

MOONEY AIRCRAFT CORPORATION

**LOUIS SCHREINER FIELD
KERRVILLE, TEXAS 78028**

FAA APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT

FOR

MOONEY MODELS

**M20J S/N 24-0001 THRU 24-TBA
M20K S/N 25-0001 THRU 25-TBA
M20L S/N 26-0001 THRU 26-TBA
M20S S/N 30-0001 THRU 30-TBA**

WITH

OXYGEN SYSTEM

(77.1 or 115.7 cu.ft. Systems)

Model No. _____

Reg. No. _____

Ser. No. _____

This supplement must be attached to the applicable Airplane Flight Manual when the Oxygen System has been installed by Mooney Aircraft Corporation per Drawing 870007 or 870029. The information contained herein supplements or supersedes the basic manual only in those areas listed herein. For limitations, procedures and performance information not contained in the supplement, consult the basic Airplane Flight Manual.

FAA APPROVED: *Don P. Watson*

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DATE: 12-16-85

REV. A 5-9-86
REV. B 12-4-86
REV. C 9-29-87
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LOG OF REVISIONS

Revision Number	Revision Pages	Description of Revisions	FAA Approved	Date
E	ALL	ADDED M20S TO EFFECTIVITY LISTINGS Repaginated & Reformatted entire Supplement	<i>Alan Fairley</i> for NMO	9/5/00

The revised portions of affected pages are indicated by vertical

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SECTION I - GENERAL

A four-place oxygen system provides the supplementary oxygen necessary for continuous flight at high altitude. An oxygen cylinder is located in the equipment bay, accessible through a removable panel on the aft wall of the baggage compartment, or through the standard external panel. A combined pressure regulator/shutoff valve, attached to the cylinder, automatically reduces cylinder pressure to the delivery pressure required for operating altitude. The oxygen cylinder filler valve is located under a springloaded door aft of the baggage door.

A pilot's oxygen panel on the side wall near the pilot's arm rest contains a cylinder pressure gage (effectively a quantity gage - see Fig. 2 or 3) and a control knob which is mechanically connected to the shutoff valve at the cylinder. The supply of oxygen can thus be shut off from the cockpit when not required. When the control is in the "ON" position sufficient oxygen flow is available at the maximum airplane operating altitude (see Section II Limitations) while at lower altitudes the reducing valve automatically economizes the flow to conserve oxygen for longer duration or for future availability, without requiring any action by the pilot. (See Fig. 2 or Fig. 3).

Four oxygen outlets are provided: three in the left sidewall behind the pilot's seat for the convenience of passengers and one in the pilot's oxygen panel. Oxygen flows from the outlets only when a mask hose is connected. Four partial re-breathing type masks are provided, each with vinyl plastic hoses and flow indicators. The three passenger masks are of the disposable type. The pilot's mask is a permanent type with a built-in microphone for ease of radio communication while using oxygen. To use the mask-microphone, connect its lead to the microphone jack located left of the instrument panel, in place of the aircraft microphone lead, and key the switch on the control yoke.

The oxygen cylinder, when fully charged, contains 77.1 ft.3 (composite) or 115.7 ft.3 (composite) of aviator's breathing oxygen (Spec No. MIL-0-27210) under a pressure of 1850 PSI at 21 degrees C (70 degrees F).

Filling pressures will vary, however, due to ambient temperature in the filling area, and the rise of temperature resulting from compression of the oxygen. Because of this, merely filling to 1850 PSI will not result in a properly filled cylinder. Fill to pressures indicated on Figure 1 for ambient temperatures.

WARNING

Oil, grease or other lubricants in contact with oxygen create a serious fire hazard, and such contact must be avoided when handling oxygen equipment.

Ambient Temperature		Filling Pressure PSIG	Ambient Temperature		Filling Pressure PSIG
° F	° C		° F	° C	
0	-18	1650	50	10	1875
10	-12	1700	60	16	1925
20	-7	1725	70	21	1975
30	-1	1775	80	27	2000
40	4	1825	90	32	2050

FIGURE I. Oxygen Filling Pressures

NOTE

The oxygen cylinder should not be run down to less than 100 PSI. Below this pressure atmospheric contamination of the cylinder may occur, requiring valve removal and cylinder cleaning and inspection at an FAA approved repair station.

DATE: 12-16-85
REV. A 5-9-86
REV. B 12-4-86
REV. C 9-29-87
REV. D 5-26-88
REV. E 8-15-00

For FAA requirements concerning supplemental oxygen, refer to FAR 91.32. Supplemental oxygen should be used by all occupants when cruising above 12,500 feet. It is often advisable to use oxygen at altitudes lower than 12,500 feet under conditions of night flying, fatigue, or periods of physiological or emotional disturbances. Also the habitual and excessive use of tobacco or alcohol will usually necessitate the use of oxygen at less than 10,000 feet.

The oxygen duration chart (Fig. 2 or 3) should be used in determining the usable duration (in hours) of the oxygen supply in the airplane for the chosen cruising altitude. The following procedure outlines the method of finding the duration from the chart:

1. Note the available oxygen pressure shown on the pressure gage.
2. Locate this pressure on the scale on the left side of the chart. Then go across the chart horizontally to the right until intersecting the diagonal line which represents the number of persons on board. From that intersection drop vertically down to the heavy line, marked 30,000'.
3. From this point on the heavy line, follow the trend of the curved lines, down to the horizontal line representing cruise altitude. Then drop vertically down to the bottom of the chart and read the duration in hours given on the scale.
4. As an example of the above procedure, 1400 PSI of pressure will safely sustain the pilot and one passenger for 3 hours and 30 minutes (Fig. 2) or 5 hours and 10 minutes (Fig. 3) at 28,000 ft.; however, cruising at 20,000 ft. would permit an oxygen duration of 5 hours and 15 minutes (Fig. 2) or 7 hours and 55 minutes (Fig. 3).

Light crew loads and relatively low altitudes will permit oxygen durations off the chart. Such durations can be calculated by determining the duration at 30,000 feet (by steps 1 and 2 above) and multiplying by the "duration multiplier" shown on the right of the appropriate cruising altitude. Example: (Fig. 2 only) pilot only at 1600 PSI has 7.9 hours duration at 30,000 ft., times 1.5 duration multiplier for 20,000 ft., gives 11.85 hours (11 hours and 50 minutes) duration at 20,000 ft. Oxygen durations off the chart obviously exceed the airplanes duration. However, judicious choices of altitude for the number of persons on board can permit flight planning for several fuel stops, without need for recharging the oxygen system at each stop.

SECTION II - LIMITATIONS

There is no change to the Airplane Limitations when oxygen equipment is installed.

Placards:

- 1) "Use aviators oxygen only"
Location: at filler port.
- 2) "Oxygen-No Smoking When in Use"
Location: at oxygen outlets.

NOTE

Only masks which have end fittings marked with a green band are acceptable for use with this system.

SECTION III - EMERGENCY PROCEDURES

There is no change to the Airplane Emergency Procedures when oxygen equipment is installed. In the event of oxygen loss above 20,000 ft. refer to AFM EMERGENCY DESCENT PROCEDURES.

DATE: 12-16-85
REV. A 5-9-86
REV. B 12-4-86
REV. C 9-29-87
REV. D 5-26-88
REV. E 8-15-00

SECTION IV - NORMAL PROCEDURES

Prior to flight, check to be sure that there is an adequate oxygen supply for the trip, by noting the oxygen pressure gage reading, and referring to the oxygen duration chart (Fig. 2 or 3). Also check that face masks and hoses are accessible and in good condition.

WARNING

Greasy lipsticks and waxed mustaches have been known to ignite spontaneously inside oxygen masks. Passengers should be suitably advised prior to flight.

WARNING

For safety reasons no smoking should be allowed in the airplane while oxygen is being used.

When ready to use the oxygen system, proceed as follows:

1. Mask and Hose — SELECT. Adjust mask to face and adjust metallic nose strap for snug mask fit.
2. Delivery Hose — PLUG INTO OUTLET assigned to that seat.

NOTE

When the oxygen system is turned on, oxygen will flow continuously at the appropriate rate of flow for the altitude without any manual adjustments.

3. Oxygen Supply Control Knob — ON.
4. Face Mask Hose Flow Indicator — CHECK. Oxygen is flowing if the indicator is being forced toward the mask.
5. Delivery Hose - UNPLUG from outlet when discontinuing use of oxygen. This automatically stops the flow of oxygen.
6. Oxygen Supply Control Knob — OFF when oxygen is no longer required.

WARNING

Proper oxygen flow is critical to pilot/passenger safety, especially at altitudes above 20,000 ft. MSL. It is important to monitor closely the face mask hose flow indicator to ensure oxygen is constantly flowing to the mask. A green indication on the flow indicator denotes proper oxygen flow. Always place the flow indicator in a position where it is in the normal scan area of the cockpit.

Refer to duration chart (Fig. 2 or 3) for safe operational quantities.

SECTION V - PERFORMANCE

THROUGH

SECTION X - SAFETY TIPS

There are no changes to these SECTIONS when oxygen equipment is installed.

DATE: 12-16-85
REV. A 5-9-86
REV. B 12-4-86
REV. C 9-29-87
REV. D 5-26-88
REV. E 8-15-00

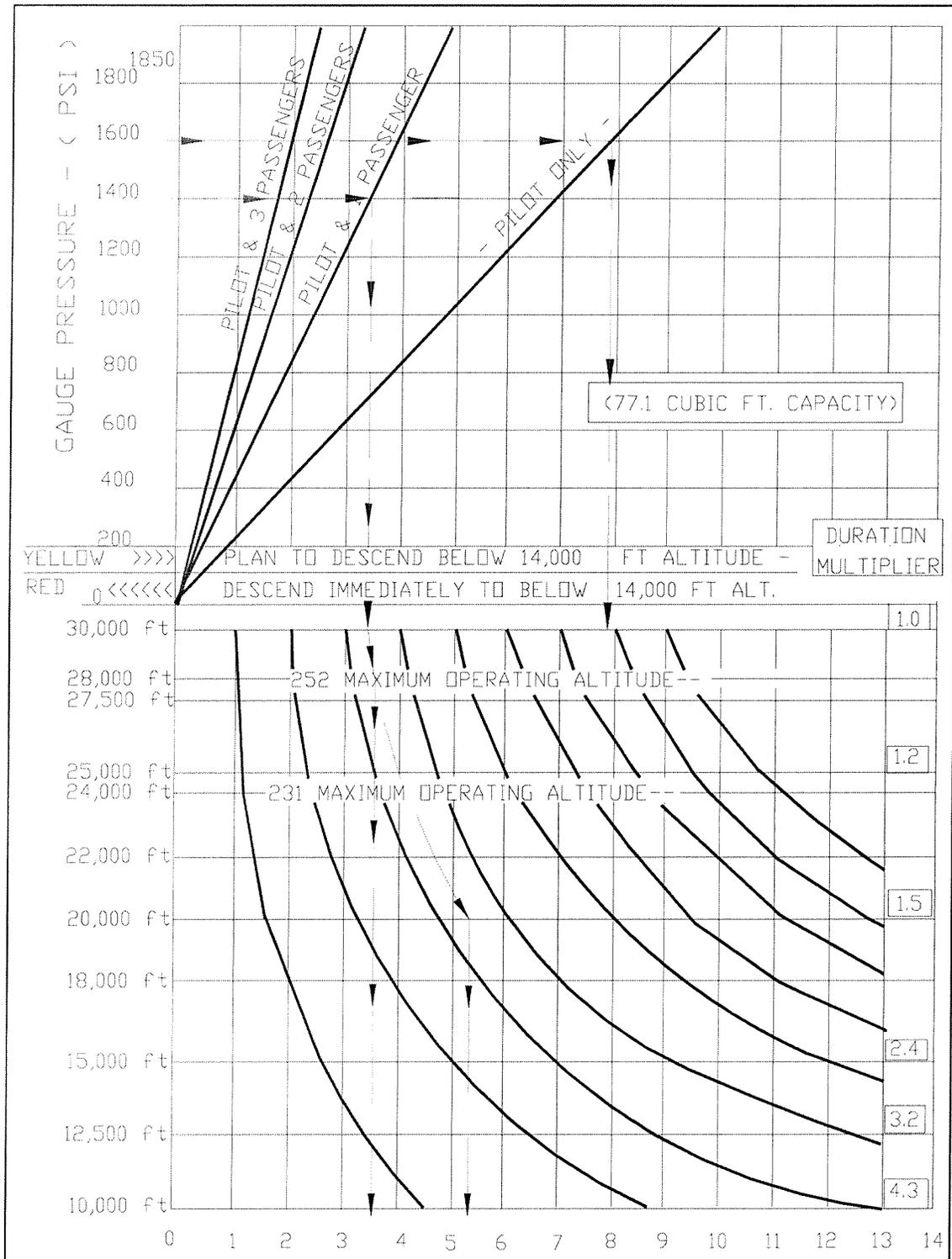


FIGURE 2 - OXYGEN DURATION CHART
(77.1 CUBIC FT. CAPACITY)

DATE: 12-16-85
REV. A 5-9-86
REV. B 12-4-86
REV. C 9-29-87
REV. D 5-26-88
REV. E 8-15-00

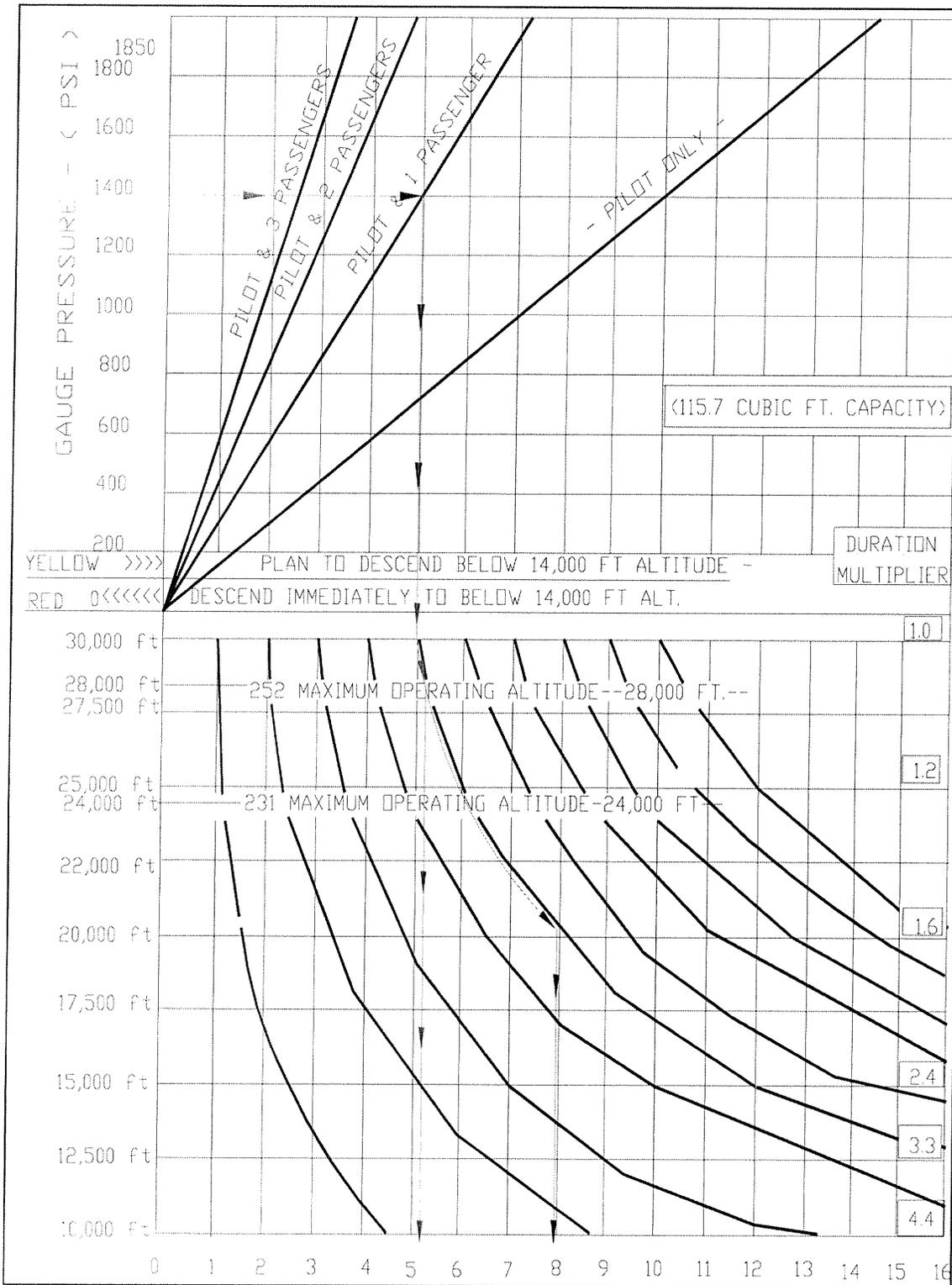


FIGURE 3 - OXYGEN DURATION CHART
(115.7 CUBIC FEET CAPACITY)

DATE: 12-16-85
REV. A 5-9-86
REV. B 12-4-86
REV. C 9-29-87
REV. D 5-26-88
REV. E 8-15-00

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