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PAFEC75 ON THE A.U.W.E. ICL 1904S\*. A USERS' GUIDE, (U)  
APR 78 W J BUTTERWORTH

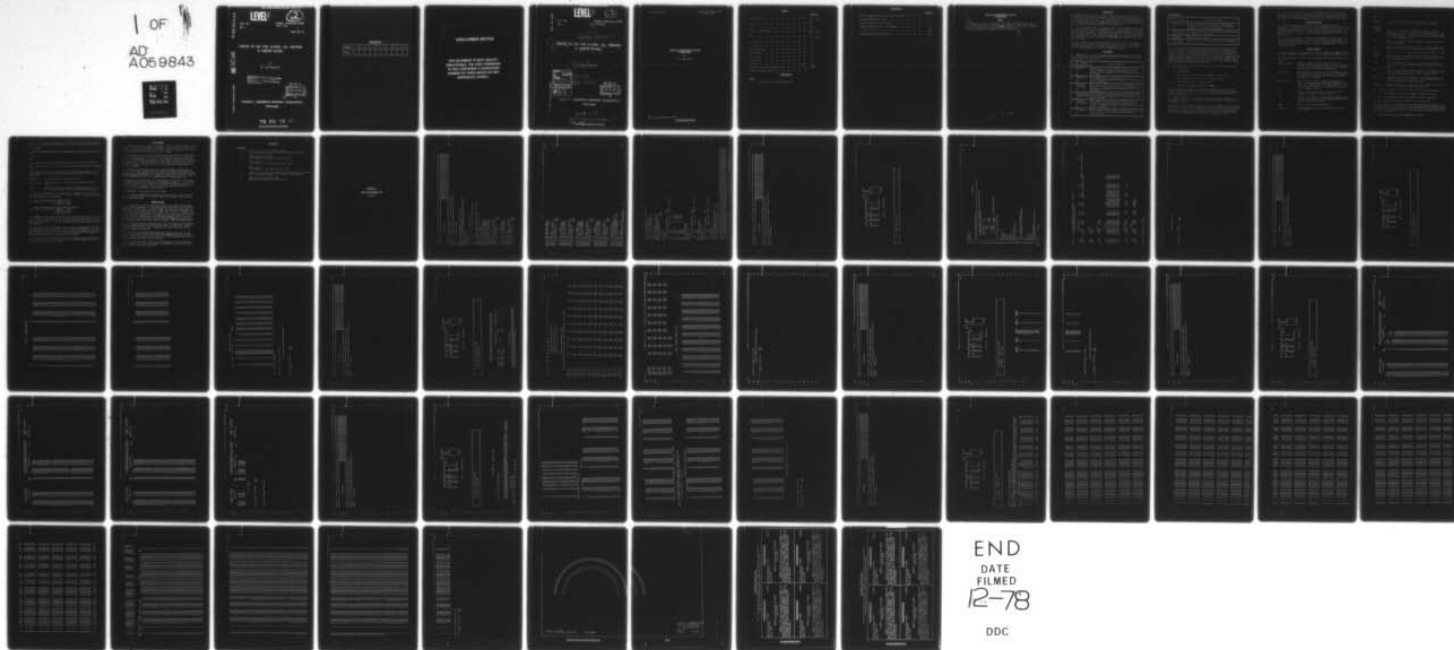
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**A USERS' GUIDE**

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10 W.J. BUTTERWORTH

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April, 1978

PAFEC75 ON THE A.U.W.E. ICL 1904S\*  
A USERS GUIDE

by

W. J. Butterworth

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- 1 Displaced Shape Plot from Example Run





PAFEC75 ON THE A.U.W.E. ICL 1904S\*  
A USERS GUIDE

PRÉCIS

1. PAFEC75 is the latest development in the PAFEC suite which carries out stress or thermal analysis on any structure by means of finite element methods. A guide to the method of use on the 1904S at A.U.W.E. is given. It is intended that later a dedicated minicomputer will become available.

— | —

### INTRODUCTION

2. PAFEC (Program for Automatic Finite Element Calculations) is a suite of programs which is capable of carrying out a large range of engineering calculations on engineering structures. Its development started at Nottingham University in the middle 1960's and it was first issued commercially in 1970 as PAFEC70. In late 1972 this was superseded by PAFEC70\* and extensions were issued, when available. It was implemented at A.U.W.E. in 1976. (Ref. 1).

3. In 1976 the PAFEC group at Nottingham formed a company (PAFEC Ltd) to exploit the system. They then produced PAFEC75 based on a revised layout for input data, designed largely by users in 1974, together with internal changes to the scheme. This version was implemented at A.U.W.E. during 1977 and was finally made available to general users of the 1904S\* in January 1978. It is intended that PAFEC75 will eventually be mounted on a dedicated PAFEC/GRAPHICS computer, hopefully at the end of 1978.

4. Whilst PAFEC75 is well documented (Refs. 2, 3 and 4) it is the variation implemented on the 1904S\* that is described as far as the user is concerned. The method of implementation is described elsewhere (Ref. 5). It is also assumed that the user is already able to use the computer. (Ref. 6).

### THE SYSTEM

5. PAFEC75 uses a series of 10 phases each loading a program. The data is in modular form and if some parts are omitted default values are used. The phases are described in the table below.

Phase	Short description	Detailed description
1	Read	Data modules are read in, default values are inserted and the modules are placed onto backing store. The NODES module is expanded so that all mid-side nodes are included.
2	PAFBLOCKS	Any PAFBLOCK data is replaced by the full nodal co-ordinate and topological description of the complete mesh of elements.
3	IN.DRAW structure	The structure itself is drawn. At this stage it is not possible to show any results such as displacements, stresses or temperatures since these have not yet been evaluated.
4	Pre-solution housekeeping	In this PHASE the constraints on the problem are considered and a numbering system for the degrees of freedom is derived.
5	IN.DRAW constraints	This PHASE is very similar to the PHASE 3 except of course the constraints which have been applied are shown. Conversely the degrees of freedom can be indicated on a drawing.
6	Elements	The stiffness (or other such as conductivity, mass etc.) matrices of all the elements are found and put onto backing store.

Table (Cont'd)

Phase	Short description	Detailed description
7	Solution	The system equations are solved for displacements, temperatures or whatever happens to be the primary unknowns in the problem being tackled.
8	OUT.DRAW displacements	The primary unknowns in the problem (i.e. displacements or temperatures) are drawn.
9	STRESS	The stresses are found.
10	OUT.DRAW stresses	Stress contour, stress vector plate etc. are produced.

6. In the system at A.U.W.E., programs have been compiled in advance and use made of a facility for increasing the core requirement of a program whilst running in order to enlarge an array BASE (which is used by most routines and whose size depends on the problem). Due to the limitation of 150K core size, imposed by the installation manager, the greatest possible size of BASE (at its maximum in phase 7) is 55000. It is hoped that the dedicated computer will have a paged environment thus allowing larger sizes of BASE. This system of pre-compiled programs reduces the time taken for each job. It does however assume that certain element combinations are excluded.

7. The elements are taken from a library (Refs. 3, 4) and are mainly broken up into 5 categories:

- a. Beam elements.
- b. Plane stress, plane strain and axisymmetric elements (2D).
- c. Plate bending and flat faced shell elements (SHELL).
- d. Three dimensional solid elements (3D).
- e. Temperature or Laplacian elements (THERMAL).

The only combination assumed is between beam and shell elements which have a combined program. Any other combination will require a program to be specially written together with a macro to run it. This can be done by JCA1 staff at A.U.W.E. if required.

8. PAFBLOCKS (Phase 2) is a system whereby a mesh of finite elements can be created by specifying the topology of a block and the layout of the mesh in the block (Refs. 3, 4).

9. Using the series of phases enables the job to be stopped at certain stages. These usually coincide with a plotting phase so that the drawing can be inspected for any curious element distortions etc. It is also possible to run phases 6 and 7 on their own as they are those which involve the most computer time and core size in their execution and this enables the longer jobs to run.

10. At the time of writing this guide it is EASIDATA only (Ref. 3) which is implemented. This should be sufficient for most users but it is hoped that the full DATA system (Ref. 4) will be implemented later. Whether this will be on the 1904S\* or the dedicated computer will depend on the time scale and demand.

#### PREPARATION OF DATA

11. The written programs preclude the USE. and READ.FROM. facilities (Refs. 3, 4). The USE. facility would require a specially written program. The READ.FROM. facility is catered for in one of the parameters to the macro to run the system. Also the control of the phasing is done by parameters to the running macro and not by means of PHASE and SAVE commands in the CONTROL module (Refs. 3, 4).

12. Apart from these limitations the data is prepared in the same format as shown in the manuals (Refs. 3, 4). There are two points to make however. It is preferable that the CONTROL module is the first in the data and the FAST. READ facility does not give such a benefit in speed of reading and will not allow continuation lines.

#### RUNNING PAFEC75

13. Three macros are used in the system. These are RUN75 and CLEAR75 which are only used for PAFEC75 and PLOTMAC which is used in common with PAFEC70+ (Ref. 1).

14. RUN75, as might be expected, runs the system and has the following parameters:

DATA <filename>: Where <filename> is the data file. Note that the absolute name is required if the file is not in <account> specified by DY below. This parameter is only required for Phase 1 and is ignored in other phases.

OUT <ident> : Where <ident> is a string of up to 8 characters on which the output file names are to be based. If this parameter is absent the job identifier (or the first 8 characters if more than 8) is used.

DY <account> : Where account is that in which the files are to be created. The account must exist and be available to the user. This parameter is not needed when running in the main account. It facilitates the erasure of files later (but see CLEAR75 below).

STn : Where n is the phase at which the job is to start. If omitted the job tries to start at Phase 1.

PLn : Where n is the number of the plot phase required. Such a parameter is required for each plot phase required unless STn above denotes a plot phase.

ENDn : Where n is the last phase required.

BLOCK : When PAFBLOCKS (Phase 2) are being used. Not needed if ST2 is used.

2D     )  
 3D     )  
 BSH    )  
 THERMAL):

One of these is required to indicate which type of element is being used in Phases 6 and 9. If omitted 2D is assumed.

DYNAMIC)  
 STATIC )  
 THERMAL):

One of these is required to indicate the type of solution (Phase 7). Of course for thermal work the parameter is the same as for Phases 6 and 9 so only one is required! If omitted STATIC is assumed. They can all be contracted to the first three characters. (i.e. DYN, STA, THE).

JTn     :     Where n is the total job time required. By default 10 minutes (the system default).

TIn     :     Where n is the program time required for each phase. By default 300 seconds (5 mins). This time is carried into PLOTMAC if used.

BASEn   :     Where n is the size of base required. By default 5000 is assumed.

CLEAR   :     This sets up a call to CLEAR75 (para. 17) which clears out the files created, except for those output for graph plotting. This can be shortened to CL.

SAVE     :     Saves the magnetic tape file(s) carrying information between Phases 6 and 7 which are normally erased. (Para. 24). SV can be used.

LIST     :     Causes the large number of output files to be listed on the line printer. Normally only those for Phases 7 and 9 (results) or the current file at any failure are listed. LI can be used.

NEJ     :     Suppresses the issuing of ENDJOB in a successful background job. Ignored in the event of any error. (It is assumed that the rest of the job depends on a successful run!!).

RETAIN   :     Retains the monitor file in the event of an ENDJOB issued by the macro. (See para. 26). RET or RT can be used.

15. There are only two restrictions in the order of the above parameters:

- a. The DY parameter should precede DYNAMIC (or DYN) (if present).
- b. The ST parameter should precede STATIC (or STA) (if present).

Apart from these restrictions the parameters can be in any order.

16. The formidable list of parameters should not frighten users! They are not all necessary at once. In fact for a static, 2D analysis run in the main account with BASE less than 5000, job time less than ten minutes (and presumably proptime less than five minutes), no plotting, no pafblocks and no retained monitor file the command needs to be:

RJ <ident>, :<account>, RUN75, PARAM(DATA<filename>)

7.  
However if more than 5 or 6 parameters are needed it is preferable, when adding a job to the operators' background queue, to set up the call in a small file i.e.

IN FILENAME

RUN75 DATA PAFDAT,OUT PAFANS,BLOCK,PL3,END3,BASE 10000,RT,JT 900,DY< account>

\*\*\*\*

Then

RJ <ident>, <account>, FILENAME (where <account> here is the main account)

This facilitates the task of the operators when issuing jobs from their background queue.

17. CLEAR75 is responsible for dealing with the debris left by RUN75. It is able to cope with the remains of more than one job and requires the following parameters:

/<ident> : The identifier used in creating the files.

DY<account>: Causes the erasure to take place in the appropriate pseudo account.

PLOT : Causes the erasure of associated redundant plot files. These are not usually erased, in case of plotter/computer failure.

18. The first two parameters can be repeated as necessary. If all the files are in one pseudo account only one DY is needed. Otherwise one is needed paired with each /parameter. For example.

CLEAR75 /UBFSB01,DY:XYZA,DY:XYZB,/UBFSB02  
would clear all files based on UBFSB01 in :XYZA  
and UBFSB02 in :XYZB

CLEAR75 /UBFSB01,DY:XYZA,DY:XYZB,/UBFSB02,/UBFSB03  
would clear all files based on UBFSB01 in :XYZA  
UBFSB02 in :XYZB  
and UBFSB03 in :XYZB

19. PLOTMAC is called from inside RUN75 but can also be called by the user. Its use is described elsewhere (Ref. 1). There is one modification that has now been made, no real mag tapes are used and a series of pseudo mag tape files is set up. This has no direct effect on the user but makes the life of the computer staff a lot easier!!

20. One modification made at A.U.W.E. is to check on the maximum size of BASE used (as opposed to that asked for!). This is noted at the end of the output for each phase and listed to the monitor file (see para. 29 and Appendix A pp1 and 9) and also affords a check on the size of BASE obtained (which is not always the same as that asked for due to limitations on core size).

21. In the event of any program failure the macro RUN75 is ended (a background job is terminated even if NEJ is present) and the current output file (if one exists) is listed on the line printer.

## FILES CREATED

22. TR<ident> is the line printer output file. It has a generation number corresponding to the phase and a language code ANSA. If the first file for any phase becomes full (either due to the limit of 8192 transfers or physical size) a second file is assigned with code ANSB - and so on up to ANSZ.

23. B<ident>S is the disc file containing backing store information (referred to as BS in literature). It is 240 kwords long. After each phase is run B<ident>S is copied into H<ident>S. In the event of a successful run H<ident>S is erased but in the event of failure (usually due to BASE being too small or the time being insufficient) it is left in the filestore to be copied back by the macro before the phase is rerun. This has been found to be necessary as a restart may find B<ident>S changed!!

24. M<ident>T is a pseudo mag tape file to carry information between phases 6 and 7. If this file is nearly filled, a second is assigned from inside the program and so on. The language code of the first file is FIRS, subsequent codes are AAMT-AZMT-BAMT-BZMT-CAMT and so on to ZZMT thus catering for 677 files. Usually erased after Phase 7 is run but see SAVE parameter for RUN75 (para. 14).

25. Z<ident>Qn is the card image file output by each plot phase to be presented to PLOTMAC where n denotes the phase i.e. Z<ident>Q3 for Phase 3. It is the file from Phase 10 which sets the limit of 8 characters on <ident> (from the limit of 12 characters for a filename). These files can have more than one generation number due to the card image file being filled.

26. M<ident>N is the retained monitor file name.

27. It should be remembered that <ident> is normally the job identifier unless OUT is being used and the files are all created in the pseudo account (if any) in which the job is run.

## EXAMPLE OF RUN

28. The monitor file of the run and the listings of the output from the phases are to be found in Appendix A. The monitor file (pp A1-A3) shows the contents of :AAHC before the run (p A1), the effect of NEJ, the contents of :AAHC after the run (p A3) noting that the job is now in :AAHC. Then the effect of CLEAR75 can be seen when the LD command shows that the only files left are the data file and plotter output file. A further use of CLEAR75 with the PLOT parameter clears the plot file as well. RUN75 without any ST and DATA parameters gives rise to the DISPLAY and the job is terminated. Another RUN75 with DATAORB was included in the macro which would have given rise to the DISPLAY DATA FILE DOES NOT EXIST.

29. It can also be seen from the monitor file that the maximum size of BASE used was 2990 in Phase 9 (p A3) followed by 2022 in Phase 8 (p A2), 1851 in Phase 6 (p A2) and 1759 in Phase 7 (p A2). From page A1 it can be seen that the size required in Phase 1 is only 131.

30. The plot of the displaced shape from Phase 8 can be seen in Fig. 1. From the output from Phase 8 (p A31) the SCALE OF DISPLACEMENTS should be 0.994E-5 per cm. There is also some sorting of the layout of the labelling in the bottom right hand corner which will have to be done.

31. It should be noted that without the LI parameter the only listings (apart from the monitor file) would be from Phase 7 (pp A22-A27) and Phase 9 (pp A33 - A43) a total of 17 pages instead of 40.

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- 2 PAFEC75 Theory and Results.  
R. D. Henshell (ed.), PAFEC Ltd., December 1975.
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- 5 PAFEC75 on the A.U.W.E. ICL 1904S\* - Implementation and its problems.  
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- 6 AUWE Computer Service User Guide.  
AUWE Publication 31904 3rd ed June 1976 (U).



APPENDIX A

OUTPUT FROM EXAMPLE RUN

(A1-A43)



08.30.38 0.27 CORE GIVEN 3219C  
 08.30.54 FREE \*DAZ \*31 TRANSFERS  
 08.30.57 FREE \*LPU \*198 TRANSFERS  
 DISPLAY : 11  
 0.32 :DELETED : 00  
 08.30.57 FREE \*DAU \*0 TRANSFERS  
 08.30.57 0.32 DELETED/CLOCKED 0.04  
 DISPLAY: END OF PHASE 4  
 \*\*\*\* MAX SIZE OF BASE USED 1066  
 SET TO 5000

DISPLAY: \*\*\*\* PHASE 6  
 08.31.48 0.36 CORE GIVEN 3603C  
 08.35.44 FREE \*MTU \*157 TRANSFERS  
 08.35.44 FREE \*DAZ \*15 TRANSFERS  
 08.35.44 FREE \*LPU \*89 TRANSFERS  
 DISPLAY : 11  
 1.40 :DELETED : 00  
 08.35.44 FREE \*DAU \*1220 TRANSFERS  
 08.35.44 1.40 DELETED/CLOCKED 1.01  
 DISPLAY: END OF PHASE 6  
 \*\*\*\* MAX SIZE OF BASE USED 1851  
 SET TO 5000

DISPLAY: \*\*\*\* PHASE 7  
 08.36.40 1.44 CORE GIVEN 51504  
 08.36.14 FREE \*MTU \*154 TRANSFERS  
 08.36.15 FREE \*DX1 \*51 TRANSFERS  
 08.36.15 FREE \*DAZ \*15 TRANSFERS  
 08.36.16 FREE \*LPU \*255 TRANSFERS  
 DISPLAY : 11  
 2.17 :DELETED : 00  
 08.36.16 FREE \*DAU \*44 TRANSFERS  
 08.36.16 2.17 DELETED/CLOCKED 0.32  
 DISPLAY: END OF PHASE 7  
 \*\*\*\* MAX SIZE OF BASE USED 1759  
 SET TO 5000

DISPLAY: \*\*\*\* PHASE 8  
 08.39.13 2.22 CORE GIVEN 41408  
 08.40.09 FREE \*CPS \*2155 TRANSFERS  
 08.40.10 FREE \*DAZ \*15 TRANSFERS  
 08.40.10 FREE \*LPU \*429 TRANSFERS  
 DISPLAY : 11  
 2.55 :DELETED : 00  
 08.40.11 FREE \*DAU \*0 TRANSFERS  
 08.40.11 2.55 DELETED/CLOCKED 0.11  
 DISPLAY: END OF PHASE 8  
 \*\*\*\* MAX SIZE OF BASE USED 2022  
 SET TO 5000

08.40.21 2.37 USED URGENCY G  
 08.40.25 2.37 CORE GIVEN /040  
 DISPLAY : OFFLINE PLOT FILE OPENED 08.40  
 08.42.40 FREE \*MT2 \*121 TRANSFERS  
 2.55 :HALTED : END OF OFFLINING TAPE CLOSED  
 08.42.42 FREE \*CRU \*2154 TRANSFERS  
 DISPLAY : 11  
 2.55 :DELETED : 00  
 08.42.45 2.55 DELETED/CLOCKED 0.16  
 DISPLAY: ISSUING BACKGROUND PLOT JOB UJCM870AS  
 \*\*\*\* MAX SIZE OF BASE USED 2022  
 SET TO 5000







TEST JOB Z4

1 CONTROL  
2 AXISYMMETRIC  
3 CONTROL.END  
4 C  
5 C  
6 C

7 TITLE CHECK ON PAERLOCKS FOR SPHERE

8 C 2D - 36210 ELEMENTS IN AXISYMMETRIC REPRESENTATION OF SPHERE  
9 C PRESSURE APPLIED TO OUTER SURFACE

DISPLACEMENTS ARE :	UX	UY
13 C NODE	1	1.9828
14 C	2	1.8932
15 C	3	-1.9801
16 C	4	-1.8876
17 C	5	-1.9828
18 C	6	-1.8932
19 C	7	1.8917
20 C	64	-1.8917
21 C		-0.0984
22 C		-0.0984

23 C )SYMMETRICAL ABOUT X=0

24 C DIVISION FACTOR FOR ABOVE 0.1E6

25 C

26 NODES

27 NODE NUMBER,X,Y
28 1,-0.95,0
29 2,-1.00,0
30 3,0,0.95
31 4,0,1.00
32 5,0,0.95,0
33 6,1.00,0
34 PAFBLOCKS
35 PROP=4

36 ELEMENT,N1,N2,IUPOL

37 36210,2,1,2,6,1,5,4,0,0,3

38 PESH

39 1,1

40 C

41 C THE FOLLOWING CAN BE CHANGED TO SET

42 C IF MORE ELEMENTS ROUND THE CIRCUMFERENCE

43 2,50

44 C

45 PLAT

46 4,4

47 RESTRAINTS

48 1,2,1,2

49 4,1,1,1

50 PRESSURE

51 1,202.05E3,0,04,1,2,4

52 C 1MU ATMOSPHERES ON OUTSIDE SURFACE 77

53 END.OF.DATA

END OF DATA 0 ERRORS

ALL INPUT DATA MODULES FOLLOW AS STORED ON BACKING STORE AT THE END OF PHASE 1.

PAPERLUCKS		N1 N2 N3 N4 N5							
BLUC	TYPE	GRUU	ELEM	PHUP	N1	N2	N3	N4	N5
1.0000	1.0000	1.0000	36210.	4.0000	2.0000	1.0000	0.00000E 00	0.00000E 00	0.00000E 00
2.0000	6.0000	1.0000	5.0000	4.0000	0.00000E 00	0.00000E 00	3.0000		

MESH

REFE	SPAC
1.0000	1.0000
2.0000	50.000

PLATES

PLAT	MATE	THIC
4.0000	4.0000	1.0000

MATERIAL

E	MU	ALPH	K	SH
1.0000	0.2000E 12	0.5000E-04	0.5000E-02	452.00
2.0000	0.19500E 12	0.12000E-04	0.5000E-02	440.00
3.0000	0.12500E 12	0.12000E-04	0.5000E-02	586.00
4.0000	0.68500E 11	0.24500E-04	0.1000E-01	900.00
5.0000	0.70000E 11	0.22000E-04	0.1000E-01	879.00
6.0000	0.75000E 11	0.20000E-04	0.1000E-01	856.00
7.0000	0.11000E 12	0.85000E-05	0.5000E-02	582.00
8.0000	0.61000E 11	0.72000E-05	0.2000E-01	795.00
9.0000	0.34500E 10	0.60000E-04	0.5000E-01	800.00
10.0000	0.30000E 11	0.10000E-04	0.5000E-01	653.00

LOAD

LOAD	PRES	SIAP	FINI	STEP	LIST
1.0000	0.20205E 06	6.0000	6.0000	1.0000	4.0000

RESTRAINTS

CODE	PLAN	AXIS	DIME	VALU
1.0000	2.0000	1.0000	2.0000	0.00000E 00
4.0000	1.0000	1.0000	1.0000	0.00000E 00



AB

\*\* END OF PHASE 1 \*\*

\*\*\*\* MAX SIZE OF BASE USED 131  
SET TO 5000

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60

10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62





MODULE 1 GLOBAL COORDINATES

NODE	X	Y	Z	NODE	X	Y	Z
1	-0.9500	0.0000	0.0000	51	0.7432	0.6691	0.0000
2	-1.0000	0.0000	0.0000	52	0.7772	0.6293	0.0000
3	0.0000	0.9500	0.0000	53	0.8091	0.5878	0.0000
4	0.0000	1.0000	0.0000	54	0.8387	0.5446	0.0000
5	0.9500	0.0000	0.0000	55	0.8660	0.5000	0.0000
6	1.0000	0.0000	0.0000	56	0.8910	0.4540	0.0000
7	-0.9985	0.0224	0.0000	57	0.9135	0.4067	0.0000
8	-0.9944	0.1046	0.0000	58	0.9335	0.3584	0.0000
9	-0.9675	0.1565	0.0000	59	0.9509	0.3090	0.0000
10	-0.9180	0.2079	0.0000	60	0.9658	0.2588	0.0000
11	-0.9628	0.2588	0.0000	61	0.9780	0.2079	0.0000
12	-0.9509	0.3090	0.0000	62	0.9875	0.1565	0.0000
13	-0.9335	0.3584	0.0000	63	0.9944	0.1046	0.0000
14	-0.9135	0.4067	0.0000	64	0.9985	0.0524	0.0000
15	-0.8910	0.4540	0.0000	65	-0.9750	-0.0000	0.0000
16	-0.8660	0.5000	0.0000	66	-0.9495	0.1019	0.0000
17	-0.8387	0.5446	0.0000	67	-0.9272	0.2027	0.0000
18	-0.8091	0.5878	0.0000	68	-0.9006	0.3015	0.0000
19	-0.7772	0.6293	0.0000	69	-0.8688	0.3966	0.0000
20	-0.7432	0.6691	0.0000	70	-0.8324	0.4875	0.0000
21	-0.7072	0.7071	0.0000	71	-0.7888	0.5731	0.0000
22	-0.6692	0.7431	0.0000	72	-0.7286	0.6524	0.0000
23	-0.6294	0.7771	0.0000	73	-0.6524	0.7246	0.0000
24	-0.5878	0.8090	0.0000	74	-0.5731	0.7888	0.0000
25	-0.5446	0.8387	0.0000	75	-0.4875	0.8444	0.0000
26	-0.5000	0.8660	0.0000	76	-0.3966	0.8907	0.0000
27	-0.4540	0.8910	0.0000	77	-0.3015	0.9273	0.0000
28	-0.4067	0.9155	0.0000	78	-0.2027	0.9557	0.0000
29	-0.3585	0.9356	0.0000	79	-0.1019	0.9797	0.0000
30	-0.3090	0.9511	0.0000	80	0.0000	0.9750	0.0000
31	-0.2588	0.9659	0.0000	81	0.1019	0.9697	0.0000
32	-0.2079	0.9781	0.0000	82	0.2027	0.9557	0.0000
33	-0.1564	0.9877	0.0000	83	0.3015	0.9273	0.0000
34	-0.1045	0.9945	0.0000	84	0.3966	0.8907	0.0000
35	-0.0223	0.9986	0.0000	85	0.4875	0.8444	0.0000
36	0.0223	0.9986	0.0000	86	0.5731	0.7888	0.0000
37	0.1045	0.9945	0.0000	87	0.6524	0.7246	0.0000
38	0.1564	0.9877	0.0000	88	0.7246	0.6524	0.0000
39	0.2079	0.9781	0.0000	89	0.7888	0.5731	0.0000
40	0.2588	0.9659	0.0000	90	0.8444	0.4875	0.0000
41	0.3090	0.9511	0.0000	91	0.8906	0.3966	0.0000
42	0.3585	0.9356	0.0000	92	0.9272	0.3015	0.0000
43	0.4067	0.9155	0.0000	93	0.9535	0.2027	0.0000
44	0.4540	0.8910	0.0000	94	0.9695	0.1019	0.0000
45	0.5000	0.8660	0.0000	95	-0.9750	-0.0000	0.0000
46	0.5446	0.8387	0.0000	96	-0.9486	0.0000	0.0000
47	0.5878	0.8090	0.0000	97	-0.9155	0.0000	0.0000
48	0.6294	0.7771	0.0000	98	-0.8781	0.1486	0.0000
49	0.6692	0.7431	0.0000	99	-0.8291	0.1975	0.0000
50	0.7072	0.7071	0.0000	100	-0.7675	0.2459	0.0000

NUDE	X	Y	Z	NUDE	X	Y	Z
101	-0.9054	0.2936	0.0000	128	0.1975	0.9292	0.0000
102	-0.8068	0.5405	0.0000	129	0.2459	0.9176	0.0000
103	-0.8676	0.5064	0.0000	130	0.2935	0.9055	0.0000
104	-0.8464	0.4513	0.0000	131	0.3404	0.8969	0.0000
105	-0.8227	0.4750	0.0000	132	0.3864	0.8879	0.0000
106	-0.7968	0.5174	0.0000	133	0.4313	0.8865	0.0000
107	-0.7666	0.5584	0.0000	134	0.4750	0.8927	0.0000
108	-0.7363	0.5978	0.0000	135	0.5174	0.9067	0.0000
109	-0.7060	0.6357	0.0000	136	0.5584	0.9266	0.0000
110	-0.6716	0.6717	0.0000	137	0.5979	0.9505	0.0000
111	-0.6357	0.7060	0.0000	138	0.6357	0.9760	0.0000
112	-0.5979	0.7363	0.0000	139	0.6717	0.9971	0.0000
113	-0.5584	0.7666	0.0000	140	0.7060	0.9957	0.0000
114	-0.5174	0.7967	0.0000	141	0.7363	0.9978	0.0000
115	-0.4750	0.8227	0.0000	142	0.7666	0.9984	0.0000
116	-0.4313	0.8465	0.0000	143	0.7968	0.9974	0.0000
117	-0.3864	0.8679	0.0000	144	0.8227	0.9950	0.0000
118	-0.3404	0.8869	0.0000	145	0.8464	0.9915	0.0000
119	-0.2935	0.9035	0.0000	146	0.8678	0.9868	0.0000
120	-0.2459	0.9176	0.0000	147	0.8868	0.9805	0.0000
121	-0.1975	0.9292	0.0000	148	0.9034	0.9726	0.0000
122	-0.1466	0.9383	0.0000	149	0.9175	0.9639	0.0000
123	-0.0995	0.9448	0.0000	150	0.9291	0.9545	0.0000
124	-0.0497	0.9487	0.0000	151	0.9381	0.9486	0.0000
125	0.0000	0.9487	0.0000	152	0.9446	0.9493	0.0000
126	0.0497	0.9448	0.0000	153	0.9486	0.9497	0.0000
127	0.0995	0.9383	0.0000				

MODULE NUMBLK 17 -ELEMENTS

TPOLOGY

NUMBER GROUP TYPE PROP INE

NUMBER	GROUP	TYPE	PROP	INE	2.	8.	1.	97.	7.	65.	66.	96.
1.	1.	56210.	4.	8.	8.	8.	1.	97.	7.	65.	66.	96.
2.	1.	56210.	4.	8.	8.	10.	97.	97.	9.	66.	67.	96.
3.	1.	56210.	4.	8.	10.	12.	97.	97.	11.	67.	68.	96.
4.	1.	56210.	4.	8.	14.	14.	101.	101.	13.	68.	69.	104.
5.	1.	56210.	4.	8.	14.	16.	103.	103.	15.	69.	70.	104.
6.	1.	56210.	4.	8.	18.	18.	105.	105.	17.	70.	71.	108.
7.	1.	56210.	4.	8.	18.	20.	107.	107.	19.	71.	72.	108.
8.	1.	56210.	4.	8.	20.	22.	109.	111.	21.	72.	73.	110.
9.	1.	56210.	4.	8.	24.	24.	111.	112.	23.	73.	74.	112.
10.	1.	56210.	4.	8.	24.	26.	113.	113.	25.	74.	75.	114.
11.	1.	56210.	4.	8.	26.	28.	115.	117.	27.	75.	76.	116.
12.	1.	56210.	4.	8.	26.	30.	117.	119.	29.	76.	77.	118.
13.	1.	56210.	4.	8.	30.	32.	119.	121.	31.	77.	78.	120.
14.	1.	56210.	4.	8.	34.	34.	121.	123.	33.	78.	79.	122.
15.	1.	56210.	4.	8.	34.	34.	123.	125.	35.	79.	80.	124.
16.	1.	56210.	4.	8.	4.	4.	3.	126.	36.	80.	81.	125.
17.	1.	56210.	4.	8.	37.	39.	126.	128.	38.	81.	82.	127.
18.	1.	56210.	4.	8.	39.	41.	128.	130.	40.	82.	83.	129.
19.	1.	56210.	4.	8.	41.	43.	130.	132.	42.	83.	84.	131.
20.	1.	56210.	4.	8.	43.	45.	132.	134.	44.	84.	85.	133.
21.	1.	56210.	4.	8.	45.	47.	134.	136.	46.	85.	86.	135.
22.	1.	56210.	4.	8.	47.	49.	136.	138.	48.	86.	87.	137.
23.	1.	56210.	4.	8.	49.	51.	138.	140.	50.	87.	88.	139.
24.	1.	56210.	4.	8.	51.	53.	140.	142.	52.	88.	89.	141.
25.	1.	56210.	4.	8.	53.	55.	142.	144.	54.	89.	90.	143.
26.	1.	56210.	4.	8.	55.	57.	144.	146.	56.	90.	91.	145.
27.	1.	56210.	4.	8.	57.	59.	146.	148.	58.	91.	92.	147.
28.	1.	56210.	4.	8.	59.	61.	148.	150.	60.	92.	93.	149.
29.	1.	56210.	4.	8.	61.	63.	150.	152.	62.	93.	94.	151.
30.	1.	56210.	4.	8.	63.	6.	152.	5.	64.	94.	95.	153.

END OF PAFBLUCKS GENERATION

NO ERRORS OR WARNINGS IN THIS PHASE

END OF PHASE 2 (PAFBLUCKS DATA GENERATION)

\*\*\* MAX SIZE OF BASE USED 1532  
SET TO 5000



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PPPPPP AAAAAA FFFFFF EEEEE LCCCLC / / 55555
P A A FF E C CC / / 55
P A A FF E C CC / / 55
P A A FF E C CC / / 55
PPPPPP AAAAAA FFFF EEEE C / / 55555
PP AA A F EE C / / 5
PP AA A F EE C / / 5
PP AA A F EE C / / 5
PP AA A F EE C / / 5
PP AA A F EE LCCCLC / / 5
PP AA A F EEEEEE LCCCLC / / 55555

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LEVEL 1.3 - OCTOBER 1977

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*****
* TITLE CHECK ON PAFBUCKS FOR SPHERE *
* PHASE NUMBER 4 STABIS HERE *
*****

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PROGRAM TO GENERATE EXTRA DATA FOR GAUSSIAN REDUCTION SOLUTION

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*****RESTRAINTS***
6 POINTS FOUND ON PLANE.
  NODES 1. 2. 5. 6. 65.
  NODES 95.
3 POINTS FOUND ON PLANE.
  NODES 3. 4. 60.

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\*\*\*FRONT SIZE\*\*\*

THE FOLLOWING LIST ROW BY ROW GIVES THE INSTANTANEOUS FRONT SIZE AS EACH ELEMENT IS MERGED. THE DIMENSION OF THE STIFFNESS MATRIX IS THE MAXIMUM VALUE (PLUS THE NUMBER OF AUTOMATIC MASTERS IN A DYNAMIC ANALYSIS)





MODE NUMBER	111	112	113	114	115	116	117	118	119	120
D.O.F. NO.	412	214	416	218	220	222	224	226	228	230
D.O.F. NO.	413	215	417	219	221	223	225	227	229	231
MODE NUMBER	121	122	123	124	125	126	127	128	129	130
D.O.F. NO.	432	234	436	238	240	242	244	246	248	250
D.O.F. NO.	433	235	437	239	241	243	245	247	249	251
MODE NUMBER	131	132	133	134	135	136	137	138	139	140
D.O.F. NO.	452	254	456	258	260	262	264	266	268	270
D.O.F. NO.	453	255	457	259	261	263	265	267	269	271
MODE NUMBER	141	142	143	144	145	146	147	148	149	150
D.O.F. NO.	472	274	476	278	280	282	284	286	288	290
D.O.F. NO.	473	275	477	279	281	283	285	287	289	291
MODE NUMBER	151	152	153							
D.O.F. NO.	492	294	496							
D.O.F. NO.	493	295	497							

DEGREE OF FREEDOM ADDRESSES AND TAGS

	1	2	3	4	5	6	7	8	9	10
1	4.001	1.001	5.002	2.002	4.001	1.001	7.001	8.001	2.002	3.002
11	9.001	12.001	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001
21	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001	1.002	4.002
31	9.001	10.001	2.002	3.002	9.001	10.001	1.002	4.002	9.001	10.001
41	2.002	3.002	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002
51	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001
61	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001	1.002	4.002
71	9.001	10.001	2.002	3.002	9.001	10.001	1.002	4.002	9.001	10.001
81	2.002	3.002	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002
91	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001	1.002	4.002
101	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001
111	2.002	3.002	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002
121	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001
131	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001	1.002	4.002
141	9.001	10.001	2.002	3.002	9.001	10.001	1.002	4.002	9.001	10.001
151	2.002	3.002	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002
161	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001	1.002	4.002
171	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001
181	2.002	3.002	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002
191	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001	1.002	4.002
201	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001
211	2.002	3.002	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002
221	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001	1.002	4.002
231	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001
241	2.002	3.002	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002
251	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001	1.002	4.002
261	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001
271	2.002	3.002	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002
281	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001	1.002	4.002
291	9.001	10.001	1.002	4.002	9.001	10.001	2.002	3.002	9.001	10.001

A18

NO ERRORS OR WARNINGS IN THIS PHASE

\*\*\*FREEDOM GENERATION FOR SOLUTION COMPLETED\*\*\*

\*\*\*\* MAX SIZE OF BASE USED 1066  
SET 10 5000

7 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62

7 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62



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PPPPPP AAAAAA FFFFFF EEEEE CCCCC // // // 555555
P P A A FF E C CC // // // 55
P P A A FF E C CC // // // 55
P P A A FF E C CC // // // 55
PPPPPP AAAAAA FFFF EEEE C // // // 555555
PP AA A F EE C // // // 5
PP AA A F EE C // // // 5
PP AA A F EE C // // // 5
PP AA A F EE C // // // 5
PP AA A F EE C // // // 5
PP AA A F EEEEE CCCCC // // // 5
PP AA A F // // // 5
// // // 555555

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LEVEL 1.5 - OCTOBER 1977

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.....
* TITLE CHECK ON PAFBLUCKS FOR SPHERE
*
* PHASE NUMBER 6 STAKIS HERE
*
.....

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ELEMENT NUMBER	GROUP NUMBER	ELEMENT TYPE	PROPERTY NUMBER	MATERIAL NUMBER
1	1	56210	4	4
2	1	56210	4	4
3	1	56210	4	4
4	1	56210	4	4
5	1	56210	4	4
6	1	56210	4	4
7	1	56210	4	4
8	1	56210	4	4
9	1	56210	4	4
10	1	56210	4	4
11	1	56210	4	4
12	1	56210	4	4
13	1	56210	4	4
14	1	56210	4	4
15	1	56210	4	4
16	1	56210	4	4
17	1	56210	4	4
18	1	56210	4	4

A21

19	1	36210	4	4
20	1	36210	4	4
21	1	36210	4	4
22	1	36210	4	4
23	1	36210	4	4
24	1	36210	4	4
25	1	36210	4	4
26	1	36210	4	4
27	1	36210	4	4
28	1	36210	4	4
29	1	36210	4	4
30	1	36210	4	4

NO ERRORS OR WARNINGS IN THIS PHASE

\*\*\*\* END OF ELEMENT MATRIX GENERATION \*\*\*\*

\*\*\*\* MAX SIZE OF BASE USED 1051  
SET TO 5000

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62







SCALED COORDINATES  
DIVIDE BY 1.0000

SCALED DISPLACEMENTS/ROTATIONS FOR LOAD CASE 1  
\* INDICATES A CONSTRAINT HAS BEEN APPLIED

DIVIDE BY 0.10000E U0  
NUDES 1- 30

COORDINATES X Y Z

DISPLACEMENTS UX UY UZ

ROTATIONS PH1X PH1Y PH1Z

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62

NUDE NO.	UX	UY	UZ	PH1X	PH1Y	PH1Z
1	1.9858	*	*			
2	1.8932	*	*			
3	*	-1.9801	*			
4	*	-1.8876	*			
5	-1.9858	*	*			
6	1.8932	*	*			
7	1.8917	*	-0.0984			
8	1.8852	*	-0.1972			
9	1.8730	*	-0.2959			
10	1.8566	*	-0.3936			
11	1.8303	*	-0.4899			
12	1.8004	*	-0.5845			
13	1.7655	*	-0.6772			
14	1.7258	*	-0.7678			
15	1.6817	*	-0.8562			
16	1.6334	*	-0.9423			
17	1.5812	*	-1.0261			
18	1.5250	*	-1.1072			
19	1.4649	*	-1.1856			
20	1.4011	*	-1.2610			
21	1.3335	*	-1.3330			
22	1.2623	*	-1.4016			
23	1.1875	*	-1.4663			
24	1.1095	*	-1.5270			
25	1.0283	*	-1.5835			
26	0.9441	*	-1.6355			
27	0.8573	*	-1.6829			
28	0.7681	*	-1.7256			
29	0.6767	*	-1.7634			
30	0.5834	*	-1.7962			
31	0.4886	*	-1.8241			
32	0.3924	*	-1.8469			
33	0.2952	*	-1.8647			
34	0.1973	*	-1.8774			
35	0.0988	*	-1.8850			
36	-0.0988	*	-1.8850			
37	-0.1973	*	-1.8774			
38	-0.2952	*	-1.8647			
39	-0.3924	*	-1.8469			
40	-0.4886	*	-1.8241			
41	-0.5834	*	-1.7962			
42	-0.6767	*	-1.7634			
43	-0.7681	*	-1.7256			
44	-0.8573	*	-1.6829			
45	-0.9441	*	-1.6355			
46	-1.0283	*	-1.5835			
47	-1.1095	*	-1.5270			
48	-1.1875	*	-1.4663			
49	-1.2623	*	-1.4016			

SCALED COORDINATES  
DIVIDE BY 1.0000

SCALED DISPLACEMENTS/ROTATIONS FOR LOAD CASE 1  
\* INDICATES A CONSTRAINT HAS BEEN APPLIED

DIVIDE BY 0.10000E 00  
NODES 50= YY

NO.	X	Y	Z	NO.	UX	UY	UZ	PHIX	PHIY	PHIZ
50	0.7071	0.6091		50	-1.5535	-1.5530				
51	0.7432	0.6691		51	-1.4011	-1.2610				
52	0.7772	0.6293		52	-1.4049	-1.1856				
53	0.8091	0.5878		53	-1.5650	-1.1072				
54	0.8387	0.5446		54	-1.5812	-1.0261				
55	0.8660	0.5000		55	-1.6334	-0.9423				
56	0.8910	0.4540		56	-1.6817	-0.8562				
57	0.9135	0.4067		57	-1.7258	-0.7678				
58	0.9335	0.3584		58	-1.7655	-0.6772				
59	0.9509	0.3090		59	-1.8004	-0.5845				
60	0.9658	0.2586		60	-1.8303	-0.4899				
61	0.9780	0.2079		61	-1.8546	-0.3936				
62	0.9875	0.1565		62	-1.8730	-0.2959				
63	0.9944	0.1046		63	-1.8852	-0.1972				
64	0.9985	0.0524		64	-1.8917	-0.0984				
65	-0.9750	-0.0000		65	1.9368	*				
66	-0.9695	0.1019		66	1.9288	-0.2023				
67	-0.9535	0.2027		67	1.8977	-0.4023				
68	-0.9272	0.3015		68	1.8425	-0.5971				
69	-0.8909	0.3966		69	1.7662	-0.7847				
70	-0.8444	0.4875		70	1.6716	-0.9637				
71	-0.7888	0.5731		71	1.5604	-1.1329				
72	-0.7246	0.6524		72	1.4334	-1.2904				
73	-0.6524	0.7266		73	1.2915	-1.4343				
74	-0.5731	0.7888		74	1.1350	-1.5627				
75	-0.4875	0.8444		75	0.9659	-1.6735				
76	-0.3966	0.8909		76	0.7859	-1.7656				
77	-0.3015	0.9275		77	0.5971	-1.8378				
78	-0.2027	0.9537		78	0.4017	-1.8897				
79	-0.1019	0.9697		79	0.2019	-1.9209				
80	0.0000	0.9750		80	*	-1.9314				
81	0.1019	0.9697		81	-0.2019	-1.9209				
82	0.2027	0.9537		82	-0.4017	-1.8897				
83	0.3015	0.9275		83	-0.5971	-1.8378				
84	0.3966	0.8909		84	-0.7859	-1.7656				
85	0.4875	0.8444		85	-0.9659	-1.6735				
86	0.5731	0.7888		86	-1.1350	-1.5627				
87	0.6524	0.7266		87	-1.2915	-1.4343				
88	0.7266	0.6524		88	-1.4334	-1.2904				
89	0.7888	0.5731		89	-1.5604	-1.1329				
90	0.8444	0.4875		90	-1.6716	-0.9637				
91	0.8909	0.3966		91	-1.7662	-0.7847				
92	0.9272	0.3015		92	-1.8425	-0.5971				
93	0.9535	0.2027		93	-1.8917	-0.4023				
94	0.9695	0.1019		94	-1.9288	-0.2023				
95	0.9750	-0.0000		95	-1.9368	*				
96	-0.9486	0.0497		96	1.9041	-0.1044				
97	-0.9446	0.0993		97	1.9172	-0.2080				
98	-0.9381	0.1486		98	1.9045	-0.3105				

10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64

SCALED DISPLACEMENTS/ROTATIONS FOR LOAD CASE 1  
\* INDICATES A CONSTRAINT HAS BEEN APPLIED

SCALED COORDINATES  
DIVIDE BY 1.0000

DIVIDE BY 0.10000E 06  
NODES 99- 148

NODE NO.	COORDINATES			DISPLACEMENTS			ROTATIONS		
	X	Y	Z	UX	UY	UZ	PHIX	PHIY	PHIZ
99	-0.9291	0.1975		1.9434	-0.4121				
100	-0.9175	0.2459		1.9202	-0.5124				
101	-0.9034	0.2936		1.8891	-0.6112				
102	-0.8868	0.3405		1.8226	-0.7084				
103	-0.8678	0.3864		1.8111	-0.8036				
104	-0.8464	0.4315		1.7648	-0.8968				
105	-0.8227	0.4750		1.7141	-0.9876				
106	-0.7968	0.5174		1.6591	-1.0759				
107	-0.7686	0.5584		1.5999	-1.1614				
108	-0.7385	0.5978		1.5266	-1.2439				
109	-0.7060	0.6357		1.4495	-1.3232				
110	-0.6718	0.6717		1.3984	-1.3989				
111	-0.6357	0.7060		1.3436	-1.4708				
112	-0.5979	0.7383		1.2852	-1.5386				
113	-0.5584	0.7686		1.2234	-1.6022				
114	-0.5174	0.7967		1.1582	-1.6613				
115	-0.4750	0.8227		1.0901	-1.7158				
116	-0.4315	0.8464		0.8992	-1.7654				
117	-0.3864	0.8678		0.8057	-1.8101				
118	-0.3405	0.8868		0.7099	-1.8497				
119	-0.2936	0.9034		0.6122	-1.8841				
120	-0.2459	0.9175		0.5126	-1.9134				
121	-0.1975	0.9291		0.4119	-1.9373				
122	-0.1486	0.9385		0.3099	-1.9560				
123	-0.0995	0.9448		0.2071	-1.9694				
124	-0.0497	0.9487		0.1037	-1.9774				
125	0.0000	0.9499		-0.1037	-1.9774				
126	0.0495	0.9468		-0.2071	-1.9694				
127	0.1037	0.9385		-0.3099	-1.9560				
128	0.1486	0.9291		-0.4119	-1.9373				
129	0.1975	0.9175		-0.5126	-1.9134				
130	0.2459	0.9034		-0.6122	-1.8841				
131	0.2936	0.8868		-0.7099	-1.8497				
132	0.3405	0.8678		-0.8057	-1.8101				
133	0.3864	0.8464		-0.8992	-1.7654				
134	0.4315	0.8227		-0.9901	-1.7158				
135	0.4750	0.7967		-1.0782	-1.6613				
136	0.5174	0.7686		-1.1634	-1.6022				
137	0.5584	0.7385		-1.2452	-1.5386				
138	0.5979	0.7060		-1.3236	-1.4708				
139	0.6357	0.6717		-1.3984	-1.3989				
140	0.6718	0.6357		-1.4695	-1.3232				
141	0.7060	0.5978		-1.5366	-1.2439				
142	0.7385	0.5584		-1.5999	-1.1614				
143	0.7686	0.5174		-1.6591	-1.0759				
144	0.7968	0.4750		-1.7141	-0.9876				
145	0.8227	0.4315		-1.7648	-0.8968				
146	0.8464	0.3864		-1.8101	-0.8036				
147	0.8678	0.3405		-1.8497	-0.7084				
148	0.8868			-1.8841					

SCALED COORDINATES  
 DIVIDE BY 1.0000

COORDINATES			DISPLACEMENTS			ROTATIONS		
X	Y	Z	UX	UY	UZ	PHIX	PHIY	PHIZ
0.9034	0.2936		-1.8891	-0.6112				
0.9175	0.2659		-1.9202	-0.5124				
0.9291	0.1975		-1.9454	-0.4121				
0.9381	0.1486		-1.9645	-0.3105				
0.9446	0.0995		-1.9772	-0.2080				
0.9486	0.0497		-1.9861	-0.1044				

END OF PHASE 1

\*\*\*\* MAX SIZE OF BASE USED 1/59  
 SFT 10 5000

NO ERRORS OR WARNINGS IN THIS PHASE

SCALED DISPLACEMENTS/ROTATIONS FOR LOAD CASE 1  
 \* INDICATES A CONSTRAINT HAS BEEN APPLIED

DIVIDE BY 0.10000E 06  
 NODES 148- 153

10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62



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PPPPPP AAAAAA FFFFFFF EEEEE LCCCUC
P P A A FF E C CC
P P A A FF E C CC
P P A A FF E C CC
PPPPPP AAAAAA FFFF EEEE C
PP AA A F EE C
PP AA A F EE C
PP AA A F EE C
PP AA A F EE C
PP AA A F EEEE LCCCUC
/ / 55555
/ / 55
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LEVEL 1.3 - OCTOBER 1977

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*****
* TITLE CHECK UN PAFBLUCKS FOR SPHERE
*
* PHASE NUMBER 8 STARTS HERE
*
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\*\*\*\*\* PAFEC DRAW (PHASE 8) \*\*\*\*\*

THIS IS A PHASE 8 DEFAULT DRAWING

AUTOMATIC VIEWING ROUTINE ENTERED - VIEWING MODE NUMBER IS NOT IN THE MODES MODULE.  
 THIS IS A TWO-DIMENSIONAL STRUCTURE, SELECTED VIEW WILL BE PERPENDICULAR TO THE PLANE OF THE STRUCTURE.  
 SELECTED VIEW IS ALONG THE LINE JOINING THE POINT X X= 0.00, Y= 0.00, Z= 1.00, TO THE ORIGIN.

ELEMENT LISTING.

GROUPS LIST EMPTY - ALL ELEMENTS DRAWN

1.	2	8	1	97	7	65	66	96
	3	16	97	99	9	66	67	98

SCALE OF DRAWING IS U.0859 TO 1

5.	10	12	94	101	11	67	68	100
6.	12	14	101	103	13	68	69	102
7.	14	16	103	105	15	69	70	104
8.	16	18	105	107	17	70	71	106
9.	18	20	107	109	19	71	72	108
10.	20	22	109	111	21	72	73	110
11.	22	24	111	113	23	73	74	112
12.	24	26	113	115	25	74	75	114
13.	26	28	115	117	27	75	76	116
14.	28	30	117	119	29	76	77	118
15.	30	32	119	121	31	77	78	120
16.	32	34	121	123	33	78	79	122
17.	34	4	123	3	35	79	80	124
18.	4	37	3	126	36	80	81	125
19.	37	39	126	128	38	81	82	127
20.	39	41	128	130	40	82	83	129
21.	41	43	130	132	42	83	84	131
22.	43	45	132	134	44	84	85	133
23.	45	47	134	136	46	85	86	135
24.	47	49	136	138	48	86	87	137
25.	49	51	138	140	50	87	88	139
26.	51	53	140	142	52	88	89	141
27.	53	55	142	144	54	89	90	143
28.	55	57	144	146	56	90	91	145
29.	57	59	146	148	58	91	92	147
30.	59	61	148	150	60	92	93	149
31.	61	63	150	152	62	93	94	151
32.	63	6	152	5	64	94	95	153

POTNIS ARRAY

1	3.000	26.540	3	11.906	34.690
2	19.742	26.540	6	20.171	20.540
3	3.048	27.438	9	5.107	27.883
4	3.643	28.702	12	3.421	29.193
5	4.385	30.032	15	5.936	30.438
6	5.205	31.216	18	4.634	31.500
7	6.182	32.285	21	5.514	32.611
8	7.293	33.212	24	6.519	33.400
9	8.509	33.975	27	7.608	34.190
10	9.801	34.555	30	8.933	34.705
11	11.156	34.938	33	10.243	35.020
12	12.528	35.114	36	12.039	35.114
13	14.238	35.020	39	13.370	34.938
14	15.483	34.705	42	14.662	34.555
15	16.632	34.190	45	15.878	34.212
16	17.657	33.486	48	16.989	33.611
17	18.532	31.506	51	17.966	32.685
18	19.255	30.458	54	18.786	31.470
19	19.750	29.193	57	19.428	30.032
20	20.064	27.893	60	19.877	28.702
21	3.215	26.540	63	20.123	27.438
22	3.625	25.127	66	5.262	26.141
23	4.013	23.660	69	5.934	24.943
24	4.605	22.141	72	5.364	23.741
25	5.299	20.571	75	7.400	22.540
26	6.084	18.948	78	9.863	21.285
27	6.954	17.261	81	12.460	20.032
28	7.907	15.514	84	14.990	18.786
29	8.943	13.705			
30	10.088	11.838			
31	12.343	9.933			
32	14.718	8.001			
33	17.223	6.064			
34	19.868	4.127			
35	22.653	2.190			
36	25.578	0.253			
37	28.643				
38	31.848				
39	35.193				
40	38.678				
41	42.303				
42	46.068				
43	50.073				
44	54.318				
45	58.803				
46	63.528				
47	68.493				
48	73.708				
49	79.173				
50	84.888				
51	90.853				
52	97.068				
53	103.533				
54	110.248				
55	117.213				
56	124.428				
57	131.893				
58	139.608				
59	147.573				
60	155.788				
61	164.253				
62	172.968				
63	181.933				
64	191.148				
65	200.613				
66	210.328				
67	220.293				
68	230.508				
69	240.973				
70	251.688				
71	262.653				
72	273.868				
73	285.333				
74	297.048				
75	309.013				
76	321.228				
77	333.693				
78	346.408				
79	359.373				
80	372.588				
81	386.053				
82	400.768				
83	415.733				
84	430.948				
85	446.413				

86	17.807	32.141	86	16.206	53.512	87	16.187	54.761
91	19.232	29.945	89	18.338	51.460	90	18.835	50.725
94	19.909	27.415	92	19.546	29.127	93	19.772	28.481
97	3.475	27.593	95	19.956	26.540	96	5.441	26.967
100	3.709	28.651	98	3.551	27.816	99	5.609	26.436
103	4.135	29.858	101	3.850	29.061	102	5.972	29.465
106	4.745	30.982	104	4.518	30.243	105	4.522	30.018
109	5.524	31.998	107	4.987	31.554	108	5.247	31.975
112	6.452	32.879	110	5.618	32.507	111	6.128	32.001
115	7.207	33.604	113	6.791	33.159	114	7.145	33.300
118	8.063	34.155	116	7.885	33.807	117	8.268	33.991
121	9.090	34.518	119	9.065	34.297	120	9.475	34.818
124	11.159	34.085	122	10.510	34.506	123	10.755	34.932
127	12.861	34.506	125	12.072	34.605	126	12.458	34.932
130	14.106	34.297	128	13.281	34.518	129	13.606	34.610
133	15.288	33.807	131	14.508	34.155	132	14.905	33.991
136	16.580	33.159	134	15.604	33.603	135	16.203	33.300
139	17.553	32.507	137	16.719	32.879	138	17.045	34.001
142	18.184	31.554	140	17.647	31.948	141	17.924	31.075
145	18.053	30.243	143	18.426	30.902	144	18.649	30.018
148	19.341	29.061	146	19.036	29.857	147	19.199	29.465
151	19.040	27.816	149	19.463	28.651	150	19.582	28.436
			152	19.696	27.593	155	19.750	26.967

PARAMETERS IN CALLS IV LIMITS AND REGION ARE (0.0, 35.638, 0.0, 60.00)

RIV250 ENIGHER - DETERMINES POINTS ARRAY FOR DISPLACED SHAPE PLOT .  
LARGEST DISPLACEMENT IN SIMUCIURE = 0.19889E-04 AT NODE NUMBER 151

SCALE OF DISPLACEMENTS IS 0.994E-05 X 1

NODE	PAPER COORDINATES	POINTS ARRAY FOR DISPLACED STRUCTURE
1	5.426	26.540
4	11.285	26.540
7	4.915	27.259
10	5.054	28.270
13	5.360	29.260
16	5.793	30.184
19	6.586	31.017
22	7.110	31.758
25	7.943	32.531
28	8.066	32.762
31	9.855	33.081
34	10.086	33.218
37	12.284	33.145
40	13.516	32.999
43	14.505	32.648
46	15.227	32.148
49	16.061	31.511
52	16.785	30.751
55	17.578	29.885
58	17.025	28.936
61	18.117	27.930
64	18.256	26.891
67	5.507	27.876
70	6.017	29.756
73	7.282	31.518
76	8.971	32.412
79	10.914	32.933
3	11.589	26.540
6	18.267	26.540
9	4.991	27.259
12	5.232	28.270
15	5.627	29.260
18	6.175	30.184
21	6.855	31.017
24	7.654	31.758
27	8.550	32.531
30	9.519	32.762
33	10.559	33.081
36	11.955	33.218
39	12.976	33.145
42	13.981	32.999
45	14.929	32.648
48	15.794	31.950
51	16.557	31.270
54	17.196	30.473
57	17.693	29.577
60	18.056	28.605
63	18.227	27.586
66	5.202	26.540
69	5.715	28.526
72	6.806	30.321
75	8.371	31.741
78	10.249	32.653



82	12.822	32.028	11.585	32.969	81	14.257	34.933
83	14.699	32.106	13.571	32.653	84	14.200	34.412
84	16.565	30.944	15.564	31.741	87	15.868	31.316
85	17.456	29.156	16.789	30.321	90	17.154	29.736
86	17.969	27.212	17.693	28.526	93	17.864	27.876
87	5.464	27.184	18.009	26.540	96	5.437	26.862
88	5.639	28.156	5.507	27.504	99	5.565	27.022
89	5.856	29.049	5.729	28.446	102	5.853	28.751
90	6.413	29.900	6.093	29.541	105	6.246	29.625
91	7.001	30.667	6.545	30.166	108	6.742	30.422
92	7.604	31.351	7.224	30.901	111	7.439	31.122
93	8.203	31.878	7.961	31.527	114	8.227	31.710
94	9.377	32.294	8.681	32.402	117	9.078	32.171
95	10.504	32.570	10.021	32.629	120	9.970	32.494
96	11.663	32.697	11.908	32.697	123	10.941	32.871
97	12.549	32.629	12.667	32.570	126	12.230	32.671
98	13.490	32.432	13.794	32.294	129	13.150	32.494
99	14.584	32.032	14.668	31.878	132	14.092	32.171
100	15.610	31.527	15.566	31.531	135	14.945	31.710
101	15.947	30.901	16.169	30.667	138	15.712	31.122
102	16.575	30.166	16.758	29.900	141	16.379	30.422
103	17.076	29.541	17.415	29.049	144	16.973	29.625
104	17.442	28.446	17.552	28.156	147	17.356	28.751
105	17.664	27.504	17.707	27.164	150	17.606	27.862
106					153	17.734	28.062

\*\* END OF PAPEC DRAW PRINT OUT FOR PHASE 8 \*\*

NO ERRORS OR WARNINGS IN THIS PHASE

\*\*\*\* MAX SIZE OF BASE USED 2022  
SFT TO 5000





2	1	-0.6006E 04	-0.4133E 07	-0.2140E 07	0.1066E 07	86.99	-6.00	-0.9446	0.0993	0.0000	97
2	1	-0.6091E 06	-0.4042E 07	-0.2056E 07	0.9165E 06	89.99	-9.00	-0.9475	0.1563	0.0000	9
2	1	-0.1030E 06	-0.4079E 07	-0.2000E 07	0.9483E 06	89.99	-8.99	-0.9628	0.0000	0.0000	-2
2	1	-0.0590E 04	-0.4130E 07	-0.2156E 07	0.1065E 07	49.99	-8.99	-0.9361	0.1486	0.0000	98
2	1	-0.6093E 06	-0.4044E 07	-0.2040E 07	0.9175E 06	-87.02	-11.98	-0.9760	0.2079	0.0000	10
2	1	-0.1035E 06	-0.4080E 07	-0.2000E 07	0.9483E 06	-87.03	-11.98	-0.9535	0.2027	0.0000	67
2	1	-0.6083E 04	-0.4150E 07	-0.2154E 07	0.1064E 07	-87.03	-11.98	-0.9291	0.1975	0.0000	99
3	1	-0.2086E 06	-0.4043E 07	-0.2040E 07	0.9172E 06	87.03	-12.00	-0.9780	0.2079	0.0000	10
3	1	-0.1032E 06	-0.4080E 07	-0.2000E 07	0.9482E 06	87.03	-12.00	-0.9555	0.2027	0.0000	67
3	1	-0.7482E 04	-0.4131E 07	-0.2155E 07	0.1064E 07	87.03	-12.00	-0.9291	0.1975	0.0000	99
3	1	-0.2089E 06	-0.4041E 07	-0.2059E 07	0.9159E 06	90.00	-14.97	-0.9658	0.2506	0.0000	11
3	1	-0.1030E 06	-0.4079E 07	-0.2000E 07	0.9480E 06	-90.00	-14.98	-0.9416	0.2524	0.0000	-3
3	1	-0.6911E 04	-0.4132E 07	-0.2155E 07	0.1063E 07	-90.00	-14.97	-0.9175	0.2459	0.0000	100
3	1	-0.2096E 06	-0.4037E 07	-0.2058E 07	0.9149E 06	-86.98	-17.99	-0.9505	0.5090	0.0000	12
3	1	-0.1032E 06	-0.4079E 07	-0.2000E 07	0.9481E 06	-86.98	-17.99	-0.9272	0.5013	0.0000	68
3	1	-0.6001E 04	-0.4134E 07	-0.2152E 07	0.1064E 07	-86.99	-17.98	-0.9034	0.2936	0.0000	101
4	1	-0.2088E 06	-0.4036E 07	-0.2057E 07	0.9145E 06	87.03	-17.99	-0.9509	0.5090	0.0000	12
4	1	-0.1031E 06	-0.4079E 07	-0.2000E 07	0.9480E 06	87.03	-17.99	-0.9272	0.5013	0.0000	68
4	1	-0.7170E 04	-0.4135E 07	-0.2155E 07	0.1064E 07	87.02	-17.99	-0.9034	0.2936	0.0000	101
4	1	-0.2090E 06	-0.4036E 07	-0.2057E 07	0.9155E 06	-90.00	-20.97	-0.9355	0.5564	0.0000	13
4	1	-0.1031E 06	-0.4079E 07	-0.2000E 07	0.9478E 06	-90.99	-20.97	-0.9101	0.5494	0.0000	-4
4	1	-0.7198E 04	-0.4137E 07	-0.2155E 07	0.1065E 07	-90.00	-20.97	-0.8668	0.5405	0.0000	102
4	1	-0.2096E 06	-0.4034E 07	-0.2055E 07	0.9121E 06	-86.98	-23.99	-0.9155	0.4067	0.0000	14
4	1	-0.1031E 06	-0.4078E 07	-0.2000E 07	0.9475E 06	-86.98	-23.99	-0.8706	0.5966	0.0000	69
4	1	-0.6756E 04	-0.4136E 07	-0.2152E 07	0.1066E 07	-86.98	-23.98	-0.8678	0.5864	0.0000	103
5	1	-0.2092E 06	-0.4033E 07	-0.2055E 07	0.9119E 06	87.01	-23.98	-0.9155	0.4067	0.0000	14
5	1	-0.1030E 06	-0.4078E 07	-0.2000E 07	0.9475E 06	87.01	-23.98	-0.8906	0.5966	0.0000	69
5	1	-0.7002E 04	-0.4135E 07	-0.2155E 07	0.1066E 07	87.01	-23.98	-0.8678	0.5864	0.0000	103
5	1	-0.2091E 06	-0.4032E 07	-0.2057E 07	0.9115E 06	-90.00	-26.98	-0.8910	0.4540	0.0000	15
5	1	-0.1031E 06	-0.4078E 07	-0.2000E 07	0.9474E 06	-90.00	-26.98	-0.8667	0.4426	0.0000	-5
5	1	-0.7563E 04	-0.4139E 07	-0.2155E 07	0.1066E 07	-90.00	-26.98	-0.8464	0.4315	0.0000	104
5	1	-0.2094E 06	-0.4031E 07	-0.2056E 07	0.9107E 06	-86.99	-29.98	-0.8660	0.5000	0.0000	16
5	1	-0.1031E 06	-0.4077E 07	-0.2000E 07	0.9471E 06	-86.99	-29.98	-0.8444	0.4875	0.0000	70
5	1	-0.6922E 04	-0.4139E 07	-0.2152E 07	0.1066E 07	-86.99	-29.98	-0.8227	0.4750	0.0000	105
6	1	-0.2094E 06	-0.4031E 07	-0.2056E 07	0.9106E 06	87.00	-29.98	-0.8660	0.5000	0.0000	16
6	1	-0.1030E 06	-0.4077E 07	-0.2000E 07	0.9471E 06	87.00	-29.98	-0.8444	0.4875	0.0000	70
6	1	-0.6918E 04	-0.4139E 07	-0.2152E 07	0.1066E 07	87.00	-29.98	-0.8227	0.4750	0.0000	105
6	1	-0.2092E 06	-0.4030E 07	-0.2056E 07	0.9108E 06	-90.00	-32.99	-0.8367	0.5446	0.0000	17
6	1	-0.1031E 06	-0.4077E 07	-0.2000E 07	0.9470E 06	-90.00	-32.99	-0.8177	0.5310	0.0000	-6
6	1	-0.6911E 04	-0.4139E 07	-0.2155E 07	0.1066E 07	-90.00	-32.99	-0.7968	0.5174	0.0000	106
6	1	-0.2093E 06	-0.4030E 07	-0.2056E 07	0.9105E 06	-87.00	-33.98	-0.8091	0.5876	0.0000	18
6	1	-0.1031E 06	-0.4077E 07	-0.2000E 07	0.9467E 06	-87.00	-33.99	-0.7888	0.5751	0.0000	71
6	1	-0.6937E 04	-0.4139E 07	-0.2155E 07	0.1066E 07	-87.00	-33.99	-0.7666	0.5564	0.0000	107
7	1	-0.2095E 06	-0.4031E 07	-0.2056E 07	0.9106E 06	86.99	-33.99	-0.8091	0.5876	0.0000	18
7	1	-0.1031E 06	-0.4077E 07	-0.2000E 07	0.9468E 06	86.99	-33.98	-0.7888	0.5751	0.0000	71
7	1	-0.6938E 04	-0.4139E 07	-0.2155E 07	0.1066E 07	86.99	-33.99	-0.7666	0.5564	0.0000	107
7	1	-0.2091E 06	-0.4030E 07	-0.2056E 07	0.9110E 06	90.00	-39.00	-0.7772	0.6293	0.0000	19
7	1	-0.1031E 06	-0.4077E 07	-0.2000E 07	0.9468E 06	90.00	-38.99	-0.7574	0.6156	0.0000	-7
7	1	-0.7544E 04	-0.4139E 07	-0.2155E 07	0.1065E 07	90.00	-38.99	-0.7365	0.5976	0.0000	108
7	1	-0.2095E 06	-0.4031E 07	-0.2056E 07	0.9110E 06	-87.01	-41.99	-0.7452	0.6691	0.0000	20
7	1	-0.1031E 06	-0.4076E 07	-0.2000E 07	0.9466E 06	-87.00	-41.99	-0.7246	0.6524	0.0000	72
7	1	-0.6944E 04	-0.4139E 07	-0.2155E 07	0.1065E 07	-87.00	-41.99	-0.7060	0.6357	0.0000	109

8	1	-0.2095E 06	-0.2034E 07	-0.2031E 07	0.9112E 06	86.99	-41.99	-0.7452	0.6691	0.0000	20
8	1	-0.1031E 06	-0.2070E 07	-0.2074E 07	0.9866E 06	86.99	-41.99	-0.7246	0.6524	0.0000	72
8	1	-0.6968E 04	-0.2130E 07	-0.2135E 07	0.1065E 07	86.99	-41.99	0.7060	0.6357	0.0000	109
8	1	-0.2091E 06	-0.2034E 07	-0.2031E 07	0.9116E 06	90.00	-45.00	-0.7072	0.7071	0.0000	21
8	1	-0.1031E 06	-0.2070E 07	-0.2074E 07	0.9866E 06	90.00	-45.00	-0.6895	0.6894	0.0000	8
8	1	-0.7251E 04	-0.2130E 07	-0.2134E 07	0.1064E 07	90.00	-45.00	0.6718	0.6717	0.0000	110
8	1	-0.2095E 06	-0.2034E 07	-0.2031E 07	0.9118E 06	-87.01	-48.00	-0.6892	0.7451	0.0000	22
8	1	-0.1031E 06	-0.2070E 07	-0.2074E 07	0.9866E 06	-87.01	-48.00	-0.6524	0.7246	0.0000	73
8	1	-0.7040E 04	-0.2134E 07	-0.2134E 07	0.1064E 07	-87.00	-48.00	-0.6557	0.7060	0.0000	111
9	1	-0.2094E 06	-0.2034E 07	-0.2032E 07	0.9118E 06	86.99	-48.00	-0.6692	0.7451	0.0000	22
9	1	-0.1031E 06	-0.2070E 07	-0.2074E 07	0.9866E 06	86.99	-48.00	-0.6524	0.7246	0.0000	73
9	1	-0.6945E 04	-0.2134E 07	-0.2134E 07	0.1064E 07	87.00	-54.00	-0.6357	0.7060	0.0000	111
9	1	-0.1031E 06	-0.2070E 07	-0.2032E 07	0.9121E 06	90.00	-51.00	-0.6294	0.7771	0.0000	23
9	1	-0.1031E 06	-0.2070E 07	-0.2070E 07	0.9866E 06	90.00	-51.00	-0.6156	0.7577	0.0000	9
9	1	-0.7439E 04	-0.2134E 07	-0.2134E 07	0.1064E 07	90.00	-51.00	-0.5970	0.7385	0.0000	112
9	1	-0.2095E 06	-0.2034E 07	-0.2035E 07	0.9125E 06	-87.01	-54.00	-0.5878	0.8090	0.0000	24
9	1	-0.1031E 06	-0.2070E 07	-0.2070E 07	0.9866E 06	-87.00	-54.00	-0.5731	0.7888	0.0000	74
9	1	-0.6955E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	-87.00	-54.00	-0.5584	0.7686	0.0000	113
10	1	-0.2094E 06	-0.2034E 07	-0.2035E 07	0.9123E 06	87.00	-54.00	-0.5878	0.8090	0.0000	24
10	1	-0.1031E 06	-0.2070E 07	-0.2070E 07	0.9866E 06	87.00	-54.00	-0.5731	0.7888	0.0000	74
10	1	-0.6935E 04	-0.2134E 07	-0.2134E 07	0.1064E 07	87.00	-54.00	-0.5584	0.7686	0.0000	113
10	1	-0.2090E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	90.00	-57.00	-0.5446	0.8387	0.0000	25
10	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9867E 06	90.00	-57.00	-0.5310	0.8177	0.0000	10
10	1	-0.7190E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	90.00	-57.00	-0.5174	0.7967	0.0000	114
10	1	-0.2095E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	-87.00	-60.00	-0.5000	0.8660	0.0000	26
10	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	-87.00	-60.00	-0.4875	0.8444	0.0000	75
10	1	-0.6944E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	-87.00	-60.00	-0.4720	0.8227	0.0000	115
11	1	-0.2095E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	87.00	-60.00	-0.5000	0.8660	0.0000	26
11	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	87.00	-60.00	-0.4875	0.8444	0.0000	75
11	1	-0.6955E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	87.00	-60.00	-0.4720	0.8227	0.0000	115
11	1	-0.2090E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	90.00	-65.00	-0.4540	0.8910	0.0000	27
11	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	90.00	-65.00	-0.4426	0.8687	0.0000	11
11	1	-0.7187E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	90.00	-65.00	-0.4315	0.8465	0.0000	116
11	1	-0.2095E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	-87.00	-66.00	-0.4087	0.9155	0.0000	28
11	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9870E 06	-87.00	-66.00	-0.3966	0.8907	0.0000	76
11	1	-0.6929E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	-87.00	-66.00	-0.3864	0.8679	0.0000	117
12	1	-0.2095E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	87.00	-66.00	-0.4087	0.9155	0.0000	28
12	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9870E 06	87.00	-66.00	-0.3966	0.8907	0.0000	76
12	1	-0.6949E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	87.00	-66.00	-0.3864	0.8679	0.0000	117
12	1	-0.2090E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	90.00	-69.00	-0.3585	0.9356	0.0000	29
12	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	90.00	-69.00	-0.3494	0.9102	0.0000	118
12	1	-0.7205E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	90.00	-69.00	-0.3406	0.8889	0.0000	118
12	1	-0.2094E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	-87.00	-72.00	-0.3090	0.9511	0.0000	30
12	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	-87.00	-72.00	-0.3015	0.9273	0.0000	77
12	1	-0.6921E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	-87.00	-72.00	-0.2935	0.9055	0.0000	119
13	1	-0.2095E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	87.00	-72.00	-0.3090	0.9511	0.0000	30
13	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	87.00	-72.00	-0.3015	0.9273	0.0000	77
13	1	-0.6928E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	87.00	-72.00	-0.2935	0.9055	0.0000	119
13	1	-0.2091E 06	-0.2034E 07	-0.2034E 07	0.9122E 06	90.00	-75.00	-0.2588	0.9659	0.0000	31
13	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9868E 06	90.00	-75.00	-0.2528	0.9418	0.0000	113

13	1	-0.727E 04	-0.2135E 07	0.1064E 07	90.00	-75.00	-0.2459	0.9716	0.0000	120
13	1	-0.2094E 06	-0.2035E 07	0.9120E 06	-87.00	-78.00	-0.2079	0.9781	0.0000	52
13	1	-0.1031E 06	-0.2070E 07	0.9120E 06	-87.00	-78.00	-0.2027	0.9557	0.0000	78
13	1	-0.0928E 04	-0.2135E 07	0.1064E 07	-87.00	-78.00	-0.1975	0.9292	0.0000	121
14	1	-0.2093E 06	-0.2035E 07	0.9120E 06	87.00	-78.00	-0.2079	0.9781	0.0000	52
14	1	-0.1031E 06	-0.2070E 07	0.9067E 06	87.00	-78.00	-0.2027	0.9557	0.0000	78
14	1	-0.0929E 06	-0.2135E 07	0.1064E 07	87.00	-78.00	-0.1975	0.9292	0.0000	121
14	1	-0.2091E 06	-0.2035E 07	0.9120E 06	90.00	-81.00	-0.1564	0.9877	0.0000	53
14	1	-0.1031E 06	-0.2070E 07	0.9066E 06	90.00	-81.00	-0.1525	0.9650	0.0000	114
14	1	-0.0927E 04	-0.2135E 07	0.1064E 07	90.00	-81.00	-0.1466	0.9383	0.0000	122
14	1	-0.2094E 06	-0.2035E 07	0.9118E 06	-87.00	-86.00	-0.1045	0.9945	0.0000	54
14	1	-0.1031E 06	-0.2070E 07	0.9066E 06	-87.00	-86.00	-0.1019	0.9697	0.0000	79
14	1	-0.0945E 04	-0.2135E 07	0.1064E 07	-87.00	-86.00	-0.0993	0.9448	0.0000	123
15	1	-0.2093E 06	-0.2035E 07	0.9118E 06	87.00	-86.00	-0.1045	0.9945	0.0000	54
15	1	-0.1031E 06	-0.2070E 07	0.9066E 06	87.00	-86.00	-0.1019	0.9697	0.0000	79
15	1	-0.0927E 04	-0.2135E 07	0.1064E 07	90.00	-87.00	-0.0993	0.9448	0.0000	123
15	1	-0.2091E 06	-0.2035E 07	0.9066E 06	90.00	-87.00	-0.0523	0.9986	0.0000	55
15	1	-0.1031E 06	-0.2070E 07	0.9066E 06	90.00	-87.00	-0.0510	0.9757	0.0000	115
15	1	-0.0926E 04	-0.2135E 07	0.1064E 07	90.00	-87.00	-0.0497	0.9487	0.0000	124
15	1	-0.2094E 06	-0.2035E 07	0.9117E 06	-87.00	-90.00	-0.0000	1.0000	0.0000	4
15	1	-0.1031E 06	-0.2070E 07	0.9066E 06	-87.00	-90.00	-0.0000	0.9750	0.0000	80
15	1	-0.0959E 04	-0.2135E 07	0.1064E 07	-87.00	-90.00	-0.0000	0.9500	0.0000	3
16	1	-0.2094E 06	-0.2035E 07	0.9117E 06	87.00	90.00	-0.0000	1.0000	0.0000	4
16	1	-0.1031E 06	-0.2070E 07	0.9066E 06	87.00	-90.00	0.0000	0.9750	0.0000	80
16	1	-0.0959E 04	-0.2135E 07	0.1064E 07	87.00	90.00	-0.0000	0.9500	0.0000	3
16	1	-0.2091E 06	-0.2035E 07	0.9118E 06	90.00	87.00	0.0523	0.9986	0.0000	56
16	1	-0.1031E 06	-0.2070E 07	0.9066E 06	90.00	87.00	0.0510	0.9757	0.0000	116
16	1	-0.0926E 04	-0.2135E 07	0.1064E 07	90.00	87.00	0.0497	0.9487	0.0000	125
16	1	-0.2094E 06	-0.2035E 07	0.9118E 06	-87.00	84.00	0.1045	0.9945	0.0000	57
16	1	-0.1031E 06	-0.2070E 07	0.9066E 06	-87.00	84.00	0.1019	0.9697	0.0000	81
16	1	-0.0945E 04	-0.2135E 07	0.1064E 07	-87.00	84.00	0.0993	0.9448	0.0000	126
17	1	-0.2094E 06	-0.2035E 07	0.9118E 06	87.00	84.00	0.1045	0.9945	0.0000	57
17	1	-0.1031E 06	-0.2070E 07	0.9066E 06	87.00	84.00	0.1019	0.9697	0.0000	81
17	1	-0.0945E 04	-0.2135E 07	0.1064E 07	87.00	84.00	0.0993	0.9448	0.0000	126
17	1	-0.2091E 06	-0.2035E 07	0.9120E 06	90.00	81.00	0.1564	0.9877	0.0000	58
17	1	-0.1031E 06	-0.2070E 07	0.9066E 06	90.00	81.00	0.1525	0.9650	0.0000	117
17	1	-0.0927E 04	-0.2135E 07	0.1064E 07	90.00	81.00	0.1466	0.9383	0.0000	127
17	1	-0.2094E 06	-0.2035E 07	0.9120E 06	-87.00	78.00	0.2079	0.9781	0.0000	59
17	1	-0.1031E 06	-0.2070E 07	0.9067E 06	-87.00	78.00	0.2027	0.9557	0.0000	82
17	1	-0.0929E 04	-0.2135E 07	0.1064E 07	-87.00	78.00	0.1975	0.9292	0.0000	128
18	1	-0.2094E 06	-0.2035E 07	0.9120E 06	87.00	78.00	0.2079	0.9781	0.0000	59
18	1	-0.1031E 06	-0.2070E 07	0.9067E 06	87.00	78.00	0.2027	0.9557	0.0000	82
18	1	-0.0928E 04	-0.2135E 07	0.1064E 07	87.00	78.00	0.1975	0.9292	0.0000	128
18	1	-0.2091E 06	-0.2035E 07	0.9122E 06	90.00	75.00	0.2508	0.9659	0.0000	60
18	1	-0.1031E 06	-0.2070E 07	0.9068E 06	90.00	75.00	0.2523	0.9418	0.0000	118
18	1	-0.0927E 04	-0.2135E 07	0.1064E 07	90.00	75.00	0.2459	0.9176	0.0000	129
18	1	-0.2093E 06	-0.2035E 07	0.9125E 06	-87.00	72.00	0.3090	0.9511	0.0000	61
18	1	-0.1031E 06	-0.2070E 07	0.9069E 06	-87.00	72.00	0.3073	0.9273	0.0000	83
18	1	-0.0928E 04	-0.2135E 07	0.1064E 07	-87.00	72.00	0.2955	0.9055	0.0000	130
19	1	-0.2094E 06	-0.2035E 07	0.9125E 06	87.00	72.00	0.3090	0.9511	0.0000	61

19	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	87.00	72.00	0.3013	0.9273	0.0000	83
19	1	-0.6921E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	87.00	72.00	0.2935	0.9035	0.0000	150
19	1	-0.2090E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	90.00	69.00	0.3563	0.9356	0.0000	42
19	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	90.00	69.00	0.3494	0.9102	0.0000	19
19	1	-0.6921E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	90.00	69.00	0.3609	0.8869	0.0000	131
19	1	-0.2090E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	-87.00	66.01	0.4067	0.9155	0.0000	43
19	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	-87.00	66.01	0.3966	0.9907	0.0000	84
19	1	-0.6921E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	-87.00	66.01	0.3664	0.8679	0.0000	152
20	1	-0.2093E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	87.00	66.00	0.4067	0.9155	0.0000	43
20	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	87.00	66.00	0.3966	0.8907	0.0000	84
20	1	-0.6929E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	87.00	66.00	0.3764	0.8679	0.0000	132
20	1	-0.2090E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	90.00	65.00	0.4540	0.8970	0.0000	44
20	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	90.00	65.00	0.4426	0.8687	0.0000	130
20	1	-0.6918E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	90.00	65.00	0.4313	0.8465	0.0000	45
20	1	-0.2093E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	-87.00	60.01	0.5000	0.8660	0.0000	45
20	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	-87.00	60.01	0.4875	0.8444	0.0000	85
20	1	-0.6953E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	-87.00	60.01	0.4750	0.8227	0.0000	134
21	1	-0.2093E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	87.00	60.00	0.5000	0.8650	0.0000	45
21	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	87.00	60.00	0.4875	0.8444	0.0000	85
21	1	-0.6954E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	87.00	60.00	0.4720	0.8227	0.0000	134
21	1	-0.2090E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	90.00	57.01	0.5446	0.8567	0.0000	46
21	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	90.00	57.01	0.5310	0.8177	0.0000	121
21	1	-0.6919E 04	-0.2134E 07	-0.2135E 07	0.1064E 07	90.00	57.01	0.5174	0.7967	0.0000	125
21	1	-0.2094E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	-87.00	54.00	0.5878	0.8090	0.0000	47
21	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	-87.00	54.00	0.5751	0.7868	0.0000	86
21	1	-0.6953E 04	-0.2134E 07	-0.2134E 07	0.1064E 07	-87.00	54.01	0.5584	0.7666	0.0000	136
22	1	-0.2093E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	87.01	54.00	0.5874	0.8090	0.0000	47
22	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	87.00	54.00	0.5751	0.7868	0.0000	86
22	1	-0.6954E 04	-0.2134E 07	-0.2134E 07	0.1064E 07	87.00	54.00	0.5584	0.7666	0.0000	136
22	1	-0.2091E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	90.00	51.01	0.6294	0.7771	0.0000	48
22	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	90.00	51.00	0.6136	0.7577	0.0000	122
22	1	-0.6919E 04	-0.2134E 07	-0.2134E 07	0.1064E 07	-90.00	51.00	0.5979	0.7363	0.0000	137
22	1	-0.2094E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	-86.99	48.00	0.6692	0.7451	0.0000	49
22	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	-86.99	48.00	0.6524	0.7240	0.0000	87
22	1	-0.6913E 04	-0.2134E 07	-0.2134E 07	0.1064E 07	-87.00	48.00	0.6357	0.7000	0.0000	138
23	1	-0.2093E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	87.01	48.00	0.6692	0.7451	0.0000	49
23	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	87.01	48.00	0.6524	0.7240	0.0000	87
23	1	-0.6940E 04	-0.2134E 07	-0.2134E 07	0.1064E 07	87.00	48.00	0.6357	0.7000	0.0000	138
23	1	-0.2091E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	90.00	45.00	0.7072	0.7071	0.0000	50
23	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	-90.00	45.00	0.6895	0.6894	0.0000	123
23	1	-0.6925E 04	-0.2134E 07	-0.2134E 07	0.1064E 07	-90.00	45.00	0.6717	0.6717	0.0000	139
23	1	-0.2095E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	-86.99	41.99	0.7452	0.6691	0.0000	51
23	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	-86.99	41.99	0.7240	0.6524	0.0000	88
23	1	-0.6966E 04	-0.2134E 07	-0.2134E 07	0.1064E 07	-86.99	41.99	0.7000	0.6357	0.0000	140
24	1	-0.2093E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	87.01	41.99	0.7452	0.6691	0.0000	51
24	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	87.00	41.99	0.7246	0.6524	0.0000	88
24	1	-0.6966E 04	-0.2134E 07	-0.2134E 07	0.1064E 07	87.00	41.99	0.7000	0.6357	0.0000	140
24	1	-0.2091E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	90.00	39.00	0.7702	0.6293	0.0000	52
24	1	-0.1031E 06	-0.2070E 07	-0.2077E 07	0.9869E 06	-90.00	38.99	0.7578	0.6136	0.0000	124
24	1	-0.6954E 04	-0.2134E 07	-0.2134E 07	0.1064E 07	-90.00	38.99	0.7363	0.5978	0.0000	141
24	1	-0.2095E 06	-0.2034E 07	-0.2034E 07	0.9125E 06	-86.99	35.99	0.8091	0.5878	0.0000	53

24	1	-0.1031E 06	-0.2077E 07	-0.2075E 07	0.5668E 06	-66.99	35.98	0.7888	0.5751	0.0000	89
24	1	-0.6693E 04	-0.2135E 07	-0.2135E 07	0.1066E 07	-66.99	35.99	0.7686	0.5584	0.0000	142
25	1	-0.2093E 06	-0.2030E 07	-0.2049E 07	0.5105E 06	67.00	35.98	0.6091	0.5878	0.0000	53
25	1	-0.1031E 06	-0.2077E 07	-0.2075E 07	0.5668E 06	67.00	35.99	0.7888	0.5751	0.0000	89
25	1	-0.7057E 04	-0.2135E 07	-0.2135E 07	0.1066E 07	67.00	35.99	0.7686	0.5584	0.0000	142
25	1	-0.2092E 06	-0.2030E 07	-0.2050E 07	0.5108E 06	60.00	32.99	0.8587	0.5440	0.0000	54
25	1	-0.1031E 06	-0.2077E 07	-0.2074E 07	0.5670E 06	60.00	32.99	0.8177	0.5310	0.0000	25
25	1	-0.7059E 04	-0.2135E 07	-0.2135E 07	0.1066E 07	60.00	32.99	0.7968	0.5174	0.0000	143
25	1	-0.2094E 06	-0.2031E 07	-0.2050E 07	0.5106E 06	-67.00	29.98	0.8660	0.5000	0.0000	55
25	1	-0.1030E 06	-0.2077E 07	-0.2074E 07	0.5671E 06	-67.00	29.98	0.8444	0.4875	0.0000	90
25	1	-0.7061E 04	-0.2135E 07	-0.2135E 07	0.1066E 07	-67.00	29.98	0.8227	0.4750	0.0000	144
26	1	-0.2094E 06	-0.2031E 07	-0.2050E 07	0.5107E 06	66.99	29.98	0.8660	0.5000	0.0000	55
26	1	-0.1031E 06	-0.2077E 07	-0.2074E 07	0.5671E 06	66.99	29.99	0.8444	0.4875	0.0000	90
26	1	-0.6722E 04	-0.2135E 07	-0.2135E 07	0.1066E 07	66.99	29.98	0.8227	0.4750	0.0000	144
26	1	-0.2091E 06	-0.2032E 07	-0.2051E 07	0.5115E 06	60.00	26.98	0.8910	0.4540	0.0000	56
26	1	-0.1031E 06	-0.2078E 07	-0.2074E 07	0.5674E 06	60.00	26.98	0.8687	0.4420	0.0000	26
26	1	-0.7063E 04	-0.2135E 07	-0.2135E 07	0.1066E 07	60.00	26.98	0.8404	0.4315	0.0000	145
26	1	-0.2092E 06	-0.2032E 07	-0.2052E 07	0.5119E 06	-67.01	25.98	0.9155	0.4067	0.0000	57
26	1	-0.1030E 06	-0.2078E 07	-0.2075E 07	0.5675E 06	-67.01	25.98	0.8900	0.3960	0.0000	91
26	1	-0.7062E 04	-0.2135E 07	-0.2135E 07	0.1066E 07	-67.01	25.98	0.8678	0.3864	0.0000	146
27	1	-0.2096E 06	-0.2034E 07	-0.2055E 07	0.5121E 06	66.98	25.99	0.9155	0.4067	0.0000	57
27	1	-0.1031E 06	-0.2078E 07	-0.2075E 07	0.5675E 06	66.98	25.99	0.8906	0.3966	0.0000	91
27	1	-0.6756E 04	-0.2135E 07	-0.2135E 07	0.1066E 07	66.98	25.99	0.8678	0.3864	0.0000	146
27	1	-0.2090E 06	-0.2035E 07	-0.2055E 07	0.5135E 06	60.00	20.97	0.9555	0.3584	0.0000	58
27	1	-0.1031E 06	-0.2079E 07	-0.2076E 07	0.5678E 06	60.00	20.97	0.9101	0.3494	0.0000	27
27	1	-0.1031E 06	-0.2079E 07	-0.2135E 07	0.1065E 07	60.00	20.97	0.8808	0.3405	0.0000	147
27	1	-0.2088E 06	-0.2036E 07	-0.2057E 07	0.5145E 06	-67.03	17.99	0.9509	0.3090	0.0000	59
27	1	-0.1031E 06	-0.2079E 07	-0.2076E 07	0.5680E 06	-67.03	17.99	0.9272	0.3015	0.0000	92
27	1	-0.7170E 04	-0.2135E 07	-0.2135E 07	0.1064E 07	-67.02	17.99	0.9054	0.2956	0.0000	148
28	1	-0.2096E 06	-0.2035E 07	-0.2055E 07	0.5149E 06	66.98	17.99	0.9509	0.3090	0.0000	59
28	1	-0.1032E 06	-0.2079E 07	-0.2076E 07	0.5681E 06	66.98	17.99	0.9272	0.3015	0.0000	92
28	1	-0.6801E 04	-0.2135E 07	-0.2135E 07	0.1064E 07	66.98	17.98	0.9054	0.2956	0.0000	148
28	1	-0.2089E 06	-0.2036E 07	-0.2057E 07	0.5159E 06	60.00	14.97	0.9658	0.2588	0.0000	60
28	1	-0.1030E 06	-0.2079E 07	-0.2076E 07	0.5680E 06	60.00	14.97	0.9416	0.2524	0.0000	28
28	1	-0.6911E 04	-0.2135E 07	-0.2135E 07	0.1065E 07	60.00	14.97	0.9176	0.2459	0.0000	149
28	1	-0.2086E 06	-0.2036E 07	-0.2040E 07	0.5172E 06	-67.03	12.00	0.9780	0.2079	0.0000	61
28	1	-0.1032E 06	-0.2080E 07	-0.2080E 07	0.5682E 06	-67.03	12.00	0.9555	0.2027	0.0000	93
28	1	-0.7482E 04	-0.2135E 07	-0.2135E 07	0.1064E 07	-67.03	12.00	0.9291	0.1975	0.0000	150
29	1	-0.2095E 06	-0.2044E 07	-0.2040E 07	0.5175E 06	67.02	11.98	0.9780	0.2079	0.0000	61
29	1	-0.1035E 06	-0.2080E 07	-0.2080E 07	0.5683E 06	67.03	11.98	0.9555	0.2027	0.0000	93
29	1	-0.6865E 04	-0.2135E 07	-0.2135E 07	0.1064E 07	67.03	11.98	0.9291	0.1975	0.0000	150
29	1	-0.2091E 06	-0.2042E 07	-0.2050E 07	0.5165E 06	66.99	9.00	0.9675	0.1565	0.0000	62
29	1	-0.1030E 06	-0.2079E 07	-0.2080E 07	0.5683E 06	66.98	8.99	0.9620	0.1520	0.0000	29
29	1	-0.6909E 04	-0.2135E 07	-0.2135E 07	0.1065E 07	66.99	8.99	0.9381	0.1486	0.0000	151
29	1	-0.2091E 06	-0.2041E 07	-0.2054E 07	0.5160E 06	-67.04	5.99	0.9944	0.1040	0.0000	63
29	1	-0.1034E 06	-0.2080E 07	-0.2080E 07	0.5682E 06	-66.98	5.99	0.9695	0.1019	0.0000	94
29	1	-0.7006E 04	-0.2135E 07	-0.2140E 07	0.1066E 07	-66.99	6.00	0.9446	0.0995	0.0000	152
30	1	-0.2088E 06	-0.2040E 07	-0.2034E 07	0.5158E 06	67.13	5.96	0.9944	0.1040	0.0000	63
30	1	-0.1030E 06	-0.2079E 07	-0.2079E 07	0.5682E 06	67.14	5.95	0.9695	0.1019	0.0000	94



30	1	-0.7439E 04	-0.4133E 07	-0.2140E 07	0.1066E 07	87.12	3.97	0.9446	0.0905	0.0000	132
30	1	-0.2095E 06	-0.2020E 07	-0.2023E 07	0.4095E 06	-89.95	3.04	0.9965	0.0524	0.0000	64
30	1	-0.1033E 06	-0.2070E 07	-0.2079E 07	0.4078E 06	-89.92	3.01	0.9736	0.0510	0.0000	-50
30	1	-0.7658E 04	-0.2142E 07	-0.2149E 07	0.1070E 07	-89.94	3.03	0.9406	0.0497	0.0000	133
30	1	0.7237E 06	-0.1081E 07	-0.1172E 06	0.4042E 06	-86.78	-0.13	1.0000	-0.0000	0.0000	6
30	1	0.5087E 06	-0.1080E 07	-0.6520E 05	0.4060E 06	-86.78	-0.13	0.9730	-0.0000	0.0000	6
30	1	0.1046E 07	-0.1103E 07	-0.1805E 05	0.1075E 07	-86.92	-0.09	0.9500	-0.0000	0.0000	5

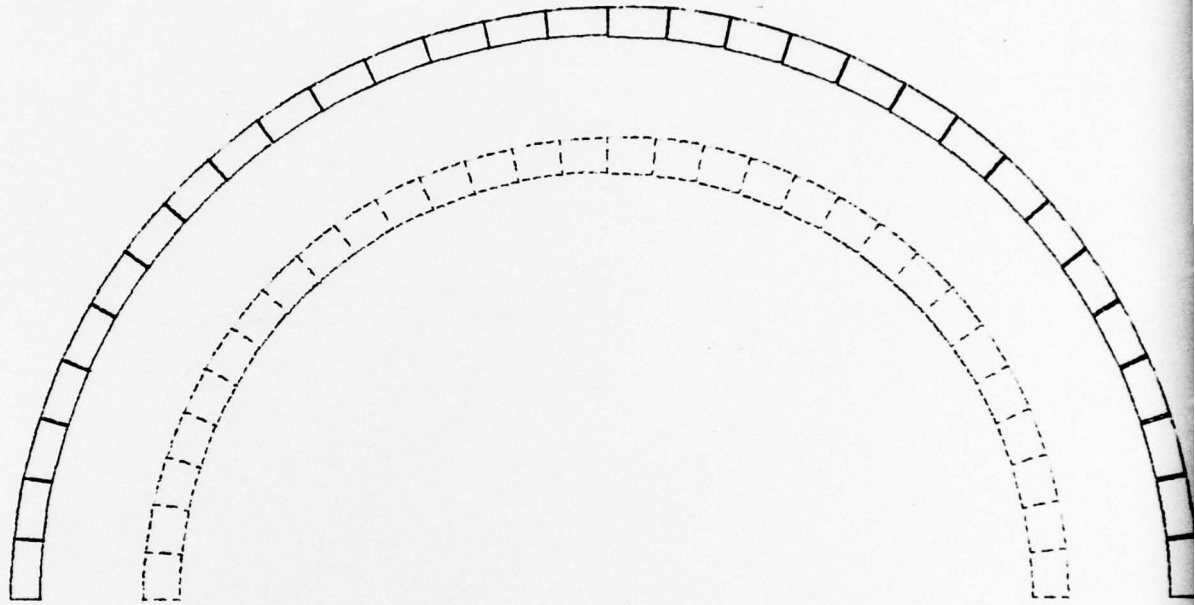
AVERAGING ROUTINE ENTERED

NODE NO	LOAD CASE	GLOBAL X	GLOBAL Y	Z	ANGLE	BETA	SIGMA 1	SIGMA 2	SIGMA 3	SIGMA 1 2	TAU MAX	ELF. NU
1	1	-0.9500	0.0000	0.0000	0.0000	0.1	0.105E 07	-0.110E 07	0.000E 00	0.107E 07	0.107E 07	0
2	1	-1.0000	0.0000	0.0000	0.0000	0.1	0.726E 06	-0.708E 07	0.000E 00	0.903E 06	0.903E 06	0
3	1	0.0000	0.9500	0.0000	0.0000	90.0	-0.696E 04	-0.214E 07	-0.213E 07	0.106E 07	0.106E 07	0
4	1	0.0000	1.0000	0.0000	0.0000	90.0	-0.209E 06	-0.205E 07	-0.205E 07	0.912E 06	0.912E 06	0
5	1	0.9500	0.0000	0.0000	0.0000	-0.1	0.105E 07	-0.110E 07	0.000E 00	0.107E 07	0.107E 07	0
6	1	1.0000	0.0000	0.0000	0.0000	-0.1	0.726E 06	-0.708E 07	0.000E 00	0.903E 06	0.903E 06	0
7	1	-0.9905	0.0524	0.0000	0.0000	-3.0	-0.209E 06	-0.205E 07	-0.205E 07	0.909E 06	0.909E 06	0
8	1	-0.9944	0.1046	0.0000	0.0000	-6.0	-0.209E 06	-0.204E 07	-0.203E 07	0.916E 06	0.916E 06	0
9	1	-0.9875	0.1265	0.0000	0.0000	-9.0	-0.209E 06	-0.204E 07	-0.204E 07	0.917E 06	0.917E 06	0
10	1	-0.9780	0.2079	0.0000	0.0000	-12.0	-0.209E 06	-0.204E 07	-0.204E 07	0.917E 06	0.917E 06	0
11	1	-0.9650	0.2888	0.0000	0.0000	-15.0	-0.209E 06	-0.204E 07	-0.204E 07	0.916E 06	0.916E 06	0
12	1	-0.9509	0.3090	0.0000	0.0000	-18.0	-0.209E 06	-0.204E 07	-0.204E 07	0.915E 06	0.915E 06	0
13	1	-0.9353	0.3284	0.0000	0.0000	-21.0	-0.209E 06	-0.204E 07	-0.204E 07	0.915E 06	0.915E 06	0
14	1	-0.9152	0.4067	0.0000	0.0000	-24.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
15	1	-0.8910	0.4540	0.0000	0.0000	-27.0	-0.209E 06	-0.203E 07	-0.203E 07	0.911E 06	0.911E 06	0
16	1	-0.8600	0.5000	0.0000	0.0000	-30.0	-0.209E 06	-0.203E 07	-0.203E 07	0.911E 06	0.911E 06	0
17	1	-0.8307	0.5446	0.0000	0.0000	-33.0	-0.209E 06	-0.203E 07	-0.203E 07	0.911E 06	0.911E 06	0
18	1	-0.8021	0.5878	0.0000	0.0000	-36.0	-0.209E 06	-0.203E 07	-0.203E 07	0.911E 06	0.911E 06	0
19	1	-0.7772	0.6293	0.0000	0.0000	-39.0	-0.209E 06	-0.203E 07	-0.203E 07	0.911E 06	0.911E 06	0
20	1	-0.7452	0.6691	0.0000	0.0000	-42.0	-0.209E 06	-0.203E 07	-0.203E 07	0.911E 06	0.911E 06	0
21	1	-0.7072	0.7071	0.0000	0.0000	-45.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
22	1	-0.6692	0.7431	0.0000	0.0000	-48.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
23	1	-0.6294	0.7771	0.0000	0.0000	-51.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
24	1	-0.5870	0.8090	0.0000	0.0000	-54.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
25	1	-0.5440	0.8387	0.0000	0.0000	-57.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
26	1	-0.5000	0.8660	0.0000	0.0000	-60.0	-0.209E 06	-0.203E 07	-0.203E 07	0.913E 06	0.913E 06	0
27	1	-0.4540	0.8910	0.0000	0.0000	-63.0	-0.209E 06	-0.203E 07	-0.203E 07	0.913E 06	0.913E 06	0
28	1	-0.4067	0.9135	0.0000	0.0000	-66.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
29	1	-0.3585	0.9336	0.0000	0.0000	-69.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
30	1	-0.3090	0.9511	0.0000	0.0000	-72.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
31	1	-0.2580	0.9659	0.0000	0.0000	-75.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
32	1	-0.2079	0.9781	0.0000	0.0000	-78.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
33	1	-0.1564	0.9877	0.0000	0.0000	-81.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
34	1	-0.1043	0.9945	0.0000	0.0000	-84.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
35	1	-0.0523	0.9986	0.0000	0.0000	-87.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
36	1	0.0523	0.9986	0.0000	0.0000	87.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
37	1	0.1043	0.9945	0.0000	0.0000	84.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
38	1	0.1564	0.9877	0.0000	0.0000	81.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
39	1	0.2079	0.9781	0.0000	0.0000	78.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
40	1	0.2580	0.9659	0.0000	0.0000	75.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
41	1	0.3090	0.9511	0.0000	0.0000	72.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
42	1	0.3585	0.9336	0.0000	0.0000	69.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
43	1	0.4067	0.9135	0.0000	0.0000	66.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
44	1	0.4540	0.8910	0.0000	0.0000	63.0	-0.209E 06	-0.203E 07	-0.203E 07	0.913E 06	0.913E 06	0
45	1	0.5000	0.8660	0.0000	0.0000	60.0	-0.209E 06	-0.203E 07	-0.203E 07	0.913E 06	0.913E 06	0
46	1	0.5440	0.8387	0.0000	0.0000	57.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
47	1	0.5870	0.8090	0.0000	0.0000	54.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
48	1	0.6294	0.7771	0.0000	0.0000	51.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0
49	1	0.6692	0.7431	0.0000	0.0000	48.0	-0.209E 06	-0.203E 07	-0.203E 07	0.912E 06	0.912E 06	0

50	1	0.7074	0.6071	0.0000	45.0	-0.409E 06	-0.203E 07	0.912E 06	0.912E 06	0.912E 06
51	1	0.7652	0.6091	0.0000	42.0	-0.409E 06	-0.203E 07	0.911E 06	0.911E 06	0.911E 06
52	1	0.7774	0.6293	0.0000	39.0	-0.409E 06	-0.203E 07	0.911E 06	0.911E 06	0.911E 06
53	1	0.8041	0.6078	0.0000	36.0	-0.409E 06	-0.203E 07	0.911E 06	0.911E 06	0.911E 06
54	1	0.8307	0.5446	0.0000	33.0	-0.409E 06	-0.203E 07	0.911E 06	0.911E 06	0.911E 06
55	1	0.8600	0.5000	0.0000	30.0	-0.409E 06	-0.203E 07	0.911E 06	0.911E 06	0.911E 06
56	1	0.8910	0.5240	0.0000	27.0	-0.409E 06	-0.203E 07	0.911E 06	0.911E 06	0.911E 06
57	1	0.9155	0.5067	0.0000	24.0	-0.409E 06	-0.203E 07	0.911E 06	0.911E 06	0.911E 06
58	1	0.9355	0.5284	0.0000	21.0	-0.409E 06	-0.203E 07	0.913E 06	0.913E 06	0.913E 06
59	1	0.9500	0.5000	0.0000	18.0	-0.409E 06	-0.204E 07	0.915E 06	0.915E 06	0.915E 06
60	1	0.9650	0.5288	0.0000	15.0	-0.409E 06	-0.204E 07	0.916E 06	0.916E 06	0.916E 06
61	1	0.9750	0.5079	0.0000	12.0	-0.409E 06	-0.204E 07	0.917E 06	0.917E 06	0.917E 06
62	1	0.9875	0.5265	0.0000	9.0	-0.409E 06	-0.204E 07	0.917E 06	0.917E 06	0.917E 06
63	1	0.9944	0.5046	0.0000	6.0	-0.409E 06	-0.203E 07	0.916E 06	0.916E 06	0.916E 06
64	1	0.9985	0.5224	0.0000	3.0	-0.409E 06	-0.203E 07	0.909E 06	0.909E 06	0.909E 06
65	1	0.9750	0.5000	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
66	1	0.9650	0.5079	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
67	1	0.9555	0.5227	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
68	1	0.9272	0.5013	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
69	1	0.8900	0.5266	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
70	1	0.8444	0.5075	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
71	1	0.7800	0.5251	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
72	1	0.7240	0.5224	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
73	1	0.6524	0.5246	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
74	1	0.5751	0.5088	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
75	1	0.4875	0.5044	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
76	1	0.3900	0.5007	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
77	1	0.3015	0.5273	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
78	1	0.2027	0.5257	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
79	1	0.1019	0.5097	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
80	1	0.0000	0.5050	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
81	1	0.1019	0.5097	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
82	1	0.2027	0.5257	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
83	1	0.3015	0.5273	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
84	1	0.3900	0.5007	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
85	1	0.4875	0.5044	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
86	1	0.5751	0.5088	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
87	1	0.6524	0.5246	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
88	1	0.7240	0.5224	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
89	1	0.7800	0.5251	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
90	1	0.8444	0.5075	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
91	1	0.8900	0.5000	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
92	1	0.9272	0.5013	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
93	1	0.9555	0.5227	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
94	1	0.9650	0.5079	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
95	1	0.9750	0.5000	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
96	1	0.9400	0.5097	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
97	1	0.9460	0.5093	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
98	1	0.9301	0.5186	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
99	1	0.9291	0.5175	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
100	1	0.9175	0.5450	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
101	1	0.9054	0.5236	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
102	1	0.8800	0.5405	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
103	1	0.8470	0.5064	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
104	1	0.8404	0.5313	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
105	1	0.8227	0.4750	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
106	1	0.7900	0.5174	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
107	1	0.7600	0.5284	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
108	1	0.7385	0.5278	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
109	1	0.7000	0.6357	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
110	1	0.6710	0.6717	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06
111	1	0.6357	0.7065	0.0000	0.1	-0.409E 06	-0.203E 07	0.908E 06	0.908E 06	0.908E 06

112	1	-0.5979	0.7383	0.0000	-31.0	-0.722E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
113	1	-0.5584	0.7686	0.0000	-54.0	-0.696E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
114	1	-0.5176	0.7967	0.0000	-37.0	-0.719E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
115	1	-0.4720	0.8227	0.0000	-60.0	-0.695E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
116	1	-0.4313	0.8465	0.0000	-63.0	-0.719E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
117	1	-0.3804	0.8679	0.0000	-66.0	-0.695E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
118	1	-0.3404	0.8869	0.0000	-69.0	-0.720E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
119	1	-0.2933	0.9035	0.0000	-72.0	-0.695E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
120	1	-0.2439	0.9176	0.0000	-75.0	-0.723E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
121	1	-0.1973	0.9292	0.0000	-78.0	-0.695E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
122	1	-0.1466	0.9448	0.0000	-81.0	-0.725E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
123	1	-0.0993	0.9448	0.0000	-84.0	-0.696E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
124	1	-0.0497	0.9487	0.0000	-87.0	-0.726E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
125	1	0.0497	0.9487	0.0000	87.0	-0.726E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
126	1	0.0993	0.9448	0.0000	84.0	-0.696E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
127	1	0.1466	0.9383	0.0000	81.0	-0.725E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
128	1	0.1973	0.9292	0.0000	78.0	-0.695E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
129	1	0.2439	0.9176	0.0000	75.0	-0.723E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
130	1	0.2933	0.9035	0.0000	72.0	-0.695E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
131	1	0.3404	0.8869	0.0000	69.0	-0.720E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
132	1	0.3804	0.8679	0.0000	66.0	-0.695E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
133	1	0.4313	0.8465	0.0000	63.0	-0.719E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
134	1	0.4720	0.8227	0.0000	60.0	-0.695E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
135	1	0.5174	0.7967	0.0000	57.0	-0.719E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
136	1	0.5584	0.7686	0.0000	54.0	-0.696E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
137	1	0.5979	0.7383	0.0000	51.0	-0.722E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
138	1	0.6357	0.7060	0.0000	48.0	-0.698E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
139	1	0.6716	0.6717	0.0000	45.0	-0.727E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
140	1	0.7080	0.6257	0.0000	42.0	-0.698E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
141	1	0.7393	0.5978	0.0000	39.0	-0.734E 04	-0.213E 07	-0.213E 07	0.107E 07	0.107E 07	0
142	1	0.7686	0.5684	0.0000	36.0	-0.696E 04	-0.213E 07	-0.213E 07	0.107E 07	0.107E 07	0
143	1	0.7968	0.5374	0.0000	33.0	-0.739E 04	-0.213E 07	-0.213E 07	0.107E 07	0.107E 07	0
144	1	0.8227	0.4750	0.0000	30.0	-0.692E 04	-0.213E 07	-0.213E 07	0.107E 07	0.107E 07	0
145	1	0.8464	0.4313	0.0000	27.0	-0.736E 04	-0.213E 07	-0.213E 07	0.107E 07	0.107E 07	0
146	1	0.8676	0.3864	0.0000	24.0	-0.687E 04	-0.213E 07	-0.213E 07	0.107E 07	0.107E 07	0
147	1	0.8868	0.3405	0.0000	21.0	-0.720E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
148	1	0.9034	0.2936	0.0000	18.0	-0.688E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
149	1	0.9173	0.2439	0.0000	15.0	-0.691E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
150	1	0.9291	0.1975	0.0000	12.0	-0.718E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
151	1	0.9381	0.1486	0.0000	9.0	-0.659E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
152	1	0.9446	0.0993	0.0000	6.0	-0.752E 04	-0.213E 07	-0.213E 07	0.106E 07	0.106E 07	0
153	1	0.9486	0.0497	0.0000	3.0	-0.775E 04	-0.213E 07	-0.213E 07	0.107E 07	0.107E 07	0
0	0	-0.9736	0.0210	0.0000	-3.0	-0.103E 06	-0.208E 07	-0.208E 07	0.988E 06	0.988E 06	1
0	0	-0.9626	0.1326	0.0000	-9.0	-0.103E 06	-0.208E 07	-0.208E 07	0.988E 06	0.988E 06	2
0	0	-0.9416	0.2524	0.0000	-15.0	-0.103E 06	-0.208E 07	-0.208E 07	0.988E 06	0.988E 06	3
0	0	-0.9107	0.3694	0.0000	-21.0	-0.103E 06	-0.208E 07	-0.208E 07	0.988E 06	0.988E 06	4
0	0	-0.8681	0.4426	0.0000	-27.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	5
0	0	-0.8177	0.5310	0.0000	-33.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	6
0	0	-0.7578	0.6136	0.0000	-39.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	7
0	0	-0.6892	0.6994	0.0000	-45.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	8
0	0	-0.6136	0.7577	0.0000	-51.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	9
0	0	-0.5310	0.8177	0.0000	-57.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	10
0	0	-0.4460	0.8687	0.0000	-63.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	11
0	0	-0.3494	0.9102	0.0000	-69.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	12
0	0	-0.2523	0.9418	0.0000	-75.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	13
0	0	-0.1523	0.9630	0.0000	-81.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	14
0	0	-0.0510	0.9737	0.0000	-87.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	15
0	0	0.0510	0.9737	0.0000	87.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	16
0	0	0.1523	0.9418	0.0000	81.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	17
0	0	0.2523	0.8618	0.0000	75.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	18
0	0	0.3494	0.7102	0.0000	69.0	-0.103E 06	-0.208E 07	-0.208E 07	0.987E 06	0.987E 06	19

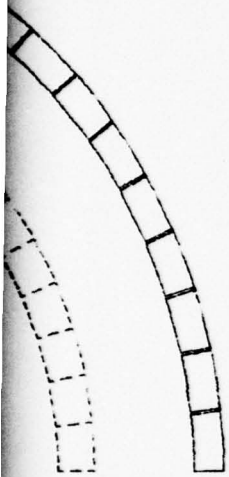
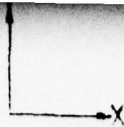




PAFEC/DRAW ON 22/03/78

AT 09/29/49

DISPLACED SHAPE PLOT FROM EXAMPLE RUN



DISPLACED SHOWN DOTTED  
SCALE OF DISPLACEMENTS =  
0.00000000 UNITS/CM  
DRC. NO. 1  
SCALE = 0.0859:1

FIG. 1

Detachable Abstract Cards

These abstract cards are inserted in A.U.W.E. reports and notes for the convenience of librarians and others who need to maintain an information index

<p><u>UNCLASSIFIED/UNLIMITED</u></p> <p>A.U.W.E. Publication 45685 W. J. Butterworth April, 1978</p> <p>62:681.3</p> <p>PAFEC75 on the A.U.W.E. ICL 1904S* A Users Guide</p> <p>PAFEC75 is the latest development in the PAFEC suite which carries out stress or thermal analysis on any structure by means of finite element methods. A guide to the method of use on the 1904S* at A.U.W.E. is given. It is intended that later a dedicated minicomputer will become available.</p>	<p><u>UNCLASSIFIED/UNLIMITED</u></p> <p>A.U.W.E. Publication 45685 W. J. Butterworth April, 1978</p> <p>62.681.3</p> <p>PAFEC75 on the A.U.W.E. ICL 1904S* A Users Guide</p> <p>PAFEC75 is the latest development in the PAFEC suite which carries out stress or thermal analysis on any structure by means of finite element methods. A guide to the method of use on the 1904S* at A.U.W.E. is given. It is intended that later a dedicated minicomputer will become available.</p>
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