

ORIGINAL : ENGLISH

SOUTH PACIFIC COMMISSION

ICLARM-SPC SMALL BOAT WORKSHOP
(Noumea, New Caledonia, 27 - 28 October 1975)

BRIGGS AND STRATTON GASOLINE ENGINES

From

Briggs & Stratton Corporation
P.O. Box 702
Milwaukee, Wisconsin 53201
United States of America

SUMMARY

Briggs and Stratton Corp., Milwaukee, Wisconsin, U.S.A. manufacture single cylinder, four cycle, air cooled gasoline engines, rated at from 2 HP through 16 HP. The 2 HP through 10 HP engines are of die cast aluminum alloy. We also make 9 HP, 10 HP, 13 HP and 16 HP engines of cast iron construction.

We realize the importance of after-sales service and arrange for service distribution wherever our engines are sold. We have service distributors in Guam (also serving the Trust Territory Islands of the Pacific) and Tahiti and would make every effort to broaden this distribution to other islands if sales should develop.

Our engines were never specifically designed for a marine application although thousands have been used successfully for that purpose in the Philippines. The average life of our engine in the Philippines on this application is five years.

As much as possible, we have modified our standard production engines to meet the special needs of this marine application.

Needless to say, the engine user must exercise special care in preventive maintenance to extend the life of his engine. He should wash the engine with fresh water after each use; paint the steel components inside and out; protect the engine from water splash and provide louvers for ventilation of the engine compartment; check alignment of drive line; prevent excessive tilt of the engine along its crankshaft axis; check end-play of the crankshaft when combustion chamber is cleaned (every 100-200 hours); spray the engine with used oil to inhibit corrosion.

Most frequently encountered problems: Corrosion, connecting rod breakage due to low oil level or overspeeding.

Prices: Model 243431 (10 HP), Type 0714-01 - \$154.80 each FOB factory

Model 326431 (16 HP), Type 0202-01 - \$186.40 each FOB factory

In each case, the minimum acceptable order would be for 45 engines.

ICLARM-SPC/Small Boat/WP.2
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1. Probably many participants in this Workshop are not familiar with the name Briggs & Stratton, or if they do know the name may only associate us with lawn mowers. Therefore, we shall take the time at this point to identify ourselves and our product.
2. Our factory is located in Milwaukee, Wisconsin, U.S.A. and we manufacture single cylinder, four cycle, air cooled gasoline engines rated at from 2 HP through 16 HP. Engines rated at from 2 HP to 10 HP are constructed of die-cast aluminum alloy, while we also manufacture engines of cast iron construction rated at 9 HP, 10 HP, 13 HP and 16 HP. Our annual production averages 7,000,000 to 9,000,000 units. We are the largest manufacturer in the world of small gasoline engines. We manufacture all major components of the engine and only purchase outside such parts as piston rings, spark plugs, valves, gaskets, springs and nuts and bolts; items which would be uneconomical to manufacture ourselves.
3. We estimate that there are 50,000,000 Briggs & Stratton engines in use throughout the world and we are proud of our world-wide service organization which may be the most important factor in the success of our company. There are very few areas of the world where we do not have a service and parts distributor. As a matter of fact, we have recently appointed a Central Service Distributor for Guam and the Trust Territory Islands of the Pacific, MID-PAC Far East, Inc. located in Tamuning, Guam. We also have a service distributor in Tahiti, Ets. Rene Solari & Fils located in Papeete.
4. The marine application of our engines had its origin in the Philippines immediately after World War II and began with Filipino fishermen adapting surplus U.S. Army generator engines, made by us, in their bancas. There are now about 250,000 engine powered fishing boats operating in the Philippines and at least 90% of them are powered by our engines.
5. We sell thousands of our 10 HP cast iron Model 243431 and our 16 HP cast iron Model 326431 in the Philippines every year for the fishing boat application. We have one of each of these on display here for your examination.

6. How well do they stand up? Many of the old ones are still serving. For example, a Model ZZP (7.7 HP) manufactured in 1948 is still being used. Another example, a Model 23A-FB (9 HP) has been used since 1954 about eight hours per day, six days per week, travelling 20 miles each way to and from the fishing grounds. These are not isolated examples but, admittedly, they are owned by individuals who have taken good care of their engines and exercised good preventive maintenance. The owner of the Model 23A-FB reports that he:

- 1) Painted the blower housing, inside and outside every year.
- 2) Changed oil two times each month.
- 3) Sprayed exposed parts weekly with used oil.

Engine repairs made:

- 1) Replaced the crankshaft in 1973.
- 2) Changed piston rings annually.
- 3) Replaced exhaust valve every year.
- 4) Replaced blower housing every two or three years.

User's remarks:

- 1) Engine still easy starting and good running.
- 2) Intake valve never replaced.

7. According to our studies the average engine life in the Philippines on this fishing boat application is five years. You must understand that these engines are not specifically designed for use in this highly corrosive salt water atmosphere. The principal use of these engines in the United States is on small garden type tractors and others are used on pumps and generators.

8. We have modified our standard production 10 HP and 16 HP engines for this fishing application as much as our assembly line production will permit us economically to do so. We have done the following:

- 1) The flywheel is coated with an epoxy, in the area where the magnet is inserted, to inhibit salt water corrosion.
- 2) A rubber spark plug cover is supplied.
- 3) The exhaust elbow is installed at an angle which will result in less interference with the narrow area where the engine is installed.
- 4) A ground wire terminal has been installed at the ignition breaker box with a stop switch instead of the standard stop switch located at the spark plug.
- 5) A remote throttle control has been installed to enable the fishing boat operator to control engine speed easily from a forward or aft position.

9. In addition, our Philippine distributor recommends the following preventive maintenance steps to the end user through informal training classes held in the fishing villages:

- 1) Wash engine with fresh water after returning from the sea.
- 2) Repaint steel components inside and outside (blower housing, backplate, armature core laminations, etc.) to inhibit salt water corrosion.
- 3) Provide protection for the hot engine from water splash and provide louvers for ventilation of the engine compartment.
- 4) Check alignment of drive line from engine to propeller frequently.
- 5) Prevent too much tilt of the engine along its crankshaft axis which could cause problems in lubrication and carburetor flooding.
- 6) Check end-play of the crankshaft every time the engine combustion chamber is cleaned (every 100-200 hours).
- 7) Retain air cleaner assembly to inhibit corrosion of carburetor parts (most fishermen tend to discard our carefully designed air cleaner as superfluous in their clean air environment).
- 8) Spray the engine weekly with used oil to inhibit corrosion.

10. The most frequently encountered problems, according to service records, have been:

- 1) Corrosion.
- 2) Breaking of connecting rod due to low oil level.
- 3) Breaking of connecting rod due to overspeeding (a special remote throttle control has now minimized this problem).

11. You will observe that the above are caused by careless operation or maintenance.

12. We are now displaying our Model 243431 (10 HP) and Model 326431 (16 HP) exactly as outfitted for the Philippines. Also on view are photographs of a typical banca with our 16 HP engine installed, augmented by a transmission made in the Philippines by GWAM Inc. A sample of this transmission is also on display.

13. We have also distributed our engine specification sheet for each engine model. These give you complete power data and specification standards as well as complete dimensional data.

13. What would each of these engines cost?

Model 243431 (10 HP), Type 0714-01 (Philippine specifications)
\$154.80 each FOB factory, Milwaukee, Wisconsin (Minimum order: 45 engines) Painted black, aluminum or zinc chromate.

Model 326431 (16 HP), Type 0202-01 (Philippine specifications)
\$186.40 each FOB factory, Milwaukee, Wisconsin (Minimum order:
45 engines) Painted black or aluminum or Zinc chromate.

14. The price of the GWAM transmission (sold by Muller & Phipps
Industrial Corp., Manila):

Model BM6 18 "B" Series (for 16 HP engine) \$185.00 each.

Discount - 30% FOB Manila warehouse.

Model BM6 18 "C" Series (for 10 HP engine) \$170.00 each.

Discount - 30% FOB Manila warehouse.

Literature on the transmission is on display.

15. Along with our engine display you will find quantities of support-
ing literature, some of it in French. We hope that you will take copies
of any of these which interest you. Additional copies can be supplied
from the factory upon receipt of your request.
