

Workshop Manual

Renoveringsdata
Overhaul data

C

2(0)

MB10A

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Renoveringsdata

Overhaul data

Marin motor Marine engine MB10A

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Renoveringsdata/Overhaul data

Allmänt/General

Typbeteckning	MB10A
Type designation	
Max effekt	11 kW (15 hk) (15 hp)
Max output	
Max varvtal	33 r/s (2000 r/m)
Max speed	
Kompressionsförhållande	6,5:1
Compression ratio	
Kompressionstryck vid startmotorvarv	7,5 kp/cm ² (107 p.s.i.)
Compression pressure at starter motor speed	
Cylinderantal	2
Number of cylinders	
Cylinderdiameter	88,9 mm (3.50 in.)
Bore	
Slaglängd	82,0 mm (3.23 in.)
Stroke	
Slagvolym	1,018 dm ³ (l) (62.1 cu.in.)
Displacement	
Vikt utan olja och vatten, ca	105 kg (232 lb.)
Weight without oil and water, approx.	
Tomgångsvarv	10 r/s (600 r/m)
Idling speed	

Cylinderblock/Cylinder block

Material	Gjutjärn
Material	Cast iron
Cylinderdiameter, standard	88,90–88,93 mm (3.5000–3.5012 in.)
Bore, standard	
Cylinderdiameter, överdim. 0,76 mm (0.0300 in.) ..	89,66–89,69 mm (3.5299–3.5311 in.)
Bore, oversize 0.76 mm (0.0300 in.)	
Max. cylinderdeformation	0,01 mm (0.0004 in.)
Max. cylinder deformation	

Kolvar/Pistons

Material	Lättmetall
Material	Light-alloy
Höjd, total	71,0 mm (2.795 in.)
Height, total	
Höjd från kolvtappscentrum till kolvtopp	46 mm (1.811 in.)
Height from gudgeon pin centre to piston top	
Kolvspel	0,03–0,05 mm (0.0012–0.0020 in.)
Piston clearance	
Kolvspel*	0,01–0,03 mm (0.0004–0.0012 in.)
Piston clearance*	

Kolvar finns som standard, standard + 0,03 mm och 0,76 mm överdim.

Pistons available as standard, standard + 0,03 mm (0.0012 in.) and 0.76 mm (0.0300 in.) oversize

Kolvdiameter skall mätas 12 mm från nedre kanten. The piston diameter should be measured 12 mm (0.47 in.) from the lower edge.

* Gäller från motor nr 2779.

* Valid from engine No. 2779.

Kolvringar/Piston rings

Kolvringsgap mätt i ringens öppning	0,40–0,55 mm (0.0157–0.0217 in.)
Piston ring gap measured in the opening of the ring	
Överdimension på kolvringar	0,76 mm (0.0300 in.)
Piston ring oversize	

Kompressionsringar/Compression rings

Märkta "TOPP". Övre ringen förkromad	
Marked "TOP". Top ring chromed	
Antal på varje kolv	2
Number on each piston	
Höjd	1,98 mm (0.0780 in.)
Height	
Kolvringspel i spår	0,05–0,07 mm (0.0020–0.0028 in.)
Piston ring clearance in groove	

Oljeringar/Oil rings

Antal på varje kolv	1
Number on each piston	
Höjd	4,74 mm (0.1866 in.)
Height	
Kolvringspel i spår	0,05–0,07 mm (0.0020–0.0028 in.)
Piston ring clearance in groove	

Kolvtappar/Piston pins

Flytande lagrad. Låsring i båda ändar i kolven	
Floating fit. Circlips at both ends in piston	
Passning: I vevstake	Lätt tumtryck (noggrant löpande passning)
Fit: In connecting rod	Close running fit
Passning: I kolv	Tumtryck (skjutpassning)
Fit: In piston	Push fit
Diameter, standard	22,00 mm (0.8661 in.)
Diameter, standard	
Diameter, standard*	24,00 mm (0.9449 in.)
Diameter, standard*	
Diameter, överdim.	22,05 mm (0.8681 in.)
Diameter, oversize	
Diameter, överdim.*	24,05 mm (0.9469 in.)
Diameter, oversize*	

* Gäller från motor nr 2779.

* Valid from engine No. 2779.

Vevaxel/Crankshaft

Vevaxel, axialspel	0,25–0,45 mm (0.0098–0.0177 in.)
Crankshaft, end float	
Ramlager, radialspele	0,05–0,10 mm (0.0020–0.0039 in.)
Main bearings, radial clearance	
Vevlager, radialspele	0,03–0,08 mm (0.0012–0.0031 in.)
Big-end bearings, radial clearance	

Ramlager/Main bearings

Ramlagertappar/Main bearing journals

Diameter, standard	54,93–54,95 mm (2.1626–2.1634 in.)
Diameter, standard	
0,50 mm underdim.	54,43–54,45 mm (2.1429–2.1437 in.)
0.50 mm (0.0200 in.) undersize	
1,0 mm underdim.	53,93–53,95 mm (2.1232–2.1240 in.)
1.0 mm (0.0400 in.) undersize	

Ramlager/Main bearings

Diameter, standard	55,00–55,03 mm (2.1654–2.1665 in.)
Diameter, standard	
0,50 mm underdim.	54,50–54,53 mm (2.1457–2.1496 in.)
0.5 mm (0.0200 in.) undersize	
1,0 mm underdim.	54,00–54,03 mm (2.1260–2.1272 in.)
1.0 mm (0.0400 in.) undersize	

Vevlager/Big-end bearings

Vevlagertappar/Big-end bearing journals

Lagerlägets breddmått	31,85–31,90 mm (1.2539–1.2559 in.)
Width of bearing recess	
Lagerlägets breddmått*	29,95–30,05 mm (1.1791–1.1831 in.)
Width of bearing recess*	
Diameter, standard	54,09–54,11 mm (2.1295–2.1303 in.)
Diameter, standard	
Diameter, standard*	53,95–54,00 mm (2.1240–2.1260 in.)
Diameter, standard*	
0,25 mm underdim.	54,84–54,85 mm (2.1591–2.1594 in.)
0.25 mm (0.0100 in.) undersize	
0,25 mm underdim.*	53,70–53,75 mm (2.1142–2.1161 in.)
0.25 mm (0.0100 in.) undersize*	
0,50 mm underdim.	53,58–53,60 mm (2.1094–2.1102 in.)
0.50 mm (0.0200 in.) undersize	
0,50 mm underdim.*	53,44–53,49 mm (2.1039–2.1059 in.)
0.50 mm (0.0200 in.) undersize*	

* Gäller från motor nr 2779.

* Valid from engine No. 2779.

Vevlagerskålar/Big-end bearing shells

Tjocklek, standard	1,83–1,84 mm (0.0720–0.0724 in.)
Thickness, standard	
Tjocklek, standard*	1,98–1,99 mm (0.0780–0.0783 in.)
Thickness, standard*	
0,25 mm underdim.	1,96–1,97 mm (0.0772–0.0776 in.)
0.25 mm (0.0100 in.) undersize	
0,25 mm underdim.*	2,11–2,12 mm (0.0831–0.0835 in.)
0.25 mm (0.0100 in.) undersize*	
0,50 mm underdim.	2,09–2,10 mm (0.0823–0.0827 in.)
0.50 mm (0.0200 in.) undersize	
0,50 mm underdim.*	2,23–2,24 mm (0.0878–0.0882 in.)
0.50 mm (0.0200 in.) undersize*	

* Gäller från motor nr 2779.

* Valid from engine No. 2779.

Vevstakar/Connecting rods

Axialspel vid vevaxel	0,05–0,20 mm (0.0020–0.0079 in.)
End float on crankshaft	
Längd, centrum–centrum	144,9–145,1 mm (5.705–5.717 in.)
Length, centre–centre	

Kamaxel/Camshaft

Antal lager	2
Number of bearings	
Främre lagertapp, diameter	31,70–31,73 mm (1.2480–1.2492 in.)
Front bearing journal, diameter	
Bakre lagertapp, diameter	26,96–26,98 mm (1.0614–1.0622 in.)
Rear bearing journal, diameter	
Radialspel: Främre lager	0,02–0,08 mm (0.0008–0.0031 in.)
Radial clearance: Front bearing	
Radialspel: Bakre lager	0,02–0,06 mm (0.0008–0.0024 in.)
Radial clearance: Rear bearing	
Axialspel	0,05–0,35 mm (0.0020–0.0138 in.)
Axial clearance	

Kamaxellager/Camshaft bearings

Främre lager, diameter	31,75–31,78 mm (1.2500–1.2512 in.)
Front bearing, diameter	
Bakre lager, diameter	27,00–27,02 mm (1.0630–1.0638 in.)
Rear bearing, diameter	
Främre lagret brotschas efter ipressning	
Broach the front bearing after pressing in	

Ventiler/Valves

Inlopp/Intake

Tallriksdiameter	34 mm (1.339 in.)
Valve head diameter	
Spindeldiameter	7,95–7,97 mm (0.3130–0.3138 in.)
Stem diameter	
Ventilens sätessvinkel	45,5°
Valve seat angle	
Cylinderblockets sätessvinkel	45°
Seat angle in cylinder block	
Sätets bredd i cylinderblocket	1,4–2,0 mm (0.055–0.079 in.)
Seat width in cylinder block	
Spel, varm motor	0,30 mm (0.012 in.)
Clearance, warm engine	
Spel, kall motor	0,35 mm (0.014 in.)
Clearance, cold engine	

Utlopp/Exhaust

Tallriksdiameter	30 mm (1.181 in.)
Valve head diameter	
Spindeldiameter	7,92–7,94 mm (0.3118–0.3126 in.)
Stem diameter	
Ventilens sätessvinkel	45,5°
Valve seat angle	
Cylinderblockets sätessvinkel	45°
Seat angle in cylinder block	
Sätets bredd i cylinderblocket	1,4–2,0 mm (0.055–0.079 in.)
Seat width in cylinder block	
Spel, varm motor	0,35 mm (0.014 in.)
Clearance, warm engine	
Spel, kall motor	0,45 mm (0.018 in.)
Clearance, cold engine	

Ventilstyrningar/Valve guides

Längd	52 mm (2.047 in.)
Lenght	
Innerdiameter	8,00–8,02 mm (0.3150–0.3157 in.)
Inner diameter	
Spel, ventilsjindel-styrning, inloppsventil	0,03–0,07 mm (0.0012–0.0028 in.)
Clearance, valve stem-guide, intake valve	
Spel, ventilsjindel-styrning, utloppsventil	0,06–0,10 mm (0.0024–0.0039 in.)
Clearance, valve stem-guide, exhaust valve	

Ventilfjädrar/Valve springs

Längd, utan belastning, ca	46 mm (1.811 in.)
Lenght, unloaded, approx.	
Längd med belastning 272–318 N (27,2–31,8 kp) .	40 mm (1.575 in.)
Lenght with load of 272–318 N (27.2–31.8 kp) .	
(60.0–70.1 lb.)	
Längd med belastning 782–868 N (78,2–86,8 kp) .	30 mm (1.181 in.)
Lenght with load of 782–868 N (78.2–86.8 kp)	
(172.4–191.4 lb.)	

Smörjsystem/Lubricating system

Oljerymd, exkl. oljerenare	1,5 dm ³ (l) (1.60 US qts.)
Oil capacity, excluding oil filter	
Oljerymd, inkl. oljerenare	1,75 dm ³ (l) (1.85 US qts.)
Oil capacity, including oil filter	
Oljetryck vid tomgångsvarv, varm motor	1–2 kp/cm ² (14–28 p.s.i.)
Oil pressure at idling speed, warm engine	
Oljetryck vid fullvarv, varm motor	4 kp/cm ² (57 p.s.i.)
Oil pressure at max speed, warm engine	
Smörjmedel	Motorolja Service SC, SD eller SE
Oil grade	Engine oil Service SC, SD or SE
Viskositet	Multigradeolja SAE 10W–30
Viscosity	Multigrade oil SAE 10W–30

Smörjoljerenare/Oil filter

Typ	Fullflödesrenare
Type	Full-flow filter
Fabrikat	Wix
Make	

Smörjöljepump/Oil pump

Typ	Kugghjulpump
Type	Gear pump
Kuggantal på varje hjul	10
Number of teeth on each gear	
Axialspel	0,07–0,14 mm (0.0028–0.0055 in.)
End float	

Reduceringsventilens fjäder/Relief valve spring

Längd, obelastad	40,0 mm (1.575 in.)
Length, unloaded	
Längd, belastad med 23–27 N (2,3–2,7 kp)	34,0 mm (1.339 in.)
Length, loaded with 23–27 N (2.3–2.7 kp)	
(5.07–5.95 lb.)	
Längd, belastad med 33–37 N (3,3–3,7 kp)	31,5 mm (1.240 in.)
Length, loaded with 33–37 N (3.3–3.7 kp)	
(7.28–8.16 lb.)	

Bränslesystem/Fuel system**Bränslepump/Fuel pump**

Typ	Membranpump
Type	Diaphragm pump
Fabrikat	Pierburg: PE15685
Make	
matartryck	0,2 kp/cm ² (3 p.s.i.)
Feed pressure	

Förgasare/Carburetor

Typ	Stigförgasare
Type	Updraught carburetor
Fabrikat och beteckning	Solex 26VBN2
Make and designation	
Venturi	K22
Venturi	
Huduvmunstycke	Gg 102,5
Main jet	
Tomgångsmunstycke	Gvn 45
Idling jet	
Emulsionsmunstycke	S 16
Emulsion jet	
Kompensationsmunstycke	a 160
Compensate jet	
Nålventil	P 1,2
Needle valve	
Flottör	F 9,1 gr
Float	
Spjäll	13°
Throttle	

Elsystem/El. system

Batteri/Battery

Jordanslutning	Negativ (–)
Earthed	
Spänning	12 V
Voltage	
Kapacitet	34 Ah (SIBA), 60 Ah (Bosch)
Capacity	
Elektrolytens specifika vikt: Fulladdat batteri	1,275–1,285 g/cm³ (0.0460–0.0464 lb/cu.in.)
Specific gravity of electrolyte: Fully charged battery	
Urladdat batteri	1,230 g/cm ³ (0.0444 lb/cu.in.)
Discharged battery	

Startgenerator/Starter generator

Tidigare utförande/Earlier prod.

Typ	SIBA DS418
Type	
Startmotoreffekt	0,59 kW (0,8 hk) (0.8 hp)
Starter motor output	
Generatoreffekt	60 W
Generator output	

Senare utförande/Later prod.

Typ	Bosch 0 010 350 004
Type	
Startmotoreffekt	0,74 kW (1 hk) (1 hp)
Starter motor output	
Generatoreffekt, kontinuerlig	90 W
Generator output, continuous	
Generatoreffekt, max.	135 W
Generator output, max	

Tändsystem/Ignition system

Cylindermärkning	1 närmast svänghjulet
Marking of cylinder	1 nearest the flywheel
Tändstift	Bosch W 175T35 eller motsvarande
Spark plug	Bosch W 175T35 or corresponding
Tändstiftgap	0,7 mm (0.029 in.)
Spark plug gap	

Fördelare/Distributor

Tid. utf./Early prod.

Tändfördelare Bosch, typ	JF2 0231 109 014
Distributor, Bosch type	
Grundinställning	–3° (f.ö.d.) (B.T.D.C.)
Basic setting	
Stroboskopinställning 20 r/s (1200 r/m)	9,5°
Stroboscope setting 20 r/s (1200 r/m)	
Kontaktgap	0,4 mm (0.016 in.)
Gap	
Slutningsvinkel	60°±3°
Cam angle	

Sen. utf./Late prod.

Tändfördelare Bosch, type	JF2 0231 109 015
Distributör, Bosch type	
Grundinställning	2° (e.ö.d.) (A.T.D.C)
Basic setting	
Stroboskopinställning 20 r/s (1200 r/m)	11°
Stroboscope setting 20 r/s (1200 r/m)	
Kontaktgap	0,4 mm (0.016 in.)
Gap	
Slutningsvinkel	60°±3°
Cam angle	

Kylsystem/Cooling system**Termostat/Thermostat**

Typ	Bälgttermostat
Type	Bellows thermostat
Börjar öppna vid	60°C (140°F)
Starts opening at	
Fullt öppen vid	74°C (165°F)
Fully open at	

Förslitningstoleranser/Wear tolerances**Cylindrar/Cylinders**

Borras vid förslitning (om motorn har onormal oljeförbrukning)	0,30 mm (0.0118 in.)
To be rebored when wear amounts to (if engine has abnormal oil consumption)	

Vevaxel/Crankshaft

Max tillåten ovalitet på ramlagertappar	0,05 mm (0.0020 in.)
Max permissible out-of-round on main bearing journals	
Max tillåten ovalitet på vevlagertappar	0,07 mm (0.0028 in.)
Max permissible out-of-round on big-end bearing journals	
Max axialspele på vevaxel	0,50 mm (0.0197 in.)
Max crankshaft end float	

Ventiler/Valves

Max tillåtet spel mellan ventilspindel och ventilstyrning	0,15 mm (0.0059 in.)
Max permissible clearance between valve stem and valve guide	
Max tillåten förslitning, ventilspindel	0,02 mm (0.0008 in.)
Max permissible wear, valve stem	

Kamaxel/Camshaft

Max tillåten ovalitet (med nya lager)	0,07 mm (0.0028 in.)
Max permissible out-of-round (with new bearings)	
Max tillåten förslitning, lager	0,02 mm (0.0008 in.)
Max permissible wear, bearings	

Åtdragningsmoment/Tightening torques

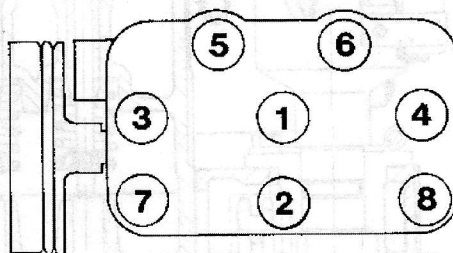
Cylinderlocksskruvar	83 Nm (8,3 kpm) (60 lb.ft.)
Cylinder head screws	
Vevlagermuttrar	55 Nm (5,5 kpm) (40 lb.ft.)
Big-end bearing nuts	
Vevlagermuttrar*	75 Nm (7,5 kpm) (55 lb.ft.)
Big-end bearing nuts*	
Svånghjuls-mutter	380 Nm (38 kpm) (275 lb.ft.)
Flywheel nut	
Tändstift	38 Nm (3,8 kpm) (27,5 lb.ft.)
Spark plugs	

* Gäller från motor nr 2779.

* Valid from engine No. 2779.

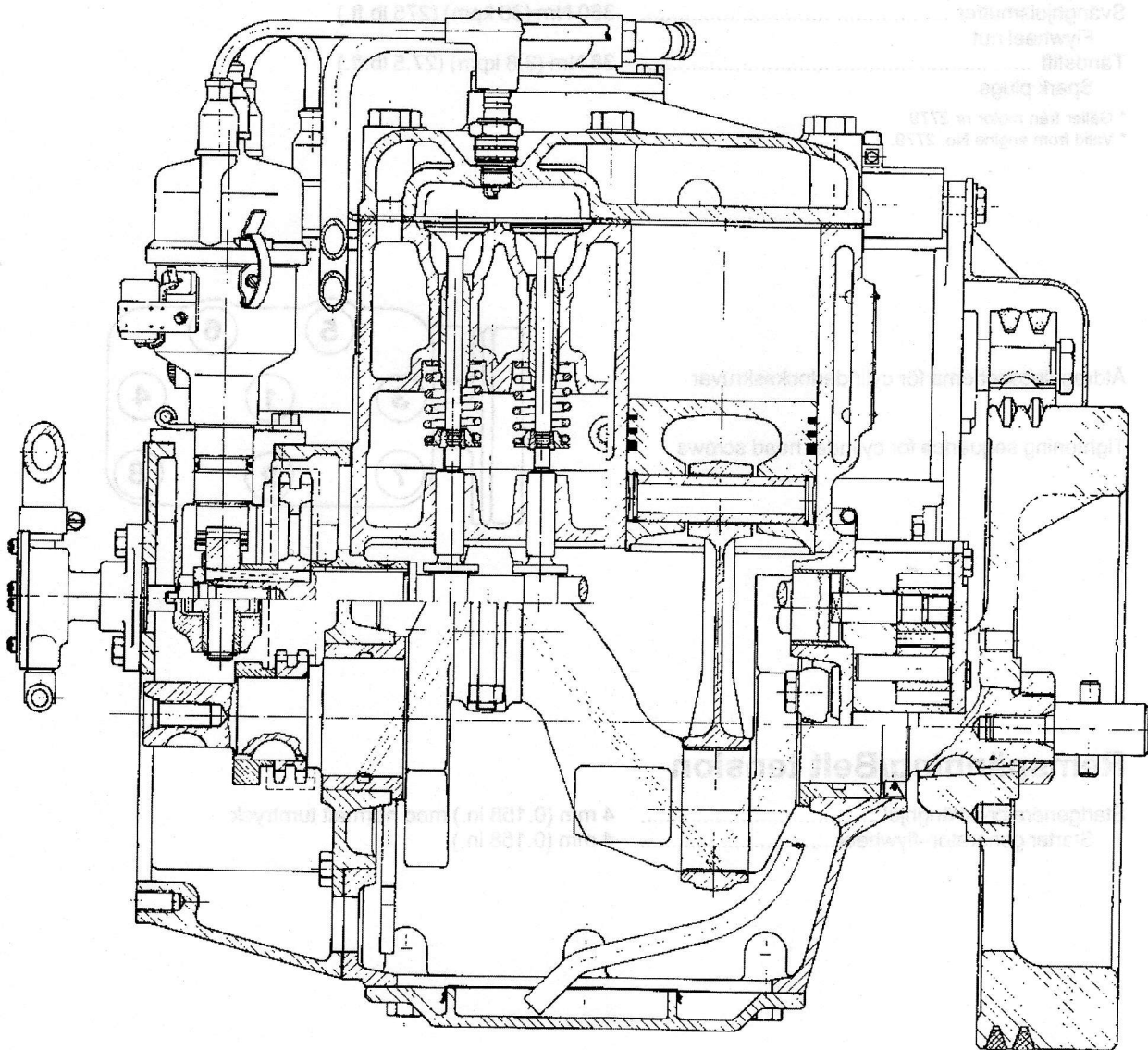
Åtdragningschema för cylinderlocksskruvar

Tightening sequence for cylinder head screws

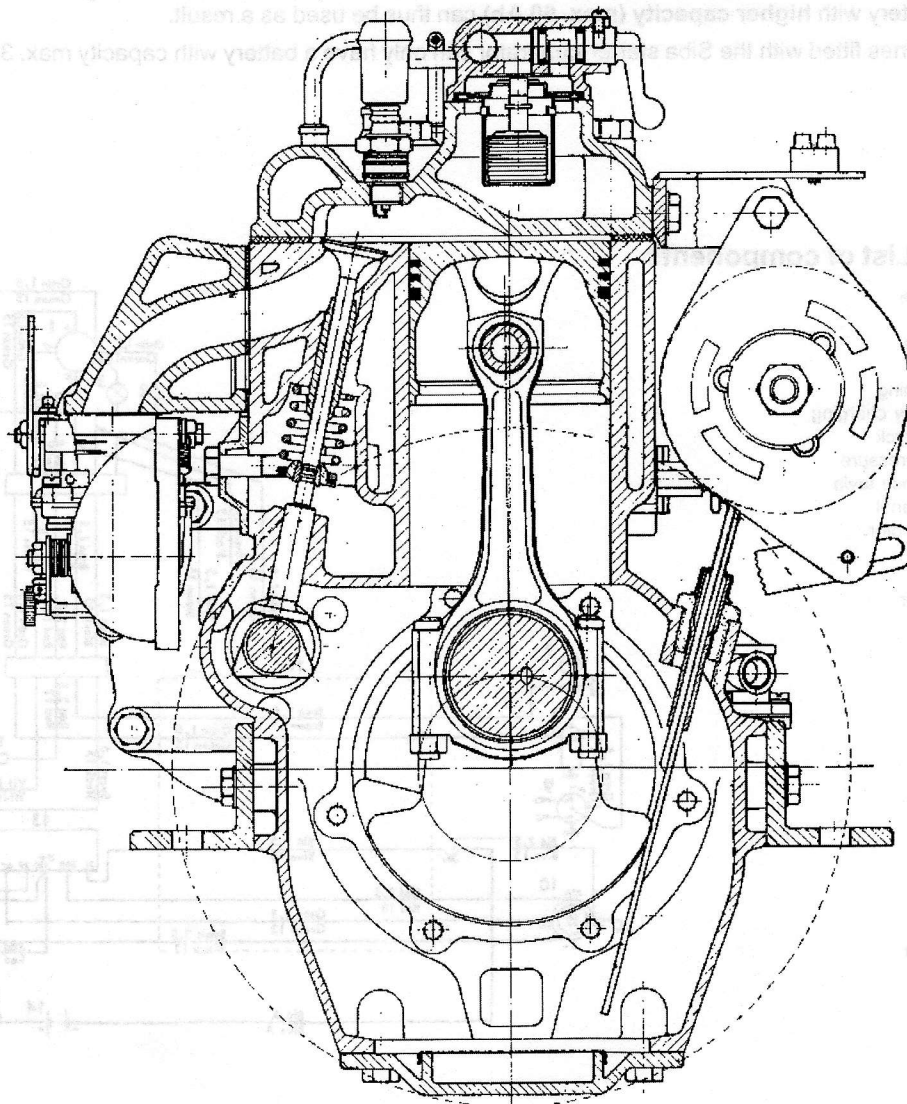


Remspänning/Belt tension

Startgenerator-svånghjul	4 mm (0.158 in.) med normalt tumtryck
Starter generator-flywheel	4 mm (0.158 in.)



Längdsnitt
Longitudinal section



Tvärsnitt
Cross-section

Ny startgenerator/New starter-generator

Fr.o.m motornr: 2779 utrustas motor MB10A med en ny och effektivare startgenerator av fabrikat Bosch. Detta medför att ett batteri med **högre kapacitet (max. 60 Ah)** kan användas.

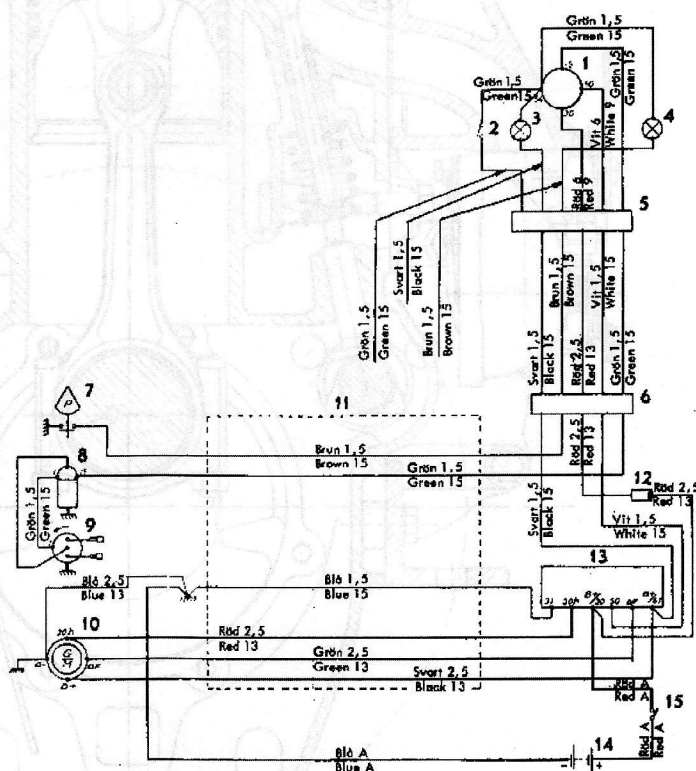
OBS! Tidigare motorer, utrustade med startgenerator Siba, kan endast ha batteri med kapacitet max. 32 Ah.

With effect from engine No. 2779, the MB10A engine is fitted with a new, more effective starter-generator, of Bosch make. A battery with **higher capacity (max. 60 Ah)** can thus be used as a result.

NOTE! Earlier engines fitted with the Siba starter-generator can only have a battery with capacity max. 32 Ah.

Positionslista/List of components

1. Nyckelströmbrytare
Key switch
2. Strömbrytare, extra
Switch, extra
3. Kontrollampa, laddning
Warning lamp, battery charging
4. Kontrollampa, oljetryck
Warning lamp, oil pressure
5. Kopplingsstycke, instr.tavla
Connector, instr. panel
6. Kopplingsstycke, motor
Connector, engine
7. Oljetrycksgivare
Oil pressure sender
8. Tändspole
Ignition coil
9. Tändfördelare
Distributor
10. Startgenerator
Dynastart
11. Ledningshölje
Cable sleeve
12. Säkring
Fuse
13. Regulator
Regulator
14. Batteri
Battery
15. Huvudströmbrytare
Master switch

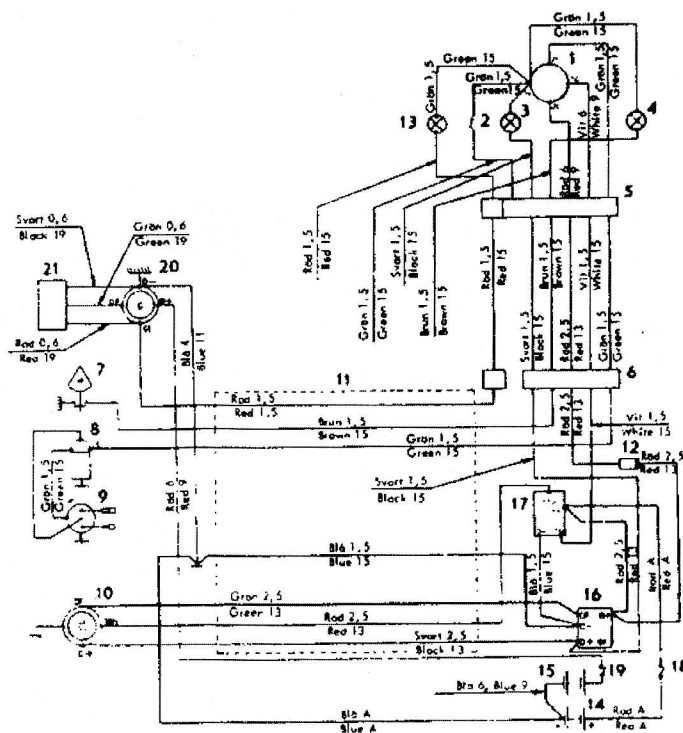


New wiring diagram MB10A

The MB10A is with effect from engine no 6361 fitted with a new wiring diagram.

Positionslista/List of components

1. Nyckelströmbrytare
Key switch
2. Strömbrytare, extra
Switch, extra
3. Kontrollampa, startgenerator
Warning lamp, dynastart
4. Kontrollampa, oljetryck
Warning lamp, oil pressure
5. Kopplingsstycke, instr.tavla
Connector, instr. panel
6. Kopplingsstycke, motor
Connector, engine
7. Oljetrycksgivare
Oil pressure sender
8. Tändspole/Ignition coil
9. Tändfördelare
Distributor
10. Startgenerator
Dynastart
11. Ledningshölje
Cable sleeve
12. Säkring
Fuse
13. Kontrollampa, växelströmgenerator
Warning lamp, alternator
14. Batteri, startgenerator
Battery, dynastart
15. Batteri, växelströmgenerator
Battery, alternator
16. Laddningsregulator, startgenerator
Charging regulator, dynastart
17. Relä, startgenerator
Relay, dynastart
18. Huvudströmbrytare
Master switch
19. Huvudströmbrytare
Master switch
20. Växelströmgenerator
Alternator
21. Regulator
Regulator



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