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16. Abstract
Most codes of practice prescribe procedures for selecting patch configuration and materials based on test devised for evaluating new pavement materials. This study is aimed at examining the special consideration to be given to such evaluation procedures and to suggest improved procedures for brittle repair materials, based on additional tests and computer analysis.

The first part of the present investigation covers the experimental study, in which three different repair materials, namely plain concrete, steel fiber concrete, and rapid patch material (Duracel cement) are investigated. Tests are conducted on two different patch configurations (transition and rectangular) and three different patch depths (2, 4 and 6 inches). The experimental procedure to evaluate a brittle repair material consider four tests, namely, uniaxial strength test, biaxial strength test, bond strength tests, and shear test of a repaired pavement joint. As a result of the experimental study, it is concluded that the proposed biaxial testing set-up has been shown to provide a better understanding by which the strength and behavior of brittle repair materials can be fully investigated. It is observed that the strength of the repair material under combined tension and compression is lower than under uniaxial compression, and the strength decreases as the applied tensile stress in increased.

In the second part of this study, a mechanistic patched pavement analysis program is developed to assist in the evaluation of patching procedures and materials. Such a program can be used to develop curves which aid in the selection process. It can also be used for a case by case analysis for specific problems. This program can analyze both intact and patched concrete pavements considering different loading and support conditions, material properties, patch configurations, and depths. In this study, for the first time a complete distress simulation capability has been built into a three dimensional analysis program and it is expected that analysis using this program would enable better understanding of pavement behavior, which can lead to proper guidelines for evaluation of different materials and repair procedures in rehabilitating rigid-jointed pavements.

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ENGINEERING PROPERTIES OF BRITTLE REPAIR MATERIALS

FINAL REPORT

Volume II

by

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Table A.4

Cylinder compressive strength after 90 days

Group	Failure Load (lb)	Strength (psi)	Average Strength (psi)
I	152,250	5,383	5,290
	149,000	5,269	
	149,500	5,286	
	150,175	5,310	
	147,750	5,224	
	149,000	5,269	
	148,000	5,233	
	147,500	5,216	
	153,750	5,437	
	148,000	5,233	
	150,720	5,330	
II	151,590	5,360	5,510
	157,170	5,557	
	154,580	5,465	
	157,100	5,555	
	159,410	5,636	
	154,320	5,456	
	167,700	5,930	
	148,190	5,240	
	155,450	5,496	
	152,620	5,396	

Table A.5

Static modulus of elasticity and Poisson's ratio

(a) After 28 days

Specimen	Stress (psi)	Strain		E (psi)	ν
		Longitudinal	Transverse		
1	365.5	0.000050	0.0000042	4,803,618	0.185714
	706.7	0.000108	0.0000083		
	1,060.1	0.000221	0.000033		
	1,413.4	0.000283	0.000050		
	1,766.8	0.000342	0.000058		
2	330.4	0.000050	0.0000	4,855,405	0.140845
	706.7	0.000121	0.0000040		
	1,060.1	0.000229	0.0000167		
	1,413.4	0.000287	0.0000250		
	1,766.8	0.000346	0.0000417		
3	305.7	0.000050	0.00000	5,082,176	0.144928
	706.7	0.0001125	0.0000083		
	1,060.1	0.0002167	0.0000250		
	1,413.4	0.000279	0.0000350		
	1,766.8	0.000337	0.0000417		

Table A.5

Static modulus of elasticity and Poisson's ratio

(b) After 90 days

Specimen	Stress (psi)	Strain		E (psi)	ν
		Longitudinal	Transverse		
1	355.1	0.0000400	0.0000052	4,954,418	0.1842105
	706.7	0.0001083	0.0000167		
	706.7	0.0001771	0.0000292		
	1,060.1	0.0002417	0.0000375		
	1,413.4	0.0003021	0.0000479		
	1,766.8	0.0003729	0.0000604		
	2,120.1	0.0004063	0.0000708		
2	323.3	0.0000500	0.0000021	4,662,002	0.1729730
	706.7	0.0001229	0.0000188		
	706.7	0.0001896	0.0000292		
	1,060.1	0.0002542	0.0000406		
	1,413.4	0.0003229	0.0000521		
	1,766.8	0.0003896	0.0000615		
	2,120.1	0.0004354	0.0000688		
3	350.9	0.0000500	0.0000021	5,897,506	0.1354167
	706.7	0.0001063	0.0000104		
	706.7	0.0001583	0.0000188		
	1,060.1	0.0002167	0.0000271		
	1,413.4	0.0002625	0.0000344		
	1,766.8	0.0003250	0.0000406		
	2,120.1	0.0003500	0.0000427		

Table A.6

Splitting tensile strength

Group	Age of 28 Days			Age of 90 Days		
	Load (lb)	Strength (psi)	Average (psi)	Load (lb)	Strength (psi)	Average (psi)
I	38,700	343.6	360	41,500	367.6	370
	38,600	342.7		38,100	336.9	
	38,800	343.9		39,200	348.0	
	40.000	355.0		40,000	355.0	
	41,800	369.0		41,000	370.0	
	41,500	367.0		40,500	359.0	
	43,500	386.0		43,900	390.0	
	40,000	355.0		42,600	377.0	
	42,500	375.0		44,700	397.0	
	40,000	355.0		42,400	376.0	
	41,000	362.0		44,600	394.0	
II	42,500	377.3	376	47,200	420.0	394
	45,500	403.9		46,300	411.0	
	41,000	364.0		42,500	377.3	
	43,200	383.5		44,700	397.0	
	42,600	378.2		41,750	370.7	
	39,300	349.0		43,650	387.6	

Table A.7

Results of flexural strength after 28 days

Group	Failure Load (lb)	Strength (psi)	Average Failure Load (lb)	Average Strength (psi)
I	6,300	525	7,433	620
	7,100	590		
	6,600	549		
	8,000	667		
	8,800	733		
	5,800	483		
	6,900	575		
	8,400	700		
	9,000	750		
II	6,800	566	7,600	633
	9,200	767		
	7,800	650		
	6,200	516		
	7,400	616		
	8,000	667		
	8,800	733		
	6,600	550		

Table A.9

Load-deflection of flexural beam after 28 days

Load (lb)	Dial Readings (0.001 in.)					
	Beam #1	Beam #2	Beam #3	Beam #4	Beam #5	Average
1000	6.0	7.8	8.2	9.2	8.8	8.0
2000	10.0	10.5	12.5	14.0	13.2	12.0
3000	14.0	16.7	14.2	18.3	18.0	16.3
4000	20.8	19.3	22.6	20.2	23.1	21.2
5000	22.3	26.0	26.9	24.3	27.2	25.1
6000	25.4	29.8	30.8	25.6	31.0	28.5
7000	28.2	32.7	32.8	29.3	32.0	31.0
8000	31.4	37.0	38.4	33.8	36.4	35.4
8160	34.3	40.8	43.7	42.0	39.2	40.0
0.0	141.0	122.0	168.0	155.0	183.0	153.8

Table A.11

Stress-strain relation for concrete under uniaxial tension after 28 days

Stress (psi)	ε_1, Tensile Strain (μ str.)	ε_3, Compressive Strain (μ str.)
50	05.0	- 0.85
100	12.5	- 2.12
150	16.3	- 2.77
200	26.4	- 4.49
250	37.5	- 6.37
300	60.0	- 10.2
350	68.2	- 11.6
400	90.0	- 15.3
425	95.2	- 16.18
450	112.0	- 19.0
500	138.0	- 23.46
525	150.0	- 25.5
535 (failure)	162.5	- 27.6
520	163.0	- 27.7
500	165.0	- 28.0
450	175.0	- 29.8
300	200.0	- 34.0
250	285.5	- 48.5

Table A.13

Uniaxial tensile stress-tensile strain relation of patched specimens of age 28 days

Tensile Stress, σ_1 (psi)	Tensile Strain, ε_1: μ str.	
	Transition of d = 2"	Rectangular d = 2"
50	12.5	10
100	18	20
150	23	26
200	38	36
250	46	48
300	65	74
350	88	98
400	123	121
410	---	135
430	155	---

Table A.14

Uniaxial tensile stress-strain of patched specimen concrete of age 90 days

Tensile Stress, σ_1 (psi)	Tensile Strain, ε_1: μ str.	
	Transition of d = 2"	Rectangular d = 2"
50	8	8
100	11	15
150	18	22
200	29	31
250	38	42
300	58	63
350	78	86
400	102	112
430	133	145
450	162	---

Table A.15

Uniaxial stress-strain relationship for concrete under uniaxial compression after 28 days

Load (lb)	Stress (σ_3) (psi)	ε_3 (in/in)	ε_1 (in/in)
25,000	278	- 0.000020	0.0000034
50,000	555	- 0.000025	0.0000043
75,000	833	- 0.000040	0.0000078
100,000	1,111	- 0.000060	0.000018
125,000	1,390	- 0.000096	0.000026
150,000	1,666	- 0.000230	0.000048
175,000	1,945	- 0.000337	0.000067
200,000	2,222	- 0.000456	0.000088
235,000	2,610	- 0.000970	0.00016
268,000	2,978	- 0.001480	0.00031
275,000	3,055	- 0.001980	0.00041

Table A.16

Uniaxial stress-strain relation for concrete under uniaxial compression after 90 days

Stress (σ_3) (psi)	ε_3 (μ st.)	ε_1 (μ st.)
222	- 13	1.3
445	- 20	3.2
667	- 25	6.2
889	- 30	7.1
1,111	- 40	13.2
1,333	- 70	23.2
1,556	- 163	43.1
1,778	- 198	46.6
2,000	- 300	65.2
2,222	- 400	80.1
2,445	- 500	132.7
2,667	- 820	285.0
2,778	- 1,000	300.0
2,889	- 1,225	360.0
3,000	- 1,375	392.0
3,111	- 1,650	415.0
3,222	- 2,080	470.0
3,250	- 2,460	492.0

Table A.17(a)

Stress-strain relation of transition patched specimens subjected to uniaxial compression after 28 days

Stress, σ_3 (psi)	Strain (μ str.)		
	d = 2"	d = 7"	d = 10"
200	20	20	40
500	80	50	70
800	170	200	150
1,000	180	220	200
1,200	250	300	340
1,500	420	450	500
1,800	480	550	580
2,000	540	680	730
2,500	840	900	1,000
(peak)	1,400 (3,010)	1,060 (2,700)	(2,500)

Table A.17(b)

Stress-strain relation of rectangular patched specimens subjected to uniaxial compression after 28 days

Stress, σ_3 (psi)	Strain (μ str.)		
	d = 2"	d = 7"	d = 10"
200	50	10	80
500	100	30	100
800	200	240	280
1,000	220	270	310
1,200	280	350	410
1,500	460	510	530
1,800	520	600	650
2,000	600	690	710
2,500	1,030	930	
(peak stress)	1,300 (2,790)	1,100 (2,540)	1,200 (2,380)

Table A.18

Stress-strain relation of patched specimens subjected to uniaxial compression after 90 days

Stress, σ_3 (psi)	Strain (μ str.)	
	Transition of d = 7"	Rectangular of d = 7"
200	13	11
500	42	25
800	187	200
1,000	208	250
1,200	288	300
1,500	420	490
1,800	520	570
2,000	665	675
2,300	710	785
2,500	800	880
2,690	---	1,150
2,810	1,120	---

Table A.19

Material properties obtained from the uniaxial tests

Specimen	f_{tu} (psi)	ε_p (μstr.)	f_{cu} (psi)	ε_c (μstr.)	E_t (psi)	E_c (psi)	$\frac{E_t}{f_{tu}/\varepsilon_p}$	$\frac{E_c}{f_{cu}/\varepsilon_c}$
Non-Patched Specimen	535	163	3,070	1,980	5.0×10^6	7.2×10^6	1.52	4.6
Transition Patch								
d = 2"	430	155	3,010	1,400	4.6×10^6	4.8×10^6	1.66	2.2
d = 7"	---	---	2,700	1,060	---	4.0×10^6	---	1.6
d = 10"	---	---	2,500	1,000	---	3.8×10^6	---	1.52
Rectangular Patch								
d = 2"	410	135	2,800	1,300	4.1×10^6	4.3×10^6	1.35	2.0
d = 7"	---	---	2,540	1,100	---	3.6×10^6	---	1.56
d = 10"	---	---	2,380	1,200	---	3.2×10^6	---	1.61

Table A.20

Ultimate strength of concrete subjected to biaxial tension-compression after 28 days

Compressive Load (lb)	Working Pressure (psi)	Compressive Strength (psi)	Tensile Strength (psi)
289,000	0	3,211	0.0
293,000	0	3,256	0.0
278,000	0	3,094	0.0
281,000	0	3,128	0.0
0	1,400	0	375.0
0	2,000	0	535.0
0	2,200	0	589.0
265,750	300	2,953	80.3
214,720	300	2,386	80.3
263,320	300	2,926	80.3
245,210	500	2,724	133.8
207,720	500	2,308	133.8
228,000	600	2,533	160.6
205,000	600	2,278	160.6
219,800	700	2,442	187.3
165,800	1,000	1,842	267.6
188,580	1,000	2,095	267.6
150,800	1,200	1,675	321.2
93,280	1,600	1,036	428.2
28,720	1,700	319	455.0

Table A.21

Ultimate strength of concrete subjected to biaxial tension-compression after 90 days

Compressive Load (lb)	Working Pressure (psi)	Compressive Strength (psi)	Tensile Strength (psi)
305,220	0	3,391	0
295,150	0	3,280	0
303,000	0	3,367	0
285,250	0	3,170	0
292,540	0	3,250	0
0	2,230	0	597
0	2,120	0	568
0	2,050	0	550
80,000	1,830	890	491
121,000	1,590	1,345	426
160,000	1,420	1,778	381
140,000	1,470	1,555	395
100,000	1,725	1,111	463
60,000	1,980	667	531
40,000	2,030	445	545
230,000	840	2,556	225
270,000	500	3,000	135
200,000	1,080	2,222	290
292,000	450	3,245	120

Table A.22

Ultimate strength of patched specimens of age 28 days

Patch Shape	depth = 2"		depth = 7"		depth = 10"	
	σ_3 (psi)	σ_1 (psi)	σ_3 (psi)	σ_1 (psi)	σ_3 (psi)	σ_1 (psi)
Transition	2,950	0	2,665	0	2,550	0
	0	435	0	350	0	270
	1,030	325	600	340	930	260
	1,990	200	1,150	265	1,720	135
	2,500	85	1,430	200	2,000	100
	2,700	50	1,720	190	2,400	25
	2,800	20	2,350	70		
Rectangular	2,860	0	2,570	0	2,350	0
	0	415	0	315	0	235
	1,050	300	760	290	900	230
	2,000	170	1,280	220	1,790	120
	2,500	60	1,925	115	2,000	60
			2,300	50		

Table A.23

Ultimate strength of patched specimens (d = 7") of age 90 days

Transition Patch		Rectangular Patch	
σ_3 (psi)	σ_1 (psi)	σ_3 (psi)	σ_1 (psi)
2,810	0	2,690	0
0	380	0	340
665	350	315	330
2,500	65	800	300
1,900	170	1,270	245
1,230	300	2,155	95
950	320	1,615	190
2,250	120	2,470	40

Table A.24. Biaxial stress-strain relation after 28 days.

(a) Failure load: σ_1 = 80.3 psi, σ_3 = - 2,378 psi

Compression Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Longitudinal Strain ε_3 (in/in)	Transverse Strain ε_1 (in/in)
- 278	10	$- 3.2 \times 10^{-5}$	39×10^{-6}
- 555	18	$- 1.1 \times 10^{-4}$	50×10^{-6}
- 833	28	$- 1.9 \times 10^{-4}$	52×10^{-6}
- 1,111	38	$- 2.3 \times 10^{-4}$	73×10^{-6}
- 1,380	46	$- 3.3 \times 10^{-4}$	103×10^{-6}
- 1,667	55	$- 4.1 \times 10^{-4}$	180×10^{-6}
- 1,945	65	$- 6.4 \times 10^{-4}$	250×10^{-6}
- 2,222	75	$- 9.6 \times 10^{-4}$	3.03×10^{-4}
- 2,378	80.3	$- 1.26 \times 10^{-3}$	4.6×10^{-4}

Table A.24

Biaxial stress-strain relation after 28 days

(b) Failure load: σ_1 = 160 psi, σ_3 = - 2,278 psi

Compression Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Longitudinal Strain ε_3 (in/in)	Transverse Strain ε_1 (in/in)
- 222	16	$- 4.8 \times 10^{-5}$	20×10^{-6}
- 444	31	$- 9.6 \times 10^{-5}$	41×10^{-6}
- 667	47	$- 1.4 \times 10^{-4}$	59×10^{-6}
- 889	63	$- 1.9 \times 10^{-4}$	85×10^{-6}
- 1,111	78	$- 2.4 \times 10^{-4}$	125×10^{-6}
- 1,333	95	$- 3.0 \times 10^{-4}$	220×10^{-6}
- 1,778	125	$- 4.22 \times 10^{-4}$	390×10^{-6}
- 2,000	140	$- 6.2 \times 10^{-4}$	490×10^{-6}
- 2,167	152	$- 7.3 \times 10^{-4}$	548×10^{-6}
- 2,222	156	$- 8.1 \times 10^{-4}$	758×10^{-6}
- 2,278	160	$- 9.8 \times 10^{-4}$	950×10^{-6}

Table A.24

Biaxial stress-strain relation after 28 days

(c) Failure load: σ_1 = 267 psi, σ_3 = - 2,111 psi

Compression Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Longitudinal Strain ε_3 (in/in)	Transverse Strain ε_1 (in/in)
- 111	14	2.3×10^{-5}	4.7×10^{-6}
- 222	28	4.7×10^{-5}	4.7×10^{-6}
- 333	43	9.3×10^{-5}	5.2×10^{-6}
- 444	55	9.6×10^{-5}	5.8×10^{-6}
- 555	70	1.0×10^{-4}	6×10^{-6}
- 666	85	1.3×10^{-4}	6×10^{-6}
- 777	98	1.6×10^{-4}	39×10^{-6}
- 888	113	1.9×10^{-4}	63×10^{-6}
- 1,000	126	2.1×10^{-4}	86×10^{-6}
- 1,111	140	2.4×10^{-4}	112×10^{-6}
-1,222	155	2.8×10^{-4}	218×10^{-6}
- 1,333	168	3.2×10^{-4}	328×10^{-6}
- 1,389	175	3.3×10^{-4}	330×10^{-6}
- 1,444	183	3.5×10^{-4}	385×10^{-6}
- 1,666	211	4.6×10^{-4}	400×10^{-6}
- 2,111	267	9×10^{-4}	420×10^{-6}

Table A.25

Biaxial relation after 90 days

(a) Failure: σ_1 = 290 psi, σ_3 = 2,222 psi

Compression Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Longitudinal Strain ε_3 (μ st.)	Transverse Strain ε_1 (μ st.)
- 222	0	- 43.0	7.8
- 444	0	- 78.6	14.1
- 666	0	- 138.2	26.0
- 889	0	- 250.6	47.6
- 1,111	0	- 342.6	65.1
- 1,333	0	- 363.6	72.7
- 1,555	0	- 451.6	95.6
- 1,778	0	- 553.6	116.2
- 2,000	0	- 603.2	132.7
- 2,111	0	- 662.7	134.7
- 2,222	0	- 680.2	150.7
- 2,222	53	- 696.3	160.8
- 2,222	107	- 720.3	198.6
- 2,222	160	- 746.3	224.0
- 2,222	214	- 755.6	241.6
- 2,222	267	- 776.3	266.7
- 2,222	290	- 785.6	282.8

Table A.25

Biaxial relation after 90 days

(b) Failure: σ_1 = 381 psi, σ_3 = - 1,778 psi

Compression Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Longitudinal Strain ε_3 (μ st.)	Transverse Strain ε_1 (μ st.)
- 222	0	- 53.0	10.3
- 444	0	- 87.8	17.2
- 666	0	- 147.3	32.1
- 889	0	- 252.0	47.3
- 1,111	0	- 345.6	63.2
- 1,333	0	- 397.8	87.5
- 1,555	0	- 473.2	108.6
- 1,667	0	- 520.1	120.2
- 1,778	0	- 582.7	140.3
- 1,778	53.5	- 593.6	165.3
- 1,778	107.0	- 605.2	185.7
- 1,778	160.6	- 627.3	209.3
- 1,778	214.2	- 635.7	230.0
- 1,778	267.7	- 655.1	252.0
- 1,778	321.2	- 670.0	272.6
- 1,778	348.0	- 691.0	286.8
- 1,778	374.8	- 702.0	300.2
- 1,778	381.0	- 716.2	305.6

Table A.25

Biaxial relation after 90 days

(c) Failure: σ_1 = 426 psi, σ_3 = - 1,345 psi

Compression Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Longitudinal Strain ε_3 (μ st.)	Transverse Strain ε_1 (μ st.)
- 222	0	- 65.3	10.4
- 444	0	- 92.6	15.6
- 666	0	- 132.3	23.1
- 889	0	- 246.7	44.3
- 1,111	0	- 332.0	66.4
- 1,222	0	- 357.2	82.3
- 1,333	0	- 382.6	87.6
- 1,345	0	- 432.1	103.6
- 1,345	53.5	- 442.6	115.7
- 1,345	160.6	- 463.5	145.3
- 1,345	214.2	- 478.3	163.2
- 1,345	321.2	- 500.0	197.7
- 1,345	374.8	- 531.6	224.8
- 1,345	402.6	- 554.7	238.5
- 1,345	426.0	572.0	250.8

Table A.26

Stress-strain relation of patched specimens subjected to compression-tension

(a) Transition patch of d = 2" (σ_1/σ_3 = - 0.28)

Compressive Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Compressive Strain ε_3 (μ str.)
- 200	50	- 50
- 400	100	- 100
- 600	150	- 310
- 700	200	- 380
- 800	220	- 450
- 900	250	- 500
- 1,000	280	- 560
- 1,100	300	- 680
- 1,200	330	- 750

(b) Rectangular patch of d = 2" (σ_1/σ_3 = - 0.28)

Compressive Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Compressive Strain ε_3 (μ str.)
- 200	50	- 80
- 400	100	- 163
- 600	150	- 281
- 700	200	- 327
- 800	220	- 430
- 900	250	- 476
- 1,000	280	- 602
- 1,100	310	- 723

Table A.26

Stress-strain relation of patched specimens subjected to compression-tension

(c) Transition patch of d = 7" (σ_1/σ_3 = - 0.28)

Compressive Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Compressive Strain ε_3 (μ str.)
- 200	50	- 100
- 400	100	- 210
- 600	150	- 380
- 700	200	- 410
- 800	210	- 500
- 900	260	- 580
- 1,000	285	- 700

(d) Rectangular patch of d = 7" (σ_1/σ_3 = - 0.28)

Compressive Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Compressive Strain ε_3 (μ str.)
200	50	- 107
400	100	- 242
500	130	- 325
600	160	- 361
700	200	- 420
750	215	- 460
800	240	- 580
900	255	- 662

Table A.26

Stress-strain relation of patched specimens subjected to compression-tension

(e) Transition patch of d = 7" (σ_1/σ_3 = - 0.22)

Compressive Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Compressive Strain ε_3 (μ str.)
- 200	50	- 70
- 400	100	- 165
- 600	125	- 290
- 700	150	- 335
- 800	175	- 400
- 900	200	- 485
- 1,000	225	- 600
- 1,100	250	- 625
- 1,200	265	- 735

(f) Transition patch of d = 7" (σ_1/σ_3 = - 0.38)

Compressive Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Compressive Strain ε_3 (μ str.)
- 200	65	- 115
- 400	150	- 305
- 500	175	- 360
- 600	225	- 460
- 700	270	- 515
- 750	285	- 608
- 800	300	- 668

Table A.27

Stress-strain relation of patched specimens subjected to compression-tension after 90 days

(a) Transition patch of d = 7" (σ_1/σ_3 = - 0.28)

Compressive Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Compressive Strain ε_3 (μ str.)
- 100	30	- 40
- 300	85	- 135
- 500	130	- 260
- 600	173	- 300
- 800	225	- 450
- 900	255	- 550
- 1,000	290	- 650
- 1,100	320	- 800

(b) Transition patch of d = 7" (σ_1/σ_3 = - 0.38)

Compressive Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Compressive Strain ε_3 (μ str.)
- 100	35	- 50
- 200	75	- 120
- 400	150	- 230
- 500	190	- 300
- 600	230	- 400
- 650	250	- 450
- 700	265	- 470
- 800	300	- 600
- 860	325	- 720

Table A.27

Stress-strain relation of patched specimens subjected to tension-compression after 90 days

(c) Rectangular patch of d = 7" (σ_1/σ_3 = - 0.28)

Compressive Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Compressive Strain ε_3 (μ str.)
200	60	- 100
400	110	- 225
500	140	- 290
600	170	- 350
700	200	- 460
800	225	- 520
900	250	- 630
980	280	- 680

Table A.28

Bond strength of the specimens of age 28 days

Slant Shear (psi)	Direct Shear (psi)	Direct Tension (psi)
4,362	214	133
4,525	150	121
4,390	145	185
4,390	156	150
4,426	161	155
1,860	202	80
4,380	155	163
4,530	196	155
4,460	184	240
1,930	154	105
4,420	162	175
4,540	148	95
4,442	169	146.4

Table A.29

Bond strength of the specimens of age 90 days

Slant Shear (psi)	Direct Shear (psi)	Direct Tension (psi)
1,481	196	145
5,422	185	96
5,008	195	183
5,100	203	135
4,950	187	135
1,380	193	188
5,230	163	150
4,930	154	165
5,370	173	153
1,395	182	82
4,870	148	193
5,000	128	190
5,100	175.6	151.2

Table A.30a

Failure modes from slant shear tests

Age: 28 day		Age: 90 day	
Strength (psi)	Failure Mode	Strength (psi)	Failure Mode
4,362	Patch concrete	1,481	Bond
4,525	Parent concrete	5,422	Parent concrete
4,390	Patch concrete	5,008	Patch concrete
4,390	Patch concrete	5,100	Parent concrete
4,426	Parent concrete	4,950	Patch concrete
1,860	Bond	1,380	Bond
4,380	Patch concrete	5,230	Parent concrete
4,530	Parent concrete	4,930	Patch concrete
4,460	Parent concrete	5,370	Patch concrete
1,930	Bond	1,395	Bond
4,420	Patch concrete	4,870	Patch concrete
4,540	Parent concrete	5,000	Patch concrete

Table A.30b

Failure modes from direct tension tests

Age: 28 day		Age: 90 day	
Strength (psi)	Failure Mode	Strength (psi)	Failure Mode
133	Patch concrete	145	Patch concrete
121	Patch concrete	96	Bond
185	Parent concrete	183	Parent concrete
150	Patch concrete	135	Patch concrete
155	Patch concrete	135	Patch concrete
80	Bond	188	Parent concrete
163	Patch concrete	150	Patch concrete
155	Patch concrete	165	Patch concrete
240	Parent concrete	153	Patch concrete
105	Bond	82	Bond
175	Parent concrete	193	Parent concrete
95	Bond	190	Parent concrete

Table A.31

Failure load and shear stress of repaired joint after 28 days

Type of Specimen	Failure Load (lb)	Shear Stress v = 1.5 V/A	Average Load (lb)	Average Shear (psi)
Non-patched	14,850	520	16,870	590
	18,400	644		
	17,360	608		
Transition of d = 2"	15,620	547	13,230	463
	13,858	485		
	10,212	357		
Transition of d = 4"	10,890	381	11,620	407
	12,300	430		
	11,670	408		
Transition of d = 6"	11,350	397	8,432	295
	8,020	281		
	5,925	208		
Rectangular of d = 2"	10,280	360	12,950	453
	14,630	512		
	13,940	488		
Rectangular of d = 4"	9,860	345	10,500	368
	12,370	433		
	9,270	324		
Rectangular d = 6"	7,930	277	8,130	285
	10,250	358		
	6,210	217		

Table A.32

Failure load and shear stress of repaired joint after 90 days

Specimen	Failure Load (lb)	Shear Stress v = 1.5 V/A	Average Load (lb)	Average Shear (psi)
Non-Patched	15,340	537	17,300	605
	18,150	635		
	18,400	645		
Transition of d = 4"	11,320	396	12,356	433
	13,500	473		
	12,250	429		
Rectangular of d = 4"	10,300	360	11,520	403
	13,150	460		
	11,110	390		

Table A.33

Load-strain response of pavement joint of age 28 days

(a) Non-patched specimen

Load (lb)	Strain at the Following Locations (μ st.)					
	1	2	3	4	5	6
2,000	0.0	0.0	0.0	0.0	- 15	13
4,000	1.0	- 1.0	3.2	- 2.5	- 33	27
6,000	1.5	- 1.3	4.3	- 3.2	- 50	48
8,000	3.0	- 2.8	5.6	- 4.4	- 65	57
10,000	3.5	- 3.1	7.3	- 5.6	- 135	128
12,000	13.2	- 15.0	12.2	- 11.5	- 145	130
13,000	33.8	- 36.1	37.8	- 35.6	- 153	148
14,000	44.6	- 38.3	44.6	- 43.7	- 182	173
15,000	56.1	- 46.5	48.3	- 47.7	- 197	182
16,000	69.1	- 59.6	91.8	- 90.8	- 203	208
16,870	85.0	- 76.3	105	- 108	- 255	243

Table A.33

Load-strain response of pavement joint of age 28 days

(b) Transition patch of d = 6"

Load (lb)	Strain at (μ str.)					
	1	2	3	4	5	6
2,000	0.0	0.0	0.0	0.0	0.0	0.0
4,000	3.0	- 2.8	6.2	- 8.1	- 12.2	11.3
5,000	6.5	-5.9	11.8	- 9.6	- 35.6	40.2
6,000	12.7	- 14.6	38.7	- 28.6	- 50.1	46.3
7,000	32.0	- 30.1	43.2	- 38.7	- 102	96.7
8,000	48.7	- 43.2	81.6	- 82.6	- 187	178
8,432	61.3	- 58.3	93.7	- 87.7	- 196	192

(c) Rectangular patch of d = 6"

Load (lb)	Strain at the Following Locations (μ str.)					
	1	2	3	4	5	6
2,000	0.0	0.0	0.0	0.0	10.0	10.0
4,000	5.0	- 3.2	8.6	- 8.0	- 15	15
5,000	8.6	- 7.8	16.2	- 14.1	- 38	- 40.1
6,000	25.3	21.2	33.1	- 30	- 57.1	51.6
7,000	40.2	- 37.2	48.2	- 45	- 102	87.1
8,000	56.7	49.3	82.6	- 80.2	- 176	182
8,130	59.2	- 57.2	86.3	- 84.1	- 188	193

Table A.34

Load-strain response of pavement joint of age 90 days

Load (lb)	Strain at point #4* (μstr.)		
	Non-Patched	Transition of d = 6"	Rectangular of d = 6"
2,000	0.0	0.0	0.0
4,000	0.0	6.0	- 6.5
5,000	- 1.0	- 7.3	- 11.6
6,000	- 1.3	- 22.6	- 25.9
7,000	- 2.0	- 35.1	- 41.3
8,000	- 2.5	- 53.8	- 76.5
8,800	---	---	- 90.6
9,000	- 3.7	- 98.1	
9,200	---	- 102	
10,000	- 4.3		
12,000	- 10.2		
14,000	- 28.1		
16,000	- 50.1		
17,000	- 121		

*See Figure 7

Table A.35

Fresh plain and fiber concrete properties

Property	Plain Concrete	Fiber Concrete
Slump (inch)	3.25	2.75
	3.50	3.00
	3.50	2.25
	3.42	2.67
Air Content (%)	4.5	4.3
	5.0	4.8
	5.2	5.2
	4.9	4.8
Unit Weight (lb/ft^3)	142.4	145.6
	142.6	142.8
	140.4	145.0
	141.8	144.5

Table A.38

Uniaxial tension strength of the employed materials after 7 days

Material	Average Tensile Strength (psi)
Plain Concrete	430
Fiber Concrete	516
Duracal Cement	465

Table A.39

Uniaxial tension stress-strain relations of the employed materials after 7 days

Plain Concrete		Fiber Concrete		Duracal Cement	
Stress (psi)	Strain (μ str.)	Stress (psi)	Strain (μ str.)	Stress (psi)	Strain (μ str.)
100	15	50	7.5	100	17.5
200	30	80	17.5	150	24
250	38	170	30	200	40
300	70	270	52.5	250	52
350	80	315	60	300	63
400	100	390	85	350	75
450	123	410	105	400	110
455	150	450	110	475	160
		490	145		
		525	183		

Table A.40

Uniaxial compressive strength of the employed materials after7 days

Material	Average Compressive Strength (psi)
Plain Concrete	2,645
Fiber Concrete	2,775
Duracal Cement	3,032

Table A.41

Uniaxial compressive stress-strain relation of the employed material after 7 days

Compressive Stress (psi)	Compressive Strain (μ str.)		
	Plain Concrete	Fiber Concrete	Duracal Cement
222	-18	-45	-52
444	-26	-55	-70
666	-38	-60	-120
888	-53	-60	-120
1110	-72	-60	-130
1332	-112	-150	-240
1555	-195	-200	-300
1776	-260	-220	-375
1998	-340	-360	-382
2220	-485	-465	-510
2442	-720	-495	-600
2610	-1110	---	---
2664	---	-780	-675
2795	---	-1230	---
2886	---	---	-810
2985	---	---	-1150

Table A.44(c)

Stress-strain relation of duracal cement matrix to biaxial stress (σ_1/σ_3 = -0.19)

Compressive Stress σ_3 (psi)	Tensile Stress σ_1 (psi)	Compressive Strain ε_3 (μ str.)
200	39	-60
445	87	-115
665	130	-165
880	170	-185
1100	215	-360
1320	256	-450
1400	272	-490
1480	288	-660

Table A.44(d)

Stress-strain relations of the employed material subjected to biaxial tension-compression

Compressive Stress (psi)	Tensile Stress (psi)	Compressive Strain (μ str.)		
		Plain Concrete	Fiber Concrete	Duracal Cement
222	55	-65	-90	-83
444	110	-85	-125	-85
666	166	-138	-170	-210
888	225	-300	-240	-270
1060	300	-480	---	---
1110	278	---	-330	-420
1270	300	---	---	-630
1332	335	---	-540	---
1455	350	---	-720	---

APPENDIX B

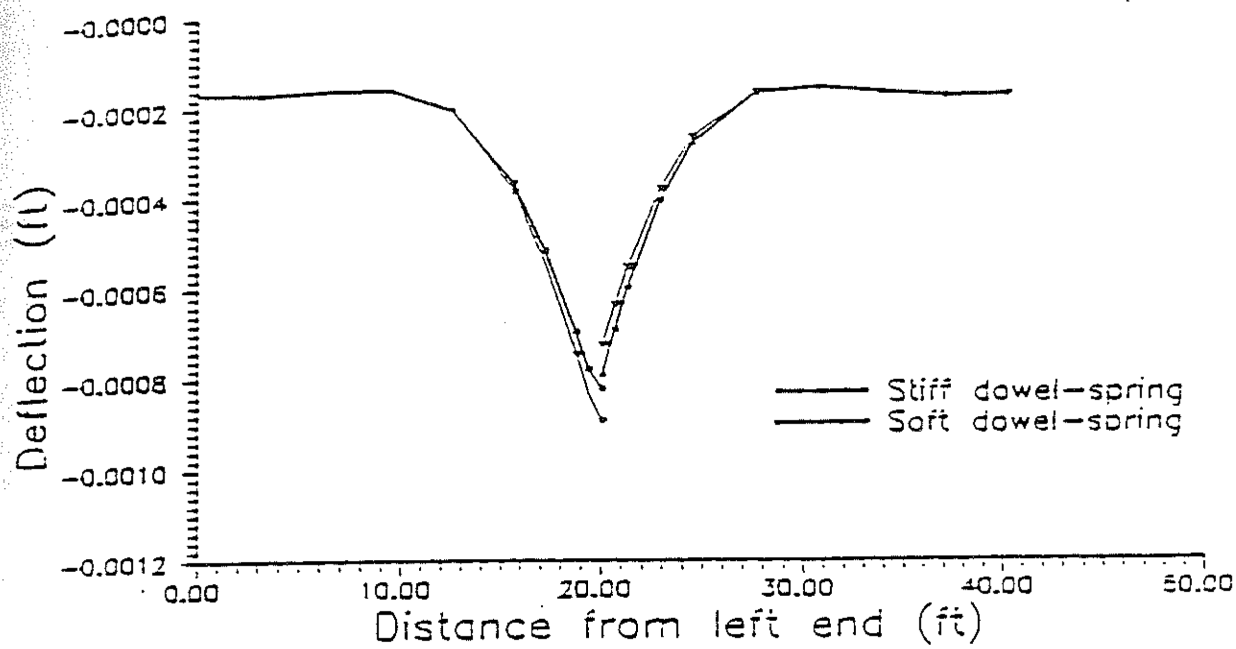


Figure B-1

Deflection profile along edge wheel path load type 1 - support condition 1 - load level 1

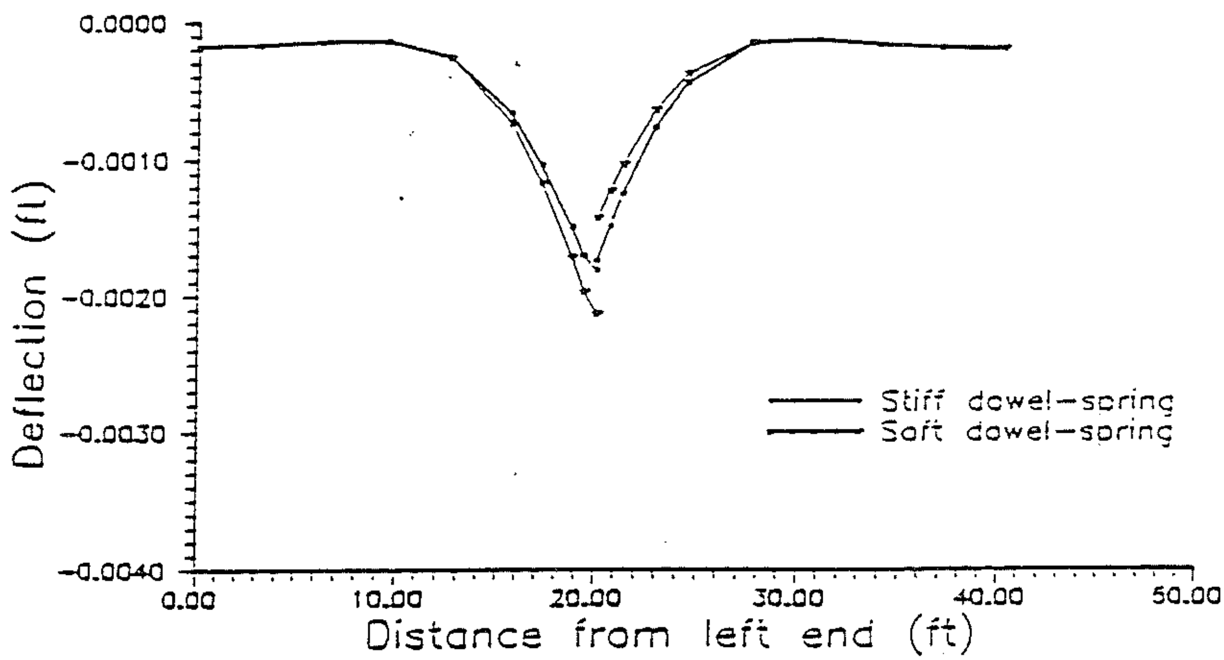


Figure B-2

Deflection profile along edge wheel path load type 1 - support condition 1 - load level 2

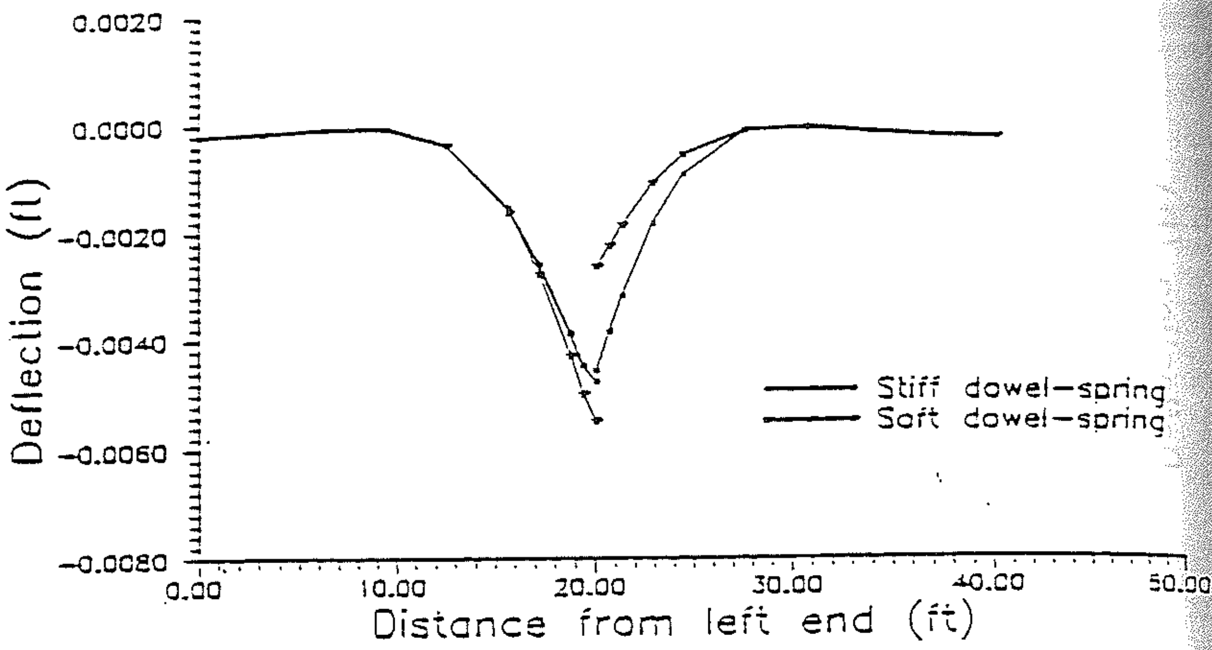


Figure B-3

Deflection profile along edge wheel path load type 1 - support condition 1 - load level 3

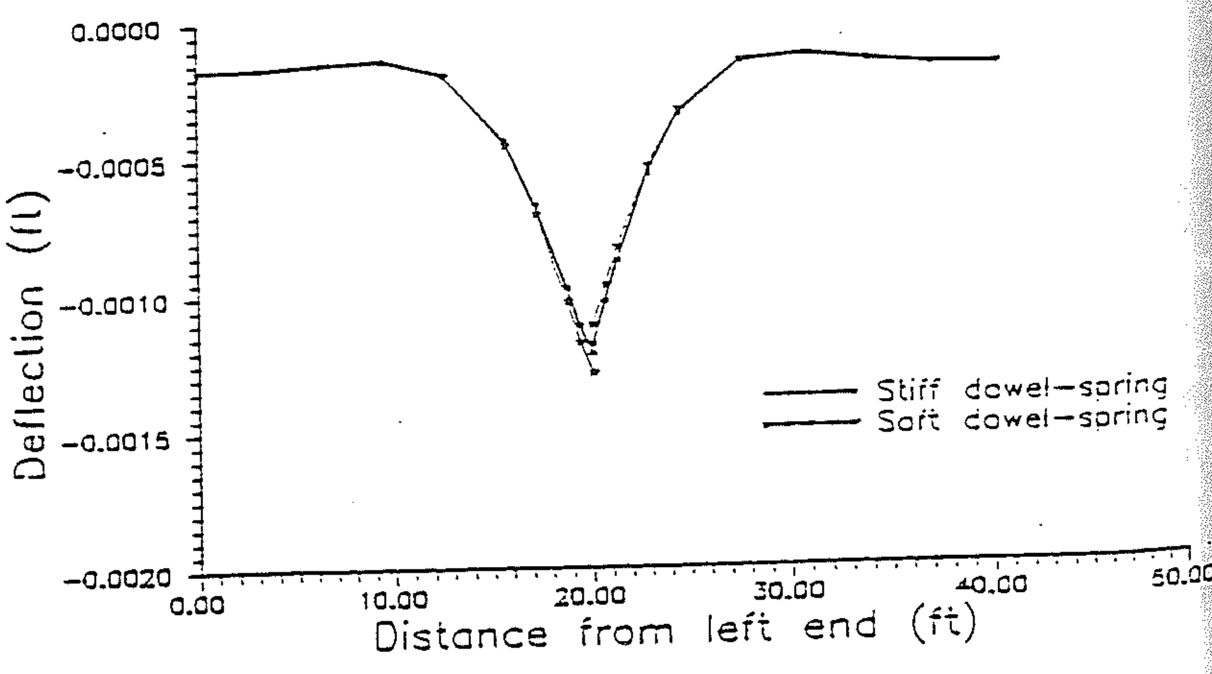


Figure B-4

Deflection profile along edge wheel path load type 1 - support condition 2 - load level 1

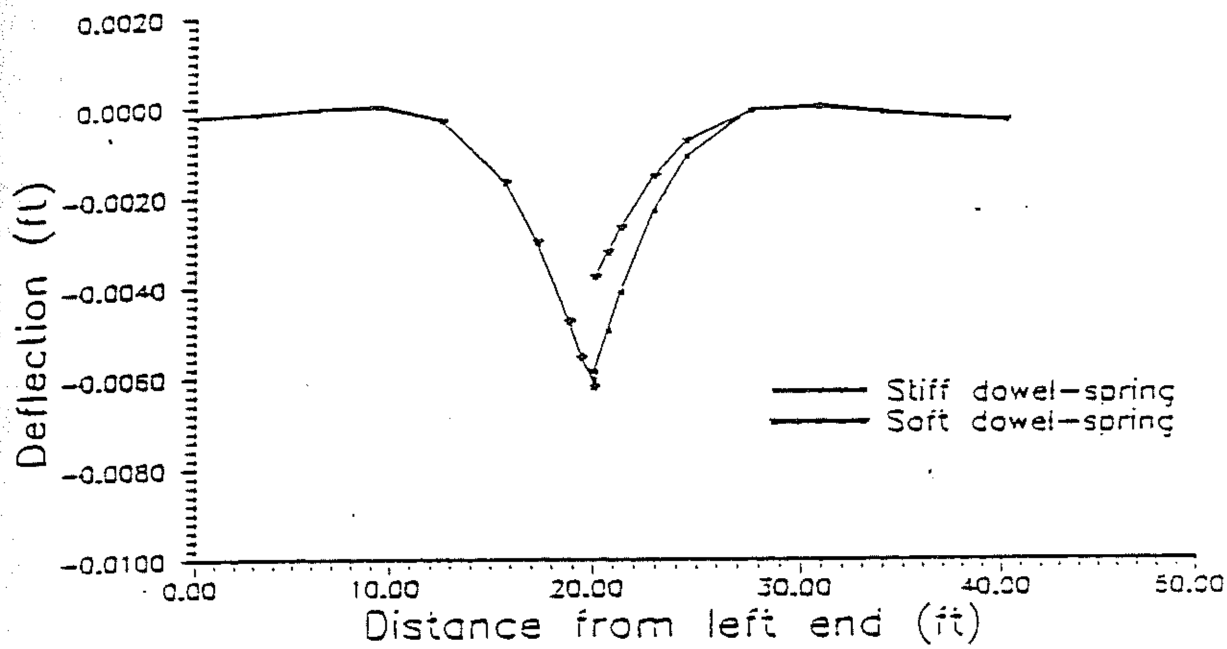


Figure B-5

Deflection profile along edge wheel path load type 1 - support condition 2 - load level 3

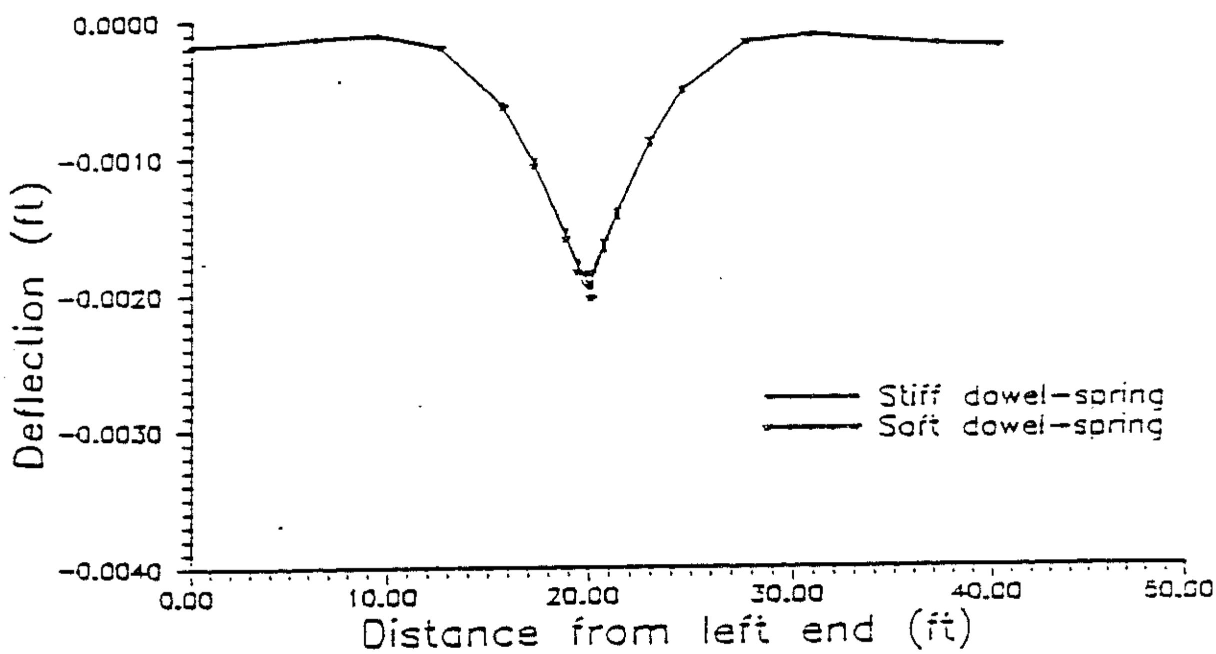


Figure B-6

Deflection profile along edge wheel path load type 1 - support condition 3 - load level 1

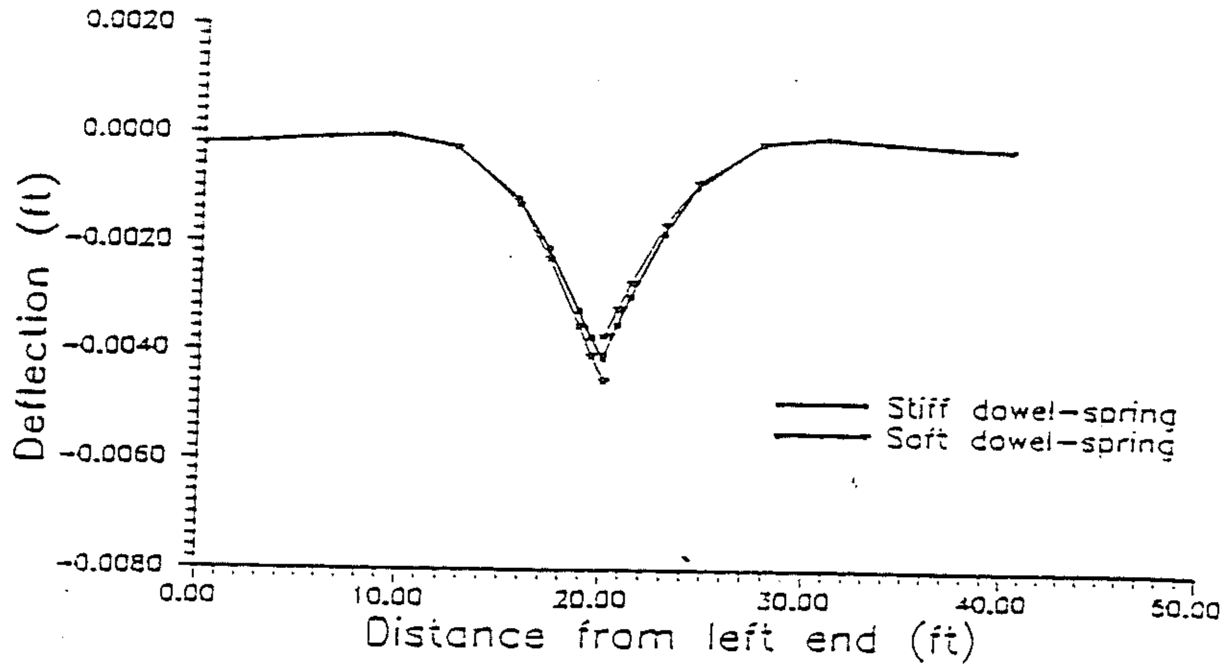


Figure B-7

Deflection profile along edge wheel path load type 1 - support condition 3 - load level 2

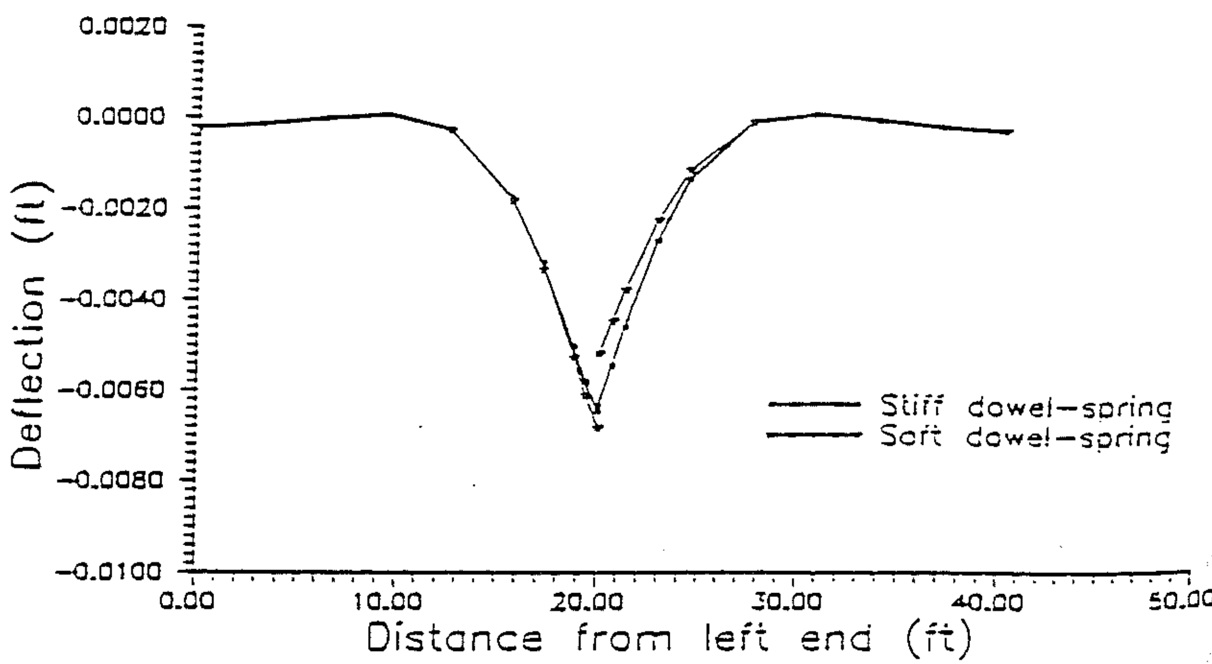
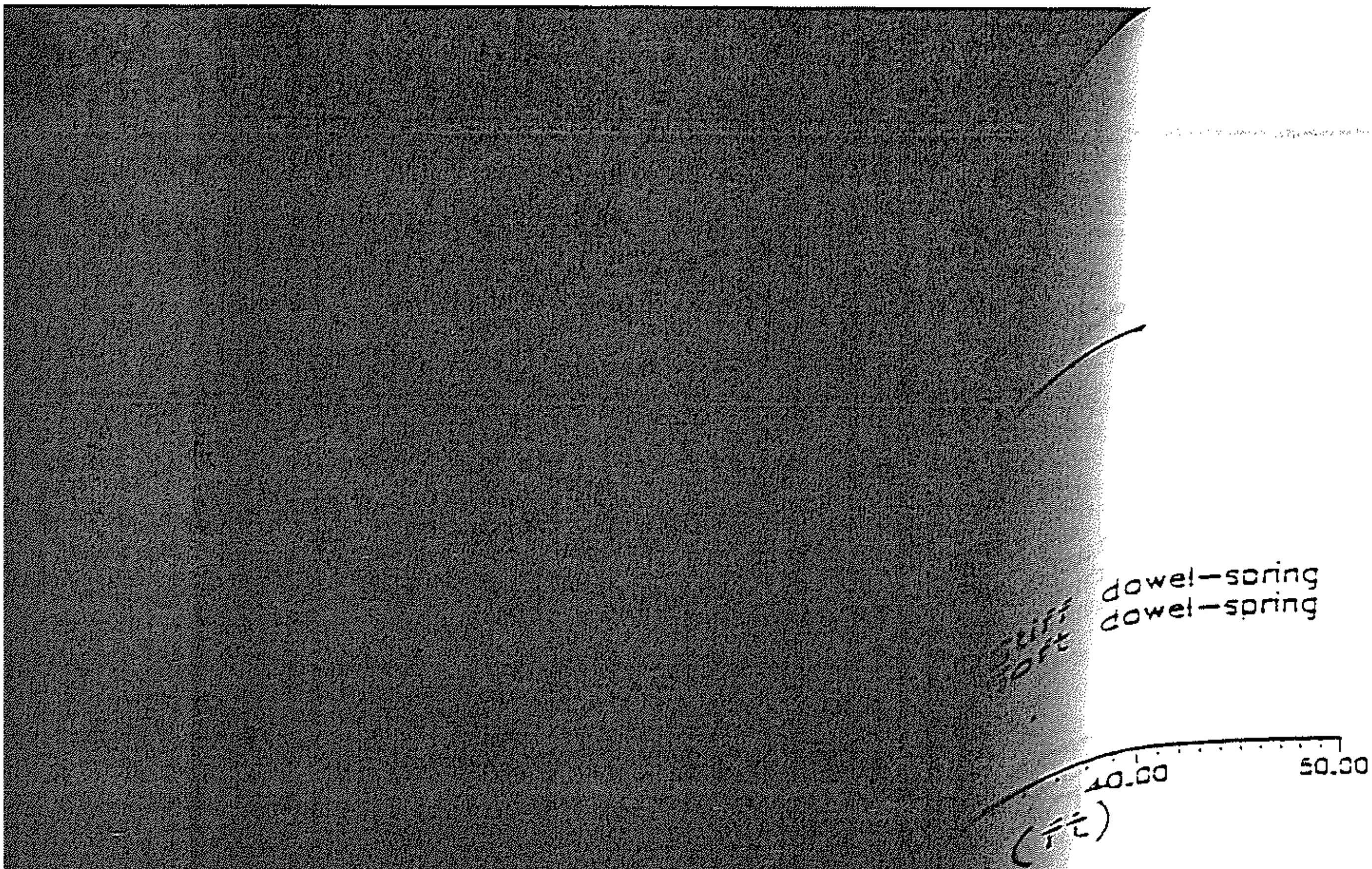


Figure B-8

Deflection profile along edge wheel path load type 1 - support condition 3 - load level 3



...dition 4 - load level 1

...on 4 - load level 3

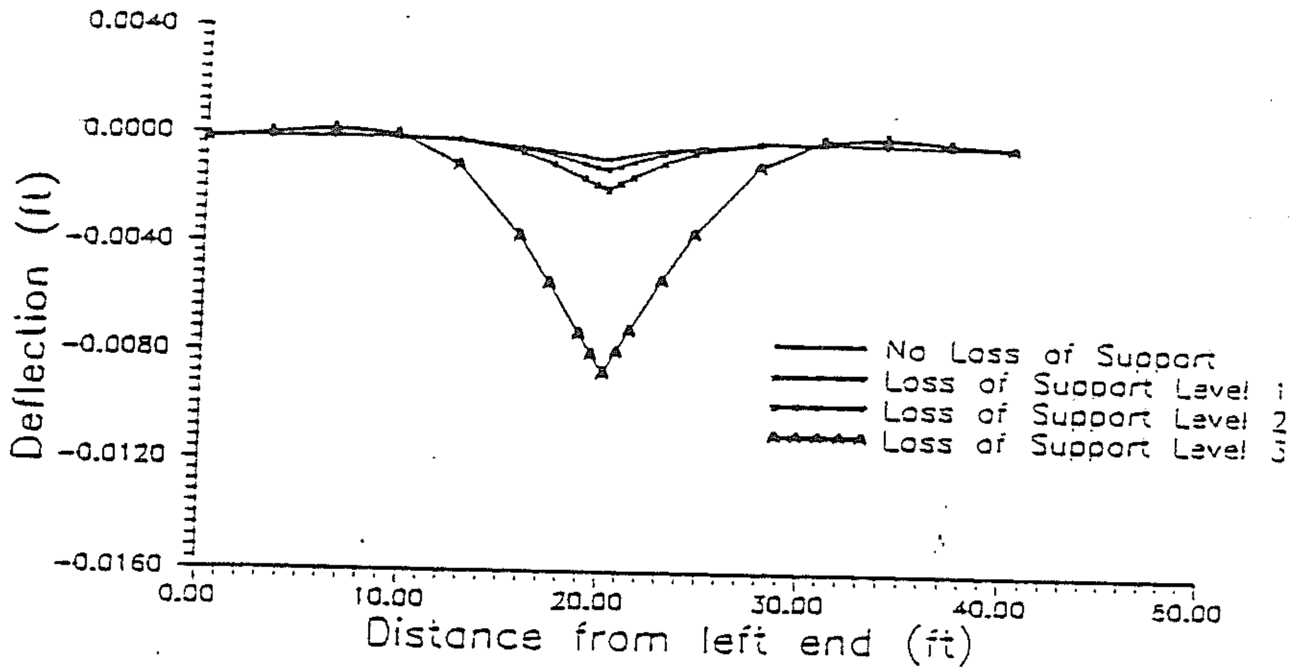


Figure B-11

Deflection profile along edge wheel path stiff dowel spring, load type 1, load level 1

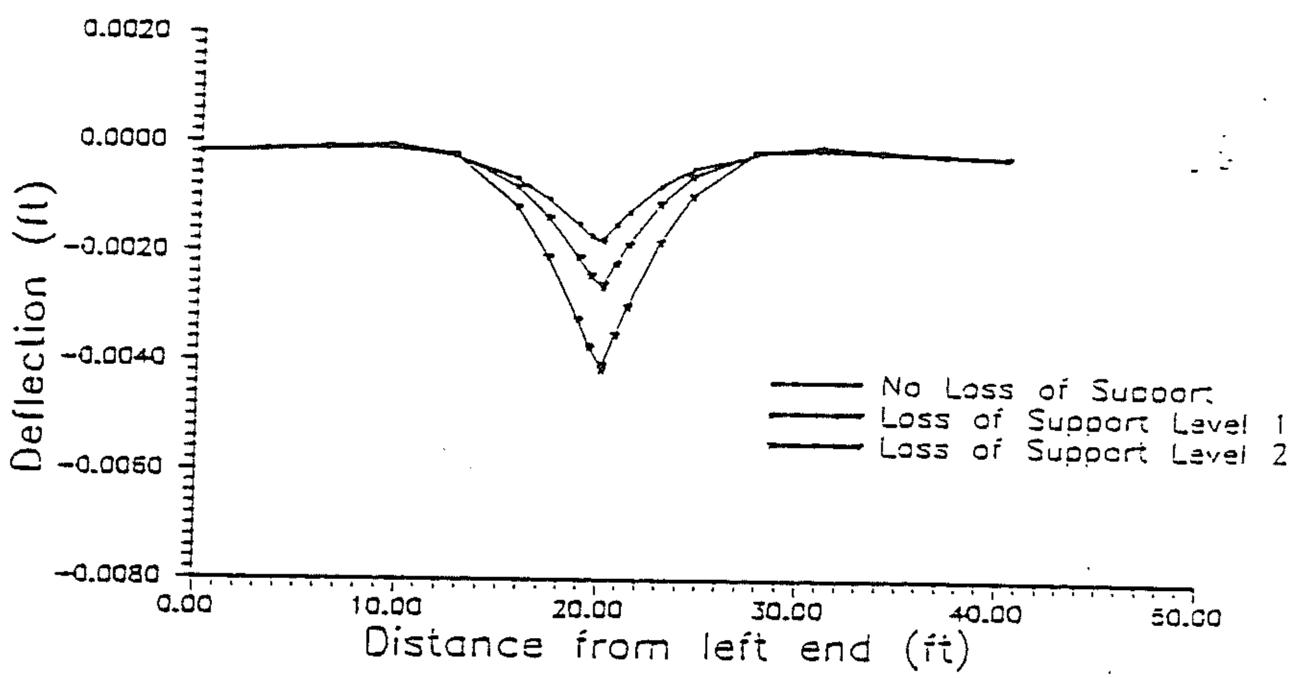


Figure B-12

Deflection profile along edge wheel path stiff dowel spring, load type 1, load level 2

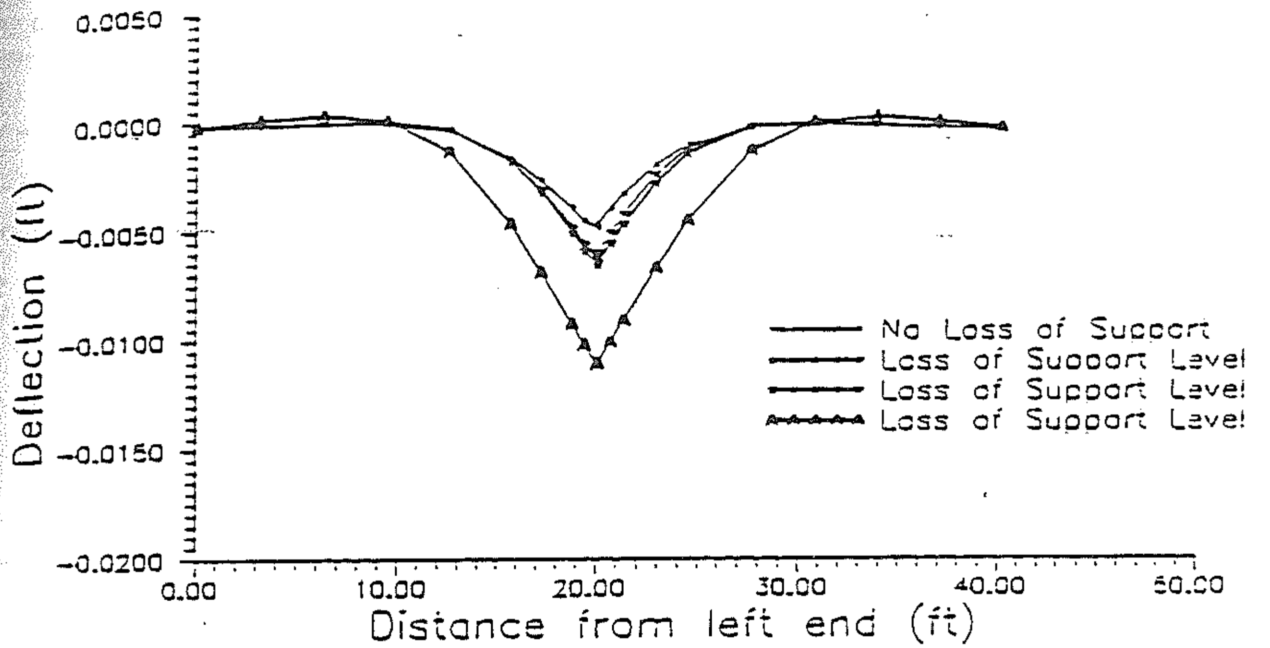


Figure B-13

Deflection profile along edge wheel path stiff dowel spring, load type 1, load level 3

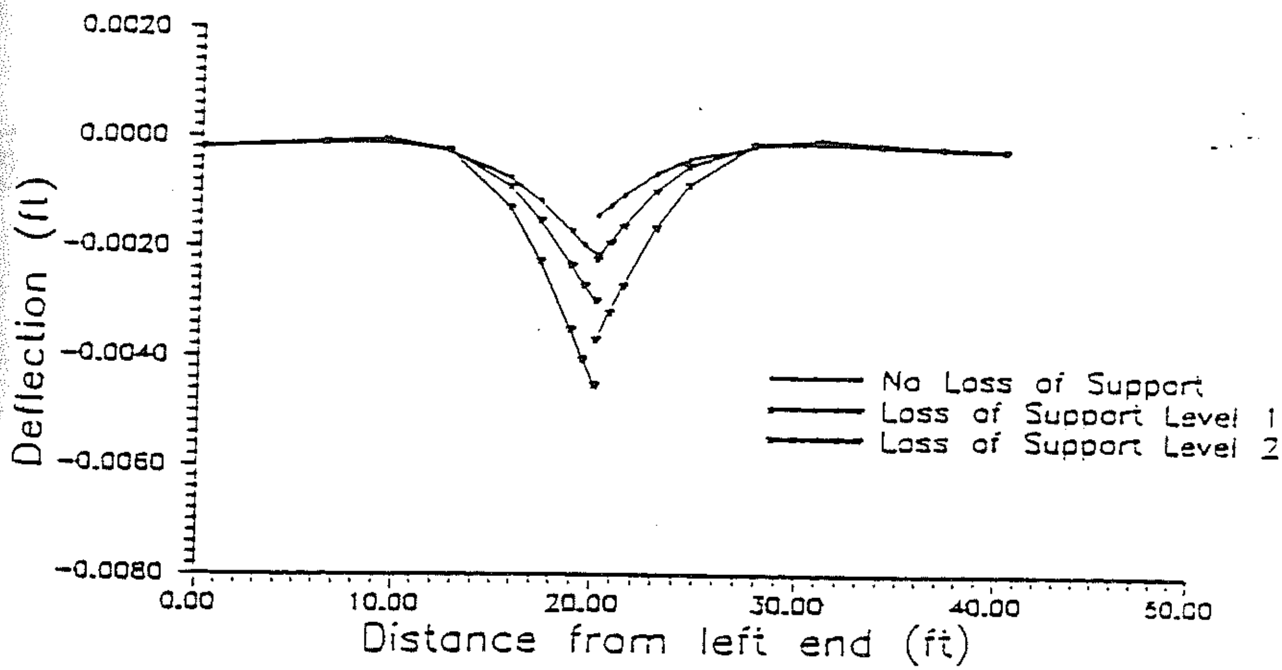


Figure B-14

Deflection profile along edge wheel path soft dowel spring, load type 1, load level 2

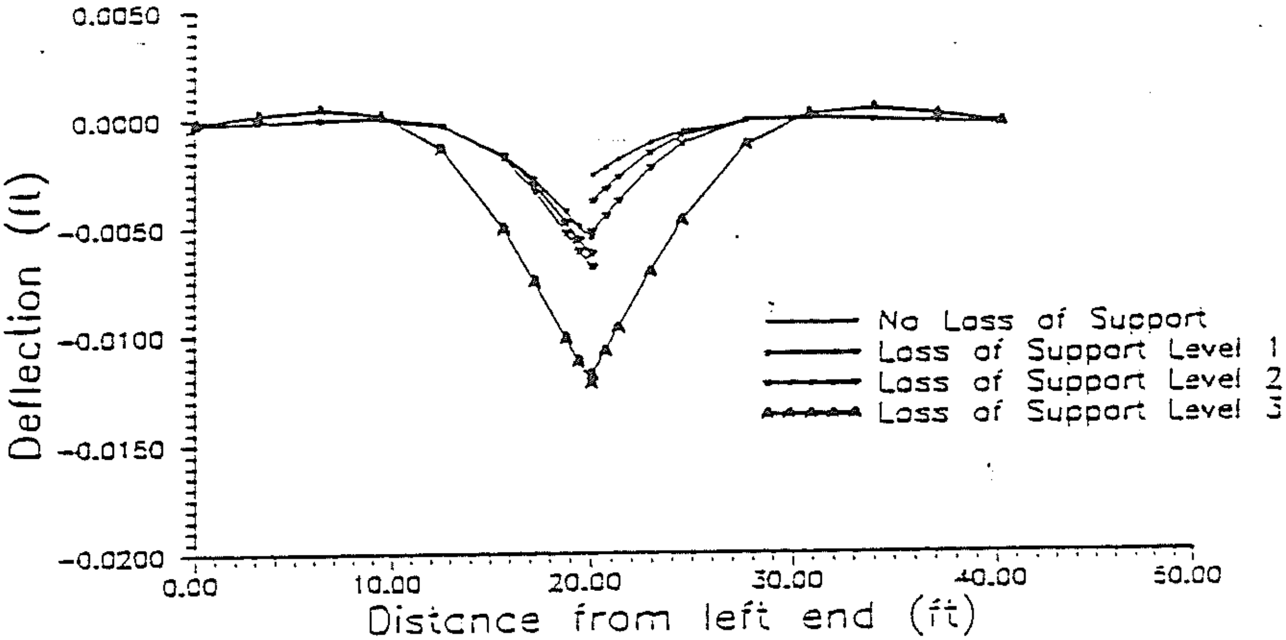


Figure B-15

Deflection profile along edge wheel path soft dowel spring, load type 1, load level 3

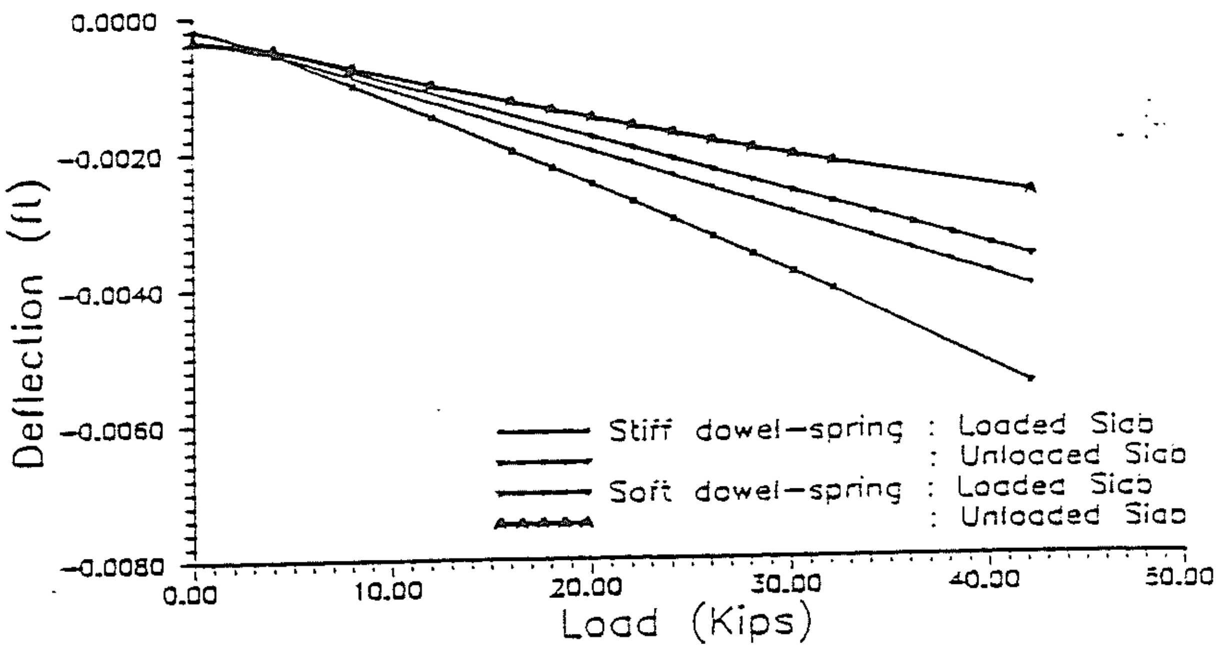


Figure B-16

Load vs. max. deflection curves for load type 1 - support condition 1

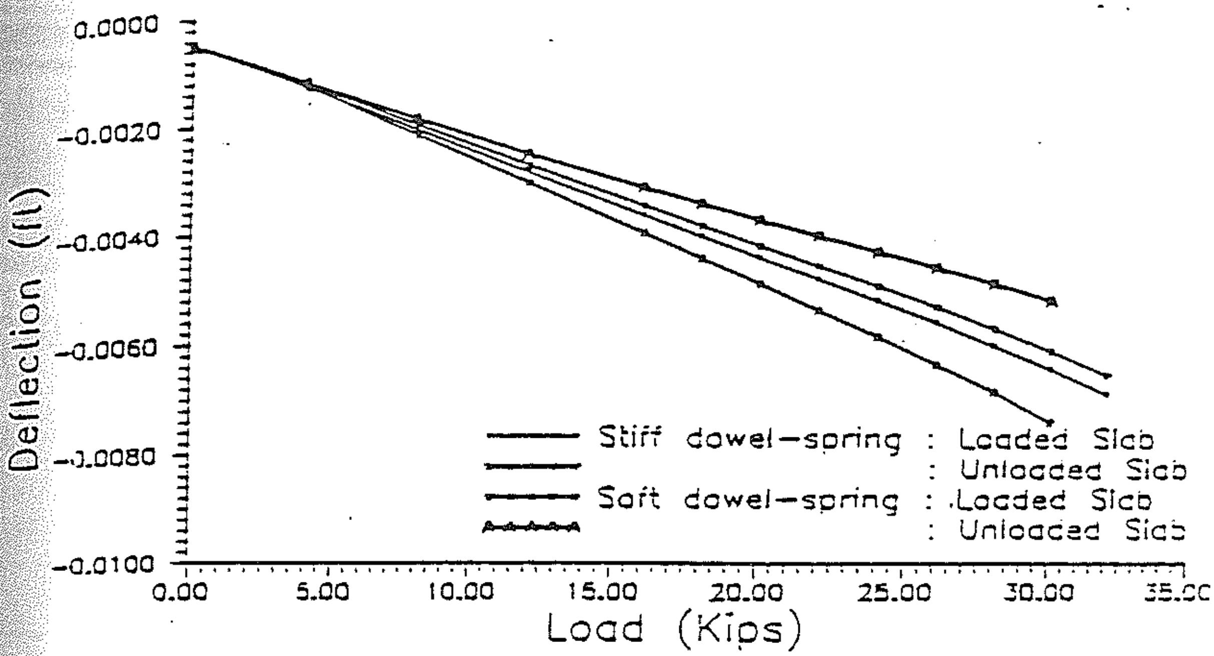


Figure B-17

Load vs. max. deflection curves for load type 1 - support condition 3

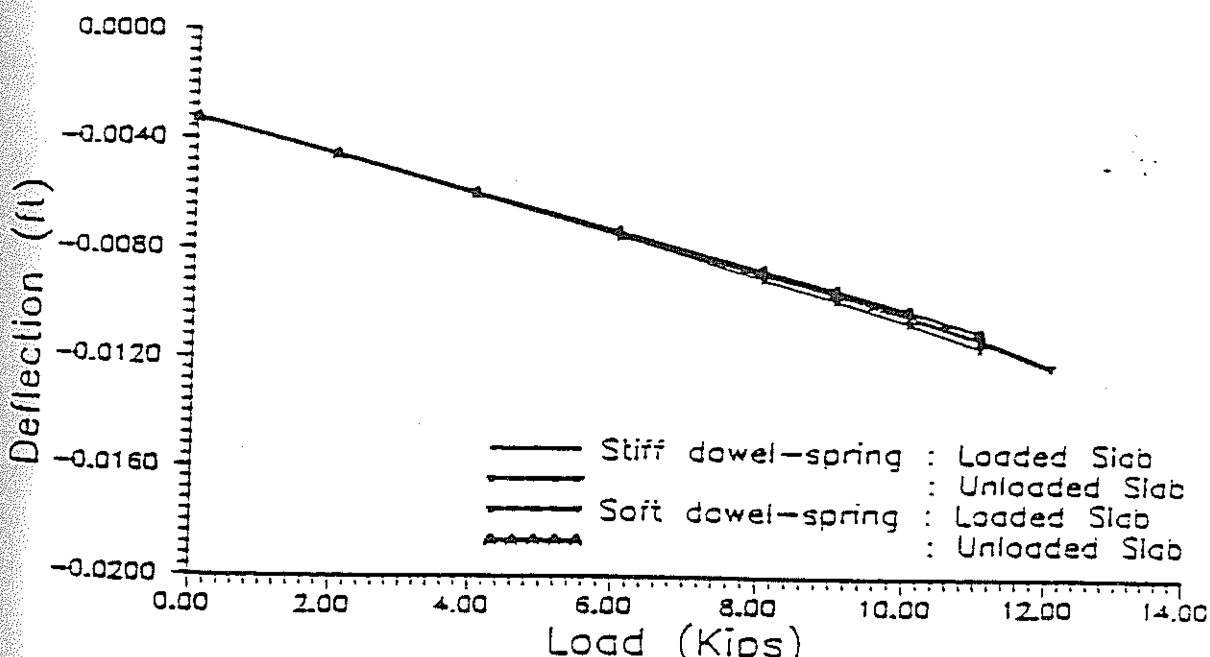


Figure B-18

Load vs. max. deflection curves for load type 1 - support condition 4

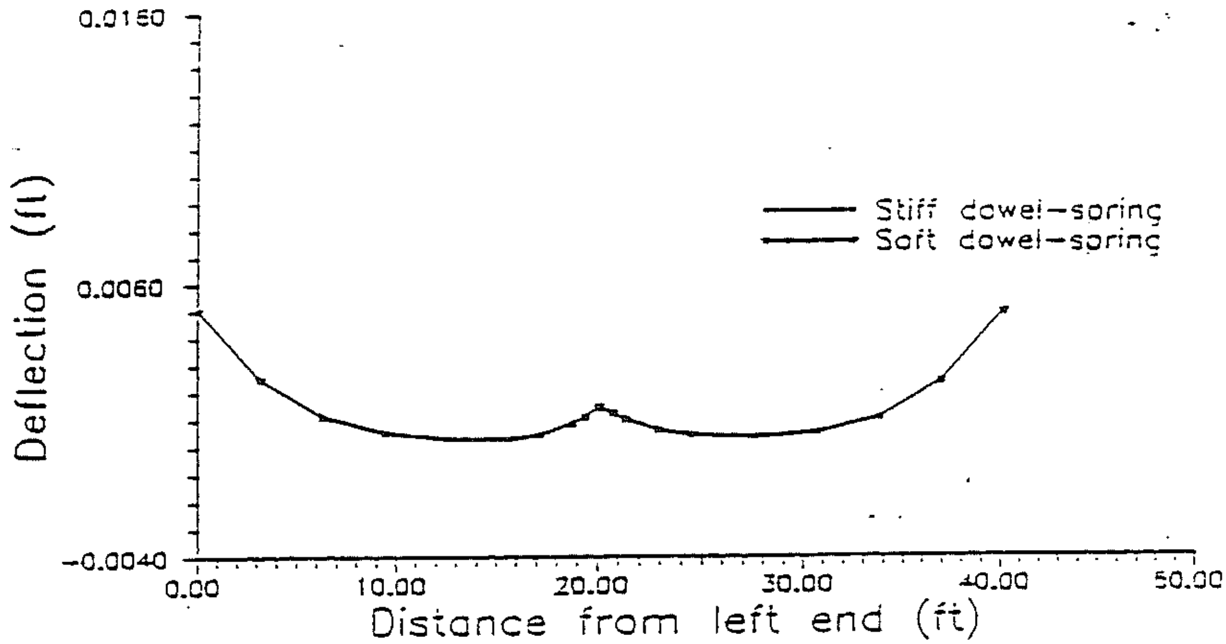


Figure B-19

Deflection profile along edge wheel path load type 2 - support condition 1 - load level 1

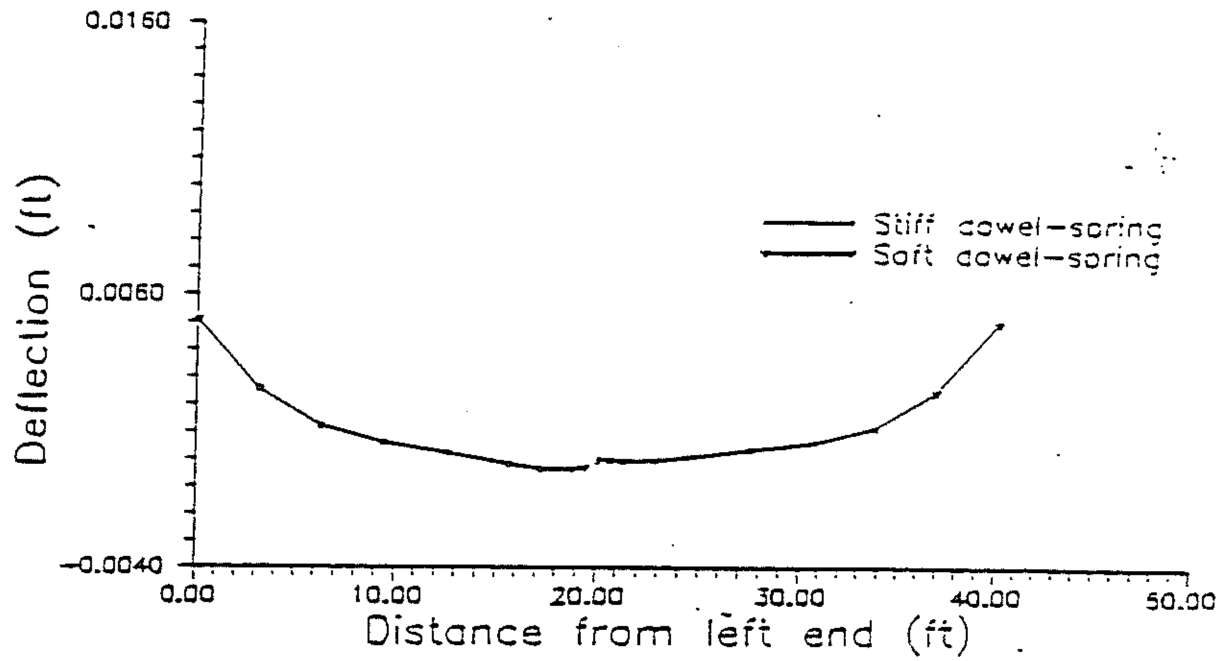


Figure B-20

Deflection profile along edge wheel path load type 2 - support condition 1 - load level 2

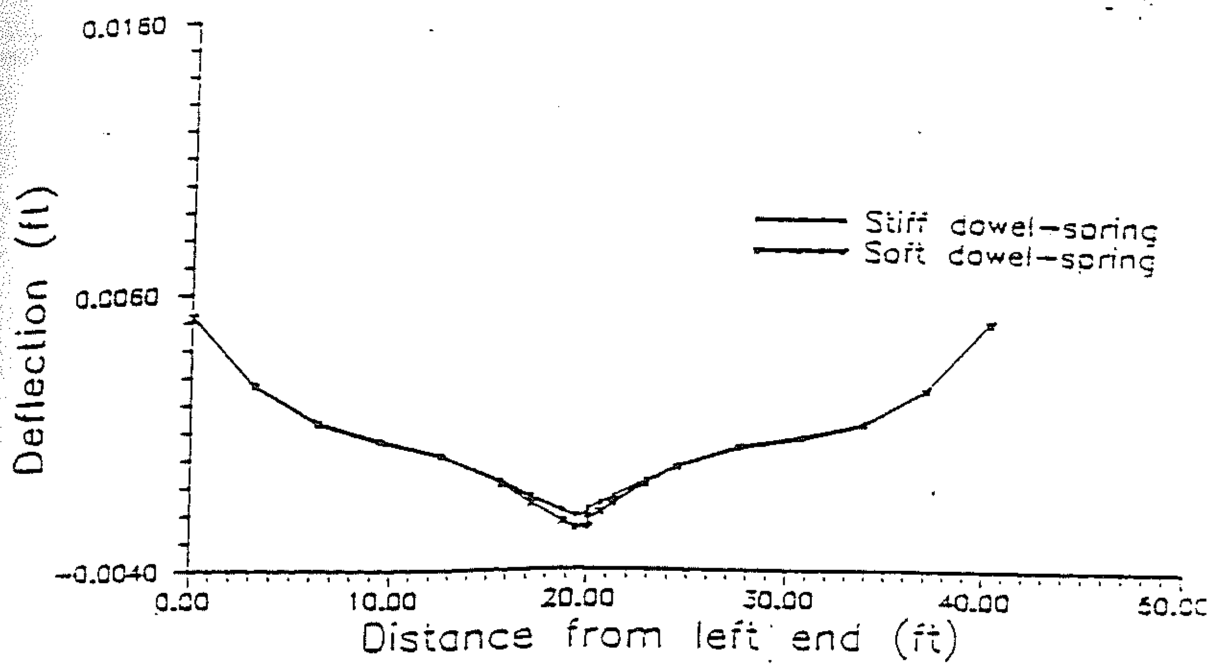


Figure B-21

Deflection profile along edge wheel path load type 2 - support condition 1 - load level 3

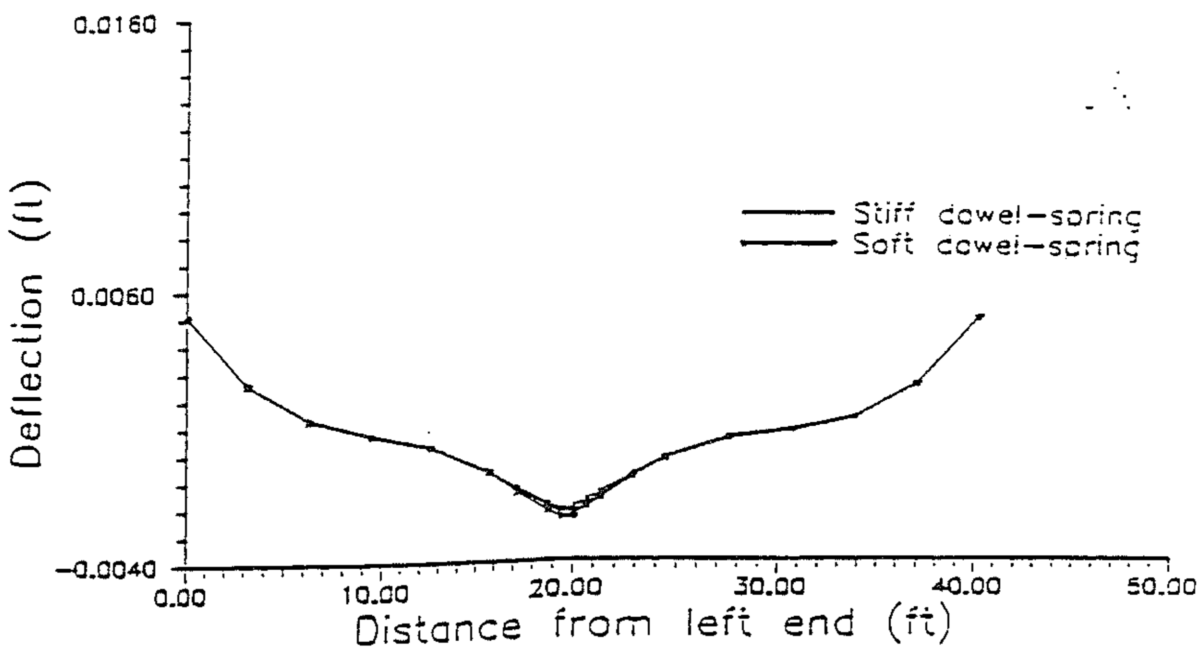


Figure B-22

Deflection profile along edge wheel path load type 2 - support condition 2 - load level 3

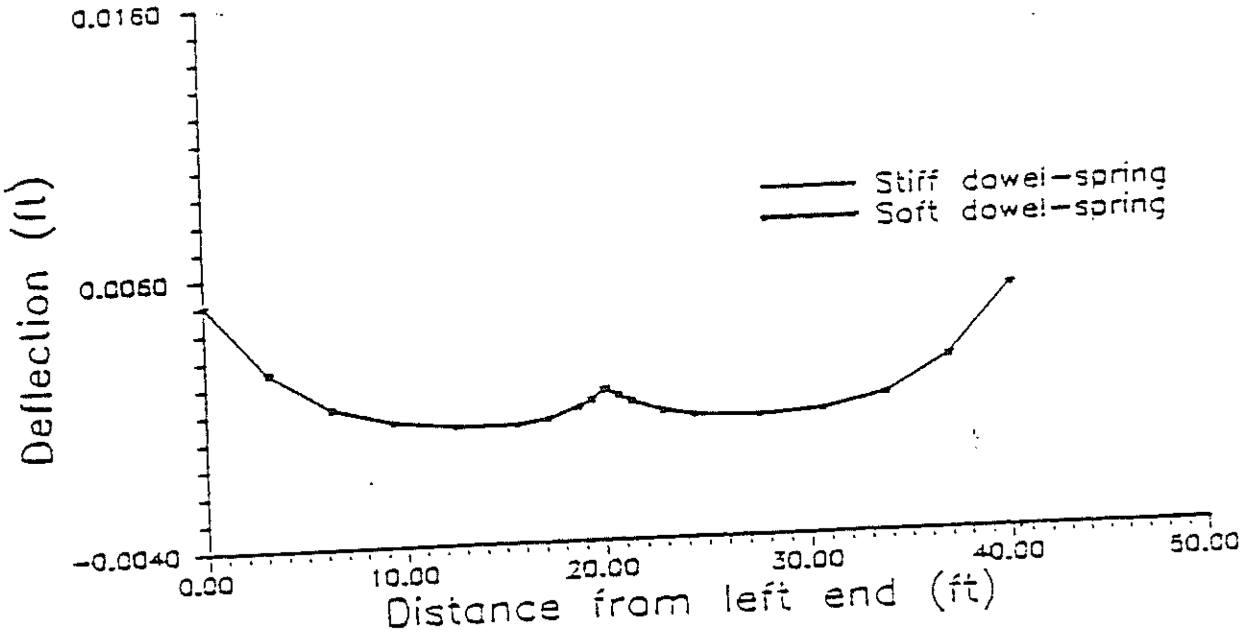


Figure B-23

Deflection profile along edge wheel path load type 2 - support condition 3 - load level 1

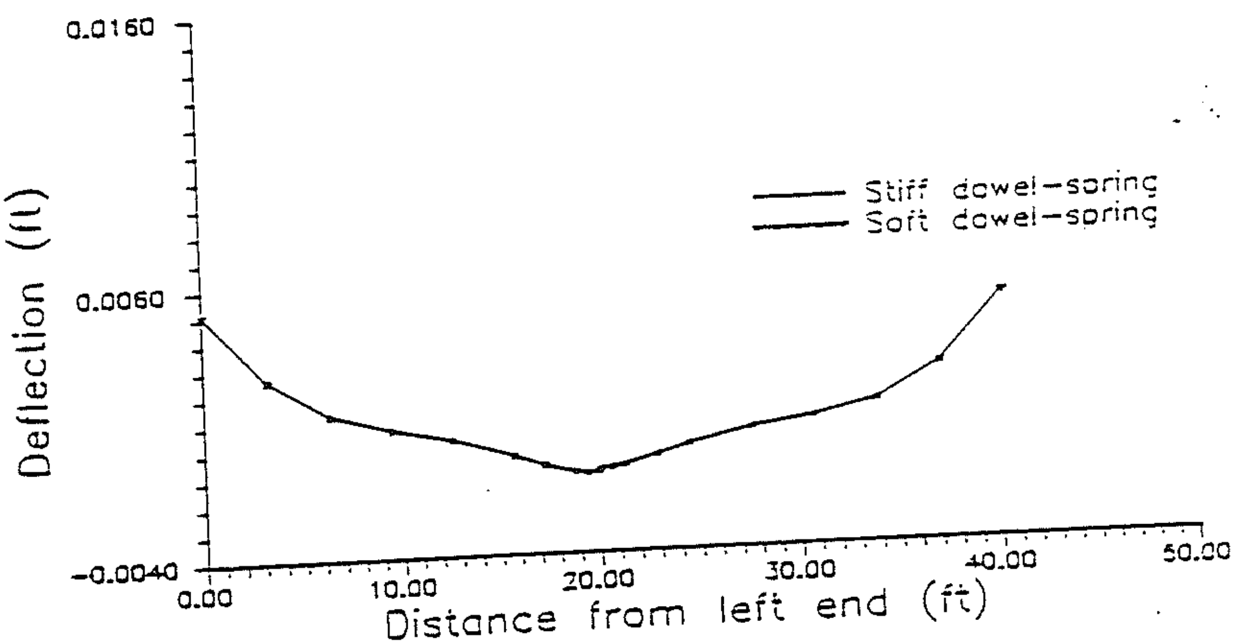


Figure B-24

Deflection profile along edge wheel path load type 2 - support condition 3 - load level 2

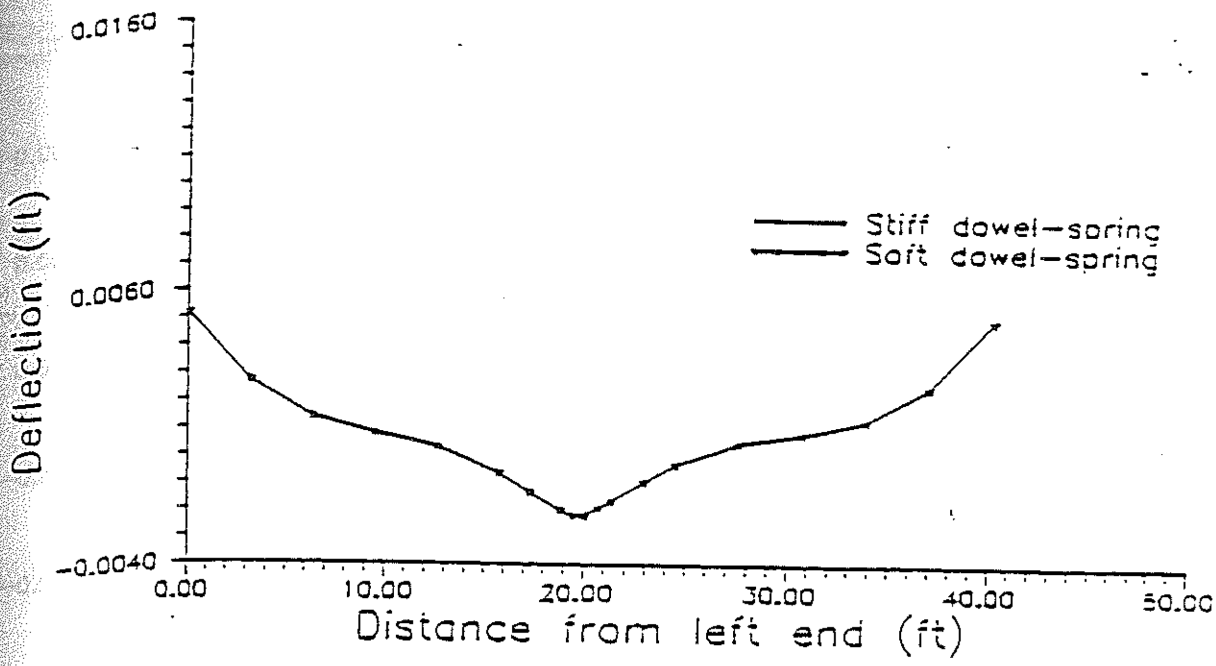


Figure B-25

Deflection profile along edge wheel path load type 2 - support condition 3 - load level 3

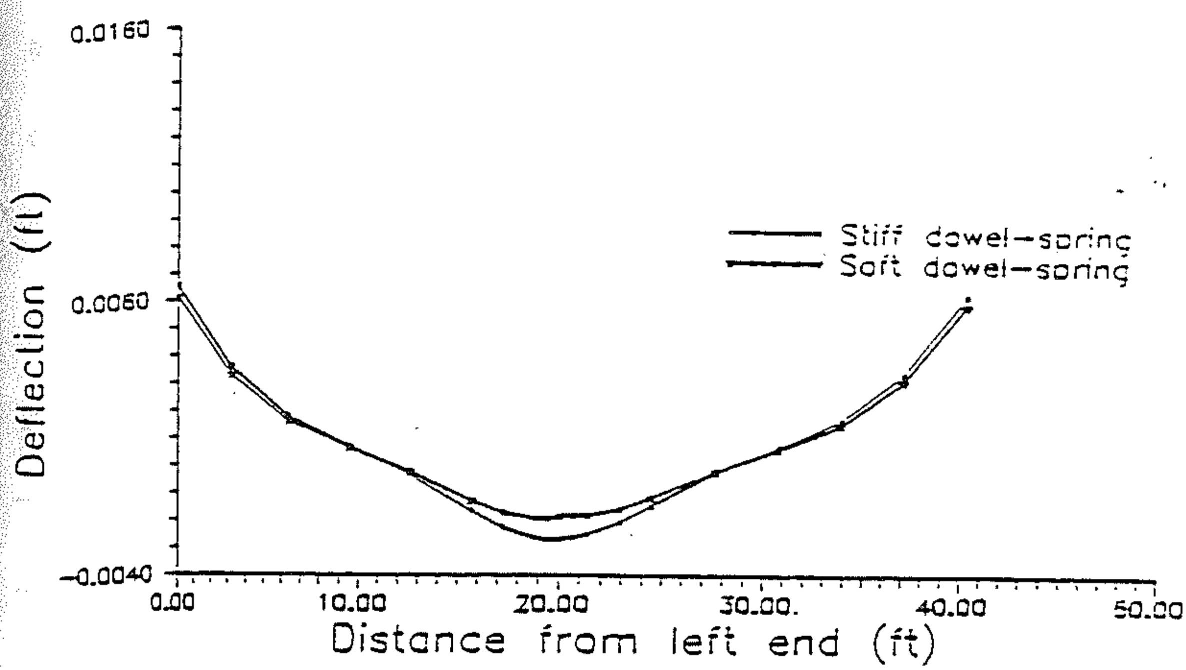


Figure B-26

Deflection profile along edge wheel path load type 2 - support condition 4 - load level 1

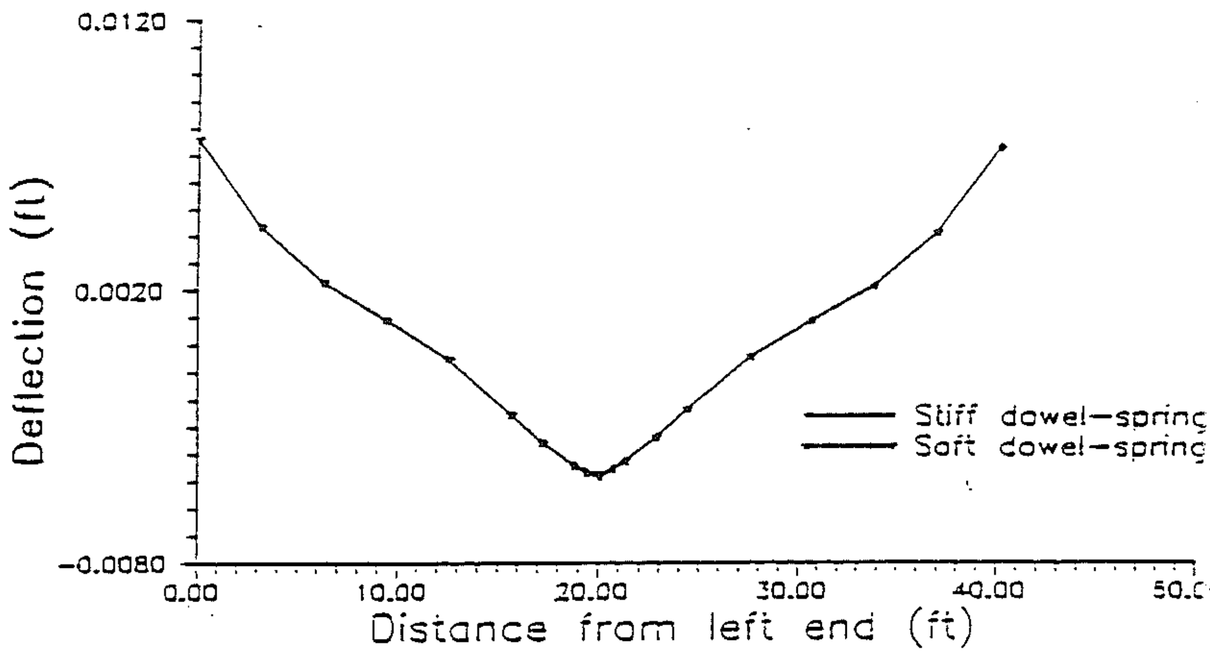


Figure B-27

Deflection profile along edge wheel path load type 2 - support condition 4 - load level 3

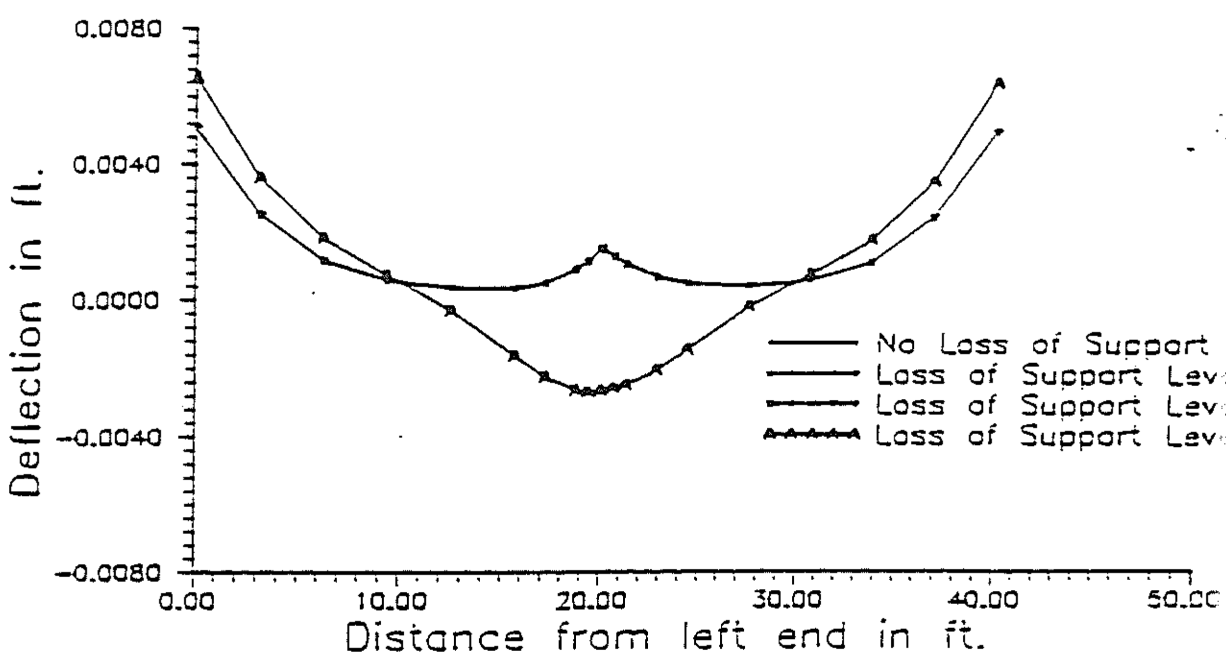


Figure B-28

Deflection profile along edge wheel path stiff dowel spring, load type 2, load level 1

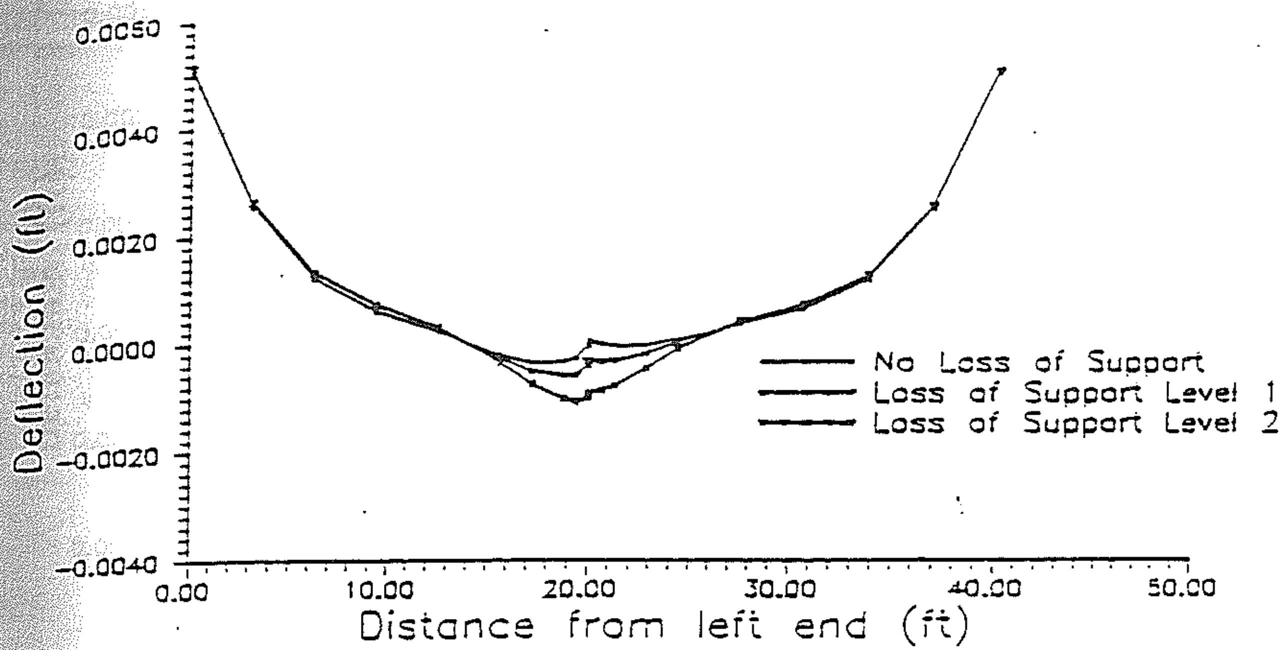


Figure B-29

Deflection profile along edge wheel path stiff dowel spring, load type 2, load level 2

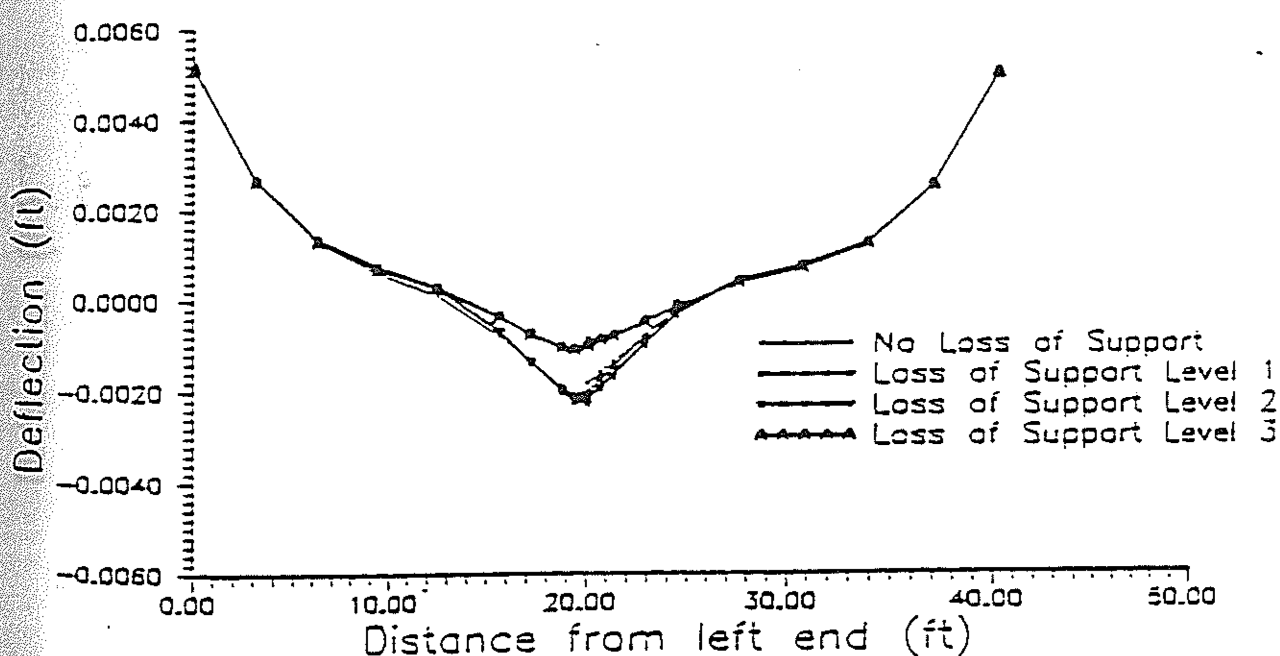


Figure B-30

Deflection profile along edge wheel path stiff dowel spring, load type 2, load level 3

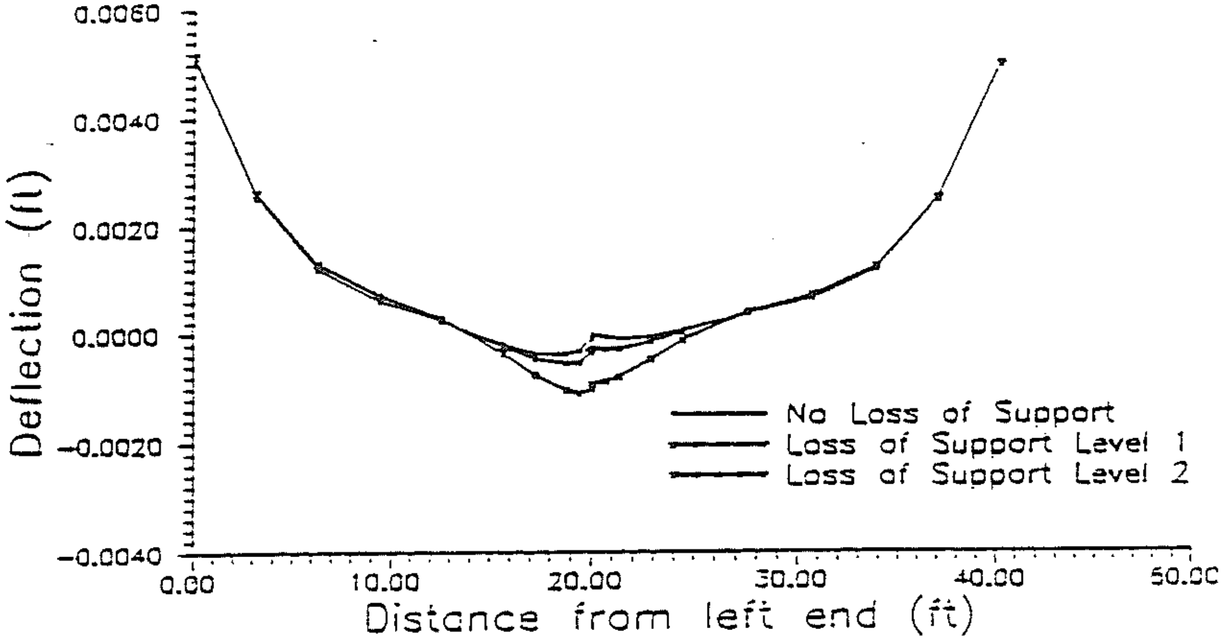


Figure B-31

Deflection profile along edge wheel path soft dowel spring, load type 2, load level 2

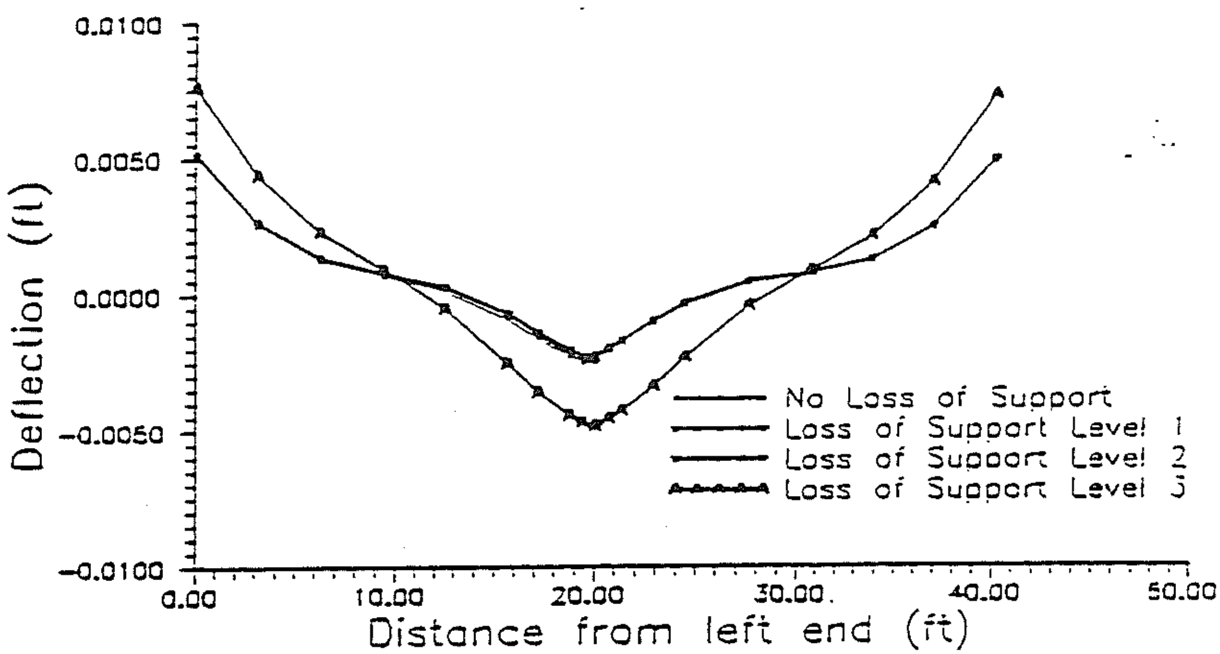


Figure B-32

Deflection profile along edge wheel path soft dowel spring, load type 2, load level 3

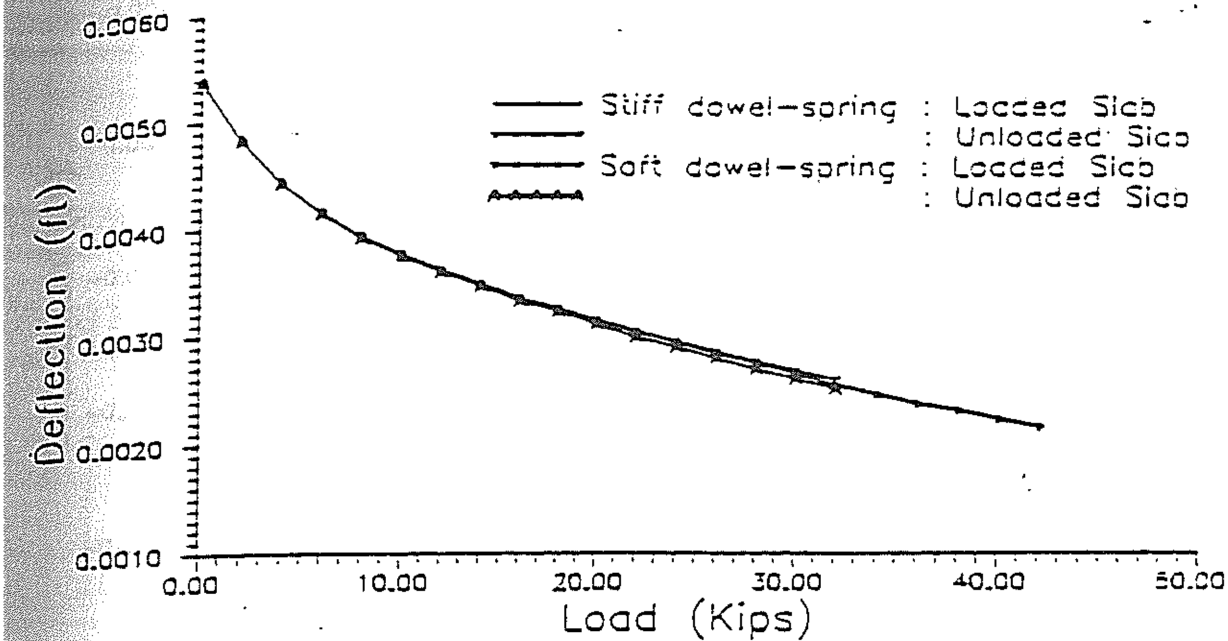


Figure B-33

Load vs. max. deflection curves for load type 2 - support condition 1

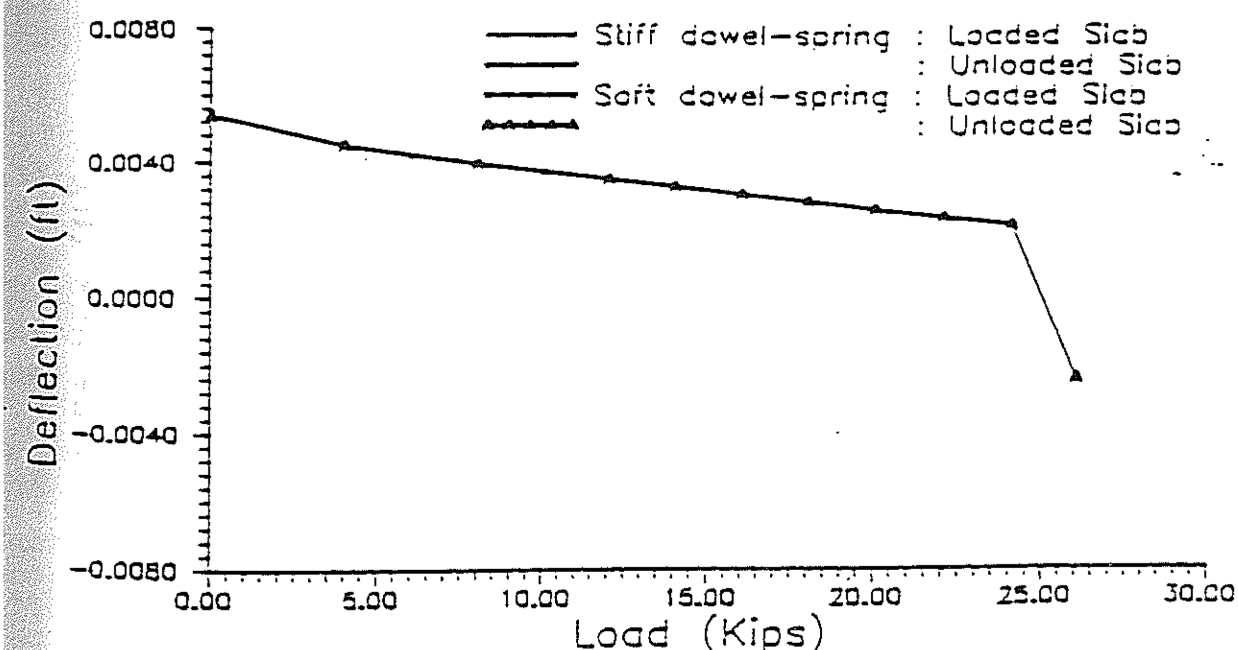


Figure B-34

Load vs. max. deflection curves for load type 2 - support condition 3

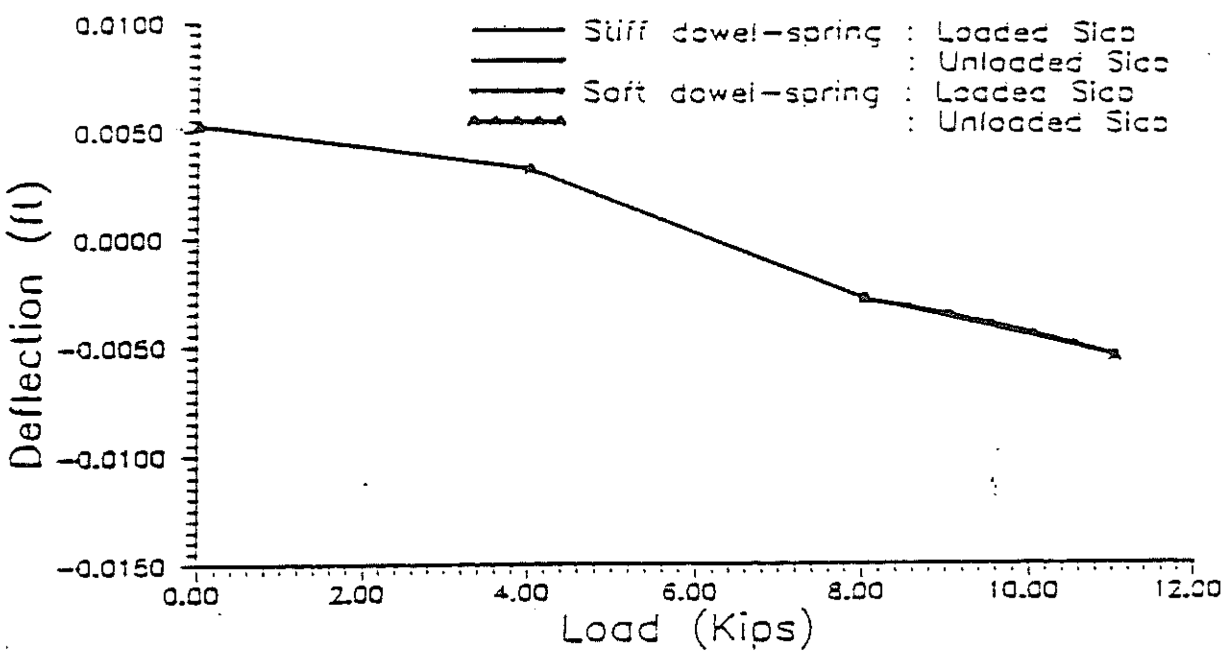


Figure B-35

Load vs. max. deflection curves for load type 2 - support condition 4

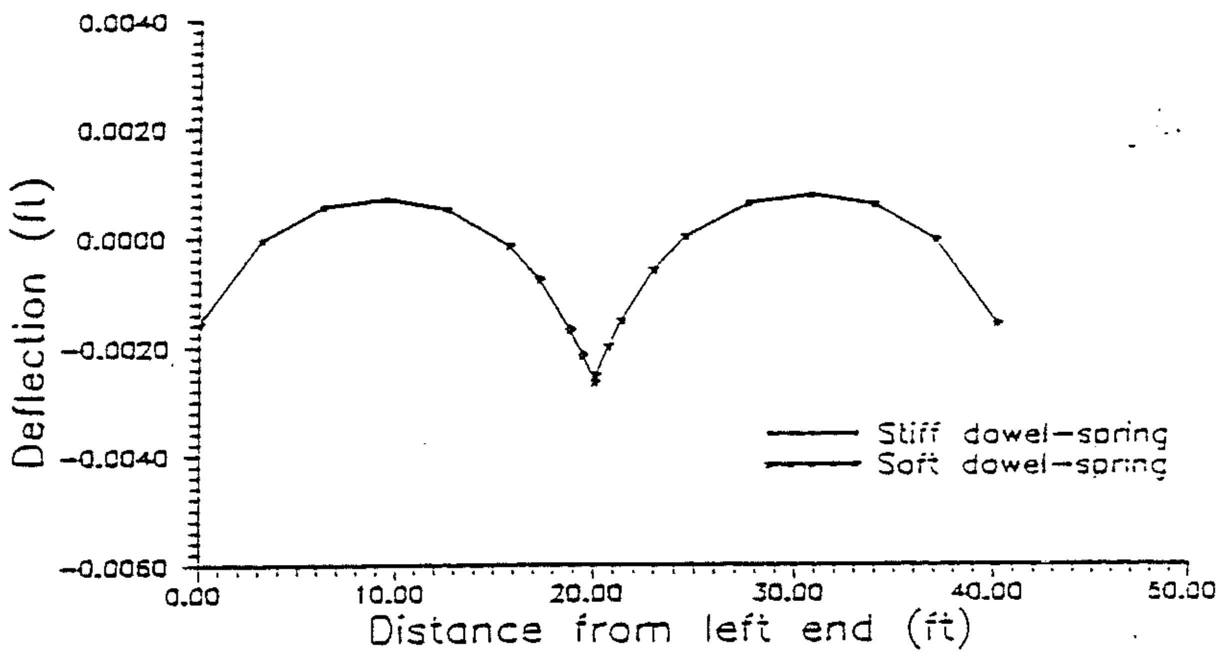


Figure B-36

Deflection profile along edge wheel path load type 3 - support condition 1 - load level 1

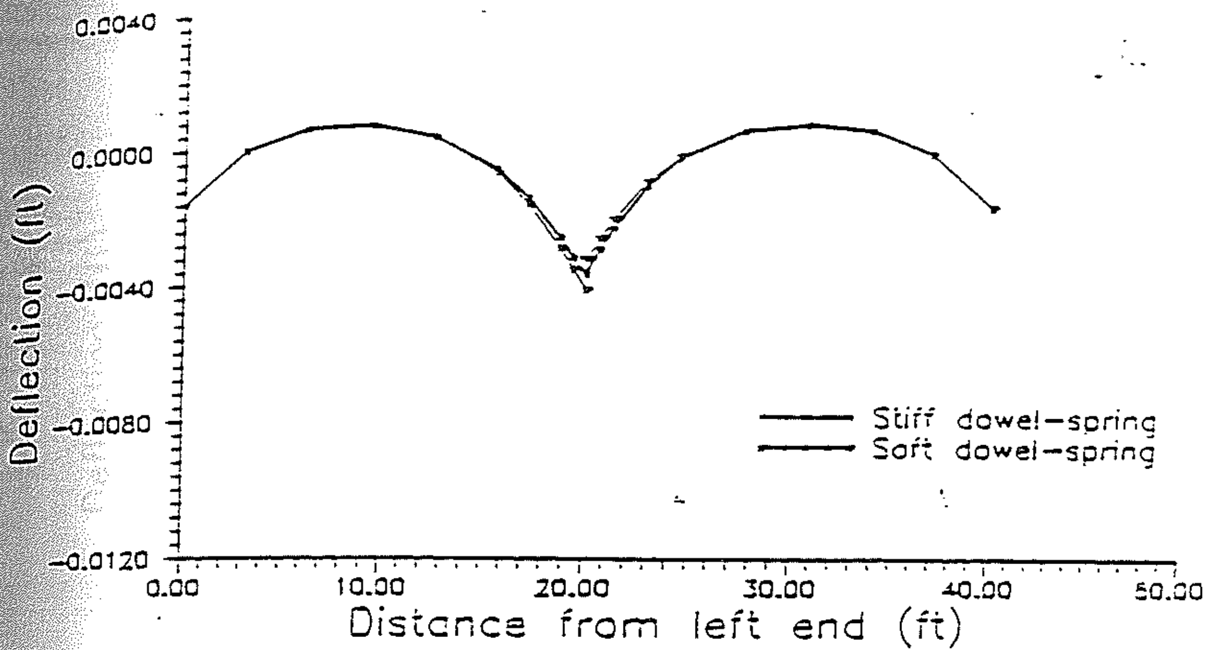


Figure B-37

Deflection profile along edge wheel path load type 3 - support condition 1 - load level 2

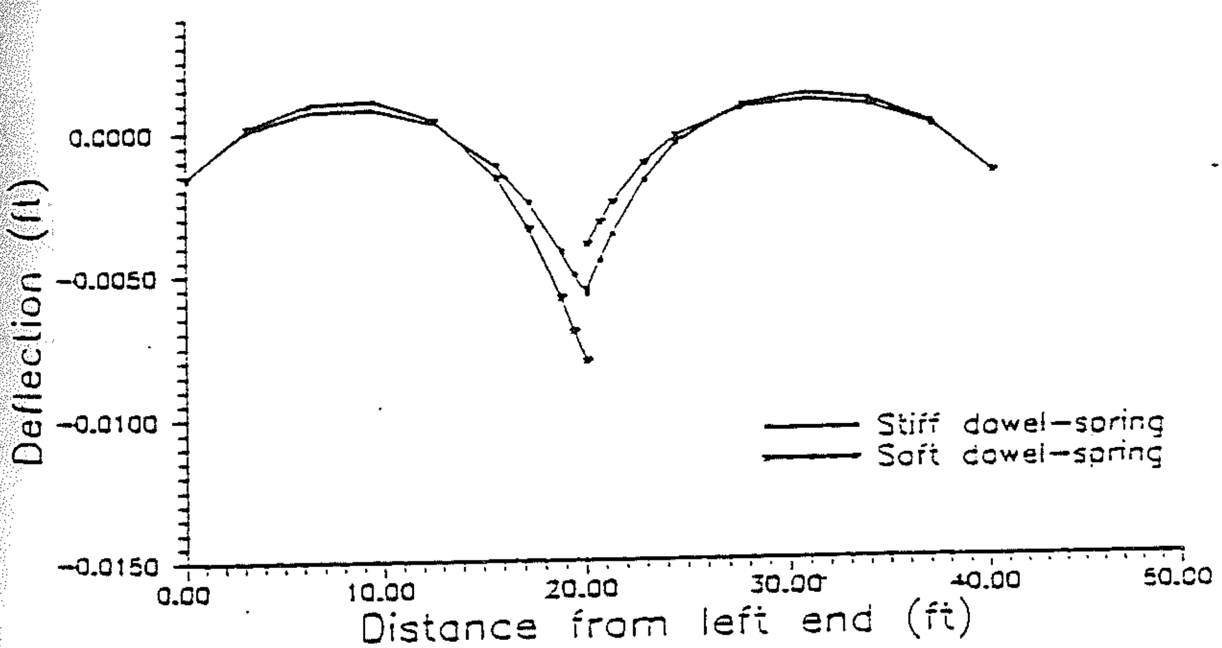


Figure B-38

Deflection profile along edge wheel path load type 3 - support condition 1 - load level 3

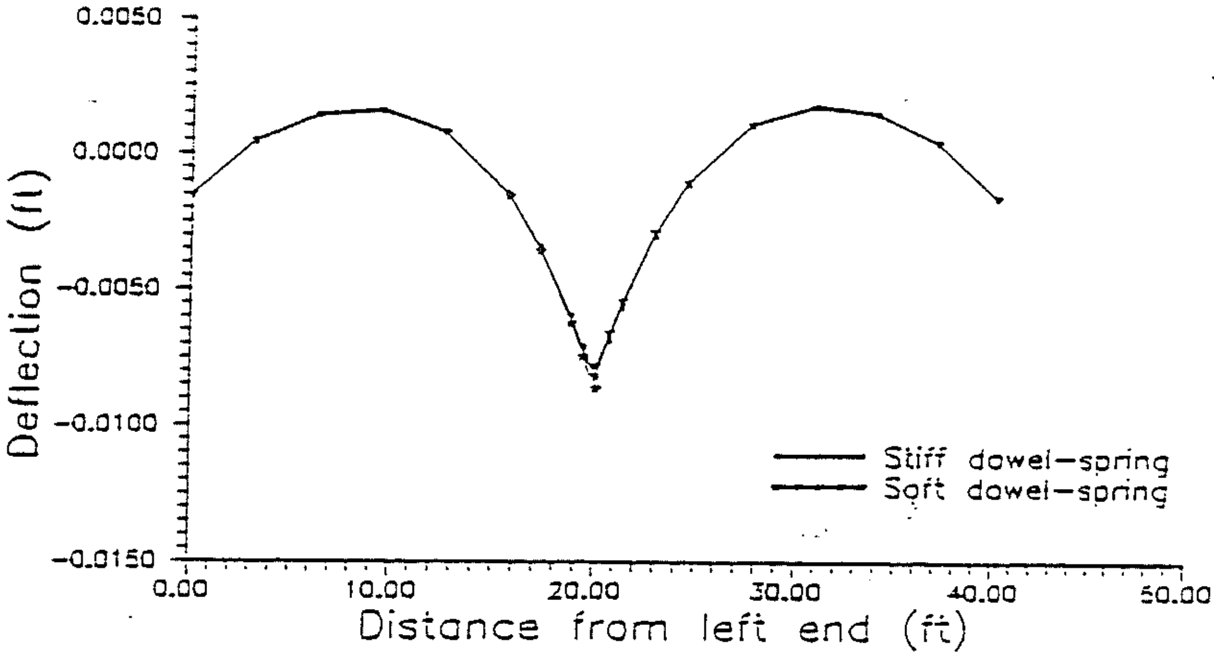


Figure B-43

Deflection profile along edge wheel path load type 3 - support condition 3 - load level 2

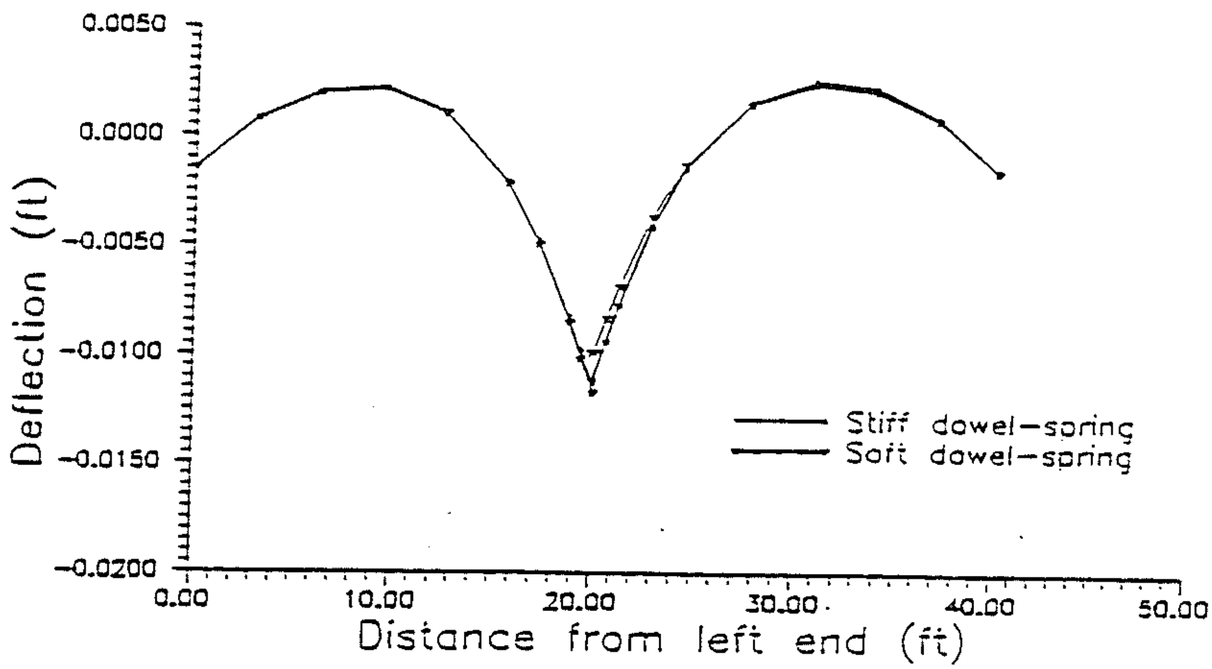


Figure B-44

Deflection profile along edge wheel path load type 3 - support condition 3 - load level 3

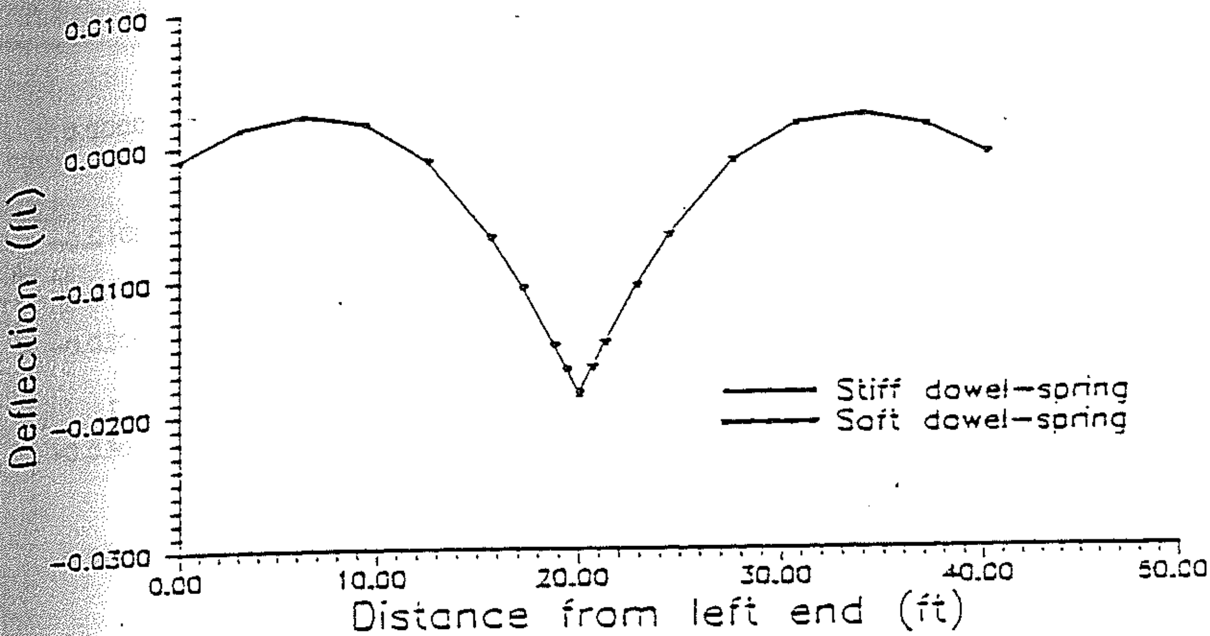


Figure B-45

Deflection profile along edge wheel path load type 3 - support condition 4 - load level 1

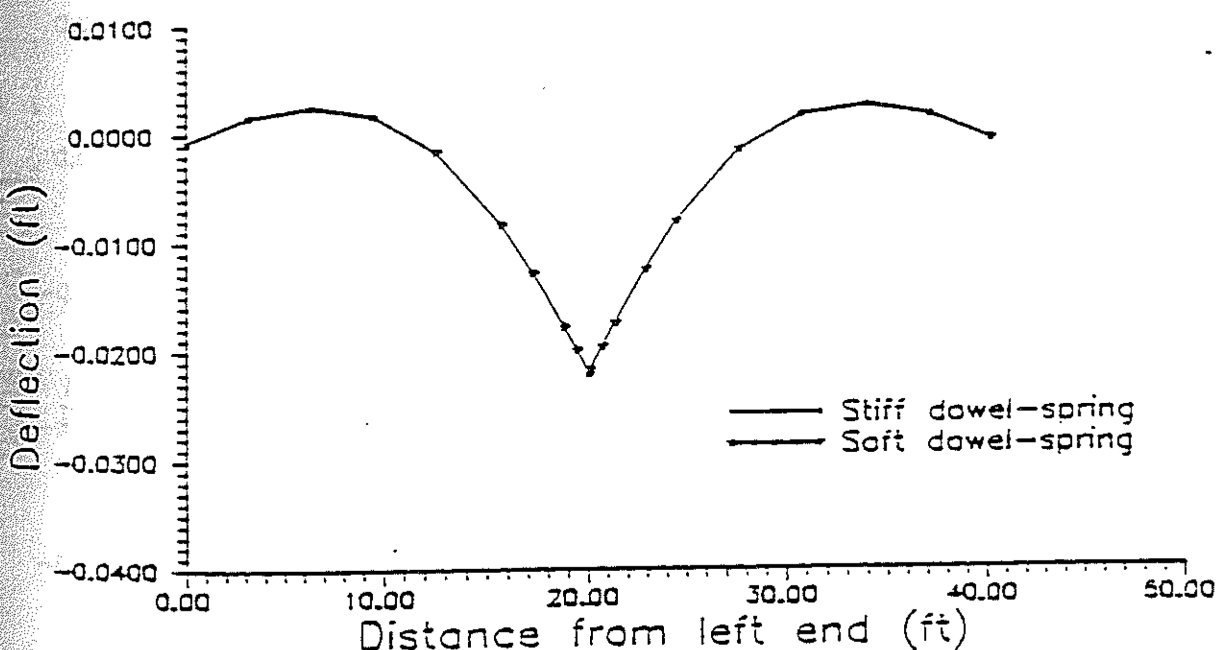


Figure B-46

Deflection profile along edge wheel path load type 3 - support condition 4 - load level 3

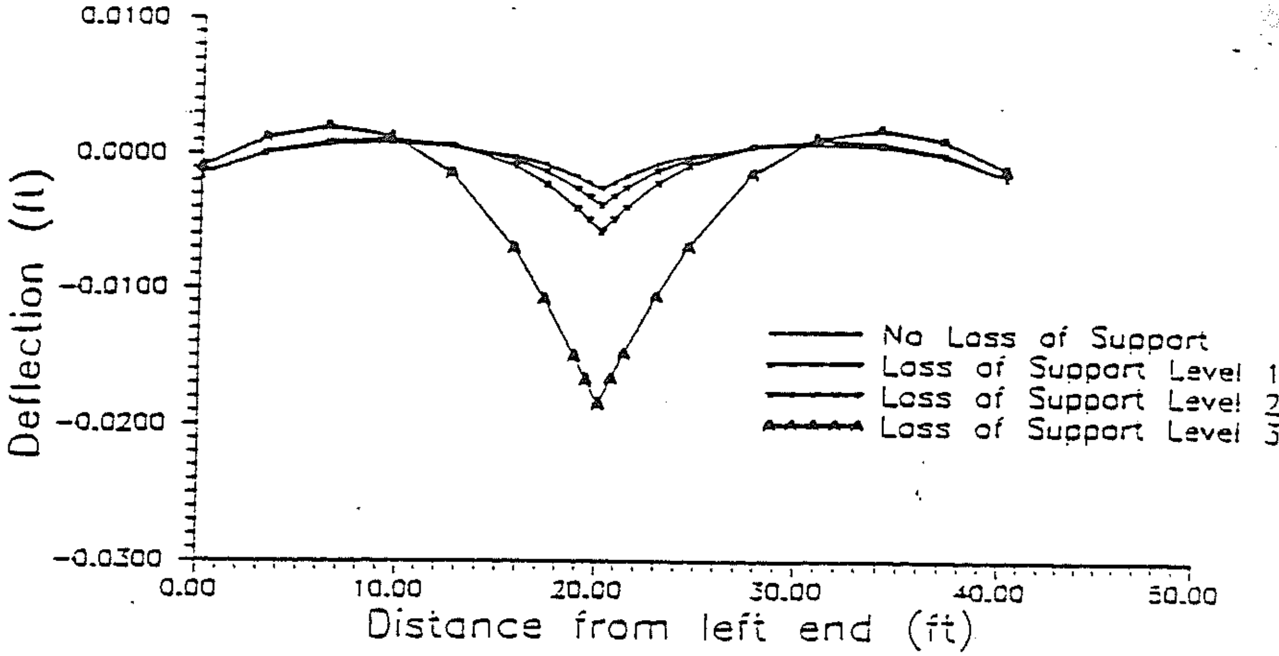


Figure B-47

Deflection profile along edge wheel path stiff dowel spring, load type 3, load level 1

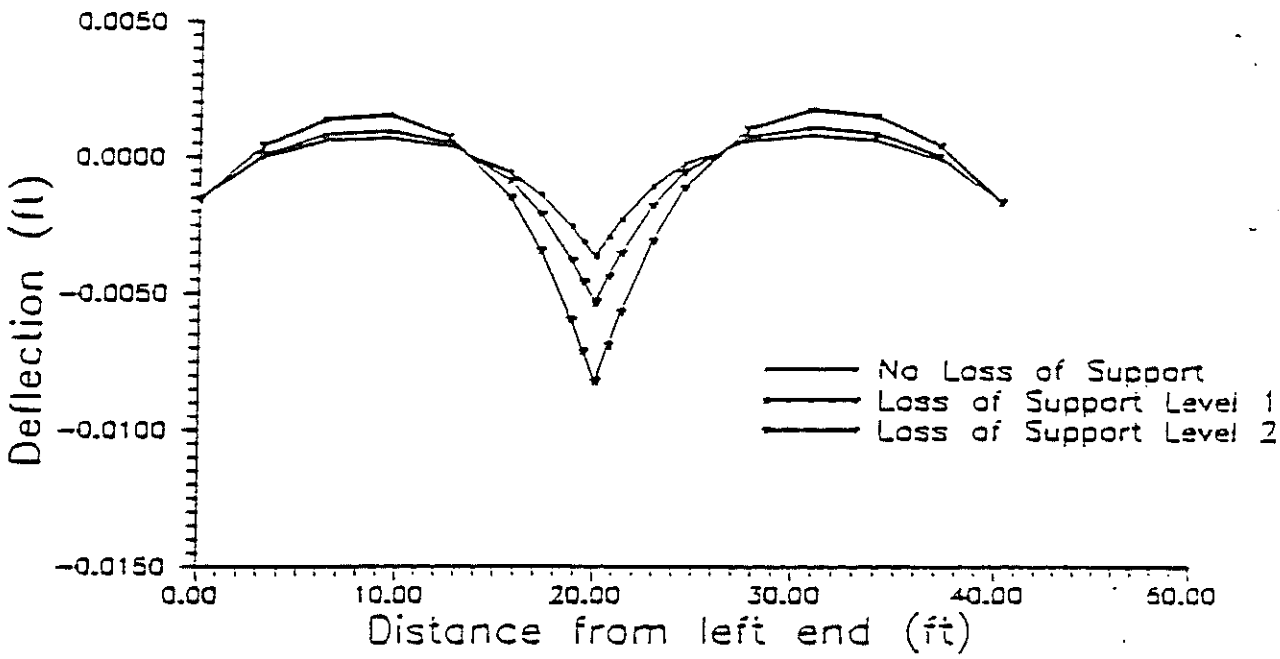


Figure B-48

Deflection profile along edge wheel path stiff dowel spring, load type 3, load level 2

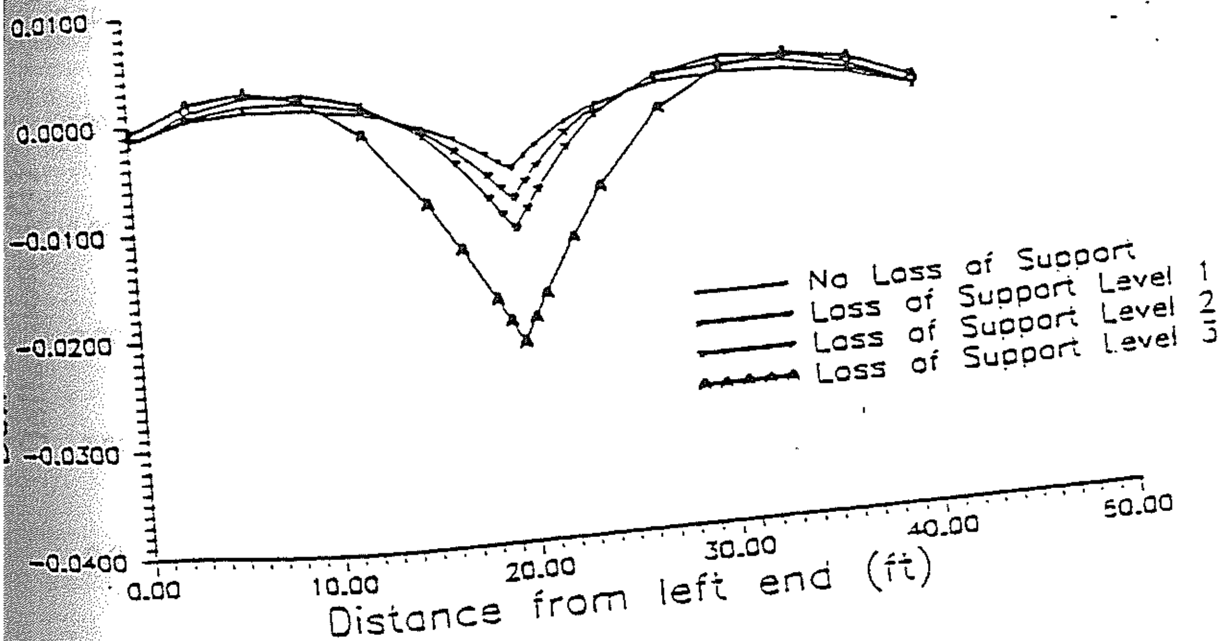


Figure B-49

Deflection profile along edge wheel path Stiff dowel spring, load type 3, load level 3

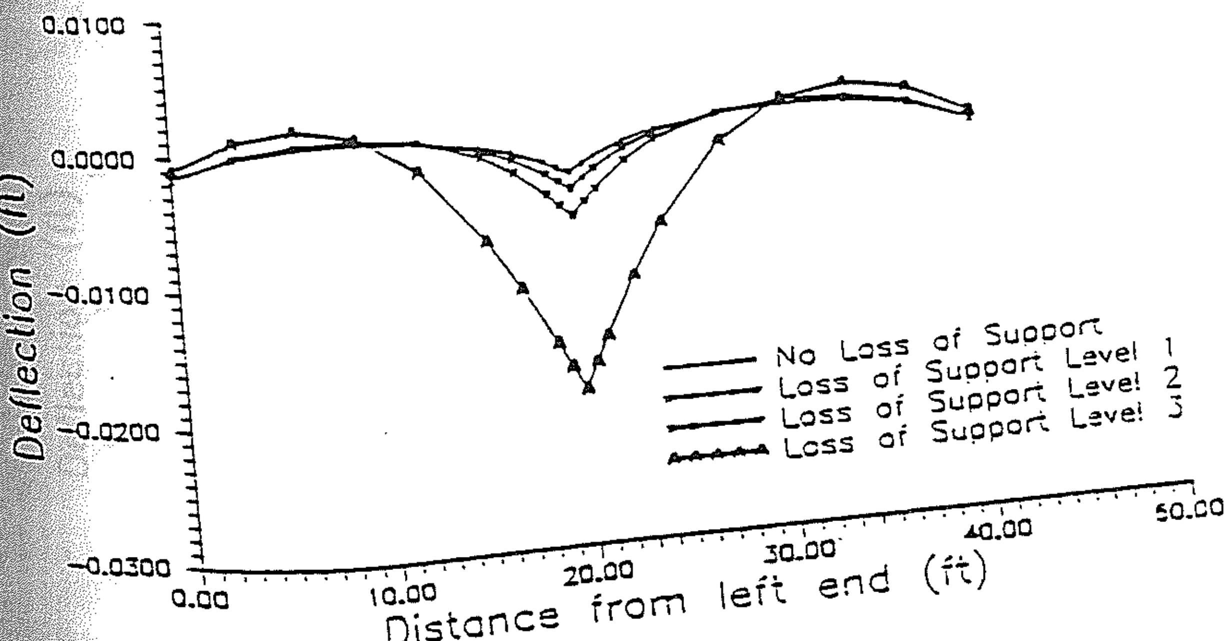


Figure B-50

Deflection profile along edge wheel path soft dowel spring, load type 3, load level 1

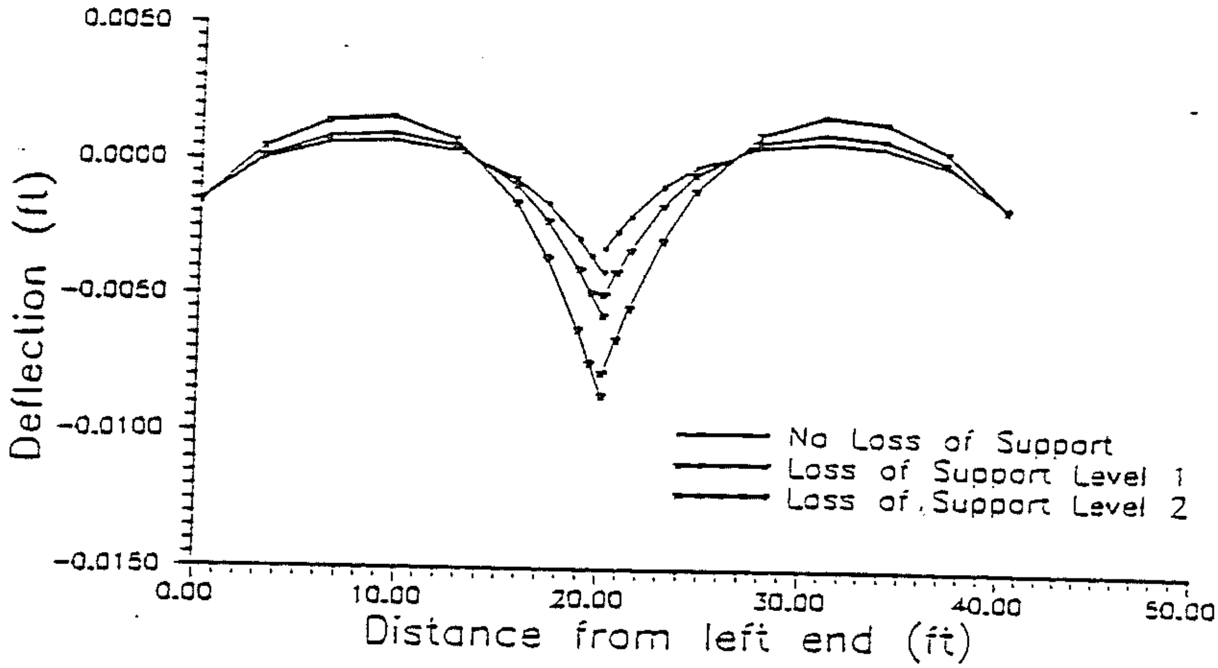


Figure B-51

Deflection profile along edge wheel path soft dowel spring, load type 3, load level 2

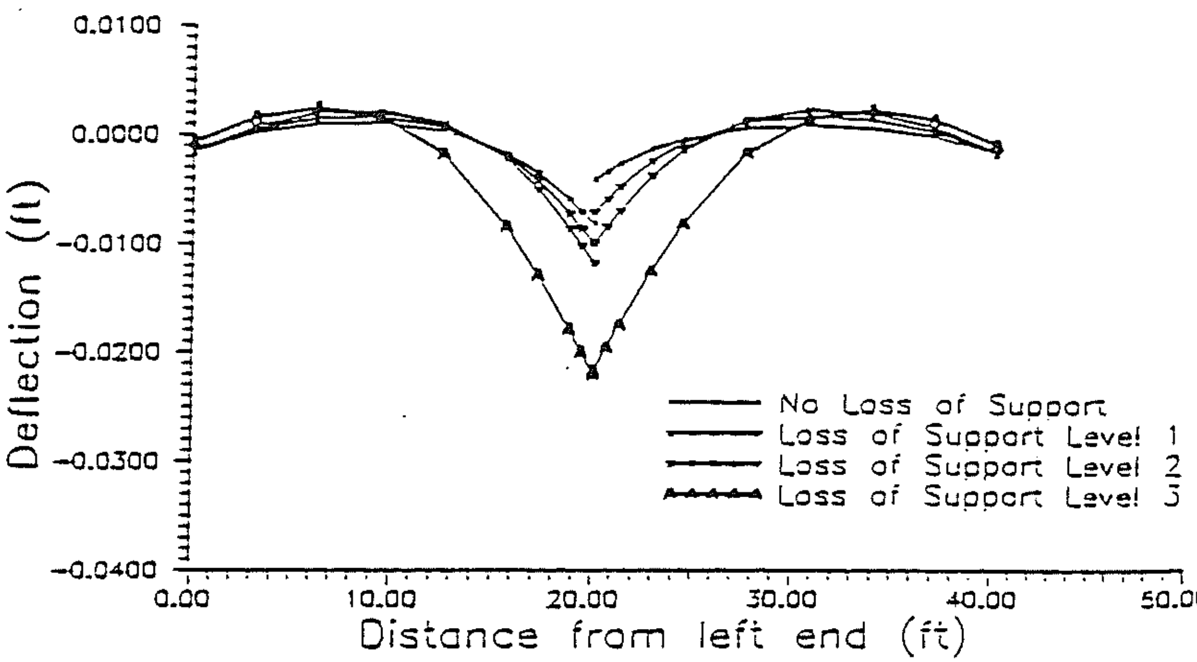


Figure B-52

Deflection profile along edge wheel path soft dowel spring, load type 3, load level 3

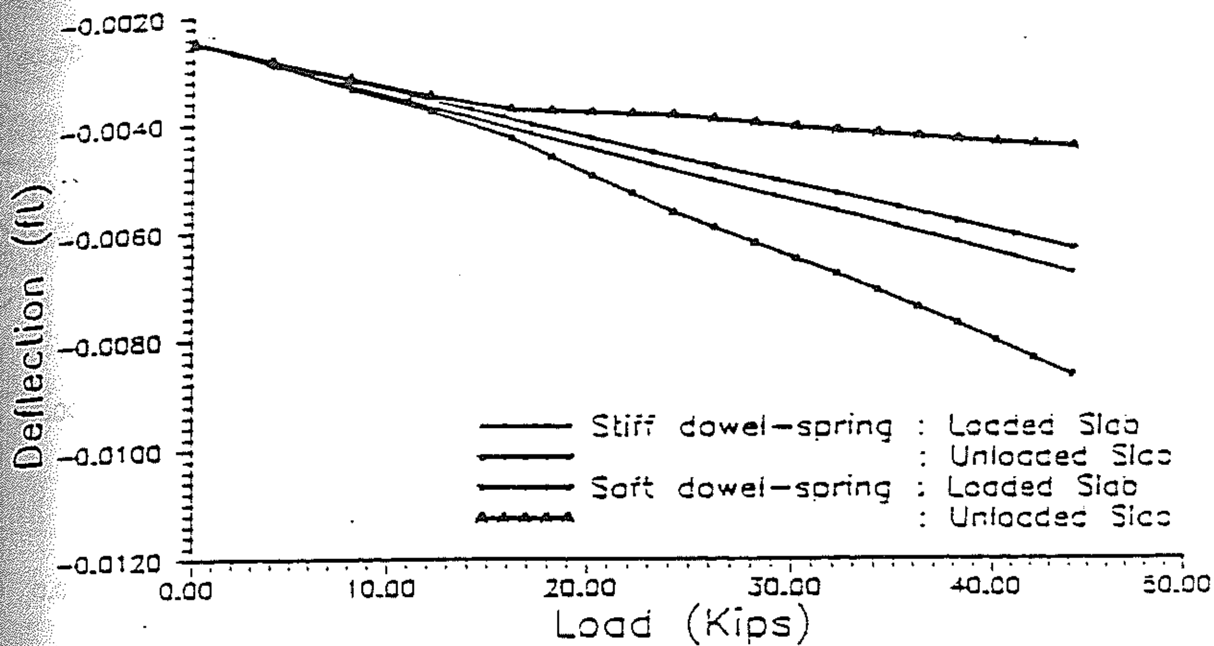


Figure B-53

Load vs. max. deflection curves for load type 3 - support condition 1

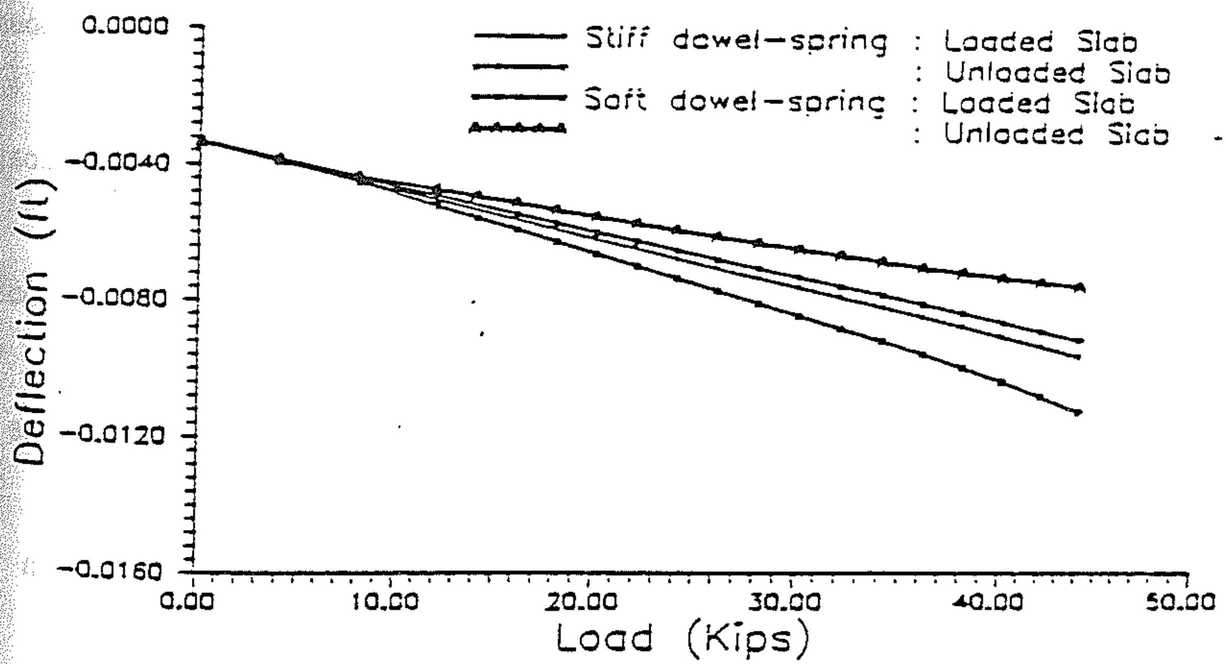


Figure B-54

Load vs. max. deflection curves for load type 3 - support condition 2

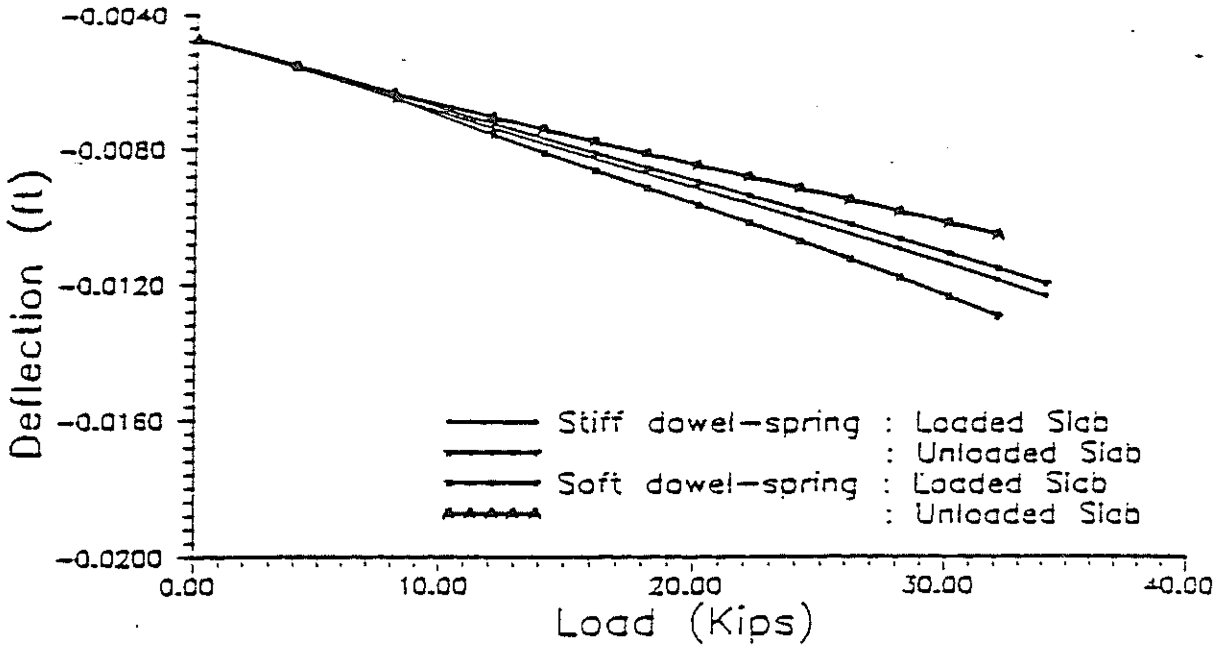


Figure B-55

Load vs. max. deflection curves for load type 3 - support condition 3

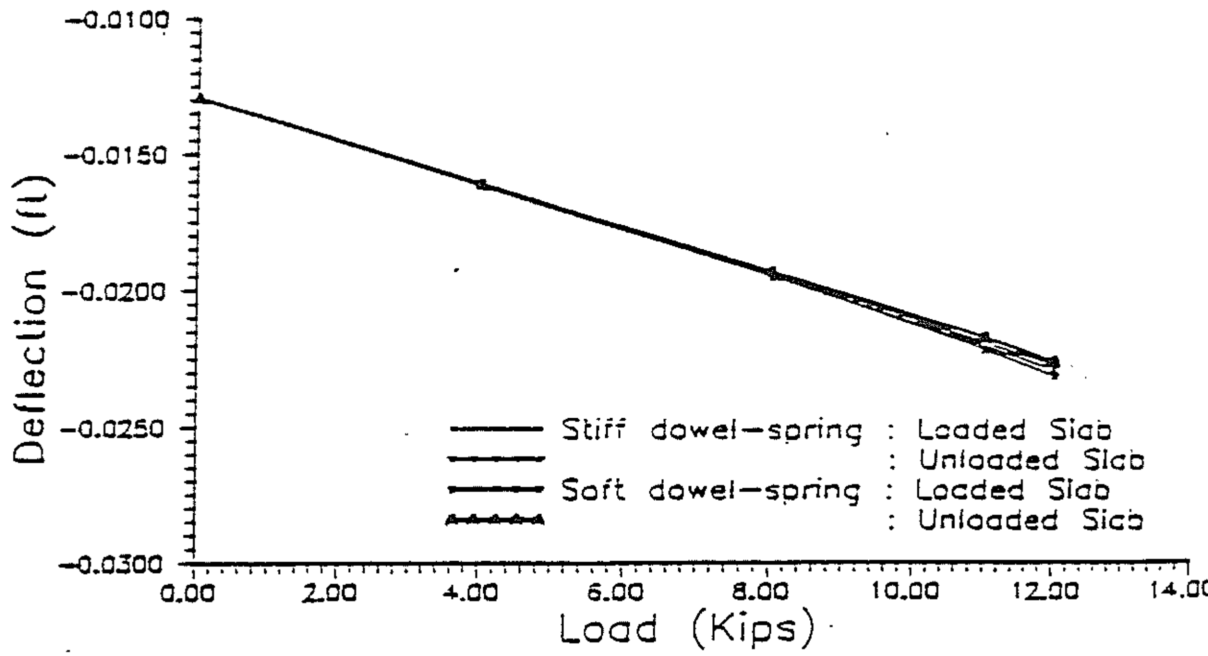


Figure B-56

Load vs. max. deflection curves for load type 3 - support condition 4

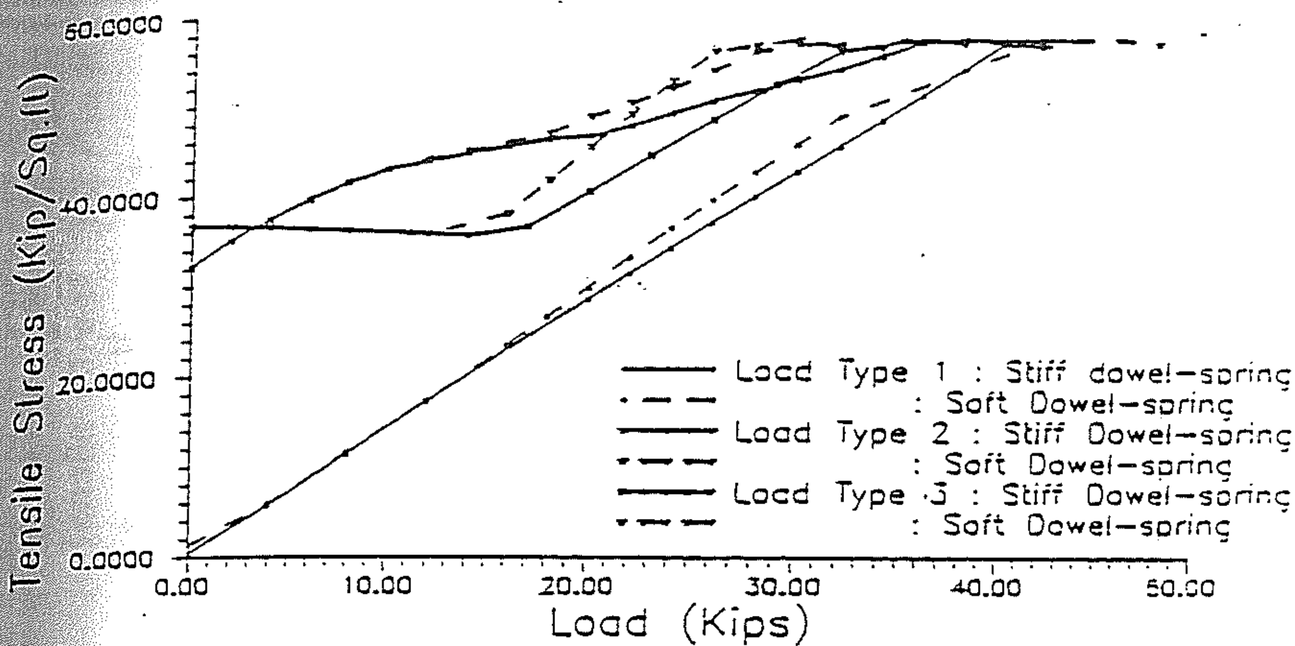


Figure B-57

Load vs. max. tensile stress curves support condition 1

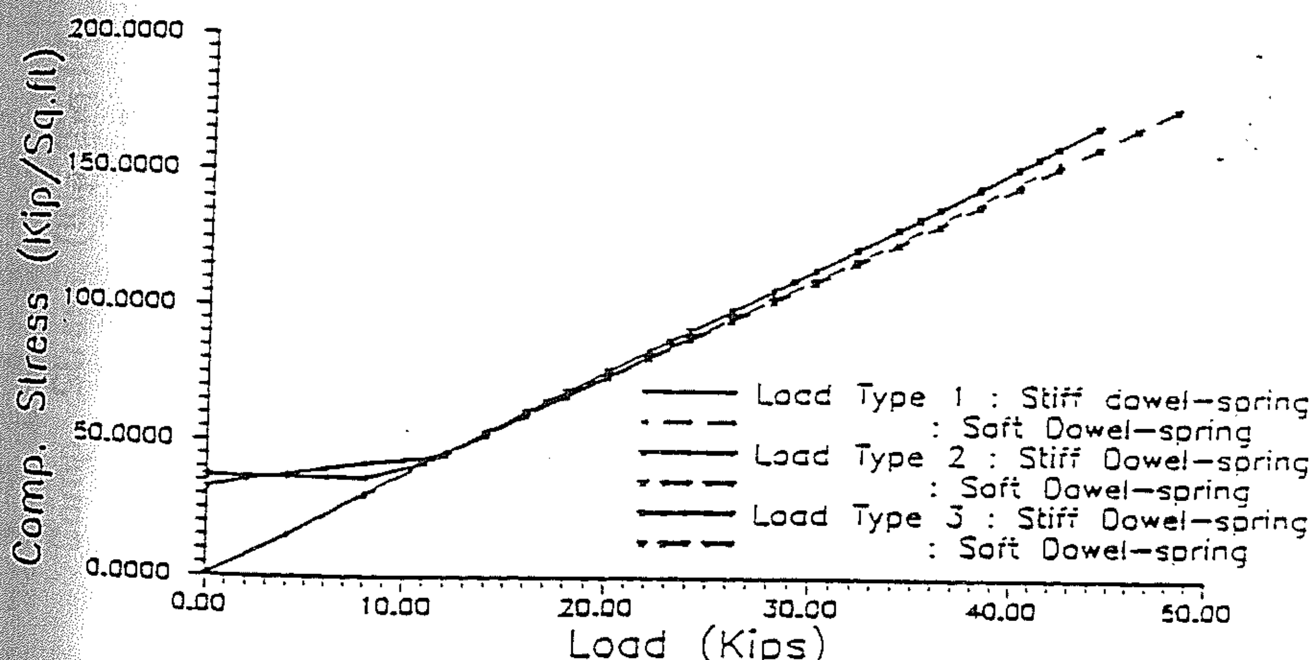


Figure B-58

Load vs. max. compressive stress curves support condition 1

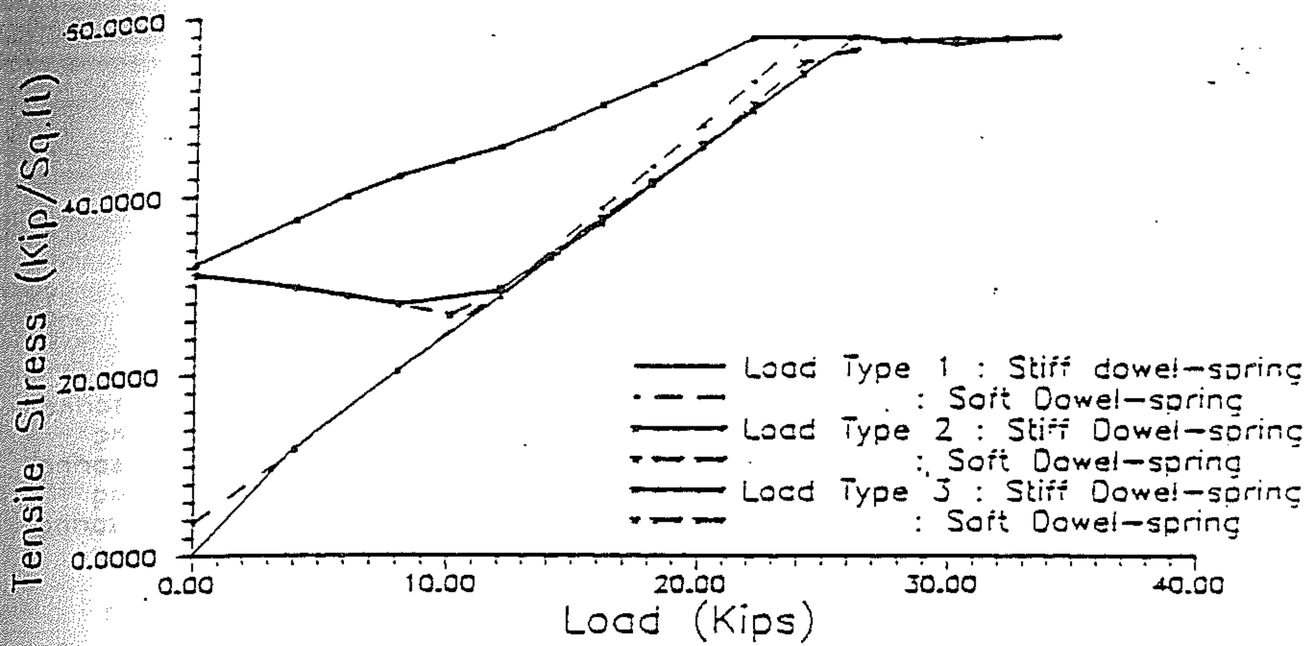


Figure B-61

Load vs. max. tensile stress curves support condition 3

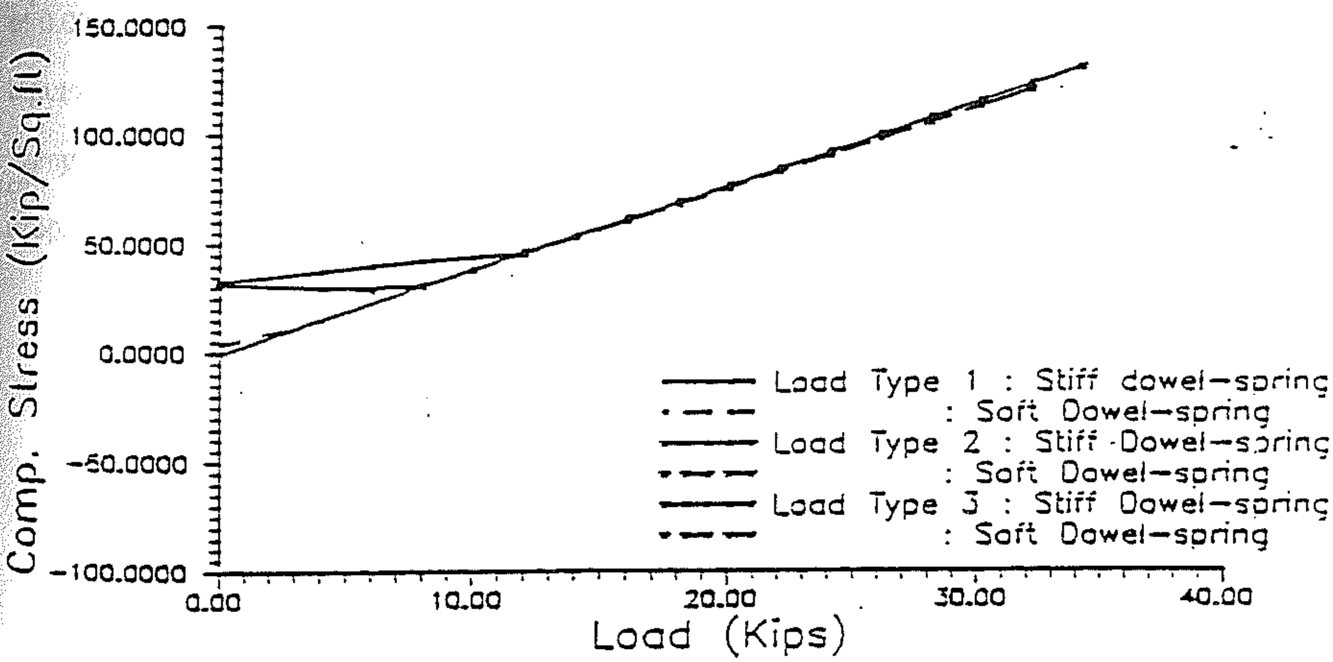


Figure B-62

Load vs. max. compressive stress curves support condition 3

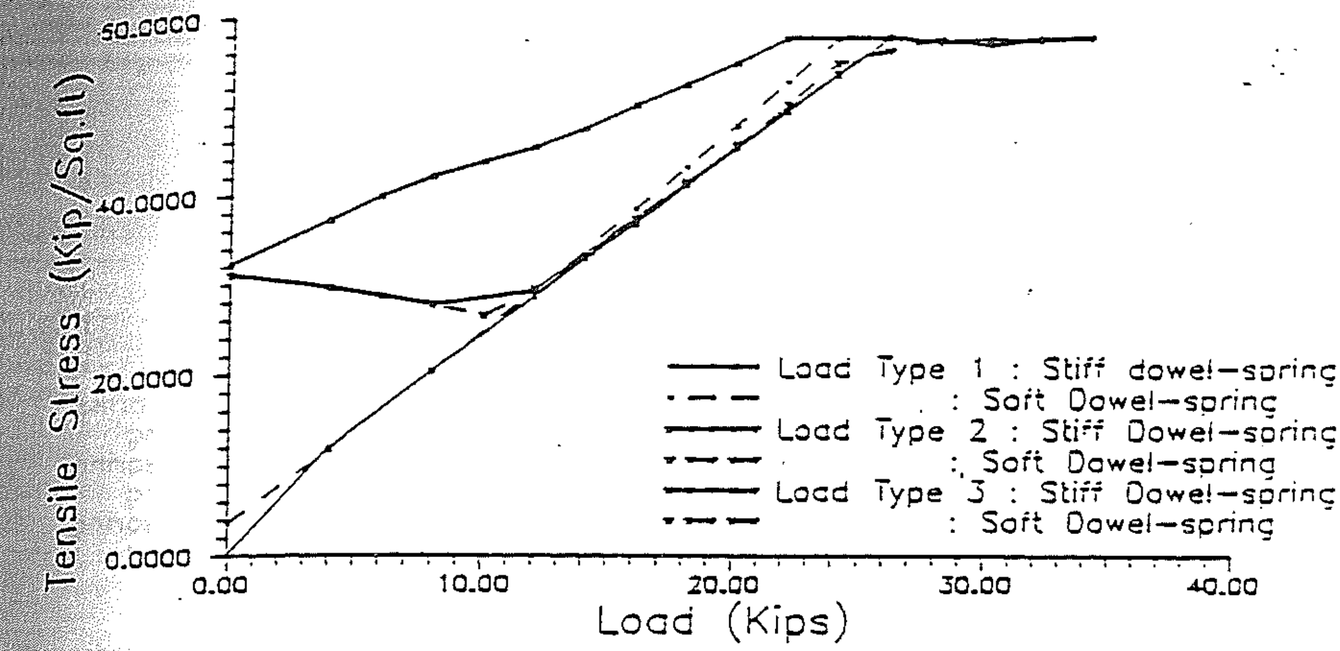


Figure B-61

Load vs. max. tensile stress curves support condition 3

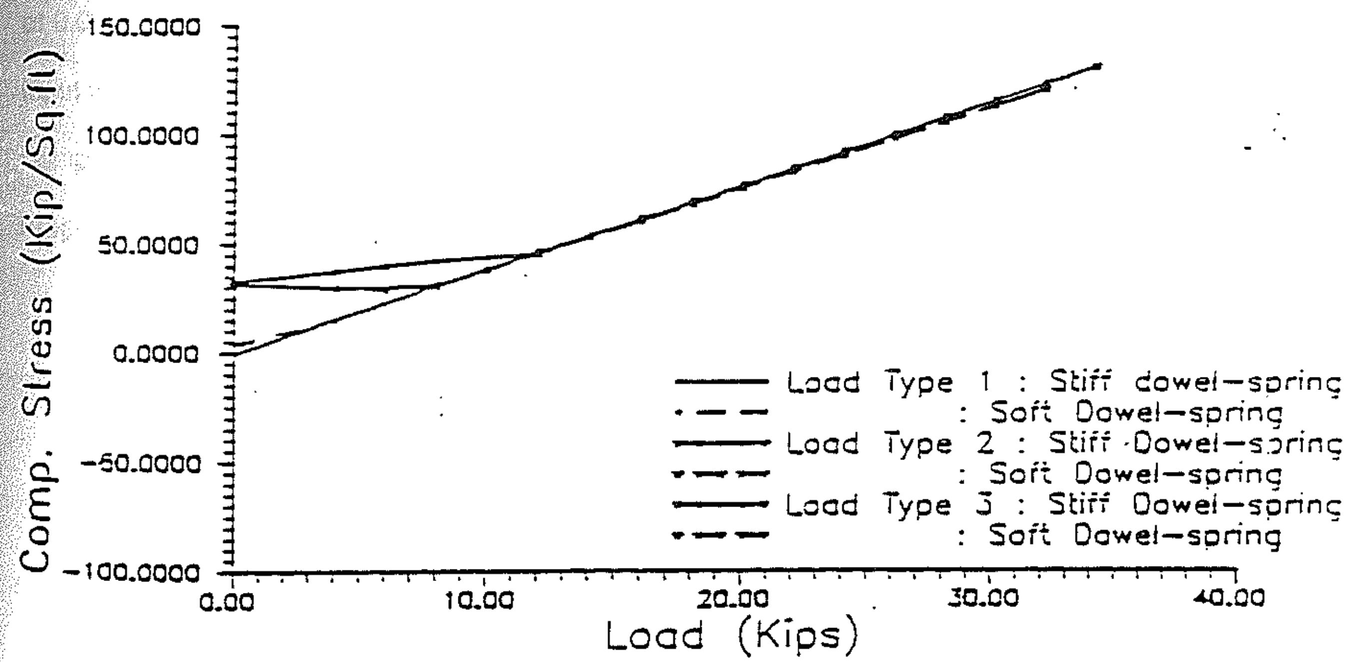


Figure B-62

Load vs. max. compressive stress curves support condition 3

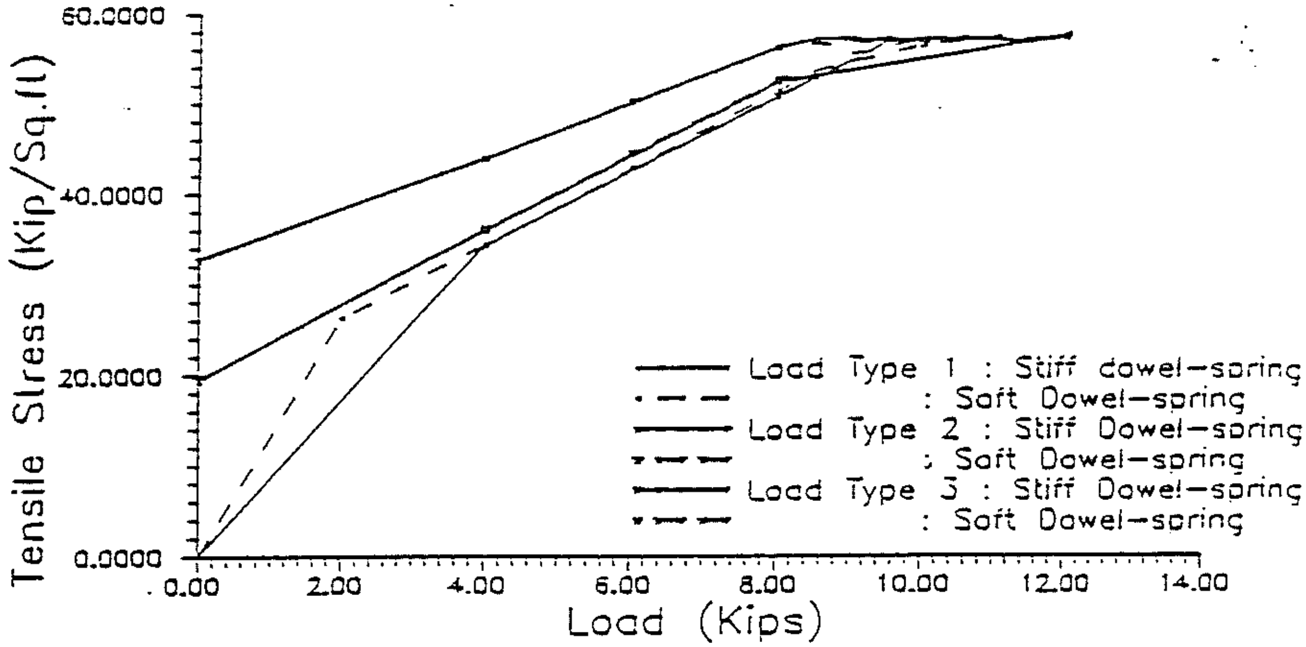
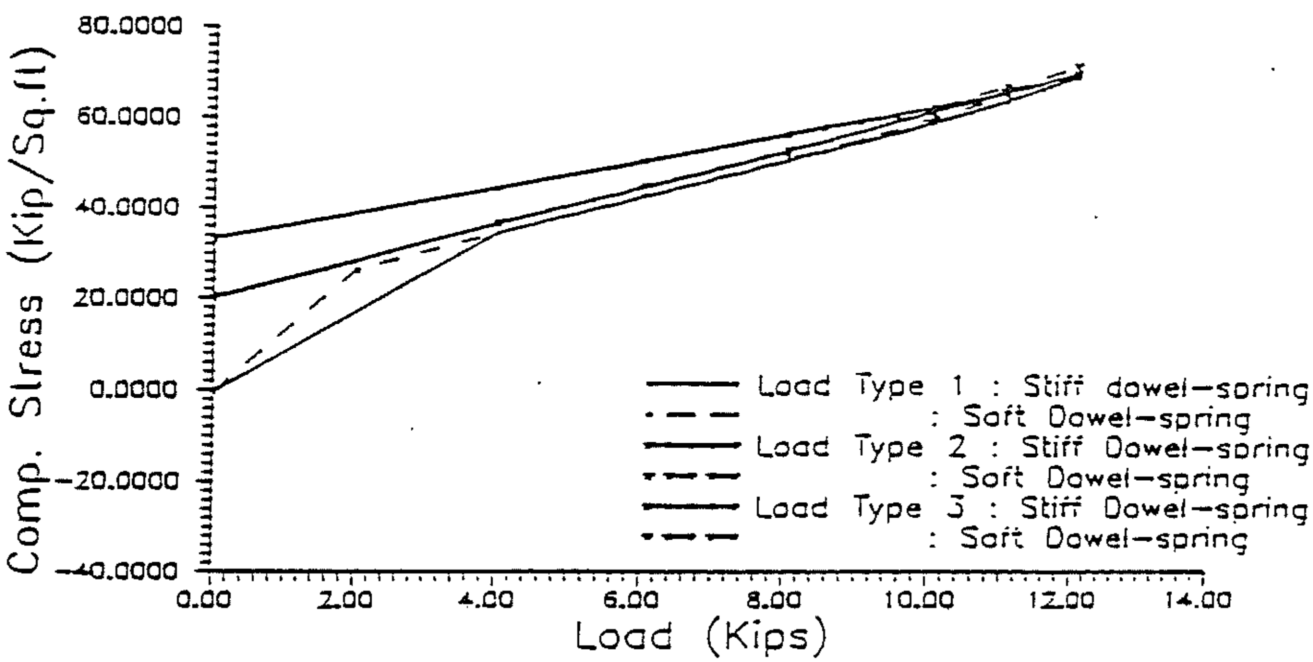


Figure B-63

Load vs. max. tensile stress curves support condition 4



Load vs. max. compressive stress curves support condition 4

APPENDIX C

Flow chart

Instructions for data input

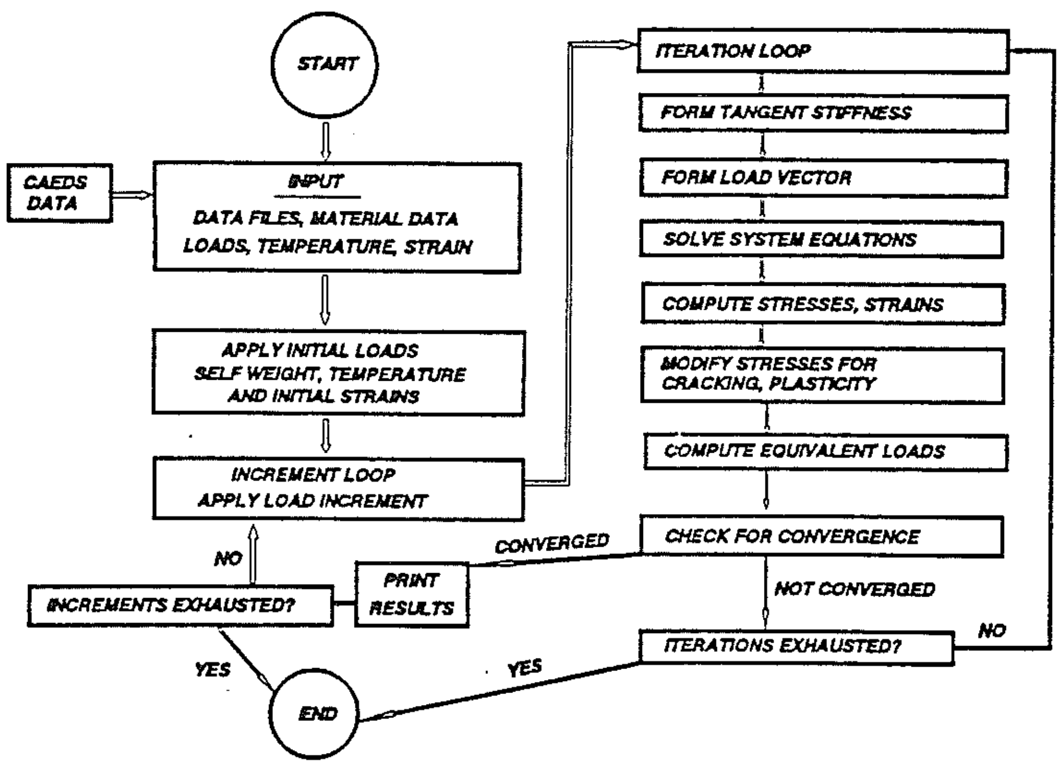
Input data for analysis of pavements subjected to nighttime temperature curling, partial loss of support (Level 3), and wheel loads

Input data file for analysis of pavements with concrete full depth patch and a shrinkage of 0.00002

Input file from CAEDS for analysis of pavements with patch

Sample output for analysis of pavements with patch

Program listing


START
CAEDS DATA
INPUT
DATA FILES, MATERIAL DATA
LOADS, TEMPERATURE, STRAIN
APPLY INITIAL LOADS
SELF WEIGHT, TEMPERATURE
AND INITIAL STRAINS
INCREMENT LOOP
APPLY LOAD INCREMENT
NO
INCREMENTS EXHAUSTED?
PRINT RESULTS
YES
END
ITERATION LOOP
FORM TANGENT STIFFNESS
FORM LOAD VECTOR
SOLVE SYSTEM EQUATIONS
COMPUTE STRESSES, STRAINS
MODIFY STRESSES FOR
CRACKING, PLASTICITY
COMPUTE EQUIVALENT LOADS
CHECK FOR CONVERGENCE
CONVERGED
NOT CONVERGED
ITERATIONS EXHAUSTED?
NO
YES

FLOW CHART

INSTRUCTIONS FOR DATA INPUT

****

The program developed in this study employs a system of MACRO commands for both INPUT of data and CONTROL of solution procedure. This system closely follows the one described by Taylor in the book by Zienkiewicz (1979).

The INPUT to the program consists of two files. The main file has the commands controlling the INPUT and SOLUTION procedure. The second file contains the finite element mesh data generated by the commercial package CAEDS. The name of this file is supplied in the main input file.

The contents of the main input file are described next.

No.	MACRO	Description
1.	FEAP	followed by a title describing the problem
2.		Number of nodes, Number of elements, Number of material sets, Number of dimensions, Number of degrees of freedom, and Maximum number of nodes per element (Note : This information is optional. The same is supplied through the CAEDS data file)
3.	CAED	followed by the pre-processed file name generated by CAEDS
4.	CTMP	Command for temperature input
5.		Top surface temperature, Bottom surface temperature, Top surface Z-coordinate, Bottom surface Z-coordinate. (Note : This information is necessary only for temperature loads
6.	MATE	Command to start reading material property information for various material sets given one after the another
7.		Material set number, Element type (Note : Element type = 1 - Beam element in space Element type = 2 - Spring element for subgrades and dowel support interactions Element type = 3 - Reinforcing bar element Element type = 4 - Concrete element (20-noded finite element)
8.		CONCRETE MATERIAL : Young's modulus, Poisson's ratio, Density, Number of Gauss points, and Number of Stress points (equal) FOR TEMPERATURE ANALYSIS - Coefficient of thermal expansion DOWEL BARS : Young's modulus, Shear modulus, Area of cross section, Moment of inertia about horizontal axis and vertical axis, Inclination of principal axes, Polar moment of inertia SUBGRADE SPRINGS : Spring stiffnesses along X, Y, and Z axes, Direction cosines of the spring axis (l,m,n) REINFORCEMENT : This element is not used

9.	CRCK	Command to input information for concrete crack model
10.		Material set number, Compressive strength, Tensile strain, Compressive and Tensile strain limits (for strain controlled failure - Not used), Fracture energy, Shear retension factor, Criteria for concrete cracking (1 for stress based failure) and post-peak softening (1 for linear softening).
11.	NONL	Command to input information for Nonlinear behavior
12.		Yield criterion (11 for Ottosen's criterion), Number of hardening segments in the stress-strain curve.
13.		Stress and strains for each segment of the curve. (Note : The criterion for springs are specified as 2. This information is not used in the computation, since, direct load-deflection curves are given)
14.	STRN	Command to input shrinkage strains
15.		Shrinkage strains along X, Y, and Z directions (negative)
16.	DIST	Command to input pressure and gravity loads
17.		Code for pressure and gravity loads (1 if present)
18.		Direction cosines and coefficient for gravity loads (Note : Pressure loads are not considered here)
19.	END	End of INPUT data
20.	MACR	Begin solution control information
21.	PROP	Proportional load coefficient input control
22.	TANG	Forms the Tangent stiffness matrix (used only in the beginning)
23.	FORM	Forms the RHS vector (used only in the beginning)
24.	LOOP	Starts an iteration loop (Number of iterations given as data) (Note : This command can also start an increment loop and can be nested up to 8 levels deep)
25.	SOLV	Solves the simultaneous equations for displacements
26.	NONL	Computes strains, stresses and modifies these stresses for cracks and plasticity in concrete elements, for loss of contact in subgrade spring elements.
27.	STIF	Reformulates the stiffness at prescribed intervals
28.	NEXT	End of iteration or increment loop
29.	DISM	Prints out prescribed number of nodal displacement component(specified) in the descending order of magnitude.
30.	DISX	Prints out displacements at the top surface along a prescribed Y-coordinate.

31.	DISY	Prints out displacements at the top surface along a prescribed X-coordinate.
32.	CAED	Prints out results in CAEDS format for post-processing.
33.	MESH	Calls data input routines for input of forces/material properties
34.	INCR	Increments loads.
35.	END	End of Macro commands
36.		Proportional Load table Number, Index, Min. Time, Max. Time, 5 Coefficients for load Coefficient 1 gives the current increment size. (Ref. Zienkiewicz 1979 for details)
37.	STOR	Stores information for restart facility.
38.	STOP	End of solution

****

REFERENCE :

Zienkiewicz, O.C. (1979) "The Finite Element Method", Third Edition, Tata McGraw-Hill Publishing Co. Ltd., New Delhi, pp. 677-757.

```
********************************************************************************
**         INPUT DATA FILE FOR ANALYSIS OF PAVEMENTS SUBJECTED TO
**     NIGHT-TIME TEMPERATURE CURLING, PARTIAL LOSS OF SUPPORT (LEVEL 3)
**                           AND WHEEL LOADS
**
**       NOTE : UNITS EMPLOYED
**
**       LENGTH      : FEET
**       FORCE       : KIPS
**       TEMPERATURE : FARENHEIT
**
**       ALL DERIVED UNITS ARE CONSISTENT WITH THESE UNITS
********************************************************************************

FEAP * PAVEMENT - LOSS SUP. 3, WHEEL LOAD, NIGHT TEMP, SOFT SPRINGS BELOW
2598 1126 12 3 6 20
        (Note : Number of nodes, Number of elements, Number of material se
                Number of dimensions, Number of degrees of freedom,
                Maximum number of nodes per element - OPTIONAL)
CAED  ../pw1t00.unv
        (Note : Full patch and mesh data input file generated
                by CAEDS pre-processor)
CTMP    (Note : Command to input temperature gradient)
0.0 20.0 0.8333 0.0
        (Note : Pavement top surface temperature,
                Pavement bottom surface temperature,
                Z-coordinate of the top surface,
                Z-coordinate of the bottom surface)
MATE    (Note : Command to read-in material properties)
1 4     (Note : Material set number, Material type - 4 - Dummy concrete)
761760.0 0.20 0.145 3 3   (Note : E, Nu, w, Number of Gauss and stress poi
0.6E-5                    (Note : Coefficient of Termal Expansion)
2 2     (Note : Material type - 2 - subgrade spring)
1.0000 1.0000 691.0  1 0 0 0 1 0 0 0 1  (Note : Kx, Ky, Kz, Direction cosi
3 4     (Note : Material type - 4 - concrete)
761760.0 0.20 0.145 3 3
0.6E-5
4 1     (Note : Material type - 1- Beam: E, G, A, Ixx, Iyy, Angle, J)
4291200. 1650461.5 5.45414E-03 2.36785E-06 2.36785E-06 .0 4.73572E-06
5 2
1.0E00 1.0E06 1.0E06  1 0 0 0 1 0 0 0 1
6 2
1.0000 1.0000 1.0  1 0 0 0 1 0 0 0 1
7 2
1.0000 1.0000 1.0  1 0 0 0 1 0 0 0 1
8 2
1.0000 1.0000 1.0  1 0 0 0 1 0 0 0 1
9 2
1.0E-08 1.0E00 1.0E00  1 0 0 0 1 0 0 0 1
10 1
4291200. 1650461.5 5.45414E-03 2.36785E-06 2.36785E-06 .0 4.73572E-06
11 2
1.0000 1.0000 1.0  1 0 0 0 1 0 0 0 1
12 2
1.0000 1.0000 691.0  1 0 0 0 1 0 0 0 1
CRCK    (Note : Crack parameters input for concrete material set 1)
1 576.0 57.60 0.1 0.1 1.0E-2 0.2 1 1
        (Note: Material, fc', ft', ecmax, etmax, Gf, Beta, Criteria for
                Cracking : 1 - Stress based
                and post-peak tension softening : 1 - Linear softening)
```

```
CRCK
3 576.0 57.60 0.1 0.1 1.0E-2 0.2 1 1
        (Note: Material, fc', ft', ecmax, etmax, Gf, Beta, Criteria for
                 Cracking : 1 - Stress based
                 and post-peak tension softening : 1 - Linear softening)
NONL    (Note :  Command to input data for Nonlinear materials)
11 0             *** dummy concrete (unused)
500.0 0.0        (Note : Reference stress, Number of stress-strain segments)
2 0              *** base spring
00.0 0.0         (Note : Zero for the first data indicates no tension)
11 0             *** concrete
500.0 0.0        (Note : Reference stress, Segments in the stress-strain curve)
2 0              *** dowels
1000.0 0.0
2 0              *** interior dowel springs
100000.00 1.0
2 0              *** first line of base springs from joint
00.0 0.0
2 0              *** second line of base springs from joint
00.0 0.0
2 0              *** third line of base springs from joint
00.0 0.0
 2 12            *** end dowel spring
1000.0 0.0
 -4.5  -8.66E-2 -4.28 -8.66E-4 -3.66 -6.18E-4 -2.87 -3.51E-4
 -1.90 -1.22E-4 -1.05 -2.05E-5  1.05  2.05E-5  1.90  1.22E-4
  2.87  3.51E-4  3.66  6.18E-4  4.28  8.66E-4
  4.5 8.66E-2 (Note : Stress-strain curve - 12 segments - stress,strain)
2 0              *** end dowels steel
10000.0 0.0
2 0              *** joint springs
100000.0 1.0
2 0              *** extreme base springs
00.0 0.0
DIST    (Note : Command for distributed load data)
0 1     (Note : Code for pressure loading, Code for gravity loading)
0.0 0.0 -1.0 1.0        (Note : Direction cosines and coeffient for gravity)
END     (Note : Termination of input data)
MACR    (Note : Command to start execution)
PROP        1.                  (Read proportional load data 1)
TANG                            (Form tangent stiffness - first time)
FORM                            (Form Right hand side - first time)
LOOP       12.                  (Start Iteration loop)
SOLV                            (Solve equations)
NONL                        (Compute and revise stresses and imbalance loads)
STIF        3.              (Recompute stiffness matrix - Once in 3 loops)
NEXT                            (End of iteration loop)
DISM        1.        5.3     (Print Max. Z-Displacements(3) at pt. 3)
DISX        1.        1.0     (Print Z-displacements along X=1.0 coordinate)
CAED        1.                (Output CAEDS files for post processing)
MESH                          (Re-read forces - for wheel loads)
STIF        1.                (Form stiffness matrix)
PROP        1.                (Read proportional Load data 2)
LOOP        1.                (Increment loop - 1 increment)
INCR                          (Increment load and form RHS)
LOOP       12.                (Iteration loop - 12 iterations Max.)
SOLV                          (Solve equations)
NONL                          (As before)
STIF        5.
NEXT                          (End Iteration loop)
```

```
DISM          1.          5.3
DISX          1.          1.0
NEXT                            (End Increment loop)
PROP          1.                (Read proportional load data 3)
LOOP          2.
INCR
LOOP         12.
SOLV
NONL
STIF          5.
NEXT
DISM          2.          5.3
DISX          1.          1.0
NEXT
CAED          1.
STOR                            (Store information for restarting)
END                             (End of macro commands)
1 1 0.0 1.0 1.0 0.0 0.0 0.0 0.0   (Proporation load data - No., Index,
                           Tmin, Tmax, A1 to A5 - A1 is the proportional loa
FORC                              (Command to input nodal loads)
   1 1 0.0 0.0  0.0 0.0 0.0 0.0   (Node, Generation increment, Loads (6 D.O.F
1555 0 0.0 0.0  0.0 0.0 0.0 0.0
1556 0 0.0 0.0 -1.0 0.0 0.0 0.0
1557 1 0.0 0.0  0.0 0.0 0.0 0.0
1576 0 0.0 0.0  0.0 0.0 0.0 0.0
1577 0 0.0 0.0 -1.0 0.0 0.0 0.0
1578 1 0.0 0.0  0.0 0.0 0.0 0.0
2598 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
END                               (End data input)
1 1 0.0 1.0 4.0 0.0 0.0 0.0 0.0   (Proportional cards - 2)
1 1 0.0 1.0 2.0 0.0 0.0 0.0 0.0   (Proportional cards - 3)
STOP                              (End program execution)
```

```
*****************************************************************************
** INPUT DATA FILE FOR ANALYSIS OF PAVEMENTS WITH CONCRETE FULL DEPTH PATCH **
**                      AND A SHRINKAGE OF 0.00002                          **
**                                                                          **
**     NOTE : UNITS EMPLOYED                                                **
**                                                                          **
**     LENGTH      : FEET                                                   **
**     FORCE       : KIPS                                                   **
**     TEMPERATURE : FARENHEIT                                              **
**                                                                          **
**     ALL DERIVED UNITS ARE CONSISTENT WITH THESE UNITS                    **
*****************************************************************************

FEAP * PAVEMENT -  WHEEL LOAD, PATCH, SHRINKAGE LEVEL 1
CAED  ../../pvpatch.unv
    (Note : command for directly reading CAEDS pre-processed file)
MATE
1 4   ***  Patch material data
608342.0 0.16 0.145 3 3
2 2   ***  Subgrade Stiffness data
1.0000 1.0000 691.0  1 0 0 0 1 0 0 0 1
3 4   ***  Original Concrete data
720000.0 0.20 0.145 3 3
4 1   ***  Dowel bar data
4292120. 1650461.5 5.45414E-03 2.36725E-06 2.36725E-06 .0 4.73550E-06
5 2   ***  Dowel-concrete interface spring stiffness (Interior)
1.0E00 1.0E06 1.0E06  1 0 0 0 1 0 0 0 1
6 2   ***  Loss of stiffness level 1
1.0000 1.0000 691.0  1 0 0 0 1 0 0 0 1
7 2   ***  Loss of stiffness level 2
1.0000 1.0000 691.0  1 0 0 0 1 0 0 0 1
8 2   ***  Loss of stiffness level 3
1.0000 1.0000 691.0  1 0 0 0 1 0 0 0 1
9 2   ***  End dowel-concrete interface spring
1.0E00 1.0E00 1.0E00  1 0 0 0 1 0 0 0 1
10 1  ***  Far-end dowels
4291200. 1650461.5 5.45414E-03 2.36785E-06 2.36785E-06 .0 4.73572E-06
11 2  ***  Joint interface springs
1.0000 1.0000 1.0  1 0 0 0 1 0 0 0 1
12 2  ***  Extreme subgrade springs
1.0000 1.0000 691.0  1 0 0 0 1 0 0 0 1
13 1  ***  Patch tie bars
4291200. 1650461.5 5.45414E-03 2.36785E-06 2.36785E-06 .0 4.73572E-06
CRCK
1 555.12 53.0 0.1 0.1 0.0132 0.05 1 1
CRCK
3 777.6 55.0 0.1 0.1 0.0132 0.05 1 1
NONL
11 0             *** patch material
555.0 0.0
2 0              *** base spring
00.0 0.0
11 0             *** concrete
777.0 0.0
2 0              *** dowels
1000.0 0.0
2 0              *** interior dowel springs
100000.00 1.0
2 0              *** Base springs for Loss of support level 1
00.0 0.0
```

```
2 0              *** Base springs for Loss of support level 2
00.0 0.0
2 0              *** Base springs for Loss of support level 3
00.0 0.0
  2 12           *** End dowel-concrete interface spring
1000.0 0.0
  -4.5 -8.66E-2 -4.28 -8.66E-4 -3.66 -6.18E-4 -2.87 -3.51E-4 -1.90 -1.22E-4
  -1.05 -2.05E-5 1.05 2.05E-5 1.90 1.22E-4 2.87 3.51E-4 3.66 6.18E-4
  4.28 8.66E-4 4.5 8.66E-2
2 0              *** End dowels steel
10000.0 0.0
2 0              *** Joint springs
100000.0 1.0
2 0              *** Extreme base springs
00.0 0.0
2 0              *** Tie bars and dowels
1000.0 0.0
STRN             *** Shrinkage strain data
-0.00002 -0.00002 -0.00002    (Note : Strains Eps-X, Eps-Y, and Eps-Z)
DIST             *** Distributed Load data
0 1
0.0 0.0 -1.0 1.0
NOPR                        (Note : command to suppress echo of input data)
END
MACR
PROP       1.
TANG
FORM
LOOP       3.
SOLV
NONL
STIF       3.
NEXT
DISM       1.       5.3
DISX       1.       1.0
DISX       1.       7.0
CAED       1.
MESH
PROP       1.
LOOP       1.
INCR
LOOP      15.
SOLV
NONL
STIF       5.
NEXT
DISM       1.       5.3
DISX       1.       1.0
DISX       1.       7.0
NEXT
PROP       1.
LOOP       1.
INCR
LOOP      15.
SOLV
NONL
STIF       5.
NEXT
DISM       1.       5.3
DISX       1.       1.0
```

```
DISX            1.        7.0
NEXT
CAED            1.
STOR
END
1 1 0.0 1.0 1.0 0.0 0.0 0.0 0.0
PRIN                      (Note : Command to echo input data)
FORC
1 1 0.0 0.0 0.0 0.0 0.0 0.0
1855 0 0.0 0.0 0.0 0.0 0.0 0.0
1856 0 0.0 0.0 -1.0 0.0 0.0 0.0
1857 1 0.0 0.0 0.0 0.0 0.0 0.0
1876 0 0.0 0.0 0.0 0.0 0.0 0.0
1877 0 0.0 0.0 -1.0 0.0 0.0 0.0
1878 1 0.0 0.0 0.0 0.0 0.0 0.0
2630 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
NOPR
END
1 1 0.0 1.0 4.0 0.0 0.0 0.0 0.0
1 1 0.0 1.0 4.0 0.0 0.0 0.0 0.0
STOP
```

CAEDS INPUT FILE
****

The CAEDS structural analysis program developed by IBM has a data pre- and post-processor module. This module greately facilitates preparation of the finite element mesh and post processing the results. The required data are output in the form of CAEDS universal files for general purpose use. These files are particularly useful for interfacing with other analysis programs.

The program developed in this study uses an interface to read-in the mesh information from a CAEDS file. The name of the file is supplied to the program through the main input file.

In this study, two universal input files were employed -- one for the analyses of pavements, and the other for the analyses of patched pavements. A listing of the file for the latter is given here. These files are also available on diskette.

Some comments necessary for identifying the various data are given in the file. For a detailed description, the manuals supplied with the CAEDS software can be referred.

An important comment is the use of 'groups' facility. A set of elements or nodes can be grouped in CAEDS and this information can be written out in the universal file. This facility has been exploited in the analysis program for generating temperature information, patch element information, and information to compute the subgrade spring stiffnesses.

```
*****************************************************************************
**     INPUT FILE FROM CAEDS FOR ANALYSIS OF PAVEMENTS WITH PATCH          **
*****************************************************************************

    -1
   151
PVPATCH0
NONE
CAEDS V3R1M1:  Pre/Post Processing
24-SEP-91    11:17:29
16-OCT-91    18:52:10
CAEDS V3R1M1:  Pre/Post Processing
16-OCT-91    18:52:57
    -1
    -1
   749
       1         1
FE_MODEL1
    -1
    -1 (Coordinate data input)
    15 ( Node
```

Node			Constraint	X-Coor	Y-Coor	Z-Coor)
1	0	0	11	4.002498E+01	9.999995E-01	0.000000E+00
2	0	0	11	3.802498E+01	0.000000E+00	0.000000E+00
3	0	0	11	4.002498E+01	0.000000E+00	0.000000E+00
4	0	0	11	4.002498E+01	0.000000E+00	1.041662E-01
5	0	0	11	4.002498E+01	1.999999E+00	0.000000E+00
6	0	0	11	3.802498E+01	1.999999E+00	0.000000E+00
7	0	0	11	4.002498E+01	1.999999E+00	1.041662E-01
8	0	0	11	4.002498E+01	2.999998E+00	0.000000E+00
9	0	0	11	3.802498E+01	0.000000E+00	2.083325E-01
10	0	0	11	4.002498E+01	0.000000E+00	2.083325E-01
11	0	0	11	4.002498E+01	9.999995E-01	2.083325E-01
12	0	0	11	4.002498E+01	0.000000E+00	3.124986E-01
13	0	0	11	4.002498E+01	1.999999E+00	2.083325E-01
14	0	0	11	3.802498E+01	1.999999E+00	2.083325E-01
15	0	0	11	4.002498E+01	2.999998E+00	2.083325E-01
16	0	0	11	4.002498E+01	1.999999E+00	3.124986E-01
17	0	0	11	4.002498E+01	3.999997E+00	0.000000E+00
18	0	0	11	3.802498E+01	3.999997E+00	0.000000E+00
19	0	0	11	4.002498E+01	3.999997E+00	1.041662E-01
20	0	0	11	4.002498E+01	4.999997E+00	0.000000E+00
21	0	0	11	4.002498E+01	3.999997E+00	2.083325E-01
22	0	0	11	3.802498E+01	3.999997E+00	2.083325E-01
23	0	0	11	4.002498E+01	3.999997E+00	3.124986E-01
24	0	0	11	4.002498E+01	4.999997E+00	2.083325E-01
25	0	0	11	3.802498E+01	0.000000E+00	4.166648E-01
26	0	0	11	4.002498E+01	0.000000E+00	4.166648E-01
27	0	0	11	4.002498E+01	9.999995E-01	4.166648E-01
28	0	0	11	4.002498E+01	0.000000E+00	5.208309E-01
29	0	0	11	4.002498E+01	1.999999E+00	4.166648E-01
30	0	0	11	3.802498E+01	1.999999E+00	4.166648E-01
31	0	0	11	4.002498E+01	2.999998E+00	4.166648E-01
32	0	0	11	4.002498E+01	1.999999E+00	5.208309E-01
33	0	0	11	4.002498E+01	3.999997E+00	4.166648E-01
34	0	0	11	3.802498E+01	3.999997E+00	4.166648E-01
35	0	0	11	4.002498E+01	4.999997E+00	4.166648E-01
36	0	0	11	4.002498E+01	3.999997E+00	5.208309E-01
37	0	0	11	4.002498E+01	5.999997E+00	0.000000E+00
38	0	0	11	3.802498E+01	[illegible]	[illegible]

99	0	0	11	4.002498E+01	1.099999E+01	0.000000E+00
100	0	0	11	4.002498E+01	1.199999E+01	0.000000E+00
101	0	0	11	3.802498E+01	1.199999E+01	0.000000E+00
102	0	0	11	4.002498E+01	1.199999E+01	1.041662E-01
103	0	0	11	4.002498E+01	9.999994E+00	2.083325E-01
104	0	0	11	3.802498E+01	9.999994E+00	2.083325E-01
105	0	0	11	4.002498E+01	9.999994E+00	3.124986E-01
106	0	0	11	4.002498E+01	1.099999E+01	2.083325E-01
107	0	0	11	4.002498E+01	1.199999E+01	2.083325E-01
108	0	0	11	3.802498E+01	1.199999E+01	2.083325E-01
109	0	0	11	4.002498E+01	1.199999E+01	3.124986E-01
110	0	0	11	4.002498E+01	9.999994E+00	4.166648E-01
111	0	0	11	3.802498E+01	9.999994E+00	4.166648E-01
112	0	0	11	4.002498E+01	9.999994E+00	5.208309E-01
113	0	0	11	4.002498E+01	1.099999E+01	4.166648E-01
114	0	0	11	4.002498E+01	1.199999E+01	4.166648E-01
115	0	0	11	3.802498E+01	1.199999E+01	4.166648E-01
116	0	0	11	4.002498E+01	1.199999E+01	5.208309E-01
117	0	0	11	4.002498E+01	9.999994E+00	6.249971E-01
118	0	0	11	3.802498E+01	9.999994E+00	6.249971E-01
119	0	0	11	4.002498E+01	9.999994E+00	7.291633E-01
120	0	0	11	4.002498E+01	9.999994E+00	8.333294E-01
121	0	0	11	3.802498E+01	9.999994E+00	8.333294E-01
122	0	0	11	4.002498E+01	1.099999E+01	6.249971E-01
123	0	0	11	4.002498E+01	1.199999E+01	6.249971E-01
124	0	0	11	3.802498E+01	1.199999E+01	6.249971E-01
125	0	0	11	4.002498E+01	1.199999E+01	7.291633E-01
126	0	0	11	4.002498E+01	1.099999E+01	8.333294E-01
127	0	0	11	4.002498E+01	1.199999E+01	8.333294E-01
128	0	0	11	3.802498E+01	1.199999E+01	8.333294E-01
129	0	0	11	3.602498E+01	0.000000E+00	0.000000E+00
130	0	0	11	3.602498E+01	9.999995E-01	0.000000E+00
131	0	0	11	3.602498E+01	0.000000E+00	1.041662E-01
132	0	0	11	3.452498E+01	0.000000E+00	0.000000E+00
133	0	0	11	3.602498E+01	1.999999E+00	0.000000E+00
134	0	0	11	3.602498E+01	1.999999E+00	1.041662E-01
135	0	0	11	3.452498E+01	1.999998E+00	0.000000E+00
136	0	0	11	3.602498E+01	2.999998E+00	0.000000E+00
137	0	0	11	3.602498E+01	0.000000E+00	2.083325E-01
138	0	0	11	3.602498E+01	9.999995E-01	2.083325E-01
139	0	0	11	3.452498E+01	0.000000E+00	2.083325E-01
140	0	0	11	3.602498E+01	0.000000E+00	3.124986E-01
141	0	0	11	3.602498E+01	1.999999E+00	2.083325E-01
142	0	0	11	3.452498E+01	1.999998E+00	2.083325E-01
143	0	0	11	3.602498E+01	2.999998E+00	2.083325E-01
144	0	0	11	3.602498E+01	1.999999E+00	3.124986E-01
145	0	0	11	3.602498E+01	3.999997E+00	0.000000E+00
146	0	0	11	3.602498E+01	3.999997E+00	1.041662E-01
147	0	0	11	3.452498E+01	3.999993E+00	0.000000E+00
148	0	0	11	3.602498E+01	4.999997E+00	0.000000E+00
149	0	0	11	3.602498E+01	3.999997E+00	2.083325E-01
150	0	0	11	3.452498E+01	3.999993E+00	2.083325E-01
151	0	0	11	3.602498E+01	3.999997E+00	3.124986E-01
152	0	0	11	3.602498E+01	4.999997E+00	2.083325E-01

99	0	0	11	4.002498E+01	1.099999E+01	0.000000E+00
100	0	0	11	4.002498E+01	1.199999E+01	0.000000E+00
101	0	0	11	3.802498E+01	1.199999E+01	0.000000E+00
102	0	0	11	4.002498E+01	1.199999E+01	1.041662E-01
103	0	0	11	4.002498E+01	9.999994E+00	2.083325E-01
104	0	0	11	3.802498E+01	9.999994E+00	2.083325E-01
105	0	0	11	4.002498E+01	9.999994E+00	3.124986E-01
106	0	0	11	4.002498E+01	1.099999E+01	2.083325E-01
107	0	0	11	4.002498E+01	1.199999E+01	2.083325E-01
108	0	0	11	3.802498E+01	1.199999E+01	2.083325E-01
109	0	0	11	4.002498E+01	1.199999E+01	3.124986E-01
110	0	0	11	4.002498E+01	9.999994E+00	4.166648E-01
111	0	0	11	3.802498E+01	9.999994E+00	4.166648E-01
112	0	0	11	4.002498E+01	9.999994E+00	5.208309E-01
113	0	0	11	4.002498E+01	1.099999E+01	4.166648E-01
114	0	0	11	4.002498E+01	1.199999E+01	4.166648E-01
115	0	0	11	3.802498E+01	1.199999E+01	4.166648E-01
116	0	0	11	4.002498E+01	1.199999E+01	5.208309E-01
117	0	0	11	4.002498E+01	9.999994E+00	6.249971E-01
118	0	0	11	3.802498E+01	9.999994E+00	6.249971E-01
119	0	0	11	4.002498E+01	9.999994E+00	7.291633E-01
120	0	0	11	4.002498E+01	9.999994E+00	8.333294E-01
121	0	0	11	3.802498E+01	9.999994E+00	8.333294E-01
122	0	0	11	4.002498E+01	1.099999E+01	6.249971E-01
123	0	0	11	4.002498E+01	1.199999E+01	6.249971E-01
124	0	0	11	3.802498E+01	1.199999E+01	6.249971E-01
125	0	0	11	4.002498E+01	1.199999E+01	7.291633E-01
126	0	0	11	4.002498E+01	1.099999E+01	8.333294E-01
127	0	0	11	4.002498E+01	1.199999E+01	8.333294E-01
128	0	0	11	3.802498E+01	1.199999E+01	8.333294E-01
129	0	0	11	3.602498E+01	0.000000E+00	0.000000E+00
130	0	0	11	3.602498E+01	9.999995E-01	0.000000E+00
131	0	0	11	3.602498E+01	0.000000E+00	1.041662E-01
132	0	0	11	3.452498E+01	0.000000E+00	0.000000E+00
133	0	0	11	3.602498E+01	1.999999E+00	0.000000E+00
134	0	0	11	3.602498E+01	1.999999E+00	1.041662E-01
135	0	0	11	3.452498E+01	1.999998E+00	0.000000E+00
136	0	0	11	3.602498E+01	2.999998E+00	0.000000E+00
137	0	0	11	3.602498E+01	0.000000E+00	2.083325E-01
138	0	0	11	3.602498E+01	9.999995E-01	2.083325E-01
139	0	0	11	3.452498E+01	0.000000E+00	2.083325E-01
140	0	0	11	3.602498E+01	0.000000E+00	3.124986E-01
141	0	0	11	3.602498E+01	1.999999E+00	2.083325E-01
142	0	0	11	3.452498E+01	1.999998E+00	2.083325E-01
143	0	0	11	3.602498E+01	2.999998E+00	2.083325E-01
144	0	0	11	3.602498E+01	1.999999E+00	3.124986E-01
145	0	0	11	3.602498E+01	3.999997E+00	0.000000E+00
146	0	0	11	3.602498E+01	3.999997E+00	1.041662E-01
147	0	0	11	3.452498E+01	3.999993E+00	0.000000E+00
148	0	0	11	3.602498E+01	4.999997E+00	0.000000E+00
149	0	0	11	3.602498E+01	3.999997E+00	2.083325E-01
150	0	0	11	3.452498E+01	3.999993E+00	2.083325E-01
151	0	0	11	3.602498E+01	3.999997E+00	3.124986E-01
152	0	0	11	3.602498E+01	4.999997E+00	2.083325E-01
153	0	0	11	3.452498E+01	0.000000E+00	4.166648E-01
154	0	0	11	3.602498E+01	0.000000E+00	4.166648E-01
155	0	0	11	3.602498E+01	9.999995E-01	4.166648E-01
156	0	0	11	3.602498E+01	0.000000E+00	5.208309E-01
157	0	0	11	3.602498E+01	1.999999E+00	4.166648E-01
158	0	0	11	3.452498E+01	1.999998E+00	4.166648E-01

99	0	0	11	4.002498E+01	1.099999E+01	0.000000E+00
100	0	0	11	4.002498E+01	1.199999E+01	0.000000E+00
101	0	0	11	3.802498E+01	1.199999E+01	0.000000E+00
102	0	0	11	4.002498E+01	1.199999E+01	1.041662E-01
103	0	0	11	4.002498E+01	9.999994E+00	2.083325E-01
104	0	0	11	3.802498E+01	9.999994E+00	2.083325E-01
105	0	0	11	4.002498E+01	9.999994E+00	3.124986E-01
106	0	0	11	4.002498E+01	1.099999E+01	2.083325E-01
107	0	0	11	4.002498E+01	1.199999E+01	2.083325E-01
108	0	0	11	3.802498E+01	1.199999E+01	2.083325E-01
109	0	0	11	4.002498E+01	1.199999E+01	3.124986E-01
110	0	0	11	4.002498E+01	9.999994E+00	4.166648E-01
111	0	0	11	3.802498E+01	9.999994E+00	4.166648E-01
112	0	0	11	4.002498E+01	9.999994E+00	5.208309E-01
113	0	0	11	4.002498E+01	1.099999E+01	4.166648E-01
114	0	0	11	4.002498E+01	1.199999E+01	4.166648E-01
115	0	0	11	3.802498E+01	1.199999E+01	4.166648E-01
116	0	0	11	4.002498E+01	1.199999E+01	5.208309E-01
117	0	0	11	4.002498E+01	9.999994E+00	6.249971E-01
118	0	0	11	3.802498E+01	9.999994E+00	6.249971E-01
119	0	0	11	4.002498E+01	9.999994E+00	7.291633E-01
120	0	0	11	4.002498E+01	9.999994E+00	8.333294E-01
121	0	0	11	3.802498E+01	9.999994E+00	8.333294E-01
122	0	0	11	4.002498E+01	1.099999E+01	6.249971E-01
123	0	0	11	4.002498E+01	1.199999E+01	6.249971E-01
124	0	0	11	3.802498E+01	1.199999E+01	6.249971E-01
125	0	0	11	4.002498E+01	1.199999E+01	7.291633E-01
126	0	0	11	4.002498E+01	1.099999E+01	8.333294E-01
127	0	0	11	4.002498E+01	1.199999E+01	8.333294E-01
128	0	0	11	3.802498E+01	1.199999E+01	8.333294E-01
129	0	0	11	3.602498E+01	0.000000E+00	0.000000E+00
130	0	0	11	3.602498E+01	9.999995E-01	0.000000E+00
131	0	0	11	3.602498E+01	0.000000E+00	1.041662E-01
132	0	0	11	3.452498E+01	0.000000E+00	0.000000E+00
133	0	0	11	3.602498E+01	1.999999E+00	0.000000E+00
134	0	0	11	3.602498E+01	1.999999E+00	1.041662E-01
135	0	0	11	3.452498E+01	1.999998E+00	0.000000E+00
136	0	0	11	3.602498E+01	2.999998E+00	0.000000E+00
137	0	0	11	3.602498E+01	0.000000E+00	2.083325E-01
138	0	0	11	3.602498E+01	9.999995E-01	2.083325E-01
139	0	0	11	3.452498E+01	0.000000E+00	2.083325E-01
140	0	0	11	3.602498E+01	0.000000E+00	3.124986E-01
141	0	0	11	3.602498E+01	1.999999E+00	2.083325E-01
142	0	0	11	3.452498E+01	1.999998E+00	2.083325E-01
143	0	0	11	3.602498E+01	2.999998E+00	2.083325E-01
144	0	0	11	3.602498E+01	1.999999E+00	3.124986E-01
145	0	0	11	3.602498E+01	3.999997E+00	0.000000E+00
146	0	0	11	3.602498E+01	3.999997E+00	1.041662E-01
147	0	0	11	3.452498E+01	3.999993E+00	0.000000E+00
148	0	0	11	3.602498E+01	4.999997E+00	0.000000E+00
149	0	0	11	3.602498E+01	3.999997E+00	2.083325E-01
150	0	0	11	3.452498E+01	3.999993E+00	2.083325E-01
151	0	0	11	3.602498E+01	3.999997E+00	3.124986E-01
152	0	0	11	3.602498E+01	4.999997E+00	2.083325E-01
153	0	0	11	3.452498E+01	0.000000E+00	4.166648E-01
154	0	0	11	3.602498E+01	0.000000E+00	4.166648E-01
155	0	0	11	3.602498E+01	9.999995E-01	4.166648E-01
156	0	0	11	3.602498E+01	0.000000E+00	5.208309E-01
157	0	0	11	3.602498E+01	1.999999E+00	4.166648E-01
158	0	0	11	3.452498E+01	1.999998E+00	4.166648E-01

99	0	0	11	4.002498E+01	1.099999E+01	0.000000E+00
100	0	0	11	4.002498E+01	1.199999E+01	0.000000E+00
101	0	0	11	3.802498E+01	1.199999E+01	0.000000E+00
102	0	0	11	4.002498E+01	1.199999E+01	1.041662E-01
103	0	0	11	4.002498E+01	9.999994E+00	2.083325E-01
104	0	0	11	3.802498E+01	9.999994E+00	2.083325E-01
105	0	0	11	4.002498E+01	9.999994E+00	3.124986E-01
106	0	0	11	4.002498E+01	1.099999E+01	2.083325E-01
107	0	0	11	4.002498E+01	1.199999E+01	2.083325E-01
108	0	0	11	3.802498E+01	1.199999E+01	2.083325E-01
109	0	0	11	4.002498E+01	1.199999E+01	3.124986E-01
110	0	0	11	4.002498E+01	9.999994E+00	4.166648E-01
111	0	0	11	3.802498E+01	9.999994E+00	4.166648E-01
112	0	0	11	4.002498E+01	9.999994E+00	5.208309E-01
113	0	0	11	4.002498E+01	1.099999E+01	4.166648E-01
114	0	0	11	4.002498E+01	1.199999E+01	4.166648E-01
115	0	0	11	3.802498E+01	1.199999E+01	4.166648E-01
116	0	0	11	4.002498E+01	1.199999E+01	5.208309E-01
117	0	0	11	4.002498E+01	9.999994E+00	6.249971E-01
118	0	0	11	3.802498E+01	9.999994E+00	6.249971E-01
119	0	0	11	4.002498E+01	9.999994E+00	7.291633E-01
120	0	0	11	4.002498E+01	9.999994E+00	8.333294E-01
121	0	0	11	3.802498E+01	9.999994E+00	8.333294E-01
122	0	0	11	4.002498E+01	1.099999E+01	6.249971E-01
123	0	0	11	4.002498E+01	1.199999E+01	6.249971E-01
124	0	0	11	3.802498E+01	1.199999E+01	6.249971E-01
125	0	0	11	4.002498E+01	1.199999E+01	7.291633E-01
126	0	0	11	4.002498E+01	1.099999E+01	8.333294E-01
127	0	0	11	4.002498E+01	1.199999E+01	8.333294E-01
128	0	0	11	3.802498E+01	1.199999E+01	8.333294E-01
129	0	0	11	3.602498E+01	0.000000E+00	0.000000E+00
130	0	0	11	3.602498E+01	9.999995E-01	0.000000E+00
131	0	0	11	3.602498E+01	0.000000E+00	1.041662E-01
132	0	0	11	3.452498E+01	0.000000E+00	0.000000E+00
133	0	0	11	3.602498E+01	1.999999E+00	0.000000E+00
134	0	0	11	3.602498E+01	1.999999E+00	1.041662E-01
135	0	0	11	3.452498E+01	1.999998E+00	0.000000E+00
136	0	0	11	3.602498E+01	2.999998E+00	0.000000E+00
137	0	0	11	3.602498E+01	0.000000E+00	2.083325E-01
138	0	0	11	3.602498E+01	9.999995E-01	2.083325E-01
139	0	0	11	3.452498E+01	0.000000E+00	2.083325E-01
140	0	0	11	3.602498E+01	0.000000E+00	3.124986E-01
141	0	0	11	3.602498E+01	1.999999E+00	2.083325E-01
142	0	0	11	3.452498E+01	1.999998E+00	2.083325E-01
143	0	0	11	3.602498E+01	2.999998E+00	2.083325E-01
144	0	0	11	3.602498E+01	1.999999E+00	3.124986E-01
145	0	0	11	3.602498E+01	3.999997E+00	0.000000E+00
146	0	0	11	3.602498E+01	3.999997E+00	1.041662E-01
147	0	0	11	3.452498E+01	3.999993E+00	0.000000E+00
148	0	0	11	3.602498E+01	4.999997E+00	0.000000E+00
149	0	0	11	3.602498E+01	3.999997E+00	2.083325E-01
150	0	0	11	3.452498E+01	3.999993E+00	2.083325E-01
151	0	0	11	3.602498E+01	3.999997E+00	3.124986E-01
152	0	0	11	3.602498E+01	4.999997E+00	2.083325E-01
153	0	0	11	3.452498E+01	0.000000E+00	4.166648E-01
154	0	0	11	3.602498E+01	0.000000E+00	4.166648E-01
155	0	0	11	3.602498E+01	9.999995E-01	4.166648E-01
156	0	0	11	3.602498E+01	0.000000E+00	5.208309E-01
157	0	0	11	3.602498E+01	1.999999E+00	4.166648E-01
158	0	0	11	3.452498E+01	1.999998E+00	4.166648E-01

99	0	0	11	4.002498E+01	1.099999E+01	0.000000E+00
100	0	0	11	4.002498E+01	1.199999E+01	0.000000E+00
101	0	0	11	3.802498E+01	1.199999E+01	0.000000E+00
102	0	0	11	4.002498E+01	1.199999E+01	1.041662E-01
103	0	0	11	4.002498E+01	9.999994E+00	2.083325E-01
104	0	0	11	3.802498E+01	9.999994E+00	2.083325E-01
105	0	0	11	4.002498E+01	9.999994E+00	3.124986E-01
106	0	0	11	4.002498E+01	1.099999E+01	2.083325E-01
107	0	0	11	4.002498E+01	1.199999E+01	2.083325E-01
108	0	0	11	3.802498E+01	1.199999E+01	2.083325E-01
109	0	0	11	4.002498E+01	1.199999E+01	3.124986E-01
110	0	0	11	4.002498E+01	9.999994E+00	4.166648E-01
111	0	0	11	3.802498E+01	9.999994E+00	4.166648E-01
112	0	0	11	4.002498E+01	9.999994E+00	5.208309E-01
113	0	0	11	4.002498E+01	1.099999E+01	4.166648E-01
114	0	0	11	4.002498E+01	1.199999E+01	4.166648E-01
115	0	0	11	3.802498E+01	1.199999E+01	4.166648E-01
116	0	0	11	4.002498E+01	1.199999E+01	5.208309E-01
117	0	0	11	4.002498E+01	9.999994E+00	6.249971E-01
118	0	0	11	3.802498E+01	9.999994E+00	6.249971E-01
119	0	0	11	4.002498E+01	9.999994E+00	7.291633E-01
120	0	0	11	4.002498E+01	9.999994E+00	8.333294E-01
121	0	0	11	3.802498E+01	9.999994E+00	8.333294E-01
122	0	0	11	4.002498E+01	1.099999E+01	6.249971E-01
123	0	0	11	4.002498E+01	1.199999E+01	6.249971E-01
124	0	0	11	3.802498E+01	1.199999E+01	6.249971E-01
125	0	0	11	4.002498E+01	1.199999E+01	7.291633E-01
126	0	0	11	4.002498E+01	1.099999E+01	8.333294E-01
127	0	0	11	4.002498E+01	1.199999E+01	8.333294E-01
128	0	0	11	3.802498E+01	1.199999E+01	8.333294E-01
129	0	0	11	3.602498E+01	0.000000E+00	0.000000E+00
130	0	0	11	3.602498E+01	9.999995E-01	0.000000E+00
131	0	0	11	3.602498E+01	0.000000E+00	1.041662E-01
132	0	0	11	3.452498E+01	0.000000E+00	0.000000E+00
133	0	0	11	3.602498E+01	1.999999E+00	0.000000E+00
134	0	0	11	3.602498E+01	1.999999E+00	1.041662E-01
135	0	0	11	3.452498E+01	1.999998E+00	0.000000E+00
136	0	0	11	3.602498E+01	2.999998E+00	0.000000E+00
137	0	0	11	3.602498E+01	0.000000E+00	2.083325E-01
138	0	0	11	3.602498E+01	9.999995E-01	2.083325E-01
139	0	0	11	3.452498E+01	0.000000E+00	2.083325E-01
140	0	0	11	3.602498E+01	0.000000E+00	3.124986E-01
141	0	0	11	3.602498E+01	1.999999E+00	2.083325E-01
142	0	0	11	3.452498E+01	1.999998E+00	2.083325E-01
143	0	0	11	3.602498E+01	2.999998E+00	2.083325E-01
144	0	0	11	3.602498E+01	1.999999E+00	3.124986E-01
145	0	0	11	3.602498E+01	3.999997E+00	0.000000E+00
146	0	0	11	3.602498E+01	3.999997E+00	1.041662E-01
147	0	0	11	3.452498E+01	3.999993E+00	0.000000E+00
148	0	0	11	3.602498E+01	4.999997E+00	0.000000E+00
149	0	0	11	3.602498E+01	3.999997E+00	2.083325E-01
150	0	0	11	3.452498E+01	3.999993E+00	2.083325E-01
151	0	0	11	3.602498E+01	3.999997E+00	3.124986E-01
152	0	0	11	3.602498E+01	4.999997E+00	2.083325E-01
153	0	0	11	3.452498E+01	0.000000E+00	4.166648E-01
154	0	0	11	3.602498E+01	0.000000E+00	4.166648E-01
155	0	0	11	3.602498E+01	9.999995E-01	4.166648E-01
156	0	0	11	3.602498E+01	0.000000E+00	5.208309E-01
157	0	0	11	3.602498E+01	1.999999E+00	4.166648E-01
158	0	0	11	3.452498E+01	1.999998E+00	4.166648E-01

99	0	0	11	4.002498E+01	1.099999E+01	0.000000E+00
100	0	0	11	4.002498E+01	1.199999E+01	0.000000E+00
101	0	0	11	3.802498E+01	1.199999E+01	0.000000E+00
102	0	0	11	4.002498E+01	1.199999E+01	1.041662E-01
103	0	0	11	4.002498E+01	9.999994E+00	2.083325E-01
104	0	0	11	3.802498E+01	9.999994E+00	2.083325E-01
105	0	0	11	4.002498E+01	9.999994E+00	3.124986E-01
106	0	0	11	4.002498E+01	1.099999E+01	2.083325E-01
107	0	0	11	4.002498E+01	1.199999E+01	2.083325E-01
108	0	0	11	3.802498E+01	1.199999E+01	2.083325E-01
109	0	0	11	4.002498E+01	1.199999E+01	3.124986E-01
110	0	0	11	4.002498E+01	9.999994E+00	4.166648E-01
111	0	0	11	3.802498E+01	9.999994E+00	4.166648E-01
112	0	0	11	4.002498E+01	9.999994E+00	5.208309E-01
113	0	0	11	4.002498E+01	1.099999E+01	4.166648E-01
114	0	0	11	4.002498E+01	1.199999E+01	4.166648E-01
115	0	0	11	3.802498E+01	1.199999E+01	4.166648E-01
116	0	0	11	4.002498E+01	1.199999E+01	5.208309E-01
117	0	0	11	4.002498E+01	9.999994E+00	6.249971E-01
118	0	0	11	3.802498E+01	9.999994E+00	6.249971E-01
119	0	0	11	4.002498E+01	9.999994E+00	7.291633E-01
120	0	0	11	4.002498E+01	9.999994E+00	8.333294E-01
121	0	0	11	3.802498E+01	9.999994E+00	8.333294E-01
122	0	0	11	4.002498E+01	1.099999E+01	6.249971E-01
123	0	0	11	4.002498E+01	1.199999E+01	6.249971E-01
124	0	0	11	3.802498E+01	1.199999E+01	6.249971E-01
125	0	0	11	4.002498E+01	1.199999E+01	7.291633E-01
126	0	0	11	4.002498E+01	1.099999E+01	8.333294E-01
127	0	0	11	4.002498E+01	1.199999E+01	8.333294E-01
128	0	0	11	3.802498E+01	1.199999E+01	8.333294E-01
129	0	0	11	3.602498E+01	0.000000E+00	0.000000E+00
130	0	0	11	3.602498E+01	9.999995E-01	0.000000E+00
131	0	0	11	3.602498E+01	0.000000E+00	1.041662E-01
132	0	0	11	3.452498E+01	0.000000E+00	0.000000E+00
133	0	0	11	3.602498E+01	1.999999E+00	0.000000E+00
134	0	0	11	3.602498E+01	1.999999E+00	1.041662E-01
135	0	0	11	3.452498E+01	1.999998E+00	0.000000E+00
136	0	0	11	3.602498E+01	2.999998E+00	0.000000E+00
137	0	0	11	3.602498E+01	0.000000E+00	2.083325E-01
138	0	0	11	3.602498E+01	9.999995E-01	2.083325E-01
139	0	0	11	3.452498E+01	0.000000E+00	2.083325E-01
140	0	0	11	3.602498E+01	0.000000E+00	3.124986E-01
141	0	0	11	3.602498E+01	1.999999E+00	2.083325E-01
142	0	0	11	3.452498E+01	1.999998E+00	2.083325E-01
143	0	0	11	3.602498E+01	2.999998E+00	2.083325E-01
144	0	0	11	3.602498E+01	1.999999E+00	3.124986E-01
145	0	0	11	3.602498E+01	3.999997E+00	0.000000E+00
146	0	0	11	3.602498E+01	3.999997E+00	1.041662E-01
147	0	0	11	3.452498E+01	3.999993E+00	0.000000E+00
148	0	0	11	3.602498E+01	4.999997E+00	0.000000E+00
149	0	0	11	3.602498E+01	3.999997E+00	2.083325E-01
150	0	0	11	3.452498E+01	3.999993E+00	2.083325E-01
151	0	0	11	3.602498E+01	3.999997E+00	3.124986E-01
152	0	0	11	3.602498E+01	4.999997E+00	2.083325E-01
153	0	0	11	3.452498E+01	0.000000E+00	4.166648E-01
154	0	0	11	3.602498E+01	0.000000E+00	4.166648E-01
155	0	0	11	3.602498E+01	9.999995E-01	4.166648E-01
156	0	0	11	3.602498E+01	0.000000E+00	5.208309E-01
157	0	0	11	3.602498E+01	1.999999E+00	4.166648E-01
158	0	0	11	3.452498E+01	1.999998E+00	4.166648E-01

99	0	0	11	4.002498E+01	1.099999E+01	0.000000E+00
100	0	0	11	4.002498E+01	1.199999E+01	0.000000E+00
101	0	0	11	3.802498E+01	1.199999E+01	0.000000E+00
102	0	0	11	4.002498E+01	1.199999E+01	1.041662E-01
103	0	0	11	4.002498E+01	9.999994E+00	2.083325E-01
104	0	0	11	3.802498E+01	9.999994E+00	2.083325E-01
105	0	0	11	4.002498E+01	9.999994E+00	3.124986E-01
106	0	0	11	4.002498E+01	1.099999E+01	2.083325E-01
107	0	0	11	4.002498E+01	1.199999E+01	2.083325E-01
108	0	0	11	3.802498E+01	1.199999E+01	2.083325E-01
109	0	0	11	4.002498E+01	1.199999E+01	3.124986E-01
110	0	0	11	4.002498E+01	9.999994E+00	4.166648E-01
111	0	0	11	3.802498E+01	9.999994E+00	4.166648E-01
112	0	0	11	4.002498E+01	9.999994E+00	5.208309E-01
113	0	0	11	4.002498E+01	1.099999E+01	4.166648E-01
114	0	0	11	4.002498E+01	1.199999E+01	4.166648E-01
115	0	0	11	3.802498E+01	1.199999E+01	4.166648E-01
116	0	0	11	4.002498E+01	1.199999E+01	5.208309E-01
117	0	0	11	4.002498E+01	9.999994E+00	6.249971E-01
118	0	0	11	3.802498E+01	9.999994E+00	6.249971E-01
119	0	0	11	4.002498E+01	9.999994E+00	7.291633E-01
120	0	0	11	4.002498E+01	9.999994E+00	8.333294E-01
121	0	0	11	3.802498E+01	9.999994E+00	8.333294E-01
122	0	0	11	4.002498E+01	1.099999E+01	6.249971E-01
123	0	0	11	4.002498E+01	1.199999E+01	6.249971E-01
124	0	0	11	3.802498E+01	1.199999E+01	6.249971E-01
125	0	0	11	4.002498E+01	1.199999E+01	7.291633E-01
126	0	0	11	4.002498E+01	1.099999E+01	8.333294E-01
127	0	0	11	4.002498E+01	1.199999E+01	8.333294E-01
128	0	0	11	3.802498E+01	1.199999E+01	8.333294E-01
129	0	0	11	3.602498E+01	0.000000E+00	0.000000E+00
130	0	0	11	3.602498E+01	9.999995E-01	0.000000E+00
131	0	0	11	3.602498E+01	0.000000E+00	1.041662E-01
132	0	0	11	3.452498E+01	0.000000E+00	0.000000E+00
133	0	0	11	3.602498E+01	1.999999E+00	0.000000E+00
134	0	0	11	3.602498E+01	1.999999E+00	1.041662E-01
135	0	0	11	3.452498E+01	1.999998E+00	0.000000E+00
136	0	0	11	3.602498E+01	2.999998E+00	0.000000E+00
137	0	0	11	3.602498E+01	0.000000E+00	2.083325E-01
138	0	0	11	3.602498E+01	9.999995E-01	2.083325E-01
139	0	0	11	3.452498E+01	0.000000E+00	2.083325E-01
140	0	0	11	3.602498E+01	0.000000E+00	3.124986E-01
141	0	0	11	3.602498E+01	1.999999E+00	2.083325E-01
142	0	0	11	3.452498E+01	1.999998E+00	2.083325E-01
143	0	0	11	3.602498E+01	2.999998E+00	2.083325E-01
144	0	0	11	3.602498E+01	1.999999E+00	3.124986E-01
145	0	0	11	3.602498E+01	3.999997E+00	0.000000E+00
146	0	0	11	3.602498E+01	3.999997E+00	1.041662E-01
147	0	0	11	3.452498E+01	3.999993E+00	0.000000E+00
148	0	0	11	3.602498E+01	4.999997E+00	0.000000E+00
149	0	0	11	3.602498E+01	3.999997E+00	2.083325E-01
150	0	0	11	3.452498E+01	3.999993E+00	2.083325E-01
151	0	0	11	3.602498E+01	3.999997E+00	3.124986E-01
152	0	0	11	3.602498E+01	4.999997E+00	2.083325E-01
153	0	0	11	3.452498E+01	0.000000E+00	4.166648E-01
154	0	0	11	3.602498E+01	0.000000E+00	4.166648E-01
155	0	0	11	3.602498E+01	9.999995E-01	4.166648E-01
156	0	0	11	3.602498E+01	0.000000E+00	5.208309E-01
157	0	0	11	3.602498E+01	1.999999E+00	4.166648E-01
158	0	0	11	3.452498E+01	1.999998E+00	4.166648E-01

1179	0	0	11	2.102498E+01	5.999994E+00	2.083325E-01
1180	0	0	11	2.102498E+01	6.999991E+00	2.083325E-01
1181	0	0	11	2.052498E+01	5.999994E+00	2.083325E-01
1182	0	0	11	2.002498E+01	5.999997E+00	2.083325E-01
1183	0	0	11	2.002498E+01	6.999994E+00	2.083325E-01
1184	0	0	11	2.102498E+01	7.999994E+00	0.000000E+00
1185	0	0	11	2.102498E+01	7.999994E+00	1.041662E-01
1186	0	0	11	2.102498E+01	8.999994E+00	0.000000E+00
1187	0	0	11	2.052498E+01	7.999991E+00	0.000000E+00
1188	0	0	11	2.002498E+01	7.999994E+00	0.000000E+00
1189	0	0	11	2.002498E+01	7.999994E+00	1.041662E-01
1190	0	0	11	2.002498E+01	8.999994E+00	0.000000E+00
1191	0	0	11	2.102498E+01	7.999994E+00	2.083325E-01
1192	0	0	11	2.102498E+01	8.999994E+00	2.083325E-01
1193	0	0	11	2.052498E+01	7.999991E+00	2.083325E-01
1194	0	0	11	2.002498E+01	7.999994E+00	2.083325E-01
1195	0	0	11	2.002498E+01	8.999994E+00	2.083325E-01
1196	0	0	11	2.102498E+01	9.999991E+00	0.000000E+00
1197	0	0	11	2.102498E+01	9.999991E+00	1.041662E-01
1198	0	0	11	2.102498E+01	1.199999E+01	0.000000E+00
1199	0	0	11	2.102498E+01	1.099999E+01	0.000000E+00
1200	0	0	11	2.102498E+01	1.199999E+01	1.041662E-01
1201	0	0	11	2.052498E+01	9.999994E+00	0.000000E+00
1202	0	0	11	2.002498E+01	9.999994E+00	0.000000E+00
1203	0	0	11	2.002498E+01	9.999994E+00	1.041662E-01
1204	0	0	11	2.052498E+01	1.199999E+01	0.000000E+00
1205	0	0	11	2.002498E+01	1.199999E+01	0.000000E+00
1206	0	0	11	2.002498E+01	1.099999E+01	0.000000E+00
1207	0	0	11	2.002498E+01	1.199999E+01	1.041662E-01
1208	0	0	11	2.102498E+01	9.999991E+00	2.083325E-01
1209	0	0	11	2.102498E+01	1.199999E+01	2.083325E-01
1210	0	0	11	2.102498E+01	1.099999E+01	2.083325E-01
1211	0	0	11	2.052498E+01	9.999994E+00	2.083325E-01
1212	0	0	11	2.002498E+01	9.999994E+00	2.083325E-01
1213	0	0	11	2.052498E+01	1.199999E+01	2.083325E-01
1214	0	0	11	2.002498E+01	1.199999E+01	2.083325E-01
1215	0	0	11	2.002498E+01	1.099999E+01	2.083325E-01
1216	0	0	11	2.102498E+01	0.000000E+00	4.166648E-01
1217	0	0	11	2.102498E+01	9.999993E-01	4.166648E-01
1218	0	0	11	2.102498E+01	0.000000E+00	5.208309E-01
1219	0	0	11	2.002498E+01	0.000000E+00	4.166648E-01
1220	0	0	11	2.052498E+01	0.000000E+00	4.166648E-01
1221	0	0	11	2.002498E+01	0.000000E+00	5.208309E-01
1222	0	0	11	2.002498E+01	9.999995E-01	4.166648E-01
1223	0	0	11	2.102498E+01	1.999998E+00	4.166648E-01
1224	0	0	11	2.102498E+01	1.999998E+00	5.208309E-01
1225	0	0	11	2.102498E+01	2.999997E+00	4.166648E-01
1226	0	0	11	2.052498E+01	1.999998E+00	4.166648E-01
1227	0	0	11	2.002498E+01	1.999999E+00	5.208309E-01
1228	0	0	11	2.002498E+01	1.999999E+00	4.166648E-01
1229	0	0	11	2.002498E+01	2.999998E+00	4.166648E-01
1230	0	0	11	2.102498E+01	3.999997E+00	4.166648E-01
1231	0	0	11	2.102498E+01	3.999997E+00	5.208309E-01
1232	0	0	11	2.102498E+01	4.999994E+00	4.166648E-01
1233	0	0	11	2.052498E+01	3.999993E+00	4.166648E-01
1234	0	0	11	2.002498E+01	3.999997E+00	5.208309E-01
1235	0	0	11	2.002498E+01	3.999997E+00	4.166648E-01
1236	0	0	11	2.002498E+01	4.999997E+00	4.166648E-01
1237	0	0	11	2.102498E+01	5.999994E+00	4.166648E-01
1238	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1179	0	0	11	2.102498E+01	5.999994E+00	2.083325E-01
1180	0	0	11	2.102498E+01	6.999991E+00	2.083325E-01
1181	0	0	11	2.052498E+01	5.999994E+00	2.083325E-01
1182	0	0	11	2.002498E+01	5.999997E+00	2.083325E-01
1183	0	0	11	2.002498E+01	6.999994E+00	2.083325E-01
1184	0	0	11	2.102498E+01	7.999994E+00	0.000000E+00
1185	0	0	11	2.102498E+01	7.999994E+00	1.041662E-01
1186	0	0	11	2.102498E+01	8.999994E+00	0.000000E+00
1187	0	0	11	2.052498E+01	7.999991E+00	0.000000E+00
1188	0	0	11	2.002498E+01	7.999994E+00	0.000000E+00
1189	0	0	11	2.002498E+01	7.999994E+00	1.041662E-01
1190	0	0	11	2.002498E+01	8.999994E+00	0.000000E+00
1191	0	0	11	2.102498E+01	7.999994E+00	2.083325E-01
1192	0	0	11	2.102498E+01	8.999994E+00	2.083325E-01
1193	0	0	11	2.052498E+01	7.999991E+00	2.083325E-01
1194	0	0	11	2.002498E+01	7.999994E+00	2.083325E-01
1195	0	0	11	2.002498E+01	8.999994E+00	2.083325E-01
1196	0	0	11	2.102498E+01	9.999991E+00	0.000000E+00
1197	0	0	11	2.102498E+01	9.999991E+00	1.041662E-01
1198	0	0	11	2.102498E+01	1.199999E+01	0.000000E+00
1199	0	0	11	2.102498E+01	1.099999E+01	0.000000E+00
1200	0	0	11	2.102498E+01	1.199999E+01	1.041662E-01
1201	0	0	11	2.052498E+01	9.999994E+00	0.000000E+00
1202	0	0	11	2.002498E+01	9.999994E+00	0.000000E+00
1203	0	0	11	2.002498E+01	9.999994E+00	1.041662E-01
1204	0	0	11	2.052498E+01	1.199999E+01	0.000000E+00
1205	0	0	11	2.002498E+01	1.199999E+01	0.000000E+00
1206	0	0	11	2.002498E+01	1.099999E+01	0.000000E+00
1207	0	0	11	2.002498E+01	1.199999E+01	1.041662E-01
1208	0	0	11	2.102498E+01	9.999991E+00	2.083325E-01
1209	0	0	11	2.102498E+01	1.199999E+01	2.083325E-01
1210	0	0	11	2.102498E+01	1.099999E+01	2.083325E-01
1211	0	0	11	2.052498E+01	9.999994E+00	2.083325E-01
1212	0	0	11	2.002498E+01	9.999994E+00	2.083325E-01
1213	0	0	11	2.052498E+01	1.199999E+01	2.083325E-01
1214	0	0	11	2.002498E+01	1.199999E+01	2.083325E-01
1215	0	0	11	2.002498E+01	1.099999E+01	2.083325E-01
1216	0	0	11	2.102498E+01	0.000000E+00	4.166648E-01
1217	0	0	11	2.102498E+01	9.999993E-01	4.166648E-01
1218	0	0	11	2.102498E+01	0.000000E+00	5.208309E-01
1219	0	0	11	2.002498E+01	0.000000E+00	4.166648E-01
1220	0	0	11	2.052498E+01	0.000000E+00	4.166648E-01
1221	0	0	11	2.002498E+01	0.000000E+00	5.208309E-01
1222	0	0	11	2.002498E+01	9.999995E-01	4.166648E-01
1223	0	0	11	2.102498E+01	1.999998E+00	4.166648E-01
1224	0	0	11	2.102498E+01	1.999998E+00	5.208309E-01
1225	0	0	11	2.102498E+01	2.999997E+00	4.166648E-01
1226	0	0	11	2.052498E+01	1.999998E+00	4.166648E-01
1227	0	0	11	2.002498E+01	1.999999E+00	5.208309E-01
1228	0	0	11	2.002498E+01	1.999999E+00	4.166648E-01
1229	0	0	11	2.002498E+01	2.999998E+00	4.166648E-01
1230	0	0	11	2.102498E+01	3.999997E+00	4.166648E-01
1231	0	0	11	2.102498E+01	3.999997E+00	5.208309E-01
1232	0	0	11	2.102498E+01	4.999994E+00	4.166648E-01
1233	0	0	11	2.052498E+01	3.999993E+00	4.166648E-01
1234	0	0	11	2.002498E+01	3.999997E+00	5.208309E-01
1235	0	0	11	2.002498E+01	3.999997E+00	4.166648E-01
1236	0	0	11	2.002498E+01	4.999997E+00	4.166648E-01
1237	0	0	11	2.102498E+01	5.999994E+00	4.166648E-01

1179	0	0	11	2.102498E+01	5.999994E+00	2.083325E-01
1180	0	0	11	2.102498E+01	6.999991E+00	2.083325E-01
1181	0	0	11	2.052498E+01	5.999994E+00	2.083325E-01
1182	0	0	11	2.002498E+01	5.999997E+00	2.083325E-01
1183	0	0	11	2.002498E+01	6.999994E+00	2.083325E-01
1184	0	0	11	2.102498E+01	7.999994E+00	0.000000E+00
1185	0	0	11	2.102498E+01	7.999994E+00	1.041662E-01
1186	0	0	11	2.102498E+01	8.999994E+00	0.000000E+00
1187	0	0	11	2.052498E+01	7.999991E+00	0.000000E+00
1188	0	0	11	2.002498E+01	7.999994E+00	0.000000E+00
1189	0	0	11	2.002498E+01	7.999994E+00	1.041662E-01
1190	0	0	11	2.002498E+01	8.999994E+00	0.000000E+00
1191	0	0	11	2.102498E+01	7.999994E+00	2.083325E-01
1192	0	0	11	2.102498E+01	8.999994E+00	2.083325E-01
1193	0	0	11	2.052498E+01	7.999991E+00	2.083325E-01
1194	0	0	11	2.002498E+01	7.999994E+00	2.083325E-01
1195	0	0	11	2.002498E+01	8.999994E+00	2.083325E-01
1196	0	0	11	2.102498E+01	9.999991E+00	0.000000E+00
1197	0	0	11	2.102498E+01	9.999991E+00	1.041662E-01
1198	0	0	11	2.102498E+01	1.199999E+01	0.000000E+00
1199	0	0	11	2.102498E+01	1.099999E+01	0.000000E+00
1200	0	0	11	2.102498E+01	1.199999E+01	1.041662E-01
1201	0	0	11	2.052498E+01	9.999994E+00	0.000000E+00
1202	0	0	11	2.002498E+01	9.999994E+00	0.000000E+00
1203	0	0	11	2.002498E+01	9.999994E+00	1.041662E-01
1204	0	0	11	2.052498E+01	1.199999E+01	0.000000E+00
1205	0	0	11	2.002498E+01	1.199999E+01	0.000000E+00
1206	0	0	11	2.002498E+01	1.099999E+01	0.000000E+00
1207	0	0	11	2.002498E+01	1.199999E+01	1.041662E-01
1208	0	0	11	2.102498E+01	9.999991E+00	2.083325E-01
1209	0	0	11	2.102498E+01	1.199999E+01	2.083325E-01
1210	0	0	11	2.102498E+01	1.099999E+01	2.083325E-01
1211	0	0	11	2.052498E+01	9.999994E+00	2.083325E-01
1212	0	0	11	2.002498E+01	9.999994E+00	2.083325E-01
1213	0	0	11	2.052498E+01	1.199999E+01	2.083325E-01
1214	0	0	11	2.002498E+01	1.199999E+01	2.083325E-01
1215	0	0	11	2.002498E+01	1.099999E+01	2.083325E-01
1216	0	0	11	2.102498E+01	0.000000E+00	4.166648E-01
1217	0	0	11	2.102498E+01	9.999993E-01	4.166648E-01
1218	0	0	11	2.102498E+01	0.000000E+00	5.208309E-01
1219	0	0	11	2.002498E+01	0.000000E+00	4.166648E-01
1220	0	0	11	2.052498E+01	0.000000E+00	4.166648E-01
1221	0	0	11	2.002498E+01	0.000000E+00	5.208309E-01
1222	0	0	11	2.002498E+01	9.999995E-01	4.166648E-01
1223	0	0	11	2.102498E+01	1.999998E+00	4.166648E-01
1224	0	0	11	2.102498E+01	1.999998E+00	5.208309E-01
1225	0	0	11	2.102498E+01	2.999997E+00	4.166648E-01
1226	0	0	11	2.052498E+01	1.999998E+00	4.166648E-01
1227	0	0	11	2.002498E+01	1.999999E+00	5.208309E-01
1228	0	0	11	2.002498E+01	1.999999E+00	4.166648E-01
1229	0	0	11	2.002498E+01	2.999998E+00	4.166648E-01
1230	0	0	11	2.102498E+01	3.999997E+00	4.166648E-01
1231	0	0	11	2.102498E+01	3.999997E+00	5.208309E-01
1232	0	0	11	2.102498E+01	4.999994E+00	4.166648E-01
1233	0	0	11	2.052498E+01	3.999993E+00	4.166648E-01
1234	0	0	11	2.002498E+01	3.999997E+00	5.208309E-01
1235	0	0	11	2.002498E+01	3.999997E+00	4.166648E-01
1236	0	0	11	2.002498E+01	4.999997E+00	4.166648E-01
1237	0	0	11	2.102498E+01	5.999994E+00	4.166648E-01

1179	0	0	11	2.102498E+01	5.999994E+00	2.083325E-01
1180	0	0	11	2.102498E+01	6.999991E+00	2.083325E-01
1181	0	0	11	2.052498E+01	5.999994E+00	2.083325E-01
1182	0	0	11	2.002498E+01	5.999997E+00	2.083325E-01
1183	0	0	11	2.002498E+01	6.999994E+00	2.083325E-01
1184	0	0	11	2.102498E+01	7.999994E+00	0.000000E+00
1185	0	0	11	2.102498E+01	7.999994E+00	1.041662E-01
1186	0	0	11	2.102498E+01	8.999994E+00	0.000000E+00
1187	0	0	11	2.052498E+01	7.999991E+00	0.000000E+00
1188	0	0	11	2.002498E+01	7.999994E+00	0.000000E+00
1189	0	0	11	2.002498E+01	7.999994E+00	1.041662E-01
1190	0	0	11	2.002498E+01	8.999994E+00	0.000000E+00
1191	0	0	11	2.102498E+01	7.999994E+00	2.083325E-01
1192	0	0	11	2.102498E+01	8.999994E+00	2.083325E-01
1193	0	0	11	2.052498E+01	7.999991E+00	2.083325E-01
1194	0	0	11	2.002498E+01	7.999994E+00	2.083325E-01
1195	0	0	11	2.002498E+01	8.999994E+00	2.083325E-01
1196	0	0	11	2.102498E+01	9.999991E+00	0.000000E+00
1197	0	0	11	2.102498E+01	9.999991E+00	1.041662E-01
1198	0	0	11	2.102498E+01	1.199999E+01	0.000000E+00
1199	0	0	11	2.102498E+01	1.099999E+01	0.000000E+00
1200	0	0	11	2.102498E+01	1.199999E+01	1.041662E-01
1201	0	0	11	2.052498E+01	9.999994E+00	0.000000E+00
1202	0	0	11	2.002498E+01	9.999994E+00	0.000000E+00
1203	0	0	11	2.002498E+01	9.999994E+00	1.041662E-01
1204	0	0	11	2.052498E+01	1.199999E+01	0.000000E+00
1205	0	0	11	2.002498E+01	1.199999E+01	0.000000E+00
1206	0	0	11	2.002498E+01	1.099999E+01	0.000000E+00
1207	0	0	11	2.002498E+01	1.199999E+01	1.041662E-01
1208	0	0	11	2.102498E+01	9.999991E+00	2.083325E-01
1209	0	0	11	2.102498E+01	1.199999E+01	2.083325E-01
1210	0	0	11	2.102498E+01	1.099999E+01	2.083325E-01
1211	0	0	11	2.052498E+01	9.999994E+00	2.083325E-01
1212	0	0	11	2.002498E+01	9.999994E+00	2.083325E-01
1213	0	0	11	2.052498E+01	1.199999E+01	2.083325E-01
1214	0	0	11	2.002498E+01	1.199999E+01	2.083325E-01
1215	0	0	11	2.002498E+01	1.099999E+01	2.083325E-01
1216	0	0	11	2.102498E+01	0.000000E+00	4.166648E-01
1217	0	0	11	2.102498E+01	9.999993E-01	4.166648E-01
1218	0	0	11	2.102498E+01	0.000000E+00	5.208309E-01
1219	0	0	11	2.002498E+01	0.000000E+00	4.166648E-01
1220	0	0	11	2.052498E+01	0.000000E+00	4.166648E-01
1221	0	0	11	2.002498E+01	0.000000E+00	5.208309E-01
1222	0	0	11	2.002498E+01	9.999995E-01	4.166648E-01
1223	0	0	11	2.102498E+01	1.999998E+00	4.166648E-01
1224	0	0	11	2.102498E+01	1.999998E+00	5.208309E-01
1225	0	0	11	2.102498E+01	2.999997E+00	4.166648E-01
1226	0	0	11	2.052498E+01	1.999998E+00	4.166648E-01
1227	0	0	11	2.002498E+01	1.999999E+00	5.208309E-01
1228	0	0	11	2.002498E+01	1.999999E+00	4.166648E-01
1229	0	0	11	2.002498E+01	2.999998E+00	4.166648E-01
1230	0	0	11	2.102498E+01	3.999997E+00	4.166648E-01
1231	0	0	11	2.102498E+01	3.999997E+00	5.208309E-01
1232	0	0	11	2.102498E+01	4.999994E+00	4.166648E-01
1233	0	0	11	2.052498E+01	3.999993E+00	4.166648E-01
1234	0	0	11	2.002498E+01	3.999997E+00	5.208309E-01
1235	0	0	11	2.002498E+01	3.999997E+00	4.166648E-01
1236	0	0	11	2.002498E+01	4.999997E+00	4.166648E-01
1237	0	0	11	2.102498E+01	5.999994E+00	4.166648E-01

1179	0	0	11	2.102498E+01	5.999994E+00	2.083325E-01
1180	0	0	11	2.102498E+01	6.999991E+00	2.083325E-01
1181	0	0	11	2.052498E+01	5.999994E+00	2.083325E-01
1182	0	0	11	2.002498E+01	5.999997E+00	2.083325E-01
1183	0	0	11	2.002498E+01	6.999994E+00	2.083325E-01
1184	0	0	11	2.102498E+01	7.999994E+00	0.000000E+00
1185	0	0	11	2.102498E+01	7.999994E+00	1.041662E-01
1186	0	0	11	2.102498E+01	8.999994E+00	0.000000E+00
1187	0	0	11	2.052498E+01	7.999991E+00	0.000000E+00
1188	0	0	11	2.002498E+01	7.999994E+00	0.000000E+00
1189	0	0	11	2.002498E+01	7.999994E+00	1.041662E-01
1190	0	0	11	2.002498E+01	8.999994E+00	0.000000E+00
1191	0	0	11	2.102498E+01	7.999994E+00	2.083325E-01
1192	0	0	11	2.102498E+01	8.999994E+00	2.083325E-01
1193	0	0	11	2.052498E+01	7.999991E+00	2.083325E-01
1194	0	0	11	2.002498E+01	7.999994E+00	2.083325E-01
1195	0	0	11	2.002498E+01	8.999994E+00	2.083325E-01
1196	0	0	11	2.102498E+01	9.999991E+00	0.000000E+00
1197	0	0	11	2.102498E+01	9.999991E+00	1.041662E-01
1198	0	0	11	2.102498E+01	1.199999E+01	0.000000E+00
1199	0	0	11	2.102498E+01	1.099999E+01	0.000000E+00
1200	0	0	11	2.102498E+01	1.199999E+01	1.041662E-01
1201	0	0	11	2.052498E+01	9.999994E+00	0.000000E+00
1202	0	0	11	2.002498E+01	9.999994E+00	0.000000E+00
1203	0	0	11	2.002498E+01	9.999994E+00	1.041662E-01
1204	0	0	11	2.052498E+01	1.199999E+01	0.000000E+00
1205	0	0	11	2.002498E+01	1.199999E+01	0.000000E+00
1206	0	0	11	2.002498E+01	1.099999E+01	0.000000E+00
1207	0	0	11	2.002498E+01	1.199999E+01	1.041662E-01
1208	0	0	11	2.102498E+01	9.999991E+00	2.083325E-01
1209	0	0	11	2.102498E+01	1.199999E+01	2.083325E-01
1210	0	0	11	2.102498E+01	1.099999E+01	2.083325E-01
1211	0	0	11	2.052498E+01	9.999994E+00	2.083325E-01
1212	0	0	11	2.002498E+01	9.999994E+00	2.083325E-01
1213	0	0	11	2.052498E+01	1.199999E+01	2.083325E-01
1214	0	0	11	2.002498E+01	1.199999E+01	2.083325E-01
1215	0	0	11	2.002498E+01	1.099999E+01	2.083325E-01
1216	0	0	11	2.102498E+01	0.000000E+00	4.166648E-01
1217	0	0	11	2.102498E+01	9.999993E-01	4.166648E-01
1218	0	0	11	2.102498E+01	0.000000E+00	5.208309E-01
1219	0	0	11	2.002498E+01	0.000000E+00	4.166648E-01
1220	0	0	11	2.052498E+01	0.000000E+00	4.166648E-01
1221	0	0	11	2.002498E+01	0.000000E+00	5.208309E-01
1222	0	0	11	2.002498E+01	9.999995E-01	4.166648E-01
1223	0	0	11	2.102498E+01	1.999998E+00	4.166648E-01
1224	0	0	11	2.102498E+01	1.999998E+00	5.208309E-01
1225	0	0	11	2.102498E+01	2.999997E+00	4.166648E-01
1226	0	0	11	2.052498E+01	1.999998E+00	4.166648E-01
1227	0	0	11	2.002498E+01	1.999999E+00	5.208309E-01
1228	0	0	11	2.002498E+01	1.999999E+00	4.166648E-01
1229	0	0	11	2.002498E+01	2.999998E+00	4.166648E-01
1230	0	0	11	2.102498E+01	3.999997E+00	4.166648E-01
1231	0	0	11	2.102498E+01	3.999997E+00	5.208309E-01
1232	0	0	11	2.102498E+01	4.999994E+00	4.166648E-01
1233	0	0	11	2.052498E+01	3.999993E+00	4.166648E-01
1234	0	0	11	2.002498E+01	3.999997E+00	5.208309E-01
1235	0	0	11	2.002498E+01	3.999997E+00	4.166648E-01
1236	0	0	11	2.002498E+01	4.999997E+00	4.166648E-01
1237	0	0	11	2.102498E+01	5.999994E+00	4.166648E-01

1899	0	0	11	1.600000E+01	0.000000E+00	2.083325E-01
1900	0	0	11	1.600000E+01	9.999995E-01	2.083325E-01
1901	0	0	11	1.450000E+01	0.000000E+00	2.083325E-01
1902	0	0	11	1.600000E+01	0.000000E+00	0.000000E+00
1903	0	0	11	1.600000E+01	9.999995E-01	0.000000E+00
1904	0	0	11	1.600000E+01	0.000000E+00	1.041662E-01
1905	0	0	11	1.450000E+01	0.000000E+00	0.000000E+00
1906	0	0	11	1.600000E+01	0.000000E+00	4.166648E-01
1907	0	0	11	1.600000E+01	9.999995E-01	4.166648E-01
1908	0	0	11	1.600000E+01	0.000000E+00	5.208309E-01
1909	0	0	11	1.450000E+01	0.000000E+00	4.166648E-01
1910	0	0	11	1.600000E+01	0.000000E+00	6.249971E-01
1911	0	0	11	1.600000E+01	9.999995E-01	6.249971E-01
1912	0	0	11	1.450000E+01	0.000000E+00	6.249971E-01
1913	0	0	11	1.600000E+01	0.000000E+00	7.291633E-01
1914	0	0	11	1.600000E+01	0.000000E+00	8.333294E-01
1915	0	0	11	1.600000E+01	9.999995E-01	8.333294E-01
1916	0	0	11	1.450000E+01	0.000000E+00	8.333294E-01
1917	0	0	11	1.600000E+01	1.999999E+00	3.124986E-01
1918	0	0	11	1.600000E+01	1.999999E+00	2.083325E-01
1919	0	0	11	1.600000E+01	2.999998E+00	2.083325E-01
1920	0	0	11	1.449999E+01	1.999998E+00	2.083325E-01
1921	0	0	11	1.600000E+01	1.999999E+00	0.000000E+00
1922	0	0	11	1.600000E+01	1.999999E+00	1.041662E-01
1923	0	0	11	1.600000E+01	2.999998E+00	0.000000E+00
1924	0	0	11	1.449999E+01	1.999998E+00	0.000000E+00
1925	0	0	11	1.600000E+01	1.999999E+00	4.166648E-01
1926	0	0	11	1.600000E+01	1.999999E+00	5.208309E-01
1927	0	0	11	1.600000E+01	2.999998E+00	4.166648E-01
1928	0	0	11	1.449999E+01	1.999998E+00	4.166648E-01
1929	0	0	11	1.600000E+01	1.999999E+00	6.249971E-01
1930	0	0	11	1.600000E+01	2.999998E+00	6.249971E-01
1931	0	0	11	1.449999E+01	1.999998E+00	6.249971E-01
1932	0	0	11	1.600000E+01	1.999999E+00	7.291633E-01
1933	0	0	11	1.600000E+01	1.999999E+00	8.333294E-01
1934	0	0	11	1.600000E+01	2.999998E+00	8.333294E-01
1935	0	0	11	1.449999E+01	1.999998E+00	8.333294E-01
1936	0	0	11	1.600000E+01	3.999997E+00	3.124986E-01
1937	0	0	11	1.600000E+01	3.999997E+00	2.083325E-01
1938	0	0	11	1.449999E+01	3.999993E+00	2.083325E-01
1939	0	0	11	1.600000E+01	4.999997E+00	2.083325E-01
1940	0	0	11	1.600000E+01	3.999997E+00	0.000000E+00
1941	0	0	11	1.600000E+01	3.999997E+00	1.041662E-01
1942	0	0	11	1.600000E+01	4.999997E+00	0.000000E+00
1943	0	0	11	1.449999E+01	3.999993E+00	0.000000E+00
1944	0	0	11	1.600000E+01	3.999997E+00	4.166648E-01
1945	0	0	11	1.600000E+01	3.999997E+00	5.208309E-01
1946	0	0	11	1.449999E+01	3.999993E+00	4.166648E-01
1947	0	0	11	1.600000E+01	4.999997E+00	4.166648E-01
1948	0	0	11	1.600000E+01	3.999997E+00	6.249971E-01
1949	0	0	11	1.449999E+01	3.999993E+00	6.249971E-01
1950	0	0	11	1.600000E+01	4.999997E+00	6.249971E-01
1951	0	0	11	1.600000E+01	3.999997E+00	7.291633E-01
1952	0	0	11	1.600000E+01	3.999997E+00	8.333294E-01
1953	0	0	11	1.600000E+01	4.999997E+00	8.333294E-01
1954	0	0	11	1.449999E+01	3.999993E+00	8.333294E-01
1955	0	0	11	1.600000E+01	5.999997E+00	3.124986E-01
1956	0	0	11	1.600000E+01	5.999997E+00	2.083325E-01
1957	0	0	11	1.449999E+01	5.999994E+00	2.083325E-01
	0	0	11	1.600000E+01	6.999994E+00	2.083325E-01

	0	0	11	1.600000E+01	0.000000E+00	2.083325E-01
1899	0	0	11	1.600000E+01	9.999995E-01	2.083325E-01
1900	0	0	11	1.450000E+01	0.000000E+00	2.083325E-01
1901	0	0	11	1.600000E+01	0.000000E+00	0.000000E+00
1902	0	0	11	1.600000E+01	9.999995E-01	0.000000E+00
1903	0	0	11	1.600000E+01	0.000000E+00	1.041662E-01
1904	0	0	11	1.450000E+01	0.000000E+00	0.000000E+00
1905	0	0	11	1.600000E+01	0.000000E+00	4.166648E-01
1906	0	0	11	1.600000E+01	9.999995E-01	4.166648E-01
1907	0	0	11	1.600000E+01	0.000000E+00	5.208309E-01
1908	0	0	11	1.450000E+01	0.000000E+00	4.166648E-01
1909	0	0	11	1.600000E+01	0.000000E+00	6.249971E-01
1910	0	0	11	1.600000E+01	9.999995E-01	6.249971E-01
1911	0	0	11	1.450000E+01	0.000000E+00	6.249971E-01
1912	0	0	11	1.600000E+01	0.000000E+00	7.291633E-01
1913	0	0	11	1.600000E+01	0.000000E+00	8.333294E-01
1914	0	0	11	1.600000E+01	9.999995E-01	8.333294E-01
1915	0	0	11	1.450000E+01	0.000000E+00	8.333294E-01
1916	0	0	11	1.600000E+01	1.999999E+00	3.124986E-01
1917	0	0	11	1.600000E+01	1.999999E+00	2.083325E-01
1918	0	0	11	1.600000E+01	2.999998E+00	2.083325E-01
1919	0	0	11	1.449999E+01	1.999998E+00	2.083325E-01
1920	0	0	11	1.600000E+01	1.999999E+00	0.000000E+00
1921	0	0	11	1.600000E+01	1.999999E+00	1.041662E-01
1922	0	0	11	1.600000E+01	2.999998E+00	0.000000E+00
1923	0	0	11	1.449999E+01	1.999998E+00	0.000000E+00
1924	0	0	11	1.600000E+01	1.999999E+00	4.166648E-01
1925	0	0	11	1.600000E+01	1.999999E+00	5.208309E-01
1926	0	0	11	1.600000E+01	2.999998E+00	4.166648E-01
1927	0	0	11	1.449999E+01	1.999998E+00	4.166648E-01
1928	0	0	11	1.600000E+01	1.999999E+00	6.249971E-01
1929	0	0	11	1.600000E+01	2.999998E+00	6.249971E-01
1930	0	0	11	1.449999E+01	1.999998E+00	6.249971E-01
1931	0	0	11	1.600000E+01	1.999999E+00	7.291633E-01
1932	0	0	11	1.600000E+01	1.999999E+00	8.333294E-01
1933	0	0	11	1.600000E+01	2.999998E+00	8.333294E-01
1934	0	0	11	1.449999E+01	1.999998E+00	8.333294E-01
1935	0	0	11	1.600000E+01	3.999997E+00	3.124986E-01
1936	0	0	11	1.600000E+01	3.999997E+00	2.083325E-01
1937	0	0	11	1.449999E+01	3.999993E+00	2.083325E-01
1938	0	0	11	1.600000E+01	4.999997E+00	2.083325E-01
1939	0	0	11	1.600000E+01	3.999997E+00	0.000000E+00
1940	0	0	11	1.600000E+01	3.999997E+00	1.041662E-01
1941	0	0	11	1.600000E+01	4.999997E+00	0.000000E+00
1942	0	0	11	1.449999E+01	3.999993E+00	0.000000E+00
1943	0	0	11	1.600000E+01	3.999997E+00	4.166648E-01
1944	0	0	11	1.600000E+01	3.999997E+00	5.208309E-01
1945	0	0	11	1.449999E+01	3.999993E+00	4.166648E-01
1946	0	0	11	1.600000E+01	4.999997E+00	4.166648E-01
1947	0	0	11	1.600000E+01	3.999997E+00	6.249971E-01
1948	0	0	11	1.449999E+01	3.999993E+00	6.249971E-01
1949	0	0	11	1.600000E+01	4.999997E+00	6.249971E-01
1950	0	0	11	1.600000E+01	3.999997E+00	7.291633E-01
1951	0	0	11	1.600000E+01	3.999997E+00	8.333294E-01
1952	0	0	11	1.600000E+01	4.999997E+00	8.333294E-01
1953	0	0	11	1.449999E+01	3.999993E+00	8.333294E-01
1954	0	0	11	1.600000E+01	5.999997E+00	3.124986E-01
1955	0	0	11	1.600000E+01	5.999997E+00	2.083325E-01
1956	0	0	11	1.449999E+01	5.999994E+00	2.083325E-01
1957	0	0	11	1.600000E+01	6.999994E+00	2.083325E-01

	0	0	11	1.600000E+01	0.000000E+00	2.083325E-01
1899	0	0	11	1.600000E+01	9.999995E-01	2.083325E-01
1900	0	0	11	1.450000E+01	0.000000E+00	2.083325E-01
1901	0	0	11	1.600000E+01	0.000000E+00	0.000000E+00
1902	0	0	11	1.600000E+01	9.999995E-01	0.000000E+00
1903	0	0	11	1.600000E+01	0.000000E+00	1.041662E-01
1904	0	0	11	1.450000E+01	0.000000E+00	0.000000E+00
1905	0	0	11	1.600000E+01	0.000000E+00	4.166648E-01
1906	0	0	11	1.600000E+01	9.999995E-01	4.166648E-01
1907	0	0	11	1.600000E+01	0.000000E+00	5.208309E-01
1908	0	0	11	1.450000E+01	0.000000E+00	4.166648E-01
1909	0	0	11	1.600000E+01	0.000000E+00	6.249971E-01
1910	0	0	11	1.600000E+01	9.999995E-01	6.249971E-01
1911	0	0	11	1.450000E+01	0.000000E+00	6.249971E-01
1912	0	0	11	1.600000E+01	0.000000E+00	7.291633E-01
1913	0	0	11	1.600000E+01	0.000000E+00	8.333294E-01
1914	0	0	11	1.600000E+01	9.999995E-01	8.333294E-01
1915	0	0	11	1.450000E+01	0.000000E+00	8.333294E-01
1916	0	0	11	1.600000E+01	1.999999E+00	3.124986E-01
1917	0	0	11	1.600000E+01	1.999999E+00	2.083325E-01
1918	0	0	11	1.600000E+01	2.999998E+00	2.083325E-01
1919	0	0	11	1.449999E+01	1.999998E+00	2.083325E-01
1920	0	0	11	1.600000E+01	1.999999E+00	0.000000E+00
1921	0	0	11	1.600000E+01	1.999999E+00	1.041662E-01
1922	0	0	11	1.600000E+01	2.999998E+00	0.000000E+00
1923	0	0	11	1.449999E+01	1.999998E+00	0.000000E+00
1924	0	0	11	1.600000E+01	1.999999E+00	4.166648E-01
1925	0	0	11	1.600000E+01	1.999999E+00	5.208309E-01
1926	0	0	11	1.600000E+01	2.999998E+00	4.166648E-01
1927	0	0	11	1.449999E+01	1.999998E+00	4.166648E-01
1928	0	0	11	1.600000E+01	1.999999E+00	6.249971E-01
1929	0	0	11	1.600000E+01	2.999998E+00	6.249971E-01
1930	0	0	11	1.449999E+01	1.999998E+00	6.249971E-01
1931	0	0	11	1.600000E+01	1.999999E+00	7.291633E-01
1932	0	0	11	1.600000E+01	1.999999E+00	8.333294E-01
1933	0	0	11	1.600000E+01	2.999998E+00	8.333294E-01
1934	0	0	11	1.449999E+01	1.999998E+00	8.333294E-01
1935	0	0	11	1.600000E+01	3.999997E+00	3.124986E-01
1936	0	0	11	1.600000E+01	3.999997E+00	2.083325E-01
1937	0	0	11	1.449999E+01	3.999993E+00	2.083325E-01
1938	0	0	11	1.600000E+01	4.999997E+00	2.083325E-01
1939	0	0	11	1.600000E+01	3.999997E+00	0.000000E+00
1940	0	0	11	1.600000E+01	3.999997E+00	1.041662E-01
1941	0	0	11	1.600000E+01	4.999997E+00	0.000000E+00
1942	0	0	11	1.449999E+01	3.999993E+00	0.000000E+00
1943	0	0	11	1.600000E+01	3.999997E+00	4.166648E-01
1944	0	0	11	1.600000E+01	3.999997E+00	5.208309E-01
1945	0	0	11	1.449999E+01	3.999993E+00	4.166648E-01
1946	0	0	11	1.600000E+01	4.999997E+00	4.166648E-01
1947	0	0	11	1.600000E+01	3.999997E+00	6.249971E-01
1948	0	0	11	1.449999E+01	3.999993E+00	6.249971E-01
1949	0	0	11	1.600000E+01	4.999997E+00	6.249971E-01
1950	0	0	11	1.600000E+01	3.999997E+00	7.291633E-01
1951	0	0	11	1.600000E+01	3.999997E+00	8.333294E-01
1952	0	0	11	1.600000E+01	4.999997E+00	8.333294E-01
1953	0	0	11	1.449999E+01	3.999993E+00	8.333294E-01
1954	0	0	11	1.600000E+01	5.999997E+00	3.124986E-01
1955	0	0	11	1.600000E+01	5.999997E+00	2.083325E-01
1956	0	0	11	1.449999E+01	5.999994E+00	2.083325E-01
1957	0	0	11	1.600000E+01	6.999994E+00	2.083325E-01

			11	1.600000E+01	0.000000E+00	2.083325E-01
1899	0	0	11	1.600000E+01	9.999995E-01	2.083325E-01
1900	0	0	11	1.450000E+01	0.000000E+00	2.083325E-01
1901	0	0	11	1.600000E+01	0.000000E+00	0.000000E+00
1902	0	0	11	1.600000E+01	9.999995E-01	0.000000E+00
1903	0	0	11	1.600000E+01	0.000000E+00	1.041662E-01
1904	0	0	11	1.450000E+01	0.000000E+00	0.000000E+00
1905	0	0	11	1.600000E+01	0.000000E+00	4.166648E-01
1906	0	0	11	1.600000E+01	9.999995E-01	4.166648E-01
1907	0	0	11	1.600000E+01	0.000000E+00	5.208309E-01
1908	0	0	11	1.450000E+01	0.000000E+00	4.166648E-01
1909	0	0	11	1.600000E+01	0.000000E+00	6.249971E-01
1910	0	0	11	1.600000E+01	9.999995E-01	6.249971E-01
1911	0	0	11	1.450000E+01	0.000000E+00	6.249971E-01
1912	0	0	11	1.600000E+01	0.000000E+00	7.291633E-01
1913	0	0	11	1.600000E+01	0.000000E+00	8.333294E-01
1914	0	0	11	1.600000E+01	9.999995E-01	8.333294E-01
1915	0	0	11	1.450000E+01	0.000000E+00	8.333294E-01
1916	0	0	11	1.600000E+01	1.999999E+00	3.124986E-01
1917	0	0	11	1.600000E+01	1.999999E+00	2.083325E-01
1918	0	0	11	1.600000E+01	2.999998E+00	2.083325E-01
1919	0	0	11	1.449999E+01	1.999998E+00	2.083325E-01
1920	0	0	11	1.600000E+01	1.999999E+00	0.000000E+00
1921	0	0	11	1.600000E+01	1.999999E+00	1.041662E-01
1922	0	0	11	1.600000E+01	2.999998E+00	0.000000E+00
1923	0	0	11	1.449999E+01	1.999998E+00	0.000000E+00
1924	0	0	11	1.600000E+01	1.999999E+00	4.166648E-01
1925	0	0	11	1.600000E+01	1.999999E+00	5.208309E-01
1926	0	0	11	1.600000E+01	2.999998E+00	4.166648E-01
1927	0	0	11	1.449999E+01	1.999998E+00	4.166648E-01
1928	0	0	11	1.600000E+01	1.999999E+00	6.249971E-01
1929	0	0	11	1.600000E+01	2.999998E+00	6.249971E-01
1930	0	0	11	1.449999E+01	1.999998E+00	6.249971E-01
1931	0	0	11	1.600000E+01	1.999999E+00	7.291633E-01
1932	0	0	11	1.600000E+01	1.999999E+00	8.333294E-01
1933	0	0	11	1.600000E+01	2.999998E+00	8.333294E-01
1934	0	0	11	1.449999E+01	1.999998E+00	8.333294E-01
1935	0	0	11	1.600000E+01	3.999997E+00	3.124986E-01
1936	0	0	11	1.600000E+01	3.999997E+00	2.083325E-01
1937	0	0	11	1.449999E+01	3.999993E+00	2.083325E-01
1938	0	0	11	1.600000E+01	4.999997E+00	2.083325E-01
1939	0	0	11	1.600000E+01	3.999997E+00	0.000000E+00
1940	0	0	11	1.600000E+01	3.999997E+00	1.041662E-01
1941	0	0	11	1.600000E+01	4.999997E+00	0.000000E+00
1942	0	0	11	1.449999E+01	3.999993E+00	0.000000E+00
1943	0	0	11	1.600000E+01	3.999997E+00	4.166648E-01
1944	0	0	11	1.600000E+01	3.999997E+00	5.208309E-01
1945	0	0	11	1.449999E+01	3.999993E+00	4.166648E-01
1946	0	0	11	1.600000E+01	4.999997E+00	4.166648E-01
1947	0	0	11	1.600000E+01	3.999997E+00	6.249971E-01
1948	0	0	11	1.449999E+01	3.999993E+00	6.249971E-01
1949	0	0	11	1.600000E+01	4.999997E+00	6.249971E-01
1950	0	0	11	1.600000E+01	3.999997E+00	7.291633E-01
1951	0	0	11	1.600000E+01	3.999997E+00	8.333294E-01
1952	0	0	11	1.600000E+01	4.999997E+00	8.333294E-01
1953	0	0	11	1.449999E+01	3.999993E+00	8.333294E-01
1954	0	0	11	1.600000E+01	5.999997E+00	3.124986E-01
1955	0	0	11	1.600000E+01	5.999997E+00	2.083325E-01
1956	0	0	11	1.449999E+01	5.999994E+00	2.083325E-01
1957	0	0	11	1.600000E+01	6.999994E+00	2.083325E-01

1899	0	0	11	1.600000E+01	0.000000E+00	2.083325E-01
1900	0	0	11	1.600000E+01	9.999995E-01	2.083325E-01
1901	0	0	11	1.450000E+01	0.000000E+00	2.083325E-01
1902	0	0	11	1.600000E+01	0.000000E+00	0.000000E+00
1903	0	0	11	1.600000E+01	9.999995E-01	0.000000E+00
1904	0	0	11	1.600000E+01	0.000000E+00	1.041662E-01
1905	0	0	11	1.450000E+01	0.000000E+00	0.000000E+00
1906	0	0	11	1.600000E+01	0.000000E+00	4.166648E-01
1907	0	0	11	1.600000E+01	9.999995E-01	4.166648E-01
1908	0	0	11	1.600000E+01	0.000000E+00	5.208309E-01
1909	0	0	11	1.450000E+01	0.000000E+00	4.166648E-01
1910	0	0	11	1.600000E+01	0.000000E+00	6.249971E-01
1911	0	0	11	1.600000E+01	9.999995E-01	6.249971E-01
1912	0	0	11	1.450000E+01	0.000000E+00	6.249971E-01
1913	0	0	11	1.600000E+01	0.000000E+00	7.291633E-01
1914	0	0	11	1.600000E+01	0.000000E+00	8.333294E-01
1915	0	0	11	1.600000E+01	9.999995E-01	8.333294E-01
1916	0	0	11	1.450000E+01	0.000000E+00	8.333294E-01
1917	0	0	11	1.600000E+01	1.999999E+00	3.124986E-01
1918	0	0	11	1.600000E+01	1.999999E+00	2.083325E-01
1919	0	0	11	1.600000E+01	2.999998E+00	2.083325E-01
1920	0	0	11	1.449999E+01	1.999998E+00	2.083325E-01
1921	0	0	11	1.600000E+01	1.999999E+00	0.000000E+00
1922	0	0	11	1.600000E+01	1.999999E+00	1.041662E-01
1923	0	0	11	1.600000E+01	2.999998E+00	0.000000E+00
1924	0	0	11	1.449999E+01	1.999998E+00	0.000000E+00
1925	0	0	11	1.600000E+01	1.999999E+00	4.166648E-01
1926	0	0	11	1.600000E+01	1.999999E+00	5.208309E-01
1927	0	0	11	1.600000E+01	2.999998E+00	4.166648E-01
1928	0	0	11	1.449999E+01	1.999998E+00	4.166648E-01
1929	0	0	11	1.600000E+01	1.999999E+00	6.249971E-01
1930	0	0	11	1.600000E+01	2.999998E+00	6.249971E-01
1931	0	0	11	1.449999E+01	1.999998E+00	6.249971E-01
1932	0	0	11	1.600000E+01	1.999999E+00	7.291633E-01
1933	0	0	11	1.600000E+01	1.999999E+00	8.333294E-01
1934	0	0	11	1.600000E+01	2.999998E+00	8.333294E-01
1935	0	0	11	1.449999E+01	1.999998E+00	8.333294E-01
1936	0	0	11	1.600000E+01	3.999997E+00	3.124986E-01
1937	0	0	11	1.600000E+01	3.999997E+00	2.083325E-01
1938	0	0	11	1.449999E+01	3.999993E+00	2.083325E-01
1939	0	0	11	1.600000E+01	4.999997E+00	2.083325E-01
1940	0	0	11	1.600000E+01	3.999997E+00	0.000000E+00
1941	0	0	11	1.600000E+01	3.999997E+00	1.041662E-01
1942	0	0	11	1.600000E+01	4.999997E+00	0.000000E+00
1943	0	0	11	1.449999E+01	3.999993E+00	0.000000E+00
1944	0	0	11	1.600000E+01	3.999997E+00	4.166648E-01
1945	0	0	11	1.600000E+01	3.999997E+00	5.208309E-01
1946	0	0	11	1.449999E+01	3.999993E+00	4.166648E-01
1947	0	0	11	1.600000E+01	4.999997E+00	4.166648E-01
1948	0	0	11	1.600000E+01	3.999997E+00	6.249971E-01
1949	0	0	11	1.449999E+01	3.999993E+00	6.249971E-01
1950	0	0	11	1.600000E+01	4.999997E+00	6.249971E-01
1951	0	0	11	1.600000E+01	3.999997E+00	7.291633E-01
1952	0	0	11	1.600000E+01	3.999997E+00	8.333294E-01
1953	0	0	11	1.600000E+01	4.999997E+00	8.333294E-01
1954	0	0	11	1.449999E+01	3.999993E+00	8.333294E-01
1955	0	0	11	1.600000E+01	5.999997E+00	3.124986E-01
1956	0	0	11	1.600000E+01	5.999997E+00	2.083325E-01
1957	0	0	11	1.449999E+01	5.999994E+00	2.083325E-01
			11	1.600000E+01	6.999994E+00	2.083325E-01

	0	0	11	1.600000E+01	0.000000E+00	2.083325E-01
1899	0	0	11	1.600000E+01	9.999995E-01	2.083325E-01
1900	0	0	11	1.450000E+01	0.000000E+00	2.083325E-01
1901	0	0	11	1.600000E+01	0.000000E+00	0.000000E+00
1902	0	0	11	1.600000E+01	9.999995E-01	0.000000E+00
1903	0	0	11	1.600000E+01	0.000000E+00	1.041662E-01
1904	0	0	11	1.450000E+01	0.000000E+00	0.000000E+00
1905	0	0	11	1.600000E+01	0.000000E+00	4.166648E-01
1906	0	0	11	1.600000E+01	9.999995E-01	4.166648E-01
1907	0	0	11	1.600000E+01	0.000000E+00	5.208309E-01
1908	0	0	11	1.450000E+01	0.000000E+00	4.166648E-01
1909	0	0	11	1.600000E+01	0.000000E+00	6.249971E-01
1910	0	0	11	1.600000E+01	9.999995E-01	6.249971E-01
1911	0	0	11	1.450000E+01	0.000000E+00	6.249971E-01
1912	0	0	11	1.600000E+01	0.000000E+00	7.291633E-01
1913	0	0	11	1.600000E+01	0.000000E+00	8.333294E-01
1914	0	0	11	1.600000E+01	9.999995E-01	8.333294E-01
1915	0	0	11	1.450000E+01	0.000000E+00	8.333294E-01
1916	0	0	11	1.600000E+01	1.999999E+00	3.124986E-01
1917	0	0	11	1.600000E+01	1.999999E+00	2.083325E-01
1918	0	0	11	1.600000E+01	2.999998E+00	2.083325E-01
1919	0	0	11	1.449999E+01	1.999998E+00	2.083325E-01
1920	0	0	11	1.600000E+01	1.999999E+00	0.000000E+00
1921	0	0	11	1.600000E+01	1.999999E+00	1.041662E-01
1922	0	0	11	1.600000E+01	2.999998E+00	0.000000E+00
1923	0	0	11	1.449999E+01	1.999998E+00	0.000000E+00
1924	0	0	11	1.600000E+01	1.999999E+00	4.166648E-01
1925	0	0	11	1.600000E+01	1.999999E+00	5.208309E-01
1926	0	0	11	1.600000E+01	2.999998E+00	4.166648E-01
1927	0	0	11	1.449999E+01	1.999998E+00	4.166648E-01
1928	0	0	11	1.600000E+01	1.999999E+00	6.249971E-01
1929	0	0	11	1.600000E+01	2.999998E+00	6.249971E-01
1930	0	0	11	1.449999E+01	1.999998E+00	6.249971E-01
1931	0	0	11	1.600000E+01	1.999999E+00	7.291633E-01
1932	0	0	11	1.600000E+01	1.999999E+00	8.333294E-01
1933	0	0	11	1.600000E+01	2.999998E+00	8.333294E-01
1934	0	0	11	1.449999E+01	1.999998E+00	8.333294E-01
1935	0	0	11	1.600000E+01	3.999997E+00	3.124986E-01
1936	0	0	11	1.600000E+01	3.999997E+00	2.083325E-01
1937	0	0	11	1.449999E+01	3.999993E+00	2.083325E-01
1938	0	0	11	1.600000E+01	4.999997E+00	2.083325E-01
1939	0	0	11	1.600000E+01	3.999997E+00	0.000000E+00
1940	0	0	11	1.600000E+01	3.999997E+00	1.041662E-01
1941	0	0	11	1.600000E+01	4.999997E+00	0.000000E+00
1942	0	0	11	1.449999E+01	3.999993E+00	0.000000E+00
1943	0	0	11	1.600000E+01	3.999997E+00	4.166648E-01
1944	0	0	11	1.600000E+01	3.999997E+00	5.208309E-01
1945	0	0	11	1.449999E+01	3.999993E+00	4.166648E-01
1946	0	0	11	1.600000E+01	4.999997E+00	4.166648E-01
1947	0	0	11	1.600000E+01	3.999997E+00	6.249971E-01
1948	0	0	11	1.449999E+01	3.999993E+00	6.249971E-01
1949	0	0	11	1.600000E+01	4.999997E+00	6.249971E-01
1950	0	0	11	1.600000E+01	3.999997E+00	7.291633E-01
1951	0	0	11	1.600000E+01	3.999997E+00	8.333294E-01
1952	0	0	11	1.600000E+01	4.999997E+00	8.333294E-01
1953	0	0	11	1.449999E+01	3.999993E+00	8.333294E-01
1954	0	0	11	1.600000E+01	5.999997E+00	3.124986E-01
1955	0	0	11	1.600000E+01	5.999997E+00	2.083325E-01
1956	0	0	11	1.449999E+01	5.999994E+00	2.083325E-01
1957	0	0	11	1.600000E+01	6.999994E+00	2.083325E-01

	0	0	11	1.600000E+01	0.000000E+00	2.083325E-01
1899	0	0	11	1.600000E+01	9.999995E-01	2.083325E-01
1900	0	0	11	1.450000E+01	0.000000E+00	2.083325E-01
1901	0	0	11	1.600000E+01	0.000000E+00	0.000000E+00
1902	0	0	11	1.600000E+01	9.999995E-01	0.000000E+00
1903	0	0	11	1.600000E+01	0.000000E+00	1.041662E-01
1904	0	0	11	1.450000E+01	0.000000E+00	0.000000E+00
1905	0	0	11	1.600000E+01	0.000000E+00	4.166648E-01
1906	0	0	11	1.600000E+01	9.999995E-01	4.166648E-01
1907	0	0	11	1.600000E+01	0.000000E+00	5.208309E-01
1908	0	0	11	1.450000E+01	0.000000E+00	4.166648E-01
1909	0	0	11	1.600000E+01	0.000000E+00	6.249971E-01
1910	0	0	11	1.600000E+01	9.999995E-01	6.249971E-01
1911	0	0	11	1.450000E+01	0.000000E+00	6.249971E-01
1912	0	0	11	1.600000E+01	0.000000E+00	7.291633E-01
1913	0	0	11	1.600000E+01	0.000000E+00	8.333294E-01
1914	0	0	11	1.600000E+01	9.999995E-01	8.333294E-01
1915	0	0	11	1.450000E+01	0.000000E+00	8.333294E-01
1916	0	0	11	1.600000E+01	1.999999E+00	3.124986E-01
1917	0	0	11	1.600000E+01	1.999999E+00	2.083325E-01
1918	0	0	11	1.600000E+01	2.999998E+00	2.083325E-01
1919	0	0	11	1.449999E+01	1.999998E+00	2.083325E-01
1920	0	0	11	1.600000E+01	1.999999E+00	0.000000E+00
1921	0	0	11	1.600000E+01	1.999999E+00	1.041662E-01
1922	0	0	11	1.600000E+01	2.999998E+00	0.000000E+00
1923	0	0	11	1.449999E+01	1.999998E+00	0.000000E+00
1924	0	0	11	1.600000E+01	1.999999E+00	4.166648E-01
1925	0	0	11	1.600000E+01	1.999999E+00	5.208309E-01
1926	0	0	11	1.600000E+01	2.999998E+00	4.166648E-01
1927	0	0	11	1.449999E+01	1.999998E+00	4.166648E-01
1928	0	0	11	1.600000E+01	1.999999E+00	6.249971E-01
1929	0	0	11	1.600000E+01	2.999998E+00	6.249971E-01
1930	0	0	11	1.449999E+01	1.999998E+00	6.249971E-01
1931	0	0	11	1.600000E+01	1.999999E+00	7.291633E-01
1932	0	0	11	1.600000E+01	1.999999E+00	8.333294E-01
1933	0	0	11	1.600000E+01	2.999998E+00	8.333294E-01
1934	0	0	11	1.449999E+01	1.999998E+00	8.333294E-01
1935	0	0	11	1.600000E+01	3.999997E+00	3.124986E-01
1936	0	0	11	1.600000E+01	3.999997E+00	2.083325E-01
1937	0	0	11	1.449999E+01	3.999993E+00	2.083325E-01
1938	0	0	11	1.600000E+01	4.999997E+00	2.083325E-01
1939	0	0	11	1.600000E+01	3.999997E+00	0.000000E+00
1940	0	0	11	1.600000E+01	3.999997E+00	1.041662E-01
1941	0	0	11	1.600000E+01	4.999997E+00	0.000000E+00
1942	0	0	11	1.449999E+01	3.999993E+00	0.000000E+00
1943	0	0	11	1.600000E+01	3.999997E+00	4.166648E-01
1944	0	0	11	1.600000E+01	3.999997E+00	5.208309E-01
1945	0	0	11	1.449999E+01	3.999993E+00	4.166648E-01
1946	0	0	11	1.600000E+01	4.999997E+00	4.166648E-01
1947	0	0	11	1.600000E+01	3.999997E+00	6.249971E-01
1948	0	0	11	1.449999E+01	3.999993E+00	6.249971E-01
1949	0	0	11	1.600000E+01	4.999997E+00	6.249971E-01
1950	0	0	11	1.600000E+01	3.999997E+00	7.291633E-01
1951	0	0	11	1.600000E+01	3.999997E+00	8.333294E-01
1952	0	0	11	1.600000E+01	4.999997E+00	8.333294E-01
1953	0	0	11	1.449999E+01	3.999993E+00	8.333294E-01
1954	0	0	11	1.600000E+01	5.999997E+00	3.124986E-01
1955	0	0	11	1.600000E+01	5.999997E+00	2.083325E-01
1956	0	0	11	1.449999E+01	5.999994E+00	2.083325E-01
1957	0	0	11	1.600000E+01	6.999994E+00	2.083325E-01

	0	0	11	1.600000E+01	0.000000E+00	2.083325E-01
1899	0	0	11	1.600000E+01	9.999995E-01	2.083325E-01
1900	0	0	11	1.450000E+01	0.000000E+00	2.083325E-01
1901	0	0	11	1.600000E+01	0.000000E+00	0.000000E+00
1902	0	0	11	1.600000E+01	9.999995E-01	0.000000E+00
1903	0	0	11	1.600000E+01	0.000000E+00	1.041662E-01
1904	0	0	11	1.450000E+01	0.000000E+00	0.000000E+00
1905	0	0	11	1.600000E+01	0.000000E+00	4.166648E-01
1906	0	0	11	1.600000E+01	9.999995E-01	4.166648E-01
1907	0	0	11	1.600000E+01	0.000000E+00	5.208309E-01
1908	0	0	11	1.450000E+01	0.000000E+00	4.166648E-01
1909	0	0	11	1.600000E+01	0.000000E+00	6.249971E-01
1910	0	0	11	1.600000E+01	9.999995E-01	6.249971E-01
1911	0	0	11	1.450000E+01	0.000000E+00	6.249971E-01
1912	0	0	11	1.600000E+01	0.000000E+00	7.291633E-01
1913	0	0	11	1.600000E+01	0.000000E+00	8.333294E-01
1914	0	0	11	1.600000E+01	9.999995E-01	8.333294E-01
1915	0	0	11	1.450000E+01	0.000000E+00	8.333294E-01
1916	0	0	11	1.600000E+01	1.999999E+00	3.124986E-01
1917	0	0	11	1.600000E+01	1.999999E+00	2.083325E-01
1918	0	0	11	1.600000E+01	2.999998E+00	2.083325E-01
1919	0	0	11	1.449999E+01	1.999998E+00	2.083325E-01
1920	0	0	11	1.600000E+01	1.999999E+00	0.000000E+00
1921	0	0	11	1.600000E+01	1.999999E+00	1.041662E-01
1922	0	0	11	1.600000E+01	2.999998E+00	0.000000E+00
1923	0	0	11	1.449999E+01	1.999998E+00	0.000000E+00
1924	0	0	11	1.600000E+01	1.999999E+00	4.166648E-01
1925	0	0	11	1.600000E+01	1.999999E+00	5.208309E-01
1926	0	0	11	1.600000E+01	2.999998E+00	4.166648E-01
1927	0	0	11	1.449999E+01	1.999998E+00	4.166648E-01
1928	0	0	11	1.600000E+01	1.999999E+00	6.249971E-01
1929	0	0	11	1.600000E+01	2.999998E+00	6.249971E-01
1930	0	0	11	1.449999E+01	1.999998E+00	6.249971E-01
1931	0	0	11	1.600000E+01	1.999999E+00	7.291633E-01
1932	0	0	11	1.600000E+01	1.999999E+00	8.333294E-01
1933	0	0	11	1.600000E+01	2.999998E+00	8.333294E-01
1934	0	0	11	1.449999E+01	1.999998E+00	8.333294E-01
1935	0	0	11	1.600000E+01	3.999997E+00	3.124986E-01
1936	0	0	11	1.600000E+01	3.999997E+00	2.083325E-01
1937	0	0	11	1.449999E+01	3.999993E+00	2.083325E-01
1938	0	0	11	1.600000E+01	4.999997E+00	2.083325E-01
1939	0	0	11	1.600000E+01	3.999997E+00	0.000000E+00
1940	0	0	11	1.600000E+01	3.999997E+00	1.041662E-01
1941	0	0	11	1.600000E+01	4.999997E+00	0.000000E+00
1942	0	0	11	1.449999E+01	3.999993E+00	0.000000E+00
1943	0	0	11	1.600000E+01	3.999997E+00	4.166648E-01
1944	0	0	11	1.600000E+01	3.999997E+00	5.208309E-01
1945	0	0	11	1.449999E+01	3.999993E+00	4.166648E-01
1946	0	0	11	1.600000E+01	4.999997E+00	4.166648E-01
1947	0	0	11	1.600000E+01	3.999997E+00	6.249971E-01
1948	0	0	11	1.449999E+01	3.999993E+00	6.249971E-01
1949	0	0	11	1.600000E+01	4.999997E+00	6.249971E-01
1950	0	0	11	1.600000E+01	3.999997E+00	7.291633E-01
1951	0	0	11	1.600000E+01	3.999997E+00	8.333294E-01
1952	0	0	11	1.600000E+01	4.999997E+00	8.333294E-01
1953	0	0	11	1.449999E+01	3.999993E+00	8.333294E-01
1954	0	0	11	1.600000E+01	5.999997E+00	3.124986E-01
1955	0	0	11	1.600000E+01	5.999997E+00	2.083325E-01
1956	0	0	11	1.449999E+01	5.999994E+00	2.083325E-01
1957	0	0	11	1.600000E+01	6.999994E+00	2.083325E-01

1899	0	0	11	1.600000E+01	0.000000E+00	2.083325E-01
1900	0	0	11	1.600000E+01	9.999995E-01	2.083325E-01
1901	0	0	11	1.450000E+01	0.000000E+00	2.083325E-01
1902	0	0	11	1.600000E+01	0.000000E+00	0.000000E+00
1903	0	0	11	1.600000E+01	9.999995E-01	0.000000E+00
1904	0	0	11	1.600000E+01	0.000000E+00	1.041662E-01
1905	0	0	11	1.450000E+01	0.000000E+00	0.000000E+00
1906	0	0	11	1.600000E+01	0.000000E+00	4.166648E-01
1907	0	0	11	1.600000E+01	9.999995E-01	4.166648E-01
1908	0	0	11	1.600000E+01	0.000000E+00	5.208309E-01
1909	0	0	11	1.450000E+01	0.000000E+00	4.166648E-01
1910	0	0	11	1.600000E+01	0.000000E+00	6.249971E-01
1911	0	0	11	1.600000E+01	9.999995E-01	6.249971E-01
1912	0	0	11	1.450000E+01	0.000000E+00	6.249971E-01
1913	0	0	11	1.600000E+01	0.000000E+00	7.291633E-01
1914	0	0	11	1.600000E+01	0.000000E+00	8.333294E-01
1915	0	0	11	1.600000E+01	9.999995E-01	8.333294E-01
1916	0	0	11	1.450000E+01	0.000000E+00	8.333294E-01
1917	0	0	11	1.600000E+01	1.999999E+00	3.124986E-01
1918	0	0	11	1.600000E+01	1.999999E+00	2.083325E-01
1919	0	0	11	1.600000E+01	2.999998E+00	2.083325E-01
1920	0	0	11	1.449999E+01	1.999998E+00	2.083325E-01
1921	0	0	11	1.600000E+01	1.999999E+00	0.000000E+00
1922	0	0	11	1.600000E+01	1.999999E+00	1.041662E-01
1923	0	0	11	1.600000E+01	2.999998E+00	0.000000E+00
1924	0	0	11	1.449999E+01	1.999998E+00	0.000000E+00
1925	0	0	11	1.600000E+01	1.999999E+00	4.166648E-01
1926	0	0	11	1.600000E+01	1.999999E+00	5.208309E-01
1927	0	0	11	1.600000E+01	2.999998E+00	4.166648E-01
1928	0	0	11	1.449999E+01	1.999998E+00	4.166648E-01
1929	0	0	11	1.600000E+01	1.999999E+00	6.249971E-01
1930	0	0	11	1.600000E+01	2.999998E+00	6.249971E-01
1931	0	0	11	1.449999E+01	1.999998E+00	6.249971E-01
1932	0	0	11	1.600000E+01	1.999999E+00	7.291633E-01
1933	0	0	11	1.600000E+01	1.999999E+00	8.333294E-01
1934	0	0	11	1.600000E+01	2.999998E+00	8.333294E-01
1935	0	0	11	1.449999E+01	1.999998E+00	8.333294E-01
1936	0	0	11	1.600000E+01	3.999997E+00	3.124986E-01
1937	0	0	11	1.600000E+01	3.999997E+00	2.083325E-01
1938	0	0	11	1.449999E+01	3.999993E+00	2.083325E-01
1939	0	0	11	1.600000E+01	4.999997E+00	2.083325E-01
1940	0	0	11	1.600000E+01	3.999997E+00	0.000000E+00
1941	0	0	11	1.600000E+01	3.999997E+00	1.041662E-01
1942	0	0	11	1.600000E+01	4.999997E+00	0.000000E+00
1943	0	0	11	1.449999E+01	3.999993E+00	0.000000E+00
1944	0	0	11	1.600000E+01	3.999997E+00	4.166648E-01
1945	0	0	11	1.600000E+01	3.999997E+00	5.208309E-01
1946	0	0	11	1.449999E+01	3.999993E+00	4.166648E-01
1947	0	0	11	1.600000E+01	4.999997E+00	4.166648E-01
1948	0	0	11	1.600000E+01	3.999997E+00	6.249971E-01
1949	0	0	11	1.449999E+01	3.999993E+00	6.249971E-01
1950	0	0	11	1.600000E+01	4.999997E+00	6.249971E-01
1951	0	0	11	1.600000E+01	3.999997E+00	7.291633E-01
1952	0	0	11	1.600000E+01	3.999997E+00	8.333294E-01
1953	0	0	11	1.600000E+01	4.999997E+00	8.333294E-01
1954	0	0	11	1.449999E+01	3.999993E+00	8.333294E-01
1955	0	0	11	1.600000E+01	5.999997E+00	3.124986E-01
1956	0	0	11	1.600000E+01	5.999997E+00	2.083325E-01
1957	0	0	11	1.449999E+01	5.999994E+00	2.083325E-01
	0	0	11	1.600000E+01	6.999994E+00	2.083325E-01

			11	1.600000E+01	0.000000E+00	2.083325E-01
1899	0	0	11	1.600000E+01	9.999995E-01	2.083325E-01
1900	0	0	11	1.450000E+01	0.000000E+00	2.083325E-01
1901	0	0	11	1.600000E+01	0.000000E+00	0.000000E+00
1902	0	0	11	1.600000E+01	9.999995E-01	0.000000E+00
1903	0	0	11	1.600000E+01	0.000000E+00	1.041662E-01
1904	0	0	11	1.450000E+01	0.000000E+00	0.000000E+00
1905	0	0	11	1.600000E+01	0.000000E+00	4.166648E-01
1906	0	0	11	1.600000E+01	9.999995E-01	4.166648E-01
1907	0	0	11	1.600000E+01	0.000000E+00	5.208309E-01
1908	0	0	11	1.450000E+01	0.000000E+00	4.166648E-01
1909	0	0	11	1.600000E+01	0.000000E+00	6.249971E-01
1910	0	0	11	1.600000E+01	9.999995E-01	6.249971E-01
1911	0	0	11	1.450000E+01	0.000000E+00	6.249971E-01
1912	0	0	11	1.600000E+01	0.000000E+00	7.291633E-01
1913	0	0	11	1.600000E+01	0.000000E+00	8.333294E-01
1914	0	0	11	1.600000E+01	9.999995E-01	8.333294E-01
1915	0	0	11	1.450000E+01	0.000000E+00	8.333294E-01
1916	0	0	11	1.600000E+01	1.999999E+00	3.124986E-01
1917	0	0	11	1.600000E+01	1.999999E+00	2.083325E-01
1918	0	0	11	1.600000E+01	2.999998E+00	2.083325E-01
1919	0	0	11	1.449999E+01	1.999998E+00	2.083325E-01
1920	0	0	11	1.600000E+01	1.999999E+00	0.000000E+00
1921	0	0	11	1.600000E+01	1.999999E+00	1.041662E-01
1922	0	0	11	1.600000E+01	2.999998E+00	0.000000E+00
1923	0	0	11	1.449999E+01	1.999998E+00	0.000000E+00
1924	0	0	11	1.600000E+01	1.999999E+00	4.166648E-01
1925	0	0	11	1.600000E+01	1.999999E+00	5.208309E-01
1926	0	0	11	1.600000E+01	2.999998E+00	4.166648E-01
1927	0	0	11	1.449999E+01	1.999998E+00	4.166648E-01
1928	0	0	11	1.600000E+01	1.999999E+00	6.249971E-01
1929	0	0	11	1.600000E+01	2.999998E+00	6.249971E-01
1930	0	0	11	1.449999E+01	1.999998E+00	6.249971E-01
1931	0	0	11	1.600000E+01	1.999999E+00	7.291633E-01
1932	0	0	11	1.600000E+01	1.999999E+00	8.333294E-01
1933	0	0	11	1.600000E+01	2.999998E+00	8.333294E-01
1934	0	0	11	1.449999E+01	1.999998E+00	8.333294E-01
1935	0	0	11	1.600000E+01	3.999997E+00	3.124986E-01
1936	0	0	11	1.600000E+01	3.999997E+00	2.083325E-01
1937	0	0	11	1.449999E+01	3.999993E+00	2.083325E-01
1938	0	0	11	1.600000E+01	4.999997E+00	2.083325E-01
1939	0	0	11	1.600000E+01	3.999997E+00	0.000000E+00
1940	0	0	11	1.600000E+01	3.999997E+00	1.041662E-01
1941	0	0	11	1.600000E+01	4.999997E+00	0.000000E+00
1942	0	0	11	1.449999E+01	3.999993E+00	0.000000E+00
1943	0	0	11	1.600000E+01	3.999997E+00	4.166648E-01
1944	0	0	11	1.600000E+01	3.999997E+00	5.208309E-01
1945	0	0	11	1.449999E+01	3.999993E+00	4.166648E-01
1946	0	0	11	1.600000E+01	4.999997E+00	4.166648E-01
1947	0	0	11	1.600000E+01	3.999997E+00	6.249971E-01
1948	0	0	11	1.449999E+01	3.999993E+00	6.249971E-01
1949	0	0	11	1.600000E+01	4.999997E+00	6.249971E-01
1950	0	0	11	1.600000E+01	3.999997E+00	7.291633E-01
1951	0	0	11	1.600000E+01	3.999997E+00	8.333294E-01
1952	0	0	11	1.600000E+01	4.999997E+00	8.333294E-01
1953	0	0	11	1.449999E+01	3.999993E+00	8.333294E-01
1954	0	0	11	1.600000E+01	5.999997E+00	3.124986E-01
1955	0	0	11	1.600000E+01	5.999997E+00	2.083325E-01
1956	0	0	11	1.449999E+01	5.999994E+00	2.083325E-01
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2621     0     0     11 0.000000E+00 9.999994E+00 7.291633E-01
2622     0     0     11 1.999998E+00 9.999994E+00 8.333294E-01
2623     0     0     11 0.000000E+00 9.999994E+00 8.333294E-01
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2625     0     0     11 0.000000E+00 1.199999E+01 6.249971E-01
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2601	2607	2608	2609			
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2606	2600	2603	2610	2620	2619	2611
2614	2624	2625	2626			
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2621	2612	2616	2627	2623	2622	2613
2617	2628	2629	2630			
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2410	2285	2282	2283	2301	2304	2443
2412	2284	2302	2444	2417	2289	2286
2305	2308	2450	2418			
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2417	2289	2286	2287	2305	2308	2450
2419	2288	2306	2452	2424	2293	2290
2309	2312	2457	2425			
413	20	116	3	3	7	20
2424	2293	2290	2291	2309	2312	2457
2426	2292	2311	2459	2431	2299	2294
2313	2318	2464	2432			
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2433	2296	2315	2466	2434	2300	2297
2316	2319	2467	2435			
415	20	116	3	3	7	20

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2466	2315	2333	2498	2467	2319	2316
2334	2338	2499	2468			
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2301	2176	2173	2175	2192	2195	2320
2302	2174	2193	2321	2305	2180	2177
2196	2199	2324	2307			
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2305	2180	2177	2179	2196	2199	2324
2306	2178	2197	2325	2309	2184	2181
2200	2203	2328	2310			
433	20	116	3	3	7	20
2309	2184	2181	2182	2200	2203	2328
2311	2183	2201	2329	2313	2190	2185
2204	2209	2332	2314			
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2315	2187	2205	2333	2316	2191	2188
2206	2210	2334	2317			
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2173	2051	2048	2050	2067	2070	2192
2174	2049	2068	2193	2177	2052	2046
2065	2071	2196	2179			
436	20	116	3	3	7	20
2177	2052	2046	2047	2065	2071	2196
2178	2045	2064	2197	2181	2056	2053
2072	2075	2200	2182			
437	20	116	3	3	7	20
2181	2056	2053	2055	2072	2075	2200
2183	2054	2073	2201	2185	2062	2057
2076	2081	2204	2186			
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2187	2059	2078	2205	2188	2063	2060
2079	2082	2206	2189			
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2049	1922	1941	2068	2046	1920	1918
1937	1938	2065	2047			
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2046	1920	1918	1919	1937	1938	2065
2045	1917	1936	2064	2053	1928	1925
1944	1946	2072	2055			
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1948	1949	2076	2058			
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2059	1932	1951	2078	2060	1935	1933
1952	1954	2079	2061			
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2477	2321	2340	2510	2483	2327	2324
2343	2346	2516	2485			
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2334	2338	2499	2468			
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2196	2199	2324	2307			
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2306	2178	2197	2325	2309	2184	2181
2200	2203	2328	2310			
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2204	2209	2332	2314			
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2315	2187	2205	2333	2316	2191	2188
2206	2210	2334	2317			
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2173	2051	2048	2050	2067	2070	2192
2174	2049	2068	2193	2177	2052	2046
2065	2071	2196	2179			
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2177	2052	2046	2047	2065	2071	2196
2178	2045	2064	2197	2181	2056	2053
2072	2075	2200	2182			
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2181	2056	2053	2055	2072	2075	2200
2183	2054	2073	2201	2185	2062	2057
2076	2081	2204	2186			
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2185	2062	2057	2058	2076	2081	2204
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2079	2082	2206	2189			
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2049	1922	1941	2068	2046	1920	1918
1937	1938	2065	2047			
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2045	1917	1936	2064	2053	1928	1925
1944	1946	2072	2055			
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1948	1949	2076	2058			
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2059	1932	1951	2078	2060	1935	1933
1952	1954	2079	2061			
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2476	2323	2320	2322	2339	2342	2509
2477	2321	2340	2510	2483	2327	2324
2343	2346	2516	2485			
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2334	2338	2499	2468			
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2196	2199	2324	2307			
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2306	2178	2197	2325	2309	2184	2181
2200	2203	2328	2310			
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2204	2209	2332	2314			
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2315	2187	2205	2333	2316	2191	2188
2206	2210	2334	2317			
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2173	2051	2048	2050	2067	2070	2192
2174	2049	2068	2193	2177	2052	2046
2065	2071	2196	2179			
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2177	2052	2046	2047	2065	2071	2196
2178	2045	2064	2197	2181	2056	2053
2072	2075	2200	2182			
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2183	2054	2073	2201	2185	2062	2057
2076	2081	2204	2186			
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2185	2062	2057	2058	2076	2081	2204
2187	2059	2078	2205	2188	2063	2060
2079	2082	2206	2189			
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1937	1938	2065	2047			
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1944	1946	2072	2055			
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1948	1949	2076	2058			
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2059	1932	1951	2078	2060	1935	1933
1952	1954	2079	2061			
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2343	2346	2516	2485			
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2196	2199	2324	2307			
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2204	2209	2332	2314			
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2206	2210	2334	2317			
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2178	2045	2064	2197	2181	2056	2053
2072	2075	2200	2182			
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2076	2081	2204	2186			
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1937	1938	2065	2047			
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1944	1946	2072	2055			
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1948	1949	2076	2058			
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2059	1932	1951	2078	2060	1935	1933
1952	1954	2079	2061			
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2464	2318	2313	2314	2332	2337	2497
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2204	2209	2332	2314			
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2206	2210	2334	2317			
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2174	2049	2068	2193	2177	2052	2046
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2178	2045	2064	2197	2181	2056	2053
2072	2075	2200	2182			
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2183	2054	2073	2201	2185	2062	2057
2076	2081	2204	2186			
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2185	2062	2057	2058	2076	2081	2204
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2079	2082	2206	2189			
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1937	1938	2065	2047			
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1944	1946	2072	2055			
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1948	1949	2076	2058			
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2059	1932	1951	2078	2060	1935	1933
1952	1954	2079	2061			
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2204	2209	2332	2314			
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2206	2210	2334	2317			
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2178	2045	2064	2197	2181	2056	2053
2072	2075	2200	2182			
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2181	2056	2053	2055	2072	2075	2200
2183	2054	2073	2201	2185	2062	2057
2076	2081	2204	2186			
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2185	2062	2057	2058	2076	2081	2204
2187	2059	2078	2205	2188	2063	2060
2079	2082	2206	2189			
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2048	1924	1921	1923	1940	1943	2067
2049	1922	1941	2068	2046	1920	1918
1937	1938	2065	2047			
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2045	1917	1936	2064	2053	1928	1925
1944	1946	2072	2055			
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1948	1949	2076	2058			
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2059	1932	1951	2078	2060	1935	1933
1952	1954	2079	2061			
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2466	2315	2333	2498	2467	2319	2316
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2178	2045	2064	2197	2181	2056	2053
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2183	2054	2073	2201	2185	2062	2057
2076	2081	2204	2186			
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2187	2059	2078	2205	2188	2063	2060
2079	2082	2206	2189			
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1937	1938	2065	2047			
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2045	1917	1936	2064	2053	1928	1925
1944	1946	2072	2055			
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1948	1949	2076	2058			
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2059	1932	1951	2078	2060	1935	1933
1952	1954	2079	2061			
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2174	2049	2068	2193	2177	2052	2046
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2177	2052	2046	2047	2065	2071	2196
2178	2045	2064	2197	2181	2056	2053
2072	2075	2200	2182			
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2181	2056	2053	2055	2072	2075	2200
2183	2054	2073	2201	2185	2062	2057
2076	2081	2204	2186			
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2187	2059	2078	2205	2188	2063	2060
2079	2082	2206	2189			
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2049	1922	1941	2068	2046	1920	1918
1937	1938	2065	2047			
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1944	1946	2072	2055			
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2054	1926	1945	2073	2057	1931	1929
1948	1949	2076	2058			
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2059	1932	1951	2078	2060	1935	1933
1952	1954	2079	2061			
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2477	2321	2340	2510	2483	2327	2324
2343	2346	2516	2485			
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2483	2327	2324	2326	2343	2346	2516
2484	2325	2344	2517	2490	2331	2328

2464	2318	2313	2314	2332	2337	2497
2466	2315	2333	2498	2467	2319	2316
2334	2338	2499	2468			
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2196	2199	2324	2307			
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2204	2209	2332	2314			
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2315	2187	2205	2333	2316	2191	2188
2206	2210	2334	2317			
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2173	2051	2048	2050	2067	2070	2192
2174	2049	2068	2193	2177	2052	2046
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2178	2045	2064	2197	2181	2056	2053
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2079	2082	2206	2189			
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2049	1922	1941	2068	2046	1920	1918
1937	1938	2065	2047			
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2045	1917	1936	2064	2053	1928	1925
1944	1946	2072	2055			
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1948	1949	2076	2058			
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2059	1932	1951	2078	2060	1935	1933
1952	1954	2079	2061			
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2343	2346	2516	2485			
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2334	2338	2499	2468			
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2301	2176	2173	2175	2192	2195	2320
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2196	2199	2324	2307			
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2306	2178	2197	2325	2309	2184	2181
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2204	2209	2332	2314			
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2315	2187	2205	2333	2316	2191	2188
2206	2210	2334	2317			
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2173	2051	2048	2050	2067	2070	2192
2174	2049	2068	2193	2177	2052	2046
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2177	2052	2046	2047	2065	2071	2196
2178	2045	2064	2197	2181	2056	2053
2072	2075	2200	2182			
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2181	2056	2053	2055	2072	2075	2200
2183	2054	2073	2201	2185	2062	2057
2076	2081	2204	2186			
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1937	1938	2065	2047			
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1944	1946	2072	2055			
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1948	1949	2076	2058			
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2059	1932	1951	2078	2060	1935	1933
1952	1954	2079	2061			
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2476	2323	2320	2322	2339	2342	2509
2477	2321	2340	2510	2483	2327	2324
2343	2346	2516	2485			
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2196	2199	2324	2307			
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2311	2183	2201	2329	2313	2190	2185
2204	2209	2332	2314			
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2313	2190	2185	2186	2204	2209	2332
2315	2187	2205	2333	2316	2191	2188
2206	2210	2334	2317			
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2173	2051	2048	2050	2067	2070	2192
2174	2049	2068	2193	2177	2052	2046
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2177	2052	2046	2047	2065	2071	2196
2178	2045	2064	2197	2181	2056	2053
2072	2075	2200	2182			
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2181	2056	2053	2055	2072	2075	2200
2183	2054	2073	2201	2185	2062	2057
2076	2081	2204	2186			
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2185	2062	2057	2058	2076	2081	2204
2187	2059	2078	2205	2188	2063	2060
2079	2082	2206	2189			
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1937	1938	2065	2047			
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2343	2346	2516	2485			
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2483	2327	2324	2326	2343	2346	2516

2464	2318	2313	2314	2332	2337	2497
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2334	2338	2499	2468			
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2196	2199	2324	2307			
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2200	2203	2328	2310			
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2204	2209	2332	2314			
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2315	2187	2205	2333	2316	2191	2188
2206	2210	2334	2317			
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2173	2051	2048	2050	2067	2070	2192
2174	2049	2068	2193	2177	2052	2046
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2178	2045	2064	2197	2181	2056	2053
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1937	1938	2065	2047			
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1948	1949	2076	2058			
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1952	1954	2079	2061			
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2204	2209	2332	2314			
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2315	2187	2205	2333	2316	2191	2188
2206	2210	2334	2317			
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2173	2051	2048	2050	2067	2070	2192
2174	2049	2068	2193	2177	2052	2046
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2178	2045	2064	2197	2181	2056	2053
2072	2075	2200	2182			
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2181	2056	2053	2055	2072	2075	2200
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2076	2081	2204	2186			
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2185	2062	2057	2058	2076	2081	2204
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2049	1922	1941	2068	2046	1920	1918
1937	1938	2065	2047			
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1944	1946	2072	2055			
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1948	1949	2076	2058			
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2178	2045	2064	2197	2181	2056	2053
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2181	2056	2053	2055	2072	2075	2200
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2076	2081	2204	2186			
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2079	2082	2206	2189			
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2049	1922	1941	2068	2046	1920	1918
1937	1938	2065	2047			
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1944	1946	2072	2055			
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1948	1949	2076	2058			
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1952	1954	2079	2061			
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2477	2321	2340	2510	2483	2327	2324
2343	2346	2516	2485			
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2204	2209	2332	2314			
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2206	2210	2334	2317			
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2174	2049	2068	2193	2177	2052	2046
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2178	2045	2064	2197	2181	2056	2053
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2187	2059	2078	2205	2188	2063	2060
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1937	1938	2065	2047			
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1944	1946	2072	2055			
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1952	1954	2079	2061			
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2343	2346	2516	2485			
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1312	1315	1316	1305			
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1077	1079	1312	1301			
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1037	841	848	1066	1033	843	842
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1027	815	816	1056	1040	880	878
882	884	1069	1043			
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7	233	7	238	7	240
7	247	7	248	7	658
7	676	7	679	7	490
7	505	7	508	7	362
7	377	7	380	7	235
7	251	7	255	7	661
7	682	7	683	7	652
7	659	7	667	7	669
7	677	7	678	7	493
7	511	7	512	7	484
7	491	7	496	7	498
7	506	7	507	7	365
7	383	7	384	7	356
7	363	7	368	7	370
7	378	7	379	7	236
7	252	7	256	7	229
7	237	7	241	7	244
7	253	7	254	7	9
7	49	7	53	7	4
7	12	7	26	7	28
7	52	7	54	7	11
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7	16	7	29	7	32
7	59	7	60	7	15
7	58	7	62	7	22
7	64	7	68	7	19
7	23	7	33	7	36
7	66	7	67	7	24
7	65	7	69	7	42

7	71	7	75	7	39	7
7	43	7	45	7	47	7
7	73	7	74	7	44	7
7	72	7	76	7	82	7
7	90	7	93	7	79	7
7	83	7	85	7	87	7
7	91	7	92	7	84	7
7	94	7	95	7	104	7
7	118	7	121	7	98	7
7	105	7	110	7	112	7
7	119	7	120	7	106	7
7	122	7	126	7	108	7
7	124	7	128	7	102	7
7	109	7	114	7	116	7
7	125	7	127			
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DOWELNODES						
7	1909	7	1906	7	1907	7
7	1925	7	1927	7	1946	7
7	1947	7	1965	7	1963	7
7	1984	7	1982	7	1985	7
7	2007	7	2011	7	2013	7
7	1827	7	1824	7	1825	7
7	1828	7	1829	7	1834	7
7	1835	7	1838	7	1836	7
7	1842	7	1840	7	1843	7
7	1844	7	1848	7	1850	7
7	1699	7	1696	7	1483	7
7	1351	7	1352	7	1697	7
7	1350	7	1703	7	1700	7
7	1507	7	1355	7	1354	7
7	1510	7	1357	7	1707	7
7	1543	7	1541	7	1359	7
7	1706	7	1544	7	1361	7
7	1708	7	1570	7	1568	7
7	1362	7	1710	7	1571	7
7	1715	7	1712	7	1597	7
7	1367	7	1366	7	1714	7
7	1369	7	1721	7	1716	7
7	1623	7	1371	7	1370	7
7	1627	7	1373	7	1722	7
7	1629	7	1626	7	1375	7
7	1219	7	1220	7	1216	7
7	976	7	869	7	866	7
7	1217	7	977	7	867	7
7	1226	7	1223	7	983	7
7	873	7	870	7	1229	7
7	982	7	871	7	1235	7
7	1230	7	1013	7	1011	7
7	874	7	1236	7	1232	7
7	875	7	1242	7	1240	7
7	1042	7	1040	7	880	7
7	1243	7	1239	7	1043	7
7	1249	7	1247	7	1244	7
7	1069	7	884	7	882	7
7	1246	7	1072	7	885	7
7	1256	7	1251	7	1103	7
7	888	7	886	7	1262	7
7	1105	7	890	7	1259	7

	7	889	7	741	7	738	7
	7	745	7	742	7	743	7
	7	746	7	747	7	753	7
	7	752	7	757	7	754	7
	7	763	7	758	7	761	7
	7	760	7	564	7	568	7
	7	592	7	640	7	670	7
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CONCRETE	8	387	8	388	8	389	8
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	8	395	8	396	8	397	8
	8	399	8	400	8	401	8
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	8	411	8	412	8	413	8
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	8	491	8	492	8	493	8
	8	495	8	496	8	497	8
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	8	503	8	504	8	505	8
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	8	515	8	516	8	517	8
	8	519	8	520	8	521	8
	8	523	8	524	8	525	8
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	8	559	8	560	8	561	8
	8	563	8	564	8	565	8
	8	567	8	568	8	569	8
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	8	575	8	576	8	577	8
	8	579	8	580	8	581	8
	8	583	8	584	8	585	8
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8	699	8	700	8	701	8
8	703	8	704	8	705	8
8	707	8	708	8	709	8
8	711	8	712	8	713	8
8	715	8	716	8	717	8
8	719	8	720	8	721	8
8	723	8	724	8	725	8
8	727	8	728	8	729	8
8	731	8	732	8	733	8
8	735	8	736	8	737	8
8	739	8	740	8	741	8
8	743	8	744	8	745	8
8	747	8	748	8	749	8
8	751	8	752	8	753	8
8	755	8	756	8	757	8
8	759	8	760	8	761	8
8	763	8	764	8	765	8
8	767	8	768	8	769	8
8	771	8	772	8	773	8
8	775	8	776	8	777	8
8	779	8	780	8	781	8
8	783	8	784	8	785	8
8	787	8	788	8	789	8
8	791	8	792	8	793	8
8	795	8	796	8	797	8
8	799	8	800	8	801	8
8	803	8	804	8	805	8
8	807	8	808	8	809	8
8	811	8	812	8	813	8
8	815	8	816	8	817	8
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PATCHCONCRETE

8	531	8	532	8	533	8

	8	535	8	536	8	537	8
	8	539	8	540	8	541	8
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	8	547	8	548	8	549	8
	8	551	8	552	8	553	8
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	8	559	8	560	8	561	8
	8	563	8	564	8	565	8
	8	567	8	568	8	569	8
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	8	619	8	620	8	621	8
	8	623	8	624	8	625	8
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	8	663	8	664	8	665	8
	8	667	8	668	8	669	8
	8	671	8	672	8	673	8
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DWLNODES							
	7	1609	7	1610	7	1608	7
	7	1120	7	1088	7	1087	7
	7	663	7	662	7	1587	7
	7	1583	7	1582	7	1580	7
	7	1083	7	1082	7	1060	7
	7	1057	7	636	7	635	7
	7	631	7	629	7	1585	7
	7	1581	7	1081	7	1080	7
	7	1058	7	634	7	633	7
	7	1560	7	1559	7	1556	7
	7	1553	7	1055	7	1054	7
	7	1031	7	1030	7	1028	7
	7	587	7	584	7	583	7
	7	1558	7	1557	7	1554	7
	7	1051	7	1032	7	1029	7
	7	585	7	582	7	1533	7
	7	1529	7	1528	7	1526	7
	7	1025	7	1024	7	1002	7
	7	999	7	560	7	559	7
	7	555	7	553	7	1531	7
	7	1527	7	1023	7	1022	7
	7	1000	7	558	7	557	7
	7	1499	7	1498	7	1495	7

7	1492	7	975	7	974	7
7	962	7	961	7	959	7
7	543	7	540	7	539	7
7	1497	7	1496	7	1493	7
7	971	7	963	7	960	7
7	541	7	538	7	1479	7
7	1475	7	1474	7	1472	7
7	949	7	948	7	944	7
7	941	7	532	7	531	7
7	527	7	525	7	1477	7
7	1473	7	947	7	946	7
7	942	7	530	7	529	7
8	819	8	820	8	821	8
8	823	8	824	8	825	8
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8	829	8	833	8	830	8
8	835	8	836	8	848	8
8	872	8	884	8	837	8
8	861	8	873	8	885	8
8	850	8	862	8	874	8
8	839	8	851	8	863	8
8	887	8	840	8	852	8
8	876	8	888	8	841	8
8	865	8	877	8	889	8
8	854	8	866	8	878	8
8	843	8	855	8	867	8
8	891	8	844	8	856	8
8	880	8	892	8	845	8
8	869	8	881	8	893	8
8	858	8	870	8	882	8
8	847	8	859	8	871	8
8	895	8	896	8	902	8
8	914	8	920	8	897	8
8	909	8	915	8	921	8
8	904	8	910	8	916	8
8	899	8	905	8	911	8
8	923	8	900	8	906	8
8	918	8	924	8	901	8
8	913	8	919	8	925	
6	0	0	0	0	527	

DOWELSPRNGNODES

7	1609	7	1610	7	1608	7
7	1120	7	1088	7	1087	7
7	663	7	662	7	1587	7
7	1583	7	1582	7	1580	7
7	1083	7	1082	7	1060	7
7	1925	7	1927	7	1944	7
7	1963	7	1966	7	1982	7
7	2007	7	2011	7	1825	7
7	1828	7	1829	7	1834	7
7	1835	7	1838	7	1836	7
7	1842	7	1840	7	1843	7
7	1844	7	1848	7	1697	7
7	1350	7	1703	7	1700	7
7	1355	7	1354	7	1702	7
7	1357	7	1707	7	1704	7
7	1359	7	1358	7	1706	7
7	1361	7	1711	7	1708	7
7	1363	7	1362	7	1710	7
7	1365	7	1715	7	1712	7

7	1367	7	1366	7	1714
7	1369	7	1721	7	1716
7	1371	7	1370	7	1719
7	1373	7	1222	7	1217
7	867	7	1228	7	1226
7	980	7	873	7	870
7	1225	7	982	7	871
7	1233	7	1230	7	1011
7	874	7	1236	7	1232
7	875	7	1242	7	1240
7	1040	7	880	7	878
7	1239	7	1043	7	881
7	1247	7	1244	7	1069
7	882	7	1250	7	1246
7	885	7	1261	7	1256
7	1101	7	888	7	886
7	1254	7	1105	7	890
7	745	7	742	7	743
7	746	7	747	7	753
7	752	7	757	7	754
7	763	7	758	7	761
7	1057	7	636	7	635
7	631	7	629	7	1585
7	1581	7	1081	7	1080
7	1058	7	634	7	633
7	1560	7	1559	7	1556
7	1553	7	1055	7	1054
7	1031	7	1030	7	1028
7	587	7	584	7	583
7	1558	7	1557	7	1554
7	1051	7	1032	7	1029
7	585	7	582	7	1533
7	1529	7	1528	7	1526
7	1025	7	1024	7	1002
7	999	7	560	7	559
7	555	7	553	7	1531
7	1527	7	1023	7	1022
7	1000	7	558	7	557
7	1499	7	1498	7	1495
7	1492	7	975	7	974
7	962	7	961	7	959
7	543	7	540	7	539
7	1497	7	1496	7	1493
7	971	7	963	7	960
7	541	7	538	7	1479
7	1475	7	1474	7	1472
7	949	7	948	7	944
7	941	7	532	7	531
7	527	7	525	7	1477
7	1473	7	947	7	946
7	942	7	530	7	529
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8	823	8	824	8	825
8	827	8	831	8	828
8	829	8	833	8	830
8	835	8	836	8	848
8	872	8	884	8	837
8	861	8	873	8	885
8	850	8	862	8	874
8	839	8	851	8	863

7	1367	7	1366	7	1714
7	1369	7	1721	7	1716
7	1371	7	1370	7	1719
7	1373	7	1222	7	1217
7	867	7	1228	7	1226
7	980	7	873	7	870
7	1225	7	982	7	871
7	1233	7	1230	7	1011
7	874	7	1236	7	1232
7	875	7	1242	7	1240
7	1040	7	880	7	878
7	1239	7	1043	7	881
7	1247	7	1244	7	1069
7	882	7	1250	7	1246
7	885	7	1261	7	1256
7	1101	7	888	7	886
7	1254	7	1105	7	890
7	745	7	742	7	743
7	746	7	747	7	753
7	752	7	757	7	754
7	763	7	758	7	761
7	1057	7	636	7	635
7	631	7	629	7	1585
7	1581	7	1081	7	1080
7	1058	7	634	7	633
7	1560	7	1559	7	1556
7	1553	7	1055	7	1054
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7	587	7	584	7	583
7	1558	7	1557	7	1554
7	1051	7	1032	7	1029
7	585	7	582	7	1533
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7	555	7	553	7	1531
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7	971	7	963	7	960
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8	835	8	836	8	848
8	872	8	884	8	837
8	861	8	873	8	885
8	850	8	862	8	874
8	839	8	851	8	863

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8	876	8	888	8	841	8
8	865	8	877	8	889	8
8	854	8	866	8	878	8
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8	891	8	926	8	927	8
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8	893	8	846	8	858	8
8	882	8	894	8	847	8
8	871	8	883	8	895	8
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8	937	8	938	8	939	8
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8	998	8	999	8	1000	8
8	1003	8	1002	8	1004	8
8	1006	8	1007	8	1008	8
8	1010	8	1011	8	1012	8
8	1014	8	1015	8	1016	8
8	1018	8	1019	8	1020	8
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SPRINGS (Basesprings)

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7	1816	7	1654	7	1651	7
7	1488	7	1380	7	1381	7
7	1489	7	1382	7	1661	7
7	1504	7	1503	7	1388	7
7	1660	7	1506	7	1390	7
7	1665	7	1539	7	1537	7
7	1394	7	1667	7	1540	7
7	1675	7	1672	7	1566	7
7	1402	7	1401	7	1674	7
7	1404	7	1682	7	1679	7
7	1591	7	1409	7	1408	7
7	1594	7	1411	7	1692	7
7	1618	7	1616	7	1418	7
7	1690	7	1620	7	1420	7
7	1689	7	1622	7	1619	7
7	1421	7	1139	7	1140	7
7	957	7	954	7	825	7
7	1141	7	1137	7	955	7
7	1152	7	1151	7	1148	7
7	967	7	832	7	826	7
7	1150	7	969	7	829	7
7	1163	7	1160	7	1010	7
7	839	7	833	7	1166	7
7	1009	7	836	7	1176	7
7	1172	7	1039	7	1036	7
7	840	7	1178	7	1174	7

7	844	7	1188	7	1187	7
7	1068	7	1065	7	853	7
7	1190	7	1186	7	1067	7
7	1202	7	1201	7	1196	7
7	1094	7	864	7	854	7
7	1199	7	1097	7	859	7
7	1204	7	1198	7	1100	7
7	865	7	858	7	696	7
7	692	7	703	7	698	7
7	710	7	705	7	708	7
7	712	7	715	7	724	7
7	722	7	734	7	726	7
7	736	7	729	7	516	7
7	388	7	385	7	260	7
7	132	7	129	7	514	7
7	258	7	130	7	520	7
7	392	7	389	7	264	7
7	135	7	133	7	519	7
7	263	7	136	7	548	7
7	404	7	401	7	276	7
7	147	7	145	7	547	7
7	275	7	148	7	576	7
7	424	7	421	7	296	7
7	167	7	165	7	575	7
7	295	7	168	7	624	7
7	464	7	461	7	336	7
7	207	7	205	7	623	7
7	335	7	208	7	653	7
7	485	7	480	7	357	7
7	226	7	224	7	651	7
7	355	7	228	7	654	7
7	486	7	482	7	358	7
7	230	7	227	7	2	7
7	1	7	6	7	5	7
7	18	7	17	7	20	7
7	37	7	40	7	78	7
7	80	7	97	7	96	7
7	101	7	100			
11	0	0	0	0	386	
BASENODES						
7	2413	7	2414	7	2410	7
7	2411	7	2447	7	2446	7
7	2449	7	2445	7	2480	7
7	2476	7	2482	7	2478	7
7	2512	7	2509	7	2515	7
7	2546	7	2545	7	2542	7
7	2544	7	2581	7	2580	7
7	2585	7	2578	7	2584	7
7	2577	7	2285	7	2282	7
7	2154	7	2032	7	2029	7
7	1902	7	2283	7	2155	7
7	1903	7	2304	7	2301	7
7	2173	7	2051	7	2048	7
7	1921	7	2303	7	2175	7
7	1923	7	2323	7	2320	7
7	2192	7	2070	7	2067	7
7	1940	7	2322	7	2194	7
7	1942	7	2342	7	2339	7
7	2211	7	2089	7	2086	7
7	1959	7	2341	7	2213	7

7	1961	7	2361	7	2358	7
7	2230	7	2108	7	2105	7
7	1978	7	2360	7	2232	7
7	1980	7	2382	7	2377	7
7	2249	7	2131	7	2126	7
7	2000	7	2380	7	2252	7
7	2003	7	2383	7	2379	7
7	2251	7	2133	7	2128	7
7	2002	7	1783	7	1777	7
7	1790	7	1784	7	1787	7
7	1791	7	1795	7	1804	7
7	1802	7	1811	7	1805	7
7	1822	7	1812	7	1817	7
7	1816	7	1654	7	1651	7
7	1488	7	1380	7	1381	7
7	1489	7	1382	7	1661	7
7	1504	7	1503	7	1388	7
7	1660	7	1506	7	1390	7
7	1665	7	1539	7	1537	7
7	1394	7	1667	7	1540	7
7	1675	7	1672	7	1566	7
7	1402	7	1401	7	1674	7
7	1404	7	1682	7	1679	7
7	1591	7	1409	7	1408	7
7	1594	7	1411	7	1692	7
7	1618	7	1616	7	1418	7
7	1690	7	1620	7	1420	7
7	1689	7	1622	7	1619	7
7	1421	7	1139	7	1140	7
7	957	7	954	7	825	7
7	1141	7	1137	7	955	7
7	1152	7	1151	7	1148	7
7	967	7	832	7	826	7
7	1150	7	969	7	829	7
7	1163	7	1160	7	1010	7
7	839	7	833	7	1166	7
7	1009	7	836	7	1176	7
7	1172	7	1039	7	1036	7
7	840	7	1178	7	1174	7
7	844	7	1188	7	1187	7
7	1068	7	1065	7	853	7
7	1190	7	1186	7	1067	7
7	1202	7	1201	7	1196	7
7	1094	7	864	7	854	7
7	1199	7	1097	7	859	7
7	1204	7	1198	7	1100	7
7	865	7	858	7	696	7
7	692	7	703	7	698	7
7	710	7	705	7	708	7
7	712	7	715	7	724	7
7	722	7	734	7	726	7
7	736	7	729	7	516	7
7	388	7	385	7	260	7
7	132	7	129	7	514	7
7	258	7	130	7	520	7
7	392	7	389	7	264	7
7	135	7	133	7	519	7
7	263	7	136	7	548	7
7	404	7	401	7	276	7
7	147	7	145	7	547	7

7	275	7	148	7	576	7
7	424	7	421	7	296	7
7	167	7	165	7	575	7
7	295	7	168	7	624	7
7	464	7	461	7	336	7
7	207	7	205	7	623	7
7	335	7	208	7	653	7
7	485	7	480	7	357	7
7	226	7	224	7	651	7
7	355	7	228	7	654	7
7	486	7	482	7	358	7
7	230	7	227	7	2	7
7	1	7	6	7	5	7
7	18	7	17	7	20	7
7	37	7	40	7	78	7
7	80	7	97	7	96	7
7	101	7	100			
12	0	0	0	0	108	
BASEELEMENTS						
8	387	8	391	8	395	8
8	403	8	407	8	411	8
8	419	8	423	8	427	8
8	435	8	439	8	443	8
8	451	8	455	8	459	8
8	467	8	471	8	475	8
8	483	8	487	8	491	8
8	499	8	503	8	507	8
8	515	8	519	8	523	8
8	531	8	535	8	539	8
8	547	8	551	8	555	8
8	563	8	567	8	571	8
8	579	8	583	8	587	8
8	595	8	599	8	603	8
8	611	8	615	8	619	8
8	627	8	631	8	635	8
8	643	8	647	8	651	8
8	659	8	663	8	667	8
8	675	8	679	8	683	8
8	691	8	695	8	699	8
8	707	8	711	8	715	8
8	723	8	727	8	731	8
8	739	8	743	8	747	8
8	755	8	759	8	763	8
8	771	8	775	8	779	8
8	787	8	791	8	795	8
8	803	8	807	8	811	8
13	0	0	0	0	140	
DOWELSPRINGS						
8	926	8	927	8	928	8
8	930	8	931	8	932	8
8	934	8	935	8	936	8
8	938	8	939	8	940	8
8	942	8	943	8	944	8
8	946	8	947	8	948	8
8	950	8	951	8	952	8
8	954	8	955	8	956	8
8	958	8	959	8	960	8
8	962	8	963	8	964	8
8	966	8	967	8	968	8
8	970	8	971	8	972	8

8	974	8	975	8	976	8
8	978	8	979	8	980	8
8	982	8	983	8	984	8
8	985	8	986	8	994	8
8	988	8	989	8	990	8
8	992	8	993	8	995	8
8	997	8	998	8	999	8
8	1001	8	1003	8	1002	8
8	1005	8	1006	8	1007	8
8	1009	8	1010	8	1011	8
8	1013	8	1014	8	1015	8
8	1017	8	1018	8	1019	8
8	1021	8	1022	8	1023	8
8	1025	8	1026	8	1027	8
8	1029	8	1030	8	1031	8
8	1033	8	1034	8	1035	8
8	1038	8	1039	8	1040	8
8	1042	8	1043	8	1044	8
8	1046	8	1047	8	1048	8
8	1050	8	1051	8	1064	8
8	1053	8	1054	8	1055	8
8	1065	8	1057	8	1058	8
8	1060	8	1061	8	1062	8
14	0	0	0	0	22	
JOINTSPRINGS						
8	1044	8	1045	8	1046	8
8	1048	8	1049	8	1050	8
8	1064	8	1052	8	1053	8
8	1055	8	1056	8	1065	8
8	1058	8	1059	8	1060	8
8	1062	8	1063			
15	0	0	0	0	43	
DOWELS						
8	821	8	822	8	823	8
8	851	8	863	8	875	8
8	840	8	852	8	864	8
8	888	8	841	8	853	8
8	877	8	889	8	842	8
8	866	8	878	8	890	8
8	855	8	867	8	879	8
8	897	8	903	8	909	8
8	921	8	898	8	904	8
8	916	8	922	8	899	8
8	911	8	917	8	923	
-1						
-1						

SAMPLE OUTPUT FILE

****

The program developed in this study yields three types of output. The first type of output gives an echo of the input data, and some information regarding the progress of the solution procedure.

The second type of output is produced by the macro commands DISM, DISX, and DISY. This consists of the Maximum compressive and tensile stresses in the various materials, the maximum displacement output of macro DISM, and the displacement output along prescribed X and Y coordinates from macros DISX and DISY. This is the file used for producing most of the results in this study.

The third type of output is produced by the macro command CAED. This results in output which can be post-processed by the post-processor of CAEDS package. The stress and strain contours and the deflection profiles given in the results is produced from this output.

The output file given here is of the second type. Since, the size of these files is rather large, results for a limited number of increments only is given.

```
***********************************************************************
**          SAMPLE OUTPUT FILE FOR ANALYSIS OF PAVEMENTS WITH PATCH      **
***********************************************************************
```

FEAP * PAVEMENT - WHEEL LOAD, PATCH, CONCRETE-CONCRETE, SHRINKAGE 1

INCREMENT = 1 ITERATION = 1 TOTAL LOAD PROP1 = 1.0000

Note:	MATL	ELMT	PNT	X-COOR	Y-COOR	Z-COOR	MAX POS/NEG/RATIO STRESS	
Patch	1	612	18	22.9123	1.0000	0.3125	0.79700E+01	-Tension
Concrete		671	22	22.5250	11.7746	0.0235	-0.27558E+01	-Compression
		612	18	22.9123	1.0000	0.3125	0.15038E+00	-Stress
	2	330	1	36.0250	6.0000	0.0000	0.43478E+00	
		188	1	17.5000	12.0000	0.0000	0.28186E-01	
Existing	3	530	23	16.5000	11.7746	0.8099	0.65923E+01	-Tension
Concrete		697	3	23.1377	10.2254	0.5208	-0.83471E+01	-Compression
		530	23	16.5000	11.7746	0.8099	0.11986E+00	-Stress
	5	984	1	19.5000	6.0000	0.4167	0.33106E-04	
		945	1	23.0250	10.0000	0.4167	-0.21690E-04	
	9	1044	1	20.0000	11.0000	0.4167	0.48618E-05	
		1053	1	20.0000	6.0000	0.4167	-0.19994E-04	
	10	875	1	19.2500	4.0000	0.4167	0.17352E-09	
		863	1	19.2500	6.0000	0.4167	-0.65580E-05	
	13	833	1	16.2500	4.0000	0.4167	0.70226E-10	
		844	1	22.2750	10.0000	0.4167	-0.76463E-06	

5 MAXIMUM DISPLACEMENTS BETWEEN SLAB CENTER AND JOINT FOR D.O.F = 3

NODE	X-COOR	Y-COOR	Z-COOR	MAX.DSP	
1750	17.5000	6.0000	0.8333	-0.1888E-03	
1450	19.5000	6.0000	0.8333	-0.1886E-03	
1576	19.0000	6.0000	0.8333	-0.1885E-03	LOADED SLAB
1577	18.5000	6.0000	0.8333	-0.1884E-03	***********
1551	19.0000	5.0000	0.8333	-0.1884E-03	
920	22.5250	6.0000	0.8333	-0.1888E-03	
1303	20.5250	6.0000	0.8333	-0.1886E-03	
1300	21.0250	6.0000	0.8333	-0.1885E-03	SLAB WITHOUT LOAD
1050	21.5250	6.0000	0.8333	-0.1884E-03	*****************
1289	21.0250	5.0000	0.8333	-0.1884E-03	

DISPLACEMENTS AT TOP SURFACE ALONG Y COORDINATE OF 1.0000

X-COOR	Y-COOR	Z-COOR	X-DSP	Y-DSP	Z-DSP
40.0250	1.0000	0.8333	-0.6548E-04	0.2742E-06	-0.1622E-03
36.0250	1.0000	0.8333	-0.6205E-04	0.5895E-07	-0.1768E-03
33.0250	1.0000	0.8333	-0.6265E-04	-0.6072E-06	-0.1751E-03
30.0250	1.0000	0.8333	-0.6492E-04	-0.1280E-05	-0.1745E-03
27.0250	1.0000	0.8333	-0.7036E-04	0.1477E-05	-0.1755E-03
24.0250	1.0000	0.8333	-0.7722E-04	0.2572E-04	-0.1754E-03
23.0250	1.0000	0.8333	-0.8105E-04	0.4756E-04	-0.1787E-03
22.0250	1.0000	0.8333	-0.5958E-04	0.7156E-04	-0.1834E-03
21.0250	1.0000	0.8333	-0.3982E-04	0.8879E-04	-0.1836E-03
20.0250	1.0000	0.8333	-0.1916E-04	0.1034E-03	-0.1838E-03
20.0000	1.0000	0.8333	0.1916E-04	0.1034E-03	-0.1838E-03
19.0000	1.0000	0.8333	0.3982E-04	0.8879E-04	-0.1836E-03
18.0000	1.0000	0.8333	0.5958E-04	0.7156E-04	-0.1834E-03

17.0000	1.0000	0.8333	0.8105E-04	0.4756E-04	-0.1787E-03
16.0000	1.0000	0.8333	0.7722E-04	0.2572E-04	-0.1754E-03
13.0000	1.0000	0.8333	0.7036E-04	0.1477E-05	-0.1755E-03
10.0000	1.0000	0.8333	0.6492E-04	-0.1280E-05	-0.1745E-03
7.0000	1.0000	0.8333	0.6265E-04	-0.6072E-06	-0.1751E-03
4.0000	1.0000	0.8333	0.6205E-04	0.5894E-07	-0.1768E-03
0.0000	1.0000	0.8333	0.6548E-04	0.2742E-06	-0.1622E-03

DISPLACEMENTS AT TOP SURFACE ALONG Y COORDINATE OF 7.0000

X-COOR	Y-COOR	Z-COOR	X-DSP	Y-DSP	Z-DSP
40.0250	7.0000	0.8333	-0.6562E-04	-0.8321E-08	-0.1649E-03
36.0250	7.0000	0.8333	-0.6195E-04	0.1055E-06	-0.1802E-03
33.0250	7.0000	0.8333	-0.6125E-04	0.3776E-06	-0.1790E-03
30.0250	7.0000	0.8333	-0.5939E-04	0.6575E-06	-0.1787E-03
27.0250	7.0000	0.8333	-0.5523E-04	-0.3897E-06	-0.1795E-03
24.0250	7.0000	0.8333	-0.5109E-04	-0.6307E-05	-0.1792E-03
23.0250	7.0000	0.8333	-0.5421E-04	-0.9520E-05	-0.1831E-03
22.0250	7.0000	0.8333	-0.3002E-04	-0.1314E-04	-0.1880E-03
21.0250	7.0000	0.8333	-0.9718E-05	-0.1639E-04	-0.1884E-03
20.0250	7.0000	0.8333	0.1033E-04	-0.1869E-04	-0.1882E-03
20.0000	7.0000	0.8333	-0.1033E-04	-0.1869E-04	-0.1882E-03
19.0000	7.0000	0.8333	0.9718E-05	-0.1639E-04	-0.1884E-03
18.0000	7.0000	0.8333	0.3002E-04	-0.1314E-04	-0.1880E-03
17.0000	7.0000	0.8333	0.5421E-04	-0.9520E-05	-0.1831E-03
16.0000	7.0000	0.8333	0.5109E-04	-0.6307E-05	-0.1792E-03
13.0000	7.0000	0.8333	0.5523E-04	-0.3896E-06	-0.1795E-03
10.0000	7.0000	0.8333	0.5939E-04	0.6575E-06	-0.1787E-03
7.0000	7.0000	0.8333	0.6125E-04	0.3776E-06	-0.1790E-03
4.0000	7.0000	0.8333	0.6195E-04	0.1055E-06	-0.1802E-03
0.0000	7.0000	0.8333	0.6562E-04	-0.8337E-08	-0.1649E-03

INCREMENT = 6 ITERATION = 3 TOTAL LOAD PROP1 = 15.000

MATL	ELMT	PNT	X-COOR	Y-COOR	Z-COOR	MAX. POS./NEG./RATIO STRESS
1	531	1	17.1127	0.2254	0.0235	0.34465E+02
	534	8	17.1127	1.0000	0.8099	-0.41652E+02
	531	1	17.1127	0.2254	0.0235	0.65029E+00
2	53	1	16.0000	2.0000	0.0000	0.11347E+01
	285	1	23.5250	12.0000	0.0000	0.27292E-01
3	507	10	16.8873	0.2254	0.0235	0.39550E+02
	510	17	16.8873	1.0000	0.8099	-0.45738E+02
	507	10	16.8873	0.2254	0.0235	0.71910E+00
5	1022	1	20.5250	2.0000	0.4167	0.23825E-01
	1021	1	19.5000	2.0000	0.4167	-0.19088E-01
9	1062	1	20.0000	1.0000	0.4167	0.12466E+01
	1063	1	20.0250	1.0000	0.4167	-0.12474E+01
10	921	1	19.5000	1.0000	0.4167	0.10648E-05
	921	1	19.5000	1.0000	0.4167	-0.16154E-01
13	873	1	17.2500	4.0000	0.4167	0.42315E-08
	835	1	16.5000	1.0000	0.4167	-0.20193E-02

5 MAXIMUM DISPLACEMENTS BETWEEN SLAB CENTER AND JOINT FOR D.O.F = 3

NODE	X-COOR	Y-COOR	Z-COOR	MAX.DSP
1855	17.0000	0.0000	0.8333	-0.1123E-02

1

1729	17.5000	0.0000	0.8333	-0.1114E-02
1857	16.5000	0.0000	0.8333	-0.1088E-02
1726	18.0000	0.0000	0.8333	-0.1084E-02
1914	16.0000	0.0000	0.8333	-0.1048E-02
1267	20.0250	0.0000	0.8333	-0.6110E-03
1269	20.0250	1.0000	0.8333	-0.6017E-03
1280	20.0250	2.0000	0.8333	-0.5750E-03
1268	20.5250	0.0000	0.8333	-0.5540E-03
1281	20.0250	3.0000	0.8333	-0.5357E-03

DISPLACEMENTS AT TOP SURFACE ALONG Y COORDINATE OF 1.0000

X-COOR	Y-COOR	Z-COOR	X-DSP	Y-DSP	Z-DSP
40.0250	1.0000	0.8333	-0.9917E-05	0.9518E-05	-0.1649E-03
36.0250	1.0000	0.8333	-0.6123E-05	0.9011E-05	-0.1743E-03
33.0250	1.0000	0.8333	-0.6180E-05	0.8228E-05	-0.1653E-03
30.0250	1.0000	0.8333	-0.9110E-05	0.7504E-05	-0.1570E-03
27.0250	1.0000	0.8333	-0.1998E-04	0.9804E-05	-0.1704E-03
24.0250	1.0000	0.8333	-0.4162E-04	0.3180E-04	-0.2541E-03
23.0250	1.0000	0.8333	-0.5270E-04	0.5219E-04	-0.3131E-03
22.0250	1.0000	0.8333	-0.3999E-04	0.7417E-04	-0.3929E-03
21.0250	1.0000	0.8333	-0.2799E-04	0.8928E-04	-0.4891E-03
20.0250	1.0000	0.8333	-0.1148E-04	0.1029E-03	-0.6017E-03
20.0000	1.0000	0.8333	0.1480E-04	0.6693E-04	-0.7017E-03
19.0000	1.0000	0.8333	0.4117E-04	0.4932E-04	-0.8437E-03
18.0000	1.0000	0.8333	0.7781E-04	0.2695E-04	-0.9603E-03
17.0000	1.0000	0.8333	0.1428E-03	0.1551E-05	-0.1027E-02
16.0000	1.0000	0.8333	0.1721E-03	-0.1468E-04	-0.9352E-03
13.0000	1.0000	0.8333	0.1768E-03	-0.1254E-04	-0.5695E-03
10.0000	1.0000	0.8333	0.1450E-03	-0.3885E-06	-0.2880E-03
7.0000	1.0000	0.8333	0.1239E-03	0.5348E-05	-0.1755E-03
4.0000	1.0000	0.8333	0.1161E-03	0.7269E-05	-0.1561E-03
0.0000	1.0000	0.8333	0.1180E-03	0.7721E-05	-0.1521E-03

DISPLACEMENTS AT TOP SURFACE ALONG Y COORDINATE OF 7.0000

X-COOR	Y-COOR	Z-COOR	X-DSP	Y-DSP	Z-DSP
40.0250	7.0000	0.8333	-0.1066E-04	0.9216E-05	-0.1680E-03
36.0250	7.0000	0.8333	-0.6722E-05	0.9025E-05	-0.1792E-03
33.0250	7.0000	0.8333	-0.5546E-05	0.9061E-05	-0.1723E-03
30.0250	7.0000	0.8333	-0.3910E-05	0.8951E-05	-0.1646E-03
27.0250	7.0000	0.8333	-0.2975E-05	0.6834E-05	-0.1693E-03
24.0250	7.0000	0.8333	-0.7635E-05	-0.2018E-05	-0.2155E-03
23.0250	7.0000	0.8333	-0.1491E-04	-0.6828E-05	-0.2512E-03
22.0250	7.0000	0.8333	0.4318E-05	-0.1254E-04	-0.2991E-03
21.0250	7.0000	0.8333	0.2044E-04	-0.1810E-04	-0.3539E-03
20.0250	7.0000	0.8333	0.3845E-04	-0.2188E-04	-0.4165E-03
20.0000	7.0000	0.8333	0.1139E-04	-0.2364E-04	-0.4395E-03
19.0000	7.0000	0.8333	0.3301E-04	-0.2293E-04	-0.5204E-03
18.0000	7.0000	0.8333	0.6043E-04	-0.2173E-04	-0.5924E-03
17.0000	7.0000	0.8333	0.1130E-03	-0.1910E-04	-0.6432E-03
16.0000	7.0000	0.8333	0.1296E-03	-0.1558E-04	-0.5755E-03
13.0000	7.0000	0.8333	0.1376E-03	-0.3952E-05	-0.3672E-03
10.0000	7.0000	0.8333	0.1268E-03	0.3516E-05	-0.2183E-03
7.0000	7.0000	0.8333	0.1182E-03	0.6428E-05	-0.1644E-03
4.0000	7.0000	0.8333	0.1151E-03	0.7169E-05	-0.1616E-03
0.0000	7.0000	0.8333	0.1180E-03	0.7351E-05	-0.1611E-03