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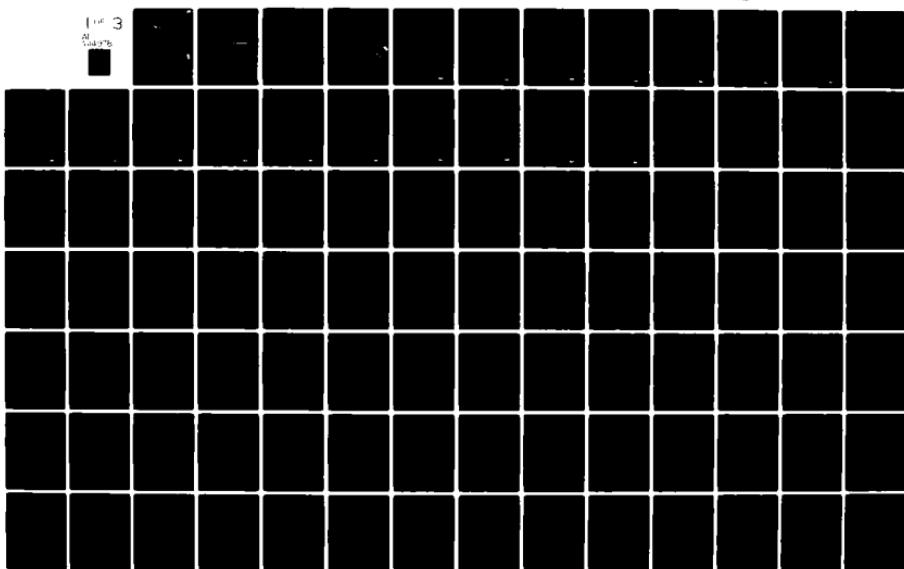
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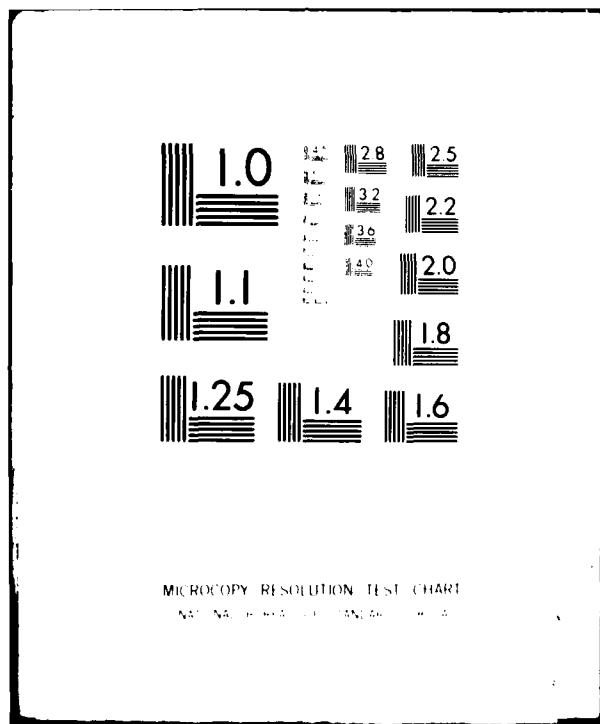
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NAVAL CIVIL ENGINEERING LABORATORY  
Port Hueneme, California

Sponsored by  
NAVAL FACILITIES ENGINEERING COMMAND

ADA114978

TEST CASES FOR SEADYN VERIFICATION

April 1982

An Investigation Conducted by  
Western Instruments Corp.  
540 Maulhardt Avenue  
Oxnard, California

N68305-80-C-0004

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20 ABSTRACT (Continue on reverse side if necessary and identify by block number) This report includes actual input decks and associated outputs for demonstration of the SEADYN cable dynamics computer model. The input problems are intended to allow for the verification of the model if it is transferred for operation on non-CDC computers.		

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## TABLE OF CONTENTS

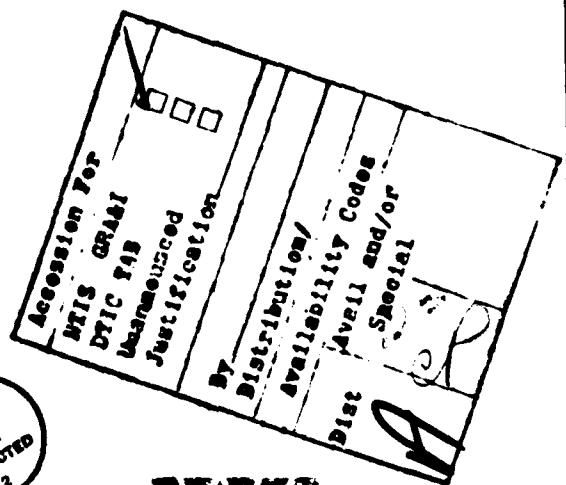
	Page
<b>1.0 INTRODUCTION . . . . .</b>	<b>1</b>
1.1 SEADYN Development History . . . . .	1
1.2 Purpose of Present Effort . . . . .	2
<b>2.0 BASELINE CAPABILITY DEFINITION . . . . .</b>	<b>3</b>
2.1 Static Analysis Capability . . . . .	3
2.2 Dynamic Analysis Capability . . . . .	4
2.3 Mode Solution . . . . .	5
2.4 Baseline Capability Matrix . . . . .	5
<b>3.0 TEST CASES . . . . .</b>	<b>7</b>
3.1 Single D.O.F. Test Case - Sudden Release . . . . .	7
3.2 Single D.O.F. Test Case - Imposed Displacement . . .	7
3.3 Single D.O.F. Test Case - Pendulum . . . . .	7
3.4 Cable Laying Test Case . . . . .	8
3.5 Catenary Test Case . . . . .	8
<b>4.0 CONFIGURATION MANAGEMENT PLAN . . . . .</b>	<b>9</b>
4.1 Support of Operational Capability . . . . .	9
4.2 Application of Test Cases . . . . .	9
4.3 Program Development Support . . . . .	10
4.4 Configuration Management Structure . . . . .	10
<b>5.0 SUMMARY . . . . .</b>	<b>12</b>

Table 1 - Baseline Capability Matrix

Figures

Appendix A - Work Statement

Appendix B - Input and Output Listings



## SEADYN CONFIGURATION MANAGEMENT

### 1.0 INTRODUCTION

The SEADYN configuration management plan described herein was developed for the Naval Civil Engineering Laboratory under contract No. N68305-80-C-0004, entitled "Engineering Services for Cable Dynamics." A statement of work may be found in Appendix A.

### 1.1 SEADYN Development History

In the early 1970's, the U.S. Navy gained increasing interest in complex undersea cable structures. This interest led, in 1974, to the development of the SEADYN Ocean Cable Systems Analysis Program. The early development of SEADYN was based upon existing non-linear structural dynamics programs and the developments from that point introduced program capabilities specifically directed at supporting the Navy's Suspended Array development. This early work was sponsored by the Naval Facilities Engineering Command and the Naval Electronics Systems Command.

Following this early developmental work, the Civil Engineering Laboratory assumed leadership in bringing the SEADYN program to an operational status. This included the addition of program capabilities which expanded the scope of the simulation and which improved the ease of program application. This work also incorporated extensive verification and validation tests and thorough program documentation.

The SEADYN program has over the past four years been exercised, verified, and validated on a wide range of structural applications for the Navy and



for the Offshore Oil Industry. Typical examples of the structural configurations addressed are shown in Figure 1.

### 1.2 Purpose of Present Effort

As the SEADYN program undergoes continual modification and revision, the need to define current program capabilities is apparent. The present effort is aimed at defining which SEADYN capabilities are currently available. This has been done through the development of a set of test problems which have been used to comprehensively test a wide range of SEADYN capabilities. These test cases have been devised in such a way that they may be used to verify updated versions of SEADYN.

As the SEADYN program is introduced to wider application and public dissemination, new program features will be incorporated into the program and programming errors will be found and corrected in the present code. It is important that the incorporation of new program features and the correction of errors in the code be effected in a controlled fashion. Proper check-out of the new code must be performed prior to introduction into the operational and publicly available program. To this end, a configuration management plan has been prepared which defines a mechanism for controlling program revisions and updates before incorporating them into the standard operational version.



## 2.0 BASELINE CAPABILITY DEFINITION

At present there exist two configurations of the SEADYN program, fixed format and free format. The fixed format version was developed first and has been used in the analysis of a full range of Navy and Oil Industry undersea compliant structure applications. The free format version is based on the original fixed format, but the input has been modified so as to be far less restrictive to the user. Along with the development of the free format input, various modifications have been made to fundamental as well as optional program capabilities. The free format version of SEADYN has replaced the fixed input version, primarily due to increased programming flexibility and simplicity. The fixed format version has been verified previously. The objective of the test problems in this report is to verify the free format version.

The SEADYN program is capable of analyzing a wide range of offshore compliant structures, primarily those that incorporate cable elements. The present verification effort addresses such simulations as the resultant structural loadings associated with displacements induced by platform motions, displacements and tensions caused by current and gravity, and behavior of a cable system during payout or reel-in. The analytical capabilities of SEADYN can be divided into three major types: static analysis, dynamic analysis, and mode analysis.

### 2.1 Static Analysis Capability

A major emphasis in the testing of the SEADYN static solution capability is the demonstration of the ease with which a static configuration can be developed. There are several approaches to arriving at a static configuration,



including the input of a known loaded structural shape and its associated tensions, the input of a guessed loaded configuration and unknown pretensions, and the input of an unstressed configuration that will be moved into a deformed position during the subsequent analysis. Only the relative element lengths, weights, and attachment coordinates need to be known in order to arrive at a good static solution. Static solution tests have also been aimed at verifying the several numerical solution methods available in the SEADYN program.

## 2.2 Dynamic Analysis Capability

SEADYN is capable of simulating almost any dynamic loading that might occur offshore. Dynamic loadings are primarily accomplished through the use of the moving boundary and point load options, where any time function may be defined by the user. The amplitude of the motion may be input as displacement, velocity, or acceleration. Dynamic loadings other than specified boundary motions can be handled by program options that model such things as fluid flow fields and payout and reel-in. The dynamic effects of gravity can also be incorporated into any analysis, for example, in the analysis of a free falling anchor. The program is expected to provide information concerning dynamic tension variations in the cable elements, displacements of each node point during the analysis period, and behavior of lumped bodies such as anchors and buoys as they interact with the seafloor and the water surface. Dynamic response is analyzed in a time domain solution. The user has control over time steps, printout periods, and specific solution method parameters such as numerical damping and convergence tolerances. Solution parameters will vary with the nature of the problem being solved, and their



definition is often arrived at by educated guess. The test cases included in this report utilize various methods of arriving at solutions to difficult numerical problems. They should be used as a guide in obtaining similar solutions in the further verification of SEADYN configurations.

### 2.3 Mode Solution

The MODE analysis option is available to enable the user to identify significant modes of structural response for any structural configuration. This information directs the analyst toward identifying the worst loading conditions and possible structural mechanisms. This becomes of major importance when dealing with complex systems.

### 2.4 Baseline Capability Matrix

The baseline capability matrix is included as Table 1. The first column identifies those capabilities that currently exist in the free format version of SEADYN. Each of the capabilities listed have been tested by the baseline problems. The second column indicates the appropriate reference in the most recent input manual, dated May, 1981. A detailed explanation of each capability can be found in the notes of the references. The third column indicates which options have been verified by the five test cases. A capability is considered to be operational when the results of the analysis show a clear and intended system response. This is to say that generated categories should show continuity in configuration and internal loading, that an imposed displacement should result in the intended boundary locations, and that the variation of physical parameters should affect the system in a manner that can be anticipated. Verification of numerical solution methods



is more difficult, especially with regard to dynamic analysis. Once the MODE analysis was verified on a simple system it was used as an aid in interpreting the dynamic response attained during the analysis. Clear verification of more complex analyses was not entirely possible. Because of this, the simpler test cases were used to verify the solution option capabilities.

The manual dated May, 1981, is not entirely accurate with respect to input data. Several significant changes have been made in the last few months, so that a new manual should be issued. The capabilities discussed in the manual and as included in the matrix of Table 1 are working with the exception of modelling a cylinder. The program finds no solution when a cylinder is used in place of a sphere. The solution tends to diverge. This capability was tested in Case number 3.

One inconsistency in the manual that should be noted is that the payout length as defined in the manual is not correct. The manual states that a node will be payed out when the length of the payout element equals twice the mitosis length. In fact, payout occurs when the payout element equals the original element length plus the mitosis length. The listings that are included in Appendix B represent cases that successfully verify specific capabilities.



### 3.0 TEST CASES

The test cases are intended to demonstrate current capabilities of the program. These cases can be used for comparison when verifying future versions of the program. Listings of the input and output for each problem may be found in Appendix B. Descriptive sketches have been provided in Figures 2-4.

#### 3.1 Single D.O.F. Test Case - Sudden Release

The primary objectives of this test are to exercise the various numerical solutions in dead load analysis and dynamic analysis, and to test the restart capabilities of SEADYN. The initial configuration is input as a stretched condition with pretensions in the two cable elements know. The weight at the center is released under gravity loading during the dynamic analysis. The Direct Integration method was most successful in reaching a solution, even when the analysis was begun with no previous dead load solution. The Modified Newton-Raphson method was good only for dead load analysis, and in fact necessary before the Residual Feedback method could produce a dynamic solution. Restart capabilities checked out as expected.

#### 3.2 Single D.O.F. Test Case - Imposed Displacement

The intent of this case was to continue testing the Viscous Relaxation Technique. The model was the same configuration used in Test Case number 1, with one anchor point being moved past the second support. The imposed displacement response in static analysis behaved as intended.

#### 3.3 Single D.O.F. Test Case - Pendulum

This test case was used to test many miscellaneous capabilities because of



its inherent simplicity. The reference case consists of a submerged pendulum, formed by a spherical mass. A uniform current acts along the length of the cable element and mass, while an opposing point load is applied at the sphere. The TFNUSR subroutine is used to input a sine motion to the point load. Variations on this problem are listed in Figure 3. The attempt to replace the sphere with a cylinder failed. The program did not converge for this simple case. Dr. Webster has been informed of this problem.

#### 3.4 Cable Laying Test Case

The major purpose of this test case was to check out the payout capability of the program and to verify the catenary generation option. The first payout problem involved payout from a moving vessel. The catenary was generated by the program, given the first and last nodal positions. The program estimated pretensions from the material properties of the cable elements and the given nodal positions. The payout capability worked correctly, except as noted in Section 2.4.

#### 3.5 Catenary Test Case

The objectives of this case were to test catenary generation, allowing the cable to sag, to test motion inputs at a surface buoy and to test the release of anchors near the seafloor. A catenary that was supported at one end by a surface buoy and the other by a submerged fixed point was generated successfully by the program. Imposed displacements were applied to the buoy dynamically using TFNUSR. The moving boundary option performed correctly. The top node representing the buoy was held fixed in order to find a dead load solution for the catenary. The buoy was then freed in the horizontal direction and an harmonic function was input successfully.



#### 4.0 CONFIGURATION MANAGEMENT PLAN

The purpose of a configuration management plan is to document a mechanism by which corrections, additions and updates to the SEADYN program may be introduced to the publicly available versions in an orderly fashion. Three distinct configurations of the program should be maintained by NCEL. In order of decreasing permanence, these may be defined as an operational version, a test version and a developmental version.

##### 4.1 Support of Operational Capability

An operational version of the program must be maintained which exhibits only those capabilities that have been verified. This is the version of the program that will be used on a daily basis by NCEL and public users for structural analysis. It is important that one verified version always be available. Through continued use of the program, program errors will probably be discovered. Corrections to the coding should be made on test versions of the program and later introduced to the main operational program. Support work will involve continued verification of the present operational version, identification of coding errors found through internal and public usage, and the introduction of corrections, updates, and new developments to the operational version.

##### 4.2 Application of Test Cases

A test version of the program is required for two purposes, one being the testing of major revisions as they become available from the developmental configuration; the other purpose being the testing of minor coding error corrections, which can be corrected directly on this version.



#### 4.3 Program Development Support

Program development will be geared toward accommodating operational requirements for new solution capabilities, and toward providing better program efficiency. This may include major restructuring of the present configuration, affecting input specifications as well as internal subroutine solutions. It is important that a separate file be available for major modifications and additions. It is equally important that new developments be well documented in so far as their effect on the existing program and input specification is concerned. Support for program development involves identification of required new capabilities, evaluation of present program efficiency, implementation of these changes, and documentation of all changes to the original version of the program.

#### 4.4 Configuration Management Structure

SEADYN management should be based on a three version system as described above. NCEL would designate an in-house or contract coordinator who would receive input from users concerning desired new capabilities, errors found in the operational version, and the degree of program efficiency. This coordinator would perform the operational support functions presented in Section 4.1 and coordinate the activities of a configuration management contractor with the needs of the users.

The configuration management coordinator will work with a program development contractor, presumably the author of SEADYN, to update and correct the program using the developmental and test versions. After modifications have been completed at the developmental level, the configuration management coordinator



will be responsible for completing documentation of the modifications, and thoroughly testing the revised program using the test version. During the verification work there will no doubt be extensive interaction between the coordinator and the development contractor until the new configuration is completely verified. The configuration management coordinator should have responsibility for introducing the revised operational version and distributing the updated user's manuals.



## 5.0 SUMMARY

Within the scope of the present effort a baseline capability has been defined for the SEADYN program fixed format version. These capabilities, as itemized in matrix form, have been verified by test cases, designed to exercise all user accessed options. The test problems are intended to be used as a standard in the verification of future program modifications.

A plan for implementing these modifications in a controlled manner has been suggested. The plan is based on the recognition of the need to continually maintain a verified operational version of SEADYN. Implementing a configuration management plan which incorporates standard tests should enable NCEL to meet the requirements of its SEADYN users with a minimum amount of effort.



APPENDIX A  
WORK STATEMENT



STATEMENT OF WORK  
ENGINEERING SERVICES FOR CABLE DYNAMICS

80-0004  
31 January 1980

1.0 Introduction. The Civil Engineering Laboratory is the Navy's activity with responsibility for research and development related to the siting, design, installation, operation and maintenance of fixed ocean facilities. Many of these facilities take the form of suspended cable structures. CEL has been engaged in a major program of research into the dynamic behavior of cables and moored cable structures in the ocean. A variety of computer simulation models have been developed for analysis and design of these structures. The models are generally complex and specialized and require large main-frame computers for their execution.

2.0 Scope. The contractor shall furnish the necessary services to perform tasks related to the siting, design, construction, installation, inspection, operation, maintenance, and repair of ocean-based facilities. Also, included may be concept formulation, preliminary design, development of plans for experiments, program/project documentation, and reduction of test data. These services shall be for a period of twelve months or until the \$90,000 limit is reached.

3.0 Performance Requirements. Services to be provided shall be accomplished at the contractor's office with the exception of such engineering field investigations or surveys as may be required. No direct supervision of the contractor's employees will be provided by the government.

3.1 Services. Services on the definition and demonstration of the baseline capabilities of the SEADYN computer program by establishment of test cases that: (a) define and test present SEADYN capabilities, and (b) define and test new capabilities before they are added to the baseline shall be provided as follows:

The contractor shall prepare a matrix of present and planned SEADYN capabilities and indicate which of the capabilities have been verified and which have not. The baseline version of the program is defined by the list of present capabilities which have been verified by exercising those capabilities on actual or test problems.

The contractor shall define a set of test cases that, when taken together, will comprehensively exercise the various optional capabilities of SEADYN. The test cases are to be used by the Government to manage program changes, debugging and updating operations by providing a standard means for testing the program. The test cases shall address the existing capabilities of the program (i.e. baseline version) and additional new capabilities separately. The baseline version test cases shall be demonstrated by executing the SEADYN program on those cases.

The contractor shall prepare a configuration management plan for implementing the test cases as part of an overall computer simulation testing and validation program. The plan shall define a mechanism for utilization of the test cases in control of program revisions, updates and debugging.



80-0004  
31 January 1980

3.2 Reports. The results of this effort shall be submitted to the Officer in Charge of Contracts, Civil Engineering Laboratory in the form of letter reports. An original (1) and three (3) copies of each report shall be submitted as follows:

- |  |                      |
|--|----------------------|
| (a) Matrix of present and planned capabilities     | 45 days after award  |
| (b) Definition of test cases                       |                      |
| (i) Present capabilities (including demonstration) | 60 days after award  |
| (ii) New capabilities                              | 150 days after award |
| (c) Configuration management plan                  | 120 days after award |

3.3 Computer Usage. The Government will bear directly the cost of computer usage by the contractor for this effort by assigning to the contractor an account number held by the Government on a commercial computing network. The contractor is authorized to make computer simulations required by this contract not to exceed a total cost of \$6,000.

The contractor shall monitor his computer usage under this contract to insure that the authorized computing cost limit is not exceeded and report weekly to the Officer in Charge of Contracts. The report shall consist of either actual dayfiles from the preceeding seven days or an equivalent written itemization of the pertinent dayfile cost and accounting information in \$500 increments.

3.4 "Open-End" Provisions. This is an open-end contract; the total amount of this contract shall not exceed \$90,000 without further authorization. The Minimum contract price will be that negotiated price for the specific services of paragraph 3.1. The additional services which the contractor may be required to furnish and the government to accept hereunder from time to time shall be as ordered by the government during the period of this contract. In any event, however, the government shall order services hereunder having an aggregate value based on the rates specified herein not less than \$100. No single task will exceed \$20,000 per authorization. All task assignments and authorizations to proceed will be issued by the Officer in Charge of Contracts on Standard Form 30 and shall include:

- (1) The date and number of the modification,
- (2) The contract number,
- (3) Description of services, "Statement of Work",
- (4) Delivery dates,
- (5) Accounting and appropriation data.



80-0004  
31 January 1980

Prior to issuing the Standard Form 30, the Officer in Charge of Contracts, or his designated representative, shall furnish and discuss with the contractor the statement of work for the task. After which, the contractor, using the predetermined labor classifications and rates set forth in the contract shall submit a firm fixed-price proposal to the Officer in Charge of Contracts. Upon receipt of the contractor's proposal a price for the proposed task will be negotiated. Issuance of a notice to proceed is not authorized, except by Standard Form 30.

An hourly rate plus overhead and profit for personnel in the appropriate categories will be established as part of the contract and will be applicable for the period of the contract.

APPENDIX B  
INPUT AND OUTPUT LISTINGS



TABLE 1.  
SEADYN BASELINE CAPABILITY (10/80)

CAPABILITY	MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS
GLOBAL CONTROLS				
1. USER DRAG OVERRIDE	6.3	3	✓	
2. GRAVITY DIRECTION	6.3	1	✓	
3. NO FLUID	6.8	3	✓	Must use parameters to specify zero properties. Moving medium limits doesn't do it.
NODE DEFINITION				
1. IMPLIED GENERATION	6.14	4	✓	
BOUNDARY CONDITION COPY			✓	
2. LINE GENERATION	6.11	4	✓	
STRAIGHT LINE			✓	
FIRST GENERATED MODE GIVEN/NOT GIVEN			✓	
BOUND. COND. COPY/NOT COPY			✓	
3. CATENARY	6.11	4	✓	
NO SAG			✓	
SAG HI-LO/LO-HI			✓	
LINE ON BOTTOM			✓	
4. CODES: INPUT CONSTRAINTS	6.14	all	✓	
GENERATED CONSTRAINTS		4, 5	✓	
ALTERED CONSTRAINTS			✓	
ELEMENT DEFINITIONS				
1. IMPLIED GENERATION			4	
2. ELEMENT INCREMENT GIVEN			4	
3. TENSIONS FROM CAT. GEN.	6.17	5	✓	

SEADYN BASELINE CAPABILITY (10/80)

CAPABILITY	MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS
ELEMENT DEFINITIONS (CONT.)	6.6	1 4	✓ ✓	
4. START-UP PROCEDURE				
COMPATIBLE STRETCHED				
COMPATIBLE UNSTRETCHED				
GUESSED UNSTRETCHED				
MATERIAL DESCRIPTIONS	6.13			
LINEAR MATERIALS		3		
NON-LINEAR TABLE		3		
MEDIUM/WEIGHT/MASS/ADDED MASS		3		
DAMPING PARAMETERS		3		
LUMPED BODIES				
1. USER DEFINED DRAG	6.5	3		
2. SPHERICAL BUOYS/ANCHORS	6.4, 6.5	3		
WEIGHT/MASS/ADDED MASS	6.5	3		
BUOY ON SURFACE DYNAMICS	7.1.9	5		
HOLDING FACTOR	6.10	4		
ANCHOR FIXITY OPTIONS	6.10	4		
SURFACE/BOTTOM LIMITS	6.10, 6.12	4, 5		
3. CYLINDRICAL BUOY (SPECIFICS)	6.5	3		
LIME ORIENTATION	6.5	5		
				Cylinder option does not work

## STEADYN BASELINE CAPABILITY (10/80)

## LOADING DEFINITIONS

CAPABILITY	MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS
INCREMENTED/MOT INCREMENTED	7.1.15	2	✓	
GRAVITY LOADS				
POINT LOADS	7.1.7	3	✓	IFNUHK
LOAD SET VARIATIONS	7.1.8, 6.18	3	✓	
TIME VARIATION CONTROLS				
CURRENTS				
UNIFORM	7.1.1	3	✓	
USER OVERRIDE	7.1.1	3	✓	CURUSK
DRAG DEFINITIONS (DEFAULT)				
SPHERE	6.5	3		
CYLINDER NORMAL				
CYLINDER TANGENTIAL				

## SEADYN BASELINE CAPABILITY (10/80)

BOUNDARY CONDITIONS		MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS
CAPABILITY					
IMPOSED DISPLACEMENTS					
1. STATIC SOLUTION			2	✓	
2. MODE SOLUTION			3		
3. DYNAMIC MOVED BOUNDARY	6.18, 7.19		4	✓	TFNUSK
ACCELERATION			4	✓	
VELOCITY			5	✓	
DISPLACEMENT			5		
4. PAYOUT/REEL-IN	7.1.11		4	✓	

Page 4  
of 4

SEADYN BASELINE CAPABILITY (10/80)

SOLUTION FORMS CAPABILITY	MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS
SOLUTION FORMS 1. DEAD MNR	7.1.14	1	✓	
RFB VRR		1 2	✗ ✓	Not Accurate
2. LIVE MNR		3	✓	
VRR				
3. DYN MNR		1	✓	Poor Solution
RFB (2)			✓ ✓ ✓	Must Start From Dead Solution
D1		1		
TIME STEP SELECTION	7.1.17	1		
INITIAL VELOCITY START	7.1.5	3		

## SEADYN BASELINE CAPABILITY (10/80)

## OUTPUT CONTROLS

CAPABILITY	MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS
INPUT DATA ECHO & INTERPR.	6.3	a11	✓	
STEPS BETWEEN PRINTING	7.1.10		✓	
STATIC		4	✓	
TIME DOMAIN		4	✓	
STEP CONTROLLED		—	✓	
TIME CONTROLLED		—	✓	

RESTART

SEADYN BASELINE CAPABILITY (10/80)

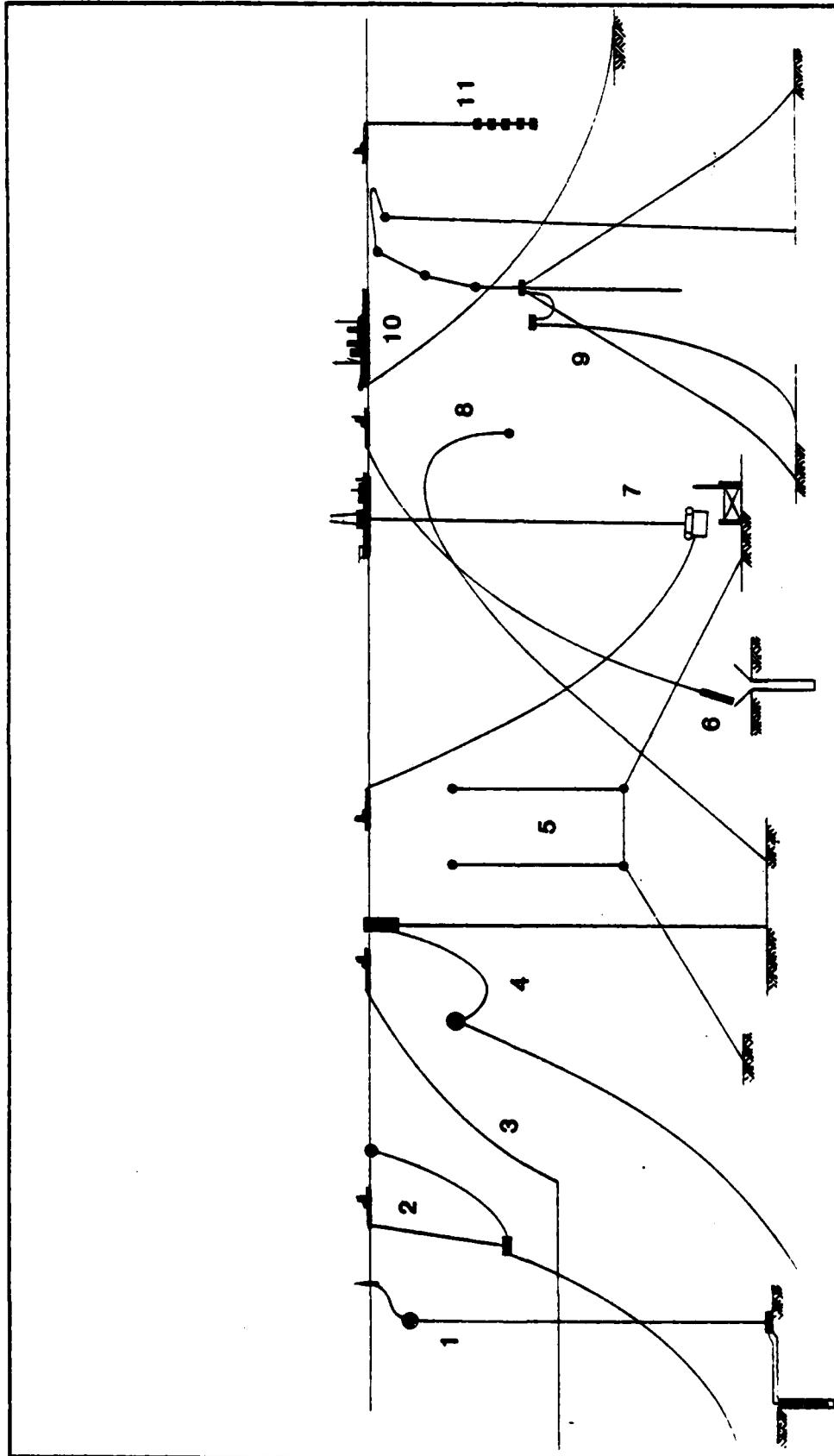
CONTINUE SOLUTION OPTION

START NEW SOLUTION OPTION

RESTART AT LAST OUTPUT RECORD

PAGE 7  
OF

CAPABILITY	MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS
	6.2	1	✓	✓

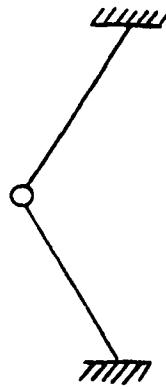


- 1 DEEP OCEAN SEISMIC SENSING SYSTEM
- 2 LOWERING OF SUBSEA EQUIPMENT
- 3 DEEP TOWED GEOPHYSICAL ARRAY
- 4 POWER CABLE SUSPENSION
- 5 DEEP WATER RANGE
- 6 INSTRUMENT PACKAGE REENTRY
- 7 MANFOLD STRUCTURE SUSPENSION
- 8 RECOVERY LINE FREEFALL
- 9 ACOUSTIC ARRAY
- 10 CABLE SYSTEM DEPLOYMENT
- 11 SUSPENDED SOUND SOURCE

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**CABLE SYSTEM ANALYSIS**

Figure 1

**SEADYN TEST CASE DEFINITIONS**



**1. SINGLE D.O.F. TEST CASE - SUDDEN RELEASE**

Gravity Direction

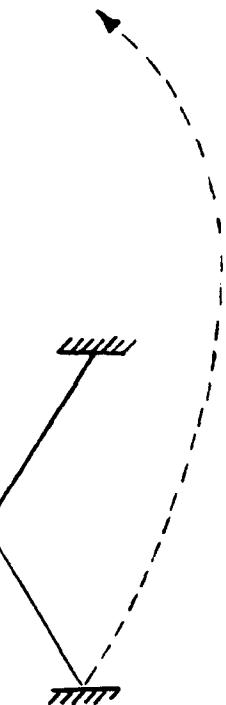
MNR Solution  
SLI Solution  
RFB Solution

DI Solution - DYN

Time Step Selection  
New Solution Option

**2. SINGLE D.O.F. TEST CASE - IMPOSED DISPLACEMENT**

VR/SLI Solution  
BR/RFG Solution

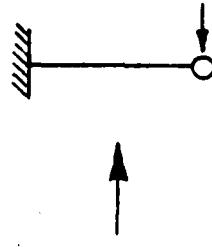


**FIGURE 2**

## SEADYN TEST CASE DEFINITIONS

### 3. SINGLE D.O.F. TEST CASE - PENDULUM

User Drag Override  
Default Drag Definitions  
Material Descriptions  
Linear  
Non-Linear Table  
Medium/Weight/Mass/Added Mass  
Damping Parameters



### Lumped Bodies

User Defined Drag  
Cyl. & Sph. Buoys/Anchors  
Point Loads Variations  
Uniform Current  
Initial Velocity Start  
No Fluid

### 4. CABLE LAYING TEST CASE

All Start-Up Procedures  
Surface/Bottom Limits  
Anchor Holding Factor  
Anchor Fixity Options

---

Node Generation  
Implied Generation (elements)  
B.C. Copy  
Line Generation  
Catenary No-Sag  
Line On Bottom

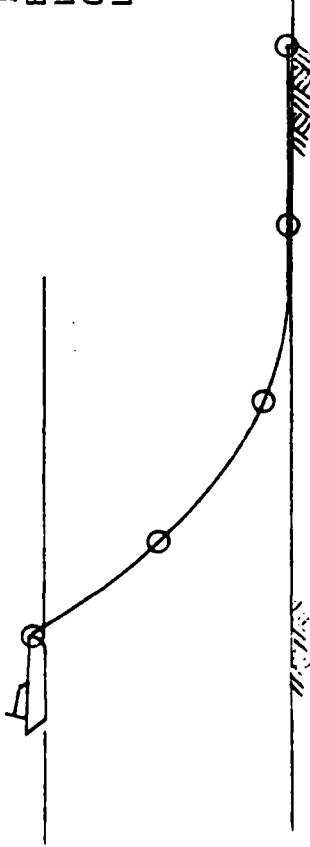
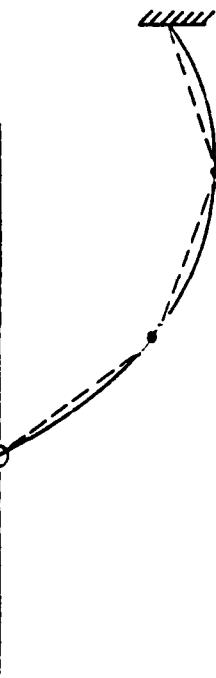


FIGURE 3

SEADYN TEST CASE DEFINITIONS



5. CATENARY TEST CASE

Catenary Generation - Sag  
Constraint Codes From Catenary Generation  
Tensions From Catenary Generation  
Buoy on Surface Dynamics  
Alter Constraint Codes

FIGURE 4

LINE DIRECT LIST OF INPUT DATA  
1 SEASIDE FREE FUNK - TEST CASE NO. 1 - SUDDEN RELEASES

```

1 SEADYN FREE FURN - TEST CASE NO. 1 - SUDDEN RELEASES
2 PHOB
3 3.2,-2.1.1
4 FLUI
5 1000.,1
6 NODE
7 1.0,0.,-20.,0.
8 2.0,-100.,0.,0.,1.1.1
9 3.0,100.,0.,0.,1.1.1
10 ELEM
11 1.2,1.,1.0.,-2002.2
12 2.3,1.,1.0.,-20052.
13 BLOC
14 1.1.1
15 800Y
16 1.0.,-2.,-10.
17 MATE
18 1.0.,1.0W,1.0,06.1.
19 DEAD
20 SOLU,M12,-1
21 LOAD,1,,7870.,,1.,1
22 LVAR,1
23 QUITP,1
24 DYN
25 SOLU,M12,-1
26 TIME,0.00044.,0.011
27 SAVE,-25.,01.1
28 NEW
29 RESTANT TO TEST NEXT SOLUTION OPTION
30 REST
31 NEW,3,1,-2>
32 DYN
33 END

```

LINE DIRECTIVE LIST OR INPUT DATA  
1 SEADYN FREE FORM - TEST CASE NO. 2 - IMPOSED DISPLACEMENTS  
2 PEND  
3 3,2,-2,1,1  
4 FLU  
5 FLU  
6 1600.,0,1  
7 R,OUT  
8 1,0,0.,+0.,0.  
9 2,0.,-100.,0,0.,+1,1,1  
10 1,0,100.,0,0.,0,1,1,1  
11 LLM  
12 1,2,1,0,1,0,0,20052,  
13 2,1,0,1,0,0,20052,  
14 BLOC  
15 1,1,1  
16 BCOT  
17 1,0,-78,0,0,10.  
18 RAIL  
19 1,0,1,0,9,1,0,0,1.  
20 DEAD SOLU,VRN,M12,-1  
21 STEP,10  
22 MOVE,2,1,1,400.  
23 END

LINE DIRECT LIST OF INPUT DATA

1 STADYN FREE FURN - TEST CASE NO. 3 - PENCILUM S

REFERENCE CASE

2 PHON  
3 2.1,-2.1,1  
4 FLUI  
5 250.,1  
6 NODE  
7 1.0,0.,0.1,1  
8 2.0,0.,-50.,0.  
9 ELEN  
10 1.1,2.1,1,000,34600.  
11 BLOC  
12 1.2,2  
13 BODY  
14 1.0,-34000.,0.10.  
15 RATE  
16 1.0,-25,13.798,2.36000.,.15,00,450000...24  
17 FLOW  
18 1.1,0.4  
19 IFUN  
20 1,-1,1.  
21 DEAD  
22 SOLU,VAR  
23 OUTP,500  
24 LIVE  
25 SOLU,MNR  
26 STEP,5,5  
27 LOAD,1,-80000.,.2,2  
28 LVAR,1  
29 CURR,1  
30 OUTP,200  
31 DYN  
32 CURR,1  
33 TIME,005,0.  
34 LOAD,1,-80000.,.2,2  
35 LVAR,1  
36 OUTP,200  
37 ADDt  
38 END

LINE DIRECT LIST OF INPUT DATA  
 1 STADYN FATT FORM - TEST CASE NO. 3 - PENCILUM 1  
 MATERIAL DAMPING

```

    2 PROB
    3 2.1,-2.1,1
    4 FLU
    5 250.,1
    6 NUDE
    7 1.00000,1,1
    8 2.0,-50.,0.
    9 ELEM
    10 1.1,2.0,1000,34600.
    11 BLOC
    12 1.1,2
    13 BODY
    14 1.0,-34000.,10.
    15 RATT
    16 1.00025,13.7W9.36000.,1.1000.
    17 FLUM
    18 1.1,0.4
    19 FFUN
    20 1,-1,1.
    21 DEAD
    22 SOLU,VRA
    23 OUTP,500
    24 LIVE
    25 SOLU,MNR
    26 SITE,5,5
    27 LOAD,1,-8000.,,,2,2
    28 LYAK,1
    29 CURR,1
    30 OUTP,500
    31 DYN
    32 CURR,1
    33 TIME,0002,2,0.
    34 LOAD,1,-8000.,,,2,2
    35 LVAR,1
    36 OUTP,200
    37
  
```

## LINE DIRECT LIST OF INPUT DATA

1 SEAUVN FREE FORM - TEST CAST NO. 3 - PENCILUM 6  
ADDED MASS

2 PADB  
3 2,1,-2,1,1  
4 FLUF  
5 250..1  
6 NOTE  
7 1,0,0,0,1,1,1  
8 2,0,0,-2,0,0,0.  
9 KLEN  
10 1,1,2,2,1,0,0,0,34600.  
11 BLQC  
12 1,2,4  
13 BODY  
14 1,0,-3,000,10,0,2,  
15 MAIE  
16 1,0,0,2,2,13,7M8,2,36000,0,15,0,45000,0,24  
17 FLOW  
18 1,1,0,0,4  
19 TFUN  
20 1,-1,1,  
21 DEAD  
22 SOLU,VNN  
23 OUTP,500  
24 LIVE  
25 SOLU,PMN  
26 STEP,5,5  
27 LOAD,1,-8000,0,0,2,2  
28 LYAN,1  
29 CURR,1  
30 OUTP,500  
31 DYN  
32 CURR,1  
33 TIME,0,005,4,0,  
34 1,0,0,1,-8000,0,0,2,2  
35 LYAN,1  
36 OUTP,200

LINt DIRECT LIST OF INPUT DATA  
1 STEADY FREE FLOW - TEST CASE NO. 3 - PENDULUM 1 NO FLUID

2 PROB  
3 2.1,-2.1,1  
4 FLUI  
5 250.,2  
6 NODE  
7 1.0,0.1,1.1  
8 2.0,-50.0,0.  
9 TLEM  
10 1.1,2.,1.,34600.  
11 BLOC  
12 1.2,2  
13 BDIV  
14 1.1,-34000.,10.  
15 MATE  
16 1.0,-25.,13.7m0.2,16000.,15.,45000.,24  
17 FLOW  
18 1.1,8.,4  
19 FFUN  
20 1.-1.1.  
21 ULAD  
22 SOLU=YRK  
23 QUITP,500  
24 LIVE  
25 SOLU=MNR  
26 STEP,5,5  
27 LOAD,1,-8000.,1.,2  
28 LVAR,1  
29 COKW,1  
30 QUITP,500  
31 DYN  
32 COKW,1  
33 TIME,005,70.  
34 LOAD,1,-6000.,1.,2  
35 LVAR,1  
36 QUITP,200  
3 END

LINK DIRECT LIST OF INPUT DATA

1 FMTT FUNMAT TEST CASE - CABLE LAYING  
2 PROB  
3 /,b,-2,.1,.1  
4 FLUID  
5 1200.,1  
6 2000.,12  
7 8LOC  
8 1,\*2,\*1,.1  
9 BODY  
10 1,\*1,\*100.,\*4.  
11 FILE  
12 1,1,\*2,\*1,\*1,\*-1  
13 2,\*2,\*3,\*1  
14 3,\*3,\*4,\*2  
15 4,\*4,\*5,\*1  
16 5,\*5,\*6,\*1  
17 LIMIT  
18 1,0.,1...1  
19 MAIE  
20C 1,0...25\*13,7...\*5\*E06,1.  
21 2,0...25,13,7WB,2,14C\*\*\*,0014,10...16000...003...17000...006  
22 RDT  
23 1,\*0,\*0,\*0,\*1,1,1  
24 5,\*-1000...1200...0...2,\*2,\*1  
25 6,\*-1000...1200...0...2,\*2,\*1  
26 7,\*-1400C...1200...0...1,\*1,1  
27 LInt  
28 3,1,\*51,0\*2,0,1,13,7,9800..1  
29 DEAD  
30 OUTP,10  
31 SOLU,VRR,\*1  
32 DYN  
33 SOLU,DRW,12,\*-1  
34 MOVE,5,2,0,-2,-2,0,0,2,0,0,  
35 MOVE,6,2,0,-2,-2,0,0,2,0,0,  
36 MOVE,7,2,0,-2,-2,0,0,2,0,0,  
37 PAYO,5,4,2,0,0,2,0,1,0  
38 TIME,0,1,\*0,  
39 OUTP,10,1,  
40 DYN  
41 FRT,\*11,12  
42 MUNE,7,2,0,-2,-2,0,0,2,0,0,  
43 TIME,0,1,\*0,40,  
44 OUTP,10,1,  
45 END

## LINE DIRECT LIST IN INPUT DATA

1 STEADY FREE FLOW - TEST CASE NO. 5 - CATERPILLAR  
2 PK06  
3 4,3,-2,1,1  
4 FLU1  
5 0,1  
6 NOD1  
7 1,0,-100,0,1,1  
8 4,-150,0,0,1,1  
9 LIN1  
10 2,4,1,0,2,1,2,0,40.  
11 LLEN  
12 1,1,2,0,1,0,0,-1  
13 3,3,4,0,1,0,0,-1  
14 FH5  
15 1,3,1,1  
16 MAIL  
17 1,0,1,7,0,9,1,06,1.  
18 LL0C  
19 1,1,0,1  
20 1,1,0,1  
21 1,-120,2,0,1  
22 14,UN  
23 1,0,1,0.  
24 1,EA0  
25 SHL,VMR  
26 OUTP,10  
27 CYN  
28 10,0,0,0,0,1,2,0,-2  
29 Tint,01,0,  
30 Fret,41  
31 Aut,4,0,0,1,0,6,  
32 OUTP,50  
33 END

SEADYN-- SEADYN FREE FIRM - TEST CASE NO. 1 - SUDOMEN RELEASE

N t n P R O B L E M D A T A

NUMBER OF NODES =	3	NBASE =	2
NUMBER OF ELEMENTS =	2	NBASE =	260
GRAVITY DIRECTION =	-2		
DYNAMIC OPTION FLAG =	1		
INPUT ECHO FLAG =	1		
OKIG MODEL OVERRIDE =	0		
SHIP LOAD FILE FLAG =	0		
GRAVITATIONAL ACCELERATION =			$321700E+02$

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STATION - STATION FREE FORM - TEST CAST NO. 1 - SIGHT N ALTAYA

10/02/61 11-32-33 PAGE 1

FLUID MEDIA DEFINITIONS

INITIAL DEPTH KINETIC VISCOSITY SPECIFIC WEIGHT

1 -1000E+04 .17700E-04 .64000E-02

SEADYN-- SEADYN FREE FLOW - TEST CASE NO. 1 - SUDDEN RELEASE

10/02/01 11.32.33. PAGE 4

NUCLE DATA

NUCLE	CNTL	U	X	Y	Z	I	CONSTRAINTS
1	0	0.	-200000e+02	0.	0.	0	0
2	0	-100000e+01	0.	0.	0.	1	1
3	0	-100000e+03	0.	0.	0.	1	1

SEADYN - SEADYN FREE FLOW - TEST CASE NO. 1 - SUDIEN RELEASE

LLFMIN INPUT DATA

EL	N1	N2	N3	MAT KUMP FLAG	TENSION	LENGTH	MEDIUM
1	2	1	0	1	0	.20052E+05	1
2	3	1	0	1	0	.20052E+05	1

10/07/61

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PAGE

SEARCHED - SERIALIZED - INDEX CASE NO. 1 - SUDDEN RELEASE

10/07/61 11-12030 PAGE 6

BODY LOCATION DATA

BEGIN	END	INCH	BODY NO.	LIMIT SET
1	1	1	1	0

## STUDY-- STUDY RELEASE FORM - FILE CASE NO. 1 - SUBJECT RELEASE

## DATA TABLE

BUFLY NO.	CHAC PHNO.	Buoyancy	Diameter	Lift/Cm	Absolute Mass Cm <sup>3</sup>	Min. Buoy. Cm <sup>3</sup> (Up)	Min. Buoy. Cm <sup>3</sup> (Down)	Min. Buoy. Cm <sup>3</sup>
1	0	-50000.01	.10000E+02	0.	.10000E+01	0.	0.	0.

STADYN-- STADYN FWT FORN - TEST CASE NO. 1 - SUDDEN RELEASE

10/02/61 11.52.33. PAGE 4

CABLE MATERIAL PROPERTY DATA

PROPERTY SET NO.	1
DRAG CURV. NO.	0
DIAMETER	.10000E+01
WEIGHT PER UNIT LENGTH	0.
ADDED MASS COEFFICIENT	.10000E+01
REFERENCE MEDIUM CODE	1
ULTIMATE TENSION	0.
MASS PER UNIT LENGTH	.156250E+01
NO. OF POINTS ON TENSION/STRAIN CURVE	0
EXPONENT FOR COEFFICIENTS	.10000E+07

SEARCHED - SERIALIZED - INDEXED - FILED - SUMMER H. HALL

ARCHAEOLOGY

C.F.	INITIAL COORDINATES			INITIAL LOADS			GRAVITY LOADS			VIRTUAL MASSLESS		
	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
1	0.	-20000t+02	0.	0	0	10.	-5000t+01	0.	0.	-3960t+04	-3960t+04	0.
2	-1000t+03	0.	-20000t+02	0.	0	0.	0.	0.	0.	1562t+03	1562t+03	1562t+03
3	1000t+03	0.	-20000t+02	0.	1	0.	0.	0.	0.	1562t+03	1562t+03	1562t+03

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STADYN-- STADYN FREE FORM - ITSI CASE NO. 1 - SUUJIN KELLANI

10/12/01 11.17.15. 14.10. 10

ELEMENT SUMMARY DATA

ELI CONNECTION DATA			MAT CUMP NED.	INITIAL TENSION	UNSTRETCHED LENGTH	INITIAL LENGTH	RESIDUAL MASS
NO.	N1	N2	N3	NO.	CODE	CODE	MASS
1	2	1	1	0	1	*20052E+05	*99945E+02 *7812E+02
2	3	1	1	0	1	*20052E+05	*99945E+02 *7812E+02

STADYN-- STADYN FREE FORM - ITSI CASE NO. 1 - SUUJIN KELLANI

10/12/01 11.17.15. 14.10. 10

SAUYN - STADYN FOLD FORM - TEST CASE NO. 1 - SUBJECT RELEASER

ADDITIONAL ELEMENT DATA

ELEMENT	SLOPES	TRANSIT TIME (APPROX)
1	.19612E+00 -.19612E+00	0. 0.
2		

HALL-BANDWIDTH = 4

10/07/61 11.12.59 PAGE 11

SEADYN FILE FORUM - TEST CASE NO. 1 - SUDDEN RELEASE  
L C A U C A S E P A R A M E T E R S  
SUBANALYSIS TYPE = DEAD

SOLUTION DATA RESET DEF  
POINT LOADS DATA  
LOAD SET LOAD COMPONENTS BEGIN END INC  
1 0. 0.  
LOAD SET VARIATION CODES  
SET 1 0 1  
SET 2 0 0  
SET 3 0 0  
GRAVITY 1  
OUTPUT DATA SELECTIONS  
STEP NUMBER INTERVAL 1  
PARAMETER INTERVAL 0.  
DEBUC OUTPUT FLAG 0

10/07/81 11.32.33. PAGE 17

SEARCH-- SEADYN TEST FORM - TEST CASE NO. 1 - SUDIEN RELEASE

10/02/61 11.37.33. PACT 11

SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DETAILED  
SOLUTION FORM = MNK

NO. OF STATIC STEPS	=	1
OUTPUT INTERVAL	=	1
DEBUG PRINT CODE	=	0
RESTART FILE FLAG	=	0
UPDATE OPTION	=	1
START UP OPTION	=	0
NO. OF POINT LOADS	=	1
FLOW FIELD NUMBER	=	0

MODIFIED NEWTON-RAPHSON SOLUTION PARAMETERS

STEP SIZE CONTROL NO.	=	-1
ITERATION LIMIT	=	200
NO. OF CONV. TRIALS	=	3
MNK UPDATE INTERVAL	=	205
NUMERICAL DAMPING	=	0.
RESIDUAL ERROR TOLERANCE	=	1.0000E-02
DEFECT. ERROR TOLERANCE	=	1.0000E-02
1-D SEARCH FACTOR	=	0.
EXTRAPOLATION PARAMETER	=	>000001.00

STADIN-- STAUN FIVE FURN - TEST CASE NO. 1 - SUDDEN RELEASE

10/07/81 11.17.55. PAGE 1.

CLOAD LOAD INCREMENT = 0 LOAD FACTOR 0.

NODE	X	Y	Z
1	0.	.200000E+02	0.
2	-.100000E+03	0.	0.
3	-.100000E+03	0.	0.

NUPREL OF ITERATIONS 0

CLOAD LOAD INCREMENT = 1 LOAD FACTOR .10000E+01

NODE	X	Y	Z
1	0.	.200000E+02	0.
2	-.100000E+03	0.	0.
3	-.100000E+03	0.	0.

NUPREL OF ITERATIONS 1

NODE	X	Y	Z
1	0.	0.	0.
2	0.	0.	0.
3	0.	0.	0.

NODE	X	Y	Z
1	0.	0.	0.
2	0.	0.	0.
3	0.	0.	0.

NODE	X	Y	Z
1	0.	0.	0.
2	0.	0.	0.
3	0.	0.	0.

NODE	X	Y	Z
1	0.	0.	0.
2	0.	0.	0.
3	0.	0.	0.

STUDY# - 1EADYN FILE FURN - TEST CASE NO. 1 - Sudden Release, f

L U A D C A S T P A R A M E T E R S

SUBANALYSIS, TYPE = DYN

SOLUTION DATA RESULT  
TIME STEP DATA  
INITIAL TIME STEP = .44000t-03  
MAXIMUM TIME = .11000t-01  
BEGINNING TIME = 0.  
UPDATE TIME = .44000t-03  
ALPHA,BETA,GAMMA = 0.  
RESTART OUTPUT CONTROLS  
RESTART FILE FLAG = -25  
SAVE TIME INTERVAL = .11000t-01  
SUPPRESS RESTART OUTPUT

10/07/81 11.12.33. PAGE 15

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DYN  
SOLUTION FORM = DIM

DYN, INIT, CUND, CODE = 0  
OUTPUT INTERVAL = 0  
DEBUG PRINT CODE = 0  
RESTART FILE FLAG = -25  
UPDATE OPTION = 1  
START UP OPTION = 0  
NO. OF POINT LOADS = 0  
FIELD FIELD MURBEN = 0

DIRECT ITERATION METHOD DYNAMIC PARAMETERS  
DEFLECT, ERROR TOLERANCE = .1000E-02

ELEMENT	EA	UNIT MASS	LENGTH	TIME STEP
1	.10000E+07	.12317E+01	.10198E+03	.123713E+00
2	.10000E+07	.15317E+01	.10198E+03	.123713E+00

TIME STEP DATA  
INITIAL TIME STEP = .44000E-03  
MAXIMUM TIME = .11000E-01  
BEGINNING TIME = 0.  
UPDATE TIME = .44000E-03  
ALPHA,BETA,GAMMA = 0. .83333E-01 .50000E+00

STADYN-- STADYN FNET FORM - TEST LAST NU. 1 - SOLUTION RETRIEVAL

10/12/51

11. 12. 31. PAGE 17

OUTPUT TIME INTERVAL = .40000t-01  
RESUME TIME INTERVAL = -110000t-01;

TIME = 0. DYNAMIC INCREMENT = 0  
NUDt 0. x 0. 200000t+02 0.  
1 -100000t+03 0.  
2 -100000t+03 0.  
3 -100000t+03 0.  
NUMBER OF ITERATIONS 0

TIME = .40000t-01 DYNAMIC INCREMENT = 1  
NUDt 0. x 0. 200000t+02 0.  
1 -100000t+03 0.  
2 -100000t+03 0.  
3 -100000t+03 0.  
NUMBER OF ITERATIONS 1

TIME = .89000t-01 DYNAMIC INCREMENT = 2  
NUDt 0. x 0. 200000t+02 0.  
1 -100000t+03 0.  
2 -100000t+03 0.  
3 -100000t+03 0.  
NUMBER OF ITERATIONS 2

TIME = .11200t-02 DYNAMIC INCREMENT = 3  
NUDt 0. x 0. 200000t+02 0.  
1 -100000t+03 0.  
2 -100000t+03 0.  
3 -100000t+03 0.  
NUMBER OF ITERATIONS 3

TIME = .14700t-02 DYNAMIC INCREMENT = 4  
NUDt 0. x 0. 200000t+02 0.  
1 -100000t+03 0.  
2 -100000t+03 0.  
3 -100000t+03 0.  
NUMBER OF ITERATIONS 4

## SEADYN-- SEADYN FLOW FORM - TEST CASE NO. 1 - SUDDEN RELEASE

TIME = .22000E-02 DYNAMIC INCREMENT = 5

NODE	X	Y	Z
1	0.	.200000E+02	0.
2	-.100000E+03	0.	0.
3	.100000E+03	0.	0.

NUMBER OF ITERATIONS 2

TIME = .26400E-02 DYNAMIC INCREMENT = 6

NODE	X	Y	Z
1	0.	.200000E+02	0.
2	-.100000E+03	0.	0.
3	.100000E+03	0.	0.

NUMBER OF ITERATIONS 2

TIME = .30800E-02 DYNAMIC INCREMENT = 7

NODE	X	Y	Z
1	0.	.200000E+02	0.
2	-.100000E+03	0.	0.
3	.100000E+03	0.	0.

NUMBER OF ITERATIONS 2

TIME = .35200E-02 DYNAMIC INCREMENT = 8

NODE	X	Y	Z
1	0.	.199999E+02	0.
2	-.100000E+03	0.	0.
3	.100000E+03	0.	0.

NUMBER OF ITERATIONS 2

TIME = .39600E-02 DYNAMIC INCREMENT = 9

NODE	X	Y	Z
1	0.	.199999E+02	0.
2	-.100000E+03	0.	0.
3	.100000E+03	0.	0.

NUMBER OF ITERATIONS 2

TIME	1	2	3
1.111	.111111E+03	0.	0.
1.111	.200000E+03	0.	0.
1.111	.200000E+03	0.	0.



## STATUS-- STATION THREE FURN - TEST CASE NO. 1 - SUDDEN RELEASE

TIME = .66000E-02 DYNAMIC INCREMENT = 15

NODE	X	Y	VX	YY	VY	FLNLSUN
1	0.	.199999E+02	0.	0.	-*.100000E-01	0.
2	-.100000E+03	0.	0.	0.	0.	*.200513E+02
3	.100000E+03	0.	0.	0.	0.	*.200513E+02

NUMBER OF ITERATIONS = 2

TIME = .70400E-02 DYNAMIC INCREMENT = 16

NODE	X	Y	VX	YY	VY	FLNLSUN
1	0.	.199999E+02	0.	0.	-*.224577E-01	0.
2	-.100000E+03	0.	0.	0.	0.	*.200513E+02
3	.100000E+03	0.	0.	0.	0.	*.200513E+02

NUMBER OF ITERATIONS = 2

TIME = .74800E-02 DYNAMIC INCREMENT = 17

NODE	X	Y	VX	YY	VY	FLNLSUN
1	0.	.199999E+02	0.	0.	-*.239066E-01	0.
2	-.100000E+03	0.	0.	0.	0.	*.200513E+02
3	.100000E+03	0.	0.	0.	0.	*.200513E+02

NUMBER OF ITERATIONS = 2

TIME = .79200E-02 DYNAMIC INCREMENT = 18

NODE	X	Y	VX	YY	VY	FLNLSUN
1	0.	.199999E+02	0.	0.	-*.253555E-01	0.
2	-.100000E+03	0.	0.	0.	0.	*.200513E+02
3	.100000E+03	0.	0.	0.	0.	*.200513E+02

NUMBER OF ITERATIONS = 2

TIME = .83600E-02 DYNAMIC INCREMENT = 19

NODE	X	Y	VX	YY	VY	FLNLSUN
1	0.	.199999E+02	0.	0.	-*.266043E-01	0.
2	-.100000E+03	0.	0.	0.	0.	*.200513E+02
3	.100000E+03	0.	0.	0.	0.	*.200513E+02

NUMBER OF ITERATIONS = 2

FLNLSUN  
1  
2FLNLSUN  
1  
2FLNLSUN  
1  
2FLNLSUN  
1  
2FLNLSUN  
1  
2FLNLSUN  
1  
2

TIME = 1.00000E-01

PAGE = 20

## STADYN-- STADYN FILE FOR H - 1ST CASE NO. 1 - SUDOTH RELEASE

TIME = .000001-02 DYNAMIC INCREMENT = 20

MODE	X	Y	Z	VX	YY	VL	TL
1	0.	.199998E+02	0.	0.	-*.28252E-01	0.	1.18310E-01
2	-.100000E+03	0.	0.	0.	0.	0.	<0.05171E+03
3	-.100000E+03	0.	0.	0.	0.	0.	<0.05171E+03

NUMBER OF ITERATIONS 2

TIME = .024001-02 DYNAMIC INCREMENT = 21

MODE	X	Y	Z	VX	YY	VL	TL
1	0.	.199998E+02	0.	0.	-.29102E-01	0.	1.00511E-01
2	-.100000E+03	0.	0.	0.	0.	0.	<0.05171E+03
3	-.100000E+03	0.	0.	0.	0.	0.	<0.05171E+03

NUMBER OF ITERATIONS 2

TIME = .068001-02 DYNAMIC INCREMENT = 22

MODE	X	Y	Z	VX	YY	VL	TL
1	0.	.199998E+02	0.	0.	-.31156E-01	0.	1.00511E-01
2	-.100000E+03	0.	0.	0.	0.	0.	<0.05171E+03
3	-.100000E+03	0.	0.	0.	0.	0.	<0.05171E+03

NUMBER OF ITERATIONS 2

TIME = .101201-01 DYNAMIC INCREMENT = 23

MODE	X	Y	Z	VX	YY	VL	TL
1	0.	.199998E+02	0.	0.	-.32549E-01	0.	1.00511E-01
2	-.100000E+03	0.	0.	0.	0.	0.	<0.05171E+03
3	-.100000E+03	0.	0.	0.	0.	0.	<0.05171E+03

NUMBER OF ITERATIONS 2

TIME = .101201-01 DYNAMIC INCREMENT = 24

MODE	X	Y	Z	VX	YY	VL	TL
1	0.	.199998E+02	0.	0.	-.34045E-01	0.	1.00511E-01
2	-.100000E+03	0.	0.	0.	0.	0.	<0.05171E+03
3	-.100000E+03	0.	0.	0.	0.	0.	<0.05171E+03

NUMBER OF ITERATIONS 2

SEADYN-- SEADYN FREE PUNK - TEST CASE NO. 1 - SUDDEN RELEASE

10/12/61 11. M. J. PAGE 22

Time = .110000-01 DYNAMIC INCREMENT = 26

Number	X	V <sub>X</sub>	V <sub>Z</sub>	U <sub>X</sub>	U <sub>Z</sub>
1	0.	-1499998E+02	0.	0.	-334471E-01
2	-1000000E+03	0.	0.	0.	0.
3	-1000000E+03	0.	0.	0.	0.

NUMBER OF ITERATIONS 2

STALYN-- SCAVEN HELL FORM - TEST CASE NO. 1 - SUDDEN RELEASE

RESIDENT TO TEST NEXT SOLUTION UPPTION

16/07/61 11.12.11. PACT 23

STEADYH--RESTART TO  
11:11:11: 10/02/81

NEXT PAGE 24 SIMULATION OPTION

RESTART OPTION NEW

RESTART FILE NO.	*	3
RESTART RECORD NO.	*	1
RESTART FILE FLAG	*	-25
CHECK WORD FLAG	*	0
OUTPUT INTERVAL FLAG	*	0
DEBUG OUTPUT FLAG	*	0

RESTART TAPE LABEL

STEADYH FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

>AUDIT-->START 10 10/02/61 11.32.11. PAGE 29 SOLUTION OPTIM

L G A U C A S T P A R K A N T I T E X S  
SUBANALYSIS, FPT - UVM

SOLUTION DATA RESET

KTB

SEADYN--RESISTANT TO  
10/02/81 11.32.32. FILE PAGE 26 SOLUTION OPTICH

SOLUITION UPFICN SUMMARY

ANALYSIS TYPE = DYN  
SOLUTION FORM = RFB

DYN. INIT. COND.	COLD	0
OUTPUT INTERVAL	-	0
DEBUG PRINT CODE	-	0
RESISTANT FILE FLAG	-	0
UPDATE OPTION	-	1
START UP OPTION	-	0
NO. OF POINT LOADS	-	0
FLOW FIELD MURSK	-	0

ELEMENT	LA	UNIT	MASS	LENGTH	TIME STEP
1	.100000E+07	.153178E+01	.101980E+03	.12371E+00	.101980E+03
2	.100000E+07	.153178E+01	.101980E+03	.12371E+00	.101980E+03

TIME STEP DATA	INITIAL TIME STEP	*44000E-03
RAILRUN TIME	-	*11000E-03
BEGINNING TIME	-	0.
UPDATE TIME	-	*44000E-03
ALPHA,DELTA,GAMMA	-	0.

\*83333E-01 \*50000E+00

SAVING=WEIGHT TO  
10/02/81 11.32.11. PAGE 21 SOLUTION

OUTPUT TIME INTERVAL = .440000E-01

TIME =	0.	DYNAMIC INCREMENT =	0	VX	VY	VZ	TLL	TRANSITION
NUDE	0.	X	Y	0.	0.	0.	1	*200519E+05
1	0.	0.	*200000E+02	0.	0.	0.	2	*200519E+05
2	-1.00000E+03	0.	0.	0.	0.	0.		
3	-1.00000E+03	0.	0.	0.	0.	0.		
TIME =	.440000E-01	DYNAMIC INCREMENT =	1	VX	VY	VZ	TLL	TRANSITION
NUDE	0.	X	Y	0.	0.	0.	1	*200519E+05
1	0.	0.	*200000E+02	0.	0.	0.	2	*200519E+05
2	-1.00000E+03	0.	0.	0.	0.	0.		
3	-1.00000E+03	0.	0.	0.	0.	0.		
TIME =	.880000E-01	DYNAMIC INCREMENT =	2	VX	VY	VZ	TLL	TRANSITION
NUDE	0.	X	Y	0.	0.	0.	1	*200519E+05
1	0.	0.	*200000E+02	0.	0.	0.	2	*200519E+05
2	-1.00000E+03	0.	0.	0.	0.	0.		
3	-1.00000E+03	0.	0.	0.	0.	0.		
TIME =	.132000E-02	DYNAMIC INCREMENT =	3	VX	VY	VZ	TLL	TRANSITION
NUDE	0.	X	Y	0.	0.	0.	1	*200519E+05
1	0.	0.	*200000E+02	0.	0.	0.	2	*200519E+05
2	-1.00000E+03	0.	0.	0.	0.	0.		
3	-1.00000E+03	0.	0.	0.	0.	0.		
TIME =	.176000E-02	DYNAMIC INCREMENT =	4	VX	VY	VZ	TLL	TRANSITION
NUDE	0.	X	Y	0.	0.	0.	1	*200519E+05
1	0.	0.	*200000E+02	0.	0.	0.	2	*200519E+05
2	-1.00000E+03	0.	0.	0.	0.	0.		
3	-1.00000E+03	0.	0.	0.	0.	0.		
TIME =	.220000E-02	DYNAMIC INCREMENT =	5	VX	VY	VZ	TLL	TRANSITION
NUDE	0.	X	Y	0.	0.	0.	1	*200519E+05
1	0.	0.	*200000E+02	0.	0.	0.	2	*200519E+05
2	-1.00000E+03	0.	0.	0.	0.	0.		
3	-1.00000E+03	0.	0.	0.	0.	0.		

SEARCHED.....INDEXED.....SERIALIZED.....FILED.....

Time = -264000-02 DYNAMIC INCREMENT = 6  
Mode X Y Z  
1 0. -200000t+02 0.  
2 -100000t+02 0.  
3 100000t+02 0.  
4 -100000t+02 0.  
5 100000t+02 0.  
6 -100000t+02 0.  
7 100000t+02 0.  
8 -100000t+02 0.  
9 100000t+02 0.  
10 -100000t+02 0.  
11 100000t+02 0.  
12 -100000t+02 0.  
13 100000t+02 0.  
14 -100000t+02 0.  
15 100000t+02 0.  
16 -100000t+02 0.  
17 100000t+02 0.  
18 -100000t+02 0.  
19 100000t+02 0.  
20 -100000t+02 0.  
21 100000t+02 0.  
22 -100000t+02 0.  
23 100000t+02 0.  
24 -100000t+02 0.  
25 100000t+02 0.  
26 -100000t+02 0.  
27 100000t+02 0.  
28 -100000t+02 0.  
29 100000t+02 0.  
30 -100000t+02 0.  
31 100000t+02 0.  
32 -100000t+02 0.  
33 100000t+02 0.  
34 -100000t+02 0.  
35 100000t+02 0.  
36 -100000t+02 0.  
37 100000t+02 0.  
38 -100000t+02 0.  
39 100000t+02 0.  
40 -100000t+02 0.  
41 100000t+02 0.  
42 -100000t+02 0.  
43 100000t+02 0.  
44 -100000t+02 0.  
45 100000t+02 0.  
46 -100000t+02 0.  
47 100000t+02 0.  
48 -100000t+02 0.  
49 100000t+02 0.  
50 -100000t+02 0.  
51 100000t+02 0.  
52 -100000t+02 0.  
53 100000t+02 0.  
54 -100000t+02 0.  
55 100000t+02 0.  
56 -100000t+02 0.  
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61 100000t+02 0.  
62 -100000t+02 0.  
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64 -100000t+02 0.  
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66 -100000t+02 0.  
67 100000t+02 0.  
68 -100000t+02 0.  
69 100000t+02 0.  
70 -100000t+02 0.  
71 100000t+02 0.  
72 -100000t+02 0.  
73 100000t+02 0.  
74 -100000t+02 0.  
75 100000t+02 0.  
76 -100000t+02 0.  
77 100000t+02 0.  
78 -100000t+02 0.  
79 100000t+02 0.  
80 -100000t+02 0.  
81 100000t+02 0.  
82 -100000t+02 0.  
83 100000t+02 0.  
84 -100000t+02 0.  
85 100000t+02 0.  
86 -100000t+02 0.  
87 100000t+02 0.  
88 -100000t+02 0.  
89 100000t+02 0.  
90 -100000t+02 0.  
91 100000t+02 0.  
92 -100000t+02 0.  
93 100000t+02 0.  
94 -100000t+02 0.  
95 100000t+02 0.  
96 -100000t+02 0.  
97 100000t+02 0.  
98 -100000t+02 0.  
99 100000t+02 0.  
100 -100000t+02 0.

LINE	• 30000t-02	DYNAMIC INCREMENT =	$\tau$	$\tau_L$	FUNCTION
NODE	X	V			
1	0.	.200000E+02	0.	0.	COS(0.2t)
2	-100000t+03	0.	0.	0.	COS(0.2t+1.5708)

```

LIMIT = -JS200E-02 DYNAMIC INCREMENT = 0
NODE      X           Y
1   0.        1.99999e+02
2  -1.00000e+01  0.

```

TIME =	NUMLT	X	Y	Z	VX	VY	VZ	RELATION
-44000E-02	1	0.	-199999E+02	0.	0.	-156378E-01	0.	1
0	2	-100000E+03	0.	0.	0.	0.	0.	2
44000E-02	3	+100000E+03	0.	0.	0.	0.	0.	3
DYNAMIC INCREMENT =	10							

```

TIME = -0.884600e-02  DYNAMIC INCREMENT = 1.000000e+00
      NODE   X           Y           Z           T           U           V           W           R
      1   0.           0.           0.           0.           0.           0.           0.           0.
      2  -1.000000e+01  0.           0.           0.           0.           0.           0.           0.
      3  -1.000000e+03  0.           0.           0.           0.           0.           0.           0.

```

SEARCHED - INDEXED - SERIALIZED - FILED  
10/06/61

DYNAMIC INVESTMENT • 12

TYPE = .512001-02 DYNAMIC MEMORY : 13

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NUU6 1 0 1 1869991002 0.

INDIANA INSTITUTE OF TECHNOLOGY 16

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• 200316.00  
• 200316.00

WEDNESDAY START TU 11.32.31. PAGE 3C SOLUTION UP/DOWN

TIME =	0.79200E-02	DYNAMIC INCREMENT =	16	VX	VY	VZ	TLL	TLL	TLL
NUDE	0.	X	0.	0.	0.	0.	1	1	1
1	0.	0.	-199998E+02	0.	0.	0.	0.000111E+03	0.000111E+03	0.000111E+03
2	-1.00000E+03	0.	0.	0.	0.	0.	0.000111E+03	0.000111E+03	0.000111E+03
3	-1.00000E+03	0.	0.	0.	0.	0.	0.000111E+03	0.000111E+03	0.000111E+03

TIME =	0.83600E-02	DYNAMIC INCREMENT =	19	VX	VY	VZ	TLL	TLL	TLL
NUDE	0.	X	0.	0.	0.	0.	1	1	1
1	0.	0.	-199998E+02	0.	0.	0.	0.000111E+03	0.000111E+03	0.000111E+03
2	-1.00000E+03	0.	0.	0.	0.	0.	0.000111E+03	0.000111E+03	0.000111E+03
3	-1.00000E+03	0.	0.	0.	0.	0.	0.000111E+03	0.000111E+03	0.000111E+03

TIME =	0.88000E-02	DYNAMIC INCREMENT =	20	VX	VY	VZ	TLL	TLL	TLL
NUDE	0.	X	0.	0.	0.	0.	1	1	1
1	0.	0.	-199998E+02	0.	0.	0.	0.000128E+03	0.000128E+03	0.000128E+03
2	-1.00000E+03	0.	0.	0.	0.	0.	0.000128E+03	0.000128E+03	0.000128E+03
3	-1.00000E+03	0.	0.	0.	0.	0.	0.000128E+03	0.000128E+03	0.000128E+03

TIME =	0.92400E-02	DYNAMIC INCREMENT =	21	VX	VY	VZ	TLL	TLL	TLL
NUDE	0.	X	0.	0.	0.	0.	1	1	1
1	0.	0.	-199998E+02	0.	0.	0.	0.000146E+03	0.000146E+03	0.000146E+03
2	-1.00000E+03	0.	0.	0.	0.	0.	0.000146E+03	0.000146E+03	0.000146E+03
3	-1.00000E+03	0.	0.	0.	0.	0.	0.000146E+03	0.000146E+03	0.000146E+03

TIME =	0.96800E-02	DYNAMIC INCREMENT =	22	VX	VY	VZ	TLL	TLL	TLL
NUDE	0.	X	0.	0.	0.	0.	1	1	1
1	0.	0.	-199998E+02	0.	0.	0.	0.000164E+03	0.000164E+03	0.000164E+03
2	-1.00000E+03	0.	0.	0.	0.	0.	0.000164E+03	0.000164E+03	0.000164E+03
3	-1.00000E+03	0.	0.	0.	0.	0.	0.000164E+03	0.000164E+03	0.000164E+03

TIME =	0.10120E-01	DYNAMIC INCREMENT =	23	VX	VY	VZ	TLL	TLL	TLL
NUDE	0.	X	0.	0.	0.	0.	1	1	1
1	0.	0.	-199998E+02	0.	0.	0.	0.000182E+03	0.000182E+03	0.000182E+03
2	-1.00000E+03	0.	0.	0.	0.	0.	0.000182E+03	0.000182E+03	0.000182E+03
3	-1.00000E+03	0.	0.	0.	0.	0.	0.000182E+03	0.000182E+03	0.000182E+03

STATION-RESISTANT LOADS  
TIME = 11.12.91

TIME = 10560t-01 DYNAMIC INCREMENT = 24

NODE	X	Y	Z
1	0.	199999E+02	0.
2	-100000E+03	0.	0.
3	+100000E+03	0.	0.

TIME = 11000t-01 DYNAMIC INCREMENT = 25

NODE	X	Y	Z
1	0.	199999E+02	0.
2	-100000E+03	0.	0.
3	+100000E+03	0.	0.

TIME = 11000t-01 DYNAMIC INCREMENT = 26

NODE	X	Y	Z
1	0.	199999E+02	0.
2	-100000E+03	0.	0.
3	+100000E+03	0.	0.

TIME = 11000t-01 DYNAMIC INCREMENT = 27

NODE	X	Y	Z
1	0.	199999E+02	0.
2	-100000E+03	0.	0.
3	+100000E+03	0.	0.

TIME = 11000t-01 DYNAMIC INCREMENT = 28

NODE	X	Y	Z
1	0.	199999E+02	0.
2	-100000E+03	0.	0.
3	+100000E+03	0.	0.

SEADYN - SEADYN FILE FURN - TEST CASE NO. 2 - IMPROVED DISPLACEMENT

ALL PROBLEM DATA

NUMBER OF NODES =	2	NHASE =	260
NUMBER OF ELEMENTS =	2		
GRAVITY DIRECTION =	-2		
DYNAMIC OPTION FLAG =	1		
INPUT ECHO FLAG =	1		
DRAG MODEL UNKNOWN =	0		
SHIP LOAD FILE FLAG =	0		

GRAVITATIONAL ACCELERATION = .3217G0t+0.02

10/02/74

11.31.36.

PART

2

SEABATH - STATION FREE FLOW - TEST CAST NO. 2 - IMPOSED DISPLACEMENT

FLOW PROPERTIES

INTERFACE DEPTH   KINEMATIC VISCOSITY   SPECIFIC WEIGHT

	•10000t •04	•17700t •04	•64000t •02
1			

10/07/01 11-31-16 PAGE 1

STRUCTURE - STABILITY TEST FORM - ITEM EAST NO. 2 - IMPPOSED DISPLACEMENT

10/12/81 111-51-361 PAGE 4

MOUNT DATA

NUCT	CODE	X	Y	Z	CONSTRAINTS
1	0.	0.	.20000E+02	0.	0
2	0	-10000E+03	0.	0.	1
3	0	-10000E+03	0.	0.	1

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

10/12/61 11.11.10. FACT

ELEMENT INPUT DATA

EL	N1	N2	N3	MAT KUMP FLAG	TENS1IN	LNG1IN	MGL1IN
1	2	1	0	1 0 0	.20052E+05	0.	1
2	1	0	1	0 0 0	.20052E+05	0.	1

STADTAU - STADTAU FREE FORM - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

BODY LOCATION DATA

BEGIN	END	INCH BODY NO.	LIMIT SET
1	1	1	0

10/02/51 11.31.36. PAGE 6

## SEADYN TEST FORM - TEST CASE NO. 2 - PROPOSED DISPLACEMENT

## DUCT DATA TABLE

DUCT NO.	DIA/C FOR NO. DUCT	DIA/IN	LENGTH	ADJUST. MASS UNIT	ADJUST. LENGTH UNIT	ADJ. COEF. OF DRAG	ADJ. COEF. OF DRAG	ADJ. COEF. OF DRAG
1	0 = RIGHT + 0.5	.100000 * 0.2	0.	.100000 * 0.1	0.	0.	0.	0.

1.00000 1.11111 1.11111

STAVN-- STAVN FILE FOR - TEST CASE NO. 2 - IMPUSU DISPLACEMENT

CABLE PATHLINE PROPERTY DATA

PROPERTY SET NO.	1
UNAC COFF. NO.	0
DIALECTIC	.100000E+01
WEIGHT PER UNIT LENGTH	0.
ADDED MASS COEFFICIENT	.100000E+01
REFERENCE MEDIUM COEFF	1
ULTIMATE TENSION	0.
MASS PER UNIT LENGTH	.156250E+01
NO. OF POINTS ON TENSION/STRAIN CURVE	0
EXPONENT FOR COEFFICIENTS	.100000E+07
EXponent FOR COEFFICIENTS	.100000E+01

## SEADYN-- SEADYN FILE FORM - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

10/22/61 11.51.46. PAGE 4

## NODE POINT DATA SUMMARY

NODE NO.	INITIAL COORDINATES			FIXITY CODES	LIMIT NO.	BODY NO.	GRAVITY LOADS	VIRTUAL MASSES
	X	Y	Z					
1 0.	-2000E+02	0.	0	0	0	1 0.	-7870E+02	0.
2 -1000E+03	0.	0.	1	1	0	0.	0.	0.
3 -1000E+03	0.	0.	1	1	0	0.	0.	0.

## SEADYN - SEADYN FREE FUND - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

10/02/81

11.31.96.

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## ELEMENT SUMMARY DATA

EL1 CONNECTION DATA			MAT LUMP NO.	INITIAL TENSION	UNSTRETCHED LENGTH	INITIAL LENGTH	RESIDUAL PASS
NO.	M1	M2	NO.	CODE	CODE	CODE	CODE
1	2	1	1	0	1	*20052E+05	*99995E+02
2	1	1	1	0	1	*20052E+05	*99995E+02

EL1 CONNECTION DATA	INITIAL TENSION	UNSTRETCHED LENGTH	INITIAL LENGTH	RESIDUAL PASS
NO. M1 M2 NO. CODE CODE CODE	*20052E+05	*99995E+02	*10198E+03	*10121E+02
1 2 1 1 0 1	*20052E+05	*99995E+02	*10198E+03	*10121E+02

STAGEN-- SEAUNN +HEE FUNA - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

11.11.16. PAGE 11

10/02/01

ADDITIONAL ELEMENT DATA

ELEMENT	SLOPES	TRANSIT TIME (APPROX)
1	.19612E+00 .19612E+00	.12498E+00
2	-.98038E+00 .19612E+00	.12498E+00

HALF-BANDDIM = 9

STADYN-- STADYN FREE FORM - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

L D A U C A S E P A R A M E T E R S  
SUBSTRUCTURE TEST - DTAD

SOLUTION DATA RESET  
STATIC STEP DATA  
NUMBER OF STEPS = 10  
START UP OPTION = 0  
HEADING INCREMENT = 0.  
TOTAL HEADING CHANGE = 0.  
NODE COMPONENT MOVEMENT DATA  
NODE TYPE VARY CODE AMPLITUDE TYPE VARY CODE AMPLITUDE TYPE VARY CODE AMPLITUDE  
2 1 1 -40000E+03 0 0 0.

10/02/81 11.31.56. PAGE 12

STADYN-- SEADEV FREE FORM - TEST CASE NO. 2 - IMPULSE DISPLACEMENT

10/02/81 11.11.46. PAGE 1

S U L U T I O N O P T I O N S U M M A R Y

ANALYSIS TYPE = DEAD  
SOLUTION FORM = VRN

NG. OF STATIC STEPS	=	10
OUTPUT INTERVAL	=	0
DEBUG PRINT CODE	=	0
RESTART FILE FLAG	=	0
UPDATE OPTION	=	1
SMART UP OPTION	=	0
NG. OF POINT LOADS	=	0
FLOW FIELD NUMBER	=	0
NUMBER OF DISP. INPUT	=	1

VISCOSITY RELAXATION SOLUTION PARAMETERS

INTEGRATION PARAMETER	=	10000E+01
INITIAL STEP SIZE	=	-10000E+01
INITIAL DUMPING	=	-10000E-02
ITERATION LIMIT	=	200

## STUDY-- STAD LOAD - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

LOAD/SL

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IN

CTAD LOAD INCREMENT = 0

LOAD FACTOR

0.

NODE X Y Z

1 0. -200000E+02 0.

2 -100000E+03 0.

3 -100000E+03 0.

DEAD LOAD INCREMENT = 10

LOAD FACTOR

-10000E+01

NODE X Y Z

1 -200000E+03 -2000043E+02 0.

2 -300000E+03 0.

3 -100000E+03 0.

NODE X Y Z

1 0. 0. 0.

2 0. 0. 0.

3 0. 0. 0.

NODE X Y Z

1 0. 0. 0.

2 0. 0. 0.

3 0. 0. 0.

STEADY-- STEADY FREE FORM - ITST CASE MU. 3 - PENDULUM

PROBLEMS

10/02/81

2

N L N PROBLEM DATA

NUMBER OF MODELS	-	2	NBASE =	16)
NUMBER OF ELEMENTS	-	1		
GRAVITY DIRECTION	-	-2		
DYNAMIC OPTION FLAG	-	1		
INPUT ECHO FLAG	-	1		
DRAG MODEL OVERRIDE	-	0		
SHIP LOAD FILE FLAG	-	0		
GRAVITATIONAL ACCELERATION	-	.321700E+02		

STADYN-- STADYN FILE #000 - T15 CASE #11. 3 - PENDULUM

FLUID MEDIA DEFINITIONS

INTERFACE DEPTH    KINEMATIC VISCOSITY    SPECIFIC WEIGHT

• 25000E+01    • 17700E-04    • 64000E+02

10/02/61

11.3747. PAGE

SCA070 - SCADIN PNTL FORM - TEST CASE NO. 3 - PENDULUM

10/02/71 11.12.47. PAUL

NUOVE DATA

NOCE	CODE	X	Y	Z	L	CONSTRAINTS
1	0.	0.	0.	-3000000+00.	0.	1
2	0.	0.	0.	-3000000+00.	0.	0

SEADYN - SEADYN PULL FORM - TEST CASE NO. 3 - PENDULUM

10/02/81 11.12.41 PAGE 5

ELEMENT INPUT DATA

EL	M1	M2	M3	MAT KMP FLAG	TENS10A	LENGTH	MEDIUM
1	1	2	0	1	0	0.	0.3600E-05

STUDY-- SEADYN FREE FLOW - TEST CAST NO. 3 - PENDULUM

BODY LOCATION DATA

STUDY	HEAD	INCH BODY NO.	LIMIT SET
2	2	1	0

10/02/61 11.12.61. #Alt 6

STANDARD - SECOND FNET FORM - TEST CASE NO. 3 - PENDULUM

BODY DATA TABLE

BODY NO.	DRAG FNO.	BURDEN	DIA MTRN	LENGTH	ADDED MASS COEF	MIND DRAG COEF	SUM CUM DRAG	MIND UP INERTIA RATIO
1	0	-34000E-05	11000E-02	0.	.0000E+01	0.	0.	0.

STARTUP - STADYN FREE FDRN - TEST CASE NU. 3 - PENDULUM

CABLE MATERIAL PROPERTY DATA

PROPERTY SET NO.	*	1
DHAC COEF. NO.	*	0
DIAMETER *	.25000E+00	
WEIGHT PER UNIT LENGTH *	.13700E+02	
ADDED MASS COEFFICIENT *	.10000E+01	
REFERENCE MEDIUM CODE *	1	
ULTIMATE TENSION *	0.	
MASS PER UNIT LENGTH *	.523519E+00	

NU. OF POINTS ON TENSION/STRAIN CURVE = 2

	TENSION	STRAIN	EA
1	.36000E+05	.15000E+00	.240000E+06
2	.45000E+05	.24000E+00	.10000E+06

SEADYN - SEADYN FREE FORM - 1ST CASE NO. 3 - PENDULUM

FLCM FIELD DATA SETS

SET	CODE	PARAMETER	0.	0.
1	1	*84000E+01	0.	0.
		0.	0.	0.

10/27/61 11.12.47. PAGE 4

STALYN-- STADYNG PATT FORM - TEST CASE NO. 3 - PENDULUM

INIT + FUNCTION DEFINITIONS

F N. AURARI CUDT PAKANT HKV

1 -1 .00001+01

0. 0.

0. 0.

0. 0.

10/02/61 11.32.47. PAGE 16

## SEADYN-- SEADYN FREE FDM - TEST CASE NO. 3 - PENDULUM

## NODE POINT DATA SUMMARY

NODE NO.	INITIAL COORDINATES			FIXITY CODES			BODY NO.	GRAVITY LOADS	VISCOSITY LOADS
	X	Y	Z	A	B	C			
1 0.	0.	0.	1	1	0	0.		-0.3017e+03 0.	-1.1661e+02
2 0.	-2.0000e+02	0.	0	0	0	1 0.		-0.3430e+05 0.	-0.11541e+04

10704/61 11.5641. PART II

## SEADYN-- SEADYN FILE FORM - TEST CASE NO. 3 - PENDULUM

## TEST SUMMARY DATA

TEST CONNECTION DATA			TEST CAMP NO.	INITIAL TENSION	UNSTRETCHED LENGTH	INITIAL LENGTH	RESIDUAL MASS
NO.	M <sub>1</sub>	M <sub>2</sub>	N <sub>3</sub>	No. CUDL CODE	.34600E+05	.44051E+02	.21504E+01
1	1	2	1	0	CUDL CODE 1		

10/02/81 11. 27.41. PAGE 12

SEADYN-- SEADYN FILE FURN - TEST CAST NO. 3 - PENDULUM

AUXILIARY ELEMENT DATA

ELEMENT	SLOPE	TRANSIT TIME (APPX)
1	0.	-10000E+01
MATERIAL-BANDWIDTH	6	6.5060E-01

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WESTERN INSTRUMENTS CORP OXNARD CA  
TEST CASES FOR SEADYN VERIFICATION. (U)  
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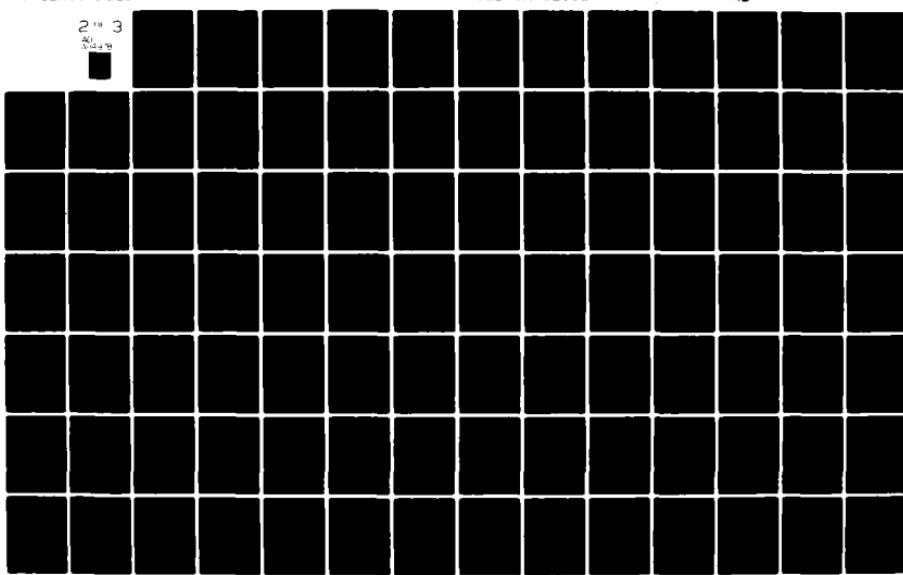
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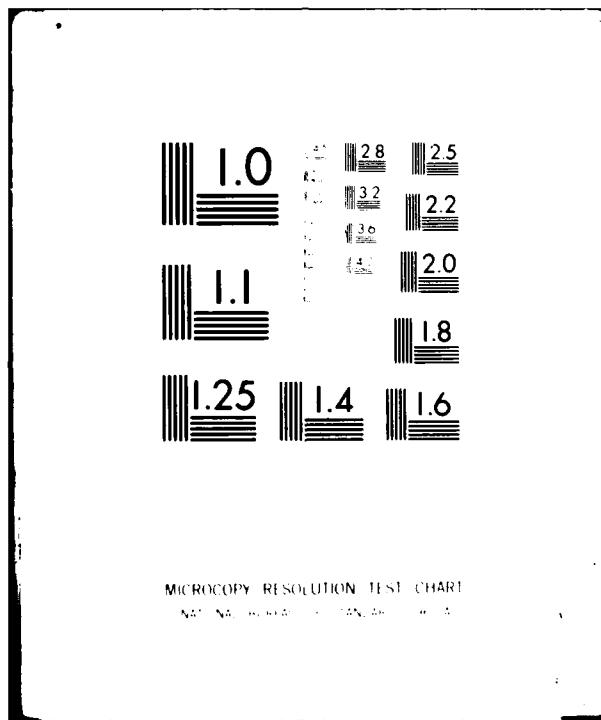
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SEADYN-- SEADYN INPUT FORM - TEST CASE NO. 1 - PENDULUM

LOAD LAST PARAMETERS  
SUBANALYSIS TYPE = DEAD

SOLUTION DATA RESET VRR  
OUTPUT DATA SELECTIONS  
STEP NUMBER INTERVAL = 500  
PARAMETER [INTERVAL = 0.  
DEBUG OUTPUT] FLAG = 0

10/02/61 11-32-57, PAGE 14

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

S O L U T I O N O P T I O N S U M M A R Y

ANALYSIS TYPE = DEAD

SOLUTION FORM = VRN

NO. OF STATIC STEPS	=	1
OUTPUT INTERVAL	=	>00
DEBUG PRINT CODE	=	0
RESTART FILE FLAG	=	0
UPDATE OPTION	=	1
START UP OPTION	=	0
NO. OF POINT LOADS	=	0
FROM FIELD NUMBER	=	0

VISCOSUS RELAXATION SOLUTION PARAMETERS

INTEGRATION PARAMETER	=	.10000E+01
INITIAL STEP SIZE	=	.10000E+01
INITIAL DAMPING	=	.10000E+01
ITERATION LIMIT	=	200

10/02/81 11:32:47. PAGE 15

STADYN-- STADYN Finit Element - TEST CASE NO. 3 - PLATEULUM

10/02/81 11.12.47. PAGE 16

GEAD LOAD INCREMENT = 0 LOAD FACTOR 0.

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	0.	-0.500000E+02	0.	0.	0.	0.

SIGN CONVERGENCE ON STEP 4

LAST FOUR VELOCITY NUMBERS .203619E+01 .166132E+01 .469673E+00 .136027E-01

LAST RESIDUAL NUMBERS .596342E+04 .158761E+04 .432795E+02

NEW STEP SIZE = .200000E+01

GEAD LOAD INCREMENT = 4 LOAD FACTOR .100000E+01

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	0.	-0.449517E+02	0.	0.	0.	0.

SEADYN-- SEADYN FATE PGM - TEST CASE NO. 3 - PENDULUM

LOAD CASE PARAMETERS

SUBANALYSIS TYPE = LIVE

SOLUTION DATA AT SET 1

STATIC STEP DATA

NUMBER OF STEPS = 3

START UP OPTION = 3

HEADING INCREMENT = 0.

TOTAL HEADING CHANGE = 0.

POINT LOADS DATA

LOAD SET 1

LOAD SET VARIATION CODE = 0.

SET 1 = 1

SET 2 = 0

SET 3 = 0

GRAVITY = 0

CURRENT FIELD DATA

FLOW FIELD NUMBER = 1

FLOW FIELD MULTIPLIER = .10000E+01

FLOW VARIATION CODE = 0

DATA INPUT SELECTIONS

STEP NUMBER INTERVAL = 500

PARAMETER INTERVAL = 0.

DEBUG OUTPUT FLAG = 0

10/07/76 11:14:41. PAGE 17

SEADYN-- SEADYN FREEF FORM - TEST CASE NO. 3 - PENDULUM

10/02/61

11.32.47. PAGE 14

SOLUTION UPITION SUMMARY

ANALYSIS TYPE - LIVE  
SOLUTION FORM - RHM

NO. OF STATIC STEPS	-	5
OUTPUT INTERVAL	-	.00
DEBUG POINT CODE	-	0
RESTART FILE FLAG	-	0
UPDATE OPTION	-	1
START UP OPTION	-	3
NO. OF POINT LOADS	-	1
FLOW FIELD MURDEN	-	1

MODIFIED NEWTON-RAPHSON SOLUTION PARAMETERS

STEP SIZE CONTROL NO.	-	2
ITERATION LIMIT	-	200
NO. OF CONV. TRIALS	-	3
RHM UPDATE INTERVAL	-	205
Numerical Damping	-	0.
RESIDUAL ERROR TOLERANCE	-	.10000E-02
DEFLCT. ERROR TOLERANCE	-	.10000E-02
1-D SEARCH FACTOR	-	0.
EXTRAPOLATION PARAMETER	-	.20000E+00

STEADY-- STEADY FREE TURN - TEST CASE NO. 3 - PENDULUM

10/02/61 11.52.47. 44.41. 14

STEADY STATE INCREMENT = 0 LOAD FACTOR 0.

NUDE	X	V	L	VX	VR	VL	TL	TILUN
1	0.	0.	0.	0.	0.	0.	1	-35.9017e+01
2	0.	-0.444417e+02	0.	0.	0.	0.	1	-35.9017e+01

NUMBER OF ITERATIONS 0

STEADY STATE INCREMENT = 9 LOAD FACTOR .100000e+01

NUDE	X	V	L	VX	VR	VL	TL	TILUN
1	0.	0.	0.	0.	0.	0.	1	-35.06061e+01
2	-0.102374e+02	-0.440075e+02	0.	0.	0.	0.	1	-35.06061e+01

NUMBER OF ITERATIONS 3

STUDY-- SEADYN FILE FORM - TEST CASE NO. 3 - PERIODUM

L O A D C A S T P A R A M E T E R S  
SUBANALYSIS TYPE = DYN

CURRENT FIELD DATA  
FLOW FIELD NUMBER = 1  
FLOW FIELD MULTIPLIER = .10000E+01  
FLOW VARIATION CODE = 0  
TIME STEP DATA  
INITIAL TIME STEP = .50000E-02  
MAXIMUM TIME = .20000E+02  
BEGINNING TIME = 0.  
UPDATE TIME = .50000E-02  
ALPHA,BETA,GAMMA = .61333E-01 .50000E+00  
POINT LOADS DATA  
LOAD SET LOAD COMPONENTS BEGIN END INC  
1 -.50000E+01 .20000E+01  
LOAD SET VARIATION CODES  
SET 1 = 1  
SET 2 = 0  
SET 3 = 0  
GRAVITY = 0.  
OUTPUT DATA SELECTIONS  
STEP NUMBER INTERVAL = 200  
PARAMETER INTERVAL = 0.  
DEBUG OUTPUT FLAG = 0.

10/12/61 11.12.47. PAGE 20

STEADY-- SEADYN FREE FURN - TEST CASE NO. 3 - PENDULUM

SOL U T I O N O P T I O N S U M M A R Y

ANALYSIS TYPE = DYN  
SOLUTION FURN = DIR

DYN, INIT, CUND, CODE = 0  
OUTPUT INTERVAL = 200  
DEBUG PRINT CODE = 0  
RESISTANT FILE FLAG = 0  
UPDATE OPTION = 1  
START UP OPTION = 0  
NO. OF POINT LOADS = 1  
FLOW FIELD NUMBER = 1

DIRECT ITERATION METHOD DYNAMIC PARAMETERS  
DEFECT, TOLERANCE = .10000E-02

ELEMENT FA UNIT MASS LENGTH TIME STEP  
1 .240000E+06 .456755E+00 .500777E+02 .638006E-01

TIME STEP DATA  
INITIAL TIME STEP = .50000E-02  
MAXIMUM TIME = .20000E+02  
BEGINNING TIME = 0.  
UPDATE TIME = .50000E-02  
ALPHA,BETAGAMMA = 0.  
.03333E-01 .50000E+00



## SEADYN-- SEADYN FREE-FORM - FIRST CASE NO. 3 - PENDULUM

TIME = .49850E+01 DYNAMIC INCREMENT = .006

NODE	X	Y	Z	VX	YY	VZ	tlf	TENSION
1	0.	0.	0.	.4147397E-03	.411111E+01	.746323E+00	0.	.171694E-03
2	.732072E+01	-.502610E+02	.16732E+03					

NUMBER OF ITERATIONS 3

TIME = .59050E+01 DYNAMIC INCREMENT = .431

NODE	X	Y	Z	VX	YY	VZ	tlf	TENSION
1	0.	0.	0.	.631849E-04	.2222771E+01	.136511E+01	0.	.193945E+01
2	.101287E+02	-.491506E+02	.631849E-04					

NUMBER OF ITERATIONS 3

TIME = .69050E+01 DYNAMIC INCREMENT = .456

NODE	X	Y	Z	VX	YY	VZ	tlf	TENSION
1	0.	0.	0.	.318934E-04	.229269E+00	.585172E+00	0.	.194020E-03
2	.101376E+02	-.480130E+02	.318934E-04					

NUMBER OF ITERATIONS 3

TIME = .79050E+01 DYNAMIC INCREMENT = .481

NODE	X	Y	Z	VX	YY	VZ	tlf	TENSION
1	0.	0.	0.	.116079E-03	.146142E+01	.114805E+01	0.	.176412E+01
2	.984434E+01	-.483097E+02	.116079E-03					

NUMBER OF ITERATIONS 3

TIME = .89050E+01 DYNAMIC INCREMENT = .506

NODE	X	Y	Z	VX	YY	VZ	tlf	TENSION
1	0.	0.	0.	.178043E-03	.287166E+01	.153022E+01	0.	.141666E-03
2	.729571E+01	-.498244E+02	.178043E-03					

NUMBER OF ITERATIONS 3

3

## STEADY--STATE FORM - FIRST CASE NO. 3 - PRELIMINARY

TIME = .499810E+01 DYNAMIC INCREMENT = .511

NODE	X	Y	Z	VX	VY	VZ	FUNCTION
1	0.	0.	0.	0.	0.	0.	.141614E+01
2	.356976E+01	-.501254E+02	-.196398E-01	-.362638E+01	-.566666E+00	-.476167E-04	

NUMBER OF ITERATIONS 3

TIME = .109810E+02 DYNAMIC INCREMENT = .611

NODE	X	Y	Z	VX	VY	VZ	FUNCTION
1	0.	0.	0.	0.	0.	0.	.141614E+01
2	-.446642E+00	-.500875E+02	-.169571E-01	-.344289E+01	-.637848E+00	-.226678E-04	

NUMBER OF ITERATIONS 3

TIME = .119810E+02 DYNAMIC INCREMENT = .611

NODE	X	Y	Z	VX	VY	VZ	FUNCTION
1	0.	0.	0.	0.	0.	0.	.141614E+01
2	-.384416E+01	-.498300E+02	-.105264E-03	-.243644E+01	-.124040E+01	-.224012E-04	

NUMBER OF ITERATIONS 3

TIME = .129810E+02 DYNAMIC INCREMENT = .606

NODE	X	Y	Z	VX	VY	VZ	FUNCTION
1	0.	0.	0.	0.	0.	0.	.141614E+01
2	-.399426E+01	-.488694E+02	-.209000E-04	-.102208E+01	-.364331E+00	-.126224E-04	

NUMBER OF ITERATIONS 3

TIME = .139810E+02 DYNAMIC INCREMENT = .611

NODE	X	Y	Z	VX	VY	VZ	FUNCTION
1	0.	0.	0.	0.	0.	0.	.141614E+01
2	-.664856E+01	-.491883E+02	-.648281E-04	-.536012E+00	-.860231E+00	-.117182E-04	

NUMBER OF ITERATIONS 3

NUMBER OF ITERATIONS 3

## STADYN - STADYN PLOT FUNK - 1ST CASE NO. 3 - PENDULUM

TIME = .14985E+02 DYNAMIC INCREMENT = 6.76

NODE X Y Z

1 0. -.501324E+01

2 -.501324E+02

NUMBER OF ITERATIONS 3

TIME = .15985E+02 DYNAMIC INCREMENT = 6.81

NODE X Y Z

1 0. -.505135E+02

2 -.321302E-03

NUMBER OF ITERATIONS 3

TIME = .16985E+02 DYNAMIC INCREMENT = 7.06

NODE X Y Z

1 0. -.503111E+02

2 -.503111E+03

NUMBER OF ITERATIONS 3

TIME = .17985E+02 DYNAMIC INCREMENT = 7.31

NODE X Y Z

1 0. -.494765E+02

2 -.368230E+03

NUMBER OF ITERATIONS 3

TIME = .18985E+02 DYNAMIC INCREMENT = 7.56

NODE X Y Z

1 0. -.494201E+02

2 -.274921E+03

NUMBER OF ITERATIONS 3

TIME = .10985E+01 DYNAMIC INCREMENT = 11.3747.

NODE X Y Z

1 0. 0. 0.

2 -.641017E+01

NUMBER OF ITERATIONS 3

TIME = .11985E+01 DYNAMIC INCREMENT = 11.3747.

NODE X Y Z

1 0. 0. 0.

2 -.641017E+01

NUMBER OF ITERATIONS 3

TIME = .12985E+01 DYNAMIC INCREMENT = 11.3747.

NODE X Y Z

1 0. 0. 0.

2 -.641017E+01

NUMBER OF ITERATIONS 3

TIME = .13985E+01 DYNAMIC INCREMENT = 11.3747.

NODE X Y Z

1 0. 0. 0.

2 -.641017E+01

NUMBER OF ITERATIONS 3

TIME = .14985E+01 DYNAMIC INCREMENT = 11.3747.

NODE X Y Z

1 0. 0. 0.

2 -.641017E+01

NUMBER OF ITERATIONS 3

ROUTINE-- STABIN FREE FUNK - TEST CASE NO. 3 - PENDULUM

10/07/61 11.17.41. RAD. t0.

TIME = .20000t +0.2 DYNAMIC INCERIMENT = 175  
RADT X V L VX VY VT  
1 0. 0. 0. 0. 0. 0.  
2 .8151921e+01 -.496287e+02 -.645391e-05 .135772e+01 -.544555e-01 -.116576e-01

NUMBER OF ITERATIONS 3

STADYN-- SEADYN FILE FORM - FIRST CASE NO. 3 - PENDULUM  
LOAD CASE PARAMETERS  
SUBANALYSIS TYPE = RUND

10/02/81 11.37.47. PAGE 21

STATIN-- SEADYN FREE FUND - 1ST CASE NO. 3 - PENDULUM  
SOLUTION OPTION SUMMARY  
ANALYSIS TYPE = MUDT  
SOLUTION FORM = MNK

MUDFIELD NEWTON-MAPHUN SOLUTION PARAMETERS  
STEP SIZE CONTROL NO. = 2  
ITERATION LIMIT = 20  
NO. OF CONV. TRIALS = 3  
MIN UPDATE INTERVAL = 205  
NUMERICAL DAMPING = 0.  
RESIDUAL ERROR TOLERANCE = \*10000E-02  
DEFECT. ERROR TOLERANCE = \*10000E-02  
1-D SEARCH FACTUR = 0.  
EXTRAPOLATION PARAMETER = \*10000E+00

10/12/91 11.12.47 PAGE 28

## STEADY-- STEADY STATE FORM - TEST CASE NO. 3 - PENDULUM

MODE	1	CIRC. FREQ.	NAT. FREQ.	PERIOD	1.0/1000	1.1+12+1/01	1.1+12+1/01
MODE		RAD/SEC	CYC/SEC	SEC			
MODE	1	4.7756E+00	.76007E-01	.13157E+02			
NODE SHAPE							
MODE	1	X	Y	Z			
		0.	0.	0.			
MODE	2	0.	-2.8864E-02	0.			
CIRC. FREQ.		RAD/SEC	NAT. FREQ.	PERIOD			
MODE	3	4.7756E+00	.76007E-01	.13157E+02			
NODE SHAPE							
MODE	3	X	Y	Z			
		0.	0.	0.			
MODE	4	4.6960E-09	-2.9596E-04	-1.7006E-01			
CIRC. FREQ.		RAD/SEC	NAT. FREQ.	PERIOD			
MODE	5	-10.246E+01	.16307E+00	.61322E+01			
NODE SHAPE							
MODE	5	X	Y	Z			
		0.	0.	0.			
MODE	6	-2.8864E-02	-1.7571E-01	.29452E-08			
CIRC. FREQ.		RAD/SEC	NAT. FREQ.	PERIOD			
MODE	7	4.6866E+05	.77486E+04	.12406E+03			
NODE SHAPE							
MODE	7	X	Y	Z			
		-2.7035E+00	0.	0.			
MODE	8	0.	0.	0.			
CIRC. FREQ.		RAD/SEC	NAT. FREQ.	PERIOD			
MODE	9	4.6866E+05	.77486E+04	.12406E+03			
NODE SHAPE							
MODE	9	X	Y	Z			
		0.	0.	0.			
MODE	10	0.	0.	0.			
CIRC. FREQ.		RAD/SEC	NAT. FREQ.	PERIOD			
MODE	11	4.6866E+05	.77486E+04	.12406E+03			
NODE SHAPE							
MODE	11	X	Y	Z			
		0.	0.	0.			
MODE	12	0.	0.	0.			

## SEADYN - SEADYN INPUT FORM - FILE CASE NO. 1 - PENDULUM

Atm = PROBLEM DATA

NUMBER OF NODES =	2
NUMBER OF ELEMENTS =	1
GRAVITY DIRECTION =	1
DYNAMIC OPTION FLAG =	1
INPUT CND FLAG =	1
DRAG MODEL OVERRIDE =	0
SHIP LOAD FILE FLAG =	0

GRAVITATIONAL ACCELERATION = .321700E+02

10/02/61 11:34:03 PAGE 2

STADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

FLUID MEDIA DEFINITIONS

INTERFACE DEPTH   KINETIC VISCOSITY   SPECIFIC WEIGHT

1   .1700E-09   .64000E+02

10/22/81   11.40.03.   PAGE 1

## STABILITY STABILITY FORM - 1151 CASE NO. 2 - PENDULUM

## NODE DATA

	X000	Y000	Z000	X	Y	Z	C000	C100	C200
1	0.	0.	0.	0.	0.	0.	1	0	0
2	0.	0.	0.	-3.0000E+02	0.	0.	0	1	0

10/02/81 11.14.01 PAGE

SLADYN-- SLADYN PLATE FORM - TEST CASE NO. 3 - PENDULUM

10/07/81 11.34.03. PAGE 1

ELEMENT INPUT DATA

EL	M1	M2	M3	MAT KUMP FLAG	TENSJUN	0.	LENGTH	1
1	1	2	0	1	0	0.	34600E+05	MEEDIUM

SEARCH-- STUDY FILE FOR - TEST CAST NO. 3 - MANDIBULA

BODY LOCATION DATA

BEGIN	END	INCH	BODY NO.	LIMIT SET
2	2	1	1	0

10/02/61 11-14-U3 PAGE 6

STADYN-- STADYN FREE FURN - TEST CASE NO. 1 - PENDULUM

BODY DATA TABLE

BODY NO.	DRAG FNO. NO.	BUOYANCY	DIAMETER	LENGTH	AEROD MASS CNT	WIND DRAG CNT	SURF DRAG	RHS OF INERTIA	MU
1	0	-39000E-05	1.0000E+02	0.	100000E+01	0.	0.	0.	1

10/02/81 11.34.03. PAGE 1

SEADYN-- STAYDN FREE FORM - 1ST CASE NO. 3 - PLATINUM

10/02/61

11.14.03.

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LAWLT MATERIAL PROPERTY DATA

PROPERTY SET NO.	1
DRAG COEF. NO.	3
DIAHETEK	.250000E+00
WEIGHT PER UNIT LENGTH	.137000E+02
ADDED MASS COEFFICIENT	.100000E+01
REFERENCE MEDIUM CODE	1
ULTIMATE TENSION	0.
MASS PER UNIT LENGTH	.223519E+00

NO. OF POINTS ON TENSION/STRAIN CURVE = 0

EXPONENT FOR M COEFFICIENTS .36000E+05 .10000E+01

NATURAL DAMPING PARAMETER(REAL) .100000E+04 0.

SEADYN-- SEADYN FREE PEND - TEST CASE NO. 3 - PENDULUM

BLUN FIELD DATA SETS

SET	CASE	PAKANT FREQ	0.	0.	0.
1	1	.06000E+01	0.	0.	0.

SET	CASE	PAKANT FREQ	0.	0.	0.
1	1	.06000E+01	0.	0.	0.

10/02/61 11.39.01 PAGE

STRADYR - SEUDAN PESTE FUMA - 1131 CASE MU. 2 - MUNICIPAL

THE EDITIONS OF MELVILLE

F.N.	NUMBER	CODE	PARTIALS
1	-1		.100000001 0. 0.

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100/101

3

1

1

## SEADYN INPUT FORM - 1ST CLASS NO. 3 - PENDULUM

## NODE POINT DATA SUMMARY

NODE NO.	INITIAL COORDINATES			PLANE COORDS			LIMIT SET NO.	BODY NO.	GRAVITY VECTOR	LOADS	VIRGIN MASSES
	X	Y	Z	X	Y	Z					
1 0.	0.	0.	1 0.	1 0.	0 0.	-2004t 0 0.	-2004t 0 0.	0004t 0 0.	0004t 0 0.	0004t 0 0.	0004t 0 0.
2 0.	-0.5000t 0 0.	-0.5000t 0 0.	0 0.	0 0.	1 0.	-3420t 0 0.	-3420t 0 0.	314t 0 0.	314t 0 0.	314t 0 0.	314t 0 0.

10/07/61 11.44.U.S. PAGE 11

STADYN - STABIN FILED - FILE CARD NO. 3 - MODULE

10/12/61 11.15.01 PAGE 17

ELEMENT SUPPLY DATA

ELI CONNECTION DATA			MAT PROP RET.		INITIAL TENSION		INITIAL LENGTH		INDIVIDUAL MASS		
NU.	N1	N2	NU.	CUT	COUNT	NU.	CUT	NU.	COUNT	NU.	COUNT
1	1	2	1	0	1	.34600E+03	0	.25244E+02	0	.50000E+02	.14282E+01

ELI CONNECTION DATA			MAT PROP RET.		INITIAL TENSION		INITIAL LENGTH		INDIVIDUAL MASS		
NU.	N1	N2	NU.	CUT	COUNT	NU.	CUT	NU.	COUNT	NU.	COUNT
1	1	2	1	0	1	.34600E+03	0	.25244E+02	0	.50000E+02	.14282E+01

STADYN-- STADYN FILE FORN - FILE CAST NO. 3 - PLATINUM

ADDITIONAL ELEMENT DATA

ELEMENT	SLOPES	TRANSIT TIME APPROX
1	-10000•01	0.
HALF-BANDWIDTH =	6	•1115•00

10/22/01 11.14.03. FACT 1.1

SLAGYH-- SEADYN PNTL FQNM - TEST LAST NU. 3 - PENDULUM  
LOAD CASE & PARAMETRS  
SUBANALYSIS TYPt - Utai

SOLUTION DATA FILE? VRK  
OUTPUT DATA SELECTIONS  
STEP NUMBER INTERVAL = 500  
PARAMETER INTERVAL = 0.  
DEBUG OUTPUT FLAG = 0

10/02/61 11.14.01. PALS 14

SOLADYN-- SOLADYN FILE NAME = T17, LAST NO. 3 - VISCOSUM

S O L U T I O N   U P D A T E   S U M M A R Y

ANALYSIS TYPE = UNI  
SOLUTION FORM = VTK

NU. OF STABLE STEPS	=	1
OUTPUT INTERVAL	=	>00
DEBUG PRINT CODE	=	0
RESTART FILE FLAG	=	0
UPDATE OPTION	=	1
START UP OPTION	=	0
NO. OF POINT LOADS	=	0
FLOW FIELD NUMBER	=	0

VISCOSUM RELAXATION SOLUTION PARAMETERS

INTEGRATION PARAMETER	=	.100001e+01
INITIAL STEP SIZE	=	*.100001e+01
INITIAL DAMPING	=	*.100001e-02
ITERATION LIMIT	=	200

10/07/01      11:34:03      PAGE      15

21407A - SEADWNS 1933 - 1934 - 1935 CAST NO. 1 - PENTUUM

10/02/01 11.34.03. PAGE 16

DEAD LOAD INCREMENT = 0		LOAD FACTOR = 0.		DEAD LOAD INCREMENT = 1		LOAD FACTOR = 1	
INDE	X	V	T	INDE	X	V	T
1	0.	0.	0.	1	0.	0.	0.
2	0.	0.	0.	2	0.	0.	0.

SEADYN-- SEADYN FILED RUN - FIRST CASE NO. 1 - PENDULUM

LOAD CASE PARAMETERS  
SUBANALYSIS TYPE - LINE

SOLUTION DATA RESET N/A  
STATIC STEP DATA  
NUMBER OF STEPS = 3  
START UP OPTION = 5  
MEADING INCREMENT = 0.  
TOTAL MEADING CHANGE = 0.  
POINT LOADS DATA  
LOAD SET LOAD COMPONENTS BEGIN END INC  
1 1 0.0000E+00 0. 2 2 1  
LOAD SET VARIATION CODES  
SET 1 = 1  
SET 2 = 0  
SET 3 = 0  
GRAVITY = 0  
CURRENT FIELD DATA  
FLW FIELD NUMBER = 1  
FLW FIELD MULTIPLIER = 1.0000E+01  
FLW VARIATION CODE = 0  
OUTPUT DATA SELECTIONS  
STEP NUMBER INTERVAL = 500  
PARAMETER INTERVAL = 0.  
OLBUC OUTPUT FLAG = 0

10/02/61 11.3405. PACT 17

SEADYN-- SEADYN FILE FURN - TEST CASE NO. 3 - PENDULUM

> SOLUTION OPTIMIZATION SUMMARY

ANALYSIS TYPE = LIVE  
SOLUTION FURN = PHM

NO. OF STATIC STEPS	=	5
DEFINIT INTERVAL	=	.500
DEBUG PRINT CODE	=	0
HESSIAN FILE FLAG	=	0
UPDATE OPTION	=	1
START UP OPTION	=	5
NO. OF POINT LOADS	=	1
FLOW FIELD NUMBER	=	1

MODIFIED NEWTON-RAPHSON SOLUTION PARAMETERS

STEP SIZE CONTROL NO.	=	2
ITERATION LIMIT	=	200
NO. OF CONV. TRIALS	=	3
MIN UPDATE INTERVAL	=	.205
Numerical Damping	=	0.
RESIDUAL THRESH TOLERANCE	=	.10000E-02
DEFLECT. ERTHN TOLERANCE	=	.10000E-02
1-D SEARCH FACTOR	=	0.
EXTRAPOLATION PARAMETER	=	.50000E+00

10/12/81

11.34.03.

PAGE

10

## STEADY-- SEADYN FILE FORN - 1ST CASE NO. 3 - PENDULUM

10/02/81 11.56.03. PAGE 1

STEADY STATE INCREMENT = 0 LOAD FACTOR = 0.

NODE	X	Y	Z	VX	vy	VZ	ITN2UN
1	0.	0.	0.	0.	0.	0.	1
2	0.	-448047E+02	0.	0.	0.	0.	.1420091+02

NUMBER OF ITERATIONS 0

STEP 2 CONVERGED IN 2 ITERATIONS. NEW STEP SIZE = .18162E+00

STEP 4 CONVERGED IN 2 ITERATIONS. NEW STEP SIZE = .40000E+00

STEADY STATE INCREMENT = 4 LOAD FACTOR = 1.0000E+01

NODE	X	Y	Z	VX	vy	VZ	ITN2UN
1	0.	0.	0.	0.	0.	0.	1
2	-103489E+02	-440985E+02	0.	0.	0.	0.	.149737E+02

NUMBER OF ITERATIONS 3

STADYN-- STADYN FILED FURN - FILED LAST NO. 3 - PENDULUM

LOAD CASE PARAMETER'S  
SUBANALYSIS TYPE = UYH

CURRENT FIELD DATA

FLUID FIELD NUMBER =	1
FLOW FIELD MULTIPLIER =	.100000t+01
FLOW VARIATION CODE =	0
TIME STEP DATA	
INITIAL TIME STEP =	.10000E-02
MAXIMUM TIME =	.20000E+02
BEGINNING TIME =	0.
UPDATE TIME =	.10000E-02
ALPHA-BETA-GAMMA =	.0.
POINT LOADS DATA	
LOAD SET =	LOAD COMPONENTS
1 = .00000E+00	0.
LOAD SET VARIATION CODES	
SET 1 =	1
SET 2 =	0
SET 3 =	0
GRAVITY =	0.
OUTPUT DATA SELECTIONS	
STEP NUMBER INTERVAL =	200
PARAMETER INTERVAL =	0.
DEBUG OUTPUT FLAG =	0

10/10/791 11.14.01. PALE 20

STADYN-- STADYN F90K FORTRAN - FILE CAST NO. 3 - PLATEFORM

SOLUTION OPTION SUMMARY

ANALYSIS TYPE = UDN  
SOLUTION FORM = DIP

UDN, INIT. COND. C001 = 0  
OUTPUT INTERVAL = 200  
DEBUG PRINT COUNT = 0  
RESTART FILE FLAG = 0  
UPDATE OPTION = 1  
START UP OPTION = 0  
NC, QP POINT LOADS = 1  
FLOW FIELD NUMBER = 1

DIRECT ITERATION METHOD DYNAMIC PARAMETERS

DEFLECT. ERROR TOLERANCE = .10000E-02

ELEMENT EA UNIT MASS LENGTH TIME STEP  
1 .360000E+07 .26544E+00 .291773E+02 .900816E-01

TIME STEP DATA

INITIAL TIME	STEP	=	.50000E-02
MAXIMUM TIME		=	.20000E+02
BEGINNING TIME		=	0.
UPDATE TIME		=	.50000E-02
ALPHA,BETA,GAMMA		=	0.

TIME STEP .63333E-01

TIME STEP .900816E-01

STABIN-- STABIN FILET FORM - TEST CASE NO. 3 - PENDULUM

10/12/81 11.39.03. PAGE 22

OUTPUT TIME INTERVAL = .100000E+01

TIME = 0. DYNAMIC INCREMENT = 0

NUDE	X	Y	Z	VX	VY	VZ	TILT	TENSION
1	0.	0.	0.	0.	0.	0.	0.	-349731E+03
2	-101488E+02	-490981E+02	0.	0.	0.	0.	0.	0.

NUMBER OF ITERATIONS 0

TIME = .10000E+01 DYNAMIC INCREMENT = .200

NUDE	X	Y	Z	VX	VY	VZ	TILT	TENSION
1	0.	0.	0.	0.	0.	0.	0.	.361871E+03
2	-491034E+02	-965166E-05	.246052E+01	-234777E-01	-134946E-04	0.	0.	0.

NUMBER OF ITERATIONS 1

TIME = .20000E+01 DYNAMIC INCREMENT = .400

NUDE	X	Y	Z	VX	VY	VZ	TILT	TENSION
1	0.	0.	0.	0.	0.	0.	0.	.337779E+03
2	-642450E+01	-441963E+02	.164707E-03	.438647E+01	-184143E+00	-453396E-04	0.	0.

NUMBER OF ITERATIONS 2

TIME = .30000E+01 DYNAMIC INCREMENT = .574

NUDE	X	Y	Z	VX	VY	VZ	TILT	TENSION
1	0.	0.	0.	0.	0.	0.	0.	.336191E+03
2	-186317E+01	-4495000E+02	.205354E-03	.537776E+01	-415684E+00	-67214E-04	0.	0.

NUMBER OF ITERATIONS 3

TIME = .40000E+01 DYNAMIC INCREMENT = .674

NUDE	X	Y	Z	VX	VY	VZ	TILT	TENSION
1	0.	0.	0.	0.	0.	0.	0.	.347548E+03
2	-315902E+01	-449611E+02	.197030E-03	.52951E+01	-448494E+00	-132069E-03	0.	0.

NUMBER OF ITERATIONS 3

TIME = .50000E+01 DYNAMIC INCREMENT = .774

NUDE	X	Y	Z	VX	VY	VZ	TILT	TENSION
1	0.	0.	0.	0.	0.	0.	0.	.347548E+03
2	-315902E+01	-449611E+02	.197030E-03	.52951E+01	-448494E+00	-132069E-03	0.	0.

NUMBER OF ITERATIONS 3

STEP 560 CONVERGED IN 2 ITERATIONS. NEW DT AND DTU = .10000E-01

STEP 560 CONVERGED IN 2 ITERATIONS. NEW DT AND DTU = .20000E-01

STABILITY - STEADY STATE FUND - IT,1 CASE NO. 3 - PLATINUM

TIME = .90000E+01      DYNAMIC INCREMENT = .737

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	.146544E-03	.416063E-01	-.172446E-01
2	.156314E+01	-.502556E+02	0.	-.170108E-03		

NUMBER OF ITERATIONS 3

TIME = .60000E+01      DYNAMIC INCREMENT = .707

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	.62983E-04	.223564E-01	0.
2	.104022E+02	-.500128E+02	0.		.362213E+00	-.142405E-01

NUMBER OF ITERATIONS 3

STEP 803 CONVERGED IN 2 ITERATIONS. NEW DT AND DTU = .40000E-01

TIME = .70000E+01      DYNAMIC INCREMENT = .620

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	.279891E-04	-.164666E-01	0.
2	.111126E+02	-.492014E+02	0.		.469663E+00	-.193100E-01

NUMBER OF ITERATIONS 3

TIME = .80000E+01      DYNAMIC INCREMENT = .845

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	.112277E-03	-.197711E-01	0.
2	.966410E+01	-.479211E+02	0.		.725717E+00	-.174644E-01

NUMBER OF ITERATIONS 3

TIME = .90000E+01      DYNAMIC INCREMENT = .870

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	-.170550E-03	-.3222478E+01	0.
2	.67937E+01	-.47950E+02	0.		-.121840E+00	-.142331E-01

NUMBER OF ITERATIONS 3

TIME = .10000E+02      DYNAMIC INCREMENT = .871

11.14.01. PAGE 41

## STADYN TEST FORM - TEST CASE NO. 3 - PENDULUM

TIME = -10000E+02 DYNAMIC INCREMENT = 895

NODE	X	Y	Z	VX	YY	VZ
1	0.	0.	0.	0.	0.	0.
2	-26.669E+01	-492629E+02	-192679E-03	-364840E+01	-104976E+01	-103476E-04

NUMBER OF ITERATIONS 3

TIME = -11000E+02 DYNAMIC INCREMENT = 920

NODE	X	Y	Z	VX	YY	VZ
1	0.	0.	0.	0.	0.	0.
2	-124159E+01	-498556E+02	-175363E-03	-324666E+01	-139448E+01	-645702E-04

NUMBER OF ITERATIONS 3

TIME = -12000E+02 DYNAMIC INCREMENT = 945

NODE	X	Y	Z	VX	YY	VZ
1	0.	0.	0.	0.	0.	0.
2	-43791E+01	-51046E+02	-122007E-03	-211103E+01	-839441E+00	-329040E-04

NUMBER OF ITERATIONS 3

TIME = -13000E+02 DYNAMIC INCREMENT = 970

NODE	X	Y	Z	VX	YY	VZ
1	0.	0.	0.	0.	0.	0.
2	-61073E+01	-513366E+02	-438657E-04	-486397E+00	.295494E+00	-161648E-04

NUMBER OF ITERATIONS 3

TIME = -14000E+02 DYNAMIC INCREMENT = 995

NODE	X	Y	Z	VX	YY	VZ
1	0.	0.	0.	0.	0.	0.
2	-61301E+01	-505190E+02	-41555E-04	-122477E+01	.124208E+01	-165576E-04

NUMBER OF ITERATIONS 3

## SEARCH-- STATION FIVE + DUE - 1ST CASE NO. 3 - PENDULUM

TIME = .15000E+02 DYNAMIC INCREMENT = 1.0E-02

	NUDt	X	V	Z	VX	VY	VZ	ITNLSUN	ITNLOUT
1	0.	0.	0.	0.	0.	0.	0.	.1345711E+01	-.16268E-04
2	-.491413E+02	-.491413E+02	-.115498E-03	-.263410E+01	-.1345711E+01	0.	0.		

NUMBER OF ITERATIONS 3

TIME = .16000E+02 DYNAMIC INCREMENT = 1.0E-02

	NUDt	X	V	Z	VX	VY	VZ	ITNLSUN	ITNLOUT
1	0.	0.	0.	0.	0.	0.	0.	.24766E+00	-.69339E-04
2	-.162613E+01	-.481356E+02	.163399E-03	.34979E+01	.34979E+01	0.	0.		

NUMBER OF ITERATIONS 3

TIME = .17000E+02 DYNAMIC INCREMENT = 1.0E-02

	NUDt	X	V	Z	VX	VY	VZ	ITNLSUN	ITNLOUT
1	0.	0.	0.	0.	0.	0.	0.	.596156E+00	-.10490E-03
2	-.149054E+01	-.481643E+02	.177501E-03	.369196E+01	.369196E+01	0.	0.		

NUMBER OF ITERATIONS 3

TIME = .18000E+02 DYNAMIC INCREMENT = 1.0E-02

	NUDt	X	V	Z	VX	VY	VZ	ITNLSUN	ITNLOUT
1	0.	0.	0.	0.	0.	0.	0.	.130594E+01	-.11970E-03
2	-.491802E+02	-.491802E+02	.155594E-03	.32228E+01	.32228E+01	0.	0.		

NUMBER OF ITERATIONS 3

TIME = .19000E+02 DYNAMIC INCREMENT = 1.0E-02

	NUDt	X	V	Z	VX	VY	VZ	ITNLSUN	ITNLOUT
1	0.	0.	0.	0.	0.	0.	0.	.108547E+01	-.16711E-03
2	-.682626E+01	-.504571E+02	.102673E-03	.215449E+01	.215449E+01	0.	0.		

NUMBER OF ITERATIONS 3

STABN-- STABN FILE FOR - 1ST CASE NO. 1 - PENDULUM

10/02/61 11.34.05. PAUL ZG

TIME = .20000E+02 DYNAMIC INCREMENT = 1146

NODE	X	Y	Z
1	0.	0.	0.
2	.78446E+01	-5.10903E+02	.247834E-04

NUMBER OF ITERATIONS 3

TIME = .20000E+02 DYNAMIC INCREMENT = 1146

NODE	X	Y	Z
1	0.	0.	0.
2	.78446E+01	-5.10903E+02	.247834E-04

NUMBER OF ITERATIONS 2

SEADYN-- SEADYN FREE FURN - FIRST CAST NO. 3 - PENDULUM

10/02/61 11.50/61 11.50/61

NET PENDULUM DATA  
NUMBER OF NODES = 2  
NUMBER OF ELEMENTS = 1  
GRAVITY DIRECTION = -2  
DYNAMIC OPTION FLAG = 1  
INPUT ECHO FLAG = 1  
ONAC MODEL DYNAMIC = 0  
SHIP LOAD FILE FLAG = 0  
GRAVITATIONAL ACCELERATION = .321700E+02

STADYN-- SEAGVN FILE FORM - TEST CASE NO. 3 - PERIODIC

FLUID MEDIA DEFINITIONS

INTERACT\_DEPTH KINEMATIC\_VISCOSITY SPECIFIC\_WEIGHT

•25000E+03 •11700E-05 •64000E+02

10/02/91 11.15.01 PAGE

STADYN-- STADYN FREE FORM - TEST CAST NO. 3 - PENDULUM

NUKE DATA

NODE	CODE	X	Y	Z	L	CONSTRAINTS
1	0.	0.	0.	-200000.02	0.	1
2	0.	0.	0.	0.	0.	0

10/06/81 11:32:07. PAGE

STADYN-- STADYN + UNK - 1151 LAST NU. 1 - PENDULUM

10/10/81 11.55.07. PAGE 2

INITIAL INPUT DATA

t1	n1	n2	n3	MAJ	KINCP	FLAG	SOLUTION	LINCH	REDUND
1	1	2	0	1	0	0	.146001+05	0.	1

LOADIN - SEAVIN PHOT 4 UHM - 1121 CLASS NO. 3 - PENNULTUM

BODY LOCATION DATA

BEGIN	END	INCH BODY REL. LIMIT SET
2	1	0

10/10/61 11.57.07. PART 6.

## STANW - STANW + METAL - FIRST CASE NO. 3 - PLATINUM

## STRUCTURE TABLE

STRUCTURE NO.	DIAxMET. MM.	DIAMET. MM.				
1	0	.1000±.05	.1000±.02	.1000±.01	.1000±.01	.1000±.01

10/02/61 11.12.07. 10.12.07. 10.12.07.

## STABIN - SEADYN PHTS FORM - TEST CAST NO. 3 - PENDULUM

## TABLE MATERIAL PROPERTY DATA

PROPERTY SET NO.	1
OKAG CUFF. NO.	0
DIAMETER =	.250000E+00
WEIGHT P/M UNIT LENGTH =	.137000E+02
ADDED MASS COEFFICIENT =	.100000E+01
REFERENCE MEDIUM CUBE =	1
ULTIMATE TENSION =	0.
MASS P/M UNIT LENGTH =	.527519E+00
NO. OF POINTS ON TENSION/STRAIN CURVE =	2
TENSION	STRAIN
1 .360000E+05	.150000E+00
2 .450000E+05	.240000E+00
	.100000E+06

10/02/81

11.15.07.

VAL

10/02/81

STADYN - STADYN FILET FIRM - TEST CASE NO. 3 - PENDULUM

FILED FIELD DATA SETS

SET	CUDT	PARAMETRS	0.	0.
1	1	.84000E+01	0.	0.
			0.	0.

10/02/81 11.37.07. PAGE 9

STATEM -> STATEM FILE FORM - FILE CASE NO. 3 - PENDULUM

TYPE FUNCTION DEFINITIONS

FN.	NUMBER	COUNT	PARENT FN.	0.	0.	0.	0.	0.
1	-1	-1	.100001+01	0.	0.	0.	0.	0.
			0.	0.	0.	0.	0.	0.
			0.	0.	0.	0.	0.	0.
			0.	0.	0.	0.	0.	0.

0.	0.	0.	0.	0.
0.	0.	0.	0.	0.

10/17/81 11.17.01. 14.11.

## STADYN FILE FORM - TEST CASE NO. 3 - PENDULUM

## NODE POINT DATA SUMMARY

NODE NO.	INITIAL COORDINATES			FIXITY COORDS			LIMIT			BODY NO.	GRAVITY X	LOADS	VIRTUAL MASSES
	X	Y	Z	X	Y	Z	SET	NO.	X				
1 0.	0.	0.	0.	1	1	0	0	0.	-3017E+01 0.	-1.0	-1.0	-1.0	
2 0.	-2.000E+02 0.	0	0	0	0	1.0	0	0.	-3430E+05 0.	-0.1	-0.1	-0.1	

## STEADY-- STEADY FILE FORM - FIRST CASE NO. 1 - PENDULUM

10/07/61 11.55.07. PAGE 17

## ELEMENT SUMMARY DATA

EL#	CONNECTION DATA	MAF CUMP R&D.	INITIAL	UNSTRETCHED	INITIAL	WEIGHTED
NO.	N1 N2 N3	NO. CODE	TENSIGN	LENGTH	LENGTH	MAS,
1	1 2	1 0 1	.34600E+05	.40515E+02	.50000E+02	.21594E+01

SEADYN-- SEA DYN FILE FOR TEST CASE NO. 3 - PINUULUM

ADDITIONAL ELEMENT DATA

ELEMENT	SLIPPS	TRANSIT TIP (APPROX)
1	-10000E+01	.6500E-01
HALF-BANDWIDTH =	6	

10/12/81

11.15.01.

PALT

11

LOADIN-- LOADIN FILE FURN = TEST CASE NO. 1 - PENDULUM

L O A D C A S T P A R A M I T E W S

SUBANALYSIS INPUT = DEAD

SOLUTION DATA RESET VRB  
OUTPUT DATA SELECTIONS  
STEP NUMBER INTERVAL = 500  
PARAMETER INTERVAL = 0.  
DEBUG OUTPUT FLAG = 0

10/02/61 11.35.07. PAGE 14

SLADYN-- STEADY STATE FURN - 1ST CASE NO. 3 - PLATINUM

10/07/81 11.37.07. PAGE 1.

SOLUTION OPTION SUMMARY

ANALYSIS TYPE = UND  
SOLUTION FURN = VRN

NO. OF STATIC STEPS	=	1
NO. OF INPUT INTERVAL	=	500
DEBUG PRINT CODE	=	0
RESTART FILE FLAG	=	0
UPDATE OPTION	=	1
START UP OPTION	=	0
NO. OF POINT LOADS	=	0
FLUID FIELD NUMBER	=	0

VISCOSITY RELAXATION SOLUTION PARAMETERS

INTEGRATION PARAMETER	=	1.0000E+01
INITIAL STEP SIZE	=	*1.0000E+01
INITIAL DAMPING	=	*1.0000E-02
ITERATION LIMIT	=	200

## STADIK-- SEADYN FILE FUNKP - TEST CASE NO. 3 - PENDULUM

DEAD LOAD INCREMENT = 0 LOAD FACTOR 0.

NUDE	X	Y	Z	VX	VY	VZ	TIMESTEP
1	0.	0.	0.	0.	0.	0.	1.340000E+07
2	0.	-2.00000E+02	0.	0.	0.	0.	

SLOW CONVERGENCE ON 7TH LAST FOUR VELOCITY NORMS  
 LAST FOUR VELOCITY NORMS .203619E+01 .160132E+01 .669673E+00 .136077E-01  
 LAST RESIDUAL NORMS .96342E+04 .18761E+04 .93274E+02 .20000E+01

NEW STEP SIZE = .20000E+01

DEAD LOAD INCREMENT = 9 LOAD FACTOR .10000E+01

NUDE	X	Y	Z	VX	VY	VZ	TIMESTEP
1	0.	0.	0.	0.	0.	0.	1.340000E+07
2	0.	-4.99517E+02	0.	0.	0.	0.	

STADYN-- STADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

11.15.07. PAGE 11

10/12/81

LOAD CASE PARAMETERS

SUBANALYSIS TYPE = LIVEL

SOLUTION DATA KSET 1  
STATIC STEP DATA  
NUMBER OF STEPS = 5  
START UP UPTIME = 5  
HEADING INCREMENT = 0.  
TOTAL HEADING CHANGE = 0.  
POINT LOADS DATA  
LOAD SET 1 LOAD COMPONENTS BEGIN END INC  
1 -80000E+04 0. 2 2 1  
LOAD SET VARIATION CODES  
SET 1 = 1  
SET 2 = 0  
SET 3 = 0  
GRAVITY = 0  
CURRENT FIELD DATA  
FLOW FIELD NUMBER = 1  
FLOW FIELD MULTIPLIN = 1.0000E+01  
FLOW VARIATION CODE = 0  
OUTPUT DATA SELECTIONS  
STEP NUMBER INTERVAL = 500  
PARAMETER INTERVAL = 0.  
DEBUG OUTPUT FLAG = 0

SEAFARER-- STATION FRT FURN - V151 CAST NO. 3 - PTMULUM

S O L U T I O N   O P T I O N   S U M M A R Y

ANALYSIS TYPE = LIVE  
SOLUTION FURN = MMN

NO. OF STATIC STEPS	=	5
OUTPUT INTERVAL	=	500
DEBUG PRINT CODE	=	0
RESTART FILE FLAG	=	0
UPDATE OPTION	=	1
START UP OPTION	=	5
NO. OF POINT LOADS	=	1
FLUID FIELD NUMBER	=	1

MODIFIED NEWTON-RAPHSON SOLUTION PARAMETERS

STEP SIZE CONTROL NO.	=	2
ITERATION LIMIT	=	200
NO. OF CONV. TRIALS	=	3
MMN UPDATE INTERVAL	=	205
NUMERICAL DAMPING	=	0.1000E-02
RESIDUAL ERROR TOLERANCE	=	1.0000E-02
DESELECT ERROR TOLERANCE	=	1.0000E-02
I-O SEARCH FACTOR	=	0.
EQUILIBRATION PARAMETER	=	.50000E+00

10/12/61 11.45.07. 14.261

## STEADY STATE FORCE FUMM - 11ST CASE NO. 3 - PERIODIC

LOAD/POL 11.3607. FACT 1.9

## STEADY STATE INCREMENT = 0 LOAD FACTOR 0.

NODE	X	Y	Z
1	0.	0.	0.
2	0.	-499517E-02	0.

NUMBER OF ITERATIONS 0

## STEADY STATE INCREMENT = 4 LOAD FACTOR .10000E+01

NODE	X	Y	Z
1	0.	0.	0.
2	-102474E-02	-490075E-02	0.

NUMBER OF ITERATIONS 3

## STEADY STATE INCREMENT = 0 LOAD FACTOR 0.

NODE	X	Y	Z
1	0.	0.	0.
2	0.	0.	0.

## STEADY STATE INCREMENT = 4 LOAD FACTOR .10000E+01

NODE	X	Y	Z
1	0.	0.	0.
2	0.	0.	0.

NUMBER OF ITERATIONS 0

SECRET-- STADYN +NET FUNK - TEST CASE #U. 3 - PENDULUM

L U A D C A S E P A R A M E T E R S

SUBANALYSIS TYPE = DYN

CURRENT FIELD DATA

FLOW FIELD NUMBER =	1
FLOW FIELD MUL.FLIEK =	.10000E+01
FLOW VARIATION CODE =	0
TIME STEP DATA	
INITIAL TIME STEP =	.50000E-02
MAXIMUM TIME =	.20000E+02
BEGINNING TIME =	0.
UPDATE TIME =	.50000E-02
ALPHA, META, GAMMA =	0.
POINT LOADS DATA	
LOAD SET	LOAD COMPONENTS
1. -80000E+04	0.
LOAD SET VARIATION CODES	
SET 1 =	1
SET 2 =	0
SET 3 =	0
GRAVITY =	0
OUTPUT DATA SELECTIONS	
STEP NUMBER INTERVAL =	200
PARAMETIK INTERVAL =	0.
DEBUG Output FLAG =	0

10/02/91 11.30.01 PAGE 20

STADYN-- STATION FILE FORM - TEST CASE NO. 3 - PENDULUM

> SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DYN  
SOLUTION FORM = DIM

DYN, INIT. COND. COUNT = 0  
OUTPUT INTERVAL = 200  
DEBUG PRINT CODE = 0  
RESTART FILE FLAG = 0  
UPDATE OPTION = 1  
START UP OPTION = 0  
NU. OF POINT LOADS = 1  
FLOW FIELD NUMBER = 1  
DIRECT ITERATION METHOD DYNAMIC PARAMETERS  
DETEC1. ERROR TOLERANCE = .10000E-02

ELTENT LA UNIT MASS LENGTH TIME STEP  
1 .240000E+06 .45675E+00 .500777E+02 .638800E-01

TIME STEP DATA  
INITIAL TIME STEP = .20000E-02  
MAXIMUM TIME = .20000E+02  
BEGINNING TIME = 0.  
UPDATE TIME = .50000E-02  
ALPHA,BETA,GAMMA = 0.

## STEADY-- STADYN F90I FUNK - TEST CASE NO. 3 - PENDULUM

10/02/01 11.15.01 PAGE 17

OUTPUT TIME INTERVAL = .100000t+01

TIME = 0. DYNAMIC INCREMENT = 0

NUDt	X	V	I	VX	VY	VL	LT
1	0.	0.	0.	0.	0.	0.	1111
2	-1.02474t+02	-490075t+02	0.	0.	0.	0.	1111

NUMBER OF ITERATIONS 0

STEP 150 CONVERGED IN 2 ITERATIONS. NEW DT AND DTU = .100000E-01

TIME = .10000E+01 DYNAMIC INCREMENT = 175

NUDt	X	V	I	VX	VY	VL	LT
1	0.	0.	0.	0.	0.	0.	1111
2	-966512t+01	-490159t+02	.732696E-04	.185520t+01	.403270E-01	-.775341t-07	1111

NUMBER OF ITERATIONS 3

TIME = .20000E+01 DYNAMIC INCREMENT = 275

NUDt	X	V	I	VX	VY	VL	LT
1	0.	0.	0.	0.	0.	0.	1111
2	-730681t+01	-491843E+02	.133252E-03	.38656E+01	.348037E+00	-.260430t-04	1111

NUMBER OF ITERATIONS 3

STEP 350 CONVERGED IN 2 ITERATIONS. NEW DT AND DTU = .200000E-01

TIME = .30000E+01 DYNAMIC INCREMENT = 363

NUDt	X	V	I	VX	VY	VL	LT
1	0.	0.	0.	0.	0.	0.	1111
2	-364394t+01	-494737E+02	.117071tE-03	.368621E+01	.688342E+00	-.213444E-04	1111

NUMBER OF ITERATIONS 3

STEP 400 CONVERGED IN 2 ITERATIONS. NEW DT AND DTU = .400000E-01

TIME = .40000E+01 DYNAMIC INCREMENT = 406

NUDt	X	V	I	VX	VY	VL	LT
1	0.	0.	0.	0.	0.	0.	1111
2	.547728t+00	-503655t+02	.182118t-03	.464041E+01	.479689E+00	-.3086471t-04	1111

NUMBER OF ITERATIONS 3

STRUCTURE STABILITY TEST CASE NO. 1 - PLANEULIN

TIME = .444900E+01 DYNAMIC INCREMENT = 4.91

NODE	X	Y	Z
1	0.	0.	0.
2	.416461E+01	-.505513E+02	.161964E-03

NUMBER OF ITERATIONS 3

TIME = .544900E+01 DYNAMIC INCREMENT = 4.96

NODE	X	Y	Z
1	0.	0.	0.
2	.524954E+01	-.500354E+02	.114351E-03

NUMBER OF ITERATIONS 3

TIME = .644900E+01 DYNAMIC INCREMENT = 4.61

NODE	X	Y	Z
1	0.	0.	0.
2	.104872E+02	-.499880E+02	.484294E-04

NUMBER OF ITERATIONS 3

TIME = .744900E+01 DYNAMIC INCREMENT = 5.06

NODE	X	Y	Z
1	0.	0.	0.
2	.111389E+02	-.474832E+02	-.236877E-04

NUMBER OF ITERATIONS 3

TIME = .844900E+01 DYNAMIC INCREMENT = 5.31

NODE	X	Y	Z
1	0.	0.	0.
2	.103614E+02	-.480776E+02	-.908381E-04

NUMBER OF ITERATIONS 3

TIME = .104900E+02

TIME = .114900E+02

TIME = .124900E+02

TIME = .134900E+02

TIME = .144900E+02

TIME = .154900E+02

TIME = .164900E+02

TIME = .174900E+02

TIME = .184900E+02

TIME = .194900E+02

TIME = .204900E+02

TIME = .214900E+02

TIME = .224900E+02

TIME = .234900E+02

TIME = .244900E+02

TIME = .254900E+02

TIME = .264900E+02

TIME = .274900E+02

TIME = .284900E+02

TIME = .294900E+02

TIME = .304900E+02

TIME = .314900E+02

TIME = .324900E+02

TIME = .334900E+02

TIME = .344900E+02

TIME = .354900E+02

TIME = .364900E+02

TIME = .374900E+02

TIME = .384900E+02

TIME = .394900E+02

TIME = .404900E+02

TIME = .414900E+02

TIME = .424900E+02

TIME = .434900E+02

TIME = .444900E+02

TIME = .454900E+02

TIME = .464900E+02

TIME = .474900E+02

TIME = .484900E+02

TIME = .494900E+02

TIME = .504900E+02

TIME = .514900E+02

TIME = .524900E+02

TIME = .534900E+02

TIME = .544900E+02

TIME = .554900E+02

TIME = .564900E+02

TIME = .574900E+02

TIME = .584900E+02

TIME = .594900E+02

TIME = .604900E+02

TIME = .614900E+02

TIME = .624900E+02

TIME = .634900E+02

TIME = .644900E+02

TIME = .654900E+02

TIME = .664900E+02

TIME = .674900E+02

TIME = .684900E+02

TIME = .694900E+02

TIME = .704900E+02

TIME = .714900E+02

TIME = .724900E+02

TIME = .734900E+02

TIME = .744900E+02

TIME = .754900E+02

TIME = .764900E+02

TIME = .774900E+02

TIME = .784900E+02

TIME = .794900E+02

TIME = .804900E+02

TIME = .814900E+02

TIME = .824900E+02

TIME = .834900E+02

TIME = .844900E+02

TIME = .854900E+02

TIME = .864900E+02

TIME = .874900E+02

TIME = .884900E+02

TIME = .894900E+02

TIME = .904900E+02

TIME = .914900E+02

TIME = .924900E+02

TIME = .934900E+02

TIME = .944900E+02

TIME = .954900E+02

TIME = .964900E+02

TIME = .974900E+02

TIME = .984900E+02

TIME = .994900E+02

TIME = .1004900E+03

SEARCH-- SEARCH FILE RUN - JUST LAST NO. 3 - PENDULUM

TIME = .94900t +01

DYNAMIC INCREMENT = .56

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	0.	0.	0.
2	.016168t +01	-.493103t +02	-.149311t -03	-.266947t +01	-.147031t +01	-.117112t -01

NUMBER OF ITERATIONS 3

TIME = .10490t +02

DYNAMIC INCREMENT = .61

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	0.	0.	0.
2	.0231830t +01	-.505681E+02	-.170430t -03	-.310666E+01	-.970878t +00	-.167284t -04

NUMBER OF ITERATIONS 3

TIME = .11990t +02

DYNAMIC INCREMENT = .606

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	0.	0.	0.
2	.0373217t +01	-.511142t +02	-.168538t -03	-.335164t +01	-.500544t -01	-.390042t -04

NUMBER OF ITERATIONS 3

TIME = .12490t +02

DYNAMIC INCREMENT = .631

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	0.	0.	0.
2	-.177757t +01	-.507056t +02	-.176956t -03	-.296185t +01	-.819729t +00	-.113316t -04

NUMBER OF ITERATIONS 3

TIME = .13990t +02

DYNAMIC INCREMENT = .656

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	0.	0.	0.
2	-.462643t +01	-.496186t +02	-.829611t -04	-.206577t +01	-.117045t +01	-.130374t -04

NUMBER OF ITERATIONS 3

TIME = .14490t +02

DYNAMIC INCREMENT = .681

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	0.	0.	0.
2	-.462643t +01	-.496186t +02	-.829611t -04	-.206577t +01	-.117045t +01	-.130374t -04

NUMBER OF ITERATIONS 3

## STADYN-- STATIONARY FORM - TEST CASE NO. 3 - PENDULUM

TIME = .14790E+02 DYNAMIC INCREMENT = 600

NUDt	X	V	A	T	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.	0.
2	.-0.64442E+01	-.487749E+02	.-1.12357E-03	.-939482E+00	.166015E+00	.-1.74860E+00	.-0.11111E+00

NUMBER OF ITERATIONS 3

TIME = .15990E+02 DYNAMIC INCREMENT = 100

NUDt	X	V	A	T	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.	0.
2	.-0.689642E+01	-.489642E+02	.-6494041E-03	.-277048E+00	.-641693E+00	.-1.17784E-04	.-0.11111E+00

NUMBER OF ITERATIONS 3

TIME = .16990E+02 DYNAMIC INCREMENT = 731

NUDt	X	V	A	T	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.	0.
2	.-0.64701M+01	-.496527E+02	.-107118E-03	.-156210E+01	.-874450E+00	.-2.7516E-04	.-0.11111E+00

NUMBER OF ITERATIONS 3

STEP 736 CONVERGED IN 2 ITERATIONS. NEW DI AND DU = .80000E-01

TIME = .17990E+02 DYNAMIC INCREMENT = 747

NUDt	X	V	A	T	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.	0.
2	.-0.60564E+01	-.500825E+02	.-145995E-03	.-270766E+01	.-3.5182E+00	.-4.7722E+00	.-0.11111E+00

NUMBER OF ITERATIONS 3

TIME = .19030E+02 DYNAMIC INCREMENT = 760

NUDt	X	V	A	T	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.	0.
2	.-0.56590E+01	-.50475E+02	.-156158E-03	.-3.41819E+01	.-3.32783E+00	.-3.32783E+00	.-0.11111E+00

NUMBER OF ITERATIONS 3

STRUCTURE STABILITY FILE FOR M = 11.57 (LAST M), J = PHENOLUM

10/07/61 11.5761 11.5761 dt.

TIME = .199401\*02 DYNAMIC INCREMENT = 112

Node	A	V	t
1	0.	0.	0.
2	.1426661*01	-.4994176*02	.1453911*03

NUMBER OF ITERATIONS 3

TIME = .200001\*02 DYNAMIC INCREMENT = 773

Node	A	V	t
1	0.	0.	0.
2	.1462211*01	-.4994095*02	.1443756*03

NUMBER OF ITERATIONS 3

STADTWERK STAUTEN FEST FUNK - FLIST LAST NO. 3 - PENDULUM

L G A D C A S T P A N A M I E N S

SUBANALYSIS 1721 • MODE

10000/ha

11.12.01.

1461

21

SEADYN-- SEADYN + MFT + UNR - FIRST CASE NO. 1 - PRELIMINARY

KIN - 100000

10/07/64 11.30, Z's. VARI

NET PUBLISH DATA

NUMBER OF NODES	=	2
NUMBER OF ELEMENTS	=	1
GRAVITY DIRECTION	=	12
DYNAMIC OPTION FLAG	=	1
INPUT ECHO FLAG	=	1
OBAG MODEL UNKNOWN	=	0
SHIP LOAD FILE FLAG	=	0

GRAVITATIONAL ACCELERATION = .321700E+02

STABILITY - STABILITY TEST - TEST CASE NO. 1 - PLANEULUM

FLUID MEDIA DEFINITIONS

INTERFACE DEPTH   KINEMATIC VISCOSITY   SPECIFIC WEIGHT

	• 27000E+01	• 16800E-03	• 76500E-01
1			

10/12/81

11. 50. 25.

PAGE 1

SEADYN - STATION FIVE FISH - FIRST CAST NO. 3 - MENDULUM

10/07/81 11.16.25. PAUL

NOSE DATA

NUCt	LNGt	A	U.	V	W	t	CUSTAINS
1	0	0.	-5,00000	0.	0.	0	1
2	0	0.	-5,00000	0.	0.	0	0

STADYU - STADYU + MET + UHM - TEST CASE NO. 3 - PHASEDUM

TEST INPUT DATA

ET	N1	N2	N3	MAT KUMP FLAG	IT ASIDE	Q LENGTH	PHASEDUM
1	1	2	0	1	0	0.	1

10/02/61

11. 16. 25. PAGE

7

STATION-- SEADWN FREE FLOW - PLATE CASE NO. 3 - PENDULUM

STUDY LOCATION DATA

BEGIN	END	INCH	BODY NO.	LIMIT SET
2	2	1	1	0

10/02/81      11.36.25s.      PAUL

SEARCHED - SEARCHED FORM - FILE LAST NO. 1 - PERIODUM

10/07/61 11. Br. 27. PAGE 1

BUTY DATA TABLE

SUDY NO.	LEAD F.H.NO.	BURANCY	CLAMTEK	LENGTH	ADULT MASS CWT	ADULT DRAG CWT	SUR CWT	MIN DR. INCHES	MAX DR. INCHES
1	0	- .3400E+05	.1000E+02	0.	*10000E+01	0.	0.	0.	0.

## SEAUR-- STADYN FILE FORM - TEST CASE NO. 3 - PENDULUM

## CABLE MATERIAL PROPERTY DATA

PROMPT#	NU.	1
DRAG COEF.	NU.	0
DIAMETER	"	.250000E+00
WEIGHT PER UNIT LENGTH	"	.137000E+02
ADDED MASS COEFFICIENT	"	.100000E+01
REFERENCE MEDIUM CODE	"	1
ULTIMATE TENSION	"	0.
MASS PER UNIT LENGTH	"	.42597E+00

NO. OF POINTS ON TENSION/STRAIN CURVE = 2

	TENSION	STRAIN	L.A.
1	.160000E+05	.150000E+00	.240000E+06
2	.490000E+05	.240000E+00	.100000E+06

STADYN - STADYN PULSE FORM - TEST CASE NO. 3 - PENDULUM

FLUW FIELD DATA SETS

SET	COUNT	PULSE TIME	0.	0.	0.
1	1	.000001	0.	0.	0.
		0.	0.	0.	0.

10/02/01

LL. Sh./S. PAGE

STATURN-- STATURN PNTT FORN - TEST CASE NU. 3 - PENDULUM

TIME FUNCTION DEFINITIONS

Fn.	NUMBER	COUNT	PARAMETER	0.	0.	0.	0.	0.
1	-1		.10000+01	0.	0.	0.	0.	0.
				0.	0.	0.	0.	0.
				0.	0.	0.	0.	0.

		10/02/11	11.00.00*	PAINT	TO
0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.

>EADYH-- SEADYN FILE F004 - 1ST CASE NO. 3 - PENDULUM

NUCLEI POINT DATA SUMMARY

NUCLEI		INITIAL COORDINATES			FLUID COORDS			LIMIT		BODY		GRAVITY LOADS			VIRGIN MASSES			
NO.	AD.	X	Y	Z	X	Y	Z	SET	NO.	X	Y	Z	X	Y	Z	X	Y	Z
1	C.	0.	0.	0.	1	1	0	0.	0.	-0.1012e+0.	-0.9395e+0.	-0.1669e+0.	-0.3621e+0.	-0.9395e+0.	-0.1669e+0.	-0.3621e+0.	-0.9395e+0.	-0.1669e+0.
2	O.	-0.50001e+0.	-0.50001e+0.	0.	0	0	0	1	0.	-0.3430e+0.	-0.1067e+0.	-0.1067e+0.	-0.1067e+0.	-0.1067e+0.	-0.1067e+0.	-0.1067e+0.	-0.1067e+0.	-0.1067e+0.

10/22/61 11:48:45. PAGE 11

## SEADYN - SEADYN FILE FOR - FIRST CASE NO. 1 - PENDULUM

## ELEMENT SUMMARY DATA

EL CONNECTION DATA				MAI LUMP NO.	INITIAL TENSION	UNSTRUCTURED LENGTH	INITIAL LENGTH	INDIVIDUAL MASS
NO.	N1	N2	N3	NO. CODE	.34600E+00	.44051E+02	.50000E+02	.25710E-02
1	1	2	1	0	1			

10/07/01 11.51.25. WAIT 17

STRUCTURE- STATION TIME FROM - 111 CASE NO. 3 - PERIODIC

ADDITIONAL ELEMENT DATA

ELEMENT	SHRTS	TRANSIT TIME(APPROX)
1	0.	-10000E+01
		0.

HALF-BANDWIDTH = 6

0.000001 11.16000000 PAGE 11

SEADYN-- SEADYN FWT FORTRAN - 1ST CASE NO. 1 - PENDULUM

LUAU CASE PARAMETER'S

SUBANALYSIS TYPE = DTAU

```
SOLUTION DATA RESET      VNK
OUTPUT DATA SELECTIONS
STEP NUMBERK INTERVAL = 500
PARAMETERK INTERVAL = 0.
DEBUG OUTPUT FLAG = 0
```

10/07/01 11.46.e25. PAUL

lv

STABINN-- STABINN FEM FORTRAN - FIRST CASE NO. 3 - PRENORMUM

SOLUTION OPTIMIZATION SUMMARY

ANALYSIS TYPE = DIA(D)  
SOLUTION FORM = VKE

NO. OF STATIC STEPS	=	1
OUTPUT INTERVAL	=	200
DEBUG POINT CODE	=	0
RESTART FILE FLAG	=	0
UPDATE OPTION	=	1
START UP OPTION	=	0
NO. OF POINT LOADS	=	0
FLUID FIELD NUMBER	=	0

VILOCUS RELAXATION SOLUTION PARAMETERS

INTEGRATION PARAMETER	=	.10000E+01
INITIAL STEP SIZE	=	.10000E+01
INITIAL DAMPING	=	.10000E-02
ITERATION LIMIT	=	200

STEADY - STEADY STATE TUNING - FIRST CAST NO. 1 - PNUULUM

100% of all cases

BLAD LOAD INCREMENT =		U	V	LUAH FAULTURE	U.
MILDE	A	U.	V	LUAH FAULTURE	U.
1	0.	0.	- .000000E+02	0.	0.
2	0.	0.	- .000000E+02	0.	0.
SUM CONVENTION IN SITE					
LAST SUM VELOCITY NUMMAS		.203619E+01		.160134E+01	
LAST RESIDUAL NUMMAS		.296342E+04		.158767E+04	
NEW SITE =					
					.200000E+01

• 1680000 • 0,1  
• 1680000 • 0,1

LOAD LOAD INCREMENT		LOAD FACTOR		1000000.0	
MODULE	A	B	C	D	E
1	0.	0.	0.	-0.494514e+02	0.
2	0.	0.	0.	0.	0.

STABIN - STABIN FILE NAME - FILE CASE NO. 3 - PENTUM

LOAD CASE PARAMETERS  
SUBANALYSIS, TYPE = LINE

SOLUTION DATA SET #1  
STATIC STEP DATA  
NUMBER OF STEPS = 5  
START UP OPTION = 5  
HEADING INCREMENT = 0.  
TOTAL HEADING CHANGE = 0.  
POINT LOADS DATA  
LOAD SET #1  
LOAD COMPONENTS = 0.  
LOAD SET VARIATION LOADS  
SET 1 = 1  
SET 2 = 0  
SET 3 = 0  
GRAVITY = 0.  
CURRENT FIELD DATA  
FLUID FIELD NUMBER = 1  
FLUID FIELD MULTIPLIER = \*10000E+01  
FLUID VARIATION CODE = 0  
OUTPUT DATA SELECTIONS  
STEP NUMBER INTERVAL = 500  
PARAMETER INTERVAL = 0.  
DEBUG OUTPUT FLAG = 0

10/07/91 11. 00. /s. PAGE 17

SOLUTION OPTIMIZATION SUMMARY

ANALYSIS TYPE = LIVE  
SOLUTION FORM = PTK

NO. OF STATIC STEPS	=	5
OUTPUT INTERVAL	=	.200
DEBUG PRINT CODE	=	0
RESTANT FILE FLAG	=	0
UPDATE UPDUPN	=	1
START UP OPTION	=	5
NO. OF POINT LOADS	=	1
FLUID FIELD NUMBER	=	1

MUDFIELD NUCLEON-KAPHSON SOLUTION PARAMETERS

STEP SIZE CONTROL NO.	=	2
ITERATION LIMIT	=	200
NO. OF CUMY. TRIALS	=	3
MAX UPDATE INTERVAL	=	205
NUMERICAL DAMPING	=	0.
RESIDUAL TOLERANCE	=	.10000E-02
DEFLECT. TOLERANCE	=	.10000E-02
1-D STANCH FACTOR	=	0.
EXTRAPOLATION PARAMETER	=	.50000E+00

## STADYN-- STADYN +NETE FORM - TEST CASE NO. 1 - PENDULUM

10/02/61 11.36.25.0. PAG 19

## STEADY STATE INCREMENT = 0 LOAD FACTOR 0.

node	x	y	load factor
1	0.	0.	0.
2	0.	-49951t+02	0.

NUMBER OF ITERATIONS 0

## STEADY STATE INCREMENT = 0 LOAD FACTOR .10000t+01

node	x	y	load factor
1	0.	0.	0.
2	-11366t+02	-48792t+02	0.

NUMBER OF ITERATIONS 3

STADYN - STADYN FILE FORM - TEST CAST #11 - PREMULUK

L U A G C A S T P A R A M E T E R S

SUBANALYSIS TYPE = UFN

CURRENT FIELD DATA  
FLOW FIELD NUMBER = 1  
FLOW FIELD MULTIPLIER = .100000E+01  
FLOW VARIATION COUNT = 0  
TIME STEP DATA  
INITIAL TIME STEP = .100000E-02  
MAXIMUM TIME = .200000E+02  
BEGINNING TIME = 0.  
UPDATE TIME = .100000E-02  
ALPHA,BETA,GAMMA = 0.  
POINT LOADS DATA  
LOAD SET 1 LOAD COMPONENTS .200000E+01 BEGIN END INC  
1 -80000E+04 0. 2 2 1  
LOAD SELF VARIATION COEF'S  
SET 1 = 1  
SET 2 = 0  
SET 3 = 0  
SET 4 = 0  
GRAVITY = 0  
INPUT DATA SELECTIONS  
STEP NUMBER INTERVAL = 200  
PARAMETER INTERVAL = 0.  
DEBUG OUTPUT FLAG = 0

10/03/79 11.16.25. PAGE 20



SEACON-- SEADYN FILE INPUT - 1ST CASE NO. 3 - PENDULUM

10/02/61 11.36.25. PAGE 27

OUTPUT TIME INTERVAL = .100000E+01

TIME = 0.

NODE	X	Y	Z
1	0.	0.	0.
2	-11.366E+02	-487422E+02	0.

NUMBER OF ITRATIONS 0

NODE	X	Y	Z
1	0.	0.	0.
2	-846164E+01	-489165E+02	-271176E-03

DYNAMIC INCREMENT = .200

NODE	X	Y	Z
1	0.	0.	0.
2	-11.366E+01	-489165E+02	-271176E-03

NUMBER OF ITRATIONS 1

NODE	X	Y	Z
1	0.	0.	0.
2	-11.366E+01	-489165E+02	-271176E-03

DYNAMIC INCREMENT = .400

NODE	X	Y	Z
1	0.	0.	0.
2	-11.366E+01	-489165E+02	-271176E-03

NUMBER OF ITRATIONS 2

NODE	X	Y	Z
1	0.	0.	0.
2	-11.366E+01	-489165E+02	-271176E-03

DYNAMIC INCREMENT = .600

NODE	X	Y	Z
1	0.	0.	0.
2	-11.366E+01	-489165E+02	-271176E-03

NUMBER OF ITRATIONS 3

NODE	X	Y	Z
1	0.	0.	0.
2	-11.366E+01	-489165E+02	-271176E-03

DYNAMIC INCREMENT = .800

NODE	X	Y	Z
1	0.	0.	0.
2	-11.366E+01	-489165E+02	-271176E-03

NUMBER OF ITRATIONS 4

## STADIAH-- SLEAUVN FILE FORM - TEST CASE NO. 3 - PENDULUM

TIME = .200000E+01 DYNAMIC INCREMENT = 1000

	X	V	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	.8452276E+01	-.4984121E+02	.3172491E-03	-.44033499E+01	.328046E+01	-.312607E+01

NUMBER OF ITERATIONS = 3

TIME = .600000E+01 DYNAMIC INCREMENT = 1200

	X	V	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	.112710E+01	-.515636E+02	.40312E-03	-.743699E+01	-.483621E+00	-.25147E+01

NUMBER OF ITERATIONS = 3

TIME = .100000E+01 DYNAMIC INCREMENT = 1400

	X	V	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	-.6490476E+01	-.501592E+02	.222034E-03	-.526912E+01	.3312496E+01	-.140000E+01

NUMBER OF ITERATIONS = 3

TIME = .180000E+01 DYNAMIC INCREMENT = 1600

	X	V	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	-.107255E+02	-.4760004E+02	.102361E-03	-.151294E+00	.901653E-01	-.291764E-01

NUMBER OF ITERATIONS = 3

TIME = .400000E+01 DYNAMIC INCREMENT = 1800

	X	V	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	-.671739E+01	-.4494440E+02	.375270E-03	.632091E+01	-.277220E+01	-.130260E-03

NUMBER OF ITERATIONS = 3

TIME = .100000E+01 DYNAMIC INCREMENT = 1000

	X	V	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	.119377E+01	-.374667E+02	.3172491E-03	-.328046E+01	-.312607E+01	-.312607E+01

NUMBER OF ITERATIONS = 3

STADYN-- STADYN FOR TURN - TEST CASE NO. 1 - PENDULUM

TIME = .10000E+02 DYNAMIC INCREMENT = 2.000

Node	X	V	L	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	-1.37720E+01	-5.10478E+02	4.05747E-03	.100912E+02	.805667E+00	-4.21556E-03

NUMBER OF ITERATIONS 3

TIME = .11000E+02 DYNAMIC INCREMENT = 2.000

Node	X	V	L	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	.100789E+01	-4.90942E+02	.163964E-03	.616843E+01	.205919E+01	-6.24698E-03

NUMBER OF ITERATIONS 3

TIME = .12000E+02 DYNAMIC INCREMENT = 2.000

Node	X	V	L	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	-1.13226E+02	-4.85974E+02	-1.79167E-03	.237212E+01	.871930E+00	-6.23614E-03

NUMBER OF ITERATIONS 3

TIME = .13000E+02 DYNAMIC INCREMENT = 2.000

Node	X	V	L	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	.680224E+01	-4.93201E+02	-4.01087E-03	.470686E+01	.400214E+00	-4.2153E-03

NUMBER OF ITERATIONS 3

TIME = .14000E+02 DYNAMIC INCREMENT = 2.000

Node	X	V	L	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	.520420E+00	-4.99310E+02	-1.87250E-03	.795419E+01	.966902E+00	-1.53802E-03

NUMBER OF ITERATIONS 3

STATUS - STABLE, FATE UNKNOWN - ITST CASE NO. 3 - PREDICTION

10/07/81 11.36.25. PAGE 27

TIME = .10000E+02 DYNAMIC INCREMENT = 500  
NUDE X Y Z VX VY VZ

1 0. -76012E+01 0. -50212E+02 0. -11429E-03 0. -548606E+01 -.228000E+00

NUMBER OF ITERATIONS 3

TIME = .10000E+02 DYNAMIC INCREMENT = 3200  
NUDE X Y Z VX VY VZ

1 0. -11112E+01 0. -48428E+02 0. -205108E-03 0. -116612E+01 -.205431E+01

NUMBER OF ITERATIONS 3

TIME = .10000E+02 DYNAMIC INCREMENT = 1400  
NUDE X Y Z VX VY VZ

1 0. -91205E+01 0. -48752E+02 0. -42448E+03 0. -688298E+01 -.286307E+01

NUMBER OF ITERATIONS 3

TIME = .10000E+02 DYNAMIC INCREMENT = 3600  
NUDE X Y Z VX VY VZ

1 0. -50854E+00 0. -51466E+02 0. -40574E+03 0. -984612E+01 -.122277E+01

NUMBER OF ITERATIONS 3

TIME = .10000E+02 DYNAMIC INCREMENT = 3800  
NUDE X Y Z VX VY VZ

1 0. -71079E+01 0. -50749E+02 0. -11315E+03 0. -73557E+01 -.321867E+01

NUMBER OF ITERATIONS 3

SPAWN POINT FLOW = 1.1 LAST NO. 3 = PREDICTION

10/30/61 11.16.079. rAclt rho

Time = .20000t+0.02 DYNAMIC INCREMENT = 40000  
NODE A V L  
1 0. -0. 0.  
2 .106523t+0.02 -.475101t+0.2

NUMBER OF ITRATIONS 3

Time = .20000t+0.02 DYNAMIC INCREMENT = 40000  
NODE A V L  
1 0. -0. 0.  
2 .106523t+0.02 -.475101t+0.2

NUMBER OF ITRATIONS 3

10/30/61 11.16.079. rAclt rho

Time = .20000t+0.02 DYNAMIC INCREMENT = 40000  
NODE A V L  
1 0. -0. 0.  
2 .106523t+0.02 -.475101t+0.2

NUMBER OF ITRATIONS 3

Time = .20000t+0.02 DYNAMIC INCREMENT = 40000  
NODE A V L  
1 0. -0. 0.  
2 .106523t+0.02 -.475101t+0.2

NUMBER OF ITRATIONS 3

STACYN-- FREE FORMAT TEST CASE - CABLE LAVING

DATA P R O U T E M A T A

NUMBER OF NODES =	7
NUMBER OF ELEMENTS =	6
GRAVITY DIRECTION =	-2
DYNAMIC OPTION FLAG =	1
INPUT ECHO FLAG =	1
OKAC MODEL DIRECTION =	0
SHIP LOAD FILE FLAG =	0
GRAVITATIONAL ACCELERATION =	.321700e+02

WILLIAM FENWICK FERGUSON - CLASS - CANADA - PLAYING

REVIEWS OF DEFINITIONS

INTRODUCTIONS

1	-12000t + 0.4	-11700t - 0.4	-6400t + 0.4
2	-26000t + 0.4	-26000t - 0.3	-16500t - 0.1

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167

STADYN-- FULL FORMAT TEST CASE - CABLE LAYING

SUB LOCATION DATA

BEGIN	END	INCH	HDRY HGT.	LIFT SET
2	5	1	1	1

10/06/1991      11.00 AM      PAGE

## STATION-- FINE TURFAT TEST CASE - CADILLAC LAYING

## INPUT DATA TABLE

STATION NO.	DEKAS FN. NO.	BUDGETARY	DIA.METER	LENGTH	ADULT MASS CNT	MIN DEKAS CNT	SUM DEKAS	INITIAL MTD
1	0	10000103	.00000101	0.	.10000101	0.	0.	1

10/02/81 11.30.23. PAGE 5

AD-A114 978

WESTERN INSTRUMENTS .CORP OXNARD CA  
TEST CASES FOR SEADYN VERIFICATION.(U)  
APR 82 P E NORDSTROM, H OTTSEN

F/G 13/13

N68305-80-C-0004

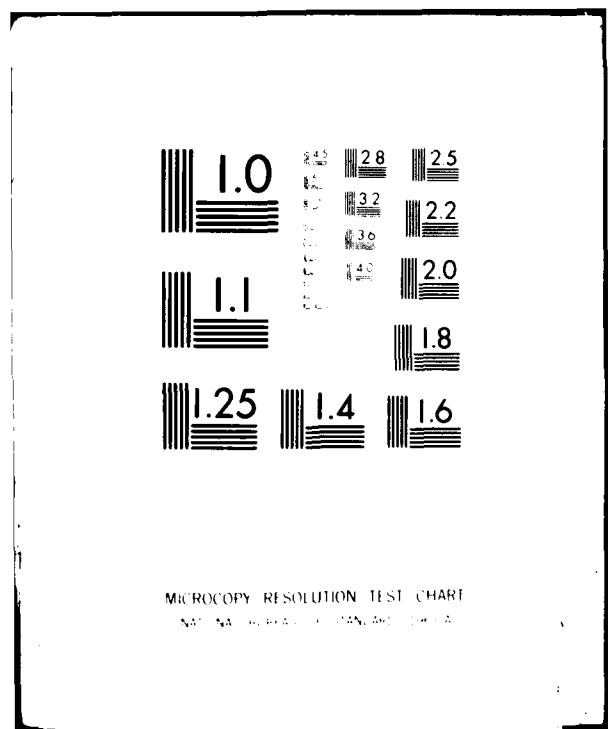
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SEGMENT-- FIBER FORMATTED TEST CASE - CABLE LAVING

ELEMENT INPUT DATA

	M1	M2	M3	MAT KUMP	FLAG	TENSION	LENGTH	NEUTRUM
1	1	1	2	0	1	0	-1	0.
2	2	3	0	1	0	0.	-1	0.
3	3	4	0	2	0	0.	-1	0.
4	4	5	0	1	0	0.	-1	0.
5	6	7	0	1	0	0.	-1	0.

10/02/61 11.50.54. 11.50.54. 4

SEACON-- FREE FORMAT TEST CASE - LABEL LAVING

NUOT LIMIT SET DATA

SET NO.	VERTICAL COORD	TOLERANCE	REL TOL FACTOR	FIXITY COUNT
1	0.	.10000E+01	.10010E+01	1

10/11/81 11.30.43. PAGE 1

SEADAT-- FILE FORMAT TEST CASE - CABLE LAVING

11.10.2.1 PAUL 6

CABLE MATERIAL PROPERTY DATA

PROPERTY SET NO.	NO.	DIAG COEF.	NU.	0
DIAMETER	*	250000E+00		
WEIGHT PER UNIT LENGTH	*	.117000E+02		
ADDED MASS COEFFICIENT	*	.100000E+01		
REFERENCE MEDIUM CODE	*	1		
ULTIMATE TENSION	*	0.		
MASS PER UNIT LENGTH	*	.523519E+00		
NU. OF POINTS ON TENSION/STRAIN CURVE	*	0		
EXponent FOR MUM COEFFICIENTS	*	.500000E+01		.100000E+01
PROPERTY SET NO.	NO.	DIAG COEF.	NU.	0
DIAMETER	*	250000E+00		
WEIGHT PER UNIT LENGTH	*	.117000E+02		
ADDED MASS COEFFICIENT	*	.100000E+01		
REFERENCE MEDIUM CODE	*	1		
ULTIMATE TENSION	*	0.		
MASS PER UNIT LENGTH	*	.523519E+00		
NU. OF POINTS ON TENSION/STRAIN CURVE	*	3		
1	TENSION	STRAIN	EA	
1	.140000E+01	*.140000E-02	*.100000E+08	
2	.160000E+01	*.300000E-02	*.125000E+07	
3	0.	0.	*.533333E+07	
MATERIAL DAMPING PARAMETER(S) EA(L)	*	.100000E+02	0.	

STATUS-- THIS FURNACE TEST CASE - CABLE LAYING

NUCT DATA

NUCT	CUDK	A	V	t	CONSTRAINTS
1	0	0.	0.	0.	1
2	0	-14000E+04	.12000E+04	0.	2
6	0	-14000E+04	.12000E+04	0.	2
7	0	-14000E+04	.12000E+04	0.	1

10/02/81

11.30.e4.

PAGE 1

SEADORN - THREE DIMENSIONAL CAST - CABLE LAYING

10/02/61 11.30.23. PAGE 10

GENERATION OF LINE > OF NUDES  
NUMBER BEGIN NUDE END NUDE DIFFERENCE

3 1 0 .14000E+04 .12000E+04

L,SPAN,YSPLAN

.71531E+01

11

THE FOLLOWING ELEMENTS HAVE ZERO LENGTH.

AN ENCHAR MAY BE INDICATED IF THESE ARE NOT FOR PAYOUT.

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SIMILARITIES AND DIFFERENCES IN THE CULTURES OF CANADA AND THE UNITED STATES

MURKIN / SWEDISH

NUC	INITIAL COORDINATES		TILT AND CROOKS		LIMIT		HOOD		GRAVITY LENS		VIRTUAL MASSES	
	x	y	x	y	z	t	x	y	x	y	x	y
1	0.	0.	-4943E+03	-3993E+02	0.	0.	1.	0.	-3463E+04	1524E+03	-1254E+04	0.
2	-4943E+03	-3993E+02	-1966E+01	0.	0.	0.	1.	1.	-6494E+04	4449E+03	-4449E+04	0.
3	-4943E+03	-3993E+02	-1966E+01	0.	0.	0.	1.	1.	-6494E+04	4449E+03	-4449E+04	0.
4	-1188E+04	-1200E+04	-1200E+04	0.	0.	0.	1.	1.	-6494E+04	4449E+03	-4449E+04	0.
5	-1400E+04	-1200E+04	-1200E+04	0.	0.	0.	2.	1.	-3527E+04	2418E+03	-2418E+04	0.
6	-1400E+04	-1200E+04	-1200E+04	0.	0.	0.	2.	1.	0.	0.	0.	0.
7	-1400E+04	-1200E+04	-1200E+04	0.	0.	0.	1.	1.	0.	0.	0.	0.

10/02/01 11.30.23. PAUL 11

10/02/01 11.30.23. MAIL 11

## STRUCTURE - F-9011 FINNAR TEST CASE - GAUNT LAVING

## ELEMENT SUMMARY DATA

ELT CONNECTION DATA				REL CNTN RD.	INITIAL LENGTH	UNSTRETCHED LENGTH	INITIAL LENGTH	UNSTRETCHED LENGTH
NO.	N1	N2	N3	CONT	INCH	INCH	INCH	INCH
1	1	2	1	0	1	.49696e+03	.49696e+03	.27666e+02
2	2	3	1	0	1	.49630e+03	.49630e+03	.24213e+02
3	3	4	2	0	1	.49952e+03	.49952e+03	.24392e+02
4	4	5	3	0	1	.50034e+03	.50034e+03	.244411e+02
5	5	6	4	0	1	0.	0.	0.
6	6	7	1	0	1	0.	0.	0.

10/02/61 11.30./S. PAGE 17

## SLADYN-- FREE FORMAT TEST CASE - CABLE LAYING

10/22/81 11.30.25. PAGE 15

## ADDITIONAL ELEMENT DATA

ELPNT#	SLOPES	TAN(1)	TAN(2)
1	-1.0247E+00	0.	-1.6081E+00
2	-1.81343E+00	-2.8167E+00	-1.0596E+00
3	-1.9719E+00	-1.6661E+00	-1.1440E+00
4	-1.2643E+00	-3.0429E+00	-1.6190E+00
5	-1.00000E+01	0.	0.
6	-1.00000E+01	0.	0.

HALF-BANDWIDTH = 6

STACNIN-- FILET FORMAT TEST CASE - CAHLE LAVING

LOCAD CASE PARKETTE'S

SUDANALYSIS INPUT = DTAU

OUTPUT DATA SELECTIONS

STEP NUMBER INTERVAL = 10

PARAMETER INTERVAL = 0.

DEBUG OUTPUT FLAG = 0

SOLUTION DATA SETS = VRR

10/02/61 11.30./s. rATAI 14

STADYN-- FILE FOKPAT TEST CASE - CABLE LAYING

SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DEAD  
SOLUTION FORM = VKN

NO. OF STATIC STEPS	=	1
OUTPUT INTERVAL	=	10
DEBUG PRINT CODE	=	0
TESTANT FILE FLAG	=	0
UPDATE OPTION	=	1
START UP OPTION	=	0
NO. OF POINT LOADS	=	0
FLOW FIELD NUMBER	=	0

VISCOUS RELAXATION SOLUTION PARAMETERS

INTEGRATION PARAMETER	=	.10000E+01
INITIAL STEP SIZE	=	.10000E+01
INITIAL DAMPING	=	.10000E+00
ITERATION LIMIT	=	200

10/02/01 11:30:25. VALUE 15

## STEADY-- FREE FORMAT TEST CASE - CABLE LAYING

11.30.25. PAGE 1.

## CEAD LOAD INCREMENT = 0

		LOAD FACTOR						LOAD	
	NODE	X	Y	Z	VX	VY	VZ	T	RESIDUAL
1	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	-494347E+03	209271E+02	0.	0.	0.	0.	0.	2	0.
3	-896030E+03	339608E+03	0.	0.	0.	0.	0.	3	0.
4	-118639E+04	475456E+03	0.	0.	0.	0.	0.	4	0.
5	-140000E+04	120000E+04	0.	0.	0.	0.	0.	5	0.
6	-140000E+04	120000E+04	0.	0.	0.	0.	0.	6	0.
7	-140000E+04	120000E+04	0.	0.	0.	0.	0.		

SLUB CONVERGENCE ON STEP 5

LAST FOUR VELOCITY NORMS 456539E+00 535436E+00 183949E+00 153284E+00

LAST RESIDUAL NORMS 274062E+03 101738E+04 548924E+02

NEW DAMPING 60000E-01 16667E+01 80000E+01

NEW DAMPING 48000E-01 80000E+01

## CEAD LOAD INCREMENT = 34

		LOAD FACTOR						LOAD	
	NODE	X	Y	Z	VX	VY	VZ	T	RESIDUAL
1	0.	0.	0.	0.	0.	-151010E-05	-209164E-04	0.	0.
2	-496505E+03	384011E+02	0.	0.	-221471E-04	-106100E-04	0.	2	-128521E+03
3	-894944E+03	336440E+03	0.	0.	-219936E-04	-104991E-04	0.	3	-178617E+03
4	-118345E+04	766284E+03	0.	0.	0.	0.	0.	4	-239012E+03
5	-140000E+04	120000E+04	0.	0.	0.	0.	0.	5	0.
6	-140000E+04	120000E+04	0.	0.	0.	0.	0.	6	0.
7	-140000E+04	120000E+04	0.	0.	0.	0.	0.		

STAUYN-- FREE FORMAT TEST CASE - CABLE LAYING

L G A U C A S T P A R A M E T E R S  
SUBANALYSIS TYPE = UTM

SECURITY DATA RESULT  
NODE COMPONENT MOVEMENT DATA  
NODE TYPE VANT CODE AMPLITUDE TYPE VANT CODE AMPLITUDE TYPE VANT CODE AMPLITUDE  
5 2 0 -.2000E+01 2 0 0-.  
6 2 0 -.2000E+01 2 0 0-.  
7 2 0 -.2000E+01 2 0 0-.  
PAYLOAD/RELEASE DATA  
NODE ELT NAME MASS LENGTH GROW NO. SHRINK NO. FLY. INCR. FLY. INCR.  
5 4 .2000E+01 .6000E+02 2 0 0 0 0  
TIME STEP DATA  
INITIAL TIME STEP = .1000E+00  
MAXIMUM TIME = .1000E+02  
BEGINNING TIME = 0.  
UPDATE TIME = .1000E+00  
ALPHA,BETA,GAMMA = 0.  
OUTPUT DATA SELECTIONS  
>STEP NUMBER INTERVAL = 10  
PARAMETER INTERVAL = .1000E+01  
DEBUG OUTPUT FLAG = 0

SEABATH-- PLATE FURNAL TEST CASE - CAULE LAYING

SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DYN  
SOLUTION FORM = DIN

UNN. INIT. COND. CODE = 0  
OUTPUT INTERVAL = 0  
DEBUG PRINT COLD = 0  
NESTANT FILE FLAG = 0  
UPDATE OPTION = 1  
START UP OPTION = 0  
NO. OF POINT LOADS = 0  
FLOW FIELD NUMBER = 0  
NUMBER OF PAYOUT ENDS = 1  
NUMBER OF MOVED NODES = 3

DIRECT ITERATION METHOD DYNAMIC PARAMETERS  
DEFLECT. TOLMAX TOLERANCE = .10000E-02

ELEMENT	EA	UNIT MASS	LENGTH	TIME STEP
1	*5210240E+07	*52240E+00	*49788E+03	*154190E+00
2	*5220000E+07	*5224176E+00	*49794E+03	*158978E+00
3	*523332E+07	*521764E+00	*501225E+03	*154938E+00
4	*5200000E+07	*521028E+00	*502731E+03	*160272E+00

TIME STEP DATA  
INITIAL TIME STEP = \*10000E+00  
MAXIMUM TIME = \*40000E+02  
BEGINNING TIME = 0.  
UPDATE TIME = \*10000E+00  
ALPHA,BETA,GAMMA = \*63333E-01  
\*500000E+00

## STADYH-- Full Format Test Case - CABLE LAVING

10/04/07 00:00:00

11.10.1.1.

PAUL

17

OUTPUT TIME INTERVAL = .100000E+01

TIME = 0.

DYNAMIC INCREMENT = 0

NODE	X	Y	Z	VX	vy	VZ	LLI	FUNCTION
1	0.	0.	0.	0.	0.	0.	1	-1.04246E+02
2	-4.96505E+03	0.	384011E-02	0.	0.	0.	2	-1.02521E+02
3	-6.94943E+03	0.	326540E-03	0.	0.	0.	3	-1.01616E+02
4	-1.18348E-04	0.	746284E-03	0.	0.	0.	4	-1.00127E+02
5	-1.00000E+04	0.	120000E-04	0.	0.	0.	5	0.
6	-1.00000E+04	0.	120000E-04	0.	0.	0.	6	0.
7	-1.00000E+04	0.	120000E-04	0.	0.	0.		

NUMBER OF ITERATIONS = 0

PAYOUT STATUS  
END NODE ELT.  
1 5 .200000E+01  
UNSTR. LEN.  
.502731E+03  
CURRENT LEN.  
.502731E+03

TIME = .100000E+01

DYNAMIC INCREMENT = 1.0

NODE	X	Y	Z	VX	vy	VZ	LLI	FUNCTION
1	0.	0.	0.	0.	0.	0.	1	-1.39239E+02
2	-4.96236E+03	0.	380405E-02	0.	0.	0.	2	-1.07760E+02
3	-6.94666E+03	0.	325746E-03	0.	0.	0.	3	-1.05262E+02
4	-1.18231E+04	0.	745270E-03	0.	0.	0.	4	-1.02776E+02
5	-1.00190E+04	0.	120000E-04	0.	0.	0.	5	0.
6	-1.00190E+04	0.	120000E-04	0.	0.	0.	6	0.
7	-1.00190E+04	0.	120000E-04	0.	0.	0.		

NUMBER OF ITERATIONS = 2

PAYOUT STATUS  
END NODE ELT.  
1 5 .200000E+01  
UNSTR. LEN.  
.502345E+03  
CURRENT LEN.  
.504573E+03

TIME = .200000E+01

DYNAMIC INCREMENT = 1.0

NODE	X	Y	Z	VX	vy	VZ	LLI	FUNCTION
1	0.	0.	0.	0.	0.	0.	1	-1.02339E+02
2	-4.96666E+03	0.	361366E-02	0.	0.	0.	2	-1.02339E+02
3	-6.94973E+03	0.	334214E-03	0.	0.	0.	3	-1.02339E+02
4	-1.18355E+04	0.	741878E-03	0.	0.	0.	4	-1.02339E+02
5	-1.00390E+04	0.	120000E-04	0.	0.	0.	5	0.
6	-1.00390E+04	0.	120000E-04	0.	0.	0.	6	0.
7	-1.00390E+04	0.	120000E-04	0.	0.	0.		

NUMBER OF ITERATIONS = 2

PAYOUT STATUS  
END NODE ELT.  
1 5 .200000E+01  
UNSTR. LEN.  
.503145E+03  
CURRENT LEN.  
.506561E+03

## STATUS-- FREE FURCAT TEST CASE - CABLE LAYING

11.10.2/61 11.10.2/61 11.10.2/61

TIME = .300001 DYNAMIC INCREMENT = 30

NUDE	X	Y	Z	VX	VY	VZ	VL	STATUS
1	0.	0.	0.	0.	-162403E+00	-162403E+01	0.	
2	-496798E+03	342683E+02	0.	-639632E+00	-94664E+00	0.		
3	-895135E+03	332336E+03	0.	-462592E+00	-128898E+01	0.		
4	-118393E+04	742161E+03	0.	-112770E+01	-179965E+01	0.		
5	-140590E+04	120000E+04	0.	-200000E+01	-200000E+01	0.		
6	-140590E+04	120000E+04	0.	-200000E+01	-200000E+01	0.		
7	-140590E+04	120000E+04	0.	-200000E+01	-200000E+01	0.		

NUMBER OF ITERATIONS = 2

PAYOUT STATUS  
END NUDE ELT. VELCITY UNSTR. LEN.  
1 5 4 .200000E+01 .508345E+03 .508804E+03

TIME = .400001 DYNAMIC INCREMENT = 40

NUDE	X	Y	Z	VX	VY	VZ	VL	STATUS
1	0.	0.	0.	0.	243664E+00	-640379E+00	0.	
2	-496798E+03	332625E+02	0.	-420453E+00	-144203E+01	0.		
3	-895277E+03	331275E+03	0.	-432898E+00	-140193E+01	0.		
4	-118434E+04	740766E+03	0.	-112598E+01	-179824E+01	0.		
5	-140790E+04	120000E+04	0.	-200000E+01	-200000E+01	0.		
6	-140790E+04	120000E+04	0.	-200000E+01	-200000E+01	0.		
7	-140790E+04	120000E+04	0.	-200000E+01	-200000E+01	0.		

NUMBER OF ITERATIONS = 2

PAYOUT STATUS  
END NUDE ELT. VELCITY UNSTR. LEN.  
1 5 4 .200000E+01 .508345E+03 .510700E+03

TIME = .700001 DYNAMIC INCREMENT = 50

NUDE	X	Y	Z	VX	VY	VZ	VL	STATUS
1	0.	0.	0.	0.	-101416E+00	-977777E+00	0.	
2	-496913E+03	344425E+02	0.	-404432E+00	-93216E+00	0.		
3	-895468E+03	310276E+03	0.	-458234E+00	-164768E+01	0.		
4	-118485E+04	739449E+03	0.	-112193E+01	-179594E+01	0.		
5	-140994E+04	120000E+04	0.	-200000E+01	-200000E+01	0.		
6	-140994E+04	120000E+04	0.	-200000E+01	-200000E+01	0.		
7	-140994E+04	120000E+04	0.	-200000E+01	-200000E+01	0.		

NUMBER OF ITERATIONS = 2

PAYOUT STATUS  
END NUDE ELT. VELCITY UNSTR. LEN.  
1 5 4 .200000E+01 .510345E+03 .512591E+03

## SEADYN-- FREE FURKAT TEST CASE - CABLE LAYING

TIME = .60000t+01 DYNAMIC INCREMENT = .60

NODE	X	V	t	VX	VY	VZ	STATUS
1	0.	0.	0.	0.	0.	0.	0.
2	-496853t+03	.311338t+02	0.	-58794t+00	-118340t+01	0.	0.
3	-895603t+03	.328855t+03	0.	-220825t+00	-145214t+01	0.	0.
4	-118641t+04	.737728t+03	0.	-700358t+00	-154394t+01	0.	0.
5	-1471190t+04	.120000t+04	0.	-112600t+01	-179602t+01	0.	0.
6	-1471190t+04	.120000t+04	0.	-200000t+01	0.	0.	0.
7	-1471190t+04	.120000t+04	0.	-200000t+01	0.	0.	0.

NUMBER OF ITERATIONS = 2

PAYLOAD STATUS  
END NODE ELT.  
1 , 4 .200000t+01

UNSTR. LEN.

.512345t+03

CURRENT LEN.

.514774t+03

TIME = .70000t+01 DYNAMIC INCREMENT = .70

NODE	X	V	t	VX	VY	VZ	STATUS
1	0.	0.	0.	0.	0.	0.	0.
2	-497077t+03	.101343t+02	0.	-119244t+00	-102444t+01	0.	0.
3	-895939t+03	.327498t+03	0.	-17640t+00	-14215t+01	0.	0.
4	-118612t+04	.736157t+03	0.	-426151t+00	-209039t+01	0.	0.
5	-1471390t+04	.120000t+04	0.	-111842t+01	-179522t+01	0.	0.
6	-1471390t+04	.120000t+04	0.	-200000t+01	0.	0.	0.
7	-1471390t+04	.120000t+04	0.	-200000t+01	0.	0.	0.

NUMBER OF ITERATIONS = 2

PAYLOAD STATUS  
END NODE ELT.  
1 , 4 .200000t+01

UNSTR. LEN.

.514345t+03

CURRENT LEN.

.516753t+03

TIME = .80000t+01 DYNAMIC INCREMENT = .80

NODE	X	V	t	VX	VY	VZ	STATUS
1	0.	0.	0.	0.	0.	0.	0.
2	-497157t+03	.291248t+02	0.	-429664t+00	-844794t+00	0.	0.
3	-896265t+03	.126241t+03	0.	-330396t+00	-120523t+01	0.	0.
4	-1186270t+04	.734500t+03	0.	-77435t+00	-138668t+01	0.	0.
5	-1471590t+04	.120000t+04	0.	-11167t+01	-179438t+01	0.	0.
6	-1471590t+04	.120000t+04	0.	-200000t+01	0.	0.	0.
7	-1471590t+04	.120000t+04	0.	-200000t+01	0.	0.	0.

NUMBER OF ITERATIONS = 2

PAYLOAD STATUS  
END NODE ELT.  
1 , 4 .200000t+01

UNSTR. LEN.

.516345t+03

CURRENT LEN.

.518776t+03

NODE	X	V	t	VX	VY	VZ	STATUS
1	0.	0.	0.	0.	0.	0.	0.
2	-497241t+03	.328855t+03	0.	-220825t+00	-145214t+01	0.	0.
3	-896345t+03	.126241t+03	0.	-700358t+00	-154394t+01	0.	0.
4	-1186350t+04	.734500t+03	0.	-112600t+01	-179602t+01	0.	0.
5	-1471790t+04	.120000t+04	0.	-200000t+01	0.	0.	0.
6	-1471790t+04	.120000t+04	0.	-200000t+01	0.	0.	0.
7	-1471790t+04	.120000t+04	0.	-200000t+01	0.	0.	0.

NODE	X	V	t	VX	VY	VZ	STATUS
1	0.	0.	0.	0.	0.	0.	0.
2	-497321t+03	.328855t+03	0.	-220825t+00	-145214t+01	0.	0.
3	-896431t+03	.126241t+03	0.	-700358t+00	-154394t+01	0.	0.
4	-1186440t+04	.734500t+03	0.	-112600t+01	-179602t+01	0.	0.
5	-1471890t+04	.120000t+04	0.	-200000t+01	0.	0.	0.
6	-1471890t+04	.120000t+04	0.	-200000t+01	0.	0.	0.
7	-1471890t+04	.120000t+04	0.	-200000t+01	0.	0.	0.

## RESULTS-- Full Layout Test Cast - CABLE LAYING

10/11/2001 11.40.24s PAYLOAD

IIFT = .400000t+01 DYNAMIC INCREMENT = .90

NODE	X	Y	Z	VX	VY	VZ	TENS
1	0.	0.	0.	.283042t+02	0.	0.	.950718t+05
2	-.497110t+03	0.	0.	.409598t+00	0.	0.	.111604t+03
3	-.896462t+03	.324864t+03	0.	-.409598t+00	-.127708t+01	0.	.175231t+03
4	-.118764t+04	.732924t+03	0.	-.618440t+00	-.167064t+01	0.	.249627t+03
5	-.141290t+04	.120000t+04	0.	-.111514t+01	-.174300t+01	0.	0.
6	-.141290t+04	.120000t+04	0.	-.120000t+01	0.	0.	0.
7	-.141290t+04	.120000t+04	0.	-.200000t+01	0.	0.	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS  
END NODE ELT.  
1 5 200000t+01  
UNSTR. LEN.  
.510345t+03  
CURRENT LEN.  
.520823t+03

IIFT = .100000t+02 DYNAMIC INCREMENT = .100

NODE	X	Y	Z	VX	VY	VZ	TENS
1	0.	0.	0.	.273318t+02	0.	0.	.915114t+05
2	-.497377t+01	0.	0.	.189751t+00	0.	0.	.101271t+05
3	-.896935t+03	.323639t+03	0.	-.199441t+00	-.157536t+01	0.	.162681t+03
4	-.118825t+04	.731363t+03	0.	-.814726t+00	-.161622t+01	0.	.212411t+03
5	-.141490t+04	.120000t+04	0.	-.111374t+01	-.179215t+01	0.	0.
6	-.141490t+04	.120000t+04	0.	-.200000t+01	0.	0.	0.
7	-.141490t+04	.120000t+04	0.	-.200000t+01	0.	0.	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS  
END NODE ELT.  
1 5 200000t+01  
UNSTR. LEN.  
.522767t+03  
CURRENT LEN.  
.522767t+03

IIFT = .110000t+02 DYNAMIC INCREMENT = .110

NODE	X	Y	Z	VX	VY	VZ	TENS
1	0.	0.	0.	.263771t+02	0.	0.	.101252t+05
2	-.497264t+03	0.	0.	-.816284t+01	-.107781t+01	0.	.111604t+03
3	-.896722t+03	.322189t+03	0.	-.628046t+00	-.117394t+01	0.	.175231t+03
4	-.118903t+04	.724223t+03	0.	-.915135t+00	-.136222t+01	0.	.249627t+03
5	-.141190t+04	.120000t+04	0.	-.111249t+01	-.174210t+01	0.	0.
6	-.141190t+04	.120000t+04	0.	-.200000t+01	0.	0.	0.
7	-.141190t+04	.120000t+04	0.	-.200000t+01	0.	0.	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS  
END NODE ELT.  
1 5 200000t+01  
UNSTR. LEN.  
.522476t+03  
CURRENT LEN.  
.522476t+03

## STADYN-- FILET FUMAT TEST CASE - Cable laying

TIME = .12000E+02 DYNAMIC INCREMENT = 120

NODE	X	V	t	vx	vy	vz	VL	FLN
1	0.	0.	0.	0.	0.	0.	1	.92516E+04
2	-4.97224E+01	.25478E+02	0.	*22032E+00	*-18045E+00	0.	2	*17736E+05
3	-8.97641E+01	.32083E+03	0.	*29183E+00	*-14671E+01	0.	3	*17448E+05
4	-1.89788E+01	.37803E+03	0.	*-16093E+00	*-16093E+01	0.	4	*23574E+05
5	-1.42390E+01	.12000E+04	0.	*-11112E+01	*-17916E+01	0.	5	0.
6	-1.42390E+01	.12000E+04	0.	*-20000E+01	0.	0.	6	0.
7	-1.42390E+01	.12000E+04	0.	*-20000E+01	0.	0.		

NUMBER OF ILLUSTRATIONS = 2

PAYOUT STATUS  
END NODE END. LENGTH. LEN.  
1 5 .226345E+03 .520721E+03 CURRENT LENGTH.

TIME = .13000E+02 DYNAMIC INCREMENT = 130

NODE	X	V	t	vx	vy	vz	VL	FLN
1	0.	0.	0.	0.	0.	0.	1	.10143E+05
2	-4.97378E+01	.24616E+02	0.	*41741E+01	*-833981E+00	0.	2	*12015E+05
3	-8.98038E+01	.31952E+03	0.	*-37657E+00	*-136882E+01	0.	3	*16081E+05
4	-1.19063E+01	.72650E+03	0.	*-83652E+00	*-16037E+01	0.	4	*22623E+05
5	-1.42590E+01	.12000E+04	0.	*-11105E+01	*-17910E+01	0.	5	0.
6	-1.42590E+01	.12000E+04	0.	*-20000E+01	0.	0.	6	0.
7	-1.42590E+01	.12000E+04	0.	*-20000E+01	0.	0.		

NUMBER OF ILLUSTRATIONS = 2

PAYOUT STATUS  
END NODE END. LENGTH. LEN.  
1 5 .226345E+03 .520721E+03 CURRENT LENGTH.

TIME = .14000E+02 DYNAMIC INCREMENT = 140

NODE	X	V	t	vx	vy	vz	VL	FLN
1	0.	0.	0.	0.	0.	0.	1	.94595E+04
2	-4.97115E+01	.23767E+02	0.	*-21673E+00	*-91318E+00	0.	2	*12740E+05
3	-8.95468E+01	.31613E+03	0.	*-58485E+00	*-12140E+01	0.	3	*17165E+05
4	-1.11940E+01	.72476E+03	0.	*-82513E+00	*-16056E+01	0.	4	*23571E+05
5	-1.42770E+01	.12000E+04	0.	*-11093E+01	*-17905E+01	0.	5	0.
6	-1.42770E+01	.12000E+04	0.	*-20000E+01	0.	0.	6	0.
7	-1.42770E+01	.12000E+04	0.	*-20000E+01	0.	0.		

NUMBER OF ILLUSTRATIONS = 2

PAYOUT STATUS  
END NODE END. LENGTH. LEN.  
1 5 .226345E+03 .520721E+03 CURRENT LENGTH.

## STATION-- FILE FORMAT TEST CASE - CABLE LAYING

10/12/91 11:10:23. PACT CS

TIME = .10000t+02 DYNAMIC INCREMENT = 150

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	-.49746t+03	.22922t+02	0.	-.38216t+01	-.13773t+01	0.
3	-.89988t+03	.31673t+03	0.	-.20559t+00	-.15687t+00	0.
4	-.11422t+04	.40422t+03	0.	-.38520t+00	-.16460t+01	0.
5	-.14299t+04	.49170t+03	0.	-.120000t+00	-.11078t+01	0.
6	-.14299t+04	.57916t+03	0.	-.120000t+00	-.11078t+01	0.
7	-.14299t+04	.66662t+03	0.	-.120000t+00	-.11078t+01	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS	END NODE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000t+01	.530345t+03	.532806t+03

TIME = .16000t+02 DYNAMIC INCREMENT = 160

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	-.49746t+03	.22058t+02	0.	-.202740t+00	-.81852t+00	0.
3	-.89974t+03	.31542t+03	0.	-.56668t+00	-.12059t+01	0.
4	-.11410t+04	.40478t+03	0.	-.74181t+00	-.17934t+01	0.
5	-.14210t+04	.49120t+03	0.	-.120000t+00	-.11068t+01	0.
6	-.14210t+04	.57862t+03	0.	-.120000t+00	-.17894t+01	0.
7	-.14210t+04	.66608t+03	0.	-.120000t+00	-.200000t+01	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS	END NODE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000t+01	.532345t+03	.534811t+03

TIME = .17000t+02 DYNAMIC INCREMENT = 170

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	-.49746t+03	.212782t+02	0.	-.291363t+00	-.75154t+00	0.
3	-.89972t+03	.31397t+03	0.	-.350775t+00	-.14318t+01	0.
4	-.11413t+04	.40416t+03	0.	-.84721t+00	-.16408t+01	0.
5	-.14213t+04	.49160t+03	0.	-.120000t+00	-.11050t+01	0.
6	-.14213t+04	.57894t+03	0.	-.120000t+00	-.17690t+01	0.
7	-.14213t+04	.66638t+03	0.	-.120000t+00	-.200000t+01	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS	END NODE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000t+01	.5319345t+03	.536881t+03

SLAUVIN-- FILE FORMAT TEST CASE - CABLE LAVING

L11.12.111.11.10.1.1.1. PAVL V

TIME = .10000E+02 DYNAMIC INCREMENT = 100

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	0.	0.	0.
2	-49757t+0.3	-20488t+0.3	0.	-14817t+0.00	-79154t+0.00	0.
3	-90227t+0.3	.31265t+0.3	0.	-44071t+0.00	-136270t+0.1	0.
4	-11947t+0.3	.71614t+0.3	0.	-71216t+0.00	-101961t+0.1	0.
5	-143590t+0.4	-120000t+0.4	0.	-11048t+0.01	-178651t+0.1	0.
6	-143590t+0.4	.120000t+0.4	0.	-200000t+0.1	0.	0.
7	-143590t+0.4	.120000t+0.4	0.	-200000t+0.1	0.	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS  
END NODE ELT.  
1 5 .200000E+01 UNSTR. LEN.  
UNSTR. LEN. .536345E+03 CURRENT LEN.  
.300000E+03

TIME = .14000E+02 DYNAMIC INCREMENT = 190

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	0.	0.	0.
2	-497602t+0.3	-196366t+0.2	0.	-234061t+0.00	-810290t+0.00	0.
3	-906661t+0.3	.311262t+0.3	0.	-442643t+0.00	-140672t+0.1	0.
4	-119578t+0.3	.716450t+0.3	0.	-984673t+0.00	-143614t+0.1	0.
5	-137908t+0.4	-120000t+0.4	0.	-110196t+0.01	-178805t+0.1	0.
6	-137908t+0.4	.120000t+0.4	0.	-200000t+0.1	0.	0.
7	-143790t+0.4	.120000t+0.4	0.	-200000t+0.1	0.	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS  
END NODE ELT.  
1 5 .200000E+01 UNSTR. LEN.  
UNSTR. LEN. .510345E+03 CURRENT LEN.  
.540870E+03

TIME = .20000E+02 DYNAMIC INCREMENT = 200

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	0.	0.	0.
2	-49757t+0.3	-188459t+0.2	0.	-22503t+0.00	-87062t+0.00	0.
3	-90101t+0.3	.30985t+0.3	0.	-544307t+0.00	-10490t+0.1	0.
4	-119662t+0.3	.714742t+0.3	0.	-985236t+0.00	-13028t+0.1	0.
5	-143590t+0.4	-120000t+0.4	0.	-110305t+0.01	-176760t+0.1	0.
6	-143590t+0.4	.120000t+0.4	0.	-200000t+0.1	0.	0.
7	-143590t+0.4	.120000t+0.4	0.	-200000t+0.1	0.	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS  
END NODE ELT.  
1 5 .200000E+01 UNSTR. LEN.  
UNSTR. LEN. .540345E+03 CURRENT LEN.  
.542916E+03

## SECTION-- FULL FORMAT TEST CASE - CABLE LAYING

TIME = 11.00000 PAGE 16.

TIME = .210000E+02

DYNAMIC INCREMENT = 210

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	-497650E+03	180302E+02	0.	-164765E-01	-164460E+00	0.
3	-902463E+03	308524E+03	0.	-307079E+00	-154634E+01	0.
4	-119730E+04	713127E+03	0.	-974493E+00	-151151E+01	0.
5	-144190E+04	120000E+04	0.	-110217E+01	-178715E+01	0.
6	-144190E+04	120000E+04	0.	-200000E+01	0.	0.
7	-144190E+04	120000E+04	0.	-200000E+01	0.	0.

NUMBER OF ITERATIONS 2

PAYLOAD STATUS  
END NODE LEN.  
1 5 .200000E+01 .542345E+03 CURRENT LEN.  
.540861E+03

TIME = .220000E+02

DYNAMIC INCREMENT = 220

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	-497650E+03	172526E+02	0.	-568794E-01	-408194E+00	0.
3	-901495E+03	307106E+03	0.	-671790E+00	-149217E+01	0.
4	-119816E+04	711431E+03	0.	-903236E+00	-157385E+01	0.
5	-144390E+04	120000E+04	0.	-110130E+01	-178671E+01	0.
6	-144390E+04	120000E+04	0.	-200000E+01	0.	0.
7	-144390E+04	120000E+04	0.	-200000E+01	0.	0.

NUMBER OF ITERATIONS 2

PAYLOAD STATUS  
END NODE LEN.  
1 5 .200000E+01 .544345E+03 CURRENT LEN.  
.546889E+03

TIME = .230000E+02

DYNAMIC INCREMENT = 230

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	0.	0.	0.
2	-497644E+03	164654E+02	0.	-690623E-01	-734430E+00	0.
3	-902463E+03	305744E+03	0.	-678550E+00	-152702E+01	0.
4	-119904E+04	709749E+03	0.	-906305E+00	-161873E+01	0.
5	-144390E+04	120000E+04	0.	-1100452E+01	-176628E+01	0.
6	-144390E+04	120000E+04	0.	-200000E+01	0.	0.
7	-144390E+04	120000E+04	0.	-200000E+01	0.	0.

NUMBER OF ITERATIONS 2

PAYLOAD STATUS  
END NODE LEN.  
1 5 .200000E+01 .546345E+03 CURRENT LEN.  
.548904E+03

TIME = 11.00000

ITNS UN

TIME = 11.00000

ITNS UN

## SEADYN-- FREE FORWARD TEST CASE - CABLE LAVING

TIME = .24000E+02 DYNAMIC INCREMENT = 240

NODE	X	Y	Z	VX	VY	VZ	FUNCTION
1	0.	0.	0.	0.	0.	0.	1
2	-494772E+03	-156792E+02	0.	-114204E-01	-8050614E+03	0.	2
3	-302931E+03	-304375E+03	0.	-555542E+00	-122084E+01	0.	3
4	-319940E+04	-708120E+03	0.	-83737E+00	-171194E+01	0.	4
5	-144790E+04	-120000E+04	0.	-109961E+01	-17458CE+01	0.	5
6	-44790E+04	-120000E+04	0.	-200000E+01	0.	0.	6
7	-144790E+04	-120000E+04	0.	-200000E+01	0.	0.	7

NUMBER OF ITERATIONS = 2

PAYOUT STATUS	END NODE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000E+01	.540345E+03	.550861E+03

TIME = .25000E+02 DYNAMIC INCREMENT = 250

NODE	X	Y	Z	VX	VY	VZ	FUNCTION
1	0.	0.	0.	0.	0.	0.	1
2	-497682E+03	-149166E+02	0.	-744163E+00	-16806BE+00	0.	2
3	-303646E+03	-302986E+03	0.	-432965E+00	-134160E+01	0.	3
4	-200178E+04	-706378E+03	0.	-866221E+00	-166169L+01	0.	4
5	-144994E+04	-120000E+04	0.	-109877E+01	-170544E+01	0.	5
6	-44990E+04	-120000E+04	0.	-200000E+01	0.	0.	6
7	-144990E+04	-120000E+04	0.	-200000E+01	0.	0.	7

NUMBER OF ITERATIONS = 2

PAYOUT STATUS	END NODE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000E+01	.520345E+03	.532942E+03

TIME = .26000E+02 DYNAMIC INCREMENT = 260

NODE	X	Y	Z	VX	VY	VZ	FUNCTION
1	0.	0.	0.	0.	0.	0.	1
2	-49770E+03	-141541E+02	0.	-18803BE-01	-703510E+00	0.	2
3	-303806E+03	-301615E+03	0.	-364599E+00	-140817E+01	0.	3
4	-201628E+04	-704738E+03	0.	-762547E+00	-186223E+01	0.	4
5	-145110E+04	-120000E+04	0.	-109795E+01	-175021E+01	0.	5
6	-45110E+04	-120000E+04	0.	-200000E+01	0.	0.	6
7	-145110E+04	-120000E+04	0.	-200000E+01	0.	0.	7

NUMBER OF ITERATIONS = 2

PAYOUT STATUS	END NODE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000E+01	.522345E+03	.534407E+03

PAYOUT STATUS	END NODE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000E+01	.522345E+03	.534407E+03

NUMBER OF ITERATIONS = 2

PAYOUT STATUS	END NODE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000E+01	.522345E+03	.534407E+03

## SEARCH-- FREE FORMATT TEST CASE - CABLE LATING

TIME = 27000E+02 DYNAMIC INCREMENT = 270

NUDE	X	Y	Z	VX	VY	VZ	VL	LN
1	0.	0.	0.	-4422010.00	0.	0.	0.	1000000000.
2	7.497749E+03	-1133664E+02	0.	-4422010.00	0.	0.	0.	1000000000.
3	-904300E+03	-390205E+03	0.	-4422010.00	0.	0.	0.	1000000000.
4	-120421E+05	-703031E+03	0.	-4422010.00	0.	0.	0.	1000000000.
5	-145390E+05	-120000E+04	0.	-4422010.00	0.	0.	0.	1000000000.
6	-145390E+05	-120000E+04	0.	-4422010.00	0.	0.	0.	1000000000.
7	-145390E+05	-120000E+04	0.	-4422010.00	0.	0.	0.	1000000000.

## NUMBER OF ITERATIONS = 2

PAYOUT STATUS	END NODE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000E+01	.543351E+03	.564451E+03

TIME = 28000E+02 DYNAMIC INCREMENT = 280

NUDE	X	Y	Z	VX	VY	VZ	VL	LN
1	0.	0.	0.	-126463E+02	0.	0.	0.	1000000000.
2	-492801E+03	-126463E+02	0.	-8922934E-01	-7119051E+00	0.	0.	1000000000.
3	-906700E+03	-298845E+03	0.	-8922934E+00	-145757E+01	0.	0.	1000000000.
4	-120334E+04	-701338E+03	0.	-826110E+00	-174778E+01	0.	0.	1000000000.
5	-145590E+04	-120000E+04	0.	-109633E+01	-176420E+01	0.	0.	1000000000.
6	-145590E+04	-120000E+04	0.	-200000E+01	0.	0.	0.	1000000000.
7	-145590E+04	-120000E+04	0.	-200000E+01	0.	0.	0.	1000000000.

## NUMBER OF ITERATIONS = 2

PAYOUT STATUS	END NODE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000E+01	.543351E+03	.564451E+03

TIME = 29000E+02 DYNAMIC INCREMENT = 290

NUDE	X	Y	Z	VX	VY	VZ	VL	LN
1	0.	0.	0.	-118702E+02	0.	0.	0.	1000000000.
2	-97850E+03	-207524E+03	0.	-343985E-01	-746054E+00	0.	0.	1000000000.
3	-102211E+03	-207524E+03	0.	-472876E+00	-134199E+01	0.	0.	1000000000.
4	-120421E+04	-639673E+03	0.	-83475E+00	-175116E+01	0.	0.	1000000000.
5	-145790E+04	-120000E+04	0.	-109531E+01	-176379E+01	0.	0.	1000000000.
6	-145790E+04	-120000E+04	0.	-200000E+01	0.	0.	0.	1000000000.
7	-145790E+04	-120000E+04	0.	-200000E+01	0.	0.	0.	1000000000.

## NUMBER OF ITERATIONS = 2

PAYOUT STATUS	END NODE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000E+01	.543351E+03	.564451E+03

## SEADYN-- FILED FURNAL TEST CASE - CABLE LAYING

TIME = .10000E+02 DYNAMIC INCREMENT = 100

NODE	X	Y	Z	VX	VY	VZ	VAL1	VAL2
1	0.	0.	0.	0.	0.	0.	-10246.7E+00	
2	-4947876E+03	-111339E+02	0.	-125539E+00	-759963E+00	0.	-11977.5E+01	
3	-905620E+03	-296120E+03	0.	-447298E+00	-13849E+01	0.	-17250.9E+01	
4	-140507E+04	-69796E+03	0.	-94763E+00	-15350E+01	0.	-21641.7E+01	
5	-145940E+04	-12000E+04	0.	-109433E+01	-178319E+01	0.	2.0E+00	
6	-145990E+04	-12000E+04	0.	-20000E+01	0.	0.	-20000E+01	
7	-145990E+04	-12000E+04	0.	-20000E+01	0.	0.	-20000E+01	

NUMBER OF ITERATIONS = 2

PAYOFF STATUS

END NODE ELT. VELOCITY UNSTR. LEN.

1 5 4 -200000E+01 .560345E+03

CURRENT LEN.

.562988E+03

NEW PAYOFF/NEEL-IN DATA FOR END 1

NODE = 6

ELT. = 5

STEP 301 TIME = .301000E+02

TIME = .31000E+02 DYNAMIC INCREMENT = 110

NODE	X	Y	Z	VX	VY	VZ	VAL1	VAL2
1	0.	0.	0.	0.	0.	0.	-10467.6E+00	
2	-4497864E+03	-103824E+02	0.	-212121E+00	-781704E+00	0.	-12157.5E+01	
3	-906080E+03	-294761E+03	0.	-446594E+00	-139168E+01	0.	-170544E+01	
4	-140508E+04	-696381E+03	0.	-767033E+00	-143128E+01	0.	-227632E+01	
5	-145940E+04	-114394E+04	0.	-19681E+01	-432826E+01	0.	-350171E+01	
6	-146140E+04	-12000E+04	0.	-113220E+01	-180192E+01	0.	2.0E+00	
7	-146140E+04	-12000E+04	0.	-20000E+01	0.	0.	-20000E+01	

NUMBER OF ITERATIONS = 5

PAYOFF STATUS

END NODE ELT. VELOCITY UNSTR. LEN.

1 6 5 -200000E+01 .618000E+02

CURRENT LEN.

.622264E+02

## STABILITY-- FIBER FUSION TEST LAST - Cable laying

10/30/2011 11:10:41, PALS

ITER = .32000E+02 DYNAMIC INCREMENT = 1.0

NUdt	X	Y	Z	Vx	Vy	Vz
1	0.	0.	0.	0.	0.	0.
2	-4.47904E+01	-9.66602E+01	0.	-3.01549E-01	-1.54032E+00	0.
3	-7.06251E+01	-2.94244E+03	0.	-4.25426E+00	-1.38901E+01	0.
4	-1.20656E+04	-6.94874E+01	0.	-9.56170E+00	-1.11670E+01	0.
5	-1.63744E+04	-1.19154E+04	0.	-1.41953E+01	-4.149d05+01	0.
6	-1.46390E+04	-1.00000E+04	0.	-1.17222E+01	-1.82201E+01	0.
7	-1.46390E+04	-1.20000E+04	0.	-2.00000E+01	0.	0.

NUMBER OF ITERATIONS = 5

PAYOUT STATUS	END NODE	ELT,	VELOCITY	UNSTR. LEN,	CURRENT LEN,
1	0	.200000E+02	.638000E+02	.641657E+02	

ITER = .33000E+02 DYNAMIC INCREMENT = 3.0

NUdt	X	Y	Z	Vx	Vy	Vz
1	0.	0.	0.	0.	0.	0.
2	-4.97859E+03	-8.91591E+01	0.	-1.46274E+00	-7.62169E+00	0.
3	-9.06451E+03	-2.92076E+03	0.	-5.14937E+00	-1.26208E+01	0.
4	-1.20731E+04	-6.91266E+03	0.	-9.19958E+00	-1.38268E+01	0.
5	-1.53917E+04	-1.19158E+04	0.	-1.381126E+00	-3.52457E+01	0.
6	-1.46590E+04	-1.20000E+04	0.	-1.14091E+01	-1.82905E+01	0.
7	-1.46590E+04	-1.20000E+04	0.	-2.00000E+01	0.	0.

NUMBER OF ITERATIONS = 5

PAYOUT STATUS	END NODE	ELT,	VELOCITY	UNSTR. LEN,	CURRENT LEN,
1	6	.200000E+01	.650000E+02	.660037E+02	

ITER = .34000E+02 DYNAMIC INCREMENT = 3.0

NUdt	X	Y	Z	Vx	Vy	Vz
1	0.	0.	0.	0.	0.	0.
2	-5.47668E+03	-8.20884E+01	0.	-7.82672E-01	-7.22674E+00	0.
3	-9.04111E+03	-2.00763E+03	0.	-3.1741E+00	-1.47747E+01	0.
4	-1.20814E+04	-6.91666E+03	0.	-6.87350E+00	-1.61146E+01	0.
5	-1.44032E+04	-1.13185E+04	0.	-9.46794E+00	-1.05174E+01	0.
6	-1.46790E+04	-1.20000E+04	0.	-1.18865E+01	-1.82813E+01	0.
7	-1.46790E+04	-1.20000E+04	0.	-2.00000E+01	0.	0.

NUMBER OF ITERATIONS = 5

PAYOUT STATUS	END NODE	ELT,	VELOCITY	UNSTR. LEN,	CURRENT LEN,
1	6	.200000E+01	.678000E+02	.679304E+02	

## STACYN-- INLET FLOWMATE TEST CAST - CABLE LAYING

TIME = .30000t+02 DYNAMIC INCREMENT = 300

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	-0.666667e-01	0.	0.
2	-4.47899E+03	.741997E+01	0.	-0.666667e-01	-0.666667e-01	0.
3	-9.07831E+03	.269377E+03	0.	-0.548651e+00	-0.123758E+01	0.
4	-1.20893E+04	.689474E+03	0.	-0.735690E+00	-0.183244E+01	0.
5	-1.44123E+04	.113601E+04	0.	-0.176049E+01	-0.953946E+01	0.
6	-1.69990E+04	.120000E+04	0.	-0.118737E+01	-0.182540E+01	0.
7	-1.46449E+04	.120000E+04	0.	-0.200000E+01	0.	0.

NUMBER OF ITRATIONS = 5

PAYOUT STATUS  
END MODE ELT.  
1 6 5 .200000E+01

CURRENT LEN.  
.701054E-02

TIME = .36000t+02 DYNAMIC INCREMENT = 360

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	-0.103850E+00	0.	0.
2	-4.97899E+03	.663150E+01	0.	-0.720063E+00	0.	0.
3	-1.08239E+03	.287945E+03	0.	-0.140224E+01	0.	0.
4	-1.20482E+04	.688292E+03	0.	-0.749960E+00	-0.17950E+01	0.
5	-1.44222E+04	.111404E+04	0.	-0.147905E+01	-0.101912E+01	0.
6	-1.47190E+04	.120000E+04	0.	-0.117935E+01	-0.162188E+01	0.
7	-1.47190E+04	.120000E+04	0.	-0.200000E+01	0.	0.

NUMBER OF ITRATIONS = 5

PAYOUT STATUS  
END MODE ELT.  
1 6 5 .200000E+01

CURRENT LEN.  
.7232334E-02

TIME = .37000t+02 DYNAMIC INCREMENT = 370

NODE	X	Y	Z	VX	VY	VZ
1	0.	0.	0.	-0.74021E-01	0.	0.
2	-4.97952E+03	.288374E+01	0.	-0.684636E+00	-0.13076E+01	0.
3	-1.08670E+03	.286675E+03	0.	-0.405278E+00	-0.82730E+01	0.
4	-1.21065E+04	.686661E+03	0.	-0.161048E+01	-0.41915E+00	0.
5	-1.44341E+04	.111231E+04	0.	-0.34619MF+01	-0.117668E+01	0.
6	-1.47390E+04	.120000E+04	0.	-0.182558E+01	-0.200000E+01	0.
7	-1.47390E+04	.120000E+04	0.	-0.200000E+01	0.	0.

NUMBER OF ITRATIONS = 5

PAYOUT STATUS  
END MODE ELT.  
1 6 5 .200000E+01

CURRENT LEN.  
.742370E-02

## STATION-- FILE F0101 TEST CASE - CABLE LAYING

TIME = 38000t + 02 DYNAMIC INCREMENT = 300

NODE	X	Y	Z	VX	VY	VZ	VL	LN
1	0.	0.	0.	-0.21226E+01	0.	-0.19658E+00	-0.61765E+00	C.
2	-7.49734E+03	0.	0.	-0.42251E+00	-0.13140E+00	0.	-0.16754E+03	2.
3	-90907E+03	0.	0.	-0.79811E+00	-0.16779E+01	0.	-0.20874E+03	3.
4	-12114E+03	0.	0.	-0.12371E+01	-0.17159E+01	0.	-0.16362E+03	4.
5	-14468E+03	0.	0.	-0.11729E+01	-0.18237E+01	0.	-0.16362E+03	5.
6	-13065E+03	0.	0.	-0.11729E+01	-0.18237E+01	0.	-0.16362E+03	6.
7	-14759E+03	0.	0.	-0.20000E+01	-0.20000E+01	0.	0.	0.

NUMBER OF ITERATIONS = 7

PAYOUT STATUS	LIN.
END NODE	tLT.
1	5

VELOCITY UNSTR. LEN.  
• 750000t + 02  
• 760564t + 02

TIME = 34000t + 02 DYNAMIC INCREMENT = 390

NODE	X	Y	Z	VX	VY	VZ	VL	LN
1	0.	0.	0.	0.	0.	0.	0.	0.
2	-997967t + 03	0.	0.	-0.25734E-02	-0.716017E+00	0.	-0.10316E+03	1.
3	-909487t + 03	0.	0.	-0.402965E+00	-0.139215E+01	0.	-0.11487E+03	2.
4	-121227t + 03	0.	0.	-0.68334E+00	-0.194199E+01	0.	-0.17262E+03	3.
5	-144577t + 03	0.	0.	-0.11266E+01	-0.561761E+00	0.	-0.22077E+03	4.
6	-130657t + 03	0.	0.	-0.12000E+01	-0.117684E+01	0.	-0.16362E+03	5.
7	-147779t + 03	0.	0.	-0.20000E+01	-0.20000E+01	0.	0.	6.

NUMBER OF ITERATIONS = 7

PAYOUT STATUS	LIN.
END NODE	tLT.
1	6

VELOCITY UNSTR. LEN.  
• 760000t + 02  
• 783078E+02

TIME = 40000t + 02 DYNAMIC INCREMENT = 400

NODE	X	Y	Z	VX	VY	VZ	VL	LN
1	0.	0.	0.	0.	0.	0.	0.	0.
2	-497987t + 03	0.	0.	-0.36874E+01	-0.362707E-01	-0.74439E+00	0.	1.
3	-90996t + 03	0.	0.	-0.202662E+03	-0.41671E+00	-0.13602E+01	-0.	2.
4	-121311t + 03	0.	0.	-0.681677E+03	-0.951077E+00	-0.14384E+01	0.	3.
5	-144693t + 03	0.	0.	-0.126685E+03	-0.408121E+00	-0.33831E+01	0.	4.
6	-130693t + 03	0.	0.	-0.120000E+03	-0.117620E+01	-0.102356E+01	0.	5.
7	-147790t + 03	0.	0.	-0.20000E+03	-0.20000E+01	-0.20000E+01	0.	6.

NUMBER OF ITERATIONS = 7

PAYOUT STATUS	LIN.
END NODE	tLT.
1	6

VELOCITY UNSTR. LEN.  
• 790000t + 02  
• 802393E+02

PAYOUT STATUS	LIN.
END NODE	tLT.
1	1

VELOCITY UNSTR. LEN.  
• 760564t + 02  
• 760564t + 02

1

2

3

4

5

6

7

## SEADYN--FREE SURFACE TILT LAST - CABLE LAYING

10/19/74 11:10:24.1

10/19/74 11:10:24.1

LIFT = .40000E+02 DYNAMIC INCREMENT = .401

NODE	X	Y	Z	U	V	W	VL	LL	BL
1	0.	0.	0.	0.	0.	0.	0.	1	.10424E+02
2	-.49798E+03	.36857E+01	0.	-.36270E-01	-.74439E+00	0.	2	.12346E+02	
3	-.90993E+03	.28266E+03	0.	-.16731E+00	-.15602E+01	0.	3	.16617E+02	
4	-.12131E+04	.68167E+03	0.	-.95107E+00	-.14384E+01	0.	4	.22978E+02	
5	-.14469E+04	.11268E+04	0.	-.40812E+00	-.13831E+01	0.	5	.27602E+02	
6	-.14799E+04	.12000E+04	0.	-.11782E+01	-.16233E+01	0.	6	.31E+02	
7	-.14799E+04	.12000E+04	0.	-.20000E+01	0.	0.			

NUMBER OF ITERATIONS = 2

PAYOUT STATUS	END NODE	ELF.	VELOCITY	UNSTR. LFN.	CURRENT LFN.
1	6	2	.20000E+01	.74800E+02	.80239E+02

DEAUVILLE - 1987 FURNACE TEST CASE - CANTILEVERING

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THEORY OF POLYMER

```

*FIELD AND COMPONENTS
 11 12
*NODE COMPONENT MOVEMENT DATA
  NODE TYPE  VARY CODE AMPLITUDE
    7      2       0     -.20000E+01
 1111 STEP DATA
*INITIAL TIME STEP =   -1.0000E+00
*MAXIMUM TIME =   -5.0000E+02
*BEGINNING TIME =   -4.0000E+02
*UPDATE TIME =   -1.0000E+00
*ALPHA-BETA-GAMMA =   0.
*OUTPUT DATA SELECTIONS
  STEP NUMBER INTERVAL =   10
  PARAMETER INTERVAL =   *1.0000E+01
  OEMUL, OUTPUT FLAG =   0

```

SEADIN-- F4HT FORMATT TEST CASE - CAULF LAYING

SOLUTION INPUT SUMMARY

ANALYSIS TYPE = UVM  
SOLUTION FURN = UIM

DYN. INIT. LUND. CUBE = 0  
OUTPUT INTERVAL = 10  
DEBUG PRINT CODE = 0  
RESTART FILE FLAG = 0  
UPDATE OPTION = 1  
START UP OPTION = 0  
NO. OF POINT LOADS = 0  
FLOW FIELD NUMBER = 0  
NUMBER OF MUVL NODES = 1

DIRECT ITERATION METHOD DYNAMIC PARAMETERS  
DEFECT. ERROR TOLERANCE = .10000E-02

MUDL COMPONENT PLATES ALTERED

ELEMENT	EA	UNIT MASS	LENGTH	TIME STEP
1	.500000E+07	.522426E+00	.490001E+03	.15919E+00
2	.500000E+07	.522229E+00	.497524E+03	.158978E+00
3	.513333E+07	.521873E+00	.501126E+03	.154338E+00
4	.500000E+07	.521124E+00	.502460E+03	.160317E+00
5	.500000E+07	.520644E+00	.502393E+02	.255617E-01

TIME STEP DATA	INITIAL TIME STEP = .10000E+00	MAXIMUM TIME = .50000E+02	BEGINNING TIME = .40000E+02	UPDATE TIME = .10000E+00	ALPHA,BETA,GAMMA = .83333E-01	TIME STEP = .50000E+00

STADYN-- FILE FOR FIRST CASE - CAHLE LAYING

INPUT TIME INTERVAL = .100000t+01

TIME = .40000t+02 DYNAMIC INCREMENT = .001

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	.366574t+01	-.74394t+00	0.
2	-.497948t+03	-.28662t+03	0.	-.916721t+00	-.136021t+01	0.
3	-.905936t+03	0.	0.	-.451077t+00	-.14384t+01	0.
4	-.121311t+04	0.	0.	-.081211t+00	-.238311t+01	0.
5	-.144693t+04	0.	0.	-.117830t+01	-.182316t+01	0.
6	-.147990t+04	0.	0.	-.120000t+01	0.	0.
7	-.147990t+04	0.	0.	-.120000t+01	0.	0.

NUMBER OF ITERATIONS 0

TIME = .41000t+02 DYNAMIC INCREMENT = .01

NODE	X	Y	Z	VX	vy	VZ
1	-.769958t+01	-.461410t+01	0.	-.776111t+01	-.647501t+01	0.
2	-.502942t+03	-.221909t+01	0.	-.979944t+01	-.23224t+01	0.
3	-.912954t+03	0.	0.	-.565977t+01	-.170544t+01	0.
4	-.121486t+04	0.	0.	-.352495t+01	-.21068t+01	0.
5	-.144837t+04	0.	0.	-.209740t+01	-.174908t+01	0.
6	-.147990t+04	0.	0.	0.	0.	0.
7	-.147990t+04	0.	0.	0.	0.	0.

NUMBER OF ITERATIONS 5

STEP 420 CONVERGED IN 2 ITERATIONS. NEW DT AND DTU = .11115t+03

TIME = .42013t+02 DYNAMIC INCREMENT = .021

NODE	X	Y	Z	VX	vy	VZ
1	-.161640t+02	-.113602t+02	0.	-.963227t+01	-.617014t+01	0.
2	-.512312t+03	-.846606t+00	0.	-.674209t+01	0.	0.
3	-.916043t+03	0.	0.	-.32751t+01	-.411084t+01	0.
4	-.121661t+04	0.	0.	-.320327t+01	-.274011t+01	0.
5	-.145023t+04	0.	0.	-.202149t+01	-.233776t+01	0.
6	-.147990t+04	0.	0.	0.	0.	0.
7	-.147990t+04	0.	0.	0.	0.	0.

NUMBER OF ITERATIONS 2

INPUT TIME INTERVAL .100000t+01

TIME = .11115t+03

DYNAMIC INCREMENT = .001

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	-.362707t+01	-.74394t+00	0.
2	-.916721t+00	0.	0.	-.136021t+01	0.	0.
3	-.451077t+00	0.	0.	-.14384t+01	0.	0.
4	-.081211t+00	0.	0.	-.238311t+01	0.	0.
5	-.117830t+01	0.	0.	-.182316t+01	0.	0.
6	-.120000t+01	0.	0.	-.200000t+01	0.	0.
7	-.120000t+01	0.	0.	-.200000t+01	0.	0.

NUMBER OF ITERATIONS 0

TIME = .11115t+03

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	-.776111t+01	-.647501t+01	0.
2	-.979944t+01	0.	0.	-.23224t+01	0.	0.
3	-.565977t+01	0.	0.	-.170544t+01	0.	0.
4	-.352495t+01	0.	0.	-.21068t+01	0.	0.
5	-.209740t+01	0.	0.	-.174908t+01	0.	0.
6	0.	0.	0.	0.	0.	0.
7	0.	0.	0.	0.	0.	0.

NUMBER OF ITERATIONS 0

TIME = .11115t+03

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	-.617014t+01	0.	0.
2	0.	0.	0.	0.	0.	0.
3	0.	0.	0.	0.	0.	0.
4	0.	0.	0.	0.	0.	0.
5	0.	0.	0.	0.	0.	0.
6	0.	0.	0.	0.	0.	0.
7	0.	0.	0.	0.	0.	0.

NUMBER OF ITERATIONS 0

TIME = .11115t+03

DYNAMIC INCREMENT = .001

NODE	X	Y	Z	VX	vy	VZ
1	0.	0.	0.	0.	0.	0.
2	0.	0.	0.	0.	0.	0.
3	0.	0.	0.	0.	0.	0.
4	0.	0.	0.	0.	0.	0.
5	0.	0.	0.	0.	0.	0.
6	0.	0.	0.	0.	0.	0.
7	0.	0.	0.	0.	0.	0.

NUMBER OF ITERATIONS 0

TIME = .11115t+03

DYNAMIC INCREMENT = .001

TIME = .11115t+03

## STRUCTURE-FORCE FIELD CAN - CANAL LAYING

ITER = .810321e+02 DYNAMIC INCREMENT = 4.10

NODE	X	Y	Z	VX	YY	VZ	VL	RESIDUE
1	-2.452601e+02	-1.78366e+02	0.	-6.9154e+01	-6.35714e+01	0.	1	0.
2	-5.16153e+03	-8.26606e+00	0.	-5.928421e+01	0.	0.	2	0.
3	-9.221811e+03	-2.78679e+03	0.	-5.541891e+01	-1.749271e+01	0.	3	-4.25112e+04
4	-1.422159e+04	-6.78832e+03	0.	-4.726951e+01	9.73467e+00	0.	4	-1.37757e+05
5	-1.622298e+04	-1.12449e+04	0.	-4.994951e+01	-1.215461e+01	0.	5	-3.150311e+05
6	-1.779901e+04	-1.20000e+04	0.	0.	0.	0.	6	0.
7	-1.805966e+04	-1.20000e+04	0.	-2.00000e+01	0.	0.		

NUMBER OF ITERATIONS = 7

ITER = .440501e+02 DYNAMIC INCREMENT = 4.39

NODE	X	Y	Z	VX	YY	VZ	VL	RESIDUE
1	-3.052600e+02	-2.442234e+02	0.	-4.601621e+01	-6.391911e+01	0.	1	0.
2	-5.22604e+03	-8.26606e+00	0.	-3.893191e+01	0.	0.	2	0.
3	-9.278195e+03	-2.78728e+03	0.	-4.176861e+01	-3.916191e+01	0.	3	-1.154671e+04
4	-1.425631e+04	-6.77955e+03	0.	-4.235810e+01	-4.157731e+01	0.	4	-7.75581e+04
5	-1.553346e+04	-1.122492e+04	0.	-2.240121e+01	-1.023281e+01	0.	5	-1.359271e+05
6	-1.779901e+04	-1.20000e+04	0.	0.	0.	0.	6	0.
7	-1.808000e+04	-1.20000e+04	0.	-2.00000e+01	0.	0.		

NUMBER OF ITERATIONS = 7

ITER = .449511e+02 DYNAMIC INCREMENT = 4.47

NODE	X	Y	Z	VX	YY	VZ	VL	RESIDUE
1	-3.030332e+02	-3.01205e+02	0.	-3.10758e+01	-6.443171e+01	0.	1	0.
2	-5.255391e+03	-8.28606e+00	0.	-3.290176e+01	0.	0.	2	0.
3	-9.314301e+03	-2.71602e+03	0.	-5.078031e+01	-2.222671e+01	0.	3	-5.761761e+04
4	-1.4226431e+04	-6.77775e+03	0.	-4.320801e+01	-3.211141e+00	0.	4	-1.605491e+05
5	-1.554221e+04	-1.12430e+04	0.	-4.966491e+00	-0.990161e+00	0.	5	-2.079191e+05
6	-1.779901e+04	-1.20000e+04	0.	-2.00000e+01	0.	0.	6	0.
7	-1.808001e+04	-1.20000e+04	0.					

NUMBER OF ITERATIONS = 7

ITER = 11

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## STADIA -- TENSILE FIBER TEST CASE - CANTILEVERING

TIME = .45973E+02 DYNAMIC INCREMENT = 456

NUMBER OF ITRATIONS = 7

TIME = .46000E+02 DYNAMIC INCREMENT = 465

NUMBER OF ITRATIONS = 7

TIME = .46000E+02 DYNAMIC INCREMENT = 474

NUMBER OF ITRATIONS = 7

Node	X	Y	Vx	Vy	Vt	Tensile
1	-3.02E+01E+02	-3.67161E+02	0.	-1.11649E+01	-6.65301E+01	0.
2	-5.28930E+03	+8.28606E+00	0.	-2.80749E+01	0.	0.
3	-9.31044E+03	+2.71635E+03	0.	-4.01387E+01	-3.64747E+01	0.
4	-1.22121E+03	+6.76616E+03	0.	-2.43942E+01	-3.06021E+01	0.
5	-1.43394E+03	+1.16434E+04	0.	-1.02446E+01	-1.07137E+01	0.
6	-1.49490E+03	+1.20000E+04	0.	0.	0.	0.
7	-1.49102E+03	+1.20000E+04	0.	-2.60000E+01	0.	0.

NUMBER OF ITRATIONS = 7

TIME = .46010E+02 DYNAMIC INCREMENT = 474

NUMBER OF ITRATIONS = 7

TIME = .46010E+02 DYNAMIC INCREMENT = 474

Node	X	Y	Vx	Vy	Vt	Tensile
1	-3.61529E+02	-3.63198E+02	0.	-1.12702E+00	-6.58701E+01	0.
2	-5.31594E+03	+8.28606E+00	0.	-2.80882E+01	0.	0.
3	-9.41197E+03	+2.68637E+03	0.	-4.01497E+01	-3.64830E+01	0.
4	-1.25394E+03	+6.75212E+03	0.	-2.432107E+01	-3.06766E+01	0.
5	-1.45394E+03	+1.126044E+04	0.	-1.04492E+00	-1.05656E+00	0.
6	-1.49490E+03	+1.20000E+04	0.	0.	0.	0.
7	-1.49389E+03	+1.20000E+04	0.	-2.60000E+01	0.	0.

NUMBER OF ITRATIONS = 7

TIME = .46010E+02 DYNAMIC INCREMENT = 474

NUMBER OF ITRATIONS = 7

Node	X	Y	Vx	Vy	Vt	Tensile
1	-3.76211E+02	-4.98429E+02	0.	-2.74845E+01	-6.36413E+01	0.
2	-5.32189E+03	+8.28606E+00	0.	-4.04182E+00	0.	0.
3	-9.46510E+03	+2.65940E+03	0.	-3.79008E+01	-3.87688E+01	0.
4	-1.25901E+03	+6.71291E+03	0.	-2.3728E+01	-1.49112E+01	0.
5	-1.45383E+03	+1.12457E+04	0.	-1.01296E+00	-1.62234E+01	0.
6	-1.49490E+03	+1.20000E+04	0.	0.	0.	0.
7	-1.49392E+03	+1.20000E+04	0.	-2.60000E+01	0.	0.

NUMBER OF ITRATIONS = 7

## SLACYAN-- FREE FORMAT TEST CASE - CABLE LAYING

TIME = .49029E+02 DYNAMIC INCREMENT = 483

10/02/61

11.10.7.5.

PAGE 17

NODE	X	Y	Z
1	-504132E+02	-564725E+02	0.
2	-532796E+03	-626E+00	0.
3	-4510822E+03	-263046E+01	0.
4	-124610E+04	-669305E+03	0.
5	-145915E+04	-112624E+05	0.
6	-147990E+04	-120000E+04	0.
7	-149976E+04	-120000E+04	0.

NUMBER OF ITERATIONS 5

NODE	X	Y	Z
1	-397004E+02	-630371E+02	0.
2	-532798E+03	-228606E+00	0.
3	-56667E+03	-260008E+03	0.
4	-124552E+04	-668283E+03	0.
5	-145594E+04	-112403E+04	0.
6	-147990E+04	-120000E+04	0.
7	-149990E+04	-120000E+04	0.

NUMBER OF ITERATIONS 3

TIME = .50000E+02 DYNAMIC INCREMENT = 492

10/02/61

11.10.7.5.

PAGE 17

NODE	X	Y	Z
1	-394554E+00	-420764E+00	0.
2	-538866E+01	-192504E+01	0.
3	-361022E+01	-527367E+00	0.
4	-104739E+01	-219324E+01	0.
5	0.	0.	0.
6	0.	0.	0.
7	0.	0.	0.

NODE	X	Y	Z
1	-257662E+01	-427804E+01	0.
2	-68757E+00	0.	0.
3	-379341E+01	-344700E+01	0.
4	-287066E+01	-246162E+01	0.
5	-313565E+02	-249337E+01	0.
6	0.	0.	0.
7	0.	0.	0.

NUMBER OF ITERATIONS 3

## STUDYN-- STATION POINT FORM - TEST CASE 100.5 - CALLIGARY

## N E W P R O G R A M U A T A

NUMBER OF NODES	4	'BASE' =	31 /
NUMBER OF ELEMENTS	1		
GRAVITY DIRECTION	-2		
DYNAMIC UP/DOWN FLAG	1		
INPUT FREQ FLAG	1		
DRAG MODEL DIVERG ID	0		
SIMP LOAD FILE FLAG	0		
GRAVITATIONAL ACCELERATION = -321700t +02			

10/19/01

10.94.21.

PAUL

STATION - SHADY FISH TUNA - TEST CAST NO. 5 - CANNARY

TEST POINT DEFINITION

INTERFACE DEPTH   KINEMATIC VISCOSITY   SPECIFIC GRAVITY

1	0.	•17100E-04	•64000E+02
---	----	------------	------------

100.000   100.000   100.000

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SYNTHETIC POLY(URIDYLIC ACID) ANALOGUE - 1051 CANTRELL ET AL.

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STATUS - STUDY STATE FLAG - RSI (AND 00, 0 = CARRY ON)

ELEMENT INPUT DATA

EL	N1	N2	EL	HAL KUMP FLAG	RELATION	0.	LET NO. 1	LET NO. 2
1	1	2	0	1	0	-1	0.	0.
2	1	4	0	1	0	-1	0.	0.

INPUT FILE NAME - RSI

FORMAT

STUDY-- STUDY FILE CODE = 1011 DATE = 10/14/64

CLIPPER PNT-IT'S STOP DATA

WGT%	END	INCH	CONT	ITEM#
1	3	1	1	0.

## STABILITY STUDY TEST CASE - FIRST CASE NO. 3 - CANTILEVER

TABLE MATERIAL PROPERTY DATA

PROPERTY SET ID#.	1
DIA/CURF. RATIO	0
DISC LENGTH	*PRODUCT*30
ELONG PER UNIT LENGTH	*70000*01
ADDED MASS COEFFICIENT	*100000*01
SUPERELLIPTICAL MEDIUM CODE	1
ULTIMATE TENSION MASS PER UNIT LENGTH	0.
ULTIMATE TENSION MASS PER UNIT LENGTH	*1590261*00
NO. OF POINTS ON TENSION/STRAIN CURVE	6
EXPLICIT FORM CO. EFFICIENTS	*100001*07
	*100001*01

STUDY-- STADY, FILE NAME - TEST CASE NO. 3 - CATAVAY

LIMIT LOCATION DATA

STCIN	END	INCH	LIMIT SET
1	4	1	1

STABILITY - STABILITY FACTOR = 1.151 (AS: 0.0, S = 0.0) - CALIBRATION

MINIMUM SET DATA

SET #	MANUFACTURAL LIMIT	INTERGRATEL RELIABILITY FACTOR	FLATITY LIMIT
1	-1,0000E+03	.20000E+01	.10000E+01

1.0000E+01 1.0000E+01 PAGE 10

SIAUVIN - STAUVE ET AL. / 5 - CALIBRATION

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<i>Par. No.</i>	<i>Apparatus</i>	<i>(Obj.)</i>	<i>Parameter's</i>	<i>Value</i>	<i>Var.</i>
1	-1	.600000001	0.	0.	0.
		0.	0.	0.	0.
		0.	0.	0.	0.
		0.	0.	0.	0.

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NEALONE - STATION POINT CODE - FIRST LAST TWO Digits = CIRCULARITY

MODEL POINT DATA SUMMARY

NUCL	INITIAL CONDITIONS	T	FLUID CODE	LIMIT	FLUID	GRAVITY	L-TADS	ADDITIONAL MASS F.
1	0.	-1.0001*01 0.	1	1	0 0.	-1.004*01 0.	X	1.004*02
2	-1.0001*03 -1.0001*03 0.	0	.991	0	1 0.	-1.562*03 0.	Y	2.010*02
3	-1.3631*03 -2.7551*02 0.	3	0	0	1 0.	-1.1446*03 0.	Z	1.910*02
4	-1.5001*03 0.	1	1	1	0 0.	-5.7049*02 0.		1.900*01

1600001 1600001 PAGE 17

## STANV-- STANV TEST FORM - TEST CASE NO. 5 - CANTILEVER

10/17/41 100.540/1.040 1.1

## TESTINI SUMMARY DATA

INITIAL CONDITIONS DATA				INITIAL		INITIAL	
NC.	N1	N2	N3	NU.	CNTL	NU.	CNTL
1	1	2	1	0	1	4.0000E+03	1.0044E+03
2	2	3	1	0	1	6.1743E+02	2.2722E+02
3	3	4	1	0	1	1.7569E+03	5.5726E+02

.290926E+02

.280531E+02

STATION-- SPADIN FARM - TEST CASE E.I. 7 - CATHARY

ADDITIONAL ELEMENT DATA

ELEMENT	SLOPE,	TRANSIT TIME(APRDX)
1	-0.00001 +01	0.
2	-0.4781 +00	0.6153e-01
3	-0.2276e+00	0.2277e-01

HALF-MANDUUTH = 6

L000/H1 L000/H2 P.A.L. I.S.

2e ADVN-- SPADYN first value = 1151 LAST value = 1151, 0 = ALREADY

CLAC CAN T PARAMETER S

SUBANALYSIS, TPLT = DEAD

SOLUTION DATA REQUEST VNK  
OUTPUT DATA SELECTIONS VNK  
STEP NUMBER INTERVAL = 10  
PARAMETER INTERVAL = 0.  
DEBUG OUTPUT FLAG = 0

10/09/91 PAGE 1

STADYN-- STADYN FILE NAME - FIRST CASE NO. 3 - CALIFORNIA

SOLUTION UP TO N SUMMARY

ANALYSIS TYPE = DRAU  
STRUCTURE FIRM = VBN

NU. OF STATIC STEPS	=	1
OUTPUT INTERVAL	=	10
DRAW POINT CODE	=	9
START FILE FLAG	=	0
UPDATE OPTION	=	1
SIARE UP OPTION	=	0
NU. OF POINT LOADS	=	0
NU. OF FIELD NUMBER	=	0

VISCOSUS RELAXATION SOLUTION PARAMETERS

INTEGRATION PARAMETER	=	*1.0000E+01
INITIAL STEP SIZE	=	*1.0000E+01
INITIAL DAMPING	=	*1.0000E-02
ITERATION LIMIT	=	200

## SAVANNAH RIVER SITE - TEST CASE #10 - CALIBRATION

LOADS &amp; FORCES

LOADS &amp; FORCES

LOADS &amp; FORCES

LOAD LOAD INCREMENT = 0		LOAD FACTOR = 0.		LOAD FACTOR = 0.	
POINT	A	X	Y	Z	VZ
1	0.	-0.100000E+03	0.	0.	0.
2	-0.100442E+03	-0.100000E+03	0.	0.	0.
3	-0.116541E+03	-0.115500E+02	0.	0.	0.
4	-0.150000E+03	0.	0.	0.	0.

LOAD LOAD INCREMENT = 0		LOAD FACTOR = 100000.0		LOAD FACTOR = 100000.0	
POINT	A	X	Y	Z	VZ
1	0.	-0.100000E+03	0.	0.	0.
2	-0.100442E+03	-0.100000E+03	0.	0.	0.
3	-0.116542E+03	-0.115488E+02	0.	0.	0.
4	-0.150000E+03	0.	0.	0.	0.

LOAD LOAD INCREMENT = 0		LOAD FACTOR = 0.		LOAD FACTOR = 0.	
POINT	A	X	Y	Z	VZ
1	0.	-0.100000E+03	0.	0.	0.
2	-0.100442E+03	-0.100000E+03	0.	0.	0.
3	-0.116542E+03	-0.115500E+02	0.	0.	0.
4	-0.150000E+03	0.	0.	0.	0.

1

2

3

4

1

2

3

4

1

2

3

4

STABIN-- STABILITY TEST FOR A - TEST CASE NO. 7 - CANTILEVER

L L A U C A N I P A K A M E T T I N G S

SUBANALYSIS TYPE = DYN

```
SOLUTION DATA RESULT REF
TIME STEP DATA
  INITIAL TIME STEP = .10000E-01
  MAXIMUM TIME = .90000E+01
  BEGINNING TIME = 0.
  UPDATING TIME = .10000E-01
  ALPHA, BETA, GAMMA = 0.
  (111) NUOP COMPONENTS = 61

NUDT COMPONIMENT MOVEMENT DATA
NUDT TYPE VARY CODE AMPLITUDE TYPE VARY CODE AMPLITUDE
  6 0 0. 1 0. 60000E+01 0 0 0.

INPUT DATA SELECTIONS
  STEP NUMBER INTERVAL = 50
  PARAMETER INTERVAL = 0.
  DEBUC INPUT FLAG = 0.
```

10/10/69 16:34:21. 1A1

SOLUTN - STEADY STATE TIME - TIME LAST NO. 2 - CARRYAWAY

SOLUTION FORMATION SUMMARY

ANALYSIS TYPE = DYN  
SOLUTION FORM = DIN

DYN INIT. LOAD. COEF. = 0  
OUTPUT INTERVAL = .50  
DEBUG PRINT CODE = 0  
INSTANT FILE FLAG = 0  
UPDATE OPTION = 1  
START UP OPTION = 0  
NU. OF POINT LOADS = 0  
FLUID & GRID NUMBER = 0  
NUMBER OF MEDIUM POINTS = 1  
DIRECT ITERATION METHOD DYNAMIC PARAMETERS  
DIFLCT. CRITICL TOLERANCE = .10000E-01

MEDIUM COMPONENT FIXITIES ALTERED

ELEMENT	EA	UNIT MASS	LENGTH	TIME STEP
1	.10000E+07	.159020E+00	.100442E+01	*394.98E-01
2	.10000E+07	.159817E+00	.552254E+02	*225.28E-01
3	.10000E+07	.159900E+00	.591014E+02	*233.664E-01

TIME STEP DATA	INITIAL TIME STEP = .10000E-01	MAXIMUM TIME = .80000E+01	REGULAR TIME = 0.	UPDATE TIME = .10000E-01	ALPHA,BETA,GAMMA = 0.	DELTA TIME = .83333E-01	DELTA TIME = .50000E+00
----------------	--------------------------------	---------------------------	-------------------	--------------------------	-----------------------	-------------------------	-------------------------

STRUCTURE STABILITY TEST FOR - FIRST TEST RUN - Catenary

INPUT TIME INCREMENT = 0.000000000000000

INPUT TIME INTERVAL = 0.000000000000000

TIME = 0.0 DYNAMIC INCREMENT = 0

NODE	X	Y	VX	vy	VL	TR
1	0.	-1000000E+03	0.	0.	0.	0.
2	-1000000E+03	-1000000E+03	0.	0.	0.	0.
3	-1365624E+03	-575487E+02	0.	0.	0.	0.
4	-1500000E+03	0.	0.	0.	0.	0.

NUMBER OF ITERATIONS = 0

TIME = 100000E+00 DYNAMIC INCREMENT = 50

NODE	X	Y	VX	vy	VL	TR
1	0.	-1000000E+03	0.	0.	0.	0.
2	-1000000E+03	-976720E+02	0.	-1298885E+00	-313071E+01	0.
3	-1354341E+03	-543114E+02	0.	-212013E+01	-232393E+01	0.
4	-1500000E+03	0.	-1000000E+01	0.	-545775E+01	0.

NUMBER OF ITERATIONS = 0

TIME = 100000E+01 DYNAMIC INCREMENT = 100

NODE	X	Y	VX	vy	VL	TR
1	0.	-1000000E+03	0.	0.	0.	0.
2	-1000000E+03	-972764E+02	0.	-1386565E+00	-259486E+01	0.
3	-1354707E+03	-518494E+02	0.	-791738E+00	-416346E+01	0.
4	-1500000E+03	-519613E+01	0.	0.	-117003E+01	0.

NUMBER OF ITERATIONS = 0

TIME = 150000E+01 DYNAMIC INCREMENT = 150

NODE	X	Y	VX	vy	VL	TR
1	0.	-1000000E+03	0.	0.	0.	0.
2	-1000000E+03	-950792E+02	0.	-791236E+00	-116146E+00	0.
3	-1354239E+03	-508936E+02	0.	-718122E+00	-624974E+00	0.
4	-1500000E+03	-500000E+01	0.	0.	-126982E+01	0.

NUMBER OF ITERATIONS = 0

TIME = 150000E+01 DYNAMIC INCREMENT = 200

TIME = 150000E+01

TIME = 150000E+01

TIME = 150000E+01

TIME = 150000E+01

## STUDY-- STUDY POINT + JRM - FIRST CLASS NO. 3 - CANTILEVER

TIME = .20000E+01 DYNAMIC INCREMENT = 200

	NUID	X	Y	Z	UX	UY	UZ	VL	FL	FL1	FL2
1	0.	-1.00000E+01	0.	0.	0.	-46144E+00	0.	0.	1.	0.	
2	-1.00040E+01	-7.93016E+02	0.	0.	-425474E+00	-225961E+01	0.	0.	2.	0.	
3	-1.13370E+01	-2.12770E+02	0.	0.	-674355E+00	-225961E+01	0.	0.	3.	0.	
4	-1.15000E+01	-5.1465E+01	0.	0.	-311304E+01	0.	0.	0.	4.		

NUMBER OF ITERATIONS = 2

TIME = .25000E+01 DYNAMIC INCREMENT = 250

	NUID	X	Y	Z	UX	UY	UZ	VL	FL	FL1	FL2
1	0.	-1.00000E+01	0.	0.	-47242E+02	0.	0.	0.	1.	0.	
2	-9.99825E+02	-7.9242E+02	0.	0.	-428134E+00	-304366E+01	0.	0.	2.	0.	
3	-1.13127E+03	-2.3280E+02	0.	0.	-1.32575E+01	-203622E+01	0.	0.	3.	0.	
4	-1.15000E+03	-3.0000E+01	0.	0.	-542485E+01	0.	0.	0.	4.		

NUMBER OF ITERATIONS = 2

TIME = .30000E+01 DYNAMIC INCREMENT = 300

	NUID	X	Y	Z	UX	UY	UZ	VL	FL	FL1	FL2
1	0.	-1.00000E+01	0.	0.	-98785E+02	0.	0.	0.	1.	0.	
2	-9.91442E+02	-7.98785E+02	0.	0.	-117447E+01	-308866E+01	0.	0.	2.	0.	
3	-1.132362E+03	-2.64079E+02	0.	0.	-1.7181E+01	-256374E+01	0.	0.	3.	0.	
4	-1.150000E+03	-2.78454E-06	0.	0.	-628307E+01	0.	0.	0.	4.		

NUMBER OF ITERATIONS = 2

TIME = .35000E+01 DYNAMIC INCREMENT = 350

	NUID	X	Y	Z	UX	UY	UZ	VL	FL	FL1	FL2
1	0.	-1.00000E+01	0.	0.	0.	-127564E+01	-309762E+01	0.	1.	0.	
2	-9.85319E+02	-1.00327E+03	0.	0.	-129707E+01	-49126E+01	0.	0.	2.	0.	
3	-1.13157E+03	-5.9139E+02	0.	0.	0.	-54577E+01	0.	0.	3.	0.	
4	-1.150000E+03	-5.0000E+01	0.	0.	0.	0.	0.	0.	4.		

NUMBER OF ITERATIONS = 2

## STRUCTURE STABILITY TEST CASE - TEST LAST NO. 3 - CANTILEVER

TIME = 10.000000E+000

NUMBER OF ITRATIONS 2

TIME = .500000E+01 DYNAMIC INCREMENT = 500

NUMBER	X	Y	Z	VX	vy	VZ
1	0.	-1.000000E+001	0.	0.	0.	0.
2	-1.010000E+001	-1.010000E+003	0.	-1.010000E+001	-1.010000E+001	0.
3	-1.010000E+001	-6.117391E+002	0.	-1.010000E+001	-2.014107E+001	0.
4	-1.010000E+001	-3.150000E+001	0.	-1.010000E+001	-3.150000E+001	0.

NUMBER OF ITRATIONS 2

TIME = .500000E+01 DYNAMIC INCREMENT = 500

NUMBER	X	Y	Z	VX	vy	VZ
1	0.	-1.000000E+001	0.	0.	0.	0.
2	-1.010000E+001	-1.010000E+003	0.	-1.010000E+001	-1.010000E+001	0.
3	-1.010000E+001	-6.104561E+002	0.	-1.010000E+001	-7.63241E+000	0.
4	-1.010000E+001	-3.150000E+001	0.	-1.010000E+001	-3.28974E-001	0.

NUMBER OF ITRATIONS 4

TIME = .500000E+01 DYNAMIC INCREMENT = 500

NUMBER	X	Y	Z	VX	vy	VZ
1	0.	-1.000000E+001	0.	0.	0.	0.
2	-1.009294E+001	-1.009294E+003	0.	-1.009294E+001	-1.009294E+001	0.
3	-1.009294E+001	-6.126505E+002	0.	-1.009294E+001	-1.141131E+001	0.
4	-1.009294E+001	-3.196151E+001	0.	-1.009294E+001	-3.113604E+001	0.

NUMBER OF ITRATIONS 6

TIME = .500000E+01 DYNAMIC INCREMENT = 500

NUMBER	X	Y	Z	VX	vy	VZ
1	0.	-1.000000E+001	0.	0.	0.	0.
2	-1.000000E+001	-1.000000E+003	0.	-1.000000E+001	-1.000000E+001	0.
3	-1.000000E+001	-6.14472E+002	0.	-1.000000E+001	-4.6917E+001	0.
4	-1.000000E+001	-3.000000E+001	0.	-1.000000E+001	-5.42385E+001	0.

NUMBER OF ITRATIONS 8

NUMBER	X	Y	Z	VX	vy	VZ
1	0.	-1.000000E+001	0.	0.	0.	0.
2	-1.000000E+001	-1.000000E+003	0.	-1.000000E+001	-1.000000E+001	0.
3	-1.000000E+001	-6.14472E+002	0.	-1.000000E+001	-4.6917E+001	0.
4	-1.000000E+001	-3.000000E+001	0.	-1.000000E+001	-5.42385E+001	0.

NUMBER OF ITRATIONS 10

## STADIA-- STADIA FILE NAME = FIRST CASE NO. 5 - CANTILEVER

TIME = .60000E+01 DYNAMIC INCREMENT = 500

NUDE	X	Y	Z	Ux	Uy	Uz	Vx	Vy	Vz	Wx	Wy	Wz
1	0.	-1.00000E+03	0.	-1.00000E+03	-1.0137E+03	0.	0.	-1.29071E+01	-1.1852E+01	0.	-1.1852E+01	0.
2	-1.00000E+03	0.	-1.0137E+03	-1.0137E+03	-1.0137E+03	0.	-1.29071E+01	-1.1852E+01	0.	-1.1852E+01	0.	0.
3	-1.3230E+03	0.	-1.3336E+02	0.	-1.3336E+02	0.	-1.9051E+00	-1.7253E+01	0.	-1.7253E+01	0.	0.
4	-1.50000E+03	0.	-1.50000E+03	-1.50000E+03	-1.50000E+03	0.	-1.9051E+00	-1.7253E+01	0.	-1.7253E+01	0.	0.

NUMBER OF ITERATIONS = 4

TIME = .62000E+01 DYNAMIC INCREMENT = 500

NUDE	X	Y	Z	Ux	Uy	Uz	Vx	Vy	Vz	Wx	Wy	Wz
1	0.	-1.00557E+01	0.	-1.00000E+01	-9.9149E+02	0.	0.	-1.35061E+00	-6.1352E+01	0.	-6.1352E+01	0.
2	-1.00557E+01	0.	-9.9149E+02	0.	-9.9149E+02	0.	-1.35061E+00	-6.1352E+01	0.	-6.1352E+01	0.	0.
3	-1.3230E+01	0.	-1.3336E+02	0.	-1.3336E+02	0.	-1.9842E+01	-1.7873E+01	0.	-1.7873E+01	0.	0.
4	-1.50000E+01	0.	-1.50000E+01	-1.50000E+01	-1.50000E+01	0.	-1.9842E+01	-1.7873E+01	0.	-1.7873E+01	0.	0.

NUMBER OF ITERATIONS = 4

TIME = .70000E+01 DYNAMIC INCREMENT = 700

NUDE	X	Y	Z	Ux	Uy	Uz	Vx	Vy	Vz	Wx	Wy	Wz
1	0.	-1.00000E+01	0.	-1.00000E+01	-9.70732E+02	0.	0.	-1.1842E+01	-1.0121E+01	0.	-1.0121E+01	0.
2	-1.00000E+01	0.	-9.70732E+02	0.	-9.70732E+02	0.	-1.1842E+01	-1.0121E+01	0.	-1.0121E+01	0.	0.
3	-1.31872E+01	0.	-1.0296E+02	0.	-1.0296E+02	0.	-1.98393E+00	-2.7640E+01	0.	-2.7640E+01	0.	0.
4	-1.50000E+01	0.	-1.19615E+01	-1.19615E+01	-1.19615E+01	0.	-1.98393E+00	-2.7640E+01	0.	-2.7640E+01	0.	0.

NUMBER OF ITERATIONS = 4

TIME = .75000E+01 DYNAMIC INCREMENT = 700

NUDE	X	Y	Z	Ux	Uy	Uz	Vx	Vy	Vz	Wx	Wy	Wz
1	0.	-1.00000E+01	0.	-1.00000E+01	-9.6287E+02	0.	0.	-2.3022E+00	-3.6050E+00	0.	-3.6050E+00	0.
2	-1.00000E+01	0.	-9.6287E+02	0.	-9.6287E+02	0.	-2.3022E+00	-3.6050E+00	0.	-3.6050E+00	0.	0.
3	-1.31591E+01	0.	-5.00690E+02	0.	-5.00690E+02	0.	-9.32302E+00	-2.7024E+01	0.	-2.7024E+01	0.	0.
4	-1.50000E+01	0.	-6.00000E+01	-6.00000E+01	-6.00000E+01	0.	-9.32302E+00	-2.7024E+01	0.	-2.7024E+01	0.	0.

NUMBER OF ITERATIONS = 6

## NAME - SCAFFOLD, TINA - 151 CAN. ST., S - CALIFORNIA

10/10/61 10/14/61 10/14/61

Time	DYNAMIC INCIDENCE = 0.0			
	WIND	X	Y	Z
1	0.	-1000000.0	0.	0.
2	-1000000.0	0.	0.	0.
3	-1000000.0	0.	0.	0.
4	-1000000.0	0.	0.	0.
5	-1000000.0	0.	0.	0.
6	-1000000.0	0.	0.	0.

NUMBER OF ITERATIONS = 2

Time	DYNAMIC INCIDENCE = 0.1			
	WIND	X	Y	Z
1	0.	-1000000.0	0.	0.
2	-1000000.0	0.	0.	0.
3	-1000000.0	0.	0.	0.
4	-1000000.0	0.	0.	0.
5	-1000000.0	0.	0.	0.
6	-1000000.0	0.	0.	0.

NUMBER OF ITERATIONS = 2

10/11/61 10/13/61 10/13/61

