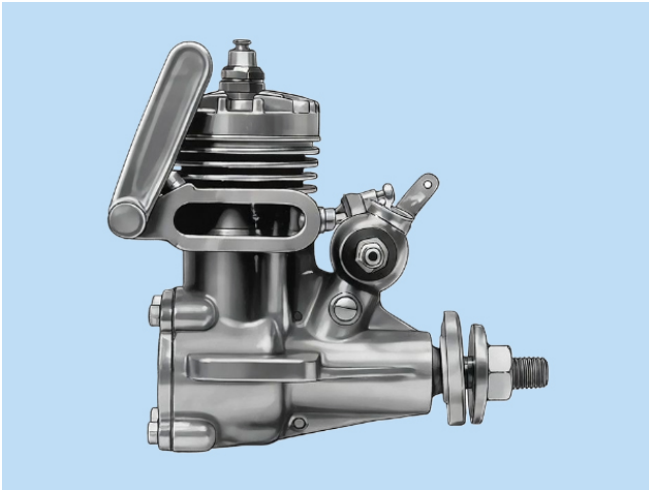
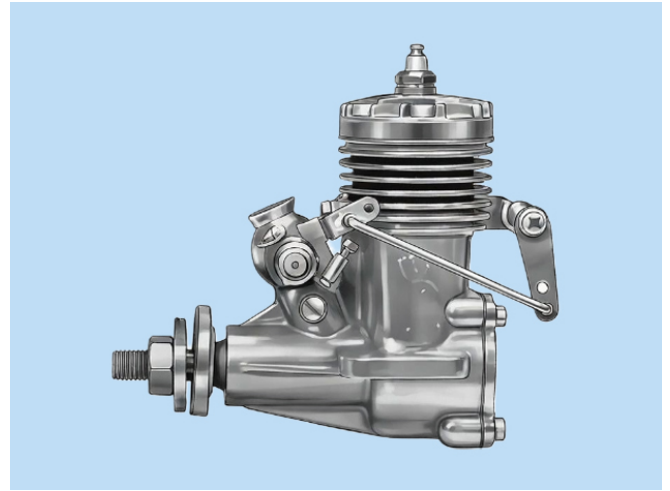


Veco 19 R/C



THE VECO 19 R/C embodies the standard "19" production with the addition of a barrel type throttle linked to an exhaust flap. It is an excellently engineered job throughout with a particularly interesting and robustly practical throttle mechanism. The pivoted exhaust flap is mounted on a casting which fits over the standard stub exhaust and is locked in place with two screws piercing the original stub. The flap itself is controlled by a wire link to the throttle arm in the conventional manner and is tensioned inwards, to press against the exhaust opening, with a light spring. In the fully closed position the flap actually oscillates slightly, although this is not apparent by looking at it, the pressure of the exhaust gases periodically lifting the flap against the spring. Thus although the flap fully closes the exhaust port it does not prevent escape of gas when pressure builds up. Slow running is very smooth and the only way to stop the engine in this condition, other than closing the needle valve, is to press the exhaust cover tightly against the stub exhaust.

Starting and general handling characteristics of the Veco "19" R/C are really excellent first flick starting virtually every time following choking, hot or cold. Running is consistent at all load speeds, without any hesitation or falter and everything about the engine is easy to handle. Compression is excellent without the slightest sign of tightness and the main bearing fit free from slop. Performance, too, is in the "hot" class. The test motor showed a peak of just under .36 B.H.P. at 14.000 r.p.m. and was still extremely happy running at much higher speeds.

Views of each side of the Veco 19 R/C illustrate the wealth of thought applied to the design of what is a most effective control system. Throttle has a screw stop adjuster for slow speed setting.

The only part of the speed range in which it could be regarded as not completely satisfactory was around 10.500 r.p.m. and below when it was definitely beginning to blow back through the intake and not quite as smooth as it was at higher speeds.

The throttle is of the conventional barrel type except that the barrel is rigidly connected in the spray bar so that both rotate together. This means, of course, that the fuel tubing is twisted and displaced with movement of the throttle and so needs some "slack" to accommodate this movement. It appears to be an entirely satisfactory arrangement provided the fuel tubing remains flexible (e.g. using neoprene tubing). With the type of tubing used in this country the stiffening which occurs with age could offer awkward resistance to throttle movement and possibly cause some trouble.

Low speed r.p.m. is approximately 3.000 with the throttle fully closed (i.e. stop screw adjusted to correspond to complete blanking off of the exhaust) with propeller loads corresponding to 11 – 12.000 r.p.m. on full throttle. Running is very strong in the closed throttle position and pick-up positive, if not instantaneous. Opening the throttle produces an immediate increase in r.p.m. but with the engine four-stroking and it takes a second or so to clear to normal two-stroke running.

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We also found it possible to cut the engine by opening the throttle rapidly far more rapidly than it would normally be opened by a servo or actuator. Probably this is because sudden opening results in excessive cooling of the plug. Still lower slow running speeds can be achieved by increasing the spring tension on the exhaust flap and 2.000 r.p.m. can be held from around 11.000 r.p.m. Running however, is not so strong and 3.000 r.p.m. appears a minimum safe idle speed and one which should be entirely satisfactory in service.

Many of the constructional features of the Veco "19" are most interesting. It features the much advertised "Temperature Controlled Clearance" which, in effect, can be taken to mean that the parts that really matter are produced under controlled ambient temperatures so that specified tolerances are absolute. In other words, it obviates the effect of, say, producing one part of one temperature to a specified tolerance and another part at another workshop temperature to its specific tolerance. If the two manufacturing temperatures are different, consequent expansion or contraction of the components at a common temperature (when brought together) can upset the "fit". Commonly it is necessary to work to wider tolerances to take this into account. Produced under proper controlled conditions, closer tolerances and better fits can result. The sceptics can write "T.C.C." off as an advertising gimmick but the principle as applied is sound, modern engineering practice—and the best possible way of producing close matching components. Not only that, we envy Veco the machines they must have to do such a first rate job of production. They are undoubtedly way ahead of those normally employed in this country.

The crankcase unit is a first class pressure die-casting in the usual American style which appears to have been wet tumbled to finish. A certain amount of machining is done on it to finish, the lower cylinder sized on a fine boring machine (or similar) so that the cylinder liner is almost a "piston" fit. A fillet is also machined out on the exhaust side to clear the connection rod and the top of the casting faced.

The soft steel cylinder liner has a substantial wall thickness .75 in. overall diameter for a bore of .634 in., finished by grinding outside. The method of arriving at the bore finish cannot be determined by examination. The surface finish is comparatively rough and carries marked scratching (including a scratch made by the gudgeon pin), but the liner-piston fit is excellent. A peculiarity of the liner is that there are no sharp edges (except on the rectangular exhaust and transfer ports milled directly through the walls) giving the impression that the unit has either been tumbled before finish machining, or possibly it is an investment casting.

The piston is machined from steel, leaving very thin walls below the gudgeon pin seating and incorporates a filleted-in deflector plate. The bottom of the piston is generously relieved. A small hollow gudgeon pin is employed, .156 in. diameter, and fully floating. The piston is hardened and then relieved by heat treatment to give only moderate final hardness. The connecting rod is a pressure die-casting in light alloy with a bronze bushed big end.

The crankshaft is of steel, .4065 in. diameter stepping down via a short taper length to a ¼ in. diameter front length threaded ¼ A.N.F. The large rectangular port opens into a 9/32 in. hole through the centre of the shaft. The shaft is very hard which is rather unusual in American engines, but ground only over the journal length. The web is cut away to form a substantial counterbalance.

The main bearing comprises a phosphor bronze bush which is presumably cast in with the crankcase, reamed or bored to size and honed to finish. Running fit is excellent and at no time was there any sign of the bearing getting hot, even with the engine brand new.

The cylinder head is a die-casting incorporating a contoured combustion chamber top and carrying the glow plug offset to the transfer side. The underside of the head is recessed to sit on top of a flange on top of the liner, sealing on a gasket. Six short Phillips head screws hold the head on to the main casting and at the same time clamp the liner in place, the top of the liner locating on its

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flange. The glow plug is of the later American pattern incorporating a ceramic body, but otherwise has a conventional soil clement.

The crankcase is a die casting, untouched, and attaching with four screws. A gasket is used to provide sealing against the (as cast) crankcase face.

Summarising, a really excellent engine throughout with a most consistent, high performance. It is also a rugged engine without paying for this feature with excess weight and. in our opinion at least, one of the finest examples in the world of modern production design and production engineering in this class. It would be our automatic choice for an engine for radio control.

SPECIFICATION

Displacement: 3.272 c.c. (.1995 cu.in.)

Bore: .634

Stroke: .632

Bore/stroke ratio: 1.0

Bore weight: 6 9/16 ounces

Max. power: .395 B.H.P. at 14.000

Max. torque: 30 ounce-inches at 9-10.000 r.p.m.

Power rating: .11 B.H.P. per c.c.

Power/weight ratio: .055 B.H.P. per ounce

Material Specification:

Crankcase: Light alloy pressure die casting

Cylinder liner: soft steel

Piston: hardened steel

Crankshaft: hardened steel

Connecting rod: light alloy pressure die casting

Main bearing: phosphor bronze bush

Cylinder head: light alloy pressure die casting

Glow plug: ceramic body, 1.5 volt element

Barrel throttle: light alloy and nickel plated brass

Exhaust flap: light alloy die casting, spring loaded

Manufacturers: Veco Products Corp., Burbank, California. U.S.A.

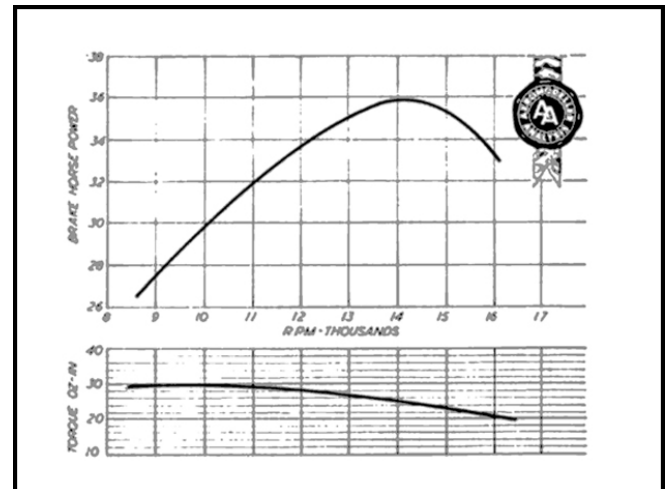
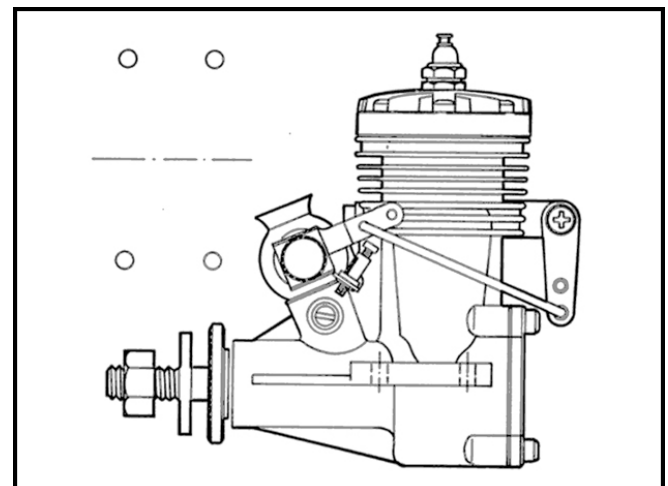
Retail Price in U.S.A. \$15.95.

PROPELLER - R.P.M. FIGURES

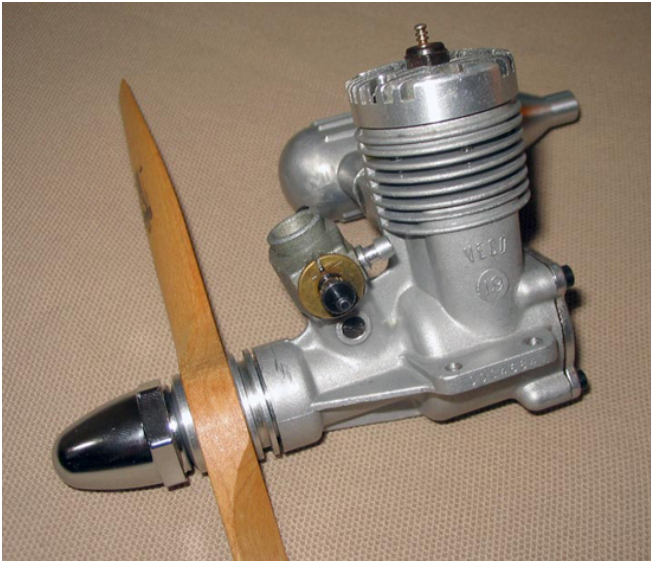
dia. x pitch	r.p.m.
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9 x 6 Frog nylon	11.200
10 x 6 Frog nylon	9.000
10 x 3½ Top Flite nylon	11.000
9 x 4 Top Flite nylon	13.000
9 x 6 Top Flite nylon	10.400
9 x 4 K.K nylon	13.450
9 x 6 K.K nylon	9.600
10 x 6 Trucut	9.000
10 x 4 Trucut	10.000
9 x 4 Trucut	12.800
9 x 4 Semo nylon	11.800
9 x 6 Semo nylon	10.900
8 x 6 Semo nylon	10.900
8 x 4 Semo nylon	13.000

Fuel used: standard glow mixture plus 7 per cent. nitromethane.

Power curve and actual size drawing.



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More: https://flyinghlsat.com/search.php?search_keywords=Veco-Tests