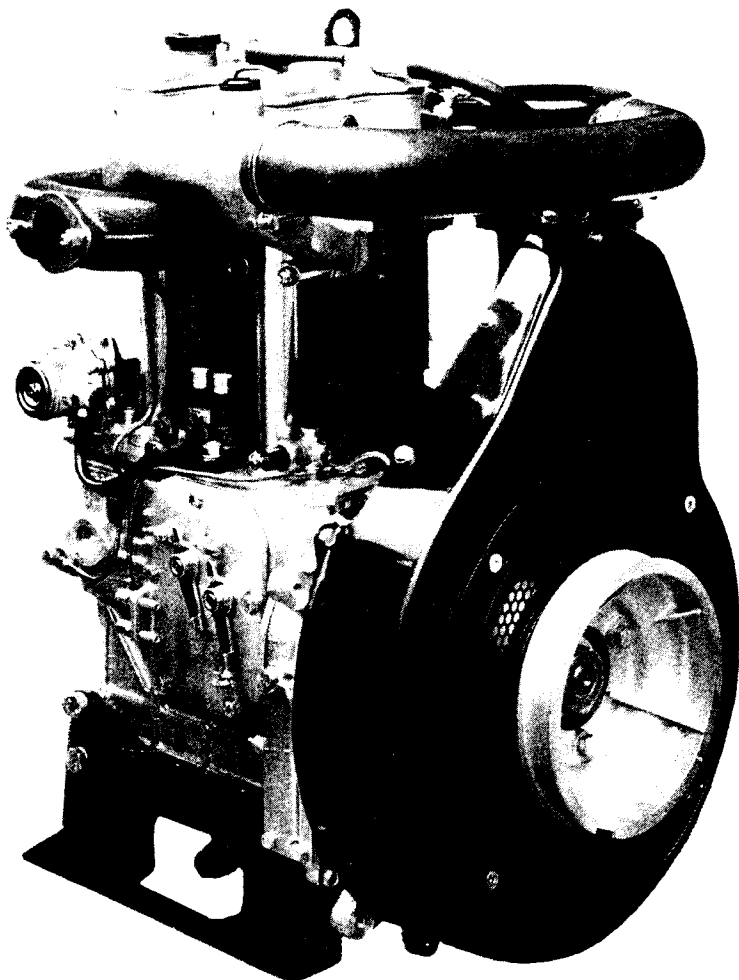


# DVA1030



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## USO - MANUTENZIONE

EMPLOI-ENTRETIEN • USE-MAINTENANCE • BEDIENUNG-WARTUNG

## CATALOGO NOMENCLATORE

CATALOGUE PIECES • SPARES CATALOGUE • ERSATZTEIL LISTE

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N. 5302.203

1<sup>a</sup> EDIZIONE

**SLANZI**  
**DIESEL**

**CARATTERISTICHE - CARACTERISTIQUES - CHARACTERISTICS - MOTORDATEN**

CICLO Cycle Cycle Arbeitsweise	Diesel a 4 tempi Diesel 4 temps 4 Stroke Diesel Viertakt-Diesel
INIEZIONE Injection Injection Einspritzung	diretta directe direct direkt
N. CILINDRI N. des cylindres No. of Cylinders Zylinderzahl	2 in linea 2 en ligne 2 in line 2 in Reihe
ALESAGGIO - Alésage - Bore - Zylinderbohrung	86 mm.
CORSA - Course - Stroke - Kolbenhub	88 mm.
CILINDRATA - Cylindrée - Displacement - Gesamthubraum	1022 cm <sup>3</sup>
GIRI/min - Tours/min - RPM - UpM	2600/3000
RAPPORTO DI COMPRESSIONE Taux de compression Compression ratio Verdichtungsverhältnis	18,3:1
DISTRIBUZIONE Distribution Timing Steuerung	a valvole in testa soupapes en tête OHV (overhead valves) Ventile im Kopf
GIOCO FRA BILANCIERI E VALVOLE, A MOTORE FREDDO: Aspirazione e Scarico Jeu entre culbuteurs et soupapes, moteur à froid: Admission et Echapp. Clearance between rocker arms and valves, cold engine: Intake & Exhaust Ventilspiel, bei kaltem Motor: Einlass und Auslass	0,15 mm.
PRESSIONE D'INIEZIONE Pression d'injection Injection pressure Einspritzdruck	205 bar
ANTICIPO INIEZIONE A TRABOCCAMENTO Avance (début de refoulement) Overflow injection advance Zündverstellung (Förderbeginn)	25° ± 1°
QUOTA DI MONTAGGIO POMPA INIEZIONE (P.M.I.) Cote de montage pompe d'injection (P.M.B.) Injection pump positioning (B.D.C.) Einbauhöhe der Einspritzpumpe (UT)	83,4—0 ÷ 0,1

COPPIE DI SERRAGGIO COUPLES DE SERRAGE	TIGHTEN TORQUES ANZUGSMOMENTE	Nm (Kgm.)
Bulloni testa biella Boulons de bielle	Big end bolts Pleuelschrauben	34 $^0_{-3}$ (4 $^0_{-0,3}$ )
Dadi teste cilindri Ecrous des culasses	Head nuts Zylinderkopfmuttern	64 $\pm 5$ (6,5 $\pm 0,5$ )
Dadi portapolverizzatori Ecrous porte-injecteurs	Nozzle holder nuts Düsenhalter-Muttern	20 (2)
Dado fissaggio volano Ecrou fixation volant	Flywheel nut Schwungradmutter	235 $\pm 20$ (24 $\pm 2$ )
Vite di serraggio puleggia o flangia Vis serrage poulie ou flasque	Pulley or flange bolts Schrauben für Riemenscheibe oder Flansch	30 $\pm 1$ (3 $\pm 0,1$ )
Ghiera fissaggio ingranaggio primario distribuzione Embout fixation engrenage de la commande distribution	Timing gear nut Nockenwellengetriebe-Nutmutter	145 (15)
Bulloni supporto centrale Boulons portée centrale	Bearing support bolts Mittellagerbolzen	49 $^0_{-5}$ (5 $^0_{-0,5}$ )

RIASSUNTO MANUTENZIONE RESUME D'ENTRETIEN	MAINTENANCE SUMMARY WARTUNGSANLEITUNG	Ore - Heures Hours - Stunden
Controllo del livello dell'olio Verification niveau huile	Oil level check Ölstand-Kontrolle	8
Ispezione filtro aria Verification filtre à air	Air cleaner check Ansaugluftfilter überprüfen	10
Cambio olio Vidange d'huile	Oil change Ölwechsel	120
Pulizia alette teste e cilindri Nettoyage ailette culasses et cylindres	Head and cylinder fins cleaning Reinigung der Kühlrippen an Zylindern und Köpfen	120
Sostituzione cartuccia filtro combustibile Remplacement cartouche filtre à combustible	Fuel filter cartridge replacement Brennstofffilter-Patrone ersetzen	200
Registazione gioco valvole e bilancieri Réglage jeu soupapes et culbuteurs	Rocker arms and valves clearance setting Ventilspiel kontrollieren und event. einstellen	200
Pulizia e taratura iniettori Nettoyage et réglage injecteurs	Injectors cleaning and calibration Reinigung und Einstellung der Einspritzdüsen	200
Pulizia filtro olio e sostituzione cartuccia Nettoyage filtre à huile et remplacement	Oil filter cleaning and cartridge replacement Ölfilter reinigen und Patrone ersetzen	400

# CATALOGO RICAMBI

CATALOGUE PIECES - SPARES CATALOGUE - ERSATZTEILLISTE

PER ORDINARE RICAMBI precisare:

- Tipo del motore
- Numero di matricola del motore
- Numero di catalogo e denominazione del ricambio

PER COMMANDES DE PIECES DETACHEES indiquer:

- Type du moteur
- Matricule du moteur
- Référence et denomination de la pièce détachée

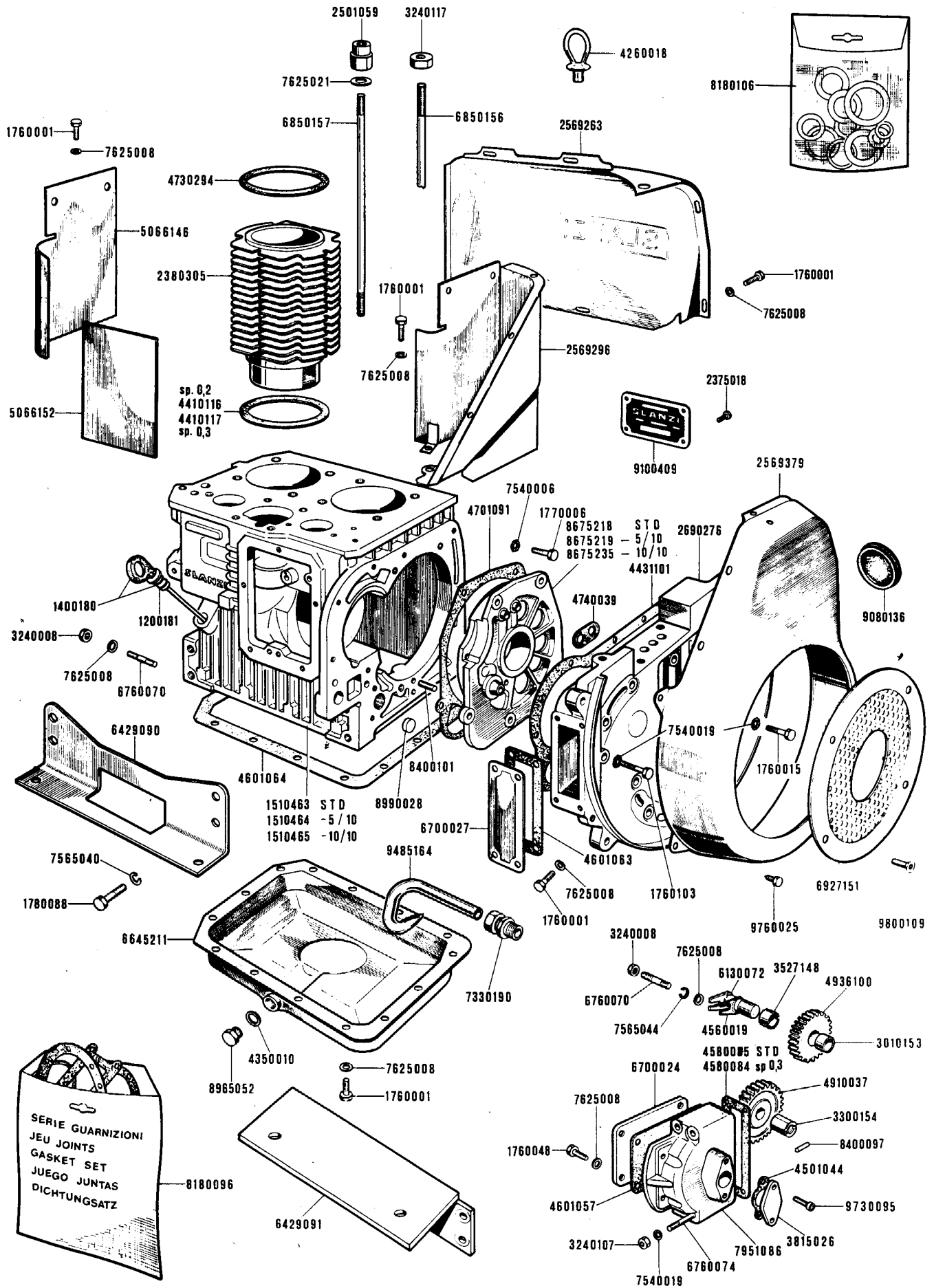
ORDERING YOUR SPARES please specify:

- Engine type
- Engine serial number
- Spare part number and description

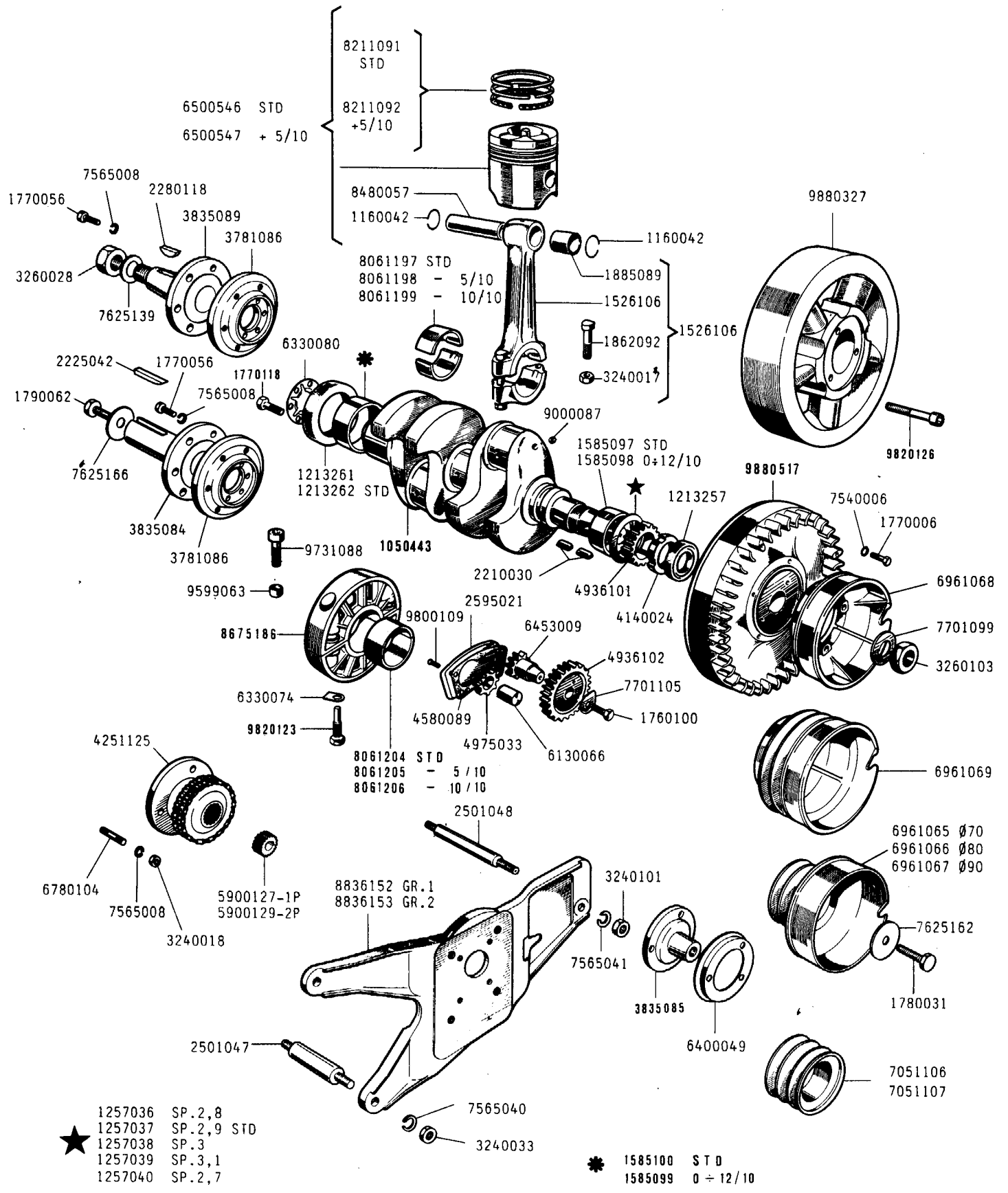
BEI BESTELLUNGEN VON TEILEN folgen angeben:

- Motortyp
- Motor-Nummer
- Bestellnummer und Bezeichnung des Teiles

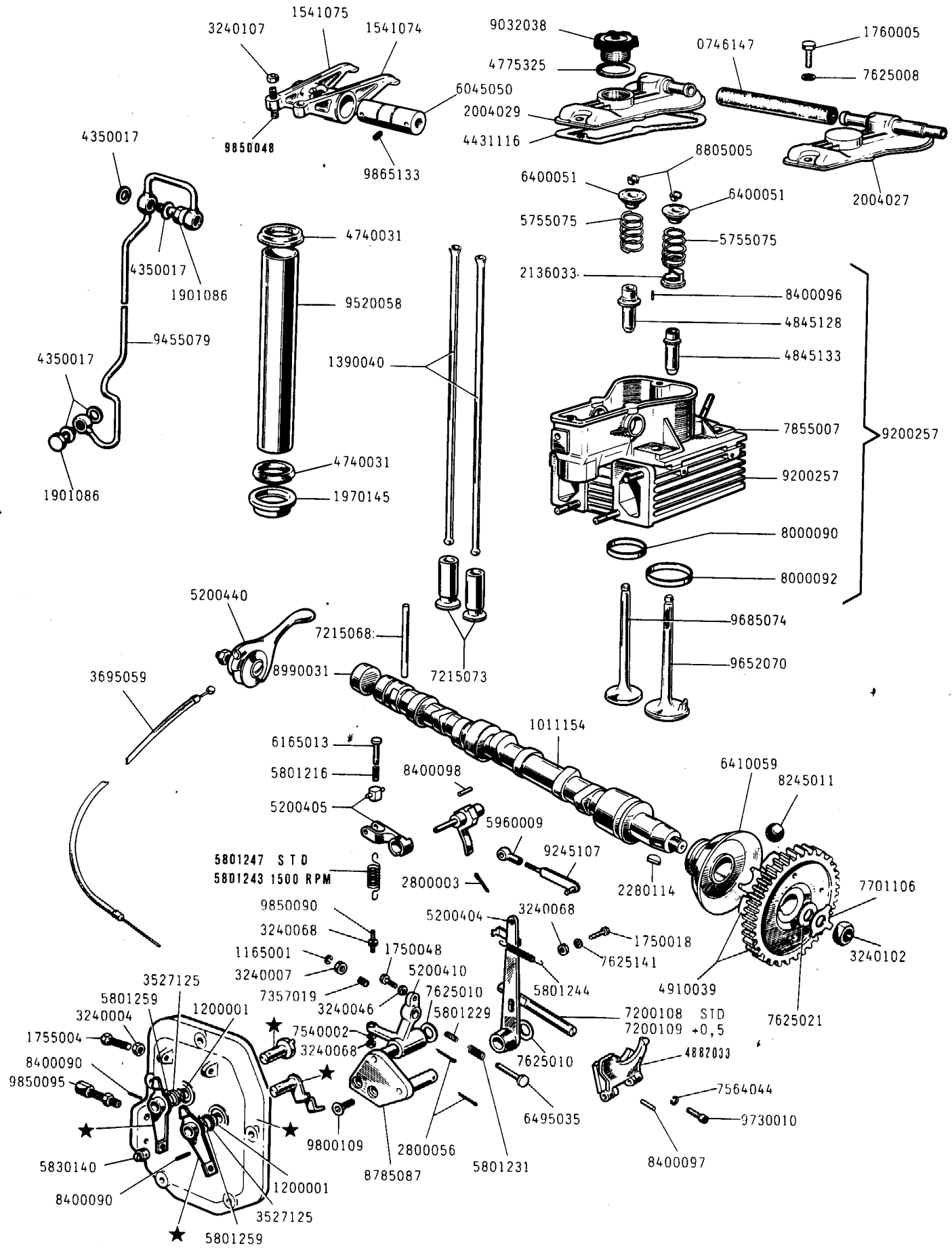
**BASAMENTO - CILINDRO - LAMIERE  
 CARTER - CYLINDRES - CONVOYEURS  
 CRANKCASE - CYLINDERS - SHROUDS  
 KURBELGEHÄUSE - ZYLINDER - KÜHLERHAUBE**



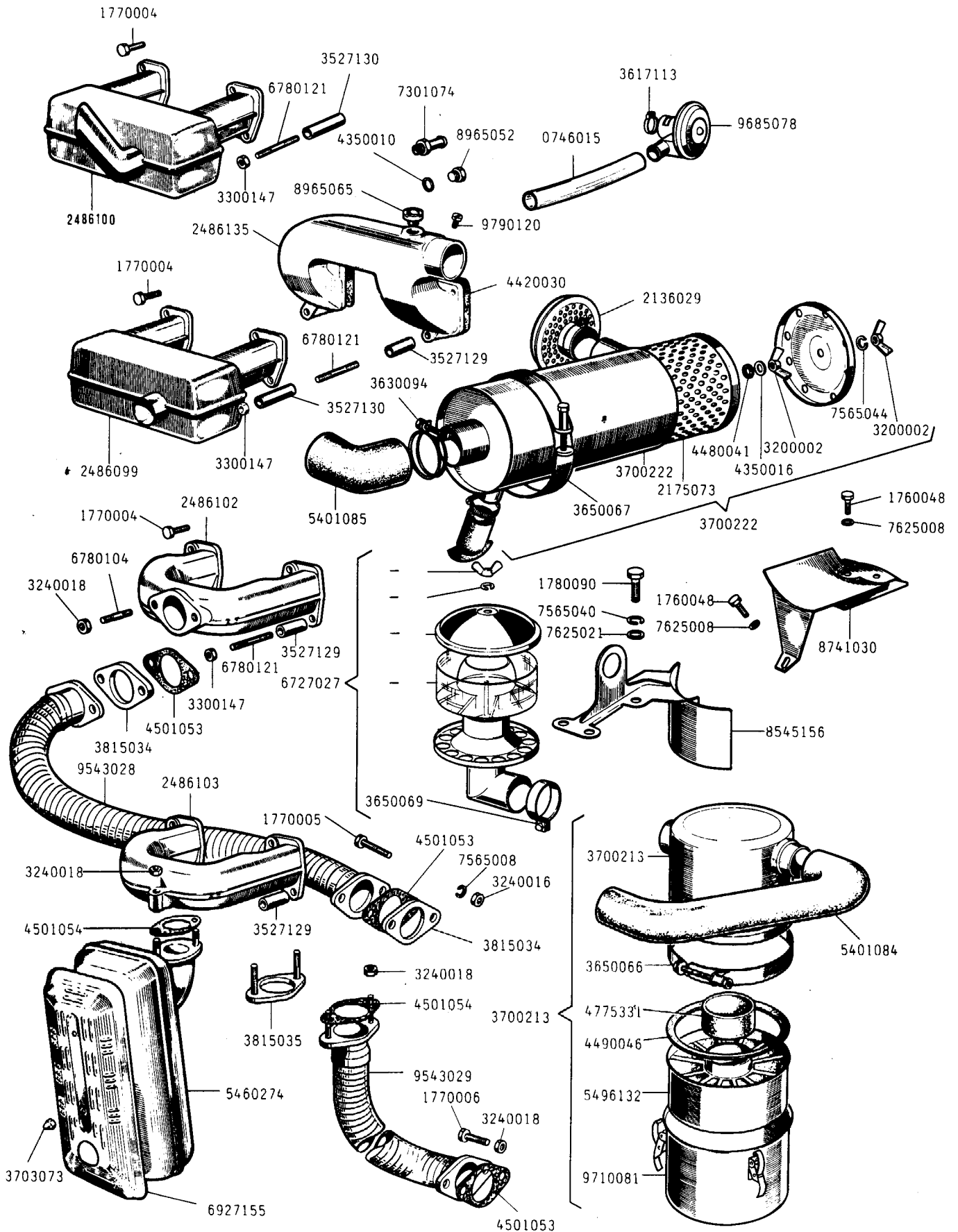
**ALBERO MOTORE - BIELLE - PISTONI - POMPA OLIO**  
**VILEBREQUIN - BIELLES - PISTONS - POMPE A HUILE**  
**CRANKSHAFT - CONNECTING RODS - PISTONS - OIL PUMP**  
**KURBELWELLE - PLEUELSTANGEN - KOLBEN - ÖLPUMPE**



DISTRIBUZIONE - REGOLATORE - TESTA  
DISTRIBUTION - REGULATEUR - COULASSE  
TIMING SYSTEM - GOVERNOR - HEADS  
STEUERUNG - REGLER - KÖPFE

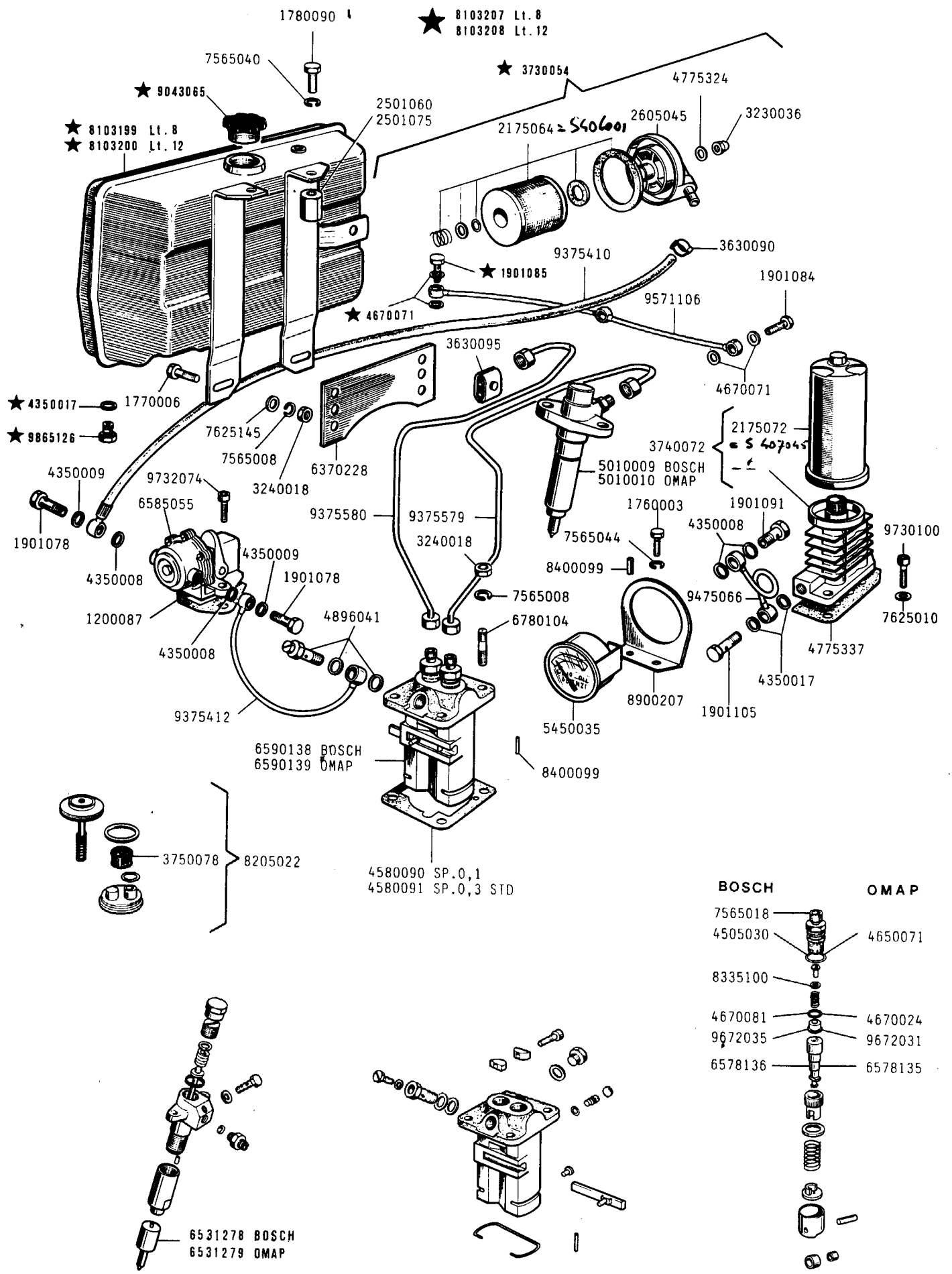


ASPIRAZIONE - SCARICO  
ADMISSION - ECHAPPMENT  
INTAKE - EXHAUST  
ANSAUG - AUSLASS

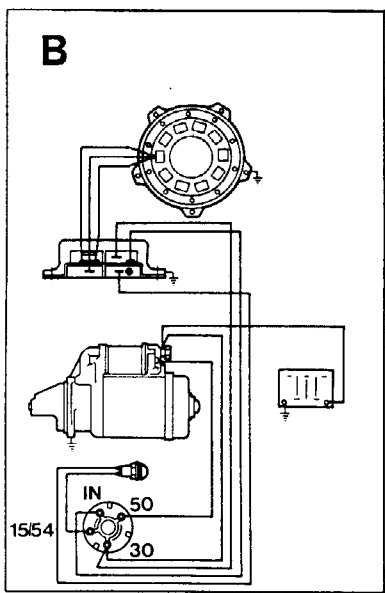
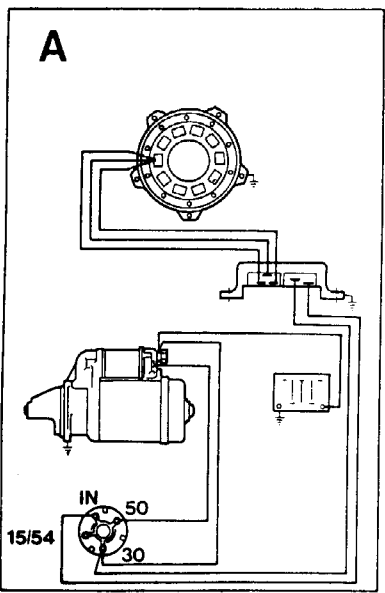
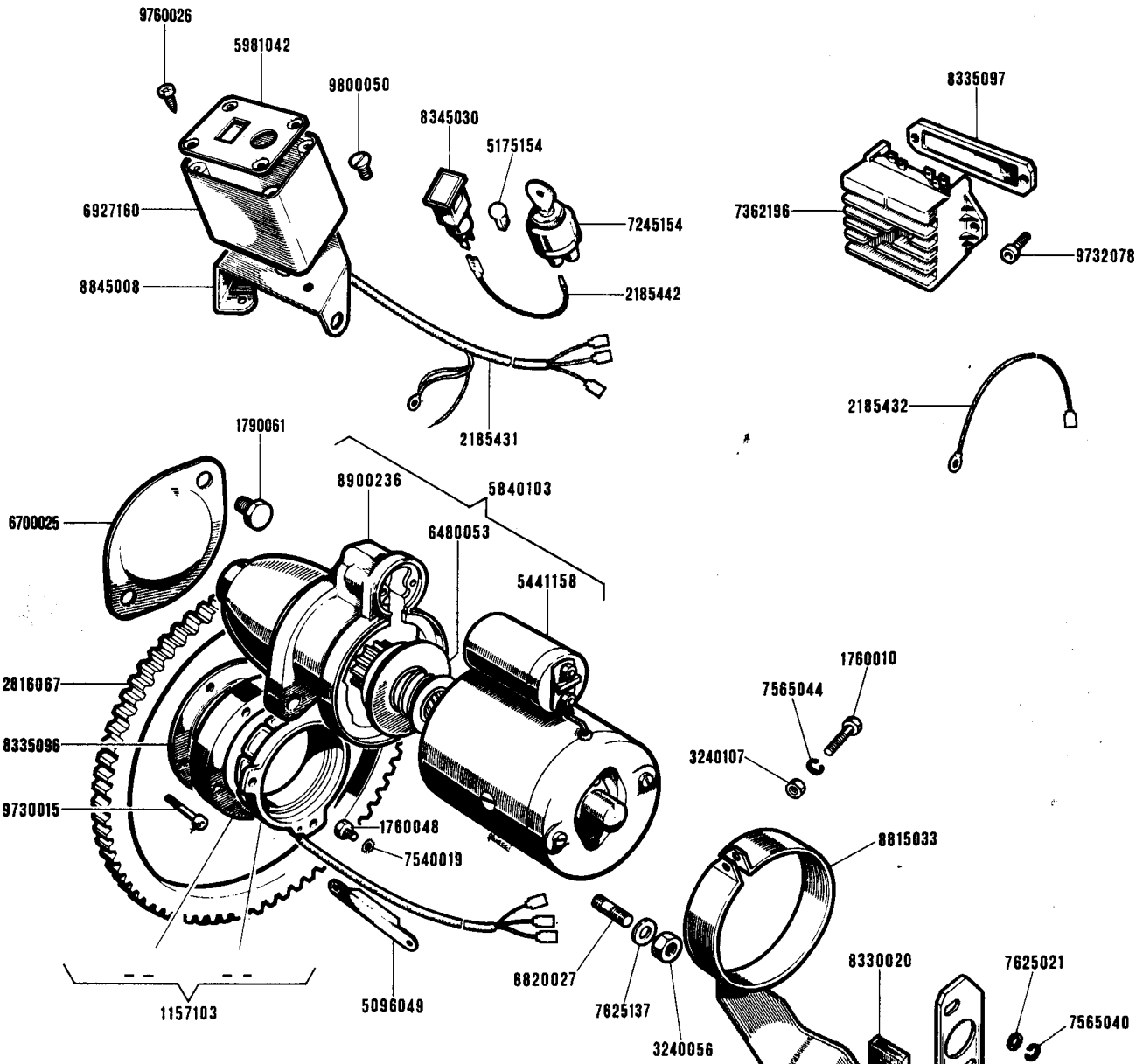




**ALIMENTAZIONE COMBUSTIBILE**  
**ALIMENTATION COMBUSTIBLE**  
**FUEL SYSTEM**  
**KRAFTSTOFF-FÖRDERUNG**



IMPIANTO ELETTRICO  
DISPOSITIVES ELECTRIQUES  
ELECTRIC SYSTEM  
ELEKTRO-ANLAGE





AXIAL CLEARANCES

Camshaft . . . . .	0,030 ± 0,180
Crankshaft . . . . .	0,050 ± 0,150

RINGS	I	II	III	IV
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TYPE	RECTANGULAR CROWNED CHROM.PLATED	RECTANGULAR	OIL CONTROL RING	SLIT SCRAPER RING
END CLEARANCE mm	0,30 ± 0,45	0,30 ± 0,45	0,30 ± 0,45	0,25 ± 0,40

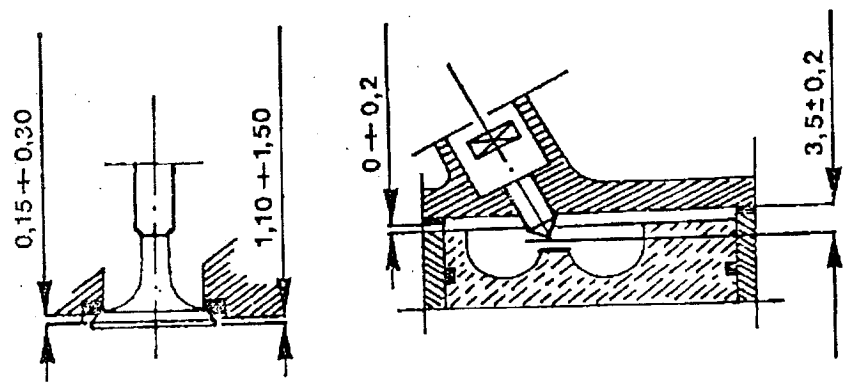
TYPE	RECTANGULAR CROWNED CHROM.PLATED	RECTANGULAR	OIL CONTROL RING
END CLEARANCE mm	0,30 ± 0,45	0,30 ± 0,45	0,25 ± 0,40

DS

Valve seat coupling interference . . . . .	0,125 ± 0,170
Valve projection from head surface . . . . .	1,10 ± 1,50
Valve seat recess from head surface . . . . .	0,15 ± 0,30
Injector projection from head surface . . . . .	3,5 ± 0,2

RAMBERS

Distance between piston and cylinder liner top . . . . . 0 ± 0,2  
 (see drawing below)



BIG END BEARINGS

Not borable and consequently, when overhauling and after due checkovers, adoptable undersizes are to be chosen. Scheduled undersizes are :

- 0,5 mm / - 1 mm

Ask for corresponding bearings.

It is absolutely indispensable to follow up the following grinding tolerances :

NOMINAL UNDERSIZES	CRANK PIN GRINDING DIAMETER	FIT CLEARANCE
normal	from 47,649 to 47,638	from 0,040 to 0,081
-0,5 mm.	from 47,141 to 47,130	from 0,040 to 0,081
1 mm.	from 46,633 to 46,622	from 0,040 to 0,081

Considering that cap adjustments are not possible, eventual operation mistakes would cause coupling abnormalities and would compromise overhauling results.—

CRANKSHAFT AXIAL CLEARANCE : to be limited within the following figures :

0,050 mm + 0,150 mm

When overhauling, eventual corrections can be obtained by modifying the thickness of thrust washer S) set between timing gear and front main bearing.

Thrust washers are available as per following thickness figures : mm

2,8 / 2,9 / 3 / 3,1

TIGHTENING TORQUE : Kgm

Cylinder head nuts . . . . .	6,5 ± 0,5
Big end bolts . . . . .	* 4 ± 0,3
Center support bolts . . . . .	5 ± 0,5
Flywheel fixing nut . . . . .	38 ± 0,3
Flange or pulley fixing bolts . . . . .	3 ± 0,1
Timing main gear fixing lock nut . . . . .	30
Nozzle holder fixing nuts . . . . .	2
Counterweight fixing bolts . . . . .	6,25 ± 0,25

SEAL RING SEATS

If it is not possible to obtain a perfect track surface by polishing, substitute the seal ring and grind tracks, as follows :

POSITION	CRANKSHAFT PIN GRINDING DIAMETER	SEAL RING CODE No.
C1	37 ± 36,961	065178
C2	57 ± 56,971	065278



ADJUSTMENTS & INSPECTIONS

Normal valve clearance adjustment :	Induction	Exhaust
cold Engine . . . . .	0,15	0,15
warmed Engine . . . . .	0,30 + 0,35	0,30 + 0,35
Valve clearance adjustment, only for inspection of timing (cold Engine only) . . . . .	0,40	0,40
Valve timing :		
opening . . . . .	12° ± 2° / BDC	42° ± 2° / TDC
closing . . . . .	42° ± 2° / TDC	12° ± 2° / BDC
Induction BDC piston tappets lift . . . . .	0,695	0,695
Injection timing : see "INJECTION EQUIPMENT" table		

DRIVING TORQUES mKg.

Cylinder head tightening nuts . . . . .	6,5 ± 0,5
Big end tightening screws . . . . .	4 ± 0,2
Center support (or cap nuts) tightening screws . . . . .	5 ± 0,2
Flywheel fixing nut . . . . .	38 ± 0,3
Nozzle holder fixing nuts . . . . .	2
Pulley or flange tightening screws . . . . .	3 ± 0,1
Timing main gear fixing ring nut . . . . .	30
Counterweight fixing bolts . . . . .	6,25 ± 0,25

FEEDING

Fuel : gas-oil  
 Required fuel characteristics : cetane min. no.47 - density 0,830 - S max. 1,25%  
 Standard tank capacity : 8 litres

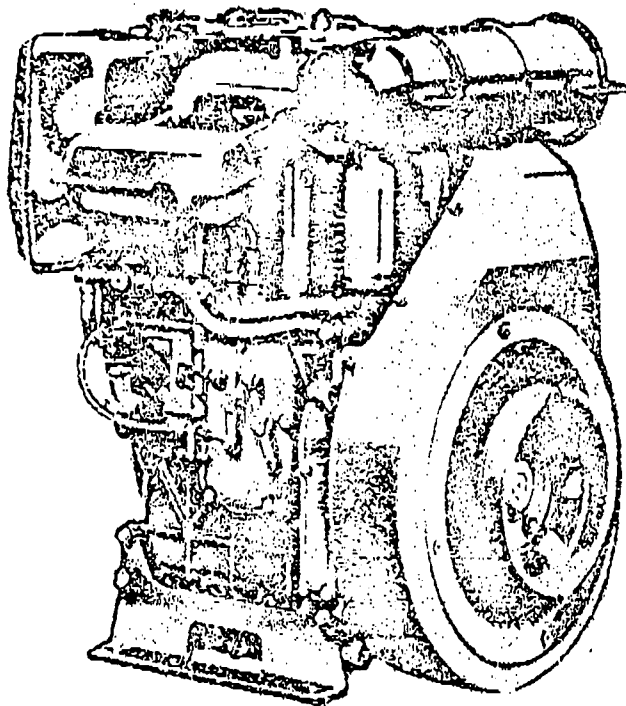
Lubricating Oil : mineral type  
 Required oil characteristics : see Tables 900.00 & 900.01  
 Sump no. 30.12.06 capacity : 3 Kgs  
 Oil filter and circuit capacity : 0,150 Kgs  
 Total capacity : 3,150 Kgs

Engines equipped with oil bath type air cleaner need :  
 Lubricating Oil : mineral type  
 Required characteristics : motor oil viscosity not over SAE 30  
 Cleaner cup capacity : 0,300 Kgs

LEADING SIZES & CLEARANCES (in mm)

CRANKCASE :

Camshaft no.1 support diameter	42,5 H7 +0 + 0,025
Camshaft no.2 support diameter	36 H7 +0 + 0,025
Camshaft no.3 support diameter	24 H7 +0 + 0,021



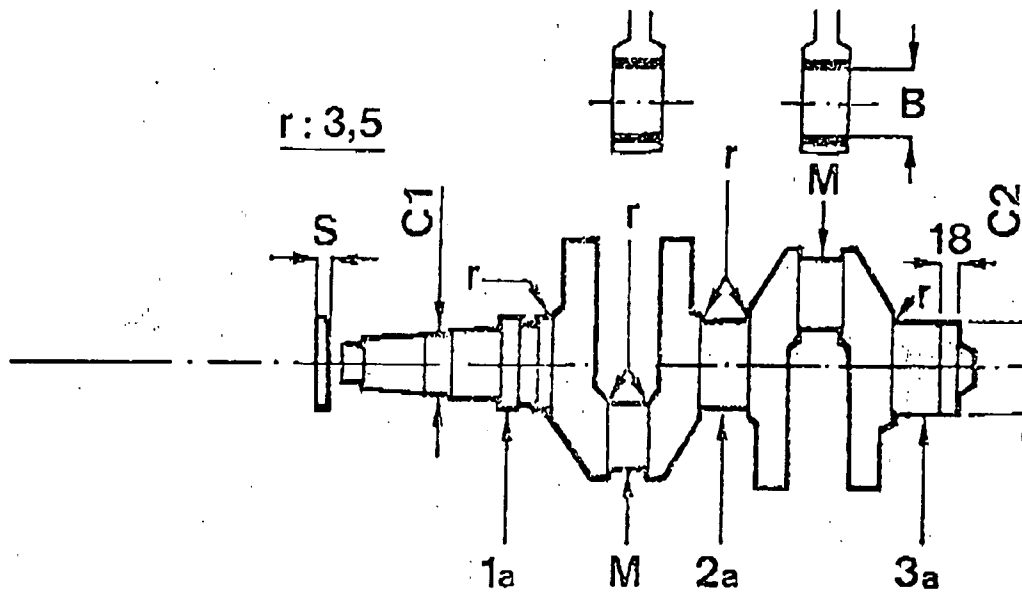
CYLINDERS GRINDING

Whenever effecting a cylinder grinding note that piston and piston rings scheduled oversize is  $+ \text{mm } 0,5$  and that, consequently, cylinders shall be grinded at the same oversize with a tolerance of  $+0,01 \pm 0,02$

Piston ring ends clearance shall be limited within the following figures :  
 I-II-III Piston rings,  $\text{mm } 0,30 \pm 0,45$   
 IV Piston ring,  $\text{mm } 0,25 \pm 0,40$

MAIN & BIG END BEARINGS

- 1a - 2a - 3a : Main journals
- 1b - 2b - 3b : Main bearings
- M : Crank pins
- S : Thrust washer
- B : Big end bearings

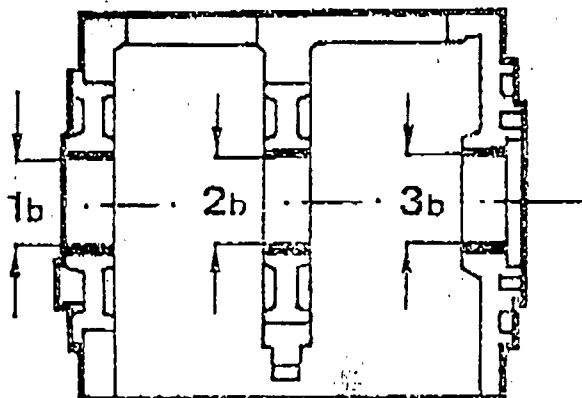


MAIN BEARINGS

Borable & scheduled for undersizes from 0 to 1,2 mm

After 1a/2a/3a, main journal grinding, assemble bearings on the crankcase and bore them to obtain the following coupling clearances :

- Front bearing 1b)  $\text{mm } 0,040 \pm 0,050$
- Center bearing 2b)  $\text{mm } 0,043 \pm 0,093$
- Tail bearing 3b)  $\text{mm } 0,045 \pm 0,095$



Front main bearing diameter . . . . .	52	H7 +0	+ 0,030	X
Tail main bearing diameter . . . . .	58	H7 +0	+ 0,030	X
Center main bearing diameter . . . . .	55,5	H7 +0	+ 0,030	X

CONNECTING RODS

Big end bearing diameter . . . . .	47,649	+0,040	+ 0,070	X
Center distance . . . . .	160	±	0,050	
Small end bearing diameter . . . . .	26	+0,010	+ 0,020	

PISTONS

Piston pin hole diameter . . . . .	26	-0	+ 0,009	
Skirt maximum diameter : A . . . . .	81,910	-0	+ 0,010	
B . . . . .	81,900	-0	+ 0,010	

VALVE GUIDES

Pressed intake valve guide diameter . . . . .	8	-0,025	+0,011	
Pressed exhaust valve guide diameter . . . . .	8	-0,025	+0,011	

CRANKSHAFT

				Diam. Clearance
no.1 pin diameter . . . . .	42,5	f6	-0,025 -0,041	0,025 + 0,066
no.2 pin diameter . . . . .	36	f7	-0,025 -0,050	0,025 + 0,075
no.3 pin diameter . . . . .	24	f6	-0,022 -0,033	0,022 + 0,054
Front main journal diameter . . . . .	52		0,040 -0,060	0,040 + 0,090
Tail main journal diameter . . . . .	58		-0,045 -0,065	0,045 + 0,095
Center main journal diameter . . . . .	55,5		0,043 -0,063	0,043 + 0,093
Crank pins diameter . . . . .	47,649	-0	+ 0,011	0,040 + 0,081

CRANKSHAFT

PISTON PINS

External Ø 26 -0+0,005 / clearance between piston pin & conn.rod	0,010	+ 0,030
piston pin & piston :	0,009	+ 0,005

CYLINDERS

diameter : Green mark . . . . .	82	+0,010	+ 0,020	0,100 + 0,130
Yellow mark . . . . .	82	+0	+ 0,010	0,100 + 0,130

VALVES

diameter : Intake valve stem	8	-0,028	+ 0,037	0,003 + 0,048
Exhaust valve stem	8	-0,030	+ 0,039	0,005 + 0,050

over, please

AXIAL CLEARANCES

Camshaft . . . . .	0,030 ± 0,180
Crankshaft . . . . .	0,050 ± 0,150

PISTON RINGS	I	II	III	IV
type	rectangular crowned Chrom,plated	rectangular	oil control	oil control opposed chamfers
End clearance mm.	0,30 ± 0,45	0,30 ± 0,45	0,30 ± 0,45	0,25 ± 0,40
Tangential load Kgs.	1,700 ± 2,350	1,600 ± 2,200	1,400 ± 1,900	1,650 ± 2,250

CYLINDER HEADS

Valve seat pressing interference . . . . .	0,125 ± 0,170
Valve projection from head surface . . . . .	1,10 ± 1,50
Valve seat recess from head surface	0,15 ± 0,30
Injector projection from head surface	3,5 ± 0,2

COMBUSTION CHAMBERS

Distance between piston and cylinder liner top, (see hereunder drawing)	0 ± 0,2
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