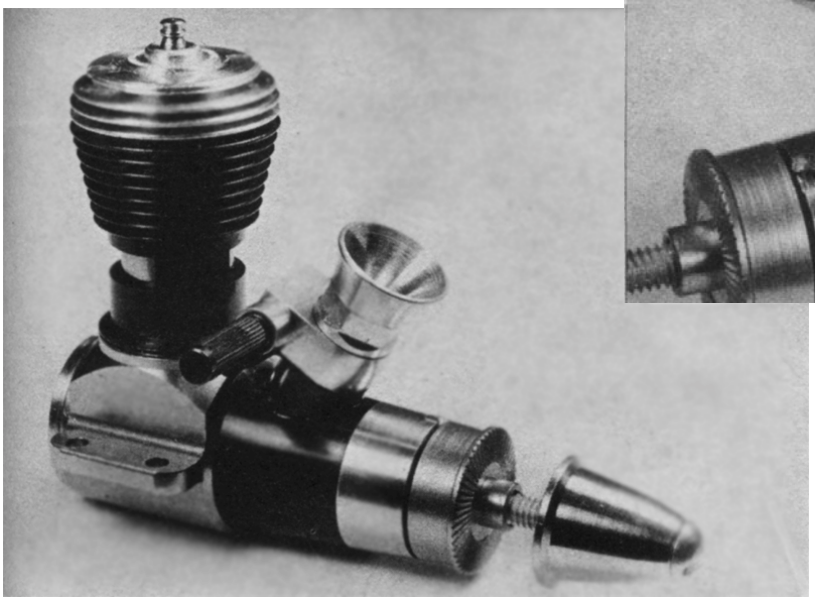
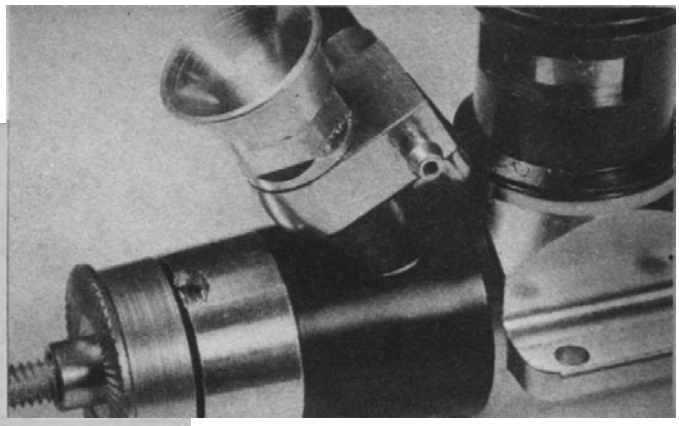
ENGINE REVIEW

by P. G. F. Chinn



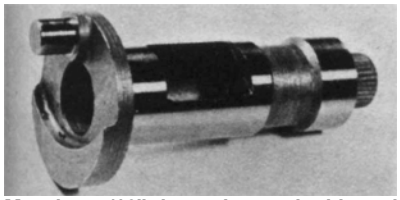


Front rotary induction with a difference is the key to the new high performance in .15 engines.

COX TEE DEE .15

Second of the '61 engines in our review, the Tee Dee .15 is the first to reach a power performance of .400 bhp.

Compared with reed valve Olympic model, the Tee Dee same weight yet with 25% more power.



Massive 7/16" journal, equals big valve port, better volumetric efficiency, power.

Tee Dee features new cylinder head with revised contour, compare with Olympic on left.

For a good many years, diesel motors have greatly outnumbered glow motors in international and world championship FAI class (.15 cu. in.) free-flight contests. During this period, glow motors first lagged a little behind top diesels in performance and later equalled them. In the last few months, however, glow *.15's* have appeared that are clearly superior in output to the best and latest diesels of similar displacement. Until recently, .15 engines that could better 0.30 brake horsepower were rare. Over the past year, three stock production diesels have been introduced (one British, one Italian and one Japanese) that are capable of outputs approaching .35 bhp, but the latest high performance glows are now pushing ahead with outputs substantially exceeding this and one of the most impressive to date is Cox's new Tee-Dee *.15.*

The Tee-Dee 15 is aimed squarely at the contest field and supersedes the reed-valve Cox Olympic .15 introduced two years ago. At the time of its introduction, the Olympic was clearly one of the most powerful FAT class motors available, but it was subsequently found to be somewhat critical to fuel delivery, under flight conditions, and thereby failed to achieve the popularity, with contest flyers, that it would otherwise have deserved.

The new front rotary-valve Tee-Dee, .15 has been developed from the Olympic, via experiments with rear rotary-valve conversions, a number of. which latter experimental modeler were given contest workouts last year by leading

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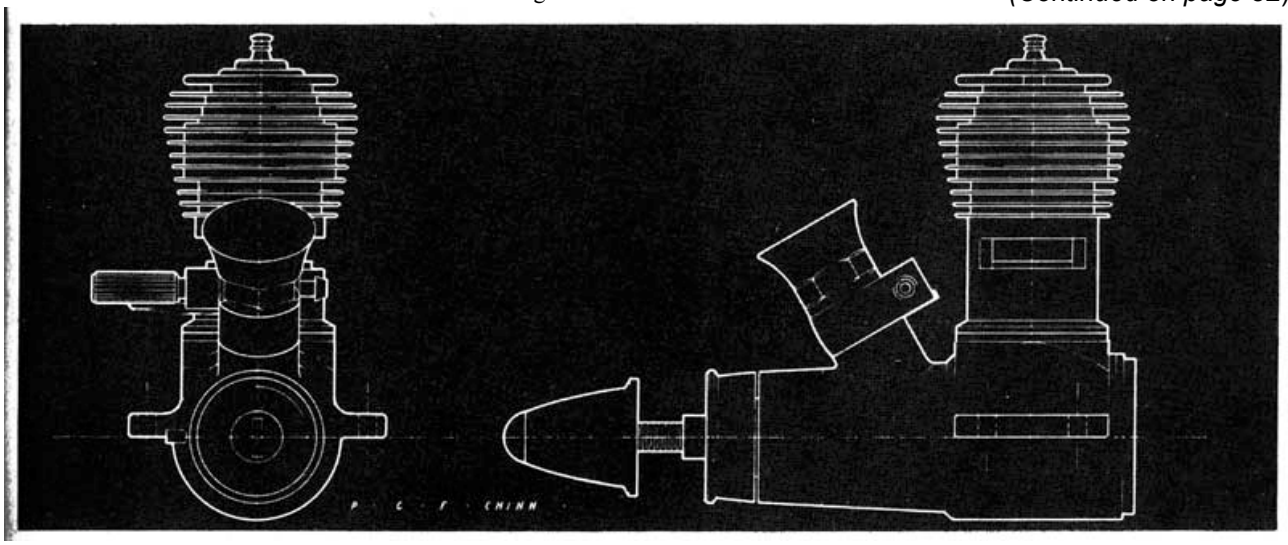

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ing carries a molded-in pressure nipple. To convert to pressure, one simply removes the crankshaft and extends the bleed hole through the bearing by carefully drilling out. The carburetor venturi may, at the same time, be reamed out to 3/16 in. and some increase in top-end power can be expected from this.

The rest of the design is typical of Cox practice, except for a new cylinder head' which, distinct from the earlier domed internal contours giving a hemispherical combustion chamber, as a reverse,, curvature giving coned pagoda roof shape. Refinements, such as the triple peripheral jet carburetor, are continued. The adjustable and reversible needle-block adapts well to the front carburetor position. eight is roughly the same as for the Olympic and the engine fits the same bearer spacing.

Two Tee-Dee 15's were used to collect performance 'data. Both were given a one our reek-in before any tests were undertaken. Starting qualities were found to be good, although, unlike the Olympic, the Tee-Dee seems to prefer to be port-primed for warm restarts as well as for cold starting.

Immediately apparent, on test, was the high torque developed by the Tee-Dee in comparison with any other production .15's tested to date. Both engines topped .14 lb. ft. at around 12,000 rpm. on 30 percent nitromethane and this, which means a brake mean effective pressure exceeding 70 lb/sq. in., is very good indeed for any model engine irrespective of size and type.

From the power curves subsequently plotted, the following output figures were obtained:

At	10,000	rpm — .257	bhp
	11,000	" — .292	"
	12,000	" — .322	"
	13,000	" — .340	"
	14,000	" — .366	"
	15,000	" — .381	"
	16,000	" — .391	"
	17,000	" — .395	"
	18,000	" — .396	"
	19,000	" — .388	"
	20,000	" — .368	"

Needless to say, approximately .4 horsepower from a .15 Is an outstanding performance. Even so, with pressure feed, opened up intake and, perhaps, hotter fuel, still higher power may well be liberated. Spot checks were also made on various props arid yielded 10,600 on a Top-Flite 10x3½, 13,200 on a Tornado 9x4, 15,500 on a Tornado 8 x 4, 17,100 on a Top-Flite 8 x 3½ and 18700 on a 7 x 4 Power Prop. We had one glow filament burn-out during tests. This was during an 18,000 rpm run and after the engine had logged about *2* hours.

Summary of Data:

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Type: Reverse-flow scavenged two-cycle with shaft type rotary valve induction.

Weight: 4.1 oz.

Displacement .1495 cu. in. or 2.45 c.c.

Bore: .585 in. Stroke: .586 in.

Stroke/Bore Ratio: 0.95:1

Specific Output (as tested): 2.65 bhp/cu. in.

Power/Weight Ratio (as tested): 1.51 bhp/lb.

Price: $12.98

Manufacturer: L. M. Cox Manufacturing Co. Inc., 730, Poinsettia Street, Santa Ana, California.