page

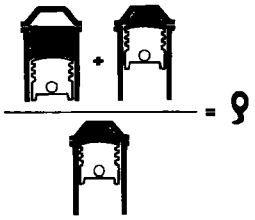
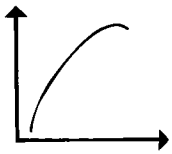
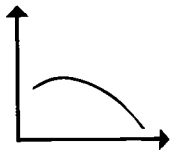
TECHNICAL DATA

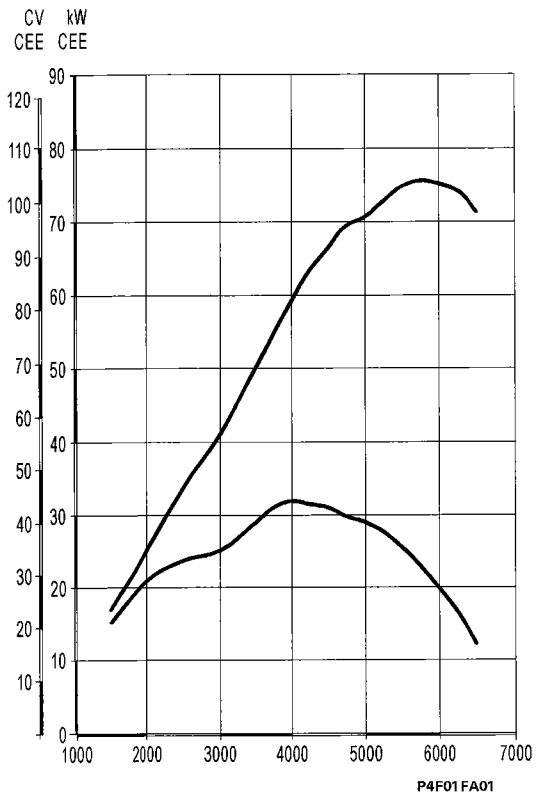
ENGINE 1581 16v

ELECTRICAL EQUIPMENT

This section contains data for vehicles fitted with the 1581 16v STEP A engine.
For anything not dealt with, refer to the information in the previous section 00.

CHARACTERISTICS

		1581 16v
 Compression ratio		10,5 ± 0,15
 Max power CEE	kW (CV)	75,8 (103,1)
	rpm	5750
 Max torque CEE	daNm (kgm)	14,2 (14,5)
	rpm	4000



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Typical power curves obtained by EEC method

The power curves 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.

NOTE *The data and the curve on this page refer to the 1581 16v engine order no. 46474405*

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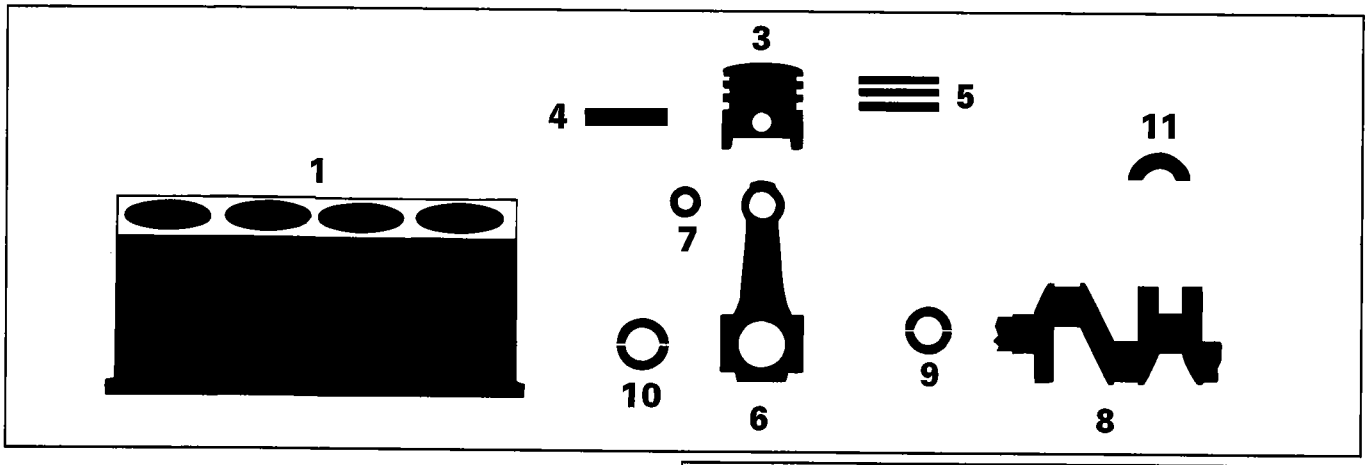
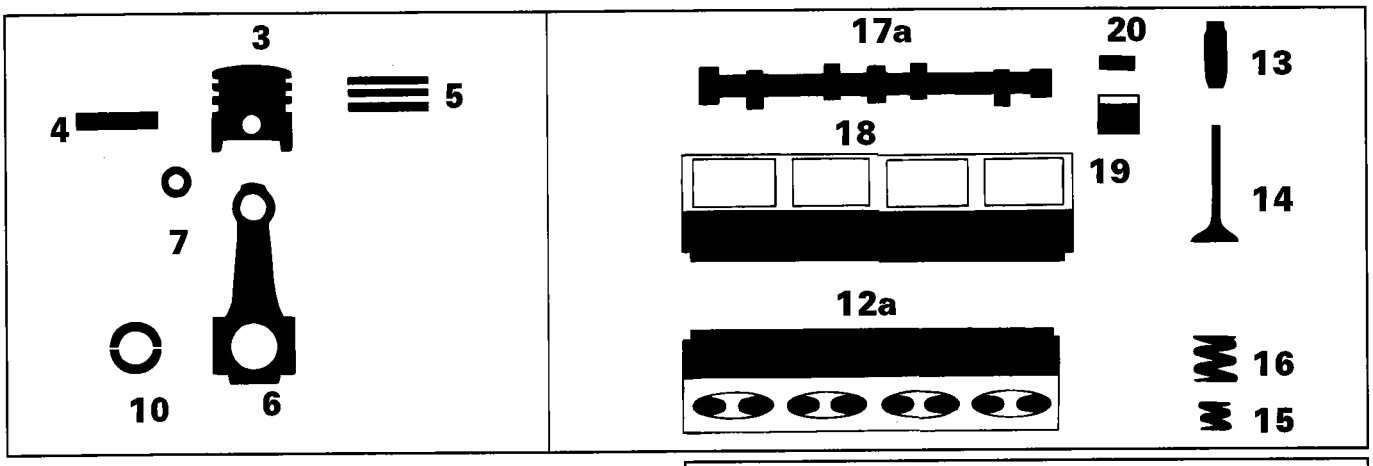


DESCRIPTION		Values in mm
3 Piston	X	10,2
	A	86,352 ÷ 86,362
	B	86,359 ÷ 86,371
	C	86,368 ÷ 86,378
	Ø FIAT >	0,4
3 Piston ring grooves	1	1,520 ÷ 1,540
	2	1,510 ÷ 1,530
	3	3,010 ÷ 3,030
5 Piston rings	L 1	1,470 ÷ 1,490
	2	1,470 ÷ 1,490
	3	3,000
	Ø FIAT >	0,4
5-3 Piston rings / Piston ring grooves	1	0,035 ÷ 0,075
	2	0,020 ÷ 0,060
	3	0,010 ÷ 0,030



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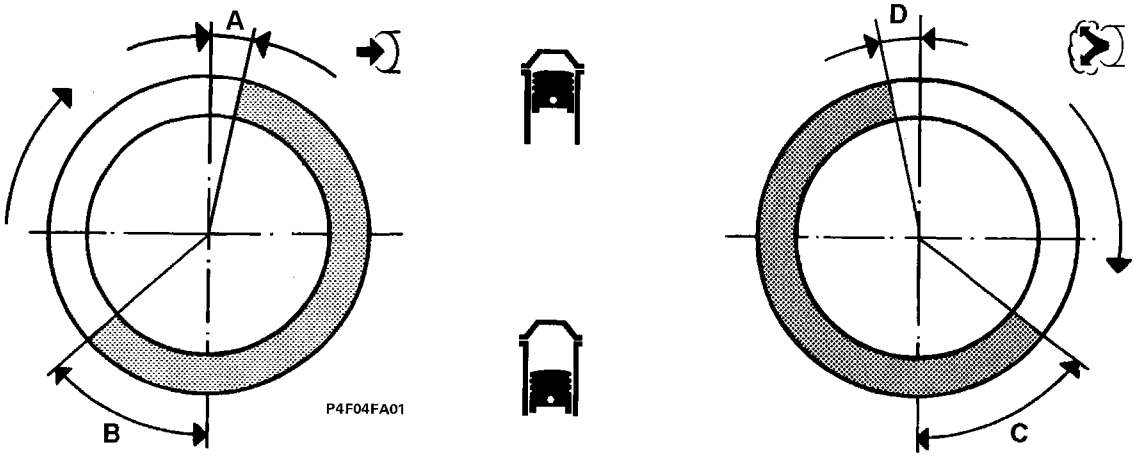
DESCRIPTION		Values in mm
7 Small end bush	$\varnothing_1$	24,016÷24,041
	$\varnothing_2$	22,004÷22,009
4-7 Gudgeon pin / Small end bush		0,009÷0,019
Valve guide bore in cylinder head	$\varnothing$	12,950÷12,977
12a Valve seat	α	45°±20′
	α	45°±20′
	L	about 2
Volume of combustion chamber in cylinder head	cc	33,35
15 Internal valve spring	P_1	8,3÷9,3 daN
	H_1	27,5
	P_2	17,6÷19,6 daN
	H_2	18,5

	1581 16v
DESCRIPTION	Values in mm
16 External valve spring	P_1	23,4 ÷ 25,6 daN
	H_1	33,5
	P_2	46 ÷ 50 daN
	H_2	24,5
17a 17b Cam lift		8,5
		8
12a Tappet housings	∅	33,000 ÷ 33,025

TIMING DIAGRAMS



Timing angles	1581 16v
A Inlet opens ATDC	4°
B Inlet closes ABDC	38°
C Exhaust opens BBDC	28°
D Exhaust closes BTDC	4°

INTEGRATED ELECTRONIC INJECTION/IGNITION SYSTEM COMPONENTS		1581 16v
Electronic control unit	Versions with manual gearbox	I.A.W. 49 F.B6
	Versions with automatic gearbox	I.A.W. 49 F.L3
Intake air temperature and pressure sensor		M.Marelli TPRT 03
Fuel vapour solenoid valve		SIEMENS EC1
Butterfly casing		M.Marelli 46 SX F2
Idle adjustment actuator		M. Marelli IB/02
Injector		M.Marelli IWP 064
Fuel pressure regulator		M.Marelli RPM 84
Coolant temperature sender unit		JAEGER 402.183.01 ELTH Z690350
TDC and rpm sensor		JAEGER CVM 02
Butterfly valve position sensor (potentiometer)		M. Marelli IPF 2C
Twin relay feed for electric fuel pump and injection/ignition control unit		BITRON
Electric fuel pump		MARWALL ESS 291
Lambda sensor		NTK 0ZA 334-A1
Fuel filter		MARWALL FA 5325 IN
Detonation sensor		NTK KNE 03
Ignition coils		COOPER BAE 920 A

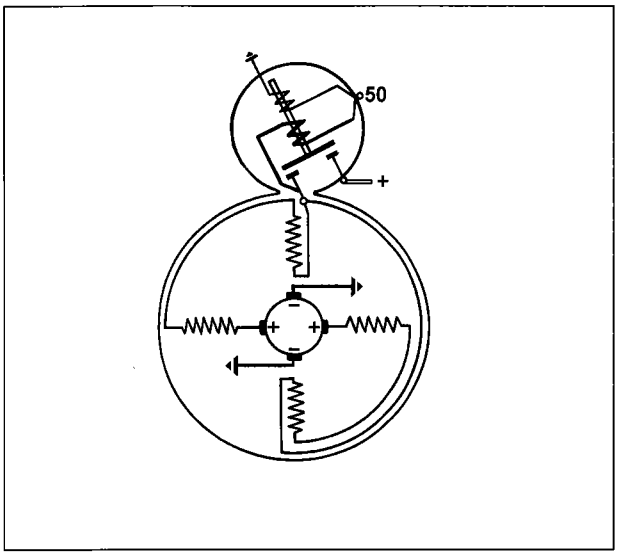
STARTER MOTOR

		1581 16v
Type		M. Marelli M70R-12V-1,3 kW (with reduction gear)
Voltage	V	12
Nominal power	kW	1,3
Rotation, pinion side		clockwise
No. of poles		4
Field coil		winding series-parallel
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 - WIRING DIAGRAM AND TYPICAL CURVES



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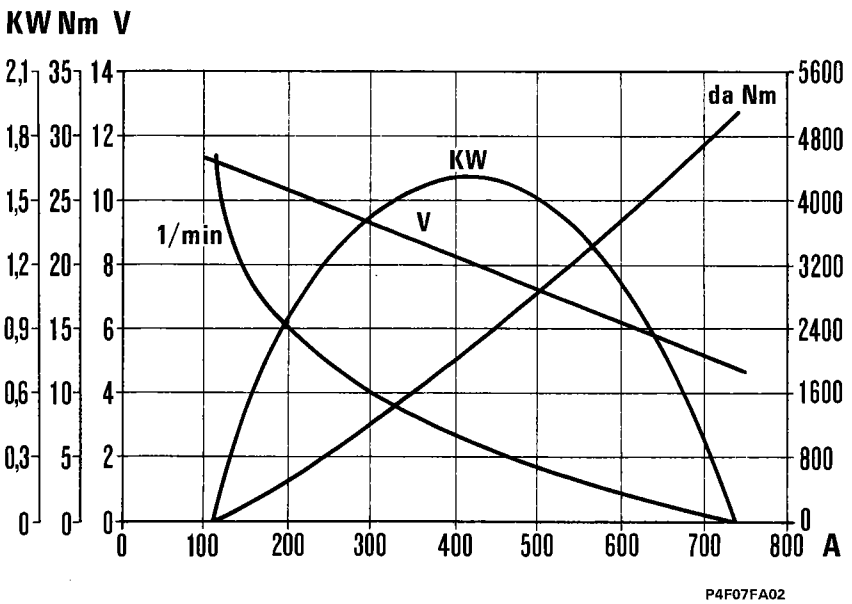
Starter motor wiring diagram for M. Marelli M70R-1,3/12



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Typical curves for starter motor M. Marelli M70R-1,3/12 (with epicyclic reduction gear)