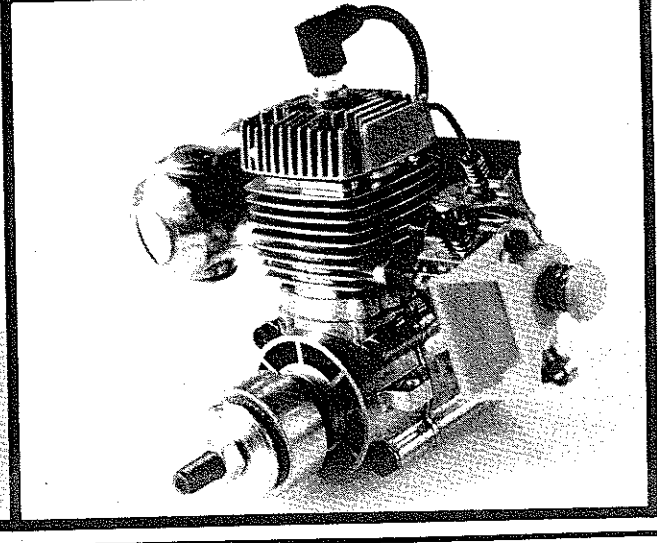
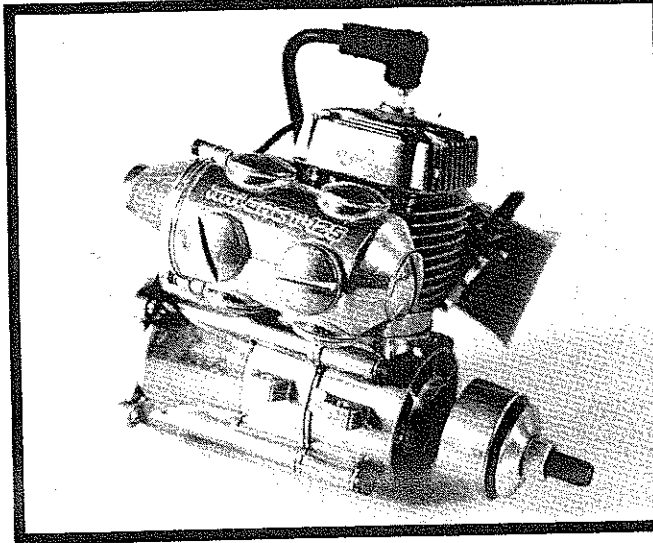
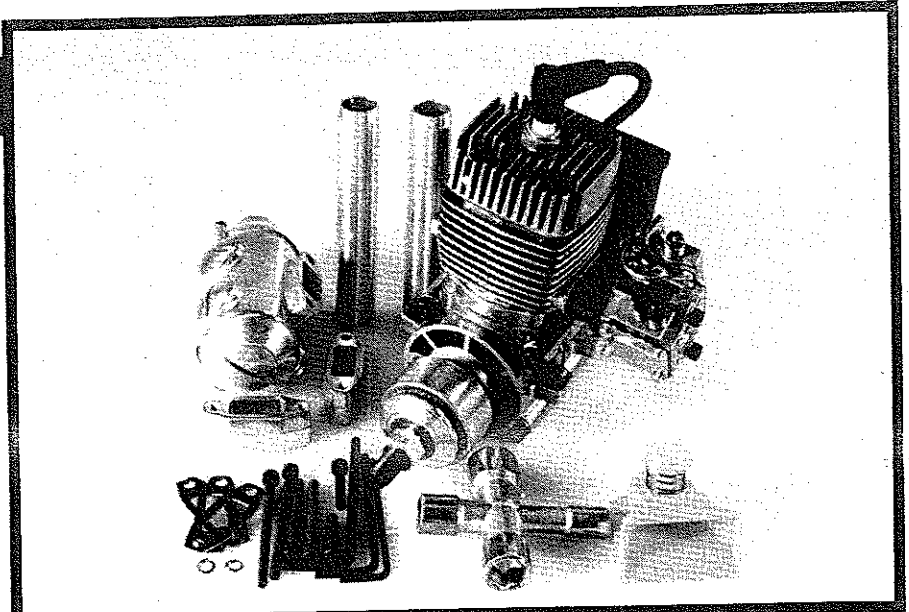


## PRODUCT REPORT

By Clarence Lee

### SPECIFICATIONS

Type: Single cylinder, 2-stroke cycle,  
air cooled, magneto ignition  
Bore: 30mm (1.181")  
Stroke: 29mm (1.142")  
Displacement: 20.51cc (1.251 cu. in.)  
Compression ratio: 6.73:1  
Weight: 3 lbs. 11 oz. (with muffler)  
U.S. Distributor: World Engines,  
Cincinnati, Ohio



## MALONEY 125

**F**or many modelers, the cost of our model engine fuel puts a pretty heavy dent in the monthly hobby budget, especially if a considerable amount of flying time is spent. I know that in my more active days of competition pattern flying, it was pretty easy to go through a couple of gallons of fuel a week, and I know of a few fellows who could go through a gallon of fuel a day practicing for an upcoming contest. With fuel in the 10%-15% nitro range costing from \$12.95 to \$19.95 a gallon now, many fellows are having to limit their amount of flying time in order to hold down fuel cost. Every month I receive several letters from fellows in this predicament asking about cheaper fuel alternatives, if it is practical to convert their glow ignition engine to spark ignition so that they can burn gasoline, etc. Any glow engine, 2-stroke or 4-stroke can be converted to spark ignition and gasoline use

with one of the spark ignition conversion units on the market but many times an engine intended for glow operation will run pretty hot when converted to gasoline operation. This is due to the cooling effect of alcohol fuels and their ability to run considerably cooler than gasoline. As a result, engines designed for alcohol operation do not require as much cooling fin area as engines intended for gasoline operation. Or, conversely, gasoline engines require more cooling fin area than engines designed for alcohol use.

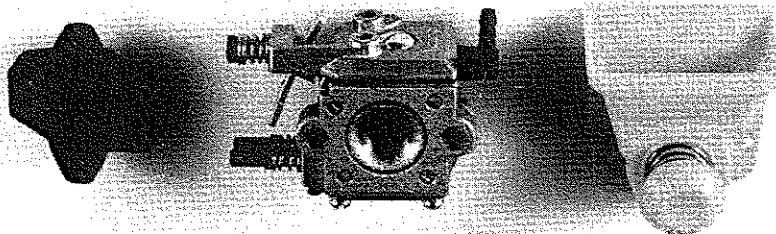
When it comes to engines designed specifically for gasoline use, the choice is pretty well limited to the larger displacement chain saw/leaf blower type engines or their offspring. Being aware of this problem, the late John Maloney of World Engines, decided to market a smaller displacement gasoline engine built to his design specifications by a Korean

manufacturer. Although designed expressly for model aircraft use, the engine does show a lot of chain saw/leaf blower influence, so I would guess that the Korean manufacturer building the engine for World Engines, also builds industrial application engines. Knowing that many modelers like the larger, slow flying, scale type aircraft, John Maloney chose an engine size slightly larger than the conventional 60 size but smaller than the 2 cubic inch and larger chain saw/leaf blower engines, and appropriately named the engine the Maloney 100. The 100 standing for the engine's 1 cubic inch displacement size. Being a little shy in the power department in relation to the engine's weight, steps were taken to increase the power of the engine. This was accomplished by both increasing the bore and stroke of the engine along with an increase in compression ratio

continued on page 80

and other internal design modifications. The result is the new Maloney 125 released this past summer, and the subject of our engine review for this month.

The Maloney 125 is intended as competition for the 4-stroke 120 size engine and many of the aircraft kits intended for the 120 4-strokes can use the Maloney 125 for power as well. However, although World Engines advertises the Maloney 125 as developing as much or more power than most of the 4-stroke 120s, our test engine did not bear this out. Although it is a well-built engine with very good running and handling characteristics, it was not up to the power being developed by the second generation 4-strokes now on the market such as the Enya R120, O.S. 120 Surpass, or Saito 120S. So when choosing a kit

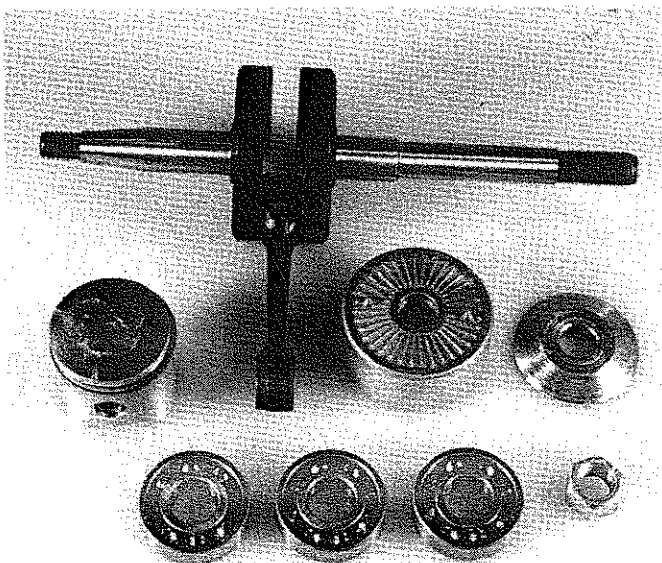


**Walbro pump carburetor with insulator block and air scoop. Plunger on scoop chokes engine for starting.**

words, do not choose a competition pattern type aircraft and expect to do advanced type acrobatics, vertical rolls, etc.

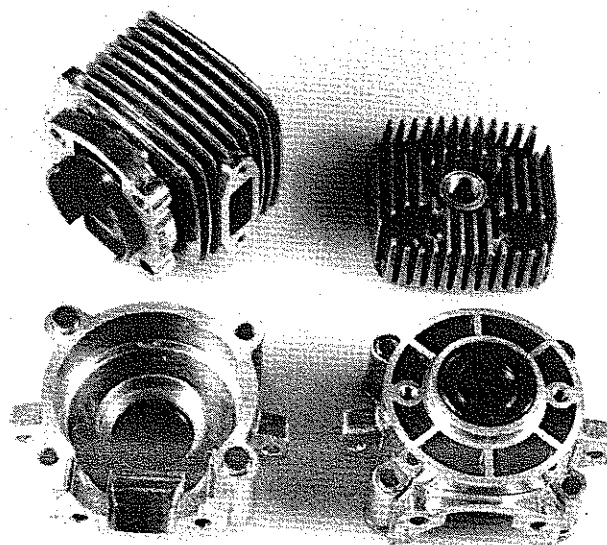
With the Maloney 100/125 background history and origin covered, let's take a look at the engine's construction and design aspects.

of the piston, the intake port in the cylinder is uncovered and on the downstroke, it is closed for an actual intake duration of approximately 115° of crankshaft rotation. Two transfer ports, one on either side of the single exhaust port, direct the air/fuel mixture upward and towards the opposite cylinder wall in true



**Double throw crankshaft with integral con-rod, piston, bearings, and prop drive assembly. Crankshaft and rod must be replaced as a unit.**

intended for a 120 size 4-stroke to be powered with a Maloney 125, one should pick an aircraft design with a lighter wing loading intended for slower scale type flying. In other

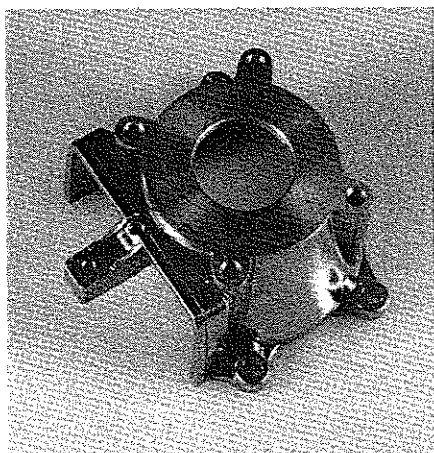


**Front and rear crankcase halves, cylinder, and head. Note automotive type seals for sealing crankcase pressure.**

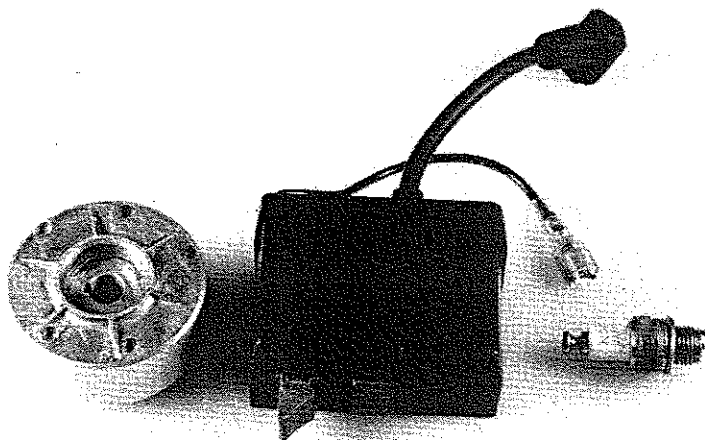
Following typical chain saw/leaf blower design practice, the Maloney 125 uses piston port induction and Schnuerle port mixture transfer and cylinder scavenging. On the upstroke

Schnuerle port design with no additional boost port(s) being used. The exhaust having an open duration of 154° and the transfer ports 128°.

Crankcase. Again, following chain



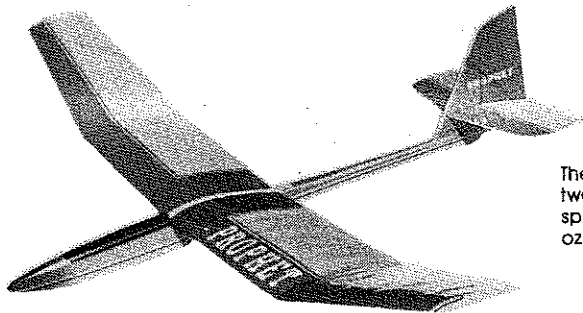
**Radial backplate mount provides enclosure for magneto flywheel.**



**Magneto flywheel, coil unit, and NGK (Japanese) spark plug.**

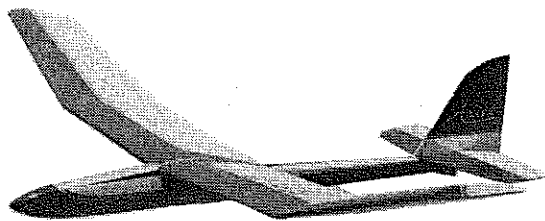
## FROM DAVEY SYSTEMS

Two great sailplanes for the novice or competitor alike because they have a tremendous speed range due to the computer optimized modified E 193 airfoil. The ARIEL, 1½ meter small size, but large performance. 59 in. span, 370 sq. in. area, 5.25 oz./sq. ft. wing loading.

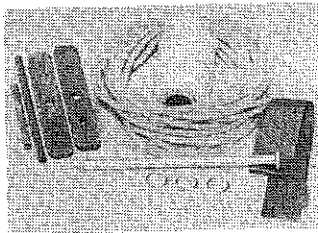
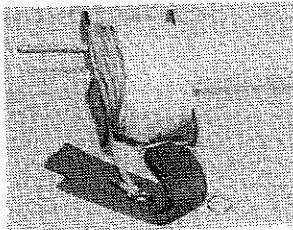


The PROPHEET, the preferred two meter sailplane 78¾ in. span, 613 sq. in. area, 6.25 oz./sq. ft. wing loading.

Both sailplanes are designed to easily withstand 12 volt winch launches. The kits feature accurate die and machine cut balsa, spruce and plywood, step-by-step instructions, complete full size rolled plans, pre-cut fuselage parts, bagged small parts and hardware. The prophet has a two piece wing, hardened steel wing rod, flexible steel control rods and adjustable tow hook.



The ZIP-START — a hi-start designed for launching 1½ or 2 meter sailplanes. Includes 30' of ¼" ID ultra-violet stabilized natural latex rubber tubing, 250' of heavy duty 160# nylon line, 3 tempered steel tow rings, 8" steel stake, tow marker ribbon, reel assembly and instructions.



**DAVEY  
SYSTEMS  
CORPORATION**

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still not fire when flipped by hand and had to be spinning to do so.

**Carburetor.** A Walbro pump diaphragm carburetor is used. The nice feature of these chain saw type carburetors is the fuel pump that allows the fuel tank position to be non-critical. The pump in the carburetor can actually draw fuel from several feet away. The pump diaphragm carburetors can be a little critical to adjust initially with gasoline, but when once adjusted will hold their setting without further adjustment. This is particularly true when used in conjunction with spark ignition, which, unlike glow ignition, always fires at exactly the same time

and is less affected by weather conditions, humidity, etc.

To prevent any vapor lock tendencies or boiling of the fuel, the carburetor is isolated from the cylinder with a plastic insulator block. Attached to the carburetor is a plastic air ram that contains a spring loaded plunger for choking the engine while starting.

**Muffler.** A rather unusual muffler accompanies the engine that has provision for installing either a single, or two exhaust extension tubes straight up, straight down, straight out, or a single tube fore or aft. The unused openings are plugged with screw-in caps. Also included are two

manifold spacer blocks with appropriate screws for extending the muffler out further from the engine. The muffler is a simple expansion chamber type with no internal baffling. For the purpose of our testing, both exhaust tubes were used in the downward position.

**Performance.** World Engines recommends a 32:1 gasoline/oil mix be used in the engine. For our testing, a 32:1 mix of unleaded gasoline and Amsoil synthetic 2-cycle oil was used. Although the engine had been factory run, it was given an additional 30 minutes of break-in time at which time it was capable of holding a fully leaned-in setting without slowing or showing any signs of overheating. With the following weather conditions, the following rpm figures were recorded.

Temperature 88°F, Relative humidity 20%, Barometric pressure 29.95" Hg.

14 x 8 Zinger	8,000
15 x 6 Zinger	8,400
15 x 8 Zinger	7,200
16 x 6 Zinger	7,200
18 x 8 Zinger	6,500

The above figures, although quite acceptable, are not quite in the same power category as the second generation 4-stroke engines. However, the Maloney 125 is a gasoline burning sport engine and not really intended for high performance applications.

Although World Engines recommends a 16 x 8 propeller for the Maloney 125, our particular engine was a lot happier with a 15 x 8. As mentioned previously, an electric starter is required for starting. A tap of the starter had the engine running in a few seconds every time. We had the engine idling reliably at 2,000 rpm. Below this it would begin to misfire and run rough. The overall handling was very nice with no particular problems encountered. For the sport flier who is not interested in all out power, but enjoys the slower, relaxed, and laid back type of flying where fuel economy and cost is a prime consideration, the Maloney 125 would be hard to beat. The engine is extremely economical, running almost two minutes on an ounce of fuel. With a gallon of fuel mix for the engine costing under \$1.50, and this being good for three to four hours of flying time, some of you fellows looking for a less expensive fuel option might want to consider the Maloney 125. World Engines has even designed an aircraft kit expressly for the Maloney 125, and this type of flying, called the Robinhood 80. A sort of Curtiss Robin look-a-like.

□