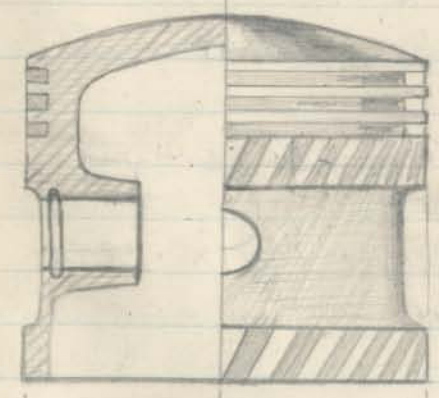
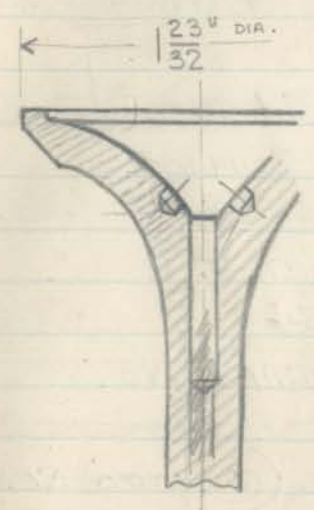


| Engine Speed | 5 | 7.15 | 11 | 16.3 |
|--------------|------|------|------|-------|
| 1000 | 15.5 | 10.8 | 7 | 4.75 |
| 1500 | 23.2 | 16.2 | 10.5 | |
| 2000 | 31.0 | 21.6 | 14 | 9.5 |
| 2500 | 38.7 | 27.0 | 17.5 | |
| 3000 | 46.5 | 32.4 | 21 | 14.25 |
| 3500 | 54.2 | 37.8 | 24.5 | |
| 4000 | 62.0 | 43.2 | 28 | 19.0 |

| | 4 | 5.7 | 8.8 | 13.0 |
|------|------|------|------|-------|
| 1000 | 19.3 | 13.5 | 8.8 | 5.95 |
| 1500 | 29.0 | 20.3 | 13.2 | |
| 2000 | 38.6 | 27.0 | 17.6 | 11.9 |
| 2500 | 48.3 | 33.8 | 22.0 | |
| 3000 | 57.9 | 40.5 | 26.4 | 17.85 |
| 3500 | 67.6 | 47.3 | 30.8 | |
| 4000 | 77.2 | 54.0 | 35.2 | 23.8 |

Weight of machine as supplied - 277 LBS
 plus lamps, speedometer, full kit of tools
 dry battery tail lamp, & handle do/

Weight of piston $13\frac{3}{4}$ ozs.
 Weight of complete machine 290 lbs approx



85 mm

a) PISTON SPEED @ 1000 RPM.

$$= \frac{3.45 \times 2 \times 1000}{12 \times 60} = \text{ft. per sec.}$$

$$= 9.6 = \underline{576 \text{ ft per min}}$$

b) AREA OF PISTON.

$$= (3.22)^2 \times .7854$$

$$= 8.3 \text{ SQUARE INS.}$$

c) EXHAUST VALVE PORT AREA.

$$= (1\frac{1}{2})^2 \times .7854$$

$$= 1.77 \text{ SQUARE INS.}$$

d) EXHAUST GAS SPEED. (@ 1000 RPM.)
 (a x b = c x d)

$$\frac{9.6 \times 8.3}{1.77} = 45 \text{ feet per sec.}$$

thro' port. (2700 feet per min)

e) EXHAUST PIPE AREA = $(1\frac{3}{4})^2 \times .7854$
 $= 2.4 \text{ Square ins}$

f) EXHAUST GAS SPEED THRO' PIPE.

$$\frac{9.6 \times 8.3}{2.4} = 32.2 \text{ feet per sec.}$$

2.4

(1930 feet per min)

To FIND. 83

g) DIA OF INLET PIPE REQUIRED.

To GIVE INLET GAS SPEED
 OF 9000 feet per min.
 @ 4000 RPM.

$$\frac{38.4 \times 8.3}{150} = 2.12 \text{ "}$$

say $1\frac{5}{8}$ " dia.
 $1\frac{3}{8}$ " is all that
 is possible

Increase in compression ratio due
 to various modifications

Assume $4\frac{1}{2}$ to 1 standard = Compression ratio

$$\frac{500 + x}{x} = 4\frac{1}{2} \quad x = 142.5 \text{ cc.}$$

$$\frac{1}{6} \text{ of base} = 8.9 \text{ cc. } \underline{\text{leaves } 133.6 \text{ cc}}$$

Dia of compression plug = $1\frac{1}{2}$ " = 1.5"
 Dia of valve dome = 2"

2 litre Racer Valve springs

Engine speed = 4000 R.P.M.

Uniformly accelerated valve lifts
 $\frac{7}{16}$ in a 100° of crank movement
 = $\frac{1}{240}$ sec.

$$h = \frac{1}{2} \cdot a \cdot t^2$$

{ h = lift in feet. t = time in secs.
 { a = acceleration in feet per sec per sec

$$a = \frac{2 \cdot h}{t^2} = \frac{(240)^2 \times 2 \times .437}{12}$$

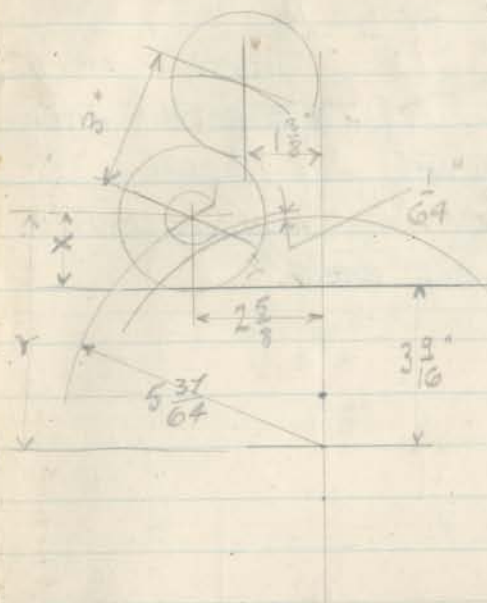
$$= 4190 \text{ feet. per sec. per sec.}$$

Weight of moving parts .5 LBS.

$$\frac{.5 \times 4190}{32.2} = 65 \text{ LBS.}$$

(above 'a la Pomeroy')

1 HP. Electric starter
 gears etc.

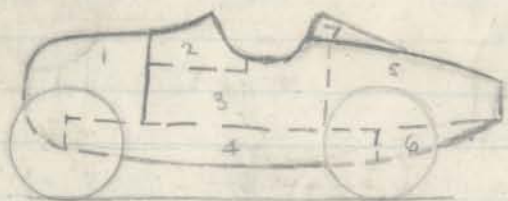


$$x = y - 3 \frac{9}{16}$$

$$\sqrt{5.578^2 - 2.625^2} = y$$

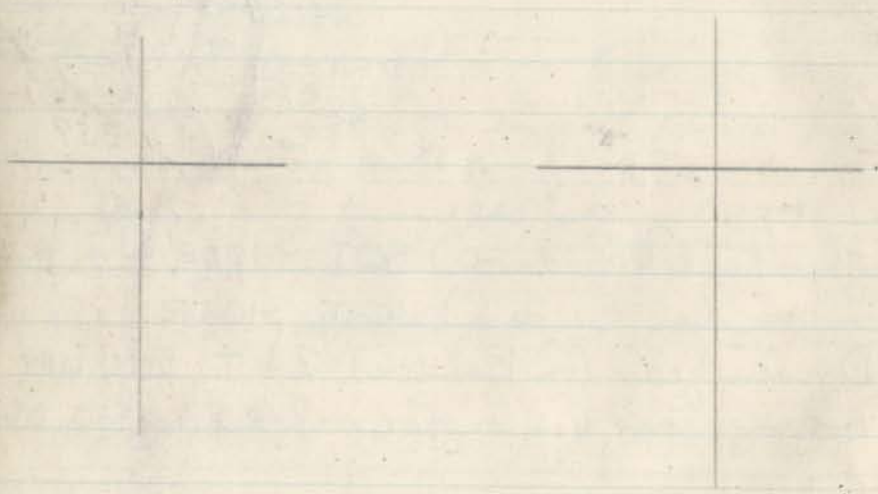
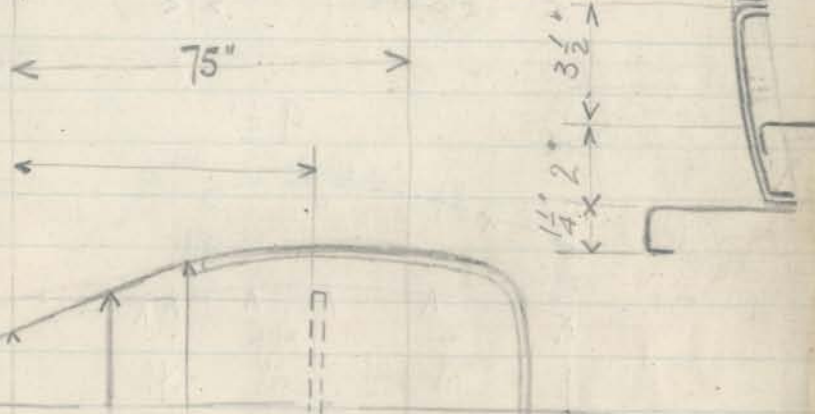
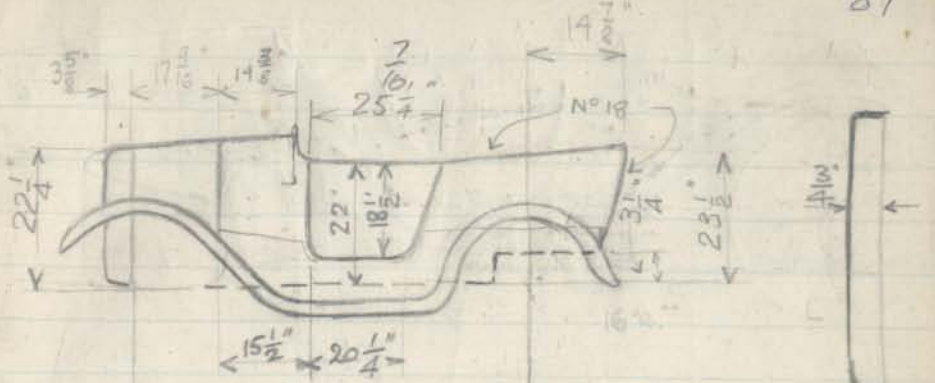
| | |
|-----------|--------|
| .7465 | -.4191 |
| .2 | .2 |
| 1.4930 | .8382 |
| 31.120 | |
| .6890 | |
| 24.230 | |
| 5) 1.3843 | 4921 |
| .69215 | 3.562 |
| x = | 1.359 |

- Flywheel (Standard) 80T. 8-10DP { ON-79 T. }
 { P.C.D. }
- Pinion (on Bendix) 10T. 8-10DP.
- Driven gear (on Bendix) 24 T. 8-10 DP.
- Driving gear (on motor) 24 T. 8-10 DP.

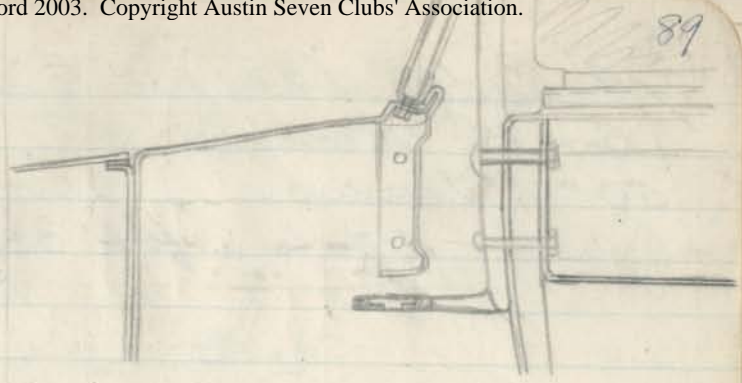
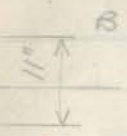
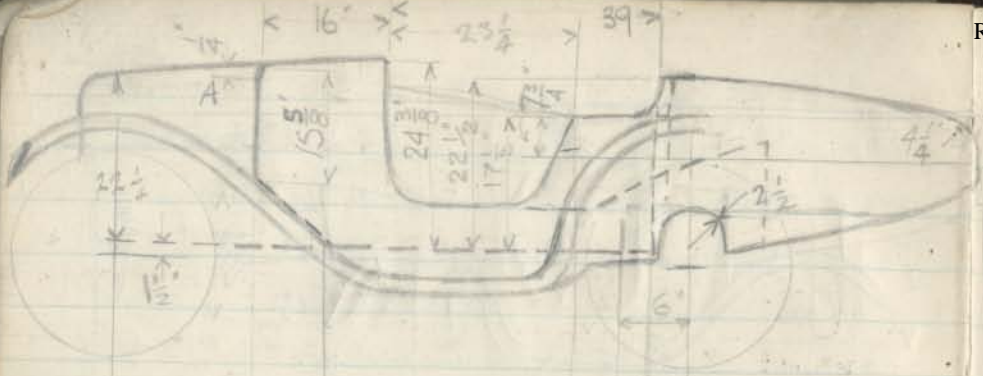


SKETCH OF
7HP SINGLE SEATER
RACER.

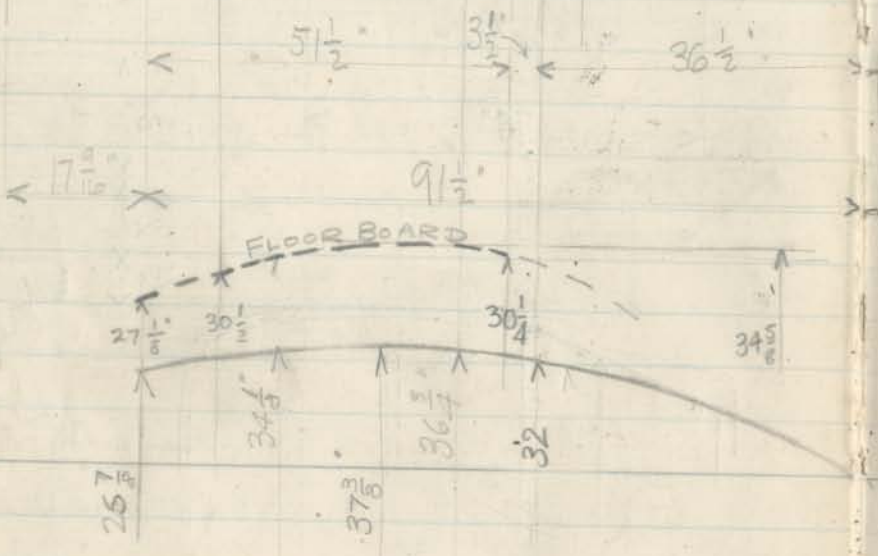
SHOWING METHOD
OF BUILDING UP SHELL ETC.



7HP BODY (STANDARD) DEC. 1923



SCUTTLE ETC.



SECT. AB.

(= commences at of radius X)



7HP SPORTS 2 SEATER.

