PRELIMINARY ANALYSIS OF CRACKED U-BEAM FOR CROSS FLORIDA GREENWAY LAND BRIDGE OVER I-75

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By

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1. INTRODUCTION

1.1. Description of Bridge

The Cross Florida Greenway Land Bridge is located in Marion County, Florida. The bridge consists of two simple spans measuring 31.2 m (102.4 ft) in length, for an overall bridge length of 62.4 m (204.7 ft). Minimum vertical clearance. is 5.05 m (16.6 ft). Figure 1 shows the basic elevation view of the bridge structure.

The cross section of the bridge superstructure consists of four precast-prestressed Florida U-beams with a cast-in-place concrete deck, as shown in Figure 2. The design live-load considerations for the bridge structure included AASHTO MS 13.5 to account for pedestrian loads. The three center-to center spacings of the Florida U-beam lines are 3.7 m (12.14 ft), 4.7 m(15.4 ft), and 3.7 m(12.14 ft). The overhangs from the centerline of the outside girder to the edge of the deck are 0.22 m (2.7 ft), for an overall bridge widths of 16 m (52.5 ft).

The precast Florida U-beam consists of a 1.8-m (5.9- ft) deep, pecast-prestressed, concrete tub-shaped girder with inclined webs. The bottom soffit of the U-shaped girder is 1.4 m (4.6 ft) wide, and the inclined webs are each 0.13 m (.43 ft) thick. Each web is topped by a 0.405 -m (1.3 ft) wide flange detail (SEE figure 3). The design strength of the concrete for the precast Florida U-beam is 59 MPa (8,500 psi).

1.2. Description of Cracks

Some cracks were noticed in the webs of the Florida U-beam when the class 5 finish was prepared to be applied on the surfaces. The cracks begin near the-end diaphragm, about 8 in above the bottom of the beam and extend upward at an angle that ranged from 30 to 45 degrees (see Figures 4-11). In some locations there is only one crack, and at others there are more than one. Some cracks extend up to 9 in and some cracks extend into and through the top flange. Crack width varies from hairline to 0.3 mm.

In order to identify the causes of the cracking, the Structural Research Center, FDOT, performed some analysis of the Florida U-beam. Results shows high tension occurs at the end of the beam and near the bottom of the webs.

2. ANALYTICAL MODEL AND ASSUMPTIOMS

Two mechanical models with three different loading cases were analyzed. Model No. 1 is an open thin-wall structure (see Figure 12) which simulates the first and second loading stages. The first loading stage consists of the prestressed tendons and the u-beam self-weight. The second loading stage includes the loading stage one and the self-weight of the deck. Model No. 2 is a closed box girder (see Figure 13) that supports Loading Stage 3 included super imposed dead loads of the soil and barrier as well as live load of HS 15-44.

The development length of the tendons is assumed to be 50-diameter for full bonded and 60diameter for debonded ones. The effective stress estimated is 157.5 ksi.

Computer program SAP2000 is used in the analysis. The U-beam and box girder are divided into a number of finite shell elements. The width and length of the elements are about 7 to 8 inches arid the aspect ratio is about l . Total number of the elements is 4982 and 7500 for u-beam and box girder respectively.

3. RESULTS

Figure 14 shows the deformation of the u-beam due to Loading Stage 1. The deformation due to Loading Stage 2 is shown in Figure 15.

Figure 16 shows the normal stress contour due to u-beam self weight. The normal stress distribution due to Loading Stage l is illustrated in Figure 17.

The distribution of maximum tensile stress under Loading Stage 1 is presented in Figures 18 and 20. From those figures, it can be seen that a high tensile stress of more than 500 psi will occur in the webs near the bottom and at the ends of the u-beam.

Figure 21 shows the maximum tensile stress distribution under Loading Stage 2. It can be seen that a maximum tensile stress of approximate 600 to 700 psi may occur at the same location mentioned above. Assume that a uniform load of 0.0089 ksi (6137.1 N/m^2) for soil and barrier is applied to the Model two. The deformation of the box girder due the loading is shown in Figure 22.

Figure 23 shows the maximum tensile stress distribution due to HS 15-44 truck loading. The maximum tensile stress distribution due to the dead load of soil and barriers is illustrated in Figure 24. Figure 25 indicates that a maximum tensile stress of about 200 to 320 psi due to Loading Stage 3 will be induced in the web near the end of beam. A total tensile stress of approximate 800 to 900 psi may be occurred in the webs near the ends of beam.

4. CONCLUSIONS AND RECOMMENDATION

From the foregoing analysis, it can be observed that a maximum tensile stress in the web; at the ends of the beam due to prestressing and the self-weight could reach approximate 600 to 80.0 psi, high enough to cause the observed web cracking. Possible solution is to increase to web thickness at the end of the beam (approximate 2ft high and 3 ft long) or increase the width of the end diaphragm to 24 inches. However, the tensile stress will vary from case to case. Further investigation is necessary for general u-beam bridge design.

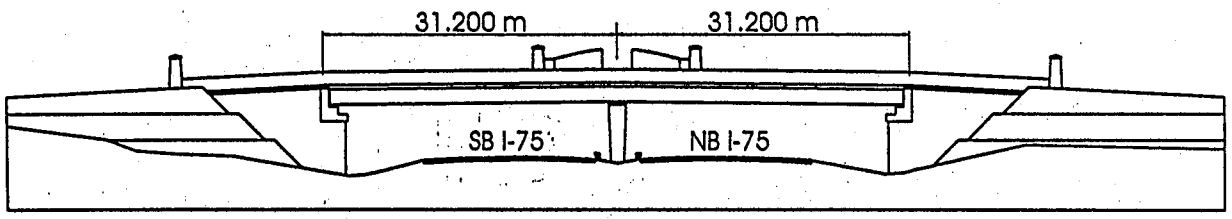


Figure 1. Bridge Elevation

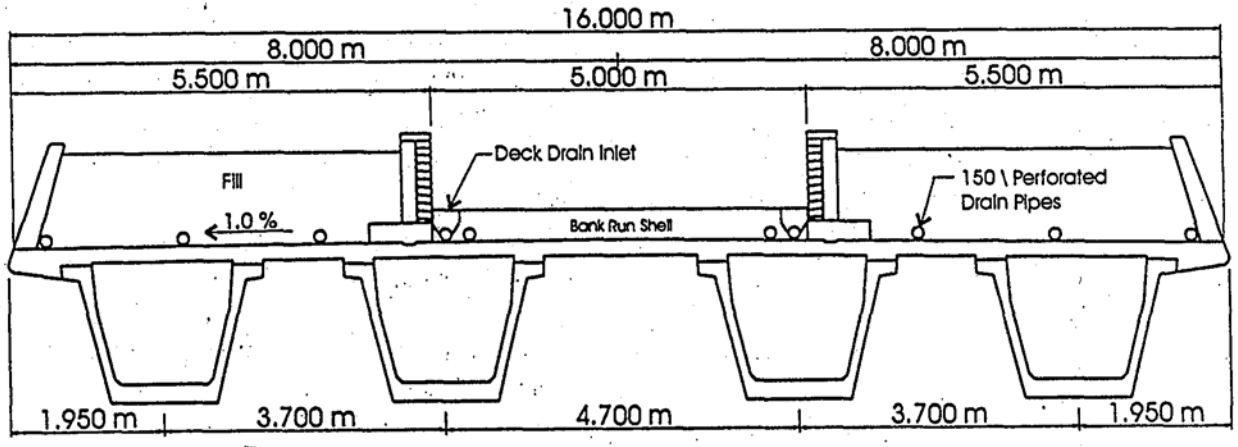


Figure 2. Typical Cross Section

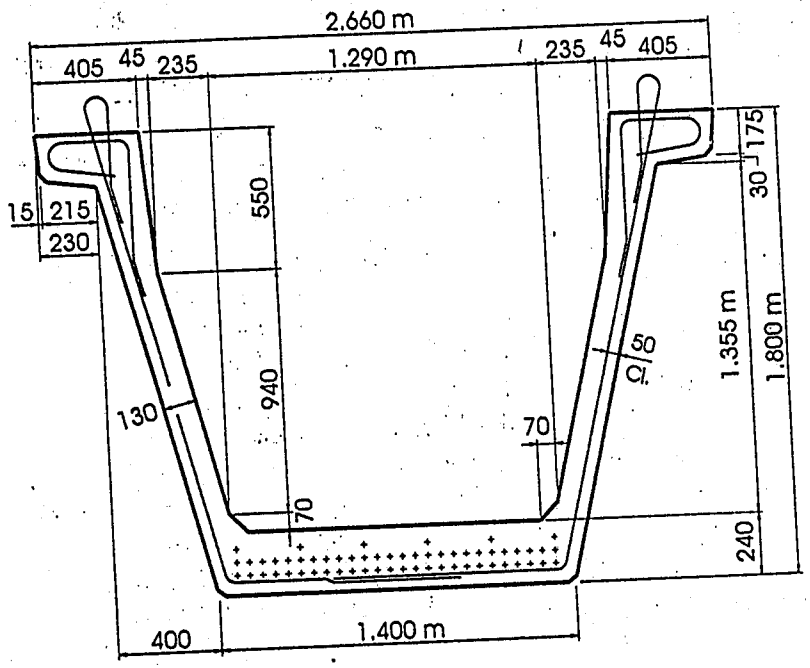


Figure 3. Typical U-beam Section

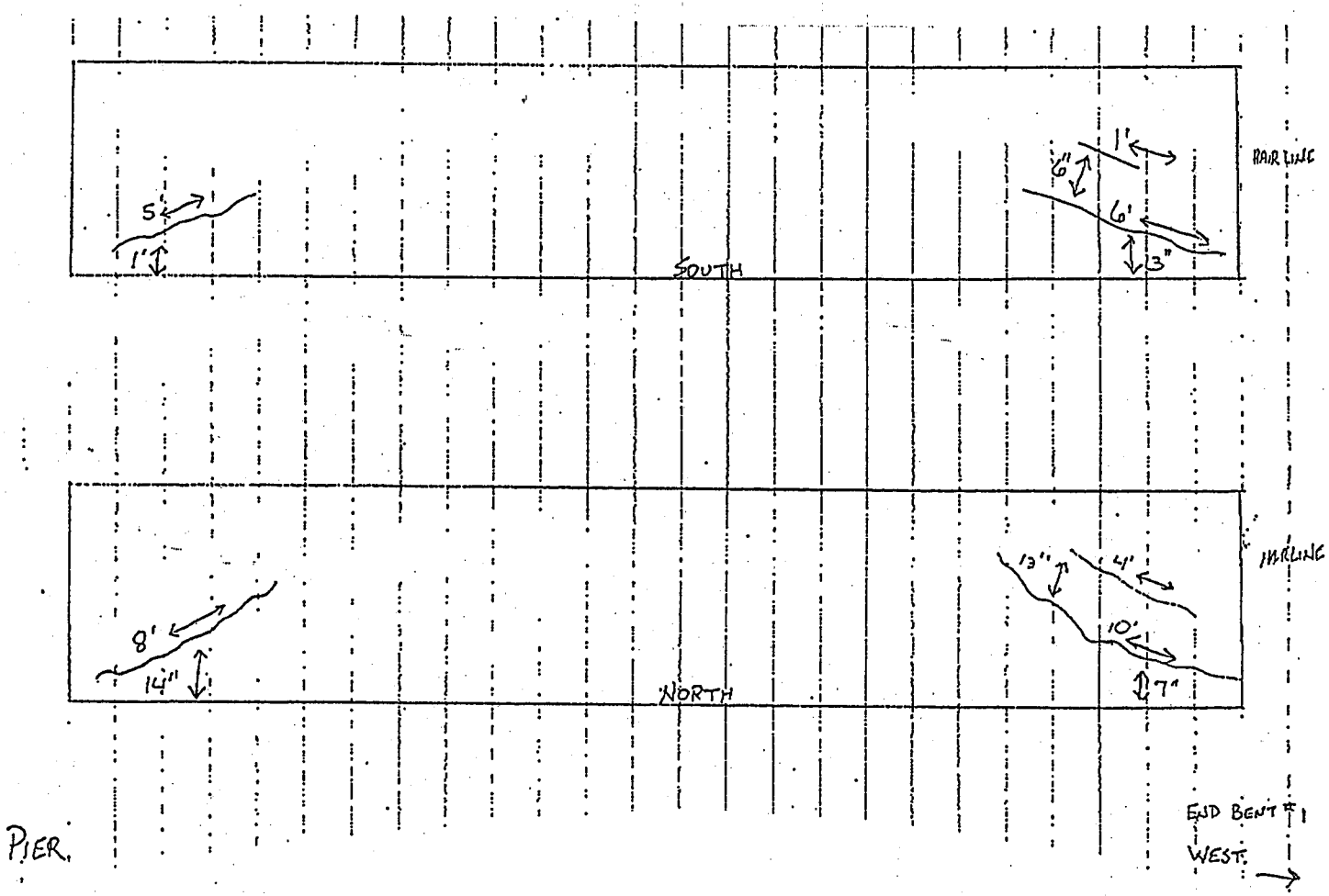


Figure 4. Crack of North Exterior Girder over I-75 SB

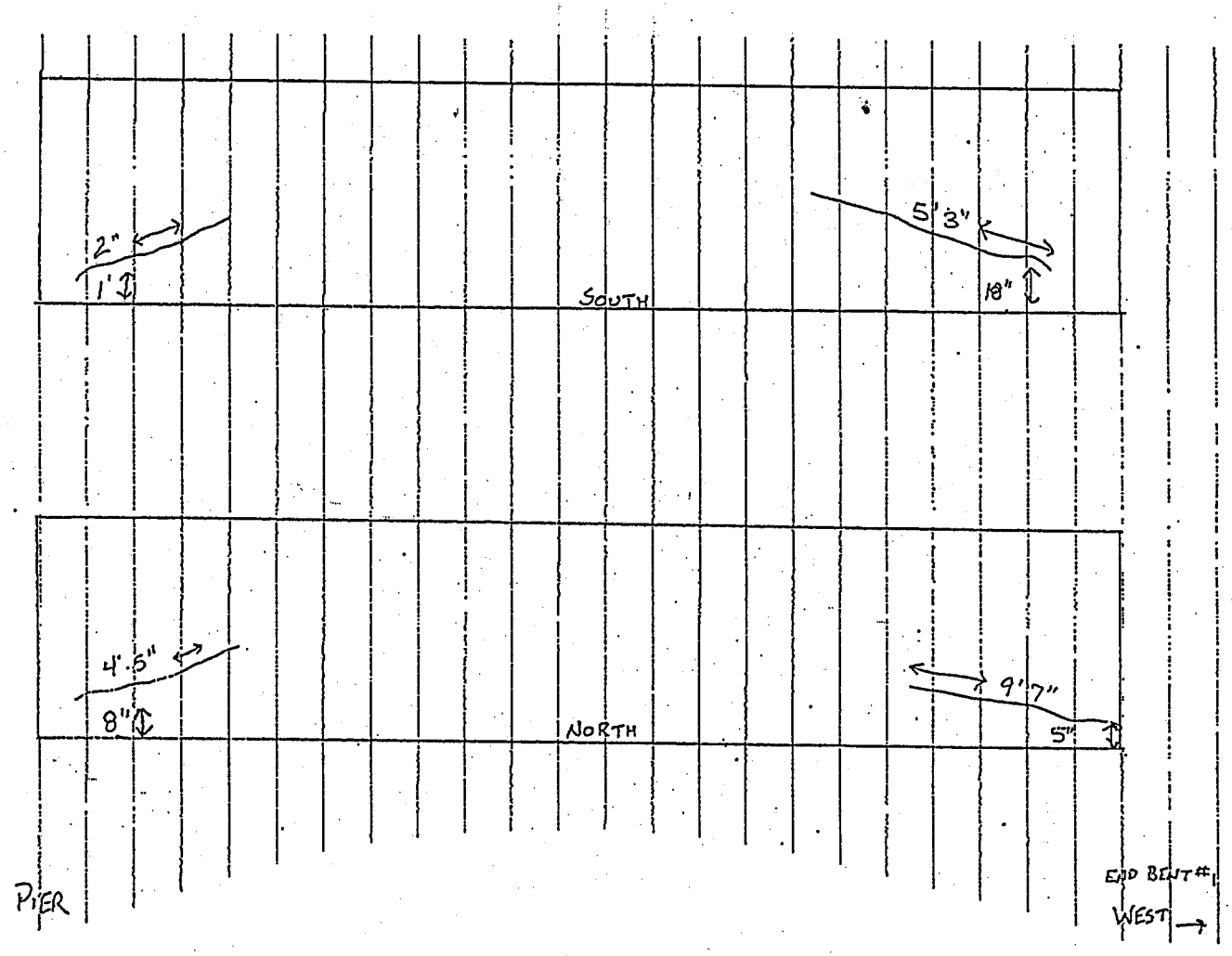


Figure 5. Crack of North Interior Girder over I-75 SB

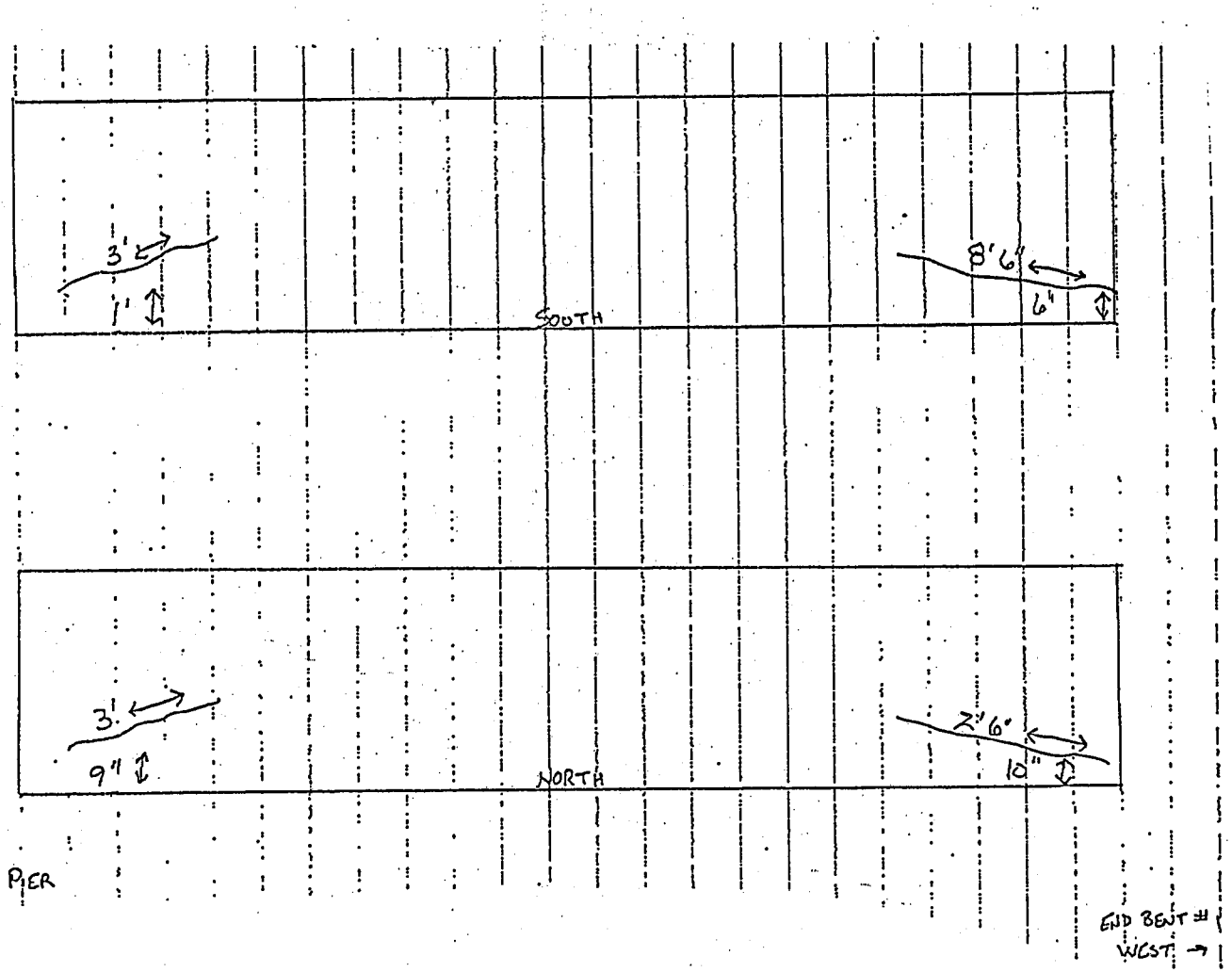


Figure 6. Crack of South Interior Girder over I-75 SB

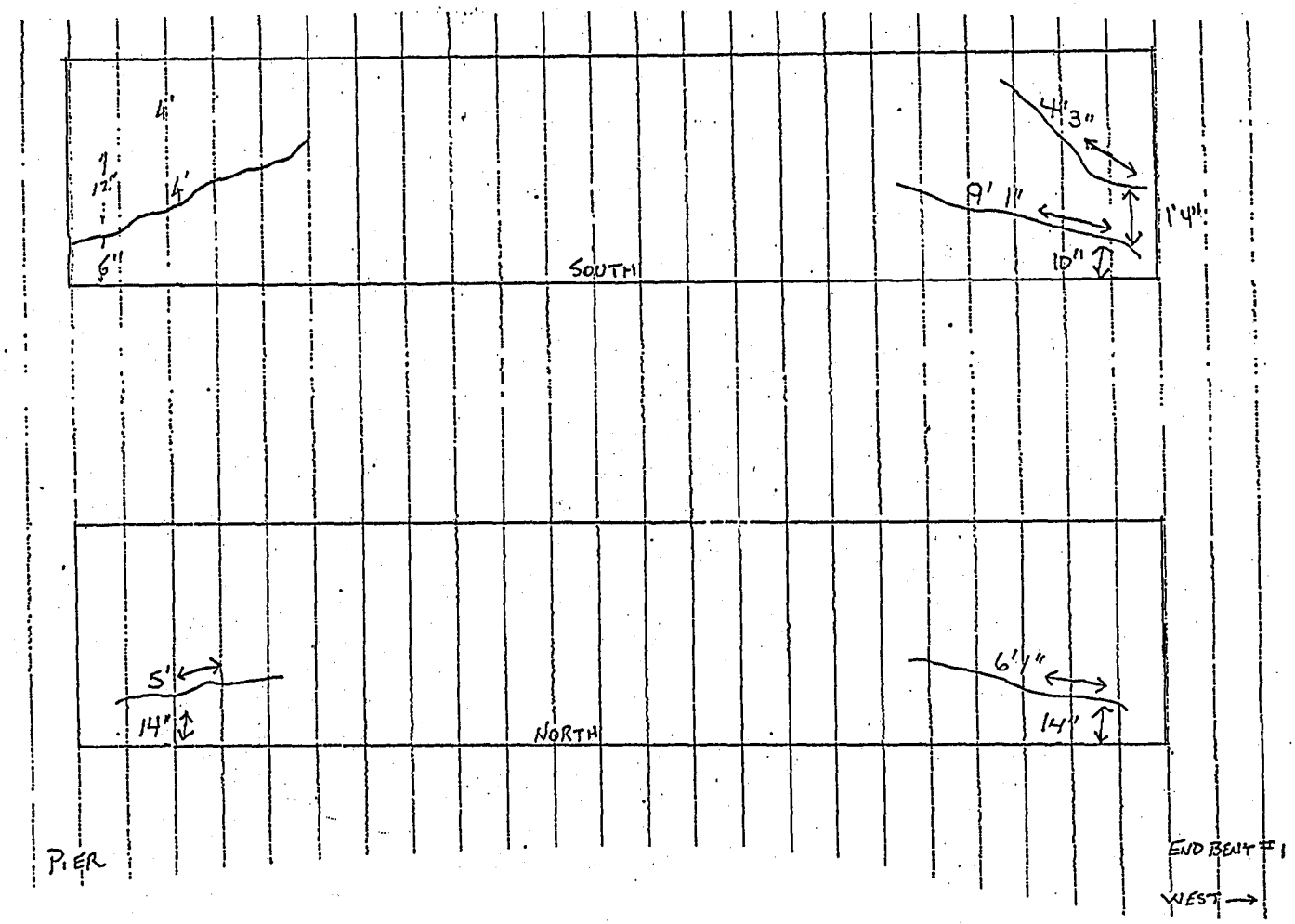


Figure 7. Crack of South Exterior Girder over I-75 SB

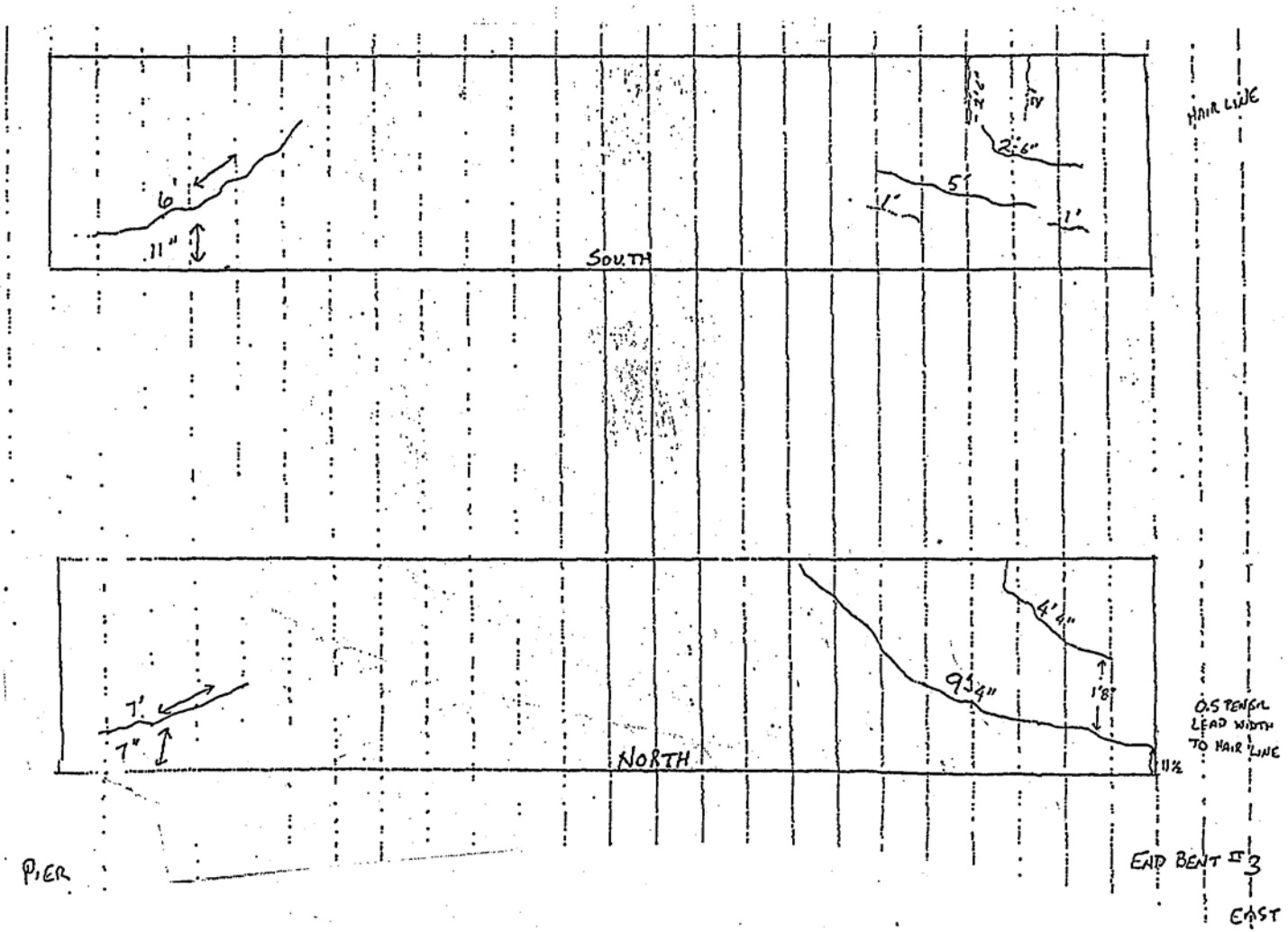


Figure 8. Crack of North Exterior Girder over I-75 NB

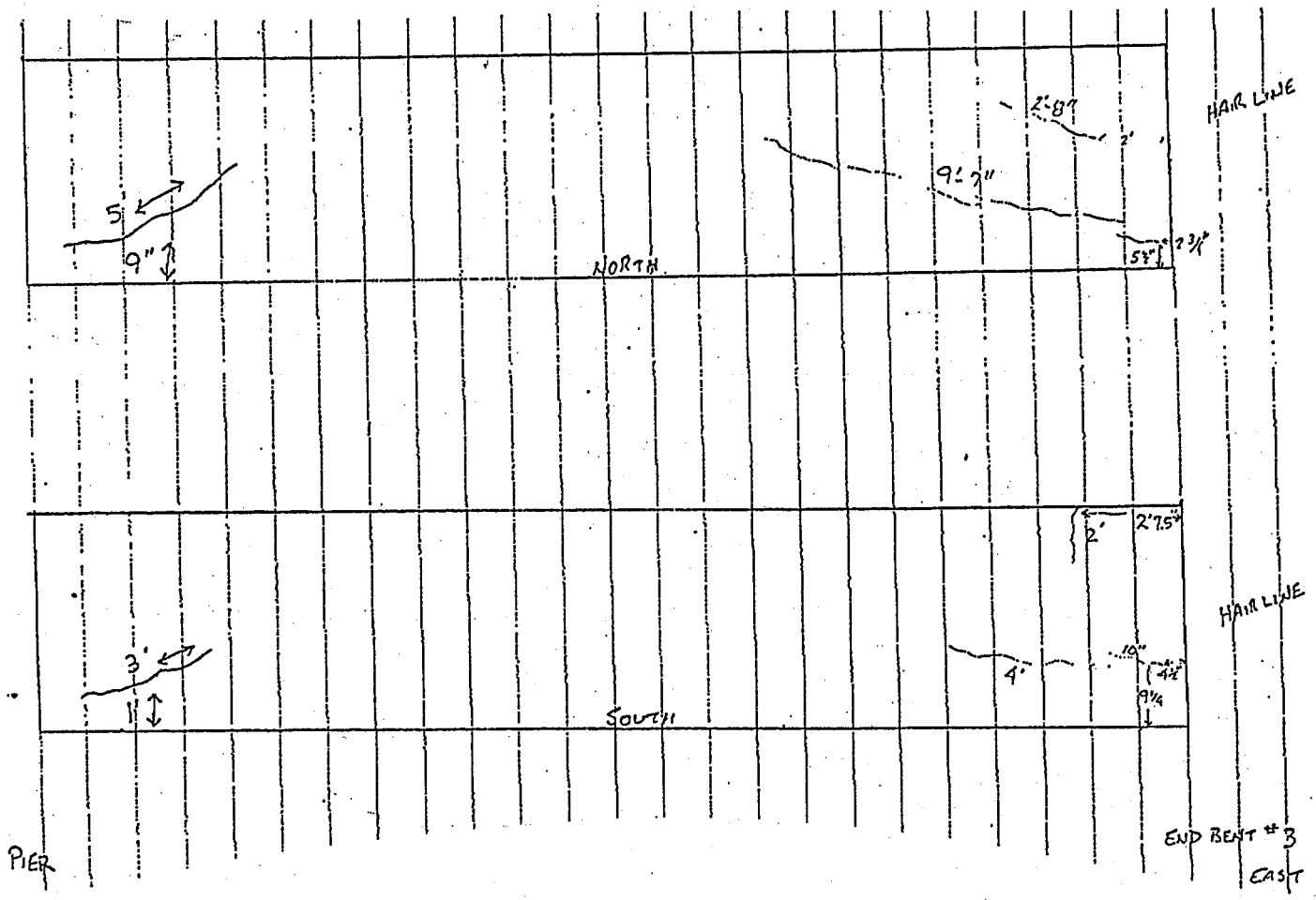


Figure 9. Crack of North Interior Girder over I-75 NB

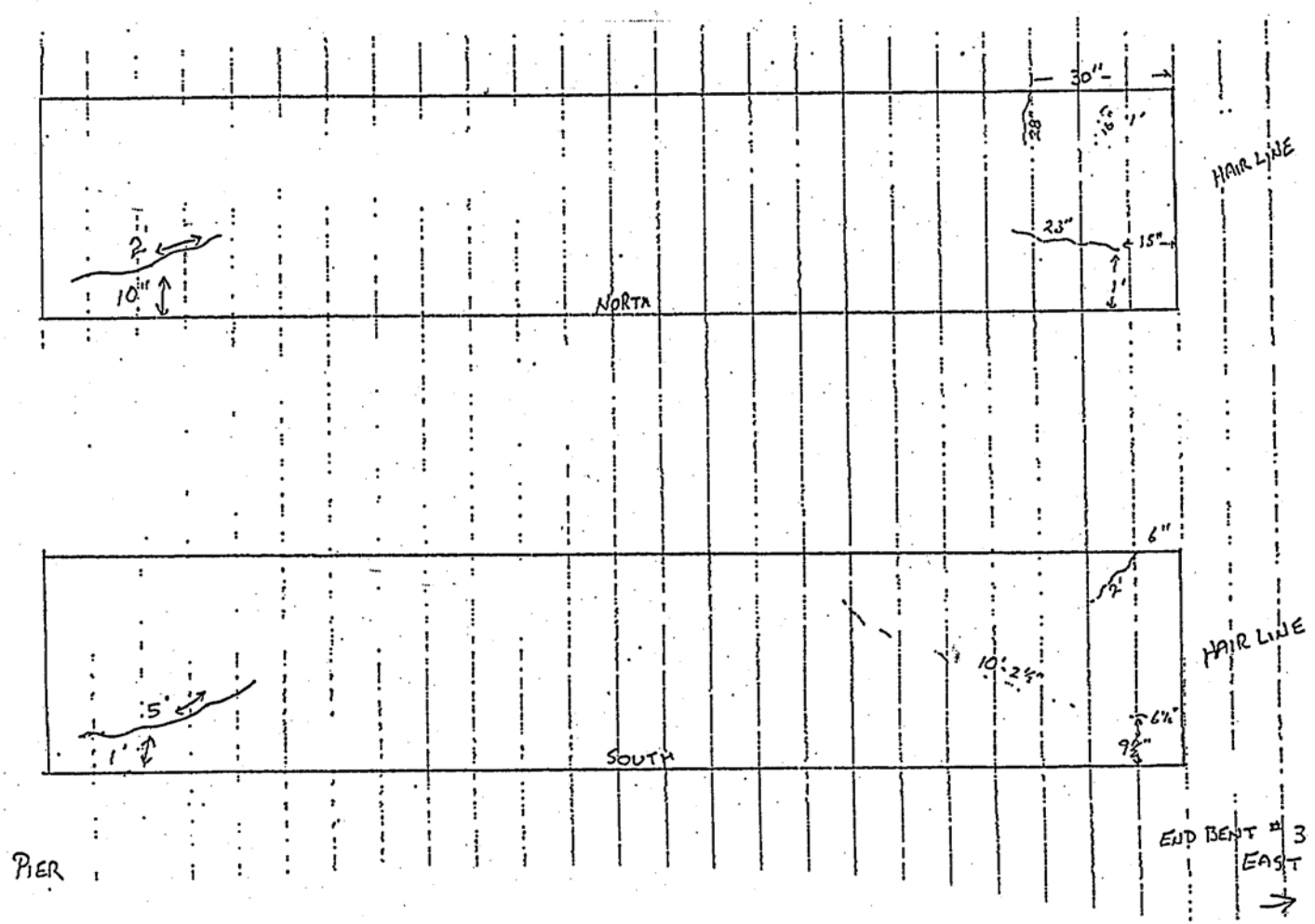


Figure 10. Crack of South Interior Girder over I-75 NB

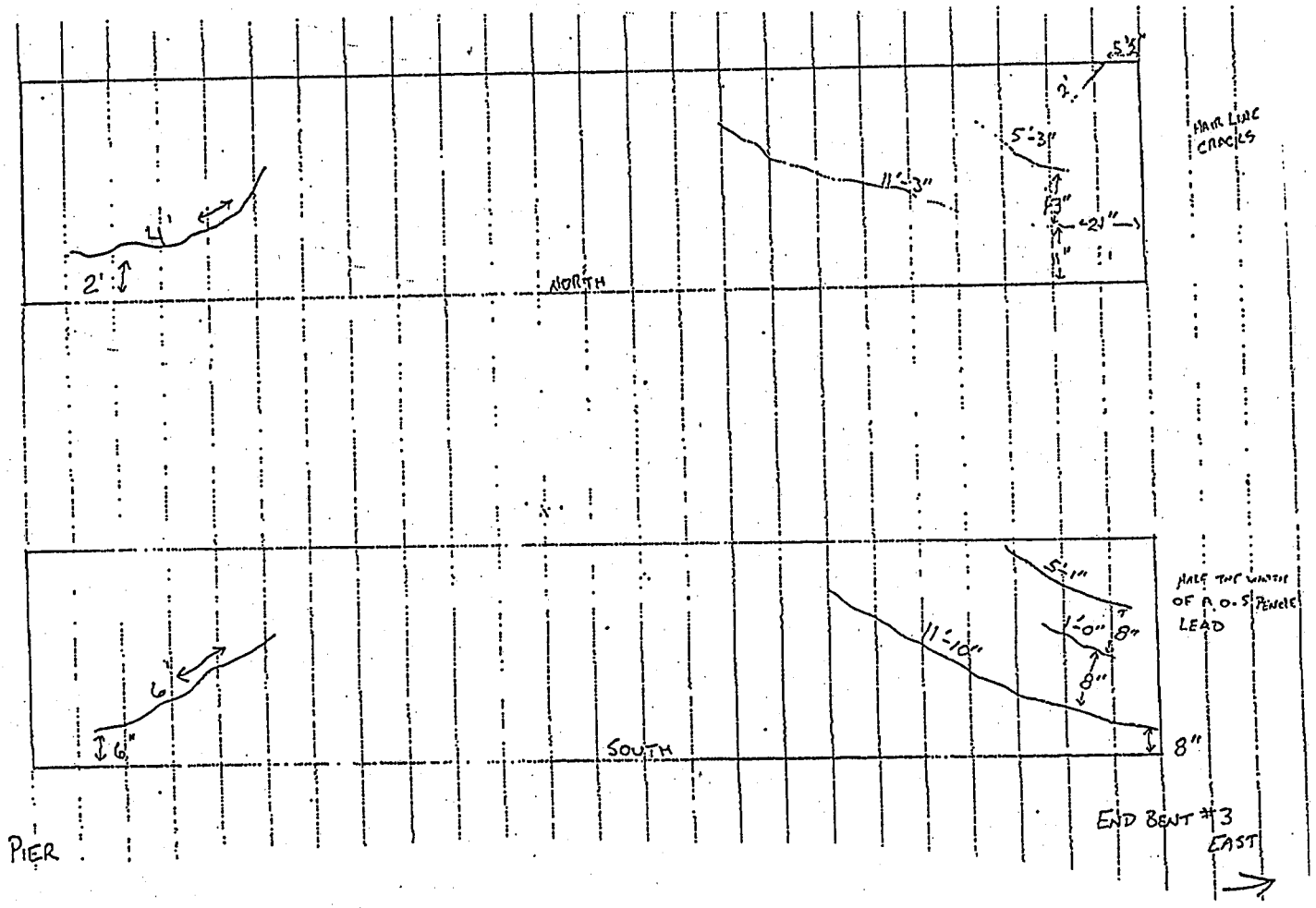
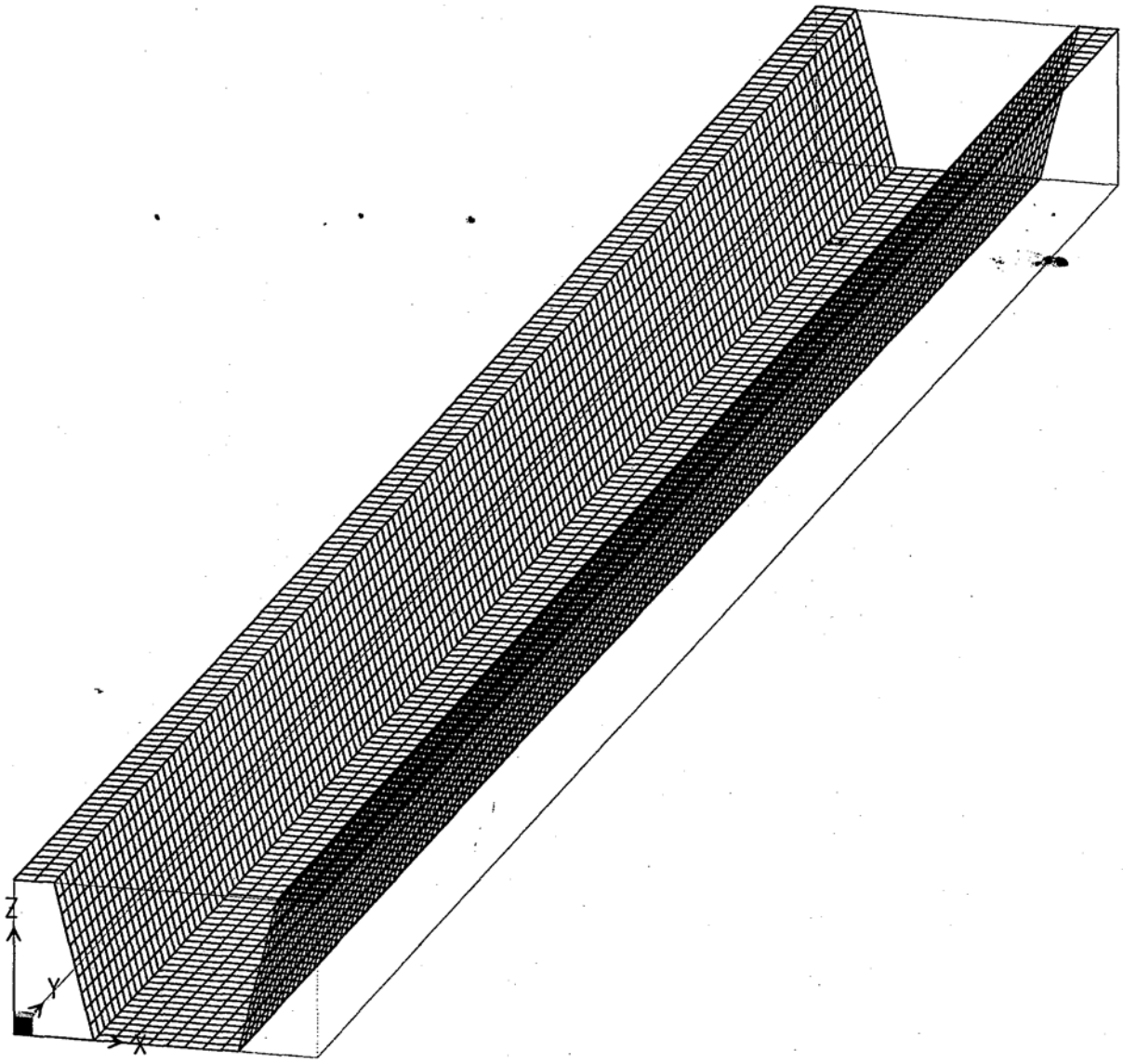
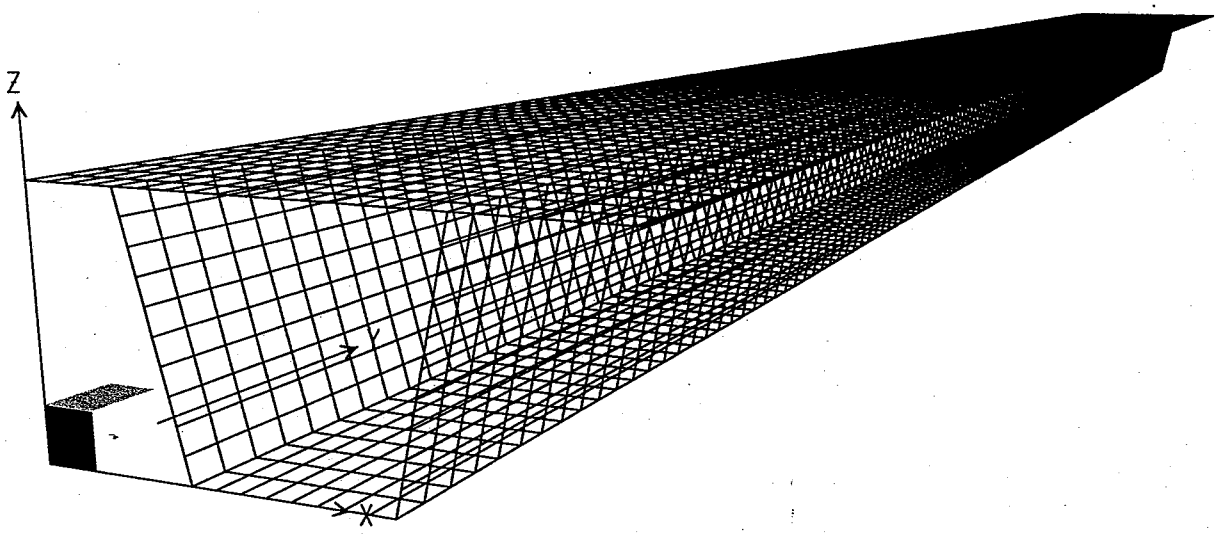


Figure 11. Crack of South Exterior Girder over I-75 NB



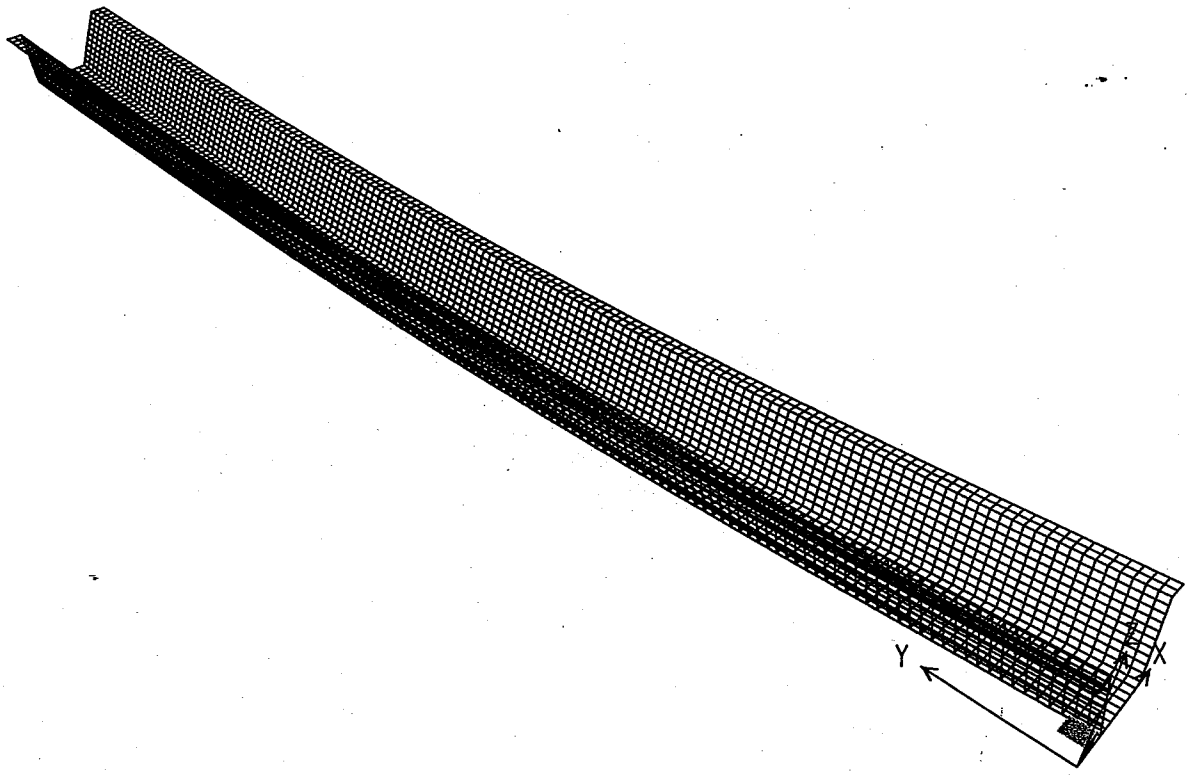
SAP2000 v7.10 - File:Ubeam010 - 3-D View - Kip-in Units

Figure 12. U-Beam Model



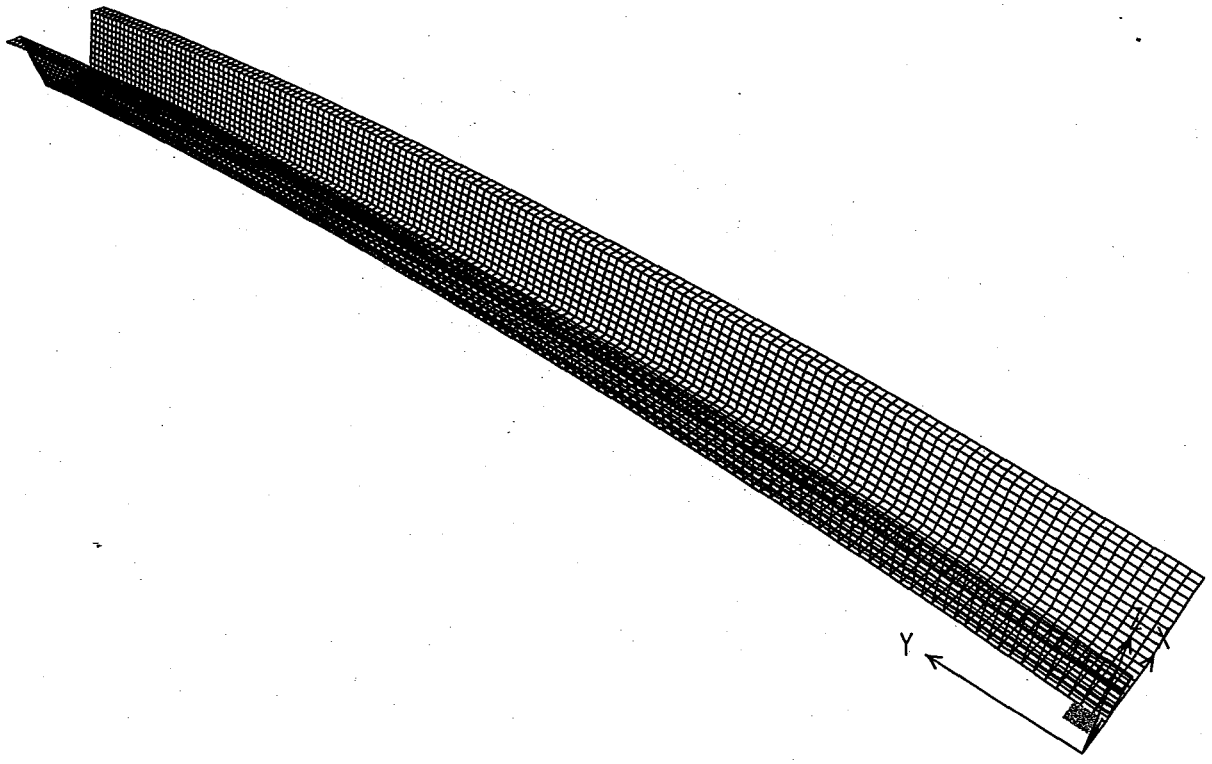
SAP2000 v7.10 - File:Ubeam009 - 3-D View - Kip-in Units

Figure 13. Box Girder Model



SAP2000 v7.10 - File:Ubeam010 - Deformed Shape (UNIF2) - Kip-in Units

Figure 14. Deformation of U-Beam due to Self-Weight

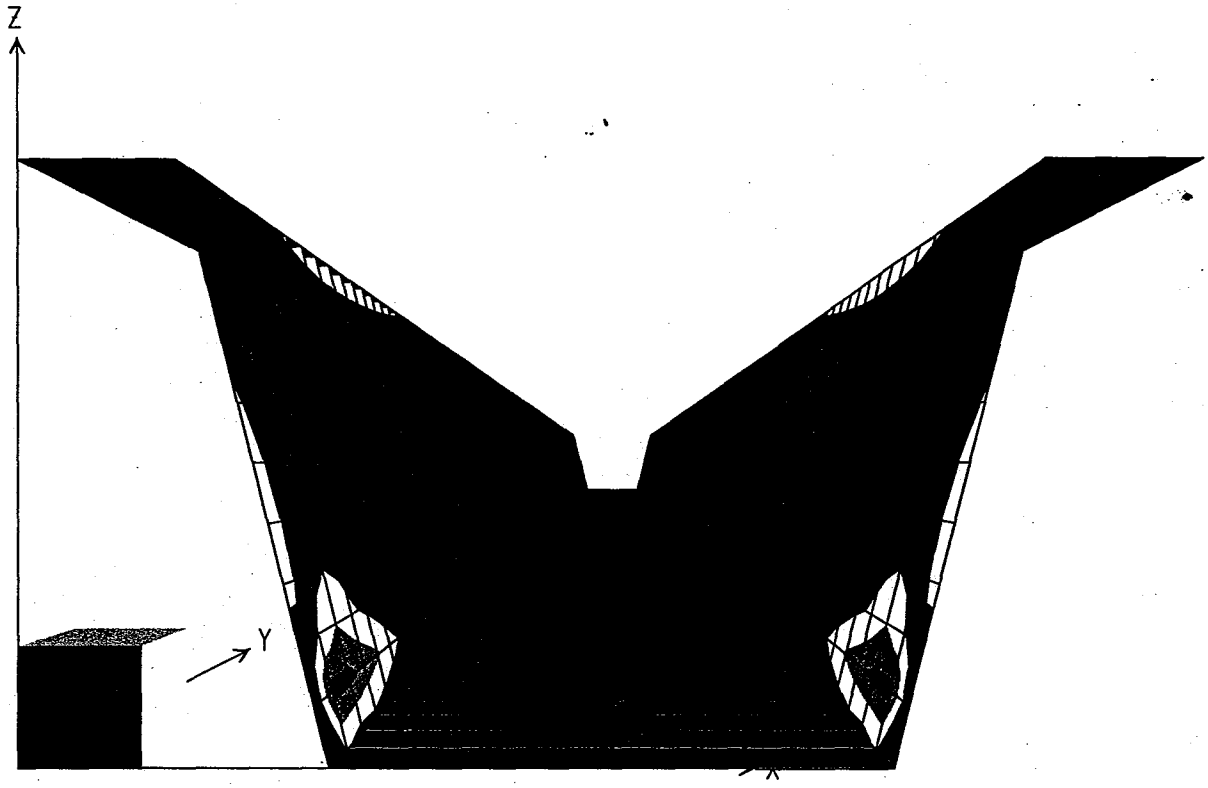


SAP2000 v7.10 - File:Ubeam010 - Deformed Shape (U-BEAM1) - Kip-in Units

Figure 15. Deformation of U-Beam due to Stage 1 Loading

Figure 16. Normal Stress Contour due to U-Beam Self-Weight

Figure 17. Normal Stress Contour due to Stage 1 Loading



-240. -120. 0. 120. 240. 360. 480. 600. 720. E-3

SAP2000 v7.10 - File:Ubeam010 - Stress SMAX Diagram (U-BEAM1) - Kip-in Units

Figure 18. Maximum Tensile Stress Distribution due to Stage 1 Loading (a)

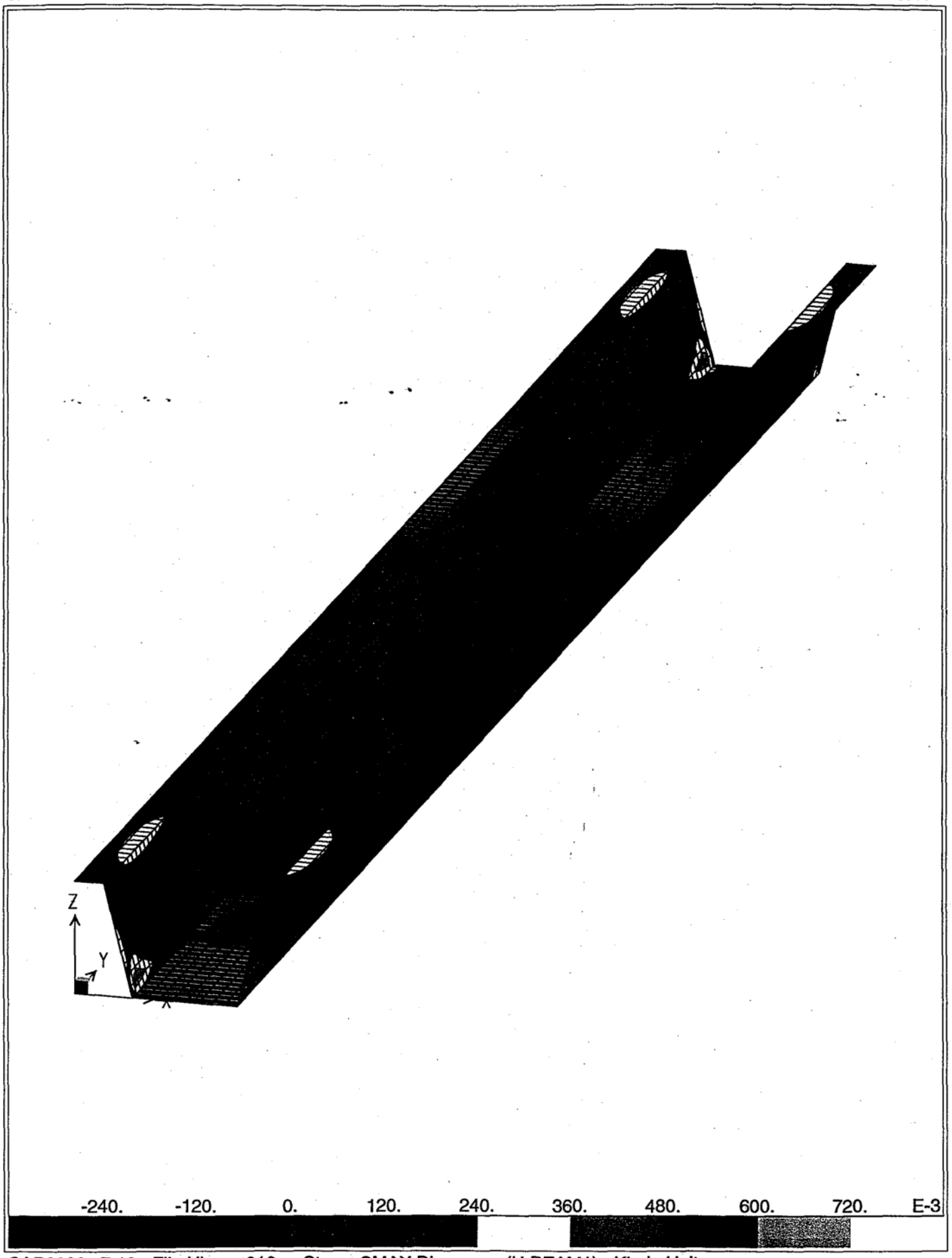


Figure 19. Maximum Tensile Stress Distribution due to Stage 1 Loading (b)

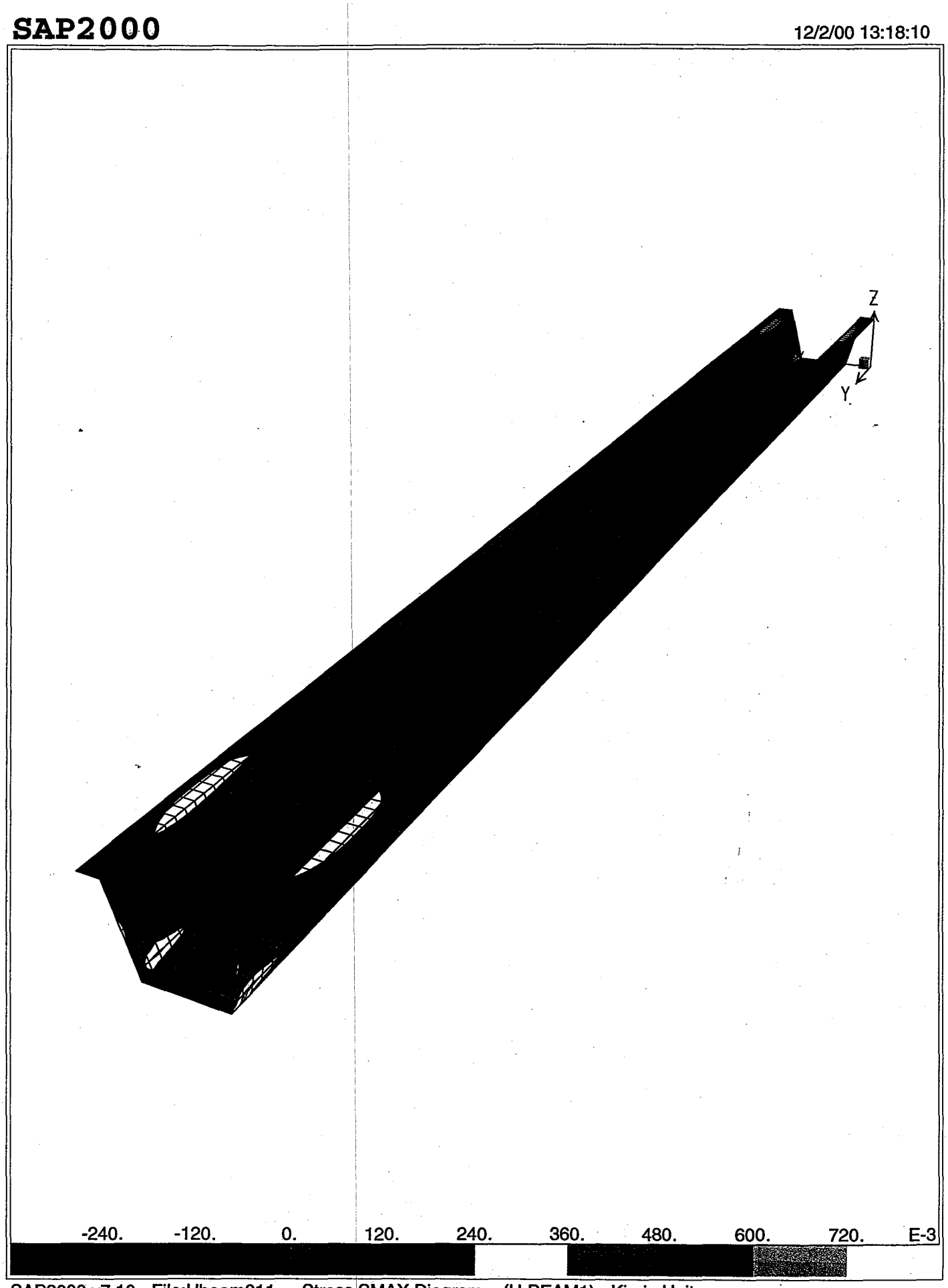


Figure 20. Maximum Tensile Stress Distribution due to Stage 1 Loading (c)

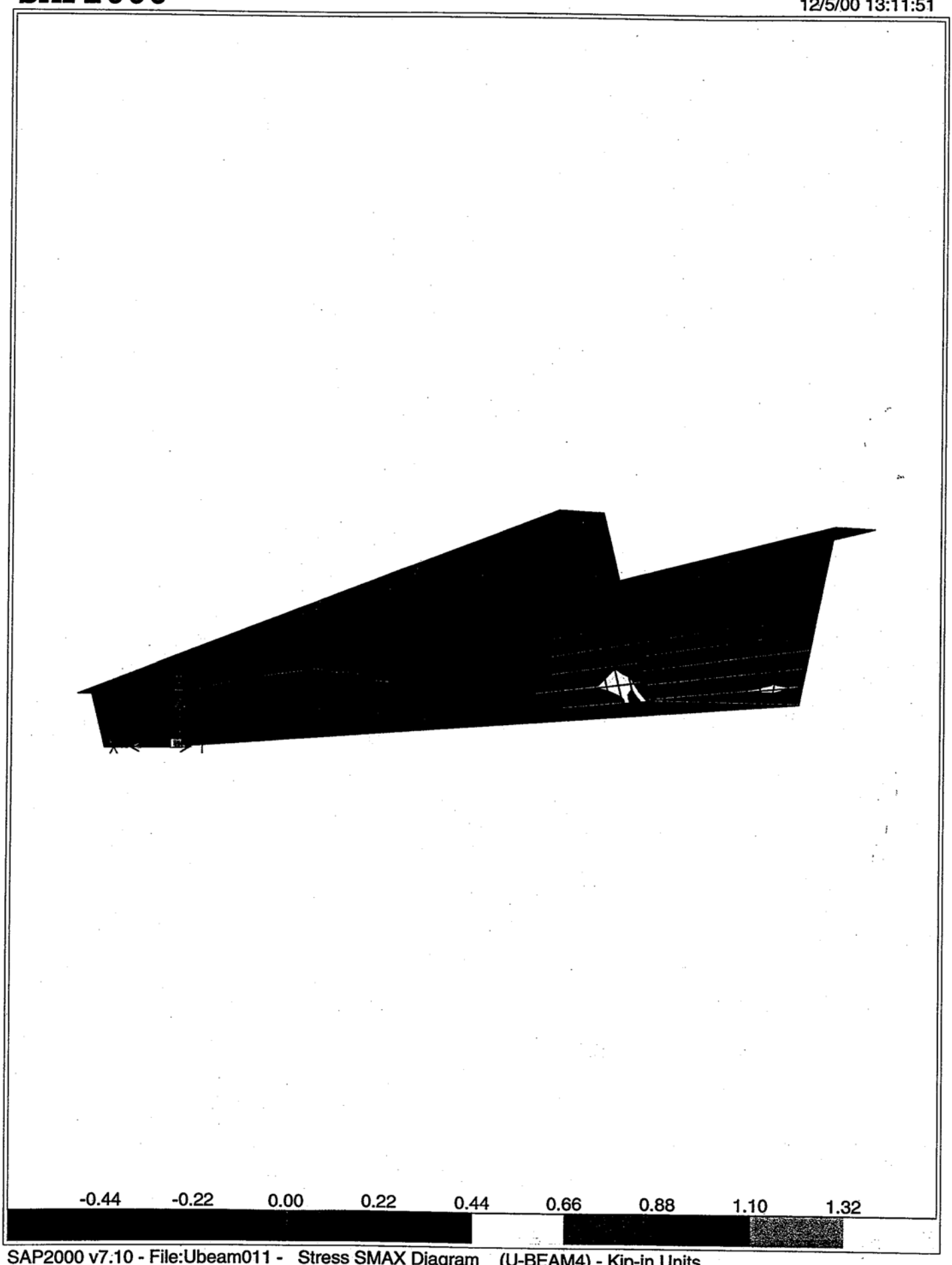
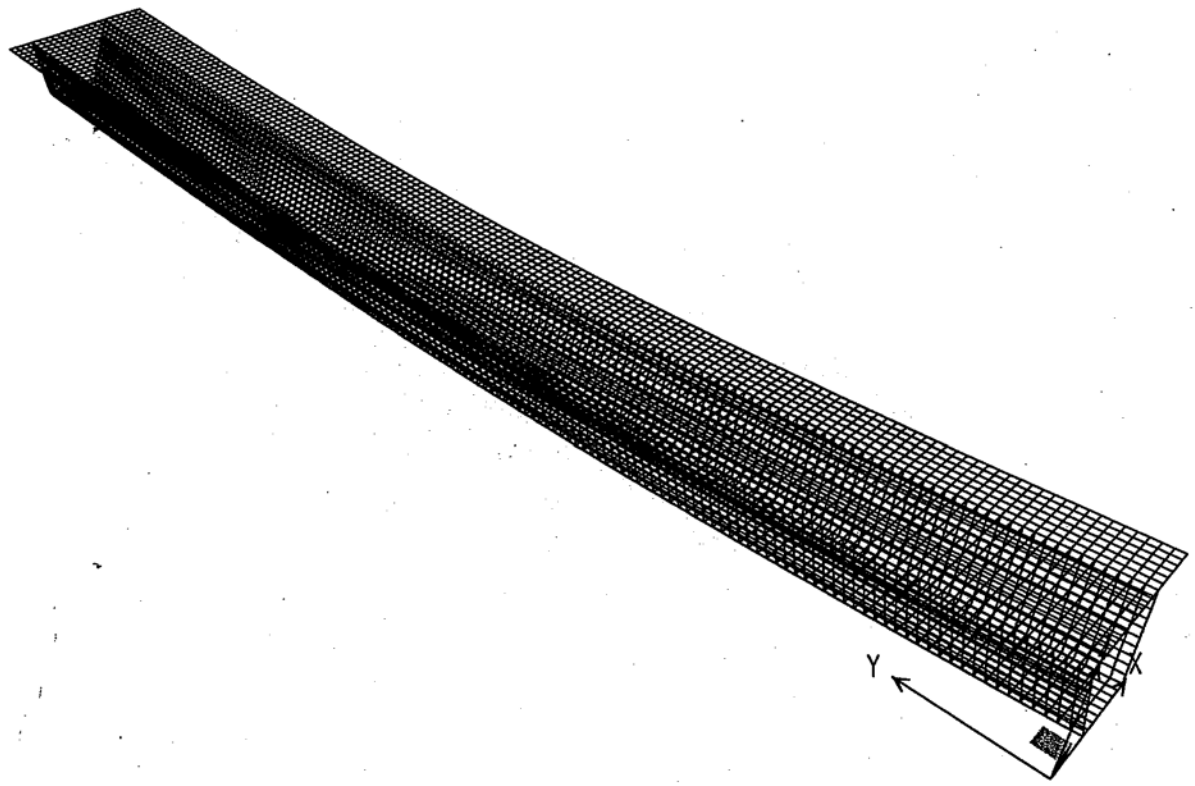


Figure 21. Maximum Tensile Stress Distribution due to Loading Stage 2



SAP2000 v7.10 - File:Ubeam009 - Deformed Shape (UNIF2) - Kip-in Units

Figure 22. Deformation of Box Girder due to Loading Stage 3

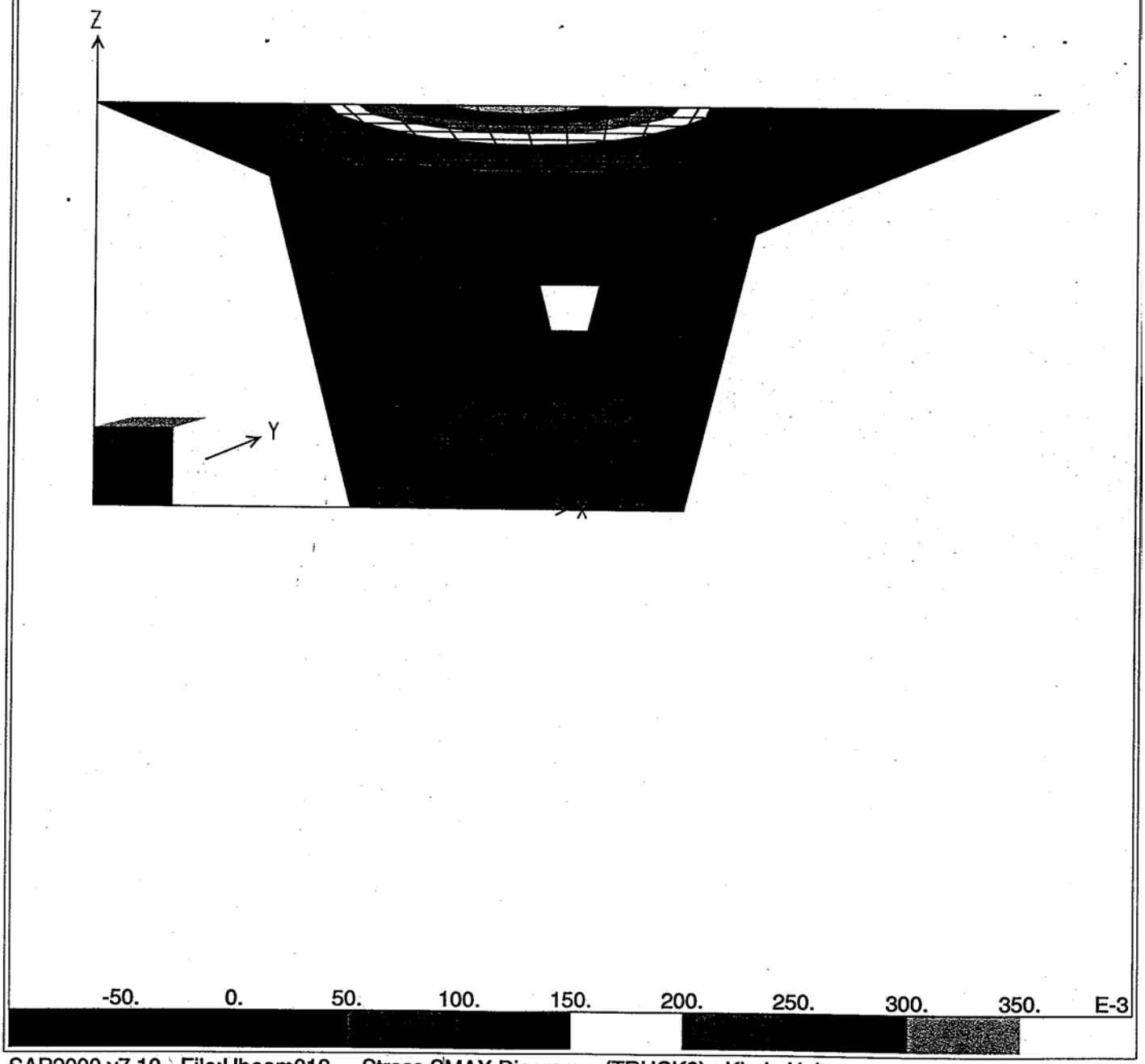
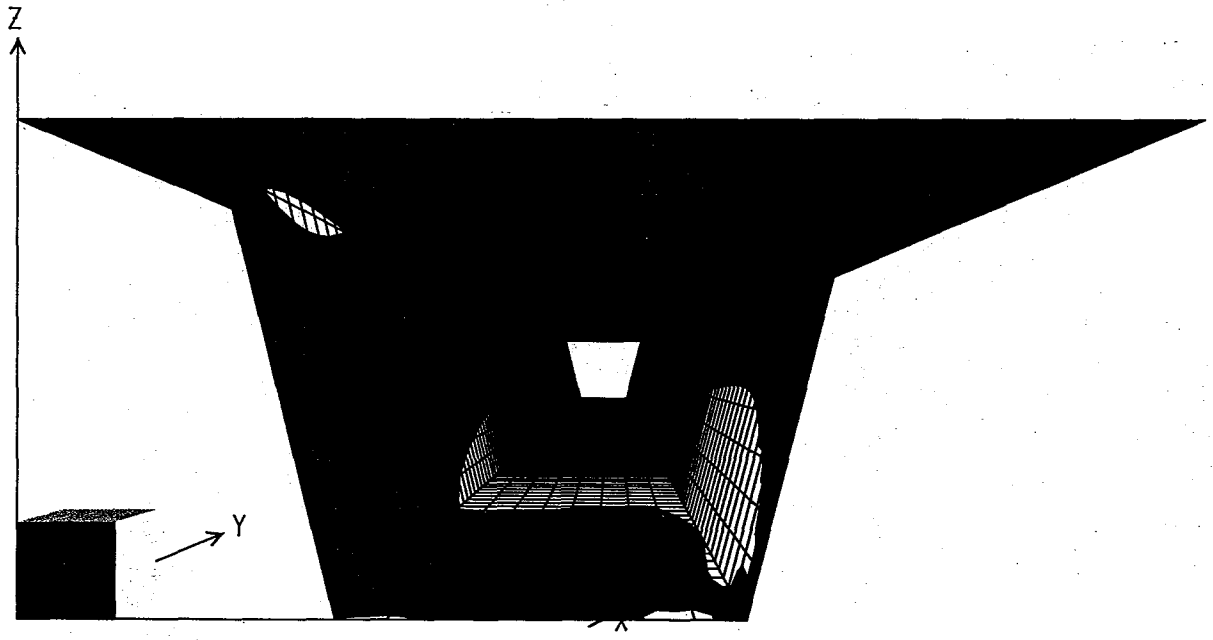


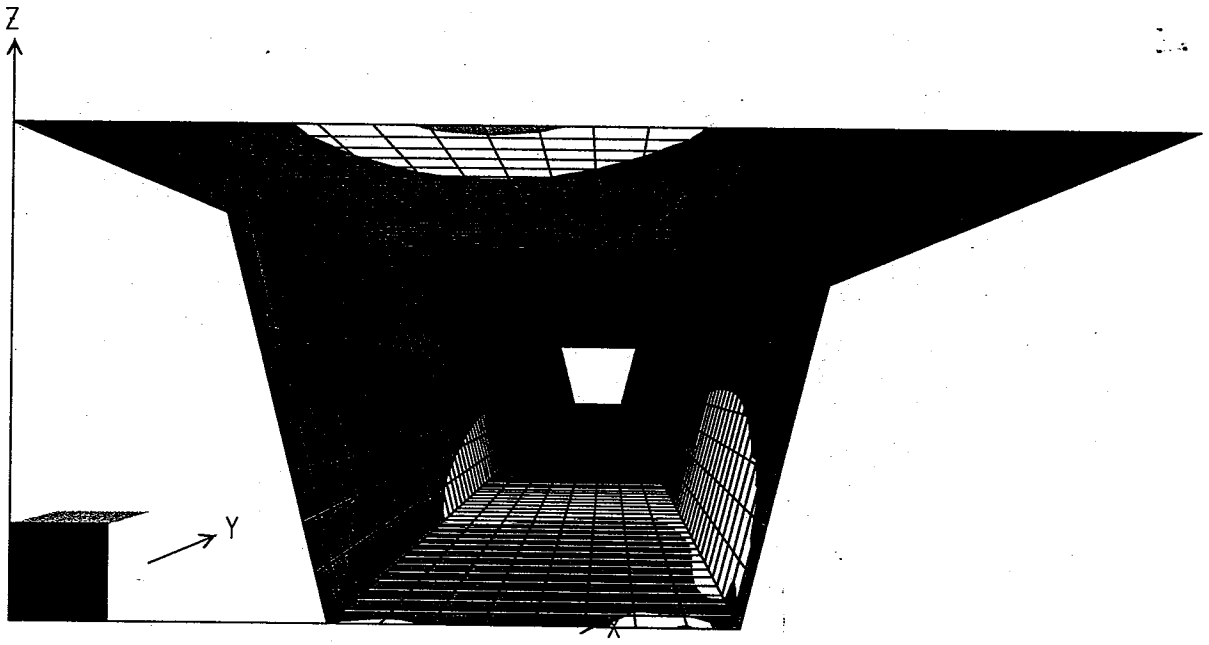
Figure 23. Maximum Tensile Stress due to HS15-44

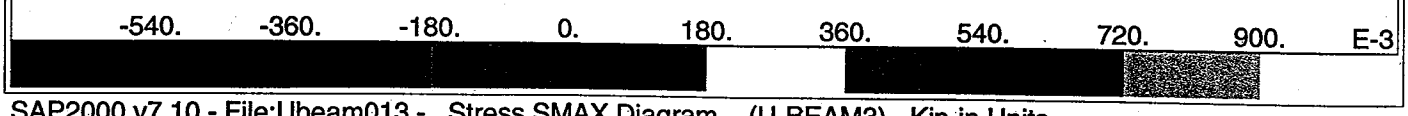


-540. -360. -180. 0. 180. 360. 540. 720. 900. E-3

SAP2000 v7.10 - File:Ubeam009 - Stress SMAX Diagram (UNIF2) - Kip-in Units

Figure 24. Maximum Tensile Stress Distribution due to soil and Barrier





SAP2000 v7.10 - File:Ubeam013 - Stress SMAX Diagram (U-BEAM3) - Kip-in Units

Figure 25. Maximum Tensile Stress Distribution due to Loading Stage 3

S A P 2 0 0 0 (R) Structural Analysis Programs Nonlinear Version 7.10 Copyright (C)

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ELEM 1501 TYPE = SHELL

LOAD DLNo SL

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
11	-0.233868	-1.075902	-0.34.2622	-0.112073	-1.197697	-19.569295
12	-0.314323	-1.118509	-0.442143	-0.118780	-1.314053	-23.858031
44	-0.128464	-0.500445	-0.245971	-0.006080	-0.622829	-26.452668
45	-0.209178	-0.542691	-0.345328	0.007548	-0.759417	-32.112189

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
11	-0.175232	-0.507113	-0.260797	-0.032059	-0.650286	-28.766102
12	-0.161502	-0.412239	-0.262019	0.003597	-0.577338	-32.215142
44	-0.090091	-0.024748	-0.210228	0.155332	-0.270171	-49.416846
45	-0.076102	0.069764	-0.211615	0.220662	-0.227000	-54.508233

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
11	0.003809	0.009897	0.010604	68.950918
12	0.001552	0.010459	0.010574	81.561465
44	0.004508	0.012701	0.013477	70.458803
45	0.002251	0.013263	0.013453	80.368602

LOAD CONC

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
11	-0.017458	0.900307	0.090717	0.909188	-0.026340	84.408648
12	-0.034477	1.006498	0.072440	1.011515	-0.039493	86.038308
44	-0.100545	0.604913	-0.026689	0.605921	-0.101553	-87.836525
45	-0.116435	0.708987	-0.045828	0.711524	-0.118972	-86.831847

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
11	-0.056501	0.021946	0.043188	0.041063	-0.075619	66.122918
12	-0.170279	-0.006586	-0.093579	0.035889	-0.212754	-65.586941
44	-0.129697	-0.154759	-0.027048	-0.112418	-0.172038	-32.571119
45	-0.244602	-0.181173	-0.162952	-0.046878	-0.378898	-50.506748

JOINT	S13.-AVG	S23-AVG	S-AVG-MAX	ANGLE
11	-0.003285	-0.010562	0.011061	-107.274481
12	-0.001310	-0.011054	0.011132	-96.757923
44	-0.003896	-0.013015	0.013586	-106.665434
45	-0.001922	-0.013508	0.013644	-98.096499

S H E L L E L E M I N T E R A L F O R C E S & S T R E S S E S

LOAD TEMP1 ----------

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
11	0.004B75	-0.156856	0.014065	0.006089	-0.158070	4.933373
12	-0.008110	-0.196288	-0.007432	-0.007817	-0.196581	-2.258068
44	0.014567	-0.139671	0.016080	0.016225	-0.141329	5.888842
45	0.001184	-0.178224	-0.005078	0.001328	-0.178367	-1.619851

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
11	0.004285	0.130167	-0.006593	0.130511	0.003941	-87.009981
12	0.017395	0.168416	0.016949	0.170295	0.015517	83.674674
44	-0.003395	0.103386	-0.003542	0.103503	-0.003512	-88.102293
45	0.010113	0.140757	0.019661	0.143651	0.007218	81.624630

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
11	0.002079	0.006761	0.007073	72.906503
12	0.003299	0.006457	0.007251	62.933886
44	0.001701	0.005246	0.005515	72.030896
45	0.002921	0.004942	0.005740	59.412509

LOAD UNIF2 ----------

JOINT	Sll-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
11	-0.211626	-0.858772	-0.325864	-0.075975	-0.994423	-22.601060
12	-0.263030	-0.882939.	-0.377707	-0.084380	-1.061589	-25.313468
44	-0.107820	-0.344909	-0.208525	0.013501	-0.466230	-30.191115
45	-0.159181	-0.369386	-0.260462	0.016585	-0.545152	-34.012356

JOINT	Sll-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
11	-0.139261	-0.506312	-0.212390	-0.042089	-0.603484	-24.584884
12	-0.118214	-0.464654	-0.195619	-0.030145	-0.552722	-24.237582
44	-0.038582	-0.061898	-0.141816	0.092054	-0.192534	-42.650299
45	-0.017579	-0.019929	-0.124951	0.106202	-0.143710	-44.730521

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
11	0.001929	0.004126	0.004555	64.940310
12	-0.001307	0.004933	0.005103	104.841258
44	0.002932	0.008146	0.008658	70.208069
45	-0.000305	0.008953	0.008958	91.948861

COMB U-BEAM1 ---------- MAX

JOINT	511-TOP	S22-TOP	S12-TOP
11	-0.251327	-0.175595	-0.251905
12	-0.348800	-0.112011	-0.369703
44	-0.229009	0.104468	-0.272660
45	-0.325613	0.166296	-0.391156

JOINT	Sll-BOT	S22-BOT	S12-BOT
11	-0.231733	-0.485167	-0.217609
12	-0.331781	-0.418825	-0.355598

44	-0.219788	-0.179507	-0.237276
45	-0.320705	-0.111410	-0.374567

U-BEAM-THIN-WALL STRUCTURE-SHELL ELEMENTS 8109

SHELL ELEM INTERNAL FORCES AND STRESSES

JOINT	S13-AVG	S23-AVG
11	0.000524	-0.000665
12	0.000242	-0.000595
44	0.000612	-0.000315
45	0.000329	-0.000244

COMB U-BEAM1 --------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
11	-0.251327	-0.175595	-0.251905
12	-0.348800	-0.112011	-0.369703
44	-0.229009	0.104468	-0.272660
45	-0.325613	0.166296	-0.391156

JOINT	Sll-BOT	S22-BOT	S12-BOT
11	-0.231733	-0.485167	-0.217609
12	-0.331781	-0.418825	-0.355598
44	-0.219788	-0.179507	-0.237276
45	-0.320705	-0.111410	-0.374567

JOINT	S13-AVG	S23-AVG
11	0.000524	-0.000665
12	0.000242	-0.000595
44	0.000612	-0.000315
45	0.000329	-0.000244

COMB U-BEAM2 --------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
11	-0.246452	-0.332451	-0.237840
12	-0.356910	-0.308299	-0.377135
44	-0.214442	-0.035203	-0.256581
45	-0.324429	-0.:011928	-0.396234

JOINT	Sll-BOT	LS22-BOT	S12-BOT
11	-0.227448	-0.355000	-0.224203
12	-0.314386	-0.250409	-0.338649
44	=0.223183	-0.076121	-0.240818
45	-0.310592	0.029347	-0.354907

JOINT	S13-AVG	S23-AVG
11	0.002603	0.006096
12	0.003541	0.005862
44	0.002313	0.004931
45	0.003250	0.004697

COMB U-BEAM2 --------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
11	-0.246452	-0.332451	-0.237840
12	-0.356910	-0.308299	-0.377135

44	-0.214442	-0.035203	-0.256581
45	-0.324429	-0.011928	-0.396234

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S11-BOT	S22-BOT	S12-BOT
11	-0.227448	-0.355000	-0.224203
12	-0.314386	-0.250409	-0.338649
44	-0.223183	-0.076121	-0.240818
45	-0.310592	0.029347	-0.354907

JOINT	S13-AVG	S23-AVG
11	0.002603	0.006096
12	0.003541	0.005862
44	0.002313	0.004931
45	0.003250	0.004697

COMB U-BEAMS ---------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
11	-0.211626	-0.858772	-0.325864
12	-0.263030	-0.882939	-0.377707
44	-0.107820	-0.344909	-0.208525
45	-0.159181	-0.369386	-0.260462

JOINT	811-BOT	822-BOT	S12-BOT
11	-0.139261	-0.506312	-0.212390
12	-0.118214	-0.464654	-0.195619
44	-0.038582	-0.061898	-0.141816
45	-0.017579	-0.019929	-0.124951

JOINT	S13-AVG	S23-AVG
11	0.001929	0.004126
12	-0.001307	0.004933
44	0.002932	0.008146
45	-0.000305	0.008953

COMB U-BEAMS.---------- MIN

JOINT	S11-TOP	S22-TOP	S12-TOP
11	-0.211626	-0.858772	-0.325864
12	-0.263030	-0.882939	-0.377707
44	-0.107820	-0.344909	-0.208525
45	-0.159181	-0.369386	-0.260462

JOINT	Sll-BOT	S22-BOT	S12-BOT
11	-0.139261	-0.506312	-0.212390
12	-0.118214	-0.464654	-0.195619
44	-0.038582	-0.061898	-0.141816
45	-0.017579	-0.019929	-0.124951

JOINT	S13-AVG	S23-AVG
11	0.001929	0.004126
12	-0.001307	0.004933
44	0.002932	0.008146
45	-0.000305	0.008953

SHELL ELEM INTERMAN FORCES AND STRESSES

COMB U-BEAM4 -------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
11	-0.462953	-1.034367	-0.577769
12	-0.611829	-0.994951	-0.747410
44	-0.336829	-0.240441	-0.481185
45	-0.484794	-0.203090	-0.651618

JOINT	Sll-BOT	S22-BOT	S12-BOT
1.1	-0.370994	-0.991479	-0.429999
12	-0.449995	-0.883478	-0.551217
44	-0.258370	-0.241405	-0.379092
45	-0.338283	-0.131339	-0.499518

JOINT	S13-AVG	S23-AVG
11	0.002453	0.003460
12	-0.001065	0.004338
44	0.003543	0.007832
45	2.46E-05	0.008709

COMB U-BEAM4 ------------------ MIN

JOINT	Sl1-TOP	S22-TOP	S12-TOP
11	-0.462953	-1.034367	-0.577769
12	-0.611829	-0.994951	-0.747410
44	-0.336829	-0.240441	-0.481185
45	-0.484794	-0.203090	-0.651618

JOINT	Sll-BOT	S22-BOT	S12-BOT
11	-0.370994	-0.991479	-0.429999
12	-0.449995	-0.883478	-0.551217
44	-0.258370	-0.241405	-0.379092
45	-0.338283	-0.131339	-0.499518

JOINT	S13-AVG	S23-AVG
11	0.002453	0.003460
12	-0.001065	0.004338
44	0.003543	0.007832
45	2.46E-05	0.008709

COMBALL-LOAD ---------- MAX --------

JOINT	Sll-TOP	S22-TOP	S12-TOP
11	-0.458078	-1.191223	-0.563704
12	-0.619940	-1.191239	-0.754842
44	-0.322262	-0.380112	-0.465106
45	-0.483610	-0.381314	-0.656696

JOINT	Sll-BOT	S22-BOT	S12-BOT
11	-0.366709	-0.861312	-0.436592
12	-0.432600	-0.715062	-0.534268

44	-0.261765	-0.138019	-0.382634
45	-0.328171	0.009417	-0.479857

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S13-AVG	S23-AVG
11	0.004532	0.010221
12	0.002233	0.010795
44	0.005244	0.013078
45	0.002946	0.013651

COMBALL-LOAD ---------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
11	-0.458078	-1.191223	-0.563704
12	-0.619940	-1.191239	-0.754842
44	-0.322262	-0.380112	-0.465106
45	-0.483610	-0.381314	-0.656696

JOINT	Sll-BOT	S22-BOT	S12-BOT
11	-0.366709	-0.861312	-0.436592
12	-0.432600	-0.715062	-0.534268
44	-0.261765	-0.138019	-0.382634
45	-0.328171	0.009417	-0.479857

JOINT	S13-AVG	S23-AVG
11	0.004532	0.010221
12	0.002233	0.010795
44	0.005244	0.013078
45	0.002946	0.013651

ELEM 1502 ---------- TYPE = SHELL

LOAD IDLNOSL ----------

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
44	-0.321449	-0.497955	-0.285030	-0.111322	-0.708082	-36.397992
45	-0.444619	-0.599584	-0.285617	-0.226161	-0.818041	-37.411003
77	-0.195973	-0.175372	-0.179858	-0.005520	-0.365825	-46.638871
78	-0.319014	-0.277059	-0.180495	-0.116327	-0.479747	-48.314649

JOINT	Sll-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
44	-0.172005	-0.008356	-0.249984	0.172855	-0.353215	-54.062147
45	-0.210473	0.045639	-0.195206	0.151043	-0.315877	-61.632522
77	-0.132292	0.273241	-0.174609	0.338061	-0.197112	-69.633557
78	-0.170888	0.327295	-0.119781	0.354598	-0.198192	-77.159180

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
44	0.005446	0.012647	0.013770	66.702127
45	0.008304	0.011935	0.014539	55.171283
77	0.004561	0.009097	0.010177	63.372052
78	0.007419	0.008385	0.011196	48.498195

LOAD CONC ----------

JOINT	Sll-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE

44	-0.182833	0.619381	-0.067300	0.624988	-0.188439	-85.237623
45	-0.309137	0.726217	-0.105981	0.736954	-0.319874	-84.214994

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
77	-0.236254	0.553854	-0.131818	0.575265	-0.257665	-80.773832
78	-0.361286	0.658039	-0.171542	0.686134	-0.389380	-80.698923

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
44	-0.317269	-0.150275	-0.064518	-0.128252	-0.339292	-71.153447
45	-0.537162	-0.198915	-0.183998	-0.118123	-0.617954	-66.293945
77	-0.321386	-0.150857	-0.087301	-0.114091	-0.358152	-67.162017
78	-0.542551	-0.196848	-0.205738	-0.100988	-0.638410	-65.017743

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
44	-0.003955	-0.012815	0.013412	-10-7.150636
45	-0.005537	-0.012421	0.013599	-114.026294
77	-0.003465	-0.010850	0.011390	-107.710696
78	-0.005047	-0.010455	0.011610	-115.766995

LOAD TEMP1 ----------

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE.
44	-0.006654	-0.152185	0.025390	-0.002352	-0.156487	9.617891
45	-0.018469	-0.180713	0.004377	-0.018351	-0.180831	1.544337
77	0.014153	-0.126903	0.026722	0.019045	-0.131796	10.375568
78	0.002032	-0.154685	0.005989	0.002260	-0.154914	2.185267

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
44	0.024703	0.110340	-0.002173	0.110395	0.024648	-88.547603
45	0.039788	0.140482	0.016630	0.143158	0.037113	80.860513
77	0.005984	0.089776	-0.000729	0.089783	0.005978	-89.501654
"T8	0.021375	0.119173	0.017794	0.122310	0.018238	80.001783

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
44	0.002574	0.005741	0.006291	65.849344
45	0.004520	0.005256	0.006932	49.303950
77	0.001971	0.003323	0.003864	59.324565
78	0.003917	0.002838	0.004837	35.925211

LOAD UNIF2 ----------

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
44	-0.236747	-0.342409	-0.227961	-0.055575	-0.523581	-38.475931
45	-0.279147	-0.401300	-0.232779	-0.099565	-0.580882	-37.649088
77	-0.152805	-0.111483	-0.143780.	0.013112	-0.277401	-49.088705
78	-0.195061	-0.170615	-0.148700	-0.033637	-0.332039	-47.349566

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
44	-0.095266	-0.062499	-0.157024	0.078994	-0.236759	-47.978316
45	-0.076041	-0.019370	-0.129147	0.084514	-0.179925	-51.187492
77	-0.054219	0.151227	-0.102483	0.193606	-0.096599	-67.533507
78	-0.035139	0.194596	-0.074504	0.216643	-0.057185	-73.516073

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE

44	0.003044	0.007559	0.008149	68.065361
45	0.003724	0.007389	0.008274	63.256095

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
77	0.002833	0.006714	0.007288	67.120932
78	0.003513	0.006545	0.007428	61.775326

COMB U-BEAM1 ------------------ MAX

JOINT	S11-TOP	S22-TOP	S12-TOP
44	-0.504281	0.121426	-0.352330
45	-0.753755	0.126633	-0.391598
77	-0.432226	0.378482	-0.311676
78	-0.680300	0.380980	-0.352036

JOINT	S11-BOT	S22-BOT	S12-BOT
44	-0.489274	-0.158630	-0.314502
45	-0.747635	-0.153276	-0.379204
77	-0.453678	0.122384	-0.261910
78	-0.713439	0.130447	-0.325519

JOINT	S13-AVG	S23-AVG
44	0.001491	-0.000168
45	0.002767	-0.000486
77	0.001096	-0.001753
78	0.002372	-0.002071

COMB U-BEAM1 ------------------ MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
44	-0.504281	0.121426	-0.352330
45	-0.753755	0.126633	-0.391598
77	-0.432226	0.378482	-0.311676
78	-0.680300	0.380980	-0.352036

JOINT	S11-BOT	S22-BOT	S12-BOT
44	-0.489274	-0.158630	-0.314502
45	-0.747635	-0.153276	-0.379204
77	-0.453678	0.122384	-0.261910
78	-0.713439	0.130447	-0.325519

JOINT	S13-AVG	S23-AVG
44	0.001491	-0.000168
45	0.002767	-0.000486
77	0.001096	-0.001753
78	0.002372	-0.002071

COMB U-BEAM2 ------------------ MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
44	-0.510936	-0.030759	-0.326940
45-	-0.772225	-0.054079	-0.387221
77	-0.418074	0.251579	-0.284953
78	-0.678268	0.226295	-0.346048

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	Sll-BOT	S22-BOT	S12-BOT
44	-0.464571	-0.048290	-0.316675
45	-0.707846	-0.012794	-0.362574
77	-0.447694	0.212160	-0.262639
78	-0.692064	0.249620	-0.307725

JOINT	S13-AVG	S23-AVG
44	0.004065	0.005573
45	0.007287	0.004770
77	0.003068	0.001571
78	0.006289	0.000768

COMB U-BEAM2 ---------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
44	-0.510936	-0.030759	-0.326940
45	-0.772225	-0.054079	-0.387221
77	-0.418074	0.251579	-0.284953
78	-0.678268	0.226295	-0.346048

JOINT	Sll-BOT	S22-BOT	S12-BOT
44	-0.464571	-0.048290	-0.316675
45	-0.707846	-0.012794	-0.362574
77	-0.447694	0.212160	-0.262639
78	-0.692064	0.249620.	-0.307725

JOINT	S13-AVG	S23-AVG
44	0.004065	0.005573
45	0.007287	0.004770
77	0.003068	0.001571
78	0.006289	0.000768

COMB U-BEAM3 ---------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
44	-0.236747	-0.342409	-0.227961
45	-0.279147	-0.401300	-0.232779
77	-0.152805	-0.111483	-0.143780
78	-0.195061	-0.170615	-0.148700

JOINT	Sll-BOT	S22-BOT	S12-BOT
44	-0.095266	-0.062499	-0.157024
45	-0.076041	-0.019370	-0.129147
77	-0.054219	0.151227	-0.102483
78	-0.035139	0.194596	-0.074504

JOINT	S13-AVG	S23-AVG
44	0.003044	0.007559
45	0.003724	0.007389
77	0.002833	0.006714
78	0.003513	0.006545

SHELL ELEM INTERNAL FORCES & STRESSES

COMB U-BEAMS ---------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
44	-0.236747	-0.342409	-0.227961
45	-0.279147	-0.401300	-0.232779
77	-0.152805	-0.111483	-0.143780
78	-0.195061	-0.170615	-0.148700

JOINT	Sll-BOT	S22-BOT	S12-BOT
44	-0.095266	-0.062499	-0.157024
45	-0.076041	-0.019370	-0.129147
77	-0.054219	0.151227	-0.102483
78	-0.035139	0.194596	-0.074504

JOINT	S13-AVG	S23-AVG
44	0.003044	0.007559
45	0.003724	0.007389
77	0.002833	0.006714
78	0.003513	0.006545

COMB U-BEAM4 ---------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
44	-0.741028	-0.220983	-0.580291
45	-1.032903	-0.274667	-0.624377
77	-0.585032	0.266999	-0.455455
78	-0.875361	0.210365	-0.500736

JOINT	Sll-BOT	S22-BOT	S12-BOT
44	-0.584541	-0.221129	-0.471526
45	-0.823676	-0.172646	-0.5.08352
77	-0.507898	0.273610	-0.364393
78	-0.748578	0.325043	-0.400023

JOINT	S13-AVG	S23-AVG
44	0.004535	0.007391
45	0.006490	0.006903
77	0.003930	0.004962
78	0.005885	0.004474

COMB U-BEAM4 ---------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
44	-0.741028	-0.220983	-0.580291
45	-1.032903	-0.274667	-0.624377
77	-0.585032	0.266999	-0.455455
78	-0.875361	0.210365	-0.500736

JOINT	Sll-BOT	S22-BOT	S12-BOT
44	-0.584541	-0.221129	-0.471526
45	-0.823676	-0.172646	-0.508352

77	-0.507898	0.273610	-0.364393
78	-0.748578	0.325043	-0.400023

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S13-AVG	S23-AVG
44	0.004535	0.007391
45	0.006490	0.006903
77	0.003930	0.004962
78	0.005885	0.004474

COMBALL-LOAD --------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
44	-0.747683	-0.373168	-0.554901
45	-1.051372	-0.455379	-0.620000
77	-0.570879	0.140096	-0.428733
78	-0.873329	0.055680	-0.494747

JOINT	Sll-BOT	S22-BOT	S12-BOT
44	-0.559837	-0.110789	-0.473699
45	-0.783888	-0.032164	-0.491721
77	-0.501914	0.363387	-0.365122
78	-0.727203	0.444216	-0.382229

JOINT	S13-AVG	S23-AVG
44	0.007109	0.013132
45	0.011010	0.012159
77	0.005901	0.008285
78	0.009802	0.007313

COMBALL-LOAD ---------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
44	-0.747683	-0.373168	-0.554901
45	-1.051372	-0.455379	-0.620000
77	-0.570879	0.140096	-0.428733
78	-0.873329	0.055680	-0.494747

JOINT	Sll-BOT	S22-BOT	S12-BOT
44	-0.559837	-0.110789	-0.473699
45	-0.783888	-0.032164	-0.491721
77	-0.501914	0.363387	-0.365122
78	-0.727203	0.444216	-0.382229

JOINT	S13-AVG	S23-AVG
44	0.007109	0.013132
45	0.011010	0.012159
77	0.005901	.008285
78	0.009802	0.007313

ELEM 1649---------- TYPE = SHELL

LOAD DLNOSL ----------

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
4895	-0.052823	-0.326832	0.097552	-0.021641	-0.358013	17.726098
4896	-0.139338	-0.432750	0.104298	-0.106042	-0.466046	17.705122
4928	-0.135148	-0.674036	0.085808	-0.121815	-0.687369	8.832350
4929	-0.222026	-0.779488	0.092774	-0.206992	-0.794522	9.204864

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT--MAX	S-BOT-MIN	ANGLE
4895	0.099434	0.044095	0.253634	0.326903	-0.183374	41.887025
4896	0.083044	0.128988	0.265468	0.372476	-0.160444	47.472895
4928	0.076546	-0.229655	0.190323	0.167705	-0.320813	25.592973
4929	0.060519	-0.145227	0.201937	0.184276	-0.268984	31.502123

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
4895	-0.000128	0.010233	0.010234	90.716168
4896	-0.003873	0.011166	0.011819	109.126852
4928	0.001032	0.014885	0.014921	86.033950
4929	-0.002713	0.015818	0.016049	99.730864

LOAD CONC ----------

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
4895	0.031782	0.275153	0.383999	0.556285	-0.249351	53.791441
4896	0.039120	0.297403	0.496744	0.681518	-0.344995	52.286468

SHELL ELEM INTERNAL FORCES & STRESSES

LOAD TEMP1 ----------

JOINT	Sll-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
12	-0.010291	-0.183699	-0.002656	-0.010250	-0.183740	-0.877321
13	-0.030617	-0.230462	-0.037631	-0.023766	-0.237313	-10.318348
45	0.007950	-0.174419	-0.004779	0.008075	-0.174544	-1.500026
46	-0.012595	-0.220460	-0.039504	-0.005341	-0.227715	-10.405797

JOINT	Sll-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
12	0.035675	0.212838	0.030085	0.217807	0.030705	80.620550
13	0.072501	0.255484	0.074896	0.282230	0.045755	70.347932
45	-0.000153	0.128109	0.014866	0.129809	-0.001854	83.474339
46	0.036892	0.170034	0.059428	0.192701	0.014225	69.122427

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
12	0.003160	0.010400	0.010870	73.097693
13	0.007267	0.009376	0.011863	52.222317
45	0.001888	0.005298	0.005624	70.384482
46	0.005995	0.004274	0.007363	35.486859

LOAD UNIF2 ----------

JOINT	Sll-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
12	-0.332853	-1.302475	-0.476128	-0.138149	-1.497178	-22.241159
13	-0.256551	-1.296449	-0.548577	-0.020667	-1.532333	-23.267358
45	-0.162354	-0.250423	-0.236142	0.033825	-0.446602	-39.718535
46	-0.085689	-0.246642	-0.309285	0.153417	-0.485749	-37.707455

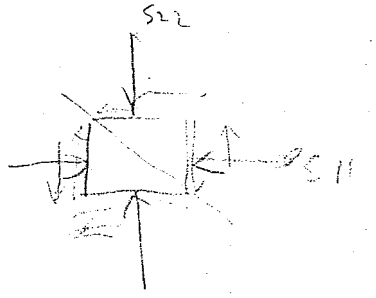
JOINT	Sll-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
12	-0.276278	-0.992731	-0.326971	-0.149493	-1.119516	-21.194128
13	-0.248421	-0.865811	-0.464455	0.000568	-1.114799	-28.195222
45	0.068701	0.212030	-0.066379	0.238049	0.042683	-68.596364
46	0.096195	0.341196	-0.203169	0.455938	-0.018547	-60.543865

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
12	0.000471	-0.008954	0.008966	-86.990231
13	-0.021497	-0.003477	0.021776	-170.812479
45	0.007275	0.018337	0.019728	68.359400
46	-0.014692	0.023814	0.027982	121.672425

COMB U-BEAMl --------- MAX ---------

JOINT	Sll-TOP	S22-TOP	S12-TOP
12	-0.716860	-1.063186	-0.847110
13	-0.825181	-1.143682	-0.740676
45	-0.352717	0.563799	-0.496462
46	-0.460003	0.480835	-0.390960

JOINT	Sll-BOT	S22-BOT	S12-BOT
12	-0.768198	-1.545812	-0.903632
13	-0.995437	-1.562887	-0.899819



45	-0.329258	0.235154	-0.456140
46	-0.557531	0.220547	-0.451396

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S13-AVG	S23-AVG
12	0.000423	-0.003431
13	-0.005370	-0.001987
45	.002217	0.003766
46	-0.003576	0.005210

COMB U-BEAM1 ------------------ MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
12	-0.716860	-1.063186	-0.847110
13	-0.825181	-1.143682	-0.740676
45	-0.352717	0.563799	-0.496462
46	-0.460003	0.480835	-0.390960

JOINT	Sll-BOT	S22-BOT	S12-BOT
12	-0.768198	-1.545812	-0.903632
13	-0.995437	-1.562887	-0.899819
45	-0.329258	0.235154	-0.456140
46	-0.557531	0.220547	-0.451396

JOINT	S13-AVG	S23-AVG
12	0.000423	-0.003431
13	-0.005370	-0.001987
45	0.002217	0.003766
46	-0.003576	0.005210

COMB U-BEAM2 ------------------ MAX

JOINT'	Sll-TOP	S22-TOP	S1.2-TOP
12	-0.727151	-1.246885	-0.849766
13	-0.855798	-1.374144	-0.778307
45	-0.344767	0.389381	-0.501241
46	-0.472598	0.260375	-0.430464

JOINT'	Sll-BOT	S22-BOT	S12-BOT
12	-0.732523	-1.332974	-0.873548
13.	-0.922936	-1.307402	-0.824923
45	-0.329411	0.363263	-0.441274
46	-0.520639	0.390581	-0.391968

JOINT	S13-AVG	S23-AVG
12	0.003583	0.006969
13	0.001897	0.007390
45	0.004105	0.009064
46	0.002419	0.009484

COMB U-BEAM2 ------------------ MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
12	-0.727151	-1.246885	-0.849766
13	-0.855798	-1.374144	-0.778307

45	-0.344767	0.389381	-0.501241
46	-0.472598	0.260375	-0.430464

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S11-BOT	S22-BOT	S12-BOT
12	-0.732523	-1.332974	-0.873548
13	-0.922936	-1.307402	-0.824923
45	-0.329411	0.363263	-0.441274
46	-0.520639	0.390581	-0.391968

JOINT	S13-AVG	S23-AVG
12	0.003583	0.006969
13	0.001897	0.007390
45	0.004105	0.009064
46	0.002419	0.009484

COMB U-BEAMS ---------- MAX

JOINT	S11-TOP	S22-TOP	S12-TOP
12	-0.332853	-1.302475	-0.476128
13	-0.256551	-1.296449	-0.548577
45	-0.162354	-0.250423	-0.236142
46	-0.085689	-0.246642	-0.309285

JOINT	S11-BOT	S22-BOT	S12-BOT
12	-0.276278	-0.992731	-0.326971
13	-0.248421	-0.865811	-0.464455
45	0.068701	0.212030	-0.066379
46	0.096195	0.341196	-0.203169

JOINT	S13-AVG	S23-AVG
12	0.000471	-0.008954
13	-0.021497	-0.003477
45	0.007275	0.018337
46	-0.014692	0.023814

COMB U-BEAMS ---------- MIN

JOINT	S11-TOP	S22-TOP	S12-TOP
12	-0.332853	-1.302475	-0.476128
13	-0.256551	-1.296449	-0.548577
45	-0.162354	-0.250423	-0.236142
46	-0.085689	-0.246642	-0.309285

JOINT	Sll-BOT	S22-BOT	S12-BOT
12	-0.276278	-0.992731	-0.326971
13	-0.248421	-0.865811	-0.464455
45	0.068701	0.212030	-0.066379
46	0.096195	0.341196	-0.203169

JOINT	S13-AVG	S23-AVG
12	0.000471	-0.008954
13	-0.021497	-0.003477
45	0.007275	0.018337
46	-0.014692	0.023814

SHELL ELEM INTERNAL FORCES & STRESSES

COMB U-BEAM4 ----------------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
12	-1.049713	=2.365660	-1.323238
13	-1.081732	-2.440131	-1.289253
45	-0.515071	0.313376	-0.732605
46	-0.545692	0.234193	-0.700244

JOINT	S11-BOT	S22-BOT	S12-BOT
12	-1.044476	-2.538543	-1.230604
13	-1.243858	-2.428697	-1.364274
45	-0.260556	0.447184	-0.522519
46	-0.461336	0.561742	-0.654565

JOINT	S13-AVG	S23-AVG
12	0.000894	-0.012385
13	-0.026867	-0.005464
45	0.009492	0.022103
46	-0.018268	0.029024

COMB U-BEAM4 ----------------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
12	-1.049713	-2.365660	-1.323238
13	-1.081732	-2.440131	-1.289253
45	-0.515071	0.313376	-0.732605
46	-0.545692	0.234193	-0.700244

JOINT'	Sll-BOT	S22-BOT	S12-BOT
12	-1.044476	-2.538543	-1.230604
13	-1.243858	-2.428697	-1.364274
45	-0.260556	0.447184	-0.522519
46	-0.461336	0.561742	-0.654565

JOINT	S13-AVG	S23-AVG
12	0.000894	-0.012385
13	-0.026867	-0.005464
45	0.009492	0.022103
46	-0.018268	0.029024

COMBALL-LOAD ----------------- MAX

JOINT	Sll-TOP	S22-TOP	S12=TOP
12	-1.060004	-2.549360	-1.325894
13	-1.112349	-2.670593	-1.326885
45	-0.507121	0.138958	-0.737383
46	-0.558287	0.013732	-0.739749

JOINT	Sll-BOT	S22-BOT	S12-BOT
12	-1.008801	-2.325705	-1.200519
13	-1.171357	-2.173213	-1.289378

45	-0.260710	0.575293	-0.507653
46	-0.424444	0.731777	-0.595137

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S13-AVG	S23-AVG
4895	-0.002763	0.007170
4896	-0.008499	0.008600
4928	-0.000987	0.014295
4929	-0.006722	0.015725

COMBALL-LOAD ---------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
4895	-0.089719	-0.422124	0.523462
4896	-0.233913	-0.632705	0.663970
4928	-0.255972	-0.937326	0.478985
4929	-0.402101	-1.144568	0.620894

JOINT	S11-BOT	S22-BOT	S12-BOT
4895	-0.021742	-0.090555	0.563723
4896	-0.068618	-0.075148	0.724957
4928	-0.051860	-0.518419	0.431601
4929	-0.096802	-0.506350	0.591433

JOINT	S13-AVG	S23-AVG
4895	-0.002920	0.011023
4896	-0.010545	0.012924
4928	-0.000558	0.020496
4929	-0.008183	0.022397

COMBALL-LOAD ---------- MIN

JOINT'	Sll-TOP	S22-TOP	S12-TOP
4895	-0.089719	-0.422124	0.523462
4896	-0.233913	-0.632705	0.663970
4928	-0.255972	-0.937326	0.478985
4929	-0.402101	-1.144568	0.620894

JOINT	Sll-BOT	S22-BOT	S12-BOT
4895	-0.021742	-0.090555	0.563723
4896	-0.068618	-0.075148	0.724957
4928	-0.051860	-0.518419	0.431601
4929	-0.096802	-0.506350	0.591433

JOINT	S13-AVG	S23-AVG
4895	-0.002920	0.011023
4896	-0.010545	0.012924
4928	-0.000558	0.020496
4929	-0.008183	0.022397

ELEM 1650 ---------- TYPE = SHELL

LOAD DLNOSL----------

JOINT	Sll-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE

4928	-0.003119	-0.600-902	-0.011974	-0.002879	-0.601141	-1.147076
4929	-0.016107	-0.737948	0.051440	-0.012460	-0.741596	4.055686

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
4961	-0.131160	-1.229517	-0.135778	-0.114624	-1.246053	-6.943600
4962	-0.144003	-1.366714	-0.072442	-0.139726	-1.370991	-3.378864

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
4928	0.103563	-0.204389	0.146585	0.162180	-0.263006	21.795632
4929	0.128269	-0.109275	0.156924	0.206301	-0.187307	26.439410
4961	-0.028946	-0.684263	0.011921	-0.028729	-0.684480	1.041802
4962	-0.004385	-0.588999	0.022338	-0.003533	-0.589851	2.185044

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
4928	0.001957	0.014225	0.014359	82.165684
4929	0.003973	0.013722	0.014286	73.851588
4961	0.001333	0.011720	0.011796	83.512423
4962	0.003349	0.011217	0.011707	73.377990

LOAD CONC ----------

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
4928	0.082641	0:457795	0.315397	0.637179	-0.096743	60.370698
4929	0.076489	0.515736	0.361338	0.718960	-0.126735	60.645736
4961	0.115881	0.687867	0.360806	0.862279	-0.058531	64.201064
4962	0.108436	0.748248	0.407740	0.946600	-0.089917	64.058579

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
4928	-0.104594	-0.156134	0.007093	-0.103635	-0.157092	7.695019
4929	-0.100068	-0.286165	0.084265	-0.067583	-0.318649	21.082070
4961	-0.070647	-0.015046	0.013905	-0.011762	-0.073931	76.713741
4962-	-0.064827	-0.147516	0.090084	-0.007053	-0.205290	32.673474

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
4928	-0.002685	-0.011951	0.012249	-102.662619
4929	-0.004805	-0.011422	0.012392	-112.816726
4961.	-0.002028	-0.009317	0.009535	-102.281873
4962	-0.004149	-0.008788	0.009718	-115.270751

LOAD TEMPI ----------

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
4928	-0.032992	-0.093791	-0.073240.	0.015906	-0.142689	-33.729211
4929	-0.032826	-0.144090	-0.071281	0.001963	-0.178879	-26.014719
4961	-0.042724	-0.105773	-0.076362	0.008365	-0.156862	-33.783904
4962	-0.042152	-0.156965	-0.074749	-0.005310	-0.193807	-26.238058

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
4928	0.022732	0.076294	0.046108	0.102834	-0.003809	60.074653
4929	0.022805	0.126325	0.044649	0.142922	0.006208	69.609135
4961	0.037289	0.099302	0.055626	0.131980	0.004612	59.567919
4962	0.036957	0.150226	0.054512	0.172198	0.014985	68.047017

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE

4928	0.000962	0.005371	0.005456	79.843520
4929	-0.000243	0.005671	0.005676	92.450328

S H E L L E L E M I N T E R N A L F O R C E S & S T R E S S E S

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
4961	0.001335	0.006867	0.006996	78.996654
4962	0.000131	0.007168	0.007169	88.956919

LOAD UNIF2

JOINT	Sll-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
4928	0.007970	-0.522696	0.017181	0.008526	-0.523252	1.852442
4929	0.007172	-0.630717	0.080663	0.017214	-0.640759	7.096445
4961	-0.094300	-1.025890	-0.087236	-0.086201	-1.033989	-5.303878
4962	-0.095252	-1.133460	-0.023593	-0.094716	-1.133996	-1.301156

JOINT	Sll-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
4928	0.069119	-0.145968	0.084875	0.098577	-0.17526	19.140481
4929	0.088111	-	0.098339	0.133230	-0.126225	24.646203
4961	-0.038774	-0.524254	-0.021330	-0.037839	-0.525189	-2.510909
4962	-0.019629	-0.459842	-0.008026	-0.019483	-0.459988	-1.044216

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
4928	0.001363	0.010593	0.010680	82.665422
4929	0.003454	0.010072	0.010648	71.073853
4961	0.000716	0.007997	0.008029	84.882621
4962	0.002806	0.007475	0.007985	69.424723

COMB U-BEAM1 ---------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
4928	0.079521	-0.143106	0.303423
4929	0.060382	-0.222212	0.412778
4961	-0.015278	-0.541650	0.225028
4962	-0.035567	-0.618466	0.335298

JOINT	Sll-BOT	S22-BOT	S12-BOT
4928	-0.001031	-0.360523	0.153678
4929	0.028201	-0.395439	0.241189
4961	-0.099593	-0.699308	0.025826
4962	-0.069212	-0.736515	0.112422

JOINT	S13-AVG	S23-AVG
4928	-0.000728	0.002274
4929	-0.000832	0.002300
4961	-0.000695	0.002404
4962	-0.000800	0.002430

COMB U-BEAM1 ---------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
4928	0.079521	-0.143106	0.303423
4929	0.060382	-0.222212	0.412778
4961	-0.015278	-0.541650	0.225028
4962	-0.035567	-0.618466	0.335298

U-BEAM-THIN-WALL STRUCTURE-SHELL ELEMENTS

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S11-BOT	S22-BOT	S12-BOT
4928	-0.001031	-0.360523	0.153678
4929	0.028201	-0.395439	0.241189
4961	-0.099593	-0.699308	0.025826
4962	-0.069212	-0.736515	0.112422

JOINT	S13-AVG	S23-AVG
4928	-0.000728	0.002274
4929	-0.000832	0.002300
4961	-0.000695	0.002404
4962	-0.000800	0.002430

COMB U-BEAM2 ------------------ MAX

JOINT	S11-TOP	S22-TOP	S12-TOP
4928	0.046529	-0.236897	0.230183
4929	0.027556	-0.366302	0.341497
4961	-0.058002	-0.647422	0.148666
4962	-0.077719	-0.775431	0.260549

JOINT	S11-BOT	S22-BOT	S12-BOT
4928	0.021701	-0.284229	0.199786
4929	0.051006	-0.269114	0.285838
4961	-0.062304	-0.600006	0.081452
4962	-0.032255	-0.586288	- 0.166934

JOINT	S13-AVG	S23-AVG
4928	0.000234	0.007645
4929	-0.001075	0.007971
4961	0.000640	0.009271
4962	-0.000669	0.009597

COMB U-BEAM2 ------------------ MIN

JOINT	S11-TOP	S22-TOP	S12-TOP
4928	0.046529	-0.236897	0.230183
4929	0.027556	-0.366302	0.341497
4961	-0.058002	-0.647422	0.148666
4962	-0.077719	-0.775431	0.260549

JOINT	S11-BOT	S22-BOT	S12-BOT
4928	0.021701	-0.284229	0.199786
4929	0.051006	-0.269114	0.285838
4961	-0.062304	-0.600006	0.081452
4962	-0.032255	-0.586288	0.166934

JOINT	S13-AVG	S23-AVG
4928	0.000234	0.007645
4929	-0.001075	0.007971
4961	0.000640	0.009271
4962	-0.000669	0.009597

SHELL ELEM INTERNAL FORCES & STRESSES

COMB U-BEAM3 ----------------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
4928	0.007970	-0.522696	0.017181
4929	0.007172	-0.630717	0.080663
4961	-0.094300	-1.025890	-0.087236
4962	-0.095252	-1.133460	-0.023593

JOINT	Sll-BOT	S22-BOT	S12-BOT
4928	0.069119	-0.145968	0.084875
4929	0.088111	-0.081105	0.098339
4961	-0.038774	-0.524254	-0.021330
4962	-0.019629	-0.459842	-0.008026

JOINT	S13-AVG	S23-AVG
4928	0.001363	0.010593
4929	0.003454	0.010072
4961	0.000716	0.007997
4962	0.002806	0.007475

COMB U-BEAM3 ----------------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
4928	0.007970	-0.522696	0.017181
4929	0.007172	-0.630717	-0.080663
4961	-0.094300	-1.025890	-0.087236
4962	-0.095252	-1.133460	-0.023593

JOINT	Sll-BOT	S22-BOT	S12-BOT
4928	0.069119	-0.145968	0.084875
4929	0.088111	-0.081105	0.098339
4961	-0.038774	-0.524254	-0.021330
4962	-0.019629	-0.459842	-0.008026

JOINT	S13-AVG	S23-AVG
4928	0.001363	0.010593
4929	0.003454	0.010072
4961	0.000716	0.007997
4962	0.002806	0.007475

COMB U-BEAM4 ----------------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
4928	0.087491	-0.665802	0.320604
4929	0.067554	-0.852929	0.493441
4961	-0.109578	-1.567540	0.137792
4962	-0.130819	-1.751926	0.311704

JOINT	Sll-BOT	S22-BOT	S12-BOT
4928	0.068088	-0.506491	0.238553
4929	0.116311	-0.476545	0.339528

4961	-0.138367	-1.223562	0.004496
4962	-0.088841	-1.196357	0.104396

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S13-AVG	S23-AVG
4928	0.000636	0.012867
4929	0.002621	0.012372
4961	2.06E-05	0.010400
4962	0.002006	0.009905

COMB U-BEAM4 ------------------ MIN

JOINT	S11-TOP	S22-TOP	S12-TOP
4928	0.087491	-0.665802	0.320604
4929	0.067554	-0.852929	0.493441
4961	-0.109578	-1.567540	0.137792
4962	-0.130819	-1.751926	0.311704

JOINT	S11-BOT	S22-BOT	S12-BOT
4.928	0.068088	-0.506491	0.238553
4929	0.116311	-0.476545	0.339528
4961	-0.138367	-1.223562	0.004496
4962	-0.088841	1.196357	0.104396

JOINT	S13-AVG	S23-AVG
4928	0.000636	0.012867
4929	0.002621	0.012372
4961	2.06E-05	0.010400
4962	0.002006	0.009905

COMBALL-LOAD ------------------ MAX

JOINT	S11-TOP	S22-TOP	S12-TOP
4928	0.054499	-0.759593	0.247364
4929	0.034728	-0.997019	0.422160
4961	-0.152302	-1.673313	0.061429
4962	-0.172971	-1.908891	0.236956

JOINT	S11-BOT	S22-BOT	S12-BOT
4928	0.090820	-0.430197	0.284661
4929	0.139116	-0.350220	0.384177
4961	-0.101078	-1.124260	0.060122
4962	-0.051884	-1.046130	0.158908

JOINT	S13-AVG	S23-AVG
4928	0.001598	0.018238
4929	0.002379	0.018043
4961	0.001356	0.017267
4962	0.002137	0.017073

COMBALL-LOAD ------------------ MIN

JOINT	S11-TOP	S22-TOP	S12-TOP
4928	0.054499	-0.759593	0.247364
4929	0.034728	-0.997019	0.422160

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4961  -0.152302   -1.673313   0.061429
4962  -0.172971   -1.908891   0.236956
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SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S11-BOT	S22-BOT	S12-BOT
4928	0.090820	-0.430197	0.284661
4929	0.139116	-0.350220	0.384177
4961	-0.101078	-1.124260	0.060122
4962	-0.051884	-1.046130	0.158908

JOINT	S13-AVG	S23-AVG
4928	0.001598	0.018238
4929	0.002379	0.018043
4961	0.001356	0.017267
4962	0.002137	0.017073

ELEM 1651 TYPE = SHELL

LOAD DLNOSL ----------

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
12	-0.478597	-1.699636	-0.668896	-0.183492	-1.994741	-23.806241
13	-0.621713	-1.778613	-0.730718	-0.268201	-2.132124	-25.817101
45	-0.189178	-0.297002	-0.308778	0.070359	-0.556539	-40.048062
46	-0.332071	-0.377825	-0.371149	0.016906	-0.726802	-43.236436

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
12	-0.415678	-1.133623	-0.531178	-0.133549	-1.415752	-27.974493
13	-0.578691	-0.999226	-0.615990	-0.138070	-1.439847	-35.576338
45	0.018122	0.383170	-0.147223	0.435144	-0.033852	-70.555218
46	-0.145113	0.519412	-0.231485	0.592099	-0.217799	-72.567681

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
12	0.003265	-0.001147	0.003461	-19.349062
13	-0.016992	0.003904	0.017435	167.060247
45	0.009540	0.024020	0.025845	68.338784
46	-0.010717	0.029071	0.030983	110.237220

LOAD CONC ----------

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
12	-0.238263	0.636450	-0.178213	0.671365	-0.273178	-78.915085
13	-0.203468	0.634931	-0.009958	0.635049	-0.203586	-89.319579
45	-0.163539	0.860801	-0.187684	0.894107	-0.196844	-79.937354
46	-0.127932	0.858660	-0.019810	0.859058	-0.128329	-88.850142

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
12	-0.352520	-0.412189	-0.372454	-0.008707	-0.756002	-42.710136
13	-0.416746	-0.563660	-0.283829	-0.197022	-0.783384	-37.744913
45	-0.347380	-0.148016	-0.308917	0.076904	-0.572300	-53.941991
46	-0.412418	-0.298865	-0.219911	-0.128520	-0:582764	-52.238230

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
12	-0.002842	-0.002284	0.003646	-141.210734
13	0.011622	-0.005891	0.013030	-26.878505

45	-0.007323	-0.020254	0.021537	-109.876847
46	0.007142	-0.023861	0.024906	-73.336961

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
4928	0.034563	0.418446	0.369345	0.642747	-0.189738	58.730006
4929	0.040294	0.443936	0.483379	0.765935	-0.281704	56.330777

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
4895	-0.214198	-0.252694	0.100487	-0.131132	-0.335760	39.578289
4896	-0.226777	-0.424776	0.243306	-0.063101	-0.588452	33.929490
4928	-0.218995	-0.206772	0.079686	-0.132964	-0.292804	47.192866
4929	-0.229968	-0.382094	0.221217	-0.072103	-0.539959	35.512522

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
4895	-0.002523	-0.010920	0.011208	-103.007827
4896	-0.002069	-0.011034	0.011226	-100.620312
4928	-0.002663	-0.011484	0.011789	-103.056727
4929	-0.002210	-0.011597	0.011806	-100.786555

LOAD TEMPI ----------

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
4895	-0.038384	-0.073811	-0.072639	0.018670	-0.130865	-38.147827
4896	-0.038914	-0.115407	-0.067348	0.000290	-0.154611	-30.204115
4928	-0.059045	-0.100507	-0.074489	-0.002457	-0.157096	-37.223874
4929	-0.059254	-0.142877	-0.069489	-0.019967	-0.182164	-29.482387

JOINT	811-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
4895	0.025205	0.070344	0.035977	0.090244	0.005305	61.050657
4896	0.025124	0.111604	0.031159	0.121661	0.015067	72.111483
4928	0.045023	0.088174	0.037881	0.110194	0.023003	59.832146
4929	0.044620	0.130208	0.033355	0.141672	0.033156	71.032986

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
4895	-0.000156	0.003853	0.003856	92.321562
4896	-0.002046	0.004324	0.004784	115.316447
4928	0.000429	0.006201	0.006215	, 86.041925
4929	-0.001460	0.006672	0.006830	102.347057

LOAD UNIF2 ---------

JOINT	S11-TOP	522-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
4895	-0.030294	-0.296635	0.114551	0.012195	-0.339124	20.350744
4896	-0.094780	-0.381951	0.130277	-0.044487	-0.432244	21.108896
4928	-0.096341	-0.581229	0.098320	-0.077164	-0.600407	11.037205
4929	-0.161115	-0.666139	0.114231	-0.136479	-0.690775	12.170459

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
4895	0.067817	0.047700	0.173626	0.231676	-0.116158	43.342237
4896	0.049991	0.109035	0.185025	0.266878	-0.107852	49.532796
4928	0.045566	-0.170166	0.123711	0.101833	-0.226433	24.457066
4929	0.028028	-0.109237	0.134925	0.110773	-0.191982	31.519424

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE

4895	-0.000113	0.007857	0.007858	90.821838
4896	-0.002558	0.008467	0.008845	106.807671

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
4928	0.000645	0.010895	0.010914	86.614105
4929	-0.001800	0.011504	0.011644	98.893963

COMB U-BEAM1 ------------------ MAX

JOINT	S11-TOP	S22-TOP	S12-TOP
4895	-0.021041	-0.051679	0.481551
4896	-0.100219	-0.135347	0.601042
4928	-0.100585	-0.255590	0.455153
4929	-0.181732	-0.335552	0.576153

JOINT	S11-BOT	S22-BOT	S12-BOT
4895	-0.114764	-0.208599	0.354121
4896	-0.143734	-0.295787	0.508773
4928	-0.142449	-0.436427	0.270009
4929	-0.169449	-0.527321	0.423153

JOINT	S13-AVG	S23-AVG
4895	-0.002651	-0.000688
4896	-0.005942	0.000133
4928	-0.001631	0.003401
4929	-0.004922	0.004221

COMB U-BEAM1 ------------------ MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
4895	-0.021041	-0.051679	0.481551
4896	-0.100219	-0.135347	0.601042
4928	-0.100585	-0.255590	0.455153
4929	-0.181732	-0.335552	0.576153

JOINT	S11-BOT	S22-BOT	S12-BOT
4895	-0.114764	-0.208599	0.354121
4896	-0.143734	-0.295787	0.508773
4928	-0.142449	-0.436427	0.270009
4929	-0.169449	-0.527321	0.423153

JOINT	S13-AVG	S23-AVG
4895	-0.002651	-0.000688
4896	-0.005942	0.000133
4928	-0.001631	0.003401
4929	-0.004922	0.004221

COMB U-BEAM2 ------------------ MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
4895	-0.059425	-0.125489	0.408912
4896	-0.139133	-0.250754	0.533693
4928	-0.159630	-0.356097	0.380665
4929	-0.240985	-0.478429	0.506664

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	Sll-BOT	S22-BOT	S12-BOT
4895	-0.089559	-0.138255	0.390097
4896	-0.118609	-0.184184	0.539932
4928	-0.097427	-0.348253	0.307890
4929	-0.124830	-0.397113	0.456508

JOINT	S13-AVG	S23-AVG
4895	-0.002807	0.003166
4896	-0.007987	0.004457
4928	-0.001202	0.009601
4929	-0.006383	0.010893

COMB U-BEAM2 ------------------ MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
4895	-0.059425	-0.125489	0.408912
4896	-0.139133	-0.250754	0.533693
4928	-0.159630	-0.356097	0.380665
4929	-0.240985	-0.478429	0.506664

JOINT	Sll-BOT	S22-BOT	S12-BOT
4895	-0.089559	-0.138255	0.390097
4896	-0.118609	-0.184184	0.539932
4928	-0.097427	-0.348253	0.307890
4929	-0.124830	-0.397113	0.456508

JOINT	S13-AVG	S23-AVG
4895	-0.002807	0.003166
4896	-0.007987	0.004457
4928	-0.001202	0.009601
4929	-0.006383	0.010893

COMB U-BEAMS ------------------ MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
4895	-0.030294	-0.296635	0.114551
4896	-0.094780	-0.381951	0.130277
4928	-0.096341	-0.581229	0.098320
4929	-0.161115	-0.666139	0.114231

JOINT	Sll-BOT	S22-BOT	S12-BOT
4895	0.067817	0.047700	0.173626
4896	0.049991	0.109035	0.185025
4928	0.045566	-0.170166	0.123711
4929	0.028028	-0.109237	0.134925

JOINT	S13-AVG	S23-AVG
4895	-0.000113	0.007857
4896	-0.002558	0.008467
4928	0.000645	0.010895
4929	-0.001800	0.011504

SHELL ELEM INTERNAL FORCES & STRESSES

COMB U-BEAMS ------------------ MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
4895	-0.030294	-0.296635	0.114551
4896	-0.094780	-0.381951	0.130277
4928	-0.096341	-0.581229	0.098320
4929	-0.161115	-0.666139	0.114231

JOINT	Sll-BOT	S22-BOT	S12-BOT
4895	0.067817	0.047700	0.173626
4896	0.049991	0.109035	0.185025
4928	0.045566	-0.170166	0.123711
4929	0.028028	-0.109237	0.134925

JOINT	S13-AVG	S23-AVG
4895	-0.000113	0.007857
4896	-0.002558	0.008467
4928	0.000645	0.010895
4929	-0.001800	0.011504

COMB U-BEAM4 ------------------ MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
4895	-0.051335	-0.348314	0.596101
4896	-0.194999	-0.517298	0.731318
4928	-0.196926	-0.836819	0.553473
4929	-0.342847	-1.001692	0.690384

JOINT'	S11-BOT	S22-BOT	S12-BOT
4895	-0.046947	-0.160899	0.527747
4896	-0.093743	-0.186752	0.693798
4928	-0.096883	-0.606593	0.393720
4929	-0.141421	-0.636558	0.558078

JOINT	S13-AVG	S23-AVG
4895	-0.002763	0.007170
4896	-0.008499	0.008600
4928	-0.000987	0.014295
4929	-0.006722	0.015725

COMB U-BEAM4 ------------------ MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
4895	-0.051335	-0.348314	0.596101
4896	-0.194999	-0.517298	0.731318
4928	-0.196926	-0.836819	0.553473
4929	-0.342847	-1.001692	0.690384

JOINT	Sll-BOT	S22-BOT	S12-BOT
4895	-0.046947	-0.160899	0.527747
4896	-0.093743	-0.186752	0.693798

4928	-0.096883	-0.606593	0.393720
4929	-0.141421	-0.636558	0.558078

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S13-AVG	S23-AVG
12	0.004054	-0.001985
13	-0.019599	0.003913
45	0.011381	0.027401
46	-0.012273	0.033298

COMBALL-LOAD ---------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
12	-1.060004	-2.549360	-1.325894
13	-1.112349	-2.670593	-1.326885
45	-0.507121	0.138958	-0.737383
46	-0.558287	0.013732	-0.739749

JOINT	Sll-BOT	S22-BOT	S12-BOT
12	-1.008801	-2.325705	-1.200519
13	-1.171357	-2.173213	-1.289378
45	-0.260710	0.575293	-0.507653
46	-0.424444	0.731777	-0.595137

JOINT	S13-AVG	S23-AVG
12	0.004054	-0.001985
13	-0.019599	0.003913
45	0.011381	0.027401
46	-0.012273	0.033298

ELEM 1652 ----------TYPE = SHELL

LOAD DLNOSL ----------

JOINT	Sll-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
45	-0.402044	-0.353729	-0.223912	-0.152675	-0.603098	-48.078881
46	-0.148156	-0.496332	-0.160984	-0.085132	-0.559356	-21.380221
78	-0.306917	-0.273433	-0.190820	-0.098622	-0.481728	-47.507002
79	-0.052730	-0.415844	-0.127920	-0.012192	-0.456382	-17.583692

JOINT	Sll-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
45	-0.138823	0.358879	-0.155969	0.403717	-0.183661	-73.961144
46	0.186160	0.412800	0.030798	0.416911	0.182050	82.397753
78	-0.182041	0.290052	-0.102153	0.311208	-0.203197	-78.299299
79	0.142644	0.343780	0.084642	0.374658	0.111765	69.957359

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
45	0.007739	0.022467	0.023762	70.993109
46	0.019144	0.019623	0.027414	45.708347
78	0.004206	0.008298	0.009303	63.119208
79	0.015611	0.005454	0.016536	19.258539

LOAD CONC ----------

JOINT	Sll-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE

45	-0.370185	0.861050	-0.249432	0.909662	-0.418797	-78.971747
46	-0.329859	0.836547	0.010257	0.836637	-0.329949	89.496194

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
78	-0.448880	0.728100	-0.317161	0.808124	-0.528904	-75.838996
79	-0.406960	0.700000	-0.058851	0.703120	-0.410080	-86.965301

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
45	-0.625995	-0.148776	-0.328368	0.018521	-0.793292	-63.002055
46	-0.687252	-0.351277	-0.203061	-0.255724	-0.782804	-64.800109
78	-0.623268	-0.137751	-0.370043	0.062056	-0.823074	-61.632984
79	-0.686118	-0.336655	-0.243356	-0.211798	-0.810975	-62.839322

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
45	-0.005335	-0.018501	0.019255	-106.085748
46	-0.011318	-0.017009	0.020431	-123.639380
78	-0.003482	-0.011068	0.011603	-107.462569
79	-0.009465	-0.009577	0.013465	-134.663037

LOAD TEMP1 -----------------

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
45	-0.027408	-0.192509	0.001264	-0.027398	-0.192519	0.438563
46	-0.056931	-0.216520	-0.034806	-0.049670	-0.223781	-11.783338
78	0.010832	-0.141723	0.008669	0.011323	-0.142214	3.241992
79	-0.018997	-0.164922	-0.027104	-0.014126	-0.169793	-10.189431

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
45	0.045226	0.143436	0.015248	0.145749	0.042913	81.374693
46	0.057081	0.172441	0.039781	0.184829	0.044693	72.703133
78	0.014779	0.112811	0.017771	0.115933	0.011657	80.035845
79	0.026941	0.141005	0.042007	0.154805	0.013140	71.813195

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
45	0.003738	0.006431	0.007439	59.829953
46	0.006631	0.005710	0.008750	40.731274
78	0.002842	0.002837	0.004016	44.949753
79	0.005735	0.002116	0.006113	20.254879

LOAD UNIF2 ----------

JOINT	S11-TOP	S22-TOP	S12-TOP	S-TOP-MAX	S-TOP-MIN	ANGLE
45	-0.245891	-0.265119	-0.183454	-0.071799	-0.439211	-43.500075
46	0.018120	-0.360308	-0.138842	0.063595	-0.405783	-18.135230
78	-0.198520	-0.188918	-0.166961	-0.026689	-0.360749	-45.823594
79	0.065608	-0.283871	-0.122317	0.104165	-0.322428	-17.495880

JOINT	S11-BOT	S22-BOT	S12-BOT	S-BOT-MAX	S-BOT-MIN	ANGLE
45	-0.026191	0.195372	-0.095581	0.230906	-0.061725	-69.606365
46	0.278165	0.243762	0.036040	0.300898	0.221029	32.242515
78	-0.038420	0.174202	-0.061234	0.190576	-0.054794	-75.029291
79	0.265819	0.222356	0.070355	0.317723	0.170452	36.417467

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE

45	0.004152	0.015603	0.016146	75.097460
46	0.010938	0.013911	0.017696	51.822399

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S13-AVG	S23-AVG	S-AVG-MAX	ANGLE
78	0.002050	0.007173	0.007460	74.046291
79	0.008836	0.005481	0.010398	31.809811

COMB U-BEAM1 ---------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
45	-0.772229	0.507321	-0.473344
46	-0.478015	0.340215	-0.150726
78	-0.755796	0.454666	-0.507980
79	-0.459690	0.284156	-0.186771

JOINT	Sll-BOT	S22-BOT	S12-BOT
45	-0.764818	0.210103	-0.484337
46	-0.501091	0.061523	-0.172263
78	-0.805309	0.152301	-0.472197
79	-0.543475	0.007125	-0.158714

JOINT	S13-AVG	S23-AVG
45	0.002404	0.003965
46	0.007826	0.002614
78	0.000724	-0.002771
79	0.006146	-0.004122

COMB U-BEAM1 MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
45	-0.772229	0.507321	-0.473344
4'6	-0.478015	0.340215	-0.150726
78	-0.755796	0.454666	-0.507980
79	-0.459690	0.284156	-0.186771

JOINT	Sll-BOT	S22-BOT	S12-BOT
45	-0.764818	0.210103	-0.484337
46	-0.501091	0.061523	-0.172263
78	-0.805309	0.152301	-0.472197
79	-0.543475	0.007125	-0.158714

JOINT	S13-AVG	S23-AVG
45	0.002404	0.003965
46	0.007826	0.002614
78	0.000724	-0.002771
79	0.006146	-0.004122

COMB U-BEAM2 ---------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
45	-0.799637	0.314811	-0.472080
46	-0.534946	0.123695	-0.185533
78	-0.744964	0.312944	-0.499311
79	-0.478688	0.119235	-0.213874

S H E L L E L E M I N T E R N A L F 0 R C E S & S T R E S S E S

JOINT	Sll-BOT	S22-BOT	S12-BOT
45	-0.719592	0.353540	-0.469089
46	-0.444010	0.233965	-0.132481
78	-0.790530	0.265112	-0.454426
79	-0.516534	0.148130	-0.116707

JOINT	S13-AVG	S23-AVG
45	0.006142	0.010396
46	0.014457	0.008323
78	0.003567	6.68E-05
79	0.011881	-0.002006

COMB U-BEAM2 ----------------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
45	-0.799637	0.314811	-0.472080
46	-0.534946	0.123695	-0.185533
78	-0.744964	0.312944	-0.499311
79	-0.478688	0.119235	-0.213874

JOINT	Sll-BOT	S22-BOT	S12-BOT
45	-0.719592	0.353540	-0.469089
46	-0.444010	0.233965	-0.132481
78	-0.790530	0.265112	-0.454426
79	-0.516534	0.148130	-0.116707

JOINT	S13-AVG	S23-AVG
45	0.006142	0.010396
46	0.014457	0.008323
78	0.003567	6.68E-05
79	0.011881	-0.002006

COMB U-BEAM3 ----------------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
45	-0.245891	-0.265119	-0.183454
46	0.018120	-0.360308	-0.138842
78	-0.198520	-0.188918	-0.166961
79	0.065608	-0.283871	-0.122317

JOINT	Sll-BOT	S22-BOT	S12-BOT
45	-0.026191	0.195372	-0.095581
46	0.278165	0.243762	0.036040
78	-0.038420	0.174202	-0.061234
79	0.265819	0.222356	0.070355

JOINT	S13-AVG	S23-AVG
45	0.004152	0.015603
46	0.010938	0.013911
78	0.002050	0.007173
79	0.008836	0.005481

SHELL ELEM INTERNAL FORCES & STRESSES

COMB U-BEAM3 ----------------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
45	-0.245891	-0.265119	-0.183454
46	0.018120	-0.360308	-0.138842
78	-0.198520	-0.188918	-0.166961
79	0.065608	-0.283871	-0.122317

JOINT	Sll-BOT	S22-BOT	S12-BOT
45	-0.026191	0.195372	-0.095581
46	0.278165	0.243762	0.036040
78	-0.038420	0.174202	-0.061234
79	0.265819	0.222356	0.070355

JOINT	S13-AVG	S23-AVG
45	0.004152	0.015603
46	0.010938	0.013911
78	0.002050	0.007173
79	0.008836	0.005481

COMB U-BEAM4 ----------------- MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
45	-1.018120	0.242202	-0.656798
46	-0.459895	-0.020093	-0.289568
78	-0.954316	0.265749	-0.674941
79	-0.394082	0.000286	-0.309087

JOINT	Sll-BOT	S22-BOT	S12-BOT
45	-0.791008	0.405476	-0.579918
46	-0.222926	0.305285	-0.136223
78	-0.843729	0.326503	-0.533430
79	-0.277656	0.229481	-0.088359

JOINT	S13-AVG	S23-AVG
45	0.006556	0.019568
46	0.018764	0.016525
78	0.002775	0.004402
79	0.014983	0.001358

COMB U-BEAM4 ----------------- MIN

JOINT	Sll-TOP	S22-TOP	S12-TOP
45	-1.018120	0.242202	-0.656798
46	-0.459895	-0.020093	-0.289568
78	-0.954316	0.265749	-0.674941
79	-0.394082	0.000286	-0.309087

JOINT	Sll-BOT	S22-BOT	S12-BOT
45	-0.791008	0.405476	-0.579918
46	-0.222926	0.305285	-0.136223

78	-0.843729	0.326503	-0.533430
79	-0.277656	0.229481	-0.088359

SHELL ELEM INTERNAL FORCES & STRESSES

JOINT	S13-AVG	S23-AVG
45	0.006556	0.019568
46	0.018764	0.016525
78	0.002775	0.004402
79	0.014983	0.001358

COMBALL-LOAD ------------------ MAX

JOINT	Sll-TOP	S22-TOP	S12-TOP
45	-1.045528	0.049692	-0.655535
46	-0.516826	-0.236613	-0.324374
78	-0.943484	0.124026	-0.666272
79	-0.413079	-0.164636	-0.336191

JOINT	Sll-BOT	S22-BOT	S12-BOT
45	-0.745782	0.548912	-0.564670
46	-0.165845	0.477727	-0.096442
78	-0.828949	0.439314	-0.515659
79	-0.250715	0.370486	-0.046351

JOINT	S13-AVG	S23-AVG
45	0.010295	0.025999
46	0.025395	0.022234
78	0.005617	0.007240
79	0.020718	0.003475

COMBALL-LOAD ---------------- MIN

JOINT	811-TOP	S22-TOP	S12-TOP
45	-1.045528	0.049692	-0.655535
46	-0.516826	-0.236613	-0.324374
78	-0.943484	0.124026	-0.666272
79	-0.413079	-0.164636	-0.336191

JOINT	Sll-BOT	S22-BOT	S12-BOT
45	-0.745782	0.548912	-0.564670
46	-0.165845	0.477727	-0.096442
78	-0.828949	0.439314	-0.515659
79	-0.250715	0.370486	-0.046351

JOINT	S13-AVG	S23-AVG
45	0.010295	0.025999
46	0.025395	0.022234
78	0.005617	0.007240
79	0.020718	0.003475