

PUNTO eMANUAL

Introduction & Technical Data

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IDENTIFICATION DATA

	CHASSIS	ENGINE	VERSION	TRIM LEVEL	3 DOOR	5 DOOR	GEARBOX 5 speed
 EEC STAGE 2 (CF2)	ZFA 176.000	176 B4.000	176 AR 53 F	S 60	●		●
			176 BR 53 F(*)		●		●
			176 AR 55 F			●	●
			176 BR 55 F(*)			●	●
			176 AR 53 P	SX 60	●		●
			176 BR 53 P(*)		●		●
			176 AR 55 P			●	●
			176 BR 55 P(*)			●	●

(*) For the French market

ENGINE	
GEARBOX	

WEIGHTS (in kg)

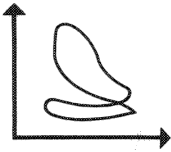
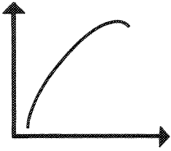
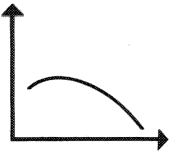
 	3 door	865/875 (*)
	5 door	880/890 (*)
	3 door	1315/1325 (*)
	5 door	1330/1340 (*)
	Without braking system	400
	With braking system	900

(*) The first figure refers to the vehicle without optional equipment; the second with the entire range of optional equipment.

For missing figures, see previous edition Print no. 506.003

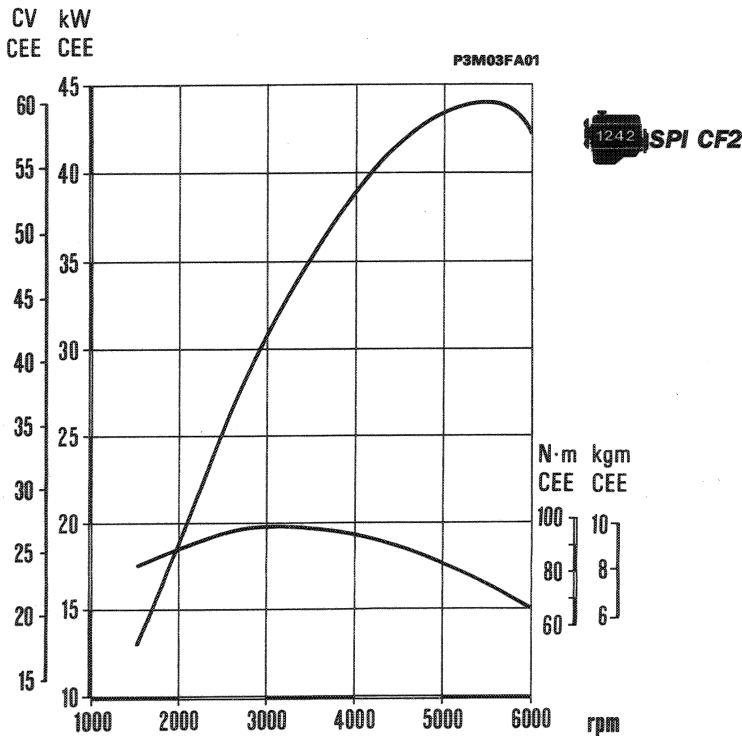


CHARACTERISTICS

	Cycle	OTTO 4 stroke	
	Timing	single overhead camshaft	
	Type of fuel system	Integrated I.A.W. WEBER-MARELLI electronic injection/ignition	
 Max power	kW (EEC) (CV) (EEC)		44 (60)
	rpm		5500
 Max torque	daNm (EEC) (kgm) (EEC)		9,8 (10)
	rpm		3000

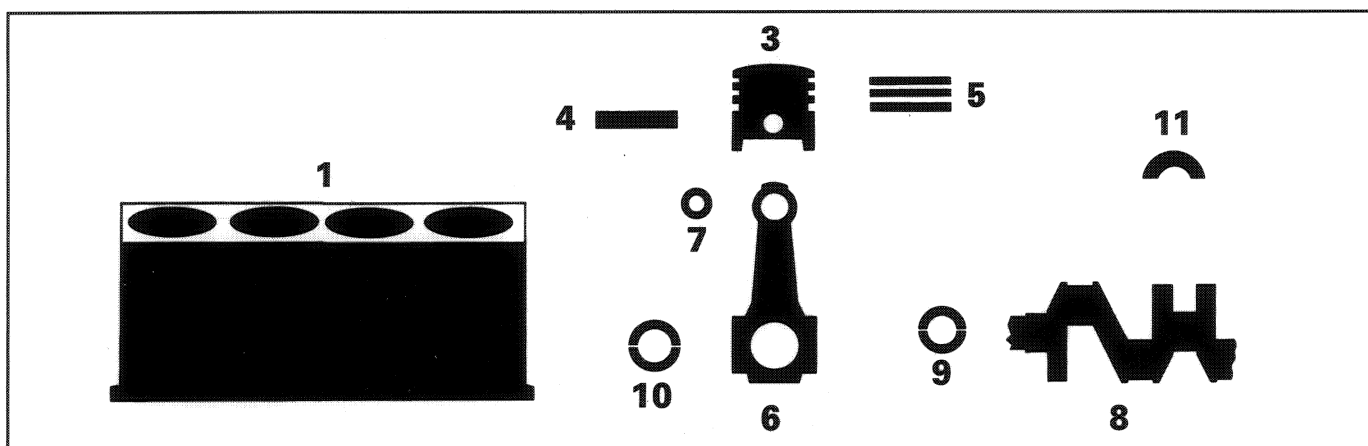
TYPICAL POWER CURVES OBTAINED BY EEC METHOD

The curves illustrated can be obtained with the engine overhauled and run in (50 hours of operation) without a fan, with an exhaust silencer and air filter fitted at sea level.

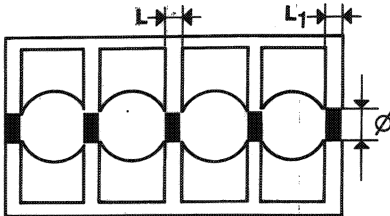


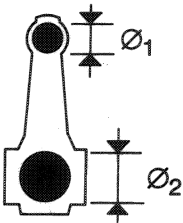
Test bench cycles of overhauled engines

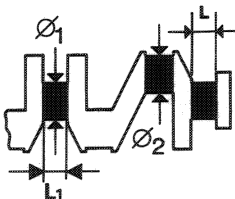
During the bench test for the overhauled engines it is not advisable to run the engines at maximum speed, but to stick to the figures given in the table; complete the running in of the engines in the actual cars.



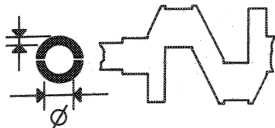
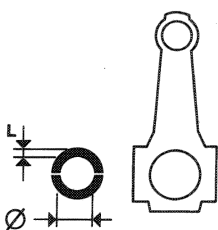
DESCRIPTION

1  Main bearing supports	L	19,140 ÷ 19,200	
	L1	-	
	Ø {	1	51,705 ÷ 51,709
		2	51,709 ÷ 51,713
		3	51,713 ÷ 51,717

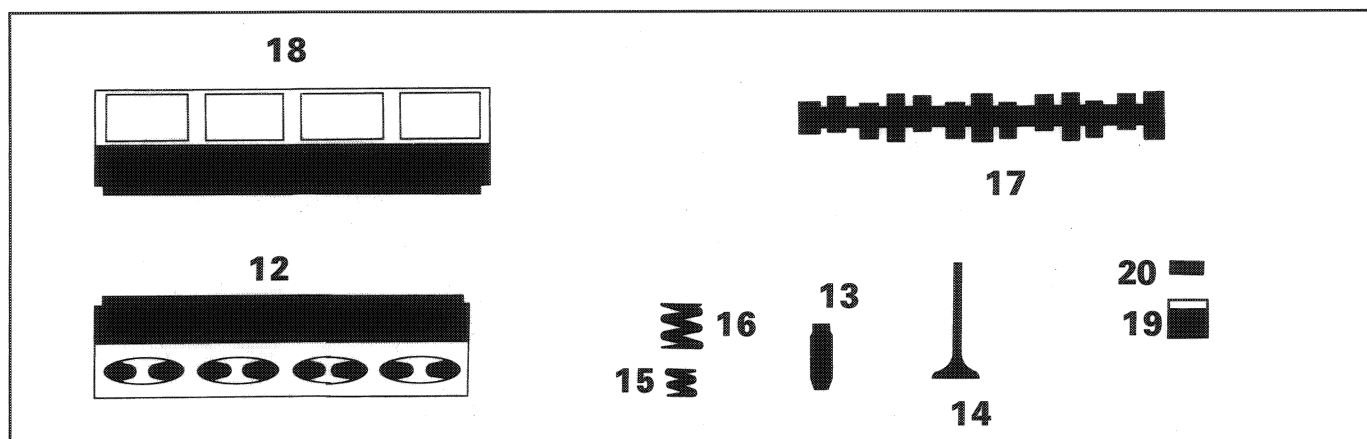
6  Small end bush or pin housing Big end bearing housing	Ø1	17,939 ÷ 17,956	
	Ø2	45,128 ÷ 45,138	

8  Main journals Crank pins	Ø1 {	1	47,994 ÷ 48,000
		2	47,988 ÷ 47,994
		3	47,982 ÷ 47,988
	Ø2 {	A	42,001 ÷ 42,008
		B	41,995 ÷ 42,001
		C	41,988 ÷ 41,995
	L	-	
	L1	23,975 ÷ 24,025	

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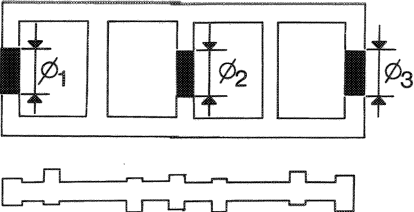
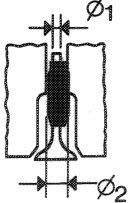
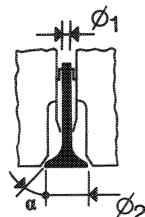
			
DESCRIPTION			Values in mm
9 	Crankshaft bearings L 1 2 3	Ø FIAT A <	1,836 ÷ 1,840
			1,841 ÷ 1,845
			1,846 ÷ 1,850
			0,254 - 0,043
9-8 	Crankshaft bearing - Main journals		0,025 ÷ 0,043
10 	Big end bearings L A B	Ø FIAT A <	1,544 ÷ 1,548
			-
			0,254 - 0,508
10-8 	A		0,024 ÷ 0,049
	B		0,031 ÷ 0,055
	C		0,037 ÷ 0,062

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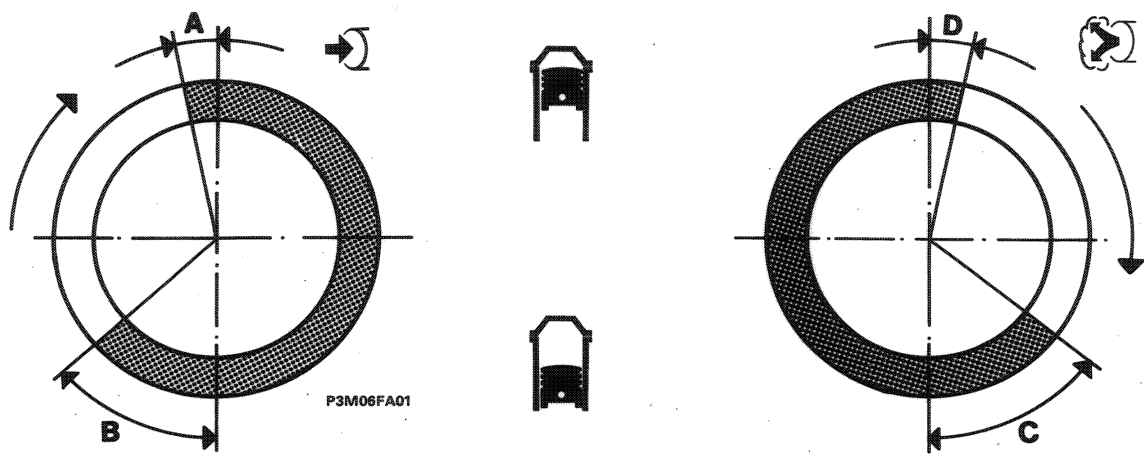
DESCRIPTION

Values in mm

 12 Camshaft bearing housings in cylinder head	Ø₁ Ø₂ Ø₃	24,045 ÷ 24,070 23,545 ÷ 23,570 24,045 ÷ 24,070
 13 Valve guide	Ø₁ Ø₂ FLAT	7,022 ÷ 7,040 13,010 ÷ 13,030 0,05 - 0,10 - 0,25
 13-12 Valve guide - Bore in cylinder head	Ø₁ Ø₂	0,033 ± 0,080
 14 Valves	Ø₁ Ø₂ α	6,982 ÷ 7,000 31,20 ÷ 31,50 45°30' ± 5' 6,982 ÷ 7,000 27,20 ÷ 27,50 45°30' ± 5'

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TIMING DIAGRAMS



Timing angles

A	Inlet	opens before TDC	7°
B		closes after BDC	35°
C	Exhaust	opens before BDC	37°
D		closes after TDC	5°



LUBRICATION - Description

		Values in mm
  	at idle speed	0,7 bar
	at 4000 rpm	4 bar $\pm$ 0,4

Operating pressure at a temperature of 100°C

COOLING SYSTEM

		1st stage	90° ÷ 94°C (90° ÷ 94°C) *
		2nd st.	(95° ÷ 99°C) *
		1st stage	85° ÷ 89°C (85° ÷ 89°C) *
		2nd st.	(90 ÷ 94°C) *
Engine coolant fluid	opening		85° ÷ 89°C
	max opening		100°C
	valve travel		$\geq$ 7,5 mm
Fitting clearance between impeller vanes and pump casing			0,4 ÷ 0,9 mm
Pressure for checking radiator water tightness			0,98 bar
Pressure for checking calibration of exhaust spring on expansion tank cap			0,98 bar

(*) For versions with air conditioning

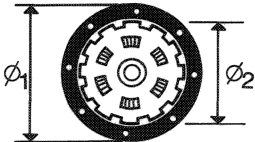
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ELECTRONIC INJECTION SYSTEM COMPONENTS

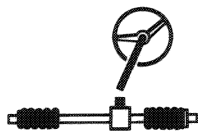
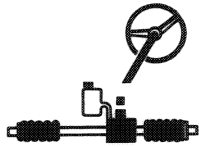
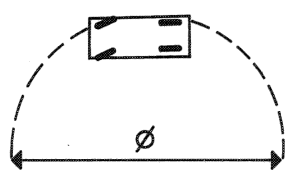
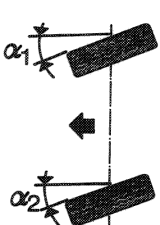
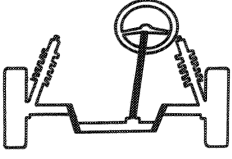
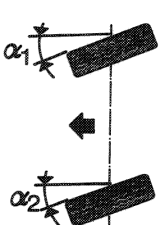
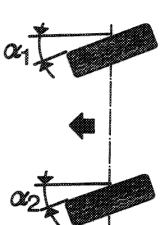
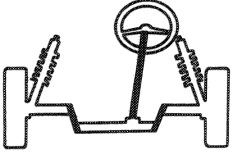
Electronic control unit	I.A.W. 16F.E3
Butterfly casing (with fuel pressure regulator incorporated)	30 MM 13
Absolute pressure sensor	M. Marelli PRT-03/02
Butterfly valve position sensor	PF2C
Injector	IWM 523
Air temperature sensor	ATS 05
Coolant temperature sensor	WEBER WTS 05/01
Twin relay supplying electric pump and injection/ignition control unit	DRS 240 103/00
Electric fuel pump	MARWAL MSS 070/01
Lambda sensor	Bosch 0.258.003.466
Fuel filter	FI-03

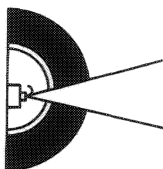
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		Values in mm	
Type		 dry, single plate with bearing	
Operating mechanism		 diaphragm spring	
Spring loading	daN	375	
Driven disc	 $\varnothing_1$	181,5	
	$\varnothing_2$	127	
	 Distance between pedal in end of travel position and rest position	140 ± 5	
Clutch release		mechanical	

ENGINE	 1242 SPI CF2
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Type	 rack and pinion with variable ratio	 rack and pinion power assisted
 Rack travel	 no. of turns lock to lock	about 4
	 ratio	about 2.9
 Minimum turning circle	137 mm	
 Steering angle	 outer wheel α_1	33° 38'
	 inner wheel α_2	33° 47'
 Steering col.	 Steering angle	38° 12'
	 Steering angle	37° 44'
 Steering col.		 with 2 universal joints



unladen car (*)

WHEEL GEOMETRY

Front suspension	camber (**)	-0° 18' ± 30' -0° 25' ± 30' (■)
	caster (**)	1° 20' ± 30' 2° 50' ± 30' (■)
	toe in	0 ± 1 mm
Rear rear	camber (**)	- 15' ± 30' - 25' ± 30' (■)
	toe in (**)	1,3 ± 2 mm 1,1 ± 2 mm (■)
Offset for axles (thrust angle) ▲		0°

(*) With tyres inflated to the correct pressure and vehicle in running order

(**) Angles cannot be adjusted

(■) Versions with power assisted steering

(▲) **Note** With wheel geometry values correct, the thrust angle should be the value shown.

Front suspension

00.44

Front suspension independent, Mac Pherson type with track control arms connected by two flexible bushes to a cross member.

Offset coil springs and double acting hydraulic shock absorbers.

For-life joints.



Coil springs

Part number		7778396	(▲) 7778399
Diameter of wire	mm	12,2±0,1	11,5±0,1
Number of turns		3,25	4,25
Direction of coil		clockwise	
Height of spring released	mm	331	389
Height of spring under load of:	270 ± 10 daN	mm	210,5
	290 ± 10 daN	mm	-
The springs are subdivided into two categories, identifiable by a mark			
yellow (1) for those under a load of:	270 ± 10 daN	height of mm	> 210,5
	290 ± 10 daN	height of mm	-
green (1) for those under a load of:	270 ± 10 daN	height of mm	≤ 210,5
	290 ± 10 daN	height of mm	≤ 210,5

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

(▲) Versions fitted with air conditioning

Shock absorbers

Type: telescopic, double acting	Telescopic, hydraulic, double acting
Part number	7778834
Travel (start of damping action)	mm 171
Maximum extension	mm 466±2,5

Rear suspension independent, with coil springs.
Cast iron arms with bearings.
Stabilizer bar. Rubber buffers.



Coil springs

Part number	7756559	
Diameter of wire	mm	11,9±0,05
Number of turns	4,75	
Direction of coil	clockwise	
Height of spring released	mm	277
Height of spring under a load of:	294 ± 10 daN mm	185
The springs are subdivided into two categories, identifiable by a mark		
yellow (1) for those under a load of:	294 ± 10 daN height of mm	> 185
green (1) for those under a load of:	294 ± 10 daN height of mm	≤ 185

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

Shock absorbers

Type: telescopic, double acting (low pressure gas)		BOGE or WAY-ASSAUTO	
Part number	BOGE	-	7789196
	WAY-ASSAUTO	7719070	-
Travel (start of damping action)	mm	88	87
Maximum extension	mm	300±2	299±2

CHARACTERISTICS OF VARIABLE CAPACITY ROTARY COMPRESSOR



Make and type	NIPPONDENSO TV12E
Cylinder diameter	38,5 mm
Maximum travel	27,7 mm
Minimum travel	–
Maximum theoretical capacity	127 cc every revolution
Minimum theoretical capacity	about 17% of the maximum value
Number of cylinders	4
Quantity and type of oil	150 cc of ND-OIL 9
High pressure safety valve	set at 37.4 bar
Electro-magnet coupling voltage	12 V
Power absorbed by the electro-magnet coupling	40 W
Current absorbed by the electro-magnet coupling	3,3 A
Calibration of the compressor temperature safety switch	about 125 °C

CHARACTERISTICS OF THE AIR CONDITIONING SYSTEM

Quantity of R 134 A for pressurizing the system	0,700 kg
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CALIBRATION OF THE THERMAL SWITCHES WHICH OPERATE THE RADIATOR AND CONDENSER COOLING FAN



1st level contact closes	90° ÷ 94 °C
1st level contact opens	85° ÷ 89 °C
2nd level contact closes	95° ÷ 99 °C
2nd level contact opens	90° ÷ 94 °C

CHARACTERISTICS OF AIR CONDITIONING CONTROL DEVICES

DESCRIPTION	CIRCUIT CONCERNED	FUNCTION	CALIBRATION VALUES
Three stage pressure switch	1st level Energizing circuit for compressor pulley electro-magnet coupling relay coil	Circuit open	btwn 2.20 & 2.70 bar (2.45 ± 0.25 bar)
		Circuit closed	btwn 2.26 & 2.94 bar (2.6 ± 0.34 bar)
	2nd level Supply circuit for radiator and condenser cooling fan	Circuit closed	btwn 14.22 & 16.18 bar (15.2 ± 0.98 bar)
		Circuit open	btwn 10.3 & 12.26 bar differ. 3.92 ± 0.98 bar
	3rd level Energizing circuit for compressor pulley electro-magnet coupling relay coil	Circuit open	btwn 25 bar & 30 bar ($28 + 2-3$ bar)
		Circuit closed	btwn 20 & 24 bar differential 6 ± 2 bar



STARTER MOTOR	M. MARELLI E80 E - 12 V - 0,8 kW
ALTERNATOR	M. MARELLI A115I - 14 V - 38/65 A M. MARELLI A115I - 14 V - 40/75 A (●)
VOLTAGE REGULATOR	BUILT IN ELECTRONIC
BATTERY	12V - 40 Ah - 200 A 12V - 50 Ah - 250 A (●)
IGNITION COIL	M. MARELLI BAE 800 AK
SPARK PLUGS	FIAT/LANCIA 9GYSSR CHAMPION RC9YCC M. MARELLI L7LCR

(●) For vehicles equipped with air conditioning

**STARTER MOTOR**

Type	M. Marelli E80E - 12V - 0,8 KW	
Voltage	V	12
Nominal power	kW	0,8
Rotation, pinion side		clockwise
No. of poles		4
Field coil		series
Engagement		free wheel
Operation		solenoid
End float of armature shaft	mm	0,2 ÷ 0,4
Data for bench test		
Operating test (*):		
current	A	180
speed	rpm	1800
voltage	V	9,2
torque developed	daNm	0,4
Engagement test (*):		
current	A	3,10
voltage	V	7,4
torque developed	daNm	1,18
Free running test (*):		
current	A	43 ÷ 47
voltage	V	12
speed	rpm	11350 ÷ 12000
Relay		
Winding resistance (*)	pull in Ω	0,30
	hold in Ω	1
Lubrication		
Internal engagement splines		MOLIKOTE 05-7325
Bushes		AT 150

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

NOTE When overhauling it is not necessary to under the insulator between the commutator bars

Technical data

Punto

Electrical equipment: recharging

00.55



ALTERNATOR

Make		M.Marelli A115I-14V-38/65A	M.MARELLI A 115I-14V-40/75A (■)
Nominal voltage	V	14	
Maximum current	A	65	75
Nominal current at 1800 rpm	A	38	40
Nominal current at 6000 rpm	A	65	75
Field winding resistance between the slip rings (*)	Ω	2,4	2,587 ÷ 2,613
Direction of rotation (seen from control side)		clockwise	
Diode rectifiers		bridge	

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

(■) For versions equipped with air conditioning

STATIC ADVANCE ELECTRONIC INJECTION/IGNITION



Type	Lost spark static advance electronic ignition integrated with the Weber - Marelli injection system
Type	IAW16F. E3
Firing order	1 - 3 - 4 - 2

IGNITION COIL WITH 2 HIGH TENSION SOCKETS

Make	M. Marelli
Type	BAE 800 AK
Ohmic resistance of primary winding at 23°C Ω	0,495 ÷ 0,605
Ohmic resistance of secondary winding at 23°C Ω	6660 ÷ 8140

RPM AND TDC SENSOR

Make and type	M. Marelli /Jaeger
Sensor winding resistance Ω	575 ÷ 750
Distance (gap) between sensor and crankshaft pulley tooth mm	0,5 ÷ 1,5

ADVANCE ON ENGINE

With engine idling	10° ± 3°
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