1

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

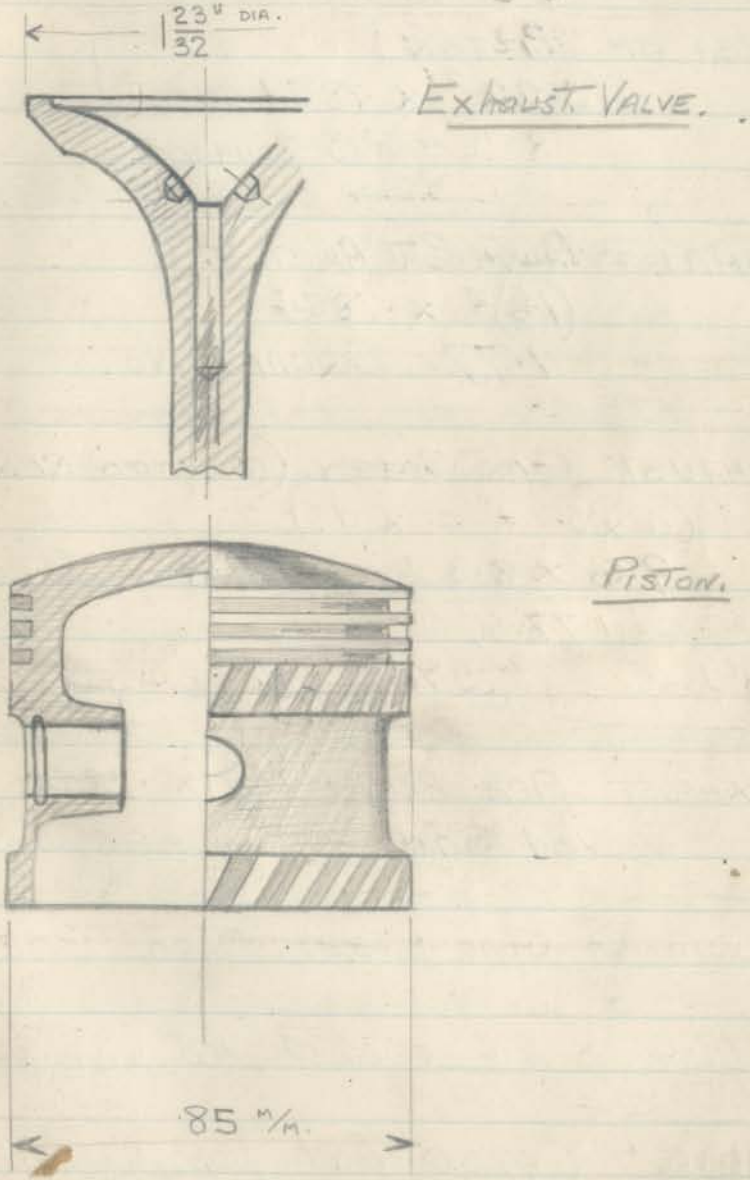
2

	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 - 247 LBS
plus lamps, speedometer, full kit of tools ?
dyn battery tail lamp, ? handle do/

Weight of piston 13 3/4 ozs.

Weight of complete machine 290 lbs approx



a) PISTON SPEED @ 1000 RPM.

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

$= \frac{9.6}{}$ = (576 ft per min)

b) AREA OF PISTON.

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

$= 8.3$ SQUARE INS.

c) EXHAUST VALVE PORT AREA.

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

$= 1.77$ SQUARE INS.

d) EXHAUST GAS SPEED. (@ 1000 RPM.)

$(a \times b = c \times d)$

$\frac{9.6 \times 8.3}{1.77} = 45$ feet per sec. thro' port. (2700 feet per min)

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

$= 2.4$ Square ins

f) EXHAUST GAS SPEED THRO' PIPE.

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

(1930 feet per min)

TO FIND.

g) DIA OF INLET PIPE REQUIRED TO GIVE INLET GAS SPEED OF 9000 feet per min. @ 4000 RPM.

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

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 x = Combustion space

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

1/16 of base = 8.9 cc. leaves 133.6 cc

Dia of compression plug = $1\frac{1}{2}$ x .71

Dia of valve dome = 2"

2 litre Lacer Valve springs

Engine speed = 4000 R.P.M.

Uniformly accelerated valve lifts 7/16" in a 100° of crank movement

$= \frac{1}{240}$ sec.

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

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

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

= 4190 feet per sec. per sec.

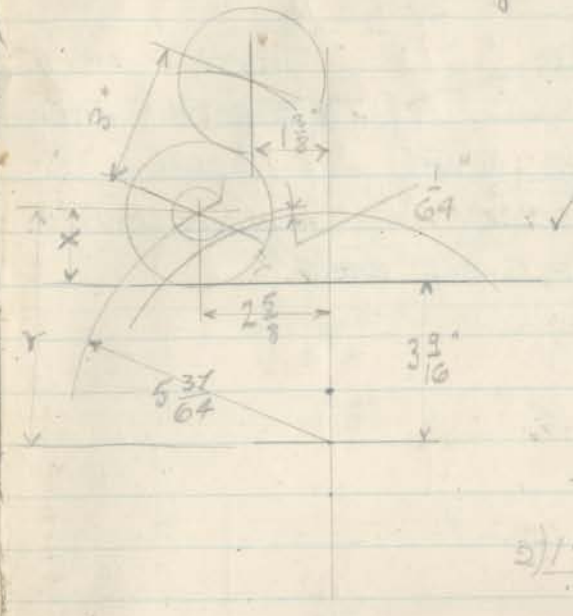
Weight of moving parts .5 LBS.

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

(above 'a la Pomeroy')

T+P. Electric Starter.

Gears etc.



$X = Y - 3\frac{9}{16}"$

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

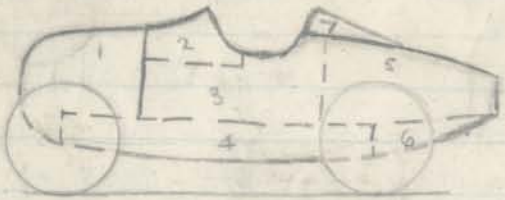
.7465 − .4191

1.4930 (2) .8382 (2)

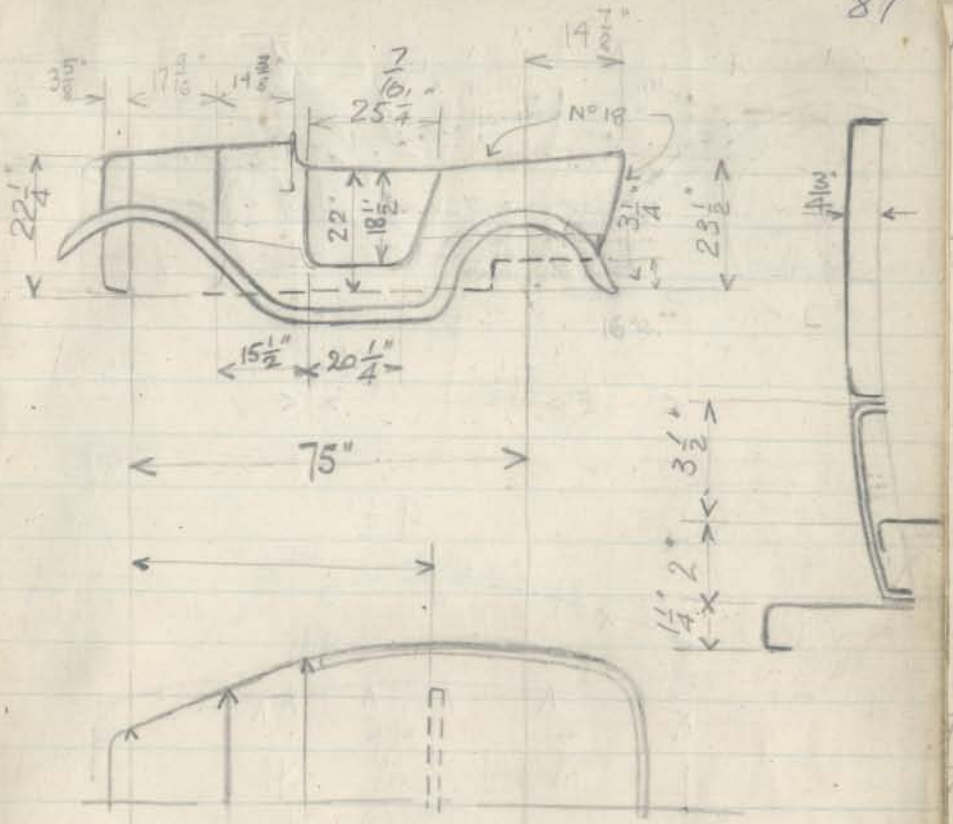
31.120
6.890
24.230

2) 1.3843 4921
.69215 3.562
X = 1.359

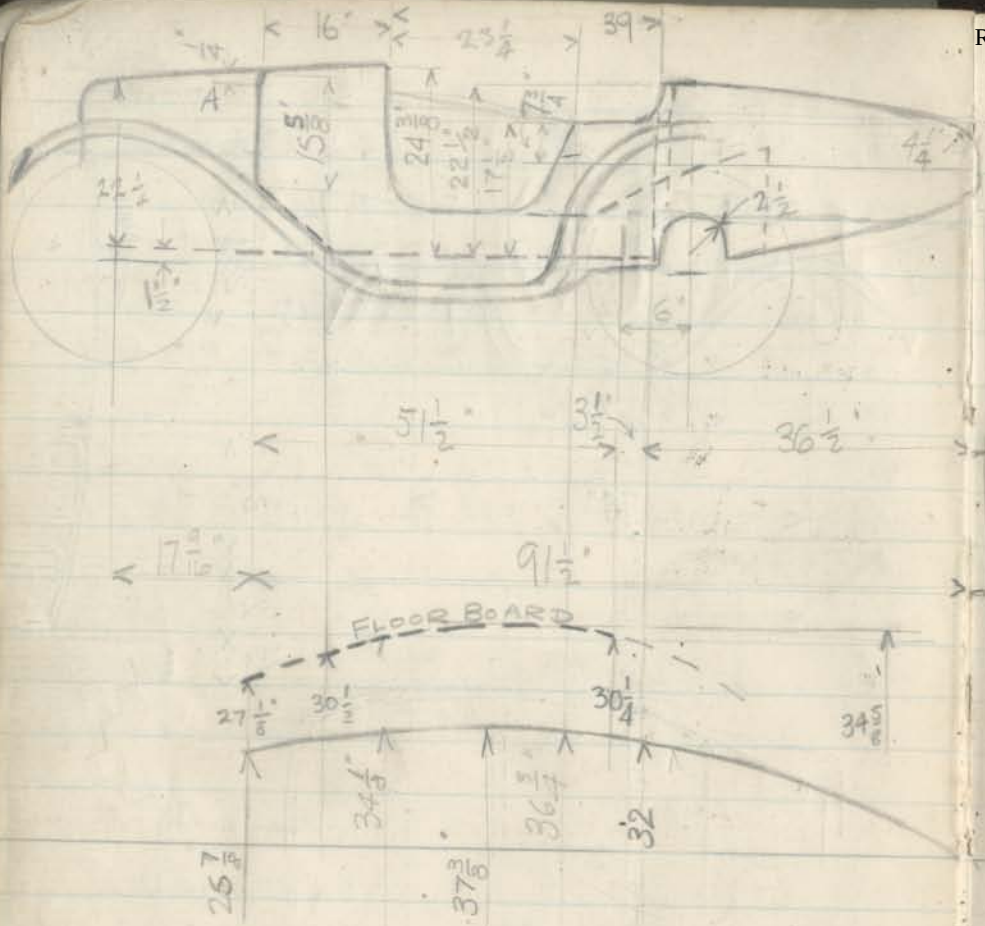
- Flywheel (Standard) 80 T. 8-10 DP { ON P.C.D 79 T. }
- Pinion (on Bendix) 10 T. 8-10 DP.
- Driven gear (on Bendix) 24 T. 8-10 DP.
- Driving gear (on motor) 24 T. 8-10 DP.



SKETCH OF 7HP SINGLE SEATER RACER. SHOWING METHOD OF BUILDING UP SHELL ETC.



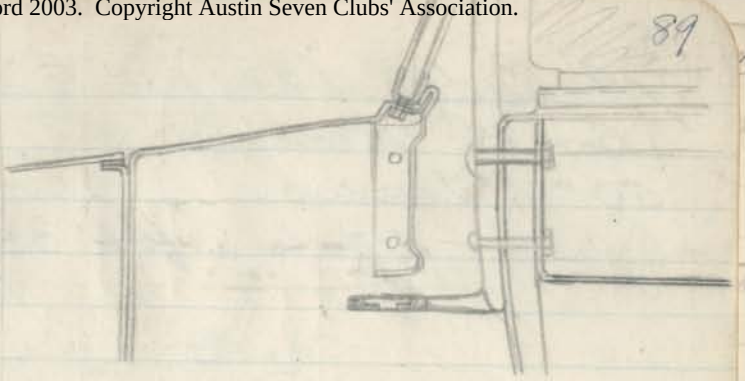
7HP. BODY (STANDARD) DEC. 1923



SECT. AB

(= commencement of radius X)

7 HP SPORTS 2 SEATER.



SCUTTLE ETC.