



DCIEM DIVING MANUAL



D C I E M
DIVING
MANUAL



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MANUAL

Part 1

**AIR DIVING TABLES AND
PROCEDURES**

DCIEM DIVING MANUAL

PART 1

AIR DECOMPRESSION

PROCEDURES

AND TABLES

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DEPARTMENT OF NATIONAL DEFENCE - CANADA

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SECTION 1

INTRODUCTION

1. BACKGROUND

When compressed air is breathed at depth, the inert gas, nitrogen, diffuses into the various tissues of the body. Nitrogen diffusion continues at different rates for the various tissues as long as the partial pressure of the inspired nitrogen is greater than the partial pressure of the gas absorbed in the tissues. The amount of nitrogen absorbed increases with the partial pressure of the inspired nitrogen (depth) and the duration of the exposure (bottom time).

When the diver ascends, the process is reversed as the nitrogen partial pressure in the tissues exceeds that in the circulatory and respiratory systems. This pressure gradient from the tissues of the blood and lungs must be carefully controlled to prevent a too rapid diffusion of nitrogen. If the pressure gradient is uncontrolled, bubbles of nitrogen gas form in the tissues and blood which can result in the development of decompression sickness.

The set of air decompression tables presented here have been developed for Canadian Forces diving by the Experimental Diving Unit of the Defence and Civil Institute of Environmental Medicine (DCIEM). They are identical to those contained in the Canadian Forces Diving Manual [1]. The tables were derived from the DCIEM 1983 Decompression Model and are based on over 20 years of decompression research at DCIEM which began with the pioneering studies by Kidd and Stubbs in 1962 [2-5]. These tables provide a more conservative approach to decompression procedures than those currently published by the United States Navy [6] and the Royal Navy [7].

Selected profiles were tested extensively using the Doppler ultrasonic bubble detector as an aid to assessing the severity of the decompression stress [8] produced by these tables. Tests were conducted in a hyperbaric chamber with wet-working divers in cold water between 5 -10° Celsius as well as with dry-resting divers. No realistic decompression procedures can totally eliminate the occurrence of decompression sickness. However, these tables are believed to be safer than most existing tables.

2. DESCRIPTION OF DECOMPRESSION TABLES

The DCIEM Air Diving Tables consist of the following tables:

Table 1	Standard Air Decompression
Table 1S	Short Standard Air Decompression
Table 2	In-Water Oxygen Decompression
Table 2S	Short In-Water Oxygen Decompression
Table 3	Surface Decompression with Oxygen
Table 4A	Repetitive Factors/Surface Intervals
Table 4B	No-Decompression Repetitive Diving
Table 5	Depth Corrections for Diving at Altitude

Appendix A contains these tables in feet of seawater (fsw) and Appendix B contains these tables in metres of seawater (msw). Depths to 240 fsw (72 msw) are covered. In the procedures described here for the use of the tables, all depths will be given in both fsw and msw. However, examples illustrating the procedures will only be given in fsw.

The decompression schedules for all tables are given in 10 fsw (3 msw) increments. For Tables 1, 2, and 3 each depth segment is divided into two sections by a double line corresponding to the **Normal Air Diving Limit** (Figure 1). Dive profiles below this line are considered **Exceptional Exposures** and should be used only under exceptional circumstances and then only after careful

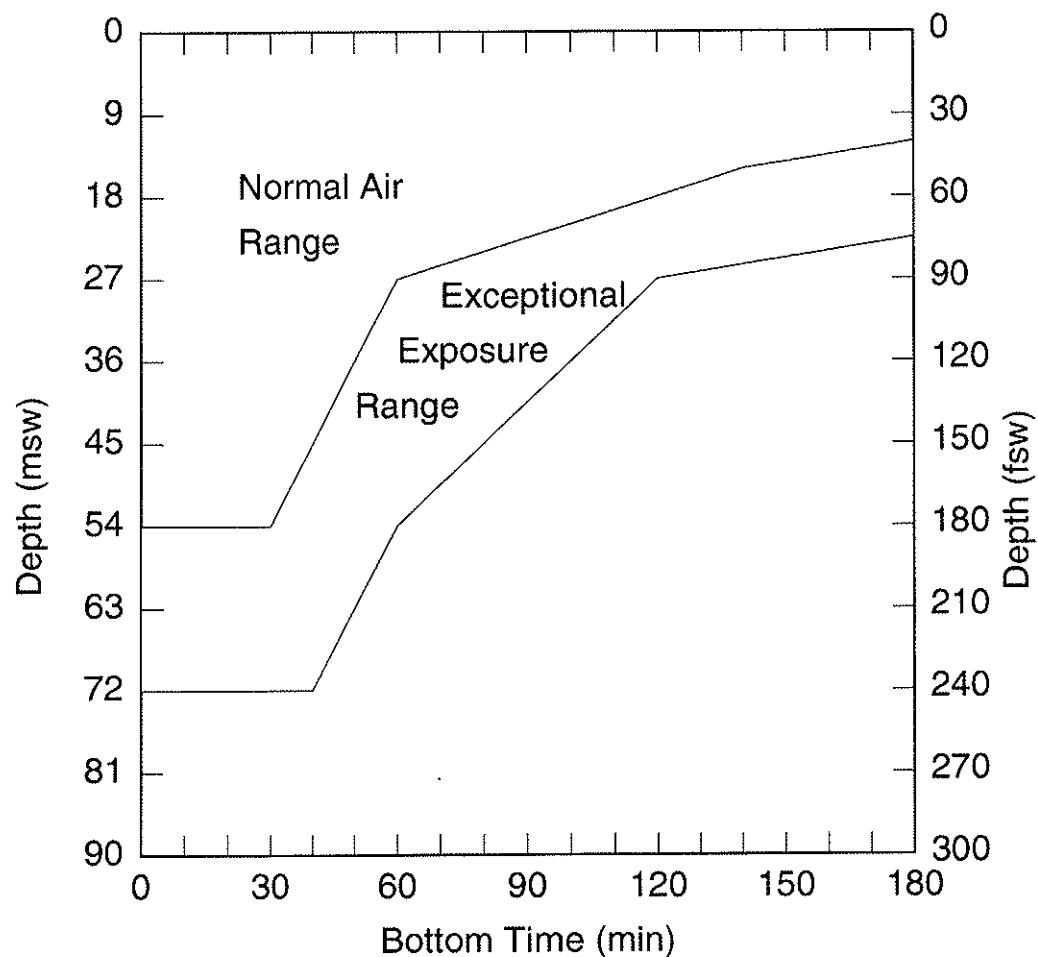


Figure 1. DCIEM Air Diving Limits

consideration of the potential consequences. Only Surface Decompression with Oxygen (SurD O₂) (with In-Water Oxygen Decompression as backup) should be considered for such exposures. After an Exceptional Exposure Dive, it is recommended that no diving be done for at least 18 hrs.

Tables 1S, 4A, 4B, and 5 have been adapted for recreational divers and are available on a plastic card as the "DCIEM Sport Diving Tables"¹. The four tables have been renamed as Tables A, B, C, and D, respectively, and include depths in both fsw and msw.

3. DEFINITION OF TERMS

a. ***Ascent Rate***

A specified rate of travel that the diver must maintain up to and between decompression stops. For these tables, the ascent rate is 60 ± 10 fsw/min (18 ± 3 msw/min);

b. ***Bottom Time (BT)***

The total elapsed time from when the diver leaves the surface to the time (next whole minute) that the diver begins to ascend, measured in minutes;

c. ***Decompression Schedule***

Specific decompression procedure for a given combination of depth and bottom time as listed in a decompression table; it is normally indicated as maximum depth (fsw or msw)/bottom time (min);

d. ***Decompression Stop***

Specific length of time which a diver must spend at a specified depth to allow for the elimination of sufficient inert gas from the body to allow safe ascent to the next decompression stop or the surface;

1. Produced under license by Universal Dive Techtronics, Inc., #201 - 2691 Viscount Way, Richmond, B.C., Canada V6V 1M9.

- e. ***Depth***
The maximum depth attained, measured in fsw or msw;
- f. ***Descent Rate***
The maximum rate of travel allowed in descending to the bottom. For these tables, the descent rate is 60 fsw/min (18 msw/min) maximum;
- g. ***Effective Bottom Time (EBT)***
For Repetitive Diving, the calculated Bottom Time for decompression purposes taking into consideration the residual nitrogen from the previous dive(s);
- h. ***Effective Depth (ED)***
For a dive at altitude, the depth of an equivalent dive at sea level;
- i. ***Multi-level Dive***
A dive during which the bottom time is spent at two or more depths given in the tables;
- j. ***No-Decompression Limit***
The maximum bottom time which allows a direct ascent to the surface without requiring decompression stops;
- k. ***Point of Interruption***
The time at which normal decompression was interrupted as a result of an emergency procedure, i.e., loss of breathing gas, O₂ symptom. Once the situation allows the return to normal decompression procedures, the table is to be re-entered where the interruption occurred.
- l. ***Repetitive Dive***
Any dive that has a Repetitive Factor greater than 1.0;
- m. ***Repetitive Factor (RF)***
A figure, used for Repetitive Diving, determined by the Repetitive Group and the length of the surface interval after a dive;

n. ***Repetitive Group (RG)***

A letter which relates directly to the amount of residual nitrogen in a diver's body immediately on surfacing from a dive;

o. ***Residual Nitrogen***

Nitrogen in excess of normal conditions that is still dissolved in a diver's tissues after the surface has been reached;

p. ***Stop Time***

The tabulated decompression stop time which includes the travelling time to that stop at 60 ± 10 fsw/min (18 ± 3 msw/min) *except for in-water O₂ stops where the stop time commences after the diver is confirmed on O₂*;

q. ***Surface Interval (SI)***

The time which a diver has spent on the surface following a dive; beginning as soon as the diver surfaces and ending as soon as the diver starts the descent for the next dive;

r. ***Surface Interval - SurD O₂***

When using Table 3, Surface Decompression with Oxygen (SurD O₂), this is the time from the diver leaving the 30 fsw (9 msw) water stop (or the bottom if no stop required) to arriving at the 40 fsw (12 msw) RCC stop. The maximum time allowed is 7 minutes.

4. DIVE RECORDING

Every dive should be recorded. A sample Dive Chart is shown in Appendix C. The Dive Chart is a convenient means of collecting the dive data which must then be entered into the official dive log.

SECTION 2

DECOMPRESSION PROCEDURES

1. STANDARD AIR DECOMPRESSION (TABLE 1)

The **Standard Air Decompression** table is contained in Table 1 (Appendix A for fsw and Appendix B for msw) in the traditional tabular format of depth, bottom time, stop times and total ascent time. Each depth segment in the table is divided into two sections by a double line corresponding to the Normal Air Diving Limit in Figure 1. Users of this Standard Air decompression table are cautioned, however, that it has been validated by manned experiments to the limit of the Normal Air Diving Range only.

Repetitive Groups are shown for dives within the Normal Air Diving Limit only and are not shown for dives beyond this line (Exceptional Exposures) since repetitive diving is not recommended in this range. (*Note that these Repetitive Groups are different from and thus incompatible with the Repetitive Groups of the US Navy Tables.*)

The procedure for Standard Air decompression is:

- a. descend at 60 fsw/min (18 msw/min) or slower; and
- b. ascend at 60 ± 10 fsw/min (18 ± 3 msw) to the indicated stops and remain at each stop for the stop time. (*The tabulated stop time for each stop includes the ascent time to that stop at 60 fsw/min.*)

Example 1 (Figure 2):

Determine the decompression schedule required for a dive to 104 fsw and a bottom time of 22 minutes.

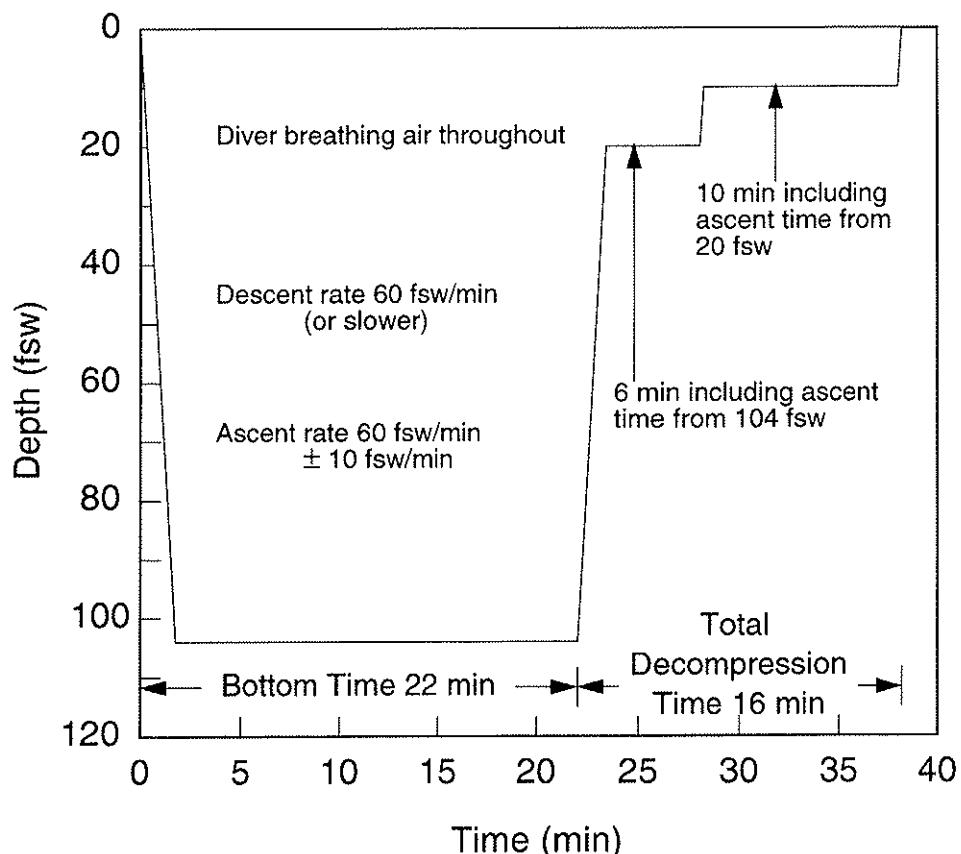


Figure 2. Standard Air Dive to 104 fsw/22 min (Example 1)

Dive	104 fsw/22 min
Decompression schedule	110 fsw/25 min from Table 1
Decompression Stops 20 fsw - 6 min 10 fsw - 10 min	Travel time to 20 fsw is 1.4 min Actual stop time is 4.6 min
Repetitive Group	G

Enter Table 1 at the depth which is exactly equal to or next greater than 104 fsw. Select 110 fsw.

Using the 110 fsw schedule, proceed to the bottom time column and find the listed time which is exactly equal to or next greater than 22 minutes. Select 25 minutes.

Proceed horizontally across the table at the 110 fsw/25 min level to find the decompression stops and the Repetitive Group (RG) designator prescribed for this dive. Decompression Stops and RG designator are as follows:

- 6 min stop at 20 fsw
- 10 min stop at 10 fsw
- Repetitive Group on surfacing - "G"

2. SHORT STANDARD AIR DECOMPRESSION (TABLE 1S)

The **"Short" Standard Air** table presented in Table 1S is essentially a simplified one-page version of the main table limited to 150 fsw (45 msw). It is divided into two sections - a **no-decompression** section on the left of the broad vertical line and a **decompression-required** section to the right of the line. Each entry in the table gives a **Bottom Time** and, where applicable, a **Repetitive Group**. *Where bottom times appear without a Repetitive Group, repetitive diving is not recommended.*

In the no-decompression (no stop) section, bottom times are given for each Repetitive Group at each depth. These are for the purposes of calculating repetitive dives. The largest number to the left of the broad vertical line is the no-decompression limit at the given depth *for first dives only*.

For bottom times in the "decompression-required" section of Table 1S, the decompression stop times and stop depths are specified after the 60 fsw (18 msw) row and at the bottom of the table after the 150 fsw (45 msw) row. Stop times are given in increments of 5 min and include the ascent time to the stop at 60 ± 10 fsw/min (18 ± 3 msw/min). For depths to 60 fsw (18 msw), decompression

stops are taken at 10 fsw (3 msw) only. For deeper depths, decompression stops are at 20 and 10 fsw (6 and 3 msw).

The no-decompression limits in Tables 1 and 1S are for first dives only. For repetitive no-decompression dives, the allowed no-decompression limits are prescribed in Table 4B.

To use Table 1S, follow the previously prescribed procedures for the Standard Air Decompression table. Example 1 has been reworked for Table 1S in the example below.

Determine the decompression schedule required for a dive to 104 fsw and a bottom time of 22 minutes. Enter Table 1S at the depth which is exactly equal to or next greater to 104 fsw. Select 110 fsw.

Using the 110 fsw schedule, proceed to the bottom time column and find the listed time which is exactly equal to or next greater to 22 minutes. Select 22 minutes.

Follow the bottom time column downward to the listed decompression stops for 20 fsw and 10 fsw, respectively. Table 1S shows that the required decompression is as follows:

5 min stop at 20 fsw
10 min stop at 10 fsw
Repetitive Group on surfacing - "F"

3. IN-WATER OXYGEN DECOMPRESSION (TABLE 2)

The benefits of using oxygen for decompression are well known and applied universally with various surface decompression procedures. In diving operations, however, it is not always possible to have a chamber on-site. Yet, it is often possible to supply the diver with O₂ (closed or semi-closed apparatus with pure O₂ supply, lightweight surface supplied systems, etc.). Therefore, it was decided to apply O₂ in the water.

Although O₂ is only given to the divers at the conservative depth of 30 fsw (9 msw), the possibility of O₂ toxicity problems still

exist. Therefore, the following conditions are recommended for using the in-water O₂ procedures:

- a. a diver on O₂ must be accompanied (i.e., two divers on O₂ or one diver on O₂ plus the standby diver) for the period of O₂ breathing; and
- b. a recompression chamber (RCC) must be within 1 hour travelling time.

The **In-Water Oxygen Decompression** table is contained in Table 2. In-water decompression stops on air to and including 40 fsw (12 msw) are identical to the Standard Air table. At 30 fsw (9 msw), the diver breathes O₂ until the decompression requirements are satisfied and then ascends directly to the surface. The decompression time listed starts when the diver is confirmed on O₂ and *does not include the ascent time to 30 fsw (9 msw)*. This procedure reduces the total decompression time by 35-40% over the Standard Air method. The In-water Oxygen Decompression procedure is:

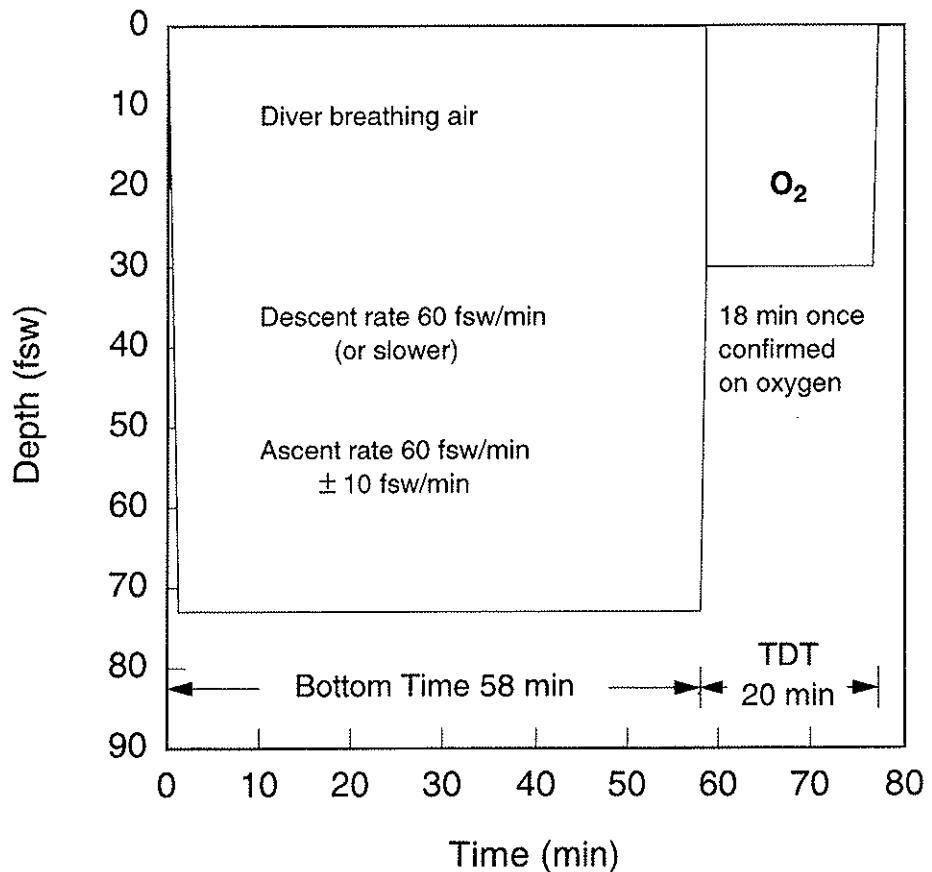
- a. ascend as for Standard Air to 30 fsw (9 msw) and stop;
- b. switch the diver's gas to O₂; the diver remains on O₂ at 30 fsw (9 msw) for the full tabulated stop time. This stop time commences when the Diver is confirmed on O₂; and
- c. ascend to the surface on O₂ (one minute is included in the Decompression Time column as a *guide only*).

Example 2 (Figure 3):

Determine the decompression schedule required for a dive to 73 fsw and a bottom time of 58 minutes.

Enter Table 2 at the depth which is exactly equal to or next greater than 73 fsw. Select 80 fsw.

Using the 80 fsw schedule, proceed to the bottom time column and find the listed time which is exactly equal to or next greater

Figure 3. In-water O₂ Dive to 73 fsw/58 min (Example 2)

Dive	73 fsw/58 min
Decompression schedule	80 fsw/60 min from Table 2
Decompression Stops 30 fsw - 18 min on O ₂	Does not include travel time to this stop
Repetitive Group	I

than 58 minutes. Select 60 minutes.

Proceed horizontally across the table at the 80 fsw/60 min level to find the decompression stops and the RG.

The required decompression stop is 30 fsw. The stop time, once confirmed on O₂, is 18 minutes. The Repetitive Group is "I".

During the O₂ breathing period at 30 fsw (9 msw), a 5-minute air break may be used at the end of each 30 minute O₂ period. As this is an option, 5-minute airbreaks are not included in the total decompression times in the printed tables.

The In-Water O₂ decompression table can also be applied to repetitive diving. Repetitive Groups are shown in Table 2 for dives within the normal air diving range shown in Figure 1. Note that these groups are different from those in Table 1 because of the O₂ decompression.

4. SHORT IN-WATER OXYGEN DECOMPRESSION (TABLE 2S)

The "Short" In-Water O₂ Decompression table is contained in Table 2S. This is similar to Table 1S with a no-decompression section on the left hand side and a decompression - required section on the right hand side. Each entry in the table gives a Bottom Time and, where applicable, a Repetitive Group. In the decompression-required section, the bottom times are restricted to those where the only stop is the 30 fsw (9 msw) O₂ decompression stop. The decompression times are given in increments of 5 minutes and *do not include the ascent time to the 30 fsw (9 msw) stop at 60 ± 10 fsw/min (18 ± 3 msw/min).*

Example 2 reworked for the "Short In-Water Oxygen Decompression Table is as follows:

Determine the decompression schedule required for a dive to 73 fsw and a bottom time of 58 minutes.

Enter Table 2S at the depth which is exactly equal to or next greater than 73 fsw. Select 80 fsw.

At 80 fsw, proceed to the bottom time column to the listed time which is exactly equal to or next greater than 58 minutes. Select 64 minutes.

Follow the bottom time column downward to the decompression time line. The required decompression is 20 minutes on O₂ at 30 fsw and does not include the time required to reach 30 fsw. The Repetitive Group is "I".

5. SURFACE DECOMPRESSION WITH OXYGEN (TABLE 3)

Surface decompression procedures reduce the in-water exposure time substantially with most of the decompression being carried out in a dry recompression chamber (RCC) on the surface. Decompression is carried out normally as for Standard Air until the end of the 30 fsw (9 msw) stop. Thus the decompression stops on air to and including 30 fsw (9 msw) are identical to the Standard Air Table. At the end of the 30 fsw (9 msw) stop, the diver then goes directly to the surface and then returns to 40 fsw (12 msw) in an RCC to complete the decompression requirements on O₂. After each 30 minute period on O₂, 5-minute air breaks are taken.

The **Surface Decompression with Oxygen** (SurD O₂) table is contained in Table 3. The SurD O₂ table has been validated by manned experiments to the limits of the exceptional exposure range shown in Figure 1. SurD O₂ is the preferred method for all compressed air diving requiring significant amounts of decompression, and it is the only method recommended for exceptional exposure diving.

The procedure for its use is:

- a. ascend and decompress as for Standard Air to the completion of the 30 fsw (9 msw) or the surface if no in-water stop is shown. (*Stop time includes ascent to 30 fsw (9 msw) stop at 60 ± 10 fsw/min (18 ± 3 msw/min)*)

- b. ascend to the surface at 60 ± 10 fsw/min (18 ± 3 msw/min) and recompress on O_2 to 40 fsw (12 msw) in the RCC. The Surface Interval - SurD O_2 is the time from leaving the 30 fsw (9 msw) water stop (or the bottom, if no in-water stop is required) to reaching the 40 fsw (12 msw) RCC stop. This time must not exceed 7 minutes;²
- c. remain on O_2 at 40 fsw (12 msw) for the tabulated stop time with 5 minute air breaks³ after every 30 minutes on O_2 (the asterisk "*" following the O_2 stop times in the tables represent the number of air breaks); and
- d. ascend to the surface on the breathing medium used (one min is included in the Decompression Time column as a *guide only*).

Example 3 (Figure 4):

Determine the decompression schedule required for a dive to 120 fsw/75 min.

Enter Table 3 at the depth which is exactly equal to or next greater than 120 fsw. Select 120 fsw.

Using the 120 fsw schedule, proceed to the bottom time column and find the listed time which is exactly equal to or next greater than 75 minutes. Select 75 minutes.

2. The maximum Surface Interval (SI) - SurD O_2 of 7 minutes was chosen to enhance the operability of the procedure and to reduce the chances of "omitted decompression" during operations. Extensive experimentation using the full 7 minute SI has proven this procedure safe. In operational use, the SI should be kept to a minimum.
3. When the O_2 stop time is a multiple of 30 minute, a 5-minute air break may or may not be required before ascent to the surface. The 5 minute air breaks after 30 minutes on O_2 were included in calculating the 40 fsw (12 msw) O_2 stop times. The tabulated 40 fsw (12 msw) stop times are " O_2 Times" only, while the Total Decompression Time column includes the air breaks.

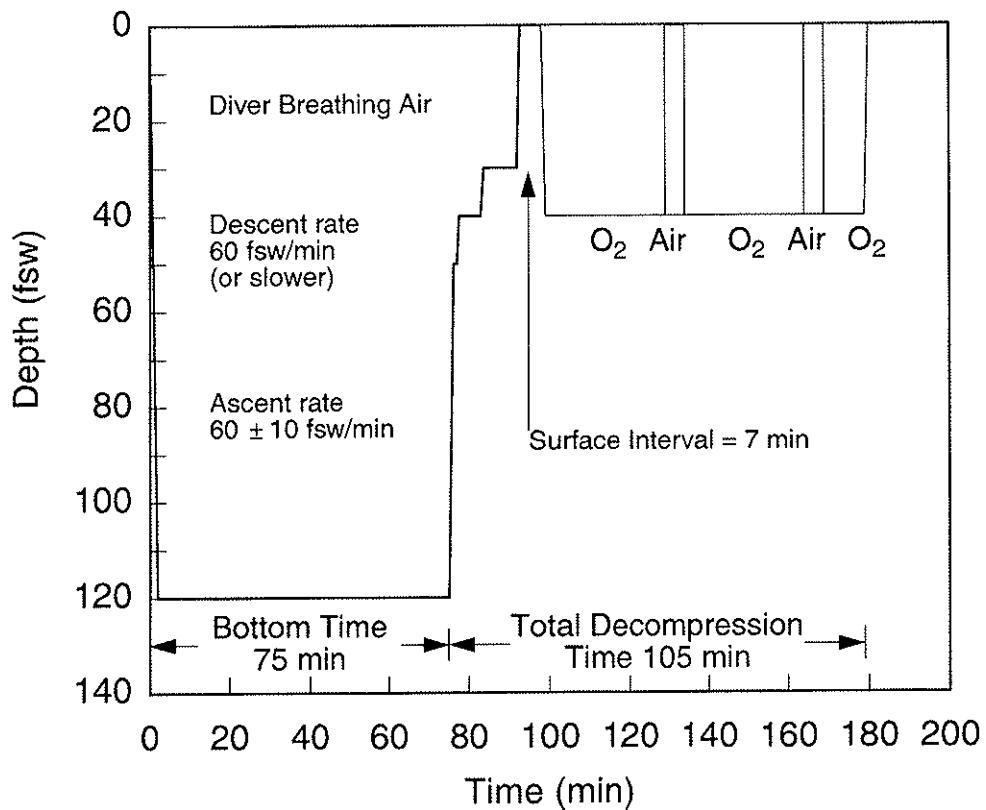


Figure 4. Surface Decompression Dive (Example 3)

Dive	120 fsw/75 min
Decompression schedule	120 fsw/75 min from Table 3
Decompression Stops	
50 fsw - 2 min	On air (includes travel time to stop)
40 fsw - 6 min	On air
30 fsw - 9 min	On air.
Surface	Time from leaving 30 fsw in-water to reaching 40 fsw in RCC is 7 min
40 fsw - 80 min	70 min O ₂ + two 5-min air breaks
Repetitive Group	None - Exceptional exposure dive

Proceed horizontally across the table at the 120 fsw/75 min level to find the decompression stops and stop times. These are as follows:

- 2 min stop at 50 fsw
- 6 min stop at 40 fsw
- 9 min stop at 30 fsw
- 80 min stop at 40 fsw (70 min on O₂ + 2 air breaks in RCC).

Repetitive diving can also be conducted using SurD O₂. Repetitive Groups are shown in Table 3 for dives within the Normal Air Diving Range. Note that these groups may be different from those of Tables 1 and 2.

6. REPETITIVE DIVING PROCEDURES (TABLES 4A AND 4B)

There is a quantity of residual nitrogen that remains in a diver's body after every air dive. This residual nitrogen will gradually reduce to a normal level over a period of approximately 18 hours. A diver planning to make a second dive within this period must consider this residual nitrogen level when planning for the second dive.

A **Repetitive Group (RG)** has been assigned to each dive in the Normal Air Diving Range in Tables 1, 1S, 2, 2S, and 3. The **Repetitive Air Diving Tables** have been developed to protect the diver from the effects of residual nitrogen. Table 4 consists of two parts, 4A and 4B, and permit repetitive diving only within the range of the Normal Air Diving Limit outlined in Figure 1. Repetitive diving has been validated using the Standard Air, In-Water O₂ and SurD O₂ decompression methods.

In Table 4A, **Repetitive Factors (RF)** are given for each RG letter from A to O at selected **Surface intervals (SI)** from 15 minutes to 18 hours. As the SI increases, the RF decreases until it becomes 1.0. A dive is considered a repetitive dive if it is conducted while the RF from the previous dive is greater than 1.0. For example, any dive within 18 hours after surfacing from a Group H or higher dive would be considered a repetitive dive.

The RF is used to calculate the **Effective Bottom Time (EBT)** for the repetitive dive. This EBT, determined by multiplying the actual bottom time of the repetitive dive by the RF, is the total of the actual bottom time and the time that must be considered to have been already spent at that depth because of the residual nitrogen remaining in the body from the previous dive. The EBT is then used to determine the decompression requirements for the repetitive dive.

In Table 4B, the **Allowable No-Decompression (No-D) Limits** for repetitive dives are shown for different depths as a function of the RF. These No-D limits are actual bottom times and not EBT's. (*Note that the EBT's of these repetitive No-D limits are less than the No-D limits given in Tables 1, 1S, 2, 2S and 3, which are for first dives only.*) With Table 4B, calculations are unnecessary if only no-decompression repetitive dives are planned. For any repetitive dive, this table should be consulted to determine whether the planned dive can be done as a no-decompression dive or whether decompression will be required.

Multiple dives can be performed using the RG of the EBT and the depth of the repetitive dive; however, it may be necessary to adjust this RG under certain conditions (see **ADJUSTMENTS FOR MULTIPLE REPETITIVE DIVES**).

The procedure for using the repetitive dive tables is as follows. (A worksheet for calculating the decompression requirements for repetitive dives is in Appendix C and a flow chart to aid in using this procedure is given in Figure 5.)

- a. Find the RG of the first dive (from Table 1, 1S, 2, 2S, or 3). Enter Table 4A.
- b. Proceed down the RG column to locate the matching RG letter from the first dive and then proceed horizontally along the same line to the appropriate Surface Interval (SI) column. Where the RG and SI intersect, note the Repetitive Factor (RF).

REPETITIVE DIVING FLOWCHART

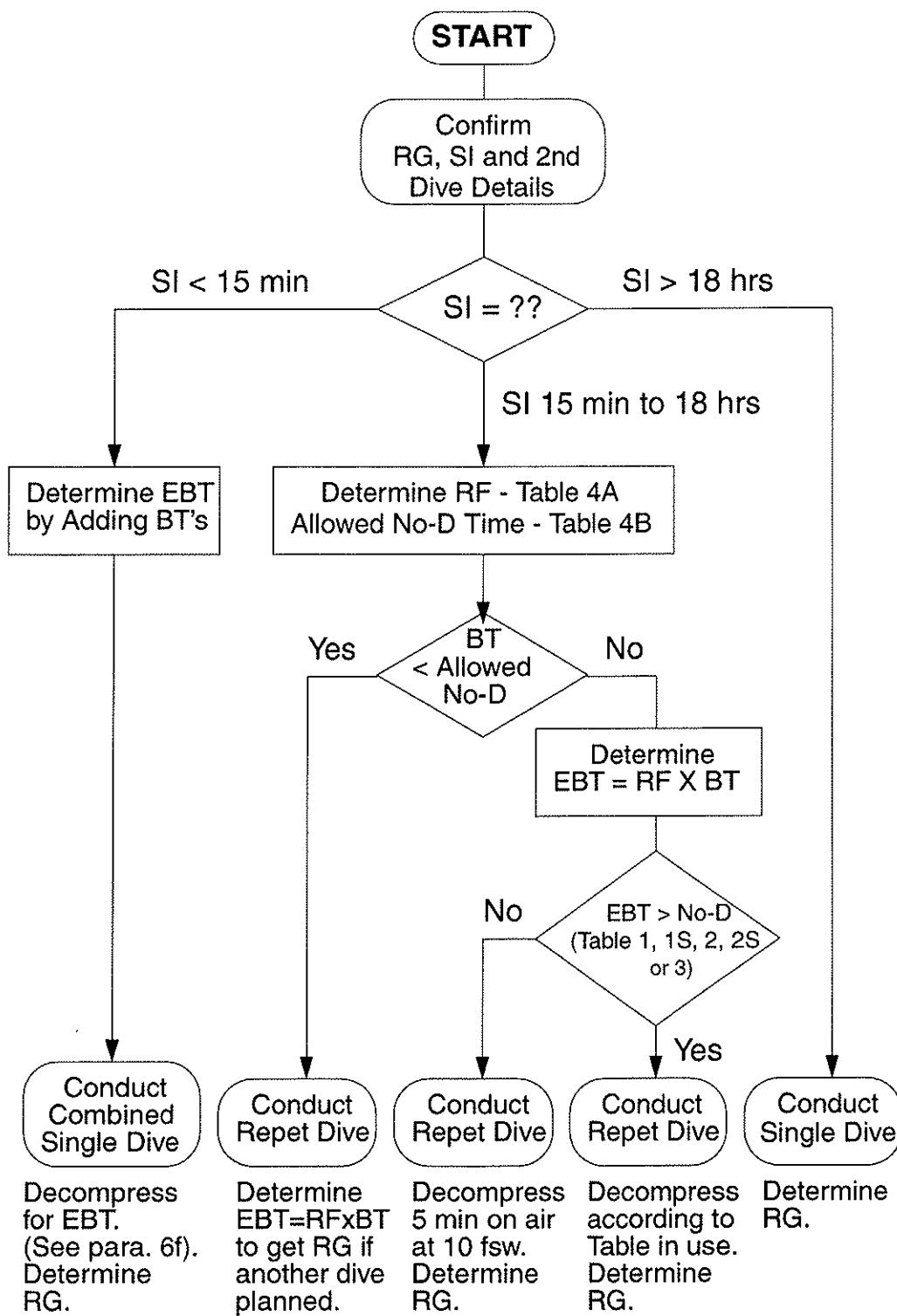


Figure 5. Repetitive Diving Flowchart

- c. Enter Table 4B at the RF column and proceed downward in the column to the applicable depth of the planned repetitive dive. Where the RF and the depth intersect, note the Allowable No-D Limit for this repetitive dive. (Note that this is the actual bottom time and not the EBT.)

d. FOR NO-DECOMPRESSION REPETITIVE DIVES.

- (1) If the actual bottom time of the second dive is less than or equal to the allowable No-D limit in Table 4B, the second dive is a No-D dive. (See Example 4 and sample Repetitive Diving Work Sheet, Figure 6.) (*If a third dive is not intended within the next 18 hours, no further calculations are necessary.*)
- (2) If another dive is planned - if the actual bottom time of the second dive is less than the allowable No-D limit, multiply the actual bottom time by the RF to obtain the EBT for the second dive. Find the new RG from the EBT and depth of the second dive from the appropriate decompression table. This RG may need to be adjusted before a third dive can be conducted. Refer to the instructions **ADJUSTMENTS FOR MULTIPLE REPETITIVE DIVES.**

Example 4:

First Dive = 60 fsw/30 min	RG = D (Table 1S)
Surface Interval = 1 hr	RF = 1.4 (Table 4A)
Second Dive Depth = 50 fsw	Repet. No-D limit is 45 min (Table 4B)
Actual bottom time = 30 min	EBT = $30 \times 1.4 = 42$ min RG = E (Table 1S)
A third dive is intended. Surface Interval = 1 hr 15 min	RF = 1.5 (Table 4A)
Third Dive Depth = 40 fsw	Repet. No-D limit is 100 min (Table 4B)

REPETITIVE DIVING WORKSHEET (FEET)

FIRST DIVE:

60 fsw / 30 min Table Used 1S

1st Dive Repetitive Group D

SECOND_DIVE:

SI 1 hr 00 min RF 1.4 (Table 4A)

Depth 50 fsw Table Used 1S

Allowable No-D Limit (Table 4B) 45 min

Planned Bottom Time (BT) 30 min

$$\text{EBT} = (\text{RF}) \frac{1.4}{\text{fsw}} \times (\text{BT}) \frac{30}{50} = \underline{\underline{42}}$$

Decompression required: Yes No

DECOMPRESSION SCHEDULE: 50 fsw/(EBT) 50 min

 fsw min

 fsw min

 fsw min O₂ Stop (if required)

 fsw min fsw min

2nd Dive Repetitive Group E (from Table Used)

2nd Dive Adjusted Repetitive Group

NOTE: If the BT exceeds the allowable No-D Limit in TAble 4B, but the EBT is less than the No-D Limit in Table 1S, a 5 - minute decompression stop at 10 fsw is required.

Figure 6. Repetitive Dive Worksheet for Example 4.

(3) FINDING THE MINIMUM SI FOR A NO-D DIVE.

Enter Table 4B at the depth of the repetitive dive and proceed horizontally to the intended bottom time of the repetitive dive. Proceed upward in the column to find the RF. Enter Table 4A at the RG of the first dive and proceed horizontally to the appropriate RF. Proceed upward in the column to determine the minimum SI. (See Example 5.)

Example 5:

First Dive = 80 fsw/25 min	RG = E (Table 1S)
Second Dive = 50 fsw/50 min	From Table 4B, 50 min bottom time at 50 fsw has RF = 1.3
Surface Interval	From Table 4A, for a first dive of RG = E, a SI of 2 hr is required.
If another dive is planned	EBT for the second dive is $50 \times 1.3 = 65$ min and the RG is G (Table 1S)

e. **FOR REPETITIVE DIVES REQUIRING DECOMPRESSION.**

- (1) If the actual bottom time of the repetitive dive is greater than the allowable No-D limit in Table 4B, the repetitive dive requires decompression. Multiply the actual bottom time of the repetitive dive by the RF to obtain the EBT. Use Table 1, 1S, 2, 2S, or 3 to determine the decompression schedule for the depth and EBT of the repetitive dive. (See Example 6.)

Example 6:

First Dive = 110 fsw/15 min	RG = D
Surface Interval = 40 min	RF = 1.5 (Table 4A)
Second Dive = 110 fsw/10 min	Repet. No-D limit is 7 min (Table 4B), decompression is required EBT = $10 \times 1.5 = 15$ min
Decompression Schedule	110 fsw/15 min

- (2) For repetitive bottom times *exceeding* the allowable No-D limits in Table 4B, but with EBT's *less* than the no-decompression limit in Table 1, 1S, 2, 2S, or 3, a 5-minute decompression stop at 10 fsw is mandatory. (The No-D limits in Tables 1, 1S, 2, 2S, or 3 are for first dives only. (See Example 7)).

Example 7:

First Dive = 60 fsw/50 min	RG = F (Table 1S)
Surface Interval = 1 hr 45 min	RF = 1.5 (Table 4A)
Second Dive = 60 fsw/30 min	Repet. No-D limit is 27 min (Table 4B) Therefore, decompression is required
	EBT = $1.5 \times 30 = 45$ min which is in the No-D range of Table 1S.
Decompression required	5 min at 10 fsw (Table 1S)

f. **FOR SURFACE INTERVALS LESS THAN 15 MINUTES.**

- (1) If the first and second dives are at the same depth, add the bottom times of the first and second dives together to obtain the EBT for the second dive. (See Example 8.) If a third dive is planned, use this total time to determine the RG from Table 1 or 1S.

Example 8:

First Dive = 60 fsw/30 min	RG = D, SI = 10 min
Second Dive = 60 fsw/25 min	EBT = $30 + 25 = 55$ min
Decompression schedule	60 fsw/55 min, 5 min at 10 fsw
Repetitive Group	G

- (2) If the first and second dives are to different depths, it is first necessary to determine the bottom time at the second dive depth that would be equivalent to the first dive. Find the RG from the first dive. Proceed to the

second dive depth and find the bottom time with the same RG. Add this bottom time to the intended bottom time of the second dive to obtain the EBT for the second dive (as in Example 8). (See Example 9.)

Example 9:

First Dive = 120 fsw/10 min	RG = C (Table 1S)
Surface Interval	12 min
Second Dive Depth = 70 fsw	Group C dive at 70 fsw has a bottom time of 20 min
2nd Dive Bott. Time = 20 min	EBT = 20 + 20 = 40 min
Decompression required	70 fsw/40 min, 5 min at 10 fsw

- g. The RF in Table 4A have been cut off - arbitrarily - at 2.0. It is felt that after a strenuous first dive, the SI should be sufficient in length to reduce the "residual" nitrogen level of the diver to that degree. *If it is necessary to perform a repetitive dive before the RF reduces to 2.0, the same procedure described in "f" for surface intervals less than 15 min can be used.*

h. ADJUSTMENTS FOR MULTIPLE REPETITIVE DIVES

Repetitive dive tables, by their nature of having fixed limits, cannot take into account every possible diving situation. Repetitive Group adjustments may be required in some cases if more than one repetitive dive is planned. These adjustments are necessary to avoid problems on repetitive dives after the first repetitive dive.

For example, if a series of similar no-decompression repetitive dives are conducted (i.e., similar depth/bottom time/surface interval), it is possible to get locked into a loop resulting in the same RG and RF after each dive. Because decompression will eventually be required, it is necessary to adjust the RG to break out of this loop. Similarly, if a short duration dive follows a longer bottom time dive, the RG

calculated for the second dive will be too small and will not take into account the influence of the longer first dive. Thus the second dive RG must be adjusted upward.

The procedure is as follows:

If another dive is planned after a repetitive dive, calculate the RG that corresponds to the Depth and EBT of the just completed repetitive dive from the appropriate decompression table (Tables 1, 1S, 2, 2S, or 3).

(1) If the Surface Interval before the next repetitive dive is **less than** 6 hours, and the RG of the just completed repetitive dive is **greater than** the RG from the previous dive, **NO adjustment** is necessary.

However, if the RG is **lower than or equal to** the RG of the previous dive, **ADJUST** the RG of the just completed dive **upward** to equal the RG of the previous dive + one letter. (See Example 10).

Example 10:

Previous dive (1st dive)	70 fsw/25 min, RG = D
Surface Interval = 15 min	RF = 1.8
Just completed dive (2nd dive)	70 fsw/8 min EBT = $8 \times 1.8 = 14.4$ min \Rightarrow RG = B
RG (just completed dive) less than RG (previous dive)	Adjust RG (just completed dive) from B to E (RG = D + 1 Letter)
SI to next dive = 1.5 hours	RF = 1.4 (from RG = E)
Note (for comparison): If the first SI is less than 15 min in this example, application of para. 6f gives EBT for the second dive as $25+8=33$ min. Thus, RG = E for the second dive.	

(2) If the Surface Interval to the next Repetitive Dive is **more than** 6 hours, **NO adjustment** is necessary.

7. MULTI-LEVEL DIVING

A multi-level dive is a dive during which the bottom time is spent at two or more depths given in the tables. These dives should be done with great care as the risk of decompression sickness may be higher in some cases than for dives to a fixed depth. *The following rules are based solely on Table 1S (Short Standard Air Decompression) and should not be extended outside the limits of this table.* They are based on the repetitive diving procedures for surface intervals less than 15 min. Limit the dive to 4 steps or less and **plan to conduct the deepest part of the dive first** and ascend to progressively shallower depths. In the rules, each successive stop depth is designated as Step 1, Step 2, Step 3,....

- a. From Table 1S, find the RG for the depth and bottom time of Step 1. Proceed to the depth of Step 2 and find the bottom time for that RG. Add this bottom time to the planned time at Step 2. The RG for this total time is the RG at the end of Step 2.
- b. Proceed to the depth of Step 3 and find the bottom time for the RG at the end of Step 2. Add this bottom time to the planned time at Step 3 to determine the RG at the end of Step 3. If another step is planned, repeat the procedure.
- c. For each successive step shallower than the one before, ascend at least 20 fsw (6 msw) to and between stops in the dive (for depths greater than 100 fsw (30 msw), ascend at least 30 fsw (9 msw)).
 - (1) for dives not requiring decompression after any level, **finish the dive in SHALLOW water in a depth range between 10 and 20 fsw (3 and 6 msw) for at least 5 minutes.** (See Example 11 and Figure 7.)
 - (2) if it is necessary to conduct a dive requiring decompression after any level, decompress for the maximum decompression attained (furthest right column attained in Table 1S). (See Example 12).

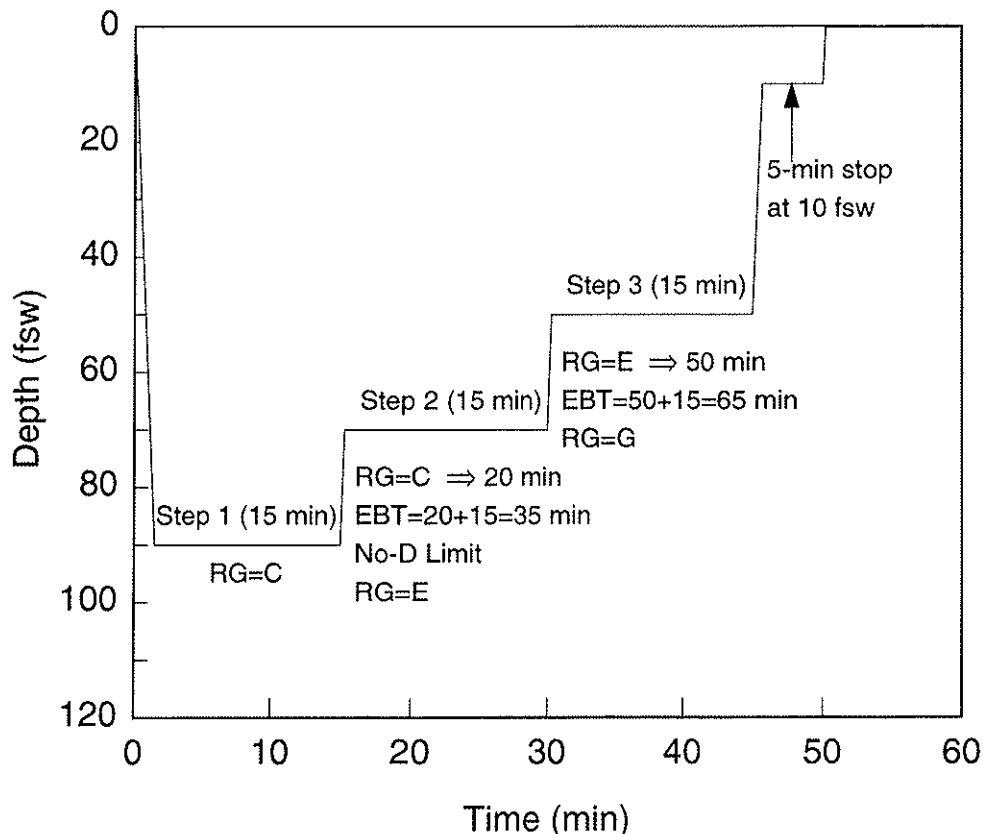


Figure 7. Multi-level Dive (Example 11)

Step 1	90 fsw/15 min	RG = C
Step 2	Depth at 70 fsw	RG = C ⇒ 20 min already spent at 70 fsw.
	Time at Step 2 = 15 min	EBT = 20 min + 15 min = 35 min ⇒ RG = E (No-D limit).
Step 3	Depth at 50 fsw	RG = E ⇒ 50 min already spent at 50 fsw
	Time at Step 3 = 15 min	EBT = 50 min + 15 min = 65 min ⇒ RG = G.
Finish dive with 5-min stop at 10 fsw.		

Example 12:

Step 1	120 fsw/15 min	RG = E (Decompression required)
Step 2	Depth at 50 fsw	RG = E \Rightarrow 50 min already spent at 50 fsw.
	Time at Step 2 = 15 min	EBT = 50 min + 15 min = 65 min \Rightarrow RG = G.
Decompression		10 min at 10 fsw (for Step 1)

- d. If it is absolutely necessary to go deeper at any step than the one before, **always finish the dive in shallow water in a depth range between 10 and 20 fsw (3 and 6 msw) for at least 5 minutes or for the maximum decompression attained as in c(2) above.** (See Example 12A.)

Example 12A:

Step 1	70 fsw/15 min	RG = B
Step 2	120 fsw/6 min	EBT = 8 + 6 \Rightarrow 120 fsw/15 min RG = E (Decompression required)
Step 3	50 fsw/15 min	As in Example 12, same decompression.

- e. Allow for a minimum surface interval of 1 hour after a multi-level dive before diving again. For a repetitive multi-level dive, multiply the actual bottom time of Step 1 by the RF to determine the effective bottom time and RG of the first step and use the procedure given above. **The RG for Step 1 must be greater than or equal to the RG from the preceding dive.** Before surfacing, spend at least 5 minutes at a depth between 10 and 20 fsw (3 and 6 msw) either as a final step in the dive or as a safety stop. **These instructions apply only for each successive step shallower than the one before with the EBT at each step within the no-decompression limit.** (See Example 13).

(Note: although the above multi-level procedure has not been extensively tested, it is considered safer than many other methods commonly practised.)

Example 13

1st Dive		RG = F, SI = 3:00, RF = 1.3
<u>2nd Dive</u> Step 1	70 fsw/20 min	EBT = 26 min, RG = E Raise RG = E to RG = F
Step 2	Depth at 50 fsw for 10 min	RG = F \Rightarrow 60 min at 50 fsw EBT = 10 min + 60 min = 70 min RG = G
Step 3	Depth at 20 fsw for 10 min	RG = G \Rightarrow 240 min at 20 fsw EBT = 10 min + 240 min = 250 min RG = H.

8. DEPTH CORRECTIONS FOR DIVING AT ALTITUDE (TABLE 5)

Table 5 provides tabulated depth corrections for determining decompression profiles and decompression stop depths when diving in elevated areas above sea level. These corrections are necessary because the surface pressure and the underwater absolute pressure are less at altitude. Of particular significance is that diving tables and decompression techniques are designed to return a diver safely to a sea level pressure and not to a lesser pressure as found at altitude. This reduced atmospheric pressure at the surface makes the dive at altitude equivalent to a deeper dive at sea level.

Table 5 has been developed to resolve these differences by providing depth corrections for selected altitudes from 300 feet (100 metres) to 10,000 feet (3000 metres). These depth corrections are added to the actual depth to determine the dive profile to be used for decompression purposes. In addition, Table 5 gives the actual stop depths to be used in place of the standard decompression stops. (Divers are cautioned that most commonly used depth gauges will not read "actual" water depth at altitudes. Shot lines are recommended.)

The procedure for using the Depth Corrections table is:

- a. establish the altitude of the dive site and determine the actual maximum water depth of the dive;
- b. find the correction for the actual depth according to the altitude from Table 5 and **add** this correction to the actual depth to obtain the **Effective Depth (ED)**;
- c. determine the decompression schedule from the appropriate decompression table by applying the Effective Depth and the actual planned bottom time;
- d. replace the stop depths from the normal decompression table with the actual stop depths shown at the bottom of Table 5 (the stop times are not changed); and
- e. decompress on this altitude schedule in accordance with normal procedures using the regular travel rates. (Above 5000 feet (1500 metres), reduce the ascent rate to 50 ft/min (15 m/min).)

A worksheet to assist in the calculation of the decompression requirements for diving at altitude is given in Appendix C. (See Example 14 and sample worksheet, Figure 7)

Example 14

Altitude of dive site	7200 ft
Dive = 100 ft/23 min Decompression by Standard Air.	Depth by shot line.
Depth Correction for 7200 ft	+30 fsw (from Table 5)
Effective Depth	$100 + 30 = 130$ fsw.
Decompression schedule from Table 1 for 130 fsw/25 min 30 fsw - 5 min stop 20 fsw - 7 min stop 10 fsw - 12 min stop	Actual decompression schedule, corrected for stop depths 24 fsw - 5 min stop 16 fsw - 7 min stop 8 fsw - 12 min stop
Repetitive Group	H

The corrections for altitude shown in Table 5 only apply for divers who have been acclimatized at that altitude, i.e., for those who have spent at least 12 to 24 hr at the altitude of the dive site. Corrections to the depth would be greater for those who have not been acclimatized.

If diving at altitude is conducted within 24 hours of arriving at the altitude of the dive site, apply an additional 10 feet (3 metres) to the actual maximum depth of the dive used in Table 5. After 24 hours, this additional correction is not required. (See Example 15.)

Example 15

Altitude of dive site	7200 ft (Same as Example 14 for unacclimatized diver)
Dive = 100 ft/23 min Decompression by Standard Air.	Depth by shot line. Apply correction $100 + 10 = 110$ fsw
Depth Correction for 7200 ft	+ 40 fsw (from Table 5)
Effective Depth	$100 + 10 + 40 = 150$ fsw.
Decompression schedule from Table 1 for 130 fsw/25 min 40 fsw - 4 min stop 30 fsw - 6 min stop 20 fsw - 8 min stop 10 fsw - 25 min stop	Actual decompression schedule, corrected for stop depths 31 fsw - 4 min stop 24 fsw - 6 min stop 16 fsw - 8 min stop 8 fsw - 25 min stop
Repetitive Group	J

(Note: the depth corrections presented here have not been experimentally validated by DCIEM. Unlike other similar corrections which have been published [9] for recreational diving, these depth corrections have been derived by recalculating the decompression tables at the different altitudes. They should not be used with any other published tables.)

ALTITUDE DIVING WORKSHEET (FEET)

ALTITUDE OF DIVE SITE 7200 ft

ACTUAL DEPTH OF DIVE (a) 100 fsw

DIVE DEPTH CORRECTION (b) + 30 fsw

EFFECTIVE DEPTH (ED) (a+b) 130 fsw

BOTTOM TIME (BT) 23 min

Schedule Required (ED/BT) 130 fsw / 25 min

Table Used 1

ALTITUDE DECOMPRESSION SCHEDULE

Sea Level Stop Depth	Actual Stop Depth	Stop Time
50 fsw	<u> </u> fsw	<u> </u> min
40 fsw	<u> </u> fsw	<u> </u> min
30 fsw	<u>24</u> fsw	<u>5</u> min
20 fsw	<u>16</u> fsw	<u>7</u> min
10 fsw	<u>8</u> fsw	<u>12</u> min
O ₂ Stop	<u> </u> fsw	<u> </u> min

Repetitive Group H

Figure 8. Altitude Diving Worksheet for Example 13.

SECTION 3

GENERAL PROCEDURES

1. DESCENT/ASCENT RATES

- a. **DESCENT RATE** is 60 fsw/min (18 msw/min) or slower.
- b. **ASCENT RATE** and **TRAVEL** between stops is 60 ± 10 fsw/min (18 ± 3 msw/min).
- c. **ASCENT TIME** to a stop is included in that stop time except for O₂ stops. O₂ stop time starts when the diver is confirmed on O₂; otherwise, the actual time spent at a stop equals "tabulated" stop time minus travel time to that stop at 60 fsw/min (18 msw/min). (See Example 16.)

Example 16:

Dive = 140 fsw/15 min	Standard Air Decompression
First stop from Table 1	6 min at 20 fsw.
Travel time to first stop	2 min at 60 fsw/min
Actual time at 20 fsw stop	4 min

2. VARIATIONS IN RATE OF ASCENT

- a. **ASCENT RATE TOO SLOW:**
(Less than 50 fsw/min (15 msw/min))
 - (1) Delay starts *deeper than* half maximum depth of dive - **DELAY ADDED to BOTTOM TIME** and decompress in accordance with new bottom time;
 - (2) Delay starts *shallower than* half maximum depth of dive - **DELAY ADDED to STOP TIME** of next stop. If

no stop is scheduled, then stop at 10 fsw (3 msw) for the time of the delay.

(Note: When a delay has occurred, apply the appropriate correction in accordance with para. (1) or (2). The revised stop time includes the ascent time to the next stop from the depth where the delay occurred; therefore no additional calculation is required for ascent time.)

b. ASCENT RATE TO FIRST STOP TOO FAST:

No correction required (time at stop includes travel time to the stop).

c. ASCENT RATE TOO FAST (no stops required):

Observe diver for at least one hour.

3. OXYGEN RELATED PROBLEMS

a. OXYGEN PROBLEMS IN WATER

at 30 fsw (9 msw) O₂ stop:

(1) MINOR SYMPTOMS of O₂ toxicity

(a) switch diver to air and ventilate, wait for symptoms to subside, then wait 15 minutes, and recommence O₂ at point of interruption or if symptoms recur, switch to Standard Air Decompression Table; OR

(b) switch diver to air and ventilate, continue decompression in accordance with Standard Air Decompression Table. The O₂ time is "good" time for decompression purposes and is subtracted from the 30 fsw and/or 20 fsw and/or 10 fsw (9 msw and/or 6 msw and/or 3 msw) air stop times (see Example 17); OR

- (c) if RCC immediately available, then on completion of the 30 fsw (9 msw) air stop, SurD O₂ may be performed.

Example 17:

Dive = 112 fsw/42 min	In-Water O ₂ , Table 2
120 fsw/45 min calls for	40 fsw - 3 min stop 30 fsw - 34 min stop on O ₂
<u>Situation</u>	
After 9 min on O ₂ , diver reports possible O ₂ toxicity symptoms.	
<u>Reaction</u>	
The Standard Air table for 120 fsw/45 min is 40 fsw - 3 min 30 fsw - 7 min 20 fsw - 9 min 10 fsw - 41 min	The diver is switched to air immediately and ventilated. The 9 min spent on O ₂ is "good" time. The 40 fsw stop, 30 fsw stop, and 2 min of the 20 fsw stop have been satisfied.
	Pull diver to 20 fsw. Complete decompression on air at 20 fsw for 7 min 10 fsw for 41 min.

(2) SERIOUS, INCAPACITATING SYMPTOMS of CNS OXYGEN TOXICITY:

- (a) take diver off O₂, ventilate, **STABILIZE**⁴ and
- (b) surface diver carefully to reduce risk of embolism. Treat for possible embolism if any uncertainty exists. Otherwise, treat for omitted decompression and observe carefully.

(3) LOSS OF OXYGEN

- (a) switch to air,
 - (b) re-establish O₂ and resume O₂ at the point of interruption; OR, if not successful,
-
4. Diver is not be brought to surface while convulsing.

- (c) decompress in accordance with Standard Air Decompression Table as per para. 3a(1)(b), or if O₂ available to RCC, SurD O₂ as per para. 3a(1)(c).

b. OXYGEN PROBLEMS IN RCC (SurD O₂):

(1) LOSS of O₂:

- (a) no success in re-establishing O₂, decompress in accordance with Standard Air Decompression Table commencing at the 40 fsw (12 msw) stop. Previous O₂ time is "good" time and is subtracted from 40 fsw (12 msw) and/or 30 fsw (9 msw) and/or 20 fsw (6 msw) and/or 10 fsw (3 msw) stop. (See Example 18.)

Example 18:

Dive = 140 fsw/30 min, SurD O ₂	Table 3 calls for 30 min O ₂ in RCC
<u>Situation</u>	
	After 24 min on O ₂ in RCC at 40 fsw, O ₂ is lost.

<u>Reaction</u> The Standard Air table for 140 fsw/30 min is 40 fsw - 4 min stop 30 fsw - 6 min stop 20 fsw - 9 min stop 10 fsw - 29 min stop	The 24 min spent on O ₂ satisfies the 40, 30 and 20 fsw stops and 5 min of the 10 fsw stop. Therefore, ascend to 10 fsw. Complete decompression by remaining at 10 fsw for 24 min on air.
--	--

(2) MINOR SYMPTOMS of Oxygen toxicity:

- (a) take diver off O₂;
- (b) after symptoms are gone, either:
- (1) leave diver on air for additional 15 minutes and then resume O₂ from time of interruption; or,

- (2) switch diver to Standard Air table as in b(1)(a) above, and complete decompression on air.
- (c) if O₂ breathing is resumed and O₂ symptoms recur, switch diver to Standard Air table as in b(1)(a) above, and complete decompression on air. (See Example 19.)

Example 19:

Dive = 120 fsw/75 min SurD O ₂	Table 3 calls for 70 min on O ₂ in the RCC plus two 5-min air breaks.
<u>Situation</u>	
After 11 min on O ₂ in the RCC, the diver develops an O ₂ symptom.	
<u>Reaction</u>	
<p>Take the diver off O₂. Wait until the diver has stabilized plus 15 min, then resume O₂ breathing. For example, if the diver took 4 min to stabilize, then the 40 fsw RCC stop would be 99 min, i.e.,</p> $11 + 4(\text{stabilize}) + 15(\text{wait}) + 19 + 5(\text{air break}) + 30 + 5 \text{ (air break)} + 10 \text{ (remainder)}$ <p>Therefore, complete the decompression in accordance with this schedule and then bring the diver to the surface on the breathing medium in use.</p>	

(3) SERIOUS, INCAPACITATING SYMPTOMS of CNS OXYGEN TOXICITY:

- (a) take diver off O₂, **STABILIZE⁵**; and
- (b) switch to Standard Air table as in b(1)(a) above, and complete decompression on air.

4. OMITTED DECOMPRESSION (Diver shows no symptoms),

a. **RCC immediately available** (less than 7 minutes):

- (1) if the 30 fsw (9 msw) or deeper stops were not completed - **TREAT**

5. RCC depth is not to be altered while diver is convulsing.

- (a) using Treatment Table 5 (Canadian Forces Diving Manual [10]/US Navy Diving Manual [6]) if less than 30 minutes omitted decompression, or,
 - (b) using Treatment Table 6 if greater than or equal to 30 minutes omitted decompression;
- (2) if the 30 fsw (9 msw) Standard Air stop⁶ was completed with no previous decompression omitted, recompress the diver in the chamber on O₂ to 40 fsw (12 msw) and decompress according to Table 3 (SurD O₂) (see Example 20).

Example 20:

Dive = 130 fsw/40 min	Standard Air Table 1 calls for
	40 fsw - 5 min stop, 30 fsw - 6 min stop, 20 fsw - 10 min stop, and 10 fsw - 40 min stop.
<u>Situation</u>	
Diver surfaces after completing the 40 fsw stop, the 30 fsw stop and 3 min of the 20 fsw stop. Diver is asymptomatic and RCC is available.	
<u>Reaction</u>	
Since the diver has completed the 30 fsw stop, dive on O ₂ in RCC to 40 fsw. Keep diver on O ₂ for 36 min (Table 3). Add a 5-min air break after 30 min on O ₂ for a total decompression time of 41 min in the RCC.	

b. RCC not immediately available:

The preferred action is to get the diver to a RCC for treatment. The diver should receive 100% O₂ by double-seal

-
6. For Table 3 (SurD O₂): on any profile in which there is no 30 fsw (9 msw) in-water stop, the diver cannot incur omitted decompression provided that the Surface Interval - SurD O₂ is completed within the 7 minutes allowed. If 7 minutes are exceeded, then handle as per sub-para. 4a(1).

oronasal mask enroute to the RCC. However, the supervisor has the following option if the situation warrants it:

- (1) return the diver to the next deeper stop where the omission occurred and repeat this stop. Continue decompression in accordance with the original schedule (Example 21); or

Example 21:

Dive = 130 fsw/40 min	Standard Air Table 1 calls for 40 fsw - 5 min stop, 30 fsw - 6 min stop, 20 fsw - 10 min stop, and 10 fsw - 40 min stop.
<u>Situation</u>	
Diver surfaces after completing the 40 fsw stop, the 30 fsw stop and 3 min of the 20 fsw stop. Diver is asymptomatic and RCC is not available.	
<u>Reaction</u> Recompress immediately to 30 fsw for 6 min and resume schedule beginning with the 20 fsw stop.	

- (2) if no deeper stop was called for, spend the time of the first stop at the next deeper stop and complete the total schedule (Example 22).

Example 22:

Dive = 130 fsw/40 min	Same as Example 21
<u>Situation</u>	
On ascent to 40 fsw stop, diver loses control and surfaces (blow-up). Diver is asymptomatic and RCC is not available.	
<u>Reaction</u> Recompress immediately to 50 fsw for 5 min and then complete total schedule.	

5. VIOLATION OF 7 MINUTE SURFACE INTERVAL (SurD O₂)

(Diver shows no symptoms.)

- a. Use Treatment Table 5 (Canadian Forces Diving Manual/ US Navy Diving Manual) if less than 30 minutes omitted decompression, or,
- b. Use Treatment Table 6 if greater than or equal to 30 minutes omitted decompression.

6. FLYING AFTER DIVING

- a. After a No-Decompression dive, allow enough Surface Interval time to elapse for the RF to diminish to 1.0 before flying.
- b. After a Decompression dive, a minimum of 24 hours is required before flying.

7. DECOMPRESSION STRESS DURING SURFACE INTERVAL (SurD O₂)

During the Surface Interval (SI) of a SurD O₂ dive, the required decompression has been intentionally violated in order to take the diver out of the water and complete the decompression in a recompression chamber. At the completion of the SI, the diver is repressurized in the chamber to a depth of 40 fsw (12 msw), deeper than called for by the decompression model. The diver is given additional decompression during the chamber phase of the SurD O₂ profile to compensate for the increased stress of the SI.

During the SI, the diver is exposed to a higher level of decompression stress than would be encountered if in-water decompression only had been executed. Therefore, the diver may experience signs and/or symptoms of decompression stress. Manned validation has indicated that when symptoms do occur during the SI, they are almost always very mild and late into the SI. In addition,

the symptoms usually completely resolve during the press to 40 fsw (12 msw) in the chamber. Experimental dives have demonstrated that the divers who experienced SI symptoms had the same incidence of DCS after the completion of the dive as those divers who did not experience signs or symptoms during the SI.

Therefore, during SurD O₂ diving, when all signs and symptoms of SI stress have completely resolved by the time the diver is confirmed on oxygen at 40 fsw (12 msw), the decompression profile is to be completed as planned.

When the signs and symptoms of SI stress have not completely resolved by the time the diver is confirmed on oxygen at 40 fsw (12 msw), it should be treated as decompression sickness. The diver must be immediately pressed to 60 fsw, a Treatment Table 6 initiated, and the Diving Medical Officer contacted.

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APPENDIX A

DCIEM AIR DIVING TABLES (FEET)

DCIEM DIVING MANUAL

TABLE 1

STANDARD AIR DECOMPRESSION (FEET)

The Department of National Defence (Canada), Defence and Civil Institute of Environmental Medicine (DCIEM), and Universal Dive Techtronics, Inc. (UDT) disclaim any and all responsibilities for the use of these tables and procedures.

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DCIEM DIVING MANUAL

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	Repet. Group
		80	70	60	50	40	30	20	10		
20	30	-	-	-	-	-	-	-	-	1	A
	60	-	-	-	-	-	-	-	-	1	B
	90	-	-	-	-	-	-	-	-	1	C
	120	-	-	-	-	-	-	-	-	1	D
	150	-	-	-	-	-	-	-	-	1	E
	180	-	-	-	-	-	-	-	-	1	F
	240	-	-	-	-	-	-	-	-	1	G
	300	-	-	-	-	-	-	-	-	1	H
	360	-	-	-	-	-	-	-	-	1	I
	420	-	-	-	-	-	-	-	-	1	J
	480	-	-	-	-	-	-	-	-	1	K
	600	-	-	-	-	-	-	-	-	1	L
	720	-	-	-	-	-	-	-	-	1	M
30	30	-	-	-	-	-	-	-	-	1	A
	60	-	-	-	-	-	-	-	-	1	C
	90	-	-	-	-	-	-	-	-	1	D
	120	-	-	-	-	-	-	-	-	1	F
	150	-	-	-	-	-	-	-	-	1	G
	180	-	-	-	-	-	-	-	-	1	H
	210	-	-	-	-	-	-	-	-	1	J
	240	-	-	-	-	-	-	-	-	1	K
	270	-	-	-	-	-	-	-	-	1	L
	300	-	-	-	-	-	-	-	-	1	M
	330	-	-	-	-	-	-	-	3	3	N
	360	-	-	-	-	-	-	-	5	5	O
	390	-	-	-	-	-	-	-	7	7	
	400	-	-	-	-	-	-	-	10	10	
	420	-	-	-	-	-	-	-	14	14	
	450	-	-	-	-	-	-	-	19	19	
	480	-	-	-	-	-	-	-	23	23	

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	Repet. Group
		80	70	60	50	40	30	20	10		
40	20	-	-	-	-	-	-	-	-	1	A
	30	-	-	-	-	-	-	-	-	1	B
	60	-	-	-	-	-	-	-	-	1	D
	90	-	-	-	-	-	-	-	-	1	G
	120	-	-	-	-	-	-	-	-	1	H
	150	-	-	-	-	-	-	-	-	1	J
	160	-	-	-	-	-	-	-	3	3	K
	170	-	-	-	-	-	-	-	5	5	L
	180	-	-	-	-	-	-	-	8	8	M
	190	-	-	-	-	-	-	-	10	10	
	200	-	-	-	-	-	-	-	14	14	
	210	-	-	-	-	-	-	-	18	18	
	240	-	-	-	-	-	-	-	28	28	
	270	-	-	-	-	-	-	-	38	38	
	300	-	-	-	-	-	-	-	48	48	
	330	-	-	-	-	-	-	-	57	57	
	360	-	-	-	-	-	-	-	66	66	
50	10	-	-	-	-	-	-	-	-	1	A
	20	-	-	-	-	-	-	-	-	1	B
	30	-	-	-	-	-	-	-	-	1	C
	40	-	-	-	-	-	-	-	-	1	D
	50	-	-	-	-	-	-	-	-	1	E
	60	-	-	-	-	-	-	-	-	1	F
	75	-	-	-	-	-	-	-	-	1	G
	100	-	-	-	-	-	-	-	6	6	I
	120	-	-	-	-	-	-	-	12	12	K
	130	-	-	-	-	-	-	-	18	18	L
	140	-	-	-	-	-	-	-	24	24	M
	150	-	-	-	-	-	-	-	29	29	
	160	-	-	-	-	-	-	-	33	33	
	170	-	-	-	-	-	-	-	38	38	
	180	-	-	-	-	-	-	-	43	43	
	200	-	-	-	-	-	-	-	53	53	
	220	-	-	-	-	-	-	-	63	63	
	240	-	-	-	-	-	-	-	74	74	
	260	-	-	-	-	-	-	-	86	86	
	280	-	-	-	-	-	-	-	97	97	

AIR DIVING TABLES

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	Repet. Group
		80	70	60	50	40	30	20	10		
60	10	-	-	-	-	-	-	-	-	1	A
	20	-	-	-	-	-	-	-	-	1	B
	30	-	-	-	-	-	-	-	-	1	D
	40	-	-	-	-	-	-	-	-	1	E
	50	-	-	-	-	-	-	-	-	1	F
	60	-	-	-	-	-	-	-	5	5	G
	80	-	-	-	-	-	-	-	10	10	I
	90	-	-	-	-	-	-	-	19	19	J
	100	-	-	-	-	-	-	-	26	26	K
	110	-	-	-	-	-	-	-	32	32	L
	120	-	-	-	-	-	-	2	37	39	M
	130	-	-	-	-	-	-	2	43	45	
	140	-	-	-	-	-	-	3	49	52	
	150	-	-	-	-	-	-	3	55	58	
	160	-	-	-	-	-	-	4	62	66	
	170	-	-	-	-	-	-	4	70	74	
	180	-	-	-	-	-	-	5	77	82	
	190	-	-	-	-	-	-	5	85	90	
	200	-	-	-	-	-	-	11	90	101	
	210	-	-	-	-	-	-	15	96	111	
	220	-	-	-	-	-	-	19	102	121	
	230	-	-	-	-	-	-	23	108	131	
	240	-	-	-	-	-	-	27	114	141	

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	Repet. Group
		80	70	60	50	40	30	20	10		
70	10	-	-	-	-	-	-	-	-	1	A
	20	-	-	-	-	-	-	-	-	1	C
	25	-	-	-	-	-	-	-	-	1	D
	35	-	-	-	-	-	-	-	-	1	E
	40	-	-	-	-	-	-	-	5	5	F
	50	-	-	-	-	-	-	-	10	10	G
	60	-	-	-	-	-	-	2	11	13	H
	70	-	-	-	-	-	-	3	19	22	J
	80	-	-	-	-	-	-	4	27	31	K
	90	-	-	-	-	-	-	5	34	39	M
	100	-	-	-	-	-	-	6	41	47	N
	110	-	-	-	-	-	-	7	48	55	
	120	-	-	-	-	-	-	8	56	64	
	130	-	-	-	-	-	-	9	65	74	
	140	-	-	-	-	-	-	11	74	85	
	150	-	-	-	-	-	-	17	81	98	
	160	-	-	-	-	-	-	22	89	111	
	170	-	-	-	-	-	-	27	98	125	
	180	-	-	-	-	-	-	31	107	138	
	190	-	-	-	-	-	-	36	115	151	
	200	-	-	-	-	-	-	2	39	123	164

AIR DIVING TABLES

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)									Decom. Time (min)	Repet. Group
		80	70	60	50	40	30	20	10			
80	10	-	-	-	-	-	-	-	-	2	A	
	15	-	-	-	-	-	-	-	-	2	C	
	20	-	-	-	-	-	-	-	-	2	D	
	25	-	-	-	-	-	-	-	-	2	E	
	30	-	-	-	-	-	-	-	6	6	F	
	40	-	-	-	-	-	-	2	10	12	G	
	50	-	-	-	-	-	-	4	12	16	H	
	55	-	-	-	-	-	-	5	17	22	I	
	60	-	-	-	-	-	-	6	22	28	J	
	65	-	-	-	-	-	-	7	27	34	J	
	70	-	-	-	-	-	-	8	31	39	K	
	75	-	-	-	-	-	-	9	35	44	L	
	80	-	-	-	-	-	-	9	40	49	M	
	85	-	-	-	-	-	-	10	44	54		
	90	-	-	-	-	-	-	11	48	59		
	95	-	-	-	-	-	-	11	53	64		
	100	-	-	-	-	-	-	2	10	58	70	
	110	-	-	-	-	-	-	3	14	66	83	
	120	-	-	-	-	-	-	3	20	76	99	
	130	-	-	-	-	-	-	4	24	87	115	
	140	-	-	-	-	-	-	5	29	98	132	
	150	-	-	-	-	-	-	5	35	109	149	
	160	-	-	-	-	-	-	6	40	120	166	

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	Repet. Group
		80	70	60	50	40	30	20	10		
90	5	-	-	-	-	-	-	-	-	2	A
	10	-	-	-	-	-	-	-	-	2	B
	15	-	-	-	-	-	-	-	-	2	C
	20	-	-	-	-	-	-	-	-	2	D
	25	-	-	-	-	-	-	-	8	8	E
	30	-	-	-	-	-	-	3	9	12	F
	40	-	-	-	-	-	-	6	11	17	H
	45	-	-	-	-	-	-	7	16	23	I
	50	-	-	-	-	-	-	9	21	30	J
	55	-	-	-	-	-	-	10	27	37	K
	60	-	-	-	-	-	2	9	32	43	L
	65	-	-	-	-	-	3	9	37	49	
	70	-	-	-	-	-	4	9	42	55	
	75	-	-	-	-	-	4	10	47	61	
	80	-	-	-	-	-	5	10	53	68	
	85	-	-	-	-	-	5	11	59	75	
	90	-	-	-	-	-	6	15	62	83	
	95	-	-	-	-	-	6	18	68	92	
	100	-	-	-	-	-	7	21	73	101	
	110	-	-	-	-	-	8	26	87	121	
	120	-	-	-	-	-	8	33	101	142	

AIR DIVING TABLES

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	Repet. Group
		80	70	60	50	40	30	20	10		
100	5	-	-	-	-	-	-	-	-	2	A
	10	-	-	-	-	-	-	-	-	2	B
	15	-	-	-	-	-	-	-	-	2	D
	20	-	-	-	-	-	-	-	8	8	E
	25	-	-	-	-	-	-	3	10	13	F
	30	-	-	-	-	-	-	6	10	16	G
	35	-	-	-	-	-	-	8	11	19	H
	40	-	-	-	-	-	-	9	18	27	I
	45	-	-	-	-	-	3	8	25	36	J
	50	-	-	-	-	-	4	9	30	43	K
	55	-	-	-	-	-	5	9	37	51	L
	60	-	-	-	-	-	6	9	43	58	
	65	-	-	-	-	-	7	10	48	65	
	70	-	-	-	-	-	8	10	55	73	
	75	-	-	-	-	-	8	15	59	82	
	80	-	-	-	-	-	9	18	65	92	
	85	-	-	-	-	2	8	22	71	103	
	90	-	-	-	-	2	8	25	79	114	
	95	-	-	-	-	3	8	29	87	127	
	100	-	-	-	-	3	9	32	95	139	
	105	-	-	-	-	4	8	36	104	152	
	110	-	-	-	-	4	9	39	112	164	

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	Repet. Group
		80	70	60	50	40	30	20	10		
110	5	-	-	-	-	-	-	-	-	2	A
	10	-	-	-	-	-	-	-	-	2	B
	12	-	-	-	-	-	-	-	-	2	C
	15	-	-	-	-	-	-	-	5	5	D
	20	-	-	-	-	-	-	3	9	12	F
	25	-	-	-	-	-	-	6	10	16	G
	30	-	-	-	-	-	-	9	11	20	H
	35	-	-	-	-	-	4	7	19	30	I
	40	-	-	-	-	-	5	8	26	39	J
	45	-	-	-	-	-	6	9	33	48	K
	50	-	-	-	-	-	8	9	39	56	M
	55	-	-	-	-	-	9	9	46	64	N
	60	-	-	-	-	3	7	11	53	74	
	65	-	-	-	-	3	8	16	58	85	
	70	-	-	-	-	4	8	20	64	96	
	75	-	-	-	-	5	8	23	73	109	
	80	-	-	-	-	5	8	28	81	122	
	85	-	-	-	-	6	8	32	91	137	
	90	-	-	-	-	6	9	35	101	151	
	95	-	-	-	-	7	9	40	111	167	
	100	-	-	-	-	7	10	44	120	181	
	105	-	-	-	-	8	13	46	129	196	
	110	-	-	-	-	8	16	50	136	210	

AIR DIVING TABLES

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	Repet. Group
		80	70	60	50	40	30	20	10		
120	5	-	-	-	-	-	-	-	-	2	A
	10	-	-	-	-	-	-	-	-	2	C
	15	-	-	-	-	-	-	-	10	10	E
	20	-	-	-	-	-	-	5	10	15	F
	25	-	-	-	-	-	-	9	11	20	G
	30	-	-	-	-	-	5	7	17	29	I
	35	-	-	-	-	-	6	9	25	40	J
	40	-	-	-	-	-	8	9	33	50	K
	45	-	-	-	-	3	7	9	41	60	M
	50	-	-	-	-	4	7	10	49	70	N
	55	-	-	-	-	5	7	15	54	81	
	60	-	-	-	-	6	8	19	61	94	
	65	-	-	-	-	7	8	23	70	108	
	70	-	-	-	-	7	9	27	80	123	
	75	-	-	-	2	6	9	32	91	140	
	80	-	-	-	3	6	9	37	103	158	
	85	-	-	-	3	7	10	41	114	175	
	90	-	-	-	3	7	14	44	124	192	
	95	-	-	-	4	7	16	49	134	210	
	100	-	-	-	4	7	20	53	142	226	

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	Repet. Group
		80	70	60	50	40	30	20	10		
130	5	-	-	-	-	-	-	-	-	2	A
	8	-	-	-	-	-	-	-	-	2	B
	10	-	-	-	-	-	-	-	5	5	C
	15	-	-	-	-	-	-	4	9	13	E
	20	-	-	-	-	-	-	8	10	18	G
	25	-	-	-	-	-	5	7	12	24	H
	30	-	-	-	-	-	7	8	23	38	J
	35	-	-	-	-	3	6	9	32	50	K
	40	-	-	-	-	5	6	10	40	61	M
	45	-	-	-	-	6	7	10	50	73	N
	50	-	-	-	-	7	8	16	55	86	
	55	-	-	-	2	6	8	21	64	101	
	60	-	-	-	3	6	8	26	75	118	
	65	-	-	-	4	6	9	31	86	136	
	70	-	-	-	5	6	9	36	100	156	
	75	-	-	-	5	7	11	40	113	176	
	80	-	-	-	6	7	15	44	125	197	
	85	-	-	-	6	7	18	49	135	215	
	90	-	-	-	7	7	22	54	144	234	
140	7	-	-	-	-	-	-	-	-	2	B
	10	-	-	-	-	-	-	-	7	7	D
	15	-	-	-	-	-	-	6	9	15	F
	20	-	-	-	-	-	4	7	11	22	G
	25	-	-	-	-	-	7	8	19	34	I
	30	-	-	-	-	4	6	9	29	48	K
	35	-	-	-	-	6	6	10	39	61	L
	40	-	-	-	-	7	7	10	49	73	N
	45	-	-	-	3	6	7	17	56	89	O
	50	-	-	-	4	6	8	22	65	105	
	55	-	-	-	5	6	9	27	78	125	
	60	-	-	-	6	6	9	33	91	145	
	65	-	-	-	7	6	11	38	106	168	
	70	-	-	2	5	7	15	42	120	191	
	75	-	-	3	5	8	18	47	133	214	
	80	-	-	3	6	8	21	54	143	235	
	85	-	-	4	6	8	25	61	151	255	
	90	-	-	4	6	8	30	68	157	273	

AIR DIVING TABLES

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	Repet. Group
		80	70	60	50	40	30	20	10		
150	6	-	-	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	-	-	9	9	D
	15	-	-	-	-	-	-	8	10	18	F
	20	-	-	-	-	-	6	8	11	25	H
	25	-	-	-	-	4	6	8	25	43	J
	30	-	-	-	-	6	7	9	35	57	K
	35	-	-	-	3	5	7	10	46	71	M
	40	-	-	-	4	6	8	16	54	88	O
	45	-	-	-	6	6	8	22	65	107	
	50	-	-	-	7	6	9	28	78	128	
	55	-	-	3	5	6	10	34	94	152	
	60	-	-	4	5	7	13	39	110	178	
	65	-	-	4	6	7	17	44	125	203	
	70	-	-	5	6	7	21	50	139	228	
160	6	-	-	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	-	3	9	12	D
	15	-	-	-	-	-	4	7	10	21	G
	20	-	-	-	-	3	5	8	16	32	H
	25	-	-	-	-	6	6	9	30	51	K
	30	-	-	-	4	5	6	10	42	67	M
	35	-	-	-	5	6	7	14	52	84	N
	40	-	-	-	7	6	8	21	62	104	
	45	-	-	3	5	6	9	28	76	127	
	50	-	-	4	5	7	9	35	93	153	
	55	-	-	5	6	7	14	39	112	183	
	60	-	-	6	6	7	18	45	129	211	
	65	-	3	4	6	8	22	53	142	238	
	70	-	3	5	6	8	27	62	152	263	

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	Repet. Group
		80	70	60	50	40	30	20	10		
170	5	-	-	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	-	5	9	14	D
	15	-	-	-	-	-	6	7	10	23	G
	20	-	-	-	-	5	6	8	22	41	I
	25	-	-	-	3	5	6	10	35	59	K
	30	-	-	-	6	5	7	11	48	77	M
	35	-	-	3	4	6	8	19	58	98	O
	40	-	-	4	5	6	9	26	72	122	
	45	-	-	6	5	6	10	34	91	152	
	50	-	3	4	5	7	14	39	111	183	
	55	-	3	5	5	8	19	45	129	214	
	60	-	4	5	6	8	23	54	144	244	
	65	-	5	5	6	8	29	64	154	271	
	70	-	5	5	7	12	31	76	160	296	
180	5	-	-	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	-	7	9	16	E
	15	-	-	-	-	-	8	7	11	26	H
	20	-	-	-	-	7	6	8	27	48	J
	25	-	-	-	5	5	7	10	40	67	M
	30	-	-	3	5	5	8	15	53	89	O
	35	-	-	5	5	6	8	24	66	114	
	40	-	3	4	5	6	9	32	85	144	
	45	-	4	4	5	7	14	38	107	179	
	50	-	5	4	6	7	19	45	127	213	
	55	-	5	5	6	8	24	53	144	245	
	60	3	3	5	7	9	29	65	155	276	

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)										Decom. Time (min)
		100	90	80	70	60	50	40	30	20	10	
190	5	-	-	-	-	-	-	-	-	-	-	3
	10	-	-	-	-	-	-	-	-	8	10	18
	15	-	-	-	-	-	-	4	5	8	13	30
	20	-	-	-	-	-	4	5	6	9	31	55
	25	-	-	-	-	3	4	5	7	11	46	76
	30	-	-	-	-	5	5	5	8	20	58	101
	35	-	-	-	3	4	5	6	9	29	76	132
	40	-	-	-	5	4	5	7	12	36	100	169
	45	-	-	-	6	4	6	7	18	43	123	207
	50	-	-	3	4	4	6	8	24	52	141	242
200	55	-	-	4	4	5	6	10	28	65	154	276
	5	-	-	-	-	-	-	-	-	-	4	4
	10	-	-	-	-	-	-	-	4	6	10	20
	15	-	-	-	-	-	-	6	5	8	18	37
	20	-	-	-	-	-	6	4	7	9	36	62
	25	-	-	-	-	5	4	5	8	14	51	87
	30	-	-	-	3	4	5	6	8	24	67	117
	35	-	-	-	5	4	5	7	9	34	89	153
	40	-	-	3	3	5	5	8	16	40	115	195
	45	-	-	4	4	4	6	8	22	49	137	234
210	50	-	-	5	4	5	6	10	27	62	153	272
	5	-	-	-	-	-	-	-	-	-	6	6
	10	-	-	-	-	-	-	-	5	7	10	22
	15	-	-	-	-	-	-	7	6	8	22	43
	20	-	-	-	-	4	3	5	7	10	40	69
	25	-	-	-	-	6	5	5	8	18	55	97
	30	-	-	-	5	4	5	6	9	29	76	134
	35	-	-	3	4	4	5	7	14	36	103	176
	40	-	-	5	3	5	6	8	19	46	130	222
	45	-	-	6	4	4	7	8	27	57	149	262
	50	-	3	4	4	5	7	13	31	74	160	301

TABLE 1: STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)										Decom. Time (min)
		100	90	80	70	60	50	40	30	20	10	
220	5	-	-	-	-	-	-	-	-	-	7	7
	10	-	-	-	-	-	-	-	7	7	10	24
	15	-	-	-	-	-	5	4	6	8	27	50
	20	-	-	-	-	5	4	5	7	10	46	77
	25	-	-	-	4	4	4	6	9	22	61	110
	30	-	-	3	4	4	5	7	9	33	87	152
	35	-	-	5	3	5	5	8	17	40	117	200
	40	-	3	3	4	5	6	8	24	52	142	247
	45		4	3	4	6	6	12	29	68	157	289
230	5	-	-	-	-	-	-	-	-	-	8	8
	10	-	-	-	-	-	-	-	8	7	11	26
	15	-	-	-	-	-	6	4	7	9	30	56
	20	-	-	-	-	6	4	6	7	14	48	85
	25	-	-	-	6	4	4	7	8	26	69	124
	30	-	-	5	3	4	6	7	12	36	100	173
	35	-	4	3	3	5	6	8	20	46	131	226
	40	-	5	3	4	5	6	10	27	61	151	272
240	5	-	-	-	-	-	-	-	-	-	9	9
	10	-	-	-	-	-	-	5	5	7	11	28
	15	-	-	-	-	-	7	5	6	9	34	61
	20	-	-	-	5	3	4	6	8	17	53	96
	25	-	-	4	3	4	5	7	9	29	78	139
	30	-	4	2	4	4	6	7	16	39	113	195
	35	-	5	3	4	5	6	8	24	52	142	249
	40	4	2	4	4	5	7	13	30	71	159	299

TABLE 1S
SHORT STANDARD AIR
DECOMPRESSION (FEET)

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DCIEM DIVING MANUAL

TABLE 1S: SHORT STANDARD AIR DECOMPRESSION (FEET)

Depth (fsw)	No-Decompression Bottom Times (min)					Decompression Required Bottom Times (min)			
20	30 A 60 B 90 C 120 D	150 E 180 F 240 G 300 H	360 I 420 J 480 K 600 L	720 M ∞					
30	30 A 45 B 60 C 90 D	100 E 120 F 150 G 180 H	190 I 210 J 240 K 270 L	300 M	330 N 360 O	400	420	450	
40	22 A 30 B 40 C	60 D 70 E 80 F	90 G 120 H 130 I	150 J	160 K 170 L	180 M 190	200	215	
50	18 A 25 B	30 C 40 D	50 E 60 F	75 G	85 H 95 I	105 J 115 K	124 L	132 M	
60	14 A 20 B	25 C 30 D	40 E	50 F	60 G	70 H 80 I	85 J	92 K	
Decompression Time in minutes at			10 fsw		5	10	15	20	
70	12 A 15 B	20 C	25 D	35 E	40 F	50 G	63 I	66 J	
80	10 A 13 B	15 C	20 D	25 E	29 F	35 G	48 H	52 I	
90	9 A	12 B	15 C	20 D	23 E	27 F	35 G	43 I	
100	7 A	10 B	12 C	15 D	18 D	21 E	29 G	36 H	
110		6 A	10 B	12 C	15 D	18 E	22 F	30 H	
120		6 A	8 B	10 C	12 D	15 E	19 F	25 G	
130			5 A	8 B	10 C	13 D	16 F	21 G	
140			5 A	7 B	9 C	11 D	14 F	18 G	
150			4 A	6 B	8 C	10 D	12 E	15 F	
Decompression Time in minutes at			20 fsw		-	-	5	10	
			10 fsw		5	10	10	10	

DCIEM DIVING MANUAL

TABLE 2

IN-WATER OXYGEN DECOMPRESSION (FEET)

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DCIEM DIVING MANUAL

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)					Decom. Time (min)	Repet. Group	
		Air							
		80	70	60	50	40	30		
50	75	-	-	-	-	-	-	1 G	
	115	-	-	-	-	-	5	6 J	
	130	-	-	-	-	-	12	13 J	
	140	-	-	-	-	-	15	16 K	
	160	-	-	-	-	-	20	21	
	180	-	-	-	-	-	24	25	
	200	-	-	-	-	-	28	29	
	220	-	-	-	-	-	32	33	
	240	-	-	-	-	-	36	37	
	260	-	-	-	-	-	39	40	
60	280	-	-	-	-	-	43	44	
	50	-	-	-	-	-	-	1 F	
	75	-	-	-	-	-	5	6 H	
	90	-	-	-	-	-	12	13 J	
	100	-	-	-	-	-	16	17 J	
	110	-	-	-	-	-	20	21 K	
	120	-	-	-	-	-	23	24 K	
	140	-	-	-	-	-	29	30	
	160	-	-	-	-	-	35	36	
	180	-	-	-	-	-	40	41	
	200	-	-	-	-	-	45	46	
	220	-	-	-	-	-	50	51	
	240	-	-	-	-	-	55	56	

O₂ stop times do not include ascent time to 30 fsw

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		80	70	60	50	40	30		
70	35	-	-	-	-	-	-	1	E
	50	-	-	-	-	-	6	8	G
	70	-	-	-	-	-	14	16	I
	80	-	-	-	-	-	19	21	J
	90	-	-	-	-	-	24	26	K
	100	-	-	-	-	-	28	30	K
	110	-	-	-	-	-	32	34	
	120	-	-	-	-	-	35	37	
	130	-	-	-	-	-	39	41	
	140	-	-	-	-	-	42	44	
	150	-	-	-	-	-	45	47	
	160	-	-	-	-	-	49	51	
	170	-	-	-	-	-	52	54	
	180	-	-	-	-	-	56	58	
	190	-	-	-	-	-	59	61	
	200	-	-	-	-	-	62	64	
80	25	-	-	-	-	-	-	2	E
	30	-	-	-	-	-	5	7	F
	50	-	-	-	-	-	9	11	H
	55	-	-	-	-	-	14	16	H
	60	-	-	-	-	-	18	20	I
	70	-	-	-	-	-	24	26	J
	80	-	-	-	-	-	29	31	K
	90	-	-	-	-	-	34	36	
	100	-	-	-	-	-	38	40	
	110	-	-	-	-	-	42	44	
	120	-	-	-	-	-	47	49	
	130	-	-	-	-	-	51	53	
	140	-	-	-	-	-	55	57	
	150	-	-	-	-	-	60	62	
	160	-	-	-	-	-	64	66	

O₂ stop times do not include ascent time to 30 fsw

AIR DIVING TABLES

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		80	70	60	50	40	30		
90	20	-	-	-	-	-	-	2	D
	25	-	-	-	-	-	5	7	E
	40	-	-	-	-	-	10	12	G
	45	-	-	-	-	-	13	15	H
	50	-	-	-	-	-	19	21	H
	55	-	-	-	-	-	23	25	I
	60	-	-	-	-	-	26	28	J
	70	-	-	-	-	-	32	34	
	80	-	-	-	-	-	38	40	
	90	-	-	-	-	-	43	45	
	100	-	-	-	-	-	48	50	
	110	-	-	-	-	-	53	55	
	120	-	-	-	-	-	59	61	
100	15	-	-	-	-	-	-	2	D
	20	-	-	-	-	-	5	7	E
	30	-	-	-	-	-	9	11	F
	35	-	-	-	-	-	11	13	G
	40	-	-	-	-	-	16	18	H
	45	-	-	-	-	-	22	24	I
	50	-	-	-	-	-	26	28	I
	55	-	-	-	-	-	30	32	J
	60	-	-	-	-	-	34	36	
	70	-	-	-	-	-	40	42	
	80	-	-	-	-	-	46	48	
	90	-	-	-	-	2	52	55	
	100	-	-	-	-	3	58	62	
	110	-	-	-	-	4	64	69	

O₂ stop times do not include ascent time to 30 fsw

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		80	70	60	50	40	30		
110	12	-	-	-	-	-	-	2	C
	20	-	-	-	-	-	7	9	E
	25	-	-	-	-	-	9	11	F
	30	-	-	-	-	-	11	13	G
	35	-	-	-	-	-	17	19	H
	40	-	-	-	-	-	23	25	I
	45	-	-	-	-	-	28	30	J
	50	-	-	-	-	-	33	35	K
	55	-	-	-	-	-	37	39	K
	60	-	-	-	-	3	40	44	
	65	-	-	-	-	3	44	48	
	70	-	-	-	-	4	47	52	
	75	-	-	-	-	5	50	56	
	80	-	-	-	-	5	54	60	
	85	-	-	-	-	6	57	64	
	90	-	-	-	-	6	61	68	
	95	-	-	-	-	7	64	72	
	100	-	-	-	-	7	68	76	
	105	-	-	-	-	8	71	80	
	110	-	-	-	-	8	75	84	
O ₂ stop times do not include ascent time to 30 fsw									

AIR DIVING TABLES

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		80	70	60	50	40	30		
120	10	-	-	-	-	-	-	2	C
	15	-	-	-	-	-	6	8	E
	20	-	-	-	-	-	9	11	F
	25	-	-	-	-	-	11	13	G
	30	-	-	-	-	-	15	17	H
	35	-	-	-	-	-	24	26	H
	40	-	-	-	-	-	29	31	I
	45	-	-	-	-	3	34	38	J
	50	-	-	-	-	4	38	43	K
	55	-	-	-	-	5	42	48	
	60	-	-	-	-	6	46	53	
	65	-	-	-	-	7	50	58	
	70	-	-	-	-	7	54	62	
	75	-	-	-	2	6	58	67	
	80	-	-	-	3	6	62	72	
	85	-	-	-	3	7	66	77	
	90	-	-	-	3	7	70	81	
	95	-	-	-	4	7	74	86	
	100	-	-	-	4	7	79	91	

O₂ stop times do not include ascent time to 30 fsw

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		80	70	60	50	40	30		
130	8	-	-	-	-	-	-	2	B
	15	-	-	-	-	-	7	10	E
	20	-	-	-	-	-	10	13	G
	25	-	-	-	-	-	13	16	G
	30	-	-	-	-	-	22	25	H
	35	-	-	-	-	3	29	33	I
	40	-	-	-	-	5	34	40	J
	45	-	-	-	-	6	39	46	L
	50	-	-	-	-	7	43	51	
	55	-	-	-	2	6	48	57	
	60	-	-	-	3	6	52	62	
	65	-	-	-	4	6	56	67	
	70	-	-	-	5	6	61	73	
	75	-	-	-	5	7	65	78	
	80	-	-	-	6	7	70	84	
	85	-	-	-	6	7	75	89	
	90	-	-	-	7	7	80	95	
140	7	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	4	7	D
	15	-	-	-	-	-	9	12	D
	20	-	-	-	-	-	12	15	G
	25	-	-	-	-	-	18	21	H
	30	-	-	-	-	4	27	32	I
	35	-	-	-	-	6	33	40	J
	40	-	-	-	-	7	39	47	K
	45	-	-	-	3	6	44	54	M
	50	-	-	-	4	6	49	60	
	55	-	-	-	5	6	53	65	
	60	-	-	-	6	6	58	71	
	65	-	-	-	7	6	64	78	
	70	-	-	2	5	7	69	84	
	75	-	-	3	5	8	74	91	
	80	-	-	3	6	8	80	98	
	85	-	-	4	6	8	85	104	
	90	-	-	4	6	8	91	110	

O₂ stop times do not include ascent time to 30 fsw

AIR DIVING TABLES

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		80	70	60	50	40	30		
150	6	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	5	8	D
	15	-	-	-	-	-	10	13	F
	20	-	-	-	-	-	14	17	G
	25	-	-	-	-	4	24	29	H
	30	-	-	-	-	6	31	38	I
	35	-	-	-	3	5	37	46	K
	40	-	-	-	4	6	43	54	M
	45	-	-	-	6	6	48	61	
	50	-	-	-	7	6	54	68	
	55	-	-	3	5	6	60	75	
	60	-	-	4	5	7	65	82	
	65	-	-	4	6	7	71	89	
	70	-	-	5	6	7	77	96	
	75	-	-	6	5	8	84	104	
160	80	-	-	6	6	8	90	111	
	6	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	6	9	E
	15	-	-	-	-	-	11	14	F
	20	-	-	-	-	3	16	20	G
	25	-	-	-	-	6	28	35	I
	30	-	-	-	4	5	35	45	J
	35	-	-	-	5	6	41	53	L
	40	-	-	-	7	6	47	61	
	45	-	-	3	5	6	54	69	
	50	-	-	4	5	7	60	77	
	55	-	-	5	6	7	66	85	
	60	-	-	6	6	7	73	93	
	65	-	3	4	6	8	80	102	
	70	-	3	5	6	8	87	110	

O₂ stop times do not include ascent time to 30 fsw

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		80	70	60	50	40	30		
170	5	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	7	10	E
	15	-	-	-	-	-	13	16	G
	20	-	-	-	-	5	21	27	H
	25	-	-	-	3	5	31	40	J
	30	-	-	-	6	5	39	51	K
	35	-	-	3	4	6	46	60	M
	40	-	-	4	5	6	52	68	
	45	-	-	6	5	6	59	77	
	50	-	3	4	5	7	66	86	
	55	-	3	5	5	8	73	95	
	60	-	4	5	6	8	81	105	
	65	-	5	5	6	8	89	114	
	70	-	5	5	7	12	96	126	
180	5	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	9	12	E
	15	-	-	-	-	-	14	17	G
	20	-	-	-	-	7	25	33	H
	25	-	-	-	5	5	35	46	J
	30	-	-	3	5	5	42	56	M
	35	-	-	5	5	6	50	67	
	40	-	3	4	5	6	57	76	
	45	-	4	4	5	7	65	86	
	50	-	5	4	6	7	73	96	
	55	-	5	5	6	8	81	106	
	60	3	3	5	7	9	89	117	

O₂ stop times do not include ascent time to 30 fsw

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	
		Air							O ₂		
		100	90	80	70	60	50	40			
190	5	-	-	-	-	-	-	-	-	3	
	10	-	-	-	-	-	-	-	10	14	
	15	-	-	-	-	-	-	4	15	20	
	20	-	-	-	-	-	4	5	29	39	
	25	-	-	-	-	3	4	5	38	51	
	30	-	-	-	-	5	5	5	46	62	
	35	-	-	-	3	4	5	6	54	73	
	40	-	-	-	5	4	5	7	62	84	
	45	-	-	-	6	4	6	7	71	95	
	50	-	-	3	4	4	6	8	80	106	
	55	-	-	4	4	5	6	10	89	119	
200	10	-	-	-	-	-	-	-	11	15	
	15	-	-	-	-	-	-	6	18	25	
	20	-	-	-	-	-	6	4	32	43	
	25	-	-	-	-	5	4	5	41	56	
	30	-	-	-	3	4	5	6	50	69	
	35	-	-	-	5	4	5	7	58	80	
	40	-	-	3	3	5	5	8	67	92	
	45	-	-	4	4	4	6	8	77	104	
	50	-	-	5	4	5	6	10	87	118	
	10	-	-	-	-	-	-	-	12	16	
210	15	-	-	-	-	-	-	7	22	30	
	20	-	-	-	-	4	3	5	35	48	
	25	-	-	-	-	6	5	5	45	62	
	30	-	-	-	5	4	5	6	54	75	
	35	-	-	3	4	4	5	7	63	87	
	40	-	-	5	3	5	6	8	73	101	
	45	-	-	6	4	4	7	8	84	114	
	50	-	3	4	4	5	7	13	95	132	

O₂ stop times do not include ascent time to 30 fsw

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	
		Air							O₂		
		100	90	80	70	60	50	40			
220	10	-	-	-	-	-	-	-	13	17	
	15	-	-	-	-	-	5	4	25	35	
	20	-	-	-	-	5	4	5	38	53	
	25	-	-	-	4	4	4	6	48	67	
	30	-	-	3	4	4	5	7	58	82	
	35	-	-	5	3	5	5	8	68	95	
	40	-	3	3	4	5	6	8	80	110	
	45	-	4	3	4	6	6	12	91	127	
230	10	-	-	-	-	-	-	-	14	18	
	15	-	-	-	-	-	6	4	28	39	
	20	-	-	-	-	6	4	6	40	57	
	25	-	-	-	6	4	4	7	51	73	
	30	-	-	5	3	4	6	7	62	88	
	35	-	4	3	3	5	6	8	74	104	
	40	-	5	3	4	5	6	10	86	120	
240	5	-	-	-	-	-	-	-	5	9	
	10	-	-	-	-	-	-	5	14	20	
	15	-	-	-	-	-	7	5	30	43	
	20	-	-	-	5	3	4	6	43	62	
	25	-	-	4	3	4	5	7	55	79	
	30	-	4	2	4	4	6	7	67	95	
	35	-	5	3	4	5	6	8	80	112	
	40	4	2	4	4	5	7	13	93	133	

O₂ stop times do not include ascent time to 30 fsw

TABLE 2S

SHORT IN-WATER OXYGEN DECOMPRESSION (FEET)

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DCIEM DIVING MANUAL

TABLE 2S: SHORT IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	No-Decompression Bottom Times (min)			Decompression Required Bottom Times (min)			
	30 C	50 E	75 G	115 J	125 J	140 K	160
50	30 C	50 E	75 G	115 J	125 J	140 K	160
60	20 B	30 D	50 F	75 H	85 I	95 J	110 K
70	15 B	25 D	35 F	45 F	65 H	72 I	82 J
80	10 A	20 D	25 E	30 F	50 H	57 H	64 I
90	9 A	15 C	20 D	25 E	40 G	46 H	52 I
100	7 A	10 B	15 D	20 E	33 G	39 H	43 I
110	6 A	10 B	12 C	17 D	28 G	34 H	37 H
120		6 A	10 C	14 D	23 G	30 H	32 H
130		5 A	8 B	13 D	20 G	26 G	29 H
140		5 A	7 B	11 D	17 F	24 G	26 H
150			6 B	10 D	15 F	21 G	23 H
160			6 B	9 D	14 F	19 G	21 H
170			5 B	8 C	12 E	18 G	19 H
180			5 B	7 C	11 E	16 G	18 G
Decompression Time (min) Oxygen at 30 fsw				5	10	15	20
Note: Decompression stop times do not include ascent time to 30 fsw.							

DCIEM DIVING MANUAL

TABLE 3

SURFACE DECOMPRESSION WITH OXYGEN (FEET)

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DCIEM DIVING MANUAL

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						RCC O ₂ 40	Decom. Time (min)	Repet. Group			
		In-Water Stops											
		Air											
		80	70	60	50	40	30						
60	50	-	-	-	-	-	-	-	1	F			
	70	-	-	-	-	-	-	10	18	H			
	80	-	-	-	-	-	-	16	24	H			
	90	-	-	-	-	-	-	20	28	I			
	100	-	-	-	-	-	-	24	32	J			
	110	-	-	-	-	-	-	28	36	K			
	120	-	-	-	-	-	-	30	38	K			
	130	-	-	-	-	-	-	33*	46				
	140	-	-	-	-	-	-	38*	51				
	150	-	-	-	-	-	-	43*	56				
	160	-	-	-	-	-	-	47*	60				
	170	-	-	-	-	-	-	50*	63				
	180	-	-	-	-	-	-	54*	67				
	190	-	-	-	-	-	-	57*	70				
	200	-	-	-	-	-	-	60**	78				
	210	-	-	-	-	-	-	64**	82				
	220	-	-	-	-	-	-	70**	88				
	230	-	-	-	-	-	-	74**	92				
	240	-	-	-	-	-	-	77**	95				

Note: asterisk (*) indicates number of 5 minute air breaks required.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						RCC O ₂ 40	Decom. Time (min)	Repet. Group			
		In-Water Stops											
		Air											
		80	70	60	50	40	30						
70	35	-	-	-	-	-	-	-	-	E			
	50	-	-	-	-	-	-	6	14	H			
	60	-	-	-	-	-	-	15	23	H			
	70	-	-	-	-	-	-	21	29	I			
	80	-	-	-	-	-	-	26	34	J			
	90	-	-	-	-	-	-	30	38	K			
	100	-	-	-	-	-	-	34*	47	K			
	110	-	-	-	-	-	-	40*	53				
	120	-	-	-	-	-	-	46*	59				
	130	-	-	-	-	-	-	50*	63				
	140	-	-	-	-	-	-	55*	68				
	150	-	-	-	-	-	-	60*	73				
	160	-	-	-	-	-	-	64**	82				
	170	-	-	-	-	-	-	71**	89				
	180	-	-	-	-	-	-	76**	94				
	190	-	-	-	-	-	1	81**	100				
	200	-	-	-	-	-	2	85**	105				

Time from leaving the 30 fsw stop (or the bottom, if no in-water stop is required) to reaching the 40 fsw Chamber stop must not exceed 7 minutes.

Note: asterisk (*) indicates number of 5 minute air breaks required.

AIR DIVING TABLES

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						RCC O ₂ 40	Decom. Time (min)	Repet. Group			
		In-Water Stops											
		Air											
80	80	70	60	50	40	30	Surface Interval						
	25	-	-	-	-	-		-	2	E			
	45	-	-	-	-	-		12	20	H			
	50	-	-	-	-	-		17	25	H			
	55	-	-	-	-	-		21	29	H			
	60	-	-	-	-	-		24	32	I			
	70	-	-	-	-	-		30	38	J			
	80	-	-	-	-	-		35*	48	K			
	90	-	-	-	-	-	1	41*	55				
	100	-	-	-	-	-	2	47*	62				
	110	-	-	-	-	-	3	53*	69				
	120	-	-	-	-	-	3	59*	75				
	130	-	-	-	-	-	4	63**	85				
	140	-	-	-	-	-	5	72**	95				
	150	-	-	-	-	-	5	79**	102				
	160	-	-	-	-	-	6	84**	108				

Note: asterisk (*) indicates number of 5 minute air breaks required.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Surface Interval	RCC O ₂ 40	Decom. Time (min)	Repet. Group				
		In-Water Stops													
		Air													
		80	70	60	50	40	30								
90	20	-	-	-	-	-	-		-	2	D				
	35	-	-	-	-	-	-		8	16	G				
	40	-	-	-	-	-	-		16	24	G				
	45	-	-	-	-	-	-		21	29	H				
	50	-	-	-	-	-	-		25	33	H				
	55	-	-	-	-	-	1		28	37	I				
	60	-	-	-	-	-	2		30*	45	J				
	70	-	-	-	-	-	4		37*	54					
	80	-	-	-	-	-	5		45*	63					
	90	-	-	-	-	-	6		52*	71					
	100	-	-	-	-	-	7		58*	78					
	110	-	-	-	-	-	8		65**	91					
	120	-	-	-	-	-	8		75**	101					
100	15	-	-	-	-	-	-		-	2	D				
	30	-	-	-	-	-	-		8	16	G				
	35	-	-	-	-	-	-		17	25	G				
	40	-	-	-	-	-	2		22	32	H				
	45	-	-	-	-	-	3		27	38	I				
	50	-	-	-	-	-	4		30	42	I				
	55	-	-	-	-	-	5		31*	49	J				
	60	-	-	-	-	-	6		37*	56					
	70	-	-	-	-	-	8		46*	67					
	80	-	-	-	-	-	9		54*	76					
	90	-	-	-	-	2	8		60*	83					
	100	-	-	-	-	3	9		72**	102					
	110	-	-	-	-	4	9		81**	112					

Note: asterisk (*) indicates number of 5 minute air breaks required.

Time from leaving the 30 fsw stop (or the bottom, if no in-water stop is required) to reaching the 40 fsw chamber stop must not exceed 7 minutes.

AIR DIVING TABLES

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group		
		In-Water Stops									
		Air									
		80	70	60	50	40	30				
110	12	-	-	-	-	-	-	-	C		
	25	-	-	-	-	-	-	7	G		
	30	-	-	-	-	-	2	16	G		
	35	-	-	-	-	-	4	22	H		
	40	-	-	-	-	-	5	27	I		
	45	-	-	-	-	-	6	30*	J		
	50	-	-	-	-	-	8	34*	K		
	55	-	-	-	-	-	9	40*	K		
	60	-	-	-	-	3	7	45*			
	65	-	-	-	-	3	8	50*			
	70	-	-	-	-	4	8	54*			
	75	-	-	-	-	5	8	59*			
	80	-	-	-	-	5	8	61**			
	85	-	-	-	-	6	8	70**			
	90	-	-	-	-	6	9	76**			
	95	-	-	-	-	7	9	81**			
	100	-	-	-	-	7	10	86**			
	105	-	-	-	-	8	13	90**			
	110	-	-	-	-	8	16	95***			

Time from leaving the 30 fsw stop (or the bottom, if no in-water stop is required) to reaching the 40 fsw Chamber stop must not exceed 7 minutes.

Note: asterisk (*) indicates number of 5 minute air breaks required.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Surface Interval	RCC O ₂	Decom. Time (min)	Repet. Group				
		In-Water Stops													
		Air													
		80	70	60	50	40	30								
120	10	-	-	-	-	-	-	Time from leaving the 30 fsw stop (or the bottom, if no in-water stop is required) to reaching the 40 fsw Chamber stop must not exceed 7 minutes.	-	2	C				
	20	-	-	-	-	-	-		7	15	F				
	25	-	-	-	-	-	2		13	23	G				
	30	-	-	-	-	-	5		21	34	G				
	35	-	-	-	-	-	6		27	41	H				
	40	-	-	-	-	-	8		30*	51	I				
	45	-	-	-	-	3	7		36*	59	J				
	50	-	-	-	-	4	7		42*	66	K				
	55	-	-	-	-	5	7		48*	73					
	60	-	-	-	-	6	8		53*	80					
	65	-	-	-	-	7	8		58*	86					
	70	-	-	-	-	7	9		60**	94					
	75	-	-	-	2	6	9		70**	105					
	80	-	-	-	3	6	9		77**	113					
	85	-	-	-	3	7	10		83**	121					
	90	-	-	-	3	7	14		87**	129					
	95	-	-	-	4	7	16		90**	135					
	100	-	-	-	4	7	20		100***	154					

Note: asterisk (*) indicates number of 5 minute air breaks required.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						RCC O ₂ 40	Decom. Time (min)	Repet. Group			
		In-Water Stops											
		Air											
		80	70	60	50	40	30						
130	8	-	-	-	-	-	-	-	2	B			
	20	-	-	-	-	-	-	9	17	G			
	25	-	-	-	-	-	5	18	31	G			
	30	-	-	-	-	-	7	26	41	H			
	35	-	-	-	-	3	6	30*	52	I			
	40	-	-	-	-	5	6	36*	60	J			
	45	-	-	-	-	6	7	43*	69	K			
	50	-	-	-	-	7	8	49*	77				
	55	-	-	-	2	6	8	55*	84				
	60	-	-	-	3	6	8	60**	95				
	65	-	-	-	4	6	9	68**	105				
	70	-	-	-	5	6	9	76**	114				
	75	-	-	-	5	7	11	82**	123				
	80	-	-	-	6	7	15	87**	133				
	85	-	-	-	6	7	18	90***	144				
	90	-	-	-	7	7	22	102***	161				

Note: asterisk (*) indicates number of 5 minute air breaks required.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Surface Interval	RCC O ₂ 40	Decom. Time (min)	Repet. Group				
		In-Water Stops													
		Air													
		80	70	60	50	40	30								
140	7	-	-	-	-	-	-	Time from leaving the 30 fsw stop (or the bottom, if no in-water stop is required) to reaching the 40 fsw Chamber stop must not exceed 7 minutes.	-	3	B				
	15	-	-	-	-	-	-		7	15	F				
	20	-	-	-	-	-	4		12	24	G				
	25	-	-	-	-	-	7		23	38	H				
	30	-	-	-	-	4	6		30	48	I				
	35	-	-	-	-	6	6		34*	59	J				
	40	-	-	-	-	7	7		42*	69	K				
	45	-	-	-	3	6	7		49*	78	M				
	50	-	-	-	4	6	8		56*	87					
	55	-	-	-	5	6	9		60**	98					
	60	-	-	-	6	6	9		71**	110					
	65	-	-	-	7	6	11		79**	121					
	70	-	-	2	5	7	15		85**	132					
	75	-	-	3	5	8	18		90**	142					
	80	-	-	3	6	8	21		101***	162					
	85	-	-	4	6	8	25		108***	174					
	90	-	-	4	6	8	30		113***	184					

Note: asterisk (*) indicates number of 5 minute air breaks required.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group		
		In-Water Stops									
		Air									
		80	70	60	50	40	30				
150	6	-	-	-	-	-	-	-	B		
	15	-	-	-	-	-	-	8	G		
	20	-	-	-	-	-	6	17	G		
	25	-	-	-	-	4	6	26	H		
	30	-	-	-	-	6	7	30*	I		
	35	-	-	-	3	5	7	40*	K		
	40	-	-	-	4	6	8	48*	M		
	45	-	-	-	6	6	8	55*			
	50	-	-	-	7	6	9	60**			
	55	-	-	3	5	6	10	73**			
	60	-	-	4	5	7	13	81**			
	65	-	-	4	6	7	17	87**			
	70	-	-	5	6	7	21	97***			
	75	-	-	6	5	8	25	106***			
	80	-	-	6	6	8	29	112***			
160	6	-	-	-	-	-	-	-	B		
	15	-	-	-	-	-	4	7	G		
	20	-	-	-	-	3	5	21	G		
	25	-	-	-	-	6	6	30	I		
	30	-	-	-	4	5	6	37*	J		
	35	-	-	-	5	6	7	46*	L		
	40	-	-	-	7	6	8	54*			
	45	-	-	3	5	6	9	60*			
	50	-	-	4	5	7	9	73**			
	55	-	-	5	6	7	14	81**			
	60	-	-	6	6	7	18	89**			
	65	-	3	4	6	8	22	101***			
	70	-	3	5	6	8	27	109***			

Time from leaving the 30 fsw stop (or the bottom, if no in-water stop is required) to reaching the 40 fsw Chamber stop must not exceed 7 minutes.

Note: asterisk (*) indicates number of 5 minute air breaks required.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Surface Interval	RCC O_2	Decom. Time (min)	Repet. Group				
		In-Water Stops													
		Air													
		80	70	60	50	40	30		40						
170	5	-	-	-	-	-	-	Time from leaving the 30 fsw stop (or the bottom, if no in-water stop is required) to reaching the 40 fsw chamber stop must not exceed 7 minutes.	-	3	B				
	10	-	-	-	-	-	-		6	14	D				
	15	-	-	-	-	-	6		11	25	G				
	20	-	-	-	-	5	6		25	44	H				
	25	-	-	-	3	5	6		30*	57	J				
	30	-	-	-	6	5	7		42*	73	K				
	35	-	-	3	4	6	8		51*	85	M				
	40	-	-	4	5	6	9		60*	97					
	45	-	-	6	5	6	10		71**	116					
	50	-	3	4	5	7	14		81**	132					
	55	-	3	5	5	8	19		89**	147					
	60	-	4	5	6	8	23		102***	171					
	65	-	5	5	6	8	29		111***	187					
	70	-	5	5	7	12	31		118***	201					
180	5	-	-	-	-	-	-		-	3	B				
	10	-	-	-	-	-	-		7	15	E				
	15	-	-	-	-	-	8		15	31	G				
	20	-	-	-	-	7	6		28	49	H				
	25	-	-	-	5	5	7		36*	66	J				
	30	-	-	3	5	5	8		47*	81	M				
	35	-	-	5	5	6	8		57*	94					
	40	-	3	4	5	6	9		68**	113					
	45	-	4	4	5	7	14		79**	131					
	50	-	5	4	6	7	19		88**	147					
	55	-	5	5	6	8	24		102***	173					
	60	3	3	5	7	9	29		111***	190					

Note: asterisk (*) indicates number of 5 minute air breaks required.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)									Decom. Time (min)		
		In-Water Stops											
		Air											
		100	90	80	70	60	50	40	30				
190	5	-	-	-	-	-	-	-	-	-	3		
	10	-	-	-	-	-	-	-	-	8	16		
	15	-	-	-	-	-	-	4	5	19	36		
	20	-	-	-	-	-	4	5	6	30	53		
	25	-	-	-	-	3	4	5	7	41*	73		
	30	-	-	-	-	5	5	5	8	52*	88		
	35	-	-	-	3	4	5	6	9	60*	100		
	40	-	-	-	5	4	5	7	12	76**	127		
	45	-	-	-	6	4	6	7	18	86**	145		
	50	-	-	3	4	4	6	8	24	100***	172		
200	55	-	-	4	4	5	6	10	28	111***	191		
	10	-	-	-	-	-	-	-	-	10	18		
	15	-	-	-	-	-	-	6	5	22	41		
	20	-	-	-	-	-	6	4	7	31*	61		
	25	-	-	-	-	5	4	5	8	45*	80		
	30	-	-	-	3	4	5	6	8	57*	96		
	35	-	-	-	5	4	5	7	9	70**	118		
	40	-	-	3	3	5	5	8	16	83**	141		
	45	-	-	4	4	4	6	8	22	95***	166		
	50	-	-	5	4	5	6	10	27	109***	189		
210	10	-	-	-	-	-	-	-	5	7	20		
	15	-	-	-	-	-	-	-	7	25	46		
	20	-	-	-	-	4	3	5	7	36*	68		
	25	-	-	-	-	6	5	5	8	50*	87		
	30	-	-	-	5	4	5	6	9	60*	102		
	35	-	-	3	4	4	5	7	14	77**	132		
	40	-	-	5	3	5	6	8	19	90**	154		
	45	-	-	6	4	4	7	8	27	106***	185		
	50	-	3	4	4	5	7	13	31	117***	207		

Time from leaving the 30 fsw stop (or the bottom, if no in-water stop is required) to reaching the 40 fsw Chamber stop must not exceed 7 minutes.

Note: asterisk (*) indicates number of 5 minute air breaks required.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)									Decom. Time (min)		
		In-Water Stops											
		Air											
220	100	90	80	70	60	50	40	30	Surface Interval	RCC O ₂	Decom. Time (min)		
	10	-	-	-	-	-	-	-		40	7		
	15	-	-	-	-	-	5	4		28	22		
	20	-	-	-	-	5	4	5		40*	51		
	25	-	-	-	4	4	4	6		54*	74		
	30	-	-	3	4	4	5	7		69**	94		
	35	-	-	5	3	5	5	8		83**	119		
	40	-	3	3	4	5	6	8		100***	144		
230	45	-	4	3	4	6	6	12		113***	200		
	10	-	-	-	-	-	-	-	40 fsw Chamber stop must not exceed 7 minutes.	11	22		
	15	-	-	-	-	-	6	4		30	51		
	20	-	-	-	-	6	4	6		44*	74		
	25	-	-	-	6	4	4	7		59*	94		
	30	-	-	5	3	4	6	7		76**	119		
	35	-	4	3	3	5	6	8		90**	144		
	40	-	5	3	4	5	6	10		108***	176		
240	10	-	-	-	-	-	-	5	Decom. Time (min)	113***	200		
	15	-	-	-	-	-	7	5		11	27		
	20	-	-	-	5	3	4	6		30	55		
	25	-	-	4	3	4	5	7		44*	80		
	30	-	4	2	4	4	6	7		59*	101		
	35	-	5	3	4	5	6	8		76**	131		
	40	4	2	4	4	5	7	13		90**	157		
	40	4	2	4	4	5	7	30		108***	191		

Note: asterisk (*) indicates number of 5 minute air breaks required.

TABLE 4

REPETITIVE DIVING (FEET)

- A. REPETITIVE FACTORS/SURFACE INTERVALS TABLE**
- B. NO-DECOMPRESSION REPETITIVE DIVING TABLE**

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DCIEM DIVING MANUAL

AIR DIVING TABLES

TABLE 4: REPETITIVE DIVING (FEET)

A. REPETITIVE FACTORS/SURFACE INTERVALS TABLE											
Repet. Group (RG)	Repetitive Factors (RF) for Surface Intervals (SI) in hr:min										
	0:15 → 0:29	0:30 → 0:59	1:00 → 1:29	1:30 → 1:59	2:00 → 2:59	3:00 → 3:59	4:00 → 5:59	6:00 → 8:59	9:00 → 11:59	12:00 → 14:59	15:00 → 18:00
A	1.4	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0
B	1.5	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.0	1.0
C	1.6	1.4	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.0	1.0
D	1.8	1.5	1.4	1.3	1.3	1.2	1.2	1.1	1.1	1.0	1.0
E	1.9	1.6	1.5	1.4	1.3	1.3	1.2	1.2	1.1	1.1	1.0
F	2.0	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.1	1.0
G	-	1.9	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0
H	-	-	1.9	1.7	1.6	1.5	1.4	1.3	1.1	1.1	1.1
I	-	-	2.0	1.8	1.7	1.5	1.4	1.3	1.1	1.1	1.1
J	-	-	-	1.9	1.8	1.6	1.5	1.3	1.2	1.1	1.1
K	-	-	-	2.0	1.9	1.7	1.5	1.3	1.2	1.1	1.1
L	-	-	-	-	2.0	1.7	1.6	1.4	1.2	1.1	1.1
M	-	-	-	-	-	1.8	1.6	1.4	1.2	1.1	1.1
N	-	-	-	-	-	1.9	1.7	1.4	1.2	1.1	1.1
O	-	-	-	-	-	2.0	1.7	1.4	1.2	1.1	1.1

Depth (fsw)	Allowable No-D Limits (min) for Repetitive Factors (RF)									
	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
30	272	250	230	214	200	187	176	166	157	150
40	136	125	115	107	100	93	88	83	78	75
50	60	55	50	45	41	38	36	34	32	31
60	40	35	31	29	27	26	24	23	22	21
70	30	25	21	19	18	17	16	15	14	13
80	20	18	16	15	14	13	12	12	11	11
90	16	14	12	11	11	10	9	9	8	8
100	13	11	10	9	9	8	8	7	7	7
110	10	9	8	8	7	7	6	6	6	6
120	8	7	7	6	6	6	5	5	5	5
130	7	6	6	5	5	5	4	4	4	4
140	6	5	5	5	4	4	4	3	3	3
150	5	5	4	4	4	3	3	3	3	3

DCIEM DIVING MANUAL

TABLE 5

DEPTH CORRECTIONS FOR DIVING AT ALTITUDE (FEET)

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TABLE 5: DEPTH CORRECTIONS - DIVING AT ALTITUDE (FEET)

Actual Depth (feet)	Depth Correction at Altitude (feet)									
	300 → 999	1000 → 1999	2000 → 2999	3000 → 3999	4000 → 4999	5000 → 5999	6000 → 6999	7000 → 7999	8000 → 10000	
30	+0	+10	+10	+10	+10	+10	+10	+10	+20	+20
40	+0	+10	+10	+10	+10	+10	+10	+20	+20	+20
50	+0	+10	+10	+10	+10	+10	+20	+20	+20	+20
60	+0	+10	+10	+10	+20	+20	+20	+20	+20	+30
70	+0	+10	+10	+10	+20	+20	+20	+30	+30	+30
80	+0	+10	+10	+20	+20	+20	+30	+30	+40	
90	+0	+10	+10	+20	+20	+20	+30	+30	+40	
100	+0	+10	+10	+20	+20	+30	+30	+30	+40	
110	+0	+10	+20	+20	+20	+30	+30	+40	+50	
120	+0	+10	+20	+20	+30	+30	+30	+40	+50	
130	+0	+10	+20	+20	+30	+30	+40	+40	+50	
140	+0	+10	+20	+20	+30	+30	+40	+40	+60	
150	+10	+10	+20	+20	+30	+40	+40	+50	+60	
160	+10	+20	+20	+30	+30	+40	+40	+50	+60	
170	+10	+20	+20	+30	+30	+40	+50	+50	+70	
180	+10	+20	+20	+30	+40	+40	+50	+50		
190	+10	+20	+20	+30	+40	+40	+50			
200	+10	+20	+20	+30	+40	+40				
210	+10	+20	+20	+30						
220	+10	+20								
230	+10									
Sea Level Stop Depth (feet)	Actual Decompression Stop Depth at Altitude (feet)									
	300 → 999	1000 → 1999	2000 → 2999	3000 → 3999	4000 → 4999	5000 → 5999	6000 → 6999	7000 → 7999	8000 → 10000	
10	10	10	10	9	9	9	8	8	8	
20	20	20	19	18	18	17	16	16	15	
30	30	29	28	27	26	25	24	24	23	
40	40	39	38	36	35	34	32	31	30	
50	50	49	47	45	44	42	40	39	38	
60	59	58	56	54	52	50	48	47	45	
70	69	68	66	63	61	59	56	54	52	
80	79	77	75	72	70	67	64	62	60	
90	89	87	84	81	78	75	72	70	67	

DCIEM DIVING MANUAL

APPENDIX B

DCIEM AIR DIVING TABLES (METRES)

DCIEM DIVING MANUAL

TABLE 1

STANDARD AIR DECOMPRESSION (METRES)

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DCIEM DIVING MANUAL

TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)	Repet. Group
		24	21	18	15	12	9	6	3		
6	30	-	-	-	-	-	-	-	-	1	A
	60	-	-	-	-	-	-	-	-	1	B
	90	-	-	-	-	-	-	-	-	1	C
	120	-	-	-	-	-	-	-	-	1	D
	150	-	-	-	-	-	-	-	-	1	E
	180	-	-	-	-	-	-	-	-	1	F
	240	-	-	-	-	-	-	-	-	1	G
	300	-	-	-	-	-	-	-	-	1	H
	360	-	-	-	-	-	-	-	-	1	I
	420	-	-	-	-	-	-	-	-	1	J
	480	-	-	-	-	-	-	-	-	1	K
	600	-	-	-	-	-	-	-	-	1	L
	720	-	-	-	-	-	-	-	-	1	M
9	30	-	-	-	-	-	-	-	-	1	A
	60	-	-	-	-	-	-	-	-	1	C
	90	-	-	-	-	-	-	-	-	1	D
	120	-	-	-	-	-	-	-	-	1	F
	150	-	-	-	-	-	-	-	-	1	G
	180	-	-	-	-	-	-	-	-	1	H
	210	-	-	-	-	-	-	-	-	1	J
	240	-	-	-	-	-	-	-	-	1	K
	270	-	-	-	-	-	-	-	-	1	L
	300	-	-	-	-	-	-	-	-	1	M
	330	-	-	-	-	-	-	-	3	3	N
	360	-	-	-	-	-	-	-	5	5	O
	400	-	-	-	-	-	-	-	7	7	
	420	-	-	-	-	-	-	-	10	10	
	450	-	-	-	-	-	-	-	15	15	
	480	-	-	-	-	-	-	-	20	20	

TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)	Repet. Group
		24	21	18	15	12	9	6	3		
12	20	-	-	-	-	-	-	-	-	1	A
	30	-	-	-	-	-	-	-	-	1	B
	60	-	-	-	-	-	-	-	-	1	D
	90	-	-	-	-	-	-	-	-	1	G
	120	-	-	-	-	-	-	-	-	1	H
	150	-	-	-	-	-	-	-	-	1	J
	180	-	-	-	-	-	-	-	5	5	M
	200	-	-	-	-	-	-	-	10	10	
	210	-	-	-	-	-	-	-	15	15	
	220	-	-	-	-	-	-	-	19	19	
	240	-	-	-	-	-	-	-	26	26	
	270	-	-	-	-	-	-	-	35	35	
	300	-	-	-	-	-	-	-	44	44	
	330	-	-	-	-	-	-	-	53	53	
	360	-	-	-	-	-	-	-	62	62	
15	10	-	-	-	-	-	-	-	-	1	A
	20	-	-	-	-	-	-	-	-	1	B
	30	-	-	-	-	-	-	-	-	1	C
	40	-	-	-	-	-	-	-	-	1	D
	50	-	-	-	-	-	-	-	-	1	E
	60	-	-	-	-	-	-	-	-	1	F
	75	-	-	-	-	-	-	-	-	1	G
	100	-	-	-	-	-	-	-	5	5	I
	120	-	-	-	-	-	-	-	10	10	K
	125	-	-	-	-	-	-	-	13	13	K
	130	-	-	-	-	-	-	-	16	16	L
	140	-	-	-	-	-	-	-	21	21	M
	150	-	-	-	-	-	-	-	26	26	
	160	-	-	-	-	-	-	-	31	31	
	170	-	-	-	-	-	-	-	35	35	
	180	-	-	-	-	-	-	-	40	40	
	200	-	-	-	-	-	-	-	50	50	
	220	-	-	-	-	-	-	-	59	59	
	240	-	-	-	-	-	-	-	70	70	
	260	-	-	-	-	-	-	-	81	81	
	280	-	-	-	-	-	-	-	91	91	

TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)	Repet. Group
		24	21	18	15	12	9	6	3		
18	10	-	-	-	-	-	-	-	-	1	A
	20	-	-	-	-	-	-	-	-	1	B
	30	-	-	-	-	-	-	-	-	1	D
	40	-	-	-	-	-	-	-	-	1	E
	50	-	-	-	-	-	-	-	-	1	F
	60	-	-	-	-	-	-	-	5	5	G
	80	-	-	-	-	-	-	-	10	10	I
	90	-	-	-	-	-	-	-	16	16	J
	100	-	-	-	-	-	-	-	24	24	K
	110	-	-	-	-	-	-	-	30	30	L
	120	-	-	-	-	-	-	-	36	36	M
	130	-	-	-	-	-	-	2	40	42	
	140	-	-	-	-	-	-	2	46	48	
	150	-	-	-	-	-	-	3	52	55	
	160	-	-	-	-	-	-	3	59	62	
	170	-	-	-	-	-	-	4	65	69	
	180	-	-	-	-	-	-	4	73	77	
	190	-	-	-	-	-	-	5	80	85	
	200	-	-	-	-	-	-	7	87	94	
	210	-	-	-	-	-	-	13	91	104	
	220	-	-	-	-	-	-	17	97	114	
	230	-	-	-	-	-	-	21	103	124	
	240	-	-	-	-	-	-	24	109	133	

TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)	Repet. Group
		24	21	18	15	12	9	6	3		
21	10	-	-	-	-	-	-	-	-	1	A
	20	-	-	-	-	-	-	-	-	1	C
	25	-	-	-	-	-	-	-	-	1	D
	30	-	-	-	-	-	-	-	-	1	D
	35	-	-	-	-	-	-	-	-	1	E
	40	-	-	-	-	-	-	-	5	5	F
	50	-	-	-	-	-	-	-	10	10	G
	60	-	-	-	-	-	-	-	12	12	H
	70	-	-	-	-	-	-	3	17	20	J
	80	-	-	-	-	-	-	4	25	29	K
	90	-	-	-	-	-	-	5	32	37	M
	100	-	-	-	-	-	-	6	39	45	N
	110	-	-	-	-	-	-	7	46	53	
	120	-	-	-	-	-	-	7	54	61	
	130	-	-	-	-	-	-	8	62	70	
	140	-	-	-	-	-	-	9	71	80	
	150	-	-	-	-	-	-	15	77	92	
	160	-	-	-	-	-	-	20	85	105	
	170	-	-	-	-	-	-	25	93	118	
	180	-	-	-	-	-	-	29	101	130	
	190	-	-	-	-	-	-	34	109	143	
	200	-	-	-	-	-	-	38	117	155	

TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)	Repet. Group
		24	21	18	15	12	9	6	3		
24	10	-	-	-	-	-	-	-	-	2	A
	15	-	-	-	-	-	-	-	-	2	C
	20	-	-	-	-	-	-	-	-	2	D
	25	-	-	-	-	-	-	-	-	2	E
	30	-	-	-	-	-	-	-	5	5	F
	40	-	-	-	-	-	-	-	11	11	G
	50	-	-	-	-	-	-	4	11	15	H
	55	-	-	-	-	-	-	5	15	20	I
	60	-	-	-	-	-	-	6	21	27	J
	65	-	-	-	-	-	-	7	25	32	J
	70	-	-	-	-	-	-	7	30	37	K
	75	-	-	-	-	-	-	8	34	42	L
	80	-	-	-	-	-	-	9	37	46	M
	85	-	-	-	-	-	-	9	42	51	
	90	-	-	-	-	-	-	10	46	56	
	95	-	-	-	-	-	-	11	50	61	
	100	-	-	-	-	-	-	11	55	66	
	110	-	-	-	-	-	2	12	64	78	
	120	-	-	-	-	-	3	18	72	93	
	130	-	-	-	-	-	4	23	82	109	
	140	-	-	-	-	-	4	28	93	125	
	150	-	-	-	-	-	5	33	104	142	
	160	-	-	-	-	-	5	39	114	158	

TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)	Repet. Group
		24	21	18	15	12	9	6	3		
27	5	-	-	-	-	-	-	-	-	2	A
	10	-	-	-	-	-	-	-	-	2	B
	15	-	-	-	-	-	-	-	-	2	C
	20	-	-	-	-	-	-	-	-	2	D
	25	-	-	-	-	-	-	-	7	7	E
	30	-	-	-	-	-	-	2	9	11	F
	40	-	-	-	-	-	-	6	10	16	H
	45	-	-	-	-	-	-	7	14	21	I
	50	-	-	-	-	-	-	8	20	28	J
	55	-	-	-	-	-	-	9	26	35	K
	60	-	-	-	-	-	2	8	31	41	L
	65	-	-	-	-	-	3	8	36	47	
	70	-	-	-	-	-	3	9	40	52	
	75	-	-	-	-	-	4	9	46	59	
	80	-	-	-	-	-	4	10	51	65	
	85	-	-	-	-	-	5	10	56	71	
	90	-	-	-	-	-	5	14	60	79	
	95	-	-	-	-	-	6	17	64	87	
	100	-	-	-	-	-	6	20	70	96	
	110	-	-	-	-	-	7	26	82	115	
	120	-	-	-	-	-	8	31	95	134	

TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)	Repet. Group
		24	21	18	15	12	9	6	3		
30	5	-	-	-	-	-	-	-	-	2	A
	10	-	-	-	-	-	-	-	-	2	B
	15	-	-	-	-	-	-	-	-	2	D
	20	-	-	-	-	-	-	-	8	8	E
	25	-	-	-	-	-	-	3	9	12	F
	30	-	-	-	-	-	-	5	10	15	G
	35	-	-	-	-	-	-	7	11	18	H
	40	-	-	-	-	-	-	9	16	25	I
	45	-	-	-	-	-	3	8	23	34	J
	50	-	-	-	-	-	4	8	29	41	K
	55	-	-	-	-	-	5	9	34	48	L
	60	-	-	-	-	-	6	9	40	55	
	65	-	-	-	-	-	6	10	46	62	
	70	-	-	-	-	-	7	10	52	69	
	75	-	-	-	-	-	8	14	56	78	
	80	-	-	-	-	-	8	18	61	87	
	85	-	-	-	-	-	9	21	67	97	
	90	-	-	-	-	2	8	24	75	109	
	95	-	-	-	-	3	8	27	82	120	
	100	-	-	-	-	3	8	31	90	132	
	105	-	-	-	-	3	9	34	98	144	
	110	-	-	-	-	4	8	38	106	156	

TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)	Repet. Group
		24	21	18	15	12	9	6	3		
33	5	-	-	-	-	-	-	-	-	2	A
	10	-	-	-	-	-	-	-	-	2	B
	12	-	-	-	-	-	-	-	-	2	C
	15	-	-	-	-	-	-	-	5	5	D
	20	-	-	-	-	-	-	3	9	12	F
	25	-	-	-	-	-	-	6	10	16	G
	30	-	-	-	-	-	-	9	10	19	H
	35	-	-	-	-	-	3	8	16	27	I
	40	-	-	-	-	-	5	8	24	37	J
	45	-	-	-	-	-	6	9	31	46	K
	50	-	-	-	-	-	7	9	38	54	M
	55	-	-	-	-	-	8	10	44	62	N
	60	-	-	-	-	2	7	10	51	70	
	65	-	-	-	-	3	7	15	55	80	
	70	-	-	-	-	4	7	19	62	92	
	75	-	-	-	-	4	8	23	68	103	
	80	-	-	-	-	5	8	26	77	116	
	85	-	-	-	-	5	9	30	86	130	
	90	-	-	-	-	6	9	34	95	144	
	95	-	-	-	-	6	9	38	105	158	
	100	-	-	-	-	7	9	42	114	172	
	105	-	-	-	-	7	12	45	123	187	
	110	-	-	-	-	8	15	48	130	201	

TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)	Repet. Group
		24	21	18	15	12	9	6	3		
36	5	-	-	-	-	-	-	-	-	2	A
	10	-	-	-	-	-	-	-	-	2	C
	15	-	-	-	-	-	-	-	10	10	E
	20	-	-	-	-	-	-	5	10	15	F
	25	-	-	-	-	-	-	9	10	19	G
	30	-	-	-	-	-	4	8	14	26	I
	35	-	-	-	-	-	6	8	24	38	J
	40	-	-	-	-	-	8	8	32	48	K
	45	-	-	-	-	3	6	10	38	57	M
	50	-	-	-	-	4	7	10	46	67	N
	55	-	-	-	-	5	7	13	53	78	
	60	-	-	-	-	6	7	18	59	90	
	65	-	-	-	-	6	8	22	66	102	
	70	-	-	-	-	7	8	27	75	117	
	75	-	-	-	-	8	8	31	86	133	
	80	-	-	-	2	6	9	35	97	149	
	85	-	-	-	3	6	10	40	107	166	
	90	-	-	-	3	7	13	42	118	183	
	95	-	-	-	4	6	16	46	128	200	
	100	-	-	-	4	7	19	50	136	216	

TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)	Repet. Group
		24	21	18	15	12	9	6	3		
39	5	-	-	-	-	-	-	-	-	2	A
	8	-	-	-	-	-	-	-	-	2	B
	10	-	-	-	-	-	-	-	5	5	C
	15	-	-	-	-	-	-	4	8	12	E
	20	-	-	-	-	-	-	8	10	18	G
	25	-	-	-	-	-	5	7	11	23	H
	30	-	-	-	-	-	7	8	22	37	J
	35	-	-	-	-	3	6	9	30	48	K
	40	-	-	-	-	4	7	9	39	59	M
	45	-	-	-	-	6	7	10	47	70	N
	50	-	-	-	-	7	7	15	53	82	
	55	-	-	-	2	6	8	20	61	97	
	60	-	-	-	3	6	8	25	70	112	
	65	-	-	-	4	6	8	30	82	130	
	70	-	-	-	4	7	9	34	94	148	
	75	-	-	-	5	6	11	39	106	167	
	80	-	-	-	5	7	14	42	118	186	
	85	-	-	-	6	7	17	47	129	206	
	90	-	-	-	6	8	20	52	138	224	
42	7	-	-	-	-	-	-	-	-	2	B
	10	-	-	-	-	-	-	-	7	7	D
	15	-	-	-	-	-	-	6	9	15	F
	20	-	-	-	-	-	4	7	10	21	G
	25	-	-	-	-	-	7	8	17	32	I
	30	-	-	-	-	4	6	8	28	46	K
	35	-	-	-	-	5	7	9	37	58	L
	40	-	-	-	-	7	7	10	46	70	N
	45	-	-	-	3	5	8	16	53	85	O
	50	-	-	-	4	6	8	21	62	101	
	55	-	-	-	5	6	8	27	73	119	
	60	-	-	-	6	6	9	32	86	139	
	65	-	-	-	6	7	10	37	99	159	
	70	-	-	-	7	7	14	40	114	182	
	75	-	-	3	5	7	18	45	126	204	
	80	-	-	3	6	7	21	51	137	225	
	85	-	-	4	5	8	25	57	146	245	
	90	-	-	4	6	8	28	65	152	263	

TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)	Repet. Group
		24	21	18	15	12	9	6	3		
45	7	-	-	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	-	-	9	9	D
	15	-	-	-	-	-	-	8	9	17	F
	20	-	-	-	-	-	6	7	11	24	H
	25	-	-	-	-	4	5	8	23	40	J
	30	-	-	-	-	6	6	9	34	55	K
	35	-	-	-	3	5	7	10	44	69	M
	40	-	-	-	4	6	7	15	52	84	O
	45	-	-	-	5	6	8	21	61	101	
	50	-	-	-	6	7	8	27	73	121	
	55	-	-	3	5	6	9	33	88	144	
	60	-	-	3	5	7	12	38	103	168	
	65	-	-	4	5	8	16	42	119	194	
	70	-	-	5	5	8	20	48	132	218	
48	75	-	-	5	6	8	24	55	142	240	
	80	-	-	6	6	8	28	63	150	261	
	6	-	-	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	-	-	11	11	D
	15	-	-	-	-	-	4	6	10	20	G
	20	-	-	-	-	-	8	8	14	30	H
	25	-	-	-	-	6	6	8	29	49	K
	30	-	-	-	3	5	7	9	40	64	M
	35	-	-	-	5	5	8	13	49	80	N
	40	-	-	-	6	6	8	20	59	99	
	45	-	-	3	5	6	9	26	72	121	
	50	-	-	4	5	7	9	33	88	146	
	55	-	-	5	5	7	13	38	105	173	
	60	-	-	6	5	8	17	43	122	201	
	65	-	-	7	5	8	22	50	135	227	
	70	-	3	4	6	8	26	58	146	251	

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TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)	Repet. Group
		24	21	18	15	12	9	6	3		
51	6	-	-	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	-	5	8	13	D
	15	-	-	-	-	-	5	7	10	22	G
	20	-	-	-	-	5	5	8	20	38	I
	25	-	-	-	3	5	6	9	33	56	K
	30	-	-	-	5	5	7	10	46	73	M
	35	-	-	3	4	6	8	18	55	94	O
	40	-	-	4	5	6	8	26	68	117	
	45	-	-	5	5	7	9	32	85	143	
	50	-	-	6	6	7	13	37	105	174	
	55	-	3	4	6	7	18	44	122	204	
	60	-	4	4	6	8	23	51	137	233	
	65	-	5	4	6	9	27	61	148	260	
	70	-	5	5	6	12	30	72	155	285	
54	5	-	-	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	-	6	9	15	E
	15	-	-	-	-	-	7	7	11	25	H
	20	-	-	-	-	6	6	8	25	45	J
	25	-	-	-	5	5	7	9	39	65	M
	30	-	-	3	4	6	7	15	50	85	O
	35	-	-	5	4	6	8	23	62	108	
	40	-	-	6	5	7	9	30	80	137	
	45	-	4	4	5	7	13	36	101	170	
	50	-	4	5	5	8	18	42	121	203	
	55	-	5	5	6	8	23	51	137	235	
	60	-	6	5	6	9	28	61	149	264	

TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)										Decom. Time (min)
		30	27	24	21	18	15	12	9	6	3	
57	5	-	-	-	-	-	-	-	-	-	-	3
	10	-	-	-	-	-	-	-	-	8	9	17
	15	-	-	-	-	-	-	4	5	7	11	27
	20	-	-	-	-	-	4	4	6	9	29	52
	25	-	-	-	-	-	7	5	7	10	44	73
	30	-	-	-	-	5	4	6	8	19	55	97
	35	-	-	-	3	4	5	6	9	27	72	126
	40	-	-	-	4	4	5	7	11	35	93	159
	45	-	-	-	5	5	5	8	17	41	116	197
	50	-	-	3	3	5	6	8	22	50	135	232
60	55	-	-	4	3	5	7	9	27	61	149	265
	5	-	-	-	-	-	-	-	-	-	-	4
	10	-	-	-	-	-	-	-	-	10	9	19
	15	-	-	-	-	-	-	5	6	8	16	35
	20	-	-	-	-	-	5	5	6	10	33	59
	25	-	-	-	-	5	4	5	7	14	48	83
	30	-	-	-	3	4	4	6	9	23	62	111
	35	-	-	-	5	4	5	6	10	32	84	146
	40	-	-	-	6	4	6	7	15	38	109	185
	45	-	-	4	3	5	6	8	21	47	131	225
63	50	-	-	5	4	4	7	9	27	58	147	261
	5	-	-	-	-	-	-	-	-	-	5	5
	10	-	-	-	-	-	-	-	5	6	10	21
	15	-	-	-	-	-	-	7	6	8	20	41
	20	-	-	-	-	-	7	5	7	9	39	67
	25	-	-	-	-	6	4	6	8	17	52	93
	30	-	-	-	5	4	4	7	8	28	71	127
	35	-	-	3	3	4	6	7	12	35	97	167
	40	-	-	4	4	4	6	8	19	43	123	211
	45	-	-	5	4	5	6	9	25	54	142	250
	50	-	3	3	4	6	6	13	29	70	154	288

TABLE 1: STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)										Decom. Time (min)
		30	27	24	21	18	15	12	9	6	3	
66	5	-	-	-	-	-	-	-	-	-	7	7
	10	-	-	-	-	-	-	-	7	6	10	23
	15	-	-	-	-	-	4	5	5	9	24	47
	20	-	-	-	-	5	4	5	7	10	43	74
	25	-	-	-	4	4	4	6	8	21	58	105
	30	-	-	3	3	4	5	7	9	32	81	144
	35	-	-	5	3	4	6	7	16	39	110	190
	40	-	3	3	4	4	7	8	23	49	135	236
	45	-	4	3	4	5	7	11	28	65	151	278
69	5	-	-	-	-	-	-	-	-	-	8	8
	10	-	-	-	-	-	-	-	8	7	10	25
	15	-	-	-	-	-	6	4	6	9	28	53
	20	-	-	-	-	6	4	6	7	12	47	82
	25	-	-	-	6	3	5	6	9	24	65	118
	30	-	-	5	3	4	5	7	12	35	93	164
	35	-	3	3	4	4	6	8	19	44	123	214
	40	-	5	3	4	5	6	9	27	57	146	262
72	5	-	-	-	-	-	-	-	-	-	9	9
	10	-	-	-	-	-	-	4	5	7	11	27
	15	-	-	-	-	-	7	5	6	9	32	59
	20	-	-	-	4	4	4	5	8	16	50	91
	25	-	-	4	3	4	5	6	9	28	73	132
	30	-	-	6	3	5	5	8	15	37	106	185
	35	-	5	3	4	4	6	9	23	49	135	238
	40	3	3	3	4	6	6	13	28	67	153	286

TABLE 1S

SHORT STANDARD AIR DECOMPRESSION (METRES)

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TABLE 1S: SHORT STANDARD AIR DECOMPRESSION (METRES)

Depth (msw)	No-Decompression Bottom Times (min)					Decompression Required Bottom Times (min)			
	30 A	150 E	360 I	720 M	∞				
6	30 A 60 B 90 C 120 D	150 E 180 F 240 G 300 H	360 I 420 J 480 K 600 L	720 M	∞				
9	30 A 45 B 60 C 90 D	100 E 120 F 150 G 180 H	190 I 210 J 240 K 270 L	300 M	330 N 360 O	400	420	480	
12	22 A 30 B 40 C	60 D 70 E 80 F	90 G 120 H 130 I	150 J	160 K 170 L 180 M	200	210	220	
15	18 A 25 B	30 C 40 D	50 E 60 F	75 G	90 H 100 I	110 J 120 K	128 L	137 M	
18	14 A 20 B	25 C 30 D	40 E	50 F	60 G	70 H 80 I	88 J	95 K	
Decompression Time in minutes at			3 msw		5	10	15	20	
21	12 A 15 B	20 C	25 D	35 E	40 F	53 H	65 I	68 J	
24	10 A 13 B	15 C	20 D	25 E	30 F	37 G	50 H	54 I	
27	9 A	12 B	15 C	20 D	24 E	28 F	35 G	44 I	
30	7 A	10 B	12 C	15 D	18 D	22 F	30 G	37 H	
33		6 A	10 B	12 C	15 D	18 E	24 G	31 H	
36		6 A	8 B	10 C	12 D	15 E	19 F	25 G	
39			5 A	8 B	10 C	13 D	17 F	21 G	
42			5 A	7 B	9 C	12 D	14 F	18 G	
45			4 A	7 B	8 C	10 D	13 F	16 G	
Decompression Time in minutes at			6 msw		-	-	5	10	
			3 msw		5	10	10	10	

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TABLE 2

IN-WATER OXYGEN DECOMPRESSION (METRES)

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TABLE 2: IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		24	21	18	15	12	9		
15	75	-	-	-	-	-	-	1	G
	120	-	-	-	-	-	5	6	J
	130	-	-	-	-	-	10	11	J
	140	-	-	-	-	-	14	15	K
	160	-	-	-	-	-	19	20	
	180	-	-	-	-	-	23	24	
	200	-	-	-	-	-	27	28	
	220	-	-	-	-	-	31	32	
	240	-	-	-	-	-	35	36	
	260	-	-	-	-	-	38	39	
	280	-	-	-	-	-	41	42	
18	50	-	-	-	-	-	-	1	F
	80	-	-	-	-	-	5	6	H
	90	-	-	-	-	-	10	12	J
	100	-	-	-	-	-	15	17	J
	110	-	-	-	-	-	19	21	K
	120	-	-	-	-	-	22	24	K
	140	-	-	-	-	-	28	30	
	160	-	-	-	-	-	33	35	
	180	-	-	-	-	-	38	40	
	200	-	-	-	-	-	43	45	
	220	-	-	-	-	-	48	50	
	240	-	-	-	-	-	53	55	

O₂ stop times do not include ascent time to 9 msw.

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		24	21	18	15	12	9		
21	35	-	-	-	-	-	-	1	E
	50	-	-	-	-	-	6	8	G
	70	-	-	-	-	-	12	14	I
	80	-	-	-	-	-	18	20	J
	90	-	-	-	-	-	23	25	K
	100	-	-	-	-	-	27	29	K
	110	-	-	-	-	-	30	32	
	120	-	-	-	-	-	34	36	
	130	-	-	-	-	-	37	39	
	140	-	-	-	-	-	41	43	
	150	-	-	-	-	-	44	46	
	160	-	-	-	-	-	47	49	
	170	-	-	-	-	-	51	53	
	180	-	-	-	-	-	54	56	
	190	-	-	-	-	-	57	59	
	200	-	-	-	-	-	60	62	
24	25	-	-	-	-	-	-	2	E
	35	-	-	-	-	-	6	8	G
	50	-	-	-	-	-	8	10	H
	55	-	-	-	-	-	12	14	H
	60	-	-	-	-	-	16	18	I
	70	-	-	-	-	-	23	25	J
	80	-	-	-	-	-	28	30	K
	90	-	-	-	-	-	32	34	
	100	-	-	-	-	-	37	39	
	110	-	-	-	-	-	41	43	
	120	-	-	-	-	-	45	47	
	130	-	-	-	-	-	49	51	
	140	-	-	-	-	-	53	55	
	150	-	-	-	-	-	58	60	
	160	-	-	-	-	-	62	64	

O₂ stop times do not include ascent time to 9 msw.

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		24	21	18	15	12	9		
27	20	-	-	-	-	-	-	2	D
	25	-	-	-	-	-	5	7	E
	40	-	-	-	-	-	9	11	G
	45	-	-	-	-	-	11	13	H
	50	-	-	-	-	-	17	19	H
	55	-	-	-	-	-	22	24	I
	60	-	-	-	-	-	25	27	J
	70	-	-	-	-	-	31	33	
	80	-	-	-	-	-	36	38	
	90	-	-	-	-	-	42	44	
	100	-	-	-	-	-	47	49	
	110	-	-	-	-	-	52	54	
	120	-	-	-	-	-	57	59	
30	15	-	-	-	-	-	-	2	D
	20	-	-	-	-	-	5	7	E
	30	-	-	-	-	-	9	11	F
	35	-	-	-	-	-	10	12	G
	40	-	-	-	-	-	14	17	H
	45	-	-	-	-	-	20	22	I
	50	-	-	-	-	-	25	27	I
	55	-	-	-	-	-	29	31	J
	60	-	-	-	-	-	32	34	
	70	-	-	-	-	-	39	41	
	80	-	-	-	-	-	45	47	
	90	-	-	-	-	2	51	54	
	100	-	-	-	-	3	56	60	
	110	-	-	-	-	4	62	67	

O₂ stop times do not include ascent time to 9 msw.

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		24	21	18	15	12	9		
33	12	-	-	-	-	-	-	2	C
	20	-	-	-	-	-	7	9	E
	25	-	-	-	-	-	9	11	F
	30	-	-	-	-	-	11	13	G
	35	-	-	-	-	-	15	17	H
	40	-	-	-	-	-	22	24	I
	45	-	-	-	-	-	27	29	J
	50	-	-	-	-	-	32	34	K
	55	-	-	-	-	-	36	38	K
	60	-	-	-	-	2	39	42	
	65	-	-	-	-	3	42	46	
	70	-	-	-	-	4	46	51	
	75	-	-	-	-	4	49	54	
	80	-	-	-	-	5	52	58	
	85	-	-	-	-	5	56	62	
	90	-	-	-	-	6	59	66	
	95	-	-	-	-	6	62	69	
	100	-	-	-	-	7	66	74	
	105	-	-	-	-	7	69	77	
	110	-	-	-	-	8	73	82	

O₂ stop times do not include ascent time to 9 msw.

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		24	21	18	15	12	9		
36	10	-	-	-	-	-	-	2	C
	15	-	-	-	-	-	5	7	E
	20	-	-	-	-	-	8	10	F
	25	-	-	-	-	-	11	13	G
	30	-	-	-	-	-	13	15	H
	35	-	-	-	-	-	22	24	H
	40	-	-	-	-	-	28	30	I
	45	-	-	-	-	3	33	37	J
	50	-	-	-	-	4	37	42	K
	55	-	-	-	-	5	41	47	
	60	-	-	-	-	6	45	52	
	65	-	-	-	-	6	49	56	
	70	-	-	-	-	7	52	60	
	75	-	-	-	-	8	56	65	
	80	-	-	-	2	6	60	69	
	85	-	-	-	3	6	64	74	
	90	-	-	-	3	7	68	79	
	95	-	-	-	4	6	72	83	
	100	-	-	-	4	7	76	88	

O₂ stop times do not include ascent time to 9 msw.

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		24	21	18	15	12	9		
39	8	-	-	-	-	-	-	2	B
	15	-	-	-	-	-	7	10	E
	20	-	-	-	-	-	10	13	G
	25	-	-	-	-	-	13	16	G
	30	-	-	-	-	-	21	24	H
	35	-	-	-	-	3	28	32	I
	40	-	-	-	-	4	33	38	J
	45	-	-	-	-	6	38	45	L
	50	-	-	-	-	7	42	50	
	55	-	-	-	2	6	46	55	
	60	-	-	-	3	6	51	61	
	65	-	-	-	4	6	55	66	
	70	-	-	-	4	7	59	71	
	75	-	-	-	5	6	64	76	
	80	-	-	-	5	7	68	81	
	85	-	-	-	6	7	73	87	
	90	-	-	-	6	8	78	93	
42	7	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	4	7	D
	15	-	-	-	-	-	8	11	D
	20	-	-	-	-	-	12	15	G
	25	-	-	-	-	-	17	20	H
	30	-	-	-	-	4	26	31	I
	35	-	-	-	-	5	32	38	J
	40	-	-	-	-	7	37	45	K
	45	-	-	-	3	5	43	52	M
	50	-	-	-	4	6	47	58	
	55	-	-	-	5	6	52	64	
	60	-	-	-	6	6	57	70	
	65	-	-	-	6	7	62	76	
	70	-	-	-	7	7	67	82	
	75	-	-	3	5	7	72	88	
	80	-	-	3	6	7	77	94	
	85	-	-	4	5	8	83	101	
	90	-	-	4	6	8	89	108	

O₂ stop times do not include ascent time to 9 msw.

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		24	21	18	15	12	9		
45	7	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	5	8	D
	15	-	-	-	-	-	10	13	F
	20	-	-	-	-	-	13	16	G
	25	-	-	-	-	4	22	27	H
	30	-	-	-	-	6	30	37	I
	35	-	-	-	3	5	36	45	K
	40	-	-	-	4	6	42	53	M
	45	-	-	-	5	6	47	59	
	50	-	-	-	6	7	52	66	
	55	-	-	3	5	6	58	73	
	60	-	-	3	5	7	63	79	
	65	-	-	4	5	8	69	87	
	70	-	-	5	5	8	75	94	
	75	-	-	5	6	8	81	101	
	80	-	-	6	6	8	87	108	
48	6	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	6	9	E
	15	-	-	-	-	-	11	14	F
	20	-	-	-	-	-	15	18	G
	25	-	-	-	-	6	26	33	I
	30	-	-	-	3	5	34	43	J
	35	-	-	-	5	5	40	51	L
	40	-	-	-	6	6	46	59	
	45	-	-	3	5	6	52	67	
	50	-	-	4	5	7	58	75	
	55	-	-	5	5	7	64	82	
	60	-	-	6	5	8	70	90	
	65	-	-	7	5	8	77	98	
	70	-	3	4	6	8	84	106	

O₂ stop times do not include ascent time to 9 msw.

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)					Decom. Time (min)	Repet. Group		
		Air								
		24	21	18	15	12				
51	6	-	-	-	-	-	-	3		
	10	-	-	-	-	-	7	10		
	15	-	-	-	-	-	12	15		
	20	-	-	-	-	5	20	26		
	25	-	-	-	3	5	30	39		
	30	-	-	-	5	5	38	49		
	35	-	-	3	4	6	44	58		
	40	-	-	4	5	6	51	67		
	45	-	-	5	5	7	57	75		
	50	-	-	6	6	7	64	84		
	55	-	3	4	6	7	71	92		
	60	-	4	4	6	8	78	101		
	65	-	5	4	6	9	86	111		
	70	-	5	5	6	12	93	122		
54	5	-	-	-	-	-	-	3		
	10	-	-	-	-	-	8	11		
	15	-	-	-	-	-	14	18		
	20	-	-	-	-	6	24	31		
	25	-	-	-	5	5	34	45		
	30	-	-	3	4	6	41	55		
	35	-	-	5	4	6	48	64		
	40	-	-	6	5	7	55	74		
	45	-	4	4	5	7	63	84		
	50	-	4	5	5	8	70	93		
	55	-	5	5	6	8	78	103		
	60	-	6	5	6	9	86	113		

O_2 stop times do not include ascent time to 9 msw.

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)							Decom. Time (min)	
		Air								
		30	27	24	21	18	15	12		
57	5	-	-	-	-	-	-	-	3	
	10	-	-	-	-	-	-	-	9	
	15	-	-	-	-	-	-	4	14	
	20	-	-	-	-	-	4	4	28	
	25	-	-	-	-	-	7	5	37	
	30	-	-	-	-	5	4	6	45	
	35	-	-	-	3	4	5	6	52	
	40	-	-	-	4	4	5	7	60	
	45	-	-	-	5	5	5	8	68	
	50	-	-	3	3	5	6	8	77	
60	55	-	-	4	3	5	7	9	86	
	5	-	-	-	-	-	-	-	4	
	10	-	-	-	-	-	-	-	10	
	15	-	-	-	-	-	-	5	16	
	20	-	-	-	-	-	5	5	31	
	25	-	-	-	-	5	4	5	40	
	30	-	-	-	3	4	4	6	49	
	35	-	-	-	5	4	5	6	57	
	40	-	-	-	6	4	6	7	65	
	45	-	-	4	3	5	6	8	75	
63	50	-	-	5	4	4	7	9	84	
	10	-	-	-	-	-	-	-	11	
	15	-	-	-	-	-	-	7	21	
	20	-	-	-	-	-	7	5	33	
	25	-	-	-	-	6	4	6	43	
	30	-	-	-	5	4	4	7	52	
	35	-	-	3	3	4	6	7	61	
	40	-	-	4	4	4	6	8	71	
	45	-	-	5	4	5	6	9	81	
	50	-	3	3	4	6	6	13	91	

O₂ stop times do not include ascent time to 9 msw.

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)							Decom. Time (min)	
		Air								
		30	27	24	21	18	15	12	9	
66	10	-	-	-	-	-	-	-	12	16
	15	-	-	-	-	-	4	5	24	34
	20	-	-	-	-	5	4	5	36	51
	25	-	-	-	4	4	4	6	47	66
	30	-	-	3	3	4	5	7	56	79
	35	-	-	5	3	4	6	7	66	92
	40	-	3	3	4	4	7	8	77	107
	45	-	4	3	4	5	7	11	88	123
69	10	-	-	-	-	-	-	-	14	18
	15	-	-	-	-	-	6	4	27	38
	20	-	-	-	-	6	4	6	39	56
	25	-	-	-	6	3	5	6	50	71
	30	-	-	5	3	4	5	7	60	85
	35	-	3	3	4	4	6	8	72	101
	40	-	5	3	4	5	6	9	84	117
72	5	-	-	-	-	-	-	-	4	8
	10	-	-	-	-	-	-	4	14	19
	15	-	-	-	-	-	7	5	29	42
	20	-	-	-	4	4	4	5	42	60
	25	-	-	4	3	4	5	6	53	76
	30	-	-	6	3	5	5	8	65	93
	35	-	5	3	4	4	6	9	77	109
	40	3	3	3	4	6	6	13	90	129

O₂ stop times do not include ascent time to 9 msw.

TABLE 2S

SHORT IN-WATER OXYGEN DECOMPRESSION (METRES)

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TABLE 2S: SHORT IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	No-Decompression Bottom Times (min)			Decompression Required Bottom Times (min)			
	30 C	50 E	75 G	120 J	130 J	145	165
15	30 C	50 E	75 G	120 J	130 J	145	165
18	20 B	30 D	50 F	80 H	90 J	100 J	115 K
21	15 B	25 D	35 E	47 F	67 H	74 I	84 J
24	10 A	20 D	25 E	34 F	53 H	58 H	65 I
27	9 A	15 C	20 D	26 E	42 G	48 H	53 I
30	7 A	10 B	15 D	21 E	35 G	40 H	45 I
33	6 A	10 B	12 C	17 D	29 G	35 H	38 H
36		6 A	10 C	15 D	24 G	30 H	33 H
39		5 A	8 B	13 D	20 G	27 G	29 H
42		5 A	7 B	11 D	18 F	24 G	26 H
45			7 B	10 D	16 F	22 G	24 H
48			6 B	9 D	14 F	20 G	21 H
51			6 B	8 C	13 E	18 G	20 H
54			5 B	8 C	11 E	16 G	18 G
Decompression Time (min) Oxygen at 9 msw				5	10	15	20
Note: Decompression stop times do not include ascent time to 9 msw.							

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TABLE 3

SURFACE DECOMPRESSION WITH OXYGEN (METRES)

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TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group		
		In-Water Stops									
		Air									
		24	21	18	15	12	9				
18	50	-	-	-	-	-	-	-	F		
	70	-	-	-	-	-	-	10	H		
	80	-	-	-	-	-	-	16	H		
	90	-	-	-	-	-	-	20	I		
	100	-	-	-	-	-	-	24	J		
	110	-	-	-	-	-	-	28	K		
	120	-	-	-	-	-	-	30	K		
	130	-	-	-	-	-	-	32*			
	140	-	-	-	-	-	-	38*			
	150	-	-	-	-	-	-	42*			
	160	-	-	-	-	-	-	46*			
	170	-	-	-	-	-	-	50*			
	180	-	-	-	-	-	-	54*			
	190	-	-	-	-	-	-	57*			
	200	-	-	-	-	-	-	60*			
	210	-	-	-	-	-	-	63**			
	220	-	-	-	-	-	-	69**			
	230	-	-	-	-	-	-	73**			
	240	-	-	-	-	-	-	77**			

Time from leaving the 9 msw stop (or the bottom,
if no in-water stop is required) to reaching the 12 msw
Chamber stop must not exceed 7 minutes.

Note: asterisk (*) indicates number of 5 minute air breaks required.

DCIEM DIVING MANUAL

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group		
		In-Water Stops									
		Air									
		24	21	18	15	12	9				
21	35	-	-	-	-	-	-	-	E		
	50	-	-	-	-	-	-	6	H		
	60	-	-	-	-	-	-	15	H		
	70	-	-	-	-	-	-	21	I		
	80	-	-	-	-	-	-	26	J		
	90	-	-	-	-	-	-	30	K		
	100	-	-	-	-	-	-	34*	K		
	110	-	-	-	-	-	-	40*			
	120	-	-	-	-	-	-	45*			
	130	-	-	-	-	-	-	50*			
	140	-	-	-	-	-	-	55*			
	150	-	-	-	-	-	-	59*			
	160	-	-	-	-	-	-	63**			
	170	-	-	-	-	-	-	71**			
	180	-	-	-	-	-	-	76**			
	190	-	-	-	-	-	-	81**			
	200	-	-	-	-	-	1	85**			
Note: asterisk (*) indicates number of 5 minute air breaks required.											

Time from leaving the 9 msw stop (or the bottom,
if no in-water stop is required) to reaching the 12 msw
Chamber stop must not exceed 7 minutes.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						RCC O_2	Decom. Time (min)	Repet. Group			
		In-Water Stops											
		Air											
		24	21	18	15	12	9						
24	25	-	-	-	-	-	-	-	2	E			
	45	-	-	-	-	-	-	12	20	H			
	50	-	-	-	-	-	-	17	25	H			
	55	-	-	-	-	-	-	21	29	H			
	60	-	-	-	-	-	-	24	32	I			
	70	-	-	-	-	-	-	30	38	J			
	80	-	-	-	-	-	-	35*	48	K			
	90	-	-	-	-	-	-	42*	55				
	100	-	-	-	-	-	2	47*	62				
	110	-	-	-	-	-	2	53*	68				
	120	-	-	-	-	-	3	58*	74				
	130	-	-	-	-	-	4	62**	84				
	140	-	-	-	-	-	4	72**	94				
	150	-	-	-	-	-	5	78**	101				
	160	-	-	-	-	-	5	84**	107				

Note: asterisk (*) indicates number of 5 minute air breaks required.

Time from leaving the 9 msw stop (or the bottom,
if no in-water stop is required) to reaching the 12 msw
Chamber stop must not exceed 7 minutes.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Surface Interval	RCC O_2	Decom. Time (min)	Repet. Group				
		In-Water Stops													
		Air													
		24	21	18	15	12	9								
27	20	-	-	-	-	-	-		-	2	D				
	35	-	-	-	-	-	-		8	16	G				
	40	-	-	-	-	-	-		16	24	G				
	45	-	-	-	-	-	-		21	29	H				
	50	-	-	-	-	-	-		25	33	H				
	55	-	-	-	-	-	-		28	37	I				
	60	-	-	-	-	-	-		30*	45	J				
	70	-	-	-	-	-	-		37*	53					
	80	-	-	-	-	-	-		45*	62					
	90	-	-	-	-	-	-		52*	70					
	100	-	-	-	-	-	-		58*	77					
	110	-	-	-	-	-	-		65**	90					
	120	-	-	-	-	-	-		74**	100					
30	15	-	-	-	-	-	-		-	2	D				
	30	-	-	-	-	-	-		8	16	G				
	35	-	-	-	-	-	-		17	25	G				
	40	-	-	-	-	-	-		22	32	H				
	45	-	-	-	-	-	-		27	38	I				
	50	-	-	-	-	-	-		30	42	I				
	55	-	-	-	-	-	-		31*	49	J				
	60	-	-	-	-	-	-		37*	56					
	70	-	-	-	-	-	-		46*	66					
	80	-	-	-	-	-	-		54*	75					
	90	-	-	-	-	-	2		60*	83					
	100	-	-	-	-	-	3		72**	101					
	110	-	-	-	-	-	4		81**	111					

Note: asterisk (*) indicates number of 5 minute air breaks required.

Time from leaving the 9 msw stop (or the bottom, if no in-water stop is required) to reaching the 12 msw Chamber stop must not exceed 7 minutes.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group		
		In-Water Stops									
		Air									
		24	21	18	15	12	9				
33	12	-	-	-	-	-	-	-	C		
	25	-	-	-	-	-	-	7	G		
	30	-	-	-	-	-	2	16	G		
	35	-	-	-	-	-	3	22	H		
	40	-	-	-	-	-	5	27	I		
	45	-	-	-	-	-	6	30*	J		
	50	-	-	-	-	-	7	35*	K		
	55	-	-	-	-	-	8	40*	K		
	60	-	-	-	-	2	7	45*			
	65	-	-	-	-	3	7	50*			
	70	-	-	-	-	4	7	54*			
	75	-	-	-	-	4	8	59*			
	80	-	-	-	-	5	8	60**			
	85	-	-	-	-	5	9	69**			
	90	-	-	-	-	6	9	75**			
	95	-	-	-	-	6	9	80**			
	100	-	-	-	-	7	9	85**			
	105	-	-	-	-	7	12	89**			
	110	-	-	-	-	8	15	93***			

Time from leaving the 9 msw stop (or the bottom, if no in-water stop is required) to reaching the 12 msw Chamber stop must not exceed 7 minutes.

Note: asterisk (*) indicates number of 5 minute air breaks required.

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TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)							Decom. Time (min)	Repet. Group	
		In-Water Stops						Surface Interval	RCC O_2		
		Air									
		24	21	18	15	12	9		12		
36	10	-	-	-	-	-	-		-	2	C
	20	-	-	-	-	-	-		7	15	F
	25	-	-	-	-	-	2		13	23	G
	30	-	-	-	-	-	4		21	33	G
	35	-	-	-	-	-	6		27	41	H
	40	-	-	-	-	-	8		30*	51	I
	45	-	-	-	-	3	6		36*	58	J
	50	-	-	-	-	4	7		42*	66	K
	55	-	-	-	-	5	7		48*	73	
	60	-	-	-	-	6	7		53*	79	
	65	-	-	-	-	6	8		58*	85	
	70	-	-	-	-	7	8		60**	93	
	75	-	-	-	-	8	8		70**	104	
	80	-	-	-	2	6	9		76**	111	
	85	-	-	-	3	6	10		82**	119	
	90	-	-	-	3	7	13		87**	128	
	95	-	-	-	4	6	16		90**	134	
	100	-	-	-	4	7	19		100***	153	

Note: asterisk (*) indicates number of 5 minute air breaks required.

Time from leaving the 9 msw stop (or the bottom,
if no in-water stop is required) to reaching the 12 msw
Chamber stop must not exceed 7 minutes.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)							Decom. Time (min)	Repet. Group				
		In-Water Stops						Surface Interval	RCC O ₂					
		Air												
		24	21	18	15	12	9							
39	8	-	-	-	-	-	-		-	2	B			
	20	-	-	-	-	-	-		8	16	G			
	25	-	-	-	-	-	5		18	31	G			
	30	-	-	-	-	-	7		26	41	H			
	35	-	-	-	-	3	6		30*	52	I			
	40	-	-	-	-	4	7		36*	60	J			
	45	-	-	-	-	6	7		43*	69	K			
	50	-	-	-	-	7	7		49*	76				
	55	-	-	-	2	6	8		54*	83				
	60	-	-	-	3	6	8		60*	90				
	65	-	-	-	4	6	8		67**	103				
	70	-	-	-	4	7	9		75**	113				
	75	-	-	-	5	6	11		81**	121				
	80	-	-	-	5	7	14		87**	131				
	85	-	-	-	6	7	17		90***	143				
	90	-	-	-	6	8	20		101***	158				

Note: asterisk (*) indicates number of 5 minute air breaks required.

Time from leaving the 9 msw stop (or the bottom, if no in-water stop is required) to reaching the 12 msw Chamber stop must not exceed 7 minutes.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group		
		In-Water Stops									
		Air									
		24	21	18	15	12	9	12			
42	7	-	-	-	-	-	-	-	B		
	15	-	-	-	-	-	-	7	F		
	20	-	-	-	-	-	4	12	G		
	25	-	-	-	-	-	7	23	H		
	30	-	-	-	-	4	6	30	I		
	35	-	-	-	-	5	7	34*	J		
	40	-	-	-	-	7	7	42*	K		
	45	-	-	-	3	5	8	49*	M		
	50	-	-	-	4	6	8	55*			
	55	-	-	-	5	6	8	60**			
	60	-	-	-	6	6	9	70**			
	65	-	-	-	6	7	10	78**			
	70	-	-	-	7	7	14	84**			
	75	-	-	3	5	7	18	90**			
	80	-	-	3	6	7	21	100***			
	85	-	-	4	5	8	25	107***			
	90	-	-	4	6	8	28	113***			

Time from leaving the 9 msw stop (or the bottom,
if no in-water stop is required) to reaching the 12 msw
Chamber stop must not exceed 7 minutes.

Note: asterisk (*) indicates number of 5 minute air breaks required.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group		
		In-Water Stops									
		Air									
		24	21	18	15	12	9				
45	7	-	-	-	-	-	-	-	B		
	15	-	-	-	-	-	-	8	G		
	20	-	-	-	-	-	6	17	G		
	25	-	-	-	-	4	5	27	H		
	30	-	-	-	-	6	6	30*	I		
	35	-	-	-	3	5	7	40*	K		
	40	-	-	-	4	6	7	48*	M		
	45	-	-	-	5	6	8	55*			
	50	-	-	-	6	7	8	60**			
	55	-	-	3	5	6	9	72**			
	60	-	-	3	5	7	12	80**			
	65	-	-	4	5	8	16	87**			
	70	-	-	5	5	8	20	95***			
	75	-	-	5	6	8	24	105***			
	80	-	-	6	6	8	28	111***			
48	6	-	-	-	-	-	-	-	B		
	15	-	-	-	-	-	4	7	G		
	20	-	-	-	-	-	8	21	G		
	25	-	-	-	-	6	6	30	I		
	30	-	-	-	3	5	7	37*	J		
	35	-	-	-	5	5	8	46*	L		
	40	-	-	-	6	6	8	54*			
	45	-	-	3	5	6	9	60*			
	50	-	-	4	5	7	9	72**			
	55	-	-	5	5	7	13	81**			
	60	-	-	6	5	8	17	88**			
	65	-	-	7	5	8	22	99***			
	70	-	3	4	6	8	26	108***			

Time from leaving the 9 msw stop (or the bottom, if no in-water stop is required) to reaching the 12 msw Chamber stop must not exceed 7 minutes.

Note: asterisk (*) indicates number of 5 minute air breaks required.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Surface Interval	RCC O_2	Decom. Time (min)	Repet. Group				
		In-Water Stops													
		Air													
		24	21	18	15	12	9		12						
51	6	-	-	-	-	-	-	Time from leaving the 9 msw stop (or the bottom, if no in-water stop is required) to reaching the 12 msw Chamber stop must not exceed 7 minutes.	-	3	B				
	10	-	-	-	-	-	-		6	14	D				
	15	-	-	-	-	-	5		11	24	G				
	20	-	-	-	-	5	5		25	43	H				
	25	-	-	-	3	5	6		30*	57	J				
	30	-	-	-	5	5	7		42*	72	K				
	35	-	-	3	4	6	8		51*	85	M				
	40	-	-	4	5	6	8		60*	96					
	45	-	-	5	5	7	9		70**	114					
	50	-	-	6	6	7	13		80**	130					
	55	-	3	4	6	7	18		89**	145					
	60	-	4	4	6	8	23		101***	169					
	65	-	5	4	6	9	27		110***	184					
	70	-	5	5	6	12	30		117***	198					
54	5	-	-	-	-	-	-		-	3	B				
	10	-	-	-	-	-	-		7	15	E				
	15	-	-	-	-	-	7		15	30	G				
	20	-	-	-	-	6	6		28	48	H				
	25	-	-	-	5	5	7		36*	66	J				
	30	-	-	3	4	6	7		47*	80	M				
	35	-	-	5	4	6	8		56*	92					
	40	-	-	6	5	7	9		66**	111					
	45	-	4	4	5	7	13		78**	129					
	50	-	4	5	5	8	18		88**	146					
	55	-	5	5	6	8	23		101***	171					
	60	-	6	5	6	9	28		110***	187					

Note: asterisk (*) indicates number of 5 minute air breaks required.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)									Decom. Time (min)	
		In-Water Stops										
		Air										
		30	27	24	21	18	15	12	9	Surface Interval		
57	5	-	-	-	-	-	-	-	-	-	-	
	10	-	-	-	-	-	-	-	-	-	8	
	15	-	-	-	-	-	-	-	4	5	19	
	20	-	-	-	-	-	4	4	6	-	30	
	25	-	-	-	-	-	7	5	7	-	41*	
	30	-	-	-	-	5	4	6	8	-	52*	
	35	-	-	-	3	4	5	6	9	-	60*	
	40	-	-	-	4	4	5	7	11	-	75**	
	45	-	-	-	5	5	5	8	17	-	85**	
	50	-	-	3	3	5	6	8	22	-	99***	
	55	-	-	4	3	5	7	9	27	-	110***	
60	5	-	-	-	-	-	-	-	-	-	-	
	10	-	-	-	-	-	-	-	-	-	9	
	15	-	-	-	-	-	-	-	5	6	22	
	20	-	-	-	-	-	5	5	6	-	31*	
	25	-	-	-	-	5	4	5	7	-	45*	
	30	-	-	-	3	4	4	6	9	-	56*	
	35	-	-	-	5	4	5	6	10	-	69**	
	40	-	-	-	6	4	6	7	15	-	82**	
	45	-	-	4	3	5	6	8	21	-	92***	
	50	-	-	5	4	4	7	9	27	-	108***	
63	10	-	-	-	-	-	-	-	5	-	7	
	15	-	-	-	-	-	-	-	7	6	25	
	20	-	-	-	-	-	7	5	7	-	36*	
	25	-	-	-	-	6	4	6	8	-	49*	
	30	-	-	-	5	4	4	7	8	-	60*	
	35	-	-	3	3	4	6	7	12	-	76**	
	40	-	-	4	4	4	6	8	19	-	88**	
	45	-	-	5	4	5	6	9	25	-	105***	
	50	-	3	3	4	6	6	13	29	-	116***	
		Note: asterisk (*) indicates number of 5 minute air breaks required.										

Time from leaving the 9 msw stop (or the bottom, if no in-water stop is required) to reaching the 12 msw Chamber stop must not exceed 7 minutes.

TABLE 3: SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)									Decom. Time (min)		
		In-Water Stops											
		Air											
66	30	7	22	12	7	22	12	7	22	12	7		
	27	-	-	-	-	-	-	-	-	28	50		
	24	-	-	-	-	-	4	5	5	40*	74		
	21	-	-	-	-	5	4	5	7	54*	93		
	18	-	-	-	4	4	4	6	8	68**	117		
	15	-	-	-	3	3	4	5	7	83**	142		
	12	-	-	5	3	4	6	7	16	99***	174		
	9	-	3	3	4	4	7	8	23	112***	197		
69	10	-	-	-	-	-	-	-	8	11	27		
	15	-	-	-	-	-	6	4	6	30	54		
	20	-	-	-	-	6	4	6	7	44*	80		
	25	-	-	-	6	3	5	6	9	58*	100		
	30	-	-	5	3	4	5	7	12	75**	129		
	35	-	3	3	4	4	6	8	19	89**	154		
	40	-	5	3	4	5	6	9	27	107***	189		
	10	-	-	-	-	-	-	4	5	14	31		
72	15	-	-	-	-	-	7	5	6	30*	61		
	20	-	-	-	4	4	4	5	8	48*	86		
	25	-	-	4	3	4	5	6	9	60**	109		
	30	-	-	6	3	5	5	8	15	80**	140		
	35	-	5	3	4	4	6	9	23	98***	175		
	40	3	3	3	4	6	6	13	28	114***	203		

Note: asterisk (*) indicates number of 5 minute air breaks required.

Time from leaving the 9 msw stop to reaching the 12 msw Chamber stop must not exceed 7 minutes.

TABLE 4

REPETITIVE DIVING (METRES)

A. REPETITIVE FACTORS/SURFACE INTERVALS TABLE

B. NO-DECOMPRESSION REPETITIVE DIVING TABLE

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TABLE 4: REPETITIVE DIVING (METRES)

A. REPETITIVE FACTORS/SURFACE INTERVALS TABLE											
Repet. Group (RG)	Repetitive Factors (RF) for Surface Intervals (SI) in hr:min										
	0:15 → 0:29	0:30 → 0:59	1:00 → 1:29	1:30 → 1:59	2:00 → 2:59	3:00 → 3:59	4:00 → 5:59	6:00 → 8:59	9:00 → 11:59	12:00 → 14:59	15:00 → 18:00
A	1.4	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0
B	1.5	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.0	1.0
C	1.6	1.4	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.0	1.0
D	1.8	1.5	1.4	1.3	1.3	1.2	1.2	1.1	1.1	1.0	1.0
E	1.9	1.6	1.5	1.4	1.3	1.3	1.2	1.2	1.1	1.1	1.0
F	2.0	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.1	1.0
G	-	1.9	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0
H	-	-	1.9	1.7	1.6	1.5	1.4	1.3	1.1	1.1	1.1
I	-	-	2.0	1.8	1.7	1.5	1.4	1.3	1.1	1.1	1.1
J	-	-	-	1.9	1.8	1.6	1.5	1.3	1.2	1.1	1.1
K	-	-	-	2.0	1.9	1.7	1.5	1.3	1.2	1.1	1.1
L	-	-	-	-	2.0	1.7	1.6	1.4	1.2	1.1	1.1
M	-	-	-	-	-	1.8	1.6	1.4	1.2	1.1	1.1
N	-	-	-	-	-	1.9	1.7	1.4	1.2	1.1	1.1
O	-	-	-	-	-	2.0	1.7	1.4	1.2	1.1	1.1

B. NO-DECOMPRESSION REPETITIVE DIVING TABLE											
Depth (msw)	Allowable No-D Limits (min) for Repetitive Factors (RF)										
	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	
9	272	250	230	214	200	187	176	166	157	150	
12	136	125	115	107	100	93	88	83	78	75	
15	60	55	50	45	41	38	36	34	32	31	
18	40	35	31	29	27	26	24	23	22	21	
21	30	25	21	19	18	17	16	15	14	13	
24	20	18	16	15	14	13	12	12	11	11	
27	16	14	12	11	11	10	9	9	8	8	
30	13	11	10	9	9	8	8	7	7	7	
33	10	9	8	8	7	7	6	6	6	6	
36	8	7	7	6	6	6	5	5	5	5	
39	7	6	6	5	5	5	4	4	4	4	
42	6	5	5	5	4	4	4	3	3	3	
45	5	5	4	4	4	3	3	3	3	3	

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TABLE 5

DEPTH CORRECTIONS FOR DIVING AT ALTITUDE (METRES)

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TABLE 5: DEPTH CORRECTIONS - DIVING AT ALTITUDE (METRES)

Actual Depth (metres)	Depth Correction at Altitude (metres)									
	100 → 299	300 → 599	600 → 899	900 → 1199	1200 → 1499	1500 → 1799	1800 → 2099	2100 → 2399	2400 → 3000	
9	+0	+3	+3	+3	+3	+3	+3	+6	+6	
12	+0	+3	+3	+3	+3	+3	+6	+6	+6	
15	+0	+3	+3	+3	+3	+6	+6	+6	+6	
18	+0	+3	+3	+3	+6	+6	+6	+6	+9	
21	+0	+3	+3	+3	+6	+6	+6	+9	+9	
24	+0	+3	+3	+6	+6	+6	+9	+9	+12	
27	+0	+3	+3	+6	+6	+6	+9	+9	+12	
30	+0	+3	+3	+6	+6	+9	+9	+9	+12	
33	+0	+3	+6	+6	+6	+9	+9	+12	+15	
36	+0	+3	+6	+6	+6	+9	+9	+12	+15	
39	+0	+3	+6	+6	+9	+9	+12	+12	+15	
42	+0	+3	+6	+6	+9	+9	+12	+12	+18	
45	+3	+3	+6	+6	+9	+9	+12	+15	+18	
48	+3	+6	+6	+9	+9	+12	+12	+15	+18	
51	+3	+6	+6	+9	+9	+12	+15	+15	+21	
54	+3	+6	+6	+9	+9	+12	+15	+15		
57	+3	+6	+6	+9	+12	+12	+15			
60	+3	+6	+6	+9	+12	+12				
63	+3	+6	+6	+9						
66	+3	+6								
69	+3									
Sea Level Stop Depth (metres)	Actual Decompression Stop Depth at Altitude (metres)									
	100 → 299	300 → 599	600 → 899	900 → 1199	1200 → 1499	1500 → 1799	1800 → 2099	2100 → 2399	2400 → 3000	
3	3.0	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5	
6	6.0	6.0	6.0	5.5	5.5	5.0	5.0	5.0	4.5	
9	9.0	9.0	8.5	8.5	8.0	7.5	7.5	7.0	7.0	
12	12.0	12.0	11.5	11.0	10.5	10.0	10.0	9.5	9.0	
15	15.0	14.5	14.0	13.5	13.0	12.5	12.0	12.0	11.5	
18	18.0	17.5	17.0	16.5	16.0	15.0	14.5	14.0	13.5	
21	21.0	20.5	20.0	19.0	18.5	17.5	17.0	16.5	16.0	
24	24.0	23.5	22.5	21.5	21.0	20.0	19.5	19.0	18.0	
27	27.0	26.0	25.5	24.5	23.5	22.5	22.0	21.0	20.0	

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APPENDIX C

WORKSHEETS

DCIEM DIVING MANUAL

REPETITIVE DIVING WORKSHEET (FEET)**FIRST DIVE:**

 fsw / min **Table Used** _____

1st Dive Repetitive Group _____

SECOND DIVE:

SI hr min **RF** _____ (**Table 4A**)

Depth _____ fsw **Table Used** _____

Allowable No-D Limit (Table 4B) _____ min

Planned Bottom Time (BT) _____ min

EBT = (RF) _____ x (BT) _____ = _____

Decompression required: Yes No

DECOMPRESSION SCHEDULE: _____ fsw / (EBT) _____ min

_____ fsw _____ min

_____ fsw _____ min

_____ fsw _____ min **O₂ Stop (if required)**

_____ fsw _____ min _____ fsw _____ min

2nd Dive Repetitive Group _____ (**from Table Used**)

2nd Dive Adjusted Repetitive Group _____

NOTE: If the BT exceeds the allowable No-D Limit in TAble 4B, but the EBT is less than the No-D Limit in Table 1S, a 5 - minute decompression stop at 10 fsw is required.

DCIEM DIVING MANUAL

REPETITIVE DIVING WORKSHEET (METRES)**FIRST DIVE:****_____ msw / _____ min Table Used _____****1st Dive Repetitive Group _____****SECOND DIVE:****SI _____ hr _____ min RF _____ (Table 4A)****Depth _____ msw Table Used _____****Allowable No-D Limit (Table 4B) _____ min****Planned Bottom Time (BT) _____ min****EBT = (RF) _____ x (BT) _____ = _____****Decompression required: Yes No** **DECOMPRESSION SCHEDULE: _____ msw / (EBT) _____ min****_____ msw _____ min****_____ msw _____ min****_____ msw _____ min O₂ Stop (if required)****_____ msw _____ min _____ msw _____ min****2nd Dive Repetitive Group _____ (from Table Used)****2nd Dive Adjusted Repetitive Group _____**

NOTE: If the BT exceeds the allowable No-D Limit in Table 4B, but the EBT is less than the No-D Limit in Table 1S, a 5 - minute decompression stop at 3 msw is required.

DCIEM DIVING MANUAL

ALTITUDE DIVING WORKSHEET (FEET)

ALTITUDE OF DIVE SITE _____ ft

ACTUAL DEPTH OF DIVE (a) _____ fsw

DIVE DEPTH CORRECTION (b) + _____ fsw

EFFECTIVE DEPTH (ED) (a+b) _____ fsw

BOTTOM TIME (BT) _____ min

Schedule Required (ED/BT) _____ fsw/_____ min

Table Used _____

ALTITUDE DECOMPRESSION SCHEDULE

Sea Level Stop Depth	Actual Stop Depth	Stop Time
50 fsw	_____ fsw	_____ min
40 fsw	_____ fsw	_____ min
30 fsw	_____ fsw	_____ min
20 fsw	_____ fsw	_____ min
10 fsw	_____ fsw	_____ min
O ₂ Stop	_____ fsw	_____ min

Repetitive Group _____

DCIEM DIVING MANUAL

ALTITUDE DIVING WORKSHEET (METRES)

ALTITUDE OF DIVE SITE _____ m

ACTUAL DEPTH OF DIVE (a) _____ msw

DIVE DEPTH CORRECTION (b) +_____ msw

EFFECTIVE DEPTH (ED) (a+b) _____ msw

BOTTOM TIME (BT) _____ min

Schedule Required (ED/BT) _____ msw / _____ min

Table Used _____

ALTITUDE DECOMPRESSION SCHEDULE

Sea Level Stop Depth	Actual Stop Depth	Stop Time
15 msw	_____ msw	_____ min
12 msw	_____ msw	_____ min
9 msw	_____ msw	_____ min
6 msw	_____ msw	_____ min
3 msw	_____ msw	_____ min
O ₂ Stop	_____ msw	_____ min

Repetitive Group _____

DCIEM DIVING MANUAL

AIR DIVING TABLES

DCIEM - DIVE RECORD CHART IN FEET

DIVER	Rank	Tender	Rank	Date:			
DIVER	Rank	Tender	Rank	Table Used			
SUPERVISOR	Rank	Schedule Used	O2%	Depth in FT	Bottom Time		
Left Surface (Clock Time)	Left Bottom		Max. Time to 1st Stop	Reached Surface (Clock Time)			
Total decom. time	Total time of dive		Repet. Group	CHARTMAN (Print)			
REMARKS		STOPS IN FEET	Decompression Time		EMERG AIR	EVENT TIME	
			Water	Chamber		Water	Chamber
		10				L	
		10				S	
		20				L	
		20				S	
		30				L	
		30				S	
		40				L	
		40				S	
		50				L	
		50				S	
		60				L	
		60				S	
		70				L	
		70				S	
		80				L	
		80				S	
		90				L	
		90				S	
		100				L	
		100				S	
		110				L	
		110				S	
		120				L	
		120				S	
		130				L	
		130				S	
		140				L	
		140				S	
		150				L	
		150				S	
		160				L	
		160				S	
		170				L	
		170				S	
Purpose of Dive		Supervisor (sign)			Chartman (sign)		

DCIEM DIVING MANUAL

AIR DIVING TABLES

DCIEM - DIVE RECORD CHART IN METRES

DIVER	Rank	Tender	Rank	Date:			
DIVER	Rank	Tender	Rank	Table Used			
SUPERVISOR	Rank	Schedule Used	O2%	Depth in METRES	Bottom Time		
Left Surface (Clock Time)	Left Bottom		Max. Time to 1st Stop	Reached Surface (Clock Time)			
Total decomp. time	Total time of dive		Repet. Group	CHARTMAN (Print)	Rank		
REMARKS	STOPS IN METRES	STAND AIR TABLE	Decompression Time		EMERG AIR	EVENT TIME	
			Water	Chamber		Water	Chamber
	3					L	
						S	
	6					L	
						S	
	9					L	
						S	
	12					L	
						S	
	15					L	
						S	
	18					L	
						S	
	21					L	
						S	
	24					L	
						S	
	27					L	
						S	
	30					L	
						S	
	33					L	
						S	
	36					L	
						S	
	39					L	
						S	
	42					L	
						S	
	45					L	
						S	
	48					L	
						S	
	51					L	
						S	
Purpose of Dive	Supervisor (sign)				Chartman (sign)		

APPENDIX D

OPEN-CIRCUIT

NITROGEN-OXYGEN DIVING

PROCEDURES

(FSW AND MSW)

WARNING: This Appendix is designed only for use with the DCIEM AIR DIVING TABLES (Tables 1, 1S, 2, 2S, 3, 4, and 5) and should not be applied to any other decompression tables or procedures.

DCIEM DIVING MANUAL

APPENDIX D

NITROGEN-OXYGEN DIVING

1. PREAMBLE

Since the mid-1950's, the Department of National Defence (DND) Canada and other allied forces have accumulated substantial operational experience in the use of pure oxygen and nitrogen-oxygen mixed gas diving. Historically, these gases have been utilized mostly in closed-circuit and semi-closed circuit Underwater Breathing Apparatus (UBA) - commonly referred to as rebreathers.

Such gases in conjunction with the design concept of the re-breather (including use of carbon dioxide scrubbers) have allowed for substantial increases in UBA duration in comparison to standard compressed air open-circuit systems. The elevated percentage of oxygen in these gases (higher percentage of oxygen than found in compressed air) was used to reduce gas flow but still maintain a breathable mixture by offsetting the divers' metabolic consumption of oxygen.

An additional benefit of nitrogen-oxygen mixed gas with oxygen content greater than 21% is a reduction in the inert gas (nitrogen) decompression penalties associated with Standard Air Decompression. This has been accomplished by the application of the Equivalent Air Depth (EAD) concept. The EAD technique is widely used by the Canadian Forces and other military forces in conjunction with re-breather operations. It is highly effective and can also be easily used in open-circuit diving.

The use of pure oxygen and nitrogen-oxygen mixed gas (with a high percentage oxygen content) is limited in depth and time duration owing to safety considerations¹. The major limitation is

1. Safety limits are applied to all breathing gas mixtures (including air), and are based on physiological effects of the individual gases contained within the breathing medium in relation to depth.

the well-established danger of oxygen toxicity to the Central Nervous System (CNS). Pulmonary (whole body) oxygen toxicity is a second but less significant limitation. Both forms of oxygen toxicity are directly related to the partial pressure of oxygen (PO_2) at depth and the time of exposure [Ref. 1-7]. It is vital that established PO_2 guidelines be followed.

Additionally, all nitrogen-oxygen breathing mixtures must meet diver's breathing gas purity standards, be properly analysed and certified for oxygen content². All equipment to be used must meet established guidelines for oxygen service [8-11].

Note: Gas Mixing and Blending

When not using a certified pre-mixed breathing medium, such as those supplied by established, certified gas suppliers (e.g., Matheson Gas Products Inc., Liquid Air Ltd., etc.), the following procedures are recommended, especially in instances where the breathing mixture is obtained by "partial pressure" or by "weight" gas mixing methods.

After initial mixing and analysis, a waiting period should be observed followed by a second gas analysis. The waiting period allows for the stabilization of temperature and pressure, and additionally, promotes the attainment of a homogeneous breathing mixture, significantly reducing the possibility of gas layering. Layering may result in hyperoxic/hypoxic conditions. The length of the waiting period will vary according to the size of the gas pressure vessel and may range from 6 to 48 hours. The "rolling" of gas vessels can accelerate the homogeneous mixing of the gases; however, it must be active, sustained (i.e., at 20 to 40 RPM for 1 hour), and safe with respect to the care and handling of high pressure cylinders.

Whether using certified and highly repeatable/accurate gas blenders or other mixing techniques, achieving a homogeneous gas mixture is a must.

WARNING: EXPLOSION/CONTAMINATION HAZARD

The standards for compressed breathing air are not compatible with those established for diver's breathing gas (nitrogen-oxygen) and oxygen service systems. (Nitrogen-oxygen gas and oxygen service tolerance specifications demand much lower concentrations of hydrocarbon (oil/mists) and other contaminants which may be found in compressed air.)

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2. Regardless of any previous gas analysis including those of pre-certified mixtures, the breathing medium must be analysed just prior to use.

2. EQUIVALENT AIR DEPTH TABLE FOR NITROGEN-OXYGEN BREATHING MIXTURES (TABLE 1(N))

Nitrogen-oxygen breathing mixtures containing a higher percentage of oxygen than air are often referred to as "enriched air" or "enriched air nitrox". Technically, the term "nitrox" can apply to mixtures with oxygen percentages higher or lower than air. In this appendix, the mixtures of interest are referred to as "nitrogen-oxygen mixtures" and the convention used for specific mixtures is specified as "% Nitrogen/% Oxygen", e.g., 60% N₂/40% O₂.

Decompression for nitrogen-oxygen breathing mixtures is based on the air diving table according to the Equivalent Air Depth (EAD) for the nitrogen-oxygen mixture used and the depth of the dive. Specifically, the partial pressure of nitrogen in the breathing mixture at the actual depth of the dive is used to determine the depth of a dive on air (i.e., the EAD) with the same partial pressure of nitrogen. The decompression requirement for the dive using the nitrogen-oxygen mixture is then determined from an air diving table for that EAD. Thus a dive on 60% N₂/40% O₂ to 50 fsw³ has approximately the same partial pressure of nitrogen [0.6 x (50 + 33)/33 = 1.5 ATA (atmospheres absolute)] as a dive to 30 fsw on air with 79% nitrogen [0.79 x (30 + 33)/33 = 1.5 ATA]. The EAD for 50 fsw on 60% N₂/40% O₂ is therefore 30 fsw. Because the EAD is shallower than the actual dive depth, the decompression required for the nitrogen-oxygen dive is less than would be required for an air dive to the same actual depth.

However, the use of nitrogen-oxygen mixtures with higher percentages of oxygen than found in air is limited by oxygen toxicity considerations. The maximum depth limit associated with these mixtures is less than that for air diving. In addition, there is a maximum bottom time associated with the partial pressure of oxygen at depth. While open-circuit nitrogen-oxygen diving allows for less decompression than an equivalent air dive, it is limited to much shallower depths than when using compressed air.

3. In this appendix, depth will be expressed in feet of sea water (fsw) and metres of seawater (msw).

Table 1(N) (FSW and MSW) shows three nitrogen-oxygen mixtures⁴ - 60% N₂/40% O₂, 64% N₂/36% O₂ and 68% N₂/32% O₂ - and gives the EAD⁵ adjusted to the appropriate decompression schedule depth, and the partial pressure of oxygen⁶ (PO₂) for these mixtures. (The 68% N₂/32% O₂ and 64% N₂/36% O₂ mixtures have the same oxygen percentage as those in the gas mixtures NOAA I and NOAA II.)

The tables contained in this Appendix have been computed for **open-circuit diving only**, and are designed for use solely with the DCIEM Air Diving Tables (Tables 1, 1S, 2, 2S, 3, 4 and 5).

A maximum depth cut-off of 110 fsw/34 msw (actual depth) has been applied because of physiological and engineering factors involving nitrogen-oxygen open-circuit diving. These include:

- a. greater gas density with increasing depth which can negatively affect gas flow dynamics in open-circuit systems and respiratory ventilatory functions;
- b. increased diver workloads at critical depths, that can place supply demands beyond the capabilities of open-circuit systems and reduce lung ventilation efficiency;
- c. individual diver physiological and respiratory variations; and
- d. a wide variation in breathing resistance/performance of commercially-available open-circuit breathing apparatus.

These factors have an inter-dependent relationship and, although some may react independently, all can react in a compounding manner, thereby significantly increasing arterial carbon dioxide levels (P_aCO₂). It is well-documented that an increase of P_aCO₂ levels significantly increases a diver's susceptibility to CNS oxygen toxicity [14, 16].

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- 4. Oxygen percentage in the breathing gas is to be within $\pm 0.5\%$ of the specified nominal concentrations listed in the Table.
 - 5. EAD is computed for the worst case value (i.e., % nitrogen +0.5%) and is rounded up to the next greater 10 fsw or 3 msw (e.g., 11 fsw rounded up to 20 fsw).
 - 6. PO₂ is computed for the worst case value (i.e., % oxygen +0.5%) and is rounded up to the next greater first decimal value (e.g., 1.32 to 1.4, 1.45 to 1.5).

3. RECOMMENDED BOTTOM TIME LIMITS (TABLE 2(N))

Table 2(N) gives the nominal single dive PO₂ exposure limits and the maximum bottom time limits for the various PO₂ values in Table 1(N). In the context of this appendix, these guidelines have been established after a review of US Navy [3-5], NOAA [7], and Canadian Forces [1, 2] oxygen exposure guidelines applicable to pure oxygen closed-circuit rebreathers, nitrogen-oxygen, and helium-oxygen diving and a review of the pertinent open literature [6, 12-17]. The nominal PO₂ single dive exposure limits are independent of depth and address CNS oxygen toxicity and concurrent concerns for the effective control of Units of Pulmonary Toxicity Dose (UPTD) [6, 13, 17] in single and repetitive dives.

The corresponding maximum bottom time limits given for nominal single dive PO₂ exposure limits are depth dependent and are based on diving to the Normal Air Diving Limit in the DCIEM Air Diving Tables. (See Table 2(N) subnotes for further information).

Warning: The use of open-circuit underwater breathing apparatus with inherently high breathing resistance and the exposure of divers to work loads above moderate levels should be avoided at depths approaching 110 fsw/34 msw. It is also recommended that if heavy work is required near the established limits (cut-off depth or PO₂ = 1.6 ATA), the dive should be conducted on air.

4. INSTRUCTIONS FOR USE OF TABLES 1(N) AND 2(N)

The procedure for using Tables 1(N) and 2(N) is as follows:

- a. Establish the actual depth of the dive.
- b. Determine the EAD and the PO₂ for the nitrogen-oxygen mixture used (Table 1(N)).
- c. Use the EAD to determine the depth of the air decompression schedule to use and to calculate the Repetitive Group (RG).
- d. Use the PO₂ to determine the maximum bottom time allowed from the Table 2(N) guidelines.

Example 1.

What is the bottom time allowed for a dive to 75 fsw on a 60% N₂/40% O₂ mixture?

From Table 1(N), the EAD for 75 fsw actual depth is 50 fsw and the PO₂ is 1.4 ATA. The nominal single dive PO₂ exposure limit from Table 2(N) is 150 minutes, with the maximum bottom time allowing diving to the Normal Air Diving Limit. The Normal Air Diving Limit for 50 fsw is 140 minutes. (The maximum bottom time limit accounts for UPTD considerations in repetitive dives).

Thus, the maximum dive allowed is 75 fsw (actual depth)/140 min. The dive can be done with a 24 minute decompression stop at 10 fsw, resulting in RG = M (using Table 1, 50 fsw/140 min Standard Air).

Example 2.

What bottom time is allowed for a dive to 102 fsw on a 64% N₂/36% O₂ mixture?

The EAD is 80 fsw and the PO₂ is 1.6. The PO₂ is the controlling factor, resulting in the bottom time being restricted to 45 minutes (from Table 2(N)). Thus, the maximum dive allowed is 102 fsw (actual depth)/45 minutes. The dive can be done with a 4 minute decompression stop at 20 fsw, and a 12 minute decompression stop at 10 fsw, resulting in RG = H (using Table 1, for 80 fsw/50 min Standard Air).

Note: the diver must leave bottom at minute 45 or violate the PO₂ maximum bottom time. Decompression will be appropriately conducted on the 50-min schedule.

5. EAD AND REPETITIVE DIVING

The Equivalent Air Depth concept can be fully integrated with existing repetitive dive procedures when conducting open-circuit nitrogen-oxygen diving. The effect of residual nitrogen remains significant despite the use of breathing mixtures containing elevated oxygen percentages. In many cases, the residual nitrogen factor is more restrictive than the PO₂ exposure maximum bottom times (Table 2(N)).

As in air diving, Repetitive Factors (RF) and Effective Bottom Times (EBT) (Section 2, Article 6) continue as the basis for the calculation of allowable bottom times and the selection of decompression schedules (i.e., $EBT = RF \times$ Actual Bottom Time). Accordingly, Bottom Time may be derived by (Actual) Bottom Time = EBT/RF, where the EBT is representative of the maximum bottom time limit and the RF is obtained from the Repetitive Group (RG) of the previous dive, as calculated after the intended Surface Interval (SI).

Example 3.

What is the maximum actual bottom time allowed for a repetitive dive to 80 fsw (actual depth) breathing a 64% N₂/36% O₂ mixture when the preceding dive (first dive) was to 100 fsw (actual depth) for 70 minutes on the same mixture and the surface interval, between dives, is 3 hours?

Preceding dive data		
Depth (Actual)	100 fsw	From Table 1(N), for 64% N ₂ /36% O ₂ EAD = 80 fsw; PO ₂ = 1.5
PO ₂ Limits/Planned Bottom Time	70 min	From Table 2(N) Nominal Single Exposure = 120 min; Maximum Bottom Time to Normal Air Diving Limit for 80 fsw is 80 min
Dive is allowed and conducted to 100 fsw (Actual) for 70 minutes with an 8 minute decompression stop at 20 fsw, and a 31 minute decompression stop at 10 fsw, with RG = K (using Table 1, Standard Air Decompression, for 80 fsw/70 min).		

Repetitive Dive after 3 hour surface interval		
Depth (Actual)	80 fsw	From Table 1(N), for 64% N ₂ /36% O ₂ EAD = 60 fsw; PO ₂ = 1.3
PO ₂ Limits for Maximum Bottom Time		From Table 2(N) Nominal Single Exposure = 150 min; Maximum Bottom Time to Normal Air Diving Limit for 60 fsw is 120 min
RG from Preceding Dive		RG = K
Surface Interval	3 hours	RF = 1.7 (Table 4A)

The maximum dive allowable for an EAD of 60 fsw would be 120 minutes based on PO₂ exposure concerns. However, since this is also a Repetitive Dive, 120 minutes represents the maximum Effective Bottom Time of the decompression schedule. It must be reduced by the RF to calculate the maximum allowed Actual Bottom Time (BT). From Article 5 above, (Actual) BT = EBT/RF = 120/1.7 = 70.5 minutes. Therefore, the maximum allowable Actual Bottom Time would be 70.5 minutes (rounded down for decompression safety to 70 minutes⁷).

The maximum repetitive dive allowed is 80 fsw (actual depth)/70 min. The dive can be done with a 2 minute decompression stop at 20 fsw and a 37 minute decompression stop at 10 fsw, resulting in RG = M (using Table 1, Standard Air Decompression, for 60 fsw/120 min).

6. EAD AND DIVING AT ALTITUDE

The Equivalent Air Depth concept can also be used while conducting nitrogen-oxygen dives at altitude. The established limiting factors of the cut-off depth (actual depth by shot line) and PO₂ exposures as contained in Tables 1(N) and 2(N) still apply.

Depth corrections for altitude are tabulated from actual depths of air diving (Section 2, Article 8); accordingly the EAD for nitrogen-oxygen mixtures with higher O₂ content than air, may be used to enter Table 5 to find applicable depth corrections and select the appropriate decompression schedules. Using the Actual Depth column, enter Table 5 with the EAD for the breathing medium, then correct the EAD to arrive at the Effective Depth. The procedure for the computation of the actual decompression stop depth at altitude remains unchanged.

-
7. If the maximum calculated Actual Bottom Time of 70.5 minutes were to be exceeded, decompression would be conducted on an Exceptional Exposure Table. In this case, the maximum bottom time used in controlling UPTD's would have been violated.

Example 4:

What is the corrected decompression schedule to be used for diving to 100 fsw (actual depth) for 23 minutes, using a 68% N2/32% O2 mixture at an altitude of 7200 feet and with an acclimatized diver.

Altitude of Dive Site	7200 ft (diver is acclimatized)
Intended dive 100 fsw (Actual Depth)	From Table 1(N), for 68% N2/32% O2 EAD = 90 fsw; PO ₂ = 1.3
PO ₂ Limits/Planned Bottom Time 23 min	From Table 2(N), Nominal Single Exposure = 180 min; Maximum Bottom Time to Normal Air Diving Limit of 90 fsw is 60 min
Dive is allowed but requires correction for Effective Depth for decompression purposes. Enter Table 5 using the EAD of 90 fsw.	
(90 fsw) Depth Correction for 7200 feet	+ 30 fsw (from Table 5)
Effective Depth	90 fsw + 30 fsw = 120 fsw
Decompression Schedule for 120 fsw/25 min from Table 1 20 fsw - 9 min stop 10 fsw - 11 min stop	Actual Decompression Schedule (corrected for stop depths from Table 5) 16 fsw - 9 min stop 8 fsw - 11 min stop

Therefore, the dive may be conducted to 100 fsw (actual depth)/23 min. The dive is conducted using the 120 fsw (Effective Depth)/25 min Standard Air Decompression schedule with a 9 minute decompression stop at 16 fsw (corrected actual stop depth) and an 11 minute decompression stop at 8 fsw (corrected actual stop depth).

7. NITROGEN-OXYGEN MIXTURES NOT COVERED IN TABLE 1(N)

For other nitrogen-oxygen mixtures or for mixtures containing oxygen percentages greater than $\pm 0.5\%$ of those specified in Table 1(N), the tabulated EAD and PO_2 do not apply. The required values can be calculated by applying the appropriate equations listed below. In these equations, FN_2 is the fraction of nitrogen in the breathing mixture (e.g., for a 60% N_2 /40% O_2 mixture, $FN_2 = 0.60$) and FO_2 is the fraction of the oxygen (e.g., for a 60% N_2 /40% O_2 mixture, $FO_2 = 0.40$).

For depth units in fsw:

$$EAD(fsw) = \left(\frac{FN_2(\text{Depth} + 33)}{0.79} \right) - 33$$

$$PO_2(\text{ATA}) = \frac{FO_2(\text{Depth} + 33)}{33}$$

For depth units in msw:

$$EAD(msw) = \left(\frac{FN_2(\text{Depth} + 10.06)}{0.79} \right) - 10.06$$

$$PO_2(\text{ATA}) = \frac{FO_2(\text{Depth} + 10.06)}{10.06}$$

Note: EAD to be rounded up to next greater 10 fsw (3 msw) value and PO_2 to be rounded up to next greater first decimal value. The maximum PO_2 exposure limits/recommended bottom times as contained in Table 2(N) still apply to calculated values. Moreover, when using breathing mixtures with O_2 greater than 40%, Table 2(N), subnote 'a' also applies. It is reminded that the PO_2 calculation is based on the ACTUAL DEPTH.

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**TABLE 1(N): EQUIVALENT AIR DEPTH (EAD) AND
PARTIAL PRESSURE OF OXYGEN (PO_2) FOR
OPEN-CIRCUIT NITROGEN-OXYGEN DIVING (FSW)**

Actual Depth (fsw)	Mixture					
	60% N ₂ /40% O ₂		64% N ₂ /36% O ₂		68% N ₂ /32% O ₂	
	EAD (fsw)	PO ₂ (ATA)	EAD (fsw)	PO ₂ (ATA)	EAD (fsw)	PO ₂ (ATA)
30	20	0.8	20	0.7	30	0.7
35	20	0.9	30	0.8	30	0.7
40	30	0.9	30	0.8	40	0.8
45	30	1.0	40	0.9	40	0.8
50	40	1.1	40	1.0	40	0.8
55	40	1.1	40	1.0	50	0.9
60	40	1.2	50	1.1	50	0.9
65	50	1.2	50	1.1	60	1.0
70	50	1.3	60	1.2	60	1.0
75	50	1.4	60	1.2	70	1.1
80	60	1.4	60	1.3	70	1.1
85	60	1.5	70	1.3	70	1.2
90	70	1.5	70	1.4	80	1.2
95	70	1.6	80	1.5	80	1.3
100			80	1.5	90	1.3
105			80	1.6	90	1.4
110			90	1.6	100	1.5
115	DEPTH CUT-OFF				100	1.5
120					100	1.6
125					110	1.6

Note: Oxygen percentage in breathing gas is to be within $\pm 0.5\%$ of the specified nominal concentrations listed. EAD and PO₂ have been computed for the worst case. EAD and PO₂ values below the cut-off depth for 68% N₂/32% O₂ are provided for emergency considerations only.

**TABLE 1(N): EQUIVALENT AIR DEPTH (EAD) AND
PARTIAL PRESSURE OF OXYGEN (PO_2) FOR
OPEN-CIRCUIT NITROGEN-OXYGEN DIVING (MSW)**

Actual Depth (msw)	Mixture					
	60% N ₂ /40% O ₂		64% N ₂ /36% O ₂		68% N ₂ /32% O ₂	
	EAD (msw)	PO ₂ (ATA)	EAD (msw)	PO ₂ (ATA)	EAD (msw)	PO ₂ (ATA)
9	6	0.8	6	0.7	9	0.7
10	6	0.8	9	0.8	9	0.7
11	9	0.9	9	0.8	9	0.7
12	9	0.9	9	0.8	12	0.7
13	9	1.0	9	0.9	12	0.8
14	9	1.0	12	0.9	12	0.8
15	12	1.0	12	0.9	12	0.8
16	12	1.1	12	1.0	15	0.9
17	12	1.1	12	1.0	15	0.9
18	12	1.2	15	1.1	15	0.9
19	15	1.2	15	1.1	18	1.0
20	15	1.3	15	1.1	18	1.0
21	15	1.3	18	1.2	18	1.0
22	15	1.3	18	1.2	18	1.1
23	18	1.4	18	1.2	21	1.1
24	18	1.4	18	1.3	21	1.1
25	18	1.5	21	1.3	21	1.2
26	18	1.5	21	1.4	24	1.2
27	21	1.5	21	1.4	24	1.2
28	21	1.6	21	1.4	24	1.3
29	21	1.6	24	1.5	24	1.3
30	21	1.6	24	1.5	27	1.3
31			24	1.5	27	1.4
32			27	1.6	27	1.4
33			27	1.6	30	1.4
34			27	1.6	30	1.5
35	DEPTH CUT-OFF			30	1.5	
36				30	1.5	
37				33	1.6	
38				33	1.6	
39				33	1.6	

Note: Oxygen percentage in breathing gas is to be within $\pm 0.5\%$ of the specified nominal concentrations listed. EAD and PO₂ have been computed for the worst case. EAD and PO₂ values below the cut-off depth for 68% N₂/32% O₂ are provided for emergency considerations only.

**TABLE 2(N): RECOMMENDED BOTTOM TIME LIMITS
FOR VARIOUS PO₂ EXPOSURES**

PO ₂ (ATA)	Nominal Single Dive PO ₂ Exposure Limits ^a (in minutes)	Maximum Bottom Time ^b (in minutes)
up to 1.100	> 240	Diving to the Normal Air Diving Limit <small>(As specified by the double lines in Tables 1, 2 and 3 in Appendices A and B.)</small>
1.101 - 1.200	210	
1.201 - 1.300	180	
1.301 - 1.400	150	
1.401 - 1.500	120	
1.501 - 1.600	45	45

a. Nominal Single Dive PO₂ Exposure Limits: Recommended exposure limits are based on established submaximal values [Refs. 2, 3, 7]. They primarily consider CNS Oxygen toxicity. Additionally, exposure limits at PO₂ values \leq 1.3 ATA have been further reduced from USN "unlimited" values in consideration of excessive exposures to UPTD. They are independent of depth and decompression. ***These values should become limiting guidelines when N₂/O₂ mixtures containing higher O₂ percentages than those in Table 1(N) are used and the resulting maximum bottom times of the EAD schedules (Normal Air Limit) exceed the Nominal Single Dive PO₂ Exposure Limit.***

b. Maximum Bottom Times: Recommended Bottom Time Limits fall within single dive PO₂ exposure guidelines. They consider UPTD for repetitive and multi-day exposures and are based on DCIEM decompression schedules/procedures at Equivalent Air Depths for the ranges of breathing mixtures listed in Table 1(N).

DCIEM DIVING MANUAL

APPENDIX E
MODIFIED
IN-WATER OXYGEN
DECOMPRESSION
PROCEDURES

DCIEM DIVING MANUAL

APPENDIX E

MODIFIED IN-WATER OXYGEN DECOMPRESSION PROCEDURES

1. INTRODUCTION

For in-water oxygen decompression, the decompression stop given in Table 2 is set at 30 fsw (9 msw). Table 2 is used primarily for surface-supplied diving where the diver is resting during the decompression stop (either sitting or standing on a platform or stage during decompression). Table 2 can also be used for hyperbaric chamber decompression. Tests have shown that oxygen decompression at 30 fsw (9 msw) when the diver is resting (or performing sub-moderate work) creates little, if any, risk of CNS oxygen toxicity¹. These tests were based on an oxygen partial pressure equal to 1.9 ATA (atmosphere absolute).

Recently, some concern has been expressed by research divers and cave divers regarding the potential risk of CNS oxygen toxicity at 30 fsw (9 msw) when a stage is not available or when divers are free-swimming using SCUBA. If greater effort is required to maintain position on a shot line against a current, or if swimming is required during the decompression stop, this may impose a higher risk of CNS oxygen toxicity.

The DCIEM Air Decompression Procedures have been modified to allow alternative oxygen decompression at 20 fsw (6 msw) - with a maximum PO₂ of 1.6 ATA - for situations where a stage is not available. The following procedures are derived from a theoretical analysis of the DCIEM air decompression model. This analysis indicates that there is no additional risk associated with the modified procedures for 20 fsw as compared to the standard procedures given for a 30 fsw stop in Table 2.

1. For more information on oxygen toxicity, refer to Appendix D.

2. USE OF OXYGEN DECOMPRESSION AT 20 FSW (6 MSW)

The modified procedures for the use of oxygen decompression at 20 fsw (6 msw) are:

- a. Conduct the dive normally up to the decompression stop at 30 fsw (9 msw). Extracts from Tables 1 and 2 are given below.
- b. Complete the decompression stop at 30 fsw (9 msw) stop on AIR according to the stop time specified in Table 1. If no stop time is specified at 30 fsw (9 msw) in Table 1, proceed directly to the decompression stop at 20 fsw (6 msw).
- c. Decompress on oxygen at 20 fsw (6 msw) for the O₂ stop time specified at 30 fsw (9 msw) in Table 2. (An optional 5-minute period on air can be taken after each 30 minutes of decompression on oxygen).
- d. After completion of the oxygen decompression stop, ascend to the surface at the rate of one foot per second or slower.
- e. The Repetitive Group (RG) is taken from Table 2.

TABLE 1: STANDARD AIR DECOMPRESSION (FEET) (Extract)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)								Decom. Time (min)	Repet. Group
		80	70	60	50	40	30	20	10		
150	25	-	-	-	-	4	6	8	25	43	J
	30	-	-	-	-	6	7	9	35	57	K
	35	-	-	-	3	5	7	10	46	71	M

TABLE 2: IN-WATER OXYGEN DECOMPRESSION (FEET) (Extract)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group
		Air					O ₂		
		80	70	60	50	40	30		
150	25	-	-	-	-	4	24	29	H
	30	-	-	-	-	6	31	38	I
	35	-	-	-	3	5	37	46	K

MODIFIED IN-WATER OXYGEN DECOMPRESSION (FEET)

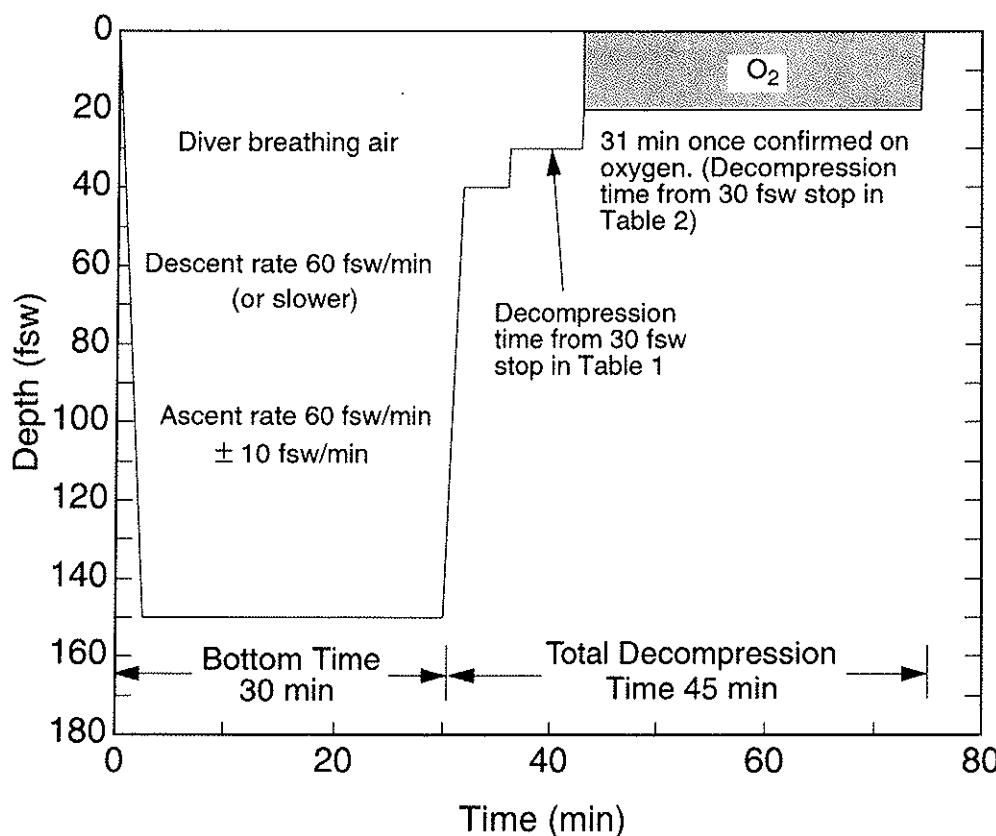
Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)							Decom. Time (min)	Repet. Group
		Air						O ₂		
		80	70	60	50	40	30	20		
150	25	-	-	-	-	4	6	24	35	H
	30	-	-	-	-	6	7	31	45	I
	35	-	-	-	3	5	7	37	53	K

- f. Table 2M contains the decompression tables for the modified in-water decompression procedures (for fsw only).

Example 1:

Determine the modified in-water oxygen decompression schedule for a dive to 150 fsw for 30 min.

Dive to 150 fsw for 30 min	
Decompression stops from Table 1	40 fsw - 6 min on air 30 fsw - 7 min on air 20 fsw - 9 min on air 10 fsw - 35 min on air
Decompression stops from Table 2	40 fsw - 6 min on air 30 fsw - 31 min on O ₂
Modified in-water oxygen decompression	40 fsw - 6 min on air 30 fsw - 7 min on air 20 fsw - 31 min on O₂
	Repetitive Group = I



Example 2:

Determine the modified in-water oxygen decompression schedule for 73 fsw for 58 min. (Compare Example 2, Section 2, Article 3.)

Dive to 73 fsw for 58 min	
Decompression stops from Table 1 (80 fsw/60 min)	20 fsw - 6 min on air 10 fsw - 22 min on air
Decompression stops from Table 2 (80 fsw/60 min)	30 fsw - 18 min on O ₂
Modified in-water oxygen decompression	20 fsw - 18 min on O₂
	Repetitive Group = I

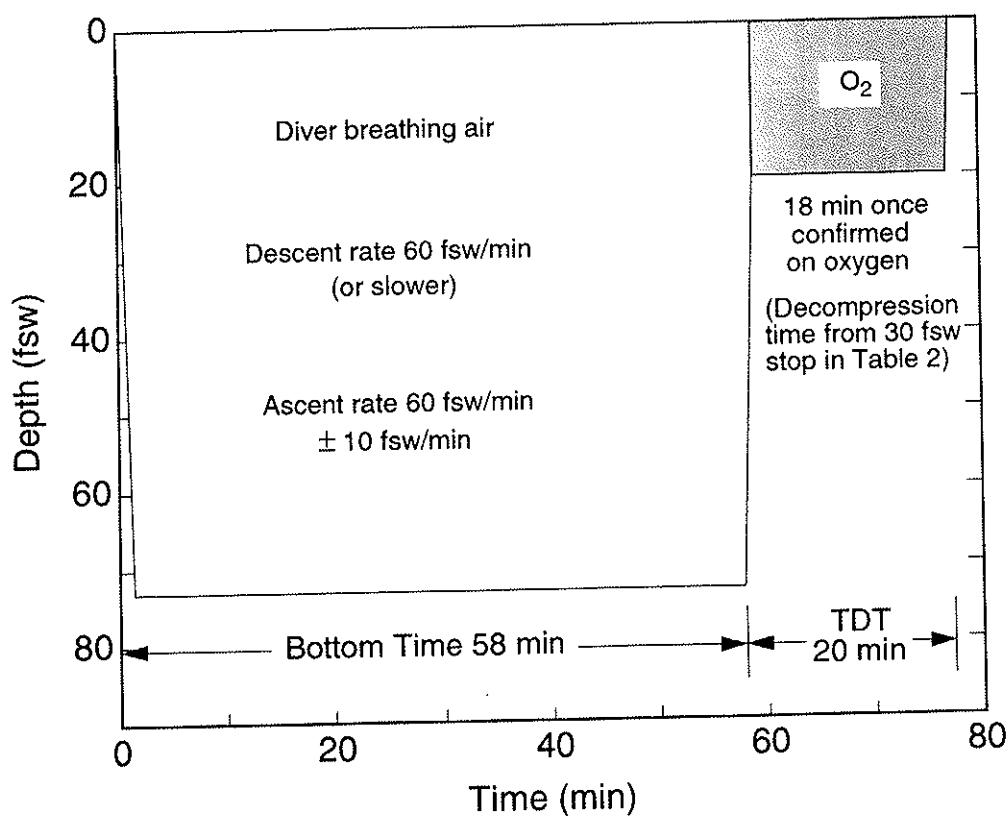


TABLE 2M
MODIFIED
IN-WATER OXYGEN DECOMPRESSION
(FEET)

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DCIEM DIVING MANUAL

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group		
		Air									
		80	70	60	50	40	30				
50	75	-	-	-	-	-	-	-	1 G		
	115	-	-	-	-	-	-	5	6 J		
	130	-	-	-	-	-	-	12	13 J		
	140	-	-	-	-	-	-	15	16 K		
	160	-	-	-	-	-	-	20	21		
	180	-	-	-	-	-	-	24	25		
	200	-	-	-	-	-	-	28	29		
	220	-	-	-	-	-	-	32	33		
	240	-	-	-	-	-	-	36	37		
	260	-	-	-	-	-	-	39	40		
	280	-	-	-	-	-	-	43	44		
60	50	-	-	-	-	-	-	-	1 F		
	75	-	-	-	-	-	-	5	6 H		
	90	-	-	-	-	-	-	12	13 J		
	100	-	-	-	-	-	-	16	17 J		
	110	-	-	-	-	-	-	20	21 K		
	120	-	-	-	-	-	-	23	24 K		
	140	-	-	-	-	-	-	29	30		
	160	-	-	-	-	-	-	35	36		
	180	-	-	-	-	-	-	40	41		
	200	-	-	-	-	-	-	45	46		
	220	-	-	-	-	-	-	50	51		
	240	-	-	-	-	-	-	55	56		

O₂ stop times do not include ascent time to 20 fsw

DCIEM DIVING MANUAL

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group		
		Air									
		80	70	60	50	40	30				
70	35	-	-	-	-	-	-	1	E		
	50	-	-	-	-	-	-	6	G		
	70	-	-	-	-	-	-	14	I		
	80	-	-	-	-	-	-	19	J		
	90	-	-	-	-	-	-	24	K		
	100	-	-	-	-	-	-	28	K		
	110	-	-	-	-	-	-	32	34		
	120	-	-	-	-	-	-	35	37		
	130	-	-	-	-	-	-	39	41		
	140	-	-	-	-	-	-	42	44		
	150	-	-	-	-	-	-	45	47		
	160	-	-	-	-	-	-	49	51		
	170	-	-	-	-	-	-	52	54		
	180	-	-	-	-	-	-	56	58		
	190	-	-	-	-	-	-	59	61		
80	200	-	-	-	-	-	2	62	65		
	25	-	-	-	-	-	-	2	E		
	30	-	-	-	-	-	-	5	F		
	50	-	-	-	-	-	-	9	H		
	55	-	-	-	-	-	-	14	16		
	60	-	-	-	-	-	-	18	I		
	70	-	-	-	-	-	-	24	J		
	80	-	-	-	-	-	-	29	K		
	90	-	-	-	-	-	-	34	36		
	100	-	-	-	-	-	2	38	41		
	110	-	-	-	-	-	3	42	46		
	120	-	-	-	-	-	3	47	51		
	130	-	-	-	-	-	4	51	56		
	140	-	-	-	-	-	5	55	61		
	150	-	-	-	-	-	5	60	66		
	160	-	-	-	-	-	6	64	71		

O_2 stop times do not include ascent time to 20 fsw

AIR DIVING TABLES

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)							Decom. Time (min)	Repet. Group		
		Air						O₂				
		80	70	60	50	40	30					
90	20	-	-	-	-	-	-	-	2	D		
	25	-	-	-	-	-	-	5	7	E		
	40	-	-	-	-	-	-	10	12	G		
	45	-	-	-	-	-	-	13	15	H		
	50	-	-	-	-	-	-	19	21	H		
	55	-	-	-	-	-	-	23	25	I		
	60	-	-	-	-	-	2	26	29	J		
	70	-	-	-	-	-	4	32	37			
	80	-	-	-	-	-	5	38	44			
	90	-	-	-	-	-	6	43	50			
	100	-	-	-	-	-	7	48	56			
	110	-	-	-	-	-	8	53	62			
	120	-	-	-	-	-	8	59	68			
100	15	-	-	-	-	-	-	-	2	D		
	20	-	-	-	-	-	-	5	7	E		
	30	-	-	-	-	-	-	9	11	F		
	35	-	-	-	-	-	-	11	13	G		
	40	-	-	-	-	-	-	16	18	H		
	45	-	-	-	-	-	3	22	26	I		
	50	-	-	-	-	-	4	26	31	I		
	55	-	-	-	-	-	5	30	36	J		
	60	-	-	-	-	-	6	34	41			
	70	-	-	-	-	-	8	40	49			
	80	-	-	-	-	-	9	46	56			
	90	-	-	-	-	2	8	52	63			
	100	-	-	-	-	3	9	58	71			
	110	-	-	-	-	4	9	64	78			

O₂ stop times do not include ascent time to 20 fsw

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group		
		Air									
		80	70	60	50	40	30				
110	12	-	-	-	-	-	-	-	2		
	20	-	-	-	-	-	-	7	9		
	25	-	-	-	-	-	-	9	11		
	30	-	-	-	-	-	-	11	13		
	35	-	-	-	-	-	4	17	22		
	40	-	-	-	-	-	5	23	29		
	45	-	-	-	-	-	6	28	35		
	50	-	-	-	-	-	8	33	42		
	55	-	-	-	-	-	9	37	47		
	60	-	-	-	-	3	7	40	51		
	65	-	-	-	-	3	8	44	56		
	70	-	-	-	-	4	8	47	60		
	75	-	-	-	-	5	8	50	64		
	80	-	-	-	-	5	8	54	68		
	85	-	-	-	-	6	8	57	72		
	90	-	-	-	-	6	9	61	77		
	95	-	-	-	-	7	9	64	81		
	100	-	-	-	-	7	10	68	86		
	105	-	-	-	-	8	13	71	93		
	110	-	-	-	-	8	16	75	100		

O₂ stop times do not include ascent time to 20 fsw

AIR DIVING TABLES

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						O₂ 20	Decom. Time (min)	Repet. Group			
		Air											
		80	70	60	50	40	30						
120	10	-	-	-	-	-	-	-	2	C			
	15	-	-	-	-	-	-	6	8	E			
	20	-	-	-	-	-	-	9	11	F			
	25	-	-	-	-	-	-	11	13	G			
	30	-	-	-	-	-	5	15	21	H			
	35	-	-	-	-	-	6	24	31	H			
	40	-	-	-	-	-	8	29	38	I			
	45	-	-	-	-	3	7	34	45	J			
	50	-	-	-	-	4	7	38	50	K			
	55	-	-	-	-	5	7	42	55				
	60	-	-	-	-	6	8	46	61				
	65	-	-	-	-	7	8	50	66				
	70	-	-	-	-	7	9	54	71				
	75	-	-	-	2	6	9	58	76				
	80	-	-	-	3	6	9	62	81				
	85	-	-	-	3	7	10	66	87				
	90	-	-	-	3	7	14	70	95				
	95	-	-	-	4	7	16	74	102				
	100	-	-	-	4	7	20	79	111				

O₂ stop times do not include ascent time to 20 fsw

DCIEM DIVING MANUAL

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)							Decom. Time (min)	Repet. Group
		Air						O ₂		
		80	70	60	50	40	30	20		
130	8	-	-	-	-	-	-	-	2	B
	15	-	-	-	-	-	-	7	10	E
	20	-	-	-	-	-	-	10	13	G
	25	-	-	-	-	-	5	13	19	G
	30	-	-	-	-	-	7	22	30	H
	35	-	-	-	-	3	6	29	39	I
	40	-	-	-	-	5	6	34	46	J
	45	-	-	-	-	6	7	39	53	L
	50	-	-	-	-	7	8	43	59	
	55	-	-	-	2	6	8	48	65	
	60	-	-	-	3	6	8	52	70	
	65	-	-	-	4	6	9	56	76	
	70	-	-	-	5	6	9	61	82	
	75	-	-	-	5	7	11	65	89	
	80	-	-	-	6	7	15	70	99	
	85	-	-	-	6	7	18	75	107	
	90	-	-	-	7	7	22	80	117	
140	7	-	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	-	4	7	D
	15	-	-	-	-	-	-	9	12	D
	20	-	-	-	-	-	4	12	17	G
	25	-	-	-	-	-	7	18	26	H
	30	-	-	-	-	4	6	27	38	I
	35	-	-	-	-	6	6	33	46	J
	40	-	-	-	-	7	7	39	54	K
	45	-	-	-	3	6	7	44	61	M
	50	-	-	-	4	6	8	49	68	
	55	-	-	-	5	6	9	53	74	
	60	-	-	-	6	6	9	58	80	
	65	-	-	-	7	6	11	64	89	
	70	-	-	2	5	7	15	69	99	
	75	-	-	3	5	8	18	74	109	
	80	-	-	3	6	8	21	80	119	
	85	-	-	4	6	8	25	85	129	
	90	-	-	4	6	8	30	91	140	

O₂ stop times do not include ascent time to 20 fsw

AIR DIVING TABLES

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)							Decom. Time (min)	Repet. Group		
		Air						O₂				
		80	70	60	50	40	30					
150	6	-	-	-	-	-	-	-	3	B		
	10	-	-	-	-	-	-	5	8	D		
	15	-	-	-	-	-	-	10	13	F		
	20	-	-	-	-	-	6	14	21	G		
	25	-	-	-	-	4	6	24	35	H		
	30	-	-	-	-	6	7	31	45	I		
	35	-	-	-	3	5	7	37	53	K		
	40	-	-	-	4	6	8	43	62	M		
	45	-	-	-	6	6	8	48	69			
	50	-	-	-	7	6	9	54	77			
	55	-	-	3	5	6	10	60	85			
	60	-	-	4	5	7	13	65	95			
	65	-	-	4	6	7	17	71	106			
	70	-	-	5	6	7	21	77	117			
	75	-	-	6	5	8	25	84	129			
	80	-	-	6	6	8	29	90	140			
160	6	-	-	-	-	-	-	-	3	B		
	10	-	-	-	-	-	-	6	9	E		
	15	-	-	-	-	-	4	11	16	F		
	20	-	-	-	-	3	5	16	25	G		
	25	-	-	-	-	6	6	28	41	I		
	30	-	-	-	4	5	6	35	51	J		
	35	-	-	-	5	6	7	41	60	L		
	40	-	-	-	7	6	8	47	69			
	45	-	-	3	5	6	9	54	78			
	50	-	-	4	5	7	9	60	86			
	55	-	-	5	6	7	14	66	99			
	60	-	-	6	6	7	18	73	111			
	65	-	3	4	6	8	22	80	124			
	70	-	3	5	6	8	27	87	137			

O₂ stop times do not include ascent time to 20 fsw

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)						Decom. Time (min)	Repet. Group		
		Air									
		80	70	60	50	40	30				
170	5	-	-	-	-	-	-	-	3		
	10	-	-	-	-	-	-	7	10		
	15	-	-	-	-	-	6	13	20		
	20	-	-	-	-	5	6	21	33		
	25	-	-	-	3	5	6	31	46		
	30	-	-	-	6	5	7	39	58		
	35	-	-	3	4	6	8	46	68		
	40	-	-	4	5	6	9	52	77		
	45	-	-	6	5	6	10	59	87		
	50	-	3	4	5	7	14	66	100		
	55	-	3	5	5	8	19	73	114		
	60	-	4	5	6	8	23	81	128		
	65	-	5	5	6	8	29	89	143		
	70	-	5	5	7	12	31	96	157		
180	5	-	-	-	-	-	-	-	3		
	10	-	-	-	-	-	-	9	12		
	15	-	-	-	-	-	8	14	23		
	20	-	-	-	-	7	6	25	39		
	25	-	-	-	5	5	7	35	53		
	30	-	-	3	5	5	8	42	64		
	35	-	-	5	5	6	8	50	75		
	40	-	3	4	5	6	9	57	85		
	45	-	4	4	5	7	14	65	100		
	50	-	5	4	6	7	19	73	115		
	55	-	5	5	6	8	24	81	130		
	60	3	3	5	7	9	29	89	146		

O₂ stop times do not include ascent time to 20 fsw

TABLE 2: MODIFIED IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)									Decom. Time (min)
		Air								O ₂	
		100	90	80	70	60	50	40	30	20	
190	5	-	-	-	-	-	-	-	-	-	3
	10	-	-	-	-	-	-	-	-	10	14
	15	-	-	-	-	-	-	4	5	15	25
	20	-	-	-	-	-	4	5	6	29	45
	25	-	-	-	-	3	4	5	7	38	58
	30	-	-	-	-	5	5	5	8	46	70
	35	-	-	-	3	4	5	6	9	54	82
	40	-	-	-	5	4	5	7	12	62	96
	45	-	-	-	6	4	6	7	18	71	113
	50	-	-	3	4	4	6	8	24	80	130
	55	-	-	4	4	5	6	10	28	89	147
200	10	-	-	-	-	-	-	-	4	11	16
	15	-	-	-	-	-	-	6	5	18	30
	20	-	-	-	-	-	6	4	7	32	50
	25	-	-	-	-	5	4	5	8	41	64
	30	-	-	-	3	4	5	6	8	50	77
	35	-	-	-	5	4	5	7	9	58	89
	40	-	-	3	3	5	5	8	16	67	108
	45	-	-	4	4	4	6	8	22	77	126
	50	-	-	5	4	5	6	10	27	87	145
	10	-	-	-	-	-	-	-	5	12	18
210	15	-	-	-	-	-	-	7	6	22	36
	20	-	-	-	-	4	3	5	7	35	55
	25	-	-	-	-	6	5	5	8	45	70
	30	-	-	-	5	4	5	6	9	54	84
	35	-	-	3	4	4	5	7	14	63	101
	40	-	-	5	3	5	6	8	19	73	120
	45	-	-	6	4	4	7	8	27	84	141
	50	-	3	4	4	5	7	13	31	95	163

O₂ stop times do not include ascent time to 20 fsw

TABLE 2: MODIFIED IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Stop Times (min) at Different Depths (fsw)									Decom. Time (min)
		Air								O ₂	
		100	90	80	70	60	50	40	30	20	
220	10	-	-	-	-	-	-	-	7	13	21
	15	-	-	-	-	-	5	4	6	25	41
	20	-	-	-	-	5	4	5	7	38	60
	25	-	-	-	4	4	4	6	9	48	76
	30	-	-	3	4	4	5	7	9	58	91
	35	-	-	5	3	5	5	8	17	68	112
	40	-	3	3	4	5	6	8	24	80	134
	45	-	4	3	4	6	6	12	29	91	156
230	10	-	-	-	-	-	-	-	8	14	23
	15	-	-	-	-	-	6	4	7	28	46
	20	-	-	-	-	6	4	6	7	40	64
	25	-	-	-	6	4	4	7	8	51	81
	30	-	-	5	3	4	6	7	12	62	100
	35	-	4	3	3	5	6	8	20	74	124
	40	-	5	3	4	5	6	10	27	86	147
	5	-	-	-	-	-	-	-	-	5	9
240	10	-	-	-	-	-	-	5	5	14	25
	15	-	-	-	-	-	7	5	6	30	49
	20	-	-	-	5	3	4	6	8	43	70
	25	-	-	4	3	4	5	7	9	55	88
	30	-	4	2	4	4	6	7	16	67	111
	35	-	5	3	4	5	6	8	24	80	136
	40	4	2	4	4	5	7	13	30	93	163
O ₂ stop times do not include ascent time to 20 fsw											

TABLE 2M
MODIFIED
IN-WATER OXYGEN DECOMPRESSION
(METRES)

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DCIEM DIVING MANUAL

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (MSW)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group		
		Air									
		24	21	18	15	12	9				
15	75	-	-	-	-	-	-	-	1	G	
	120	-	-	-	-	-	-	5	6	J	
	130	-	-	-	-	-	-	10	11	J	
	140	-	-	-	-	-	-	14	15	K	
	160	-	-	-	-	-	-	19	20		
	180	-	-	-	-	-	-	23	24		
	200	-	-	-	-	-	-	27	28		
	220	-	-	-	-	-	-	31	32		
	240	-	-	-	-	-	-	35	36		
	260	-	-	-	-	-	-	38	39		
	280	-	-	-	-	-	-	41	42		
18	50	-	-	-	-	-	-	-	1	F	
	80	-	-	-	-	-	-	5	7	H	
	90	-	-	-	-	-	-	10	12	J	
	100	-	-	-	-	-	-	15	17	J	
	110	-	-	-	-	-	-	19	21	K	
	120	-	-	-	-	-	-	22	24	K	
	140	-	-	-	-	-	-	28	30		
	160	-	-	-	-	-	-	33	35		
	180	-	-	-	-	-	-	38	40		
	200	-	-	-	-	-	-	43	45		
	220	-	-	-	-	-	-	48	50		
	240	-	-	-	-	-	-	53	55		

O₂ stop times do not include ascent time to 6 msw.

DCIEM DIVING MANUAL

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (MSW)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group		
		Air									
		24	21	18	15	12	9				
21	35	-	-	-	-	-	-	-	E		
	50	-	-	-	-	-	-	6	G		
	70	-	-	-	-	-	-	12	I		
	80	-	-	-	-	-	-	18	J		
	90	-	-	-	-	-	-	23	K		
	100	-	-	-	-	-	-	27	K		
	110	-	-	-	-	-	-	30	32		
	120	-	-	-	-	-	-	34	36		
	130	-	-	-	-	-	-	37	39		
	140	-	-	-	-	-	-	41	43		
	150	-	-	-	-	-	-	44	46		
	160	-	-	-	-	-	-	47	49		
	170	-	-	-	-	-	-	51	53		
	180	-	-	-	-	-	-	54	56		
24	190	-	-	-	-	-	-	57	59		
	200	-	-	-	-	-	-	60	62		
	25	-	-	-	-	-	-	-	E		
	35	-	-	-	-	-	-	6	G		
	50	-	-	-	-	-	-	8	H		
	55	-	-	-	-	-	-	12	H		
	60	-	-	-	-	-	-	16	I		
	70	-	-	-	-	-	-	23	J		
	80	-	-	-	-	-	-	28	K		
	90	-	-	-	-	-	-	32	34		
	100	-	-	-	-	-	-	37	39		
	110	-	-	-	-	-	2	41	44		
	120	-	-	-	-	-	3	45	49		
	130	-	-	-	-	-	4	49	54		
	140	-	-	-	-	-	4	53	58		
	150	-	-	-	-	-	5	58	64		
	160	-	-	-	-	-	5	62	68		

O_2 stop times do not include ascent time to 6 msw.

AIR DIVING TABLES

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (MSW)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)							Decom. Time (min)	Repet. Group
		Air						O ₂		
		24	21	18	15	12	9	6		
27	20	-	-	-	-	-	-	-	2	D
	25	-	-	-	-	-	-	5	7	E
	40	-	-	-	-	-	-	9	11	G
	45	-	-	-	-	-	-	11	13	H
	50	-	-	-	-	-	-	17	19	H
	55	-	-	-	-	-	-	22	24	I
	60	-	-	-	-	-	2	25	28	J
	70	-	-	-	-	-	3	31	35	
	80	-	-	-	-	-	4	36	41	
	90	-	-	-	-	-	5	42	48	
	100	-	-	-	-	-	6	47	54	
	110	-	-	-	-	-	7	52	60	
	120	-	-	-	-	-	8	57	66	
30	15	-	-	-	-	-	-	-	2	D
	20	-	-	-	-	-	-	5	7	E
	30	-	-	-	-	-	-	9	11	F
	35	-	-	-	-	-	-	10	12	G
	40	-	-	-	-	-	-	14	16	H
	45	-	-	-	-	-	3	20	24	I
	50	-	-	-	-	-	4	25	30	I
	55	-	-	-	-	-	5	29	35	J
	60	-	-	-	-	-	6	32	39	
	70	-	-	-	-	-	7	39	47	
	80	-	-	-	-	-	8	45	54	
	90	-	-	-	-	2	8	51	62	
	100	-	-	-	-	3	8	56	68	
	110	-	-	-	-	4	8	62	75	

O₂ stop times do not include ascent time to 6 msw.

DCIEM DIVING MANUAL

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (MSW)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group		
		Air									
		24	21	18	15	12	9				
33	12	-	-	-	-	-	-	2	C		
	20	-	-	-	-	-	-	7	E		
	25	-	-	-	-	-	-	9	F		
	30	-	-	-	-	-	-	11	G		
	35	-	-	-	-	-	3	15	H		
	40	-	-	-	-	-	5	22	I		
	45	-	-	-	-	-	6	27	J		
	50	-	-	-	-	-	7	32	K		
	55	-	-	-	-	-	8	36	K		
	60	-	-	-	-	2	7	39	49		
	65	-	-	-	-	3	7	42	53		
	70	-	-	-	-	4	7	46	58		
	75	-	-	-	-	4	8	49	62		
	80	-	-	-	-	5	8	52	66		
	85	-	-	-	-	5	9	56	71		
	90	-	-	-	-	6	9	59	75		
	95	-	-	-	-	6	9	62	78		
	100	-	-	-	-	7	9	66	83		
	105	-	-	-	-	7	12	69	89		
	110	-	-	-	-	8	15	73	97		

O₂ stop times do not include ascent time to 6 msw.

AIR DIVING TABLES

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (MSW)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)							Decom. Time (min)	Repet. Group
		Air						O ₂		
		24	21	18	15	12	9	6		
36	10	-	-	-	-	-	-	-	2	C
	15	-	-	-	-	-	-	5	7	E
	20	-	-	-	-	-	-	8	10	F
	25	-	-	-	-	-	-	11	13	G
	30	-	-	-	-	-	4	13	18	H
	35	-	-	-	-	-	6	22	29	H
	40	-	-	-	-	-	8	28	37	I
	45	-	-	-	-	3	6	33	43	J
	50	-	-	-	-	4	7	37	49	K
	55	-	-	-	-	5	7	41	54	
	60	-	-	-	-	6	7	45	59	
	65	-	-	-	-	6	8	49	64	
	70	-	-	-	-	7	8	52	68	
	75	-	-	-	-	8	8	56	73	
	80	-	-	-	2	6	9	60	78	
	85	-	-	-	3	6	10	64	84	
	90	-	-	-	3	7	13	68	92	
	95	-	-	-	4	6	16	72	99	
	100	-	-	-	4	7	19	76	107	

O₂ stop times do not include ascent time to 6 msw.

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (MSW)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)							Decom. Time (min)	Repet. Group
		Air						O ₂		
		24	21	18	15	12	9	6		
39	8	-	-	-	-	-	-	-	2	B
	15	-	-	-	-	-	-	7	10	E
	20	-	-	-	-	-	-	10	13	G
	25	-	-	-	-	-	5	13	19	G
	30	-	-	-	-	-	7	21	29	H
	35	-	-	-	-	3	6	28	38	I
	40	-	-	-	-	4	7	33	45	J
	45	-	-	-	-	6	7	38	52	L
	50	-	-	-	-	7	7	42	57	
	55	-	-	-	2	6	8	46	63	
	60	-	-	-	3	6	8	51	69	
	65	-	-	-	4	6	8	55	74	
	70	-	-	-	4	7	9	59	80	
	75	-	-	-	5	6	11	64	87	
	80	-	-	-	5	7	14	68	95	
42	85	-	-	-	6	7	17	73	104	
	90	-	-	-	6	8	20	78	113	
	7	-	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	-	4	7	D
	15	-	-	-	-	-	-	8	11	D
	20	-	-	-	-	-	4	12	17	G
	25	-	-	-	-	-	7	17	25	H
	30	-	-	-	-	4	6	26	37	I
	35	-	-	-	-	5	7	32	45	J
	40	-	-	-	-	7	7	37	52	K
	45	-	-	-	3	5	8	43	60	M
	50	-	-	-	4	6	8	47	66	
	55	-	-	-	5	6	8	52	72	
	60	-	-	-	6	6	9	57	79	
	65	-	-	-	6	7	10	62	86	
	70	-	-	-	7	7	14	67	96	
	75	-	-	3	5	7	18	72	106	
	80	-	-	3	6	7	21	77	115	
	85	-	-	4	5	8	25	83	126	
	90	-	-	4	6	8	28	89	136	

O₂ stop times do not include ascent time to 6 msw.

AIR DIVING TABLES

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (MSW)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)						Decom. Time (min)	Repet. Group		
		Air									
		24	21	18	15	12	9				
45	7	-	-	-	-	-	-	-	3		
	10	-	-	-	-	-	-	5	8		
	15	-	-	-	-	-	-	10	13		
	20	-	-	-	-	-	6	13	20		
	25	-	-	-	-	4	5	22	32		
	30	-	-	-	-	6	6	30	43		
	35	-	-	-	3	5	7	36	52		
	40	-	-	-	4	6	7	42	60		
	45	-	-	-	5	6	8	47	67		
	50	-	-	-	6	7	8	52	74		
	55	-	-	3	5	6	9	58	82		
	60	-	-	3	5	7	12	63	91		
	65	-	-	4	5	8	16	69	103		
	70	-	-	5	5	8	20	75	114		
	75	-	-	5	6	8	24	81	125		
	80	-	-	6	6	8	28	87	136		
48	6	-	-	-	-	-	-	-	3		
	10	-	-	-	-	-	-	6	9		
	15	-	-	-	-	-	4	11	16		
	20	-	-	-	-	-	8	15	24		
	25	-	-	-	-	6	6	26	39		
	30	-	-	-	3	5	7	34	50		
	35	-	-	-	5	5	8	40	59		
	40	-	-	-	6	6	8	46	67		
	45	-	-	3	5	6	9	52	76		
	50	-	-	4	5	7	9	58	84		
	55	-	-	5	5	7	13	64	95		
	60	-	-	6	5	8	17	70	107		
	65	-	-	7	5	8	22	77	120		
	70	-	3	4	6	8	26	84	132		

O_2 stop times do not include ascent time to 6 msw.

TABLE 2M: MODIFIED IN-WATER OXYGEN DECOMPRESSION (MSW)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)							Decom. Time (min)	Repet. Group
		Air						O ₂		
		24	21	18	15	12	9	6		
51	6	-	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	-	7	10	E
	15	-	-	-	-	-	5	12	18	G
	20	-	-	-	-	5	5	20	31	H
	25	-	-	-	3	5	6	30	45	J
	30	-	-	-	5	5	7	38	56	K
	35	-	-	3	4	6	8	44	66	M
	40	-	-	4	5	6	8	51	75	
	45	-	-	5	5	7	9	57	84	
	50	-	-	6	6	7	13	64	97	
	55	-	3	4	6	7	18	71	110	
	60	-	4	4	6	8	23	78	124	
	65	-	5	4	6	9	27	86	138	
	70	-	5	5	6	12	30	93	152	
54	5	-	-	-	-	-	-	-	3	B
	10	-	-	-	-	-	-	8	11	E
	15	-	-	-	-	-	7	14	22	G
	20	-	-	-	-	6	6	24	37	H
	25	-	-	-	5	5	7	34	52	J
	30	-	-	3	4	6	7	41	62	M
	35	-	-	5	4	6	8	48	72	
	40	-	-	6	5	7	9	55	83	
	45	-	4	4	5	7	13	63	97	
	50	-	4	5	5	8	18	70	111	
	55	-	5	5	6	8	23	78	126	
	60	-	6	5	6	9	28	86	141	

O₂ stop times do not include ascent time to 6 msw.

TABLE 2M: IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)									Decom. Time (min)	
		Air								O_2		
		30	27	24	21	18	15	12	9	6		
57	5	-	-	-	-	-	-	-	-	-	3	
	10	-	-	-	-	-	-	-	-	9	13	
	15	-	-	-	-	-	-	4	5	14	24	
	20	-	-	-	-	-	4	4	6	28	43	
	25	-	-	-	-	-	7	5	7	37	57	
	30	-	-	-	-	5	4	6	8	45	69	
	35	-	-	-	3	4	5	6	9	52	80	
	40	-	-	-	4	4	5	7	11	60	92	
	45	-	-	-	5	5	5	8	17	68	109	
	50	-	-	3	3	5	6	8	22	77	125	
60	55	-	-	4	3	5	7	9	27	86	142	
	5	-	-	-	-	-	-	-	-	-	4	
	10	-	-	-	-	-	-	-	-	10	14	
	15	-	-	-	-	-	-	5	6	16	28	
	20	-	-	-	-	-	5	5	6	31	48	
	25	-	-	-	-	5	4	5	7	40	62	
	30	-	-	-	3	4	4	6	9	49	76	
	35	-	-	-	5	4	5	6	10	57	88	
	40	-	-	-	6	4	6	7	15	65	104	
	45	-	-	4	3	5	6	8	21	75	123	
63	50	-	-	5	4	4	7	9	27	84	141	
	10	-	-	-	-	-	-	-	5	11	17	
	15	-	-	-	-	-	-	7	6	21	35	
	20	-	-	-	-	-	7	5	7	33	53	
	25	-	-	-	-	6	4	6	8	43	68	
	30	-	-	-	5	4	4	7	8	52	81	
	35	-	-	3	3	4	6	7	12	61	97	
	40	-	-	4	4	4	6	8	19	71	117	
	45	-	-	5	4	5	6	9	25	81	136	
	50	-	3	3	4	6	6	13	29	91	156	
O_2 stop times do not include ascent time to 6 msw.												

TABLE 2M: IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)	
		Air									
		30	27	24	21	18	15	12	9		
66	10	-	-	-	-	-	-	-	7	12	20
	15	-	-	-	-	-	4	5	5	24	39
	20	-	-	-	-	5	4	5	7	36	58
	25	-	-	-	4	4	4	6	8	47	74
	30	-	-	3	3	4	5	7	9	56	88
	35	-	-	5	3	4	6	7	16	66	108
	40	-	3	3	4	4	7	8	23	77	130
	45	-	4	3	4	5	7	11	28	88	151
69	10	-	-	-	-	-	-	-	8	14	23
	15	-	-	-	-	-	6	4	6	27	44
	20	-	-	-	-	6	4	6	7	39	63
	25	-	-	-	6	3	5	6	9	50	80
	30	-	-	5	3	4	5	7	12	60	97
	35	-	3	3	4	4	6	8	19	72	120
	40	-	5	3	4	5	6	9	27	84	144
	5	-	-	-	-	-	-	-	-	4	8
72	10	-	-	-	-	-	-	4	5	14	24
	15	-	-	-	-	-	7	5	6	29	48
	20	-	-	-	4	4	4	5	8	42	68
	25	-	-	4	3	4	5	6	9	53	85
	30	-	-	6	3	5	5	8	15	65	108
	35	-	5	3	4	4	6	9	23	77	132
	40	3	3	3	4	6	6	13	28	90	157
O ₂ stop times do not include ascent time to 6 msw.											



D C I E M **DIVING** **MANUAL**

Part 2

**HELIUM-OXYGEN DIVING
TABLES**

DCIEM DIVING MANUAL

PART 2

HELIUM-OXYGEN

SURFACE-SUPPLIED

DECOMPRESSION

PROCEDURES

and

TABLES

Defence and Civil Institute of Environmental Medicine
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North York, Ontario, CANADA M3M 3B9

DEPARTMENT OF NATIONAL DEFENCE - CANADA

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SECTION 1

INTRODUCTION

1. BACKGROUND

The DCIEM Helium/Oxygen 84/16 Decompression Tables were developed by the Experimental Diving Unit of the Defence and Civil Institute of Environmental Medicine (DCIEM) for the Canadian Forces during the period June 1986 through March 1991. The aim of the programme was to develop a Helium/Oxygen (HeO_2) decompression model that would improve the operational efficiency and safety of deep HeO_2 mixed gas diving, and provide tables and procedures for the Canadian Forces and subsequently, for Allied Forces. The development programme was also conducted jointly with the United States Navy and Royal Navy under the ABCA-10 (Navy) Information Exchange Programme.

Over the development process, 21 experimental validation dive series (totalling 1471 manned exposures) were conducted at the DCIEM Diving Research Facility and one procedural technical evaluation was conducted at sea. As in the case of the development of the DCIEM/Canadian Forces Air Tables, the Doppler ultrasonic bubble detector was used to monitor dive subjects, establish an acceptable decompression stress criterion and assess the severity of the decompression stress generated by these tables. Manned validation was conducted at the short moderate, normal and exceptional exposure limits of the model for both In-water and surface decompression with oxygen tables. Ultimately, an abort table and emergency decompression table were also developed. Manned validation of the emergency table, to be used in the case of loss of oxygen, were found to be fully satisfactory. Procedures for the use of all the tables providing simplicity of operations and parallelling and complementing the DCIEM Air Diving Tables and Procedures were developed.

The model, tables and procedures have significantly reduced the probability of in-water central nervous system (CNS) oxygen toxicity and concurrently, have reduced the probability and severity of decompression sickness to 2% within the normal limits and less than 4% in the exceptional exposure limit. Further, the utilization of air decompression techniques reduces the consumption of helium gas and improves diver communications.

The DCIEM Helium/Oxygen, 84/16 Decompression Tables provides a methodology to negate nitrogen-induced narcosis, provides deep diving operations with significant flexibility and allows for the substantial extension of depth/bottom time limits outside that of the existing DCIEM Air Tables (see Figure 2-1).

2. DESCRIPTION OF TABLES

The DCIEM HeO₂ Decompression Tables consists of four distinct tables.

Table 6. Abort Table

Table 7. In-Water Oxygen Decompression Table

Table 8. Surface Decompression with Oxygen; and

Table 9. Emergency Decompression.

Appendix A contains these tables in feet of seawater (fsw) and Appendix B contains these tables in metres of seawater (msw). Depths to 330 fsw (100 msw) are covered. In the procedures described here for the use of the tables, all depths will be given in both fsw and msw.

The decompression schedules for all tables are given in 10 fsw (3 msw) increments. For Tables 7, 8 and 9 each depth segment to and including 300 fsw (90 msw) is divided into two sections by a double line corresponding to the **Normal Exposure Limit**. Dive profiles below this line and all dives deeper than 300 fsw (90 msw) are considered **Exceptional Exposures**. Figure 2-1 shows these limits and how they compare to the DCIEM Air Diving Limits.

HELIUM-OXYGEN DIVING TABLES

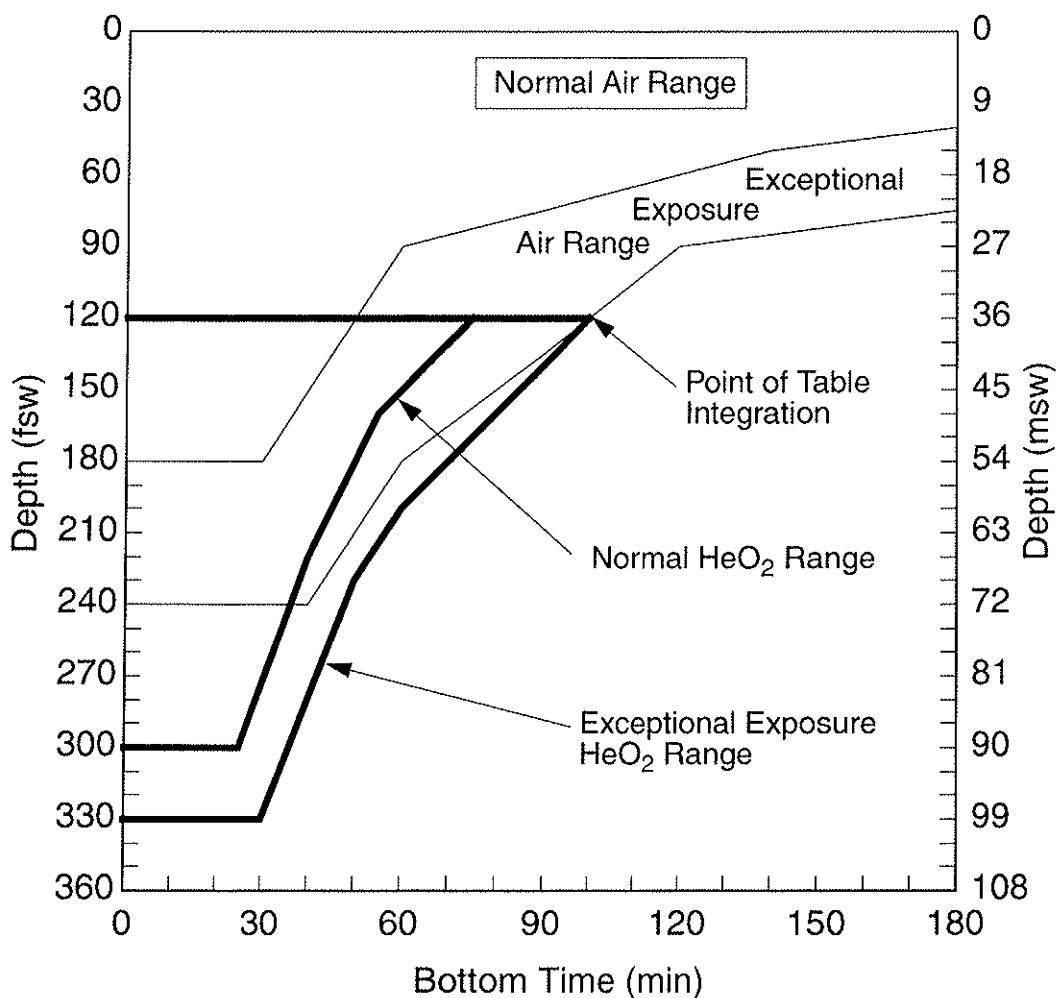


Figure 2-1. HeO₂ Diving Limits

The tables were designed using a 84% helium and 16% oxygen breathing gas mixture with a partial pressure of oxygen (ppO₂) limit of 1.6 ATA at the depth of the Normal Diving Limit and 1.8 ATA at the Exceptional Exposure Limit. HeO₂ is used from the surface to the bottom, while on the bottom and during travel to the first stop. The tables can be used for any HeO₂ mixture where the percentage of O₂ is 16.0% or greater, subject to a depth/time limitation based on O₂ toxicity (ppO₂ while on the bottom not to exceed the operational limit of 1.6 ATA for 30 minutes).

Air is used for all in-water stops from the first stop to 30 fsw (9 msw). At 30 fsw (9 msw), there is the option of in-water oxygen decompression (Table 7) or in-water oxygen combined with surface decompression with oxygen (SurD O₂) (Table 8). In case of a loss of O₂ or oxygen toxicity problems, Table 9 for emergency decompression gives the option of using air at the 30 fsw (9 msw) stop and continuing decompression with in-water air, surface decompression with oxygen, or surface decompression with air.

3. DEFINITION OF TERMS

a. ***Ascent Rate***

A specified rate of travel that a diver should maintain while ascending. For the DCIEM HeO₂ Diving Tables, the ascent rate is 60 ± 10 fsw/min (18 msw ± 3 msw/min). (*NOTE: In the context of the Definitions/Rules and Procedures of the 84/16 HeO₂ Decompression "fsw/min" equals "fpm" and "msw/min" equals "mpm".*)

b. ***Descent Rate***

The maximum rate of travel allowed in descending to the bottom. For the DCIEM HeO₂ diving tables, the maximum descent rate is 60 fpm (18 mpm).

c. ***Bottom Time (BT)***

The total elapsed time from when the diver leaves the surface to the time (next whole minute) that the diver begins ascent.

d. ***Decompression Schedule***

The specific decompression procedure for a given combination of depth and bottom time as listed in a decompression table; it is normally indicated as maximum depth (fsw) or (msw) /bottom time (min).

e. ***Decompression Stop***

Specific length of time which a diver must spend at a specified depth to allow for the elimination of sufficient inert gas for the diver to safely ascend to the next decompression stop or the surface.

f. ***Depth***

The maximum depth attained, measured in fsw (msw).

g. ***Point of Interruption***

The time at which normal decompression was interrupted as a result of an emergency procedure, i.e., loss of breathing gas, O₂ symptom. Once the situation allows the return to normal decompression procedures, *re-enter the table where the interruption occurred*.

h. ***Recorded Time***

Record of event times placed on the dive chart record sheet in hours, minutes, and seconds.

i. ***Repetitive Dive***

Any dive conducted within 18 hours of a previous dive. No repetitive dives are allowed except as outlined under the combined bottom time/maximum depth option.

j. ***Single Dive***

Any dive conducted more than 18 hours after the previous dive.

k. ***Stop Time***

The tabulated time of a decompression stop commences at the time of leaving the previous stop and ceases when the

required time for that stop, as indicated by the tables, has been completed; except in the cases of breathing gas switches [at the first air stop and the switch to oxygen at 30 fsw(9 msw)], where the stop time will not commence until the diver has reached the specified depth and has been confirmed to be breathing the new gas mixture.

I. ***Surface Interval - SurD O₂***

When using the DCIEM 84/16 HeO₂ Decompression Table "Surface Decompression with Oxygen", the Surface Interval consists of the time from the diver leaving the 30 fsw (9 msw) stop to arriving at the 40 fsw (12 msw) Recompression Chamber (RCC) stop. The maximum time allowed is 7 minutes. (*SurD O₂ Surface Interval Time is included in the Total Decompression Time of the Dive.*)

m. ***Total Decompression Time in the Tables***

This time is a GUIDE ONLY and includes the sum of all ascent times, stop times, O₂ periods, air breaks and surface interval times.

Notes (ascent time):

- a. Tabulated ascent time from the bottom to the first stop at 60 fpm (18 mpm) is rounded to the next whole minute and is included in the printed Total Decompression Time for that profile. Additionally, it appears within the tables as MAX time to first stop.
- b. Tabulated ascent time from the 40 fsw (12 msw) air stop to the 30 fsw (9 msw) O₂ stop and from the 30 fsw (9 msw) O₂ stop to the surface at 60 fpm (18 mpm) is combined, rounded to 1 minute and is included in the printed Total Decompression Time for that profile.

SECTION 2

DECOMPRESSION PROCEDURES

1. OPERATIONAL PROCEDURES

The procedures parallel, as closely as possible, the operational procedures and definitions of the DCIEM Air Tables. All In-Water Oxygen Decompression, Surface Decompression with Oxygen, and Emergency Decompression profiles contain identical decompression stops from the first stop to and including the 40 fsw (12 msw) stop. These tables use a series of breathing gas mixtures composed of helium/oxygen, normal compressed air and 100 percent oxygen. Each gas is utilized independently for a specified depth and time period as called for by the tables.

2. ABORT TABLE (TABLE 6)

An Abort Dive Table, contained in Table 6, is provided for dives that do not attain a depth greater than 120 fsw (36 msw). It provides a No Decompression capability up to 120 fsw (36 msw)/5 min, where the diver may ascend directly to the surface without a decompression stop at a rate of 60 ± 10 fpm (18 ± 3 mpm) while breathing 84/16 HeO₂ mixed gas.

Table 6 also provides an abort capability for depths less than or equal to 120 fsw (36 msw) where decompression may be required. Decompression stops, where required in the Abort Table, are AIR STOPS.

In all cases of depths greater than 120 fsw (36 msw), an appropriate 84/16 HeO₂ Decompression Table In-Water Oxygen (Table 7) or SurD O₂ (Table 8) is to be used.

3. IN-WATER OXYGEN DECOMPRESSION (TABLE 7)

The In-Water Oxygen Decompression Table is contained in Table 7. HeO₂ is used from the surface to the bottom, while on the bottom and during travel to the first stop. At the first stop, the breathing gas is switched to air and air is used for all in-water stops to 30 fsw (9 msw). At 30 fsw (9 msw), the breathing gas is switched to O₂ and the diver breathes O₂ until the decompression requirements are completed. Five-minute air breaks are taken after every 30 minutes on O₂.

The In-Water Oxygen Decompression procedure for HeO₂ dives is as follows:

- a. descend at 60 fpm (18 mpm) or slower on HeO₂;
- b. ascend at 60 ± 10 fpm (18 ± 3 mpm) on HeO₂;
- c. upon arrival at the first stop depth, switch to air, ventilate until confirmed on air, and then begin first stop;
- d. remain on air until arrival at 30 fsw (9 msw) stop; stop time includes ascent time to each stop;
- e. upon arrival at the 30 fsw (9 msw) O₂ stop, switch to O₂, ventilate until confirmed on oxygen;
- f. remain on O₂ for the duration of the stop with 30 minute O₂/5 minute air break cycle(s) as designated;
- g. each air break cycle of 5 minutes is indicated by an asterisk (*). The stop time indicated for the 30 fsw (9 msw) O₂ Stop is O₂ time ONLY. Therefore the time for each designated Air Break must be added to the 30 fsw (9 msw) TOTAL Stop time; and
- h. On completion of the 30 fsw (9 msw) stop, travel to the surface is on the breathing medium in use.

Notes for O₂ Stop:

- (1) Divers are not ventilated at air breaks. Gas to the breathing umbilical is simply switched to the required breathing medium for the designated time,
- (2) 5-minute air breaks are part of the required decompression and therefore, are included in total decompression time.
- (3) When the O₂ stop time is a multiple of 30 minute, a 5-minute air break may or may not be required before ascent to the surface.

Figure 2-2 shows an In-Water Oxygen Decompression dive to 140 fsw for 39 minutes (Example 1).

4. SURFACE DECOMPRESSION WITH OXYGEN (TABLE 8)

The Surface Decompression with Oxygen table is contained in Table 8. The descent to depth and the initial ascent to the end of the 40 fsw (12 msw) decompression stop are identical to that for the In-Water Oxygen Decompression Table. At 30 fsw (9 msw), the breathing gas is switched to O₂ and the diver breathes O₂ until the end of the specified decompression time. The diver ascends to the surface, switches to air, and is then recompressed back down to 40 fsw (12 msw) on O₂ in a recompression chamber (RCC) to complete the decompression requirements on O₂. The time from leaving the 30 fsw (9 msw) in-water stop to the time of reaching 12 msw in the RCC should not exceed 7 minutes. After each 30 minute period on O₂ at the 30 fsw (9 msw) stop and in the RCC, 5 minute air breaks are taken.

The Surface Decompression with Oxygen procedure for HeO₂ dives is as follows:

- a. ascend and decompress as for In-Water Oxygen Decompression to the completion of the in-water 40 fsw (12 msw) stop;
- b. upon arrival at the 30 fsw (9 msw) in-water decompression stop, switch to O₂, ventilate until confirmed on O₂;

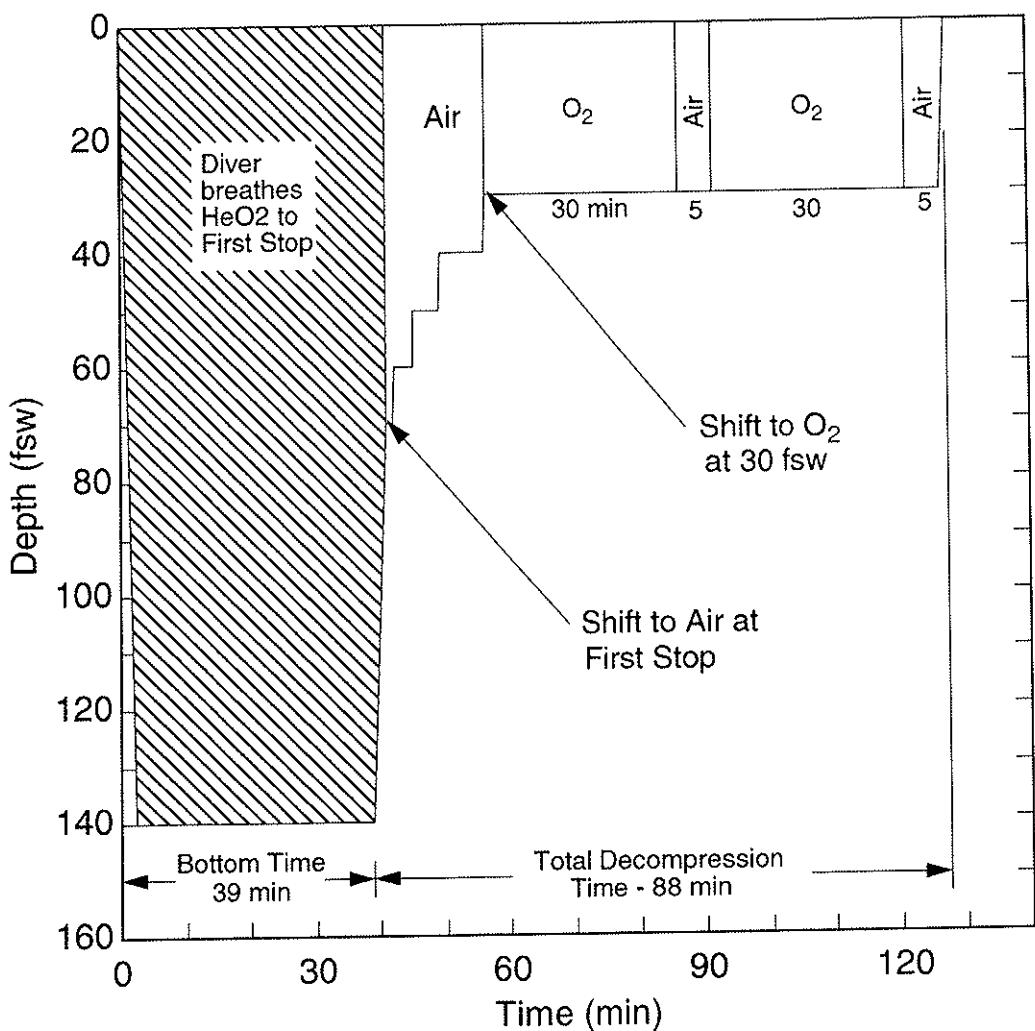


Figure 2-2. In-Water O₂ Decompression Dive to 140 fsw/39 min (Example 1)

Dive	140 fsw/39 min
Decompression schedule	140 fsw/40 min from Table 7
Decompression Stops 70 fsw - 1 min on air 60 fsw - 3 min on air 50 fsw - 4 min on air 40 fsw - 7 min on air	Ascend to 70 fsw on HeO ₂ at 60 ± 10 fpm. Maximum time available to first stop is 2 min.
30 fsw - 60 min on O ₂ + two 5-min air breaks*	
* Travel to the surface on breathing medium in use (i.e., air)	

- c. remain on O₂ for the duration of the specified stop with a 5 minute air break after 30 minutes on O₂ if required;
- d. ascend to the surface at 60 ± 10 fpm (18 ± 3 mpm) and recompress on O₂ to 40 fsw (12 msw) in the RCC. The Surface Interval - SurD O₂ is the time from leaving the 30 fsw (9 msw) water stop to reaching the 40 fsw (12 msw) RCC stop. This time must not exceed 7 minutes;¹
- e. remain on O₂ at 40 fsw (12 msw) for the tabulated stop time with 5-minute air breaks after every 30 minutes on O₂ (the asterisk "*" following the O₂ stop times in the tables represent the number of air breaks); and
- f. ascend to the surface on the breathing medium used (one min is included in the Decompression Time column as a *guide only*).

Figure 2-3 shows a Surface Decompression with Oxygen dive to 188 fsw/15 min (Example 2).

5. EMERGENCY DECOMPRESSION (TABLE 9)

The Emergency Decompression Table, in case of loss of O₂ or oxygen toxicity, provides the following decompression options: in-water emergency air decompression from the 30 fsw (9 msw) stop to the surface, SurD O₂ in a chamber upon completion of the 30 fsw (9 msw) in-water stop on air, and SurD Air decompression in a chamber upon completion of the 30 fsw (9 msw) in-water stop. These three decompression options are all contained in Table 9.

-
- 1. The maximum Surface Interval (SI) - SurD O₂ of 7 minutes was chosen to enhance the operability of the procedure and to reduce the chances of "omitted decompression" during operations. Extensive experimentation using the full 7 minute SI has proven this procedure safe. **In operational use, the SI should be kept to a minimum.**

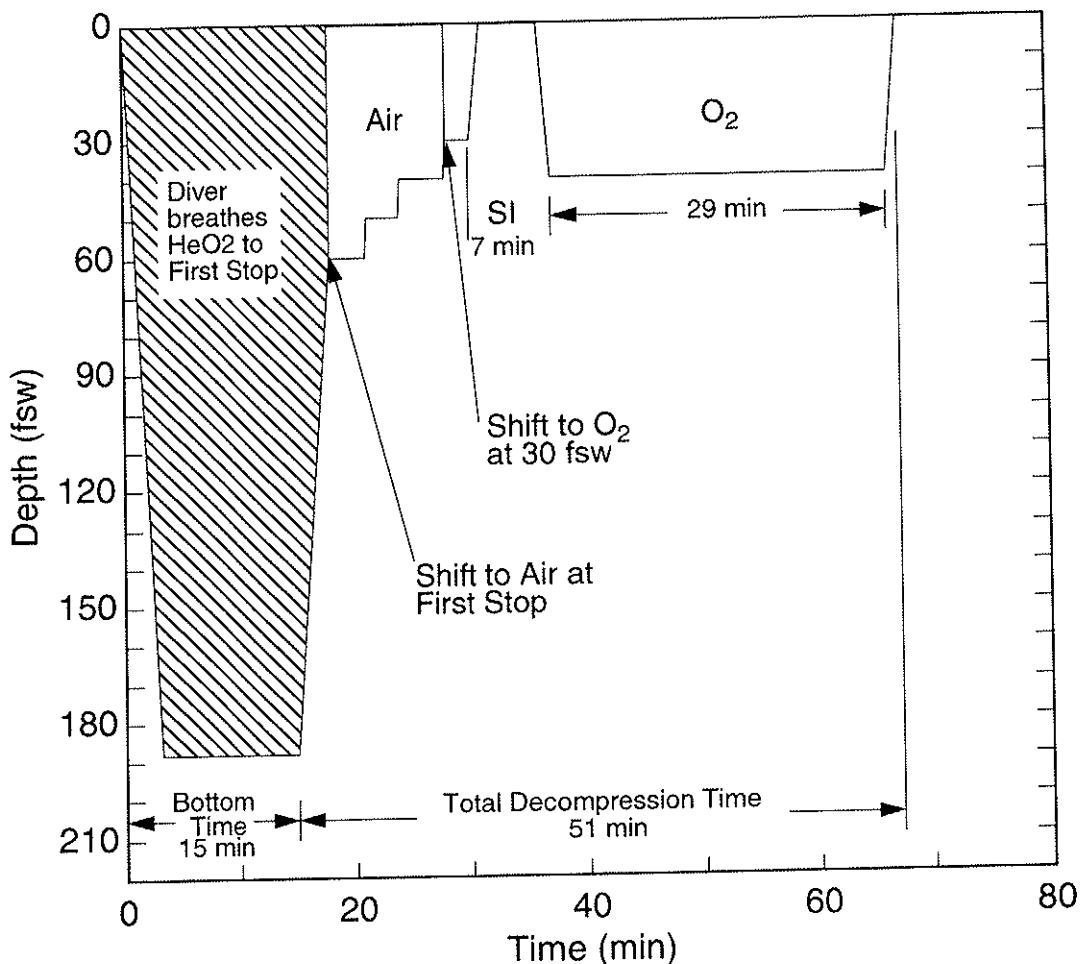


Figure 2-3. SurD O₂ Decompression Dive to 188 fsw/ 15 min
(Example 2)

Dive	188 fsw/15 min
Decompression schedule	190 fsw/15 min from Table 8
Decompression Stops 60 fsw - 3 min on air 50 fsw - 3 min on air 40 fsw - 4 min on air 30 fsw - 2 min on O ₂ *	Ascend to 60 fsw on HeO ₂ at 60 ± 10 fpm. Maximum time available to first stop is 3 min.
Surface - Time from 30 fsw to reaching 40 fsw in RCC	is 7 min
40 fsw - 29 min on O ₂ in RCC*	
* Travel to the surface on breathing medium in use	

Decompression up to and including the 40 fsw (12 msw) air decompression stop is in accordance with the In-Water Oxygen and the Surface Decompression with Oxygen Tables. The in-water decompression stop at 30 fsw (9 msw) is conducted on air for twice the length of the O₂ decompression time normally required from the SurD O₂ table (Table 8). If a 5-minute air break was required, as found in the SurD O₂ tables at 30 fsw (9 msw), this time is also included.

a. **In-Water Air Decompression**

On completion of the 30 fsw (9 msw) air stop, ascend on air to the 20 and 10 fsw (6 and 3 msw) stops and remain at these stops for the prescribed times. Figure 2-4 (Example 3) shows a dive to 160 fsw for 120 min using in-water air decompression.

b. **Surface Decompression with Oxygen in RCC**

On completion of the 30 fsw (9 msw) in-water air stop, ascend to the surface for surface decompression on O₂ as in Table 8. Figure 2-5 (Example 4) shows the same dive from Example 3 carried out as Emergency SurD O₂. (Note: the 40 fsw (12 msw) RCC decompression time is identical to that from Table 8.)

c. **Surface Decompression with Air in RCC**

On completion of the 30 fsw (9 msw) in-water air stop, ascend to the surface as for normal SurD O₂. Descend on air to 40 fsw (12 msw) in the RCC and conduct the prescribed decompression stops at 40, 30, 20, and 10 fsw (12, 9, 6, and 3 msw). Figure 2-6 (Example 5) shows the same dive from Example 3 carried out as Emergency SurD Air. (Note: the 40 fsw (12 msw) stop time is the same as the 40 fsw/12 msw in-water stop in Tables 7 and 8. The 30, 20, and 10 fsw (9, 6, and 3 msw) stop times are the same as for emergency in-water air decompression.)

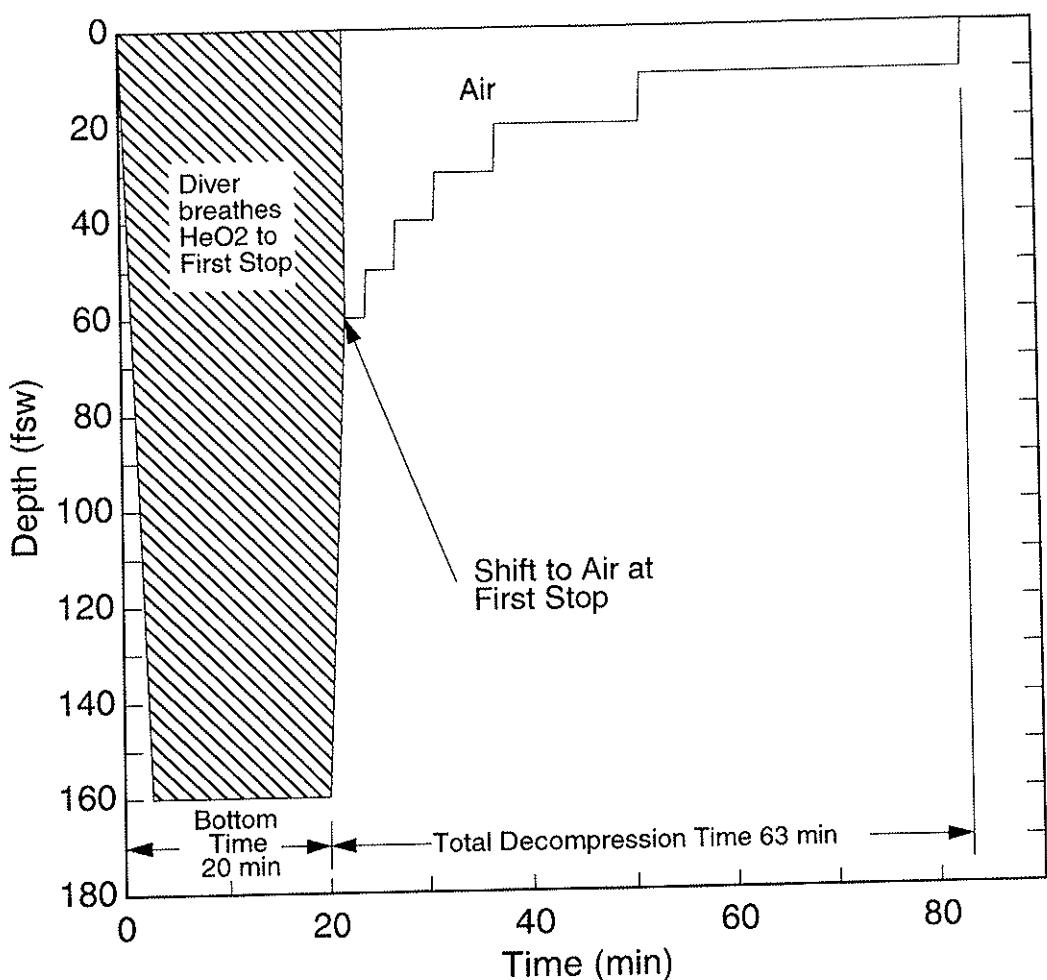


Figure 2-4. In-Water Emergency Air Decompression Dive to 160 fsw/20 min (Example 3)

Dive	160 fsw/20 min
Decompression schedule	160 fsw/20 min from Table 9
Decompression Stops 60 fsw - 2 min on air 50 fsw - 3 min on air 40 fsw - 4 min on air	Ascend to 60 fsw on HeO ₂ at 60 ± 10 fpm. Maximum time available to first stop is 3 min. Decompression stops for 60 - 40 fsw from Table 7 or 8.
30 fsw - 6 min on air	From Table 9, "Air" Column
20 fsw - 14 min on air 10 fsw - 32 min on air	From Table 9, In-Water Stop Times

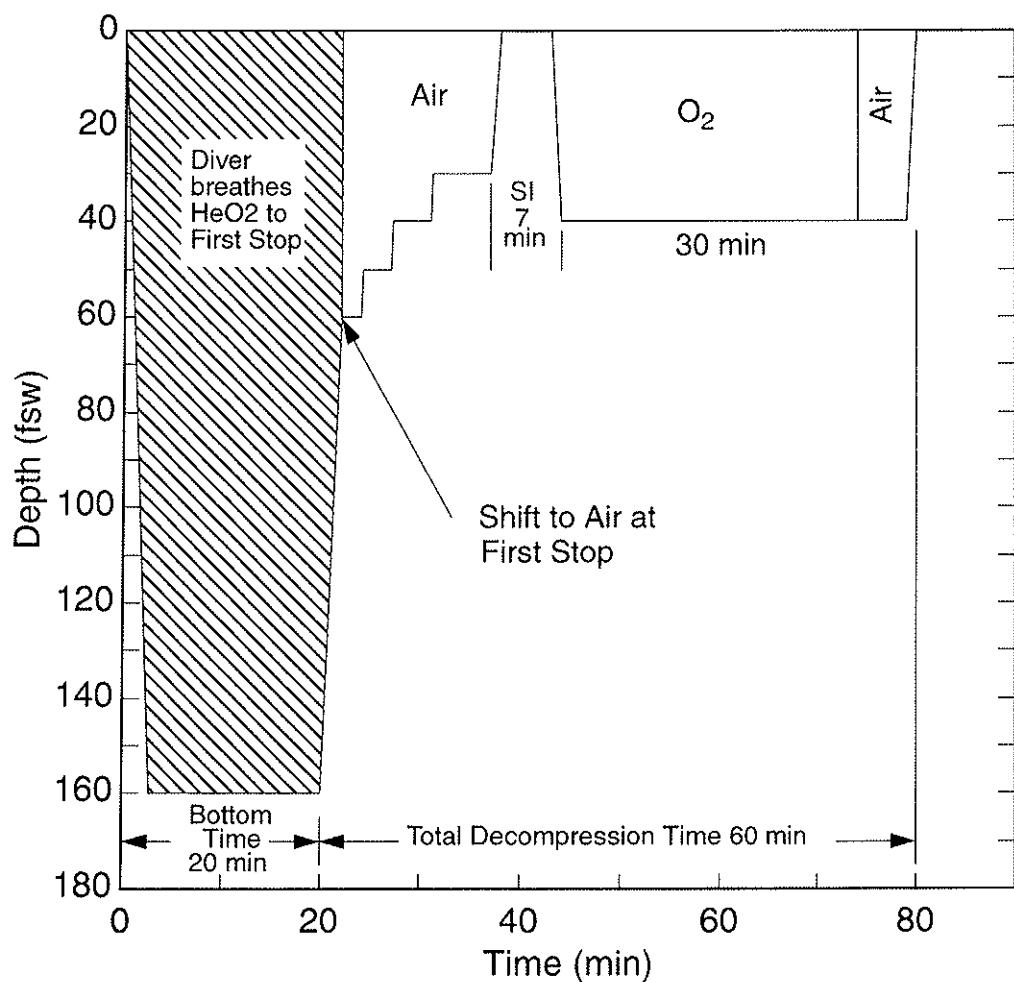


Figure 2-5. Emergency SurD O₂ Decompression Dive to 160 fsw/20 min (Example 4)

Dive	160 fsw/20 min
Decompression schedule	160 fsw/20min from Table 9
Decompression Stops 60 fsw - 2 min on air 50 fsw - 3 min on air 40 fsw - 4 min on air	Ascend to 60 fsw on HeO ₂ at 60 ± 10 fpm. Maximum time available to first stop is 3 min. Decompression stops for 60 - 40 fsw from Table 7 or 8.
30 fsw - 6 min on air	From Table 9, "Air" Column
Surface - Time from 30 fsw to reaching 40 fsw in RCC	is 7 min
40 fsw - 30 min O ₂ + 5-min air break* (from RCC O ₂ Section in Table 9)	
* Travel to the surface on breathing medium in use (i.e., air)	

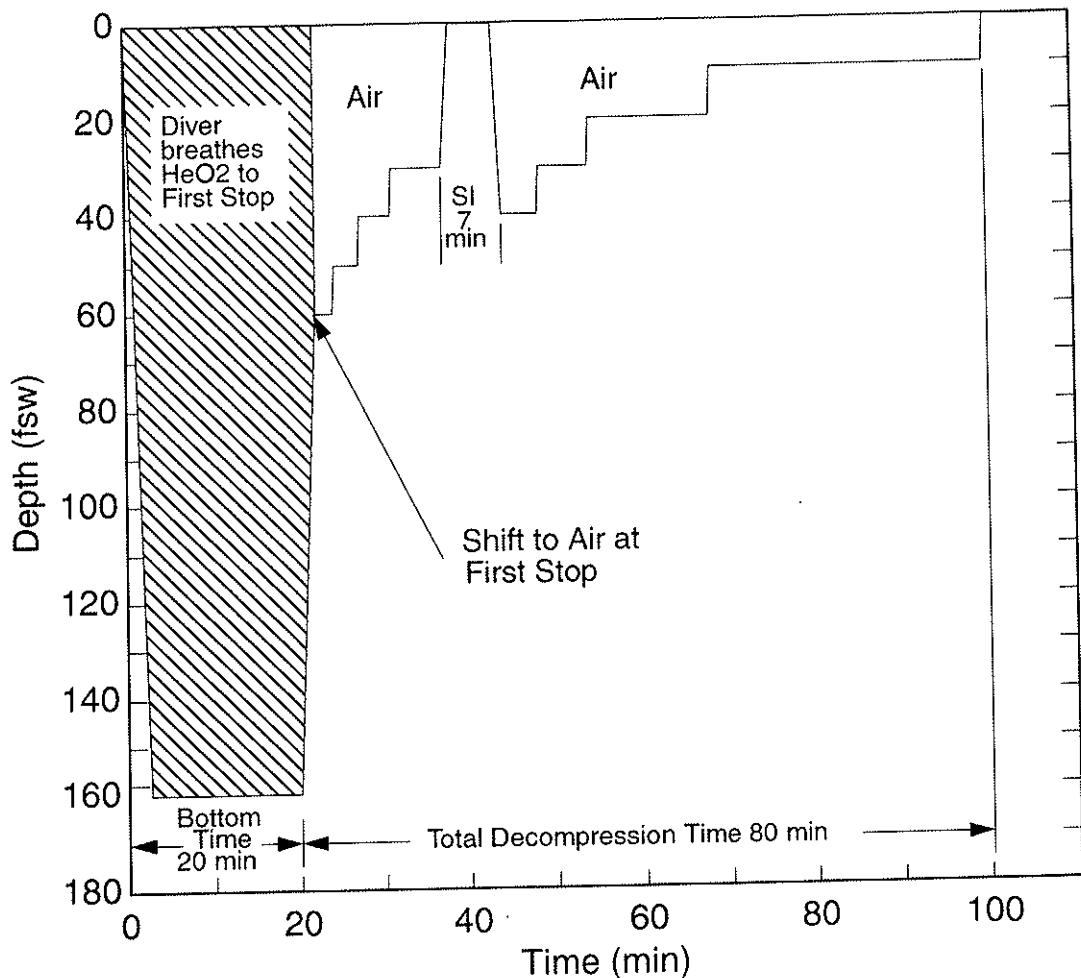


Figure 2-6. Emergency SurD Air Decompression Dive to 160 fsw/20 min (Example 5)

Dive	160 fsw/20 min
Decompression schedule	160 fsw/20min from Table 9
Decompression Stops 60 fsw - 2 min on air 50 fsw - 3 min on air 40 fsw - 4 min on air	Ascend to 60 fsw on HeO ₂ at 60 ± 10 fpm. Maximum time available to first stop is 3 min. Decompression stops for 60 - 40 fsw from Table 7 or 8.
30 fsw - 6 min on air	From Table 9, "Air" Column
Surface - Time from 30 fsw to reaching 40 fsw in RCC	is 7 min
40 fsw - 4 min on air 30 fsw - 6 min on air 20 fsw - 14 min on air 10 fsw - 32 min on air	From RCC Air Section in Table 9

The Emergency Decompression Table's primary use is to get the diver out of the water after the completion of an extended stop on air 30 fsw (9 msw) and then repressurize in an RCC to 40 fsw (12 msw). As the preferred method is SurD O₂, only the SurD O₂ option was tested by DCIEM during the validation trials.

Guidelines for using the Emergency Decompression Tables for different dive scenarios are described in Section 3: General Procedures. A flow chart to assist in the use of emergency procedures is presented in Figure 2-7.

6. REPETITIVE DIVING AND COMBINED BOTTOM TIME/MAXIMUM DEPTH OPTION

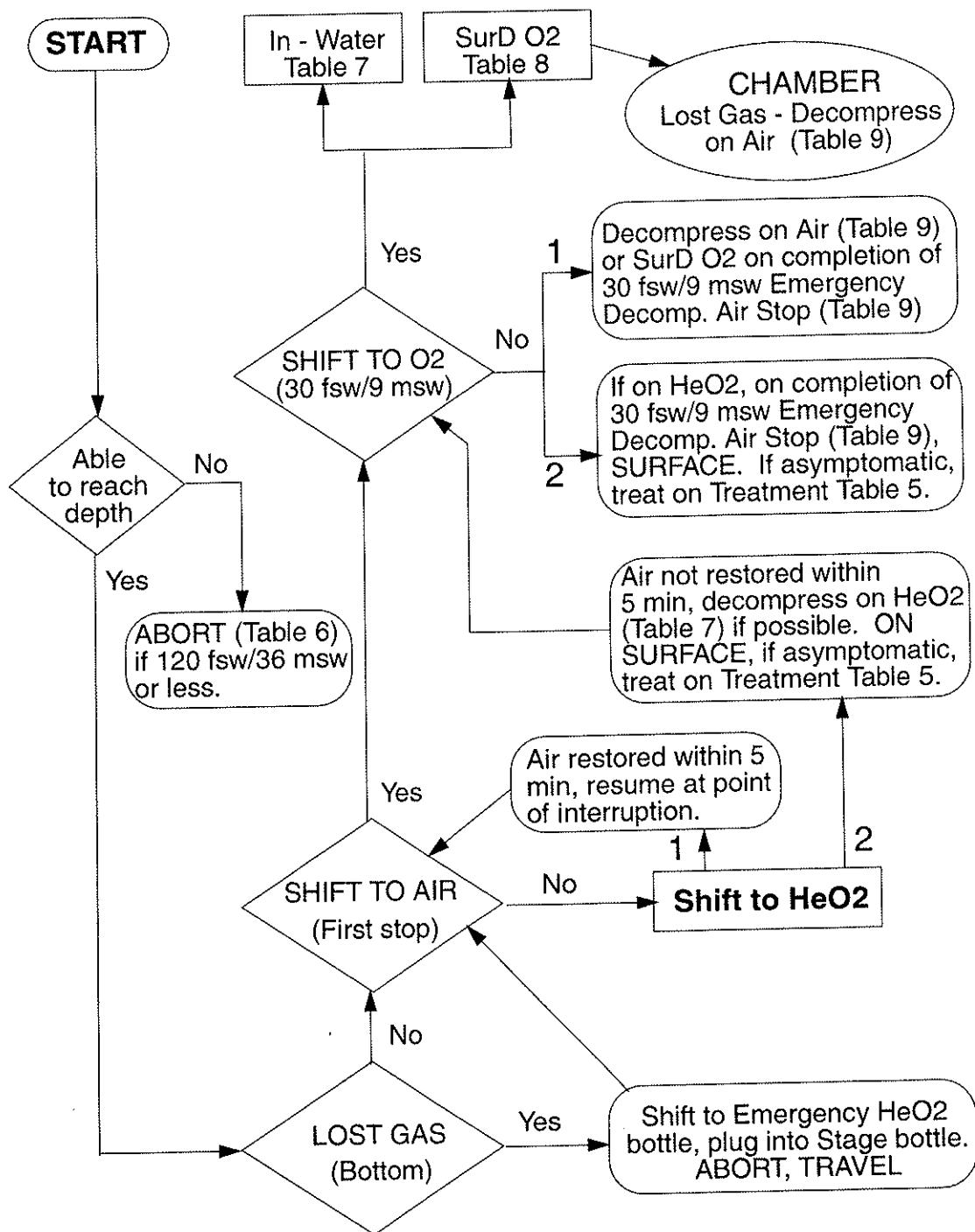
Normal Repetitive Diving Procedures for HeO₂ dives have not been implemented in this manual. Until HeO₂ Repetitive Dive Schedules are validated, the **combined bottom time/maximum depth option** can be used to conduct Repetitive Dives.

In the event of an aborted HeO₂ dive or in the case of dives where bottom times have not reached the Normal Limit, the diver may dive again on the 84/16 HeO₂ tables within 18 hours and is exempt from the repetitive dive restriction. In this case, the bottom time(s) of the aborted/or previous short dive(s) must be added to the bottom time of the next dive to calculate an appropriate decompression schedule. The diver shall be decompressed in accordance with both the maximum depth attained during any of the dives and total of all bottom times. However, based on thermal considerations, it is recommended that the total of the combined bottom times should not exceed the normal operational limits of the selected decompression schedule.

Note:

In this option all dives are combined and are considered a single dive.

HEO₂ EMERGENCY FLOW CHART

Figure 2-7. HEO₂ Emergency Flow Chart

SECTION 3

GENERAL PROCEDURES

1. GASES

a. HELIUM/OXYGEN (HeO_2) GAS MIXTURES

HeO_2 is used from the surface to the bottom, while on the bottom, and during ascent to the first stop. The tables were designed for an 84% helium/16% oxygen breathing gas mixture. Any HeO_2 mixture where the percentage (%) of O_2 is 16.0% or greater, subject to a depth/time limitation based on O_2 toxicity (pp O_2 while on the bottom not to exceed the operational limit of 1.6 ATA for 30 minutes) can be used. However, a caveat is provided where gases up to 16.5% O_2 content can be utilized to the normal bottom time limit. Profiles in excess of the normal operational limit for a HeO_2 84/16 mix, as contained within these tables, have been validated; refer to Para. 2, General Procedures, for additional information on bottom time limits.

b. AIR

- (1) upon arrival at the first stop, switch to air, ventilate until confirmed on air; and
- (2) remain on air until arrival at 30 fsw (9 msw) stop.

c. OXYGEN

- (1) upon arrival at the 30 fsw (9 msw) O_2 stop, switch to O_2 ventilate until confirmed on oxygen; and
- (2) remain on O_2 for the duration of the stop with 30 minute O_2 /5-minute air break cycle(s) as designated.

- (3) Each Air Break cycle of 5 minutes is indicated by an asterisk (*). The stop time indicated for the 30 fsw (9 msw) O₂ Stop is O₂ time ONLY. Therefore the time for each designated Air Break must be added to the 30 fsw (9 msw) TOTAL Stop time.

Notes for O₂ Stop:

- (1) Divers are not ventilated at air breaks. Gas to the breathing umbilical is simply switched to the required breathing medium for the designated time,
- (2) On completion of the 30 fsw (9 msw) stop, travel to the surface is on the breathing medium in use,
- (3) 5-minute air breaks are part of the required decompression and therefore, are included in total decompression time.

2. BOTTOM TIME LIMITING LINES

a. NORMAL EXPOSURE LIMIT

Normal operational limit dives are based on profiles where the maximum ppO₂ of the dive while on the bottom does not exceed a value of 1.6 ATA for 30 minutes or where the total in-water time of the dive does not exceed a maximum of approximately 3 hours 30 minutes. However, for operational considerations, the normal limit is extended to include dives to 300 fsw (90 msw) for 25 minutes. Additionally, dives utilizing gas mixtures not exceeding an O₂ content of 16.5% are considered to fall within the normal limits (inclusive of 300 fsw (90 msw)/25 min).

b. EXCEPTIONAL EXPOSURE LIMIT

Exceptional exposure dives are based on profiles where the maximum normal limit ppO₂ is exceeded or where the total in-water time exceeds that of the normal limit (maximum bottom ppO₂ value of 1.8 ATA for 30 minutes, total in-water time does not exceed a maximum of 4 hours 30 minutes).

3. TRAVEL RATES

- a. the ascent rate is 60 ± 10 fpm (18 ± 3 mpm);
- b. the descent rate is a maximum of 60 fpm (18 mpm); and
- c. in RCC SurD O₂ operations, an ascent/descent rate of 60 fpm (18 mpm) is recommended.

4. STOP TIMES/TRAVEL TIMES

a. Stop Time

Stop time includes travel time from the previous stop, except when a gas switch occurs at the first stop (air) and 30 fsw (9 msw) stop (O₂);

b. Time to First Stop

The time to first stop, as contained in the tables, is provided as a guide only. It indicates the maximum computed time available for the diver to reach the first stop, based on the expiration of an exact bottom time increment,

c. First Stop - Decompression Time

Travel time from the bottom and the time from arrival at the first stop to confirmation that the switch to air is complete is not included in the first stop decompression time. (Note: *Gas switching time is dead time.*)

d. 30 fsw (9 msw) O₂ Stop - Decompression Time

Travel time from 40 fsw (12 msw) and time from arrival at the 30 fsw (9 msw) O₂ stop to confirmation that the switch to O₂ is complete is not included in the 30 fsw (9 msw) O₂ stop decompression time. (Note: *Gas switching time is dead time.*)

5. DELAYS (NORMAL DECOMPRESSION)

- a. delay in reaching the first stop (MAXIMUM TIME to First Stop exceeded by more than 30 seconds) is added to the bottom time and the appropriate decompression schedule selected; and
- b. any delay in leaving an air stop is considered to be valid decompression time and can be subtracted from the next shallower air stop only. Does not apply to the 30 fsw (9 msw) O₂ stop.

6. OXYGEN TOXICITY AT O₂ STOP (IN-WATER AND RCC)

a. O₂ SYMPTOMS

- (1) stop, switch to air, ventilate,
- (2) wait for symptoms to subside,
- (3) wait 15 minutes,
- (4) resume O₂ at point of interruption, OR
- (5) **In-Water:**

if in-water O₂ requirements from Table 8 have been met, SurD O₂ on Table 8 after symptoms have completely subsided, OR

- (6) immediately switch to air and decompress in accordance with Emergency Decompression Table 9;
 - (a) On completion of the 30 fsw (9 msw) air stop of the Emergency Decompression Table, SurD O₂ may be performed,
 - (b) All previous 30 fsw (9 msw) air/O₂ time can be subtracted from the 30 fsw (9 msw) and shallower Emergency Decompression Air Stops;
- (7) if O₂ breathing is resumed and O₂ symptoms recur, switch to air and decompress as per Item (5),

(8) In RCC

Decompress in accordance with applicable Emergency Decompression Table commencing at 40 fsw (12 msw). Previous Air/O₂ times at the 40 fsw (12 msw) stop in the chamber can be subtracted from the 40 fsw (12 msw) and shallower Emergency Decompression Air Stops.

b. O₂ CONVULSION

- (1) stop, switch to air, ventilate,
- (2) stabilize (the diver is not brought to the surface while convulsing):
 - (a) **In-Water:**

If in-water O₂ requirements from Table 8 have been met, SurD O₂ on Table 8 after convulsion has completely subsided, OR immediately switch to air and decompress in accordance with Emergency Decompression Table 9, surface diver carefully to reduce risk of embolism. Treat for possible embolism if uncertainty exists.

(b) In RCC:

Complete decompression in accordance with the applicable Emergency Decompression Table 9, commencing at 40 fsw (12 msw). Previous air/O₂ times at the 40 fsw (12 msw) stop in the chamber is good time and can be subtracted from the 40 fsw (12 msw) and shallower Emergency Decompression Air Stops.

7. LOSS OF O₂ (IN-WATER AND RCC)**a. IN-WATER**

- (1) switch to air
- (2) re-establish O₂, resume O₂ at point of interruption,

- (3) if oxygen cannot be restored and in-water O₂ requirements from Table 8 have been met, SurD on Table 8, OR
- (4) immediately switch to air and decompress in accordance with Emergency Decompression Table 9 or (if O₂ available to RCC) on completion of the 30 fsw (9 msw) Emergency Decompression Air Stop, may SurD O₂,
- (5) all previous 30 fsw (9 msw) air/O₂ time can be subtracted from 30 fsw (9 msw) and shallower Emergency Decompression Air stops.

b. **IN RCC**

If no success in re-establishing O₂ decompress in accordance with the applicable Emergency Decompression Table 9 commencing at 40 fsw (12 msw). Previous Air/O₂ time at the 40 fsw (12 msw) stop in the chamber is good time and can be subtracted from the 40 fsw (12 msw) and shallower Emergency Decompression Air stops.

8. SURD O₂ RCC TIME

- a. the diver descends breathing O₂ to the RCC stop of 40 fsw (12 msw);
- b. 40 fsw (12 msw) O₂ stop time commences on arrival at 40 fsw (12 msw);
- c. at 40 fsw (12 msw) the diver remains on O₂ for the duration of the stop with 30 minute O₂/5 minute air break cycle(s) as designated; and
- d. on completion of the stop the diver ascends to the surface on the breathing medium in use.

9. SURFACE INTERVAL - VIOLATION OF 7 MINUTE SURFACE INTERVAL AND OMITTED DECOMPRESSION

(Diver shows NO symptoms)

- a. if the 7 minute surface interval is exceeded or omitted decompression occurs, commence Treatment Table 5 if the total time of omitted decompression is less than 30 minutes; OR;
- b. If the total omitted decompression is greater or equal to 30 minutes commence Treatment Table 6.

10. OMITTED DECOMPRESSION (FIRST STOP)

In the event that the **FIRST** decompression stop **ONLY** is passed, remain at the next stop and *shift to AIR*. Once confirmed on AIR, commence the stop time by **adding** the missed stop time and the present stop time. **If more** than the first stop was missed, decompress in accordance with Para. 9.

11. LOST GAS AT DEPTH (HELIUM/OXYGEN, AIR)/UNABLE TO SWITCH GASES**a. LOST HELIUM/OXYGEN**

In the event of the loss of Helium/Oxygen the diver switches to emergency Helium/Oxygen (backpack, stage mount), the dive is aborted, the diver travels to the first stop and switches to air;

b. LOST AIR

In the event of the loss of air, the diver switches to emergency Helium/Oxygen (backpack, stage mount) until air is restored or for a maximum of 5 minutes. If air is restored within 5 minutes, resume normal decompression on air at the point of interruption. If air is not restored within 5 minutes, continue decompression on Helium/Oxygen in accordance with Table 7 if possible. If air is

restored prior to the 30 fsw (9 msw) O₂ stop, shift diver to air. Upon surfacing, if asymptomatic conduct Treatment Table 5 for omitted decompression. If symptomatic treat as appropriate for decompression sickness;

c. **UNABLE TO SWITCH TO AIR AT FIRST STOP**

If unable to complete a switch to air at first stop, the diver may remain on Helium/Oxygen at the first stop for a maximum of 5 minutes; if air is restored within the 5 minute time interval resume normal decompression on air at the point of interruption. If air is not restored within 5 minutes, continue decompression on Helium/Oxygen in accordance with Table 7 if possible. If air is restored prior to the 30 fsw (9 msw) O₂ stop, shift diver to air. Upon surfacing if asymptomatic conduct Treatment Table 5 for omitted decompression. If symptomatic treat as appropriate for decompression sickness;

d. **UNABLE TO SWITCH TO O₂ AT 30 FSW (9 MSW)**

If unable to complete a switch to O₂, decompress in accordance with Emergency Decompression Table 9 or (if O₂ available to RCC) on completion of the 30 fsw (9 msw) Emergency Decompression Air Stop, may SurD O₂.

12. EXAMPLES OF EMERGENCY OPTIONS

Examples of dive profiles with emergency scenarios and options are given below (for depths in fsw). These examples illustrate multiple options as shown in the flow chart in Figure 2-7.

Example 12.1 - Delay on descent

Planned dive: 200 fsw/10 min	SurD O ₂ (Table 8) - 200 fsw/10 min calls for
	50 fsw - 3 min air
	40 - 4 min air
	30 - 2 min O ₂
	RCC 40 fsw - 19 min O ₂

HELIUM-OXYGEN DIVING TABLES

Situation:	Ear problem at 96 fsw on descent
Reaction:	Come up 5 fsw, try to clear. If able to clear, continue the dive. If unable to clear, ABORT, decompress on 100 fsw schedule (Table 6).

Example 12.2 - Unable to switch to air at first stop

Planned dive: 180 fsw/20 min	In-water O ₂ (Table 7) - 180 fsw/20 min calls for
	70 fsw - 2 min air 60 - 3 50 - 3 40 - 4 30 - 32 min O ₂ + 5 min air
Situation:	Air not available at first stop
Reaction: (Para. 11(c))	Remain at the first stop (70 fsw) for 5 minutes maximum. If air is still not available, remain on HeO ₂ and complete all stops in accordance with the profile. At 30 fsw, shift to O ₂ for 32 minutes with a 5-minute air break. Upon reaching the surface, if the diver is asymptomatic, commence Treatment Table 5 for omitted decompression.

Example 12.3 - Loss of O₂ in water

Planned dive: 160 fsw/35 min	SurD O ₂ (Table 8) - 160 fsw/35 min calls for
	70 fsw - 3 min air 60 - 3 50 - 5 40 - 7 30 - 10 min O ₂
	RCC 40 fsw - 61 min O ₂ + two 5-min air breaks
Situation:	Lost O ₂ at minute 7 in water
Reaction: (Para. 7a)	Shift to air; if unable to resume O ₂ breathing, shift to Emergency Decompression Table (Table 9). Remain at 30 fsw for a total of 20 minutes (O ₂ time is good time). Surface, recompress to 40 fsw in RCC for 61 minutes of O ₂ plus two air breaks. Travel on breathing medium in use.

Example 12.4 - Delay during decompression/O₂ symptoms in water

Planned dive: 210 fsw/30 min	In-Water O ₂ (Table 7) - 210 fsw/30 min calls for 100 fsw - 1 min air 90 - 2 80 - 3 70 - 3 60 - 3 50 - 6 40 - 10 30 - 75 min O ₂ + two 5-min air breaks
Situation 1:	Delay at 70 fsw for 4 minutes
Reaction 1: (Para. 5b)	At minute 7 of the 70 fsw stop, subtract the excess 4 minutes from the next stop ONLY; therefore, travel to 50 fsw and complete 6 minute stop.
Situation 2:	O ₂ symptom in water at minute 20 at 30 fsw
Reaction 2: (Para. 6a)	At minute 20 on O ₂ , shift to air. Option 1: Wait until symptoms have completely subsided; wait 15 minutes, resume at point of interruption (Table 7), OR Option 2: If in-water O ₂ requirements from Table 8 have been met, SurD on Table 8 after symptoms have completely subsided, OR Option 3: Decompress on air in accordance with Table 9 (all previous 30 fsw air/O ₂ time can be subtracted from 30 fsw and shallower Emergency Decompression air stops). Alternatively, may also elect to SurD on completion of 30 fsw emergency air stop.

13. DECOMPRESSION STRESS DURING SURFACE INTERVAL

During the Surface Interval (SI) of a surface decompression with oxygen profile, the required decompression has been intentionally violated. At the completion of the SI, the diver is repressurised in a chamber to a depth of 40 fsw (12 msw), deeper

than called for by the decompression model, and held at depth breathing intermittent oxygen for longer than called for by the decompression model. The diver is given additional decompression during the chamber phase of the SurD O₂ profile to compensate for the increased stress of the SI.

During the SI the diver is exposed to a higher level of decompression stress than would be encountered if in-water decompression had been executed. Therefore, the diver may experience signs and/or symptoms of decompression stress. Manned validation has indicated that when symptoms do occur during the SI, they are almost always very mild and late. In addition, the symptoms usually completely resolve during the press to 40 fsw (12 msw) in the chamber. The experimental dives also demonstrated that the divers who experienced SI symptoms had the same incidence of DCS after the completion of the dive as those divers who did not experience signs or symptoms during the SI. During the table development process, the pre-surface interval decompression was adjusted to reduce the occurrence of SI problems.

Therefore, during SurD O₂ diving, when all signs and symptoms of SI stress have completely resolved by the time the diver is confirmed on oxygen at 40 fsw (12 msw), the decompression profile is to be completed as planned.

When the signs and symptoms of SI stress have not completely resolved by the time the diver is confirmed on oxygen at 40 fsw (12 msw), it should be treated as decompression sickness. The diver must be immediately pressed to 60 fsw (18 msw), a Treatment Table 6 initiated, and the Diving Medical Officer contacted.

14. FLYING AFTER HELIUM/OXYGEN DIVING

- a. After No-Decompression Helium/Oxygen (HeO₂) diving a Minimum Surface Interval of 12 Hours is required before flying.

- b. After HeO₂ Decompression dives where total dive time is less than or equal to 2 hours, a Minimum Surface Interval of 24 Hours is required before flying.
- c. After HeO₂ Decompression dives where total dive time exceeds 2 Hours a Minimum Surface Interval of 48 Hours is required before flying.

ACKNOWLEDGEMENTS

The development of the DCIEM/Canadian Forces HeO₂ decompression tables was a joint development project under the ABCA-10 Information Exchange Program. The work was done at DCIEM under a tasking from the Department of National Defence. Both the US Navy and the Royal Navy provided consultation on the model, validation and procedures and provided dive subjects for the trials.

Many individuals and groups contributed to the development, evaluation, and production of these tables and procedures. These include the medical, technical and operational staff of the Experimental Diving Unit at DCIEM, both civilian and military, and other technical support staff from other sections of DCIEM. Other individuals from outside of DCIEM also provided input, including Canadian Forces divers from the Fleet Diving Units. Particular thanks go to the dive subjects from DCIEM, the Canadian Forces, US Navy, Royal Navy, Seneca College, and the Canadian Underwater Training Centre who participated in the dive trials and the DCIEM Doppler technicians who spent many hours listening to bubbles.

APPENDIX A

DCIEM HEO₂ DIVING TABLES (FEET)

DCIEM DIVING MANUAL

TABLE 6

HEO₂ ABORT (FEET)

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DCIEM DIVING MANUAL

TABLE 6 : HEO₂ - ABORT TABLE (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to 1st Stop (min)	Stop Times (min) at Different Depths								Decom. Time (min)
			Air								
30	55	1	-	-	-	-	-	-	-	-	1
40	20	1	-	-	-	-	-	-	-	-	1
	30	1	-	-	-	-	-	-	-	3	4
	40	1	-	-	-	-	-	-	-	12	13
50	13	1	-	-	-	-	-	-	-	-	1
	20	1	-	-	-	-	-	-	-	4	5
	30	1	-	-	-	-	-	-	-	12	13
60	10	1	-	-	-	-	-	-	-	-	1
	20	1	-	-	-	-	-	-	-	7	8
	25	1	-	-	-	-	-	-	2	13	16
	30	1	-	-	-	-	-	-	3	16	20
70	8	2	-	-	-	-	-	-	-	-	2
	12	1	-	-	-	-	-	-	-	5	6
	20	1	-	-	-	-	-	-	3	11	15
	30	1	-	-	-	-	-	-	6	19	26
80	6	2	-	-	-	-	-	-	-	-	2
	10	2	-	-	-	-	-	-	-	6	8
	15	1	-	-	-	-	-	-	3	7	11
	20	1	-	-	-	-	-	-	5	14	20
	25	1	-	-	-	-	-	-	7	18	26
90	5	2	-	-	-	-	-	-	-	-	2
	10	2	-	-	-	-	-	-	-	8	10
	15	2	-	-	-	-	-	-	5	10	17
	20	1	-	-	-	-	-	2	6	16	25
100	5	2	-	-	-	-	-	-	-	-	2
	10	2	-	-	-	-	-	-	3	7	12
	15	2	-	-	-	-	-	2	5	13	22
110	5	2	-	-	-	-	-	-	-	-	2
	10	2	-	-	-	-	-	-	4	7	13
	15	2	-	-	-	-	-	3	6	14	25
120	5	2	-	-	-	-	-	-	-	-	2
	10	2	-	-	-	-	-	-	6	7	15

(Dated 91-04-10)

DCIEM DIVING MANUAL

TABLE 7

IN-WATER OXYGEN DECOMPRESSION (FEET)

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DCIEM DIVING MANUAL

TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths										Decom. Time (min)				
			Air														
			140	130	120	110	100	90	80	70	60	50	40				
120	10	2	-	-	-	-	-	-	-	-	-	-	-	7	10		
	20	2	-	-	-	-	-	-	-	-	-	-	-	3	22	28	
	30	2	-	-	-	-	-	-	-	-	-	2	4	30*	44		
	40	2	-	-	-	-	-	-	-	-	-	4	5	47*	64		
	50	1	-	-	-	-	-	-	-	-	2	4	7	60**	85		
	60	1	-	-	-	-	-	-	-	-	3	4	11	72**	102		
	70	1	-	-	-	-	-	-	-	-	3	7	13	82**	117		
	75	1	-	-	-	-	-	-	-	-	4	9	13	85**	123		
	80	1	-	-	-	-	-	-	-	-	4	11	13	89**	129		
	90	1	-	-	-	-	-	-	-	-	1	4	14	18	90***	144	
130	100	1	-	-	-	-	-	-	-	-	2	8	13	24	90***	154	
	10	2	-	-	-	-	-	-	-	-	-	-	-	7	10		
	20	2	-	-	-	-	-	-	-	-	-	1	4	24	32		
	30	2	-	-	-	-	-	-	-	-	1	3	4	31*	47		
	40	2	-	-	-	-	-	-	-	-	2	4	5	55*	74		
	50	2	-	-	-	-	-	-	-	-	3	5	9	67**	97		
	60	1	-	-	-	-	-	-	-	-	1	4	6	12	79**	114	
	70	1	-	-	-	-	-	-	-	-	2	4	10	13	88**	129	
	80	1	-	-	-	-	-	-	-	-	3	4	13	17	90***	144	
	90	1	-	-	-	-	-	-	-	-	3	10	11	25	91***	157	
140	95	1	-	-	-	-	-	-	-	-	4	11	11	28	92***	163	
	10	2	-	-	-	-	-	-	-	-	-	-	-	10	13		
	15	2	-	-	-	-	-	-	-	-	-	-	-	3	20	26	
	20	2	-	-	-	-	-	-	-	-	-	3	3	26	35		
	30	2	-	-	-	-	-	-	-	-	2	4	4	38*	56		
	40	2	-	-	-	-	-	-	-	-	1	3	4	7	60**	88	
	50	2	-	-	-	-	-	-	-	-	2	4	4	12	73**	108	
	60	2	-	-	-	-	-	-	-	-	3	4	9	12	85**	126	
	65	2	-	-	-	-	-	-	-	-	3	4	11	13	90**	134	
	70	1	-	-	-	-	-	-	-	-	1	3	5	12	14	90***	142
	80	1	-	-	-	-	-	-	-	-	1	4	9	11	24	91***	157
	90	1	-	-	-	-	-	-	-	-	2	4	12	15	28	94***	172
Stop times include travel time from the previous stop except when a gas switch occurs. Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)																	

TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths												Decom. Time (min)	
			Air													
			140	130	120	110	100	90	80	70	60	50	40	30		
150	10	2	-	-	-	-	-	-	-	-	-	-	1	13	17	
	15	2	-	-	-	-	-	-	-	-	-	2	3	22	30	
	20	2	-	-	-	-	-	-	-	-	1	3	4	28	39	
	25	2	-	-	-	-	-	-	-	-	2	4	4	31*	49	
	30	2	-	-	-	-	-	-	-	1	3	4	4	46*	66	
	35	2	-	-	-	-	-	-	-	2	3	4	6	58*	81	
	40	2	-	-	-	-	-	-	-	2	4	4	9	63**	95	
	45	2	-	-	-	-	-	-	-	3	4	4	11	72**	107	
	50	2	-	-	-	-	-	-	1	3	4	6	12	80**	119	
	55	2	-	-	-	-	-	-	1	4	4	8	12	86**	128	
	60	2	-	-	-	-	-	-	2	3	4	11	13	90***	141	
	70	2	-	-	-	-	-	-	3	3	8	11	21	92***	156	
	80	2	-	-	-	-	-	-	3	4	11	14	28	95***	173	
160	85	1	-	-	-	-	-	1	3	7	10	17	30	96***	181	
	10	2	-	-	-	-	-	-	-	-	-	2	15	20		
	15	2	-	-	-	-	-	-	-	-	-	3	3	23	32	
	20	2	-	-	-	-	-	-	-	-	2	3	4	30	42	
	25	2	-	-	-	-	-	-	-	1	3	3	4	36*	55	
	30	2	-	-	-	-	-	-	-	2	3	4	5	52*	74	
	35	2	-	-	-	-	-	-	-	3	3	5	7	60**	91	
	40	2	-	-	-	-	-	-	1	3	4	4	10	70**	105	
	45	2	-	-	-	-	-	-	2	3	4	6	11	79**	118	
	50	2	-	-	-	-	-	-	2	4	4	8	12	86**	129	
	55	2	-	-	-	-	-	-	3	3	5	10	13	90***	142	
	60	2	-	-	-	-	-	1	3	3	7	10	15	91***	148	
	70	2	-	-	-	-	-	2	3	4	10	11	27	95***	170	
	80	2	-	-	-	-	-	2	4	8	9	19	31	98***	189	

Stop times include travel time from the previous stop except when a gas switch occurs.

Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

HELIUM-OXYGEN DIVING TABLES

 TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths											Decom. Time (min)	
			Air												
			140	130	120	110	100	90	80	70	60	50	40		
170	10	3	-	-	-	-	-	-	-	-	-	-	3	16	23
	15	2	-	-	-	-	-	-	-	-	1	3	4	25	36
	20	2	-	-	-	-	-	-	-	1	2	4	4	30*	49
	25	2	-	-	-	-	-	-	-	2	3	4	4	43*	64
	30	2	-	-	-	-	-	-	1	3	3	4	6	59*	84
	35	2	-	-	-	-	-	-	2	3	3	4	9	66**	100
	40	2	-	-	-	-	-	-	3	3	3	6	10	76**	114
	45	2	-	-	-	-	-	1	3	3	4	7	12	84**	127
	50	2	-	-	-	-	-	1	3	3	5	9	13	90***	142
	55	2	-	-	-	-	-	2	3	3	7	10	15	91***	149
	60	2	-	-	-	-	-	2	3	4	8	11	21	94***	161
	65	2	-	-	-	-	-	3	3	5	9	11	28	96***	173
	70	2	-	-	-	-	-	3	4	6	10	15	30	97***	183
	75	2	-	-	-	-	1	3	3	9	9	21	33	98***	195
180	5	3	-	-	-	-	-	-	-	-	-	-	-	6	10
	10	3	-	-	-	-	-	-	-	-	1	3	18	26	
	15	2	-	-	-	-	-	-	-	2	3	4	27	39	
	20	2	-	-	-	-	-	-	2	3	3	4	32*	52	
	25	2	-	-	-	-	-	-	1	3	3	4	3	50*	72
	30	2	-	-	-	-	-	-	2	3	3	4	8	60**	93
	35	2	-	-	-	-	-	1	2	3	4	4	10	72**	109
	40	2	-	-	-	-	-	2	2	3	4	7	11	82**	124
	45	2	-	-	-	-	-	2	3	3	4	9	12	90**	136
	50	2	-	-	-	-	-	3	3	3	6	10	15	90***	148
	55	2	-	-	-	-	1	3	3	4	7	11	20	94***	161
	60	2	-	-	-	-	1	3	3	5	9	11	28	96***	174
	65	2	-	-	-	-	2	3	3	7	9	16	31	98***	187
	70	2	-	-	-	-	2	3	4	8	10	21	35	99***	200
Stop times include travel time from the previous stop except when a gas switch occurs.															
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)															

TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths												Decom. Time (min)	
			Air													
			140	130	120	110	100	90	80	70	60	50	40	O ₂		
190	5	3	-	-	-	-	-	-	-	-	-	-	-	6	10	
	10	3	-	-	-	-	-	-	-	-	-	2	3	19	28	
	15	3	-	-	-	-	-	-	-	-	3	3	4	28	42	
	20	2	-	-	-	-	-	-	1	2	3	3	4	35*	56	
	25	2	-	-	-	-	-	-	2	3	3	3	6	55*	80	
	30	2	-	-	-	-	-	1	3	2	4	3	9	65**	100	
	35	2	-	-	-	-	-	2	3	3	3	6	10	77**	117	
	40	2	-	-	-	-	1	2	3	3	3	9	11	87**	132	
	45	2	-	-	-	-	1	3	3	3	6	9	14	90***	147	
	50	2	-	-	-	-	2	2	3	4	8	9	19	94***	159	
	55	2	-	-	-	-	2	3	3	5	9	11	26	97***	174	
	60	2	-	-	-	-	3	3	3	7	9	15	32	98***	188	
	65	2	-	-	-	1	2	3	4	8	10	21	36	99***	202	
200	5	3	-	-	-	-	-	-	-	-	-	-	-	6	10	
	10	3	-	-	-	-	-	-	-	-	2	4	20	30		
	15	3	-	-	-	-	-	-	-	1	3	3	4	30	45	
	20	2	-	-	-	-	-	-	2	2	3	4	3	41*	63	
	25	2	-	-	-	-	-	1	2	3	3	3	7	60**	92	
	30	2	-	-	-	-	-	2	3	3	3	4	10	71**	109	
	35	2	-	-	-	-	1	2	3	3	3	8	10	82**	125	
	40	2	-	-	-	-	2	2	3	3	5	9	12	90***	144	
	45	2	-	-	-	-	2	3	3	3	7	10	16	93***	155	
	50	2	-	-	-	1	2	3	3	5	8	10	25	96***	171	
	55	2	-	-	-	1	3	3	3	6	9	13	32	99***	187	
	60	2	-	-	-	2	2	3	4	8	9	21	36	100***	203	

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

HELIUM-OXYGEN DIVING TABLES

TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths											Decom. Time (min)	
			Air												
			140	130	120	110	100	90	80	70	60	50	40		
210	5	3	-	-	-	-	-	-	-	-	-	-	-	7	11
	10	3	-	-	-	-	-	-	-	-	1	3	3	22	33
	15	3	-	-	-	-	-	-	-	2	3	3	4	30*	51
	20	3	-	-	-	-	-	-	2	3	3	3	4	47*	71
	25	2	-	-	-	-	-	2	2	3	4	2	9	60**	95
	30	2	-	-	-	-	1	2	3	3	3	6	10	75**	116
	35	2	-	-	-	-	2	2	3	3	4	8	12	87**	134
	40	2	-	-	-	1	2	3	3	3	6	9	15	90***	150
	45	2	-	-	-	2	2	3	3	4	7	11	21	96***	167
	50	2	-	-	-	2	2	3	4	5	9	12	30	98***	183
220	5	4	-	-	-	-	-	-	-	-	-	-	-	7	12
	10	3	-	-	-	-	-	-	-	-	2	2	4	23	35
	15	3	-	-	-	-	-	-	1	2	3	3	4	30*	52
	20	3	-	-	-	-	-	1	3	2	3	3	5	52*	78
	25	2	-	-	-	-	1	2	3	2	3	4	9	66**	103
	30	2	-	-	-	-	2	2	3	3	3	7	10	80**	123
	35	2	-	-	-	1	2	3	3	3	4	9	13	90***	146
	40	2	-	-	-	2	2	3	3	3	7	10	18	94***	160
	45	2	-	-	1	2	2	3	3	5	8	11	27	98***	178
	50	2	-	-	1	2	3	3	3	7	9	16	35	100***	197
230	5	4	-	-	-	-	-	-	-	-	-	-	-	8	13
	10	3	-	-	-	-	-	-	-	-	2	3	4	24	37
	15	3	-	-	-	-	-	-	2	2	3	3	3	33*	55
	20	3	-	-	-	-	-	2	2	3	3	3	6	57*	85
	25	3	-	-	-	-	2	2	3	3	2	5	9	71**	111
	30	2	-	-	-	1	2	3	2	3	3	8	11	85**	131
	35	2	-	-	-	2	2	3	3	2	7	8	15	90***	150
	40	2	-	-	1	2	3	2	3	4	8	10	22	97***	170
	45	2	-	-	2	2	2	3	3	7	8	13	33	99***	190
	50	2	-	-	2	3	2	3	5	7	9	21	40	100***	210
Stop times include travel time from the previous stop except when a gas switch occurs. Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)															

DCIEM DIVING MANUAL

TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths												Decom. Time (min)	
			Air													
			140	130	120	110	100	90	80	70	60	50	40	30		
240	5	4	-	-	-	-	-	-	-	-	-	-	-	8	13	
	10	3	-	-	-	-	-	-	-	1	2	3	4	25	39	
	15	3	-	-	-	-	-	1	2	2	3	3	3	36*	59	
	20	3	-	-	-	-	1	2	2	3	3	3	7	60**	95	
	25	3	-	-	-	1	2	2	3	3	2	6	10	75**	118	
	30	3	-	-	-	2	2	3	2	3	4	9	12	89**	140	
	35	2	-	-	1	2	3	2	3	3	7	9	18	93***	159	
	40	2	-	-	2	2	3	2	3	5	8	12	27	98***	180	
	45	2	-	1	2	2	3	3	3	7	9	17	38	100***	203	
250	10	3	-	-	-	-	-	-	-	1	3	3	4	26	41	
	15	3	-	-	-	-	-	1	2	3	3	3	3	40*	64	
	20	3	-	-	-	-	2	2	2	3	3	3	8	61**	98	
	25	3	-	-	-	2	2	2	3	2	3	7	10	80**	125	
	30	3	-	-	1	2	2	3	3	2	6	8	14	90***	150	
	35	2	-	1	1	2	3	2	3	4	7	10	22	96***	169	
	40	2	-	1	2	2	3	3	2	7	8	13	34	99***	192	
	45	2	-	2	2	2	3	2	6	7	9	22	41	101***	215	
260	10	4	-	-	-	-	-	-	-	2	2	3	4	28	44	
	15	3	-	-	-	-	-	2	2	3	3	3	3	45*	70	
	20	3	-	-	-	1	2	2	2	3	3	3	9	65**	104	
	25	3	-	-	1	2	2	2	3	2	3	8	11	84**	132	
	30	3	-	1	1	2	2	3	2	3	7	8	16	91***	155	
	35	3	-	1	2	2	3	2	3	5	7	12	26	98***	180	
	40	2	1	1	2	3	2	3	4	6	9	16	39	100***	204	
270	10	4	-	-	-	-	-	-	1	2	2	3	4	29	46	
	15	3	-	-	-	-	1	2	2	3	3	2	5	49*	76	
	20	3	-	-	-	2	2	2	2	3	3	4	9	70**	111	
	25	3	-	-	2	2	2	2	3	2	4	8	12	88**	139	
	30	3	-	1	2	2	2	3	2	4	7	9	18	94***	163	
	35	3	1	1	2	2	3	2	3	6	8	13	31	99***	190	
	40	3	2	1	2	2	3	2	5	7	10	20	42	101***	216	

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths												Decom. Time (min)		
			Air														
			160	150	140	130	120	110	100	90	80	70	60	50	40		
280	10	4	-	-	-	-	-	-	-	-	1	2	3	3	3	30*	52
	15	3	-	-	-	-	-	-	2	2	2	2	3	3	6	53*	82
	20	3	-	-	-	-	1	2	2	2	2	3	2	6	9	74**	117
	25	3	-	-	-	1	2	2	2	3	2	5	8	13	90***	149	
	30	3	-	-	1	1	2	2	2	3	2	5	7	10	22	96***	172
	35	3	-	-	2	1	2	2	3	2	4	6	8	15	36	100***	200
	40	3	-	1	1	2	2	3	2	3	6	7	11	24	44	103***	228
290	10	4	-	-	-	-	-	-	-	2	2	3	3	3	3	30*	53
	15	3	-	-	-	-	-	1	1	2	3	2	3	3	6	57*	87
	20	3	-	-	-	-	2	1	2	2	3	2	3	7	9	78**	123
	25	3	-	-	-	2	1	2	2	3	2	3	6	8	15	90***	153
	30	3	-	-	1	2	2	2	3	2	5	8	11	26	98***	181	
	35	3	-	1	1	2	2	2	3	2	5	6	9	18	40	101***	211
300	10	4	-	-	-	-	-	-	1	2	2	2	4	3	3	30*	54
	15	4	-	-	-	-	-	1	2	2	2	3	2	4	7	60**	98
	20	3	-	-	-	1	1	2	2	2	3	2	3	7	11	81**	129
	25	3	-	-	1	1	2	2	2	3	2	3	7	8	17	92***	159
	30	3	-	1	1	2	2	2	2	3	6	8	13	31	99***	191	
	35	3	-	2	1	2	2	2	2	3	5	7	10	22	42	103***	222
310	10	4	-	-	-	-	-	-	1	2	2	3	3	3	3	31*	55
	15	4	-	-	-	-	-	2	2	2	2	3	2	3	9	60**	100
	20	3	-	-	-	1	2	2	2	2	3	3	3	8	11	85**	135
	25	3	-	-	2	1	2	2	2	3	3	7	10	19	94***	166	
	30	3	-	1	2	2	2	2	2	4	6	8	15	35	101***	201	
	35	3	1	1	2	2	2	2	2	3	6	7	12	26	44	104***	233

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

DCIEM DIVING MANUAL

TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths												Decom. Time (min)		
			Air														
			160	150	140	130	120	110	100	90	80	70	60	50	40		
320	10	4	-	-	-	-	-	-	-	2	2	2	3	3	3	34*	59
	15	4	-	-	-	-	1	2	1	2	3	2	3	3	9	63**	104
	20	3	-	-	1	1	2	2	2	2	2	3	4	8	12	88**	141
	25	3	-	1	1	2	2	2	2	2	2	5	7	10	23	96***	174
	30	3	1	1	2	2	1	3	2	2	4	7	9	17	39	102***	211
330	10	4	-	-	-	-	-	-	-	2	2	2	3	3	3	36*	61
	15	4	-	-	-	-	2	1	2	2	2	2	3	2	5	67**	110
	20	4	-	-	1	2	1	2	2	3	2	2	5	8	13	90***	151
	25	3	-	2	1	2	1	2	3	2	2	6	7	11	27	98***	183
	30	3	1	2	1	2	2	2	2	2	6	6	10	20	42	102***	219

Stop times include travel time from the previous stop except when a gas switch occurs.

Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

TABLE 8
SURFACE DECOMPRESSION
WITH OXYGEN (FEET)

The Department of National Defence (Canada), Defence and Civil Institute of Environmental Medicine (DCIEM), and Universal Dive Techtronics, Inc. (UDT) disclaim any and all responsibilities for the use of these tables and procedures.

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DCIEM DIVING MANUAL

TABLE 8: HEO₂ - SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths												Chamber O ₂	Decom. Time (min)				
			In-Water Stops																	
			Air											O ₂						
			140	130	120	110	100	90	80	70	60	50	40	30						
120	20	2	-	-	-	-	-	-	-	-	-	-	-	3	2	21	36			
	30	2	-	-	-	-	-	-	-	-	-	-	-	2	4	4	30*	54		
	40	2	-	-	-	-	-	-	-	-	-	-	-	4	5	8	50*	81		
	50	1	-	-	-	-	-	-	-	-	-	-	-	2	4	7	11	60**	103	
	60	1	-	-	-	-	-	-	-	-	-	-	-	3	4	11	12	71**	120	
	70	1	-	-	-	-	-	-	-	-	-	-	-	3	7	13	19	73**	134	
	75	1	-	-	-	-	-	-	-	-	-	-	-	4	9	13	29	71**	145	
	80	1	-	-	-	-	-	-	-	-	-	-	-	4	11	13	30*	71**	153	
	90	1	-	-	-	-	-	-	-	-	-	-	-	1	4	14	18	74**	170	
	100	1	-	-	-	-	-	-	-	-	-	-	-	2	8	13	24	76**	183	
130	15	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	17	31	
	20	2	-	-	-	-	-	-	-	-	-	-	-	-	1	4	2	23	40	
	30	2	-	-	-	-	-	-	-	-	-	-	-	1	3	4	6	35*	63	
	40	2	-	-	-	-	-	-	-	-	-	-	-	2	4	5	10	56*	91	
	50	2	-	-	-	-	-	-	-	-	-	-	-	3	5	9	11	67**	114	
	60	1	-	-	-	-	-	-	-	-	-	-	-	1	4	6	12	74**	132	
	70	1	-	-	-	-	-	-	-	-	-	-	-	2	4	10	13	73**	151	
	80	1	-	-	-	-	-	-	-	-	-	-	-	3	4	13	17	77**	168	
	90	1	-	-	-	-	-	-	-	-	-	-	-	3	10	11	25	76**	186	
	95	1	-	-	-	-	-	-	-	-	-	-	-	4	11	11	28	77**	193	
140	15	2	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	19	34	
	20	2	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	25	44	
	30	2	-	-	-	-	-	-	-	-	-	-	-	2	4	4	8	41*	74	
	40	2	-	-	-	-	-	-	-	-	-	-	-	1	3	4	7	60**	104	
	50	2	-	-	-	-	-	-	-	-	-	-	-	2	4	4	12	73**	126	
	60	2	-	-	-	-	-	-	-	-	-	-	-	3	4	9	12	74**	148	
	65	2	-	-	-	-	-	-	-	-	-	-	-	3	4	11	13	73**	158	
	70	1	-	-	-	-	-	-	-	-	-	-	-	1	3	5	12	14	77**	166
	80	1	-	-	-	-	-	-	-	-	-	-	-	1	4	9	11	77**	187	
	90	1	-	-	-	-	-	-	-	-	-	-	-	2	4	12	15	78**	202	

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

Time from leaving the 30 fsw in-water stop to reaching the
40 fsw chamber stop must not exceed 7 minutes

TABLE 8: HEO₂ - SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths												Decom. Time (min)		
			In-Water Stops														
			Air											O ₂			
			140	130	120	110	100	90	80	70	60	50	40	30			
190	10	3	-	-	-	-	-	-	-	-	-	2	3	2	18	36	
	15	3	-	-	-	-	-	-	-	-	-	3	3	4	29	51	
	20	2	-	-	-	-	-	-	1	2	3	3	4	7	39*	74	
	25	2	-	-	-	-	-	-	2	3	3	3	6	10	56*	98	
	30	2	-	-	-	-	-	1	3	2	4	3	9	11	66**	119	
	35	2	-	-	-	-	-	2	3	3	3	6	10	13	77**	137	
	40	2	-	-	-	-	1	2	3	3	3	9	11	27	76**	155	
	45	2	-	-	-	-	1	3	3	3	3	9	14	30*	78**	172	
	50	2	-	-	-	-	2	2	3	4	8	9	19	38*	79**	189	
	55	2	-	-	-	-	2	3	3	5	9	11	26	40*	80**	204	
	60	2	-	-	-	-	3	3	3	7	9	15	32	40*	82**	219	
	65	2	-	-	-	1	2	3	4	8	10	21	36	39*	85**	234	
200	10	3	-	-	-	-	-	-	-	-	-	2	4	2	19	38	
	15	3	-	-	-	-	-	-	-	1	3	3	4	3	30*	59	
	20	2	-	-	-	-	-	-	2	2	3	4	3	8	45*	82	
	25	2	-	-	-	-	-	1	2	3	3	3	7	10	60**	109	
	30	2	-	-	-	-	-	2	3	3	3	4	10	12	70**	127	
	35	2	-	-	-	-	-	1	2	3	3	3	8	10	22	77**	149
	40	2	-	-	-	-	2	2	3	3	5	9	12	30*	76**	167	
	45	2	-	-	-	-	2	3	3	3	7	10	16	37*	79**	185	
	50	2	-	-	-	1	2	3	3	3	8	10	25	39*	81**	202	
	55	2	-	-	-	1	3	3	3	6	9	13	32	40*	83**	218	
	60	2	-	-	-	2	2	3	4	8	9	21	36	40*	84**	234	
210	10	3	-	-	-	-	-	-	-	-	1	3	3	2	21	41	
	15	3	-	-	-	-	-	-	-	2	3	3	4	4	30*	62	
	20	3	-	-	-	-	-	-	2	3	3	3	4	9	49*	88	
	25	2	-	-	-	-	-	2	2	3	4	2	9	10	62**	114	
	30	2	-	-	-	-	1	2	3	3	3	6	10	13	75**	136	
	35	2	-	-	-	-	2	2	3	3	3	4	8	12	26	78**	158
	40	2	-	-	-	1	2	3	3	3	6	9	15	34*	80**	181	
	45	2	-	-	-	2	2	3	3	4	7	11	21	39*	80**	197	
	50	2	-	-	-	2	2	3	4	5	9	12	30	40*	82**	214	
	55	2	-	-	-	3	2	3	4	7	9	19	37	39*	85**	233	

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

Time from leaving the 30 fsw in-water stop to reaching the 40 fsw chamber stop must not exceed 7 minutes

HELIUM-OXYGEN DIVING TABLES

 TABLE 8: HEO₂ - SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths												Chamber O ₂	Decom. Time (min)		
			In-Water Stops															
			Air					O ₂										
			140	130	120	110	100	90	80	70	60	50	40	30				
220	10	3	-	-	-	-	-	-	-	-	2	2	4	2	22	43		
	15	3	-	-	-	-	-	-	1	2	3	3	4	5	32*	66		
	20	3	-	-	-	-	-	1	3	2	3	3	5	10	53*	95		
	25	2	-	-	-	-	1	2	3	2	3	4	9	11	67**	122		
	30	2	-	-	-	-	2	2	3	3	3	7	10	19	79**	148		
	35	2	-	-	-	1	2	3	3	3	4	9	13	30	78**	166		
	40	2	-	-	-	2	2	3	3	3	7	10	18	37*	80**	190		
	45	2	-	-	1	2	2	3	3	3	5	8	11	27	40*	82**	209	
	50	2	-	-	1	2	3	3	3	7	9	16	35	40*	84**	228		
	55	2	-	-	2	2	3	3	5	7	10	24	41	39*	88**	249		
230	10	3	-	-	-	-	-	-	-	-	2	3	4	2	24	46		
	15	3	-	-	-	-	-	-	2	2	3	3	3	7	34*	70		
	20	3	-	-	-	-	-	2	2	3	3	3	6	10	58*	103		
	25	3	-	-	-	-	2	2	3	3	2	5	9	12	71**	129		
	30	2	-	-	-	1	2	3	2	3	3	8	11	23	79**	155		
	35	2	-	-	-	2	2	3	3	2	7	8	15	34*	80**	181		
	40	2	-	-	1	2	3	2	3	4	8	10	22	39*	81**	200		
	45	2	-	-	2	2	2	3	3	7	8	13	33	40*	84**	222		
	50	2	-	-	2	3	2	3	5	7	9	21	40	39*	87**	243		
	10	3	-	-	-	-	-	-	1	2	3	4	2	25	48			
240	15	3	-	-	-	-	-	1	2	2	3	3	3	8	38*	76		
	20	3	-	-	-	-	1	2	2	3	3	3	7	10	60**	112		
	25	3	-	-	-	1	2	2	3	3	2	6	10	13	75**	137		
	30	3	-	-	-	2	2	3	2	3	4	9	12	27	79**	163		
	35	2	-	-	1	2	3	2	3	3	7	9	18	36*	81**	190		
	40	2	-	-	2	2	3	2	3	5	8	12	27	40*	82**	211		
	45	2	-	1	2	2	3	3	3	7	9	17	38	39*	87**	236		

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

Time from leaving the 30 fsw in-water stop to reaching the
40 fsw chamber stop must not exceed 7 minutes

TABLE 8: HEO₂ - SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths												Chamber O ₂	Decom. Time (min)		
			In-Water Stops															
			Air											O ₂				
			160	150	140	130	120	110	100	90	80	70	60	50	40	30		
250	10	3	-	-	-	-	-	-	-	-	-	1	3	3	4	2	27	51
	15	3	-	-	-	-	-	-	-	1	2	3	3	3	3	9	42*	82
	20	3	-	-	-	-	-	-	2	2	2	3	3	3	8	11	62**	117
	25	3	-	-	-	-	-	2	2	2	3	2	3	7	10	18	80**	150
	30	3	-	-	-	-	1	2	2	3	3	2	6	8	14	31*	81**	178
	35	2	-	-	1	1	2	3	2	3	4	7	10	22	38*	82**	200	
	40	2	-	-	1	2	2	3	3	2	7	8	13	34	39*	85**	224	
	45	2	-	-	2	2	2	3	2	6	7	9	22	41	39*	89**	249	
260	10	4	-	-	-	-	-	-	-	-	2	2	3	4	2	29	53	
	15	3	-	-	-	-	-	-	-	2	2	3	3	3	3	9	47*	88
	20	3	-	-	-	-	-	1	2	2	2	3	3	3	9	11	66**	123
	25	3	-	-	-	-	1	2	2	2	3	2	3	8	11	21	80**	156
	30	3	-	-	-	1	1	2	2	3	2	3	7	8	16	34*	81**	185
	35	3	-	-	-	1	2	2	3	2	3	5	7	12	26	39*	83**	210
	40	2	-	-	1	1	2	3	2	3	4	6	9	16	39	39*	87**	237
	10	4	-	-	-	-	-	-	-	1	2	2	3	4	2	30*	60	
270	15	3	-	-	-	-	-	-	1	2	2	3	3	2	5	9	52*	95
	20	3	-	-	-	-	-	2	2	2	2	3	3	4	9	12	70**	130
	25	3	-	-	-	-	2	2	2	2	3	2	4	8	12	25	80**	163
	30	3	-	-	-	1	2	2	2	3	2	4	7	9	18	36*	82**	194
	35	3	-	-	1	1	2	2	3	2	3	6	8	13	31	39*	85**	221
	40	3	-	-	2	1	2	2	3	2	5	7	10	20	42	39*	89**	249
	10	4	-	-	-	-	-	-	-	1	2	3	3	3	4	30	58	
	15	3	-	-	-	-	-	-	2	2	2	2	3	3	6	9	56*	101
280	20	3	-	-	-	-	1	2	2	2	2	3	2	6	9	13	73**	136
	25	3	-	-	-	1	2	2	2	2	3	2	5	8	13	28	81**	170
	30	3	-	-	1	1	2	2	2	3	2	5	7	10	22	38*	83**	204
	35	3	-	-	2	1	2	2	3	2	4	6	8	15	36	39*	87**	233
	40	3	-	1	1	2	2	3	2	3	6	7	11	24	44	39*	90***	265

Stop times include travel time from the previous stop except when a gas switch occurs.

Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

Time from leaving the 30 fsw in-water stop to reaching the
40 fsw chamber stop must not exceed 7 minutes

HELIUM-OXYGEN DIVING TABLES

 TABLE 8: HEO₂ - SURFACE DECOMPRESSION WITH OXYGEN (FEET)

Depth (fsw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths													Decom Time (min) 40		
			In-Water Stops															
			Air											O ₂	Surface Interval			
			160	150	140	130	120	110	100	90	80	70	60	50	40	30		
290	10	4	-	-	-	-	-	-	-	2	2	3	3	3	4	30*	64	
	15	3	-	-	-	-	-	1	1	2	3	2	3	3	6	10	59*	106
	20	3	-	-	-	-	2	1	2	2	3	2	3	7	9	17	79**	148
	25	3	-	-	-	2	1	2	2	3	2	3	6	8	15	31*	82**	183
	30	3	-	-	1	2	2	2	2	3	2	5	8	11	26	39*	84**	213
	35	3	-	1	1	2	2	2	3	2	5	6	9	18	40	39*	89**	245
300	10	4	-	-	-	-	-	-	1	2	2	2	4	3	5	30*	66	
	15	4	-	-	-	-	-	1	2	2	2	3	2	4	7	10	60**	114
	20	3	-	-	-	1	1	2	2	2	3	2	3	7	11	18	81**	154
	25	3	-	-	1	1	2	2	2	3	2	3	7	8	17	34*	82**	190
	30	3	-	1	1	2	2	2	2	3	6	8	13	31	31	39*	85**	223
	35	3	-	2	1	2	2	2	2	3	5	7	10	22	42	39*	90**	255
310	10	4	-	-	-	-	-	-	1	2	2	3	3	3	6	32*	69	
	15	4	-	-	-	-	-	2	2	2	2	3	2	3	9	10	62**	119
	20	3	-	-	-	1	2	2	2	2	3	3	3	8	11	21	82**	160
	25	3	-	-	2	1	2	2	2	2	3	3	7	10	19	36*	83**	198
	30	3	-	1	2	2	2	2	2	2	4	6	8	15	35	39*	87**	233
	35	3	1	1	2	2	2	2	2	3	6	7	12	26	44	39*	90***	270
320	10	4	-	-	-	-	-	-	2	2	2	3	3	3	7	35*	74	
	15	4	-	-	-	-	1	2	1	2	3	2	3	3	9	11	64**	123
	20	3	-	-	1	1	2	2	2	2	3	4	8	12	24	82**	166	
	25	3	-	1	1	2	2	2	2	2	5	7	10	23	37*	84**	206	
	30	3	1	1	2	2	1	3	2	2	4	7	9	17	39	39*	89**	244
330	10	4	-	-	-	-	-	-	2	2	2	3	3	3	7	38*	77	
	15	4	-	-	-	-	2	1	2	2	2	3	2	5	9	11	68**	129
	20	4	-	-	1	2	1	2	2	3	2	2	5	8	13	27	82**	171
	25	3	-	2	1	2	1	2	3	2	2	6	7	11	27	38*	85**	215
	30	3	1	2	1	2	2	2	2	2	6	6	10	20	42	39*	90**	253

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

Time from leaving the 30 fsw in-water stop to reaching the
40 fsw chamber stop must not exceed 7 minutes

DCIEM DIVING MANUAL

TABLE 9

EMERGENCY DECOMPRESSION (FEET)

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DCIEM DIVING MANUAL

TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Air	In-Water			Recompression Chamber									
			Air		Dec. Time (min)	Surf. Int.	O_2 40	Dec. Time (min)	Air				Dec. Time (min)		
			30	20					40	30	20	10			
120	20	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	4	7	21	37	Time from leaving the 30 fsw in-water stop to reaching the 40 fsw chamber stop must not exceed 7 minutes	21	38	Time from leaving the 30 fsw in-water stop to reaching the 40 fsw chamber stop must not exceed 7 minutes	3	4	7	21	51
	30		8	16	35	67		30*	58		4	8	16	35	86
	40		16	18	65	110		50*	89		5	16	18	65	138
	50		22	27	82	145		60**	114		7	22	27	82	181
	60		24	44	86	173		71**	132		11	24	44	86	215
	70		38	57	85	204		73**	153		13	38	57	85	262
	75		58	60	85	230		71**	174		13	58	60	85	308
	80		65	63	85	242		71**	183		13	65	63	85	327
	90		75	65	87	265		74**	205		18	75	65	87	365
	100		77	65	88	278		76**	219		24	77	65	88	386
130	15		4	5	18	31		17	33		2	4	5	18	44
	20		4	9	22	42		23	42		4	4	9	22	57
	30		12	15	45	82		35*	69		4	12	15	45	105
	40		20	21	74	128		56*	101		5	20	21	74	160
	50		22	37	85	163		67**	125		9	22	37	85	201
	60		32	55	86	197		74**	148		12	32	55	86	248
	70		60	63	87	240		73**	181		13	60	63	87	320
	80		65	65	88	256		77**	198		17	65	65	88	345
	90		79	64	90	283		76**	223		25	79	64	90	394
	95		81	65	90	291		77**	231		28	81	65	90	407
140	15		4	5	20	34		19	36		3	4	5	20	48
	20		6	11	24	49		25	47		3	6	11	24	65
	30		16	17	55	100		41*	82		4	16	17	55	127
	40		20	26	82	145		60**	114		7	20	26	82	179
	50		24	48	86	182		73**	138		12	24	48	86	225
	60		54	62	87	233		74**	175		12	54	62	87	305
	65		65	65	87	250		73**	188		13	65	65	87	334
	70		65	65	89	255		77**	196		14	65	65	89	341
	80		79	65	91	285		77**	224		24	79	65	91	395
	90		83	65	93	303		78**	241		28	83	65	93	421

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Air	In-Water			Recompression Chamber									
			Air		Dec. Time (min)	Surf. Int.	O ₂ 40	Dec. Time (min)	Surf. Int.	Air			Dec. Time (min)		
			30	20	10					40	30	20			
150	10	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	4	5	13	25	Time from leaving the 30 fsw in-water stop to reaching the 40 fsw chamber stop must not exceed 7 minutes	12	27	Time from leaving the 30 fsw in-water stop to reaching the 40 fsw chamber stop must not exceed 7 minutes	1	4	5	13	37
	15		4	7	20	38		21	40		3	4	7	20	52
	20		4	12	28	54		29	51		4	4	12	28	69
	25		12	15	45	84		34*	71		4	12	15	45	107
	30		18	18	65	115		48*	93		4	18	18	65	144
	35		20	25	78	140		60*	110		6	20	25	78	173
	40		22	34	85	162		64**	125		9	22	34	85	200
	45		24	46	87	181		72**	138		11	24	46	87	223
	50		30	56	87	201		76**	151		12	30	56	87	250
	55		54	63	87	235		75**	177		12	54	63	87	308
	60		65	65	89	254		74**	191		13	65	65	89	339
	70		79	65	91	283		77**	221		21	79	65	91	389
	80		83	65	94	304		79**	241		28	83	65	94	422
	85		85	66	95	315		79**	251		30	85	66	95	437
160	10	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	4	5	15	28		14	30		2	4	5	15	41
	15		4	9	21	42		23	43		3	4	9	21	56
	20		6	14	32	63		30*	60		4	6	14	32	80
	25		16	16	54	99		39*	81		4	16	16	54	126
	30		18	21	73	128		54*	101		5	18	21	73	158
	35		20	30	84	154		61**	119		7	20	30	84	188
	40		24	43	87	178		70**	136		10	24	43	87	219
	45		26	55	87	196		78**	150		11	26	55	87	240
	50		52	63	88	235		76**	178		12	52	63	88	306
	55		65	65	89	255		75**	194		13	65	65	89	340
	60		69	66	90	266		78**	205		15	69	66	90	357
	70		83	66	94	302		79**	238		27	83	66	94	418
	80		85	66	98	324		81**	258		31	85	66	98	447

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

HELIUM-OXYGEN DIVING TABLES

TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)		In-Water			Recompression Chamber									
			Air		Dec. Time (min)	Surf. Int.	O_2	Dec. Time (min)	Air				Dec. Time (min)		
			30	20			40		40	30	20	10			
170	10	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	4	5	16	31	Time from leaving the 30 fsw in-water stop to reaching the 40 fsw chamber stop must not exceed 7 minutes	15	32	Time from leaving the 30 fsw in-water stop to reaching the 40 fsw chamber stop must not exceed 7 minutes	3	4	5	16	45
	15		4	10	23	47		25	47		4	4	10	23	62
	20		10	14	40	77		30*	66		4	10	14	40	98
	25		16	17	63	111		46*	90		4	16	17	63	138
	30		20	26	79	144		60*	112		6	20	26	79	177
	35		22	38	86	169		67**	130		9	22	38	86	207
	40		26	52	87	192		75**	146		10	26	52	87	235
	45		50	62	88	232		76**	176		12	50	62	88	301
	50		65	65	90	256		75**	194		13	65	65	90	341
	55		67	66	91	266		79**	206		15	67	66	91	355
	60		81	66	93	291		79**	229		21	81	66	93	400
	65		83	66	95	305		80**	242		28	83	66	95	423
	70		85	66	97	318		81**	254		30	85	66	97	440
	75		85	67	100	333		82**	265		33	85	67	100	458
180	10		4	5	17	33		16	34		3	4	5	17	47
	15		4	11	26	52		27	50		4	4	11	26	67
	20		12	15	47	88		34*	73		4	12	15	47	111
	25		20	20	71	127		51*	100		3	20	20	71	157
	30		20	31	83	156		61**	121		8	20	31	83	191
	35		24	46	87	183		72**	140		10	24	46	87	224
	40		42	59	88	220		77**	168		11	42	59	88	280
	45		60	65	90	250		76**	189		12	60	65	90	329
	50		65	66	92	265		80**	205		15	65	66	92	352
	55		83	66	94	294		78**	230		20	83	66	94	404
	60		83	66	96	307		80**	243		28	83	66	96	425
	65		85	67	99	324		82**	258		31	85	67	99	447
	70		83	68	101	337		84**	270		35	83	68	101	462

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Air	In-Water				Recompression Chamber								
			Air		Dec. Time (min)		Surf. Int.	O ₂ 40	Dec. Time (min)	Surf. Int.	Air				Dec. Time (min)
			30	20	10						40	30	20	10	
190	10	Decompression in accordance with In-Water Oxygen Tables or Surface Decompression with Oxygen Tables	4	4	19	35	Time from leaving the 30 fsw in-water stop to reaching the 40 fsw chamber stop must not exceed 7 minutes	18	38	Time from leaving the 30 fsw in-water stop to reaching the 40 fsw chamber stop must not exceed 7 minutes	3	4	4	19	49
	15		4	13	28	58		29	53		4	4	13	28	72
	20		14	16	55	100		39*	81		4	14	16	55	125
	25		20	23	77	139		56*	108		6	20	23	77	172
	30		22	38	86	170		66**	130		9	22	38	86	208
	35		26	54	88	197		77**	150		10	26	54	88	240
	40		54	63	90	241		76**	182		11	54	63	90	313
	45		65	66	92	264		78**	202		14	65	66	92	350
	50		81	67	93	290		79**	227		19	81	67	93	397
	55		85	67	96	309		80**	244		26	85	67	96	427
	60		85	67	100	326		82**	259		32	85	67	100	450
	65		83	68	103	341		85**	273		36	83	68	103	467
200	10		4	4	20	37		19	40		4	4	4	20	52
	15		6	14	32	66		30*	62		4	6	14	32	82
	20		16	17	62	111		45*	90		3	16	17	62	137
	25		20	28	81	150		60**	119		7	20	28	81	184
	30		24	45	88	184		70**	139		10	24	45	88	225
	35		44	59	89	224		77**	171		10	44	59	89	285
	40		65	65	91	259		76**	197		12	65	65	91	343
	45		79	67	93	285		79**	222		16	79	67	93	387
	50		83	67	96	305		81**	241		25	83	67	96	420
	55		85	68	99	324		83**	258		32	85	68	99	448
	60		85	69	103	344		84**	274		36	85	69	103	472
210	10		4	6	20	40		21	43		3	4	6	20	54
	15		8	14	38	75		30*	66		4	8	14	38	94
	20		18	19	68	123		49*	97		4	18	19	68	152
	25		20	34	84	162		62**	124		9	20	34	84	198
	30		26	52	88	196		75**	149		10	26	52	88	239
	35		52	63	90	241		78**	184		12	52	63	90	312
	40		73	66	93	276		80**	215		15	73	66	93	371
	45		83	67	96	301		80**	236		21	83	67	96	412
	50		85	67	100	321		82**	254		30	85	67	100	443
	55		83	69	103	341		85**	272		37	83	69	103	468

Stop times include travel time from the previous stop except when a gas switch occurs.

Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

HELIUM-OXYGEN DIVING TABLES

 TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Air	In-Water			Recompression Chamber								
			Air		Dec. Time (min)	Surf. Int.	O₂ 40	Dec. Time (min)	Air				Dec. Time (min)	
			30	20					40	30	20	10		
220	10	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	4	8	21	44	22	45	Time from leaving the 30 fsw in-water stop to reaching the 40 fsw chamber stop must not exceed 7 minutes	4	4	8	21	59
	15		10	14	44	84	32*	71		4	10	14	44	105
	20		20	22	74	136	53*	105		5	20	22	74	168
	25		22	40	86	174	67**	133		9	22	40	86	212
	30		38	57	89	216	79**	167		10	38	57	89	271
	35		60	65	92	257	78**	196		13	60	65	92	337
	40		79	67	95	291	80**	227		18	79	67	95	395
	45		85	67	99	315	82**	249		27	85	67	99	434
	50		85	68	103	337	84**	268		35	85	68	103	464
	55		83	70	107	359	88**	288		41	83	70	107	490
230	10		4	9	22	47	24	48		4	4	9	22	62
	15		14	15	50	95	34*	77		3	14	15	50	119
	20		20	25	79	146	58*	113		6	20	25	79	179
	25		24	46	88	187	71**	141		9	24	46	88	226
	30		46	61	91	233	79**	178		11	46	61	91	297
	35		73	66	94	277	80**	215		15	73	66	94	372
	40		83	67	97	304	81**	239		22	83	67	97	416
	45		85	69	101	330	84**	262		33	85	69	101	455
	50		83	70	106	353	87**	282		40	83	70	106	483
	10		4	10	24	51	25	50		4	4	10	24	66
240	15		16	16	56	105	38*	84		3	16	16	56	131
	20		20	29	82	155	60**	122		7	20	29	82	189
	25		26	52	89	199	75**	150		10	26	52	89	241
	30		54	64	92	250	79**	190		12	54	64	92	323
	35		77	67	95	289	81**	226		18	77	67	95	391
	40		85	68	99	318	82**	251		27	85	68	99	437
	45		83	70	105	345	87**	275		38	83	70	105	473

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

DCIEM DIVING MANUAL

TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)		Air	In-Water			Recompression Chamber								
				Air		Dec. Time (min)	Surf. Int.	O ₂ 40	Dec. Time (min)	Surf. Int.	Air				Dec. Time (min)
				30	20						40	30	20	10	
250	10	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	4	11	26	55	Time from leaving the 30 fsw in-water stop to reaching the 40 fsw chamber stop must not exceed 7 minutes	27	53	Time from leaving the 30 fsw in-water stop to reaching the 40 fsw chamber stop must not exceed 7 minutes	4	4	11	26	70
	15		18	17	62	115		42*	91		3	18	17	62	143
	20		22	34	85	167		62**	128		8	22	34	85	204
	25		36	57	89	216		80**	168		10	36	57	89	269
	30		67	65	94	270		81**	209		14	67	65	94	357
	35		81	67	98	303		82**	238		22	81	67	98	413
	40		83	69	102	331		85**	263		34	83	69	102	455
	45		83	71	108	360		89**	288		41	83	71	108	491
260	10		4	12	27	58		29	55		4	4	12	27	73
	15		18	19	67	123		47*	97		3	18	19	67	151
	20		22	39	87	176		66**	134		9	22	39	87	214
	25		42	61	91	231		80**	177		11	42	61	91	291
	30		73	67	95	283		81**	219		16	73	67	95	378
	35		83	68	100	317		83**	249		26	83	68	100	433
	40		83	70	106	347		87**	276		39	83	70	106	476
	10		4	13	30	63		30*	62		4	4	13	30	78
270	15		18	21	72	132		52*	104		5	18	21	72	162
	20		24	46	88	188		70**	142		9	24	46	88	228
	25		50	63	92	245		80**	188		12	50	63	92	314
	30		77	67	97	294		82**	230		18	77	67	97	396
	35		83	69	102	329		85**	260		31	83	69	102	450
	40		83	71	109	362		89**	288		42	83	71	109	494
	10		8	14	33	71		30	62		3	8	14	33	89
	15		18	24	76	141		56*	110		6	18	24	76	172
280	20		26	51	89	198		73**	149		9	26	51	89	240
	25		56	65	93	257		81**	198		13	56	65	93	333
	30		81	67	99	307		83**	242		22	81	67	99	417
	35		83	70	105	342		87**	272		36	83	70	105	468
	40		83	73	112	377		90***	304		44	83	73	112	511

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

HELIUM-OXYGEN DIVING TABLES

TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (FEET)

Depth (fsw)	Bottom Time (min)	Air	In-Water				Recompression Chamber								
			Air		Dec. Time (min)	Surf. Int.	O ₂ 40	Dec. Time (min)	Surf. Int.	Air				Dec. Time (min)	
			30	20	10					40	30	20	10		
290	10		8	14	37	76		30*	68		3	8	14	37	94
	15		20	26	80	150		59*	116		6	20	26	80	183
	20		34	54	90	212		79**	165		9	34	54	90	262
	25		67	66	95	275		82**	214		15	67	66	95	364
	30		83	68	101	319		84**	252		26	83	68	101	435
	35		83	71	108	356		89**	284		40	83	71	108	486
300	10		10	15	41	84		30*	71		3	10	15	41	104
	15		20	30	82	159		60**	124		7	20	30	82	193
	20		36	58	91	222		81**	172		11	36	58	91	276
	25		73	67	96	287		82**	224		17	73	67	96	384
	30		83	69	104	332		85**	262		31	83	69	104	453
	35		83	72	111	369		90**	294		42	83	72	111	501
310	10		12	14	46	90		32*	75		3	12	14	46	112
	15		20	34	85	168		62**	129		9	20	34	85	204
	20		42	61	92	234		82**	181		11	42	61	92	294
	25		77	67	99	299		83**	234		19	77	67	99	402
	30		83	70	106	343		87**	272		35	83	70	106	468
	35		83	74	113	383		90***	309		44	83	74	113	517
320	10		14	15	51	99		35*	81		3	14	15	51	123
	15		22	38	86	176		64**	134		9	22	38	86	214
	20		48	63	93	246		82**	190		12	48	63	93	313
	25		79	68	100	309		84**	243		23	79	68	100	418
	30		83	72	108	356		89**	283		39	83	72	108	485
	10		14	16	54	103		38*	84		3	14	16	54	127
330	15		22	42	88	184		68**	140		9	22	42	88	222
	20		54	65	94	258		82**	198		13	54	65	94	331
	25		81	69	102	321		85**	253		27	81	69	102	436
	30		83	72	111	367		90**	292		42	83	72	111	499
	Stop times include travel time from the previous stop except when a gas switch occurs. Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)														

DCIEM DIVING MANUAL

APPENDIX B

DCIEM HEO₂ DIVING TABLES (METRES)

DCIEM DIVING MANUAL

TABLE 6

HEO₂ ABORT (METRES)

The Department of National Defence (Canada), Defence and Civil Institute of Environmental Medicine (DCIEM), and Universal Dive Techtronics, Inc. (UDT) disclaim any and all responsibilities for the use of these tables and procedures.

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DCIEM DIVING MANUAL

HELIOX-OXYGEN DIVING TABLES

TABLE 6: HEO₂ - ABORT TABLE (METRES)

Depth (msw)	Bottom Time (min)	Max Time to 1st Stop (min)	Stop Times (min) at Different Depths (msw)								Decom. Time (min)
			Air								
9	55	1	-	-	-	-	-	-	-	-	1
12	20	1	-	-	-	-	-	-	-	-	1
	30	1	-	-	-	-	-	-	-	3	4
	40	1	-	-	-	-	-	-	-	12	13
	13	1	-	-	-	-	-	-	-	-	1
15	20	1	-	-	-	-	-	-	-	4	5
	30	1	-	-	-	-	-	-	-	12	13
	10	1	-	-	-	-	-	-	-	-	1
18	20	1	-	-	-	-	-	-	-	7	8
	25	1	-	-	-	-	-	-	-	2	13
	30	1	-	-	-	-	-	-	3	16	20
	8	2	-	-	-	-	-	-	-	-	2
21	12	1	-	-	-	-	-	-	-	5	6
	20	1	-	-	-	-	-	-	3	11	15
	30	1	-	-	-	-	-	-	6	19	26
	6	2	-	-	-	-	-	-	-	-	2
24	10	2	-	-	-	-	-	-	-	6	8
	15	1	-	-	-	-	-	-	3	7	11
	20	1	-	-	-	-	-	-	5	14	20
	25	1	-	-	-	-	-	-	7	18	26
	5	2	-	-	-	-	-	-	-	-	2
27	10	2	-	-	-	-	-	-	-	8	10
	15	2	-	-	-	-	-	-	5	10	17
	20	1	-	-	-	-	-	2	6	16	25
	5	2	-	-	-	-	-	-	-	-	2
30	10	2	-	-	-	-	-	-	3	7	12
	15	2	-	-	-	-	-	2	5	13	22
	5	2	-	-	-	-	-	-	-	-	2
33	10	2	-	-	-	-	-	-	4	7	13
	15	2	-	-	-	-	-	3	6	14	25
	5	2	-	-	-	-	-	-	-	-	2
36	10	2	-	-	-	-	-	-	6	7	15
	(Dated 91-04-10)										

DCIEM DIVING MANUAL

TABLE 7

IN-WATER OXYGEN DECOMPRESSION (METRES)

The Department of National Defence (Canada), Defence and Civil Institute of Environmental Medicine (DCIEM), and Universal Dive Techtronics, Inc. (UDT) disclaim any and all responsibilities for the use of these tables and procedures.

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DCIEM DIVING MANUAL

TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)												Decom. Time (min)		
			Air														
			42	39	36	33	30	27	24	21	18	15	12	9			
36	10	2	-	-	-	-	-	-	-	-	-	-	-	-	6	9	
	20	2	-	-	-	-	-	-	-	-	-	-	-	-	3	21	27
	30	2	-	-	-	-	-	-	-	-	-	2	4	30*	44		
	40	2	-	-	-	-	-	-	-	-	-	4	4	45*	61		
	50	1	-	-	-	-	-	-	-	-	1	4	7	60**	84		
	60	1	-	-	-	-	-	-	-	-	2	5	11	70**	100		
	70	1	-	-	-	-	-	-	-	-	3	7	13	80**	115		
	75	1	-	-	-	-	-	-	-	-	4	8	13	84**	121		
	80	1	-	-	-	-	-	-	-	-	4	11	13	87**	127		
	90	1	-	-	-	-	-	-	-	1	4	13	17	90***	142		
39	10	2	-	-	-	-	-	-	-	-	-	-	-	-	7	10	
	20	2	-	-	-	-	-	-	-	-	-	1	4	23	31		
	30	2	-	-	-	-	-	-	-	-	1	3	4	30*	46		
	40	2	-	-	-	-	-	-	-	-	2	4	5	53*	72		
	50	2	-	-	-	-	-	-	-	-	3	4	10	65**	95		
	60	1	-	-	-	-	-	-	-	1	4	5	13	77**	112		
	70	1	-	-	-	-	-	-	-	2	4	10	12	86**	126		
	80	1	-	-	-	-	-	-	-	3	4	13	16	90***	143		
	90	1	-	-	-	-	-	-	-	3	9	12	24	90***	155		
	95	1	-	-	-	-	-	-	-	4	10	12	27	90***	160		
42	10	2	-	-	-	-	-	-	-	-	-	-	-	-	9	12	
	15	2	-	-	-	-	-	-	-	-	-	-	-	-	3	19	25
	20	2	-	-	-	-	-	-	-	-	-	2	4	25	34		
	30	2	-	-	-	-	-	-	-	-	2	4	4	37*	55		
	40	2	-	-	-	-	-	-	-	1	3	4	7	60*	83		
	50	2	-	-	-	-	-	-	-	2	4	4	11	72**	106		
	60	2	-	-	-	-	-	-	-	3	4	8	12	84**	124		
	65	2	-	-	-	-	-	-	-	3	4	11	12	88**	131		
	70	1	-	-	-	-	-	-	1	3	5	11	14	90***	141		
	80	1	-	-	-	-	-	-	1	4	9	11	23	90***	155		
	90	1	-	-	-	-	-	-	2	4	12	14	28	92***	169		
Stop times include travel time from the previous stop except when a gas switch occurs. Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)																	

TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)											Decom. Time (min)		
			Air													
			42	39	36	33	30	27	24	21	18	15	12	9		
45	10	2	-	-	-	-	-	-	-	-	-	-	1	12	16	
	15	2	-	-	-	-	-	-	-	-	-	-	1	4	21	29
	20	2	-	-	-	-	-	-	-	-	1	3	4	27	38	
	25	2	-	-	-	-	-	-	-	-	2	4	4	30*	48	
	30	2	-	-	-	-	-	-	-	1	3	3	4	44*	63	
	35	2	-	-	-	-	-	-	-	2	3	4	6	57*	80	
	40	2	-	-	-	-	-	-	-	2	4	4	8	62**	93	
	45	2	-	-	-	-	-	-	-	3	4	4	11	70**	105	
	50	2	-	-	-	-	-	-	1	3	4	6	11	78**	116	
	55	2	-	-	-	-	-	-	1	3	4	9	11	84**	125	
	60	2	-	-	-	-	-	-	2	3	4	10	13	89**	134	
	70	2	-	-	-	-	-	-	2	4	8	11	19	90***	152	
	80	2	-	-	-	-	-	-	3	4	11	13	28	93***	170	
	85	1	-	-	-	-	-	1	3	6	11	16	29	94***	177	
48	10	2	-	-	-	-	-	-	-	-	-	-	2	14	19	
	15	2	-	-	-	-	-	-	-	-	-	-	2	4	23	32
	20	2	-	-	-	-	-	-	-	-	2	3	4	30	42	
	25	2	-	-	-	-	-	-	-	1	3	3	4	34*	53	
	30	2	-	-	-	-	-	-	-	2	3	4	4	51*	72	
	35	2	-	-	-	-	-	-	-	3	3	4	8	60**	91	
	40	2	-	-	-	-	-	-	1	3	4	3	11	68**	103	
	45	2	-	-	-	-	-	-	2	3	4	6	10	77**	115	
	50	2	-	-	-	-	-	-	2	4	3	9	11	84**	126	
	55	2	-	-	-	-	-	-	3	3	4	10	13	89**	135	
	60	2	-	-	-	-	-	1	3	3	7	10	14	90***	146	
	70	2	-	-	-	-	-	1	4	3	10	11	26	93***	166	
	80	2	-	-	-	-	-	2	4	7	10	18	30	96***	185	

Stop times include travel time from the previous stop except when a gas switch occurs.

Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

HELIUM-OXYGEN DIVING TABLES

 TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)												Decom. Time (min)		
			Air														
			42	39	36	33	30	27	24	21	18	15	12	9			
51	10	3	-	-	-	-	-	-	-	-	-	-	3	16	23		
	15	2	-	-	-	-	-	-	-	-	1	3	3	25	35		
	20	2	-	-	-	-	-	-	1	2	4	4	30*	49			
	25	2	-	-	-	-	-	-	2	3	4	3	41*	61			
	30	2	-	-	-	-	-	1	3	3	4	6	57*	82			
	35	2	-	-	-	-	-	2	3	3	4	9	64**	98			
	40	2	-	-	-	-	-	2	4	3	6	10	74**	112			
	45	2	-	-	-	-	-	1	2	4	4	7	11	83**	125		
	50	2	-	-	-	-	-	1	3	3	5	9	12	89**	135		
	55	2	-	-	-	-	-	2	3	3	7	9	15	90***	147		
	60	2	-	-	-	-	-	2	3	4	8	10	21	92***	158		
	65	2	-	-	-	-	-	3	3	4	10	11	27	94***	170		
	70	2	-	-	-	-	-	3	3	7	9	15	30	95***	180		
54	5	3	-	-	-	-	-	-	-	-	-	-	-	5	9		
	10	3	-	-	-	-	-	-	-	-	1	3	17	25			
	15	2	-	-	-	-	-	-	-	2	3	4	26	38			
	20	2	-	-	-	-	-	-	2	3	3	4	30*	50			
	25	2	-	-	-	-	-	-	1	3	3	3	4	48*	70		
	30	2	-	-	-	-	-	-	2	3	3	4	7	60**	92		
	35	2	-	-	-	-	-	1	2	3	4	4	10	70**	107		
	40	2	-	-	-	-	-	1	3	3	4	7	10	80**	121		
	45	2	-	-	-	-	-	2	3	3	4	9	12	88**	134		
	50	2	-	-	-	-	-	3	3	3	6	10	14	90***	147		
	55	2	-	-	-	-	-	1	2	3	4	8	10	20	92***	158	
	60	2	-	-	-	-	-	1	3	3	5	9	11	26	95***	171	
	65	2	-	-	-	-	-	2	3	3	7	9	15	30	97***	184	
	70	2	-	-	-	-	-	2	3	3	9	9	21	34	97***	196	

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)											Decom. Time (min)	
			Air												
			42	39	36	33	30	27	24	21	18	15	12	9	
57	5	3	-	-	-	-	-	-	-	-	-	-	-	6	10
	10	3	-	-	-	-	-	-	-	-	-	2	3	19	28
	15	3	-	-	-	-	-	-	-	-	3	3	4	28	42
	20	2	-	-	-	-	-	-	-	3	3	3	4	34*	55
	25	2	-	-	-	-	-	-	2	3	3	3	6	53*	78
	30	2	-	-	-	-	-	1	2	3	4	3	9	63**	98
	35	2	-	-	-	-	-	2	3	3	3	6	10	75**	115
	40	2	-	-	-	-	-	3	3	3	3	9	11	85**	130
	45	2	-	-	-	-	1	3	3	3	5	9	14	90***	146
	50	2	-	-	-	-	2	2	3	4	7	10	18	92***	156
	55	2	-	-	-	-	2	3	3	5	8	11	25	95***	170
	60	2	-	-	-	-	3	3	3	7	8	15	30	97***	184
60	65	2	-	-	-	1	2	3	4	8	9	21	35	97***	198
	5	3	-	-	-	-	-	-	-	-	-	-	-	6	10
	10	3	-	-	-	-	-	-	-	-	-	2	4	20	30
	15	3	-	-	-	-	-	-	-	1	3	3	4	29	44
	20	2	-	-	-	-	-	-	1	3	3	3	4	39*	61
	25	2	-	-	-	-	-	1	2	3	3	3	7	59*	86
	30	2	-	-	-	-	-	2	3	2	4	4	10	68**	106
	35	2	-	-	-	-	1	2	3	3	3	7	11	80**	123
	40	2	-	-	-	-	2	2	3	3	5	8	13	89**	138
	45	2	-	-	-	-	2	3	3	3	7	9	16	91***	152
	50	2	-	-	-	1	2	3	3	4	8	11	23	95***	168
	55	2	-	-	-	1	3	3	3	6	9	12	31	97***	183
	60	2	-	-	-	2	2	3	4	8	9	19	36	98***	199

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

HELIUM-OXYGEN DIVING TABLES

 TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)												Decom. Time (min)
			Air											O ₂	
			42	39	36	33	30	27	24	21	18	15	12	9	
63	5	3	-	-	-	-	-	-	-	-	-	-	-	7	11
	10	3	-	-	-	-	-	-	-	-	1	2	4	21	32
	15	3	-	-	-	-	-	-	-	2	3	3	4	30*	51
	20	3	-	-	-	-	-	-	2	3	3	3	4	45*	69
	25	2	-	-	-	-	-	2	2	3	3	3	8	60**	94
	30	2	-	-	-	-	1	2	3	3	3	5	10	74**	114
	35	2	-	-	-	-	2	2	3	3	3	9	11	85**	131
	40	2	-	-	-	1	2	3	2	3	6	9	15	90***	149
	45	2	-	-	-	1	3	2	3	4	8	10	20	94***	163
	50	2	-	-	-	2	2	3	3	6	8	12	29	97***	180
66	55	2	-	-	-	2	3	3	3	8	9	18	35	98***	197
	5	4	-	-	-	-	-	-	-	-	-	-	-	7	12
	10	3	-	-	-	-	-	-	-	-	1	3	4	22	34
	15	3	-	-	-	-	-	-	1	2	3	3	4	30*	52
	20	3	-	-	-	-	-	1	2	3	3	3	5	50*	76
	25	2	-	-	-	-	1	2	3	2	3	4	9	63**	100
	30	2	-	-	-	-	2	2	3	3	3	7	10	78**	121
	35	2	-	-	-	1	2	3	2	3	5	9	12	89**	139
	40	2	-	-	-	2	2	3	3	2	8	9	17	92***	156
	45	2	-	-	1	2	2	3	3	5	8	11	25	96***	174
69	50	2	-	-	1	2	3	3	3	7	9	15	34	98***	193
	55	2	-	-	2	2	3	3	5	7	10	23	39	99***	211
	5	4	-	-	-	-	-	-	-	-	-	-	-	7	12
	10	3	-	-	-	-	-	-	-	-	2	3	3	24	36
	15	3	-	-	-	-	-	-	2	2	3	3	3	32*	54
	20	3	-	-	-	-	-	2	2	3	3	3	6	55*	83
	25	3	-	-	-	-	2	2	2	3	3	5	9	68**	108
	30	2	-	-	-	1	2	3	2	3	3	8	11	83**	129
	35	2	-	-	-	2	2	3	3	2	6	9	14	90***	149
	40	2	-	-	1	2	2	3	3	4	8	10	21	95***	167
	45	2	-	-	2	2	2	3	3	6	8	13	31	98***	186
	50	2	-	-	2	2	3	3	4	8	9	20	38	99***	206
Stop times include travel time from the previous stop except when a gas switch occurs.															
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)															

DCIEM DIVING MANUAL

TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)											Decom. Time (min)	
			Air												
			42	39	36	33	30	27	24	21	18	15	12	9	
72	5	4	-	-	-	-	-	-	-	-	-	-	-	8	13
	10	3	-	-	-	-	-	-	-	1	2	3	4	25	39
	15	3	-	-	-	-	-	1	2	2	3	3	3	35*	58
	20	3	-	-	-	-	1	2	2	3	3	3	7	59*	89
	25	3	-	-	-	1	2	2	3	3	2	6	9	73**	115
	30	3	-	-	-	2	2	2	3	3	4	8	12	87**	137
	35	2	-	-	1	2	2	3	3	2	8	9	16	91***	155
	40	2	-	-	2	2	2	3	3	5	8	11	26	97***	177
	45	2	-	1	2	2	3	3	3	7	9	15	37	99***	199
75	10	3	-	-	-	-	-	-	-	1	3	3	3	26	40
	15	3	-	-	-	-	-	1	2	3	3	3	3	38*	62
	20	3	-	-	-	-	2	2	2	3	3	3	8	60**	97
	25	3	-	-	-	2	2	2	3	2	3	7	10	78**	123
	30	3	-	-	1	2	2	3	3	2	5	9	13	90***	149
	35	3	-	-	2	2	2	3	3	4	7	10	20	94***	166
	40	2	-	1	2	2	3	3	2	7	8	13	32	98***	189
	45	2	-	2	2	2	3	2	5	7	10	20	40	100***	211
78	10	4	-	-	-	-	-	-	-	2	2	3	4	27	43
	15	3	-	-	-	-	-	2	2	3	3	2	4	43*	68
	20	3	-	-	-	1	2	2	2	3	3	3	9	63**	102
	25	3	-	-	1	2	2	2	3	2	3	8	10	82**	129
	30	3	-	-	2	2	2	3	2	3	6	9	15	90***	153
	35	3	-	1	2	2	2	3	2	6	7	11	24	96***	175
	40	2	1	1	2	2	3	2	4	7	8	16	37	99***	200
81	10	4	-	-	-	-	-	-	-	2	3	3	3	29	45
	15	3	-	-	-	-	1	2	2	2	4	2	5	47*	74
	20	3	-	-	-	2	1	3	2	3	2	5	9	67**	108
	25	3	-	-	2	1	3	2	3	2	4	8	11	86**	136
	30	3	-	1	2	2	2	3	2	3	7	9	18	92***	160
	35	3	1	1	2	2	3	2	3	6	8	12	30	97***	186
	40	3	1	2	2	2	3	2	5	7	9	19	41	100***	212

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

HELIUM-OXYGEN DIVING TABLES

 TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)													Decom . Time (min)	
			Air														
			48	45	42	39	36	33	30	27	24	21	18	15	12		
84	10	4	-	-	-	-	-	-	-	-	1	2	3	3	3	30	47
	15	3	-	-	-	-	-	-	2	1	3	2	3	3	5	51*	79
	20	3	-	-	-	-	1	1	2	2	3	2	3	6	9	71**	114
	25	3	-	-	-	1	2	1	2	3	2	3	5	8	12	89**	142
	30	3	-	-	1	1	2	2	2	3	2	4	7	10	21	94***	168
	35	3	-	-	1	2	2	2	3	2	3	7	8	14	35	98***	196
	40	3	-	1	1	2	2	2	3	2	6	7	11	23	43	101***	223
87	10	4	-	-	-	-	-	-	-	-	2	2	3	3	3	30*	53
	15	3	-	-	-	-	-	1	1	2	2	3	3	3	6	55*	85
	20	3	-	-	-	-	1	2	2	2	3	2	3	6	10	75**	120
	25	3	-	-	-	2	1	2	2	3	2	3	5	9	14	90***	152
	30	3	-	-	1	2	2	2	2	3	5	7	11	25	25	96***	177
	35	3	-	1	1	2	2	2	3	2	4	7	9	17	39	99***	207
90	10	4	-	-	-	-	-	-	-	-	2	2	3	3	3	30*	53
	15	4	-	-	-	-	-	1	2	2	2	3	2	3	7	59*	91
	20	3	-	-	-	1	1	2	2	2	3	2	3	7	10	79**	126
	25	3	-	-	1	1	2	2	2	3	2	3	6	9	16	90***	156
	30	3	-	1	1	2	2	2	2	3	6	7	13	29	29	98***	187
	35	3	-	2	1	2	2	2	2	3	5	7	10	21	41	101***	218
93	10	4	-	-	-	-	-	-	-	1	2	2	3	3	3	30*	54
	15	4	-	-	-	-	-	2	1	2	3	3	2	3	8	60**	99
	20	3	-	-	-	1	2	2	2	2	3	3	8	10	83**	132	
	25	3	-	-	2	1	2	2	2	2	4	7	9	19	19	92***	163
	30	3	-	1	2	2	1	3	2	2	3	7	8	14	34	99***	197
	35	3	1	1	2	2	2	2	2	3	6	7	11	25	43	102***	228
Stop times include travel time from the previous stop except when a gas switch occurs.																	
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)																	

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TABLE 7: HEO₂ - IN-WATER OXYGEN DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)												Decom Time (min)	
			Air													
			48	45	42	39	36	33	30	27	24	21	18	15	12	
96	10	4	-	-	-	-	-	-	2	1	3	2	3	4	32*	57
	15	4	-	-	-	-	1	1	2	2	3	2	3	3	61**	102
	20	3	-	-	1	1	2	2	2	2	3	4	7	12	86**	138
	25	3	-	1	1	2	2	2	2	2	5	7	10	21	95***	171
	30	3	1	1	2	2	1	3	2	2	4	6	9	17	100***	206
100	10	4	-	-	-	-	-	-	1	1	2	3	3	2	35*	61
	15	4	-	-	-	-	2	1	2	2	2	3	2	5	65**	108
	20	4	-	-	1	2	1	2	2	3	2	2	6	7	90**	146
	25	3	-	2	1	2	2	2	2	2	2	6	7	11	97***	182
	30	3	2	1	2	2	2	2	2	2	5	7	10	21	101***	219

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

TABLE 8

SURFACE DECOMPRESSION WITH OXYGEN (METRES)

The Department of National Defence (Canada), Defence and Civil Institute of Environmental Medicine (DCIEM), and Universal Dive Techtronics, Inc. (UDT) disclaim any and all responsibilities for the use of these tables and procedures.

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DCIEM DIVING MANUAL

HELIUM-OXYGEN DIVING TABLES

 TABLE 8: HEO₂ - SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)												Decom. Time (min)		
			In-Water Stops														
			Air											O ₂			
			42	39	36	33	30	27	24	21	18	15	12	9	12		
36	20	2	-	-	-	-	-	-	-	-	-	-	3	2	20	35	
	30	2	-	-	-	-	-	-	-	-	-	2	4	3	30*	53	
	40	2	-	-	-	-	-	-	-	-	-	4	4	9	46*	77	
	50	1	-	-	-	-	-	-	-	-	1	4	7	11	60**	102	
	60	1	-	-	-	-	-	-	-	-	2	5	11	12	69**	118	
	70	1	-	-	-	-	-	-	-	-	3	7	13	18	72**	132	
	75	1	-	-	-	-	-	-	-	-	4	8	13	27	72**	143	
	80	1	-	-	-	-	-	-	-	-	4	11	13	30	72**	149	
	90	1	-	-	-	-	-	-	-	1	4	13	17	34*	74**	167	
	100	1	-	-	-	-	-	-	-	2	7	13	23	35*	75**	179	
39	15	2	-	-	-	-	-	-	-	-	-	-	2	2	16	30	
	20	2	-	-	-	-	-	-	-	-	-	1	4	2	23	40	
	30	2	-	-	-	-	-	-	-	-	1	3	4	6	33*	61	
	40	2	-	-	-	-	-	-	-	-	2	4	5	10	54*	89	
	50	2	-	-	-	-	-	-	-	-	3	4	10	11	64**	111	
	60	1	-	-	-	-	-	-	-	1	4	5	13	14	74**	130	
	70	1	-	-	-	-	-	-	-	2	4	10	12	29	73**	149	
	80	1	-	-	-	-	-	-	-	3	4	13	16	30*	75**	165	
	90	1	-	-	-	-	-	-	-	3	9	12	24	35*	76**	183	
	95	1	-	-	-	-	-	-	-	4	10	12	27	36*	77**	190	
42	15	2	-	-	-	-	-	-	-	-	-	-	3	2	18	33	
	20	2	-	-	-	-	-	-	-	-	-	2	4	2	25	43	
	30	2	-	-	-	-	-	-	-	-	2	4	4	7	40*	72	
	40	2	-	-	-	-	-	-	-	1	3	4	7	10	60**	104	
	50	2	-	-	-	-	-	-	-	2	4	4	11	12	71**	123	
	60	2	-	-	-	-	-	-	-	3	4	8	12	26	73**	145	
	65	2	-	-	-	-	-	-	-	3	4	11	12	30	74**	153	
	70	1	-	-	-	-	-	-	1	3	5	11	14	30*	75**	163	
	80	1	-	-	-	-	-	-	1	4	9	11	23	36*	76**	184	
	90	1	-	-	-	-	-	-	2	4	12	14	28	37*	78**	199	

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

Time from leaving the 9 msw in-water stop to reaching the
12 msw chamber stop must not exceed 7 minute

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TABLE 8: HEO₂ - SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)												Decom. Time (min)	
			In-Water Stops													
			Air											O ₂		
			42	39	36	33	30	27	24	21	18	15	12	9		
45	10	2	-	-	-	-	-	-	-	-	-	1	2		11	24
	15	2	-	-	-	-	-	-	-	-	-	1	4	2	20	37
	20	2	-	-	-	-	-	-	-	-	1	3	4	2	28	48
	25	2	-	-	-	-	-	-	-	-	2	4	4	6	32*	63
	30	2	-	-	-	-	-	-	-	1	3	3	4	9	46*	81
	35	2	-	-	-	-	-	-	-	2	3	4	6	10	58*	98
	40	2	-	-	-	-	-	-	-	2	4	4	8	11	62**	111
	45	2	-	-	-	-	-	-	-	3	4	4	11	12	70**	124
	50	2	-	-	-	-	-	-	1	3	4	6	11	14	76**	134
	55	2	-	-	-	-	-	-	1	3	4	9	11	26	74**	147
	60	2	-	-	-	-	-	-	2	3	4	10	13	30*	72**	158
	70	2	-	-	-	-	-	-	2	4	8	11	19	36*	77**	181
	80	2	-	-	-	-	-	-	3	4	11	13	28	37*	79**	199
	85	1	-	-	-	-	-	1	3	6	11	16	29	38*	80**	208
48	10	2	-	-	-	-	-	-	-	-	-	2	2		13	27
	15	2	-	-	-	-	-	-	-	-	-	2	4	2	22	40
	20	2	-	-	-	-	-	-	-	-	2	3	4	3	30	52
	25	2	-	-	-	-	-	-	1	3	3	4	7		38*	71
	30	2	-	-	-	-	-	-	2	3	4	4	10		52*	90
	35	2	-	-	-	-	-	-	3	3	4	8	10		60**	108
	40	2	-	-	-	-	-	-	1	3	4	3	11	11	68**	121
	45	2	-	-	-	-	-	-	2	3	4	6	10	13	76**	134
	50	2	-	-	-	-	-	-	2	4	3	9	11	25	75**	149
	55	2	-	-	-	-	-	-	3	3	4	10	13	30	75**	158
	60	2	-	-	-	-	-	1	3	3	7	10	14	30*	78**	170
	70	2	-	-	-	-	-	1	4	3	10	11	26	38*	78**	195
	80	2	-	-	-	-	-	2	4	7	10	18	30	39*	81**	215

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

HELIUM-OXYGEN DIVING TABLES

 TABLE 8: HEO₂ - SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)												Decom. Time (min)		
			In-Water Stops														
			Air											O ₂			
			42	39	36	33	30	27	24	21	18	15	12	9	12		
51	10	3	-	-	-	-	-	-	-	-	-	-	-	3	2	14	29
	15	2	-	-	-	-	-	-	-	-	1	3	3	3	3	23	43
	20	2	-	-	-	-	-	-	-	1	2	4	4	4	4	30*	60
	25	2	-	-	-	-	-	-	-	2	3	4	3	9	9	43*	79
	30	2	-	-	-	-	-	-	1	3	3	4	6	10	10	58*	100
	35	2	-	-	-	-	-	-	2	3	3	4	9	11	11	64**	116
	40	2	-	-	-	-	-	-	2	4	3	6	10	13	13	73**	131
	45	2	-	-	-	-	-	1	2	4	4	7	11	23	23	76**	148
	50	2	-	-	-	-	-	1	3	3	5	9	12	30	30	75**	158
	55	2	-	-	-	-	-	2	3	3	7	9	15	30*	30*	79**	173
	60	2	-	-	-	-	-	2	3	4	8	10	21	37*	37*	78**	188
	65	2	-	-	-	-	-	3	3	4	10	11	27	38*	38*	79**	200
	70	2	-	-	-	-	-	3	3	7	9	15	30	38*	38*	81**	211
	75	2	-	-	-	-	1	3	3	8	10	19	33	38*	38*	83**	222
54	10	3	-	-	-	-	-	-	-	-	1	3	2	2	16	32	
	15	2	-	-	-	-	-	-	-	-	2	3	4	2	26	47	
	20	2	-	-	-	-	-	-	-	2	3	3	4	6	6	32*	65
	25	2	-	-	-	-	-	-	1	3	3	3	4	9	9	50*	88
	30	2	-	-	-	-	-	-	2	3	3	4	7	10	10	60**	109
	35	2	-	-	-	-	-	1	2	3	4	4	10	12	12	69**	125
	40	2	-	-	-	-	-	1	3	3	4	7	10	20	20	77**	145
	45	2	-	-	-	-	-	2	3	3	4	9	12	28	28	76**	157
	50	2	-	-	-	-	-	3	3	3	6	10	14	30*	30*	78**	172
	55	2	-	-	-	-	1	2	3	4	8	10	20	37*	37*	78**	188
	60	2	-	-	-	-	1	3	3	5	9	11	26	38*	38*	80**	201
	65	2	-	-	-	-	2	3	3	7	9	15	30	39*	39*	81**	214
	70	2	-	-	-	-	2	3	3	9	9	21	34	38*	38*	84**	228

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

Time from leaving the 9 msw in-water stop to reaching the
 12 msw chamber stop must not exceed 7 minutes

TABLE 8: HEO₂ - SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)												Decom. Time (min)		
			In-Water Stops														
			Air											O ₂			
			42	39	36	33	30	27	24	21	18	15	12	9			
57	10	3	-	-	-	-	-	-	-	-	2	3	2	17	35		
	15	3	-	-	-	-	-	-	-	-	3	3	4	29	51		
	20	2	-	-	-	-	-	-	-	3	3	3	4	37*	72		
	25	2	-	-	-	-	-	-	2	3	3	3	6	55*	96		
	30	2	-	-	-	-	-	1	2	3	4	3	9	63**	116		
	35	2	-	-	-	-	-	2	3	3	3	6	10	74**	134		
	40	2	-	-	-	-	-	3	3	3	3	9	11	78**	154		
	45	2	-	-	-	-	1	3	3	3	5	9	14	76**	169		
	50	2	-	-	-	-	2	2	3	4	7	10	18	78**	186		
	55	2	-	-	-	-	2	3	3	5	8	11	25	79**	200		
	60	2	-	-	-	-	3	3	3	7	8	15	30	82**	215		
	65	2	-	-	-	1	2	3	4	8	9	21	35	84**	230		
60	10	3	-	-	-	-	-	-	-	-	2	4	2	18	37		
	15	3	-	-	-	-	-	-	-	1	3	3	4	30	54		
	20	2	-	-	-	-	-	-	1	3	3	3	4	42*	79		
	25	2	-	-	-	-	-	1	2	3	3	3	7	60*	104		
	30	2	-	-	-	-	-	2	3	2	4	4	10	69**	125		
	35	2	-	-	-	-	1	2	3	3	3	7	11	79**	148		
	40	2	-	-	-	-	2	2	3	3	5	8	13	77**	162		
	45	2	-	-	-	-	2	3	3	3	7	9	16	78**	182		
	50	2	-	-	-	1	2	3	3	4	8	11	23	80**	198		
	55	2	-	-	-	1	3	3	3	6	9	12	31	82**	214		
	60	2	-	-	-	2	2	3	4	8	9	19	36	85**	231		
63	10	3	-	-	-	-	-	-	-	-	1	2	4	20	40		
	15	3	-	-	-	-	-	-	-	2	3	3	4	30*	62		
	20	3	-	-	-	-	-	-	2	3	3	3	4	47*	86		
	25	2	-	-	-	-	-	2	2	3	3	3	8	60**	112		
	30	2	-	-	-	-	1	2	3	3	3	5	10	72**	132		
	35	2	-	-	-	-	2	2	3	3	3	9	11	78**	155		
	40	2	-	-	-	1	2	3	2	3	6	9	15	80**	178		
	45	2	-	-	-	1	3	2	3	4	8	10	20	79**	193		
	50	2	-	-	-	2	2	3	3	6	8	12	29	82**	211		
	55	2	-	-	-	2	3	3	3	8	9	18	35	85**	229		

Time from leaving the 9 msw in-water stop to reaching the
 12 msw chamber stop must not exceed 7 minutes

HELIUM-OXYGEN DIVING TABLES

 TABLE 8: HEO₂ - SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)												Decom. Time (min)		
			In-Water Stops														
			Air											O ₂			
			42	39	36	33	30	27	24	21	18	15	12	9	12		
66	10	3	-	-	-	-	-	-	-	-	1	3	4	2	21	42	
	15	3	-	-	-	-	-	-	1	2	3	3	4	5	30*	64	
	20	3	-	-	-	-	-	1	2	3	3	3	5	9	52*	93	
	25	2	-	-	-	-	1	2	3	2	3	4	9	11	64**	119	
	30	2	-	-	-	-	2	2	3	3	3	7	10	17	79**	146	
	35	2	-	-	-	1	2	3	2	3	5	9	12	28	78**	163	
	40	2	-	-	-	2	2	3	3	2	8	9	17	36*	80**	187	
	45	2	-	-	1	2	2	3	3	5	8	11	25	39*	81**	205	
	50	2	-	-	1	2	3	3	3	7	9	15	34	39*	84**	225	
	55	2	-	-	2	2	3	3	5	7	10	23	39	38*	87**	244	
69	10	3	-	-	-	-	-	-	-	-	2	3	3	3	22	44	
	15	3	-	-	-	-	-	-	2	2	3	3	3	7	32*	68	
	20	3	-	-	-	-	-	2	2	3	3	3	6	10	56*	101	
	25	3	-	-	-	-	2	2	2	3	3	5	9	12	68**	126	
	30	2	-	-	-	1	2	3	2	3	3	8	11	21	79**	153	
	35	2	-	-	2	2	3	3	2	6	9	14	14	32*	80**	178	
	40	2	-	-	1	2	2	3	3	4	8	10	21	37*	81**	197	
	45	2	-	-	2	2	2	3	3	6	8	13	31	39*	83**	217	
	50	2	-	-	2	2	3	3	4	8	9	20	38	38*	87**	239	
	10	3	-	-	-	-	-	-	1	2	3	4	2	25	48		
72	15	3	-	-	-	-	-	1	2	2	3	3	3	8	36*	74	
	20	3	-	-	-	-	1	2	2	3	3	3	7	10	60**	112	
	25	3	-	-	-	1	2	2	3	3	2	6	9	13	72**	133	
	30	3	-	-	-	2	2	2	3	3	4	8	12	25	79**	160	
	35	2	-	-	1	2	2	3	3	2	8	9	16	35*	80**	186	
	40	2	-	-	2	2	2	3	3	5	8	11	26	38*	83**	208	
	45	2	-	1	2	2	3	3	3	7	9	15	37	38*	86**	231	

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

Time from leaving the 9 msw in-water stop to reaching the
12 msw chamber stop must not exceed 7 minutes

TABLE 8: HEO₂ - SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)												Decom. . Time (min)		
			In-Water Stops														
			Air											9			
			48	45	42	39	36	33	30	27	24	21	18	15	12		
75	10	3			-	-	-	-	-	-	1	3	3	3	3	25	49
	15	3			-	-	-	-	-	1	2	3	3	3	3	41*	80
	20	3			-	-	-	-	2	2	2	3	3	3	8	60**	115
	25	3			-	-	-	2	2	2	3	2	3	7	10	78**	147
	30	3			-	-	1	2	2	3	3	2	5	9	13	80**	175
	35	3			-	-	2	2	2	3	3	4	7	10	20	81**	196
	40	2			-	1	2	2	3	3	2	7	8	13	32	85**	221
	45	2			-	2	2	2	3	2	5	7	10	20	40	88**	244
78	10	4			-	-	-	-	-	-	2	2	3	4	2	28	52
	15	3			-	-	-	-	-	2	2	3	3	2	4	45*	86
	20	3			-	-	-	1	2	2	2	3	3	3	9	64**	121
	25	3			-	-	1	2	2	2	3	2	3	8	10	81**	154
	30	3			-	-	2	2	2	3	2	3	6	9	15	81**	183
	35	3			-	1	2	2	2	3	2	6	7	11	24	83**	206
	40	2			1	1	2	2	3	2	4	7	8	16	37	86**	232
81	10	4			-	-	-	-	-	-	2	3	3	3	3	29	55
	15	3			-	-	-	-	1	2	2	2	4	2	5	49*	92
	20	3			-	-	-	2	1	3	2	3	2	5	9	67**	127
	25	3			-	-	2	1	3	2	3	2	4	8	11	80**	160
	30	3			-	1	2	2	2	3	2	3	7	9	18	82**	191
	35	3			1	1	2	2	3	2	3	6	8	12	30	84**	217
	40	3			1	2	2	2	3	2	5	7	9	19	41	88**	244
84	10	4	-	-	-	-	-	-	-	-	1	2	3	3	3	30	57
	15	3	-	-	-	-	-	-	2	1	3	2	3	3	5	53*	98
	20	3	-	-	-	-	1	1	2	2	3	2	3	6	9	71**	133
	25	3	-	-	-	1	2	1	2	3	2	3	5	8	12	81**	167
	30	3	-	-	1	1	2	2	2	3	2	4	7	10	21	83**	200
	35	3	-	-	1	2	2	2	3	2	3	7	8	14	35	86**	229
	40	3	-	1	1	2	2	2	3	2	6	7	11	23	43	90**	256

Stop times include travel time from the previous stop except when a gas switch occurs.

Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

Time from leaving the 9 msw in-water stop to reaching the 12 msw chamber stop must not exceed 7 minutes

HELIUM-OXYGEN DIVING TABLES

TABLE 8: HEO₂ - SURFACE DECOMPRESSION WITH OXYGEN (METRES)

Depth (msw)	Bottom Time (min)	Max Time to First Stop (min)	Stop Times (min) at Different Depths (msw)													Decom. Time (min)		
			In-Water Stops														Chamber O ₂	
			Air												9			
			48	45	42	39	36	33	30	27	24	21	18	15	12			
87	10	4	-	-	-	-	-	-	-	2	2	3	3	3	4	30*	64	
	15	3	-	-	-	-	-	1	1	2	2	3	3	3	6	10	57*	104
	20	3	-	-	-	-	1	2	2	2	3	2	3	6	10	16	77**	145
	25	3	-	-	-	2	1	2	2	3	2	3	5	9	14	30*	81**	180
	30	3	-	-	1	2	2	2	2	3	5	7	11	25	37*	84**	209	
	35	3	-	1	1	2	2	2	3	2	4	7	9	17	39	37*	89**	241
90	10	4	-	-	-	-	-	-	-	2	2	3	3	3	5	30*	65	
	15	4	-	-	-	-	-	1	2	2	2	3	2	3	7	10	60*	108
	20	3	-	-	-	1	1	2	2	2	3	2	3	7	10	18	79**	151
	25	3	-	-	1	1	2	2	2	3	2	3	6	9	16	32*	82**	187
	30	3	-	1	1	2	2	2	2	3	6	7	13	29	38*	85**	219	
	35	3	-	2	1	2	2	2	2	3	5	7	10	21	41	38*	90**	252
93	10	4	-	-	-	-	-	-	1	2	2	3	3	3	6	30*	67	
	15	4	-	-	-	-	-	2	1	2	3	3	2	3	8	10	60**	116
	20	3	-	-	-	1	2	2	2	2	3	3	3	8	10	19	82**	157
	25	3	-	-	2	1	2	2	2	2	4	7	9	19	34*	83**	195	
	30	3	-	1	2	2	1	3	2	2	3	7	8	14	34	38*	86**	229
	35	3	1	1	2	2	2	2	2	3	6	7	11	25	43	38*	90***	266
96	10	4	-	-	-	-	-	-	2	1	3	2	3	4	6	33*	71	
	15	4	-	-	-	-	1	1	2	2	3	2	3	3	9	10	63**	121
	20	3	-	-	1	1	2	2	2	2	3	4	7	12	22	82**	163	
	25	3	-	1	1	2	2	2	2	2	5	7	10	21	36*	84**	203	
	30	3	1	1	2	2	1	3	2	2	4	6	9	17	37	38*	88**	239
100	10	4	-	-	-	-	-	-	1	1	2	3	3	2	4	7	37*	77
	15	4	-	-	-	-	2	1	2	2	2	3	2	5	9	11	67**	128
	20	4	-	-	1	2	1	2	2	3	2	2	6	7	13	26	82**	170
	25	3	-	2	1	2	2	2	2	2	6	7	11	27	37*	85**	214	
	30	3	2	1	2	2	2	2	2	2	5	7	10	21	41	38*	90**	253

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

Time from leaving the 9 msw in-water stop to reaching the
12 msw chamber stop must not exceed 7 minutes

DCIEM DIVING MANUAL

TABLE 9

EMERGENCY DECOMPRESSION (METRES)

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DCIEM DIVING MANUAL

TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)		Air	In-Water			Recompression Chamber								
				Air		Dec. Time (min)	Surf. Int.	O ₂	Dec. Time (min)	Surf. Int.	Air				
			9	6	3		12	12	37	12	9	6	3		
36	20	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	4	7	20	36		20	37	Time from leaving the 9 msw in-water stop to reaching the 12 msw chamber stop must not exceed 7 minutes	3	4	7	20	50
	30		6	15	33	62		30*	56		4	6	15	33	79
	40		18	18	61	107		46*	86		4	18	18	61	136
	50		22	26	79	140		60**	113		7	22	26	79	176
	60		24	42	84	169		69**	130		11	24	42	84	211
	70		36	55	84	199		72**	150		13	36	55	84	255
	75		54	59	84	223		72**	170		13	54	59	84	297
	80		60	61	84	234		72**	179		13	60	61	84	314
	90		73	65	84	258		74**	201		17	73	65	84	355
	100		75	63	86	270		75**	214		23	75	63	86	375
39	15		4	5	17	30		16	32		2	4	5	17	43
	20		4	9	21	41		23	42		4	4	9	21	56
	30		12	15	42	79		33*	67		4	12	15	42	102
	40		20	20	72	125		54*	99		5	20	20	72	157
	50		22	35	83	159		64**	122		10	22	35	83	198
	60		28	53	85	190		74**	144		13	28	53	85	238
	70		58	61	85	233		73**	178		12	58	61	85	310
	80		65	64	86	252		75**	195		16	65	64	86	340
	90		75	64	87	275		76**	218		24	75	64	87	381
	95		77	64	88	283		77**	226		27	77	64	88	394
42	15		4	5	19	33		18	35		3	4	5	19	47
	20		4	11	23	46		25	45		4	4	11	23	61
	30		14	16	52	94		40*	79		4	14	16	52	119
	40		20	26	79	142		60**	114		7	20	26	79	176
	50		24	45	85	177		71**	135		11	24	45	85	219
	60		52	60	85	226		73**	171		12	52	60	85	296
	65		60	63	86	241		74**	183		12	60	63	86	319
	70		65	65	86	251		75**	193		14	65	65	86	337
	80		77	64	88	278		76**	220		23	77	64	88	385
	90		79	64	90	294		78**	236		28	79	64	90	408

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Air	In-Water			Recompression Chamber									
			Air		Dec. Time (min)	Surf. Int.	O₂	Dec. Time (min)	Surf. Int.	Air			Dec. Time (min)		
			9	6						12	9	6			
45	10	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	4	6	12	25	Time from leaving the 9 msw in-water stop to reaching the 12 msw chamber stop must not exceed 7 minutes	11	26	Time from leaving the 9 msw in-water stop to reaching the 12 msw chamber stop must not exceed 7 minutes	1	4	6	12	37
	15		4	6	20	37		20	39		4	4	6	20	52
	20		4	13	26	53		28	50		4	4	13	26	68
	25		12	15	43	82		32*	69		4	12	15	43	105
	30		18	18	62	111		46*	90		4	18	18	62	140
	35		20	23	76	136		58*	108		6	20	23	76	169
	40		22	32	83	157		62**	122		8	22	32	83	194
	45		24	44	85	177		70**	136		11	24	44	85	219
	50		28	54	86	195		76**	148		11	28	54	86	241
	55		52	61	86	229		74**	173		11	52	61	86	299
	60		65	64	86	249		72**	188		13	65	64	86	334
	70		77	65	88	276		77**	217		19	77	65	88	378
	80		79	64	91	295		79**	236		28	79	64	91	408
	85		81	65	93	306		80**	246		29	81	65	93	423
48	10	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	4	5	14	27		13	29		2	4	5	14	40
	15		4	8	21	41		22	42		4	4	8	21	56
	20		6	14	30	61		30	55		4	6	14	30	78
	25		14	16	51	94		38*	78		4	14	16	51	119
	30		20	19	71	125		52*	100		4	20	19	71	156
	35		20	28	81	149		60**	118		8	20	28	81	184
	40		22	41	85	172		68**	132		11	22	41	85	212
	45		26	53	86	192		76**	147		10	26	53	86	235
	50		50	61	86	228		75**	174		11	50	61	86	296
	55		60	64	87	246		75**	188		13	60	64	87	326
	60		65	65	88	258		78**	200		14	65	65	88	344
	70		81	65	91	294		78**	233		26	81	65	91	407
	80		83	66	94	316		81**	254		30	83	66	94	436

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

HELIUM-OXYGEN DIVING TABLES

TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Air	In-Water			Recompression Chamber								
			Air		Dec. Time (min)	Surf. Int.	O ₂ 12	Dec. Time (min)	Air					
			9	6	3				12	9	6	3		
51	10	4	5	15	30	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	14	31	Time from leaving the 9 msw in-water stop to reaching the 12 msw chamber stop must not exceed 7 minutes	3	4	5	15	44
	15	6	10	22	47		23	46		3	6	10	22	63
	20	8	14	37	72		30*	64		4	8	14	37	91
	25	18	17	60	109		43*	88		3	18	17	60	137
	30	20	24	77	140		58*	110		6	20	24	77	173
	35	22	36	84	165		64**	127		9	22	36	84	203
	40	26	50	86	189		73**	144		10	26	50	86	232
	45	46	59	87	223		76**	171		11	46	59	87	287
	50	60	64	88	247		75**	188		12	60	64	88	326
	55	65	65	89	260		79**	203		15	65	65	89	347
	60	79	65	90	284		78**	225		21	79	65	90	391
	65	81	65	93	299		79**	238		27	81	65	93	414
	70	81	65	95	310		81**	249		30	81	65	95	428
	75	81	66	97	323		83**	260		33	81	66	97	444
54	10	4	5	17	33		16	34		3	4	5	17	47
	15	4	11	24	50		26	49		4	4	11	24	65
	20	12	14	45	85		32*	71		4	12	14	45	108
	25	18	19	68	121		50*	97		4	18	19	68	150
	30	20	29	82	152		60**	119		7	20	29	82	186
	35	24	45	85	180		69**	137		10	24	45	85	221
	40	40	57	86	213		77**	165		10	40	57	86	270
	45	56	63	88	242		76**	185		12	56	63	88	317
	50	65	65	89	260		78**	202		14	65	65	89	346
	55	79	65	91	285		78**	225		20	79	65	91	391
	60	81	65	93	299		80**	239		26	81	65	93	413
	65	83	66	96	316		81**	253		30	83	66	96	436
	70	81	67	98	329		84**	266		34	81	67	98	451

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Air	In-Water			Recompression Chamber								
			Air		Dec. Time (min)	Surf. Int.	O₂ 12	Dec. Time (min)	Surf. Int.	Air				Dec. Time (min)
			9	6						12	9	6	3	
57	10	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	4	4	18	34	17	37	Time from leaving the 9 msw in-water stop to reaching the 12 msw chamber stop must not exceed 7 minutes	3	4	4	18	48
	15		4	12	27	56	29	53		4	4	12	27	70
	20		14	16	51	96	37*	79		4	14	16	51	121
	25		18	22	74	133	55*	105		6	18	22	74	164
	30		22	36	84	166	63**	127		9	22	36	84	204
	35		26	52	86	193	74**	147		10	26	52	86	236
	40		48	61	88	231	78**	178		11	48	61	88	297
	45		65	65	89	259	76**	199		14	65	65	89	345
	50		79	65	91	283	78**	223		18	79	65	91	387
	55		83	66	93	301	79**	239		25	83	66	93	416
	60		83	66	96	316	82**	254		30	83	66	96	436
	65		81	67	99	332	84**	268		35	81	67	99	455
60	10		4	4	19	36	18	39		4	4	4	19	51
	15		6	13	31	64	30	57		4	6	13	31	80
	20		16	16	59	107	42*	87		4	16	16	59	134
	25		20	26	79	146	60*	114		7	20	26	79	180
	30		22	43	86	178	69**	136		10	22	43	86	217
	35		38	58	87	215	79**	167		11	38	58	87	271
	40		58	64	89	249	77**	191		13	58	64	89	327
	45		77	65	91	278	78**	218		16	77	65	91	378
	50		81	66	94	298	80**	236		23	81	66	94	409
	55		83	66	97	316	82**	253		31	83	66	97	437
	60		81	67	100	333	85**	269		36	81	67	100	457
63	10		4	6	20	40	20	42		4	4	6	20	55
	15		8	14	35	72	30*	66		4	8	14	35	91
	20		18	18	65	119	47*	95		4	18	18	65	148
	25		22	31	82	158	60**	123		8	22	31	82	195
	30		26	50	86	191	72**	145		10	26	50	86	234
	35		48	62	88	233	78**	179		11	48	62	88	299
	40		69	65	90	267	80**	210		15	69	65	90	358
	45		81	66	93	293	79**	231		20	81	66	93	401
	50		83	66	97	313	82**	250		29	83	66	97	432
	55		81	67	100	331	85**	267		35	81	67	100	454

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

HELIUM-OXYGEN DIVING TABLES

TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)	Air	In-Water			Recompression Chamber								
			Air		Dec. Time (min)	Surf. Int.	O ₂ 12	Dec. Time (min)	Air				Dec. Time (min)	
			9	6					12	9	6	3		
66	10	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	4	8	20	43	Time from leaving the 9 msw in-water stop to reaching the 12 msw chamber stop must not exceed 7 minutes	21	44	4	4	8	20	58
	15		10	15	41	82		30*	69	4	10	15	41	103
	20		18	21	71	130		52*	102	5	18	21	71	160
	25		22	38	84	170		64**	130	9	22	38	84	208
	30		34	55	88	209		79**	163	10	34	55	88	260
	35		56	64	89	248		78**	191	12	56	64	89	323
	40		77	66	92	283		80**	223	17	77	66	92	384
	45		83	67	96	308		81**	244	25	83	67	96	423
	50		83	67	100	329		84**	264	34	83	67	100	453
	55		81	69	104	350		87**	282	39	81	69	104	477
69	10		6	9	21	47		22	47	3	6	9	21	63
	15		14	15	47	92		32*	75	3	14	15	47	116
	20		20	24	76	142		56*	111	6	20	24	76	175
	25		24	44	86	183		68**	138	9	24	44	86	222
	30		42	60	88	225		79**	174	11	42	60	88	285
	35		69	65	91	268		80**	210	14	69	65	91	358
	40		79	66	95	296		81**	234	21	79	66	95	403
	45		83	67	98	320		83**	256	31	83	67	98	441
	50		81	69	103	344		87**	277	38	81	69	103	470
	10		4	10	23	50		25	50	4	4	10	23	65
72	15		16	15	53	101		36*	82	3	16	15	53	127
	20		20	28	80	152		60**	122	7	20	28	80	186
	25		26	50	86	193		72**	146	9	26	50	86	234
	30		50	62	90	241		79**	185	12	50	62	90	310
	35		75	65	93	281		80**	221	16	75	65	93	379
	40		81	66	97	308		83**	246	26	81	66	97	422
	45		81	68	102	335		86**	269	37	81	68	102	460

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)		Air	In-Water			Recompression Chamber								
				Air		Dec. Time (min)	Surf. Int.	O ₂ 12	Dec. Time (min)	Surf. Int.	Air				Dec. Time (min)
				9	6						12	9	6	3	
75	10	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	6	11	24	54	Time from leaving the 9 msw in-water stop to reaching the 12 msw chamber stop must not exceed 7 minutes	25	52	Time from leaving the 9 msw in-water stop to reaching the 12 msw chamber stop must not exceed 7 minutes	3	6	11	24	70
	15		16	17	59	110		41*	88		3	16	17	59	136
	20		22	33	82	163		60**	126		8	22	33	82	200
	25		34	55	88	211		78**	164		10	34	55	88	262
	30		65	65	91	264		80**	205		13	65	65	91	348
	35		79	66	95	296		81**	233		20	79	66	95	402
	40		81	68	100	324		85**	259		32	81	68	100	444
	45		81	69	104	349		88**	282		40	81	69	104	477
78	10		4	12	26	57		28	54		4	4	12	26	72
	15		18	19	64	120		45*	95		4	18	19	64	149
	20		22	38	84	172		64**	132		9	22	38	84	210
	25		38	59	88	221		81**	173		10	38	59	88	276
	30		69	65	92	273		81**	215		15	69	65	92	364
	35		81	67	97	308		83**	244		24	81	67	97	420
	40		81	68	103	337		86**	270		37	81	68	103	462
	10		6	12	29	62		29	58		3	6	12	29	78
81	15		18	20	69	128		49*	101		5	18	20	69	158
	20		24	43	86	183		67**	139		9	24	43	86	223
	25		46	62	90	237		80**	183		11	46	62	90	301
	30		73	66	94	285		82**	225		18	73	66	94	383
	35		81	68	99	321		84**	255		30	81	68	99	439
	40		81	70	105	352		88**	282		41	81	70	105	481
	10		6	13	32	67		30	60		3	6	13	32	83
	15		20	23	73	138		53*	108		5	20	23	73	170
84	20		24	48	87	191		71**	145		9	24	48	87	231
	25		52	63	91	248		81**	193		12	52	63	91	319
	30		77	67	96	298		83**	236		21	77	67	96	403
	35		81	68	102	333		86**	267		35	81	68	102	456
	40		81	71	108	366		90**	294		43	81	71	108	497

Stop times include travel time from the previous stop except when a gas switch occurs.
Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

HELIUM-OXYGEN DIVING TABLES

 TABLE 9: HEO₂ - EMERGENCY DECOMPRESSION (METRES)

Depth (msw)	Bottom Time (min)		Air	In-Water			Recompression Chamber								
				Air		Dec. Time (min)	Surf. Int.	O ₂ 12	Dec. Time (min)	Surf. Int.	Air				Dec. Time (min)
				9	6	3					12	9	6	3	
87	10	Decompression in accordance with In-Water Oxygen or Surface Decompression with Oxygen Tables	8	14	35	74	Time from leaving the 9 msw in-water stop to reaching the 12 msw chamber stop must not exceed 7 minutes	30*	68	Time from leaving the 9 msw in-water stop to reaching the 12 msw chamber stop must not exceed 7 minutes	3	8	14	35	92
	15		20	25	77	146		57*	114		6	20	25	77	179
	20		32	53	87	206		77**	161		10	32	53	87	255
	25		65	65	92	268		81**	210		14	65	65	92	354
	30		79	67	98	309		84**	246		25	79	67	98	420
	35		79	70	104	345		89**	278		39	79	70	104	470
90	10		10	14	38	79		30*	70		3	10	14	38	99
	15		20	29	79	154		60*	118		7	20	29	79	188
	20		36	57	88	217		79**	169		10	36	57	88	270
	25		69	65	94	278		82**	219		16	69	65	94	370
	30		81	68	100	322		85**	257		29	81	68	100	439
	35		81	71	107	360		90**	290		41	81	71	107	489
93	10		12	15	42	87		30*	73		3	12	15	42	109
	15		20	32	82	162		60**	126		8	20	32	82	197
	20		38	59	90	225		82**	176		10	38	59	90	280
	25		73	66	96	290		83**	229		19	73	66	96	389
	30		81	69	103	335		86**	267		34	81	69	103	457
	35		81	72	110	373		90***	304		43	81	72	110	504
96	10		12	15	47	93		33*	77		4	12	15	47	116
	15		20	36	84	170		63**	131		9	20	36	84	206
	20		44	62	91	238		82**	185		12	44	62	91	301
	25		77	67	97	301		84**	239		21	77	67	97	406
	30		81	70	105	346		88**	277		37	81	70	105	471
	10		14	16	53	103		37*	84		4	14	16	53	128
100	15		22	41	86	181		67**	139		9	22	41	86	219
	20		52	64	92	253		82**	196		13	52	64	92	325
	25		79	68	100	316		85**	251		27	79	68	100	429
	30		81	72	108	363		90**	291		41	81	72	108	492

Stop times include travel time from the previous stop except when a gas switch occurs.
 Asterisk (*) indicates number of 5-minute air breaks required. (Dated 91-04-10)

DCIEM DIVING MANUAL

APPENDIX C

WORKSHEETS

DCIEM DIVING MANUAL

HELIUM-OXYGEN DIVING TABLES

DCIEM - DIVE RECORD CHART IN FEET

DIVER	Rank	Tender		Rank	Date:		
DIVER	Rank	Tender		Rank	Table Used		
SUPERVISOR	Rank	Schedule Used		O2%	Depth in FT	Bottom Time	
Left Surface (Clock Time)	Left Bottom		Max. Time to 1st Stop	Reached Surface (Clock Time)			
Total decomp. time	Total time of dive		Repet. Group	CHARTMAN (Print)		Rank	
REMARKS	STOPS IN FEET	STAND AIR TABLE	Decompression Time		EMERG AIR	EVENT TIME	
			Water	Chamber		Water	Chamber
	10				L		
					S		
	20				L		
					S		
	30				L		
					S		
	40				L		
					S		
	50				L		
					S		
	60				L		
					S		
	70				L		
					S		
	80				L		
					S		
	90				L		
					S		
	100				L		
					S		
	110				L		
					S		
	120				L		
					S		
	130				L		
					S		
	140				L		
					S		
	150				L		
					S		
	160				L		
					S		
	170				L		
					S		
Purpose of Dive	Supervisor (sign)				Chartman (sign)		

DCIEM DIVING MANUAL

HELIUM-OXYGEN DIVING TABLES

DCIEM - DIVE RECORD CHART IN METRES

DIVER	Rank	Tender		Rank	Date:		
DIVER	Rank	Tender		Rank	Table Used		
SUPERVISOR	Rank	Schedule Used		O2%	Depth in METRES	Bottom Time	
Left Surface (Clock Time)	Left Bottom		Max. Time to 1st Stop	Reached Surface (Clock Time)			
Total decomp. time	Total time of dive		Repet. Group	CHARTMAN (Print)		Rank	
REMARKS	STOPS IN METRES	STAND AIR TABLE	Decompression Time		EMERG AIR	EVENT TIME	
			Water	Chamber		Water	Chamber
	3				L		
					S		
	6				L		
					S		
	9				L		
					S		
	12				L		
					S		
	15				L		
					S		
	18				L		
					S		
	21				L		
					S		
	24				L		
					S		
	27				L		
					S		
	30				L		
					S		
	33				L		
					S		
	36				L		
					S		
	39				L		
					S		
	42				L		
					S		
	45				L		
					S		
	48				L		
					S		
	51				L		
					S		
Purpose of Dive	Supervisor (sign)				Chartman (sign)		

DCIEM DIVING MANUAL