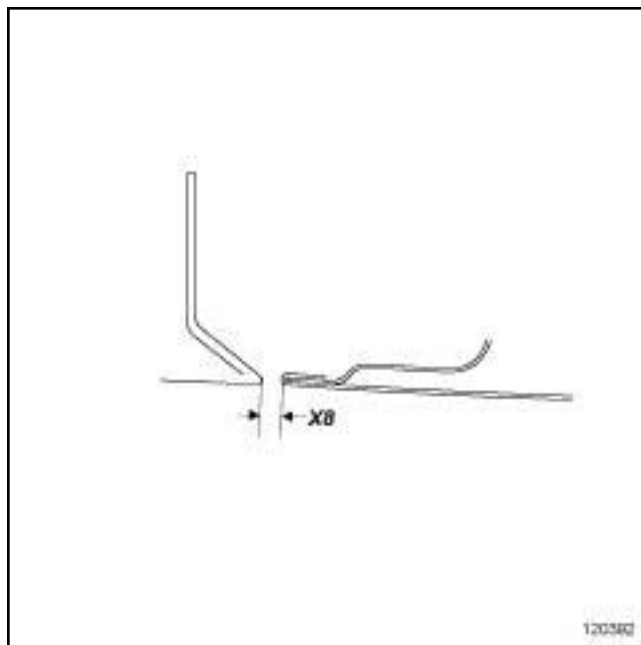


120380

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$$(X7) = 0 + 1/- 0$$

Section 9

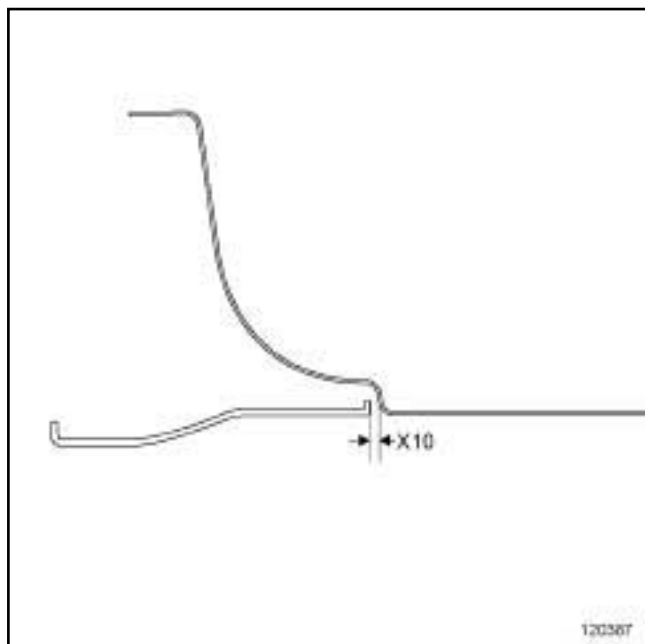


120392

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$$= 4.2 \pm 1$$

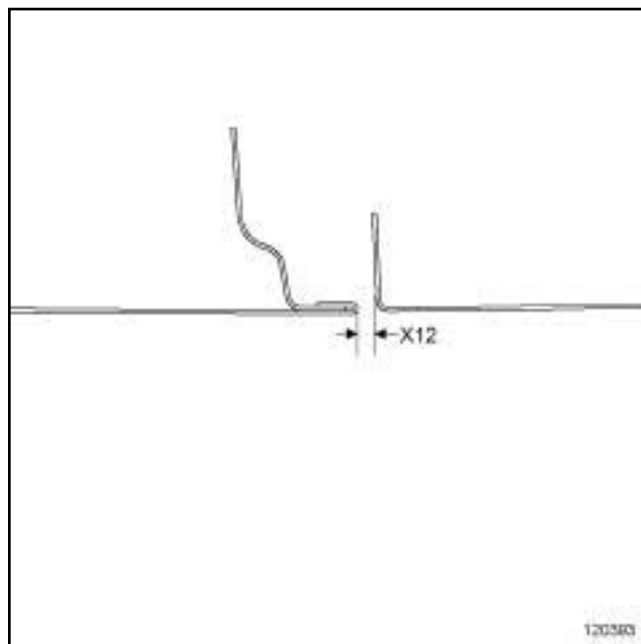
Section 10



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$$(X10) = 2 \pm 1.5$$

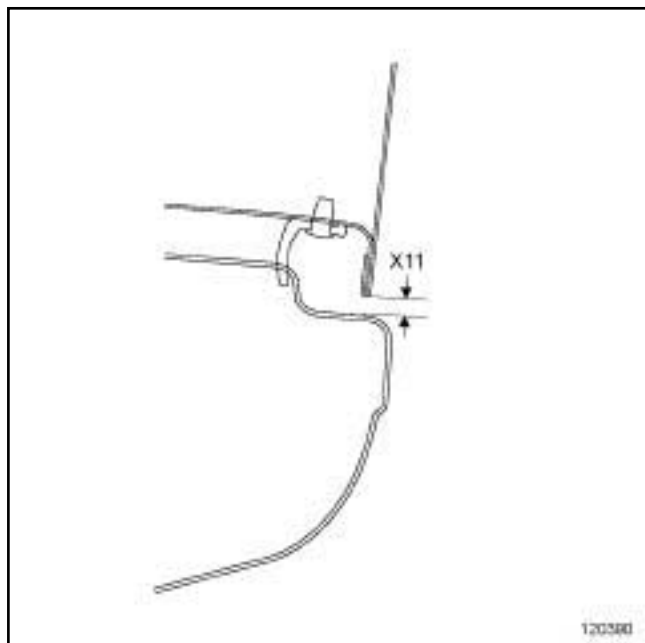
Section 12



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120393

$$(X12) = 4 \pm 1.5$$

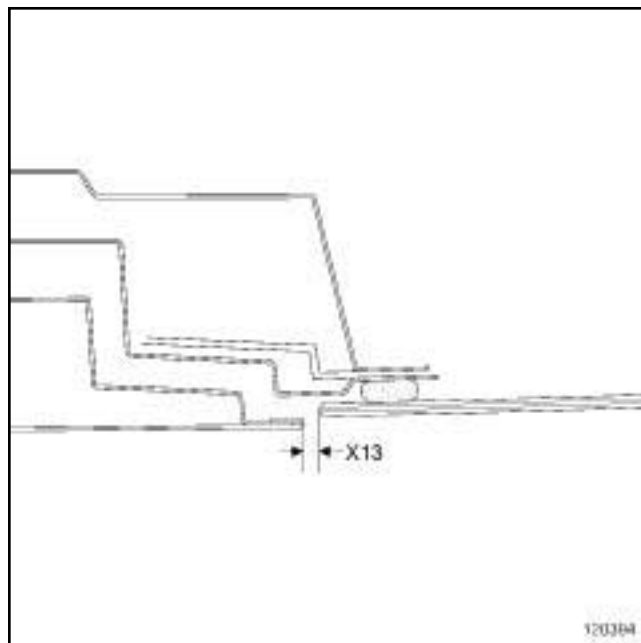
Section 11



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$$(X11) = 5 \pm 2$$

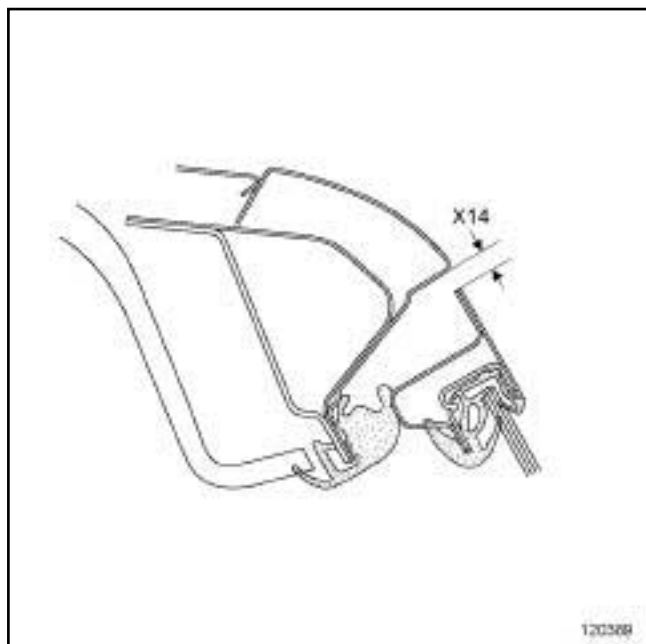
Section 13



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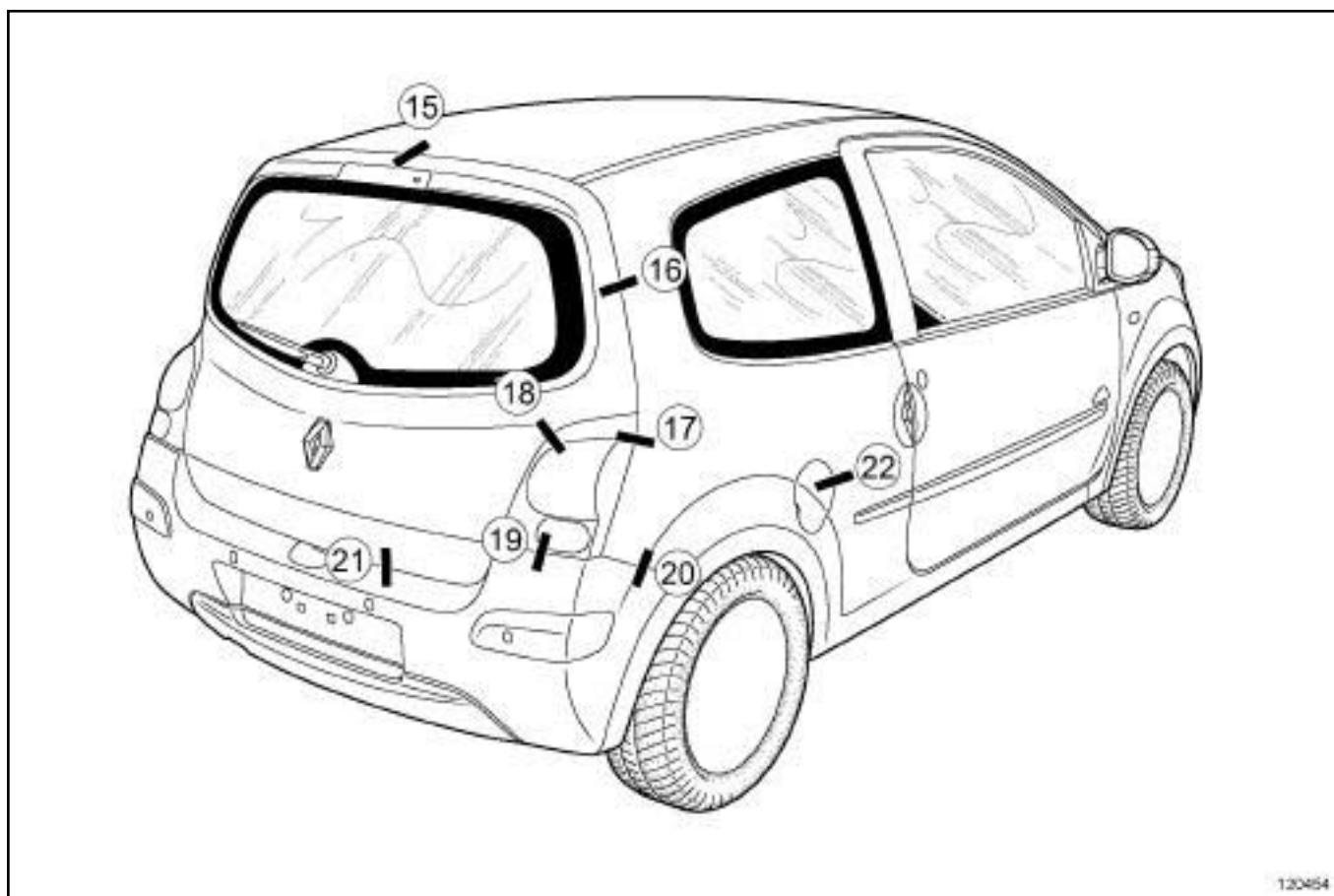
$$(X13) = 4 \pm 2.3$$

Section 14



120389

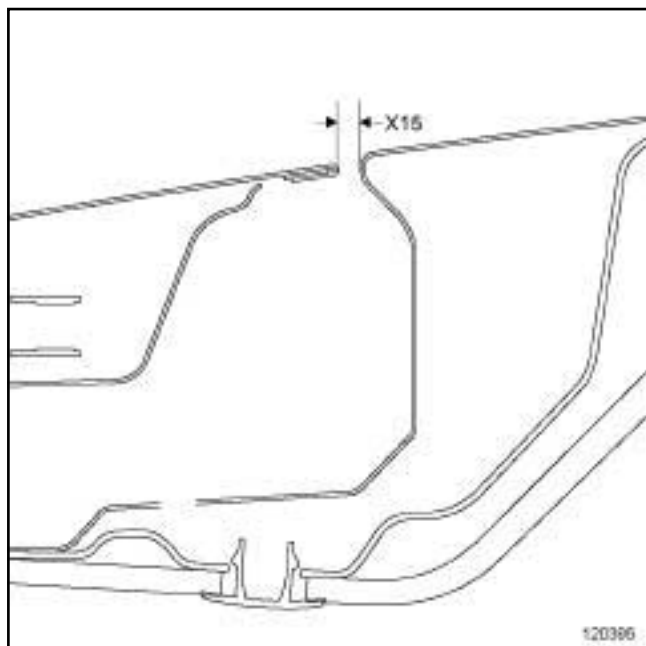
(X14) = 5.5 ± 1.5



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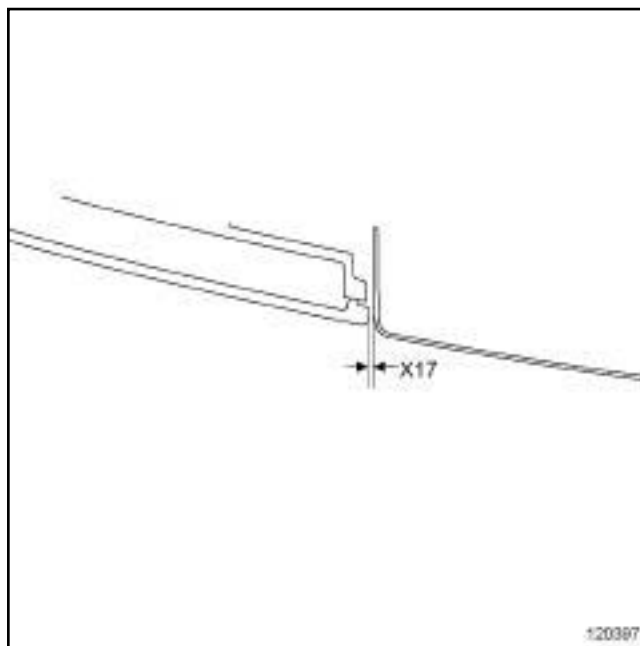
Section 15



120395

$$(X15) = 5.3 \pm 1$$

Section 17

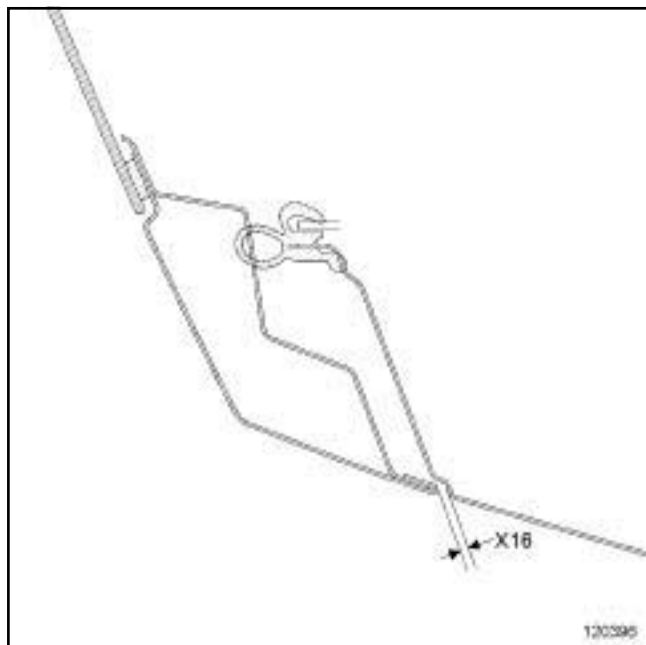


120397

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$$(X17) = 1.5 \pm 1$$

Section 16

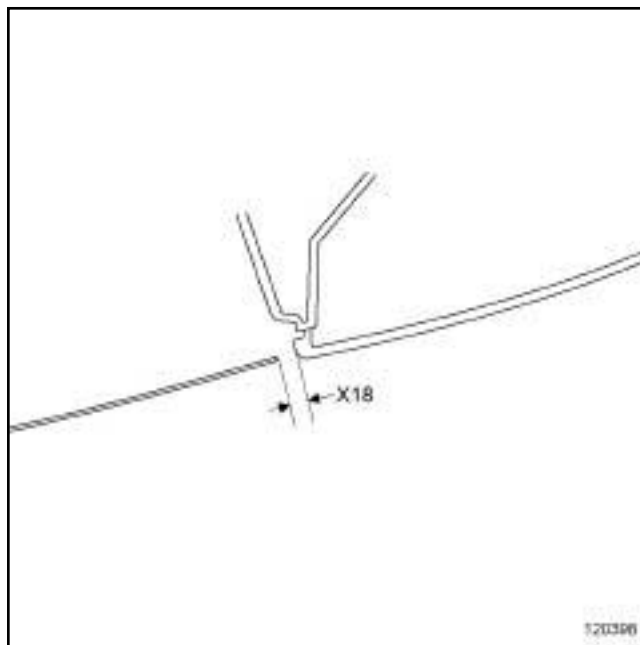


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$$(X16) = 4.5 \pm 1.5$$

Section 18



120398

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$$(X18) = 4 \pm 1.8$$

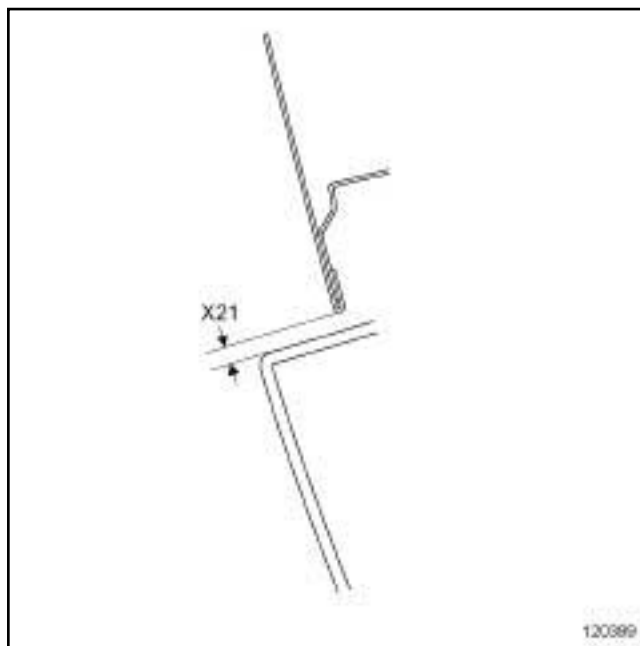
Section 19



120400

$$(X19) = 1.5 \pm 1.5$$

Section 21

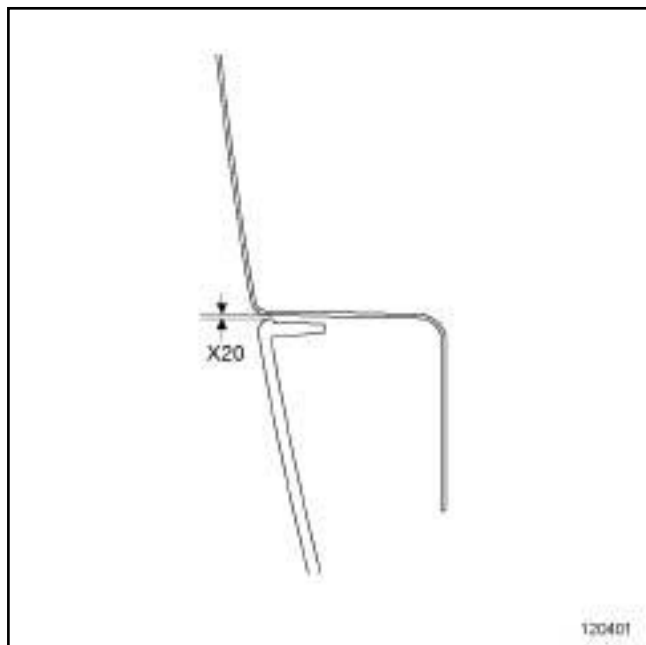


120399

120399

$$(X21) = 6 \pm 1.8$$

Section 20

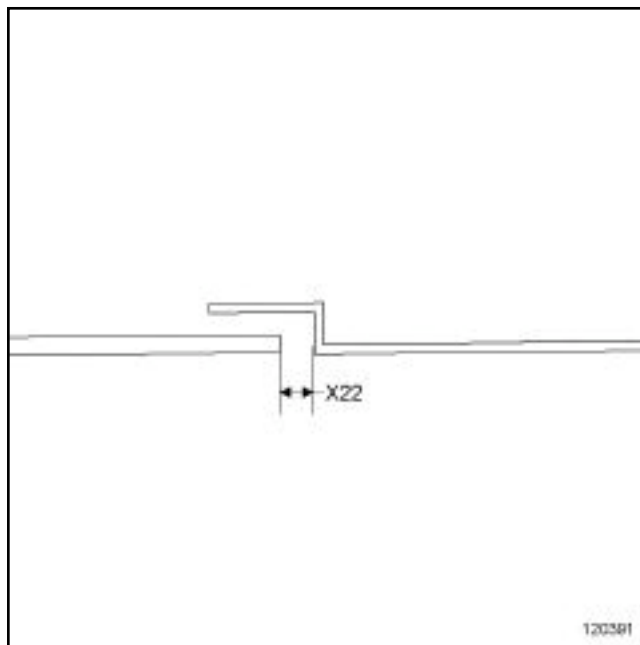


120401

120401

$$(X20) = 0 + 1/- 0$$

Section 22



120391

120391

$$(X22) = 2.5 \pm 1$$

GENERAL INFORMATION

All information contained in these manuals is intended exclusively for automotive industry professionals.

The documentation is intended to cover all vehicles in the **RENAULT** range throughout the world, but may not cover equipment designed for use in specific countries.

The procedures and fault finding procedures recommended and described in this manual have been designed by automotive industry repair professionals.

1 - General recommendations

Observe basic principles of vehicle repair.

The quality of repair depends first and foremost on the care exercised by the person in carrying it out.

To ensure good repair:

- protect the sensitive areas of the vehicle (seats, steering wheel, wings, etc.),
- unless otherwise indicated, all repairs must be done with the ignition off,
- when welding on the vehicle, it is advisable to remove or disconnect components near the repair area that could be affected by the heat,
- use recommended professional products and original parts,
- observe the tightening torques,
- replace roll pins, self-locking or bonded nuts or bolts every time they are removed,
- take care with electrical and electronic components which cannot withstand excess voltage and improper handling; replace any electrical and electronic components which have experienced a voltage drop,
- make sure that the connectors are correctly clipped,
- do not pull on the wiring,
- check for the sealing plugs on the connectors,
- Do not splash any liquid, regardless of its type (oil, cleaner, etc.), on the electric and electronic components (computers, sensors, etc.)
- do not just replace parts one after the other, carry out detailed fault finding beforehand,
- carry out a final check before returning the vehicle to the customer (set the clock, check the alarm operation, check the lights and indicators etc.),
- clean and degrease the sections to be bonded (threads, stub axle splines) to ensure proper adherence,

- protect the accessories and timing belts, the electrical accessories (starter, blanking cover, electric power assisted steering pump) and the mating face to prevent diesel fuel spilling onto the clutch friction plate.

The design quality of our vehicles demands that nothing is left to chance in making a good repair, and it is essential to refit parts or components exactly as they were originally (for instance: heat shields, wiring routing, pipe routing, particularly in the area of the exhaust pipe).

Do not blow away asbestos particles or dust (brakes, clutch, etc.), vacuum them up or clean the component with a cleaning agent (such as a brake cleaning product).

Use professional products and apply them with care, for example do not apply too much sealing paste to the sealing surface.

Exhaust gases (petrol and diesel) are pollutants. Operate engines with care and always use exhaust gas extractors.

Ensure that there is no risk of a short circuit occurring when the electrical connections are reconnected (e.g. starter, alternator, etc.). Some points need greasing, others do not, therefore particular attention should be paid during refitting operations to ensure that they work properly under all conditions.

2 - Special tooling - ease of use

The repair procedures have been designed using special tools; they must therefore be carried out using these tools to ensure a high degree of working safety and quality of repair.

The equipment we have approved has undergone careful research and testing, and must be used and maintained with care.

3 - Reliability - updating

New repair procedures are constantly being developed in the interests of repair quality, either with new products (emission control, injection, electronics, etc.), or in fault finding. Be sure to consult the Workshop Repair Manuals or Technical Notes or fault finding summaries before any servicing operation.

Since vehicle specifications are subject to change during their commercial life, it is essential to check whether there are any updated Technical Notes when seeking information.

4 - Safety

Operations on certain equipment and certain parts (for instance: spring-shock absorber assembly, automatic transmission, brake system, ABS, airbag, common rail diesel injection, LPG, etc.) require particular attention to be paid to safety, cleanliness and care.

The safety symbol used in this manual indicates that special attention must be paid to the procedure or the tightening torque values.

Working safely:

- use suitable tools which are in good condition (use of « multi-purpose » tools, such as adjustable pliers, etc., should be avoided wherever possible),
- use supports and adopt a correct posture when performing heavy work or raising loads,
- make sure that the procedure used is not dangerous,
- Do not wear any jewellery or other small objects during an operation,
- use personal protection (gloves, safety glasses, work shoes, masks, skin barrier creams, etc.),
- always follow the safety instructions associated with the operation to be performed,
- do not smoke when working on vehicles,
- use smoke extractors (welding, exhaust gases, etc.),
- do not use harmful products in unventilated rooms,
- do not overstrain yourself or attempt inappropriate work operations,
- use axle stands when working under a vehicle raised on a jack,
- do not ingest any chemicals (brake fluid, coolant, etc.),
- do not open the cooling circuit when it is hot and pressurised,
- take care with components that are liable to start up suddenly (engine cooling fan, etc.).

Respecting the environment:

- do not allow waste refrigerants to escape into the atmosphere,
- do not dispose of waste vehicle fluids (oil, brake fluid, etc.) in drains,
- do not burn discarded products (tyres, etc.).

5 - Conclusion

The procedures contained in this document merit your attention. Please read them carefully in order to reduce the risk of injury, and avoid using incorrect procedures that could damage the vehicle or make it dangerous in use.

Following the recommended procedures will help you to provide a quality of service which will ensure the vehicles achieve the highest levels of performance and reliability.

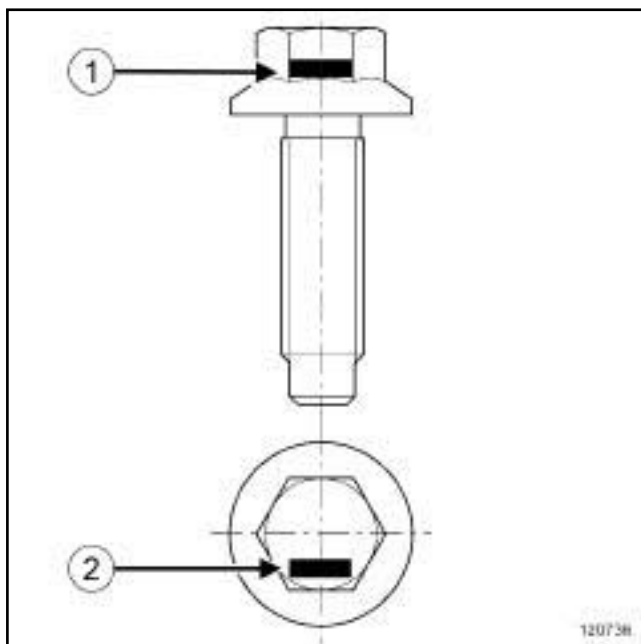
Maintenance and repair operations must be carried out under the proper conditions to ensure that our vehicles run safely and reliably.

I - TABLE OF STANDARD TORQUES

Fastenings		Standard tightening torque (N.m)
Diameter	Property class	
M6	8.8	10
M8	8.8	25
M10	8.8	50
M10	10.9	62
M12	10.9	105
M14	10.9	180
M16	10.9	280
M18	10.9	400

Special notes on electrical earths

Fastenings	Standard tightening torque (N.m)
Diameter	
M6	8
M8	21
M10	44



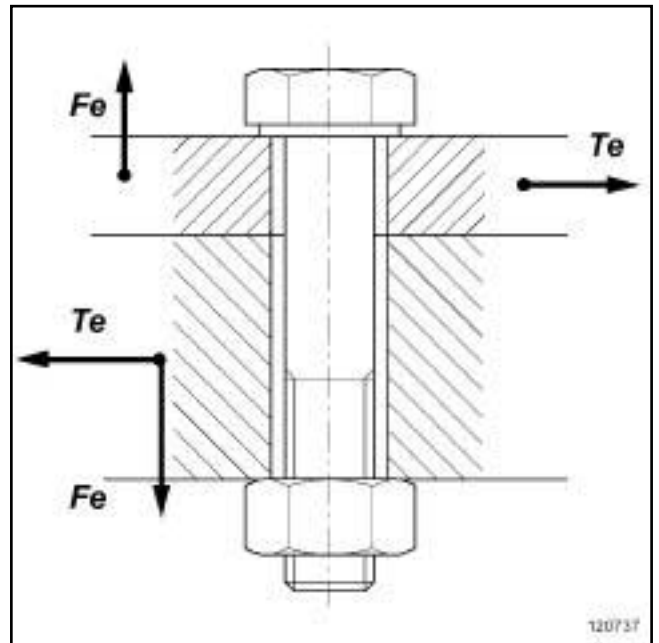
120736
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The property class is indicated on the bolt (1) or (2) .

II - FUNCTION OF A BOLTED ASSEMBLY

The bolting system connects parts of an assembly to prevent their separation or sliding when submitted to exterior forces.

Exterior forces

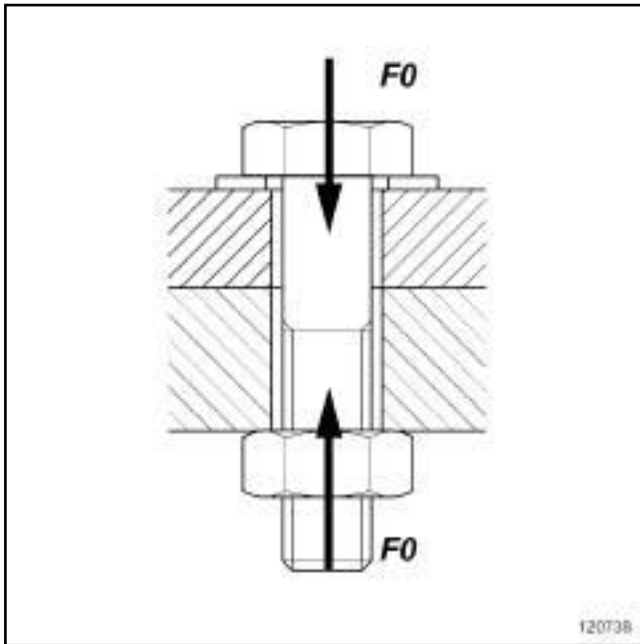


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The assembly is submitted to forces that are:

- static and / or dynamic,
- simple (e.g. simple traction),
- multiple (traction + flexion + torsion).

Creating tension (or preload) F_0

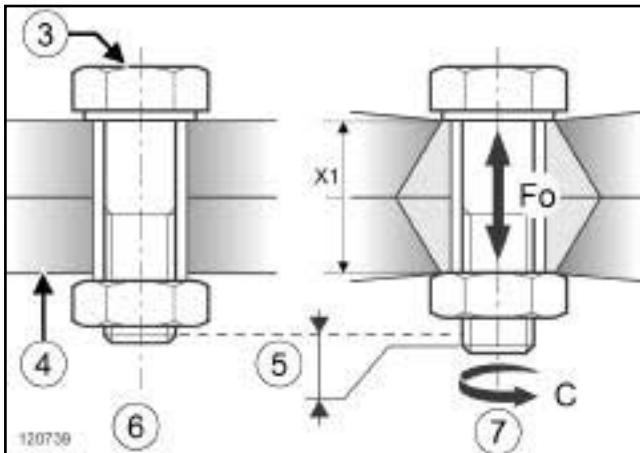


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The assembly is held together by the tension created in the bolt when it is tightened.

A reliable assembly is only possible if the correct tension is used:

- insufficient tension: risk of loosening,
- too much tension: risk of deformation of the parts to be assembled, or shearing of the bolt.



120739

- | | |
|-----------|-----------------------------|
| (3) | Bolt |
| (4) | Assembled components |
| (5) | Extension of the bolt |
| (6) | Non-tightened assembly |
| (7) | Tightened assembly |
| (X1) | compression of the assembly |
| (F_0) | tension |
| (C) | tightening torque |

Customer complaints resulting from incorrect tightening may be, following assembly, a safety issue (fire, loss of control of the vehicle etc.), an immobilising fault or a noise.

III - TIGHTENING PROCEDURES

The two controlled tightening procedures adapted to automotive repairs because of their low cost and simple operation are torque tightening and angle tightening (also called torque and angle).

1 - Torque tightening

This is the most commonly used procedure. It consists of tightening until a given resisting torque is reached, known as tightening torque.

The tightening torque is distributed in a large part as friction torque (under the head and in the thread) and in a small part as useful torque (to create the tension).

This practice spreads the tension significantly due to the variation in the friction coefficients from one assembly to another and the uncertainty of the tightening procedures and methods.

2 - Angle tightening

The principle consists of putting the parts of the assembly in contact using a mating torque (approximately 25 to 30% of the final torque) then to tighten to a determined angle.

This method, which is not dependent on the friction of the tightened assembly, gives more precise results than torque tightening.

IV - OBSERVING THE TIGHTENING TORQUES AND ANGLES

Bolted assemblies whose tightening torques and angles are explicitly specified in the removal / refitting procedures must be observed using the appropriate tools (torque wrench, angle measuring disc). Failure to observe this can lead to safety risks, immobilising faults or unwanted noises.

For other bolted assemblies, non-measured tightening (using standard spanners) is acceptable. Nevertheless, the corresponding tightening torque is indicated in the table of standard tightening torques.

V - RECOMMENDED TIGHTENING TOOLS

For measured tightening, the repairer must have available torque wrenches to tighten from **4 to 400 N.m** as well as an angle measuring disc.

The torque wrenches used may be click type or electronic.

For example:

- 1 torque wrench **4 - 40 N.m**,
- 1 torque wrench **20 - 100 N.m**,
- 1 torque wrench **80 - 400 N.m**,
- 1 angle measurement disc.

The torque wrenches used must comply with the **ISO 6789** standard. They must be calibrated regularly following the supplier's recommendations using the appropriate procedures.

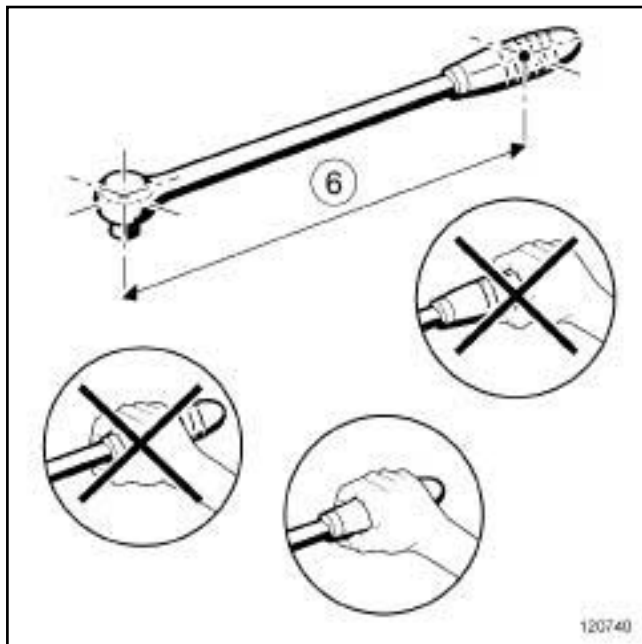
VI - PRECAUTIONS WHEN USING A CLICK TYPE TORQUE WRENCH

A click type torque wrench is a manual tightening tool. The trigger mechanism causes a break or disengagement of the wrench past a force threshold.

This threshold depends on the setting of the wrench but also depends on the way the wrench is handled.

When used following best practises, the accuracy of the tightness when using a click type torque wrench is $\pm 15\%$.

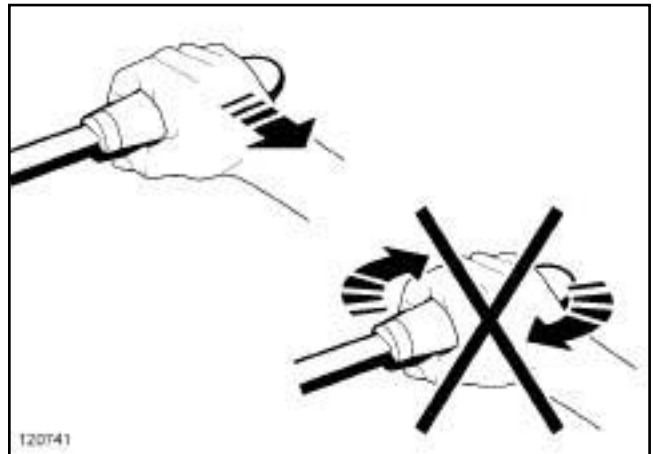
The instructions to be observed are:



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(6) lever arm

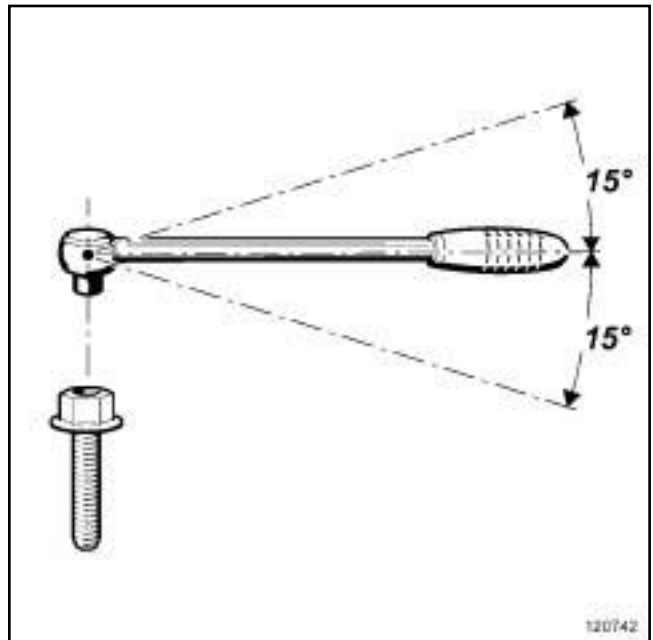
- Place the hand in the centre of the handle. An incorrectly positioned hand on the handle will alter the trigger threshold.



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- Pull the wrench gently and steadily, without applying any torsion. Excessive tightening speed as well as jerkiness are major causes of overtightening. Any torsion applied to the wrench will alter the trigger threshold.

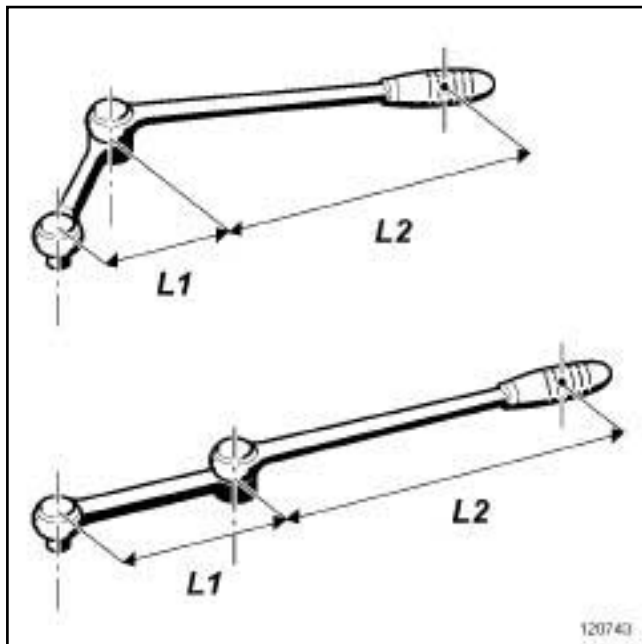
- Hold the wrench on the bolt using a minimum of effort. Any effort applied to the wrench head will alter the trigger threshold.



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- Apply the tightening effort perpendicular to the mounting observing a tolerance of $\pm 15^\circ$ relative to the perpendicularity. If the wrench is not perpendicular to the mounting axis, this will result in insufficient tightening.

- Stop tightening as soon as the wrench is triggered. Continued tightening after the wrench is triggered will lead to overtightening.



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If the length of the wrench is modified (extending the handle, adapting an end piece) it is essential to recalibrate the wrench to its new configuration.

Modifying the length of the wrench will modify its trigger threshold.

Use the formula: $C1 = CO \times L2 / (L1+L2)$

- CO: torque to apply,
- C1: adjustment torque to be displayed on the wrench,
- L1: length of the extension,
- L2: length of the wrench.

Unless there are special instructions in the repair method, a universal joint (CARDAN joint type) should be used for measured tightening. Using a universal joint will result in a difference between the set torque of the wrench and the actual torque applied.

Before storing the wrench, loosen the adjustment spring completely. A wrench stored with a spring under tension will lose its tightening accuracy.

VII - PRECAUTIONS WHEN USING ELECTRONIC TORQUE WRENCHES

An electronic torque wrench is a manual tightening tool. The tightening torque and, depending on the model, the angle is read directly.

When used following best practises, the accuracy of the tightness when using an electronic torque wrench is $\pm 5\%$.

Electronic torque wrenches are not affected by the position of the operator's hand.

It is advisable to handle the wrench with care and to stop tightening when the required value is displayed on the wrench.

LIFTING EQUIPMENT

Vehicle: Towing and lifting

02A

Equipment required

Diagnostic tool

safety strap(s)

I - TOWING

WARNING

See the current towing regulations in each country.

Never use the drive shafts as attachment points.

The towing points may only be used for towing on the road.

Never use the towing points for removing the vehicle from a ditch or to lift the vehicle, either directly or indirectly.

Screw in and lock the towing ring before towing.

Vehicles fitted with automatic transmission:

- The vehicle should preferably be transported on a platform or towed by lifting the front wheels. As an exception, the vehicle may be towed with the wheels on the ground but at a speed below **12 mph (20km/h)** and over a maximum distance of **18 miles (30 kms)** (with the gear lever in neutral).

Vehicles fitted with Renault Card:

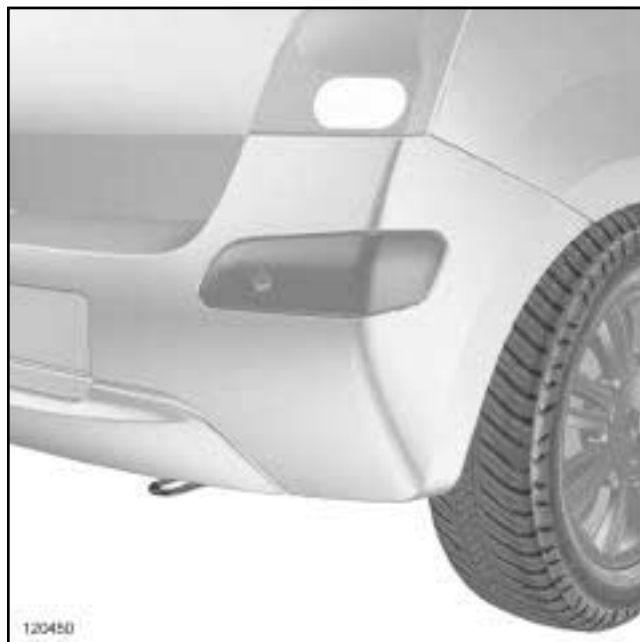
- If the vehicle battery is flat, the steering column remains locked. In this case, fit a new battery or connect to an electrical source to lock the airbag computer using the **Diagnostic tool** (see **Airbag and pretensioners: Precautions for the repair**) (88C, Airbag and pretensioners), which unlocks the steering column.
- If it is not possible to lock the airbag computer, the front of the vehicle must be lifted.

1 - Position of front attachment point



120735

2 - Position of rear attachment point



120450

II - LIFTING BY TROLLEY JACK

IMPORTANT

To prevent any accidents, the trolley jack must only be used to lift and/or move the vehicle. The vehicle height must be maintained with axle stands which are strong enough to support the weight of the vehicle.

LIFTING EQUIPMENT

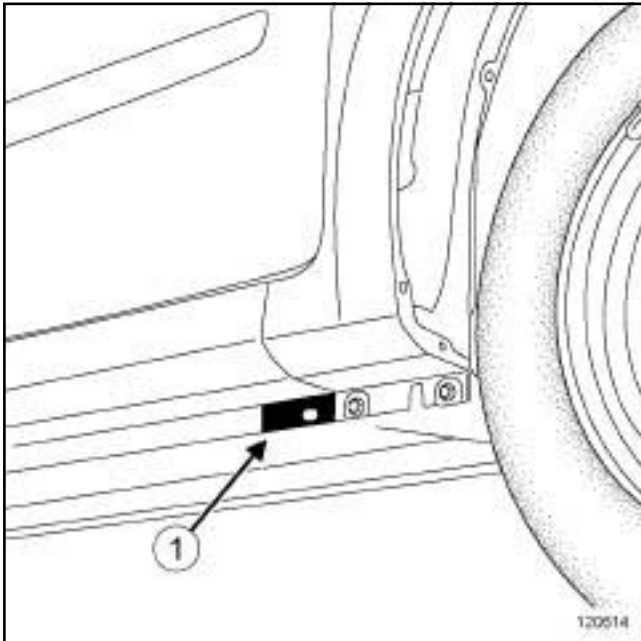
Vehicle: Towing and lifting

02A

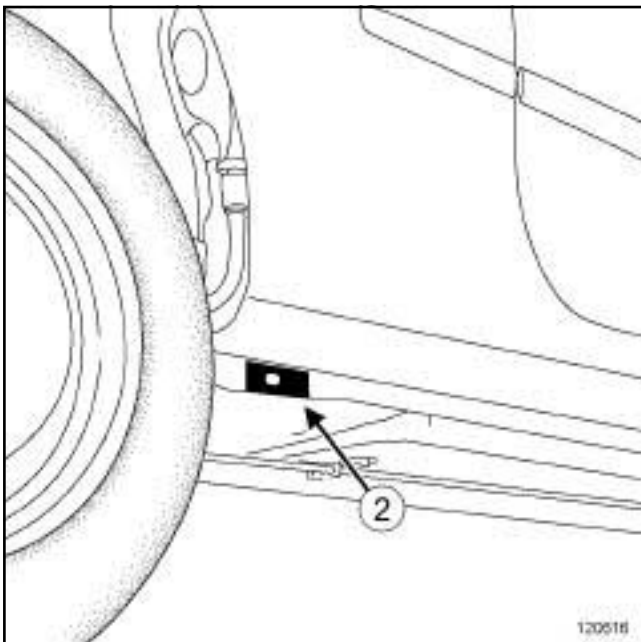
WARNING

To avoid any damage to the original protection, use equipment fitted with rubber pads to prevent the equipment coming into direct contact with the vehicle.

To avoid any damage to the axle assemblies, the vehicle must not be raised using the front suspension arms for support or under the rear axle.



120614

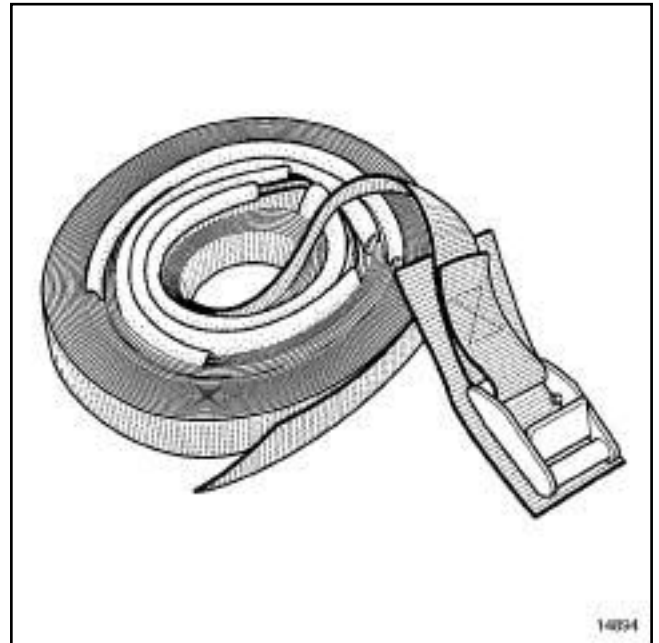


120616

To mount the vehicle onto axle stands, lift the entire vehicle on one side and the axle stands must be placed under zones (1) and (2) designed for positioning the tool kit jack.

III - LIFTING ON A LIFT

1 - Safety advice reminder

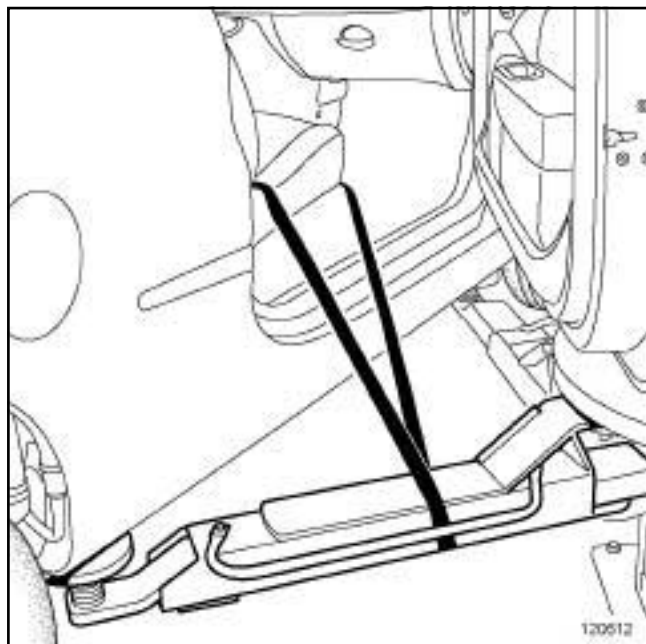


14894

To remove heavy components from the vehicle (engine and transmission assembly, rear axle, gearbox), use a four-post lift.

If the vehicle is on a two-post lift, there is a danger that it will tip after removal of these types of components. Fit the **safety strap(s)** available from **Spare Parts Department**.

2 - Fitting the straps



120612

For safety reasons, these straps must always be in perfect condition. Replace them as soon as they show signs of wear.

When fitting the straps, check that the seats and fragile parts of the vehicle are correctly protected.

If there is a danger of the vehicle tipping forward:

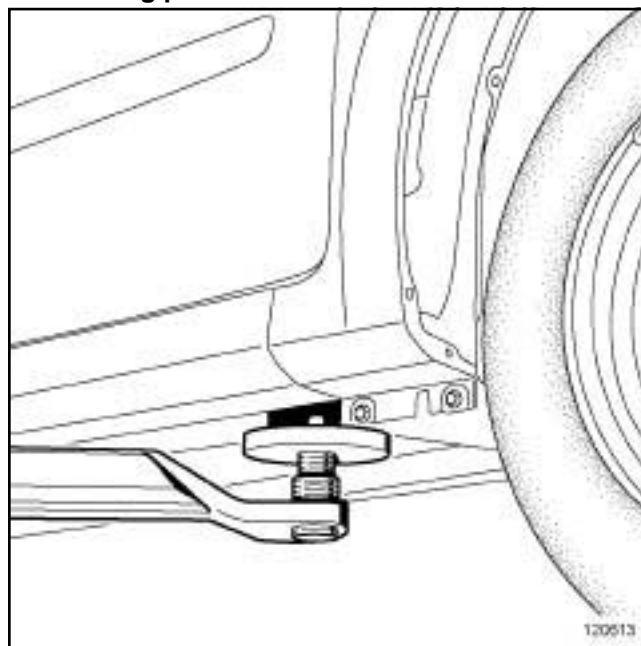
- place the strap under the rear right-hand arm of the lift,
- pass the strap through the inside of the vehicle,
- pass the strap under the left-hand rear arm of the lift,
- pass the strap through the inside of the vehicle again,
- tighten the strap.

If there is a danger of the vehicle tipping backwards:

- place the strap under the front right-hand arm of the lift,
- pass the strap through the inside of the vehicle,
- pass the strap under the front left-hand arm of the lift,
- pass the strap through the inside of the vehicle again,
- tighten the strap.

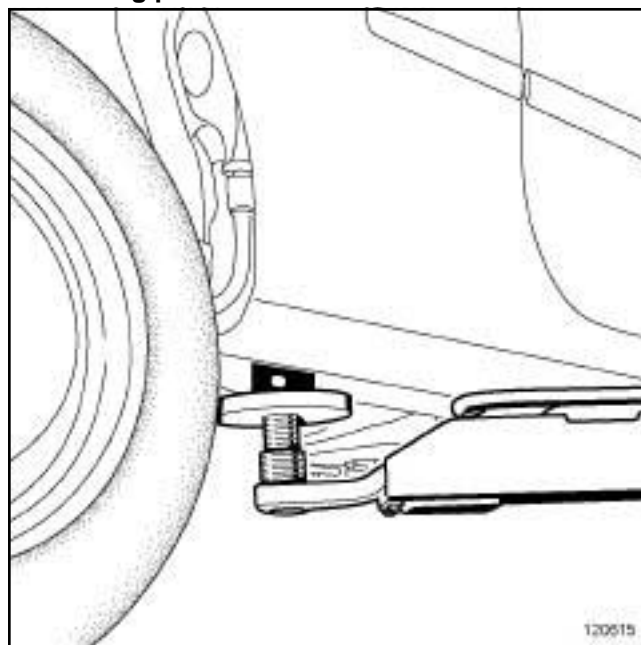
3 - Permitted jacking points

Front lifting points



120613

Rear lifting points



120615

IMPORTANT

Only the jacking points described in this section allow the vehicle to be raised in complete safety.

Do not raise the vehicle using points other than those described in this section.

LIFTING EQUIPMENT

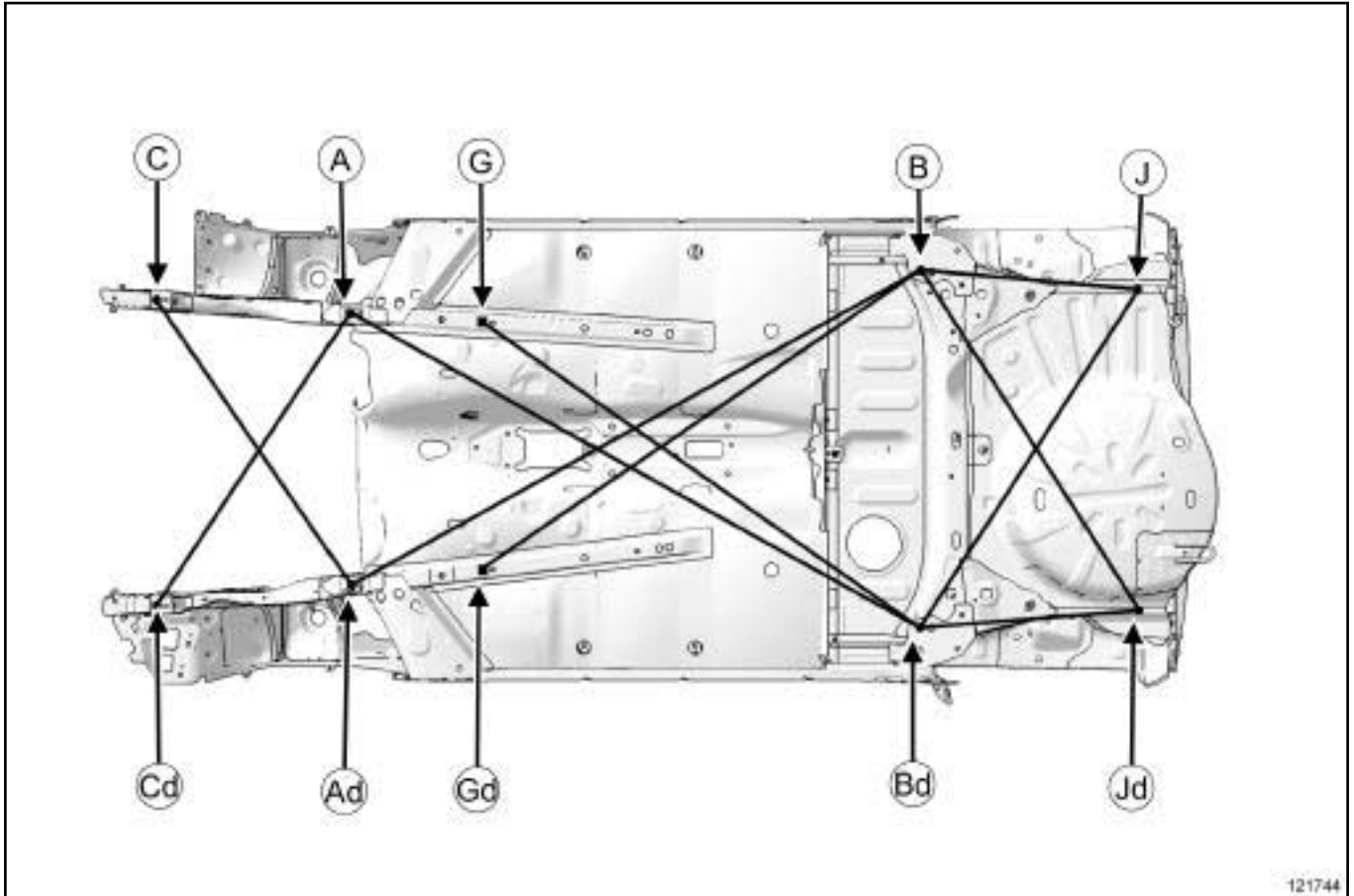
Vehicle: Towing and lifting

02A

To raise the vehicle, position the lifting arm pads as shown above, taking care not to damage the end of the front wing and the underside of the sill panel.

Vehicle involved in an impact: Impact fault finding

SUB-FRAME INSPECTION



121744

121744

□

1 - Chronological order of checks:

□ FRONT impact

- 1: $(B) - (Ad) = (Bd) - (A)$ - 2: $(B) - (Gd) = (Bd) - (G)$

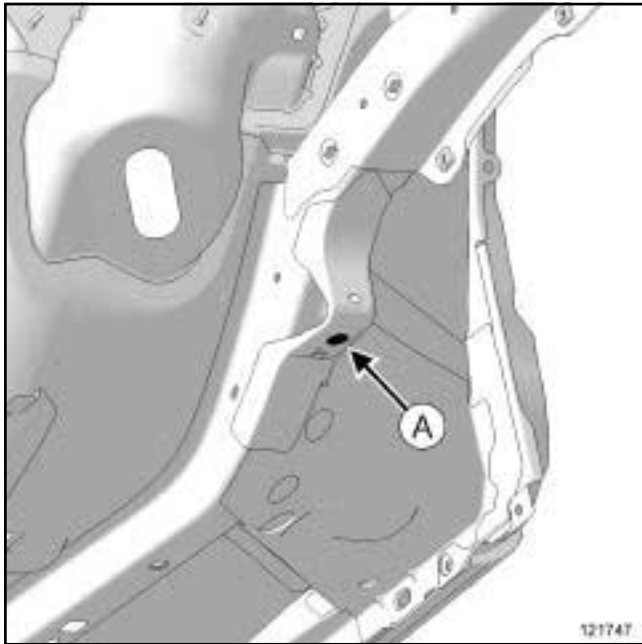
□ REAR impact

- 1: $(A) - (Bd) = (Ad) - (B)$ - 2: $(G) - (Bd) = (Gd) - (B)$

Vehicle involved in an impact: Impact fault finding

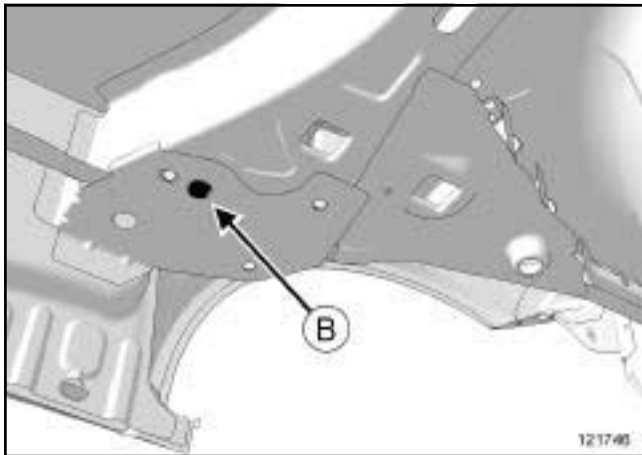
2 - Detailed view of inspection points

Point A, Ad: Front subframe rear mounting



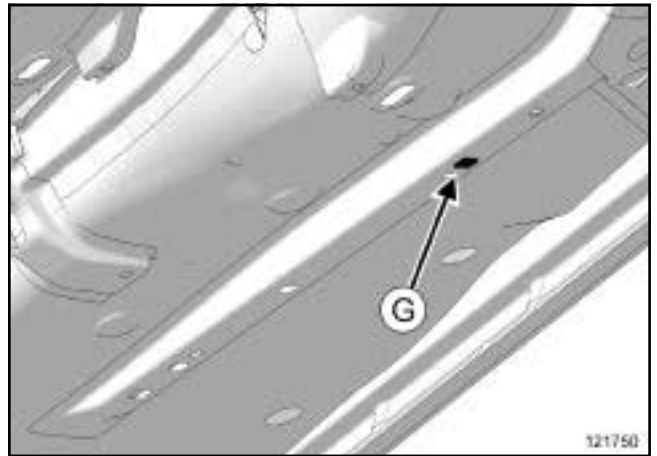
121747
121747

Points B, Bd: Rear axle leader pin



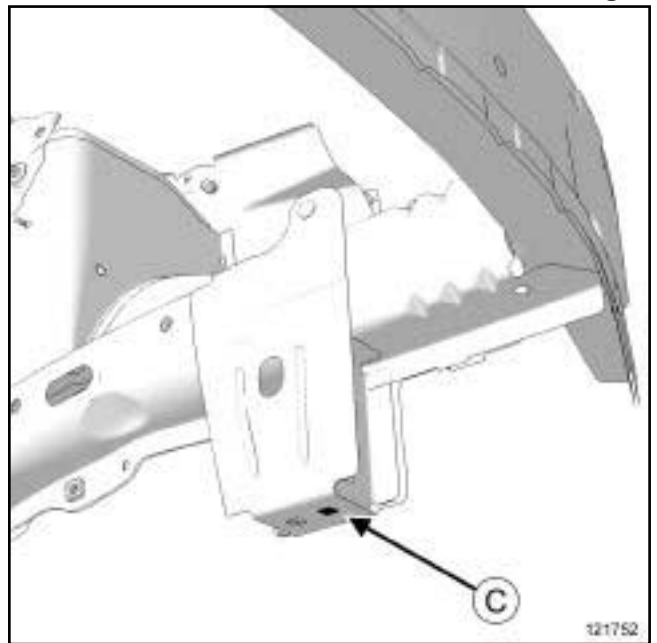
121746
121746

Points G, Gd: Front side member rear mounting



121750
121750

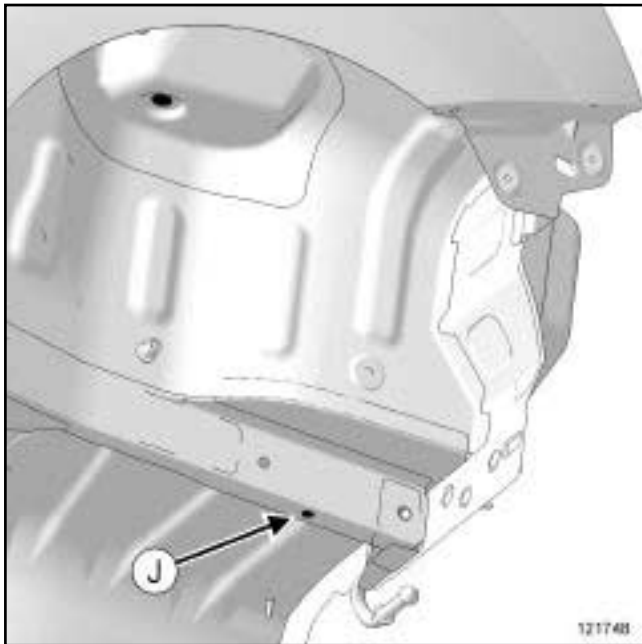
Points C, Cd: Front side member front mounting



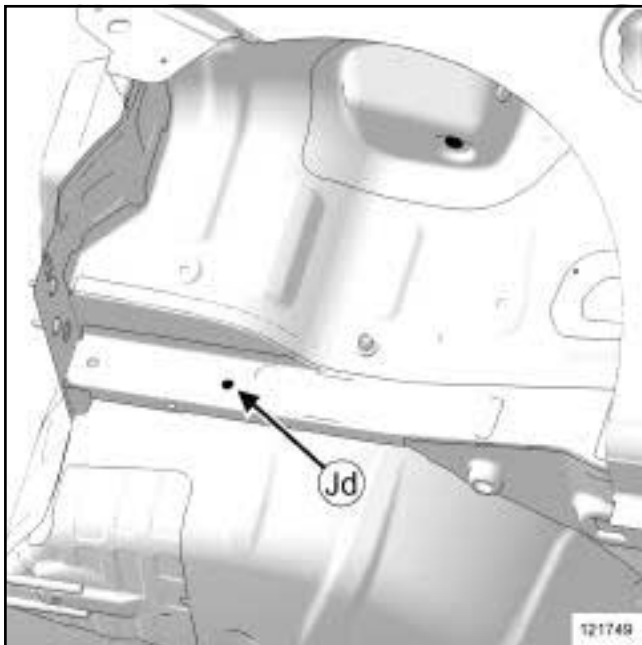
121752
121752

Vehicle involved in an impact: Impact fault finding

Points J, Jd: Rear side member rear leader pin



121748
121748

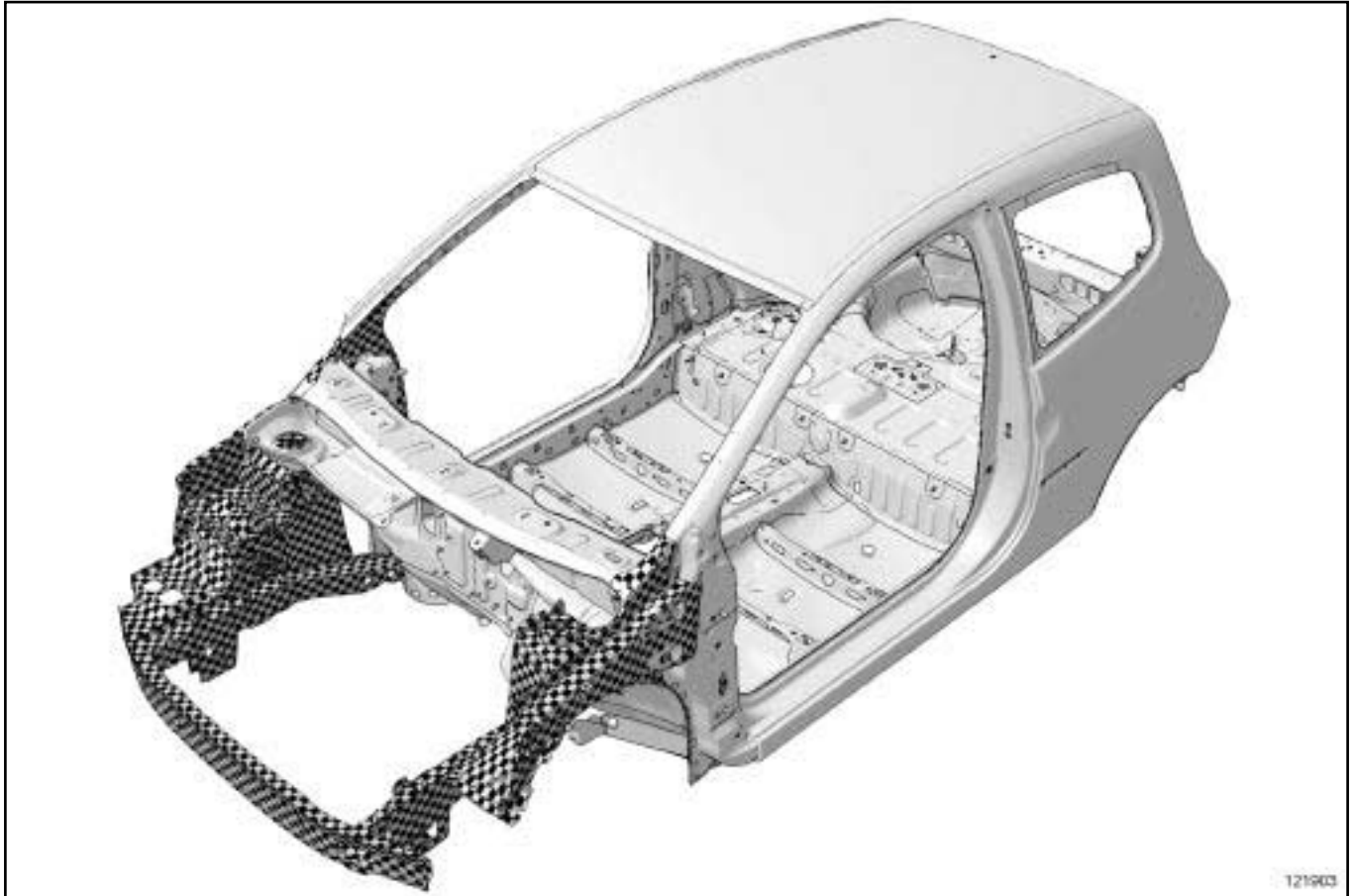


121749
121749

□

Vehicle involved in a frontal impact: Description

COMBINATIONS FOR REPLACING WELDED
STRUCTURAL PARTS IN ACCORDANCE WITH
IMPACT SUSTAINED

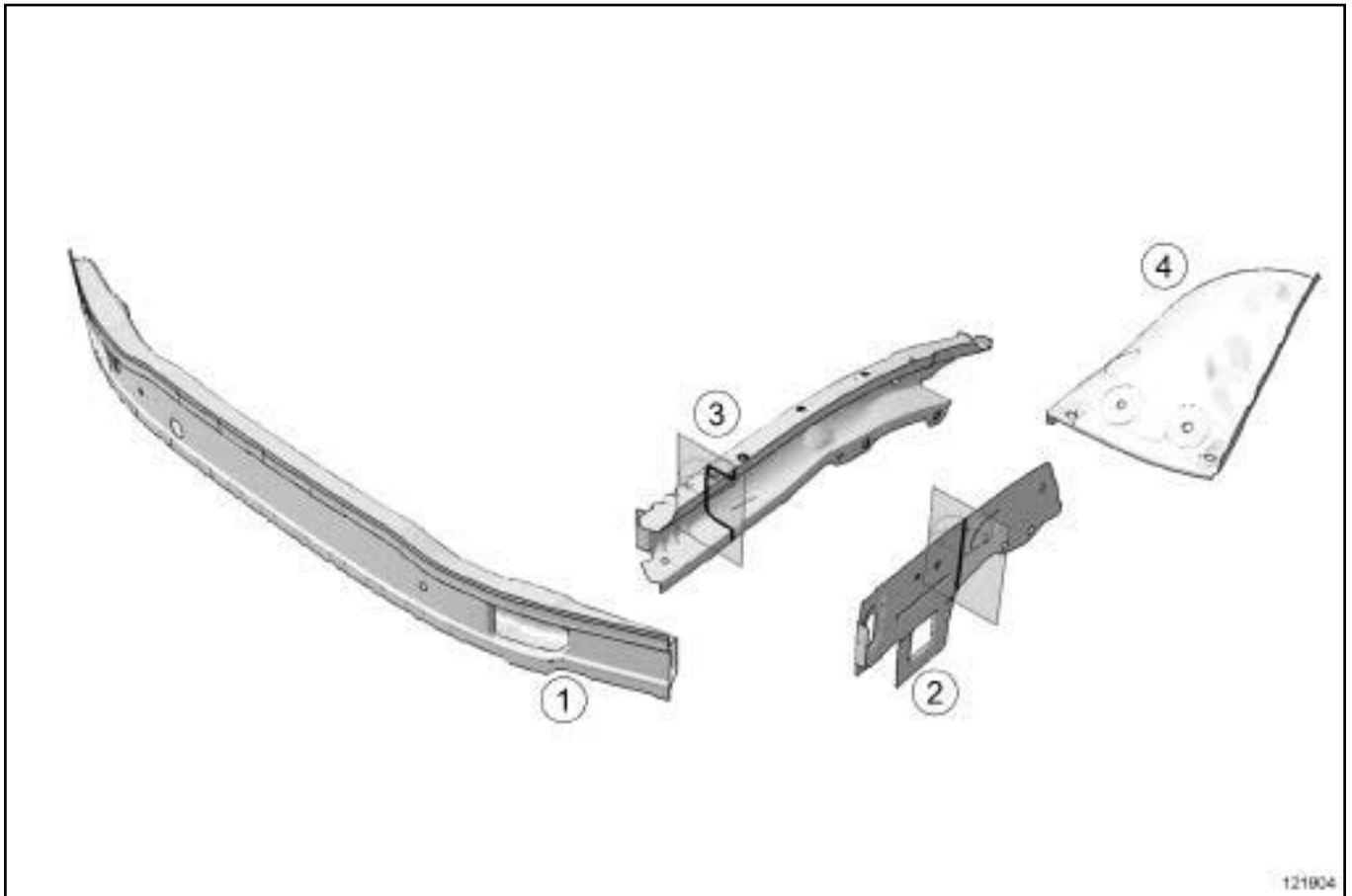


121903

121903

Vehicle involved in a frontal impact: Description

1st degree



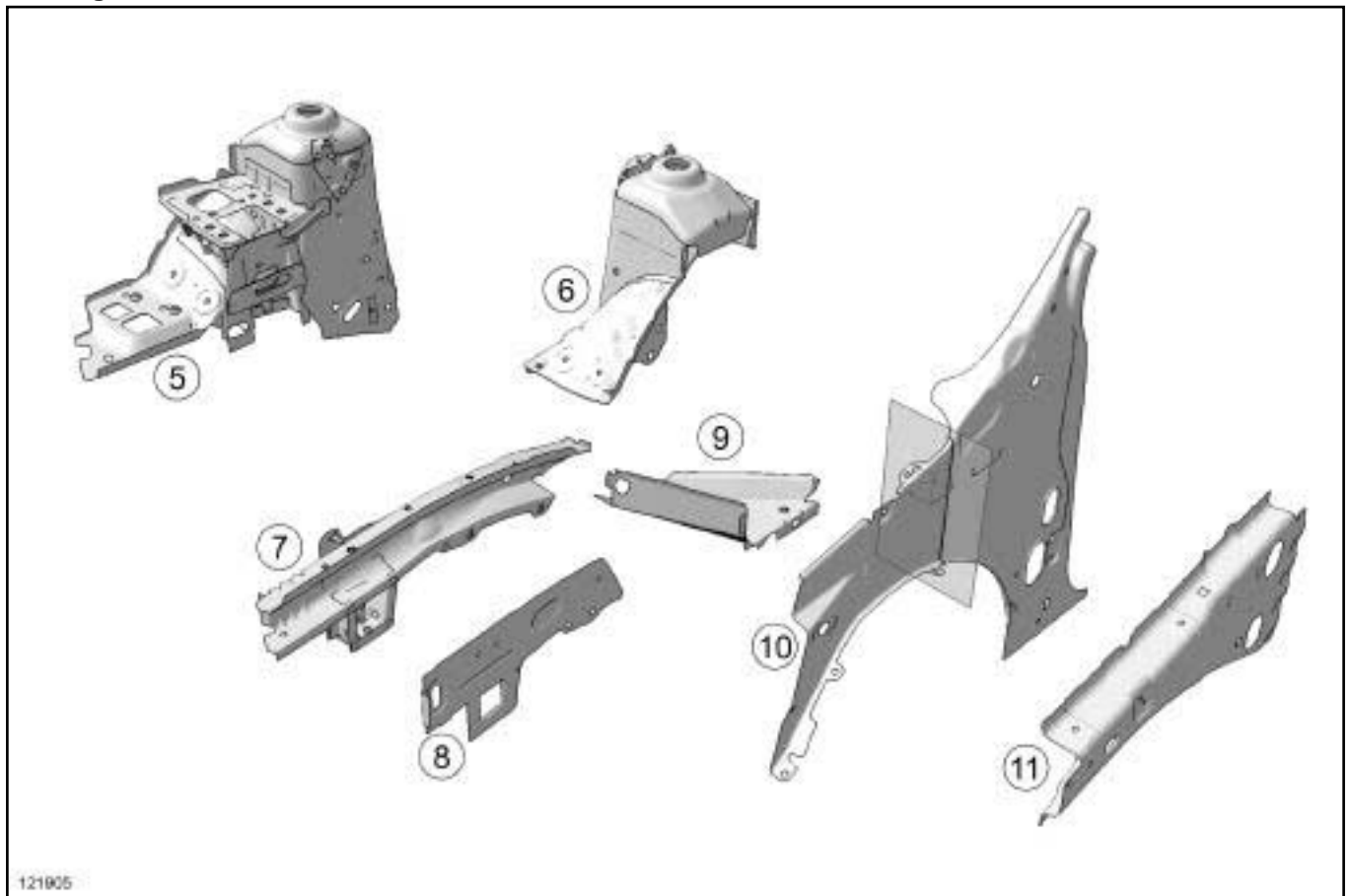
121904

121904

- (1) front end cross member
- (2) front side member closure panel
- (3) front side member front section
- (4) front wheel arch, front section

Vehicle involved in a frontal impact: Description

2nd Degree

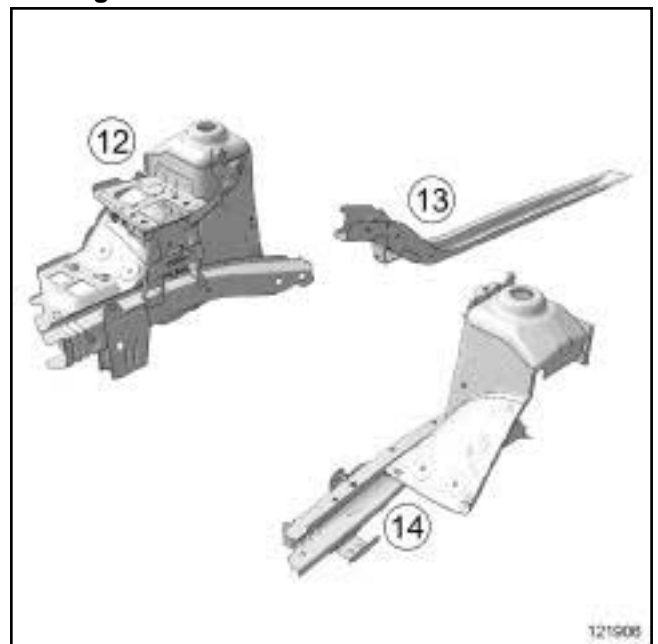


121905

121905

- (5) front right-hand wheel arch
- (6) front left-hand wheel arch
- (7) front side member front section
- (8) front side member closure panel
- (9) front side cross member
- (10) scuttle side panel
- (11) scuttle side panel upper reinforcement

3rd Degree

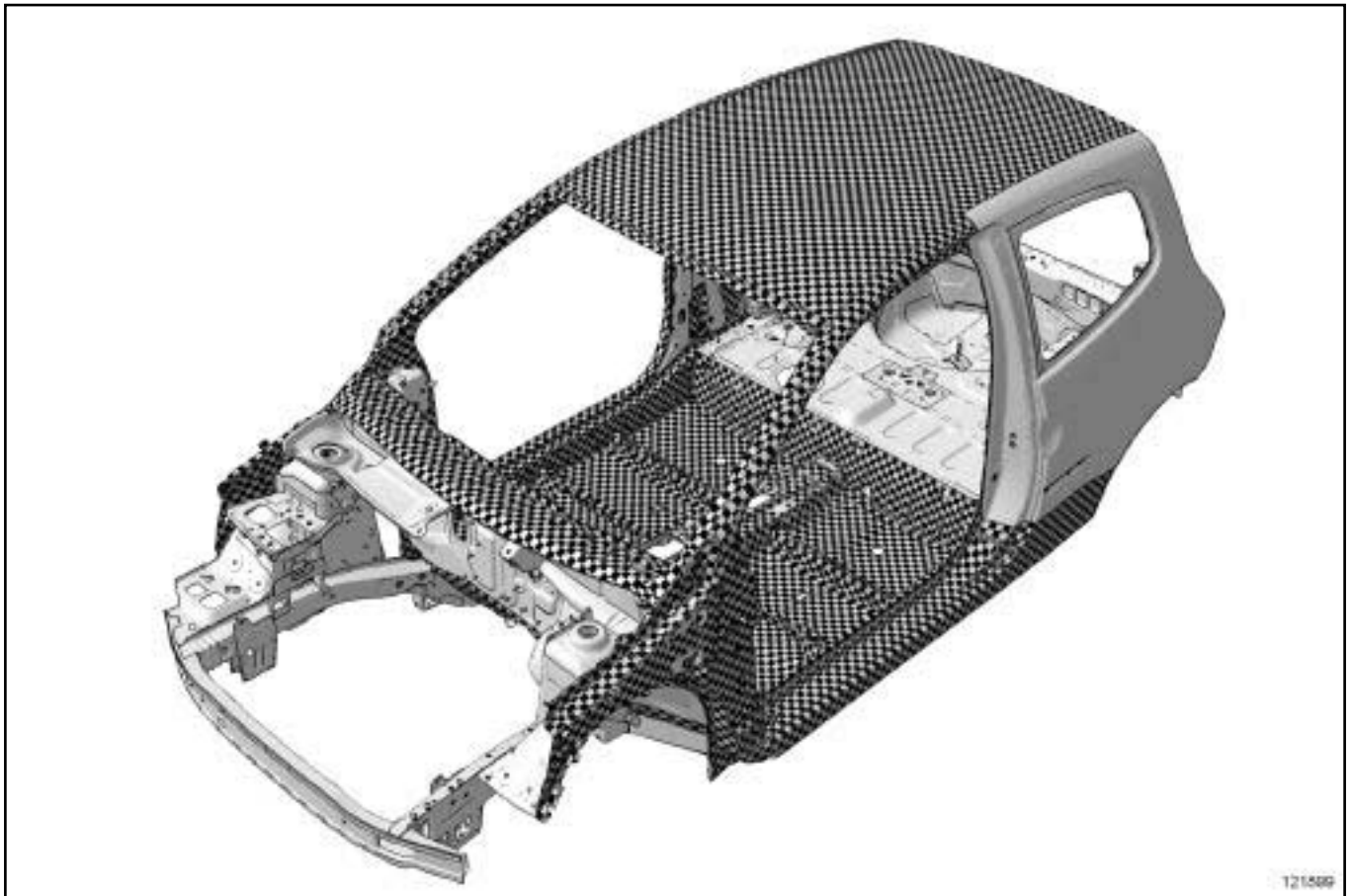


121906

121906

- (12) right-hand half unit
- (13) front side member rear section
- (14) left-hand half unit

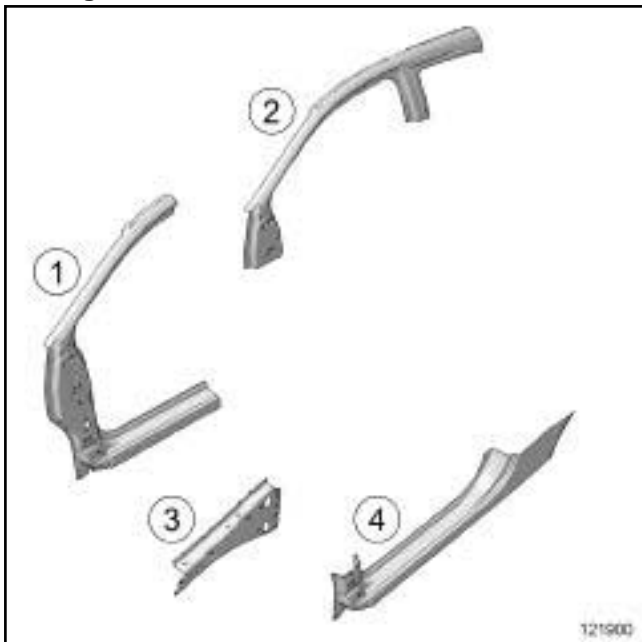
Vehicle involved in a side impact: Description



121589

121899

1st Degree



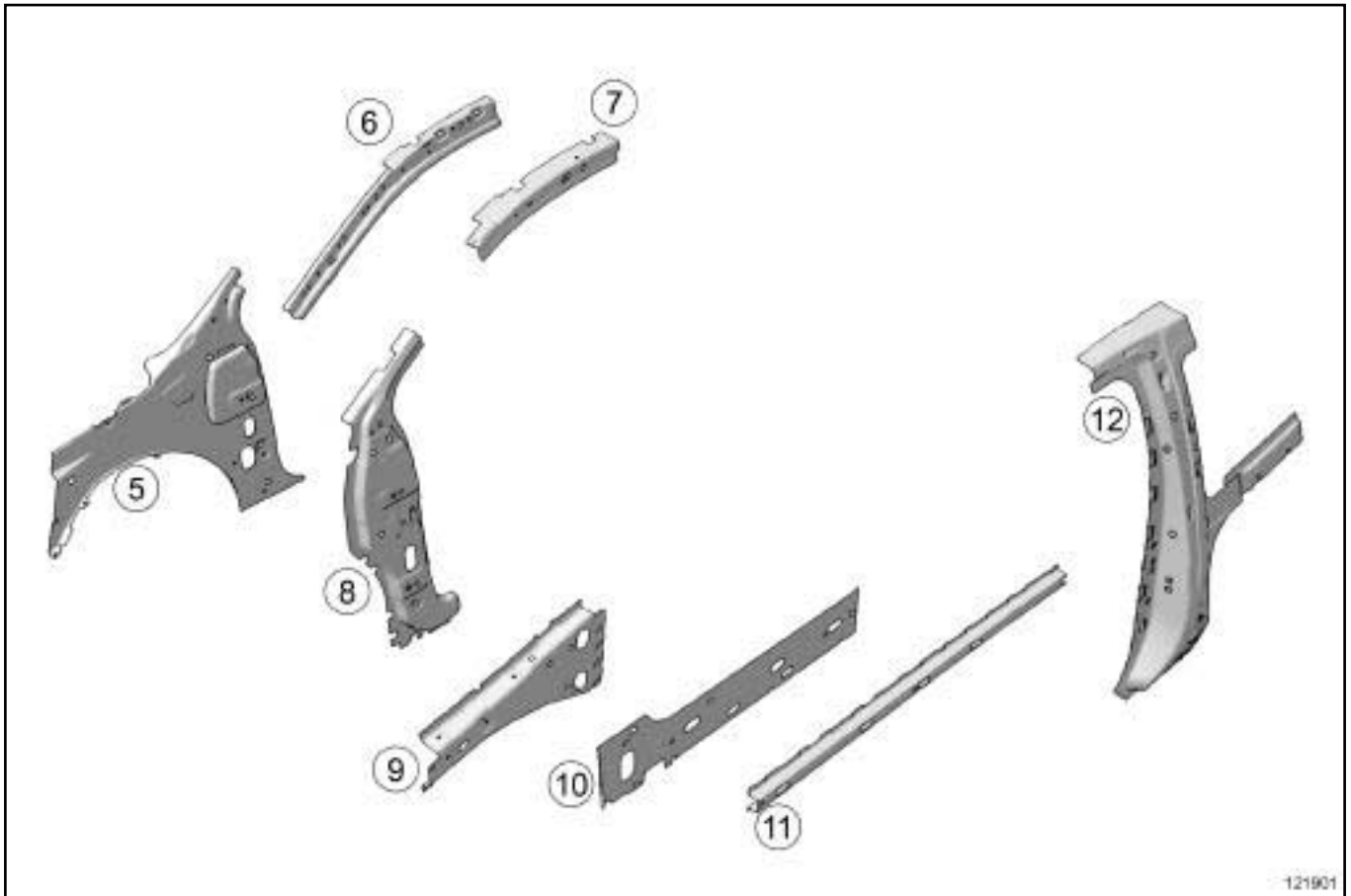
121900

- (1) A-pillar
- (2) upper body
- (3) scuttle side panel upper reinforcement

- (4) sill panel

Vehicle involved in a side impact: Description

2nd Degree



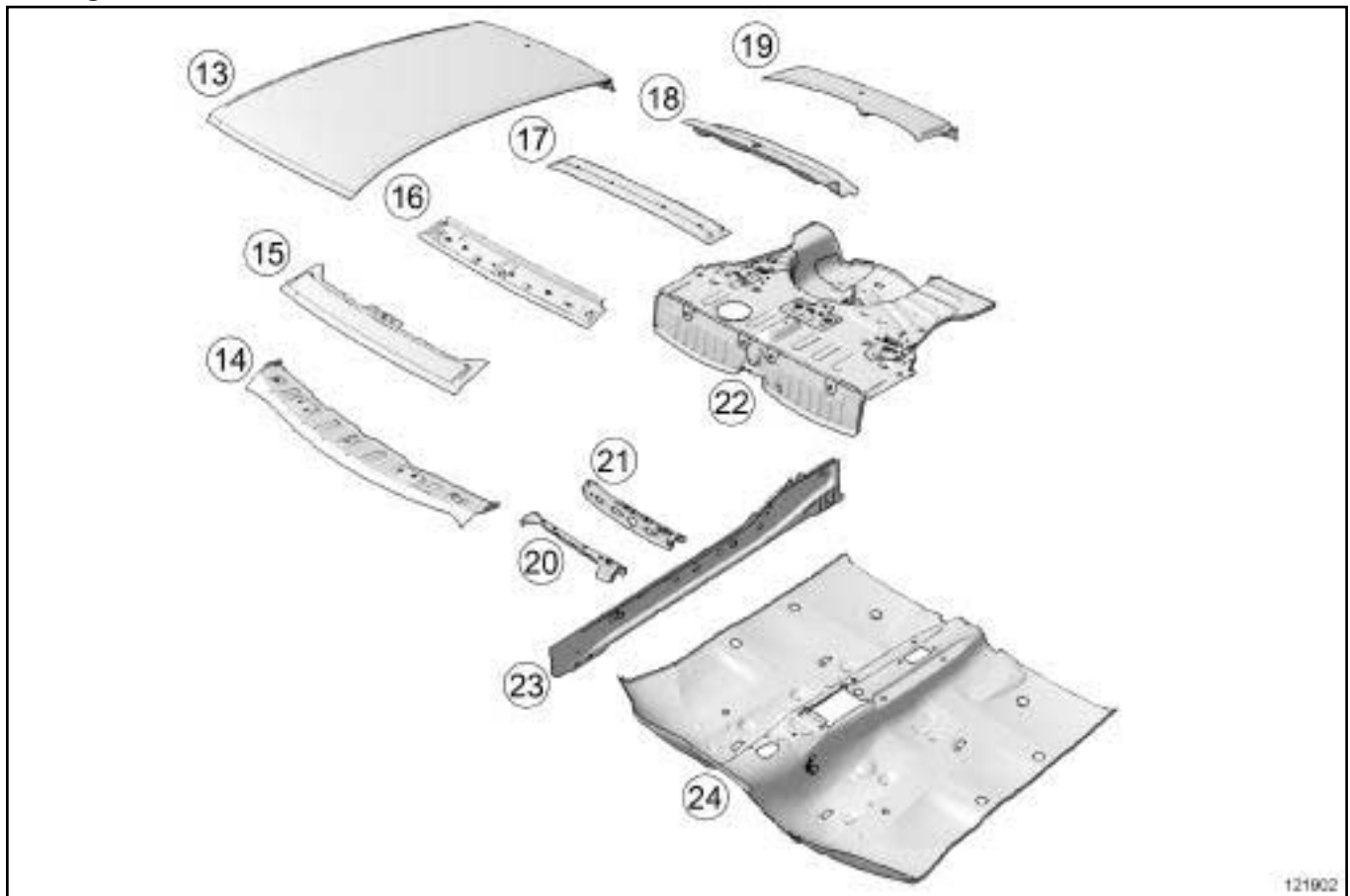
121901

121901

- (5) scuttle side panel
- (6) windscreen pillar lining
- (7) side roof rail lining
- (8) A-pillar reinforcement
- (9) scuttle side panel upper reinforcement
- (10) sill panel reinforcement
- (11) sill panel stiffener
- (12) B-pillar reinforcement

Vehicle involved in a side impact: Description

3rd Degree

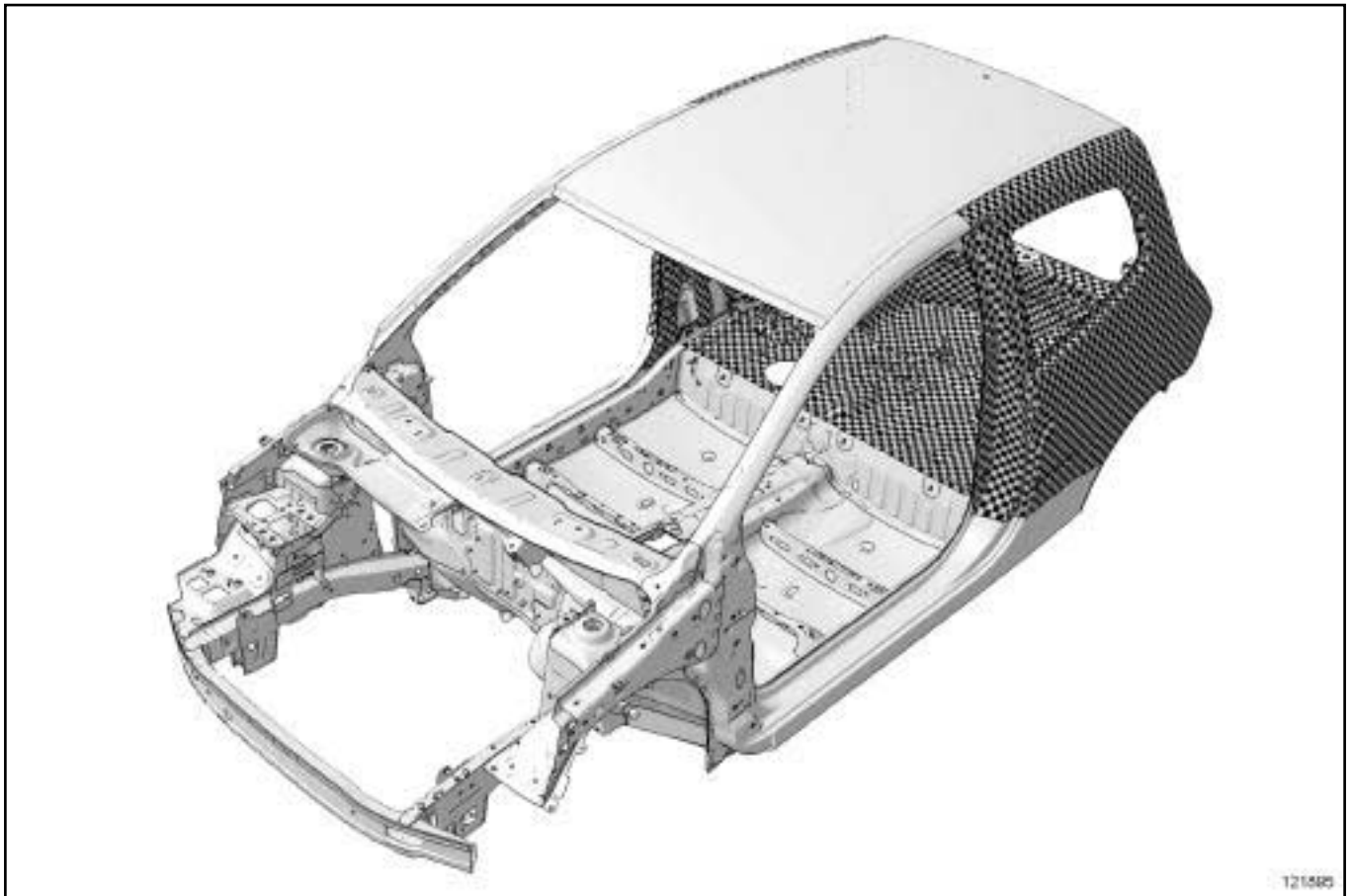


121902

121902

- (13) roof
- (14) windscreen aperture lower cross member closure panel
- (15) roof front section
- (16) roof front cross member
- (17) roof centre cross member
- (18) roof rear cross member
- (19) roof rear section
- (20) front cross member under front seat
- (21) rear cross member under front seat
- (22) rear floor
- (23) inner sill panel
- (24) centre floor

Vehicle involved in a rear impact: Description



121895

121895

1st Degree



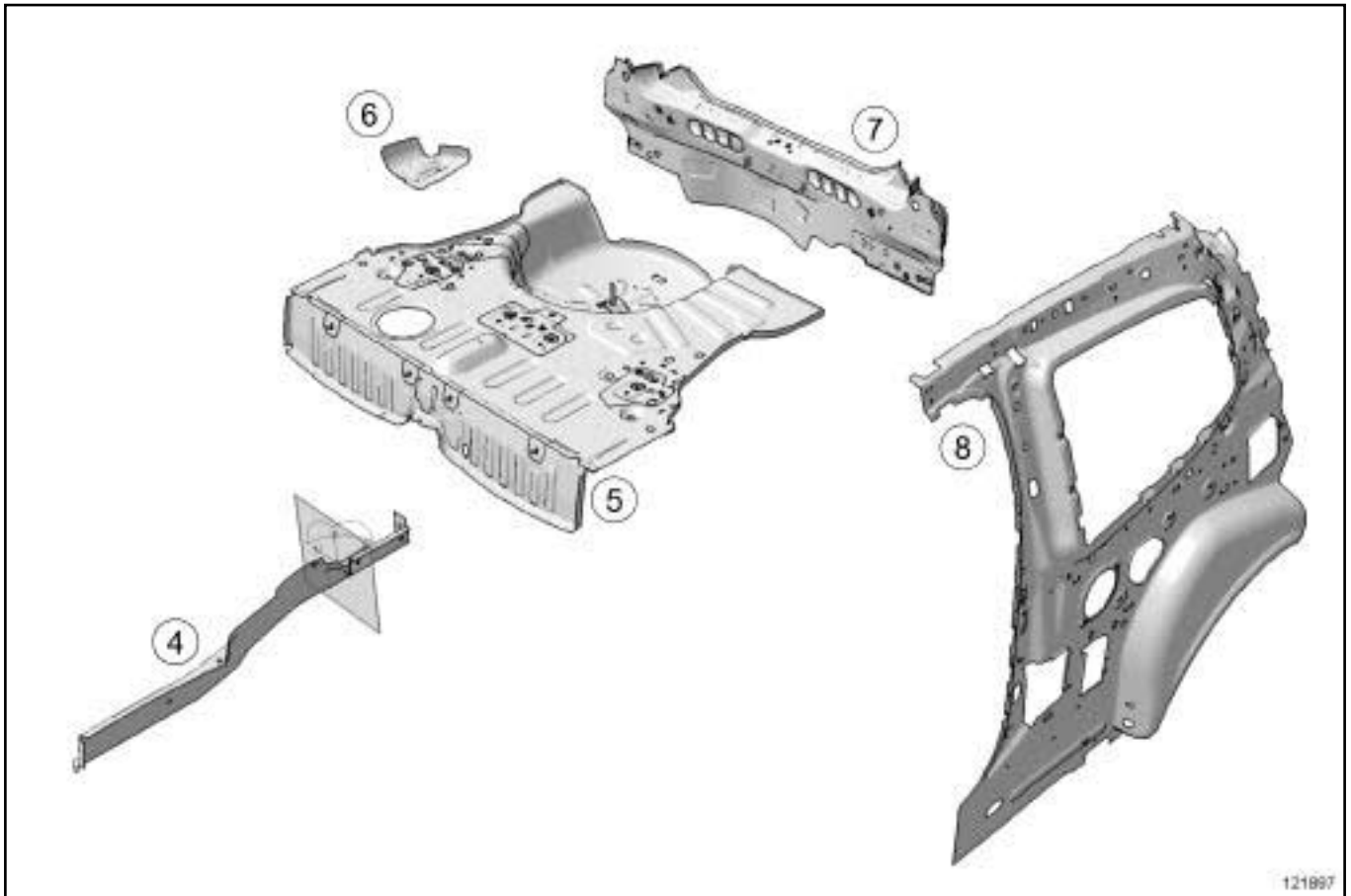
121896

121896

- (1) rear wing panel
- (2) rear light mounting
- (3) rear end panel

Vehicle involved in a rear impact: Description

2nd Degree



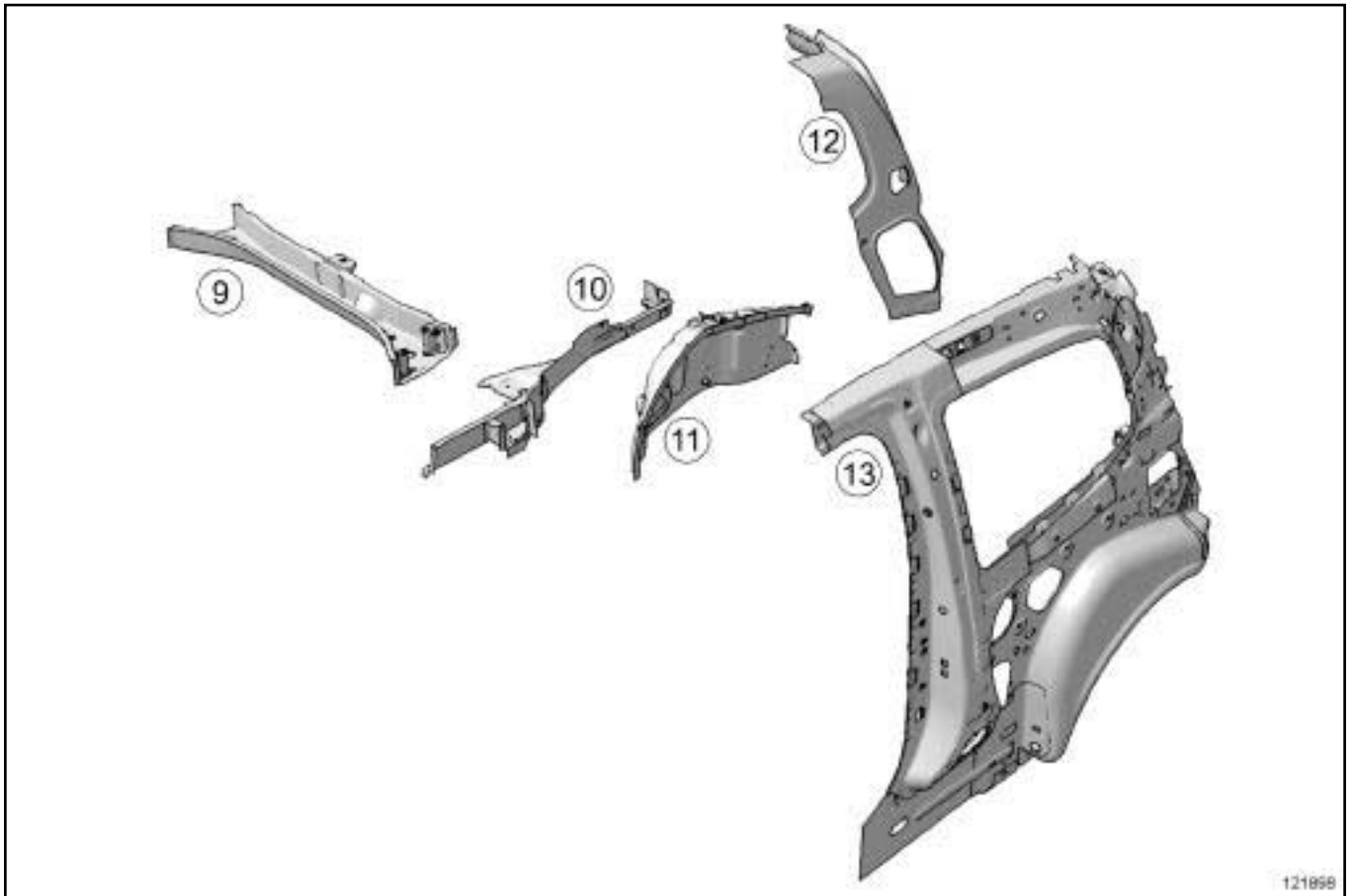
121897

121897

- (4) rear side member
- (5) rear floor
- (6) tow eye mounting
- (7) rear end panel lining
- (8) quarter panel lining

Vehicle involved in a rear impact: Description

3rd Degree



121898

121898

- (9) rear floor centre cross member
- (10) rear side member assembly
- (11) inner wheel arch
- (12) quarter panel upper rear reinforcement
- (13) quarter panel lining

CONSUMABLES - PRODUCTS

04B

Vehicle: Parts and consumables for the repair

Consumables for mechanical repair:

DEFINITION	PACKAGING	PART NUMBER
MECHANICAL SEALANTS		
SILICOR sealing paste	85 g tube	77 11 236 470
MASTIXO Joint face seal	100 g tube	77 11 236 172
BEARING SEALING KIT For crankshaft bearing cap side sealing	Kit	77 11 237 896
SILICONE ADHESIVE SEAL Engine and gearbox sealing paste	100 g cartridge	77 11 227 484
TRANSPARENT SEALING MASTIC	45 g tube	77 11 223 369
SILICOJOINT	90 g tube	77 11 236 469
LOCTITE ADHESIVE 597 Sealing paste for PXX gearboxes	Cartridge	77 11 219 705
RESIN ADHESIVE or SEALING RESIN Sealing resin for engine and gearbox covers	25 ml tube	77 11 237 640
EXHAUST MASTIC For exhaust pipe union seals	1.5 kg tin	77 01 421 161
LEAK DETECTOR	400 ml aerosol	77 11 236 176
ADHESIVES		
FRENETANCHE Sealing the threading at low and medium pressure	50 ml bottle	77 11 236 471
HIGH-STRENGTH THREADLOCK For locking bolts	50 ml bottle	77 11 230 112
SEALING RESIN For locking the bearings	50 ml bottle	77 11 236 472
LUBRICANT CLEANERS		
NÉTELEC Avoid bad contacts in electrical circuits	150 ml aerosol	77 11 225 871

CONSUMABLES - PRODUCTS

04B

Vehicle: Parts and consumables for the repair

INJECTOR CLEANER	355 ml container	77 11 224 188 or 77 11 225 539
CLOTH FOR INJECTION SYSTEM		77 11 211 707
SUPER RELEASING AGENT	500 ml aerosol	77 11 236 166
SUPER RELEASING AGENT	250 ml aerosol	77 11 420 439
SUPER CLEANER FOR JOINT FACES For cleaning joint faces	300 ml aerosol	77 11 238 181
SURFACE CLEANER	5 L container	77 01 404 178
SILICONE LUBRICANT	500 ml aerosol	77 11 236 168
SILICONE-FREE LUBRICANT	500 ml aerosol	77 11 236 167
BRAKE CLEANER	600 ml aerosol	77 11 422 413
	150 ml aerosol	77 11 422 414
BIO BRAKE CLEANER	750 ml spray bottle	77 11 427 217
AIR CONDITIONING CLEANER	250 ml aerosol	77 11 230 498
CARBURETTOR CLEANER	Aerosol	77 11 236 177
IXTAR ENGINE CLEANER	400 ml can	77 11 229 365
GREASE		
BR2+ GREASE For: - the lower arm bearings, - the anti-roll bar grooves, - the driveshaft splines.	1 kg pack	77 01 421 145
SILICONE GREASE For: - the tubular rear axle bushes, - the anti-roll bar bushes.	100 g tube	77 11 419 216
COPPER ANTI-SEIZE GREASE Grease for turbochargers (high temperature)	85 g tube	77 11 236 173
COPPER-ALUMINIUM LUBRICANT Grease for turbochargers (high temperature)	500 ml aerosol	77 11 236 169
GREASE For driveshaft seals	180 g sachets	77 11 420 011

CONSUMABLES - PRODUCTS

04B

Vehicle: Parts and consumables for the repair

WHITE GREASE For wheel sensors	400 ml aerosol	77 11 236 174
MULTIPURPOSE GREASE	500 ml aerosol	77 11 236 170
	250 ml aerosol	77 11 236 171
FLUORSTAR 2L Silicone-free electric sealing grease	100 g tube	82 00 168 855
LACQUER		
JELT ARGENT Varnish for repairing heated rear screens	5 g bottle	77 11 230 111
BRAKE		
DOT 4, ISO CLASS 6, RENAULT STANDARD: 03-50-006, For vehicles with and without electronic stability program (ESP)	0.5 L container	77 11 218 589
	5 L container	77 11 238 318
	25 L container	77 11 238 319
DOT 4, ISO CLASS 4, RENAULT STANDARD: 03-50-005 Authorised for vehicles without ESP	0.5 L container	77 11 172 381
	5 L container	77 01 395 503
	25 L container	77 11 171 926
DOT 4 Authorised for vehicles without ESP, without clutch with hydraulic tappet	0.5 L container	86 71 000 000
	5 L container	86 71 014 277
	25 L container	86 71 014 278
COOLING SYSTEM		
ANTIFREEZE (TYPE D)	1 L container	77 11 170 548
COOLANT (TYPE D)	1 L container	77 11 171 589
	2 L container	77 11 170 545
	5 L container	77 11 170 546
OIL		
ENGINE OIL	(see Engine oil: Specifications) (Technical Note 6013A, 04A, Lubricants)	
GEARBOX OIL	(see Manual gearbox oil: Specifications) (Technical Note 6012A, 04A, Lubricants)	
	(see Automatic gearbox oil: Specifications) (Technical Note 6012A, 04A, Lubricants)	
	(see Sequential gearbox oil: Specifications) (Technical Note 6012A, 04A, Lubricants)	

CONSUMABLES - PRODUCTS

04B

Vehicle: Parts and consumables for the repair

AXLE OIL	(see Rear axle oil: Specifications) (Technical Note 6012A, 04A, Lubricants)	
ELF RENAULT MATIC D2 Oil for power-assisted steering: Pump connected, pump assembly (except Laguna III)	2 L container	77 01 402 037
TOTAL POWER-ASSISTED STEERING FLUID Oil for power-assisted steering: Pump assembly (Laguna III)	1 L container	
PLANETELF PAG 488		77 11 172 668
SANDEN SP 10 Oil for air conditioning compressor	250 ml container	77 01 419 313
TYRES		
TYRE PASTE	1 kg pack	77 11 223 052
	5 kg pack	77 11 223 053
TYRE REPAIR AGENT	400 ml tube	77 11 221 296
	300 ml tube	77 11 222 802
BLANKING PLUG		
Engine type	Injection type	Part no.
F5R		77 01 206 382
F8Q		77 01 206 340
F9Q		77 01 208 229
G9T AND G9U		77 01 208 229
K9K	DELPHI	77 01 206 804
K9K	SIEMENS	77 01 476 857
M9R		77 01 209 062
P9X		77 01 474 730
ZD3		77 01 208 229
MISCELLANEOUS		
GREY ABRASIVE PAD		77 01 405 943

Consumables for bodywork repair:

HOLLOW SECTION WAX		
SPR CC	1 L container	77 11 172 672

CONSUMABLES - PRODUCTS

Vehicle: Parts and consumables for the repair

04B

SPR CC SPRAY	500 ml aerosol	77 11 211 654
STRUCTURAL ADHESIVE		
STRUCTURAL ADHESIVE	Kit =2 80 ml cartridges	77 11 219 885
HIGH PERFORMANCE STRUCTURAL ADHESIVE	1 195 ml cartridge	77 11 419 113
GLAZING PRODUCTS AND ADHESIVES		
MONOPAC EVOLUTION ADHESIVE KIT	310 ml cartridge	77 11 421 430
MONOPAC EVOLUTION ADDITIONAL CARTRIDGE + NOZZLE	310 ml cartridge	77 11 421 431
S-P KIT ADHESIVE KIT	310 ml cartridge	77 11 421 432
ADDITIONAL S-P KIT CARTRIDGE + NOZZLE	310 ml cartridge	77 11 421 433
BIPAC EVOLUTION ADHESIVE KIT	2 225 ml cartridges	77 11 421 434
LINT-FREE CLOTH	Box of 340 cloths	77 11 237 262
WINDOW SEALING MASTIC	310 ml cartridge	77 11 170 222
SPECIAL ADHESIVE FOR WINDOWS		77 11 425 759
ADHESION PROMOTER For bonding double-sided adhesive tape	Cloth	77 11 423 222
MISCELLANEOUS		
DOUBLE-SIDED ADHESIVE	18 mm wide	77 11 226 308
DOUBLE-SIDED ADHESIVE	8 mm wide	77 11 427 869
FRENETANCHE	50 ml bottle	77 11 236 471
ADHESIVE PATCH		82 00 043 181
ADHESIVE PAD		77 05 042 163
SEALS		
BLACK MJ PRO (Electroweldable)	310 ml cartridge	77 11 172 676
WHITE MJ PRO II (Electroweldable)	310 ml cartridge	77 11 426 951
PREFORMED SEALING MASTIC BEAD	2.6 m roll	77 01 423 330
BRUSH MASTIC	1 kg pack	77 11 228 113
FILLER MASTIC	60 beads Ø 6 mm by 0.3 m	77 11 170 230

CONSUMABLES - PRODUCTS

Vehicle: Parts and consumables for the repair

04B

GREASE		
WHITE GREASE	400 ml aerosol	77 11 236 174
OPENING ELEMENT MECHANISM GREASE	20 g sachets	77 11 419 865
SILICONE LUBRICANT	500 ml aerosol	77 11 236 168
SILICONE-FREE LUBRICANT	500 ml aerosol	77 11 236 167
SOUNDPROOFING		
SPR GREY EVOLUTION	1 l cartridge	77 11 419 114
SPR GREY EVOLUTION SPRAY	400 ml aerosol	77 11 419 116
SPR BLACK EVOLUTION II	1 l cartridge	77 11 419 115
SOUNDPROOFING PAD (3.5 Kg/m ²)	Pack of 10	77 01 423 546
SOUNDPROOFING PAD (6.5 Kg/m ²)	Pack of 5	77 01 423 269
POLISHING		
POLISHING LIQUID	1 L container	77 11 420 288
FINISHING LIQUID	1 L container	77 11 420 289
MASTIC		
Universal mastic		
GALAXI	2.5 kg pack	77 11 172 238
OPTIMAX	1.23 l cartridge	77 11 172 239
EXCELLENCE + For finishing plastic repair	960 g cartridge	77 11 423 539
	1 kg pack	77 11 423 540
Plugging mastic		
XFIBRE FIBREGLASS MASTIC	975 kg pack	77 11 172 235
STANDARD BASIX POLYESTER MASTIC	1.975 kg pack	77 11 172 234
ALUX ALUMINIUM MASTIC	975 kg pack	77 11 172 236
Sprayable mastic		
PIXTO SPRAYABLE POLYESTER MASTIC	1.5 kg tin	77 11 172 237
Finishing mastic		
IXTRA POLYESTER MASTIC	1.625 kg pack	77 11 172 233
Anti-grit mastic		

CONSUMABLES - PRODUCTS

04B

Vehicle: Parts and consumables for the repair

MAG PRO 1	310 ml cartridge	77 11 172 679
MAG PRO 3 (Dual component)	1.5 kg tin	77 11 218 364
SURFACE CLEANER		
HEPTANE	500 ml container	77 11 170 064
SOLVENT SURFACE CLEANER	5 L container	77 01 404 178
WATER-BASED SURFACE CLEANER	5 L container	77 11 421 337
ANTISTATIC THINNER (for plastic materials)	400 ml aerosol	77 01 408 493
COMPOSITE MATERIAL REPAIR BY BONDING		
PLASTIC REPAIR KIT		77 11 170 064
NOZZLE FOR PLASTIC REPAIR KIT		77 11 423 523
PLASTIC REPAIR CLEANER	1 L container	77 11 423 517
PLASTIC REPAIR PRIMER	150 ml bottle	77 11 423 518
PLASTIC REPAIR ADHESIVE	2 x 25 ml bicomponent cartridge	77 11 423 519
PLASTIC REPAIR CLOTH	90 m roller	77 11 423 520
PLASTIC REPAIR NOZZLES	12 nozzles	77 11 423 522
COMPOSITE MATERIAL REPAIR BY WELDING		
PLASTIC WELD REPAIR SET		77 11 425 742
PROTECTIVE STRIPS	Bag of 10 protective strips	77 11 425 744
STAINLESS STEEL MESH	Bag of 2 meshes	77 11 425 743
COOLER	400 ml aerosol	77 11 425 745
BRUSH	Box of 10 brushes	77 11 237 793
WINDOW MASKING TAPE		
10 MM WINDSCREEN TAPE		77 11 171 708
20 MM WINDSCREEN TAPE		77 11 171 709
PROTECTIVE WELDING		
ANTI-SPLASH SPRAY	400 ml aerosol	77 11 218 270
SPECIFIED UNDERCOAT		
PRE-TREATMENT PRIMER WITHOUT ZINC CHROMATE (I-Alpha) + THINNER	1 L container	77 11 420 027 (Primer)
		77 11 420 028 (Thinner)

CONSUMABLES - PRODUCTS

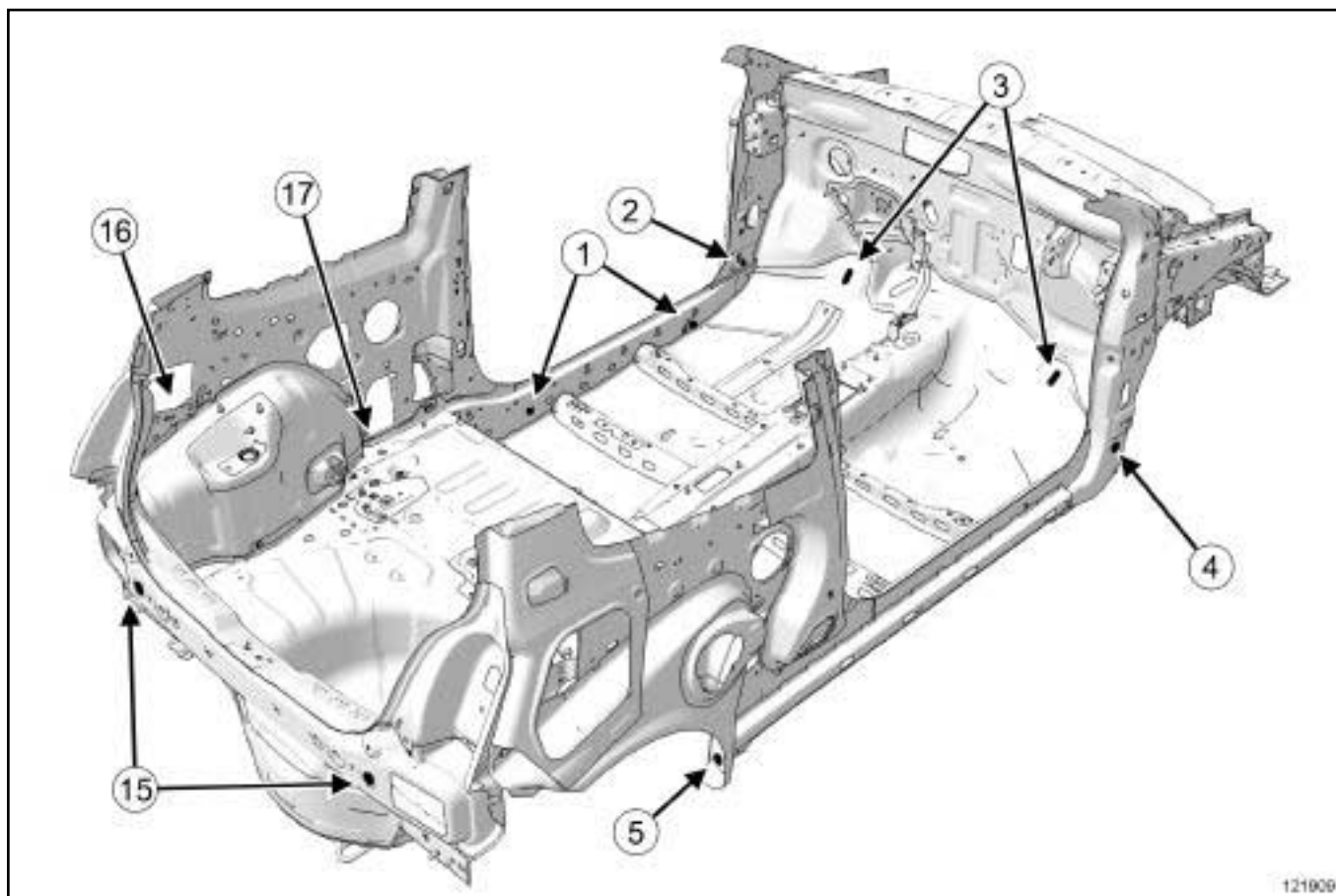
04B

Vehicle: Parts and consumables for the repair

I-PREMIA REACTIVE PRIMER (do not use on aluminium)	3.5 l container	77 11 239 243 (Primer)
		77 11 228 654 (Thinner)
I-PREMIA REACTIVE PRIMER (do not use on aluminium)	400 ml aerosol	77 11 419 416
ADHÉRA SPRAY (adhesion promoter for thermoplastics)	400 ml aerosol	77 11 423 734
PRIMARA BLACK (adhesion promoter/primer for thermoplastics)	1 L container	77 11 423 735
		77 11 171 514 (Activator)
PRIMARA (adhesion promoter/primer for thermoplastics)	1 L container	77 11 171 513
		77 11 171 514 (Activator)
UNDERCOAT		
LEVIA	3.5 l container	77 11 228 651
FORTIA	3.5 l container	77 11 228 650

Anti-corrosion protection product: Description

I - POINTS LOCATED INSIDE THE VEHICLE



121909

121909

Note:

Hollow body parts to be treated from inside the vehicle must be treated after painting and before retrimming.

Side impact:

- replacing or repairing the sill panel:

- protection of the joint between the inner sill panel and the sill panel reinforcement: injection of wax into points (1) and (2) ,
- protection of the joint between the sill panel and the sill panel closure: injection of wax into points (4) and (5) .

- replacing the quarter panel lining:

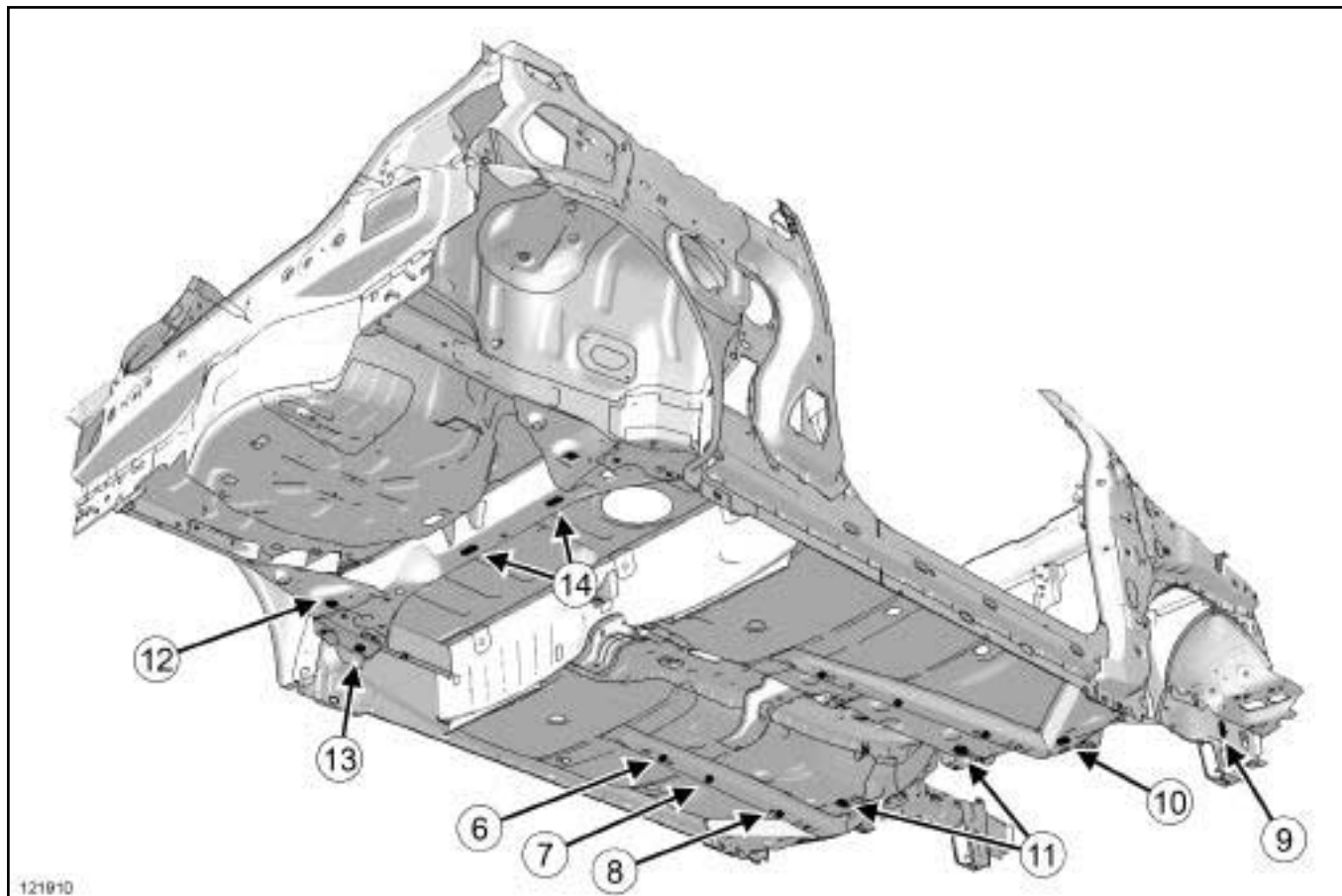
- injection of wax into points (6) and (7) .

- replacing the centre side member beneath the floor:

- injection of wax into points (6) , (8) and (7) .

Anti-corrosion protection product: Description

II - POINTS BENEATH THE VEHICLE



121910

121910

Note:

Blanking pieces are fitted to the injection points located beneath the vehicle. When any work is carried out on the vehicle, plug all the points used for injection. Replace any damaged or deformed blanking pieces with new ones.

Frontal impact:

- replacing or repairing the front side member, the front side member closure panel and the front sub-frame mounting unit:

- injection of wax into points **(3)** and **(9)** .

- replacing the front side cross member or the front half unit:

- injection of wax into points **(10)** and **(11)** .

Rear impact:

- replacing the complete rear side member:

- injection of wax into points **(12)** and **(13)** .

- Replacement of the rear end panel:

- injection of wax into point **(15)** .

- replacing the rear floor centre cross member:

- injection of wax into points **(13)** and **(14)** .

III - PRODUCTS AND EQUIPMENT FOR TREATING HOLLOW SECTIONS

The products and equipment required for carrying out this work are available from the **Parts Department**.

« PAC1, PAC2 » kit



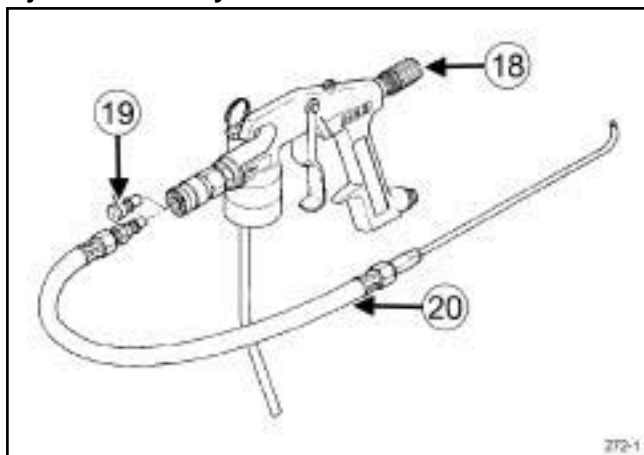
272-2

The hollow body parts of the structure of the vehicle are protected in the factory by injecting hot wax. To guarantee equivalent protection after repair, inject one after the other the two complementary products which make up a « PAC1, PAC2 » kit.

After injection, all the orifices must be covered using blanking covers moulded to fit each one.

The necessary information concerning blanking covers can be found in the **Parts Catalogue** for the vehicle.

Injector assembly



272-1

- (18) Wax flow control
- (19) Quick-release union end piece
- (20) Interchangeable injection hose

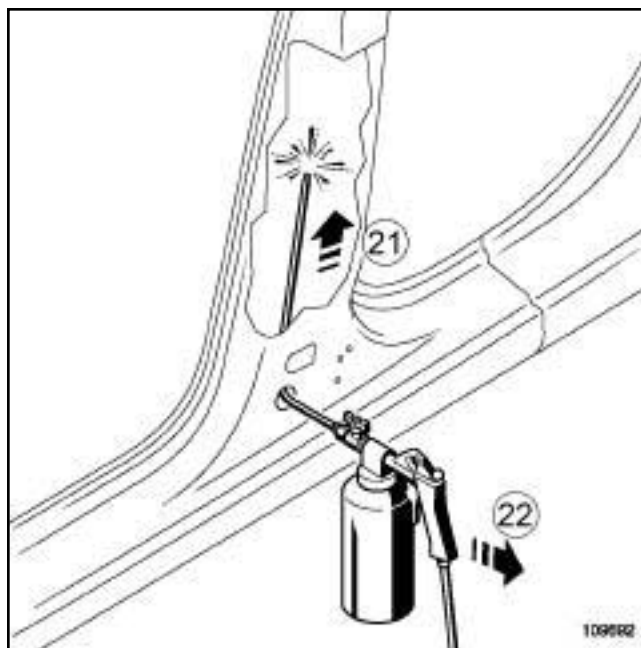
Protective wax



272

The subframe under the floor is protected with a special wax.

IV - OPERATING PROCEDURE FOR TREATING HOLLOW SECTIONS



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Insert the nozzle tip until it reaches the end of the hollow section (21) .

Inject the wax whilst retracting the nozzle tip (22) .