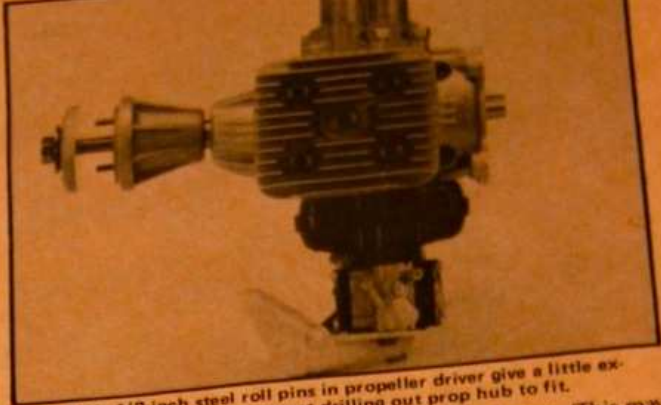


Considerable increase to head fin area is clearly evident in this end-wise photo.



Two short 1/8-inch steel roll pins in propeller driver give a little extra security. Earlier design meant drilling out prop hub to fit.

the dyno for ease of installation. (This may seem contrary to points made above, but this was dictated by practical considerations.)

Continued on page 92



Holes in piston are the new boost port throughways. Twin compression rings are pegged to prevent rotation into unbridged large port openings in the cylinder liner.

gives simultaneous firing and is sensibly supported by two large main ball bearings which, in common with the front and rear oil seals, are very accurately clamped between the crankcase halves.

Also unchanged are the needle roller bearings running on selectively hardened and finely honed tracks machined in both little and big ends of the steel connecting rods.

Although the parts sheet for this Super Tartan still shows the earlier style 6-bolt large-diameter propeller hub, the test engine itself was fitted with a much more practical and safer single central bolt fixing of quite normal model engine practice. The hub driver now has very deep secure knurling to restrain the propeller. Previously the propellers required drilling out with a large diameter central hole (.86 in.) together with the six fixing screw holes all of which led to some problems during earlier Tartan test because of this considerable removal of hub material—which has just got to be the last place to do so! The superior fixing now offered needs just the one small 8mm diameter

central hole in the propeller, and at no time during this test did this seem remotely likely to cause any loosening or safety problems...all of which might serve to prove there are scale-effect problems which inhibit too close a copy of full-size practice, and, that 40 years of model engine manufacturers' experience seems to count for something—even when applied to this quite large capacity engine.

The engine can be rebuilt to place the carb on the same side as the exhaust outlets, but this requires that pistons be repositioned on the connecting rod to maintain alignment of boost port in cylinder liner and the matching holes in piston. Carb can be mounted either underneath or on top of engine, though manufacturer advises improved slow-running performance when it is on top.

PERFORMANCE

The test engine was a glow plug/methanol unit mounted directly against dynamometer front metal facing (without intermediary rubber mounts). The carb was positioned underneath so that exhausts and tuned pipes could run along top of

SUPER TARTAN TWIN (ST77G)

- Dimensions & Weights:**
 Capacity—2,665 cu. in. (43.67 cc.)
 Bore—1.2604 in. (32 mm. nominal)
 Stroke—1.068 in. (27.13 mm.)
 Stroke/Bore ratio—.847/1
 Timing Periods—Exhaust—152°
 —Transfer—122°
 —Boost—112°
 Exhaust port height—330 in.
 Combustion volume—1.6cc. (per cylinder)
 Compression ratios—Geometric—14.6/1
 —Effective—10.4/1
 Carb. bore—46 in. (12 mm.)
 Throttle arm travel—70 in. (178 mm.)
 Crankshaft dia.—5905 in. (15 mm.)
 Crankpin dia.—472 in. (12 mm.)
 Gudgeon pin dia.—354 in. (9 mm.)
 Connecting rod centers—40 mm.
 Length—5.6 in. (mounting flange to prop driver)
 Height—6.2 in. (bottom of flange to top of prop)
 Width—9.0 in. (across cylinder heads)
 Mounting holes—70 mm. x 50 mm. x 6 mm. holes
 Weights—64 ozs. (Bare)
 —3-1/2 ozs. (Silencing cans)
 —16 ozs. (Tuned pipes)
 —17-1/4 ozs. (Crankshaft/Rods/Piston assy.)
 —1-1/4 ozs. (Piston)
 Propeller bolt size—8mm. x 1.25 mm.
Performance:
 Max. BHP—4.45 at 10,450 rpm (Open ex./Methanol)
 —3.65 at 7,300 rpm (Tuned pipes/
 Methanol)
 Max. Torque—500 oz. inx at 6,400 rpm (Open Ex./
 Methanol)
 —515 oz. ins at 5,750 rpm (Tuned
 pipes/Methanol)
RPM on Standard propellers:
- | | Open ex. | Tuned Pipes |
|---------------|----------|-------------|
| 24 x 8 Zinger | 6,408 | 6,652 |
| 22 x 8 Mastro | 6,600 | 6,683 |
| 20 x 6 Zinger | 8,746 | 8,256 |
- Performance Equivalents:**
 BHP/cu. in.—1.669
 BHP/cc.—102
 Oz. in./cu. in.—193.25
 Oz. in./cc.—11.8
 Gm. me tre/cc.—8.5
 BHP/lb.—1.11
 BHP/Kilo.—2.45
Manufacturer:
 Tartan Engines,
 Poviglio, Italy
U.S.A. Distributor:
 Tower Hobbies

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