LANCIA

DELTA HF
integrale ('91 range)

1L02DV

Service
Manual

Preface

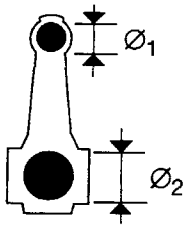
This manual is subdivided into sections headed by two digit numbers which appear in the parts microfiches and the repair time schedule.

The section **INTRODUCTION AND TECHNICAL DATA (00.)** has a dual function of introducing the model and supporting the remaining part of the manual.
It includes the technical data tables and specific information for the remaining part of the manual.

The remaining sections (10. - 33. - 55. - 70.) include only the descriptions for the operations to be carried out which have been modified for the 91 range. For the sections which remain unchanged, see the previous publications (From print n° 504.787 to n° 504.787/11)

This manual contains graphic representations and symbols in place of descriptions for mechanical components and repair operations.
The use of colour for a component or part of one, serves to highlight the components and draw the operator's attention to the object to be measured or checked.

For example:



Small end diameter

Big end bearing housing

Tighten to torque

THE OVERHAULING OF THE 1995 I.E. TURBO 16 VALVE ENGINE IS ILLUSTRATED IN THE "OVERHAULING PETROL ENGINE" BOOKLET (PRINT NO. 504,513/06)

The **DELTA HF integrale - 91 range** is a 2 box saloon with a load carrying structure; the 1995 cc, 4 cylinder in line, tranverse mounted engine runs on super petrol and is equipped with Weber/Marelli electronic injection/ignition; it is supercharged by a turbocharger and develops a power output of 151 kW corresponding to 210 CV DIN (bhp).
The four wheel drive is permanently engaged. There is a "Ferguson" type viscous joint on the centre differential. The self-locking rear differential is of the "Torsen" type.

The lines along which the DELTA HF intgrale 91 range have been styled are designed to:
- improve the characteristics of road holding and driveability
- increase the aggressive nature of the vehicle with features linked to improving the mechanics and aerodynamics of the vehicle

Below is a detailed list of the new features of the vehicle

VEHCLE EXTERIOR

Bonnet lid: aggressive, sporty appearance due to the larger projection (on account of the larger size of the mechanical components) with the addition of two side grilles which improve the air flow to the engine compartment
Front and rear wings: larger following the enlargement of the track
Rear side doors: new design to be in line with the rear wing
Spoilers: box section to be more robust and new shape to conform with the wings
Front bumper: redesigned to increase the open surfaces to increase the intake for cooling air into the engine compartment
Rear bumper: new design to be consistent with the larger wings
Front light clusters: smaller diameter (Ø 130 mm) but with improved lighting capacity (dipped beam headlamps) with a poly-elliptical reflector lens
Fog lights: new design with improved features
Tailgate: there is a spoiler on the tailgate which improves the penetration coefficient (CX) by 0.5 (with benefits at high speeds) recovering the increase in resistance due to the larger front end (as a result of the increased track). The spoiler can be fitted in different positions according to the requirements of the driver
Wheel rims: new design, with larger vents to improve brake cooling with 5 fixing bolts with 7½" duct

Front windscreen wiper: new design with 20" blades and built in spoiler for both arms
Fuel filler: completely new, with a design in line with the sporty nature of the vehicle
Badges: new yellow "HF" badge (which is a feature of larger Lancia models) with a small elephant recalling tradition (positioned on the front grille)

VEHICLE INTERIOR

Steering wheel: new designe with leather covered spokes, anotomical design and horn on the spokes
Instrumentation: different colour for instruments and graphics for individual panels, to achieve a more sporty look

Gear lever: new design with anotomical grip

MECHANICS

Track: the front track has been increased by 54 mm and the rear track by 60 mm in order to considerably improve stability and road holding
Front suspension with: **box section** track control arms, **stronger** struts, **reinforced** bushes, **shock absorbers** with larger diameter shank and attachments raised by 12.5 mm, **anti-roll bar** with attachments of track control arms achieved by means of connecting rods (giving more precise operation), **springs** which are larger and more rigid. In order to strengthen the front of the bodyshell and prevent variations in the front wheel geometry a **aluminimum bar has been added** which connects the front turrets (and consequently the shock absorber upper attachments)
Rear suspension with: **transverse track control arms and** stronger rods, new **springs, shock absorbers** with new setting adn increased travel, **anti-roll bar** with new geomety and varied rigidity, **dampers** which are stronger
Front brakes: new double cylinder fixed type aluminium calipers (Brembo) and self-ventilated brake discs (Ø 281 mm and 26 mm thick). **Brake servo** increased by 8"
Rear brakes: new single piston caliper sliding on rails (Girling-Colette) and new discs (Ø 251 mm)
Exhaust pipes: new single outlet exhaust pipe, with pipe diameter increased to 60 mm. **These features mean that the engine power output has been increased from 200 CV (DIN) (bhp) to 210 CV (DIN) (bhp)**
Steering: larger power assisted steering box and the addition of an oil cooling coil

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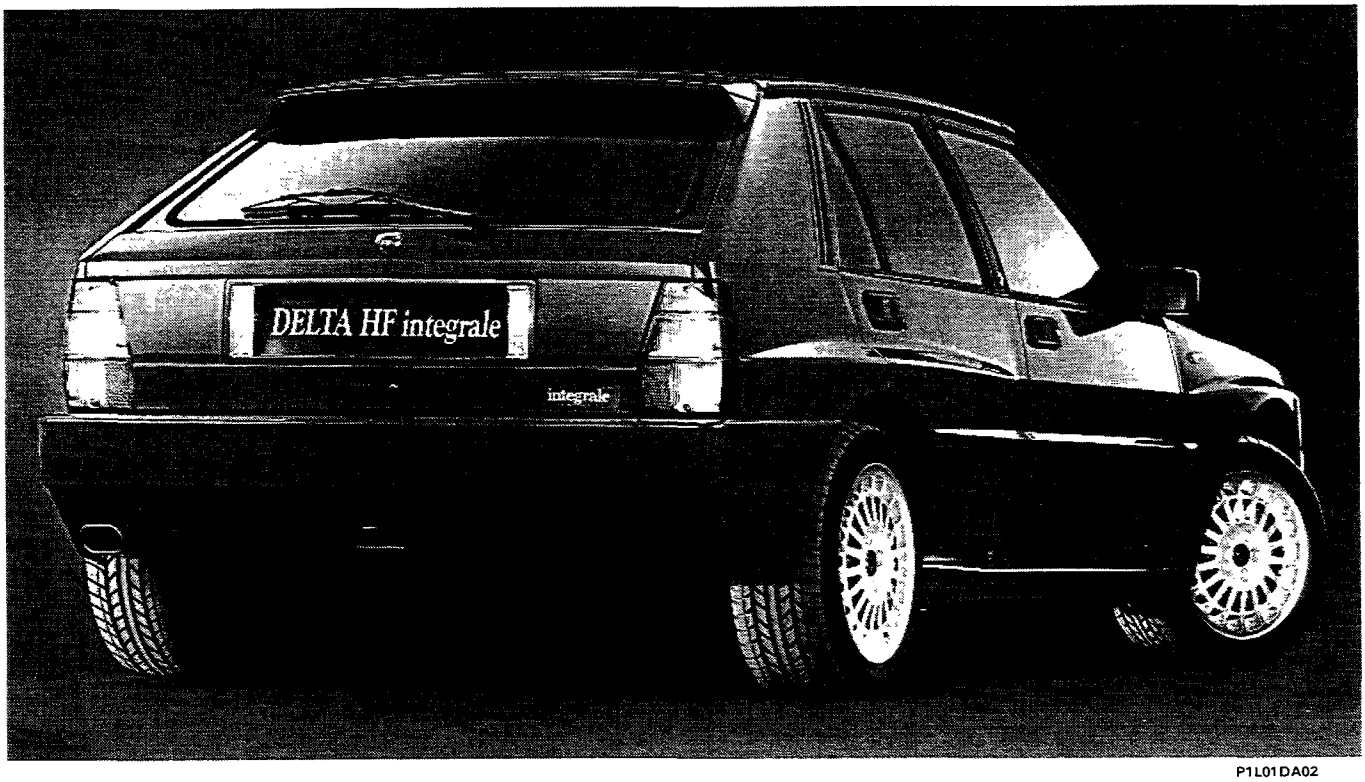
3/4 front view

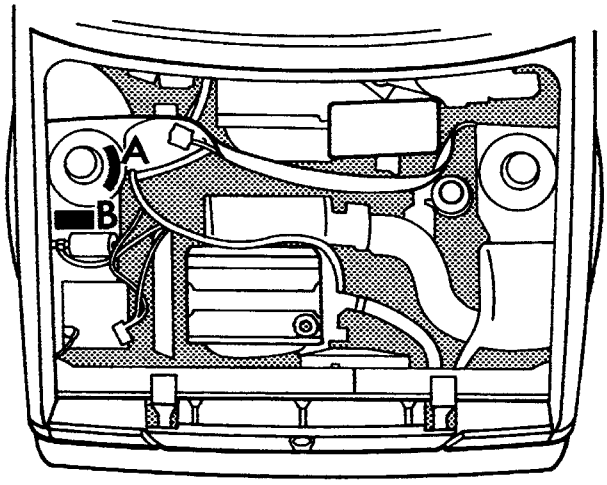


P1L01DA02

3/4 rear view

IDENTIFICATION DATA	CHASSIS	ENGINE	VERSION	5 speed gearbox
1995 *i.e. turbo 16v*	ZLA 831 ABO	831 E5.000	831 ABO 27	●

LOCATION OF IDENTIFICATION DATA ON VEHICLE



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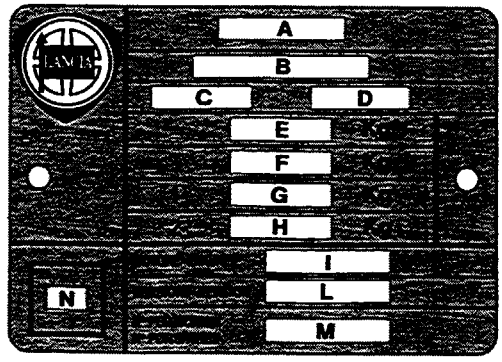

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A Chassis marking

- Vehicle type: (ZLA 831 ABO)
- chassis manufacture number.

NOTE *The engine type and number are stamped on the engine cylinder block-/crankcase behind the engine oil cartridge filter.*

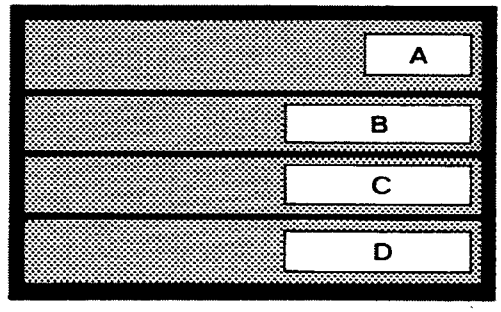
B V.I.N. Plate (EEC regulations)

A. Name of manufacturer.
B. Type approval number.
C. Vehicle type identification code.
D. Chassis manufacture number.
E. Maximum authorized weight of vehicle fully laden.
F. Maximum authorized weight of vehicle fully laden plus tow.
G. Maximum authorized weight on first axle (front).
H. Maximum authorized weight on second axle (rear).
I. Bodywork version code.
L. Engine type.
M. Spares number.
N. Correct value of smoke absorption coefficient (for Diesel engines).

Body paintwork identification plate

It is located on the inside of the bonnet lid

A. Paint manufacturer
B. Description of colour
C. Colour code
D. Colour code for retouches or spraying



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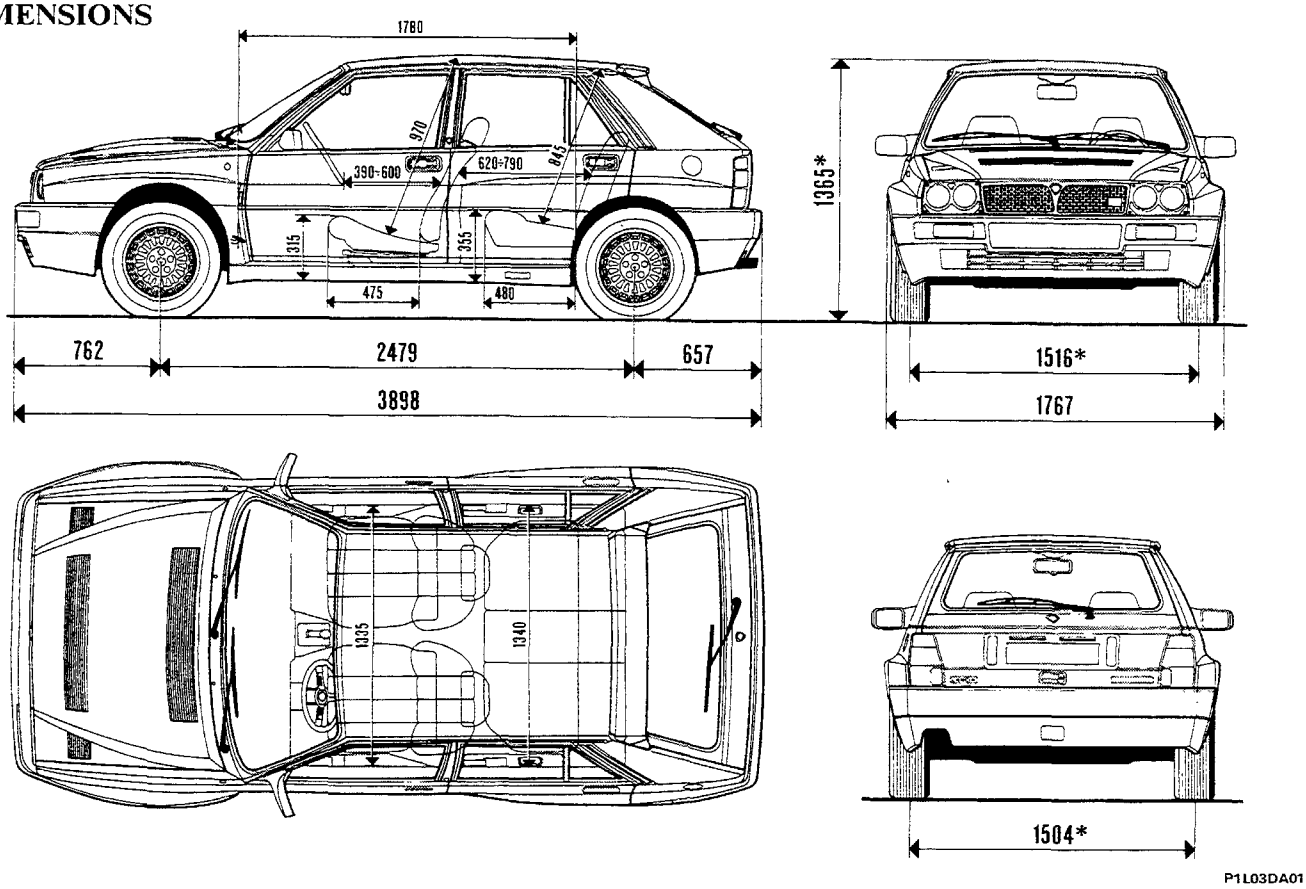
DIMENSIONS

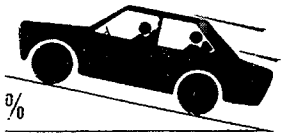
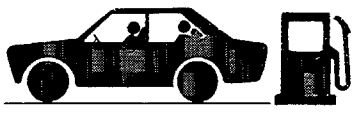


(*) Unladen vehicle
Luggage compartment capacity with rear backrest in normal position: 200 dm³ (7.06 cu ft).
Luggage comparment capacity with rear backrest folded down: 940 dm³ (33.19 cu ft).

WEIGHTS (in kg)

Kerb weight		1300
	+450 (100)	1750
	+ (100)	940 (1030 maximum permissible weight)*
	+ (100)	810 (1030 maximum permissible weight)*
		1200

* With the maximum permissible weight remaining unaltered

Speed kph 	1	62
	2	100
	3	143
	4	189
	5	220
	R	62
Maximum climable gradient 	1	58
	2	40
	3	25
	4	17
	5	12
	R	68
EEC fuel consumption figures (litres/100 km) 	Urban cycle (A)	11,2
	Constant speed 90 kph (B)	7,9
	Constant speed 120 kph (C)	10,5
	Average consumption (CCMC proposal) $\frac{A+B+C}{3}$	9,8

The fuel consumption figures in the table have been obtained in the course of official tests following procedures established by EEC regulations. The urban cycle fuel consumption figures, in particular, have been measured at the test bench whilst the figures for constant speeds of 90 and 120 kph are measured directly on a flat, dry road and during bench tests. These figures may provide a useful basis for comparison with other vehicles. Traffic conditions, driving styles, atmospheric conditions and the general state of the vehicle may, in practice, lead to fuel consumption figures which differ from those obtained from the above legal procedures.

PASTEL BODY COLOURS	SEAT MATERIALS AND COLOURS Alcantara/velour
Lord Blue (438)	Black
White (210)	Black
Monza Red (210)	Black

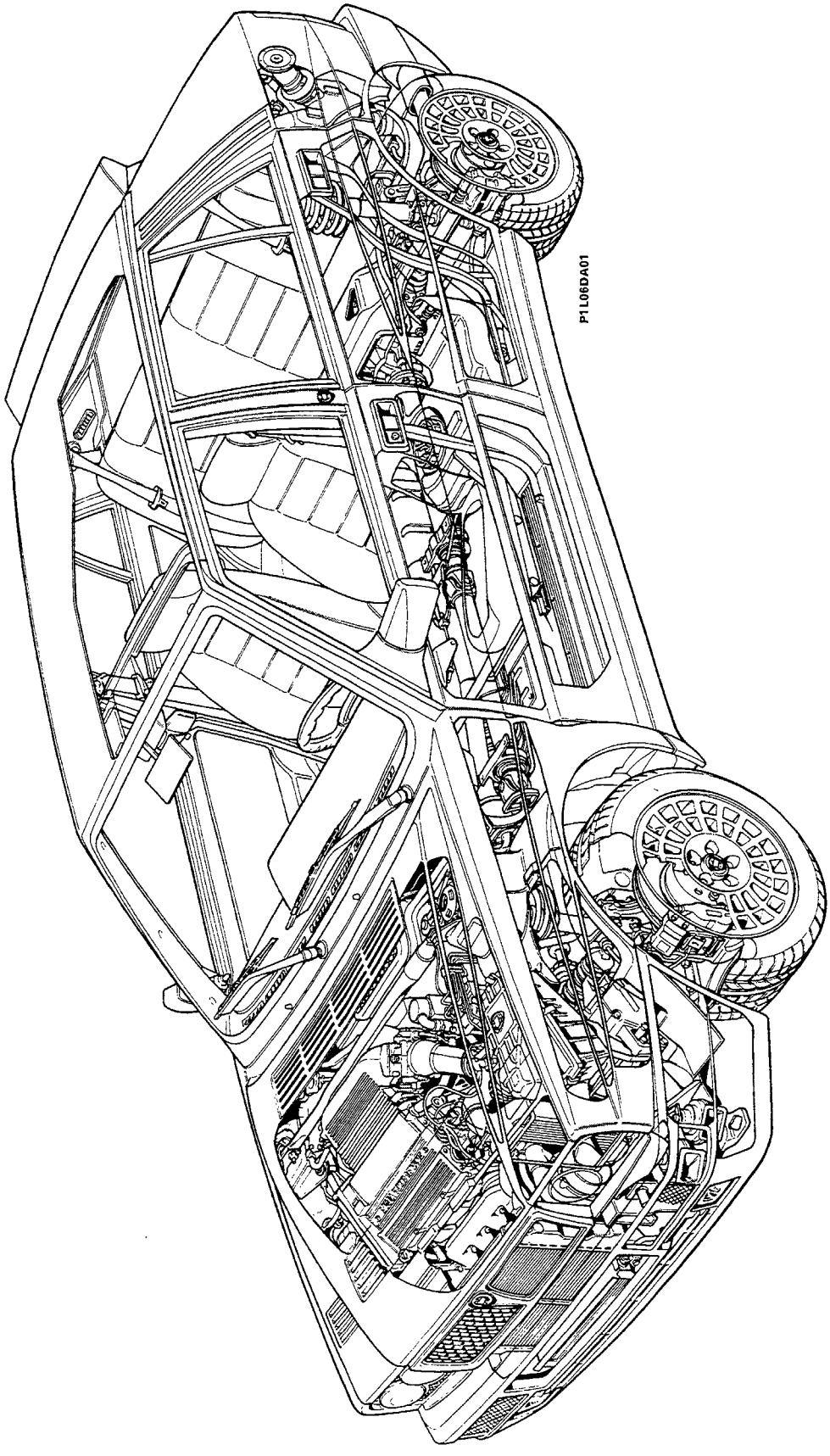
METALLIC BODY COLOURS (OPTIONAL)	
Metallic black (632)	Black
Pearlescent Derby Green (340)	Black
Pearlescent Winner Red (180/A)	Black
Pearlescent Madras Blue (429/A)	Black

OPTIONAL EQUIPMENT	
Power assisted steering	▲
Automatic air conditioning	●
Control-System	●
Electrically operated sun roof	●
Metallic/pearlescent paint	●
Split folding rear seats	●
Fog lights	●
Alcantara Recaro seats	●
Headlamp alignment from inside the vehicle	●
Anti-lock brakes (A.B.S.)	●
Electric front windows	▲
Tinted windows	▲
Mecahnically adjusted exterior rear view mirror, passenger side	▲
Central locking	▲
Alloy wheels	▲
Leather sports steering wheel	▲
Front and rear inertia reel seat belts	▲
Electronic rev counter	▲
Spoiler in the same colour as the vehicle	▲
Rearscreen wash/wipe	▲
Steering wheel adjustable for height	▲
Instrument panel light dimmer	▲
Heated rear windscreen	▲
Recaro real leather seats	●

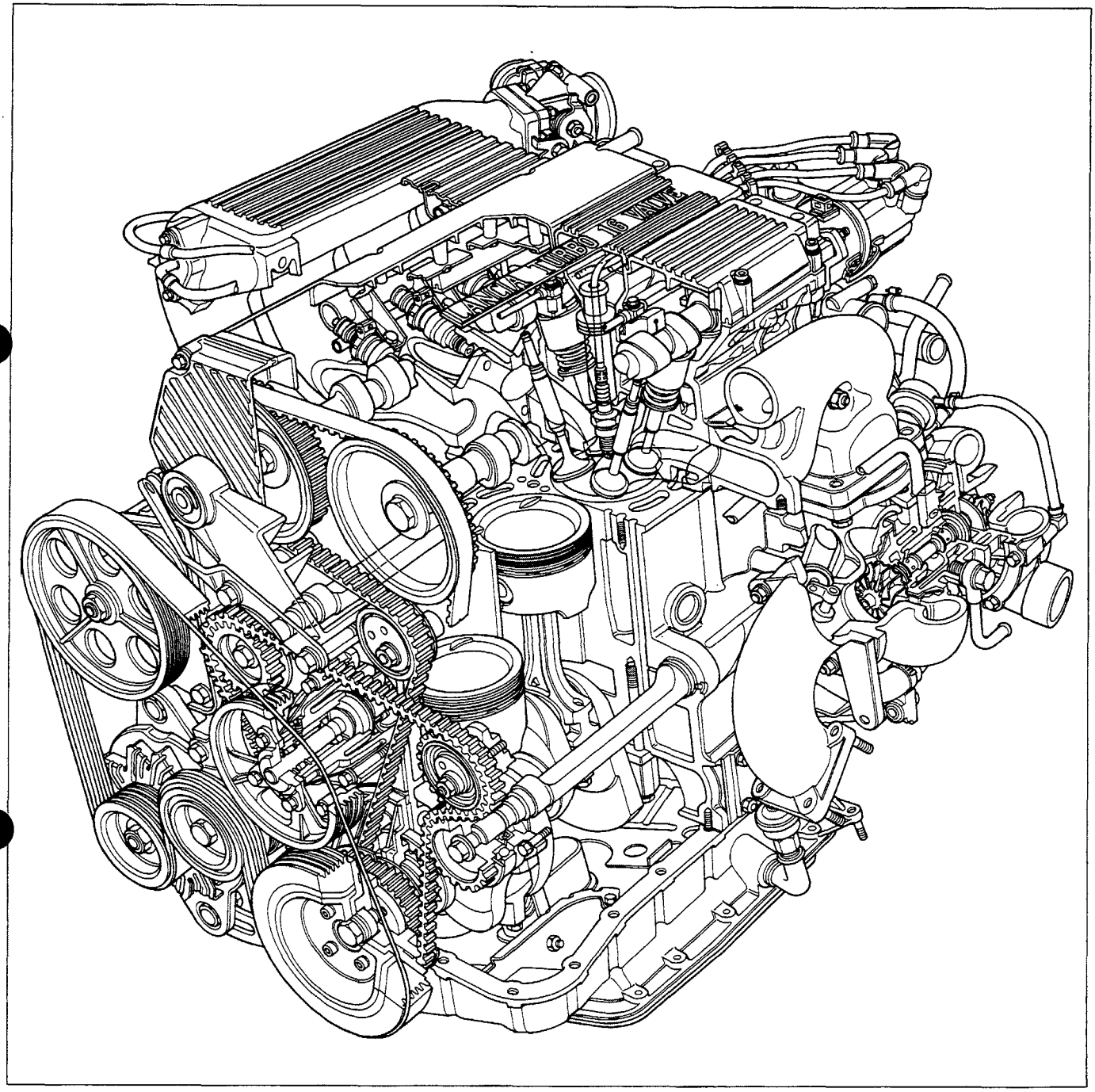
(▲) fitted as standard (●) available on request

00.0

LAYOUT OF MECHANICAL COMPONENTS ON VEHICLE



ENGINE ASSEMBLY, PARTIAL CROSS SECTION



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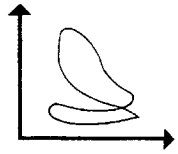
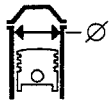
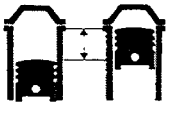
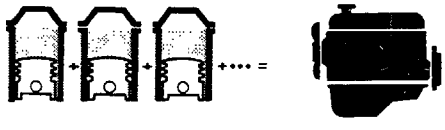
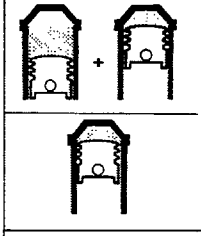
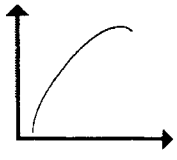
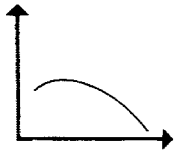
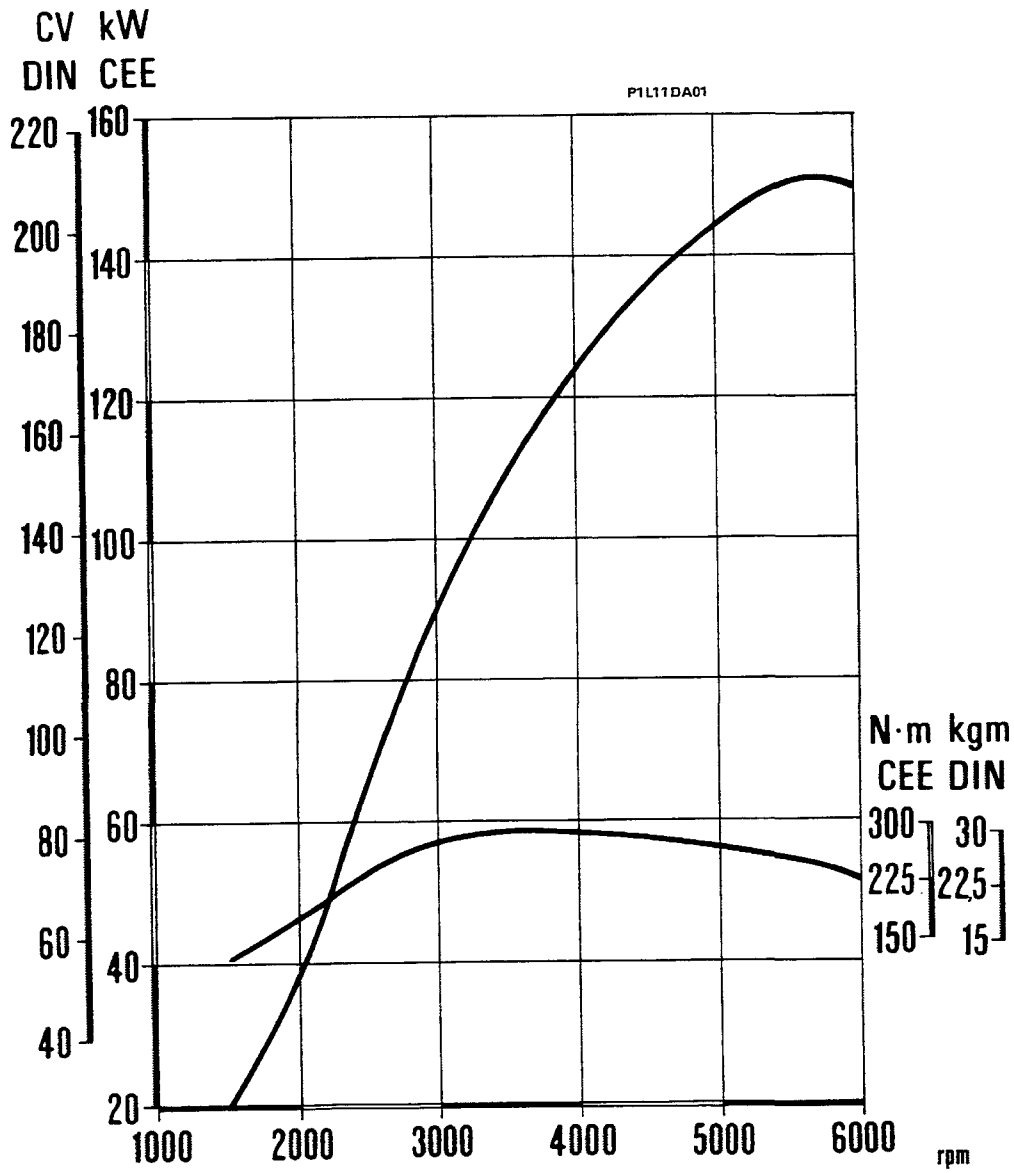
Description	Unit	Quantity dm³	Quantity (kg)
Petrol O.R. 95		57	-
50% + ▲	Total capacity of cooling system	6,2	-
SELENIA (SAE 15W40)	Total capacity	5,9	5,0
	Partial capacity (periodic replacement)	-	4,80
TUTELA DOT 4	Total capacity of hydraulic clutch and braking system — without ABS	0,56	-
	Total capacity of hydraulic clutch and braking system — with ABS		
a = TUTELA ZC 80S	a	3,80	3,40
b = TUTELA GI/A	b	-	-
TUTELA W 90/M DA	a	-	-
	b — Self-locking	1,1	1
a = TUTELA GI/A	a	0,75	-
b = K 854	b	-	-
c = TUTELA MRM2	c	-	0,10
+ DPT	3%	2	-
	~- 10 °C ~- 20 °C — 50%		
	100%		

▲ Distilled water

Name of product	Description International designation	Usage
SELENIA SAE 15 W/40	Multigrade engine oil containing polyalphaolefines and external synthetics. Exceeds specifications API SG and CCMC- G2/G3. Cuna NC 610 01 G2	Temperature - 15°C ÷ >40°C
Exceeds European specification CCMC-G2/G3'S SAE 10 W/30	Low ash content detergent oil for petrol engines. Service API "SF".	Temperature below -15°C ÷ 30°C
SAE 15 W/40		Temperature - 15°C ÷ >40°C
SELENIA Turbo Diesel SAE 15 W/40	Multigrade engine oil containing polyalphaolefines and external synthetics.Exceeds specifications API CD and CCMC-PD1, Cuna NC 610 01 CL. PD1.	Temperature - 15°C ÷ >40°C
Satisifes standards MIL-L-2104 D and CCMC-PD1 SAE 10 W/30	TUTELA DOT 4 Oil for diesel engines. Service API "CD".	Temperature below -15°C ÷ 30°C
VS Diesel Supermultigrade		SAE 15 W/40 Temperature£ 15°C ÷ >
SAE 80/W oil. Satisifies standards MIL-L-2105 and API GL4	+ Supermultigrade	TUTELA ZC 80S
TUTELA ZC 90	Non EP SAE 80 W/90 oil, for manual gearboxes, containing anti-wear additives.	Gearboxes and non hypoid differentials
TUTELA W 90/M DA	Special EP SAE 80 W/90 oil for normal and self-locking differentials. Satisfies standards MIL-L-2105 C and API GL5	Hypoid differentials Self-locking differentials. Steering boxes
TUTELA GI/A	"DEXRON II" type fluid for automatic transmissions.	Automatic gearboxes. Power assisted steering
TUTELA CVT	Oil for continuous variation automatic transmissions.	Continuous variation automatic tranmissions
TUTELA JOTA 1	Lithium soap based grease, consistency NLGI = 1	Greasing the vehicle except for components particularly exposed to water requiring special greases
TUTELA MRM2	Water-repellant, lithium soap based grease containing molybdenum disulphide, consistency NLGI = 2	Constant velocity joints
TUTELA MR3	Lithium soap based grease, consistency NLGI= 3	Wheel hub bearings, steering rod, various components
TUTELA DOT 3 Manual gearboxes and differentials	Fluid for hydraulic brakes, meeting regulations USA FMVSS n. 116, SAE J 1703, ISO 4925, CUNA NC-956-01	Hydraulic brakes and hydraulically operated clutches
K 854	Lithium soap based grease, consistency NLGI = 000, containing molybdenum disulphide	Rack and pinion steering boxes
SP 349	Special castor oil and sodium soap based grease containing graphite and molybdenum disulphide, compatible with brake fluid and brake circuit rubber seals	Load proportioning valve Load proportioning valve rod bush
Autofà n° 9 DP1	Alcohol based liquid detergent	To be used undiluted or diluted in windscreen washers and headlamp washers
Liquido Paraflu[11] FIAT	Mono-ethylene glycol based anti-freeze for cooling system	Cooling circuits. Percentage to be used 35% up to - 25°C 50% up to - 35°C
40°C	Diesel Mix	Additive for diesel fuel with protective action for diesel engines

CHARACTERISTICS

			831 D5.000
	Cycle	Cycle	OTTO 4 stroke supercharged
		Timing	with 2 overhead cams (TOHC)
		Type of fuel supply	Electronic injection/ignition
	Number of cylinders		4
	Cylinder liner (bore)	mm	84
	Stroke	mm	90
	Capacity	cc	1995
	Compression ratio		8 ± 0,15
Total volume of combustion chamber		cc	71,20 (in the cylinder head 40,6)
	Max power	kW (EEC) CV (DIN)	151 (210)
		rpm	5750
	Max torque	daNm (EEC) kgm (DIN)	29,8 (31)
		rpm	3500



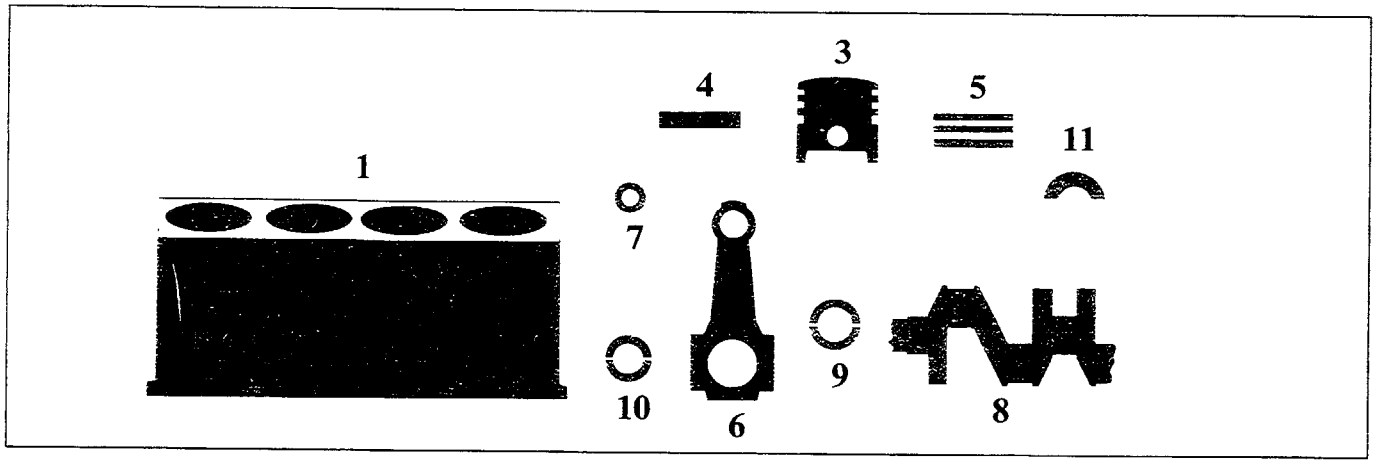
Typical power curves obtained by EEC method

The power illustrated can be obtained with the engine overhauled and run in, without a fan and with a silencer and air filter fitted, at sea level.

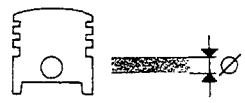
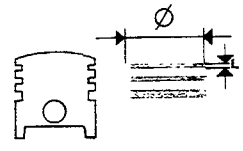
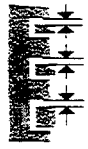
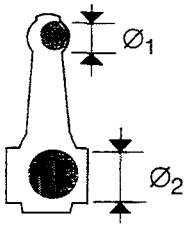
Test bench cycles of overhauled engines

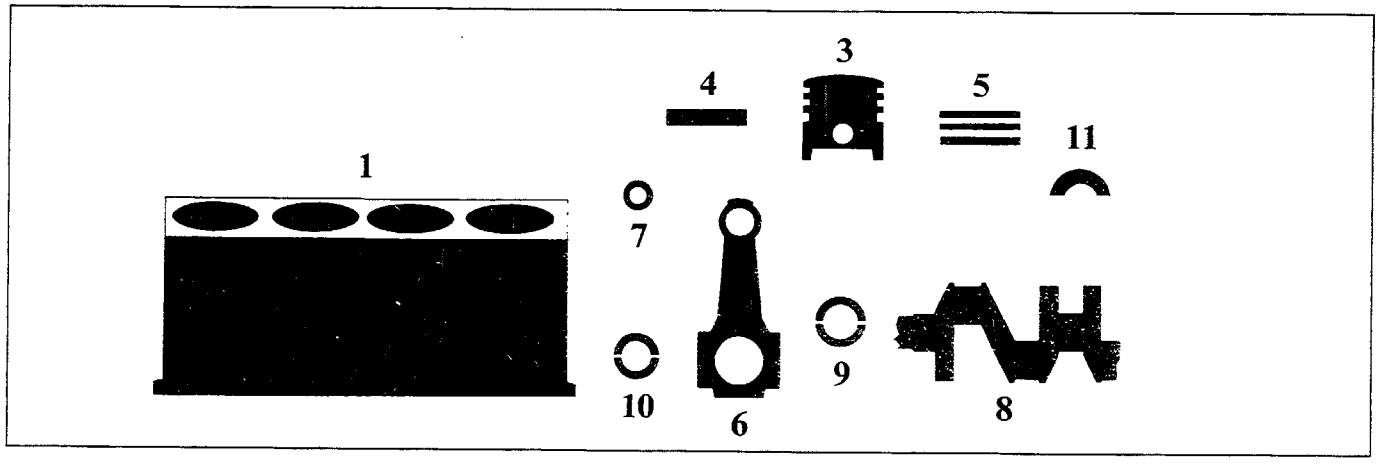
During the bench test of the overhauled engine it is not advisable to run the engine at maximum speed, but to stick to the figures given in the table; complete the running in of the engine in the vehicle.

Test speed (rpm)	Time in minutes	Load on the brakes
800 ÷ 1000	10'	no load
1500	10'	no load
2000	10'	no load



DESCRIPTION			Values in mm
1	Main bearing supports	L	23,100 ÷ 23,200
		⌀ A	56,717 ÷ 56,723
		⌀ B	56,723 ÷ 56,729
		⌀ C	56,729 ÷ 56,735
	Cylinder bore ⌀ (0,010)		84,000 ÷ 84,050
3	Piston	Y	15
		⌀ A	83,940 ÷ 83,950
		⌀ C	83,960 ÷ 83,970
		⌀ E	83,980 ÷ 83,990
	⌀ LANCIA >		0,4
3	Difference in weight between pistons		±5 g
3-1	Piston-Cylinder bore		0,050 ÷ 0,070
3	Gudgeon pin housing	⌀ 1	21,996 ÷ 21,999
		⌀ 2	21,999 ÷ 22,002

DESCRIPTION		Values in mm
4  Gudgeon pin	Ø 1	21,991 ÷ 21,994
	Ø 2	21,994 ÷ 21,997
	Ø LANCIA >	0,2
4-3 Gudgeon pin - Housing		0,002 ÷ 0,008
3  Piston ring grooves	1 	1,535 ÷ 1,555
	2	2,020 ÷ 2,040
	3	3,967 ÷ 3,987
5  Piston rings	L 1 	1,478 ÷ 1,490
	2	1,987 ÷ 1,990
	3	3,925 ÷ 3,937
	Ø LANCIA >	0,4
5-3 Piston rings / Piston ring grooves	1 	0,045 ÷ 0,077
	2	0,030 ÷ 0,062
	3	0,030 ÷ 0,062
5-1  Opening at ends in cylinder bore	1	0,30 ÷ 0,50
	2	0,30 ÷ 0,50
	3	0,25 ÷ 0,40
6  Small end bush housing	$Ø_1$	24,988 ÷ 25,021
	1	53,904 ÷ 53,910
Big end bearing housing	$Ø_2$ 2	53,898 ÷ 53,904
	3	53,892 ÷ 53,898



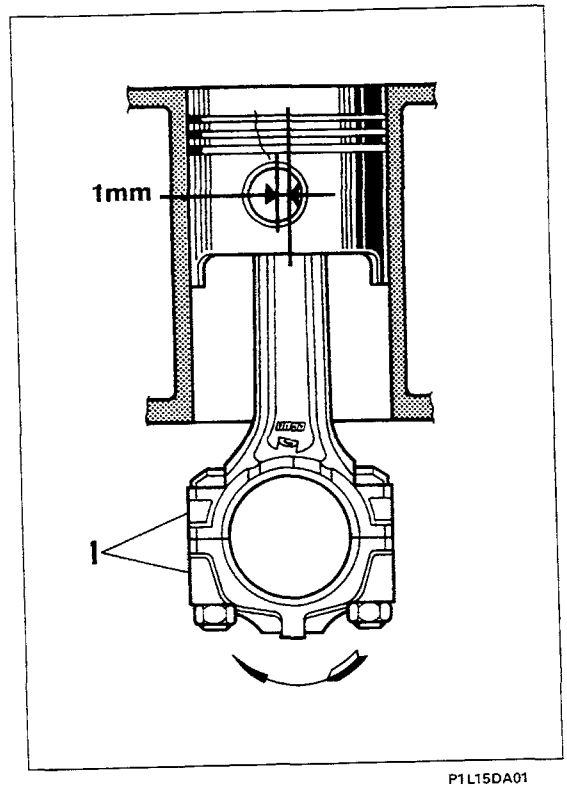
DESCRIPTION			Values in mm
7 Small end bush	$\varnothing_1$		25,065 ÷ 25,090
	$\varnothing_2$	1	22,004 ÷ 22,007
		2	22,007 ÷ 22,010
4-7 Gudgeon pin / Small end bush			0,010 ÷ 0,016
7-6 Small end bush / Bush housing			0,044 ÷ 0,102
8 Main journals	$\varnothing_1$	A	52,998 ÷ 53,004
		B	52,992 ÷ 52,998
		C	52,986 ÷ 52,992
Crank pins	$\varnothing_2$	1	50,799 ÷ 50,805
		2	50,793 ÷ 50,799
		3	50,787 ÷ 50,793
	L		27,975 ÷ 28,025
9 Crankshaft bearings	L	A	1,838 ÷ 1,844
		B	1,844 ÷ 1,850
		C	1,850 ÷ 1,856
	⌀ LANCIA <		0,254 ÷ 0,508

DESCRIPTION		Values in mm
9-8	Crankshaft bearings -Main journals	0,025 ÷ 0,049
10	Big end bearings L A	1,527 ÷ 1,533
	L B	1,533 ÷ 1,539
	L C	1,539 ÷ 1,545
	⌀ LANCIA <	0,254 ÷ 0,508
10-8	Big end bearings -Main journals	0,033 ÷ 0,057
11	Thrust washers S	2,310 ÷ 2,360
	S LANCIA >	0,127
11-8	Crankshaft end float	0,055 ÷ 0,305

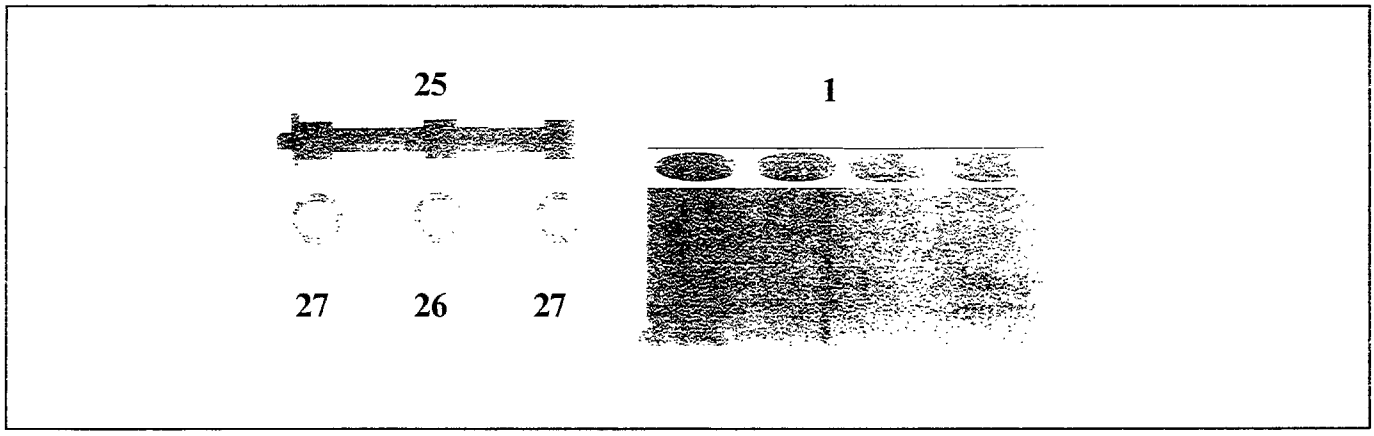
Diagram showing fitting of connecting rod-piston assembly and direction of rotation in engine

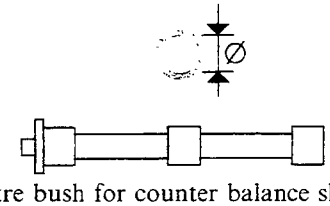
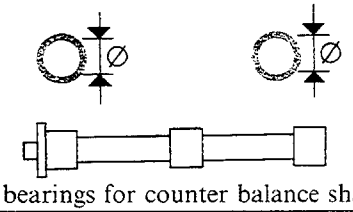
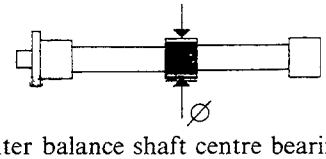
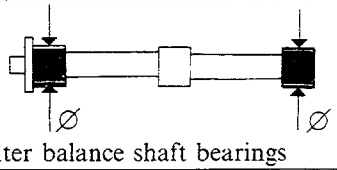
1 = Area where matching number of cylinder bore to which connecting rod belongs is stamped.
The arrow shows the direction of rotation of the engine as seen from the timing side.

1 mm = Gudgeon pin offset on the piston.

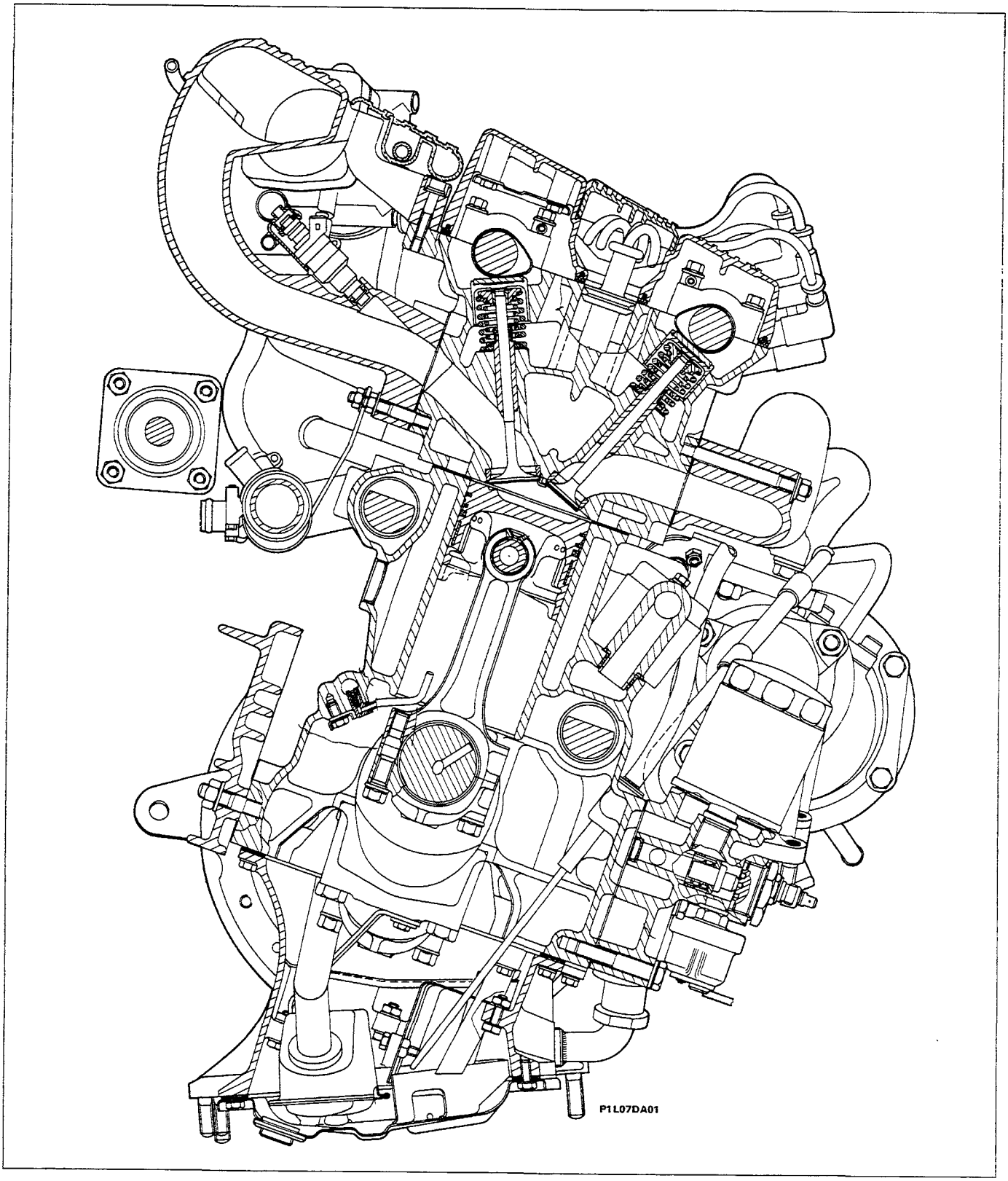


P1L15DA01

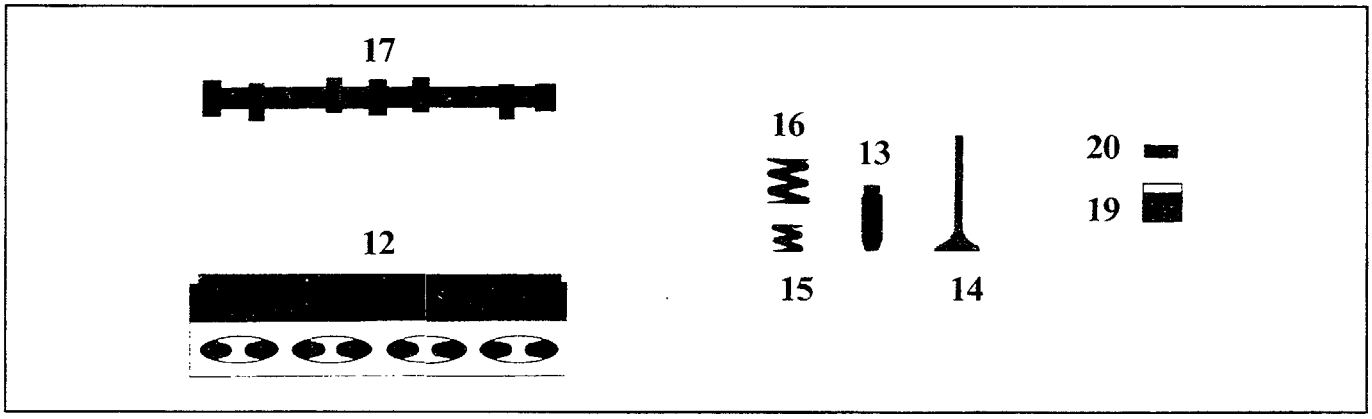


DESCRIPTION		Values in mm
25	Counter balance shafts	n° 2
	Shaft control	by toothed belt
26  Centre bush for counter balance shafts in housing	∅	37,020 ÷ 37,040
27  Ball bearings for counter balance shafts	∅	19,990 ÷ 20,000
25  Counter balance shaft centre bearing	∅	36,945 ÷ 36,960
25  Counter balance shaft bearings	∅	19,980 ÷ 19,993
26-1	Bush for shaft Housing	0,080 ÷ 0,150
25-26	Shaft bearing - Bush	0,060 ÷ 0,095
27-1	Ball bearings Cylinder block seats	+0,011 ÷ – 0,025
25-27	Shaft bearings Ball bearings	+0.020 ÷ – 0,003

CROSS SECTION OF ENGINE



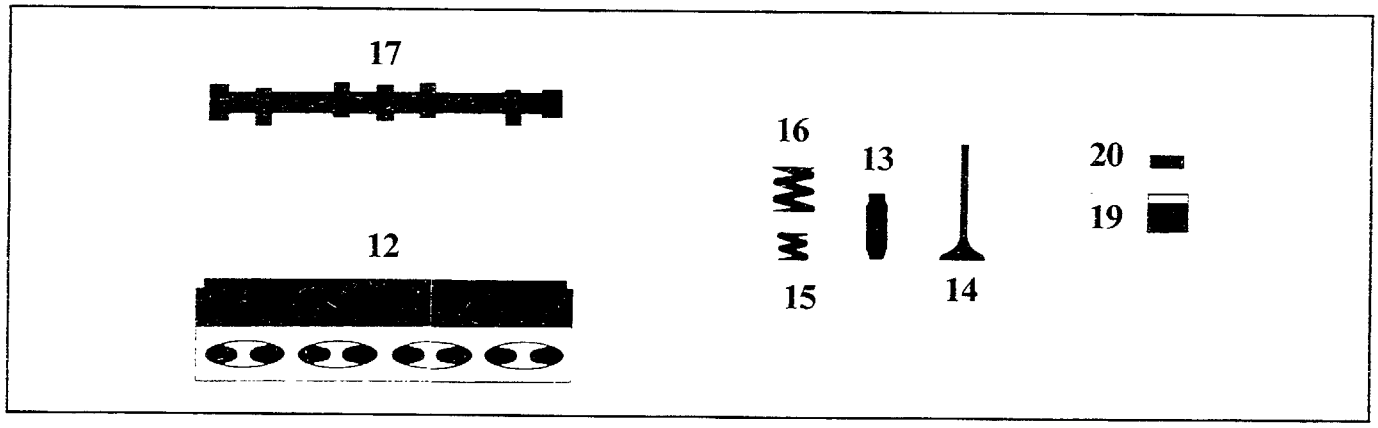
00.10



DESCRIPTION			Values in mm
12	Valve guide bore in cylinder head	∅	13,950 ÷ 13,977
	Valve seat	α →	45° ± 5'
		α >	45° ± 5'
		L	about 2
	Volume of combustion chamber in cylinder head	cc	40,6
13	Valve guide	$∅_1$	7,022 ÷ 7,040
		$∅_2$ →	14,010 ÷ 14,030
		$∅_2$ >	14,010 ÷ 14,030
		$∅_2$ LANCIA >	0,05-0,10-0,25
13-12	Valve guide Bore in cylinder head	→	0,033 ÷ 0,080
		>	0,033 ÷ 0,080
14	Valves →	$∅_1$	6,974 ÷ 6,992
		$∅_2$	34,300 ÷ 34,500
		α	45° 30 ± 5'
	Valves >	$∅_1$	6,974 ÷ 6,992
		$∅_2$	28,300 ÷ 28,500
		α	45° 30' ± 5'

DESCRIPTION		Values in mm
14-13 Valve - Valve guide		0,030 ÷ 0,066
15 Internal valve spring	P_1	14,12 ÷ 15,10 daN
	H_1	31
	P_2	26,39 ÷ 28,74 daN
	H_2	21,5
16 External valve spring	P_1	36,68 ÷ 39,6 daN
	H_1	36
	P_2	55,91 ÷ 60,82 daN
	H_2	26,5
17 Camshaft bearings	Ø	28,480 ÷ 28,495
	L	19,670 ÷ 19,750
Cam lift		8,6
		7,5
Camshaft supports on cylinder head **12**	Ø	28,545 ÷ 28,570
	L*	19,450 ÷ 19,520
Tappet housings	Ø	37,000 ÷ 37,025
17-12 Camshaft bearings Camshaft housing supports	radial	0,050 ÷ 0,090
	axial	0,150 ÷ 0,300
19 Tappet	Ø	36,975 ÷ 36,995

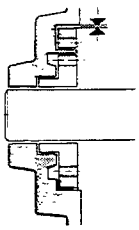
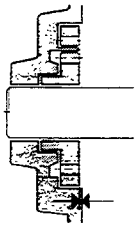
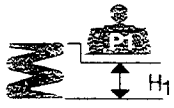
* Rear cap measurement



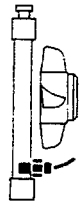
DESCRIPTION		Values in mm
19-18	Tappet Housing in cylinder head	0,005 ÷ 0,050
20	Shim S (0,05)	3,25 ÷ 4,70
17-20	clearance for timing check — inlet	0,80
	clearance for timing check — exhaust	0,80
	operational clearance — inlet	0,35 ± 0,04
	operational clearance — exhaust	0,40 ± 0,03

TIMING ANGLES

inlet	opens BTDC	8°
	closes ABDC	35°
exhaust	opens BTDC	30°
	closes ABDC	0°

	Values in mm
Engine lubrication system	forced feed by means of lobe pump with cartridge oil filter in series
Oil pump	lobe gears
Pump operated	through crankshaft
Oil pressure relief valve	incorporated in crankshaft front cover
 between pump casing housing and driven gear	0,080 ÷ 0,186
 between the upper side of the gears and the pump cover	0,025 ÷ 0,056
Full flow filter	cartridge
Insufficient oil pressure sender unit	electrical
 Operating pressure at a temperature of 100°C	3,4 ÷ 4,9 bar
 P_1	11,1 ÷ 12,1 daN
Oil pressure relief valve spring H_1	35,3

COOLING SYSTEM

Cooling circuit		coolant circulation via centrifugal pump, radiator and two speed electrical fan operated by thermostatic switch
Water pump operated		through belt
 Thermal switch to engage fan	⇄	86° ÷ 94°C
	stop	81° ÷ 89°C
Engine coolant thermostat	opening	81° ÷ 85°C
	max opening	91° ÷ 93°C
	valve travel	⩾ 7.5 mm
Clearance between impeller vanes and pump casing		0,6 ÷ 1 mm
Pressure for checking system water tightness		0.98 bar
Pressure for checking exhaust valve on expansion tank cap		0.98 bar

FUEL SYSTEM - Description

Type	I.A.W. (MPI) injection/ignition
Fuel regulation pressure	2,5 bar
Pump (type)	electrical
Pump capacity (14 V supply with engine idling)	⩾ 120 litri/h

SUPERCHARGING (with turbocharger operated by exhaust gases with waste-gate valve)

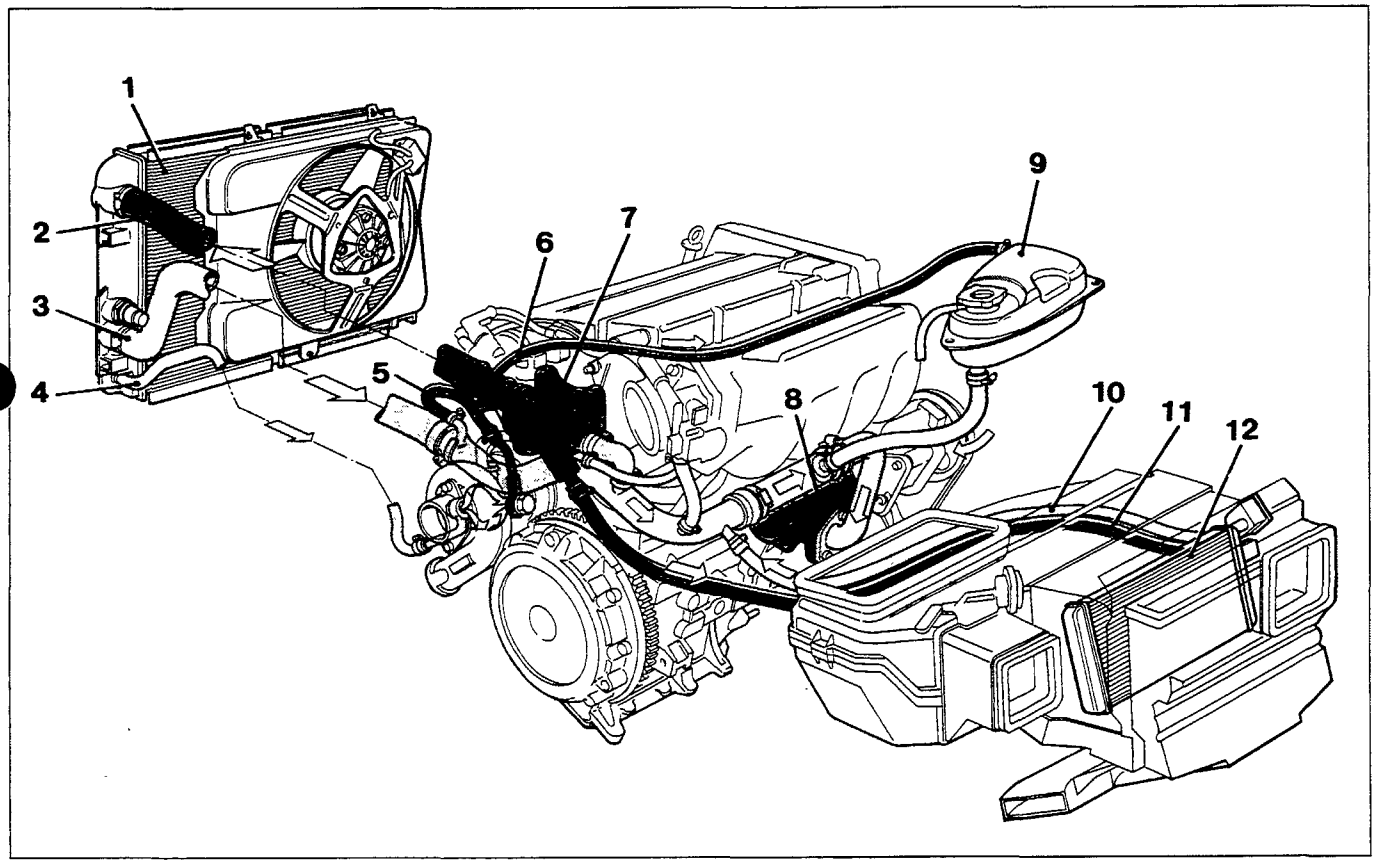
Turbocharger type:	Garrett T3
Maximum supercharging pressure	1 bar

Checking engine idle speed and carbon monoxide emissions

Engine idle speed	rpm	820 ÷ 880 (870 ÷ 930) (*)
Co idle emissions	(%)	1.5 ± 0,5

(*) With VAE valve disconnected: for further detailes see SECTION. 10 PAGE 6

DIAGRAM SHOWING OPERATION OF ENGINE COOLING SYSTEM



P1L31DA02 P1L31DA03

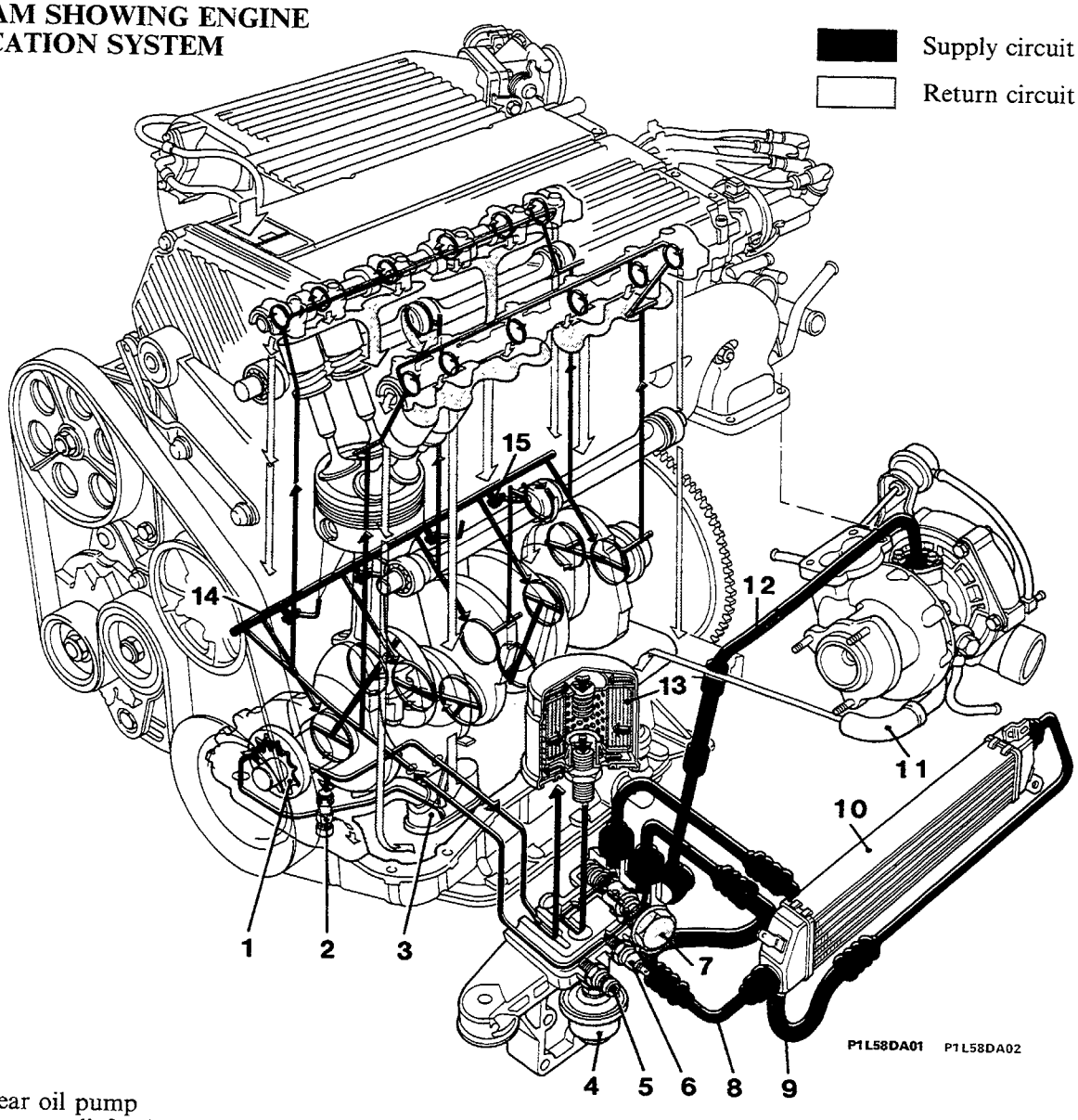
1. Engine coolant radiator
2. Coolant hose between thermostat and radiator
3. Coolant hose between radiator and pump
4. Coolant hose between the radiator and the turbocharger
5. Coolant hose between turbocharger and pump
6. Coolant return hose to expansion tank
7. Controlled by-pass thermostat for mixing coolant liquid
8. Water pump
9. Expansion tank
10. Coolant hose between heater/radiator and pump
11. Coolant hose between thermostat and heater/radiator
12. Heater/radiator

Supply circuit

Return circuit

00.10

DIAGRAM SHOWING ENGINE LUBRICATION SYSTEM



1. Lobe gear oil pump
2. Oil pressure relief valve
3. Strainer with gauze filter
4. Oil pressure sender unit
5. Oil temperature sender unit
6. Switch signalling insufficient oil pressure
7. Plug for oil radiator thermostatic by-pass valve
8. Oil return pipe from cooling radiator to thermostatic valve
9. Oil supply pipe from thermostatic valve to cooling radiator
10. Engine oil cooling radiator
11. Oil return duct from turbocharger to sump
12. Main duct supplying oil under pressure to turbocharger
13. Full flow cartridge oil filter with safety valve for cutting out filter if filter element is blocked
14. Main duct supplying oil under pressure to various components
15. Piston cooling oil jets

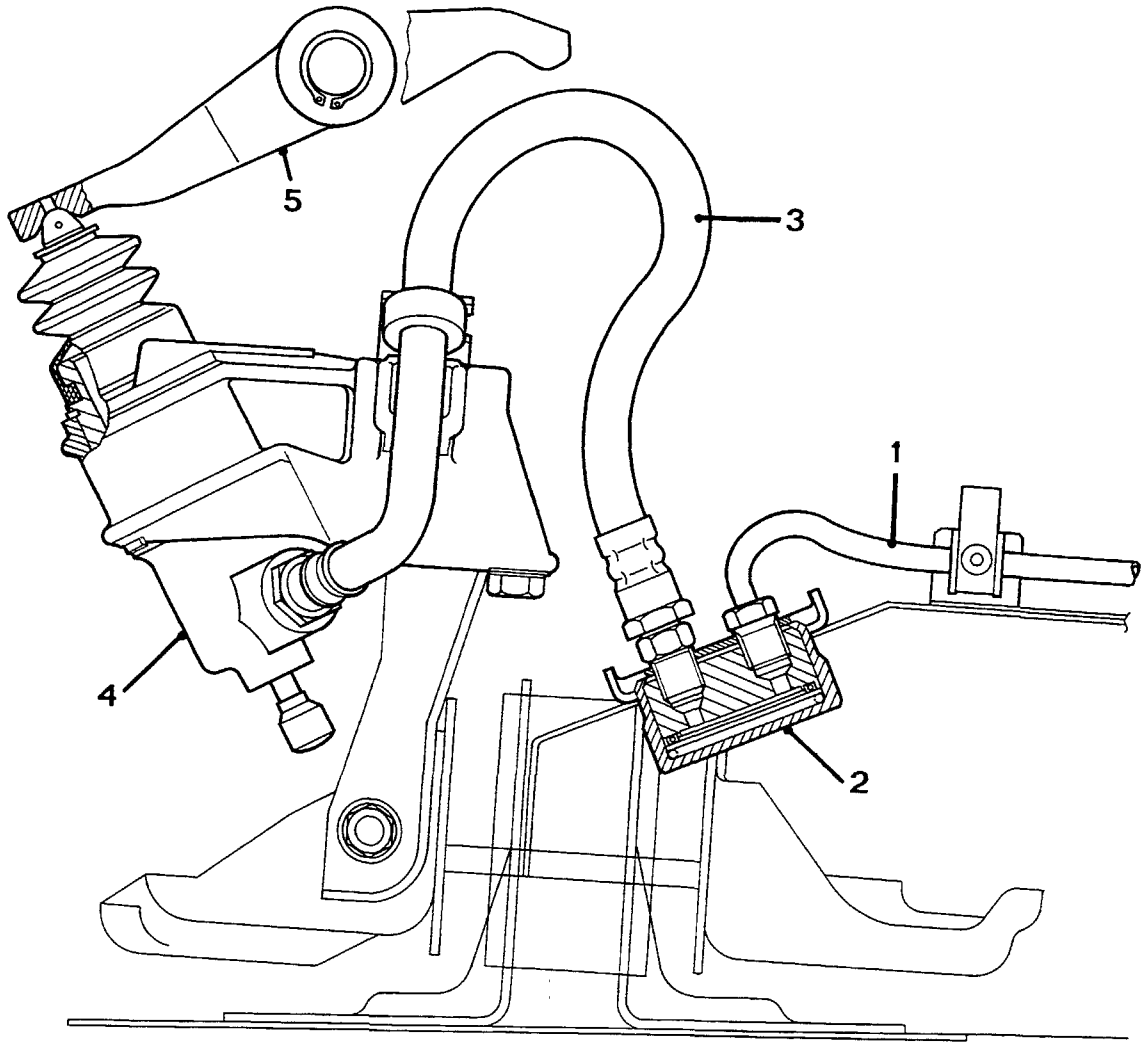
The jets piston cooling oil jets (15) have a built in ball valve which opens at a pressure of between 1.25 and 1.75 bar.
If it is not working properly, replace the jet

The thermostatic valve, located in the oil filter mounting, has the following function:

a) when the temperature is below 78° ± 2°C, the oil passes directly into the cartridge filter and returns to the engine.
b) when the temperature exceeds 83,5° the thermostatic valve is open and allows the oil to flow into the cooling radiator and thereby lower the temperature and ensure improved lubrication.

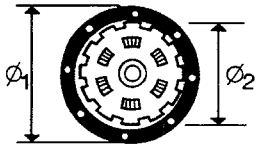
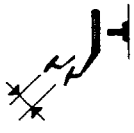
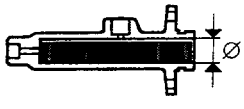
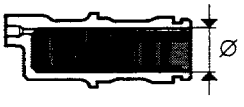
The thermostatic valve is not available as spares; if it is not working properly, replace the complete oil filter mounting.

DIAGRAM SHOWING HYDRAULIC CLUTCH OPERATION WITH VIBRATION DAMPER



P1L25DA01

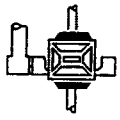
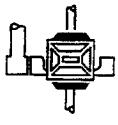
1. Oil pipe between clutch pump and hydraulic vibration damper (2)
2. Hydraulic vibration damper (reduces the vibrations developed by the power unit making the engagement of the clutch more smooth and gradual)
3. Oil pipe between damper (2) and operating cylinder (4)
4. Operating cylinder
5. Clutch control lever

		Values in mm
Type		 dry, single plate
 Operating mechanism		 diaphragm spring
Spring loading	daN	650
 Lining	$\varnothing_1$	236
	$\varnothing_2$	154
	Distance between pedal in end of travel position and rest position	142
Clutch release		hydraulic
	Clutch pump control $\varnothing$	18,75 (3/4")
	Operating cylinder $\varnothing$	25,4 (1")

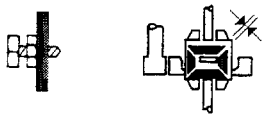
GEARBOX

		Type	C.503.5.29
Synchronizers	spring ring (Porsche type)		-
	baulk ring		1 3 5 / 2 4
Gears	straight toothed		1 3 5 R / 2 4
	helical toothed		1 3 5 / 2 4
Gear ratios		1	3,500
		2	2,176
		3	1,524
		4	1,156
		5	0,917
		R	3,545
	Crown wheel reduction ratio		56/18 (3,11)
Ratio at the wheels		1	10,888
		2	6,767
		3	4,739
		4	3,595
		5	2,851
		R	11,025

CENTRE DIFFERENTIAL: Epicyclic, with torque shared between the front axle and the rear axle with a ratio of 47/53

 Differential internal casing bearing	 conical roller bearings
 Adjustment of bearing pre-loading	 by shims
 LANCIA (0,05) mm Thickness of shims	1,00 ÷ 1,60
 Interference to obtain exact bearing pre-loading mm	bearings not pre-loaded = 0,12 bearings pre-loaded (350 daN) = 0,08

FRONT DIFFERENTIAL

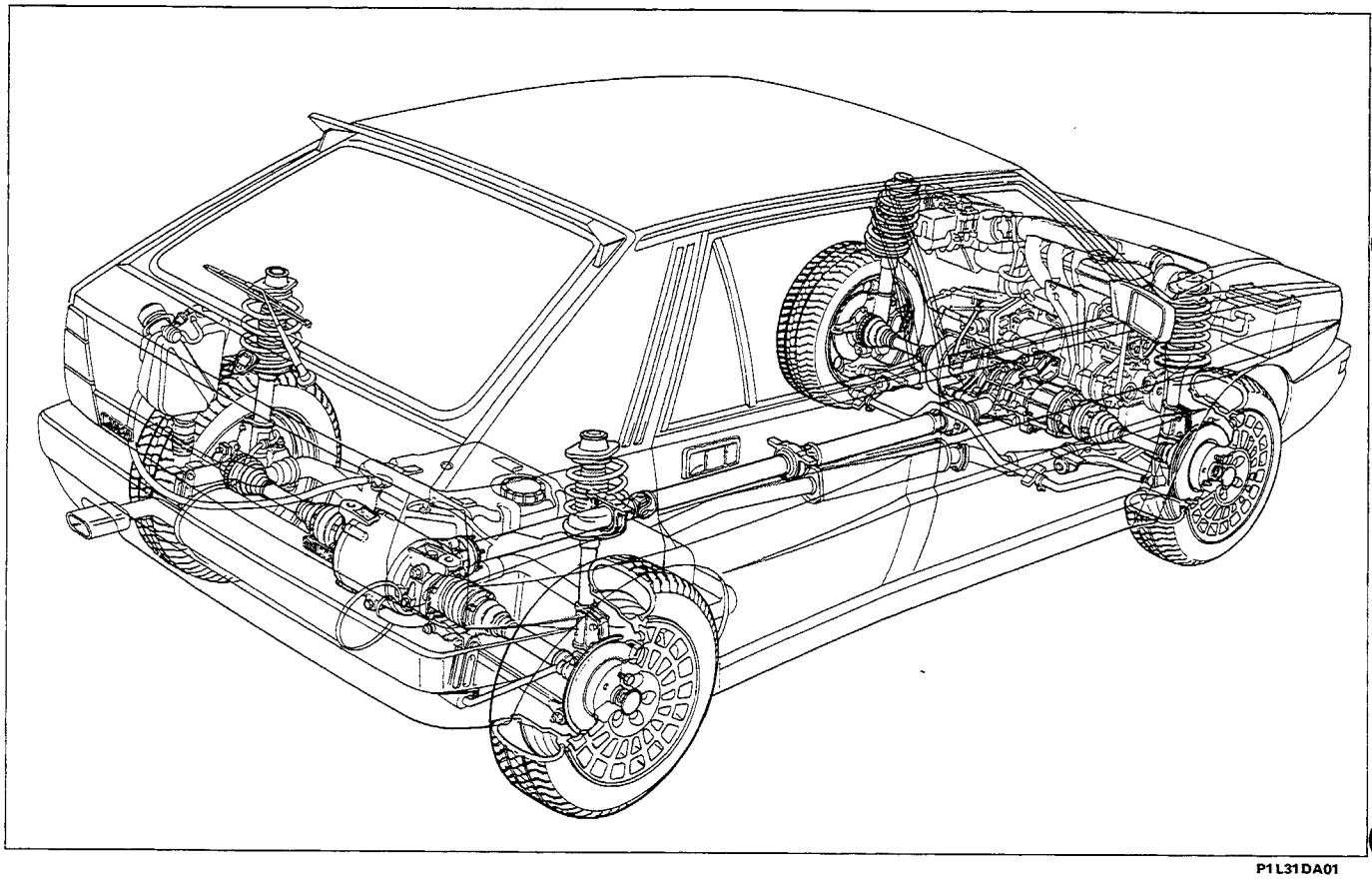
 Clearance between satellite and planet gears mm	⩽ 0,10
 Adjustment of clearance between planet and satellite gears	no adjustment is carried out

IDLER GEAR

 Idler gear ratio	43/19 (2,263)
 daNm Ring gear bearing rolling torque	0,18 ÷ 0,20
 Adjustment of ring gear bearings	 by shims
 LANCIA 0,025 mm Thickness of shims	1,475 ÷ 2,90
 Adjustment of idler gear bevel pinion position	 by shims
 LANCIA 0,02 mm Thickness of shims	2,55 ÷ 3,35
 daNm Bevel pinion bearing rolling torque	0,08 ÷ 0,12
 mm Clearance between pinion and ring gear	0,08 ÷ 0,15
 Adjustment of clearance between pinion and ring gear	 by shims
 LANCIA 0,025 mm Thickness of shims	1,475 ÷ 2,90

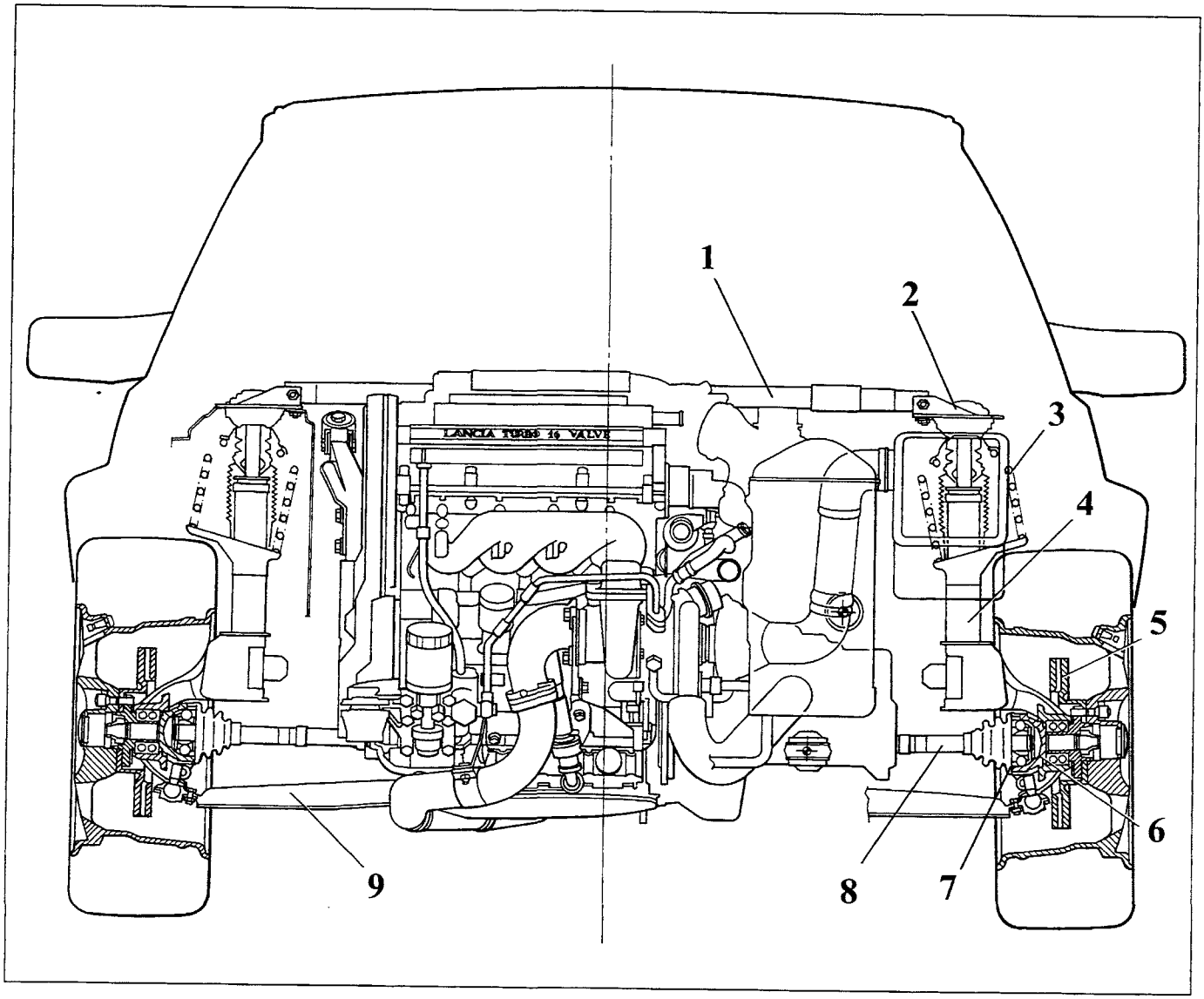
Type		in three sections
Supports		2 { 1 on the centre section with a ball bearing on the support 1 on the rear section with a ball bearing on the inside of the support dust cover
Sliding constant velocity joints		1, on the front section
Universal joints		2, on the centre section
Splined coupling		1, on the rear section
Spider radial clearance	mm	0,01 ÷ 0,04
Thickness of circlips for adjusting spider radial clearance	mm	1,50-1,53-1,56-1,59-1,62
Clearance between splined coupling grooves	mm	0,175 ÷ 0,350

LAYOUT OF DRIVE TRANSMISSION COMPONENTS



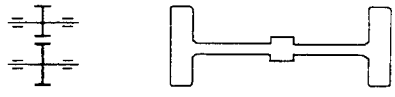
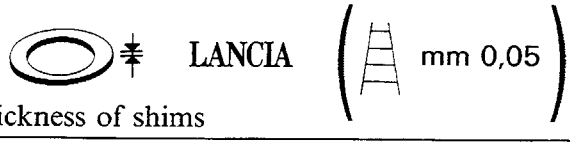
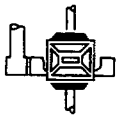
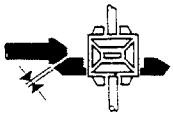
P1L31DA01

VIEW (PARTIAL SECTION OF FRONT WHEEL HUBS) OF POWER UNIT, SUSPENSION AND FRONT DRIVE



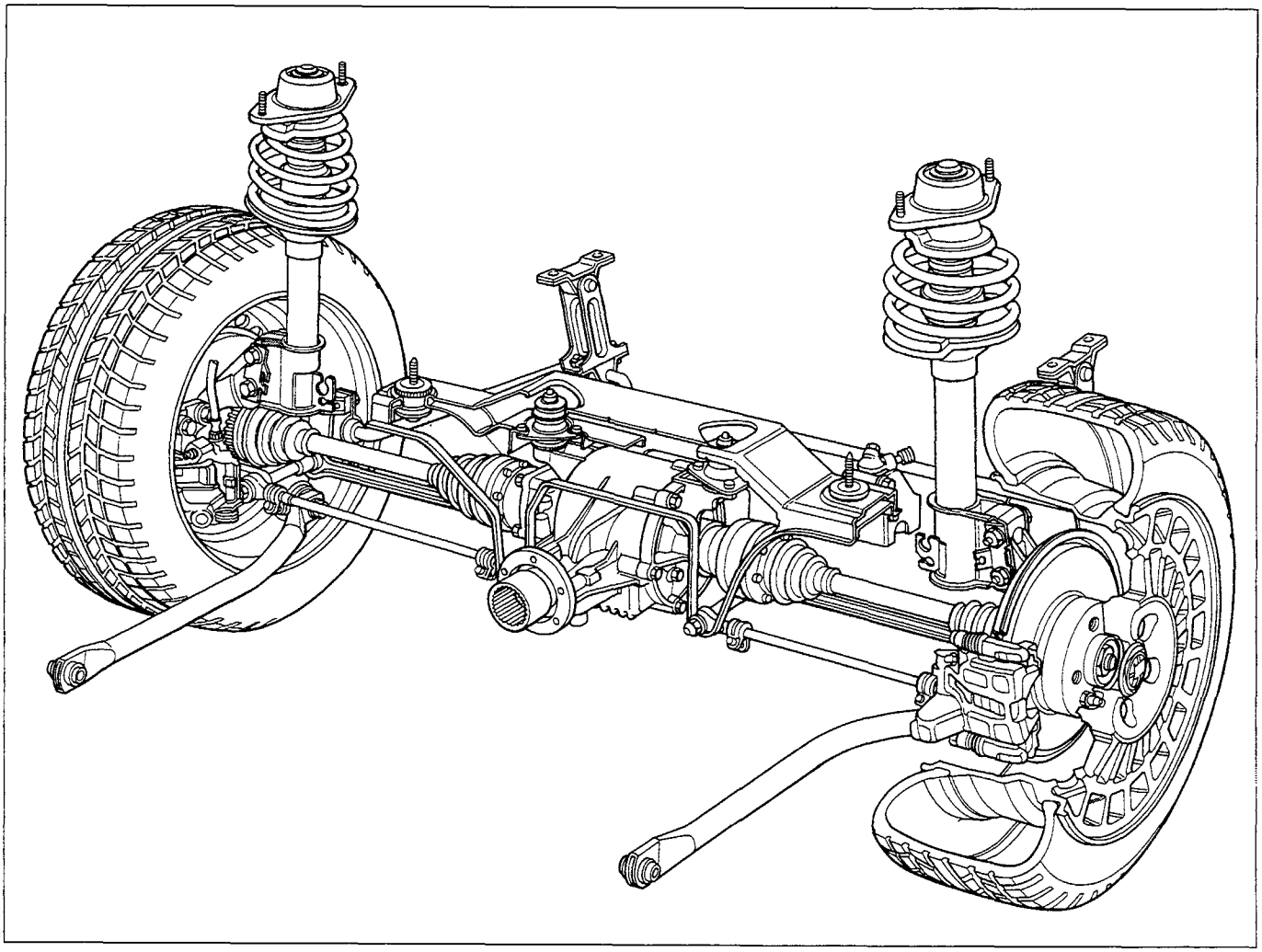
P1L26DA01

1. Bar connecting shock absorber turrets
2. Fixing for front shock absorber to turret
3. Front suspension spring
4. Front suspension
5. Ventilated brake disc
6. Front suspension steering knuckle
7. Constant velocity joint
8. Front drive shaft
9. Lower track control arm

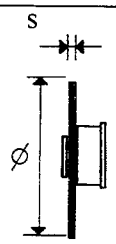
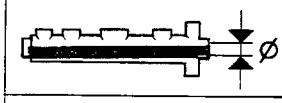
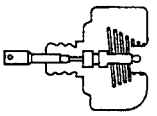
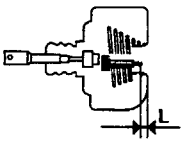
 Crown wheel and pinion reduction	19/43 (2,263)
 Ratio at the wheels 	10,888
	6,767
	4,739
	3,595
	2,851
	11,025
 daNm Bevel pinion bearing rolling torque	0,08 ÷ 0,12
 Adjustment of bevel pinion position	 by shims
 LANCIA mm 0,05 Thickness of shims	2,55 ÷ 3,35
 Differential internal casing bearing	 conical roller bearings
 daNm Ring gear bearing rolling torque	0,18 ÷ 0,20
 mm Clearance between pinion and crown wheel	0,08 ÷ 0,15

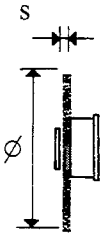
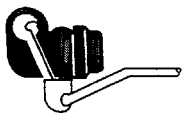
Adjustment of clearance between pinion and crown wheel	by shims
Adjustment of bearing pre-loading	
LANCIA (0,05) mm Thickness of differential internal casing bearing pre-loading shims	0,18 ÷ 0,20

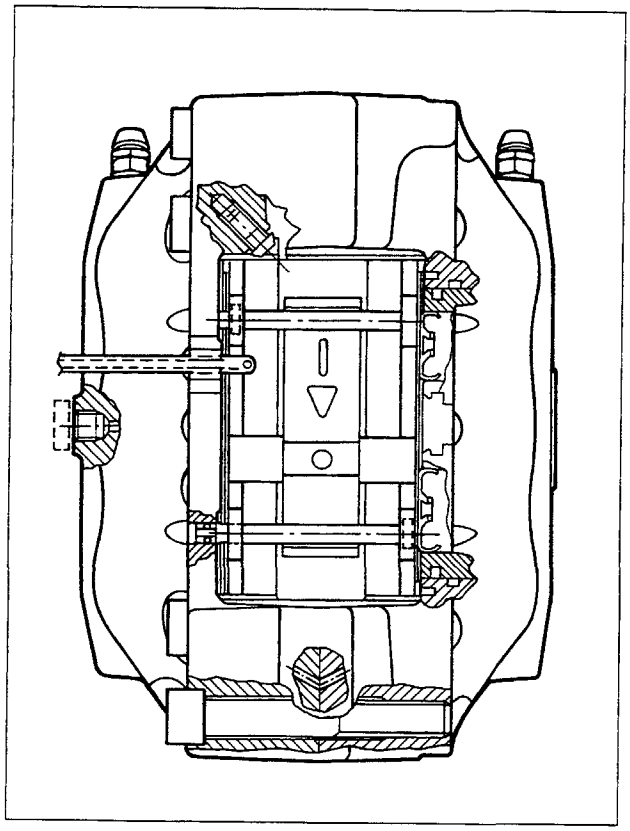
PARTIAL DIAGRAMMATIC VIEW OF REAR AXLE



P1L33DA01

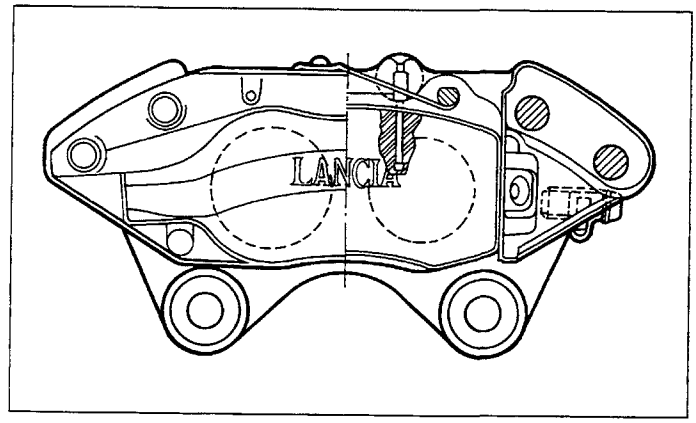
FRONT BRAKES		Values in mm
	Ø	281,2
	Disc (internally ventilated) s —	25,90 ÷ 26,10
	s —	24,90
	s < allowed	24,20
	Brake pads s < allowed	1,5
	4 piston double caliper (Brembo) $Ø_1$	38
	$Ø_2$	44
	Master cylinder (pump) Ø	22,225 (7/8")
	Servo brake	ISOVAC 8" pneumatic vacuum servo acting on all four wheels
	Distance of hydraulic piston push rod from master cylinder support plate L	22,45 ÷ 22,65

REAR BRAKES		
	Ø	251
	Disc s —	9,80 ÷ 10,90
	s —	9,70
	s < allowed	9
	Break pads s < allowed	1,5
	Single piston caliper sliding on studs (Girling) Ø	36
	Load proportioning valve	acting on rear wheels
	Ratio (reduction)	0,36



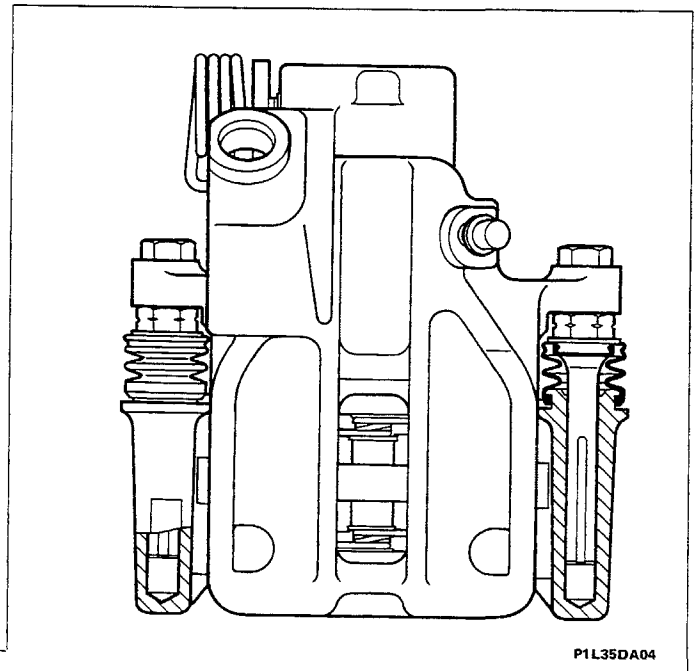
P1L35DA01

View from above, partial cross section of 4 piston fixed front caliper (Brembo)

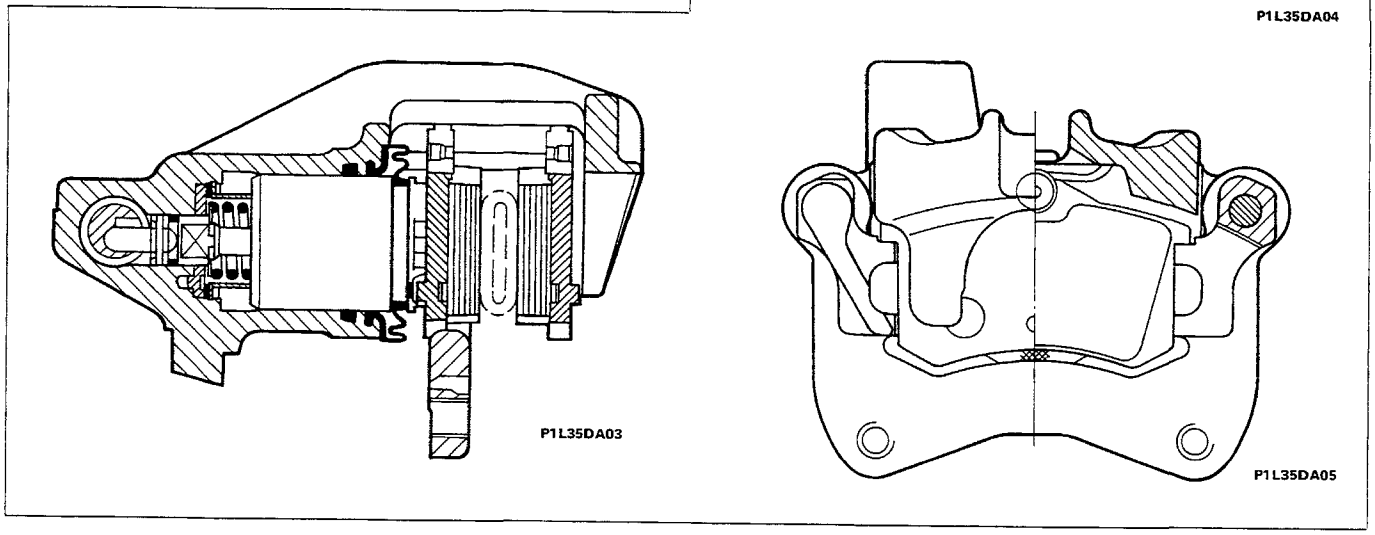


P1L35DA02

Side view, partial cross section, of 4 piston fixed front caliper (Brembo)



P1L35DA04

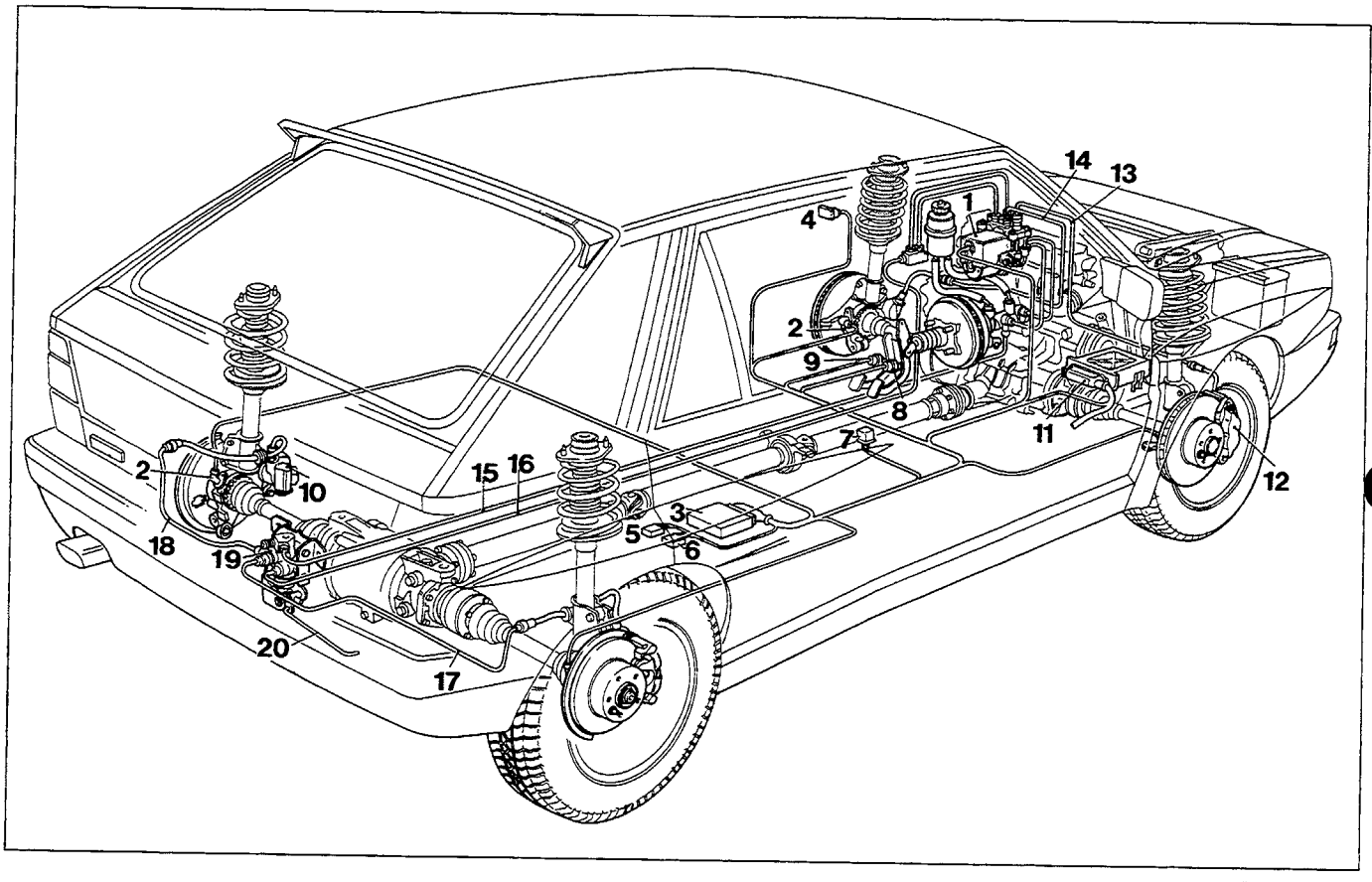


P1L35DA03

P1L35DA05

Partial cross section of rear caliper sliding on rails(Girling-Colette)

DIAGRAM SHOWING BRAKING SYSTEM WITH A.B.S.



P1L36DA02

1. Anti-lock braking system hydraulic control unit
2. Rpm sensor
3. Electronic control unit
4. Device failure warning light
5. Longitudinal accelerometer
6. Transverse accelerometer
7. Main control relay with protection against excess voltage
8. Brake lights switch
9. Switch on clutch pedal
10. Flywheels
11. IAW injection/ignition control unit
12. Right front brake with 4 pistons (Brembo)
13. Right front brake pipe from ABS hydraulic control unit
14. Left front brake pipe from ABS hydraulic control unit
15. Brake pipe from master cylinder to load proportioning valve
16. Brake pipe from ABS hydraulic control unit to load proportioning valve
17. Right rear brake pipe
18. Left rear brake pipe
19. Rear brake load proportioning valve
20. Load proportioning valve control bar

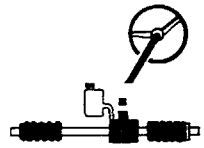
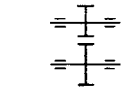
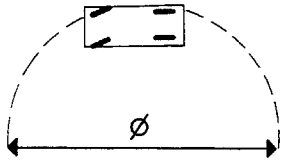
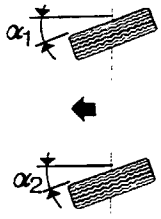
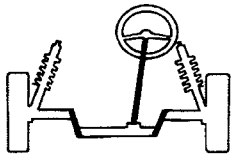
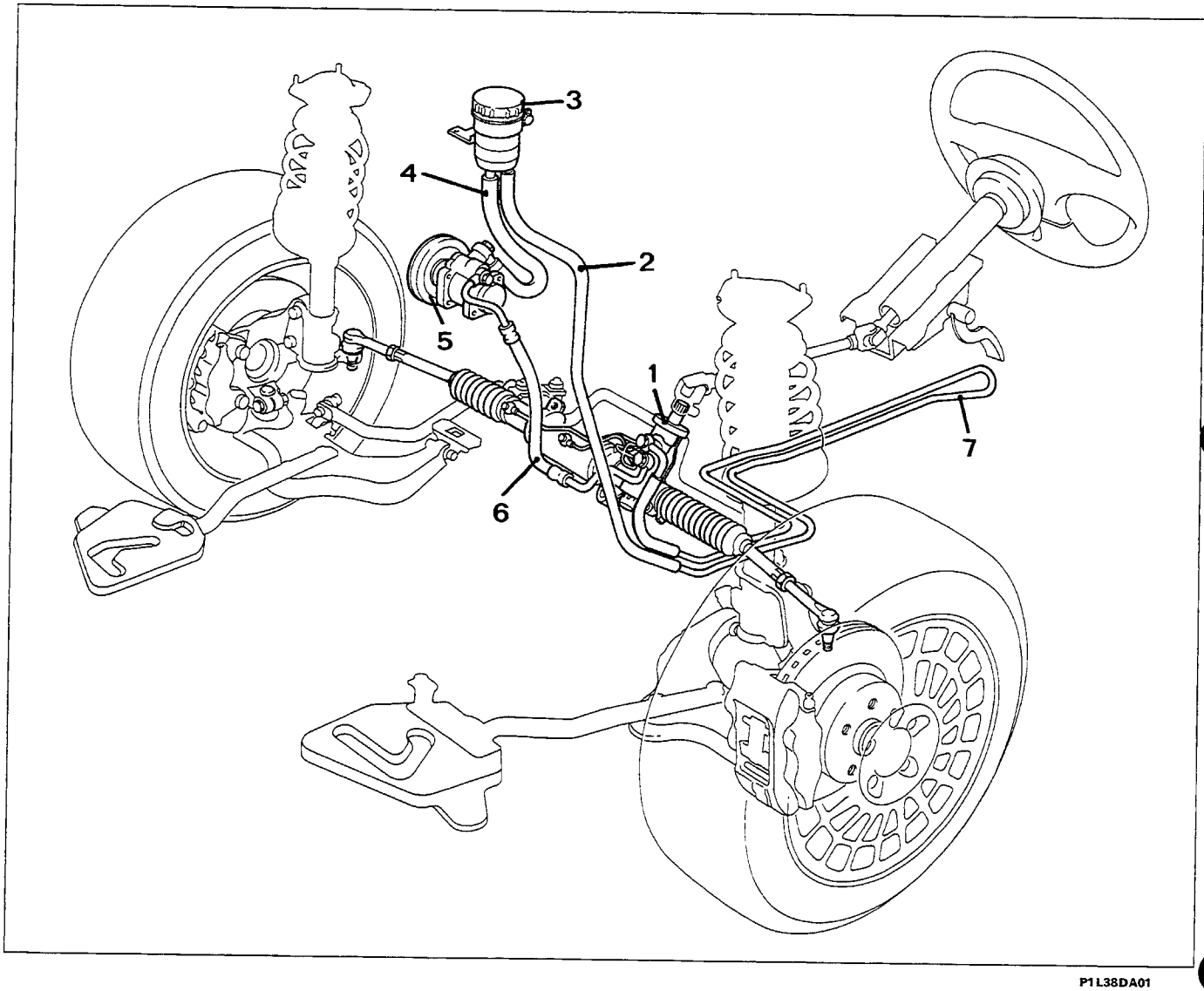
Type	 rack and pinion power assisted
 Ratio —  no. of turns lock to lock	2,835
 rack travel	134 mm
 Minimum turning circle	10,4 m
 Steering angle — outer wheel α_1	30°46'
inner wheel α_2	35°4'
 Steering column	 with 2 universal joints

DIAGRAM SHOWING POWER ASSISTED STEERING



P1L38DA01

1. Power assisted steering box;
2. Oil return pipe to the reservoir (*);
3. Fluid reservoir;
4. Oil return pipe to the pump;
5. Pump for power assisted steering system
6. Pipe suppling oil under pressure;
7. Power assisted steering system fluid cooling coil which prolongs the oil return pipe to the reservoir (*). The coil is located under the floor in the front part of the vehicle. This coil considerably improves the cooling of the fluid.

WHEELS

Tyre	type		205/50 - ZR 15
	front	average load	2,2 bar
		heavy load	2,5 bar
	rear	average load	2,2 bar
		heavy load	2,5 bar
Rim	type		light alloy 7½Jx15"AH2-37

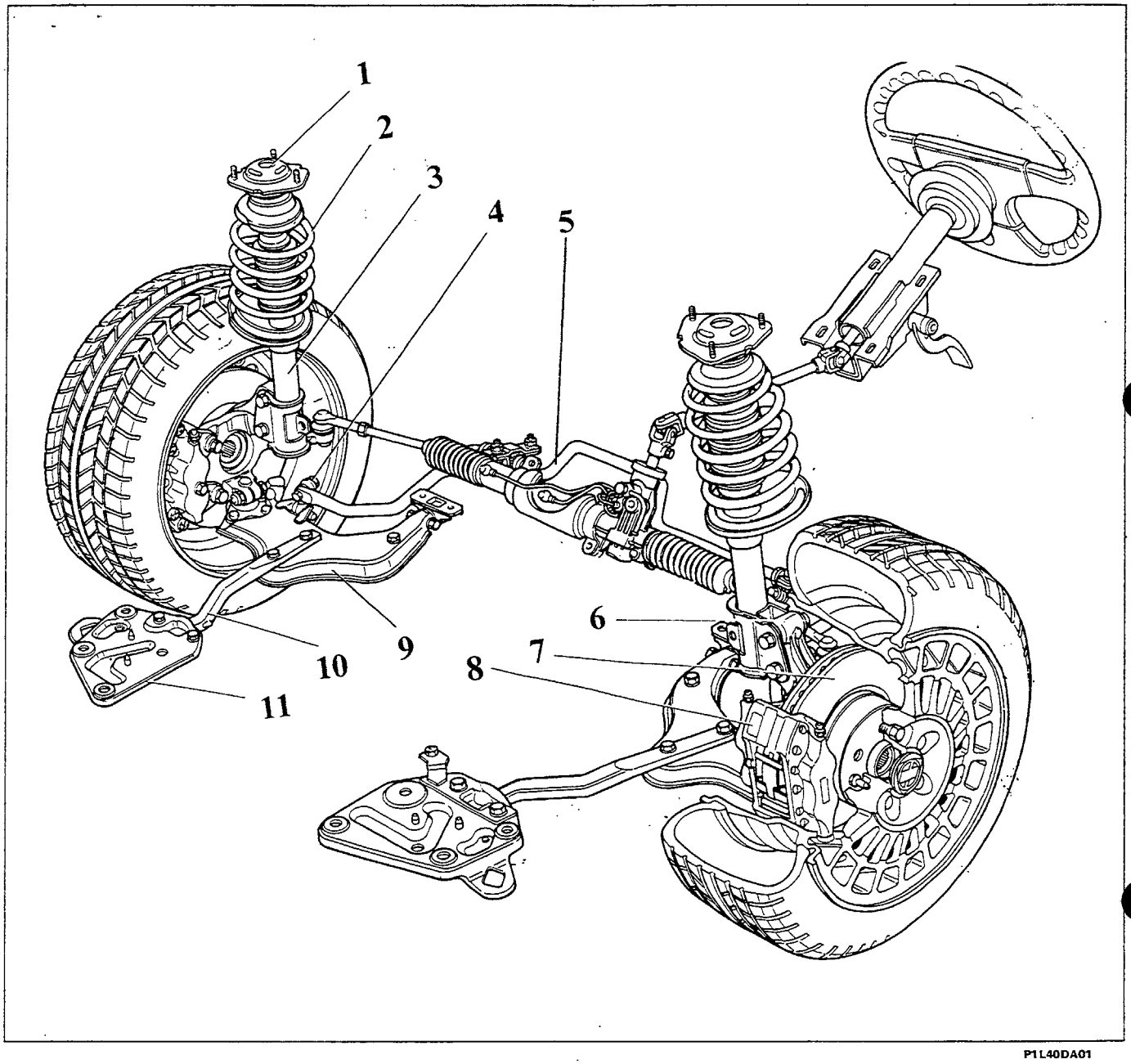
NOTE Spare wheel with light alloy wheel rim 3,50 Bx16" H2-37 and 115/70 R16" tyre
Speed limit: 80 km/h. Inflation pressure: 4,2 bar

WHEEL GEOMETRY

		unladen car (*)
Front suspension	camber (**)	- 1' ± 30'
	caster (**)	4°10' ± 30'
	toe in	0 ÷ 2 mm (●)
Rear suspension	camber (**)	- 1°30' ± 30'
	toe in	3 ÷ 5 mm (●)

With tyres inflated to the correct pressure and vehicle in running order (with full fuel tank)
(**) Angles cannot be adjusted (●) Measured between the wheel rims

DIAGRAMMATIC VIEW OF FRONT SUSPENSION



1. Plate fixing shock absorber to dome
2. Front suspension spring
3. Front shock absorber
4. Rod connecting anti-roll bar to track control arm
5. Front anti-roll bar
6. Front supension damper
7. Front ventilated brake disc
8. 4 piston fixed brake caliper
9. Lower transverse track control arm
10. Lower longitudinal track control arm
11. Plate anchoring longitudinal track control arm to the bodyshell

Front suspension independent, Mac Pherson type with lower track control arm and damper comprising double acting gas telescopic hydraulic shock absorber and offset coil spring.
Anti-roll bar fixed to lower track control arms by 2 connecting rods.

Coil spring

Diameter of wire	mm	13,3 ± 0,05
Number of turns		5,39
Direction of coil		clockwise
Height of spring released	mm	387
Height of spring under a load of 412 daN	mm	180
The springs are subdivided into two categories, identifiable by a mark: yellow (1) for those under a load of: 412 daN		> 180
green (1) for those under a load of: 412 daN		⩽ 180

(1) Springs of the same category must be fitted.

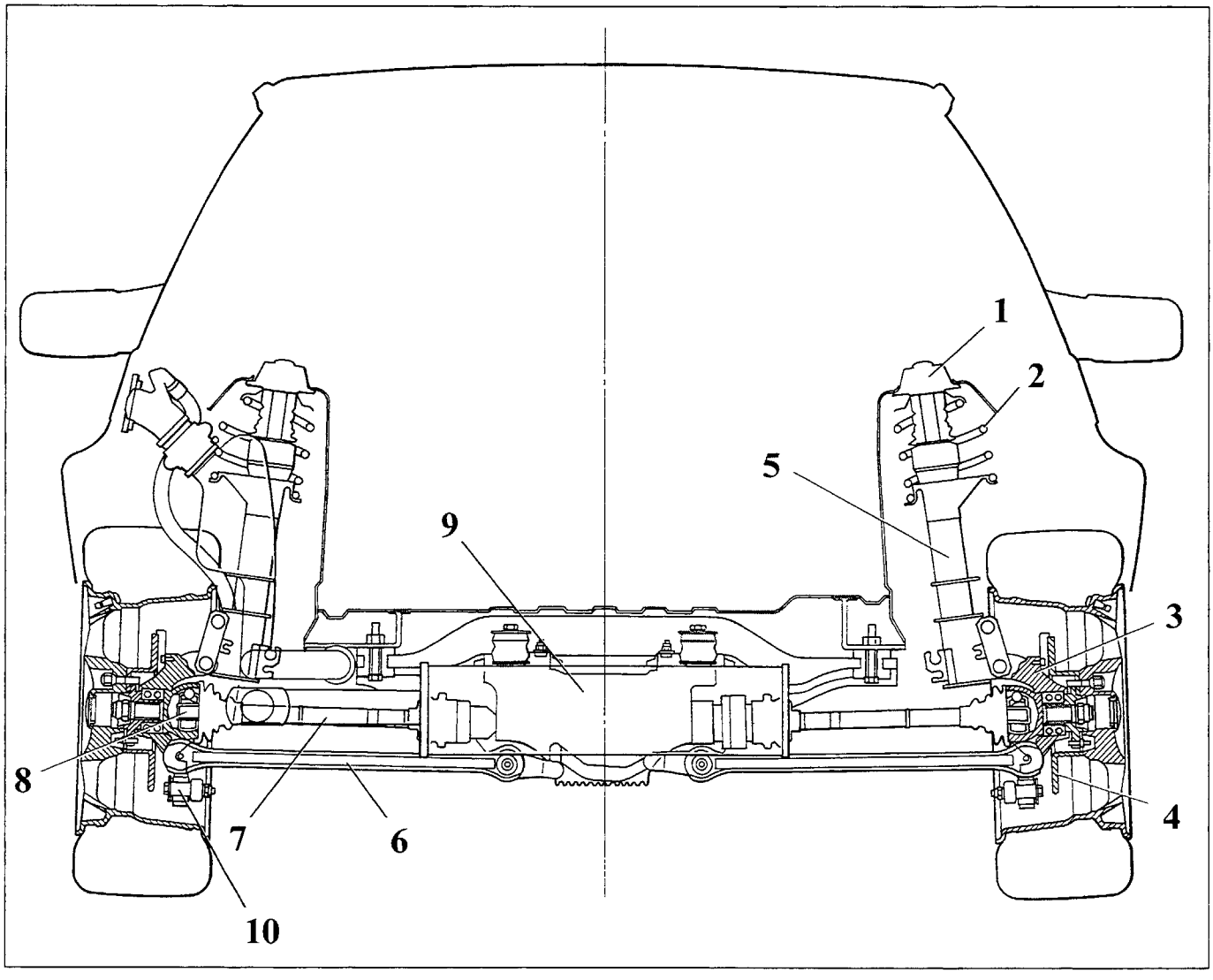
Front anti-roll bar

Diameter of wire (∅)	mm	24 ± 0,25

Shock absorbers

Type: telescopic, hydraulic, gas, double acting		Way-Assauto
Travel (start of damping action)	mm	157 ± 3
Maximum extension (start of damping action)	mm	526,5 ± 3

VIEW (PARTIAL CROSS SECTION OF REAR WHEEL HUBS) OF SUSPENSION AND REAR DRIVE



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1. Rear shock absorber fixing to turret
2. Rear suspension spring
3. Rear suspension damper
4. Rear brake disc
5. Rear shock absorber
6. Transverse track control arm
7. Rear drive shaft
8. Constant velocity joint
9. Rear differential
10. Lower longitudinal track control arm

Rear suspension independent, Mac Pherson type with lower longitudinal track control arm and damper comprising double acting gas telescopic hydraulic shock absorber and offset coil spring.
Anti-roll bar

Coil spring

Diameter of wire	mm	11,5 ± 0,05
Number of turns		2,95
Direction of coil		clockwise
Height of spring released	mm	280
Height of spring under a load of 263 daN	mm	156,5
The springs are subdivided into two categories, identifiable by a mark:		
yellow (1) for those under a load of: 263 daN	having a height of mm	> 156,5
green (1) for those under a load of: 263 daN	having a height of mm	⩽ 156,5

(1) Springs of the same category must be fitted.

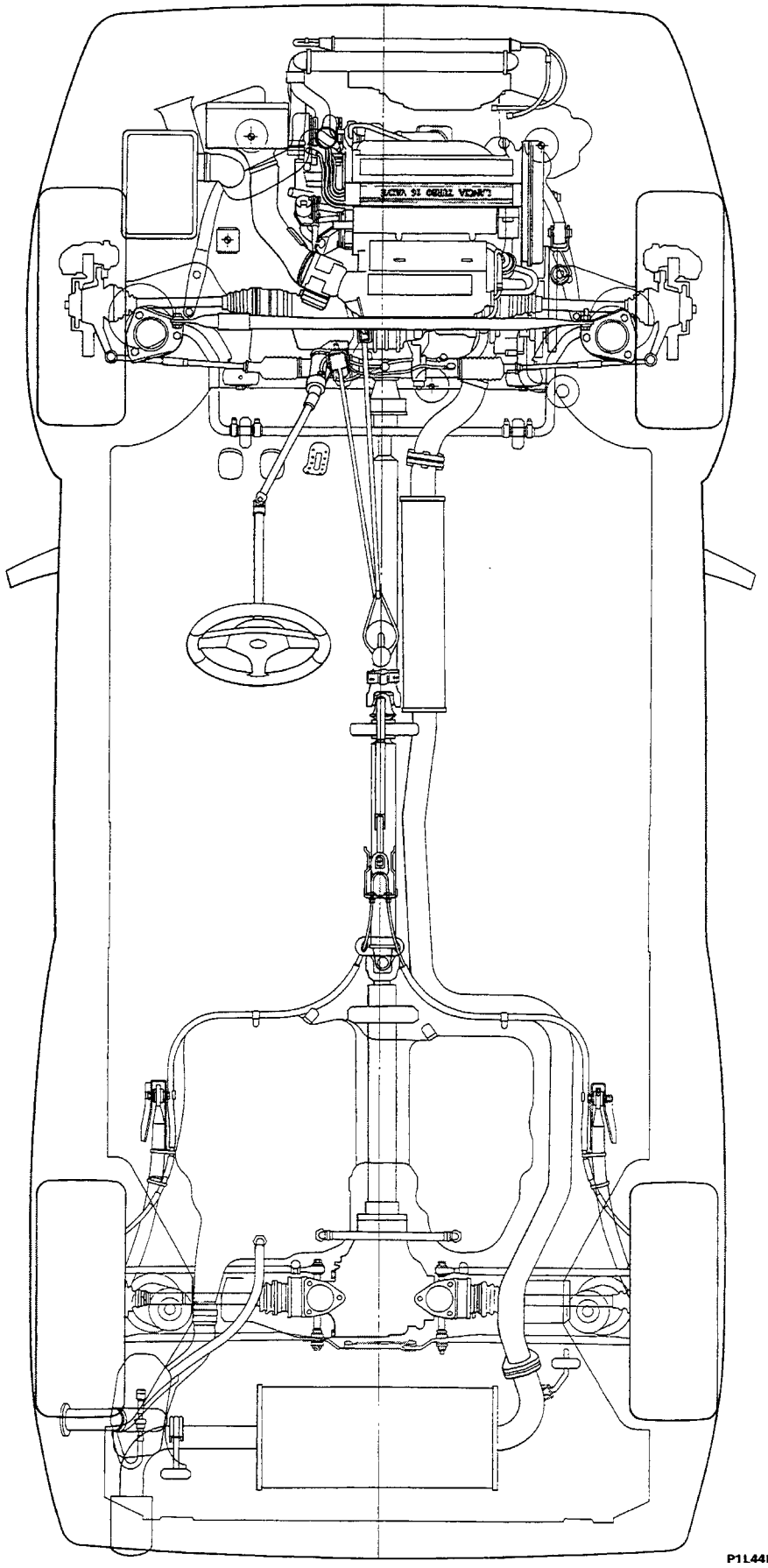
Rear anti-roll bar

Diameter of wire (∅)	mm	15

Shock absorbers

Type: telescopic, hydraulic, double acting, gas		Way-Assauto
Travel (start of damping action)	mm	165 ± 3
Maximum extension (start of damping action)	mm	565 ± 3

TOPOGRAPHICAL VIEW OF MAIN VEHICLE COMPONENTS



P1L44DA01

SUMMARY

STARTER MOTOR	M. Marelli E70R - 1,4 kW - 12 V
ALTERNATOR	M. Marelli AA125R - 14 V - 65 A
VOLTAGE REGULATOR	M. Marelli RTT 119 AC
BATTERY	12 V - 55 Ah - 225 A
IGNITION SYSTEM	Weber-Marelli (MPI) electronic injection/ignition system
IGNITION DISTRIBUTOR	DT 543 E
IGNITION COIL	M. Marelli BAE 504 DK
IGNITION COIL WITH CONTROL MODULE	M. Marelli AEI 600 L
SPARK PLUGS	Bosch WR6 DTC (with three point electrode)

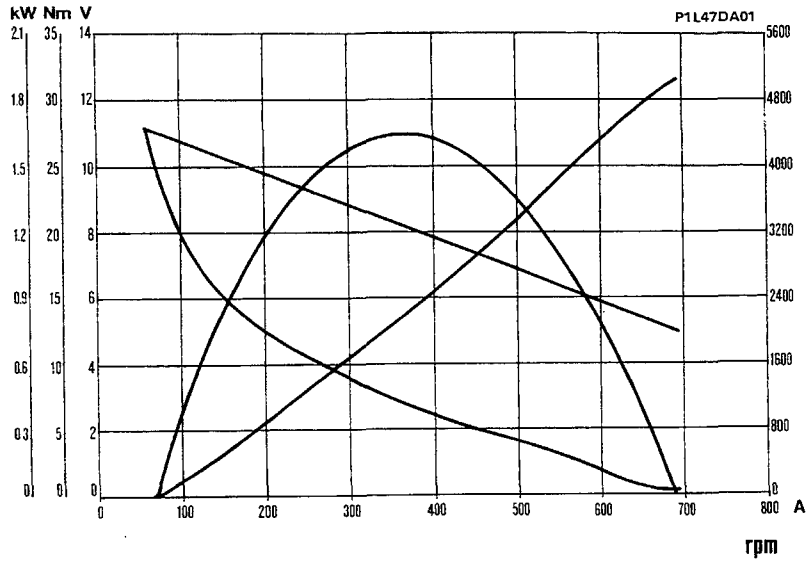
STARTER MOTOR

Type		M.MARELLI E70R-12V-1,4kW (with reduction gear)
Voltage	V	12
Nominal power	kW	1,4
Rotation, pinion side		clockwise
No. of poles		4
Field coil		series winding
Engagement		free wheel
Operation		solenoid
End float of armature shaft	mm	0,15 ÷ 0,45
Data for bench test		
Operating test (*):		
current	A	360 ÷ 380
speed	rpm	1150
voltage	V	8,15
torque developed	daNm	1,30
Engagement test (*):		
current	A	680 ÷ 700
voltage	V	4,9
torque developed	daNm	3,11
Free running test (*):		
current	A	60 ÷ 80
voltage	V	11,1
speed	rpm	4040
Relay Winding resistance (*)	pull in Ω	0,33 ÷ 0,37
	hold in Ω	1,13 ÷ 1,27
Lubrication Internal splines and shaft bushes		VS⁺ SAE 10 W
Engagement sleeve and intermediate disc		TUTELA MR3

(*) Data obtained at an ambient temperature of 20°C.

NOTE *When overhauling it is not advisable to undercut the insulator between the commutator bars*

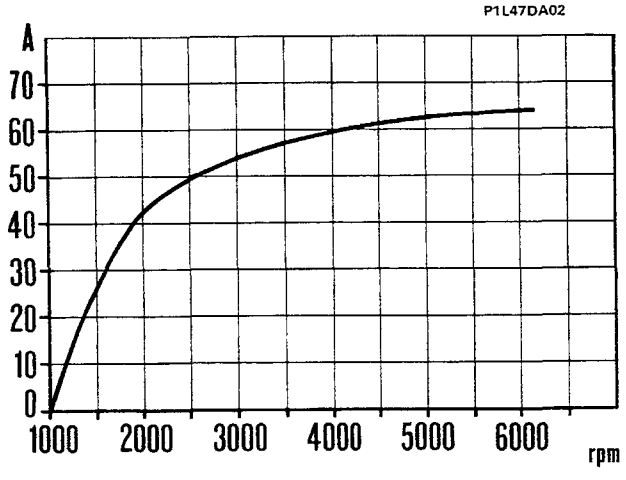
STARTER MOTOR TYPICAL CURVES



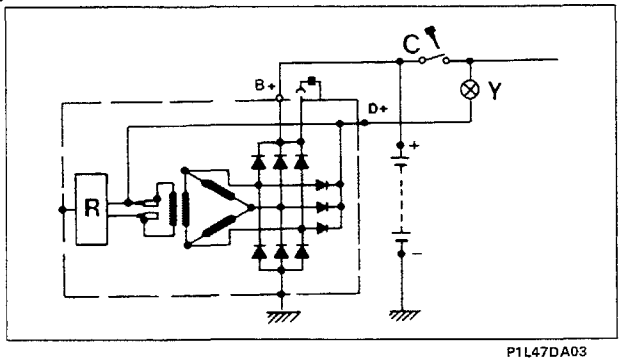
M. Marelli E 70R - 12 V - 1,4 kW

ALTERNATOR - TYPICAL OUTPUT CURVES

(at operating temperature, at a constant voltage of 13.5 V with bedded in brushes)

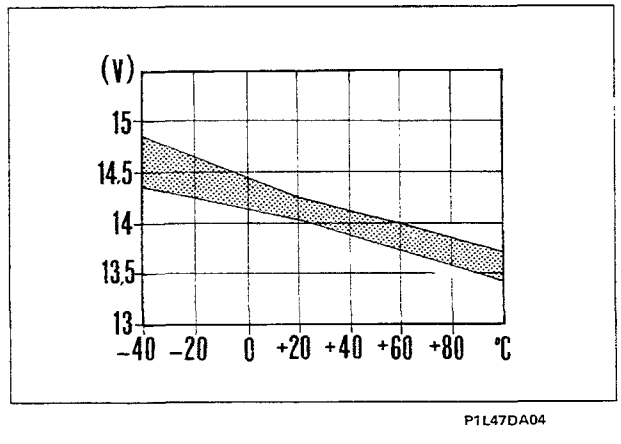


M. Marelli AA 125 R - 14V - 65A



Alternator wiring diagram

C = Ignition switch with key
Y = Alternator recharging warning light (12V - 3/5W)
R = Electronic voltage regulator



Typical voltage curve for regulator FIMM RTT 119 AC

ALTERNATOR

Make and type		M. Marelli AA 125R - 14 V - 65 A
Nominal voltage	V	12
Maximum current	A	65
Cut in speed when warm	rpm	1050 ÷ 1150
Current delivery on the battery at 7000 rpm at operating temperature	A	⩾63
Field winding resistance, between the slip rings (*)	Ω	2,6 ÷ 2,8
Direction of rotation (seen from control side)		clockwise
Engine/alternator transmission ratio		1 : 2
Diode rectifiers		bridge

(*) Data obtained at an ambient temperature of 25 °C.

VOLTAGE REGULATOR

Type		Built in electronic RTT 119 AC
Alternator speed for test	rpm	7000
Thermal stabilization current	A	30 ÷ 35
Test current	A	32 ÷ 33
Regulation voltage (*)	V	14 ÷ 14,3

(*) Data obtained at an ambient temperature of 20 °C.

BATTERY

Nominal voltage	V	12
Capacity (20 hour discharge)	Ah	55

WEBER-MARELLI I.A.W. MULTIPLE INJECTOR ELECTRONIC INJECTION/IGNITION SYSTEM COMPONENTS

1995 ie turbo

Description	Quantity	Type
Injection/ignition system electronic control unit	1	WH4WE.08/90 P-9D
Butterfly casing assembly	1	56 CFL 54/51
Fuel pressure regulator (2,5 bar)	1	RP7/2,5 bar
Fuel manifold assembly	1	CB 42
Injectors	4	IW 058
Support for solenoid valve for automatic idle adjustment	1	SCV 01
Solenoid valve for automatic idle adjustment	1	VAE 06/01
Electric fuel pump	1	PI022.13
Fuel filter	1	FI 02/2
Absolute pressure sensor (2 bar)	1	APS 02/03
Absolute pressure sensor (3 bar)	1	APS 05/01
Air temperature sensor	1	ATS 04
Coolant temperature sensor	1	WTS 05
Butterfly valve position sensor (potentiometer)	1	PF 09/N 02

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ELECTRONIC INJECTION/IGNITION SYSTEM	1995 ie turbo 16v
Type	I.A.W. (Weber-Marelli multipoint injectio/ignition

ELECTRONIC IGNITION POWER MODULE

Make and type	M. Marelli AEI 600L
Firing order	1 – 3 – 4 – 2

DISTRIBUTOR

Make		M. Marelli
Type		DT 453 E
Coil winding resistance of impulse generator at 20°C	Ω	758 ÷ 872

COIL WITH BUILT IN POWER CONTROL

Make		M. Marelli
Type		BAE 504DK
Ohmic resistance of primary winding at 20°C	Ω	0,405 ÷ 0,445
Ohmic resistance of secondary winding at 20°C	Ω	4020 ÷ 5280

TDC AND RPM SENSOR

Make and type		M. Marelli SEN 8 D
Sensor winding resistance	Ω	612 ÷ 748
Distance (gap) between crankshaft sensor pulley and tooth	mm	0,4 ÷ 1

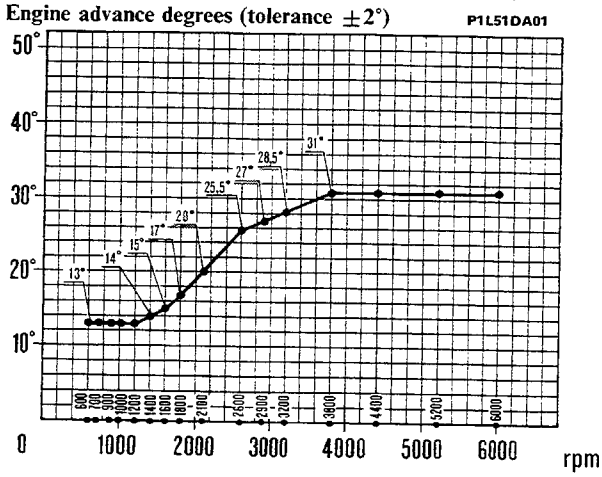
ENGINE IDLE ADVANCE

Engine idle speed	15° ± 3°

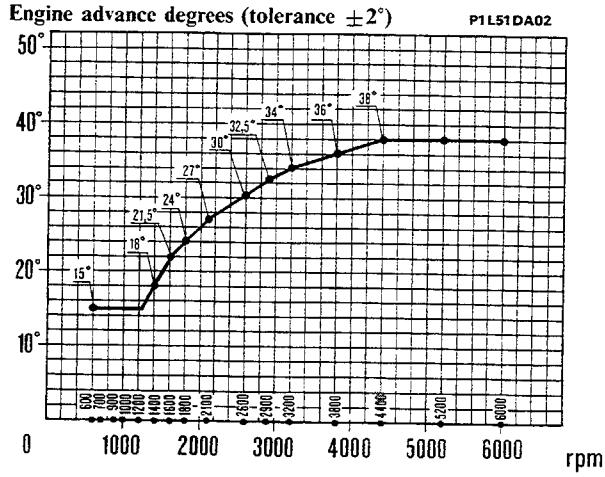
Make and type		Bosch WR6DTC (with 3 point electrode)
Thread		M 14 × 1,25
Electrode gap	mm	0,80 ÷ 1,00

IGNITION ADVANCE DIAGRAMS FOR EIGHT VACUUM VALUES IN THE INLET MANIFOLD

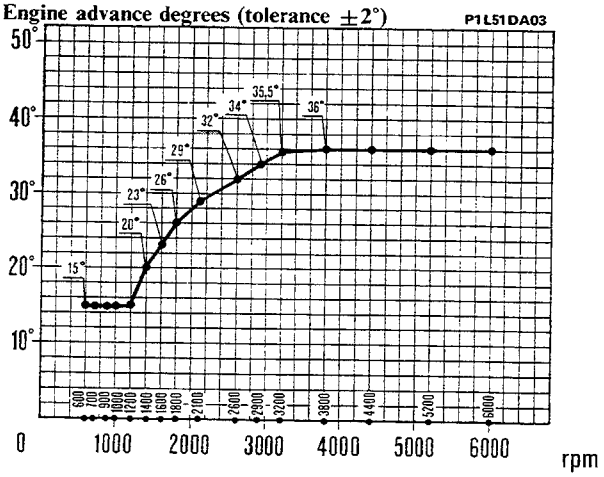
0,20 bar (150 mmHg)



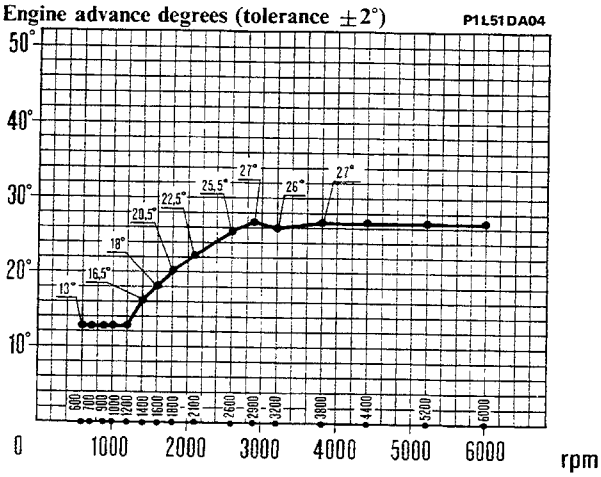
0,28 bar (210 mmHg)



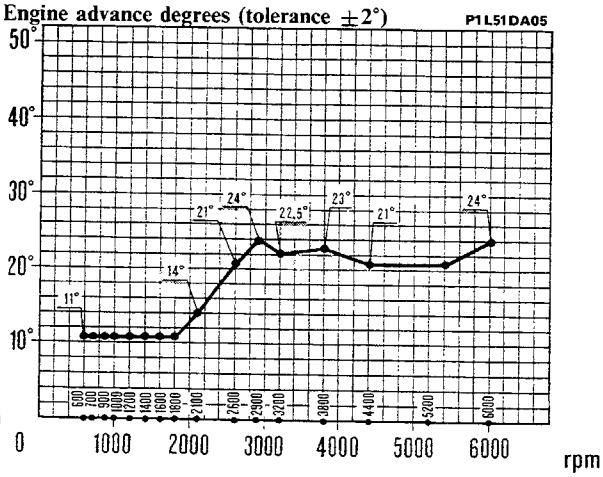
0,48 bar (360 mmHg)



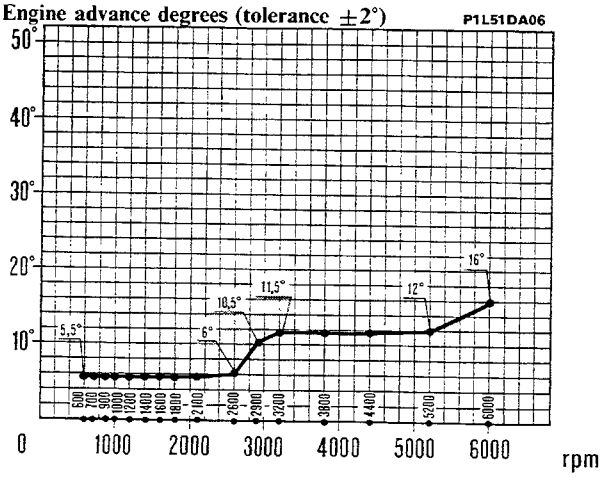
0,91 bar (690 mmHg)



1,18 bar (900 mmHg)

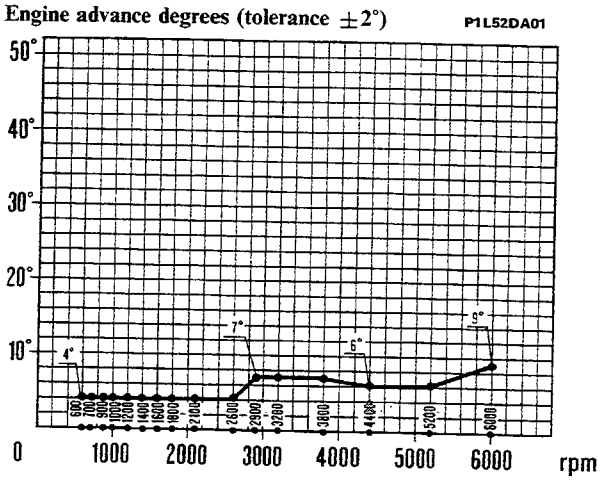


1,62 bar (1230 mmHg)



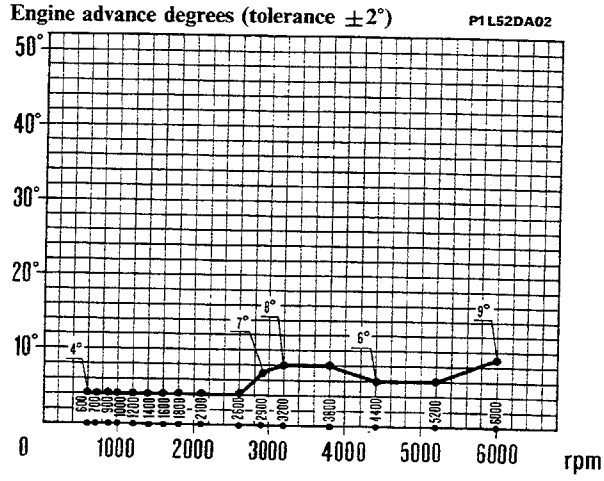
1,86 bar (1410 mmHg)

Engine advance degrees (tolerance ±2°)



2,10 bar (1590 mmHg)

Engine advance degrees (tolerance ±2°)



FREE SERVICE

Together with the LANCIA documents the owner of each new vehicle receives a free service coupon to be used after the first 1000 - 1500 km which recommends the following "systematic checks" as laid out in the "Owner's Handbook" in accordance with the application of the warranty:

Check and, if necessary, adjust	– idle CO content – engine idle speed – crankshaft drive belt tension – handbrake lever travel – tyre wear – headlamp alignment – tappet clearance – exhaust pipe tightening – condition of load proportioning valve protective boot
Check for leaks from the	– power assisted steering system – braking system – hydraulic clutch system
Check	– correct fitting of injectors – ignition advance
Check and, if necessary, top up levels of	– power assisted steering fluid – brake fluid – engine coolant – windscreen and headlamp washer fluid – hydraulic clutch system fluid
Check	– tightening of inlet and exhaust manifolds
Replace	– engine oil – cartridge oil filter – manual gearbox oil – rear differential oil

PLANNED MAINTENANCE

Suitable maintenance is an important factor for prolonging the life of a vehicle in good operating conditions with optimum performance. In order to achieve this, LANCIA has prepared a series of checks and maintenance operations in the six planned services in the Warranty Booklet identified by the three main services interspersed with the lubrication/inspection services. Each replacement or repair operation which is necessary during a Planned Maintenance Service will be carried out with the Owner's prior approval.

The planned maintenance services are offered by the entire LANCIA Service Network.

It is advisable to immediately notify our Service Departments of any small problems (e.g. leaks of essential fluids, however slight, etc) and have them seen to without delay or waiting for the next Service.

PLANNED MAINTENANCE

	15000 km or 1 year	**30000 km or 2 years**	45000 km or 3 years	**60000 km or 4 years**	75000 km or 5 years	**90000 km or 6 years**
Checking tyres for condition and wear	●	●	●	●	●	●
Checking operation of front disc brake pad wear sensor	●	●	●	●	●	●
Checking condition of rear disc brake pads	●	●	●	●	●	●
Visually inspect condition of: exterior bodywork and underbody protection, pipes (exhaust - fuel supply - brakes), rubber parts (protective boots - sleeves - bushes etc.)	●	●	●	●	●	●
Check condition and tension of various drive belts and adjust if necessary		●		●		●
Check/adjust tappet clearance		●		●		●
Check and, if necessary, adjust engine idle: check exhaust gas emissions	●	●	●	●	●	●
Check crankcase ventilation system						●
Replace fuel filter		●		●		●
Replace cartridge air filter		●		●		●
Top up fluid levels (engine coolant - brakes - windscreen wiper - hydraulic clutch - power assisted steering etc)	●	●	●	●	●	●
Check condition of timing toothed belt				●		
Replace spark plugs	●	●	●	●	●	●
Check ignition/injection system		●		●		●
Lubrication service: change engine oil and filter	●	●	●	●	●	●
Change gearbox oil				●		
Check gearbox oil level		●		●		●
Change rear differential oil		●		●		●
Check condition of counter balance shaft drive belt		●		●		●

REPLACEMENTS OUTSIDE OF PLAN

Every 60.000 km (or 2 years)	– Paraflù liquied
Every 105.000 km	– Timing belt – Counter balance shaft drive belt
Every 120.000 km	– Manual gearbox oil
Every 2 years	– Brake fluid (DOT3 or DOT4)

Lubrication service

In order for the engine to run smoothly and efficiently, it is advisable to use the type of oil recommended in the table on page 8.

If the vehicle is regularly subjected to heavy usage (a great deal of town driving, journies in dusty areas, constant mountain driving, towing a trailer or caravan, harsh climatic conditions, constant motorway driving at high speeds, etc), then the "Lubrication services" should be carried out at more frequent intervals.

Additional operations

After the operations in the "Planned maintenance" programme have been carried out the following checks are also required:

Every 500 Km or before long journies check:	- engine oil level - engine coolant level - brake fluid level - tyre inflation pressure - hydraulic clutch fluid level

It is advisable to use "Genuine LANCIA spare parts", the only ones which offer the same quality as the components originally fitted on the vehicle.
Regularly use Oliofiat which is at home in LANCIA engines.

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ENGINE

1840207814	Tool (∅ 18-22 mm) for removing front counter balance shaft bearings from cylinder block/crankcase (to be used with 1840206000)
1850088000	Spanner (13 mm) for adjusting manifold fixing nuts
1850113000	Spanner (12 mm) for engine oil drain plug
1852137000	Spanner with 1/2" socket for cylinder head fixing bolts
1852150000	Spanner for bolts fixing engine tappet covers
1853003000	Spanner (19 mm) for bolt fixing camshaft gear, on vehicle
1854033000	Spanner for adjusting ring nut fixing electric pump or fuel filter on tank
1854038000	Spanner for adjusting ring nut fixing fuel level sender unit on tank
1860054000	Drift (∅ 22 mm) for removing and refitting con rod bush
1860162000	Pressure gauge with unions for checking engine oil pressure (scale 0-9,81 bar)
1860183000	Pliers (∅ 75-110 mm) for removing and refitting piston circlips
1860303000	Tool for fitting gudgeon pin circlips on piston
1860395000	Drift for removing valve guides
1860443000	Pressure lever for inserting tool for retaining tappets whilst adjusting valve clearance
1860454000	Drift for fitting oil seal on valve guides
1860456000	Support for cylinder head whilst replacing tappet shims (at the bench)
1860470000	Support for cylinder head during overhauling
1860486000	Drift for fitting valve guides
1860490000	Tool for retaining valve leakage test equipment 1895868000 (to be used with 1860470000)
1860592000	Universal hook for lifting and moving engine/gearbox assembly
1860592010	Tool for removing and refitting engine/gearbox assembly (to be used with 1860592000)
1860605000	Band (∅ 60-125 mm) for introducing normal and oversize pistons in cylinders
1860644000	Tool for removing and refitting valves
1860699000	Drift for fitting crankshaft rear oil seal (to be used with 1870007000)
1860745100	Tool for tensioning toothed belts (to be used with specific components)
1860745200	Tool for tensioning timing toothed belt (to be used with 1860745100)
1860745400	Tool for tensioning counter balance shaft drive belt (to be used with 1860745100)
1860747000	Tool for retaining tappets whilst replacing shim during adjustment of valve clearance (to be used with 1860443000)
1860758000	Tool for removing cartridge oil filter
1860765000	Tool for retaining camshaft toothed pulley
1860768000	Tool for rotating crankshaft in vehicle
1860769000	Support for cylinder head whilst removing and refitting valves
1860770000	Drift for fitting camshaft gaskets and crankshaft front seal
1861001011	Pair of brackets for fixing engine to rotating stand 1861000000

1867028000	Pair of threaded pins for rotating crankshaft (at the bench)
1867029000	Flywheel lock
1876036000	Cable with contacts for rotating engine whilst adjusting valve clearance
1890385000	Reamer (∅ 7 mm) for engine valve guide openings
1895362000	Cooling system leakage test equipment
1895683000	Engine cylinder compression test equipment (scale 4,05 - 18,2 bar)
1895683002	Cards for device 1895683000
1895762000	Dynamometer for checking trapezoid and poly-V belt tension
1895868000	Valve leakage test equipment
1895890000	Pressure gauge with unions for measuring electric pump supply pressure
1896248000	Gauge for checking valve stem height after refacing cylinder head seats

CLUTCH

1875029000	Guide pin for centering clutch plate
1875084000	Tool for removing thrust bearing from clutch release mechanism

GEARBOX

1846001000	Pair of half rings for remoivng gearbox main shaft bearing, engine side (to be used with 1846017000)
1850113000	Spanner (12 mm) for gearbox oil drain plug
1855035000	Spanner (19 mm) for removing and refitting gearbox
1870595000	Support for engine whilst removing and refitting gearbox-differential unit
1870600000	Support for gearbox-differential unit whilst removing and refitting
1871001014	Support for gearbox-differential unit whilst overhauling (to be fitted to 1861000000 or **1871000000)**

FRONT AND REAR DIFFERENTIAL

1845062000	Tool for removing constant velocity joint from front wheel drive shaft (to be used with 1847017001)
1847017004	Plate for removing flanged shaft from planet gear (to be used with 1847017001)
1870100002	Drift for fitting front differential cover seal and bearing and front and rear differential pinion seal
1870152000	Drift for fitting differential circlip on differential bevel pinion
1870430000	Tool for determining thickness of front and rear differential bevel pinion adjustment shim (to be used with 1870404000, 1895884000 and 1895113000)
1870432000	Tool for retaining front and rear differential bevel pinion whilst adjusting fixing nut
1870433000	Tool for checking clearance between front differential pinion and ring gear (to be used with 1895684000)
1870434000	Drift for fitting rear differential right flanged shaft support seal (to be used with 1870007000)
1870435000	Drift for fitting front and rear differential pinion bearing outer races (to be used with 1870007000 and 1840005002)
1870436000	Support for front and rear differentials (at the bench)

1870437000	Tool for removing rear differential bearing inner race from front and rear differential bevel pinion shaft (to be used with 1846017000)
1870438000	Tool for removing front and rear differential casing bearing inner races (to be used with 1840005001, 1840005302 and 1840005400)
1870439000	Tool for checking rolling torque for front differential casing bearings and rear differential bevel pinion bearings (to be used with 1895697000)
1870440000	Tool for checking front and rear differential pinion/ring gear teeth (to be used with 1870433000, 1870439000, 1870442000 and 1870443000)
1870441000	Tool for retaining bevel pinion whilst adjusting fixing nut and checking rear differential pinion/ring gear clearance (to be used with 1895684000)
1870443000	Tool for checking rolling torque for rear differential casing bearings (to be used with 1895697000)
1870597000	Drift for fitting oil seal on differential casing covers (to be used with 1870007000)
1875017000	Tool for removing and refitting differential bearing races (to be used with 1840005003)
1875019000	Tool for removing and refitting differential bearing races (to be used with 1840005003)
1895655000	Tool for determining thickness of differential bearing adjustment shims (to be used with 1895884000)

BRAKING SYSTEM

1856132000	Spanner (10-11 mm) for adjusting brake fluid pipe unions

STEERING

1847035000	Steering track rod end extractor
1874556000	Tool for adjusting TRW rack ball joint

SUSPENSION AND WHEELS

1847017004	Plate for extracting wheel hubs (to be used with 1847017001)
1854015000	Spanner (19 mm) for locking and unlocking shock absorber fixing nut
1870152000	Drift for fitting bearing and hub on rear stub axle
1874555000	Pneumatic tool for compressing suspension springs when fitting shock absorbers

ELECTRICAL EQUIPMENT

1850087000	Spanner for spark plugs
1857504000	Spanner (29 mm) for adjusting air conditioning system compressor pipe unions
1876046000	Lever for removing blade type terminal from connector block
1895879000	Tool for checking cylinder no. 1 piston TDC for positioning sensor carrier plate (static advance electronic ignition) (to be used with 1895881000)
1895895000	Tool for positioning sensor carrier plate, timing side (static advance electronic ignition)

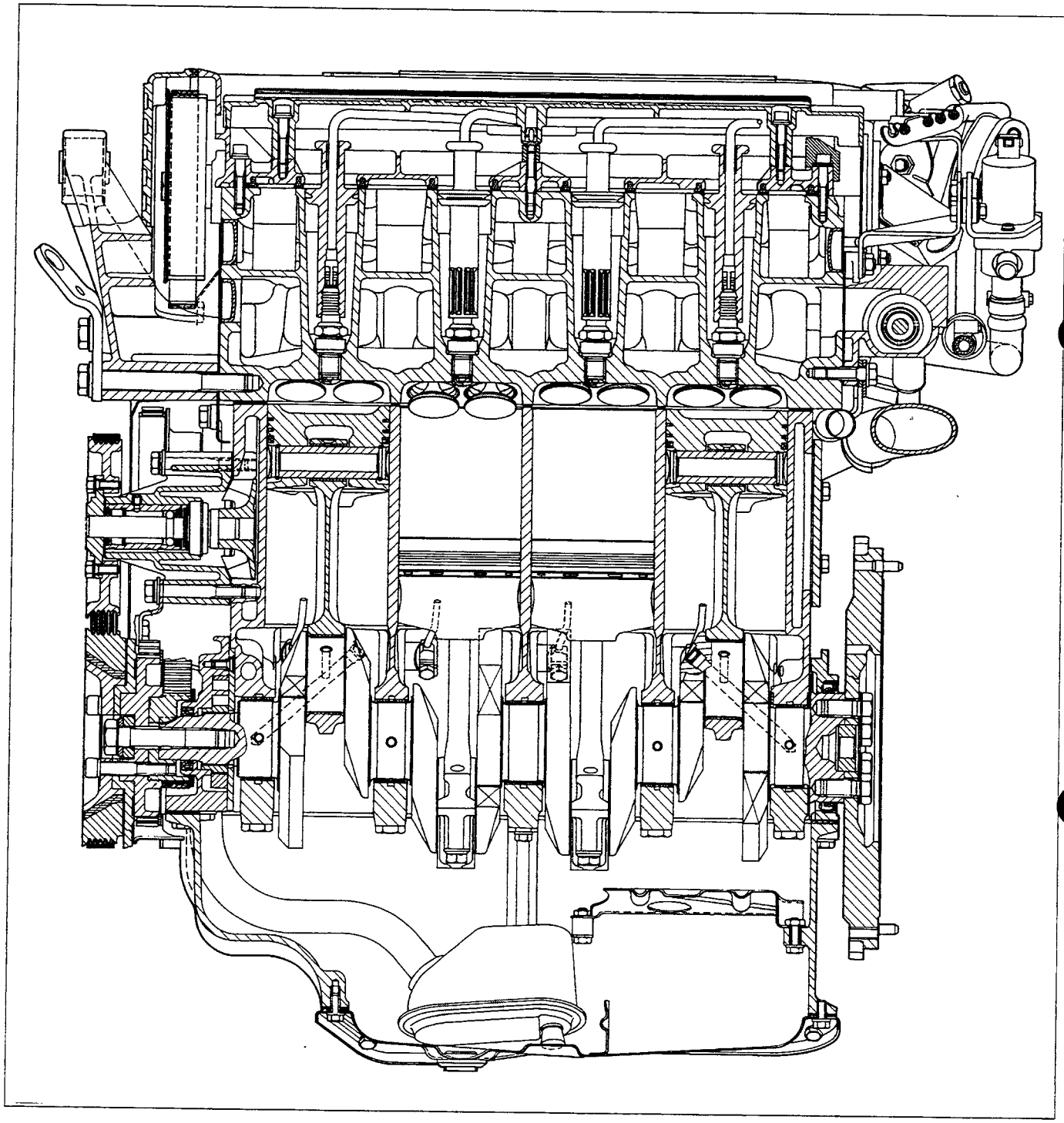
BODYWORK

1859008000	Spanner for ring nuts fixing external rear view mirror
1878017000	Pliers for closing seat cushion spring hooks
1878031000	Set of suction pads (4) for lifting windscreen and rearscreen window glass
1878076000	Tool for cutting vehicle interior plastic lining
1878077000	Tool for removing door panel or plastic fixing buttons
1878085000	Tool for remoivng front and rear window glass trim

ORDINARY TOOLS

1840005000	Universal extractor
1840206000	Percussion extractor (to be used with specific tools)
1846017000	Base for half ring extractors
1847017001	Percussion extractor (to be used with specific tools)
1861000000	Rotating stand for overhauling engines (also for gearboxes and differentials)
1861000001	Pair of tools for attaching engine mounting brackets to rotating stand 1861000000
1870007000	Grip for drifts and fitting tools
1870404000	Support for measuring depths and projections (to be used with 1895881000)
1871000000	Rotating stand for overhauling gearboxes and differentials
1874549000	Support for raising rear part of vehicle (to be used with hydraulic jack)
1876048000	Extractor for MINI HYLOK CONTACT (MHF) Ø2,15 mm terminals
1895113000	Gauge (0,05-0,10 ... 0,80 mm) for checking various clearances
1895684000	Dial gauge with magnetic base
1895697000	Dynamometer (0-4,90 Nm) for measuring bearing rolling torque
1895881000	Dial gauge to be used with specific tools (measuring capcity 10 mm; shank length 16.7 mm)
1895884000	Dial gauge to be used with specific tools (measuring capacity 5 mm; shank length 16.5 mm)

LONGITUDINAL SECTION OF ENGINE



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DESCRIPTION	Thread size	Tightening torque
		daNm
ENGINE		
Centre bearing cap to crankcase fixing, bolt	M 12 x 1,25	2 + 130°
Bearing caps to crankcase fixing, bolt	M 12 x 1,25	2 + 90°
Rod to aluminium sump and torque distributor fixing, nut	M 10 x 1,25	5
One-way oil drain valve	3/8" 14 NPTF	5
Bracket to Ferguson join aluminium sump, differential and bell housing fixing, nut	M8	2,5
Rear aluminium sump brackets and bell housing fixing, nut	M 10 x 1,25	5
Mounting bracket to torque distributor fixing, bolt	M 12 x 1,25	9,5
Cylinder head to crankcase fixing, bolt	M 10 x 1,25	5+ 90° + 90°
Camshaft cap fixing, bolt	M 8	2,5
Inlet manifold to cylinder head fixing, nut	M 8	2,5
Exhaust manifold to cylinder head fixing, nut	M 8	2,5
Inlet manifold mounting to cylinder head fixing, bolt	M 8	2,5
Big end fixing, bolt	M 10 x 1	2,5 + 50°
Flywheel to crankshaft fixing, bolt	M 12 x 1,25	14,2
Poly-V belt and power assisted steering pump drive pulley fixing, bolt	M 8	2,5
Timing gear to crankshaft fixing, bolt*	M 14 x 1,5(Left)	19
Belt tensioner bearing to mounting fixing, bolt	M 10 x 1,25	4,4
Belt tensioner mounting to alternator and power assisted steering mounting fixing, bolt	M 8	2,3
Poly-V belt tension adjustment screw stop, nut	M 10 x 1	4,4
Timing gear fixing, bolt	M 12 x 1,25	11,8
Camshaft belt tensioner bearing fixing, nut	M 10 x 1,25	4,4

* The bolt should not be lubricated

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DESCRIPTION	Thread size	Tightening torque daNm
Counter balance shaft gear fixing, bolt	M 12 x 1,25	11,8
Counter balance shaft cover fixing, bolt	M 8	2,3
Counter balance shaft belt tensioner fixing, nut	M 8	2,3
Turbocharger to exhaust manifold fixing, nut	M 10 x 1,5	5,9
Union to turbocharger fixing, nut	M 10 x 1,5	5,9
Turbocharger mounting bracket to crankcase fixing, bolt	M 8	2,9
Turbocharger mounting bracket and exhaust pipe mounting bracket to crankcase	M 8	2,9
Oil supply pipe to turbocharger fixing, bolt	M 8	2,3
Filler for adjustable union fixing oil supply pipe to oil filter mounting	M 14 x 1,5	5
Oil supply pipe support bracket to exhaust manifold fixing, bolt	M 10 x 1,25	4,3
Oil return pipe from turbocharger to sump fixing, bolt	M 8	2,3
Filler for adjustable union fixing coolant return and supply hoses to turbocharger	M 16 x 1,5	3,2
Oil filter mounting and engine mounting to crankcase fixing, bolt	M 10 x 1,25	4,3
Plug for thermostatic valve on oil filter mounting	M 35 x 1,5	11,8
Oil level dip stick fixing, bolt	M 8	2,5
Water pump to crankcase fixing, bolt	M 8 x 1	2,5
Water pump union to casing fixing, bolt	M 8	2,3
Accelerator outer cable reaction bracket to inlet manifold fixing, bolt	M 8	2,5
Coolant return pipe to inlet manifold fixing, nut	M 8	2,3
Thermostat to cylinder head fixing, nut	M 8	2
Complete coolant return pipe to cylinder head fixing, bolt	M 8	2,3

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DESCRIPTION	Thread size	Tightening torque daNm
Water pump drive pulley to hub on pump bearing fixing, bolt	M 8	2,5
Alternator and power assisted steering pump mounting to crankcase fixing, nut	M 10 x 1,25	4,3
Alternator and power assisted steering pump mounting to crankcase fixing, bolt	M 10 x 1,25	4,3
	M 8	2,5
Alternator bracket to mounting fixing, bolt	M 10 x 1,25	4,3
Alternator bracket fixing, nut	M 10 x 1,25	4,3
Alternator fixing, nut	M 12 x 1,25	6,9
Support brackets to power assisted steering pump fixing, bolt	M 8	2
Power assisted steering pump support brackets to mounting fixing, bolt	M 10 x 1,25	4,3
Power assisted steering driven pulley fixing, nut	M 14 x 1,5	9,5
Spark plugs	M 14 x 1,25	3,7
Oil temperature sender unit	M 14 x 1,5	3,7
Coolant temperature sender unit	M 16 x 1,5 tapered	4,9
Oil pressure switch	M 14 x 1,5	3,2
Oil sump plug	M 22 x 1,5 tapered	5

FUEL CIRCUIT

Fuel pump immersed in tank fixing, ring nut	131 x 6	6
Fuel level gauge to tank fixing, ring nut	81 x 4	3
Filler for adjustable union fixing fuel supply pipe to filter (aluminium filter housing)	M 14 x 1,5	3,5
Filler for adjustable union fixing fuel supply pipe to filter (steel filter housing)	M 14 x 1,5	4
Filler for adjustable union fixing fuel supply pipe to filter	M 12 x 1,5	3,5
Nut for union fixing fuel pipe between filter and injector manifold to manifold	M 14 x 1,5	3,5

DESCRIPTION	Thread size	Tightening torque
		daNm
LUBRICATION CIRCUIT		
Nuts at end of flexible oil supply pipe from engine to radiator	M 22 x 1,5	5
Nuts at end of flexible oil return pipe from radiator to engine	M 22 x 1,5	5
Engine oil cooling radiator fixing, bolt	M 6 x 1	1
ENGINE EXHAUST		
Exhaust pipe to turbocharger fixing, nut for stud	M 10 x 1,5	3,7
Flanges for fixing silencers to exhaut pipe fixing, bolt	M 8 x 1,25	1,5
Exhaust pipe mounting bracket to collar fixing, bolt	M 10 x 1,25	5
Collar on exhaust pipe to bracket fixing, nut	M 8 x 1,25	2,5
Exhaust pipe to flexible mounting fixing, nut	M 8 x 1,25	1
POWER UNIT MOUNTING		
Power unit mounting flexible mounting support, engine side, fixing, bolt	M 8 x 1,25	1,7
Flexible mounting, engine side, to engine, fixing, bolt	M 12 x 1,25	5
Flexible mounting to engine side support fixing, bolt	M 10 x 1,25	3,1
Power unit anchoring rod, engine side, fixing, bolt	M 10 x 1,25	4,2
Power unit anchoring rod, bodyshell side, fixing, bolt	M 10 x 1,25	4,2
Flexible mounting bracket, gearbox side, fixing, bolt	M 8 x 1,25	1,6
Flexible mounting to gearbox side bracket fixing, bolt	M 12 x 1,25	8,5
Flexible mounting support to bodyshell, gearbox side, fixing, bolt	M 10 x 1,25	3,5
Flexible mounting brackets, gearbox side, fixing, bolt	M 10 x 1,25	6
Flexible mounting to gearbox side mounting fixing, bolt	M 10 x 1,25	6
Complete flexible mounting to gearbox fixing, nut	M 10 x 1,25	6

DESCRIPTION	Thread size	Tightening torque
		daNm
Complete flexible mounting, gearbox side, fixing, bolt	M 12 x 1,25	8,5
Central attachment flexible mounting bracket fixing, nut	M 12 x 1,25	5
Centre flexible mounting bracket to differential fixing, bolt	M 10 x 1,25	5
Centre flexible mounting to supports fixing, bolt	M 12 x 1,25	8,5
Centre mounting to bodyshell side support fixing, bolt	M 10 x 1,25	3,1
Centre flexible mounting to bodyshell fixing, bolt	M 8 x 1,25	1,8

CLUTCH

Clutch mechanism to flywheel fixing, bolt	M 8 x 1,25	2
Nut for bolt hinging brake and clutch pedals	M 8 x 1,25	2,3
Pedals to bodyshell fixing, bolt	M 8 x 1,25	2,3 1,4

MANUAL GEARBOX-DIFFERENTIAL

Clutch release sleeve mounting cover fixing, bolt	M 6 x 1	0,75
Left side cover to casing fixing, bolt	M 8 x 1,25	2,5
Gearbox casing to support fixing, bolt	M 8 x 1,25	2,5
Rear cover to gearbox casing fixing, bolts	M 8 x 1,25	2,5
Support fixing gearbox assembly to engine, nut for stud	M 12 x 1,25	8,5
Differential cover to engine/gearbox mounting fixing, bolt (length 55 mm)	M 8 x 1,25	2,5
Differential cover to engine/gearbox mounting fixing, bolt (length 80 mm)	M 10 x 1,25	5
Gear control rod spring retaining, bolt	M 8 x 1,25	2,5
Magnetic plug	M 22 x 1,5	4,6
Main shaft gears locking, ring nut	M 22 x 1,5	15

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DESCRIPTION	Thread size	Tightening torques daNm
Lay shaft gears locking, ring nut	M 22 x 1,5	15
Main rear bearing retaining plate fixing, bolt	M 8 x 1,25	2,5
Lay shaft rear bearing retaining plate fixing, bolt	M 8 x 1,25	2,5
1st and 2nd speed selector fork fixing, bolt	M 8 x 1,25	2,5
3rd and 4th speed selector fixing, bolt	M 8 x 1,25	2,5
3rd and 4th speed selector fork fixing, bolt	M 8 x 1,25	2,5
5th speed and reverse selector fixing, bolt	M 8 x 1,25	2,5
Complete reverse gear lelver fixing bolt	M 8 x 1,25	2,5
5th speed selector fork fixing, bolt	M 8 x 1,25	2,5
Gearbox control shaft bush to casing fixing, bolt	M 6 x 1	0,75
Gear control lever to internal shaft fixing, nut	M 8 x 1,25	2,5
Gear control lever to external shaft fixing, bolt	M 8 x 1,25	2,5
Speedometer mounting fixing, bolt	M 6 x 1	1
Crown wheel fixing, bolt	M 8 x 1,25	3,5
Reversing light switch, bolt	M 12 x 1	3
Drive shaft joints to front differential fixing, bolt	M 8 x 1,25	4,2

EXTERNAL GEARBOX CONTROLS

Gear engagement control rod rear flexible mounting fixing, bolt	M 6 x 1	0,6
Gear engagement control lever joint to rod fixing, bolt	M 6 x 1	0,9
Gear engagement lever to floating mounting fixing, bolt	M 6 x 1	0,6
Flexible bush to gear engagement control rod (flexible coupling) fixing, bolt	M 6 x 1	0,9

DESCRIPTION	Thread size	Tightening torques
		daNm
Gear engagement control rod to gearbox ouput rod fixing, bolt	M 10 x 1,25	3,5
End of gear engagement control rod to flexible bush fixing, bolt	M 6 x 1	0,9
Bracket fixing reaction rod flexible bush to gearbox fixing, bolt	M 8 x 1,25	2
Mounting for reaction rod flexible bush to bracket on gearbox fixing, nut	M 8 x 1,25	1,3

ENGINE-GEARBOX FIXINGS

Bell housing to engine fixing, nut	M 12 x 1,25	8
Bell housing to engine fixing, bolt	M 12 x 1,25	8,5
Flywheel cover to bell housing fixing, bolt	M 6 x 1	0,8
Starter motor to bell housing fixing, bolt	M 8 x 1,25	2,2
Bell housing to engine fixing, bolt	M 12 x 1,25	5,5

FRONT DIFFERENTIAL: IDLER GEAR

Joint support fixing, bolt	M 8 x 1,25	2,5
Joint support cover fixing, bolt	M 6 x 1	0,75
Cover for front differetnial casing/idler gear fixing, bolt	M 8 x 1,25	2,5
Cover for front differential casing/idler gear fixing, bolt	M 10 x 1,25	5
Bevel pinion locking, nut to be staked	M 20 x 1,5	17 ÷ 28
Crown wheel fixing, bolt	M 10 x 1,25	8,8

FRONT DIFFERENTIAL TO DISTRIBUTOR FIXINGS

Filler for adjustable union fixing oil supply pipe to oil filter mounting	M 16 x 1,5	3,5
Union for fixing oil supply pipe to bevel pinion mounting	M 16 x 1,5	3,5
Front differential rod to engine sump fixing, nut	M 10 x 1,25	5,1

DESCRIPTION	Thread size	Tightening torques daNm
Bevel pinion mounting to gearbox fixing, bolt	M 12 x 1,25	8,8
Bevel pinion mounting fixing, bolt	M 8 x 1,25	2,5

PROPELLER SHAFT

Propeller shaft to front differential fixing, bolt	M 8 x 1,25	4,2
Propeller shaft intermediate support cross member fixing, nut	M 8 x 1,25	1,5
Nut for stud on rear differential fixing propeller shaft	M 10 x 1,25	5
Propeller shaft safety cross member fixing, nut	M 6 x 1	0,6
Propeller shaft shield fixing, nut	M 8 x 1,25	1

REAR DIFFERENTIAL

Pinion locking, nut to be staked	M 20 x 1,5	17 ÷ 28
Crown wheel fixing, bolt	M 10 x 1,25	8
Magnetic, threaded, tapered oil drain plug	M 22 x 1,5	4,6
Left cover fixing, bolt	M 10 x 1,25	5
Threaded, tapered, oil filler plug	M 22 x 1,5	4,6
Right cover fixing, bolt	M 8 x 1,25	2,5
Nut for stud on right cover	M 8 x 1,25	2,5
Differential flexible mounting to rear cross member fixing, nut	M 8 x 1,25	1,5
Rear differential to flexible mounting on rear cross member fixing, bolt	M 14 x 1,5	8,7

BRAKING SYSTEM

Front brake caliper to steering knuckle fixing, bolt (with 2 washers)	M 12 x 1,5	10,5
Rear brake caliper to stub axle fixing, bolt	M 10 x 1,25	4,8

DESCRIPTION	Thread size	Tightening torques
		daNm
Front and rear brake discs to hub fixing, bolt	M 8 x 1,25	1,2
Front and rear brake discs to hub fixing, bolt	M 8 x 1,25	2,3
Brake shield fixing, bolt	M 6 x 1	0,9
Brake servo to pedals fixing, nut	M 8 x 1,25	1,4
Male union for pipes with enlarged ends for fixing rigid pipe to brake servo pump	M 10 x 1	1,8
Male union for pipes with enlarged ends fof fixing rigid pipe to flexible pipe on front and rear brake calipers	M 10 x 1	1,8
Male union for pipes with enlarged ends for fixing rigid pipes to load proportioning valve	M 10 x 1	1,8
Union for fixing rigid pipes to load proportioning valve	M 12 x 1	1,8
Union for fixing flexible pipes to brake calipers	M 10 x 1	2,1
Load proportioning valve to rear cross member fixing, bolt	M 8 x 1,25	2
Handbrake to vehicle floor fixing, nut	M 8 x 1,25	1,4

STEERING

Steering rod ball joint to steering knuckle fixing, nut	M 10 x 1,25	3,5
Power assisted steering to bodyshell fixing, bolt	M 8 x 1,25	2,1
Side steering rod fixing, nut	M 12 x 1,5	6
Steering control rod shaft universal joint fork fixing, bolt	M 8 x 1,25	2
Steering wheel to steering column fixing, nut (for steering wheel with aluminium hub)	M 16 x 1,5	3,7
Nut for locking device for adjusting position of steering wheel (tighten the nut to the recommended torque with the lever in the locked position)	M 12 x 1,25	2,5
Steering column to mounting fixing, bolt	M 6 x 1	0,5
Filler for oil supply pipe adjustable union on power assisted steering pump	M 14 x 1,5	2,3

DESCRIPTION	Thread size	Tightening torques
		daNm
Filler for oil return pipe adjustable union on power assisted steering pump	M 18 x 1,5	3,4
Filler for adjustable union for oil supply pipe on power assisted steering pump	M 14 x 1,5	2,3
Oil reservoir to mounting fixing, bolt	M 6 x 1	0,5

FRONT SUSPENSION

Shock absorber stem to flexible mounting fixing, nut with polyammide ring	M 14 x 1,5	5
Flexible mounting at end of shock absorber stem to suspension turret fixing, nut	M 8 x 1,25	3,6
Wheel hubs to constant velocity joints fixing, nut	M 24 x 1,5	36
Wheels to hubs fixing, bolt	M 12 x 1,25	9,8
Ball joint to track control arm fixing, nut with flange	M 8 x 1,25	3,2
Differential side constant velocity joint fixing, nut	M 8 x 1,25	4,2
Ball joint to steering knuckle fixing, nut	M 10 x 1,25	9,5
Flexible bushes to suspension arm and pins fixing, nut	M 10 x 1,25	4,5
Anti-roll bar to bodyshell fixing, bolt	M 8 x 1,25	1,8
Shock absorber bracket to steering knuckle fixing, nut	M 12 x 1,25	10
Front bush for track control arm to chassis fixing, bolt	M 10 x 1,25	5
Rear bush for track control arm to chassis fixing, bolt	M 10 x 1,25	5
Pin to end of suspension arm fixing, bolt	M 10 x 1,25	5,6
Brake caliper to steering knuckle fixing, bolt	M 12 x 1,25	9,5
Pins to suspension arm fixing, bolt	M 10 x 1,25	5,6
Track control arm front plate to bodyshell fixing, bolt	M 10 x 1,25	4
UNIBAL to suspension arm fixing, nut	M 8 x 1,25	

DESCRIPTION	Thread size	Tightening torques
		daNm
Shock absorber mounting and shock absorber turret supporting bar plate fixing, nut (*)	M 8 x 1,25	3,6
Shock absorber turret connecting bar to plate fixing, nut (*)	M 12 x 1,25	9
Shock absorber turret connecting bar adjustment rod (*)	M 14 x 1,5	1
Shock absorber turret connecting bar adjustment rod lock, nut (*)	M 14 x 1,5	3

REAR SUSPENSION

Shock absorber to flexible mounting fixing, nut	M 12 x 1,25	5
Shock absorber to stub axle fixing, bolt	M 10 x 1,25	5,8
Complete flexible mounting to bodyshell turret fixing, nut	M 8 x 1,25	1,8
Anti-roll bar joint to bodyshell fixing, bolt	M 8 x 1,25	1,2
Anti-roll bar to joint mounting fixing, bolt	M 6 x 1	1
Anti-roll bar to stub axle fixing, bolt	M 8 x 1,25	2,3
Rear cross member to bodyshell fixing, bolt	M 12 x 1,25	6
Longitudinal rods fixing, bolt	M 10 x 1,25	6
Transverse rods fixing, bolts	M 10 x 1,25	6
Wheel hubs to constant velocity joints fixing, nut	M 24 x 1,5	32
Rear wheels to hubs fixing, bolt	M 12 x 1,25	8,6

BODYWORK

Upper hinge to bonnet lid and lower hinge to bracket fixing, bolt	M 8 x 1,25	0,8
Bodyshell side ball joint and tailgate side fixing, pin	M 8 x 1,25	1,5
Moveable hinge to tailgate reinforcement fixing, bolt	M 8 x 1,25	1,5
Tailgate hinge to bodyshell fixing, nut	M 6 x 1	0,4
Tailgate hinge to bodyshell side fixing, nut	M 6 x 1	1

(*) See the fitting instructions on page 73

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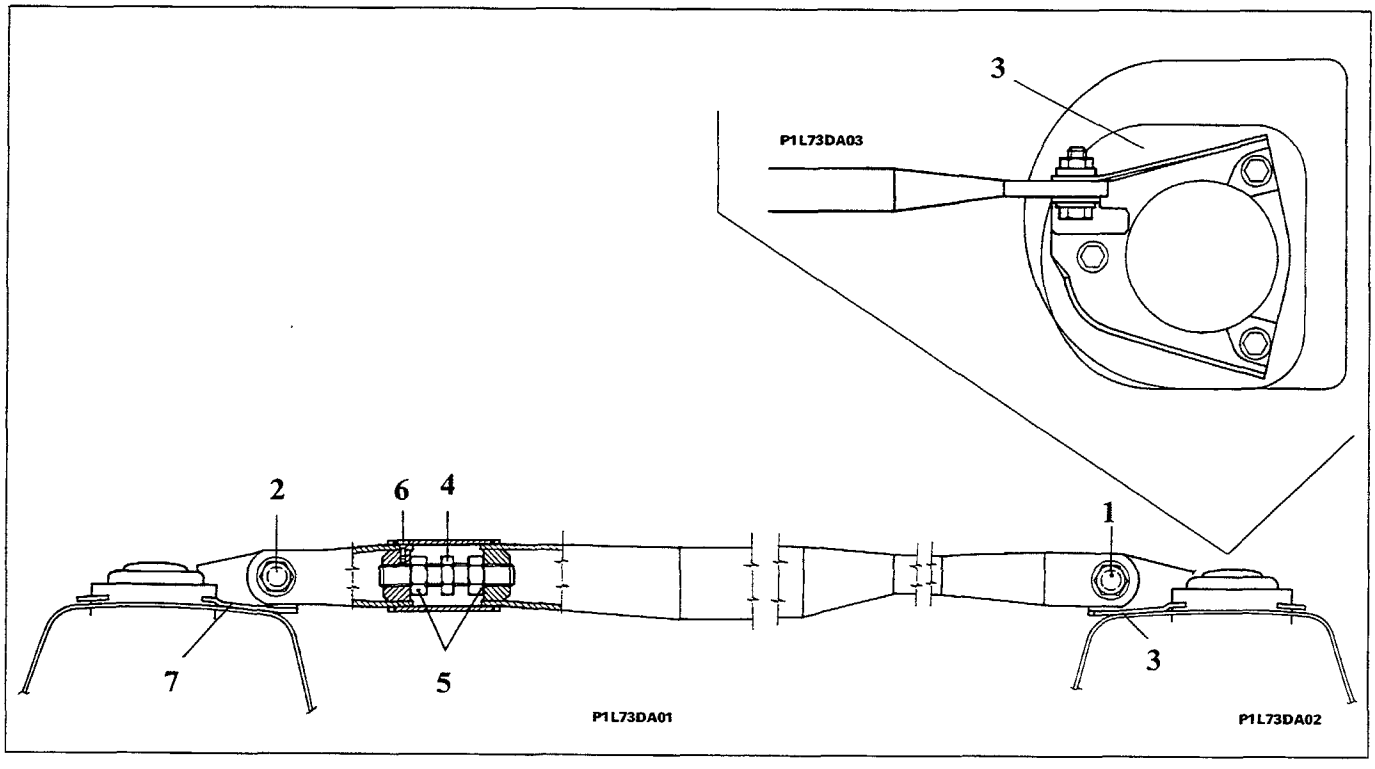
DESCRIPTION	Thread size	Tightening torques daNm
Rear tailgate lock striker to reinforcement fixing, flanged bolt	M 6 x 1	1
Rear tailgate upper and lower hinges to door fixing, bolt	M 10 x 1,25	3,5
Front door upper and lower hinges to door fixing, bolt	M 10 x 1,25	3,5
Front and rear door upper and lower hinges to bodyshell fixing, bolt	M 10 x 1,25	3
Front and rear door locks to door fixing, bolt	M 6 x 1	0,25
Front and rear door lock striker to bodyshell fixing, bolt	M 8 x 1	2,5
	M 6 x 1	1
Front bumper bracket to bodyshell fixing, bolt	M 10 x 1,25	4,5
Rear bumper bracket to bodyshell fixing, bolt	M 10 x 1,25	3
Front bumper to bracket side fixing, bolt	M 8 x 1,25	1,2
Front and rear bumper to bracket centre fixing, bolt	M 10 x 1,25	3
Rear bumper centre fixing bolts with nut with polyammide ring	M 10 x 1,25	3
Front and rear bracket for battery drip tray to bodyshell fixing, bolt	M 8 x 1,25	1,5
Battery drip tray side partition to bodyshell fixing, nut	M 8 x 1,25	0,9
Front and rear mounting to battery drip tray fixing, bolt	M 8 x 1,25	1,5
Lock to fuel filler flap fixing, nut	M 6 x 1	0,4
Front seat fixed guide rail to bodyshell fixing, bolt	M 8 x 1,25	3,2
Front seat fixed guide rail to mounting fixing, bolt	M 8 x 1,25	3,2
Bracket for hook for lifting and towing vehicle to bodyshell fixing, bolt	M 10 x 1,25	6,1
Front plate for raising vehicle to cross member fixing, bolt	M 10 x 1,25	3

INSTRUCTIONS FOR FITTING FRONT SHOCK ABSORBER TURRET CONNECTING BAR



Before fixing the bar it is necessary to check that the plates 93 and 7) are correctly positioned so that the areas where the bar is fixed are flat.

The bar connecting the shock absrober turrets should be fixed to the anchorage plates (3 and 7) ***with the vehicle unladen and with the wheels on the ground***

The instructions for correctly fitting the shock absorber turret connecting bar are as follows:

1. Fix the connecting bar to the right plate (3) using the bolt (1)
2. Adjust the length of the connecting bar in such a way as to be able to fix the left plate (7), using the bolt (2)
3. Using a torque wrench, tighten the bolts (1 and 2) and the fixing nuts (connecting bar to plate) to a torque of 9 daNm
4. Using a torque wrench, tighten the centre bolt (4) for adjusting the length of the connecting bar to a torque of 1 daNm (the bar is slightly shortened during this operation)
5. Using a torque wrench, tighten the two lock nuts (5) fixing the length of the connecting bar to a torque of 3 daNm
6. Fit the covering sleeve and fix it to the connecting bar using the bolt (6).