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EVALUATION OF THE PRINCETON TECTONICS BOTTOM TIMER STOP WATCH.(U)
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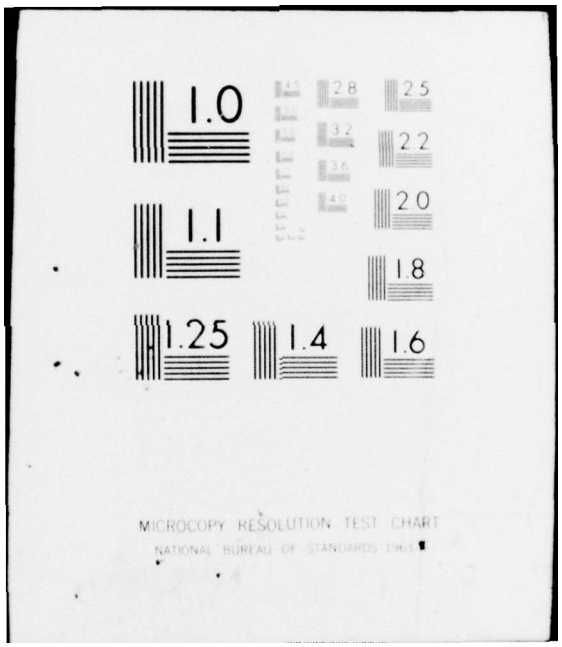
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NAVY EXPERIMENTAL DIVING UNIT

DEPARTMENT OF THE NAVY
NAVY EXPERIMENTAL DIVING UNIT
Panama City, Florida 32401

NAVY EXPERIMENTAL DIVING UNIT
REPORT 7-76

EVALUATION OF THE PRINCETON TECTONICS BOTTOM TIMER STOP WATCH.

D. J. SCHMITT

June 1976

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ABSTRACT

The Princeton Tectonics bottom timer stop watch was tested by the Navy Experimental Diving Unit in June 1976.

Performance of the unit was as claimed by the manufacturer with automatic starting, timing, and stopping. After test, the bottom timer stop watch is recommended for Navy approval but not for inclusion on NAVSEA Instruction 9597.1 of 1 March 1976.

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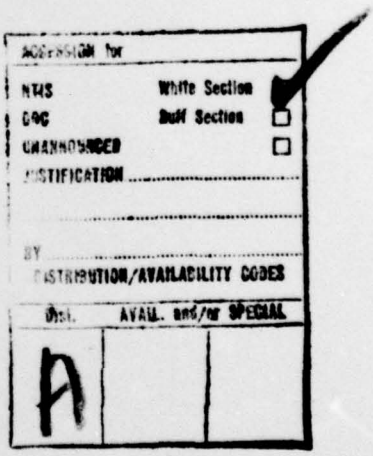

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INTRODUCTION

The Princeton Tectonics bottom timer stop watch is designed with a pressure-sensitive diaphragm built into the back of its plastic housing. As the diver descends, pressure on the diaphragm releases an internal spring to start the watch. The bottom timer is calibrated to start at approximately 7 feet of sea water (fsw). The timer runs continuously during the dive until the diver returns to 7 feet. Although the timer starts and stops automatically, it must be wound and set manually. It can be reset by the diver below the surface of the water.

Two of these units were submitted to the Navy Experimental Diving Unit for test and evaluation in June 1976.

TEST EQUIPMENT

A Bethlehem chamber, model 183.610HP, and test gauge 25546-25011-GAG, calibrated 18 June 1976, were required to test the Princeton Tectonics bottom timer stop watches.

TEST PROCEDURE

The bottom timer stop watches were placed in a container and immersed in 8 inches of fresh water. The container was placed in the Bethlehem chamber which was then pressurized with high-pressure air to 8 fsw. At that time, the timer started and the test operator started his stop watch. By looking through the chamber window, readings were obtained and then recorded for the various test depths.

RESULTS

Recordings made at the depths tested are given in Table 1. The timers started at 8 fsw and stopped when pressure was returned to 5 fsw.

MAN-HOURS REQUIRED FOR TEST

Man-hours required to complete the test procedure were as follows:

	Man-hours
Chamber operation, 3 men, 2 hours	6
Reporting manuscript, 1 man, 3 hours	3
Duplicating, 1 man, 1 hour	1
TOTAL	10 Man-hours

CONCLUSIONS AND RECOMMENDATIONS

The Princeton Tectonics bottom timer stop watch started and stopped as stated in the manufacturer's operating instructions. Its use by the Navy at this time would be minimal; therefore, it is recommended that this unit be approved by the Navy but not placed on NAVSEA Instruction 9597.1 of 1 March 1976. It is possible, however, that, at some future time, its use would be required.

TABLE 1

TIMER READINGS DURING
BOTTOM TIMER TEST

Depth (ft)	Elapsed Time (mins)	Timer #1	Timer #2
10	5	5::03	5::04
20	10	10::07	10::05
50	15	15::07	15::10
75	20	20::10	20::07
100	25	25::15	25::10
125	30	30::18	30::12
150	35	35::20	35::13
200	40	40::22	40::15
225	45	45::25	45::17
250	50	50::29	50::17
275	55	55::34	55::21
300	60	60::37	60::23