

## IDENTIFY YOUR ENGINE AND GEARBOX & SPARES ORDERING INFORMATION

“I went to our local Saab garage” he said, “but they didn’t have a filter like it.”

“It’s spelt differently”, I said. “So it is” was the reply.

“So they are made by a small firm in Norway, and nothing to do with the Swedish car and plane giant.” “I never realised that...” He said. (SABB is a local Norwegian word for Tough, or Robust.)

“I want a set of piston rings for a single cylinder Saab.” Shall I tell him – oh never mind.

“Which model SABB is it? They made three single cylinder engines.”

“Um, well, it’s in a Dranscombe Drifter.”

“That’ll be the Model HSP. What year is it?”

“Why do you want to know that?” He said. One... two... three...

“Well, Sir, they changed the frigging piston in 1978!”

PLEASE quote engine Model, Year, and Number when ordering spares. These details are stamped on a plaque on the aft face of the raised hand start pillar, or on later engines on the rocker cover. Early plates had the year and number together, so for example No. 69312 is the 312<sup>th</sup> engine of that type made in 1969. Since 1982 the date is coded, and appears as two letters, like NU or AB. (The codeword is CUMBERLAND. NU = 1992, AB = 1984!) Quoting horsepower is confusing, as engines have been updated over the years. 18HP could mean a Model 2H or an old Model 2G. If the plate is missing or unreadable, the following should help.

### ENGINE RECOGNITION:

<u>TYPE</u>	<u>BORE x STROKE</u>	<u>HP @ RPM</u>	<u>DESCRIPTION</u>
H	90 x 90	6 @ 1800 8 @ 2000	Single cylinder. Rocker cover 1" lower than top of hand-start pillar. Oil filter mounted on one cylinder head stud. Most pre-1977 have two 'V' belt grooves around flywheel for optional dynastart.
G	90 x 120	10 @ 1800	Single cylinder. Rocker cover 2" higher than hand-start pillar. Splash lubricated, so no oil filter. Starter gear-ring on flywheel, except on very early engines.
GA	95 x 120 100 x 120	12 @ 1800 14 @ 2000	Air cooled single cylinder, principally made for ship's lifeboats. Encased flywheel/fan. Alloy cylinder head.
2H	90 x 90	18 @ 2200	Lightweight (for Sabb) twin. Ribbed oblong rocker cover concealing injectors. Two single element injection pumps on the starboard side.
2G	90 x 120	22 @ 1800	Heavy twin cylinder. One square-ish rocker cover concealing injectors. Two single element injection pumps on the starboard side.
2J	100 x 120	30 @ 1900	Similar to 2G. Separate rocker covers for each

These engines are fitted with a variety of gearboxes, or variable pitch propeller actuators, detailed below. The engine Model specifies both engine type, and gearbox. All have 2 to 1 reductions unless stated otherwise.

<u>MODEL</u>	<u>GEARBOX DETAILS</u>
H, G, GA, 2H.	Actuator for variable pitch propeller, with separate clutch. When engaged, propeller turns left-handed always, and ahead/neutral/astern is selected by varying the blade pitch. 90 degree tramlever control.
HSP, GSP, 2HSP	Fully feathering version. Blades can rotate beyond the astern setting to lie almost fore-and-aft for minimum drag when sailing. Some types incorporate clutch and pitch control on single tramlever, and propeller locks with blades

## **ENGINES MADE ENTIRELY BY SABB MOTOR A.S.**

(Previously called 'Damsgård Motorfabrik')

### **SERIES G.**

Following a series of semi-diesels, this was the first true diesel, produced from 1955 to 2002 a run of some 24,500 engines. Splash lubricated with huge roller big-end bearing running on crankpin and taper roller mains. Two lead-filled balance weights in cover behind flywheel reduce primary out of balance forces. Pinion on crankshaft runs in female gear with twice the number of teeth, so entire rear bit runs at half engine speed. In effect, it drives off the camshaft. Massive flywheel at front just fits on taper, with one large retaining nut. No lubrication to top end apart from that provided by the oil can.

### **SERIES H**

Developed from the G, introduced to provide a lower engine more suitable for yachts. Shorter stroke, and with small vane-type oil pump driven off single balance weight in crankcase. Shell mains, and big end was solid thick shell type early, then changed to thin wall. Lighter flywheel bolted onto front of crankshaft with four bolts. Usually fitted with a Bosch dynastart & twin V belts running in grooves machined on outside of the flywheel. When dynastart became unobtainable, big re-design to allow starter motor and alternator set-up, but 3 years later (1980) production stopped.

### **SERIES GA**

Air cooled version of the G, introduced primarily for use in ship's lifeboats (this started sabb's knowledge of this market leading them to virtually writing off the leisure boat market after the arrival of Yanmar, and concentrating on lifeboats). Crank as G, but finned barrel, alloy direct injection head (others indirect), flywheel incorporating fan, and optional mega bilge pump! Originally rated at 12HP, more power was needed to pass some regulation, so in 1978 bore increased and different pump and injector raised this to 14HP. Cancelled contract in the 70's led to several being sold off cheap to private owners.

### **SERIES 2H**

In terms of capacity, 2 cylinders the size of the H. Rated at 18HP, of one up, one down design, unlike the Bukh similar-looking engine. The oddity in the range, being sabb's attempt at a light weight engine. Unfortunately the designer died during the development, leading to many modifications and alterations during the production run. Fitted as standard unit in many yachts, and due to identical mounting dimension, replaced single cylinder engines in several boats.

### **SERIES 2G**

Twin version of the G in size. Huge heavy and slow, bit like an old Lister. Tunnel bored crankcase houses 3 bearing crank, flywheel on front taper as the G. Main and big ends all really thick solid bearings, lubricated by gear oil pump. Indirect injection, one pump per cylinder. Vast range of gearboxes and variable pitch boxes fitted, with 2 to 1, 1½ to 1 and direct drive options.

### **SERIES 2J**

A 3-cylinder version, to be called the 3G was never completed, and instead to get more power for the lifeboat scene, the 2G was over bored, fitted with direct injection, and became the 2J. They look identical, except the 2G has one rocker cover over both pots, and the 2J has one on each. These engines were fitted to many lifeboats until the marinized engines took over. Production stopped in 1983.

## MITSUBISHI-SABB ENGINES

### M4.130, M4.140, M4.210

M = Mitsubishi based 4 = 4 cylinder 130 = 1.3 litre

The 130 was quickly superceded by the 140, over bored by 2mm. There are very few of these engines in the UK.

### M4.295GR, M4.295GR-LB

GR = Hurth Gearbox LB = Lifeboat specification

The base engines used in the Mitsubishi range are M4.210 – 4DQ50, M4.130 – K4D, M4.140 – K4E, and M4.295 – S4E2. Production ran from 1982 to 1997, when Mitsubishi suddenly ceased making the S4E2, (without informing S.M. of their intentions!) Spares orders for the M4.295GR-LB engines are now quite frequent, mostly for electrical components such as relays, stop solenoids, starters, alternators, and water jacket heaters, and occasionally hoses, water pumps etc.

## FORD-SABB ENGINES

Based on Ford industrial engines, these were not sold over here as many UK versions were available. Requests for parts do occur sometimes from commercial customers. Base engines were from the 2700 and 2720 range. F4.144 54HP, F4.254 68HP, F4.415 85HP, F6.216 80HP, F6.363T 130HP, F6.363TI 150HP, F6.595T 155HP, F6.595TI, and F6622 127HP. T = turbo I = intercooled

## IVECO-SABB ENGINES

When Ford Industrial products packed up, these engines took their place. Iveco engine are a more recent addition to the sabb range and spares are readily available. Type 8041M08-LB. and 8061M12-LB.

## LISTER-SABB ENGINES

L2.093LB – 18HP. L3.139LB – 27HP. L4.186LB – 36HP.

Made for the lifeboat market, based on the Lister Alpha LPW2/3/4. Increasing demand for running spares, filters, drive belts etc., plus on-board spares kits as required by some regulations. New Lister range 4 X90 and 3 X90.

<u>MODEL</u>	<u>GEARBOX DETAILS</u>
HG, GG, GAG, 2HG	Ahead/Neutral/Astern cone type gearbox. Large gearlever port side. Domed lid with SABB' embossed. Two versions made 1965 to 1971:- Two identical looking brass plugs on top, just aft of lid. One is the oil filter, other indent spring retainer. 1971 onwards:- Reinforced version, distinguishable by indent spring in separate 3" high housing. Many internal differences.
HEG, GEG, 2HEG	Hurth' type gears inside Sabb cast iron box. Small lever operates gears by morse cables. Shaft goes opposite direction to engine in ahead, hence right hand propeller. Introduced in 1977.
2G, 2J	Heavy duty variable pitch actuator. Two high tramlevers, one operating clutch, the other pitch, with 3 ½ turns from ahead to astern.
2GZ, 2JZ	As above, but 90 degree pitch lever movement.
2GY, 2JY	1½ to 1 reduction. Light V.P. Box, similar to smaller engines.
2GG, 2JG	Direct drive. Cone gearbox similar to smaller engines.
2GYG, 2JYG	As above, but 1½ to 1 reduction.
2GRG, 2JRG	As above but 2 to 1 reduction.
2GGR, 2JGR	Heavy duty epicyclic gearbox. 2 to 1 final reduction box on aft end.
2GHR, 2JHR	Hurth gearbox. Various types fitted. (Superceded H.D. box above)

**MAIN CHANGES AFFECT POPULAR SPARES**

<b><u>Year</u></b>	<b><u>Modification</u></b>	<b><u>Type affected</u></b>
1969	Fuel filter moved from port to starboard. Shorter fuel hose.	H. G.
1971	Reinforce cone gear box introduced.	Gearbox models
	Change in cylinder block, & oil pipes to rocker gear.	2H.
	One piece head gasket instead of two cooper rings.	2H.
	Prop. Shafts changed from bronze imperial (1" & 1 ¼") to stainless metric (25mm & 32mm). Stern bearings & VP drive blocks affected.	All.
1972	Big end bearings changed from ¼" thick shells to thinwall type.	H. 2H.
1973	Stronger valve springs. Different collet retainer.	H. G. 2G. 2J
	New water-jacket silencer instead of oval mixer box.	H. G. 2H.
1975	General change from U.N.C. Threads to metric.	All.
1976	Crankcases & gearboxes with bolt-on mounting feet.	H. G. 2H.
1977	Starter and alternator instead of obsolete dynastart.	H.
1978	New piston with three rings, instead of four ring type.	H. 2H.
	Bore increased from 95mm to 100mm.	GA.
	Different block, and block to crankcase gasket.	2H.
1988	Fuel filters changed to screw-on type.	G. 2J
1980	Production stopped on Type H engines	
1983	Production stopped on Types GA, 2H and 2G engines.	

SABB MOTOR now concentrate on Ship's Lifeboat engines, based on Ford, Mitsubishi and Lister. The Series G is still made, (1988), as are spare parts for all others in the range.