.084 LBS of OXY PER CUBIC FOOT

SECTION VI
OXYGEN DURATION

6-1. DURATION DATA IN GENERAL.

6-2. This section will help you to estimate how long the oxygen supply will last in a given aircraft at various altitudes. The actual duration depends upon several factors:

a. The type of oxygen equipment and how it is used.

b. The number and size of the gaseous oxygen cylinders or liquid oxygen converters. (For available oxygen in cylinders and converters refer to Section II, Tables I, II and III.)

c. The initial pressure in the cylinders.

d. The altitude.

e. The amount of loss or leakage due to battle damage.

f. The rate and depth of breathing (both of which vary greatly in activity or excitement).

g. Emergencies which may require the use of an exceptionally large amount of oxygen.

h. The temperature at the time when the use of oxygen is discontinued.

The first four of these factors are constant or relatively predictable for any particular aircraft and mission. The last four, although equally important, cannot be predicted precisely enough for accurate calculations.

Note

The consumption values given are conservative estimates for determining oxygen duration, based upon the first four factors listed preceding, and upon anticipated rates and depths of breathing consistent with moderate activity. In using them, it was assumed that no serious leakage or emergency would occur, and that there would be no great change of ground level temperature.

6-3. Duration charts are provided in the Flight Handbook for each aircraft having an oxygen system. The duration values given in these charts are based on consumption values and storage container available oxygen capacities as given in this Technical Order. In these charts there are two values given in each block when using demand or pressure demand regulators. The upper figures in each block give the duration when using "100% OXYGEN" and the lower figure gives the duration when using "NORMAL OXYGEN".

6-4. DURATION OF OXYGEN SYSTEMS USING TYPES A-12, A-12A, AN6004-1 AND A-14A REGULATORS.

6-5. CONSUMPTION VALUES. The consumption values for each crew member are given in Table IV below.

TABLE IV—Oxygen Consumption rate for Types A-12, A-12A, AN6004-1 and A-14A Regulators (Cubic feet per hour — corrected to sea level

ALTITUDE (FEET)	DILUTER SETTING: NORMAL OXYGEN	DILUTER SETTING: 100% OXYGEN
SEA LEVEL	4.87	27.82
5,000	5.07	22.55
10,000	3.82	17.85
15,000	5.07	14.35
20,000	6.15	11.50
25,000	6.95	8.75
30,000	6.57	6.75
35,000	4.87	4.87
40,000	4.87	4.87

6-6. EXAMPLE. Assume that the aircraft carries nine Type G-1 oxygen cylinders, that it is going to fly at 20,000 feet and that there will be 5 crew members aboard the aircraft.

a. Select the available oxygen for a Type G-1 cylinder from Table I. The available oxygen from a Type G-1 cylinder is 29 cubic feet. Multiply 29 by the number of Type G-1 cylinders (9) and you will obtain a total available supply of oxygen of 261 cubic feet.

b. From Table IV, at 20,000 feet using "NORMAL OXYGEN", a crew member has a consumption rate of 6.15 cubic feet of oxygen per hour. Multiply the consumption rate by total number of crew members (6.15 × 5) and you will obtain a total consumption rate of 30.75 cubic feet per hour.

c. Now divide the total aircraft oxygen supply by the total consumption rate (261 ÷ 30.75) and you will arrive at an aircraft oxygen system duration value of 8.5 hours.