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R-2558

Sippican Inc.

AXKT

Drop Rate Test

Date: Dec. 12, 1989

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Introduction

A Sippican tank test was performed on the AXKT probe to obtain a first approximation of the descent rate for this probe prior to ocean testing.

Personnel

Dan Moffatt
Bruce Dalton

Equipment

Data Precision Data 6000 storage oscilloscope
10 ft. diameter X 30 ft. deep test tank with a moveable floor.
Custom built hydrophone.
10 ft. X 1 in. dia. Aluminum pole.
9 ft. 1/4 in. X 1 in. dia. Aluminum pole.
7 AXKT probes

Procedure

The test setup can be seen in the diagram on page 2.

The floor of the test tank was lowered till the top of the 10 ft. pole was flush with the water surface. The hydrophone was lowered to a depth of 8 feet and connected to the data 6000 oscilloscope. The first three probes were drop into the water nose first from a height of approximately 2 feet above the water surface. The noise of water entry and the impact with the tank floor was recorded on the oscilloscope. The descent times can be seen in the following table.

The 9 ft. 1/4 in. pole was then attached to the 10 ft. pole and the floor lowered till the top of the pole was flush with the water surface. The last 4 probes were then dropped in the same manner as the first 3 and their descent times recorded on the oscilloscope. (See Table Below)

Descent Time

No.	Water Depth Ft.	Time Sec.
1	10	2.111
2	10	2.136
3	10	2.035
4	19.02	3.798
5	19.02	3.856
6	19.02	3.682
7	19.02	3.712

The mean and standard deviation for both water depths are:

10 ft. mean 2.092, and standard deviation 0.055 seconds.

19 ft. mean 3.762, and standard deviation 0.080 seconds.

The descent time for probes was then calculated by:

$$\text{Descent Time} = (19.02 - 10.00) / (3.762 - 2.092)$$

$$\text{Descent Time} = 5.40 \text{ ft/sec or } 1.65 \text{ m/sec}$$

TEST DIAGRAM

