

**00 - GENERAL OVERVIEW**

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## INTRODUCTION

This manual contains the instructions for repairing DIABLO 6.0, manufactured by LAMBORGHINI AUTOMOBILI, Via Modena 12, 40019 S.Agata Bolognese, Bologna (Italy).

### Copyright

The Manufacturer holds the copyright of this manual.

The manual contains technical texts, drawings and figures that are not to be distributed or handed over to others, either in their entirety or partially, without the written consent of the Manufacturer.

### Definitions used in this publication

The company LAMBORGHINI AUTOMOBILI, Via Modena 12, 40019 S.Agata Bolognese, Bologna (Italy) is the Manufacturer referred to in this manual.

Manual is intended as this REPAIRS MANUAL.

Vehicle is intended as the vehicle dealt with in this Manual.

The operator is the person directly or indirectly involved in the vehicle maintenance.

Unless otherwise indicated, measurements are in [mm].

Certain parts of the text in this manual are highlighted in a particular manner, according to these definitions:



Procedures, technical information and precautions that, if not attained to and/or not correctly carried out, could cause injuries to the operator.



Procedures, technical information and precautions that, if not attained to and/or not correctly carried out, could cause damage to the vehicle.



Procedures, technical information and precautions that, if not attained to and/or not correctly carried out, could cause damage to the environment.



Procedures, technical information and precautions that are highlighted because they are important.

## INFORMATION REGARDING THE MANUAL

### **Purpose of the manual**

The purpose of this Manual is to familiarise the operators with the vehicle so that they can carry out long lasting repairs safely, taking all the necessary precautions and having available the necessary manpower and equipment according to the requirements.

### **To whom this manual is addressed**

This manual is intended for all those, referred to as "operators" who are responsible for making repairs on the vehicle and/or for giving instructions concerning these operations.

These operators can be identified as:

shop/department foremen;

operators directly involved in the vehicle maintenance

### **Manual updating**

The information, descriptions and figures contained in this manual are valid at the time of the vehicle marketing.

The Manufacturer reserves the right to make changes on the vehicles, at any time, for technical or commercial reasons.

These changes do not oblige the Manufacturer to operate on vehicles sold up to that time, nor to consider this publication inadequate.

Any integration that the Manufacturer deems opportune to supply at a later date is to be kept with this manual and to be considered as an integral part of it.

## **MANUFACTURER'S GUARANTEE AND RESPONSIBILITIES**

### **Terms of the guarantee**

The contractual guarantee shall not be applied if:  
the vehicle is not used in the manner and within the limits intended;  
structural modifications are made without the written consent of the Manufacturer;  
the spare parts used are not genuine parts;  
the maintenance schedules and procedures are not respected;  
repairs are not carried out by persons authorised by the Manufacturer.

### **Responsibility**

The manufacturer declines any direct or indirect responsibility for situations caused by:  
non observance of the instructions contained in this manual;  
operations carried out on the vehicle by untrained or unauthorised persons;  
use which does not conform to the current laws of the country where the vehicle has been sold;  
unauthorised modifications and/or repairs;  
use of non-genuine spare parts.

## **AFTER SALES SERVICE**

The guarantee certificate lists the rules for the validity of the guarantee and indicates the use of the service coupons within the limits of the prescribed maintenance schedule.

During the guarantee period, labour relevant on the coupon A is free of charge: only the lubricants used are charged to the Customer.

Moreover, if, when carrying out the operations listed on the service coupons, other jobs are required that are not covered by the coupons, the general guarantee rules are applied.

For any type of operation, the LAMBORGHINI AUTOMOBILI after sales service is always available to give explanations and advice concerning the operation procedures and to give assistance if doubts arise.

GENUINE SPARES are to be used for any replacements made.

Expendable goods and parts obtainable in after-market are to fulfil the same requirements as those originally installed when the vehicle left the factory.

Orders for spare parts are to be made out correctly and include:

- type of vehicle;
- chassis number;
- reference and category numbers, indicated in the Spare Parts Catalogue.

## **STAFF RESPONSIBLE FOR REPAIRS**

Repairs on the vehicle are only to be carried out by skilled personnel, having the required capabilities and adequate technical know-how.

The operators assigned to servicing and repairs on the vehicle are to have the particular operating capacities that maintenance of high performance vehicles requires and are to be fully aware of the importance of attaining to safety regulations and the precautions to be taken.

These operators are to be able to work in complete safety also aided by suitable training periods or courses so as to acquire full knowledge of how to act when making repairs on the vehicle.

The foreman has the obligation to enforce the general safety regulations and especially those contained in this manual.

It is also the supervisor's responsibility to ensure that the persons assigned to the job are suitable, both physically and mentally as well as from a technical point of view.

## DISPOSAL

The scrap resulting from the repairs is to be disposed of in accordance with current laws in merit.



It should be remembered that it is forbidden to dispose of engine coolant by dumping it in rubbish tips or, even worse, pouring it into the sewers.

The collection and disposal of exhausted oils is regulated by laws. It is prohibited to get rid of oily residue depositing it in rubbish tips or pouring it into the sewers.

The collection and disposal of exhausted accumulators is regulated by laws.

It is prohibited to get rid of accumulators depositing them in rubbish tips.

Replaced parts (brake pads, filters, material soaked in fuel etc.) cannot be thrown in with normal garbage but must be set aside and disposed of according to the laws in force.

It is particularly recommended to separate ferrous metals, light alloys and plastic so that they can be recycled.

## GENERAL SAFETY RULES



Read this manual attentively before starting any maintenance or repairs on the vehicle.



Do not allow unauthorised persons to repair the vehicle, or parts of it. Do not allow them to carry out maintenance jobs. Use only the equipment or wrenches specifically required for disassembly, replacement, checking and maintenance operations.

Put out any smoking materials and naked flames before starting any maintenance operation.

Do not smoke while working.

Put on the personal protection equipment (gloves, helmet, goggles, slip-proof shoes etc.) before starting the maintenance job.

Do not wear unbuttoned or loose clothing (ties, scarves, unbuttoned jackets etc.) which could become tangled up.

Keep your hands and clothes away from moving parts.

All checking, disassembly, replacement and maintenance operations are to be carried out with the vehicle stationary, with the hand brake engaged and the keys removed from the control panel, on level ground, sheltered and well ventilated.



Carry out the operations in well lit areas. Poor visibility makes the job more difficult and dangerous. Use portable lamps when the light is not sufficient or working areas that are not easily accessible need illuminating. Wait at least 4 hours after the vehicle has stopped moving before starting any repairs to give the parts time to cool down.

Always pay utmost attention when carrying out maintenance and repair jobs. Do not repair or adjust a car with the engine running, unless this is specifically indicated in the manual, to avoid being caught up in the moving parts.

Do not put your head or other parts of your body (feet, hands) near belts or rotating blades if the engine is running. Before starting up the engine, warn all those who may be working around the vehicle.

Do not work over or under the vehicle if it is only propped on jacks or other lifting equipment that does not ensure safety standards.

Do not use your hands to find pressure or hot liquid leaks. Outbursts of fluids under pressure can have sufficient force to cause skin injuries.

Never use petrol, solvents or other inflammable liquids to clean mechanical parts: use homologated commercial solvents that are not flammable or toxic.

It is absolutely forbidden to tamper with any system or device (except in the manner indicated in the manual) to avoid damage to vehicle components and consequent risks for the operators.

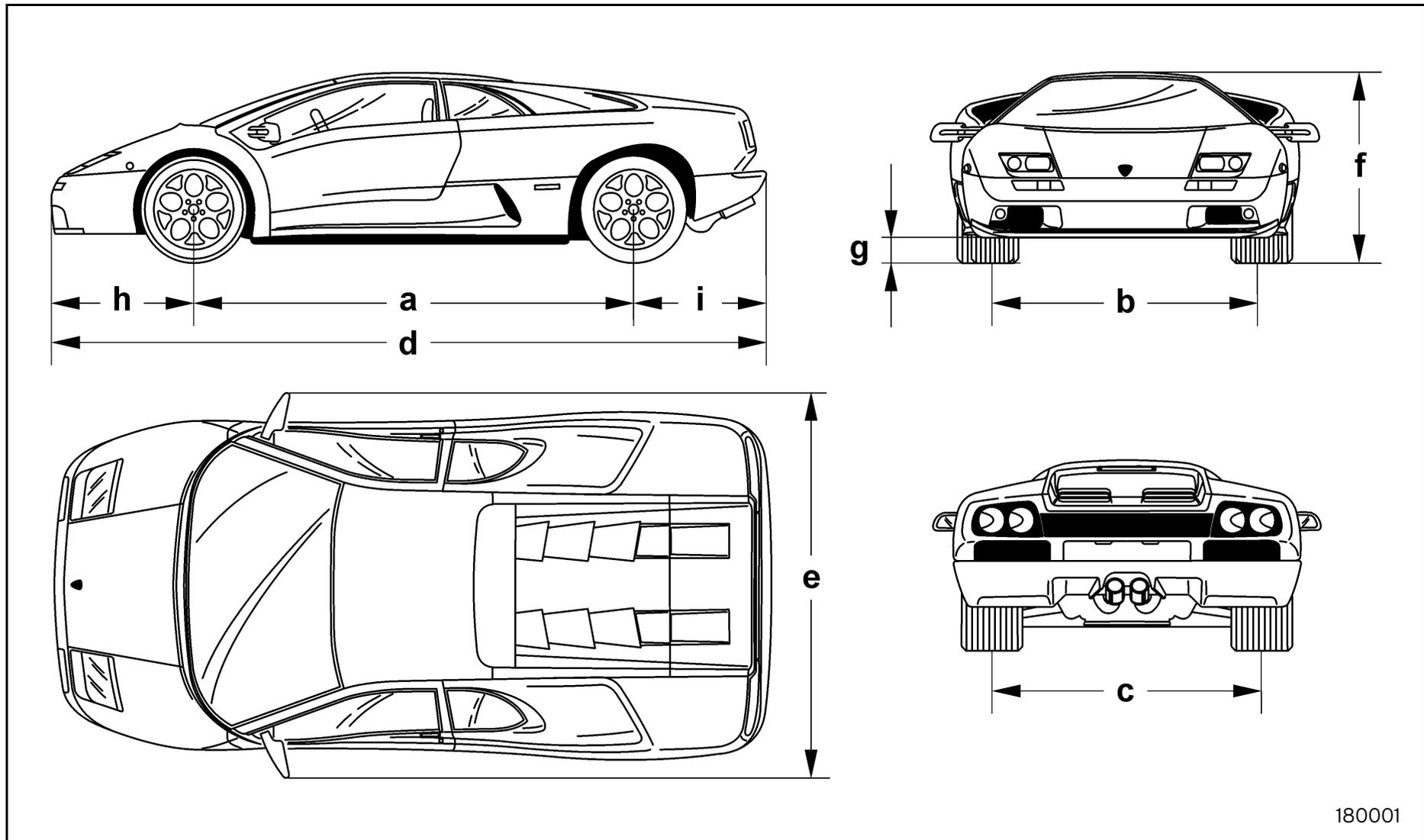
Do not keep the engine running in closed premises without suitable ventilation that can disperse the harmful exhaust gas that concentrates in the air.



These precautionary rules obviously do not include all the situations that could occur while repairing the vehicle, nor all the possible consequences that could arise if these rules are not observed.

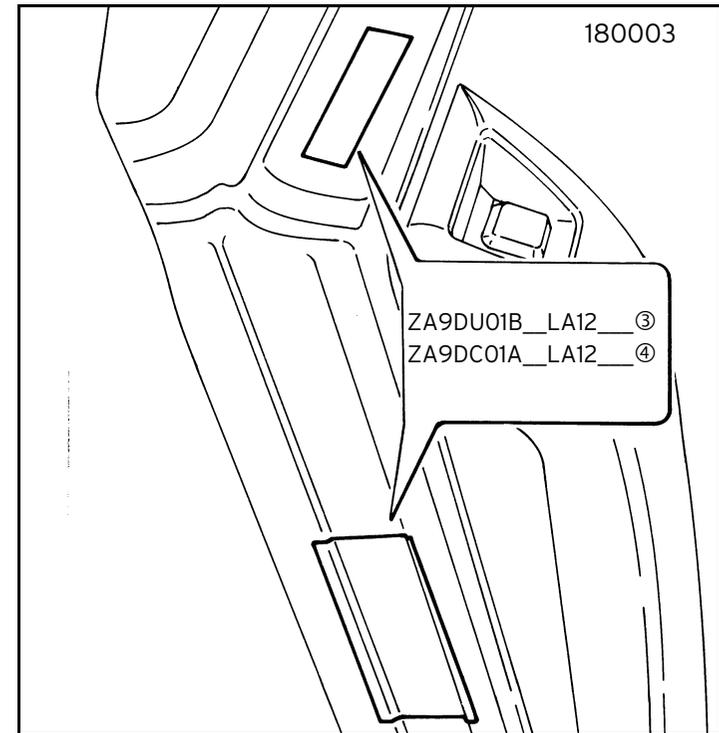
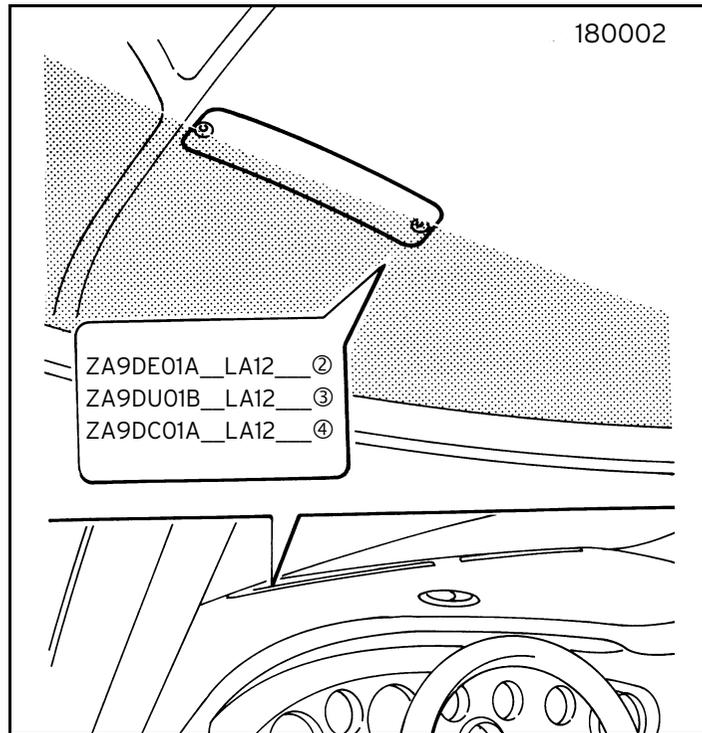
## SPECIFICATIONS AND DATA

### Dimensions and weight

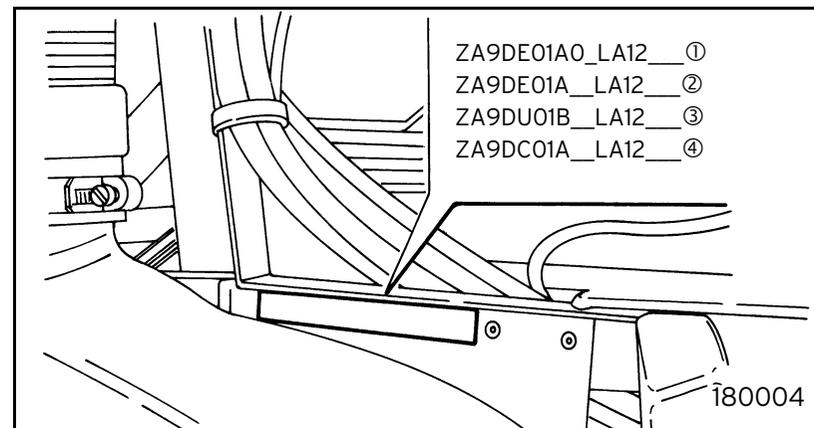


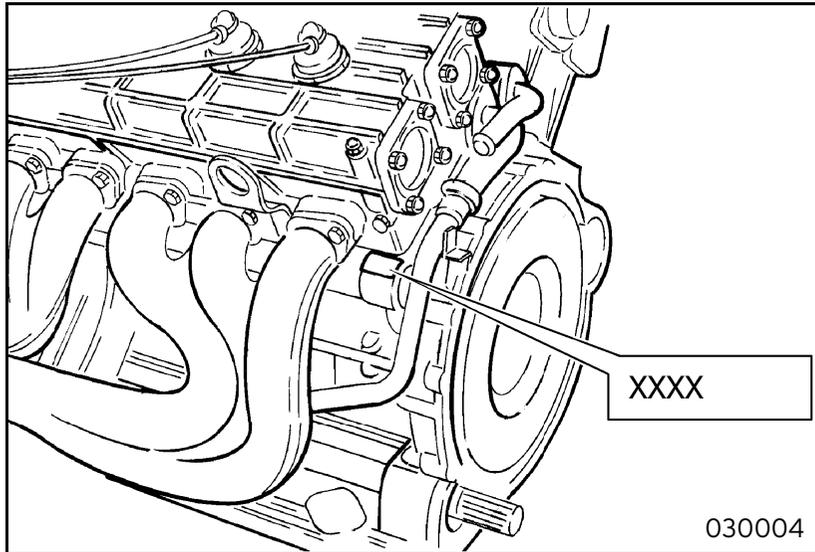
Wheel base	2650 mm (a)
Front track	1610 mm (b)
Rear track	1670 mm (c)
Overall length	4470 mm (d)
Width	2220 mm (e)
Maximum height (unladen)	1105 mm (f)
Minimum height (unladen)	140 mm (g)
Front overhang	930 mm (h)
Rear overhang	890 mm (i)
Dry weight	1625 kg

Vehicle identification data



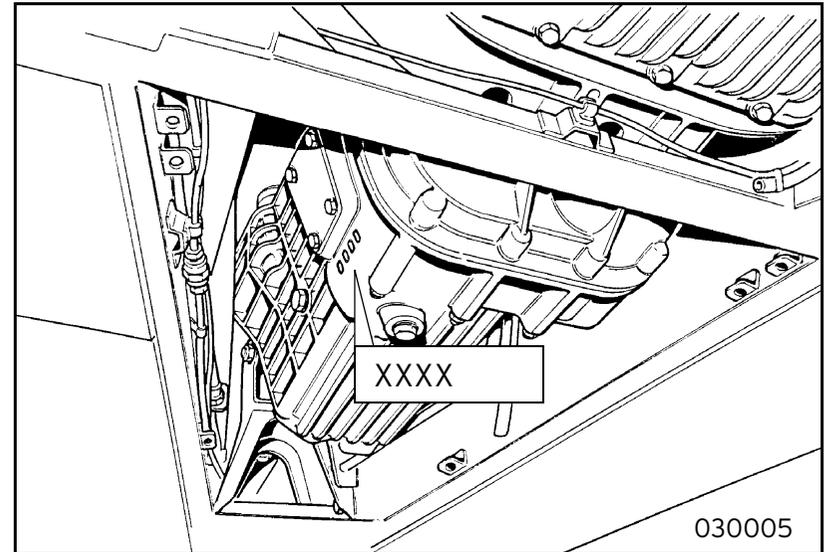
Chassis number  
1. Europe  
2. Arab countries  
3. USA  
4. Canada





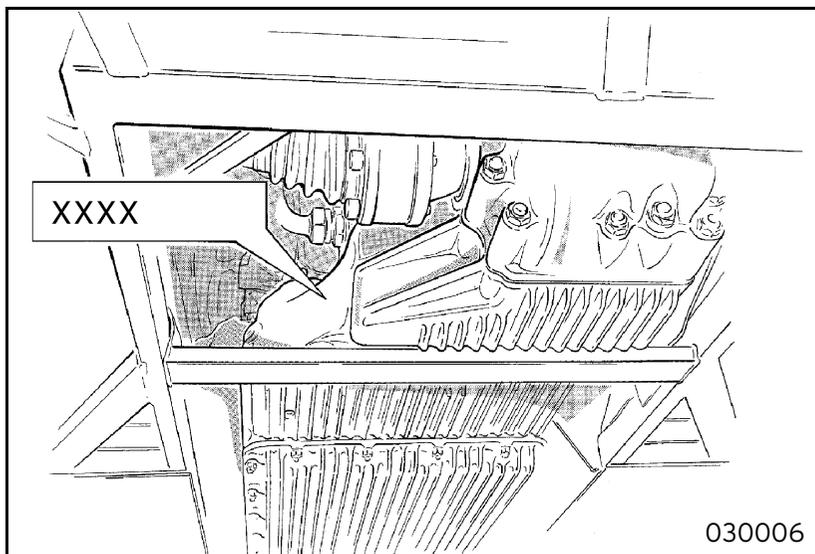
Engine number

030004



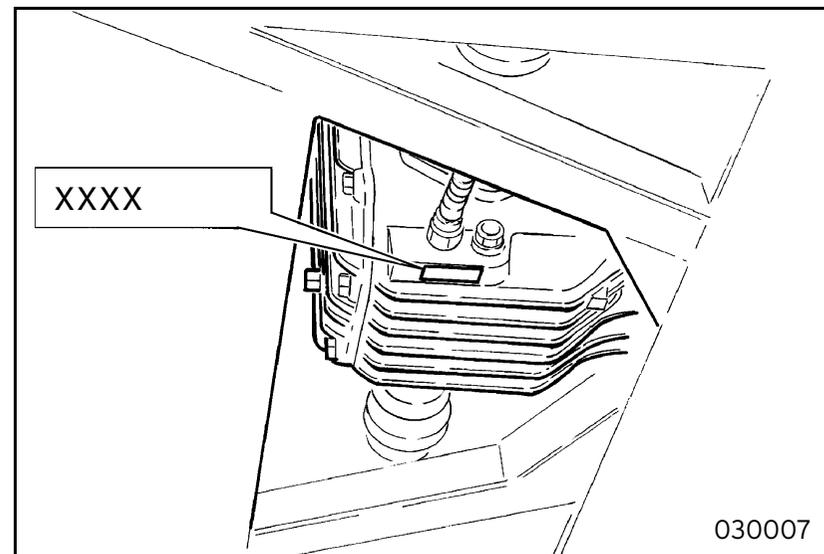
Gearbox number

030005



Rear differential number

030006



Front differential number

030007

**Engine**

Mid engine, longitudinal layout	
Type	L 522 12 V cylinder block (60°)
Bore x stroke	87 x 80 mm
Total displacement	5992 cm <sup>3</sup>
Compression ratio	10.7 : 1 ± 0.2
Maximum power	405 kW (550 cv) at 7100 rpm
Maximum torque	620 Nm (63,3 kgm) at 5500 rpm
Timing system	4 camshafts
	4 valves per cylinder intake phase variator
Intake Opens before T.D.C Closes after B.D.C	40°/20° (*) 68°/88° (*)
Exhaust Opens before Closes after	68° 22°
Operating clearance with cold engine Intake Exhaust	0,35 mm 0,50 mm
Firing order	1-7-4-10-2-8 6-12-3-9-5-11

(\*) according to the phase variator position

**Clutch**

Type	Dry, single plate
Clutch release hydraulic; self adjusting	
Diameter	272 mm

**Gearbox  
STANDARD**

Gear ratios	1st	1 : 2.312	(37/16)
	2nd	1 : 1.524	(32/21)
	3rd	1 : 1.125	(27/24)
	4th	1 : 0.888	(24/27)
	5th	1 : 0.676	(23/34)
	R	1 : 2.125	(34/16)
Driven shaft and transmission		1 : 1.619	(34/21)
Viscous coupling and front crown wheel and pinion		1 : 0.811	

**Gear ratios "A" VERSION**

Gear ratios	1st	1: 2.312	(37/16)
	2nd	1: 1.524	(32/21)
	3rd	1: 1.125	(27/24)
	4th	1: 0.888	(24/27)
	5th	1: 0.676	(23/34)
	R	1: 2.125	(34/16)
Driven shaft and transmission		1: 1.667	(35/21)
Viscous coupling and front crown wheel and pinion		1: 0.811	

**Gear ratios "C" VERSION**

Gear ratios	1st	1: 2.312	(37/16)
	2nd	1: 1.524	(32/21)
	3rd	1: 1.125	(27/24)
	4th	1: 0.888	(24/27)
	5th	1: 0.697	(23/33)
	R	1: 2.125	(34/16)
Driven shaft and transmission		1: 1.667	(35/21)
Viscous coupling and front crown wheel and pinion		1: 0.811	



The different ratios are identified by a letter in front of the gear number (see GRO0 - GENERAL):

- no letter : STANDARD
- letter "C" : short ratios EEC vehicles
- letter "A" : short ratios USA vehicles.

**Rear differential**

Self-locking percentage	45%
Rear crown wheel and pinion gear ratio	1 : 2.410

**Front differential**

Self-locking percentage	25%
Rear crown wheel and pinion gear ratio	1 : 2.812

**Centre differential**

Type	Viscous coupling
------	------------------

**Suspension**

Independent wheels, A arms, coaxial spring shock absorbers, with electronic control of extension setting; manual or automatic regulation on 3 + 1 positions

**Steering**

Collapsible steering column	
Driving box with powered rack and pinion	
<b>Steering wheel turns from lock to lock</b>	3 1/2
Minimum turning circle diameter	12.55

**Brakes**

Ventilated discs on all 4 wheels; hydraulic system with booster and ABS system	
Disc diameter: front rear	355 335
Mechanical hand brake on rear wheels	Disc

**Tyres and wheels**

Rims Front Rear	8.5 J 18 H 2 ET 64 13 J 18 H 2 ET 39.4
PIRELLI tyres Front Rear	PZero 235/35 ZR18 PZero 335/30 ZR18
Pressure when cold speed < 260 Km/h Front Rear	2.6 bar 2.5 bar

**Electrical system**

Type	12V negative to earth
Recharging system	Alternator and voltage regulator
Battery	12V - 90Ah - 420A
Current with engine off and switch not powered	7 to 12mA
Spark plugs Distance between electrodes	0.5 to 0.6

**Alternator**

Type	BOSCH
Nominal voltage	14V
Nominal current	150A at 6000 rpm
Incorporated electronic voltage regulator	

**Starter motor**

Type	BOSCH
Nominal voltage	12V
Nominal power	2.2 kW
Electric input under load	60A
Electric input no-load	10°

## ROUTINE MAINTENANCE SCHEDULE (EEC)

OPERATION	[Km]	2500	12000	24000	36000	48000	60000	72000	84000	96000	108000	120000
	Fuel filters and pre-filters						R			R		
Air cleaners				R*		R		R*		R		R*
Injection system: lines-connections		I				I				I		
Spark plugs				R*		R		R*		R		R*
Valve clearance				I-A		I-A		I-A		I-A		I-A
Cooling system		I		I		I		I		I		I
Engine data (LDAS): acquisition and printing		I		I		I		I		I		I
Injection/ignition wirings and wire conditions		I				I			I			I
Engine accessories control belts		I-A		I		R		I		R		I
Engine oil and filter (at least once a year)		R	R	R	R	R	R	R	R	R	R	R
Carburation, CO/HC concentration		I				I				I		
Idle speed		I				I				I		
Oxygen sensor									R			
Fuel vapours emission control system		I				I				I		
Activated carbon filter									R			
Crankcase emission control system					I				I			
Braking system; pipes and calipers				I		I		I		I		I
Brake pedal clearance, handbrake adjustment		I		I		I		I		I		I
Brake fluid (replace every year)		I	R	I	R	I	R	I	R	I	R	I
Brake disk and pads		I	I	I	I	I	I	I	I	I	I	I

OPERATION	[Km]	2500	12000	24000	36000	48000	60000	72000	84000	96000	108000	120000
	Clutch reservoir fluid (replace every year)	I	R	I	R	I	R	I	R	I	R	I
Steering wheel adjustment lever check	I		I		I		I		I		I	
Air conditioning system (check every year)			I		I		I		I		I	
Air conditioning dust filters (replace every two years)		R	R	R	R	R	R	R	R	R	R	R
Gearbox and front and rear differential oil	R	I	R	I	R	I	R	I	R	I	R	I
Power steering/lifting system oil (replace every two years)	I		I		I		I		I		I	
Steering components, joint protection, gaiters on the steering rack, steering levers and on the drive shafts	I		I		I		I		I		I	
Front and rear suspension joints and their tightening	I	I	I	I	I	I	I	I	I	I	I	I
Suspension geometry	I		I		I		I		I		I	
Check battery and connections	I	I	I	I	I	I	I	I	I	I	I	I
Tightening of screws, bolts and clips on body and chassis	I		I		I		I		I		I	
Doors, boot and bonnet hinges lubrication	I		I		I		I		I		I	
Check for presence and integrity of wheel hub-rim inner and outer water seals. Check general appearance of wheel and replace it if corrosion or damage to paint reaching the metal is found	I	I	I	I	I	I	I	I	I	I	I	I
Check tyre pressure and condition, tightness of wheels, indicators on the dashboard, lights and brake lights, then road test the car	I	I	I	I	I	I	I	I	I	I	I	I

I = inspection and any additional service if required

A = Adjust

R = Replace

**\* operations recommended if the car is often driven either on dusty roads or in unusual traffic conditions.  
If these operations are not carried out, the guarantee will still remain valid.**

## ROUTINE MAINTENANCE SCHEDULE (USA)

OPERATION	[Km] [miles]		2500	12000	24000	36000	48000	60000	72000	84000	96000	108000	120000	132000	144000	156000	168000	
	1500	7500	15000	22500	30000	37500	45000	52500	60000	67500	75000	82500	90000	97500	105000			
Fuel filters and pre-filters							R*			R*			R*					R
Air cleaners			R*		R		R*		R		R*		R		R*			R*
Injection system: lines-connections	I				I				I				I					
Spark plugs			R*		R		R*		R		R*		R		R*			R*
Valve clearance			I-A		I-A		I-A		I-A		I-A		I-A		I-A			I-A
Cooling system	I		I		I		I		I		I		I		I			I
Engine data (LDAS): acquisition and printing	I									I			I					
Fuel filters and pre-filters	I		I		I		I		I		I		I		I			I
Engine accessories control belts	I-A		I*		I-A		I*		I-A		I*		I*		I*			R
Engine oil and filter (at least once a year)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Carburation, CO/HC concentration										I*								I
Idle speed	I				I*						I							I
Oxygen sensor																		R
Fuel vapours emission control system																		I
Activated carbon filter																		R
Crankcase emission control system										I								
Braking system; pipes and calipers			I		I		I		I		I		I		I			I
Brake pedal clearance, handbrake adjustment	I		I		I		I		I		I		I		I			I

OPERATION	[Km]		[miles]		2500	12000	24000	36000	48000	60000	72000	84000	96000	108000	120000	132000	144000	156000	168000	
	1500	7500	15000	22500	30000	37500	45000	52500	60000	67500	75000	82500	90000	97500	105000					
Brake fluid (replace every year)	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R
Brake disk and pads	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Clutch reservoir fluid (replace every year)	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R
Air conditioning system (check every year)			I		I		I		I		I		I		I		I		I	
Air conditioning dust filters (replace every two years)		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Gearbox and front and rear differential oil	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I
Power steering/lifting system oil (replace every two years)	I		I		I		I		I		I		I		I		I		I	
Steering components, joint protection, gaiters on the steering rack, steering levers and on the drive shafts	I		I		I		I		I		I		I		I		I		I	
Front and rear suspension joints and their tightening	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Suspension geometry and shock absorbers adjustment	I		I		I		I		I		I		I		I		I		I	
Check battery and connections	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Tightening of screws, bolts and clips on body and chassis	I		I		I		I		I		I		I		I		I		I	
Doors, boot and bonnet hinges lubrication	I		I		I		I		I		I		I		I		I		I	

OPERATION	[Km]	[miles]	2500	1500	12000	7500	24000	15000	36000	22500	48000	30000	60000	37500	72000	45000	84000	52500	96000	60000	108000	67500	120000	75000	132000	82500	144000	90000	156000	97500	168000	105000		
	Check for presence and integrity of wheel hub-rim inner and outer water seals. Check general appearance of wheel and replace it if corrosion or damage to paint reaching the metal is found	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Check tyre pressure and condition, tightness of wheels, indicators on the dashboard, lights and brake lights, then road test the car	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I

I = inspection and any additional service if required

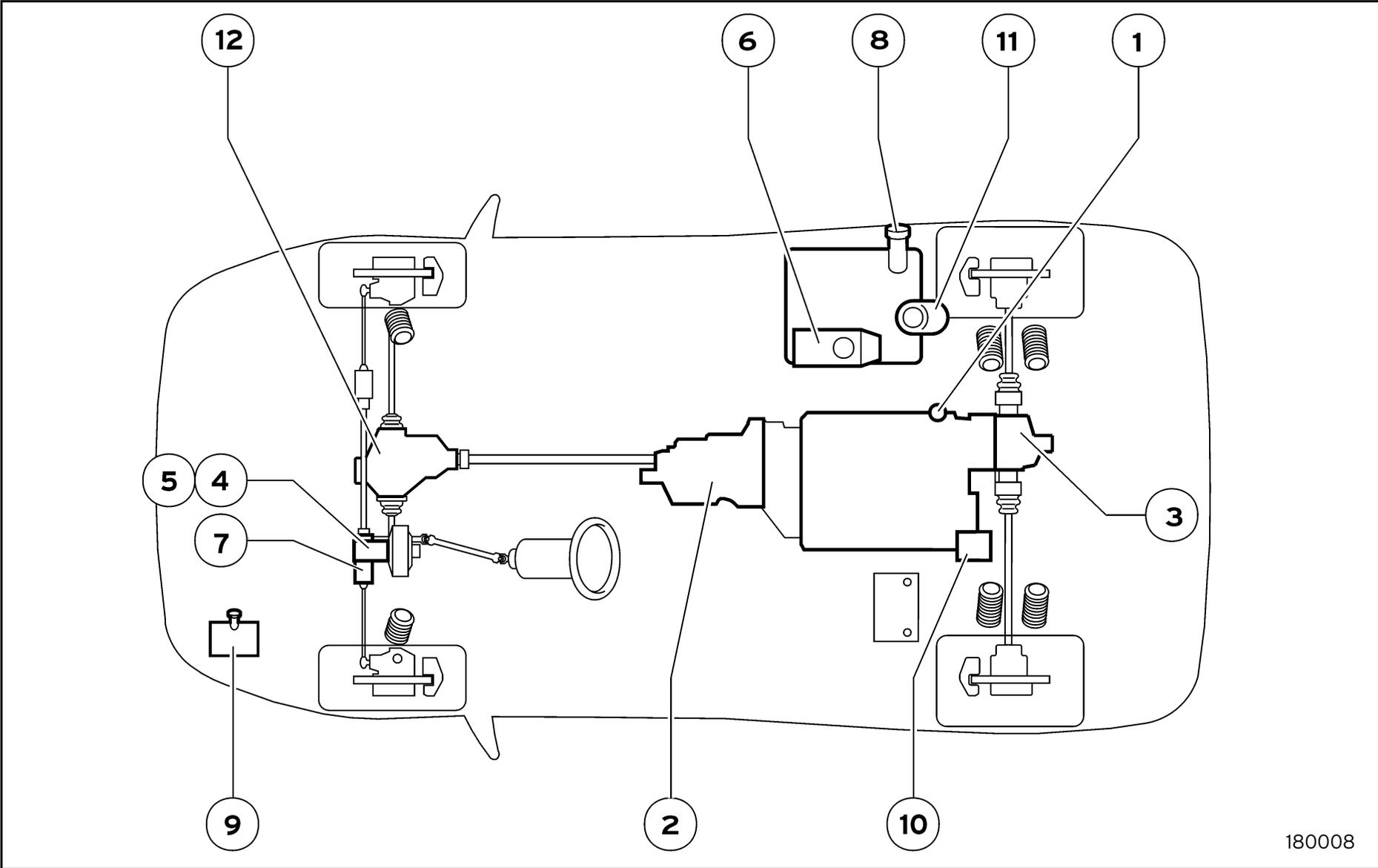
A = Adjust

R = Replace

\* operations recommended if the car is often driven either on dusty roads or in unusual traffic conditions. If these operations are not carried out, the guarantee will still remain valid.

**FLUIDS AND CAPACITIES**

Ref.	Parts involved	Quantity (liters)	Type of oil	Specifications
1	Engine	15	AGIP SINT 2000 SAE 5W/40 or SAE 10W/50	API-SJ/SF
2	Gearbox	3.5	AGIP ROTRA LSX HY DB SAE 75W/90	MIL-L 2105 API GL-4
3	Rear differential	1.7	AGIP ROTRA MPS SAE 85W/90	MIL-L 2105 D API GL-5
4/5	Bracking system/ Clutch liquid	0.35	ATE TYP 200	DOT 4 SAE J 1703
6	Cooling circuit	15	AGIP ECOPERMANENT	BS 3151-B
7	Steering box	0.12	SEMI FLUID GREASE	NLGI
8	Fuel tank	100	Unleaded petrol 95 N.O.	
9	Window raster reservoir	5	Water + detergent mixture	
10	Air conditioning system	900 (g)	R134A ECOLOGICAL	
11	Power steering/ Lifting system	2.7	AGIP ATF II E	G.M. DEXRON II 6137M
12	Front differential	1	AGIP ROTRA MPS SAE 85W/90	MIL-L 2105 D API GL-5
	Greasing		AGIP GREASE 33 FD DROP POINT 240°C	NLGI 3



180008

Fig. 1 - Fluids and capacities

## LIFTING THE VEHICLE

### With a lifting jack

When a lifting jack is available make sure the holder arms are in contact with the jacking points (1) as shown in the figure.



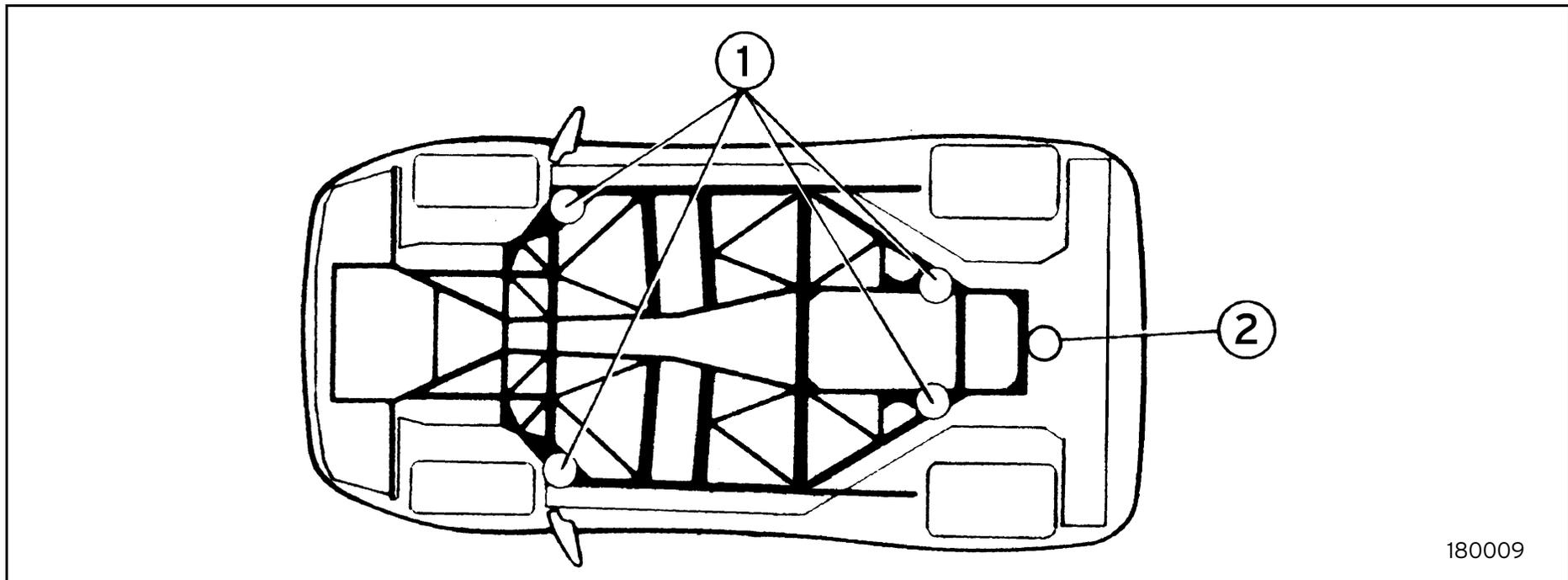
Only use the special jacking points, as the lower body panels could otherwise be damaged.

### With a hydraulic jack

To lift the car in an emergency situation position the hydraulic jack on the point (2) indicated in the figure.



Placing the jack in other positions could cause damage to the car and injury to the operator. Make sure the car is on level ground, that the 1st gear is engaged and the handbrake is also engaged.



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