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FLEET MOORINGS  
INSPECTION REPORT

FPO-1-82(22)

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# **HOLY LOCH FLEET MOORINGS INSPECTION REPORT**

**15 OCTOBER 1982**

**OCEAN ENGINEERING AND CONSTRUCTION PROJECT OFFICE  
CHESAPEAKE DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
WASHINGTON, DC 20374**

**FPO-1-82(22)**

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This report contains results of the inspection of selected Fleet Moorings and Navigation Buoys at the Naval Activity, Holy Loch, Scotland. Divers from UCT-1 and an engineer from the Ocean Engineering & Construction Project Office of CHESNAVFACENGCOM conducted the inspections from 17-25 June 1982. (Con't)

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Results of the inspection indicate that a majority of the ground legs in the AFDB-7 mooring may be in need of overhaul, and that a number of legs should be repositioned in order to improve the catenary of the mooring chains. The condition of the two Sixth Class moorings and the two Navigation Buoys is satisfactory. Comments concerning the condition of specific components and any recommendations for remedial action are included.

## Abstract

This report contains results of the inspection of selected Fleet Moorings and Navigation Buoys at the Naval Activity Detachment, Holy Loch, Scotland. Divers from UCT-1 and an engineer from the Ocean Engineering and Construction Project Office of CHESNAVFACENGCOM conducted the inspections from 17 - 25 June 1982.

Results of the inspection indicate that a majority of the ground legs in the AFDB-7 mooring may be in need of overhaul, and that a number of legs should be repositioned in order to improve the catenary of the mooring chains. The condition of the two Sixth Class moorings and the two Navigation Buoys is satisfactory. Comments concerning the condition of specific components and any recommendations for remedial action are included.

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## 1.0 INTRODUCTION

1.1 Background. In November 1981, CINCUSNAVEUR requested that COMCBLANT provide UCT-1 divers to inspect six legs of the AFDB-7 mooring, the Number 2 and Number 3 Sixth Class moorings, and the Port and Starboard Navigation Buoys at Holy Loch (Ref. A, Annex F); in May 1982 this request was expanded to include all 22 ground legs of AFDB-7 (Ref. B). In turn, on 26 March 1982, COMCBLANT stated that CHESNAVFACENGCOM would provide funding and technical support for the inspection (Ref. C). The funding for UCT-1 participation was provided by CHESNAVFACENGCOM from the NAVFACENGCOM (Code 10) – sponsored Fleet Mooring Maintenance Program. References D and E provide additional background information. Technical support included inspection planning, development of diver inspection procedures, on-site engineering support, recording of the raw data gathered by divers, data analysis, and preparation of the inspection report. Inspections were conducted from 18 - 24 June; local debriefings were conducted on 25 and 28 June. Preliminary results of the inspection and initial recommendations for corrective action were reported by message on July 29 (Ref. F). Annex E contains a chronology of significant events.

1.2 General Description and Historical Information. Holy Loch is located on the west coast of Scotland about 35 miles west-northwest of Glasgow. Access to Holy Loch from the Atlantic Ocean is via the Irish Sea and the Firth of Clyde. There are 10 moorings located in the northwest end of the Loch; Figure 1 shows the position of each mooring.

1.2.1 AFDB-7. The AFDB-7 mooring is a Special Floating Dry Dock mooring consisting of four dock cells which are connected together and moored in place by 22 ground legs and anchors. The dock is 513 feet long and 241 feet wide. Each leg of three-inch diameter studlink chain runs from a padeye on deck to a 30,000 pound anchor (stockless without stabilizer type). AFDB-7 was originally installed in 1961 at a position to the southeast of its present location; movement of the dock to the current location was completed on 5 August 1971.

The dry dock is routinely used by fleet ballistic missile (FBM) submarines. Because of the strategic importance of this facility and the possibility of severe winter weather, the material condition of the mooring is a continuing concern. Between 1973 and 1981, 19 of the 22 ground legs were inspected by the British Ministry of Defense (M.O.D.). During this period, only one of the ground legs was determined to contain a chain link which has worn to less than 80% of the original wire diameter; the length which contained this link was replaced in 1981. In April 1982, divers from USS HUNLEY (AS-31) visually inspected 21 of the 22 ground legs. All chain was reported to be in good condition, although some legs were observed to have little or no catenary.

A schematic diagram of the AFDB-7 mooring is shown in Figure 2.

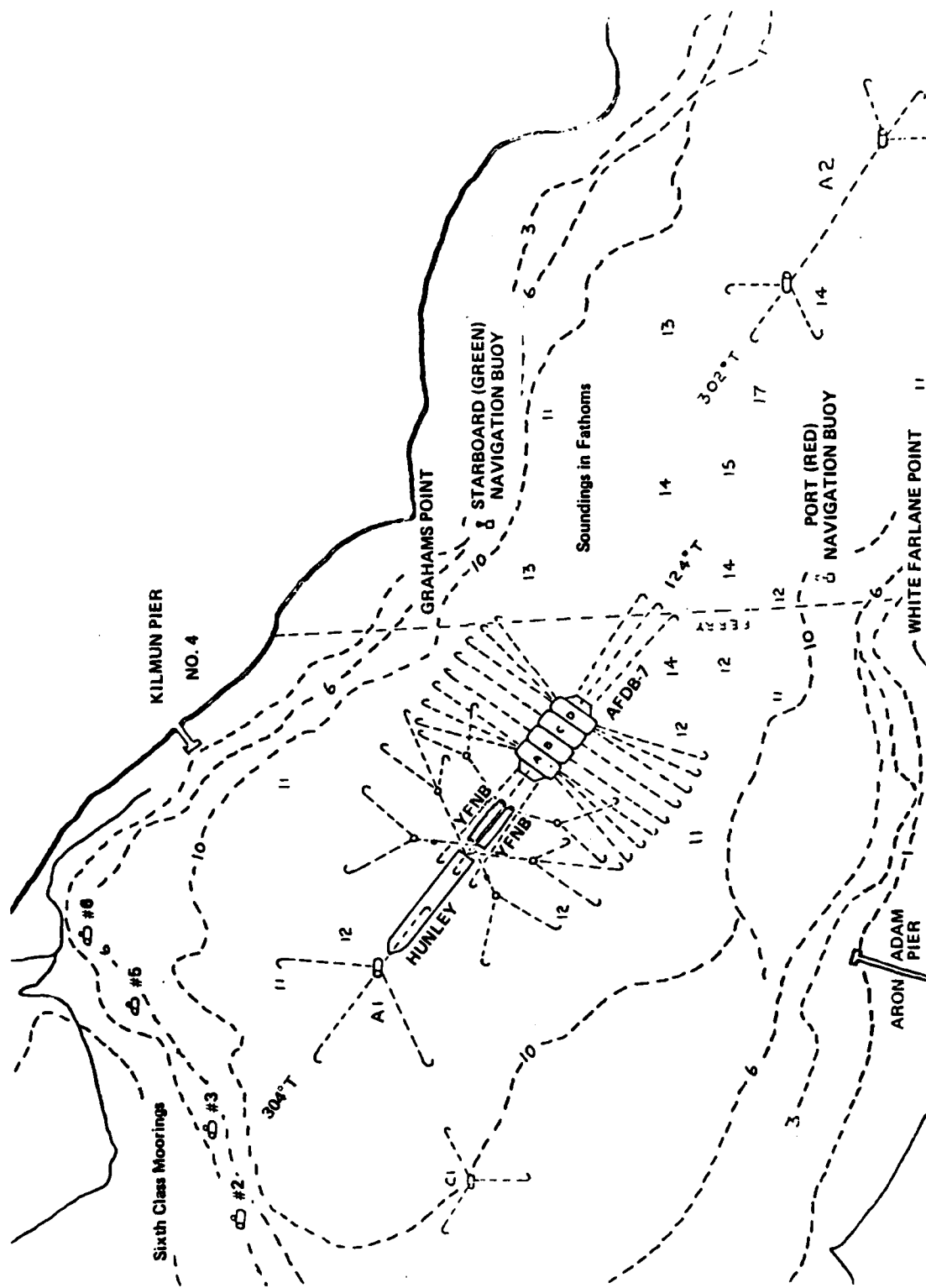


Figure 1. Holy Loch Moorings and Navigation Buoys

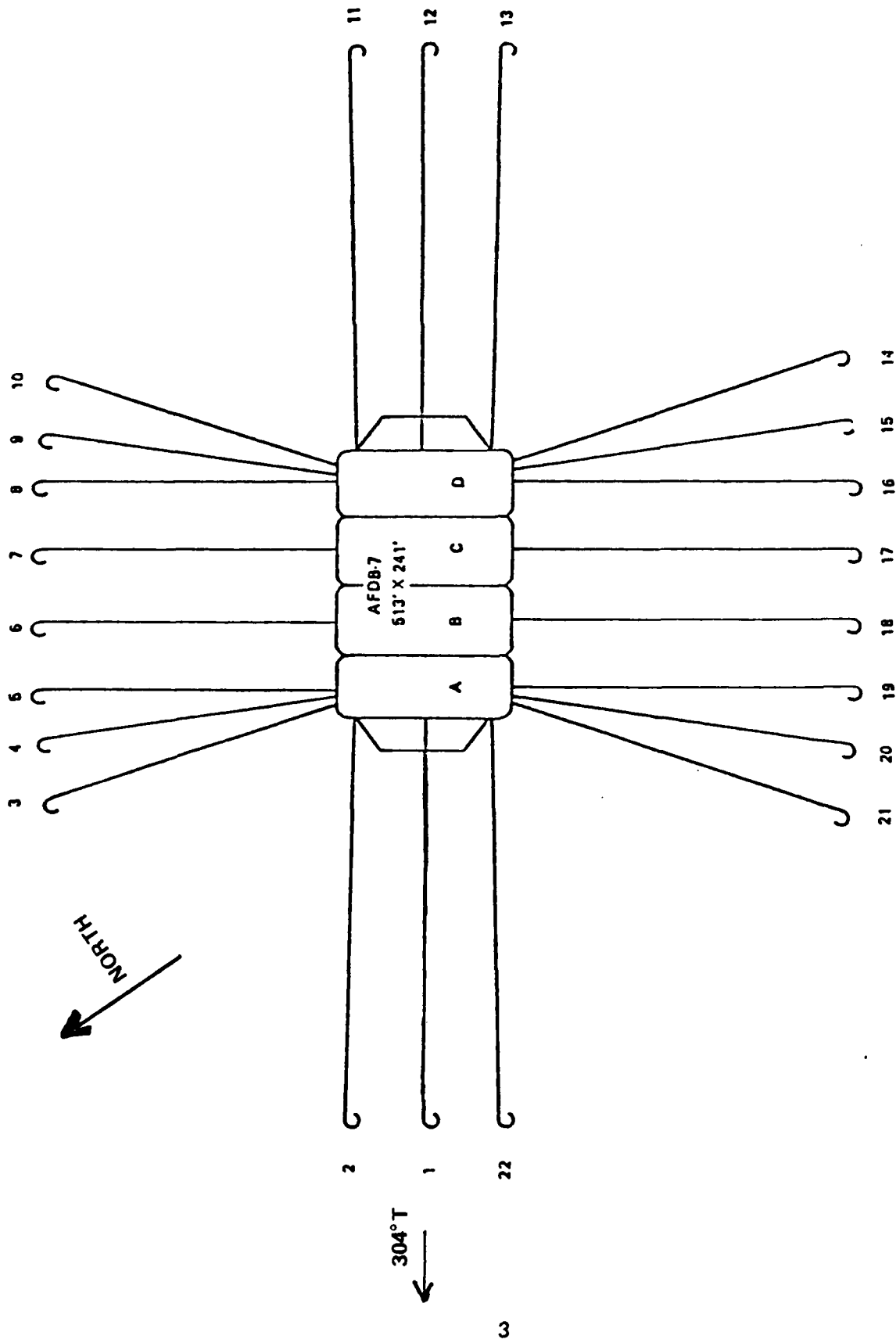


Figure 2. Schematic of AFDB-7 Mooring, Showing Ground Leg Numbers

**1.2.2 Sixth Class Moorings.** "Sixth Class" is the British designation for the single-anchor/single riser type of mooring illustrated in Figure 3. A row of such moorings is located along the northwest margin of the Loch (see Figure 1). Records indicated that six moorings were in place; Numbers 2 and 3 were to be inspected. Upon arrival the inspection team learned that buoys Number 1 and 4 had been removed. The remaining moorings are regularly used by small barges and maintenance vessels.

**1.2.3 Navigation Buoys.** These special purpose Navigation Buoys (Figure 3) are used by maintenance vessels and FBM submarines as they transit to or from the Holy Loch dry dock. Buoy positions are shown in Figure 1.

## 2.0 INSPECTION PROCEDURES

The purpose of the inspection was to determine the general physical condition of the moorings and buoys, and, when possible, to verify or update existing installation and maintenance records. The underwater inspections performed by divers sampled only a small portion of the submerged chain links and jewelry in order to compile a general description of the installation's condition. If accurate records of original material and configuration (such as wire diameter) or subsequent maintenance (e.g., replacement of chain links) are not available, then the measurements made by divers may not reveal components which have badly deteriorated or are sub-standard. Conversely, the existence of fairly consistent measurements during a "selective sampling"-type inspection is a good indication of the installation's overall condition. It should be kept in mind that underwater inspections are intended as a relatively quick and inexpensive supplement to, and augmentation of, accurate maintenance records. As such, they cannot fully substitute for a complete inspection involving removal of the mooring from the water, and the measurement and evaluation of each component.

The most important parameter used to evaluate the condition of a mooring is chain wire diameter. After cleaning to bare metal, a selective sampling of the wire diameter of chain links and connecting hardware is taken in order to determine the amount of corrosion and wear. "Single Link" measurements are taken where chain is slack, and detect only corrosion loss. "Double Link" measurements, taken where two links connect under tension, detect the combined effects of corrosion and wear. Figure 4 shows how these measurements are made. Chain links and other components which measure greater than 90% (+90%) of original wire diameter are considered satisfactory; measurement between 80% and 90% (+80%) of original diameter is cause for the mooring classification to be downgraded; any measurement of less than 80% (-80%) causes the mooring to be considered unsatisfactory for fleet use.

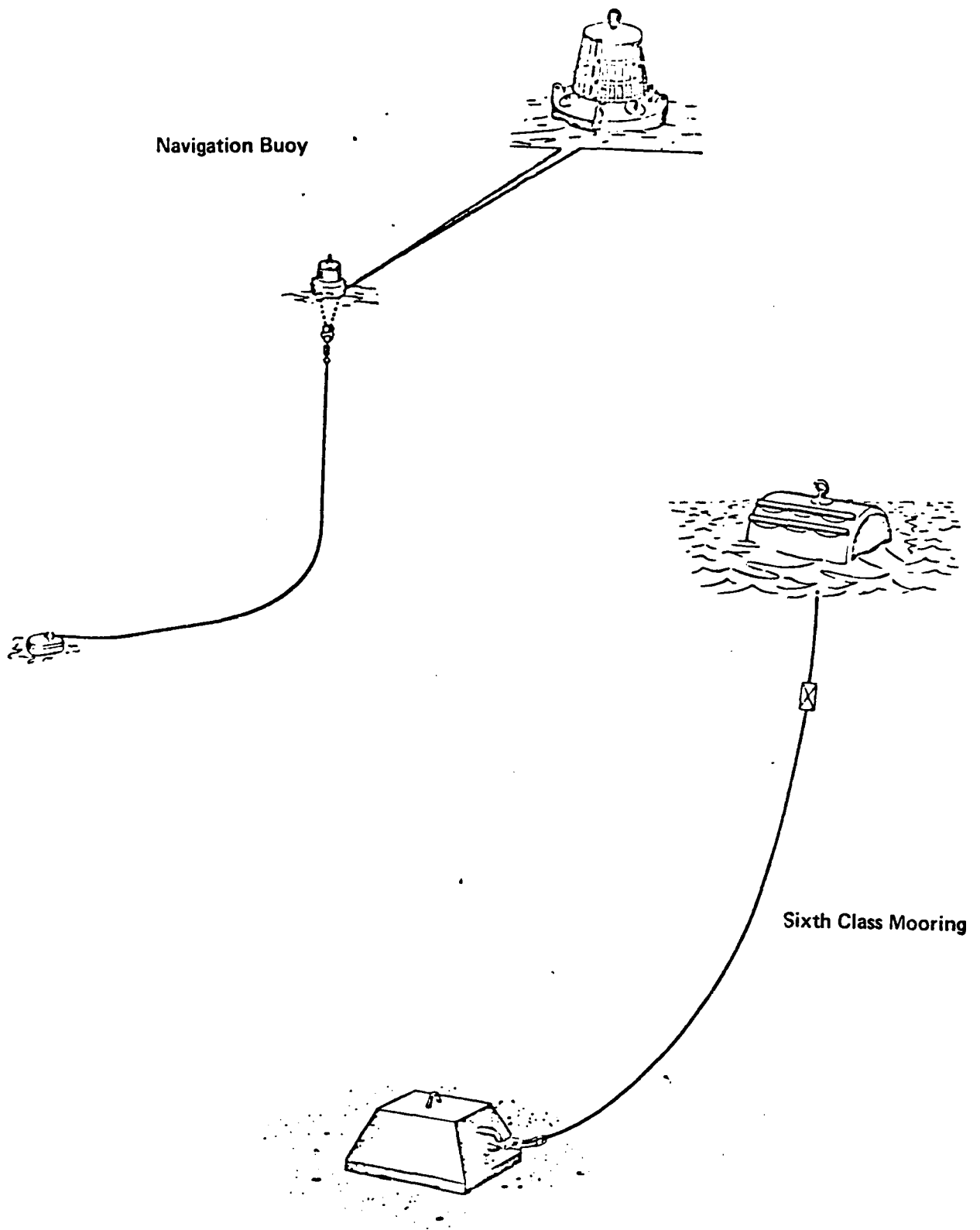


Figure 3. Schematics of Navigation Buoy and Sixth Class Mooring

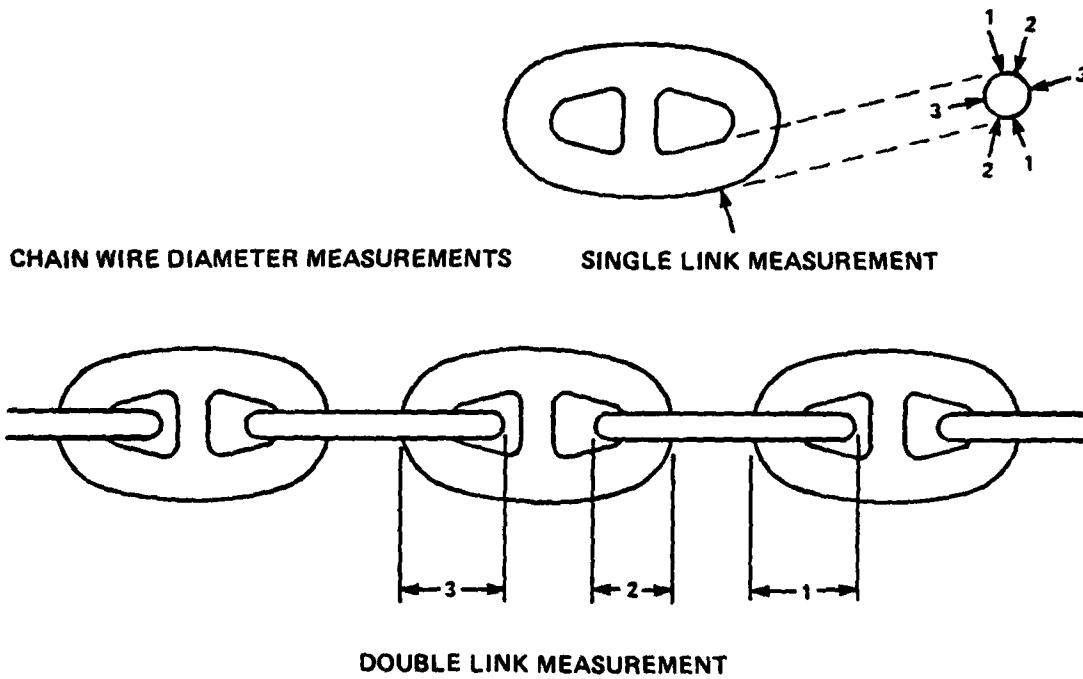
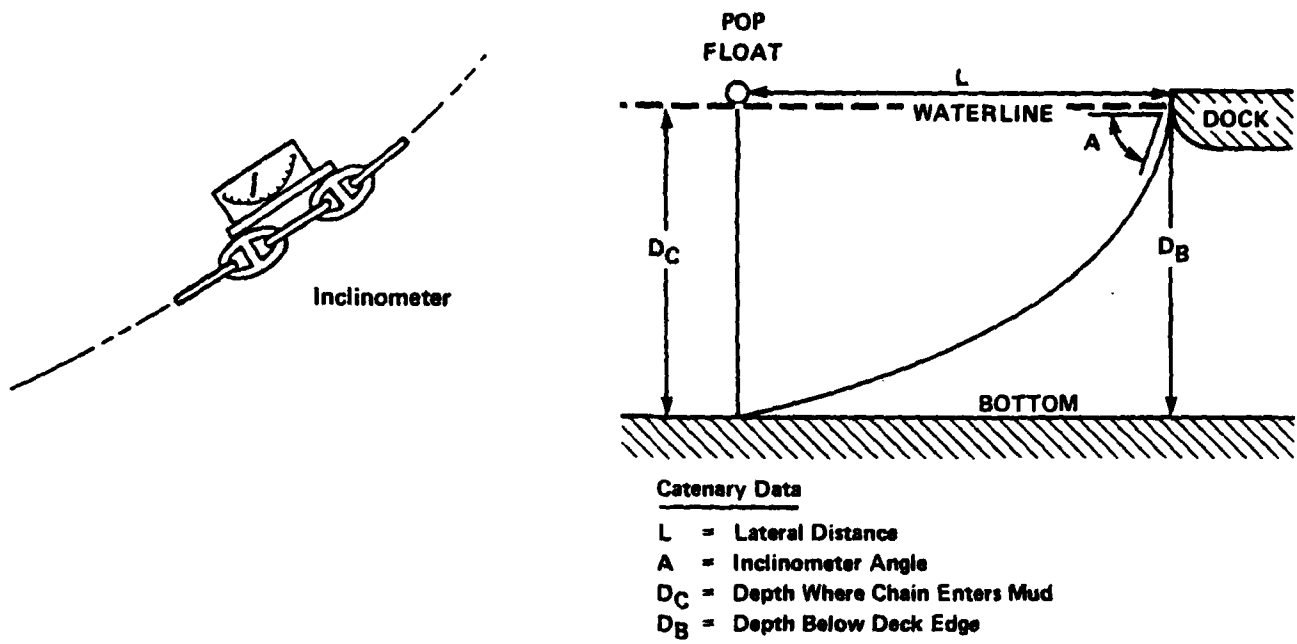


Figure 4. Chain Wire Diameter Measurements and Ground Leg Catenary Observations

Standard underwater inspection procedures do not call for the inspection of any part of the mooring which has been buried. Ground legs and risers were observed only to the point at which they become buried; no attempt was made to locate and inspect anchors or other mooring materials which were not readily visible.

## 2.1 AFDB-7

2.1.1 Physical Condition of Ground Legs. For inspection purposes, sections of each of the 22 ground legs were defined as follows:

Section I: On-deck, from padeye to chock

Section II: Splash zone, from chock to waterline

Section III: From waterline to mudline

Inspection of Section I involved selective sampling of double link measurements, a visual check of the general condition of all links, and a visual check for wear at the padeye and pelican hook. A "Go/No-Go" technique was used for measurements in this section: by using a pre-cut gauge, each connection point was graded as +90%, +80%, or -80% without requiring a caliper measurement.

Section II was inspected by taking double link caliper measurements of all links and noting their general condition.

For Section III the inspection included a visual check of the chain from surface to the mud line and "Go/No-Go" double link measurements every 20 feet of water depth. Single link measurements were made on short sections of Legs #15 and #19 which were lifted from the mud. (Note: lifts were made using cranes aboard AFDB-7; not more than 6 - 8 links were lifted in order to avoid disturbing the anchor.)

2.1.2 Cathodic Protection. None of the ground legs is equipped with a cathodic protection system per se. However, voltmeter readings were taken concurrent with the double link measurements in Section III of Legs #1 and 13-22 in order to determine to what degree, if any, the impressed current systems of nearby vessels may be providing cathodic protection for the ground legs. Voltmeter readings are consolidated in Table 2.

2.1.3 Catenary Profile. Several observations were made in order to determine the catenary of each leg. The parameters involved are illustrated in Figure 4. The inclinometer readings were taken where the chain enters the water; depth readings were taken directly below the deck edge and where the chain enters the

mud; the lateral distance is the horizontal distance from the deck edge to the pop float installed above the position where the chain enters the mud. Two inclinometer readings were taken on several legs: the first under relatively calm conditions (winds less than 10 KTS), and a second during strong winds (to 40 KTS) in order to compare the effect on the catenary.

**2.1.4 Ground Leg Relative Bearing.** The orientation of each leg relative to the dock was observed by using a hand-held compass to determine the bearing of the chain as it enters the water. For some legs, a second bearing was taken on a pop float above the point where the chain entered the bottom mud. Comparison of observed vs. designed orientation may indicate which ground legs, if any, should be repositioned.

**2.1.5 Motion of AFDB-7.** From known positions ashore, transit readings to prominent features on the dry dock were recorded under various wind conditions in order to determine the extent of movement of the dock. A schematic diagram of the surveying arrangement is shown in Annex A.

The results of these inspections are presented in Annex A.

**2.2 Sixth Class Moorings.** Two moorings of this type were inspected by divers. The inspection of each mooring included checking the overall physical condition of the buoy itself, observing the thickness of marine growth, and inspecting the condition of the paint under the growth. *Go/No-Go double link measurements* of the riser chain wire diameter were made at three points along its length.

Results are presented in Annex B.

**2.3 Navigation Buoys.** Inspection of the Navigation Buoys was similar to that of the Sixth Class moorings. In addition, transit readings were taken from shore to verify the location of each buoy.

Annex C contains the results of these inspections.

### **3.0 INSPECTION SUMMARY**

This summary provides a brief analysis of the results of the inspection and provides recommendations for corrective action if needed. A more detailed presentation of data can be found in the appropriate annex.

### 3.1 AFDB-7-Summary

3.1.1 Findings. A summary of inspection data is presented in Table 1. Analysis of the observations and measurements made by the inspection team yielded the following results:

- No broken links or hardware were found; 27% (6 of 22) legs were +90% of original 3" chain wire diameter over the entire inspected length (to mudline); 68% (15 of 22) were +80% at some point along their length; one leg (#22) was -80% in Section II. All but one of the +80% or lower measurements occurred in Section II, the splash zone (see Figure 5). Leg #18 had no on-deck stopper (pelican hook).
- No anchors or sinkers were located; all legs were buried in bottom mud a relatively short distance from the floating dock.
- Three legs were noted to have slack chain resting on the bottom; 36% (8 of 22) of the legs had surface chain angles of greater than 85° from the horizontal; 41% (9 of 22) had angles of 75° - 85°; 32% (7 of 22) of the lateral distances were less than 18'; average lateral distance was 45' (see Figure 6).
- Voltmeter readings are typical of unprotected steel in seawater, indicating that no cathodic protection is being provided via impressed current from vessels in the vicinity (see Table 2).
- Analysis of transit readings indicates that wind-induced movement of AFDB-7 is not extreme. For steady winds of 30 KTS with gusts to 40 KTS, the dock experienced a net lateral displacement of approximately 32' from its position in light winds (<10 KTS) from approximately the same direction; maximum displacement was 37' at the bow during a yaw of about 2° to port; maximum yaw was about 3° to starboard.
- Because of inherent inaccuracies in the observation system, no firm conclusions can be drawn regarding the relative bearing of the ground legs.

### 3.1.2 Proposed Corrective Action

- The chain in Section II of Leg #22 which measured less than 80% of original wire diameter must be replaced as soon as possible.
- An engineering analysis of AFDB-7 mooring design should be conducted in order to define the optimum catenary of each leg; pending results of such an analysis, a number of legs should be repositioned to tighten the catenary prior to the 82 - 83 winter season.

## MOORING INSPECTION REPORT

1. FACILITY NAVACTDET HOLY LOCH, UK			2. MOORING NO. AFDB-7		3. TYPE/CLASS MOORING Special Dry Dock		4. LAT: LON:	
5. INSPECTION		DATE 18-24JUN82	DIVERS -----			WATER DEPTH -----	ENGINEER M. M. Walter	INITIALS -----

LEG #	CONDITION			WATER DEPTH (Note 1)				INCLINOMETER ANGLE (Note 2)	RELATIVE BEARING (Note 3)	LATERAL DISTANCE (Note 4)
				D <sub>B</sub>		D <sub>C</sub>				
	I	II	III	Obs.	MLWS	Obs.	MLWS			
1	+90%	+80%	+90%	95	84.6	95	84.6	80°	000°	Not observed
2	+90%	+80%	+90%	104	94.8	96	96.8	59° / 62°	010°	(90)
3	+90%	+80%	+90%	108	99.3	107	98.3	78° / 71°	061°	(60)
4	+90%	+80%	+90%	108	100.6	105	97.6	87° / 77°	050°	45
5	+90%	+80%	+90%	109	102.1	109	102.1	89° / 86°	100°	(3)
6	+90%	+80%	+90%	111	104.4	109	102.4	82° / 65°	070°	54
7	+90%	+80%	+90%	95	89.3	95	89.3	77° / 55°	070°	(60)
8	+90%	+90%	+90%	88	83	92	87	66° / 33°	080°	120
9	+90%	+90%	+90%	88	84.4	86	82.4	85°	090° / 120°	57
10	+90%	+80%	+90%	88	84.6	85	81.6	78°	120° / 160°	54
11	+90%	+80%	+90%	81	78.9	85	82.9	59° / 43° / 61°	180°	88
12	+90%	+90%	+90%	90	77.5	90	77.5	75°	180°	60
13	+90%	+80%	+90%	90	80.3	90	80.3	79°	175° / 170°	39
14	+90%	+80%	+90%	89	80	93	80	74°	220° / 235°	54
15	+90%	+90%	+90%	87	79.2	89	79.2	91°	230°	03
16	+90%	+80%	+90%	87	74.7	89	74.7	84°	195° / 225°	33
17	+90%	+80%	+90%	85	75.6	88	78.6	83°	185° / 220°	39
18	+90%	+90%	+90%	84	77.4	84	77.4	87°	205° / 220°	18
19	+90%	+90%	+80%	88	76.5	88	78.5	88°	285°	00
20	+90%	+80%	+90%	88	78.3	88	82.3	92°	285° / 305°	12
21	+90%	+90%	+90%	88	79.3	88	79.3	85°	290° / 300°	03
22	+90%	-80%	+90%	85	79.6	85	79.6	65°	000° / 353°	57

Note 1: D<sub>B</sub> = Depth at dock edge; D<sub>C</sub> = Depth where chain enters mud; Obs. = actual measurement;

MLWS = Depth at Mean Low Water Springs

Note 2: Second and third angles measured during different weather conditions; see text.

Note 3: First observation taken along chain as it enters water; second observation, if recorded, was from deck edge to pop float above point where chain enters mud.

Note 4: Unable to measure Leg #1 due to proximity of other vessels; values in parentheses are from inspection performed in April 1982 by divers from USS HUNLEY.

Table 1. Summary of AFDB-7 Inspection Data

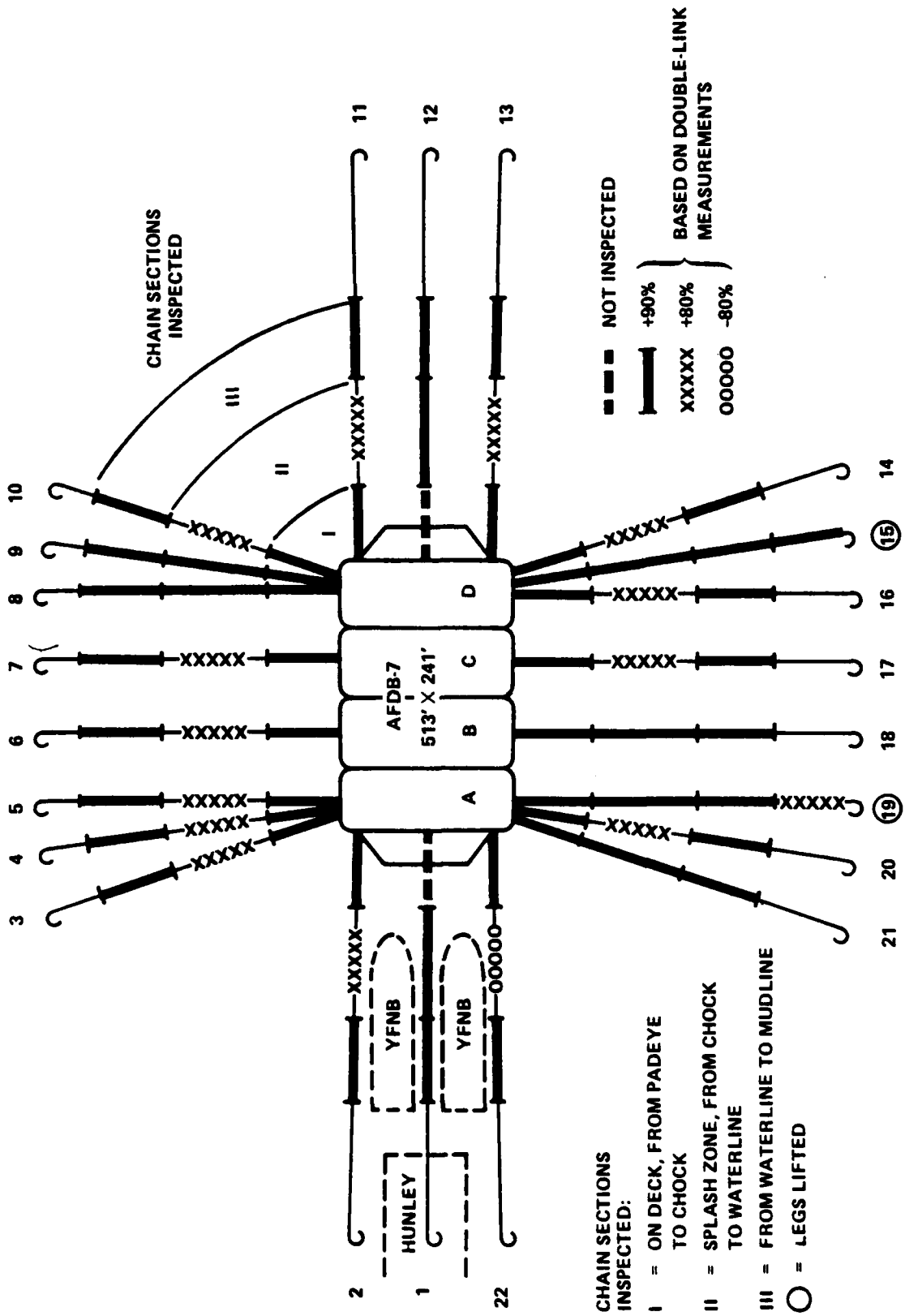


Figure 5. Summary of Ground Leg Chain Measurements



# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET HOLY LOCH UK		2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING SPECIAL DRY DOCK	4. LAT: LON:	
5. INSPECTION	DATE 18-24JUN82	DIVERS	WATER DEPTH	ENGINEER M.M WALTER	INITIALS

\*VOLTMETER READINGS\*

LEG #	WATER DEPTH		
	80'	60'	40'
1	664	649	607
13	663	667	670
14	668	679	677
15	681	689	699
16	681	684	672
17	675	676	668
18	675	679	675
19	682	679	666
20	664	663	651
21	667	665	658
22	663	670	665

Table 2. AFDB-7 Voltmeter Readings

\* MEASUREMENTS IN mV

### **3.2 Sixth Class Moorings – Summary**

**3.2.1 Findings.** The two moorings inspected are in generally good-to-excellent condition. Inspection of the buoys revealed no holes, dents, or pitting, and only medium marine growth was observed. The riser chain was in good condition, with all measurements +90%. Neither of the two anchors was observed. The riser of mooring #2 contained two swivels, while there was no swivel observed in the riser of mooring #3.

**3.2.2 Proposed Corrective Action.** A swivel should be inserted in the riser of #3 mooring.

### **3.3 Navigation Buoys**

**3.3.1 Findings.** The condition of these buoys is generally good-to-excellent. The topside portion of each of the buoys is in good condition; minimal pitting was observed below the waterline. The bridles and risers are in good condition; all double link measurements were +90%. The anchors of both buoys were located and there was no evidence of dragging. The only notable observations were the existence of a box swivel in place of a standard swivel in one of the risers, and a 4 - 5' length of riser chain wrapped around the clump anchor, both in the Starboard buoy.

**3.3.2 Proposed Corrective Action.** None.

### **4.0 MOORING INSPECTION COMMENTS/RECOMMENDATIONS**

**4.1 AFDB-7.** The fact that over 70% of the ground legs had measurements of less than 90% of original wire diameter at some point along their length indicates that the mooring may be in need of overhaul. It is recommended that at least the first two shots of chain in each leg be replaced with new chain, unless a thorough engineering analysis indicates that fewer legs are required. Some legs may require additional new chain depending on the specific location and extent of the wear zone. A cost estimate for new chain and associated hardware is presented in Annex D. Pending results of the analysis to specify the mooring requirements of AFDB-7, it is recommended that only the segment of Leg #22 previously identified be replaced immediately.

Consideration should be given to the possibility of providing cathodic protection for the mooring, especially in the event any of the legs are replaced during overhaul.

Maintenance of proper ground leg catenary is important in order to dampen dock motion and minimize the movement of the dock relative to nearby vessels of much smaller sail area. In view of the fact

that the catenary of many of the legs apparently should be tightened, it is recommended that action be taken prior to completion of the analysis previously mentioned.

Pending the next overhaul, it is recommended that the annual inspection of at least two of the legs by British M.O.D. be continued. Results of these inspections should be forwarded to CHESNAVFAC-ENGCOM for inclusion in mooring maintenance files.

**4.2 Sixth Class Moorings.** Records and conversations with British M.O.D. in Holy Loch confirmed that regular routine inspections, maintenance, and overhauls are performed on these moorings.

It is recommended that any change in the location, type, or number of these moorings be reported to the appropriate activities (including CHESNAVFACENGCOM) so that an accurate inventory of mooring facilities may be maintained.

**4.3 Navigation Buoys.** These buoys should remain in excellent condition under the current program of inspection and maintenance administered by the British Navy.

**ANNEX A**  
**AFDB-7 MOORING INSPECTION REPORTS**  
**INSPECTION REPORT FOR EACH LEG**  
**TRANSIT FIXES**

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO. AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 1
5. INSPECTION	DATE 18-24 JUN 82	DIVERS PRONIA	WATER DEPTH
		ENGINEER M. M. WALTER	INITIALS

COMPONENT	Link # or Depth, ft (State 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I						NOT INSPECTED; NOTE 3
SECTION II	# 1	S <sup>1/2</sup> D				
"	# 2	S <sup>1/2</sup> D				
SECTION III	20'	VD		602		
"	40'	VD		607		GROWTH STOPS AT 50' DEPTH
"	60'	VD		649		
"	80'	VD		664		

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

Note 2: D = Double link measurement, S = Single link measurement

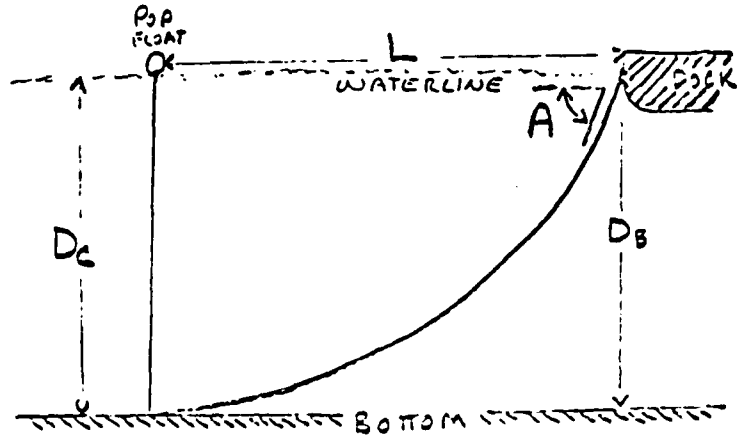
**NOTE 3: UNABLE TO REACH THIS PORTION OF LEG - UNDER DECK OVERHANG**

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 1
5. INSPECTION	DATE 18-24 Jun 82	DIVERS PRONIA	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

CATENARY DATA:

A = 80°  
 L =      ft UNABLE TO MEASURE  
 D<sub>B</sub> = 84.6 ft  
 D<sub>C</sub> = 84.6 ft



NOTES: Depths @ Mean Low Water Springs  
 "A" recorded in winds 10 KTS or less

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

Not OBSERVED

OTHER DATA:

Relative Bearing: 000° at deck edge  
N/A deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 2em;">2</span>
5. INSPECTION	DATE 18-24 JUN 82	DIVERS PRONIA	WATER DEPTH
		ENGINEER M.M. WALTER	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	# 15/16	✓D				ALL CHAIN IN SECTION I IS
"	# 20/21	✓D				COATED - GOOD CONDITION
SECTION II	# 24		S 5/16 D			
"	# 25		S D			
"	# 26	S 7/16 D				
"	# 27	S 1/4 D				
"	# 28	S 3/4 D				
SECTION III	20'	✓D				
"	40'	✓D				
"	60'	✓D				
"	80'	✓D				SILTY/MUDDY BOTTOM - DIVER COULD NOT HAND IN 1/2'-2'

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

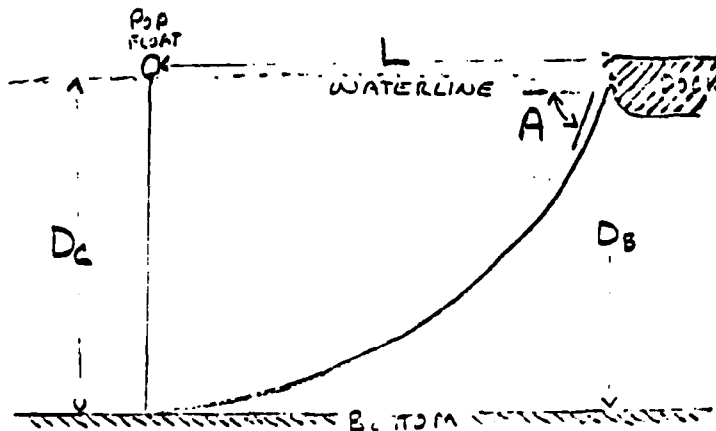
Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO. AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 1.5em; float: right;">2</span>
5. INSPECTION	DATE 18-21 JUN 82	DIVERS PRONIA	ENGINEER M.M. WALTER

CATENARY DATA:

A = 59°    A' = 62°  
 L = 90 ft (USS HUNLEY  
 DIVERS, APR 82)  
 D<sub>B</sub> = 94.8 ft  
 D<sub>C</sub> = 96.8 ft



NOTES: Depths @ Mean Low Water Springs

"A" recorded in winds 10 KTS  
 or less

A' RECORDED IN WINDS 30-40 KTS

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PADEYE + ANCHOR JOINING LINK + 20 LINKS TO STOPPER + 2 LINKS  
 TO CHOCK + 6 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 020° at deck edge  
N/A deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 3
5. INSPECTION	DATE 18-24 APR	DIVERS PRONIA	WATER DEPTH
ENGINEER M.M. WALTER			INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	#16/17	JD				CHAIN SLIGHTLY PITTED; ALL LINKS IN SECTION I ARE COATED
"	#22/23	JD				
SECTION II	# 24	S 1/2 D				
"	# 25		S 1/2 D			
"	# 26	S 1/2 D				
"	# 27	S 1/2 D				
"	# 28	S 1/2 D				
SECTION III	20'	JD				
	40'	JD				
	60'	JD				
	80'	JD				SLACK CHAIN ON BOTTOM

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 2em; float: right;">3</span>
5. INSPECTION	DATE 18-24 JUN 84	DIVERS PRONIA	ENGINEER M. M. WALTER
			INITIALS

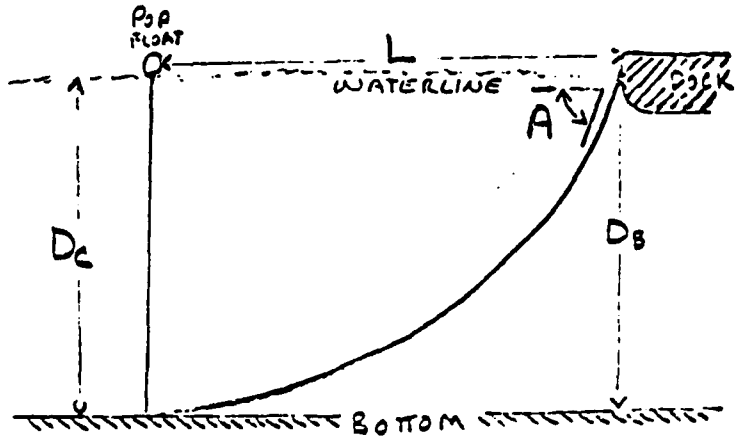
CATENARY DATA:

A = 78° A' = 71°

L = 60 ft (USS HUNLEY  
DIVERS APR 82)

D<sub>B</sub> = 99.3 ft

D<sub>C</sub> = 98.3 ft



NOTES: Depths @ Mean Low Water Springs

"A" recorded in winds 10 KTS  
or less

A' RECORDED IN WINDS 30-40 KTS

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE - ANCHOR JOINING LINK + 6 LINKS + DETACHABLE LINK + 11 LINKS  
TO STOPPER + 5 LINKS TO CHOCK + 5 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 061° at deck edge

N/A deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

## MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO. AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 4
5. INSPECTION	DATE 18-24 JUN 82	DIVERS COOPER	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

COMPONENT	Link # or Depth, ft (NOTE 1)	CONDITION (Note 2)		Voltmeter reading, mV	Comments
		+90%	-80%		
SECTION I	NOT RECORDED	√D			DIFFERENT TYPE OF CHAIN; BADLY PITTED UNDER COATING. BADLY RUSTED AT CMOCK; ALL LINKS IN SECTION I ARE COATED
"	# 25		5 <sup>9</sup> / <sub>16</sub> " D		
SECTION II	# 26		5 <sup>5</sup> / <sub>16</sub> " D		
	# 27	5 <sup>9</sup> / <sub>16</sub> " D			
	# 28	5 <sup>1</sup> / <sub>2</sub> " D			
	# 29	5 <sup>5</sup> / <sub>16</sub> " D			
SECTION III	20'	√D			
	40'	√D			
	60'	√D			
	80'	√D			

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 4
5. INSPECTION	DATE 18-24 JUN 82	DIVERS COOPER	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

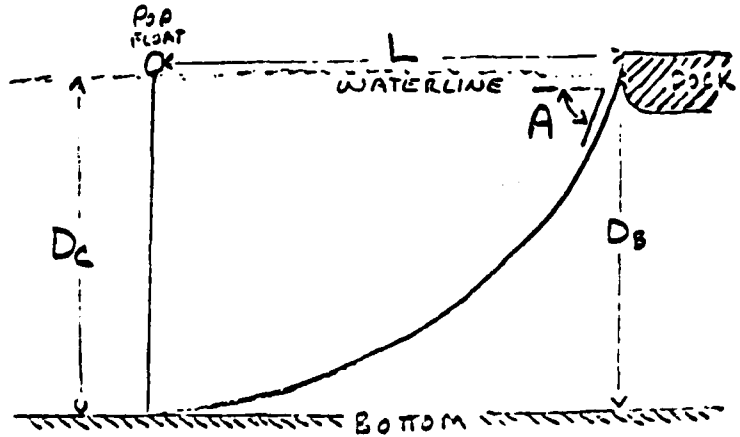
CATENARY DATA:

A = 87° A' = 77°

L = 45 ft

D<sub>B</sub> = 100.6 ft

D<sub>C</sub> = 97.6 ft



NOTES: Depths @ Mean Low Water Springs

"A" recorded in winds 10 KTS or less

A' RECORDED IN WINDS 30-40 KTS

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE - ANCHOR JOINING LINK + 20 LINKS TO STOPPER + 4 LINKS TO CHOCK + 5 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 050° at deck edge

N/A deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

## MOORING INSPECTION REPORT

1. FACILITY NAVACDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 2em; float: right;">5</span>		
5. INSPECTION	DATE 11-24-62	DIVERS COOPER	WATER DEPTH	ENGINEER M.M. WALTER	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	#15/16	JD				All links in Section I coated
"	#19/20	JD				
SECTION II	# 24	S <sup>1/2</sup> "D				
	# 25	S"D				
	# 26	S <sup>1/4</sup> "D				
	# 27	S <sup>1/2</sup> "D				
	# 28	S <sup>3/4</sup> "D				
SECTION III	20'	JD				
	40'	JD				
	60'	JD				
	80'	JD				HARDER BOTTOM: 4"-5" PENETRATION 8-9 LINKS LOOSE ON BOTTOM

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

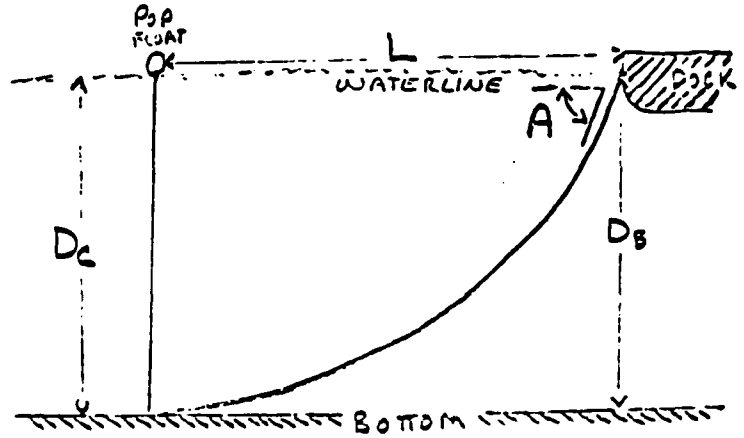
Note 2: D = Double Link measurement, S = Single Link measurement

MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK		2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 5	
5. INSPECTION	DATE 18-21 Jun 82	DIVERS COOPER	WATER DEPTH	ENGINEER M.M. WALTER	INITIALS

CATENARY DATA:

A = 890 A' = 860  
 L = 3 ft (USS HONLEY  
 DIVERS APR 82)  
 D<sub>B</sub> = 102.1 ft  
 D<sub>C</sub> = 102.1 ft



NOTES: Depths @ Mean Low Water Springs

"A" recorded in winds 10 KTS or less

A' RECORDED IN WINDS 30-40 KTS

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE - ANCHOR JOINING LINK + 16 LINKS TO STOPPER + 6 LINKS TO CHOCK + 6 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 100° at deck edge  
N/A deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO. AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 2em; float: right;">6</span>
5. INSPECTION	DATE 18-24 Jun 80	DIVERS COOPER	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)		Voltmeter reading, mV	Comments
		+90%	+80% -80%		
SECTION I	# 14/15	JD			ALL LINKS IN SECTION I COATED; GOOD CONDITION.
"	# 22/23	JD			
SECTION II	# 26	S 1/2"D			
	# 27	S 7/16"D			
	# 28	S 5/16"D			
	# 29	S 7/16"D			
	# 30	S 1/2"D			
SECTION III	20'	JD			
	40'	JD			
	60'	JD			
	80'	JD			

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 2em; float: right;">6</span>
5. INSPECTION	DATE 18-24 JUN 82	DIVERS COOPER	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

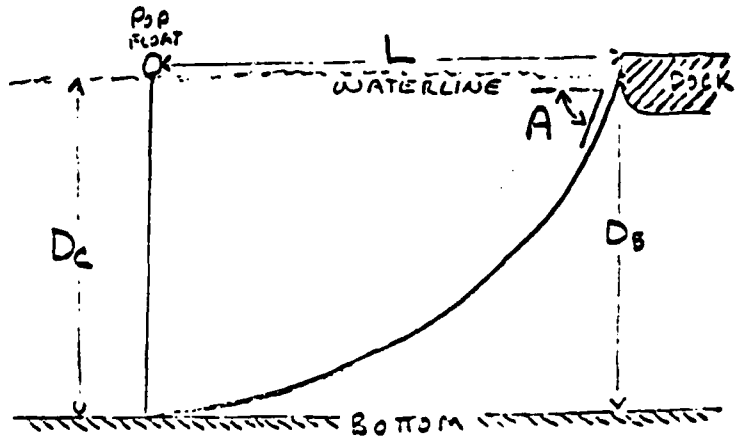
CATENARY DATA:

A = 82° A' = 65°

L = 54 ft

D<sub>B</sub> = 104.4 ft

D<sub>C</sub> = 102.4 ft



NOTES: Depths @ Mean Low Water Springs

"A" recorded in winds 10 KTS or less

A' RECORDED IN WINDS 30-40 KTS

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE - ANCHOR JOINING LINK + 20 LINKS TO STOPPER + 5 LINKS TO  
CHOCK + 5 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 070° at deck edge

N/A deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 2em; float: right;">7</span>
5. INSPECTION	DATE 18-24 Jun 82	DIVERS PRONIA	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	# 10/11	✓D				PARTIALLY COATED, LIGHTLY RUSTED
	# 19/20	✓D				
SECTION II	# 24	S <sup>1/4</sup> D				
	# 25	S <sup>1/2</sup> D				
	# 26	S <sup>3/4</sup> D				
	# 27	S <sup>5/8</sup> D				
SECTION III	# 28	S <sup>1/4</sup> D				
	20'	✓D				
	40'	✓D				
	60'	✓D				
	80'	✓D				GOOD VISIBILITY SOLID BOTTOM - KNEELED ON IT

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

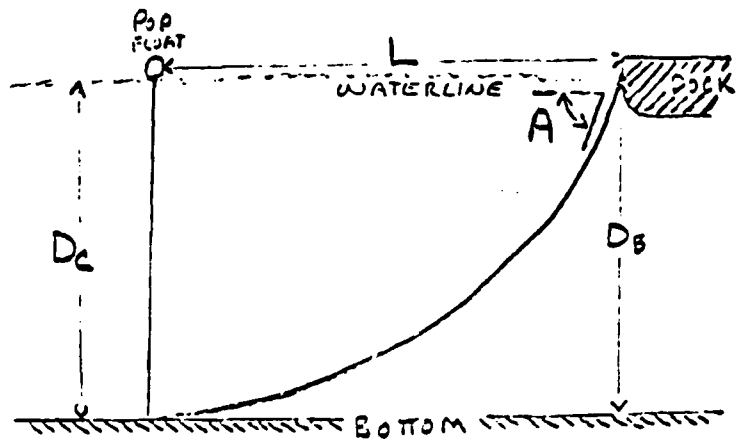
Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 2em; float: right;">7</span>
5. INSPECTION	DATE 18-24 JUN 84	DIVERS PRONIA	ENGINEER M.M. WALTER

CATENARY DATA:

A = 77° A' = 55°  
 L = 60 ft (USS HANLEY  
 DIVERS APR 82)  
 D<sub>B</sub> = 89.3 ft  
 D<sub>C</sub> = 89.3 ft



NOTES: Depths @ Mean Low Water Springs  
 "A" recorded in winds 10 KTS  
 or less  
 A' RECORDED IN WINDS 30-40 KTS

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE - ANCHOR JOINING LINK + 18 LINKS TO STOPPER + 5 LINKS  
 TO CHOCK + 5 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 070° at deck edge  
N/A deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 2em; font-weight: bold;">8</span>
5. INSPECTION	DATE 18-24 JUN 82	DIVERS PRONIA	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)		Voltmeter reading, mV	Comments
		+90%	+80%		
SECTION I	# 12/13	JD			MEDIUM RUST
"	# 21/22	JD			
SECTION II	# 26	6 1/16" D			NEW CHAIN
"	# 27	5 15/16" D			
"	# 28	6" D			
"	# 29	6 1/16" D			
"	# 30	6 1/16" D			
SECTION III	20'	JD			
	40'	JD			
	60'	JD			
	80'	JD			

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 8
5. INSPECTION	DATE 18-24 JUN 82	DIVERS RONIA	ENGINEER M.M. WALTER
			INITIALS

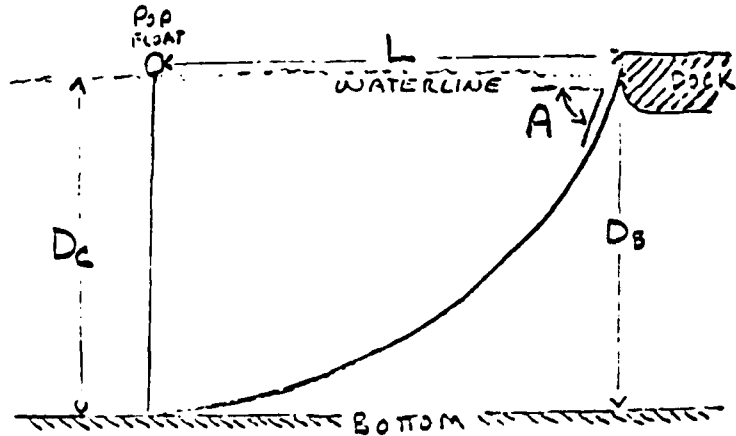
CATENARY DATA:

A = 66° A' = 33°

L = 120 ft

D<sub>B</sub> = 83 ft

D<sub>C</sub> = 87 ft



NOTES: Depths @ Mean Low Water Springs

"A" recorded in winds 10 KTS or less

A' RECORDED IN WINDS 30-40 KTS

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE - ANCHOR JOINING LINKS + 17 LINKS TO STOPPER + 2 LINKS +  
DETACHABLE LINK + 3 LINKS TO CHOCK + 7 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 080° at deck edge

N/A deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 9
5. INSPECTION	DATE 18-24 Jun 82	DIVERS PRONIA	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	#12/13	√D				MEDIUM RUST/FLAKY
"	#19/20	√D				
SECTION II	#24	S <sup>1</sup> / <sub>16</sub> "D				
"	#25	S <sup>1</sup> / <sub>16</sub> "D				
"	#26	S <sup>1</sup> / <sub>16</sub> "D				
"	#27	S <sup>1</sup> / <sub>16</sub> "D				
"	#28	S <sup>3</sup> / <sub>16</sub> "D				
"	#29	S <sup>1</sup> / <sub>16</sub> "D				
SECTION III	20'	√D				LEG DROPS VERTICALLY AT SURFACE
"	40'	√D				BUT TENDS OUT AT A MUCH GREATER SLOPE
"	60'	√D				
"	80'	√D				

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

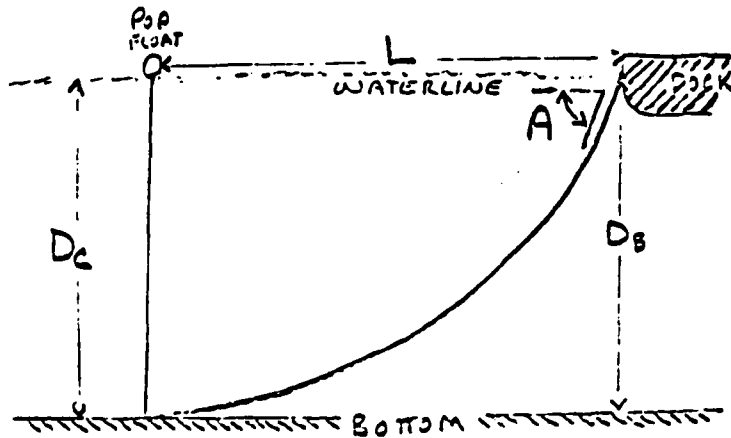
Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS/MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 2em; float: right;">9</span>
5. INSPECTION	DATE 18-24 June 82	DIVERS PRONIA	ENGINEER M. M. WALTER
			INITIALS

CATENARY DATA:

A = 85°  
 L = 57 ft  
 D<sub>B</sub> = 84.4 ft  
 D<sub>C</sub> = 87.4 ft



NOTES: Depths @ Mean Low Water Springs  
 "A" recorded in winds 10 KTS or less

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE - ANCHOR JOINING LINK + 18 LINKS TO STOPPER + 1 LINK +  
 DETACHABLE LINK + 3 LINKS TO CHOCK + 6 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 090° at deck edge  
120° deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 10
5. INSPECTION	DATE 18-24 JUN 82	DIVERS PRONIA	WATER DEPTH
ENGINEER M.M. WALTER			INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	# 5/6	✓D				ALL COATED TO CHECK; BADLY RUSTED AND FLAKY; 1/4" RUST PRODUCT; AT SECOND DETACH. LINK: STUD ALMOST GONE
"	# 17/18	JD				
SECTION II	# 23	S 3/4" D				
"	# 24	S 3/4" D				
"	# 25	S 5/8" D				
"	# 26	S 7/8" D				
"	# 27	S 5/8" D				
"	# 28	S 5/8" D				
SECTION III	20'	✓D				GOOD CATENARY: MAINTAINS SAME ANGLE FOR A LONG WAY
"	40'	✓D				
"	60'	✓D				
"	80'	✓D				

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

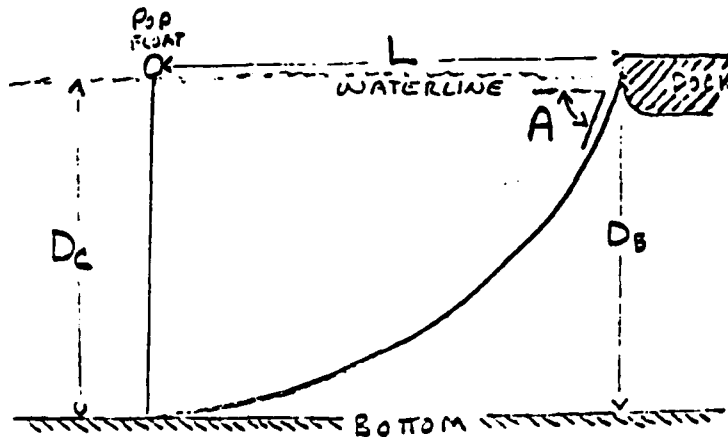
Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="float: right;">10</span>
5. INSPECTION	DATE 18-24 JUN 82	DIVERS PRONIA	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

CATENARY DATA:

A = 78°  
 L = 54 ft  
 D<sub>B</sub> = 81.6 ft  
 D<sub>C</sub> = 81.6 ft



NOTES: Depths @ Mean Low Water Springs  
 "A" recorded in winds 10 KTS  
 or less

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE-ANCHOR JOINING LINK + 8 LINKS + DETACHABLE LINK +  
 9 LINKS TO STOPPER + DETACHABLE LINK + 3 LINKS TO  
 CHOCK + 6 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 120° at deck edge  
160° deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 11
5. INSPECTION	DATE 18-24 JUN 82	DIVERS PRONIA / COOPER	WATER DEPTH
		ENGINEER M.M. WALTER	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mv	Comments
		+90%	+80%	-80%		
SECTION I	#6/7	VD				SOME FLAKING. MEDIUM RUST
"	#22/23	VD				
SECTION II	#24	S 1/2" D				
"	#25		S 5/8" D			
"	#26		S 1/2" D			
"	#27		S 3/8" D			
"	#28		S 5/8" D			
"	#29	S 1/2" D				
SECTION III	20'	VD				
"	40'	VD				
"	60'	VD				
"	80'	VD				

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 11
5. INSPECTION	DATE 18-21 JUN 74	DIVERS PRONIA/COOPER	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

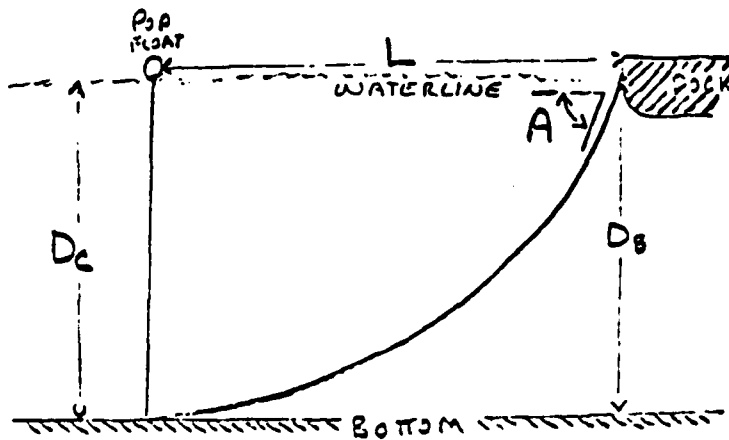
CATENARY DATA:

A = 59° A', A" = 43°, 61°

L = 88 ft

D<sub>B</sub> = 78.9 ft

D<sub>C</sub> = 82.9 ft



NOTES: Depths @ Mean Low Water Springs

"A" recorded in winds 10 KTS or less

A' and A" recorded in winds 30-40 KTS

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE - ANCHOR JOINING LINK + 18 LINKS TO STOPPER + 4 LINKS TO CHOCK + 7 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 180° at deck edge

N/A deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.



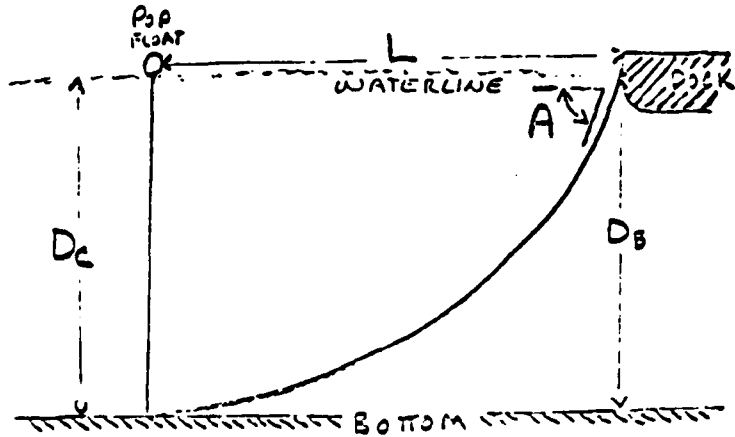
# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 1.5em;">12</span>
5. INSPECTION	DATE 18-21 JUN 82	DIVERS PRONIA/COOPER	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

CATENARY DATA:

A = 75°  
 L = 60 ft  
 D<sub>B</sub> = 77.5 ft  
 D<sub>C</sub> = 77.5 ft

NOTES: Depths @ Mean Low Water Springs  
 "A" recorded in winds 10 KTS  
 or less



COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

Not OBSERVED

OTHER DATA:

Relative Bearing: 180° at deck edge  
N/A deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 1.5em;">13</span>
5. INSPECTION	DATE 18-24 Jun 82	DIVERS DAHL / AYLSWORTH	ENGINEER M. M. WALTER
		WATER DEPTH	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)		Voltmeter reading, mV	Comments
		+90%	+80% -80%		
SECTION I	#1/2	JD			SLIGHTLY RUSTED
"	#6/7	JD			
"	#18/19	JD			
"	#21/22	JD			
SECTION II	#25	S <sup>1</sup> / <sub>8</sub> "D			
"	#26	S <sup>1</sup> / <sub>4</sub> "D			
"	#27	S <sup>1</sup> / <sub>8</sub> "D			
"	#28	S <sup>3</sup> / <sub>8</sub> "D			
"	#29	S <sup>1</sup> / <sub>2</sub> "D			
SECTION III	20'	JD		668	
"	40'	JD		670	
"	60'	JD		667	CLEAN, DULL CHAIN;
"	80'	JD		663	VISIBILITY AT BOTTOM 2'; SILTY-SANDY BOTTOM

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

Note 2: D = Double link measurement, S = Single link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 1.5em; font-weight: bold;">13</span>
5. INSPECTION	DATE 18-24 JUN 82	DIVERS DAHL/AYLSWORTH	ENGINEER M.M. WALTER

CATENARY DATA:

A = 79°

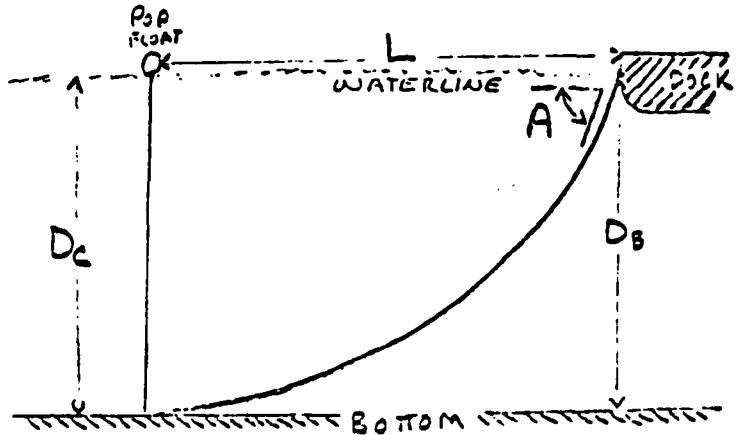
L = 39 ft

D<sub>B</sub> = 80.3 ft

D<sub>C</sub> = 80.3 ft

NOTES: Depths @ Mean Low Water Springs

"A" recorded in winds 10 KTS  
or less



COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE-ANCHOR JOINING LINK + 15 LINKS + DETACHABLE LINK +  
4 LINKS TO STOPPER + 3 LINKS TO CHOCK +  
6 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 175° at deck edge

170° deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 1.5em; float: right;">14</span>
5. INSPECTION	DATE 18-24 JUN 82	DIVERS DAHL / AYLSWORTH	WATER DEPTH
ENGINEER M.M. WALTER			INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	# 1/2	JD				
"	# 9/10	JD				
SECTION II	# 23	S 5/8" D				
"	# 24		S 1/4" D			
"	# 25		S 1/8" D			
"	# 26		S 1/8" D			
"	# 27		S 5/8" D			
"	# 28		S 3/4" D			
SECTION III	20'	JD			694	
"	40'	JD			677	
"	60'	JD			679	
"	80'	JD			668	

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).  
 Note 2: D = Double Link measurement, S = Single Link measurement

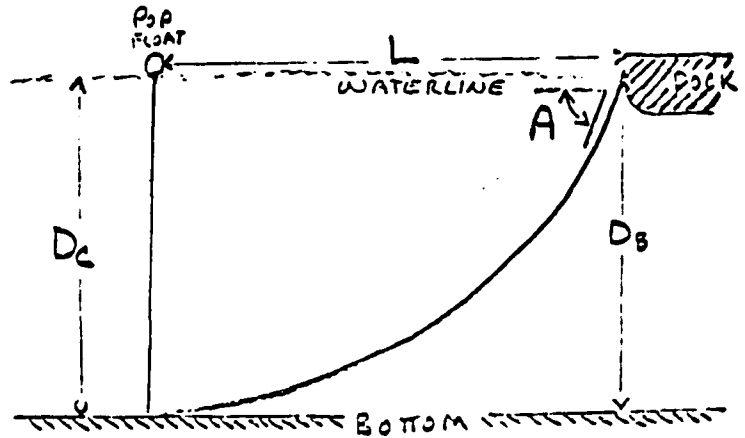
# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 14
5. INSPECTION	DATE 18-24 JUN 82	DIVERS DAHL / AILSWORTH	ENGINEER M.M. WALTERZ
			INITIALS

CATENARY DATA:

A = 74°  
 L = 54 ft  
 D<sub>B</sub> = 80 ft  
 D<sub>C</sub> = 80 ft

NOTES: Depths @ Mean Low Water Springs  
 "A" recorded in winds 10 KTS  
 or less



COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE - ANCHOR JOINING LINK + 17 LINKS TO STOPPER + 1 LINK  
 + DETACHABLE LINK + 3 LINKS TO CHOCK +  
 6 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 220° at deck edge  
235° deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 15
5. INSPECTION	DATE 18-24 Jun 82	DIVERS DAHL / AYLSWORTH	WATER DEPTH
ENGINEER M.M. WALTER		INITIALS	

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	#10/11	VD				MEDIUM RUST
"	#17/18	VD				
SECTION II	#24	S 1/2" D				
"	#25	S 9/16" D				
"	#26	S 1/2" D				
"	#27	S 1/2" D				
"	#28	S 1/2" D				
SECTION III	20'	VD			718	CHAIN TENDS STRAIGHT
"	40'	VD			699	DOWN, HITS BOTTOM AND RUNS OUT
"	60'	VD			689	
"	80'	VD			681	
"	BELOW MUDLINE	VS				4 LINKS LIFTED FROM MUD

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 1.5em;">15</span>
5. INSPECTION	DATE 18-24 JUN 82	DIVERS DAHL/AYLWORTH	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

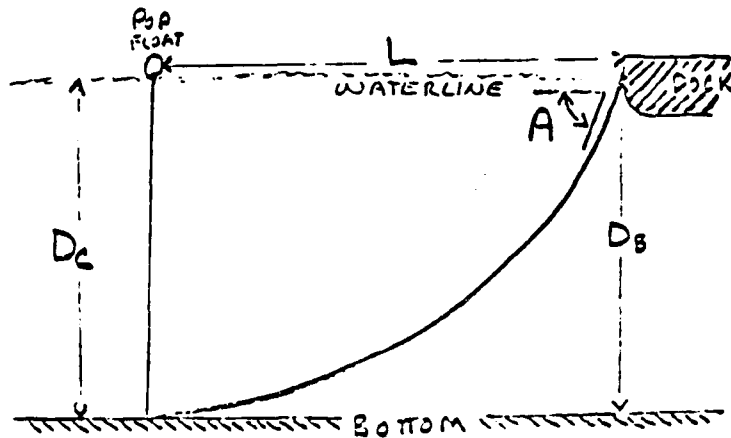
CATENARY DATA:

A = 91°

L = 3 ft

D<sub>B</sub> = 79.2 ft

D<sub>C</sub> = 79.2 ft



NOTES: Depths @ Mean Low Water Springs  
"A" recorded in winds 10 KTS or less

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE-ANCHOR JOINING LINK + 18 LINKS + DETACHABLE LINK  
+ 1 LINK TO STOPPER + 3 LINKS TO CHOCK +  
5 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 230° at deck edge

N/A deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 16
5. INSPECTION	DATE 18-24 Jun 82	DIVERS DAHL / AYLSWORTH	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	#10/11	✓D				MOST LINKS BADLY RUSTED;
"	#19/20	✓D				FLAKES EASILY.
"	#20/21	✓D				
SECTION II	#23	5/8" D				
"	#24	5/8" D				
"	#25	5/8" D				
"	#26	5/8" D				
"	#27	5/8" D				
SECTION III	20'	✓D			666	GROWTH STOPS AT 40' DEPTH
"	40'	✓D			672	
"	60'	✓D			684	
"	80'	✓D			681	

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

Note 2: D = Double link measurement, S = Single link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 16
5. INSPECTION	DATE 18-24 Jun 82	DIVERS DAHL/AHLWORTH	ENGINEER M.M. WALTER
			INITIALS

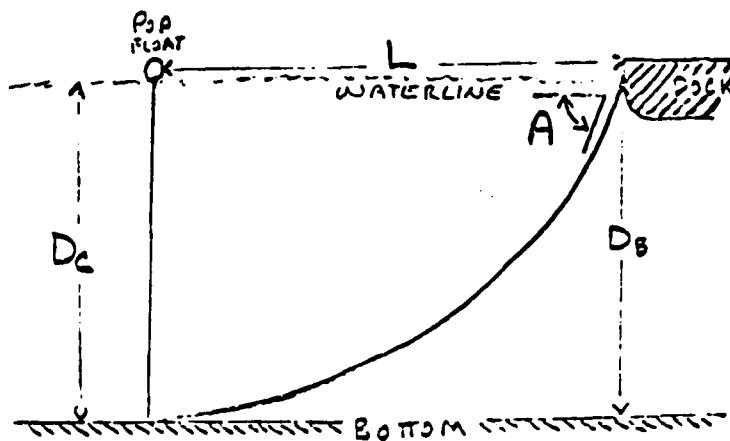
CATENARY DATA:

A = 84°

L = 33 ft

D<sub>B</sub> = 74.7 ft

D<sub>C</sub> = 74.7 ft



NOTES: Depths @ Mean Low Water Springs  
"A" recorded in winds 10 KTS or less

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE - ANCHOR TOWING LINK + 14 LINKS + DETACHABLE LINK + 3 LINKS TO STOPPER + 4 LINKS TO CHOCK + 5 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 195° at deck edge

225° deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 1.5em;">17</span>
5. INSPECTION	DATE 18-24 JUN 82	DIVERS SUTTON/JELLO	ENGINEER M.M. WALTER
			INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	#12/13	VD				MEDIUM-TO-HEAVY RUST
SECTION II	#24	VD				
"	#25		VD			
"	#26		VD			
"	#27	S <sup>5</sup> / <sub>8</sub> "D				
"	#28	S <sup>9</sup> / <sub>16</sub> "D				
"	#29	S <sup>5</sup> / <sub>8</sub> "D				
"	#30		S <sup>5</sup> / <sub>16</sub> "D			
"	#31	S <sup>5</sup> / <sub>16</sub> "D				
SECTION III	20'	VD			677	
"	40'	VD			668	
"	60'	VD			676	
"	80'	VD			675	
"						
"						

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: 17
5. INSPECTION	DATE 18-24 JUN 82	DIVERS SUTTON/JELLO	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

CATENARY DATA:

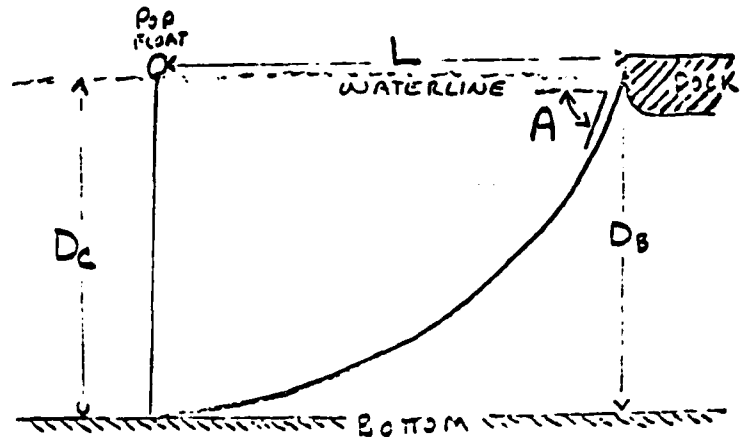
A = 83°

L = 39 ft

D<sub>B</sub> = 75.6 ft

D<sub>C</sub> = 78.6 ft

NOTES: Depths @ Mean Low Water Springs  
"A" recorded in winds 10 KTS  
or less



COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAOEYE - ANCHOR JOINING LINK + 16 LINKS + DETACHABLE LINK  
+ 6 LINKS TO STOPPER + 3 LINKS TO CHOCK  
+ 5 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 185° at deck edge

220° deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 1.5em; float: right;">18</span>
5. INSPECTION	DATE 1824 JUN 82	DIVERS SUTTON/JELLO	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	#19/20	√D				No STOPPER, LIGHTLY RUSTED
"	#23/24	√D				
SECTION II	#24	S <sup>5</sup> / <sub>8</sub> "D				
"	#25	S <sup>7</sup> / <sub>8</sub> "D				
"	#26	S <sup>1</sup> / <sub>2</sub> "D				
"	#27	S <sup>5</sup> / <sub>8</sub> "D				
"	#28	S <sup>5</sup> / <sub>8</sub> "D				
SECTION III	20'	√D			660	
"	40'	√D			675	
"	60'	√D			675	
"	80'	√D			675	CHAIN LOOKS GOOD

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 2em; float: right;">18</span>
5. INSPECTION	DATE 18-24 JUN 82	DIVERS SUTTON/JELLO	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

CATENARY DATA:

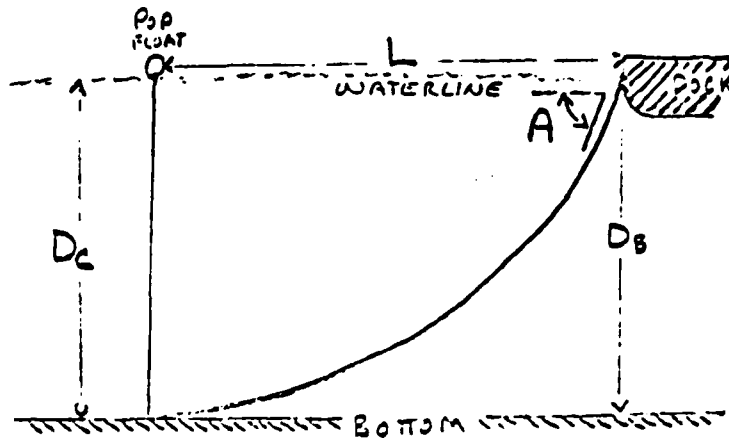
A = 87°

L = 18 ft

D<sub>B</sub> = 77.4 ft

D<sub>C</sub> = 77.4 ft

NOTES: Depths @ Mean Low Water Springs  
"A" recorded in winds 10 KTS  
or less



COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE - ANCHOR JOINING LINK + 23 LINKS TO CHOCK +  
5 LINKS TO WATERLINE

- NO STOPPER

OTHER DATA:

Relative Bearing: 205° at deck edge

220° deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 2em; float: right;">19</span>
5. INSPECTION	DATE 10-27-82	DIVERS SUTTON/JELLO	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	#10/11	VD				RUSTED AND FLAKY; POOR CONDITION
"	#19/20	JD				
SECTION II	#24	S 7/8" D				
"	#25	S 7/8" D				
"	#26	S 1/2" D				
"	#27	S 5/8" D				
"	#28	S 7/8" D				
SECTION III	20'	JD			651	CHAIN TENDS STRAIGHT DOWN WITH APPROXIMATELY 10 LINKS SLACK ON BOTTOM
"	40'	JD			666	
"	60'	JD			679	
"	80'	JD			682	
"	BELOW MUDLINE		2 1/2 S			CHAIN PULLED OUT OF MUD

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

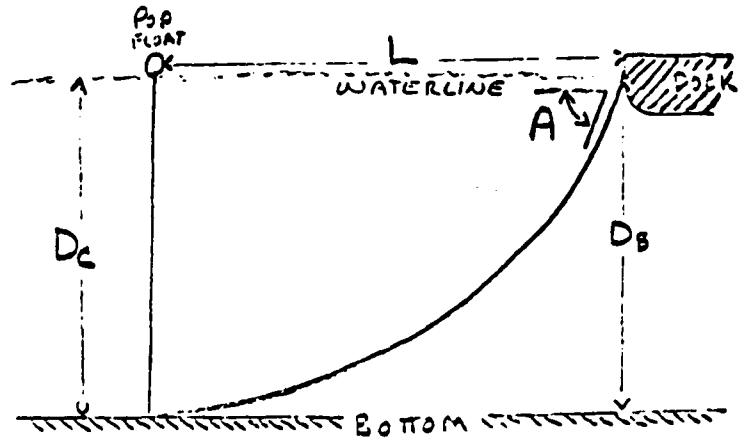
Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 2em; float: right;">19</span>
5. INSPECTION	DATE 18-24 Jun 82	DIVERS SUTTON/JELLO	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

CATENARY DATA:

A = 88°  
 L = 0 ft  
 D<sub>B</sub> = 76.5 ft  
 D<sub>C</sub> = 78.5 ft



NOTES: Depths @ Mean Low Water Springs  
 "A" recorded in winds 10 KTS  
 or less

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE-ANCHOR JOINING LINK + 16 LINKS TO STOPPER +  
 6 LINKS TO CHOCK + 6 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 285° at deck edge  
N/A deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 1.5em;">20</span>
5. INSPECTION	DATE 18-24 June 82	DIVERS SUTTON/JELLO	ENGINEER M. M. WALTER
		WATER DEPTH	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	#12/13	JD				EXTREMELY BADLY RUSTED; MUCH DEBRIS LYING ON CHAIN
"	#23/24	JD				
SECTION II	#27	S 1/2 D				
"	#28	S 1/2 D				
"	#29	S 5/8 D				
"	#30	S 5/8 D				
"	#31	S 1/2 D				
"	#32	S 1/2 D				
SECTION III	20'	JD			643	
"	40'	JD			651	
"	60'	JD			663	
"	80'	JD			664	2" PIPE LYING ON TOP OF CHAIN AT BOTTOM

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

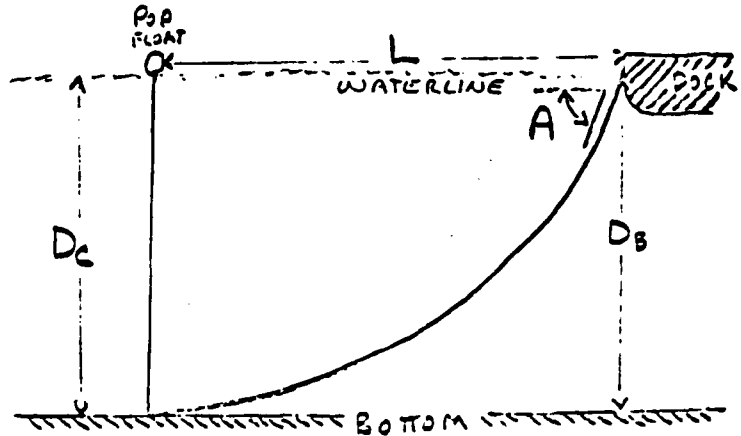
Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 1.5em;">20</span>
5. INSPECTION	DATE 18-24 Jun 82	DIVERS SUTTON/JELLO	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

CATENARY DATA:

A = 92°  
 L = 12 ft  
 D<sub>B</sub> = 78.3 ft  
 D<sub>C</sub> = 82.3 ft



NOTES: Depths @ Mean Low Water Springs  
 "A" recorded in winds 10 KTS or less

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE-ANCHOR JOINING LINK + 17 LINKS + DETACHABLE LINK +  
 4 LINKS TO STOPPER + 4 LINKS TO CHOCK +  
 6 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 285° at deck edge  
305° deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 1.5em;">21</span>
5. INSPECTION	DATE 1824 JUN 82	DIVERS SUTTON/JELO	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mv	Comments
		+90%	+80%	-80%		
SECTION I	Not RECORDED	JD				HEAVY RUST, MUCH DEBRIS AROUND CHAIN
SECTION II	#23	S <sup>3</sup> / <sub>16</sub> " D				
"	#24	S <sup>5</sup> / <sub>16</sub> " D				
"	#25	S <sup>3</sup> / <sub>16</sub> " D				
"	#26	S <sup>5</sup> / <sub>16</sub> " D				
"	#27	S <sup>3</sup> / <sub>16</sub> " D				
"	#28	S <sup>3</sup> / <sub>16</sub> " D				
SECTION III	20'	JD			645	CHAIN DROPS STRAIGHT DOWN THEN RAPIDLY OUT
"	40'	JD			658	
"	60'	JD			665	
"	80'	JD			667	

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

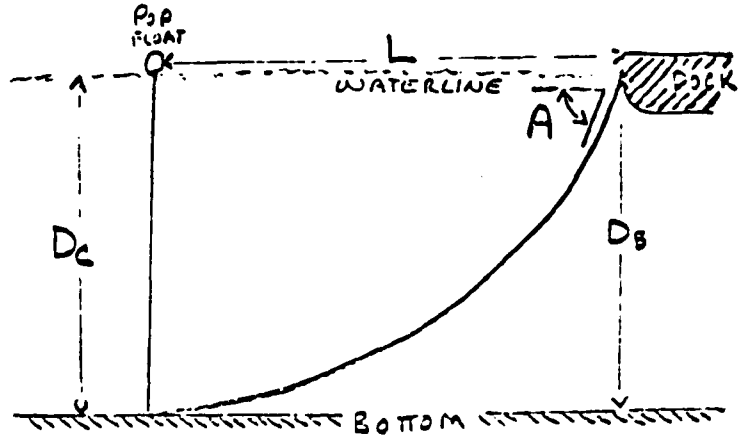
Note 2: D = Double Link measurement, S = Single Link measurement

MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK		2. MOORING NO AFDB-7	3. TYPE/CLASS/MOORING Special Dry Dock	4. LEG NUMBER: 21	
5. INSPECTION	DATE 18-24 SWYR	DIVERS SUTTON/JELLO		WATER DEPTH	ENGINEER M.M. WALTER
INITIALS					

CATENARY DATA:

A = 85°  
 L = 3 ft  
 D<sub>B</sub> = 79.3 ft  
 D<sub>C</sub> = 79.3 ft



NOTES: Depths @ Mean Low Water Springs  
 "A" recorded in winds 10 KTS  
 or less

COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

PAD EYE-ANCHOR JOINING LINK + 16 LINKS TO STOPPER + 6 LINKS  
 TO CHOCK + 6 LINKS TO WATERLINE

OTHER DATA:

Relative Bearing: 290° at deck edge  
300° deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 1.5em; float: right;">22</span>
5. INSPECTION	DATE 1824 JUN 82	DIVERS SUTTON/JELLO	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

COMPONENT	Link # or Depth, ft (Note 1)	CONDITION (Note 2)			Voltmeter reading, mV	Comments
		+90%	+80%	-80%		
SECTION I	Abr RECORDED	√D				Slightly Rusted
SECTION II	#1	S <sup>3</sup> / <sub>16</sub> D				
"	#2		S <sup>3</sup> / <sub>16</sub> D			
"	#3		4 <sup>1</sup> / <sub>16</sub> D			
"	#4		S <sup>3</sup> / <sub>16</sub> D			
"	#5	S <sup>5</sup> / <sub>16</sub> D			640	
"	#6	S <sup>5</sup> / <sub>16</sub> D			665	
SECTION III	20'	√D			670	
"	40'	√D			663	
"	60'	√D				
"	80'	√D				SILTY BOTTOM APPROX. 1' DEEP

Note 1: First link after anchor joining link is #1; all links including detachables are counted (see configuration, next page).

Note 2: D = Double Link measurement, S = Single Link measurement

# MOORING INSPECTION REPORT

1. FACILITY NAVACDET, HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING Special Dry Dock	4. LEG NUMBER: <span style="font-size: 1.5em;">22</span>
5. INSPECTION	DATE 18-24 Jun 82	DIVERS SUTTON/JELLO	ENGINEER M.M. WALTER
		WATER DEPTH	INITIALS

CATENARY DATA:

A = 65°

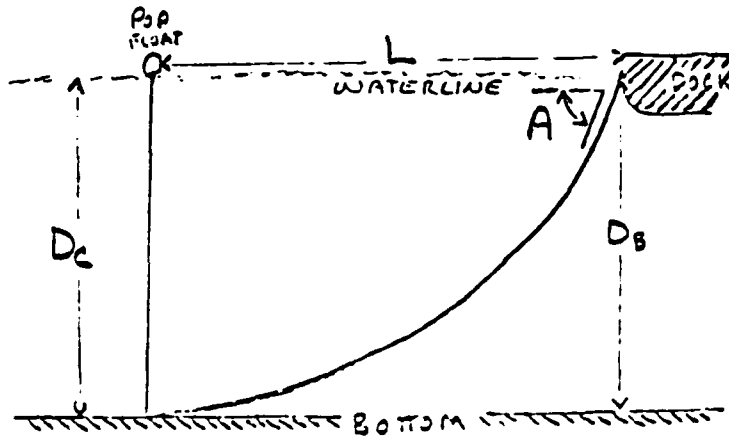
L = 57 ft

D<sub>B</sub> = 79.6 ft

D<sub>C</sub> = 79.6 ft

NOTES: Depths @ Mean Low Water Springs

"A" recorded in winds 10 KTS  
or less



COMMENTS:

CONFIGURATION, Pad Eye-To-Waterline:

Not OBSERVED

OTHER DATA:

Relative Bearing: 000° at deck edge

353° deck edge-to-pop float

Note: Bearing data is considered inconclusive due to short lateral distance of many ground legs, large dock movement relative to lateral distance, and inherent inaccuracies in the hand-held magnetic compass observation system.

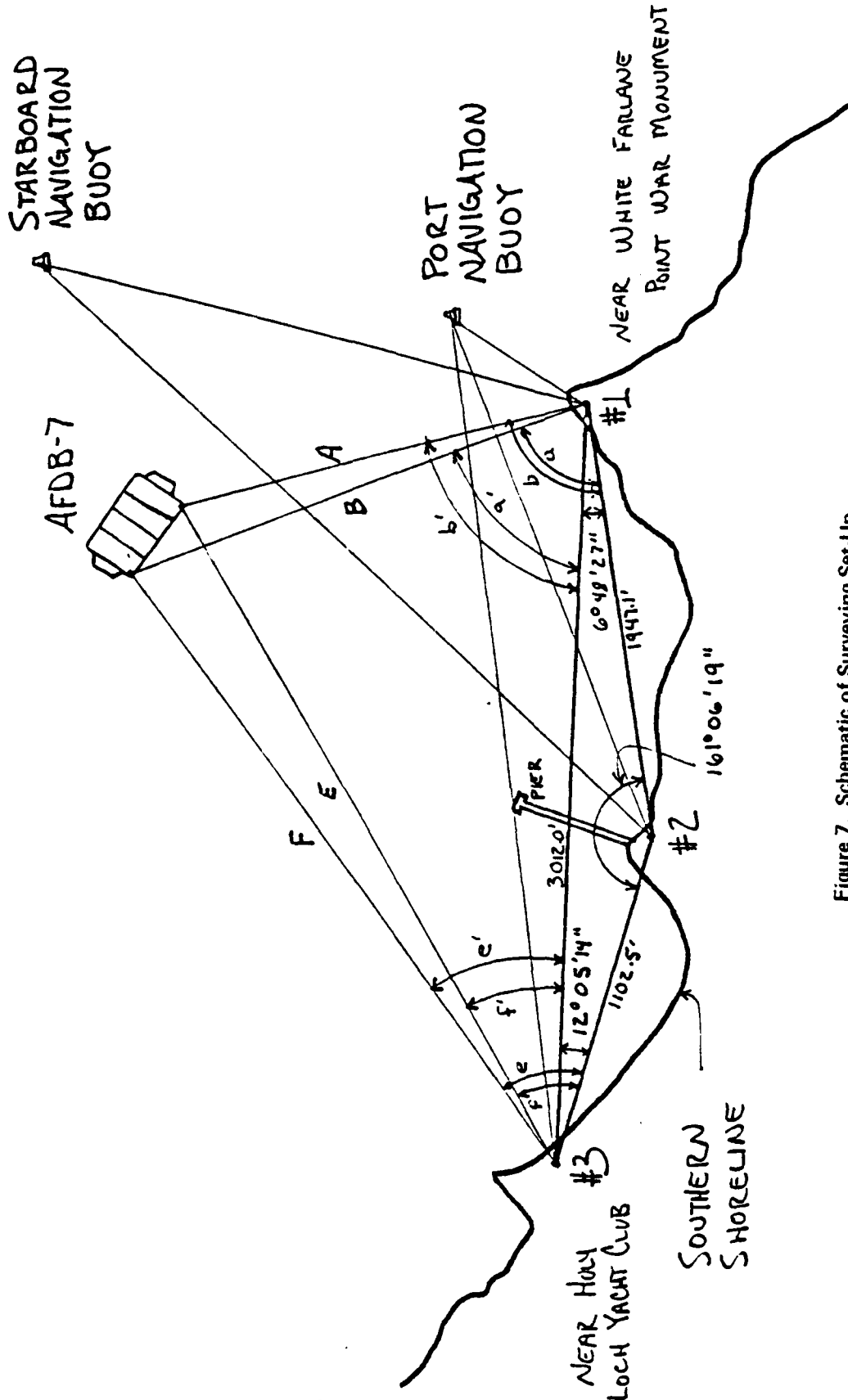


Figure 7. Schematic of Surveying Set-Up

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING SPECIAL DRY DOCK	4. LAT: LON:
5. INSPECTION	DATE 19 JUN 82	DIVERS -	WATER DEPTH -
ENGINEER M.M. WALTER			INITIALS

LEG#	a	b	e	f	a'	b'	e'	f'	A	B	E	F	TIME
1	78° 50' 20"	85° 44' 20"	51° 39' 40"	44° 57' 40"	72.07139°	78.93139°	39.77309°	32.77389°	1754.40	2063.87	3181.55	3081.60	1035
2	78° 52' 40"	85° 46' 00"	51° 42' 00"	44° 50' 40"	72.07028°	78.9317°	39.61128°	32.75722	1754.40	2066.67	3182.09	3083.94	1045
3	78° 59' 40"	85° 54' 20"	51° 40' 00"	44° 00' 40"	72.18694°	79.09806°	39.57944°	32.75722°	1757.90	2066.40	3186.68	3082.75	1055
4	78° 57' 00"	85° 53' 40"	51° 38' 40"	44° 50' 20"	72.17250°	79.08139°	39.55722°	32.75167°	1755.40	2064.49	3186.00	3085.55	1200
5	78° 56' 20"	85° 53' 40"	51° 39' 40"	44° 53' 20"	72.17139°	79.08644°	39.57389°	32.80167°	1758.47	2065.30	3187.30	3085.47	1220
6	78° 59' 00"	85° 58' 40"	51° 39' 20"	44° 53' 00"	72.17583°	79.17028°	39.56833°	32.79611°	1757.16	2065.61	3189.93	3087.00	1240
7	78° 59' 20"	85° 58' 00"	51° 38' 00"	44° 52' 00"	72.18139°	79.15977°	39.54611°	32.77944°	1758.02	2064.46	3189.19	3086.82	1330
8	78° 59' 20"	85° 59' 20"	51° 39' 00"	44° 51' 40"	72.18139°	79.18139°	39.56228°	32.77389°	1757.97	2065.37	3189.70	3087.18	1400
9	78° 59' 20"	85° 58' 20"	51° 38' 20"	44° 50' 40"	72.18139°	79.16472°	39.55167°	32.75722°	1756.76	2064.73	3188.88	3086.97	1425
10	78° 59' 00"	85° 58' 20"	51° 39' 20"	44° 51' 00"	72.17583°	79.16472°	39.56833°	32.76228°	1758.87	2065.61	3189.68	3087.08	1440
11	79° 00' 00"	86° 00' 00"	51° 38' 20"	44° 52' 00"	72.19225°	79.19225°	39.55167°	32.77944°	1758.44	2064.88	3190.30	3087.17	1450

DATE: 19 JUNE 1982

WINDS: EASTERLY 5-10 KTS

a, b, e, f OBSERVED; ALL OTHER VALUES CALCULATED

Table 3. AFDB-7 Transit Readings

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING SPECIAL DRY DOCK	4. LAT: LON:
5. INSPECTION	DATE 21 JUN 82	DIVERS -	WATER DEPTH -
ENGINEER M.M. WALTER			INITIALS

LEGN	a	b	e	f	a'	b'	e'	f'	A	B	E	F	TIME
12	79°10'00"	86°10'00"	51°11'40"	44°52'20"	72.3517°	79.35917°	39.54056°	32.785°	1780.85	2066.65	3185.94	3093.60	1215
13	79°00'00"	86°00'00"	51°36'40"	44°52'00"	72.1925°	79.1925°	39.52389°	32.77944°	1758.44	2063.27	3184.30	3096.77	1200
14	78°55'20"	85°52'20"	51°57°00"	44°50'00"	72.1472°	79.06472°	39.52444°	32.74611°	1754.86	2062.48	3185.33	3088.88	1130
15	78°53'40"	85°50'20"	51°43'00"	44°07'40"	72.08644°	79.03139°	39.62944°	32.77289°	1756.12	2067.88	3184.85	3094.94	1110
16	78°48'40"	85°49'40"	51°38'00"	44°52'00"	72.00361°	79.02028°	39.54611°	32.77144°	1756.31	2064.42	3184.60	3083.10	1055
17	78°52'40"	85°44'20"	51°39'40"	44°49'40"	72.07028°	79.92339°	39.57389°	32.74056°	1752.92	2064.43	3180.81	3083.11	1035
18	78°55'20"	85°42'20"	51°38'20"	44°50'40"	72.11472°	78.89806°	39.55767°	32.75722°	1753.49	2063.77	3182.08	3084.35	1025
19	78°55'40"	85°37'20"	51°39'40"	44°57'20"	72.12028°	78.81472°	39.57389°	32.75833°	1753.15	2065.14	3177.58	3085.04	0950
20	78°48'40"	85°45'40"	51°39'20"	44°53'00"	72.00361°	78.95361°	39.56833°	32.79611°	1756.50	2063.15	3182.77	3082.40	0945
21	78°44'40"	85°41'00"	51°41'20"	44°52'20"	71.93644°	78.87583°	39.6067°	32.785°	1754.88	2064.13	3179.96	3076.53	0930
22	78°45'40"	85°40'00"	51°39'40"	44°52'20"	71.95361°	78.85917°	39.57389°	32.785°	1754.68	2062.76	3179.41	3080.58	0915

DATE: 21 JUNE 1982  
 WINDS: EAST NORTHEASTERLY 5-10 KTS  
 a, b, e, f OBSERVED ; ALL OTHER VALUES CALCULATED

Table 3. AFDB-7 Transit Readings (Con't.)

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET HOLY LOCH, UK	2. MOORING NO AFDB-7	3. TYPE/CLASS MOORING SPECIAL DRY DOCK	4. LAT: LON:
5. INSPECTION	DATE 22 JUNE 82	DIVERS -	WATER DEPTH -
ENGINEER M.M. WALTER			INITIALS -

TIME	a	b	e	f	a'	b'	e'	f'	A	B	E	F
1710	78°38'20"	85°19'00"	51°52'00"	44°55'40"	71.83139°	78.50917°	39.84086°	32.84056°	1751.77	2072.89	3169.11	3078.21
1712	78°25'20"	85°41'40"	50°43'20"	44°57'40"	71.61472°	78.32694°	39.635°	32.81389°	1754.29	2061.50	3165.81	3066.77
1714	78°11'00"	85°18'20"	51°48'20"	44°52'00"	71.37583°	78.49826°	39.7833°	32.77944°	1752.01	2062.95	3167.42	3059.27
1716	78°10'40"	84°58'40"	50°38'40"	44°55'20"	71.37033°	78.17028°	39.5567°	32.835°	1749.93	2053.35	3157.88	3055.65
1718	78°46'40"	85°00'40"	50°46'00"	44°49'20"	71.97028°	78.2036°	39.67944°	32.735°	1743.91	2064.08	3156.85	3087.48
1720	78°09'40"	85°05'20"	50°51'20"	44°57'20"	71.3536°	78.44886°	39.76833°	32.86835°	1753.68	2065.50	3167.70	3059.45
1722	78°21'40"	85°37'40"	51°18'20"	44°49'40"	71.55361°	78.82028°	39.55167°	32.74056°	1751.56	2055.87	3172.16	3062.69
1724	78°21'40"	85°12'40"	51°44'00"	44°56'20"	71.55361°	78.40361°	39.64611°	32.85767°	1752.77	2061.28	3165.98	3044.64
1726	78°22'20"	85°56'20"	51°41'40"	44°51'00"	71.56472°	78.13139°	39.60222°	32.76278°	1744.71	2059.21	3155.08	3064.26

DATE 22 JUNE 1982  
 WINDS: EASTERLY 35 KTS  
 a, b, e, f OBSERVED; ALL OTHER VALUES CALCULATED

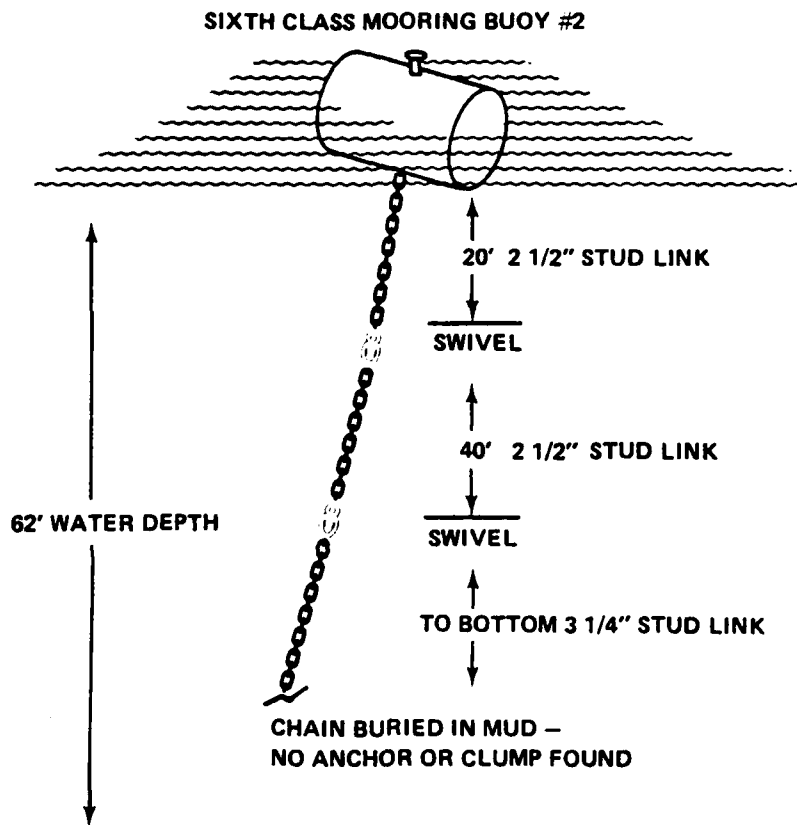
Table 3. AFDB-7 Transit Readings (Con't.)

**ANNEX B**  
**SIXTH CLASS MOORING INSPECTION REPORTS**

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET HOLY LOCH, UK	2. MOORING NO. #2	3. TYPE/CLASS MOORING Sixth Class	4. LAT: LON:
5. Inspection:	DATE 23JUN82	DIVERS Aylsworth/Jello	WATER DEPTH 62'
ENGINEER M.M. Walter			INITIALS

ITEM	SIZE	LOCATION OF MEASUREMENT	CONDITION (note)			REMARKS
			+90%	+80%	UNK	
Buoy, Cylindrical, 3rd Class	10' long 6' diam.	-----	-	-	-	British 3rd class buoy; excellent condition; no holes, dents, or pitting; medium marine growth(1/2")
Mooring Ring	UNK.	not measured			XXX	Divers unable to reach buoy topside; condition assumed sat.
Buoy Shackle	Unk.	not measured			XXX	Inside buoy - divers unable to measure
Riser Chain, studlink	2 1/2"	20' depth	XX D			
Swivel	UNK.	not measured	-	-	-	Located at 20' depth; condition assumed satisfactory
Riser Chain, studlink	2 1/2"	60' depth	XX D			
Swivel	UNK.	not measured	-	-	-	Located at 60' depth; condition assumed satisfactory
Riser chain, studlink	3 1/4"	72' depth	XX D			
Anchor swivel and Anchor	UNK	-----	-	-	XXX	Not located - chain buried
<b>SUMMARY:</b> Mooring is in good-to-excellent condition.						
Note 1: S = Single Link Measurement; D = Double Link Measurement						



**Figure 8. Sixth Class Mooring #2, Schematic**

# MOORING INSPECTION REPORT

1. FACILITY NAVACTDET HOLY LOCH, UK	2. MOORING NO. #3	3. TYPE/CLASS MOORING Sixth Class	4. LAT: LON:
5. Inspection:	DATE 23JUN82	DIVERS Aylsworth/Jello	WATER DEPTH 54'
			ENGINEER M.M. Walter
INITIALS			

ITEM	SIZE	LOCATION OF MEASUREMENT	CONDITION (note)			REMARKS
			+90%	+80%	UNK	
Buoy, Cylindrical, 3rd Class	10' long 5' diam.	----	-	-	-	British 3rd Class Buoy; excellent condition - no holes, dents, or pitting
Mooring Ring	UNK	not measured	-	-	-	Divers unable to reach buoy topside
Buoy Shackle	UNK	not measured	-	-	-	Inside buoy - divers unable to measure
Riser Chain, studlink	3"	5' depth	XX D			
" "	3"	35' depth	XX D			
" "	3"	65' depth	XX D			
Swivel	UNK	not measured	-	-	XXX	Not located
Anchor Shackle and Anchor	UNK	-----			XXX	Not located - chain buried
<b>SUMMARY:</b> Mooring is in good-to-excellent condition.						
Note 1: S = Single Link Measurement; D = Double Link Measurement						

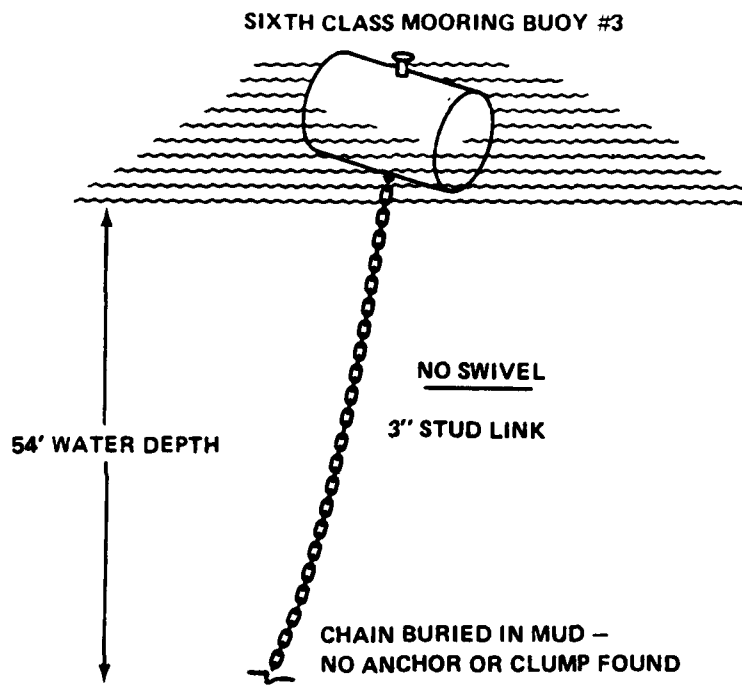


Figure 9. Sixth Class Mooring #3, Schematic

**ANNEX C**  
**NAVIGATION BUOY INSPECTION REPORTS**

## MOORING INSPECTION REPORT

1. FACILITY NAVACTDET HOLY LOCH, UK	2. MOORING NO. GREEN STARBOARD	3. TYPE/CLASS MOORING Navigation Buoy	4. LAT: LON:
5. Inspection:	DATE 23JUN82	DIVERS Oliver/Wagner	WATER DEPTH 57'
		ENGINEER M.M. Walter	INITIALS

ITEM	SIZE	LOCATION OF MEASUREMENT	CONDITION (note)			REMARKS
			+90%	+80%	UNK	
Marker Buoy	UNK.	----	---	---	---	Excellent condition top and bottom; minimal pitting on bottom
Buoy Shackles (2)	2 1/4"	see drawing	XXX			Connect bridle to buoy
Bridle Chain, studlink	2"	10' depth	XX D			Two legs of 12.5' each
Bridle shackles (2)	2 1/4"	see drawing	XXX			Connect bridle to pear link
Pear Link	2 1/4"	see drawing	XXX			
Shackle	2 1/4"	see drawing	XXX			Connects riser to pear link
Riser Chain, studlink	1 7/8"	45', 60' depths	XX D			
Box Swivel	UNK.	not measured	-	-	-	Condition is assumed to be satisfactory
Anchor Shackle	2 1/4"	see drawing	XXX			
Anchor, Clump Type	6'x6'x6'	-----	-	-	-	Anchor in satisfactory condition; 4-5' of chain wrapped around anchor
						chor
<b>SUMMARY:</b> Buoy is in good-to-excellent condition. No design drawings were available for comparison with inspection data; "+90%" is based on information supplied by NAVACTDET and M.O.D.						
Note 1: S = Single Link Measurement; D = Double Link Measurement						

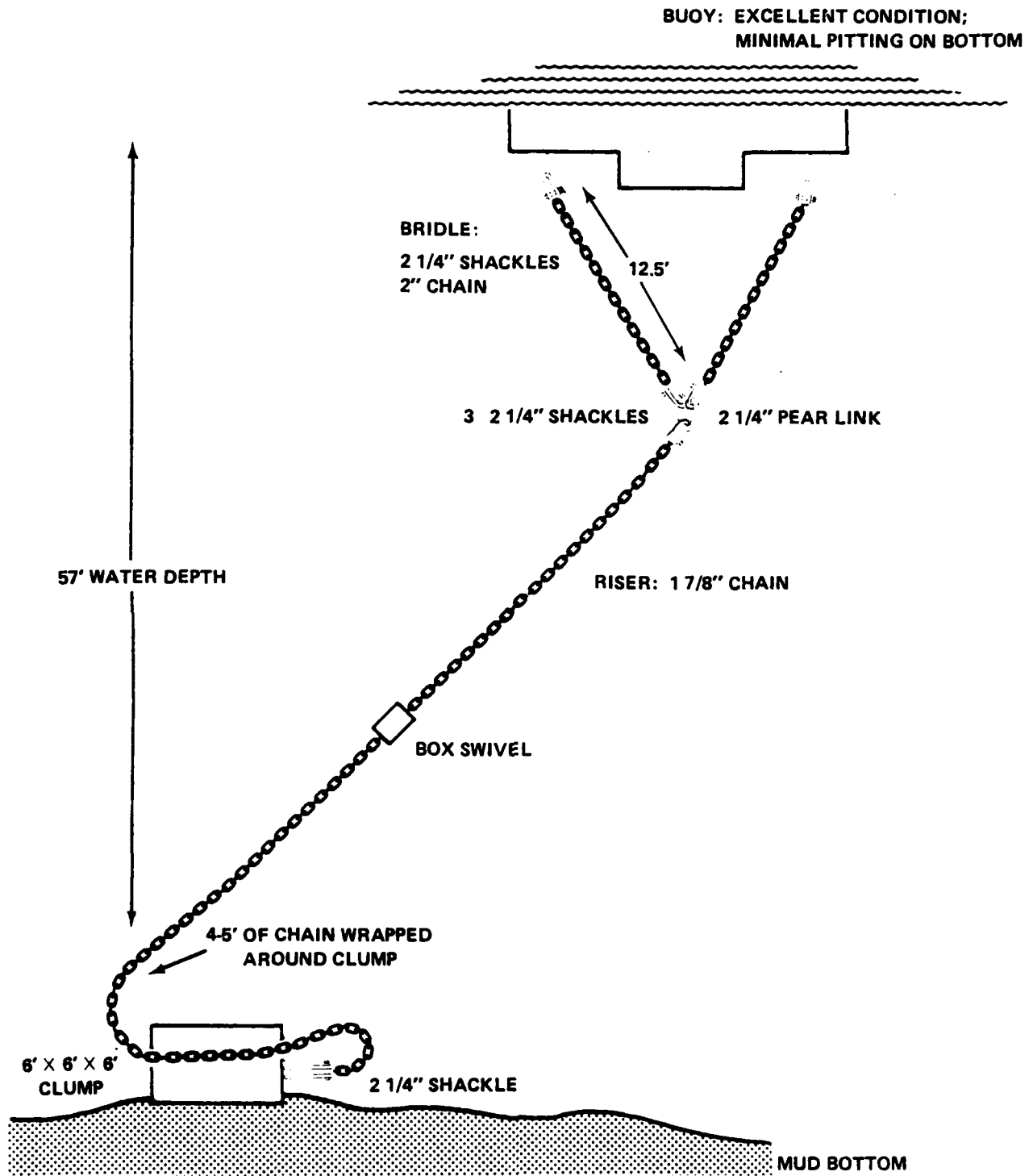


Figure 10. Starboard (Green) Navigation Buoy, Schematic

## MOORING INSPECTION REPORT

1. FACILITY NAVACTDET HOLY LOCH, UK	2. MOORING NO. RED, PORT	3. TYPE/CLASS MOORING Navigation Buoy	4. LAT: LON:
5. Inspection:	DATE 23JUN82	DIVERS Oliver/Wagner	WATER DEPTH 49'
ENGINEER M.M. Walter			INITIALS

ITEM	SIZE	LOCATION OF MEASUREMENT	CONDITION (note)			REMARKS
			+90%	+80%	UNK	
Marker Buoy	UNK.	-----	-	-	-	Excellent condition top and bottom; minimal pitting on bottom
Buoy Shackles (2)	2 1/4"	see drawing	XXX			Connect bridle to buoy
Bridle Chain, studlink	2"	10' depth	XX 0			Two legs of 12.5' each
Bridle Shackles (2)	2 1/4"	see drawing	XXX			Connect bridle to pear link
Pear Link	2 1/4"	see drawing	XXX			
Shackle	2 1/4"	see drawing	XXX			Connects riser to pear link
Riser Chain, studlink	1 7/8"	40', 55' depths	XX D			
Swivel	UNK.	not measured	-	-	-	Condition is assumed to be satisfactory
Anchor Shackle	2 1/4"	see drawing	XXX			
Anchor, Clump Type	6' x 6' x 6'	----	-	-	-	Anchor in satisfactory condition.
<p><b>SUMMARY:</b> Buoy is in good-to-excellent condition. No design drawings were available for comparison with inspection data; "+90%" is based in information supplied by NAVACTDET and M.O.D.</p>						
<p>Note 1: S = Single Link Measurement; D = Double Link Measurement</p>						

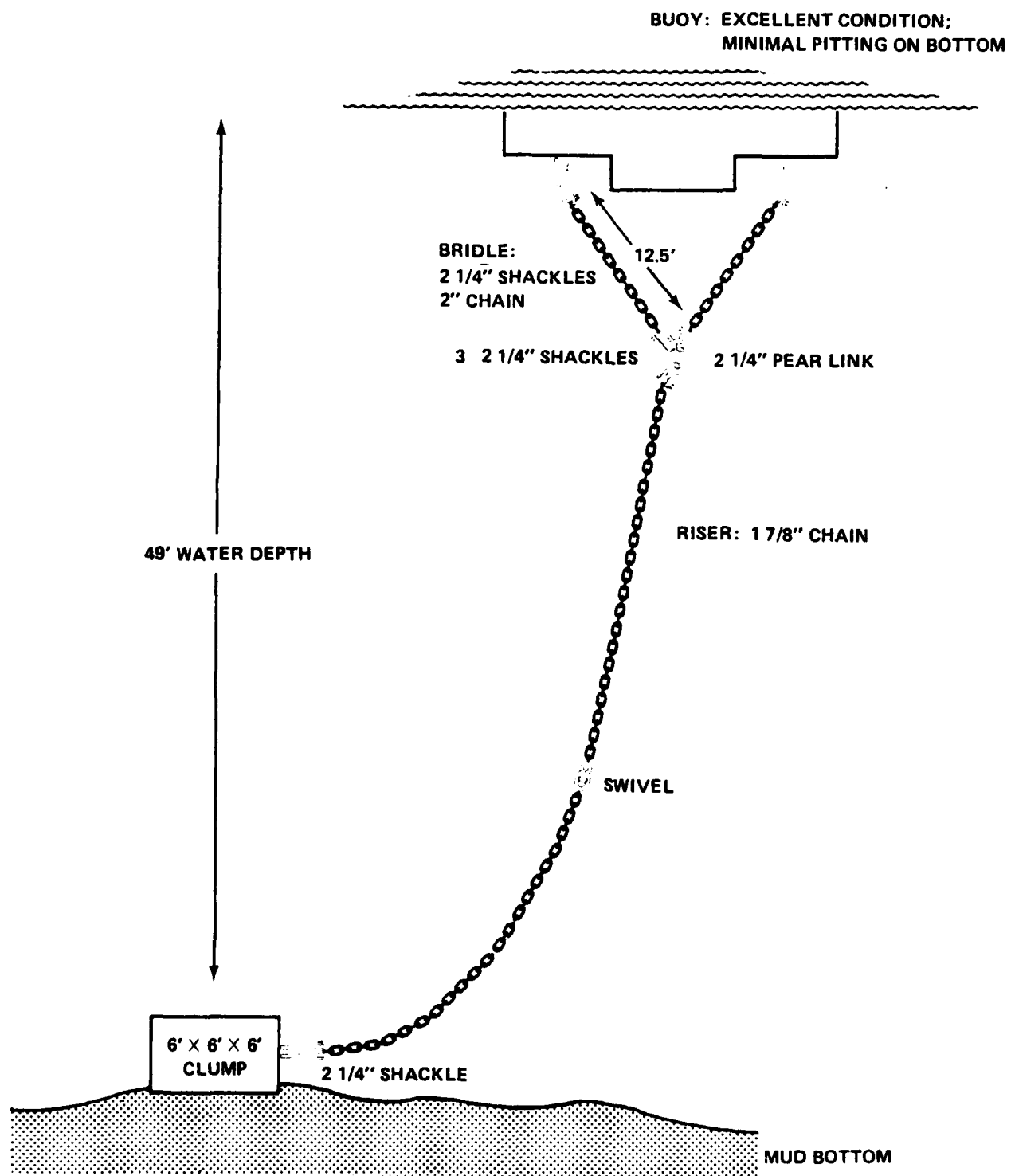


Figure 11. Port (Red) Navigation Buoy, Schematic

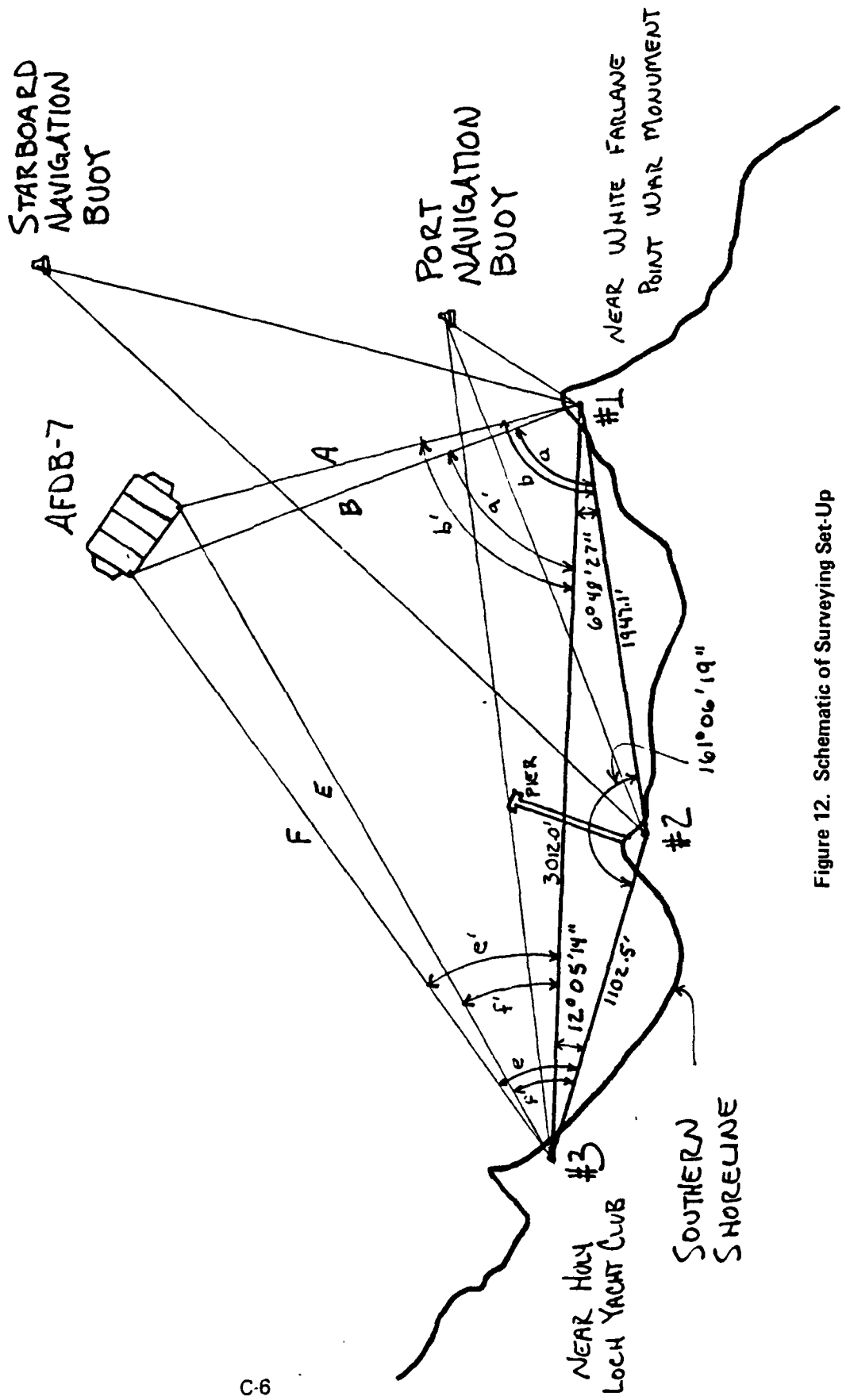


Figure 12. Schematic of Surveying Set-Up



**ANNEX D**  
**COSTS OF REPLACEMENT PARTS**

### Costs of Replacement Parts

As a result of the analysis of inspection data, it was determined that the upper two shots of chain on each leg of the AFDB-7 mooring required replacement. In addition, it was decided that 2 1/2 inch chain would be utilized pending a mooring redesign:

<u>Item</u>	<u>Size (in.)</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Chain (90' shot)	2 1/2	44	\$6,003	\$264,132
Link, Detachable	2 1/2	49*	392	<u>19,208</u>
			Total	\$283,340

\*Includes five spares

**ANNEX E**  
**CHRONOLOGY OF EVENTS**

### Chronology of Significant Events

20 NOV 81 CINCUSNAVEUR requests assignment of UCT-1 for underwater inspection of Holy Loch moorings

26 MAR 82 COMCBLANT states CHESNAVFACENGCOM to provide funding and technical support for inspection

13 MAY 82 CINCUSNAVEUR expands inspection to include all 22 legs of AFDB-7 mooring

17 JUN 82 Divers and Engineer arrive on site

18 JUN 82 Set up transits; caliper measurements Section II all legs; contact with station personnel

19 JUN 82 Transit measurements; catenary data and bearing legs 12 - 22

21 JUN 82 Transit measurements; catenary data and bearing legs 1 - 11

22 JUN 82 Transit measurements; Go/No-Go and voltmeter readings on Section III all legs

23 JUN 82 Inspection of Navigation Buoys and Sixth Class moorings

24 JUN 82 Partial lift of legs #15 and #19; Go/No-Go on Section I of all legs

25 JUN 82 Debrief CO and XO of AFDB-7, and CO and PWO NAVACTDET Holy Loch

28 JUN 82 Debrief Commodore SUBRON 14 and M.O.D Representatives

8 JUL 82 Debrief NAVFACENGCOM Code PC-2

19 JUL 82 Debrief LANTNAVFACENGCOM Code 10

**ANNEX F**

**REFERENCES**

Ref. A – CINCUSNAVEUR LONDON UK 201642Z NOV 81

Ref. B – CINCUSNAVEUR LONDON UK 130752Z MAY 82

Ref. C – COMCBLANT NORFOLK VA 261833Z MAR 82

Ref. D – CHESNAVFACENCOM WASHINGTON DC 151407Z JUN 82

Ref. E – CHESNAVFACENCOM WASHINGTON DC 021944Z JUN 82

Ref. F – CHESNAVFACENCOM WASHINGTON DC 291403Z JUL 82











SPONSORED BY PROGRAM.

H. A PROJECT EXECUTION PLAN HAS BEEN COMPLETED AND FORWARDED TO UCT ONE FOR APPROVAL AND EXECUTION.

C. A CHESAPEAKECOM ENGINEER WILL ACCOMPANY UCT ONE TO HOLY LOOK TO ASSIST IN TAKING AND RECORDING DATA AND TO PROVIDE TECHNICAL ASSISTANCE.

D. MOORING LEGS TO BE INSPECTED ARE AS FOLLOWS:

- (1) ALL 22 LEGS OF THE AFDB-7 DRYDOCK MOORING
- (2) NO. 2 AND NO. 3 6TH CLASS MOORINGS
- (3) PORT AND STARBOARD NAVIGATION BOUYS

E. THERE WILL BE NO ATTEMPT TO INSPECT MOORING LEGS BELOW THE MUD LINE AS ANY ATTEMPT TO RAISE CHAINS AND/OR ANCHORS WILL DISTURB THE EXISTING MOORING CONFIGURATION. ROUTED MAINTENANCE WORK SHOULD INCORPORATE RAISING AND VISUAL INSPECTION OF THESE PORTIONS OF THE MOORING LEGS.

F. THE PROJECT IS COMMENCING 14 JUN 82 AND WILL REQUIRE 3-4 WEEKS FOR COMPLETION.

G. REVIEW AND/OR ANALYSES OF THE EXISTING OR FUTURE AFDB 7 MOORING DESIGN IS NOT WITHIN THE FUNDING AVAILABLE OR SCOPE OF THIS PROJECT.

H. AN INSPECTION REPORT WILL BE MAILED TO ALCOM APPROXIMATELY 4 WEEKS AFTER COMPLETION OF THE INSPECTION.

3. CHESAPEAKECOM POC REGARDING THIS PROJECT IS MR. A. KURTZ AT AV 286-3681.

BT

60924/167  
51000100525

2 OF 2 01 0521 167/22:36Z 151407Z JUN 82  
CHESAPEAKECOM WASHINGTON DC

U N C L A S S I F I E D U  
L I M I T E D D I S S E M I N A T I O N



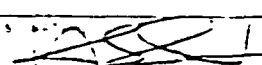
FROM CHESNAVFACENGCOR WASHINGTON DC  
TO CINCUSNAVEUR LONDON UK  
INFO LANTNAVFACENGCOR NORFOLK VA  
COMNAVFACENGCOR ALEXANDRIA VA  
NAVACTDET HOLY LOCH UK  
UCT ONE  
CIVENGLAB PORT HUENEME CA  
USS HUNLEY

UNCLAS //N11000//

SUBJ: HOLY LOCH FLEET MOORING INSPECTION

- A. COMBLANT NORFOLK VA 251833Z MAR 82
- B. CHESNAVFACENGCOR WASHINGTON DC 151407Z JUN 82
- C. MTG BTWN LANTNAVFACENGCOR AND CHESNAVFACENGCOR 19 JUL 82
- 1. IAW REF {A}, CHESNAVFACENGCOR PROVIDED FUNDING AND TECHNICAL ASSISTANCE TO UCT ONE FOR THE UNDERWATER INSPECTION OF SELECTED MOORINGS AT HOLY LOCH, SCOTLAND. REF {B} PROVIDED A PLAN OF ACTION FOR INSPECTING THESE MOORINGS. THIS IS A PRELIMINARY REPORT OF THE INSPECTION FINDINGS.
- 2. THE INSPECTION WAS CONDUCTED DURING 17-25 JUN 82. SIGNIFICANT

O B U S

DISTR	
NAME: M. WALTER 433-3881 TITLE: OFFICE STAFF ASSISTANT	SECURITY CLASSIFICATION: FPO-1FP(PDC) DATE: 29 JUL 82
REFERENCE: 	SECURITY CLASSIFICATION: UNCLASSIFIED CONTROL GROUP: 2914032

COPY TO: FPO-1FP(PDC)... FPO-1FP2  
...FPO-1FP...09...00...  
0161...DAILY

DD FORM 173/2 (OCR)

PREVIOUS EDITIONS OBSOLETE AS OF 1 JAN 1981  
S. N. 0100-10-000-1731

AD-A166 643

HOLY LOCH FLEET MOORINGS INSPECTION REPORT(U) NAVAL  
FACILITIES ENGINEERING COMMAND WASHINGTON DC CHESAPEAKE  
DIV 15 OCT 82 CHES/NAVFAC-FPO-1-82(22)

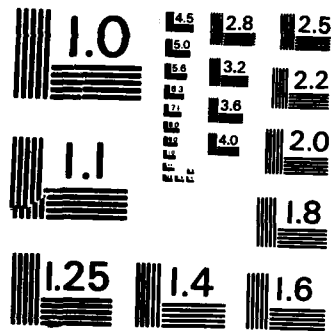
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UNCLASSIFIED

F/G 13/10

ML





MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

FINDINGS CONCERNING EACH MOORING ARE AS FOLLOWS:

A. STBDONAV BUOY AND PORT NAV BUOY: BUOYS, RISER CHAIN AND ANCHOR CLUMPS APPEAR TO BE IN GOOD CONDITION.

B. TWO 6TH CLASS MOORINGS: BUOYS AND RISER CHAIN APPEAR TO BE IN GOOD CONDITION; ANCHORS BURIED IN MUD.

C. AFD8-7: ALL 22 LEGS INSPECTED.

{1} ON LEG NO. 22, LESS THAN 80 PER CENT ORIGINAL WIRE DIAMETER REMAINING.

{2} NO BROKEN CHAIN LINKS OBSERVED.

{3} ALL ANCHORS APPEAR TO BE BURIED IN MUD.

{4} LEGS NOS. 3, 5, AND 19 OBSERVED WITH SLACK CHAIN ON BOTTOM.

{5} SIXTY FOUR PER CENT OF LEGS HAVE READINGS OF 80-90 PER CENT ORIGINAL WIRE DIAMETER REMAINING.

{6} THIRTY SIX PER CENT OF LEGS APPEAR TO HAVE LITTLE OR NO CATENARY.

3. AS DISCUSSED DURING REF {C}, CEL IS PROVIDING INPUT TO LANTNAV-FACENCOM CONCERNING CATENARY ADJUSTMENTS. THIS REPORT SHOULD BE COMPLETED IN APPROXIMATELY SIX WEEKS. ALSO DISCUSSED DURING REF {C}, CHESDIV RECOMMENDS THE FOLLOWING ACTIONS:

DISTP

DRAFTER: TYPE, NAME, TITLE, OFFICE SYMBOL, AND PHONE		SPECIAL INSTRUCTIONS	
REVISOR: NAME, TITLE, OFFICE SYMBOL, AND PHONE		1	
MISSION	DATE/TIME GROUP	SECURITY CLASSIFICATION	DATE/TIME GROUP
FILE NUMBER		UNCLASSIFIED	

DD FORM 173/2 (OCR)

PREVIOUS EDITION IS OBSOLETE AS OF 1 JAN 1982  
S/N 0102-LP-000-1723

A. AS-WEAR TERM ACTION BEFORE THE WINTER SEASON:  
 (1) TOREPLACEMENT OF WORN PORTION OF LEG NO. 22.  
 (2) ADJUSTMENT OF MOORING LEGS TO TIGHTEN CATENARIES WITH INPUT FROM CEL.

B. AS LONG TERM ACTION, OVERHAUL COMPLETE MOORING INCLUDING:  
 (1) REPLACEMENT OF ALL CHAIN WITH MEASUREMENTS OF LESS THAN 90 PER CENT ORIGINAL WIRE DIAMETER REMAINING.  
 (2) INSTALLATION OF EACH LEG TO RESTORE ITS PROPER CATENARY.

4. AN INSPECTION REPORT WILL BE FORWARDED TO INTERESTED COMMANDS IN APPROXIMATELY SIX WEEKS.

01-20-6100

DISTR

ORIGINATOR NAME, TITLE, OFFICE SYMBOL, PHONE

SPECIAL INSTRUCTIONS

ORIGINATOR NAME, TITLE, OFFICE SYMBOL, AND PHONE

RELEASER

SIGNATURE

SECURITY CLASSIFICATION

DATE TIME GROUP

UNCLASSIFIED

**ANNEX G**  
**PHOTOGRAPHS**



**View of AFDB-7 and U.S.S. HUNLEY, looking north from White Farlane Point.**



**On-deck arrangement of anchor leg, showing pad-eye, anchor joining link (red), and stud-link chain.**



**Using inclinometer to measure angle of anchor leg.**



**Double-link wire diameter measurement, using pre-cut "Go/No-Go" gauge.**



**Chain in Section II of Leg 21; although this chain is rusty and flaking, the double-link measurement was over 90% throughout.**



**Chain in very good condition, showing light rusting and some marine growth near the waterline.**



**Divers from UCT-1 after conducting underwater inspection.**

END

Dtjic

5-86