FUEL CONSUMPTION DURING CLIMB—DH-4B WITH LIBERTY 12-A ENGINE AND FORM "D" SUPERCHARGER

(Power Plant Section Report)

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FUEL CONSUMPTION DURING CLIMB—DH-4B WITH LIBERTY 12-A ENGINE AND FORM "D" SUPERCHARGER.

OBJECT OF TEST.
To obtain the actual fuel consumption of a supercharged Liberty engine during flight.

RESULTS.
The fuel consumption varied roughly from 36 gallons per hour at 2,000 feet to 43 gallons per hour at 20,000 feet.

METHOD OF TEST.
An auxiliary tank was constructed, holding 4.13 pounds of fuel, and was connected into the fuel system as shown in Figure 3. Six flights were made to 20,000 feet, and the fuel consumption was measured at approximately every 2,000 feet. The engine was run wide open and supercharged to sea level. A curve of the average revolutions per minute during these flights is also shown. (See Figure 1).

REMARKS.
The Stromberg inverted carburetor uses more fuel than the regular Liberty Zenith, hence the high rate of fuel consumption shown by curves (see Figure 2) is not due entirely to the use of the supercharger.
FIG. 1.

AVERAGE PROPELLER R.P.M.
DURING CLIMB
DEH 4-B WITH LIBERTY-12 "A"
ENGINE AND FORD "Q"
SUPERCHARGER.
FIG. 2.

20,000 ALTITUDE IN FEET.

18,000
DE H #3
FUEL CONSUMPTION DURING CLimb.
LIBERTY 12 A ENGINE WITH FORM "D" SUPERCHARGER.

16,000
STROMBERG INVERTED CABURETORS
WITH
MECHANICAL ALTITUDE CONTROL.

14,000

12,000

10,000

8,000

6,000

4,000

2,000

FUEL CONSUMPTION IN GALLONS PER HOUR.

32 34 36 38 40 42 44

SOLID LINES - #3 SETTING
DOTTED - #2 SETTING

3 4 5 6 7 8 9 10
FIG. 3.

TANK FOR MEASURING FUEL CONSUMPTION OF DE H 4-B WITH FORM "D" G.S. SUPERCHARGER.

1. TURN THREE WAY VALVE TO "RUN", ENGINE IS THEN FED BY MAIN TANK.
2. OPEN COCK C AND FILL SMALL TANK BY CENTRIFUGAL HAND PUMP.
3. CLOSE COCK C, AND TURN THREE WAY VALVE TO "GRAVITY".
4. TAKE TIME FOR FUEL TO PASS FROM LEVEL A TO LEVEL B.
5. TURN THREE WAY VALVE TO "RUN", AND REPEAT.