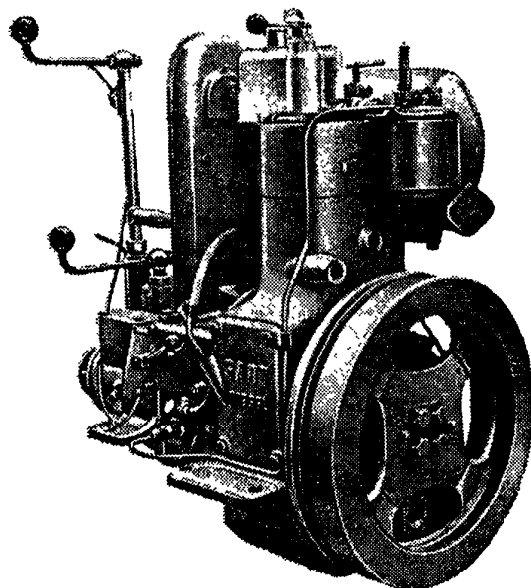


# **SABB DIESEL**

MODEL H - HG

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## **ADDITIONAL INSTRUCTION AND PARTS LISTS**



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**SABB MOTOR A.S**

BOX 2626 - 5010 BERGEN, NORWAY

Telephone (05) 26 05 04-Telegram: "Sabbmotor"-Telex: 42559 sabb n

## **SUPPLEMENTARY INSTRUCTION AND PARTS LISTS FOR 8 HP SABB DIESEL MODEL H/HG**

**Models G 10 HP and H 8 HP are principally identical as to construction and parts. This manual contains the special for model H. The remaining instructions and parts lists are common for G and H.**

### **Model H/HG. SPECIFICATIONS:**

Continuous rating at 1500 r.p.m.:	6 HP
Continuous rating at 2000 r.p.m.:	8 HP
Cylinder bore/stroke .. .. .	90×90, 3.543/3.543
Piston top clearance incl. gasket:	0,5–1 mm/.019–.039 in.
Brake mean effective pressure, ab.:	6,25 kg/cm <sup>2</sup> , 87,5 p.s.i.
Fuel consumption .. .. .	2 litres/h, 3,5 pints/h
Lubrication oil consumption .. ..	2 g/hp-hour, .004 lb./hp-hour
Lubrication oil pressure, ab .. ..	2,5–3,5 kg/cm <sup>2</sup> , 35–50 p.s.i.
Lubrication system .. .. .	Force feed by vane type pump
Full flow oil filter .. .. .	

### **Lubrication oil Capacities:**

Sump capacity .. .. .	2 litres, 3,5 pints
Clutch housing, model H .. .. .	0,5 litres, .9 pint
Reverse gear, model HG .. .. .	0,5 litres, .9 pint

**When ordering parts always give part number,  
part name and engine serial number.**

**ENGINE SERIAL NO.:** .....

## **OPERATION:**

Run engine carefully when new and increase load gradually during the first 25 operating hours. When setting the max. propeller pitch stop screw (see Instruction Book for Model G, page 4, pos. 25) choose the full speed r.p.m. between 1500 and 2000 where the boat gets good speed and the vibrations are light. See also page 21.

It is recommended to change lubrication oil after the running-in period. Also clean the magnet in oil sump and put it back.

After each starting and during operation check lub.oil pressure and cooling water temperature regularly. The lub.oil pressure gauge is fitted on lub.oil filter as standard. At normal speed the gauge shall register between 2,5 and 3,5 kg/cm<sup>2</sup> (35—50 p.s.i.).

When the engine is hot after long running the pressure may fall some. That is quite normal. At idling speed the pressure should not fall below 0,5 kg/cm<sup>2</sup> (7 p.s.i.).

The lub.oil pressure is determined by the pressure relief valve (in this book, pos. 16, page 7) which is fitted close to the vane pump. If unstable oil pressure, remove the relief valve and clean it. If oil pressure is low at start (when oil is viscous), clean sump filter.

## **LUBRICATION AND MAINTENANCE SCHEDULE**

### **EVERY 5 OPERATING HOURS (Daily).**

1. Check sump oil level with dipstick. Never let oil level sink below lowest mark.
2. Fill up oil cup on cylinder head cover with engine oil. Oil runs through wick tubes and drops on rocker arms and valve springs. If engine installation angle is steep the rear tube ends should be plugged or squeezed to permit oil reaching the front tube ends.
3. Give propeller greaser and stuffing box greaser one turn each.

### **EVERY 25 OPERATING HOURS (Weekly).**

1. Grease all nipples with grease gun. Use Multi Purpose grease.
2. Sliding bolts (see H sectional drawing, nipple no. 22) 5 shots.
3. Reversing bearing (nipple 19) 5 shots, and rear oil seals (nipple 20) 5 shots.

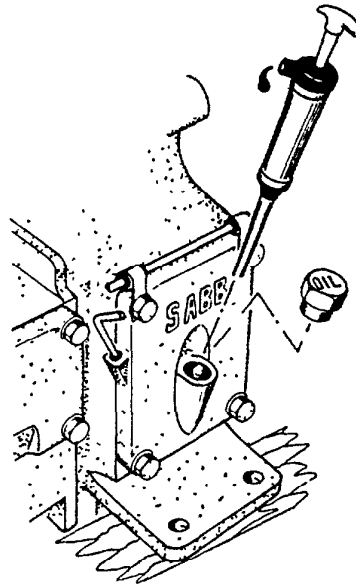
**EVERY 50 OPERATING HOURS. Greasing of:**

1. Governor control handle and starting shaft.  
Clutch shaft and pitch control shaft bearings in reversing bracket.
2. Check lub.oil in clutch housing (H) or reverse gearbox (HG, dipstick).

**EVERY 150 OPERATING HOURS: Lub.oil change.**

Engines with sump drain hand pump (delivered after H.72.1).

1. Unscrew "OIL" plug in crankcase cover.
2. Insert hand pump into sump and pump out. Use a tin or bottle under pump outlet.
3. Pour 1,5 litres new oil into sump through plug hole (2 litres including filter).



**LUBRICATING OIL**

Use lubricating oil of good brand, "Service DG or DM".

**VISCOSITY:**

Below 0° C temperature (+ 32° F) . . . . . SAE 10  
Between 0° C (32° F) and 30° C (86° F) . . . . . SAE 20  
Above 30° C (86° F) . . . . . SAE 30  
A multi-grade oil (SAE 10—20—30) can be used with advantage.

**EVERY 300. OPERATING HOURS (At least once yearly).**

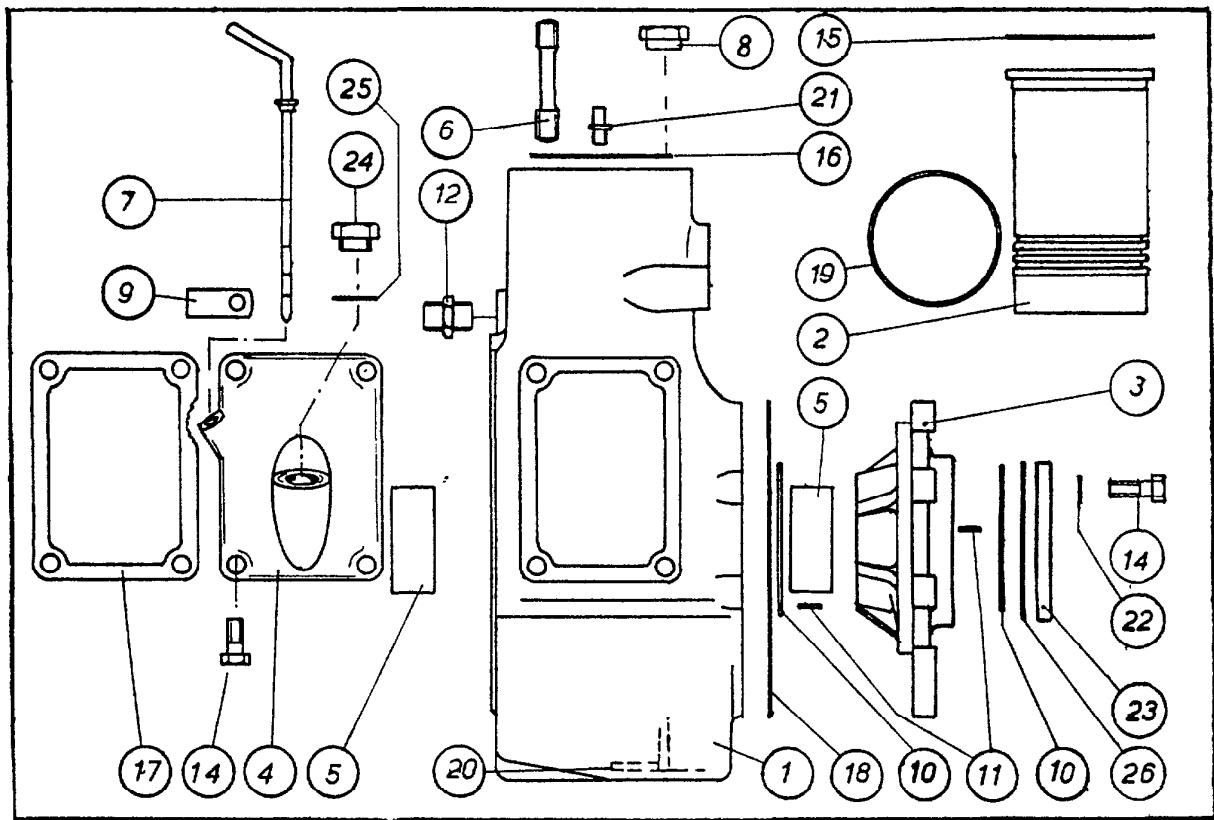
1. Change lubricating oil filter in connection with oil change. Unscrew filter with the adjustable spanner. The filter can not be cleaned, but has to be replaced by a new. Type: ~~Fram~~ PH9A. Apply film of engine oil to the gasket and hand turn filter until the gasket contacts its plate. Then tighten half a turn only. Pour 2 litres new oil into sump through plug hole. Start the engine and check for leaks. Check sump oil level with dipstick.

2. Replace fuel filter element (Bosch Fj/Sj 2751 — 1 457 431 324). Element can not be cleaned . . . . . Page 14
3. Check injector nozzle, clean if necessary  
Injectors pressure (opening): 100 kg/cm<sup>2</sup>, 1422 p.s.i. . . » 45
4. Change lubricating oil in clutch housing or reverse gear-box, 1/2 litre engine oil. Clean the magnet in drain plug in reverse gearbox . . . . . » 13
5. Grease rocker arm ball bearings . . . . . » 33
6. Adjust valve stem clearance 0,3 mm (0.12") . . . . . » 33
7. If the clutch is slipping, tighten clutch clamp nuts 1/6 turn, through clutch housing cover . . . . . » 61
8. Tighten all screws, nuts and gland. Wash engine and restore paint wounds.

**EVERY 1200 OPERATING HOURS (or more often if required).**

1. Remove crankcase cover.
2. Clean sump oil filter and crankcase interior.
3. Remove and clean the sump magnet (Group H-20, pos 20).
4. Wash interior with fuel oil and use rags to dry.  
Replace crankcase cover.
5. Change lub.oil filter and fuel filter element.
6. Pour 2 litres new oil into sump through plug hole.

**The Dynastarter V-belts should be tightened after the first 10-15 operating hours; later as required.**

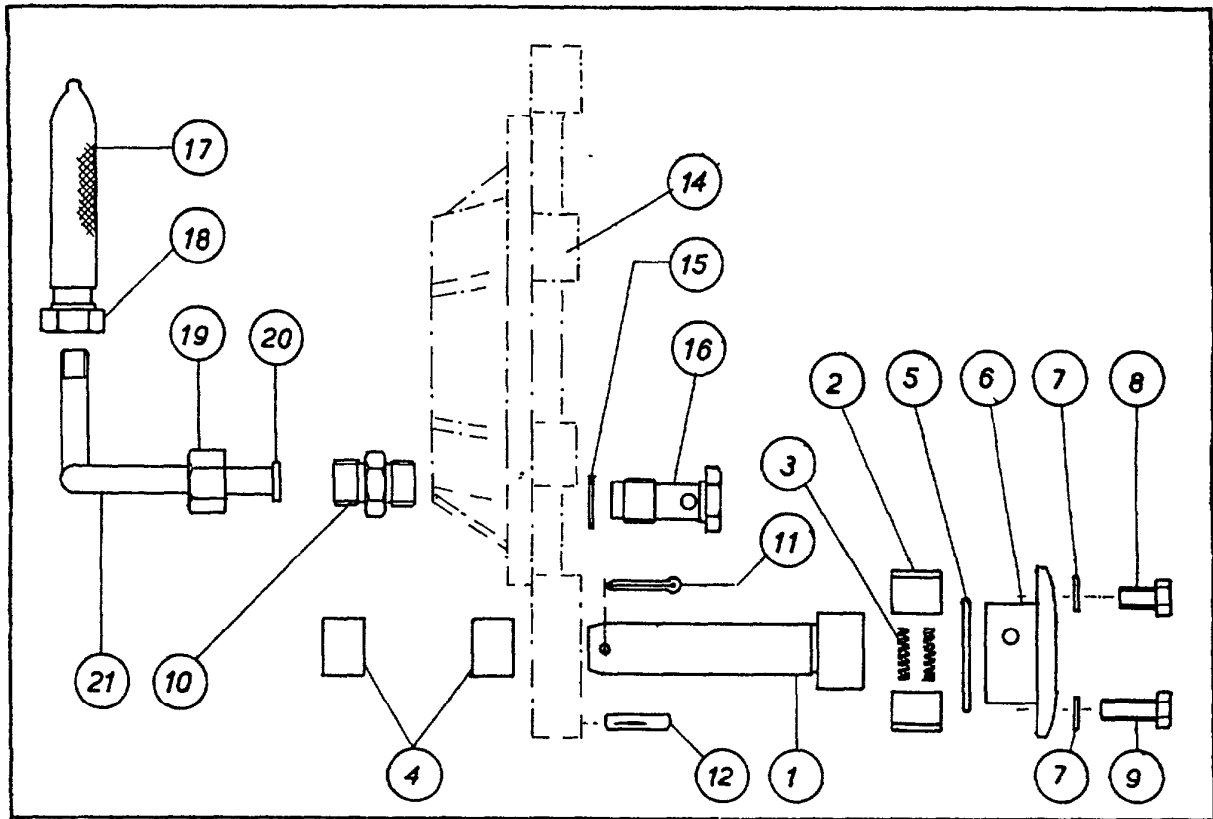


## Group H-20. CYLINDER BLOCK

No.	Part Name	Part No.	No.	Part Name	Part No.
1	Cylinder block . . . .	H23A	16	Liner flange ring . . .	823a
2	Cylinder liner . . . . .	H21N	17	Crankcase cover	
3	Front bearing flange .	H23LC		gasket . . . . .	822hb
4	Crankcase cover . . .	H22DC	18	Bearing flange gasket	
5	Main bearing . . . . .	622h <i>622h/6</i>		(1/64") . . . . .	823q
6	Cylinder head stud . .	423a	19	Cyl. liner rubber ring	
7	Dipstick . . . . .	G23c-2		(3×94,5) . . . . .	821p
8	Filter bracket nut . . .	435L	20	Magnet . . . . .	923a
9	Fuel hose clip . . . .	723jb	21	Water temp. nozzle . .	652bg
10	Thrust washer . . . .	723cc	22	Washer, 3/8" . . . . .	723f
11	Grooved stud,		23	Front oil seal	
	1/8"×10 . . . . .	723f		(100-120-13) . . . . .	937bb
12	Water inlet nipple,		24	OIL-propp, 3/4" . . . .	522dc
	1/2" . . . . .	511a	25	Fibre gasket . . . . .	882d
14	Bolt (3/8"×1 1/4") . . .	484c	26	Shield plate . . . . .	723e
15	Cylinder head gasket	821r			

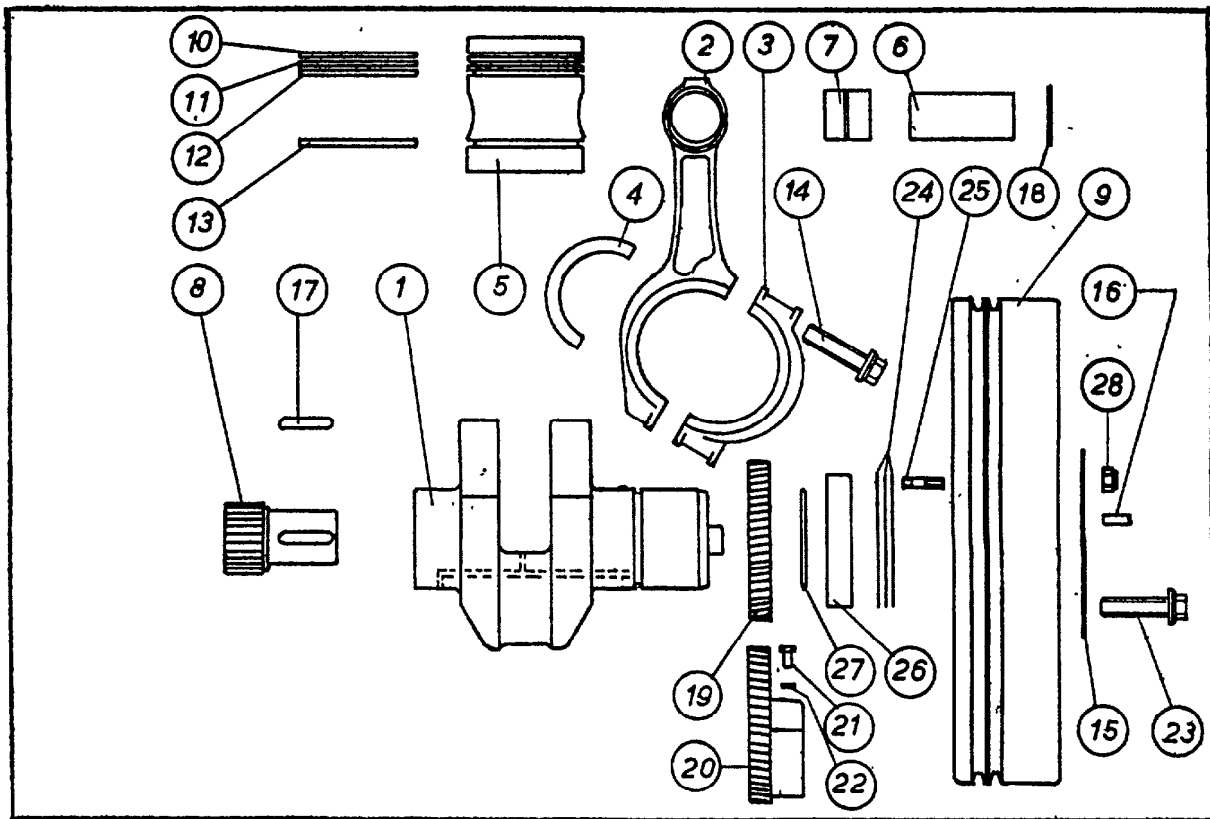
NOTE! Cylinder head for model H has a special swirl chamber insert H11jb, air intake tube H11k (175 mm) and valve push rods H34h (317 mm). The crankshaft end play is adjusted by means of the shims (Pos. 24, page 8). Correct end play 0,15—0,20 mm (.006—.008 in.) measured on cold motor.

SPARES: Cylinder head (with swirl chamber insert, valves with small parts, oil seal). Code: S1-G11A-H.



### Group H-23. LUBRICATING OIL PUMP

No.	Part Name	Part No.	No.	Part Name	Part No.
1	Lub.oil pump shaft ..	H23mc	11	Cotter pin, 5/32"×1¼" .. . . .	723m
2	Lub.oil pump vane ..	H23p	12	Dowel, 3/16"×1" .. . . .	442c
3	Spring .. . . . . .	723c	14	Front bearing flange .	H23LC
4	Needle bearing (Torrington B1112) ..	923b	15	Copper washer (NMR 49/7X) .. . . .	854g
5	O-Ring (Gaco SOR 16) . . . . .	823s	16	Lub.oil pressure valve .	S1-H54g
6	Lub.oil pump housing .	H23s	17	Sump strainer .. . . .	H67j
7	Lock washer, ¼" JZ .	745d	18	Sump filter nipple . . .	H67m
8	Bolt, ¼" UNC×15 .	445c	19	Pipe nut .. . . . . .	553c
9	Bolt, ¼" UNC×1¼" .	423s	20	Solder ring .. . . . . .	565c
10	Nipple, 3/8" .. . . .	521b	21	Sump suction pipe . . .	667j

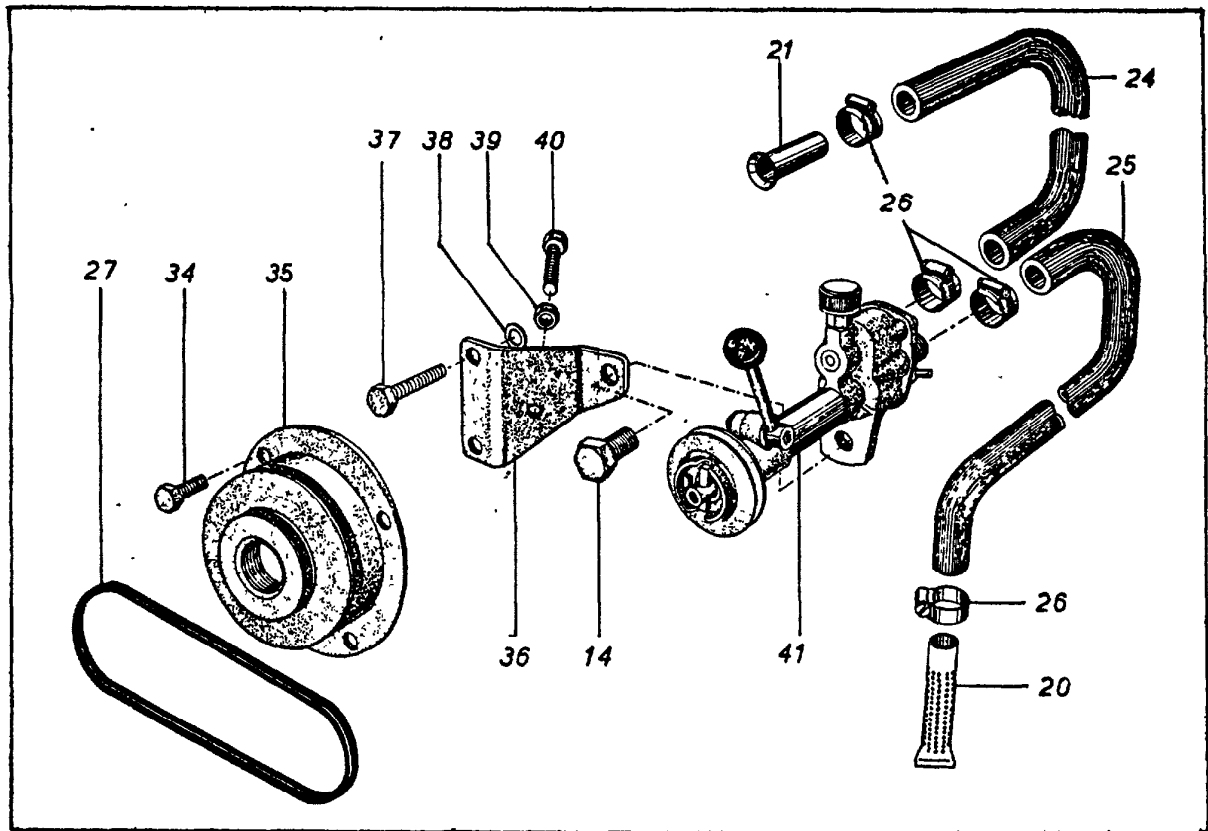


### Group H-31. CRANKSHAFT

No.	Part Name	Part No.	No.	Part Name	Part No.
1	Crankshaft . . . . .	H31Ad	17	Crankshaft pinion key	434e
2	Connecting rod . . . . .	2H32EC	18	Circlip (35i) . . . . .	732a
3	Big end bearing cap . .		19	Vibration damper	
* 4	Big end half-bearing ..	2H32F <i>70.00 mm</i>		drive gear . . . . .	H32qb
5	Piston . . . . .	2H32A	20	Vibration damper	
6	Gudgeon pin . . . . .	H32d		wheel . . . . .	H23NB
7	Small end bush . . . . .	632e	21	Bolt (1/4" x 15 B80) ..	445c
8	Crankshaft pinion . . .	G31p	22	Lock washer, 1/4" JZ .	745d
9	Flywheel . . . . .	H33AB	23	Bolt, M14 x 50 . . . . .	432g
10	Top compression ring .		24	Shim, crankshaft,	
	(Chromium pl.) . . . . .	G32b		0,2 mm . . . . .	733k
11	Compression ring . . .	G32bb		Shim, crankshaft,	
12	Compr./scraper ring ..	G32bd		0,08 mm . . . . .	733kb
13	Oil control ring . . . .	G32bc	25	Stud, 1/4" x 28 . . . . .	433k
14	Connecting rod bolt,		26	Flywheel ring . . . . .	H33k
	M12 . . . . .	432.003	27	O-Ring,	
15	Lock plate . . . . .	733ab		SOR 64 74,5 x 80,5 x 3	833k
16	Flywheel lock pin ..	433f	28	Nut, 1/4" Nyloc . . . .	443b

\*) *undervise 69.75 2H32Fb*

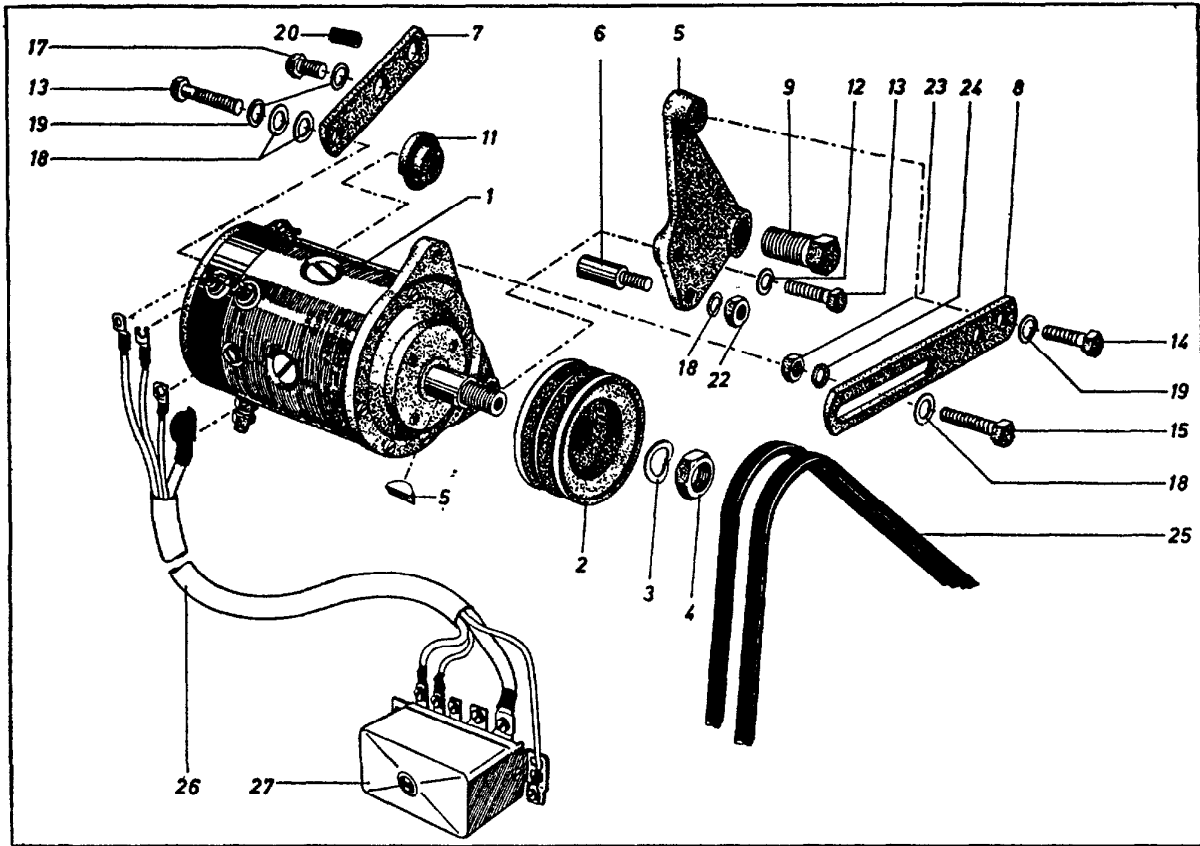




### Group H-47. GEAR TYPE BILGE PUMP ASSEMBLY

No.	Part Name	Part No.	No.	Part Name	Part No.
27	V-belt, S-25 .. .. .	947u	39	Nut, $\frac{5}{16}$ " .. .. .	415e
34	Bolt, $\frac{3}{8}$ " UNC $\times$ $\frac{3}{4}$ " .. ..	431b	40	Support screw, $\frac{5}{16}$ " $\times$ 1" (against the crankcase) .. . . .	421k
35	Flywheel pulley .. ..	G33DL	41	Gear type bilge pump complete (with bolt, pos. 14, green book) ..	S1-G47Q
36	Bilge pump bracket ..	H47p	41b	Gear type bilge pump complete with all pos. S2-G47Q-H	
37	Bolt, $\frac{3}{8}$ " UNC $\times$ $1\frac{1}{4}$ " .. ..	484c			
38	Fibre gasket .. .. .	847c			

(See group G-47 (Gear type bilge pump) in green Instruction Book and Parts List.

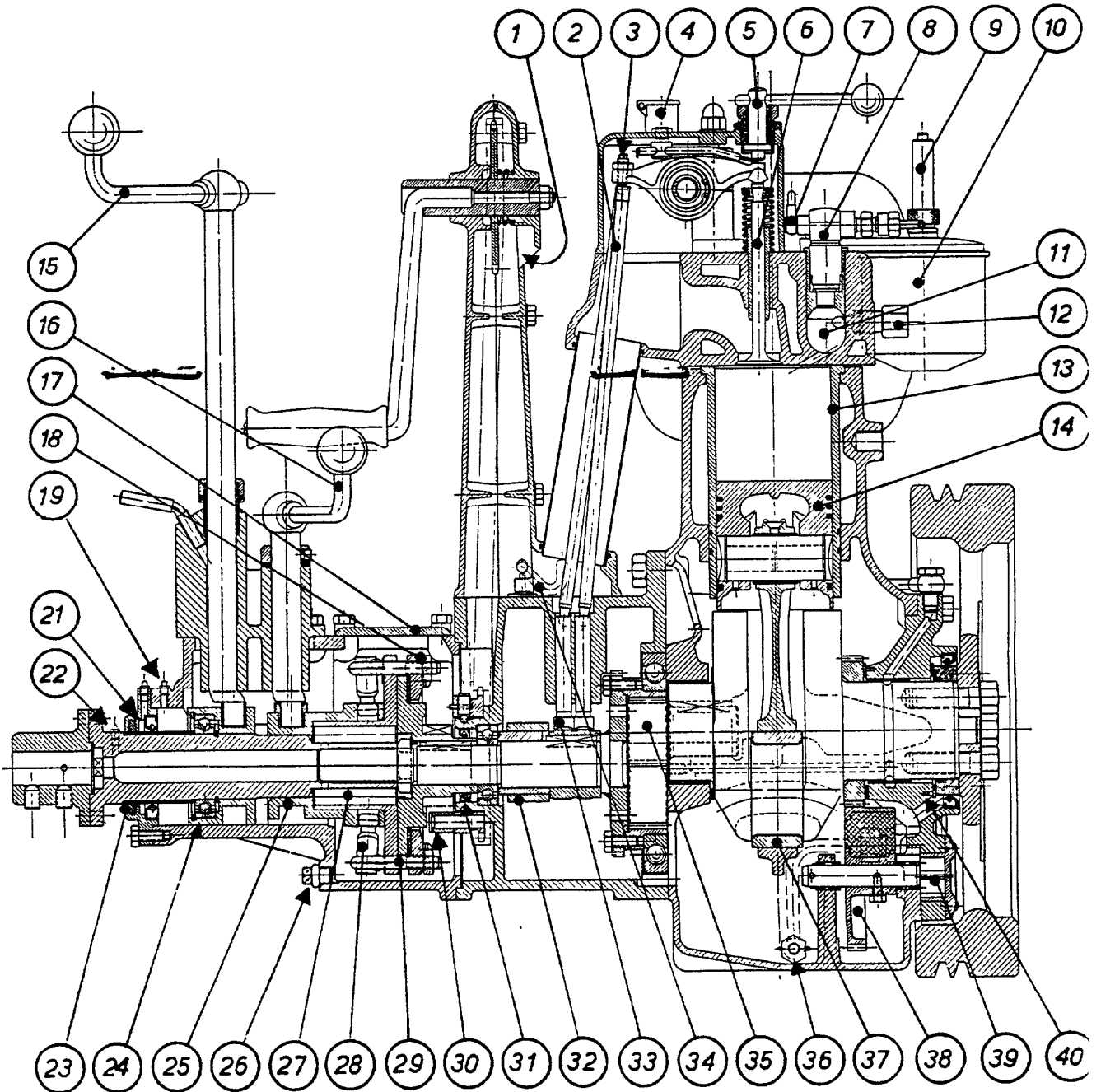


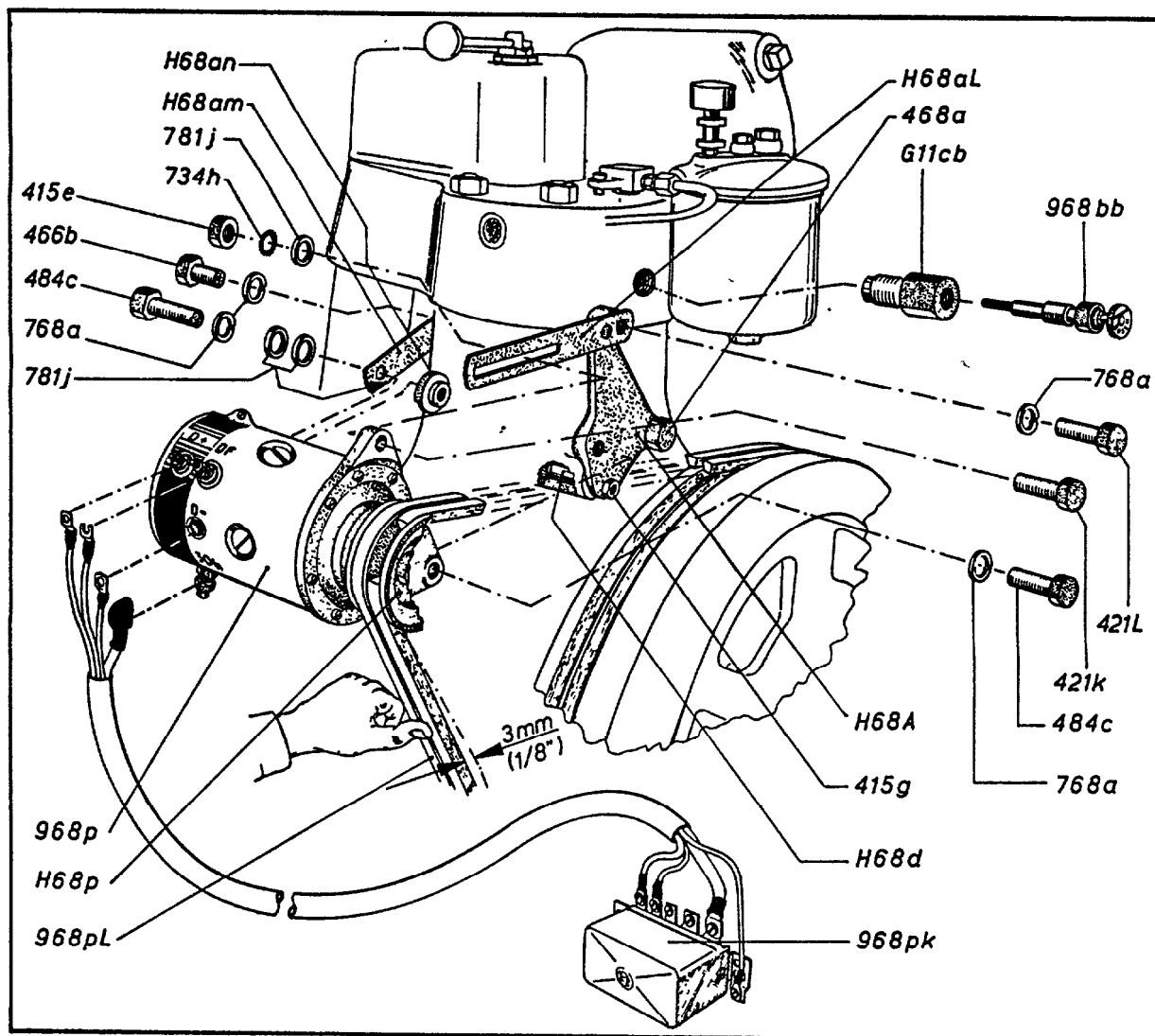
### Group H-68-1. DYNASTART

No.	Part Name	Part No.	No.	Part Name	Part No.
1	Dynastart, Bosch 12V 1 HK/14V 11A 0. 010. 350. 004 . . . . .	968p	14	Bolt, 3/8" UNC×1" . . . . .	421L
2	Kileremskive (SAV 75 A-2) . . . . .	H68p	15	Bolt, 5/16" UNC×1" . . . . .	421K
3	Spring washer . . . . .		17	Bolt, 3/8" UNC×3/4" . . . . .	466b
4	Nut . . . . .		18	Washer, 3/8" . . . . .	781j
5	Dynastarter bracket . . . . .	H68A	19	Spring washer, 3/8" . . . . .	768a
6	Support bolt . . . . .	H68D	20	Elastic pin, 8Ø×24 . . . . .	734d
7	Support iron . . . . .	H68am	22	Nut, 3/8" . . . . .	415g
8	Bolt tightener . . . . .	H68aL	23	Nut, 5/16" . . . . .	415e
9	Bolt, 3/8" BSP . . . . .	468a	24	Lock washer, 5/16" . . . . .	734h
11	Nut, 3/8" . . . . .	H68an	25	V-belt (A53) . . . . .	968pL
12	Spring washer, 3/8" . . . . .	768a	26	Relay cable . . . . .	S1-968pp
13	Bolt, 3/8" UNC×1 1/4" . . . . .	484c	27	Relay (ZAD 14V 11A Bosch 0. 190. 219. 001) with relay cable . . . . .	S2-968pp

## LONGITUDINAL SECTION OF SABB DIESEL – MODEL H

- |  |  |   |
|--|--|---|
| <ol style="list-style-type: none"> <li>1. Air intake</li> <li>2. Push rod</li> <li>3. Rocker arm adj. screw</li> <li>4. Valve lub.cup</li> <li>5. Decompression bolt</li> <li>6. Valve (inlet)</li> <li>7. Fuel leak-off pipe</li> <li>8. Bosch injector</li> <li>9. Lub.oil pressure gauge</li> <li>10. Lub.oil filter</li> <li>11. Precombustion chamber</li> <li>12. Torch paper holder</li> <li>13. Wet type cylinder liner</li> <li>14. Piston</li> </ol> | <ol style="list-style-type: none"> <li>15. Pitch control lever</li> <li>16. Clutch crank</li> <li>17. Clutch housing cover</li> <li>18. Clutch clamp nut</li> <li>19. Reversing bearing grease nipple</li> <li>20. Rear oil seal grease nipple</li> <li>21. Rear oil seal (double)</li> <li>22. Sliding bolt grease nipple</li> <li>23. Felt ring</li> <li>24. Reversing ball bearing</li> <li>25. Clutch sleeve</li> <li>26. Clutch housing drain plug</li> <li>27. Sliding bolt</li> </ol> | <ol style="list-style-type: none"> <li>28. Clutch arm</li> <li>29. Clutch clamp</li> <li>30. Starting pawl</li> <li>31. Pump housing oil seal</li> <li>32. Water pump eccentric</li> <li>33. Valve lifter (exhaust)</li> <li>34. Lub.oil drain handle</li> <li>35. Reduction gear</li> <li>36. Sump oil filter</li> <li>37. Big end bearing</li> <li>38. Vibration damper</li> <li>39. Lub.oil vane pump</li> <li>40. Front oil seal</li> </ol> |
|--|--|---|





## Group H-68-2. DYNASTART

The dynastarter is a combined dynamo (12V—90W) and starter (1 hp) connected to engine flywheel by two V-belts.

**Fitting:** Attach Support Iron H68am to rear side of engine block. The Tap H68d is inserted in front and the Bracket H68A securely tightened. Then Dynastarter is mounted.

The Nut H68an has to be fitted correct way, locking against starter. Fasten Tightener H68aL. Fit V-belts and tighten Bolt 421k lightly.

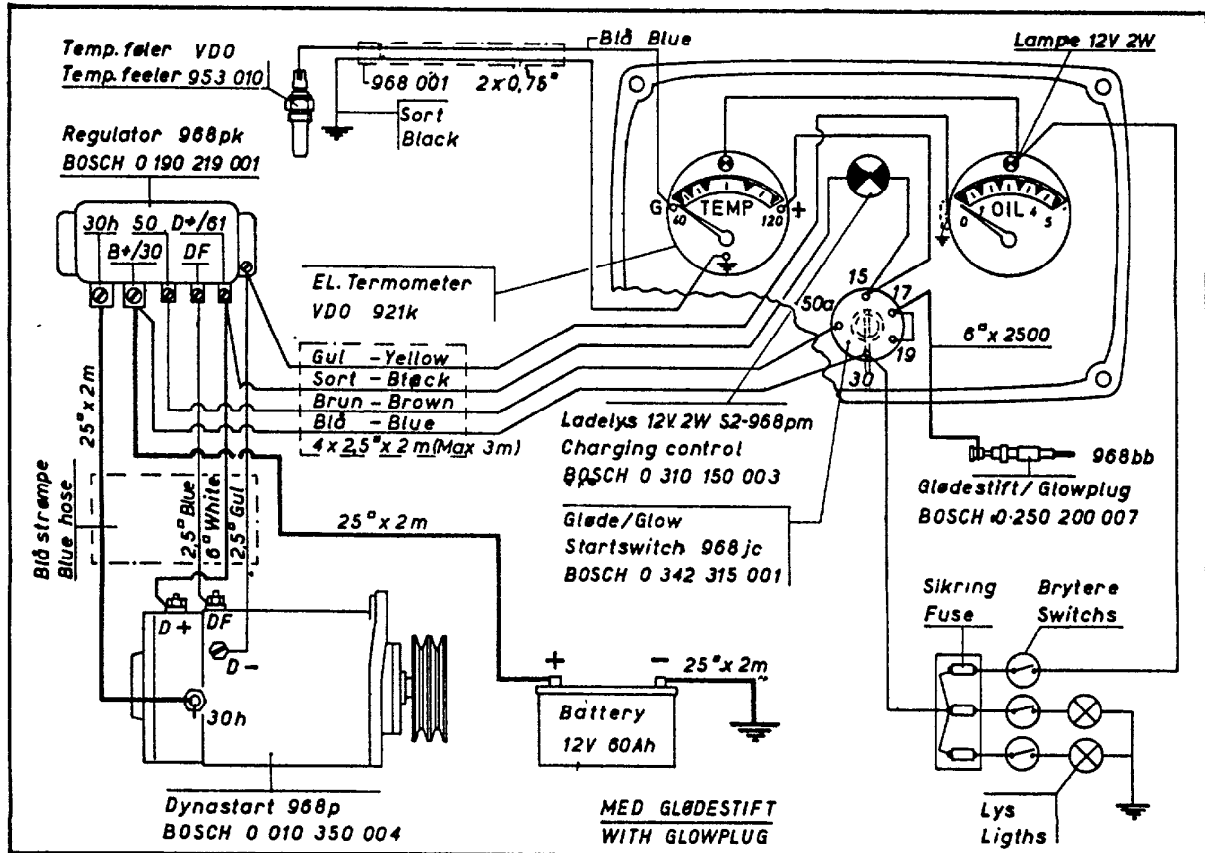
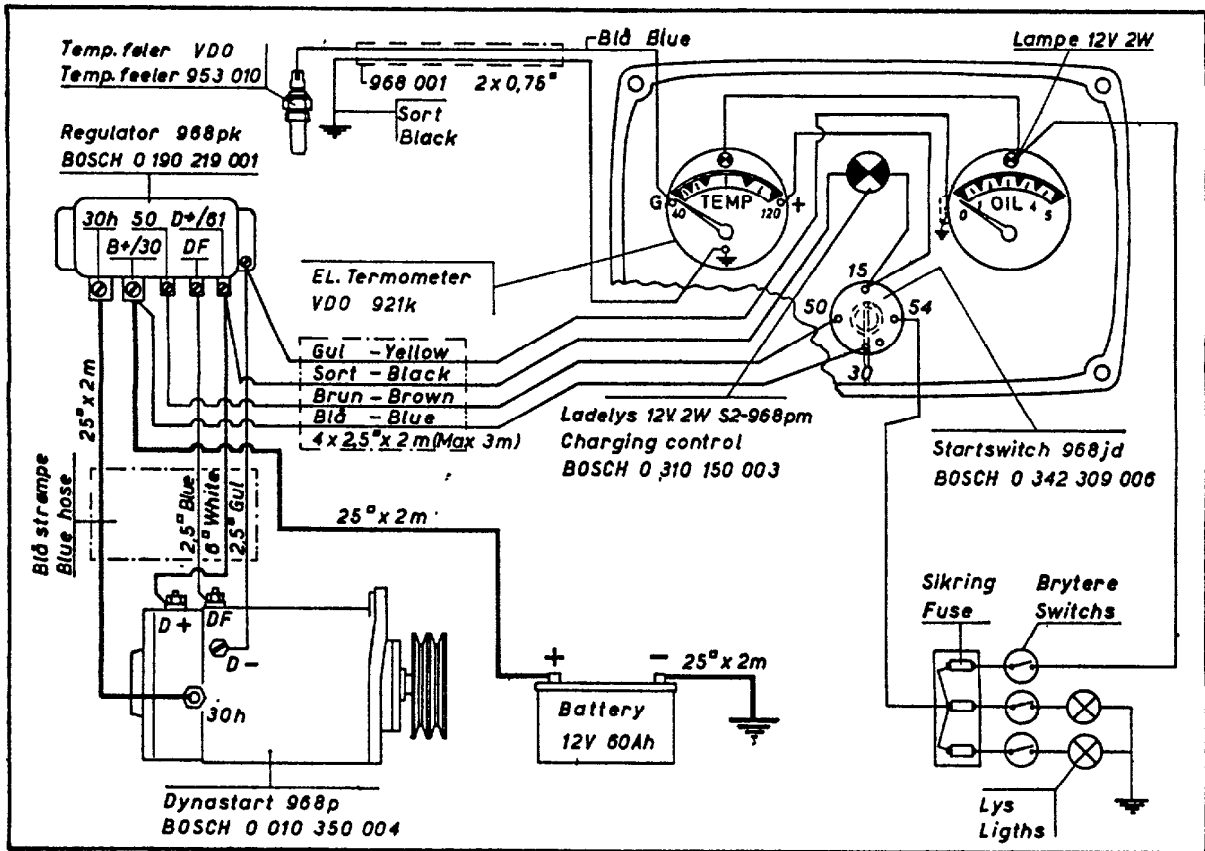
Use a heavy screw driver or spanner under the starter, bend up to tighten the belts and hold the lever until the bolts are securely fastened. Test tension by pressing belts midway between starter and flywheel. They should sag under thumb pressure about 1/8 inch. Tighten bolts again after some days of operation.

See that all wires are connected exactly as shown in diagram. The Regulator 968pk should be fitted conveniently near the engine, but rather not to the engine itself, protected against water and excess heat. All wires should be fitted neatly and away from the heat of the exhaust system and fastened with clips.

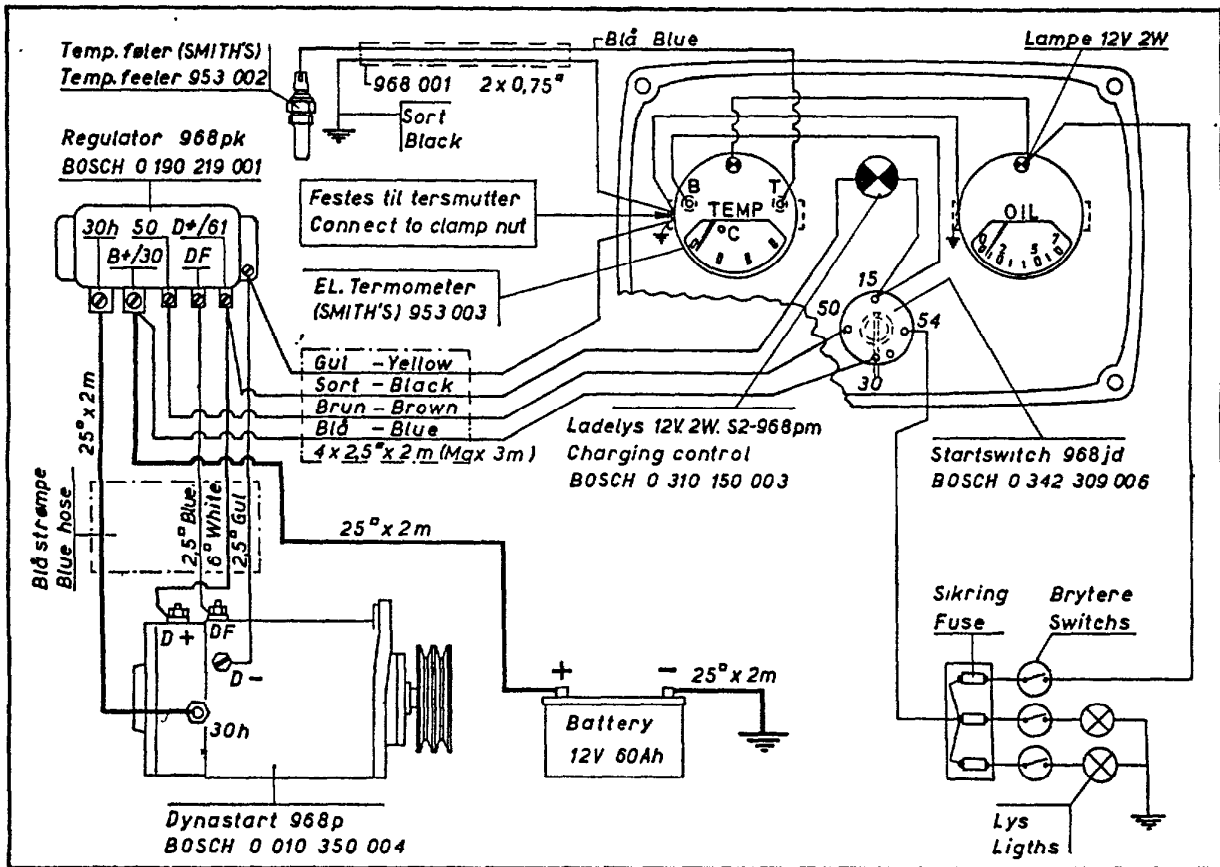
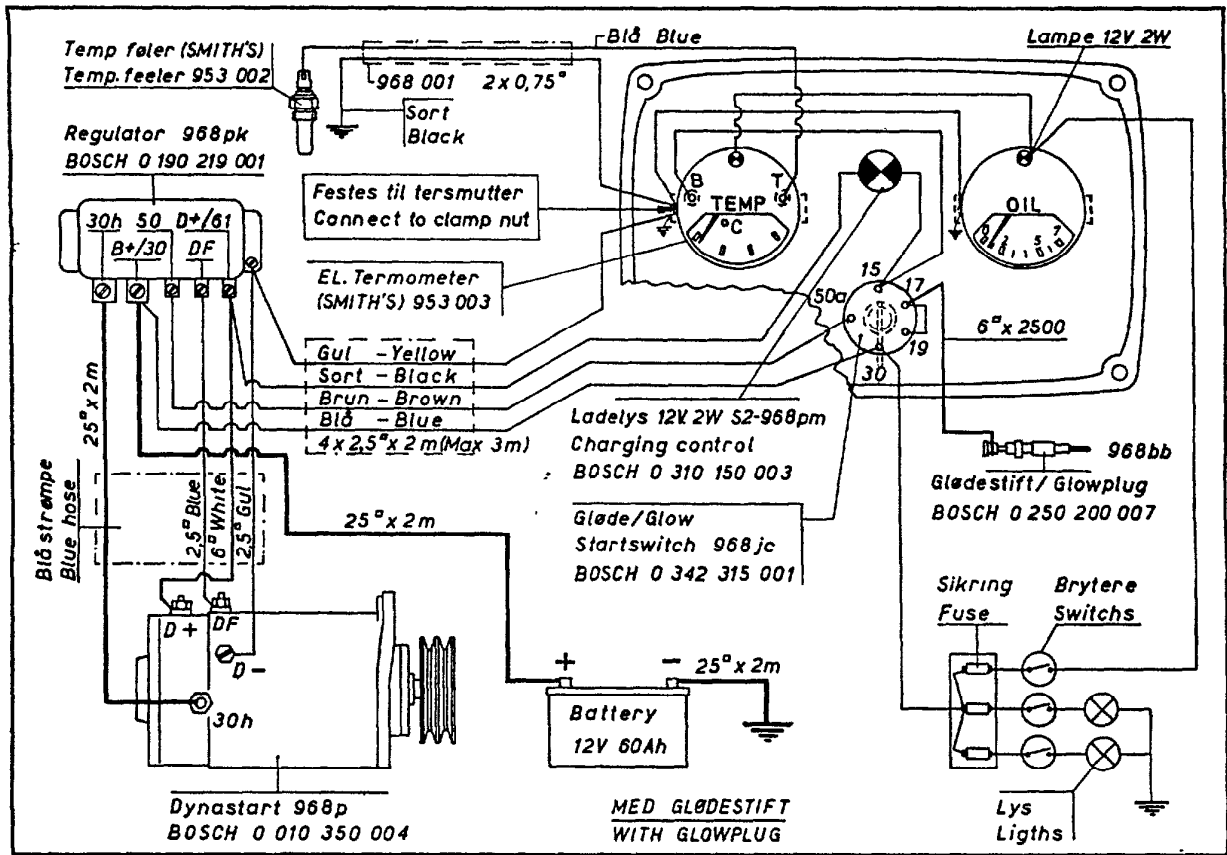
*Cont. page 17.*

## START

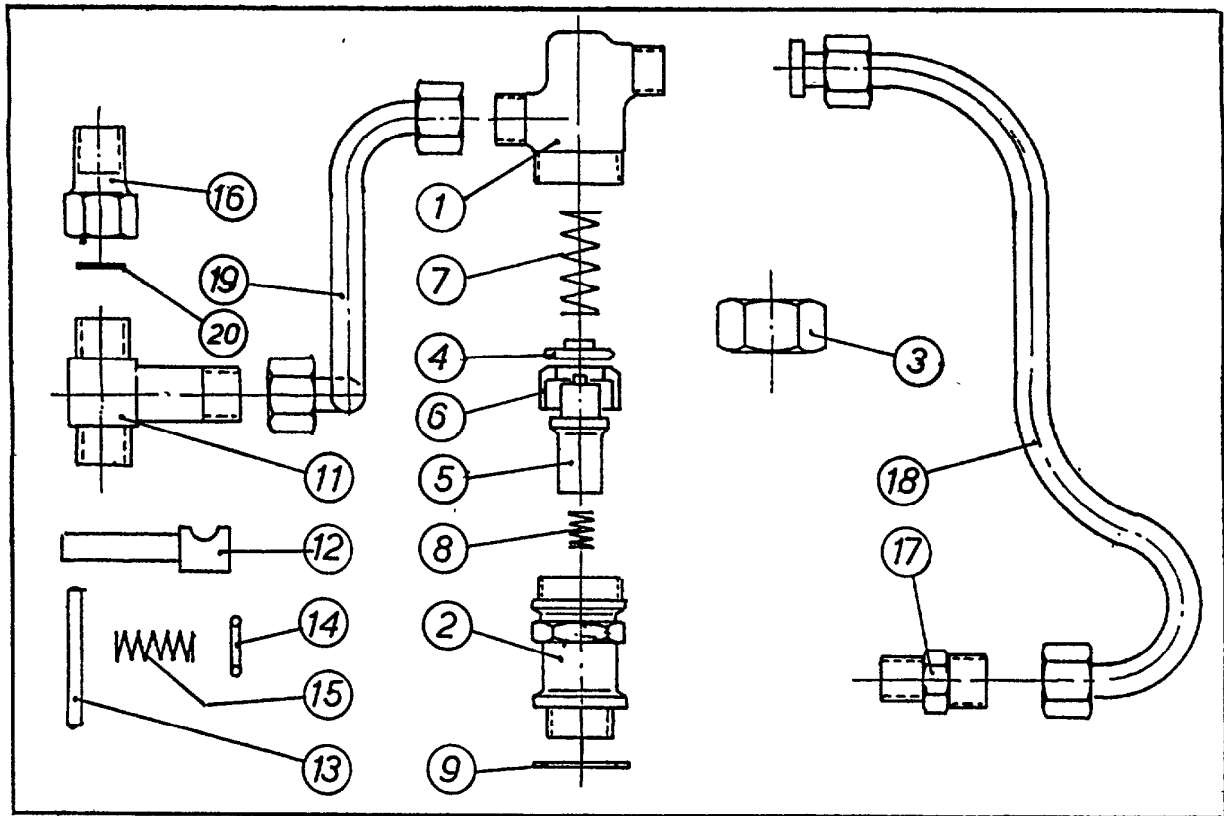
Open decompressor. Push starter switch in and turn clockwise. Close decompressor.



**WIRING DIAGRAM WITH V.D.O.  
EL. THERMOMETER AND TEMP. FEELER**

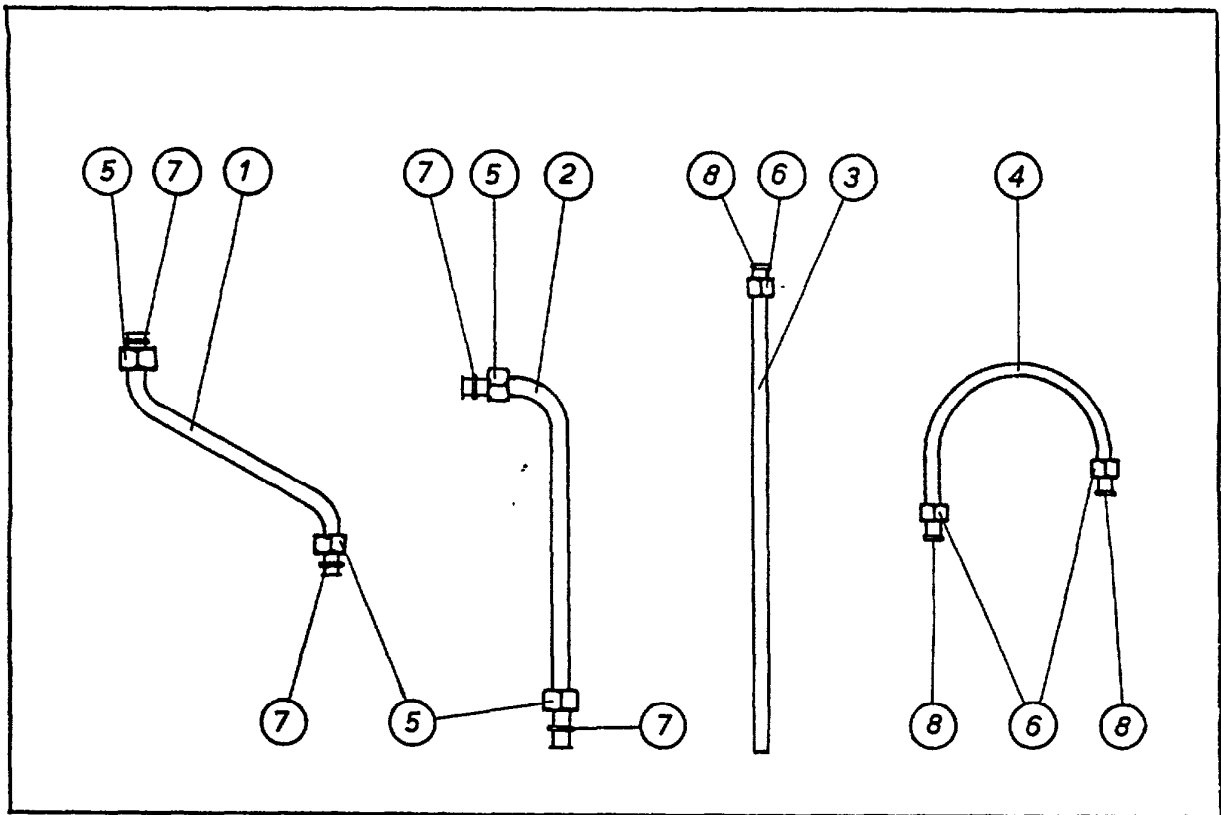


**WIRING DIAGRAM WITH SMITHS  
EL. THERMOMETER AND TEMP. FEELER**



**Group H-69-2. THERMOSTAT OPERATED SEAWATER COOLING.**

No.	Part Name	Part No.	No.	Part Name	Part No.
1	Thermostat housing ..	G69D	9	Fibre gasket .. . . .	844b
2	Thermostat nipple . . .	G69dk	11	Two way cock body .	G52k
3	Thermostat nut . . . .	G69dm	12	Two way cock . . . . .	G52m
4	Thermostat valve . . .	G69dL	13	Two way cock pin ..	553i
5	Thermostat (Behr-Thomsen X1.024.55.299) .. . .	969dL	14	O-ring (7,66×1,78) .	823c
6	Thermostat valve seat	G69dn	15	Spring .. . . . . . . .	744b
7	Thermostat spring ..	769f	16	Nipple muff .. . . . .	569d
8	Therm. release spring	769e	17	Pipe nipple (3/8" BSP)	521bb
			18	By-pass pipe . . . . .	669dn
			19	Two way cock pipe .	669dm



**Group H-600-1. WATER PIPES**

No.	Part Name	Part No.	No.	Part Name	Part No.
1	Water pressure pipe .	623ac	5	Pipe nut .. . . .	511b
2	Water suction pipe ..	662b	6	Pipe nut .. . . .	553c
3	Water discharge pipe .	662e	7	Pipe collar .. . . .	711c
4	Wet exhaust pipe . . .	621c	8	Solder ring .. . . .	565c

*Cont. from page 13.*

**GLOW/STARTER SWITCH – GLOW PLUG**

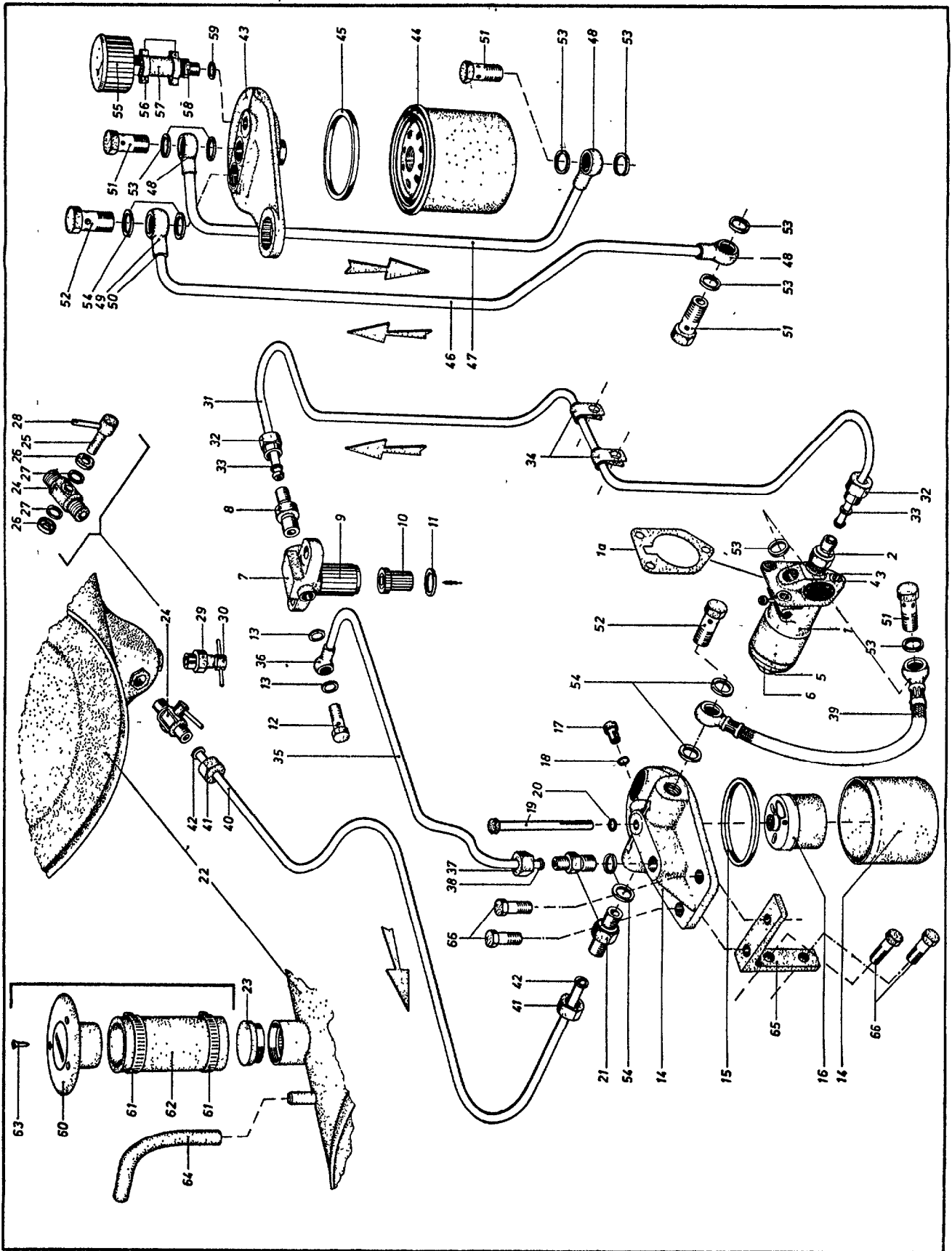
The glow plug facilitates starting at low temperature (instead of starting cigarette). A special switch is used. Turn key clockwise to heat and keep for 10—20 sec. Then push in and turn clockwise again to start.

**BATTERY**

Check regularly. The electrolyte level should not fall below the top of the plates and only distilled water used for topping-up. Clean battery top properly and keep the terminals and leads clean and tight. Coat the terminals with vaseline to prevent oxidization. Keep battery securely fastened.

**Electrical equipment is not covered by the engine's guarantee.**





## FUEL INJECTION SYSTEM AND LUB.OIL FILTER SYSTEM

No.	Part Name	Part No.	No.	Part Name	Part No.
1	Injection pump, Bosch 1 414 171 007 ..	S-G44A	32	Inj. pipe nut, Bosch ..	453m
1a	Injection pump shim, 0,3/0,2/0,5 mm .. . . .	744a/ab/ac	33	Injection pipe ring . . .	453n
2	Delivery valve hous. .	G44at	34	Injection pipe clamp .	753jb
3	O-ring . . . . .	G44as	35	Fuel leak-off pipe, inject.-filter, starboard	S-653fd
4	Delivery valve . . . . .	G44ap	36	Banjo nipple, leak-off, NW3 NRV 61/2x . . .	953g
5	Injector pump element, Bosch 1 418 305 004 ..	G44am	37	Pipe nut, 1/4" BSP ..	553b
6	Cam roller complete, Bosch 1 418 700 000 ..	G44an	38	Solder sleeve . . . . .	522b
7	Injector complete, Bosch 1 431 211 005 ..	S-G53d	39	Fuel hose, filter inj. pump, filter starboard	844ae
8	Inj. nipple with filter .	G53dk	40	Fuel tank pipe, compl. (5/16"×1700) . . . . .	S-663b
9	Nozzle nut (Bosch) ..		41	Pipe nut, 1/4" BSP ..	553b
10	Nozzle, Bosch 0 434 250 001 ..	G53i	42	Solder ring . . . . .	563b
11	Nozzle joint washer .	853ib	43	Lub.oil filter bracket .	H67s
12	Banjo plug, M8×1 ..	953h	44	Lub.oil filter, FRAM PH9A-MANN W9/20/7 . . . . .	S-967h
13	Copper washer, 8 mm	853e	45	Lub.oil filter gasket ..	867h
14	Fuel filter housing, Bosch 0 450 015 003 ..	S-G67a	46	Lub.oil pipe complete to filter, 5/16"×550 ..	S-667ha
15	Gasket, fuel filter bowl, Bosch . . . . .	867a	47	Lub.oil pipe complete from filter, 5/16"×385	S-667hb
16	Fuel filter element, Bosch 1 457 431 324	G67i	48	Banjo nipple (M12) ..	944c
17	Bleeder screw, fuel filter, Bosch . . . .		49	Banjo nipple (M14) ..	967b
18	Fibre joint (10×6×1)		50	Solder sleeve . . . . .	562bc
19	Fuel filter bolt, Bosch	G67ak	51	Banjo nipple plug, M12×1,5 . . . . .	944b
20	Gasket, filt. bolt, Bosch	867i	52	Banjo nipple plug, M14×1,5 . . . . .	967a
21	Fuel filter nipple, 1/4" R.gj.—M14 . . . .	545db	53	Copper washer, 12 mm	844d
22	Fuel tank, 42 litres, stainless steel . . . . .	S1-B63bb	54	Copper washer, 14 mm	867d
23	Fuel tank cap . . . . .	63gk	55	Oil pressure gauge ..	952 003
24	Fuel tank cock, compl.	S-61a	56	Hose clip (15/18) . . .	962f <b>921035</b>
25	Fuel tank cock . . . . .	61b	57	Hose, 3/8" . . . . .	841.002
26	Fuel tank cock washer	61c	58	Hose nipples . . . . .	518.003/518.004
27	Gasket . . . . .	861a	59	Copper washer . . . . .	853e <b>881025</b>
28	Pin . . . . .	552b	60	Deck filler with cap ..	S1-63G
29	Fuel drain cock com- plete, 1/4" BSP . . . . .	S-52ib	61	Hose clip . . . . .	962gd
30	Fuel drain cock . . . .	52jb	62	Hose, 1 1/2"×300 mm	891j
31	Inj. pipe with clamp .	S-653db	63	Screw	
			64	Breather hose . . . . .	823b
			65	Filter holder . . . . .	2H67c
			66	Bolt, 5/16"×20 . . . . .	434c