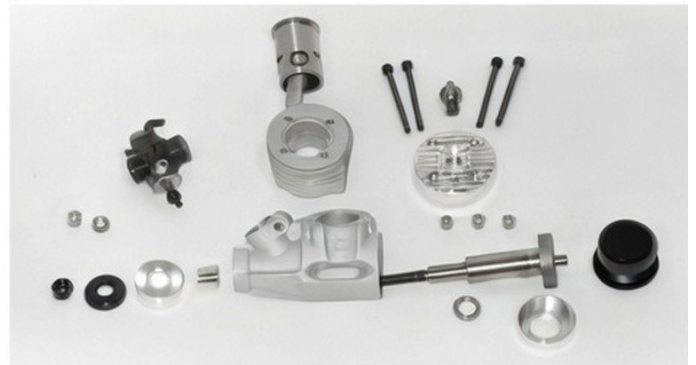


Cox Conquest 15 R/C – STD - CL



The Cox .15 F/F - C/L and R/C versions, shown assembled and disassembled. Both will be seen a lot on the competition trails this summer.

PRODUCTS IN USE

A report on the anxiously awaited COX .15, done in a slightly different way than most engine reviews... by JEAN ANDREWS.

• **(Note:** The following is the translation of a scroll found written on .0015 brass shim stock during an archeological dig near what is now the "Kitty Litter" factory in Taft, Calif. The scroll is believed to be the work of a scribe Thermalia, of the tribe known from other sources as Faiimites. Their king, Dustdevilia, and his queen, Bongfield, led his tribe through this inhospitable area for many summers, for certain mysterious rites of which we still know little. Some followers of this mystic cull survive into modern times, but investigative questioning of these cultists reveals little; the subjects of the questioning seemingly intent on alternatively staring into the blazing summer sky, or hurling small noisy colorful machines into the air and then pursuing them across the desert, exhorting the machine to remain aloft.)

"Hearken ye who venture into areas far from things which comfort man! Hail ye who scorn trees, and grass, and cooling breezes, and procelain toilets! Take heart! Though the Mighty Santaana engine has fallen before the wrath of the Romans, and though thy events be taken over by motori from across the sea, brought to your land of heat and blistered tongues, and though the heads of the faithful bow before this onslaught and suffer abominations of broken

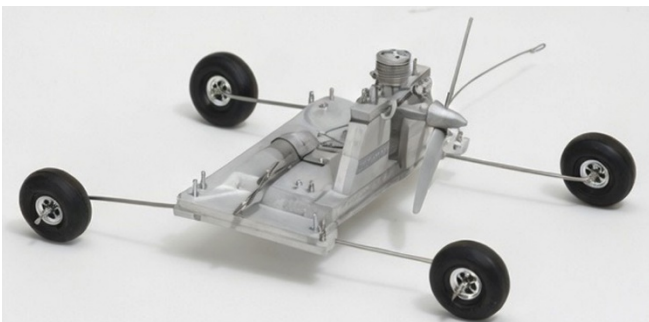
Model Builder Magazine June 1976 by Hlsat

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parts and burst fuel lines; Yet I say unto you, as night follows day, as lift follows downer, as motorcycle follows airplane; There will come out of (he village of Santaana a New Motor, conceived of all things which are new, and made of such a metal that the Mighty tribes of Rossivites and Supertigerians will flee before it as rabbits before the coyote. Hail the New! Hail the Mighty! Smite the false prophets of the imported engine, and let the Coors runneth over: Yea, verily, the artisans of the village of Santaana will be Greatly Honored, and great will be the songs of praise, and many will be the points of the followers of this new Thing which they have wrought."

After a considerable wait, the new Cox Conquest 15 is ready for the market, and should be getting on your dealers' shelves about the time this review sees print. This review is not going to be on a par with those of other writers, who will give many charts, graphs, and metallurgy analyses. Instead, I hope to pass on what I have learned about the motor.

Construction: The Cox Conquest .15 is a complete departure from what we are used to seeing from the Cox factory. The first impression of the engine is that it is a highly-refined piece of racing machinery, and not a toy. Looking down the intake passage and seeing the amount of air the engine can ingest makes you feel sorry for any insect up to the size of a honey bee, for it would be ingested whole! Looking at the crankshaft, the intake port has a slight "Coke-bottle" shape, to allow the large amount of



Jean Andrews' version of a very mobile engine test stand. Not a bad idea for checking various fuel, prop, and plug combinations. Just make sure it is well staked down!

material taken out of the shaft to not weaken it. The crankshaft is supported by two precision ball bearings, and is counterbalanced by three carbide-steel inserts in the counterweight, held in place by an aluminum cap.

The piston is of sintered iron, and runs in a sleeve of hardened steel. Each piston is hand-lapped to its liner, so we will continue to see piston/liner sets on the dealers shelves, rather than individual parts.

The heads on the R/C and the F/F versions are different. In the R/C version, the head is of conventional finned design, with a removable glow plug. Accordingly, it can be fitted with any R/C long plug. The R/C version will also be supplied with a Perry carburetor as standard equipment.

The F/F version has the more familiar Cox glow head, with a trumpet-shaped combustion chamber. The head is held in place by four long Allen screws which hold an aluminum clamp down on the head, and also secure the cylinder to the crankcase.

There are differing thicknesses of paper gaskets which can boused between the cylinder and the crankcase. They are .002 and .005 thick, and can be added as necessary to fine-tune the compression ratio of the engine for differing weather conditions.

The crankcase and cylinder are of high-pressure cast aluminum, and are sand blasted (by hand!) to enhance the appearance of the engine. The back plate is of black-anodized aluminum, and has a nipple which can be drilled out, if desired, for using the engine on crankcase pressure.

Operation: Since this test was based on the premise that the average modeler would buy the Cox 15 as his first high performance motor, all testing was performed in situations simulating the use of the engine in actual field conditions.

We hand started the engine for all tests. Fuels used were Cox Glow power, Cox Racing, and Fox 40-40. We used a small Tatone bladder tank to provide fuel pressure, rather than a pacifier,

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(pacifier tanks are not recommended by Cox) or utilizing crankcase pressure.

To arrive at a useful approximation of the engine under flight conditions, we borrowed a trick from our old mentor, Bob Holland, and mounted the engine on an air car. This was made up of a large Easy just stand bolted to a sheet of plywood, with four large, soft Du Bro wheels, running on a steel cable securely imbedded in asphalt. Speeds on the car averaged forty MPH, and we timed the car for acceleration and top speed for each fuel and prop combination.

Following the instructions provided with the engine, we put a few drops of fuel on the top of the piston, and a few more in the intake port. We then had a very flooded engine, which took about ten minutes of hand propping to clear. One or two drops on the piston, and no crankcase prime, gave us the most consistent starts. The feed line from the bladder is pinched off with the fingers, and once the engine has started on the prime, we let it almost completely starve out before releasing the feed line. In this way, we were able to get consistent starts by hand propping.

A series of runs was made on the test car after the engine was broken in. We used a series of readily available props, such as the Cox gray plastic 8x4, Rev-Up 7x4, 7x4 ½ and 7x5 normal and wide bladed props. The Cox gray plastic 7x3 is specifically NOT RECOMMENDED for the Cox .15, as too many of them came apart under testing at the Cox factory.

Fuels used were: Cox Glow Power, Cox Racing, and Fox 40-40. With fuels any higher in nitro content than the Cox Glow Power (15%), it is mandatory that two head gaskets be used. Otherwise the glow plugs will burn out after about thirty seconds of running. With the Fox 40-40, which is 40% nitro, two .005 cylinder gaskets, AND two head gaskets were necessary to keep the plug from going away!

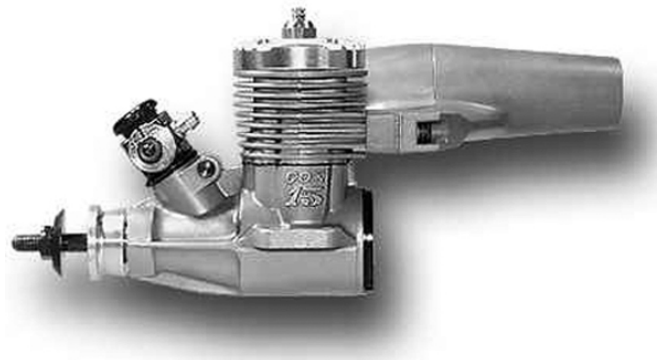
We got the best results by running a Cox gray plastic 8x4, cut down to 7-1/2x4, and Cox racing fuel. The other props gave a lot more RPM, but

didn't haul the car nearly so fast, or accelerate nearly as well. This bears out what has been said before, that the Cox 15 seems to be a higher torque engine than the imports, and will not need the high RPM and resulting wear and tear, in order to be competitive.

In Summary: This is NOT the engine for the "Average" modeller. It is a highly tuned piece of performance equipment, and if operated within the parameters for which it was designed, will give outstanding service. For the high nitro fans, put them there head gaskets under the head, or the plug won't last for one run! The biggest market for this motor will probably be in the R/C Quarter Midget circles, where the high torque output and power curves will match the props these fliers are accustomed to using.

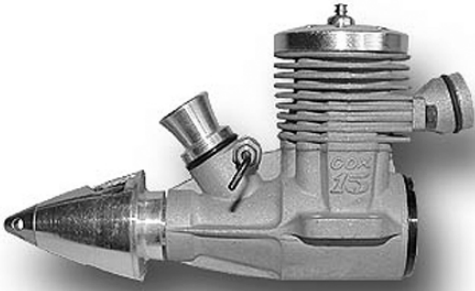
In free flight, although the engine will happily crank a 7x3 ½ prop at 26,000 RPM, this is not the regime at which it is happiest. Its higher power output at lower RPM's mean a larger disk area and more efficiency.

Scale racers in control line will also be able to use the greater economy of the lower RPM's. For the control-liners, who have doggedly struggled through all this prose, there will be an exhaust extension pipe, about four inches long, available soon. However, there are no plans at the present time for Cox to produce a "Tuned Pipe" exhaust. Get out the lathe and start whittling. •



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