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MASSACHUSETTS INSTITUTE OF TECHNOLOGY
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REMOVAL OF OUT-OF-PLANE DISTORTION IN MILD
STEEL PANELS USING FLAME HEATING

by

Larry Lee Janca

Course XIIIA

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→ This report discusses removal of out of plane distortion in mild steel panels using flame heating. Tables (data) are presented with charts and graphs. ←

REMOVAL OF OUT-OF-PLANE DISTORTION IN MILD STEEL PANELS
USING FLAME HEATING

by

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Larry Lee Janca

B.S., University of California
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APPENDIX F

1/8" STIFFENED PLATE OUT-OF-PLANE DEFLECTION READINGS RECORDED AFTER LINE HEATING THE FIRST PASS

Appendix F contains 10 sets of out-of-plane deflection measurements. The 1st set was recorded after welding but prior to any line heating. The rest were taken after each panel was line heated the first time. See Table 2-2 for the 1st pass line heating sequence.

NOTE: In appendixes D, E, F, and G the TRANSVERSE and LONGITUDE spacing is 2 inches. All deflection readings in the matrixes are in .001 inches. For example, the out-of-plane distortion at 10 inches TRANSVERSE and 2 inches LONGITUDE, in the matrix labeled "DISTORTION MEASUREMENTS OF 3/16" PLATE AFTER WELDING" is -0.075 inches (i.e. 0.075 below the reference point). This point is designated D(6,2) as it is on the 6th line in the TRANSVERSE direction and the 2nd line in the LONGITUDE direction.

DISTORTION MEASUREMENTS OF 1/8" PLATE AFTER WELDING

TRANSVERSE

	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
0	-131		-119	-125	-119		-108		-110	-111	-107		-95		-107	-109	-110		-123
2				-130						-84						-104			
4	-101			-146			-74			-58			-49			-89			-73
6				-153						-46						-67			
8	-94			-144			-45			-42			-16			-49			-32
10				-128						-32						-38			
12	-80	-109	-124	-120	-97	-60	-21	-15	-14	-13	-9	-1	10	-10	-20	-24	-19	-12	7
14				-114						1						-8			
16	-70			-106			4			15			34			-1			40
18				-96						36						7			
20	-67			-85			15			53			53			31			69
22				-57						58						69			
24	-65.		-35	-18	2		28		45	57	68		80		87	93	104		105
26				-60						44						74			
L 28	-65			-88			37			32			99			69			114
O 30				-88						12						71			
N 32	-69			-76			36			-3			95			70			129
G 34				-63						-3						77			
I 36	-75	-76	-71	-53	-27	5	38	16	1	0	24	63	102	93	90	91	101	115	134
T 38				-43						7						96			
U 40	-85			-45			32			19			102			91			135
D 42				-59						33						91			
E 44	-101			-71			27			35			102			96			133
46				-69						28						97			
48	-121		-77	-59	-39		6		20	34	46		89		107	113	119		142
50				-108						40						97			
52	-139			-145			-9			38			80			78			121
54				-167						24						55			
56	-166			-186			-35			11			80			39			111
58				-204						-5						33			
60	-195	-214	-224	-215	-184	-133	-65	-58	-46	-29	-10	12	41	22	16	19	37	63	96
62				-222						-44						3			
64	-227			-239			-96			-50			18			-3			79
66				-253						-57						-2			
68	-265			-253			-131			-73			-5			-5			57
70				-245						-88						-7			
72	-301		-259	-234	-212		-169		-126	-109	-87.		-45		-18	-1	13		33

DISTORTION MEASUREMENTS OF 1/8" PLATE AFTER PANEL 5 WAS LINE FLAME HEATED FOR THE FIRST TIME

		TRANSVERSE																		
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
	0	-161		-150	-154	-150		-139		-140	-141	-137		-126		-137	-140	-139		-152
	2			-162							-115						-135			
	4	-142		-179				-108			-91			-82			-121			-105
	6			-188							-80						-100			
	8	-126		-180				-82			-76			-50			-83.			-66
	10			-168							-67						-73			
	12	-114	-144	-162	-162	-139	-99	-59	-51	-49	-47	-43	-36	-27	-49	-60	-64	-57.	-48	-27
	14			-159							-33						-50			
	16	-104		-151				-36			-16			-4			-44			5
	18			-143							2						-37			
	20	-103		-131				-27			17			12			-11			33
	22			-100							18						27			
	24	-104		-74	-60	-40		-17		1	13	24		37		46	54	65		68
	26			-104							18						35			
L	28	-104		-138				-8			20			54			28.5			77
O	30			-139							7						30			
N	32	-108		-122				-10			-5			50			32			91.5
G	34			-101							-4						44			
I	36	-115	-113	-104	-85.	-62	-36	-8	-7	-5	0	13	33	57	57.5	61.5	65	73	82	99
T	38			-71.							8						70			
U	40	-125		-73				-12			22			57			62			100
D	42			-91							36						58			
E	44	-140		-107				-16			28			60			60.5			100
	46			-107							4						61			
	48	-158		-116	-99	-79		-36		-22	-8	5		49		69	76	83		110
	50			-153							-2						59			
	52	-177		-193				-52			-3			42			41			90
	54			-216							-15						18			
	56	-203		-235				-75			-25			44			2			83
	58			-251							-41						-4			
	60	-230	-252	-265	-259	-227	-172	-101	-93	-80	-63	-43	-22	7	-11	-20	-15	4.5	34	70
	62			-265							-78						-29			
	64	-259		-277				-130			-81			-11			-33			53
	66			-288							-88						-30			
	68	-298		-287				-163			-102			-34			-31			34
	70			-277							-116						-31			
	72	-335		-290	-264	-242		-199		-154	-138	-115		-71		-41	-24	-10		14

DISTORTION MEASUREMENTS OF 1/8" PLATE AFTER PANELS 5 AND 4 WERE LINE FLAME HEATED FOR THE FIRST TIME

TRANSVERSE

	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
0	-147		-136	-140	-135		-125		-128	-128	-125	-125	-115		-125	-127	-128		-140
2	-139			-152			-111			-103			-85			-122			-112
4	-135			-174			-99			-80			-70			-108			-90.
6	-129			-191			-90			-70			-57			-85			-69
8	-125			-191			-76			-68			-41			-68.			-48.
10	-123			-185			-65			-60			-28			-56			-30
12	-121	-156	-182	-182	-155	-107	-57	-47	-44	-42	-37	-29	-18	-37	-46	-48	-40	-30	-10
14	-123			-181			-52			-28						-34			8
16	-118			-171			-38			-12			4			-30			24
18	-120			-156			-31			9			13			-23			39
20	-122			-139			-33.			23.5			19			3			54
22	-126			-111			-29			21			37			42			64
24	-126	-115	-92	-74	-51	-37	-26	-14	-2	11	26		44	55	59	69	82		90
26	-127			-106			-21			17			50			49			96
L 28	-127			-128			-17.			18.5			61			44			99
O 30	-130			-132			-18			2			60			47			106.
N 32	-131			-127			-17.			-13			57			48.5			113
G 34	-131			-114			-16			-10			62			61			116
I 36	-135	-128	-116	-95	-67	-40	-14	-9	-6	0	17	38	64	68	74	80	91	102	120
T 38	-138			-73			-17			13			65			84			121
U 40	-141			-66			-16			31			66			76			121
D 42	-146			-78			-11			47			67			73			120
E 44	-152			-94			-18.			37			69			75.5			121
46	-157			-101			-26			10			65			78			125
48	-166	-122	-103	-82			-35	-27	-18	-3	13		60		83	92	101.		131
50	-171			-155			-34			6			67			76			117
52	-179			-193			-45			7			55			38			111
54	-189			-216			-56			-4			49			35			110
56	-200			-233			-66			-13			58			20			103.
58	-213			-248			-77			-28						14			99
60	-224	-245	-259	-253	-219	-164	-91	-81	-68	-50	-29	-7	23	4	-3	2	24	54	90
62	-236			-257			-101			-63			14			-12			83
64	-251			-267			-117			-66			4			-16			73
66	-264			-276			-134			-72			-8			-12			65
68	-282			-273			-147			-85			-16			-13.			53
70	-298			-261			-166			-98.			-32			-14			42
72	-305	-271	-245	-223	-201	-180		-135	-118	-96			-52		-23	-4	8	22	31

DISTORTION OF 1/8" PLATE AFTER PANELS 5, 4, AND 6 WERE LINE FLAME HEATED FOR THE FIRST TIME

TRANSVERSE

	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
0	-145	-134	-138	-133	-128	-122		-126	-127	-122		-111		-122	-125	-126	-129	-138	
2	-136		-150			-109			-101			-84			-120			-110	
4	-132		-172			-97			-77			-68			-117			-89	
6	-126		-187			-88			-67			-55			-88			-68	
8	-123		-187			-74			-66			-39			-72			-49	
10	-121		-182			-64			-58			-25			-64			-31	
12	-118	-153	-180	-181	-153	-105	-56	-46	-42	-41	-37	-28	-18	-39	-51	-54	-47	-34	-11
14	-120			-178			-51			-26			-4		-40			6	
16	-115			-169			-37			-12			3		-31			21	
18	-117			-153			-30			12			12		-20			35	
20	-118			-137			-32			26			17		7			49	
22	-124			-109			-28			22			34		42.5			60	
24	-123	-111	-90	-72	-50	-35	-25	-12	-3	10	25	38	41	50	55	66	77	86	86
26	-125			-105			-20			16			48		60			92	
L 28	-125			-125			-16			16			60		60.5			95	
O 30	-127			-130			-17			-3			60		61			104	
N 32	-128			-124			-16			-18			58		57.5			111	
G 34	-129			-111			-15			-14			63		64			115	
I 36	-133	-126	-114	-93	-66	-38	-13	-8	-7	0	15	39	66	70	75	80	90	102	120
T 38	-126			-71			-15			15			68		85			122	
U 40	-140			-64			-14			36			70		81			124	
D 42	-145			-77			-9			53			71		83			124	
E 44	-151			-93			-16			43			74		91			126	
46	-156			-99			-22			15			71		91.5			134	
48	-165	-145	-121	-101	-80		-31	-22	-14	2.5	18		66	80	90	101	110	122	140
50	-171			-153			-30			13			74		88			127	
52	-179			-192			-42			14			64		70.5			124	
54	-190			-215			-51			5			59		47			124	
56	-201			-231			-62			-4			69		33			120	
58	-214			-245			-72			-19			50		27			116	
60	-225	-245	-258	-251	-217	-158	-85	-74	-60	-40	-20	4	35	17	10	16	39	71	109
62	-238			-255			-95			-53			30		4			104	
64	-251			-266			-111			-54			19		1			96	
66	-268			-275			-126			-60			8		7.5			89	
68	-284			-271			-140			-73			1		8			79.5	
70	-300			-259			-158			-85			-14		10			70	
72	-318			-272	-244	-220	-170			-124	-104	-79	-58	-32	0.5	21	34	50	60

DISTORTION OF 1/8" PLATE AFTER PANELS 5,4,6,AND 2 WERE HEATED THE FIRST TIME

TRANSVERSE

	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
0	-138		-127	-132	-128	-122	-118		-122	-123	-119	-117	-107		-119	-121	-121	-125	-133
2	-130			-145			-106			-91			-80			-117			-106
4	-126				-168			-92.			-65		-66			-105			-86
6	-121					-186			-85			-55	-53			-85			-65
8	-117						-186		-71			-54.	-37.			-71.			-46
10	-115							-181		-61			-47			-24.			-28
12	-112	-149	-177		-179	-152	-103	-53	-39	-32	-29	-26	-22	-16	-39	-52	-56	-47	-33
14	-115					-177								-13		-10			9
16	-110						-166		-36			7		4			-34		23
18	-112							-152		-28			33			13		-22	36
20	-114								-135		-31			49			18		50
22	-120									-107		-26					39		60
24	-120	-109	-87		-70	-48	-34.		-23	-11.	-3	11	25	38	42	51.5	56	65.5	78
26	-120							-103			-19				21		50		92
L 28	-121								-124		-14.				21		60		95
O 30	-124									-130		-16			3.5		60		104
N 32	-124										-124		-15				59		111
G 34	-126											-111		-12.			-10		115
I 36	-130	-123	-111		-90	-63	-35	-10	-7	-5	0	16	40.5	67.5	71	76	80	91	103
T 38	-134																		
U 40	-136																		124
D 42	-141																		125
E 44	-148																		127
46	-152																		133
48	-161	-140	-117		-97	-76													141
50	-167																		129
52	-175																		125
54	-185																		125
56	-196																		121
58	-208																		118
60	-220	-241	-253		-246	-212	-154	-81.	-71.	-55	-37.	-15	7.5	38	21	14	19	42	74
62																			110.
64	-247																		106
66	-262																		98
68	-280																		92
70	-295																		82
72	-312	-286	-265		-236	-213													72
																			64

DISTORTION OF 1/8" PLATE AFTER PANELS 5,4,6,2,AND 8 WERE HEATED THE FIRST TIME

		TRANSVERSE																		
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
:	0	-132	-124	-122	-126	-122	-117	-111		-116	-117	-113	-111	-101		-113	-116	-116	-120	-128
:	2	-125			-140			-100			-85			-78			-112			-102
:	4	-120			-163			-87			-60			-61			-101			-82
:	6	-115			-180			-79			-50			-50			-82			-63
:	8	-111			-180			-66			-50			-33			-69			-44
:	10	-109			-176			-56			-43			-20			-62			-28
:	12	-108	-143	-171	-174	-147	-98.	-49	-35	-28	-25	-22	-18.	-14	-37	-50	-54	-45.	-32	-8
:	14	-109			-172			-44			-9			-7			-41			8
:	16	-103			-162			-30			10			6			-33			22
:	18	-105			-147			-25			36			14.5			-21			35
:	20	-108			-131			-27			51			19			5			48
:	22	-113			-102			-23			41			36			41.5			58
:	24	-112	-101	-80	-64.	-44	-30	-20	-8	0	13.5	26		42	51	55.5	64.5	76	85	83
:	26	-113			-98			-15			22.5			49			59			88
L	28	-113			-119			-11.			22.5			60			57			91
O	30	-116			-125			-13			4			60			57			99
N	32	-116			-119			-12			-12			57			53			106
G	34	-118			-105			-10			-10			62			60.5			109
I	36	-121	-116	-105	-85	-59	-32	-8	-5	-4	0	15	39	65	68	72	76	85.5	98	114
T	38	-125			-62			-10			14			67			81			116
U	40	-127			-55			-9			35			69			78			113
D	42	-132			-68			-4			50			70			78.5			116
E	44	-138			-84			-11			40			72			85			118
:	46	-144			-91			-18			13.5			69			85			125
:	48	-152	-132	-111	-93	-73		-28	-20	-12	3	18		63	75	85	94	102.		130
:	50	-160			-144			-28			18			69			80.5			116
:	52	-168			-179			-39			29			58.5			65			111
:	54	-179			-201			-49			26			54			42			111
:	56	-189			-217			-58.			21			63.5			26			106
:	58	-201			-230			-70			8.5			43			20			102
:	60	-212	-233	-244	-236	-203	-149	-82	-57.	-34	-14	1.5	12	30	11	3.5	8	29.5	59	95
:	62	-225			-240			-92			-27			23			-5			89
:	64	-239			-253			-107			-32			13			-7			80
:	66	-253			-263			-122			-41.			3			-2			73
:	68	-271			-261			-136			-60			-5			-2			63
:	70	-285			-248			-154			-81			-20			-1			53
:	72	-302		-259	-233	-212	-189	-167		-123	-106	-83	-63	-38		-10	8	20	35	43

DISTORTION OF 1/8" PLATE AFTER PANELS 5,4,6,2,8,AND 3 WERE HEATED THE FIRST TIME

		TRANSVERSE																		
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
	0	-124		-113	-118	-114	-109	-104		-110	-111	-107	-106	-96		-108	-110	-110	-113	-120
	2	-114			-131			-91			-79			-71			-96			-98
	4	-111			-155			-81			-51			-57			-75			-80
	6	-105			-172			-72			-41			-46			-47			-62
	8	-101			-172			-60			-42			-31			-28			-44
	10	-100			-166			-50			-36			-19			-18			-28
	12	-97	-133	-161	-164	-139	-91.	-44	-29.	-23	-19.	-17.	-15	-11	-6.5	-2	-5	-10.	-18	-11
	14	-99			-161			-38			-5			-6			10			5
	16	-94			-152			-26			12			6			15			18
	18	-96.			-137						37			15			18			32
	20	-99			-121			-22			53			19.5			33			46
	22	-104			-94			-17			44			35			54			58
	24	-103	-93	-73	-57	-37	-23	-15	-3.5	5	17	29	41	43	51	65	64	75	84	84
	26	-104			-91			-10			26			49			55			89
L	28	-105			-112			-6			24.5			60.5			54.5			92
O	30	-107			-117			-7			5			60			55			101
N	32	-108			-112			-6			-13			58.5			54			108
G	34	-110			-98			-5			-10.			64			62.5			112
I	36	-114	-108	-97	-78	-51	-25	-2.5	-1.5	-4	0	15	40	67	73	78	81.5	92	103	118
T	38	-118			-55			-5			16			69.5			88			120
U	40	-121			-48			-4			38			71			84			121
D	42	-127			-61.			1			55			73			85			121
E	44	-133			-79			-6			46			76			91			123
	46	-138			-86			-13			18.5			73			91			130
	48	-147	-126	-105	-87	-67		-22.	-14	-7	8	23		68	81	90	100.	109		137
	50	-152			-131			-21			25			76			88.3			125
	52	-161			-174			-32			36.5			66			73.5			122
	54	-172			-195			-42			34			61.5			51			121
	56	-183			-209			-52			29			72			35			116.
	58	-195			-224			-62.			15.5			52.5			29			113
	60	-207	-227	-238	-229	-197	-143	-75	-50	-26.	-6	10	21.5	39	21	13	18	39	69	105
	62	-220			-232			-85			-19			33			7			100
	64	-233			-247			-100			-23.			24			3			92
	66	-249			-257			-115			-33			12			9			85
	68	-267			-255			-130			-52			5			10			75
	70	-282			-243			-147			-71			-10			11			65
	72	-301	-254	-227	-204	-182	-159		-114	-96	-73			-28		2	21	33.5	48	57

DISTORTION OF 1/8" PLATE AFTER PANELS 5,4,6,2,8,3,AND 1 WERE HEATED THE FIRST TIME

		TRANSVERSE																		
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
:	0	-76		-78	-89	-90	-90	-88		-96	-98	-95	-94	-85		-98	-100	-101	-104	-111
:	2	-76			-100			-78			-66			-60			-86			-89
:	4	-81			-130			-68.			-38			-47.			-64			-69
:	6	-82.			-160			-63			-28			-33			-36.			-50
:	8	-86			-176			-53			-30.			-22			-17			-33
:	10	-90			-185			-45			-24			-10			-7			-17
:	12	-92	-141	-184	-192	-157	-92	-40	-17	-6	-4	-6	-6	-3	1.5	8	6.5	3	-4	3
:	14	-98			-188			-37			13			2			19			18
:	16	-97			-165			-24			33.5			14			23			33
:	18	-100			-134			-19			60			23			26.5			46
:	20	-104			-110			-23			73			28			42			60
:	22	-108			-84			-18			55			44			64			71
:	24	-105	-94	-74	-59	-35.	-24	-16	-3	7	19	34	47	50	60	66	75	89	99	98
:	26	-103			-89			-10			25			58			68.5			104
L	28	-101			-108			-4.5			22.5			68.5			68			107
O	30	-101			-109			-4			-1			68.5			70			116
N	32	-100			-99			-2			-20			67.5			69			123
G	34	-99			-83			2			-16.			73			78			126
I	36	-101	-93	-81	-63	-37.	-15	4.5	4	-1.5	0	18	47	77	84	91	96.5	104.	116	131
T	38	-103			-41			3.5			21			80			101			133
U	40	-104			-34			6			49			82			96			133
D	42	-108			-47.			13			68.5			84			96.5			133
E	44	-113			-64			7.5			60			88			102.			134.
:	46	-117			-68			2			33.5			86			102.			141
:	48	-125	-104	-84	-67	-48		-6	2	8	23	37.5		81	93	102.	112	119.	130	147
:	50	-128			-116			-3.5			40			89			99			133
:	52	-135			-151			-14			53			80			85			129
:	54	-144			-170			-21			51			75			63			129
:	56	-152			-184			-30			47			88			48			124
:	58	-163			-196			-39			35.5			68			42.5			119.
:	60	-173	-194	-207	-201	-169	-113	-50	-26	-3	15	29	39	54	36	27.5	31.5	52	80	112
:	62	-183			-203			-59			2			48			19			106
:	64	-196			-214			-73			-2			40			16			98
:	66	-207			-223			-86.			-10			30			21.5			91
:	68	-225			-218			-99			-28			23			21.5			80
:	70	-238			-204			-115			-46.			9			22.5			70
:	72	-252		-212	-187	-166	-147	-125		-86	-70	-50	-32	-8.5		16	32.5	42	55	61

DISTORTION OF 1/8" PLATE AFTER PANELS 5,4,6,2,8,3,1, AND 7 WERE HEATED THE FIRST TIME

		TRANSVERSE																		
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
:	0	-56		-58	-67	-67	-66	-64		-71	-73	-70	-68.	-59		-71.	-74	-74	-77	-85
:	2	-56.			-78			-56			-41			-35			-61			-62
:	4	-61			-108			-46.			-15			-23.			-40			-46
:	6	-63			-139			-42			-7			-14			-14			-28.
:	8	-66			-155			-32			-10			0			5			-12.
:	10	-69			-164			-25			-5			10.5			14			2.5
:	12	-72	-122	-166	-174	-139	-74	-21	3	13	15	13.5	13	15	20	25	24	19	13	19
:	14	-78.			-171			-17			32			19.5			36			33.5
:	16	-76			-148			-6			52			30			38.5			47
:	18	-80			-118			-2			77.5			37			39			59
:	20	-83			-93			-6			90			40			53			71
:	22	-87			-67			-3			69			56			74			80
:	24	-83	-75	-57	-42	-20	-8.5	-1	10	19	31.5	45	58	61	70	74	84	96.5	106	106
:	26	-81			-71			3.5			36			67			75.5			111
L :	28	-79			-89			9			31			77			76.5			112
O :	30	-78			-90			8			2			76			77.5			119
N :	32	-76.			-80			9			-21			73			75			124
G :	34	-75			-65			12			-18			78			82.5			126.
I :	36	-76.	-72	-64	-47.	-25	-3.5	14.5	9	0	0	18	48	81	87	93	96	105	114	130
T :	38	-78			-30			13			28.5			82.5			98.5			129.
U :	40	-79.			-27.			14.5			62			84			91			129
D :	42	-83			-42			21			85			85			92			126.
E :	44	-88			-55			15			72.5			88			96			126
:	46	-91.			-56			9.5			39			85			96			131
:	48	-99		-65	-52.	-37		2	8	12	26	39		79		97	104	110	118	133.
:	50	-103			-97.			6			45			83			90			118
:	52	-107			-133			-3.5			63			76			73			110
:	54	-112			-156			-9			65			71			49			107
:	56	-119			-189			-16			64			81			32			100
:	58	-124			-198			-23			55.5			62			24			93
:	60	-128	-164	-197	-203	-168	-102	-32	-3	20	35	41	41	49	23	10.5	11	28	52.5	83
:	62	-133			-199			-37.			22			43			-2.5			74
:	64	-138			-197			-48.			20			35			-7			62
:	66	-143			-186			-59.			11			24			-2			52
:	68	-152			-164			-69			-9			17			-3			39
:	70	-156			-141			-81			-31			2			-3.5			25
:	72	-163		-141	-126	-114	-102	-90		-64	-55	-41.	-31	-15		-4	5	8	13	13.5

DISTORTION OF 1/8" PLATE AFTER PANELS 5,4,6,2,8,3,1,7, AND 9 WERE HEATED THE FIRST TIME

TRANSVERSE

	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
0	-44		-45.	-54.	-55	-53.	-51		-58	-59.	-56	-55	-46		-57	-60	-60	-63	-70
2	-45			-66.			-43		-29				-22		-47				-49
4	-50.			-96.			-34.		-2				-10		-27				-32
6	-53			-127			-30		5.5				0		-1.5				
8	-57			-144			-21.		1.5				12.5		17.5				1.5
10	-61			-154			-14		7				23		26				16
12	-64	-113	-158	-165	-130	-65	-11	13	23	26	24	24	27	31	36.5	35.5	32	25	33
14	-70.			-164			-9		44				31		47				47
16	-69			-142			2.5		63.5				41		50				60
18	-73			-111			7		89				46		51				72
20	-76			-87			1.5		100				50		64				84
22	-82			-61			5		78.5				65		85				94
24	-78	-70	-51	-35.	-14	-3	6	17	26.5	41	52.5	65	70		84	95	108	118	119
26	-76			-66			11		43				75		86				123
L 28	-74.			-84			14.5		36				85		87				124
O 30	-74.			-85			13.5		5				83		89				132
N 32	-73			-75			14.4		-20				79		88				136
G 34	-73			-60.			16.5		-18				84		95				138
I 36	-74.	-70	-61	-44	-22	-1	19	11.5	1	0	19	51	86	94	102	108.	115.	124.	140
T 38	-76			-27			16		30				87		108				140
U 40	-79			-25			17		65				88		97				139
D 42	-82			-40			23		88				88		93				136
E 44	-88			-55			17		75				91		96				135
46	-92			-56			11		41				88		96.7				140
48	-101	-85	-66	-53	-37		2	9	14	27	40		81	93	100	107	115		141
50	-105			-98			6		47				87		106				122
52	-110			-134			-4		65				77		103				116.
54	-117			-157			-10		68				72		83				112
56	-123			-180			-17		68				82		63.5				106
58	-129			-201			-25		58				62		50				99
60	-134	-169	-202	-206	-171	-106	-35	-4	22.5	40	47	45.5	50	38	28.5	29.5	44.5	65	89
62	-139			-205			-41		29				43		12.5				82
64	-146			-202			-51		29				36		11				72
66	-152			-194			-62		20				25		23.5				65
68	-161			-171			-72		-4				20		24				54
70	-166			-148			-85		-28				5		17				43
72	-172		-149	-132	-120	-106	-93.		-65	-55	-40	-28	-10		4	16.5	22	31	34

APPENDIX G

1/8" STIFFENED PLATE OUT-OF-PLANE DEFLECTION READINGS RECORDED AFTER LINE HEATING THE 2ND, 3RD, AND 4TH PASS

Appendix G contains 8 sets of out-of-plane deflection measurements. The first 4 are for the 2nd heating pass, the next 2 are for the 3rd pass, and the last 2 are for the 4th pass. See Table 2-2 for the line heating sequence of each pass.

NOTE: In appendixes D, E, F, and G the TRANSVERSE and LONGITUDE spacing is 2 inches. All deflection readings in the matrixes are in .001 inches. For example, the out-of-plane distortion at 10 inches TRANSVERSE and 2 inches LONGITUDE, in the matrix labeled "DISTORTION MEASUREMENTS OF 3/16" PLATE AFTER WELDING" is -0.075 inches (i.e. 0.075 below the reference point). This point is designated D(6,2) as it is on the 6th line in the TRANSVERSE direction and the 2nd line in the LONGITUDE direction.

DISTORTION OF 1/8" PLATE AFTER PANEL 5 WAS HEATED THE SECOND TIME

		TRANSVERSE																		
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
LONGITUDE	0	-141			-153			-149			-159			-146			-161			-172
	2				-164						-128						-148			
	4				-196						-102						-126			
	6				-227						-96						-98			
	8				-245						-100						-79			
	10				-257						-94						-70.			
	12	-162	-213	-259	-268	-233	-165	-112	-87	-76	-75	-77	-78.	-76	-70	-63	-62	-65	-73.	-69
	14				-266						-57						-53			
	16				-245						-38						-53			
	18				-215						-15						-54			
	20				-190						-7						-42			
	22				-164						-31						-21			
	24	-179			-138			-98			-65			-35			-8.5			16.5
	26				-167						-46						-10			
	28				-184						-26						-4.5			
	30				-185						-27						2.5			
	32				-176						-31						1			
	34				-163						-18						3			
	36	-176	-172	-164	-148	-127	-106	-85	-44	-11	0	-5	-16	-19	-6.5	6	12.5	18	24	38
	38				-132						14						10			
	40				-127						26						-1			
	42				-140						24						-6			
	44				-154						-10						-5			
	46				-156						-58						-8			
	48	-201			-154			-101			-77						4			39
	50				-201						-59.			-24			11.5			
	52				-239						-43						33			
	54				-264						-43						47			
	56				-285						-46						57			
	58				-304						-59						59			
	60	-232	-269	-303	-309	-274	-207	-137	-112	-91	-80	-75	-72	-56	-35.	3	37	51	31	-17
	62				-305						-89						1			
	64				-303						-86						-27			
	66				-293						-91						-45			
	68				-271						-111						-67			
	70				-248						-134						-87			
	72	-269			-233			-196			-160			-117			-94			-77

DISTORTION OF 1/8" PLATE AFTER PANELS 5 AND 4 WERE HEATED THE SECOND TIME

		TRANSVERSE																		
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
	0	-127			-139			-136			-146			-133			-148			-158
	2				-151						-116						-135			
	4				-182						-91						-115			
	6				-213						-84						-87			
	8				-231						-89						-69			
	10				-243						-83						-60.			
	12	-148	-199	-246	-254	-221	-155	-101	-76	-65	-63	-65	-68	-66	-61	-54	-54	-57	-65	-60
	14				-255						-45						-45			
	16				-236						-26						-46			
	18				-206						-4						-48			
	20				-182						3						-35			
	22				-155						-21						-15			
	24	-164			-127			-88			-57			-28			-3			21
	26				-153						-40						-6			
L	28				-164						-23						0			
O	30				-156						-28						7			
N	32				-141						-34						5			
G	34				-124						-20						8			
I	36	-162	-150	-131	-110	-92	-83	-78	-39	-10	0	-4	-14	-15	-3	9	5.5	19	23.5	37.5
T	38				-96						18						11			
U	40				-97.						32						-2			
D	42				-116						31						-8			
E	44				-136						-4						-7.5			
	46				-143						-54						-11			
	48	-183			-143			-93			-74			-24			0			32
	50				-191						-55						7			
	52				-228						-37						28			
	54				-251						-36						41			
	56				-271						-40						50			
	58				-288						-54						51			
	60	-209	-247	-283	-291	-258	-194	-127	-103	-86	-77	-73	-72	-57.	-39	-2	30	41	19	-30
	62				-285						-88						-6			
	64				-282						-84						-35			
	66				-272						-88						-54			
	68				-250						-108						-77			
	70				-227						-130						-99			
	72	-240			-211			-182			-155			-122			-107			-100

DISTORTION OF 1/8" PLATE AFTER PANELS 5, 4, AND 1 WERE HEATED THE SECOND TIME

		TRANSVERSE																		
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
	0	-128			-141			-139			-148			-135			-151			-161
	2				-144						-117						-138			
	4				-167						-92						-117			
	6				-199						-86						-90			
	8				-218						-92						-71			
	10				-231						-87						-63			
	12	-154	-195	-233	-238	-206	-148	-106	-81	-69	-67	-69	-71	-69	-64	-57	-56.	-59	-62.	-62
	14				-228						-49						-48			
	16				-198						-29						-49			
	18				-166						-6.5						-51			
	20				-150						0						-39			
	22				-138						-25						-18			
	24	-170			-132			-93			-61			-31			-6.5			17.5
	26				-156						-44						-10			
L	28				-166						-28						-2			
O	30				-159						-32						5			
N	32				-145						-35						2.5			
G	34				-130						-21						4			
I	36	-167	-154	-136	-115	-97	-87.	-82	-41	-11	0	-4.5	-16.	-18	-6	6	11	16	21	35
T	38				-101						16.5						7			
U	40				-101						30						-5			
D	42				-120						28						-10			
E	44				-140						-6						-10			
	46				-146						-56						-13			
	48	-184			-146			-96			-76.			-26			-2			30
	50				-194						-58						6			
	52				-230						-40						27			
	54				-254						-38.						40			
	56				-273						-42						49			
	58				-291						-56.						50			
	60	-211	-248	-285	-294	-260	-196	-129	-105	-88	-79	-76	-75	-61	-41	-4	28	39	17.5	-32
	62				-288						-89						-8			
	64				-284						-86						-38			
	66				-275						-91						-56			
	68				-251						-109						-79			
	70				-228						-131						-101			
	72	-243			-213			-184			-158			-125			-109			-101

DISTORTION OF 1/8" PLATE AFTER PANELS 5,4,1, AND 7 WERE HEATED THE SECOND TIME

		TRANSVERSE																		
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
LONGITUDE	0	-131			-145			-141			-151			-138			-153			-162
	2				-147						-121						-140			
	4				-170						-94						-119			
	6				-202						-88						-92			
	8				-221						-94						-74			
	10				-234						-89						-66			
	12	-156	-198	-236	-240	-209	-150	-108	-83	-71.	-70	-72	-73.	-71	-66	-59	-59	-62	-70	-65.
	14				-230						-51						-50			
	16				-201						-31						-52			
	18				-169						-9						-54			
	20				-152						-2						-42			
	22				-140						-26.						-21			
	24	-172			-134			-95			-63			-34			-9			15
	26				-158						-46						-11			
	28				-169						-29						-5			
	30				-162						-31						2			
	32				-148						-34						-1			
	34				-132						-20						1			
	36	-169	-156	-138	-117	-100	-90	-84	-43	-11	0	-4	-18	-21	-9.5	2	8	13	18	31
	38				-103						16						4			
	40				-102						28						-8			
	42				-119						25						-14			
	44				-138						-10						-13			
	46				-145						-59.						-16.			
	48	-188			-148			-99			-79			-29			-5			25.5
	50				-178						-59						2			
	52				-203						-40						23			
	54				-222						-39						37			
	56				-248						-44						46			
	58				-274						-59						47			
	60	-212	-247	-279	-286	-255	-194	-132	-108	-91	-82	-78	-77	-63	-44	-7	25	37	14	-36
	62				-284						-91						-12			
	64				-278						-87						-41			
	66				-264						-90						-59			
	68				-240						-110						-82			
	70				-221						-133						-104			
	72	-241			-214			-186			-159			-126			-111			-105

DISTORTION OF 1/8" PLATE AFTER PANEL 1 WAS HEATED THE THIRD TIME

		TRANSVERSE																		
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
:	0	-131			-145			-143		-154				-141			-156			-166
:	2				-143					-122							-143			
:	4				-161					-95							-123			
:	6				-185					-88							-95			
:	8				-198					-94							-77			
:	10				-204					-89							-70			
:	12	-158	-185	-206	-202	-174	-132	-111	-85	-72	-70	-72	-75	-74.	-69.	-63	-63	-66	-72	-68.
:	14				-186					-52							-55			
:	16				-156					-33							-56			
:	18				-134					-12							-57			
:	20				-129					-6							-44.			
:	22				-130					-30							-23.			
:	24	-174			-137			-98.		-66				-36			-12			12
:	26				-162					-49.							-14			
L	28				-174					-32							-8			
O	30				-167					-33							-2			
N	32				-153					-34							-5			
G	34				-136					-19							-3			
I	36	-171	-159	-140	-120	-103	-93	-88	-45	-11	0	-5	-19.	-23	-12.	-1	4	9.5	15	28.5
T	38				-105					15							0			
U	40				-104					26							-12			
D	42				-121					22.5							-17			
E	44				-141					-13.							-16			
:	46				-148					-63							-20			
:	48	-191			-151			-102		-82.				-32			-8			23.5
:	50				-183					-63							-1			
:	52				-207					-43							21			
:	54				-226					-42.							34			
:	56				-252					-47							43			
:	58				-279					-62							44			
:	60	-216	-251	-283	-289	-260	-199	-135	-112	-94.	-85	-82	-80	-66	-47	-10	22	34	11	-38
:	62				-287					-94							-15			
:	64				-282					-90							-44			
:	66				-268					-93							-62			
:	68				-244					-112							-85			
:	70				-225					-136							-107			
:	72	-246			-218			-189		-162				-130			-114			-106

DISTORTION OF 1/8" PLATE AFTER PANELS 1 AND 7 WERE HEATED THE THIRD TIME

		TRANSVERSE																		
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
	0	-132			-148			-145			-155			-142			-158			-168
	2				-144						-123						-145			
	4				-162						-96						-124			
	6				-186						-90						-97			
	8				-200						-96						-78.			
	10				-205						-91						-71			
	12	-158	-186	-207	-203	-176	-133	-113	-87	-74	-71	-74	-77	-75	-71	-65	-65	-68	-76	-71
	14				-187						-53						-56.			
	16				-158						-35						-58			
	18				-135						-13.						-59			
	20				-130						-7.5						-47			
	22				-131						-32						-26			
	24	-175			-138			-100			-68			-38			-14			10
	26				-163						-51						-17			
L	28				-175						-34						-10			
O	30				-169						-35						-4			
N	32				-155						-36						-7			
G	34				-139						-20						-6			
I	36	-172	-160	-143	-123	-106	-96	-90	-46	-12	0	-6	-21	-26	-15.	-4	1.5	6	12	25.5
T	38				-107						15						-2.5			
U	40				-105						25						-14			
D	42				-121						21						-19			
E	44				-139						-16						-19			
	46				-146						-65						-22			
	48	-191			-152			-104			-84			-33			-10.			20.5
	50				-166						-62.						-3.5			
	52				-176						-42						17			
	54				-187						-42						31			
	56				-213						-48.						40			
	58				-247						-66						41			
	60	-212	-238	-264	-267	-239	-187	-136	-115	-99	-89	-85	-82	-68	-49	-12	19	31	7.5	-43
	62				-273						-98						-17			
	64				-271						-91						-46			
	66				-257						-92						-65			
	68				-232						-111						-87.			
	70				-214						-135						-110			
	72	-236			-212			-186			-161			-129			-117			-113

DISTORTION OF 1/8" PLATE AFTER PANEL 7 WAS HEATED THE FOURTH TIME

		TRANSVERSE																		
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
	0																			
	2																			
	4																			
	6																			
	8																			
	10																			
	12																			
	14																			
	16																			
	18																			
	20																			
	22																			
	24	-175			-139			-101			-69			-39.						
	26				-164						-52.									
L	28				-176						-34									
O	30				-170						-35									
N	32				-156						-35									
G	34				-139						-19									
I	36	-172	-160	-142	-123	-105	-96	-91	-48	-12	0	-5.5	-21	-27						
T	38				-106						14									
U	40				-104						24									
D	42				-120						19									
E	44				-138						-17									
	46				-146						-68									
	48	-191			-154			-105			-85.			-35						
	50				-155						-62.									
	52				-159						-42									
	54				-165						-41									
	56				-186						-49									
	58				-219						-64									
	60	-211	-227	-242	-241	-216	-175	-135	-116	-100	-90	-86	-84	-68						
	62				-250						-98									
	64				-250						-90									
	66				-239						-91									
	68				-217						-109									
	70				-204						-134									
	72	-232			-209			-185			-161			-131						

DISTORTION OF 1/8" PLATE AFTER PANELS 7 AND 1 WERE HEATED THE FOURTH TIME

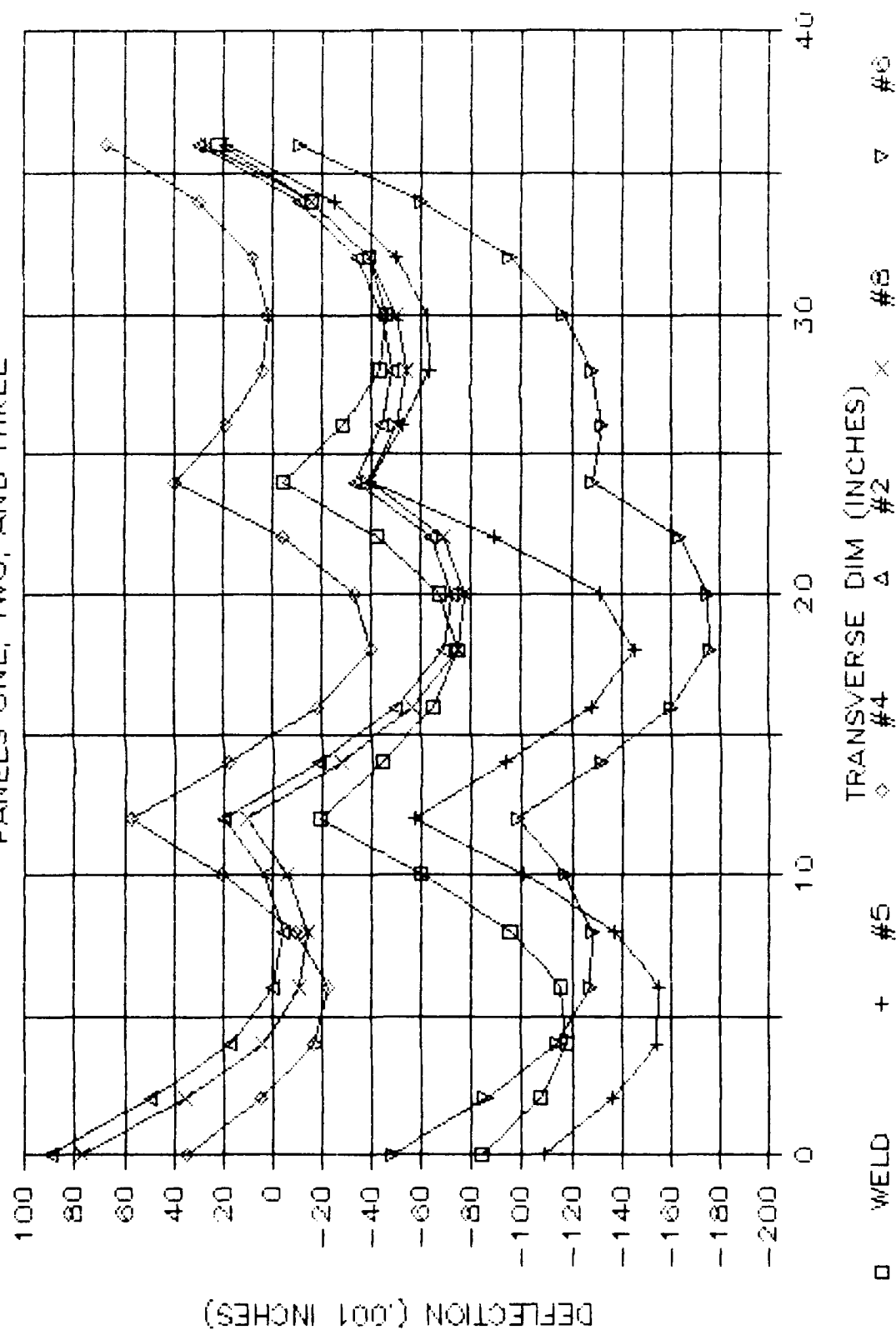
		TRANSVERSE																		
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
	0	-134			-150			-147			-157			-145						
	2				-143						-126									
	4				-155						-99									
	6				-172						-93									
	8				-177						-100									
	10				-173						-96									
	12	-163	-172	-174	-164	-144	-118	-116	-90.	-77	-74	-75	-78	-78						
	14				-148						-55									
	16				-125						-34									
	18				-113						-12									
	20				-117						-7									
	22				-125						-33									
	24	-180			-142			-103			-69			-40.						
	26				-166						-54									
L	28				-177						-37									
O	30				-171						-37									
N	32				-156						-36									
G	34				-140						-19									
I	36	-176	-164	-146	-125	-107	-97	-91.	-47	-12	0	-6	-21	-27.						
T	38				-109						15									
U	40				-107						24									
D	42				-123						19									
E	44				-140						-17									
	46				-148						-67									
	48	-194			-155			-105			-85			-34						
	50																			
	52																			
	54																			
	56																			
	58																			
	60																			
	62																			
	64																			
	66																			
	68																			
	70																			
	72																			

APPENDIX H

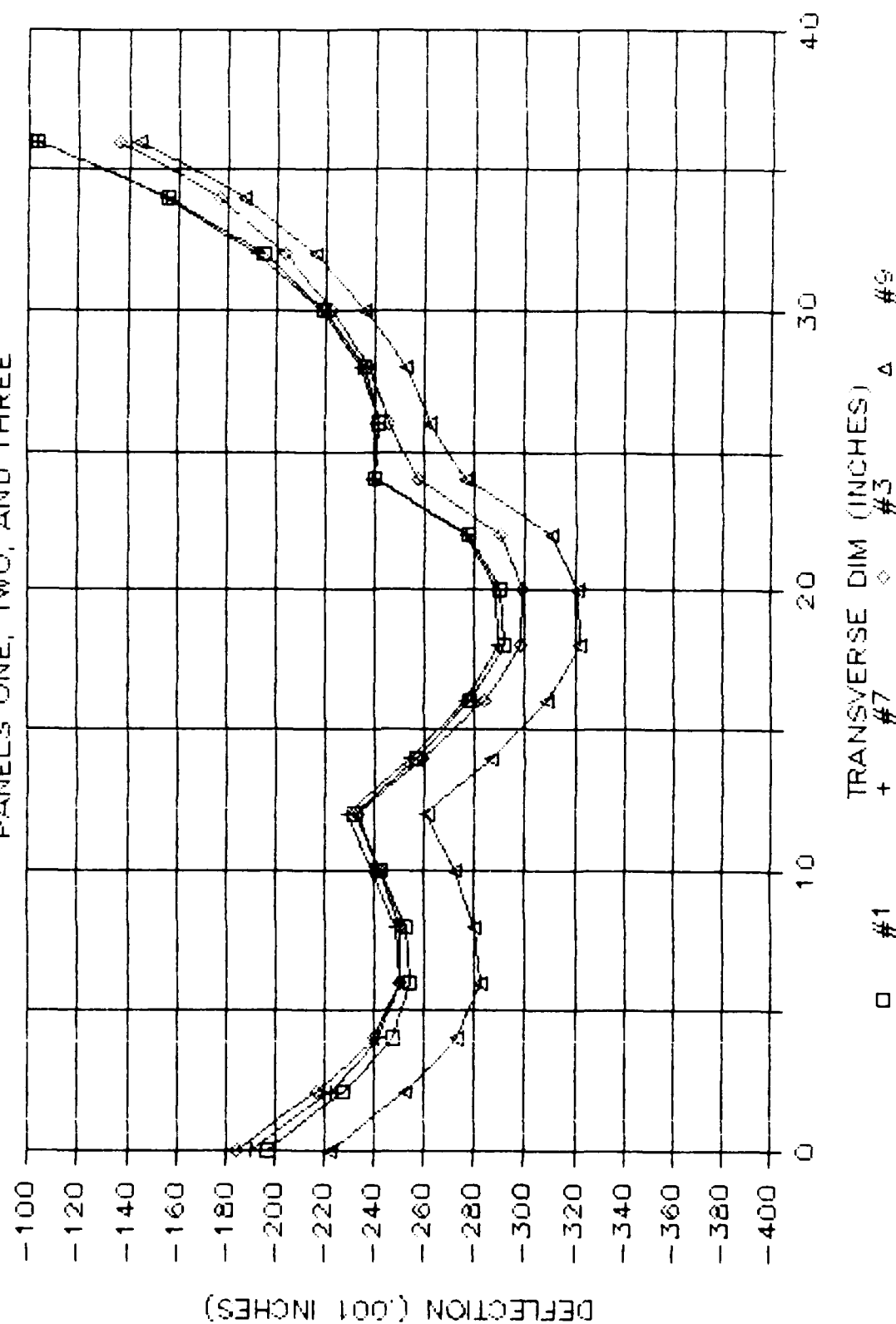
GRAPHS OF THE 3/16" STIFFENED PLATE MID-PANEL DEFLECTIONS AFTER THE FIRST LINE HEATING PASS

The horizontal coordinate is transverse or longitudinal displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

3/16" PLATE DEFLECTION PANELS ONE, TWO, AND THREE

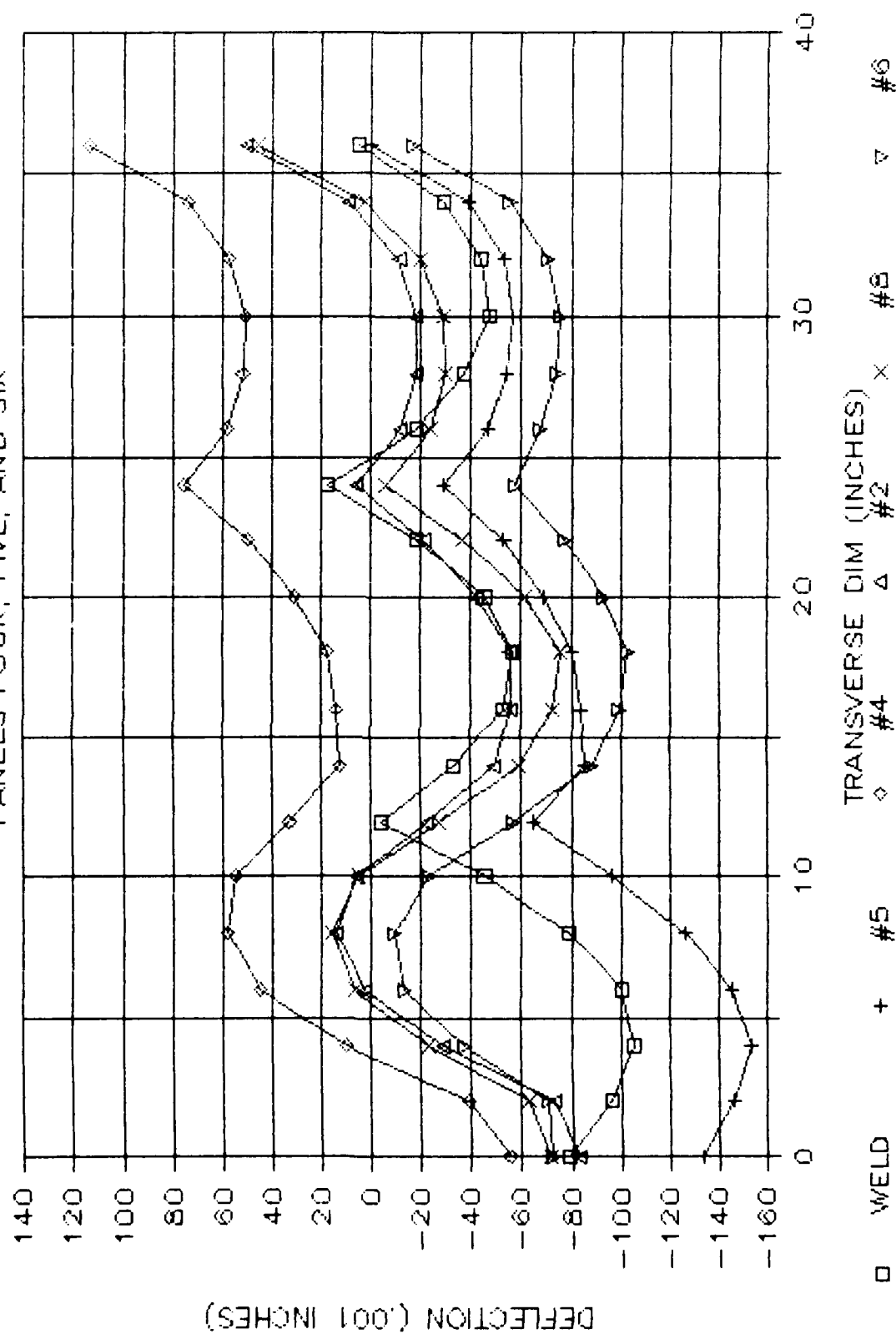


3/16" PLATE DEFLECTION PANELS ONE, TWO, AND THREE

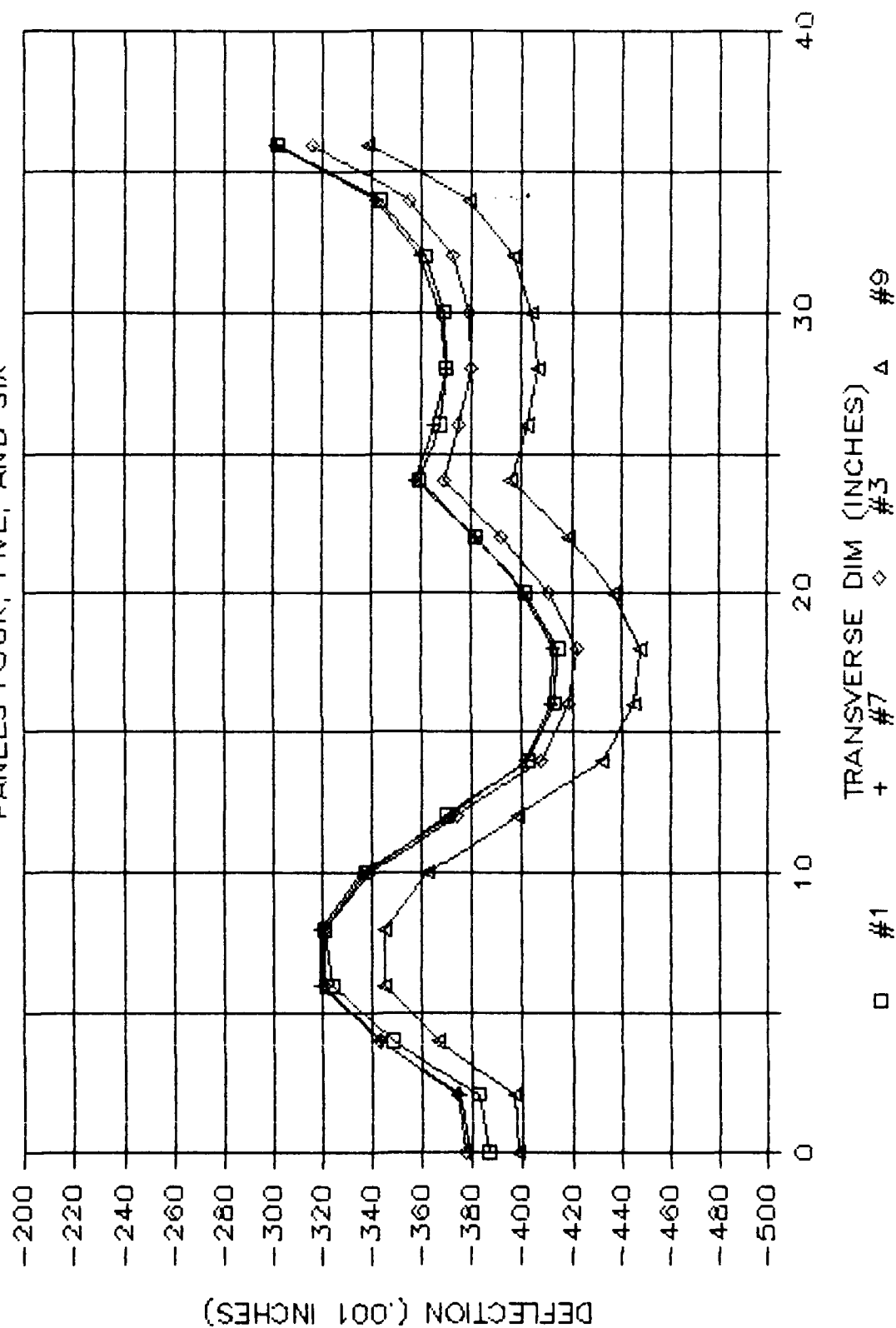


3/16" PLATE DEFLECTION

PANELS FOUR, FIVE, AND SIX

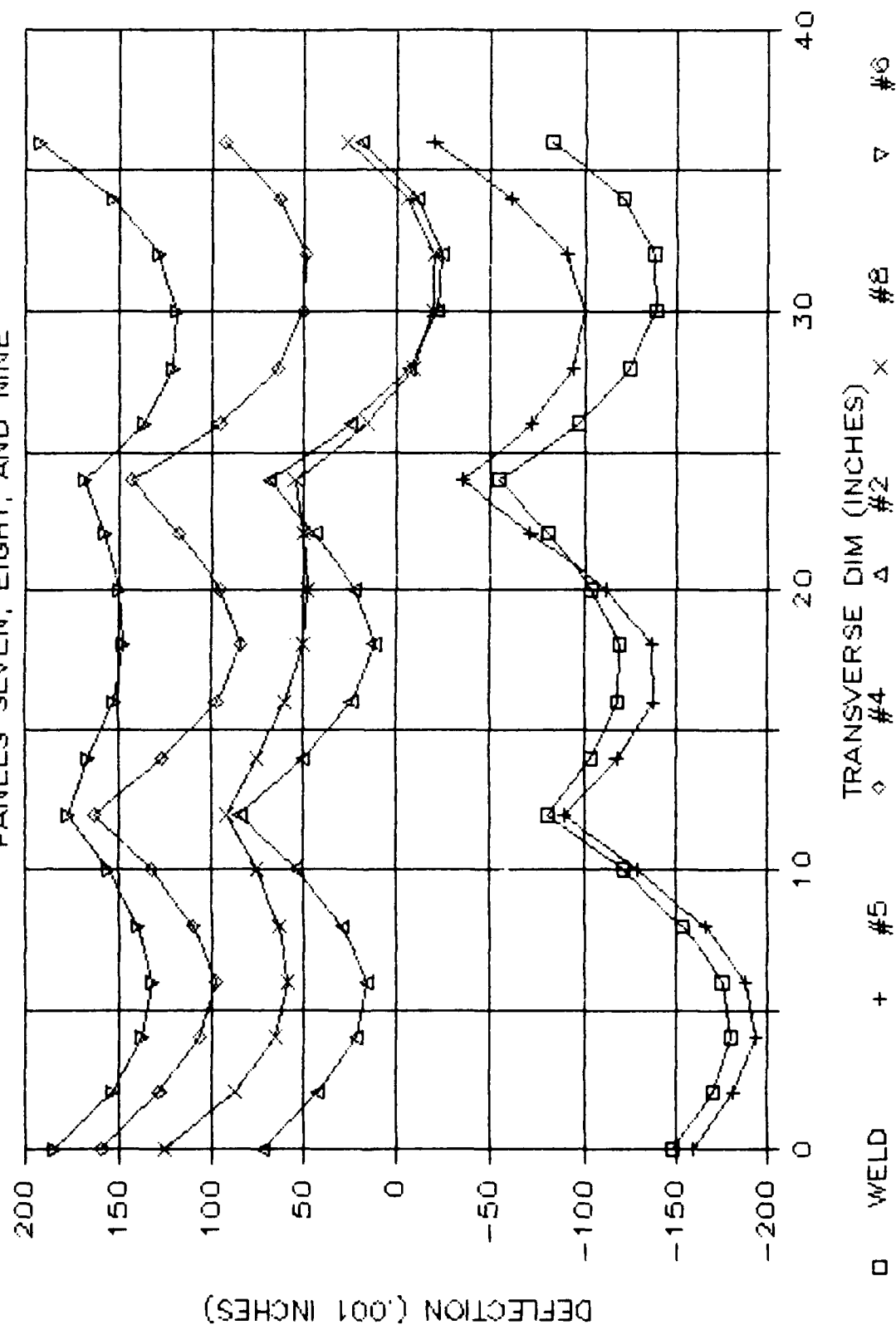


3/16" PLATE DEFLECTION PANELS FOUR, FIVE, AND SIX



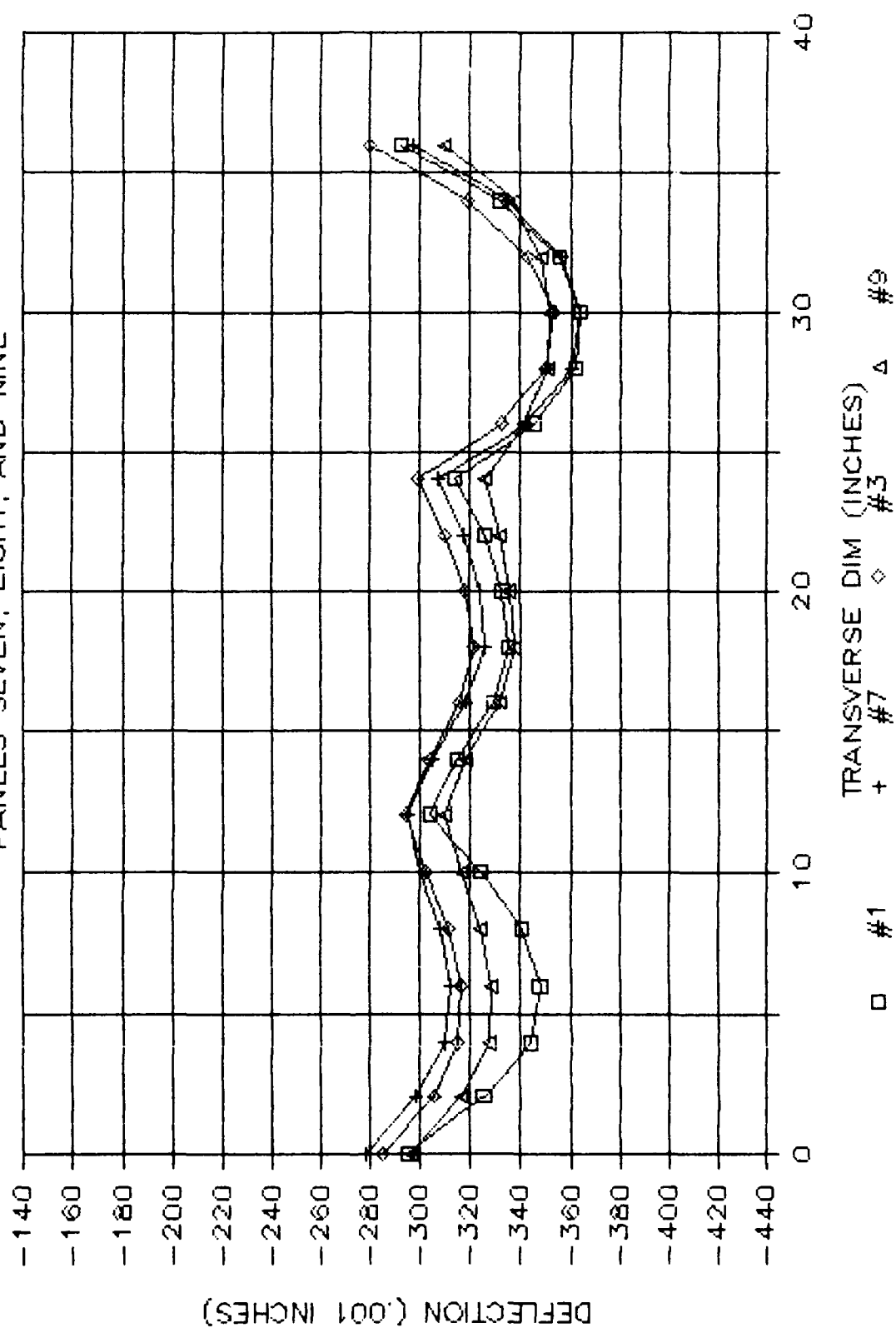
3/16" PLATE DEFLECTION

PANELS SEVEN, EIGHT, AND NINE



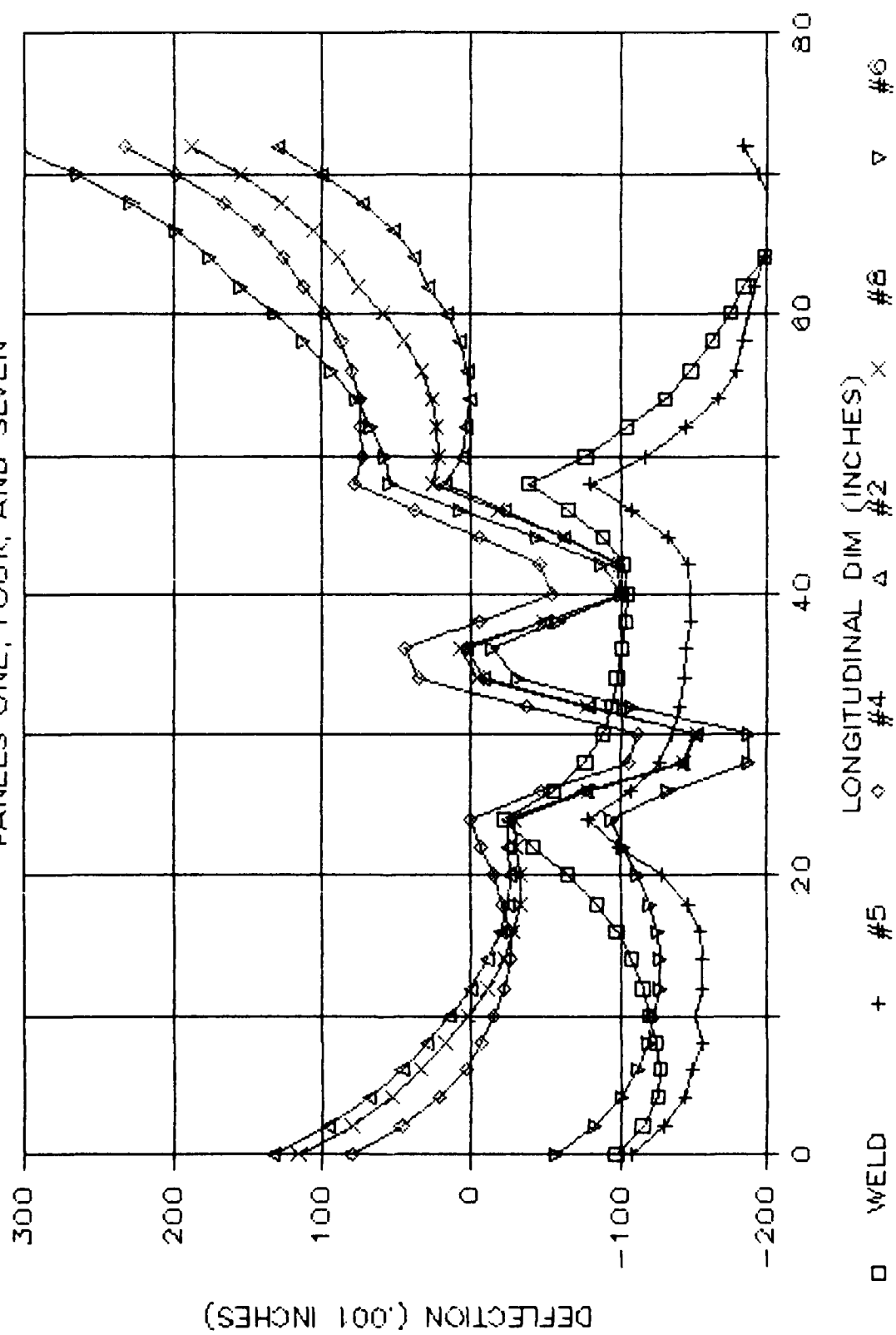
3/16" PLATE DEFLECTION

PANELS SEVEN, EIGHT, AND NINE



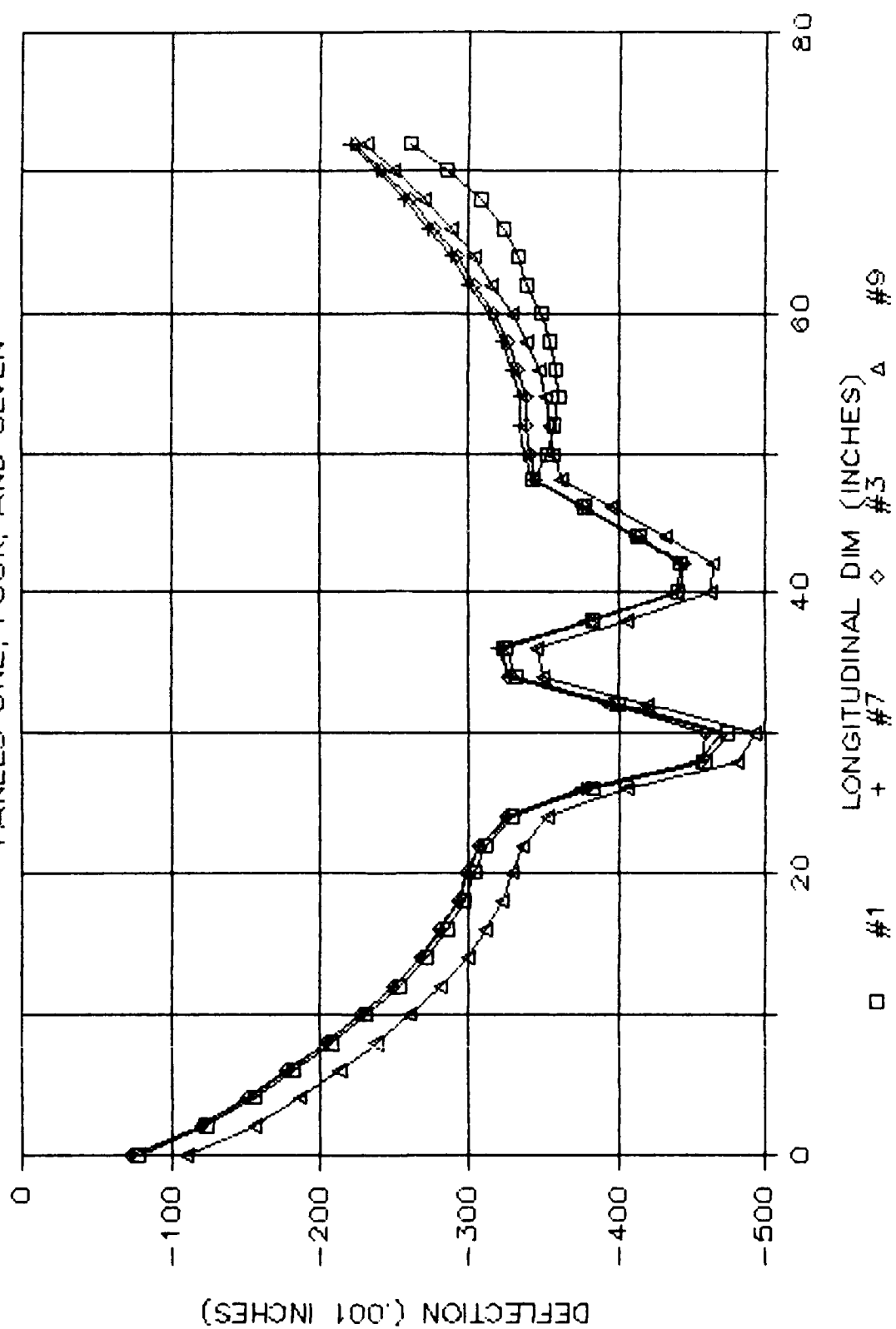
3/16" PLATE DEFLECTION

PANELS ONE, FOUR, AND SEVEN



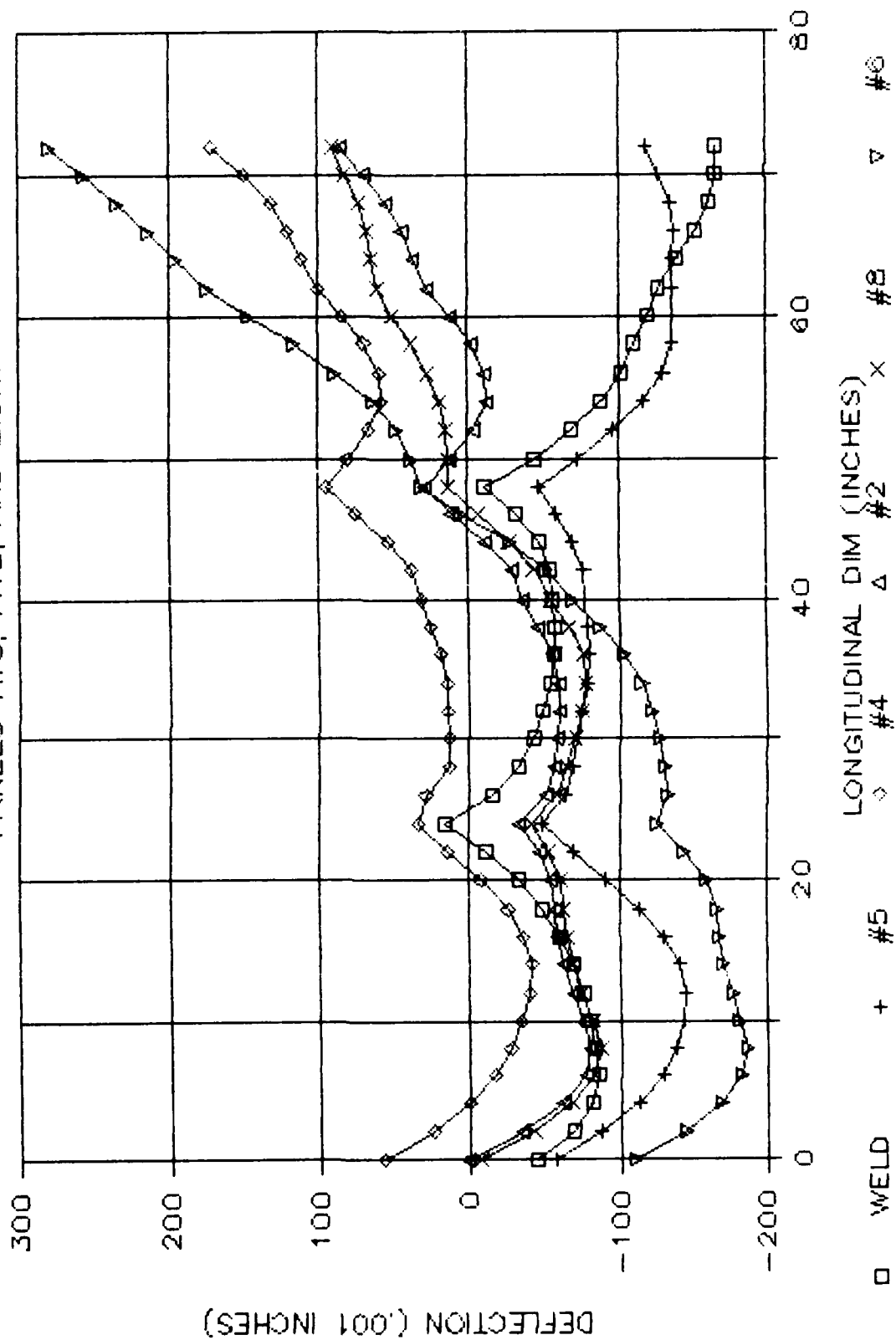
3/16" PLATE DEFLECTION

PANELS ONE, FOUR, AND SEVEN

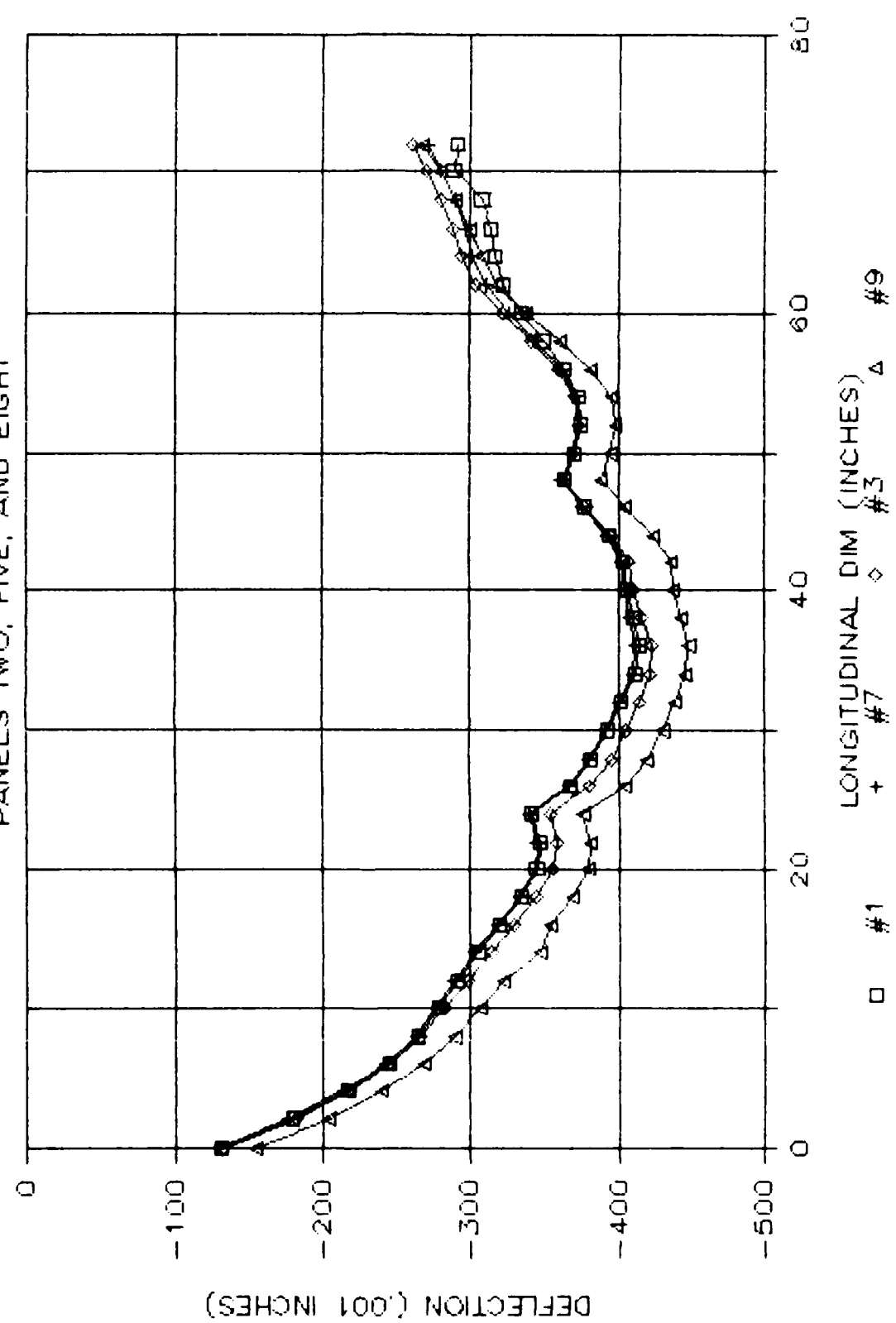


3/16" PLATE DEFLECTION

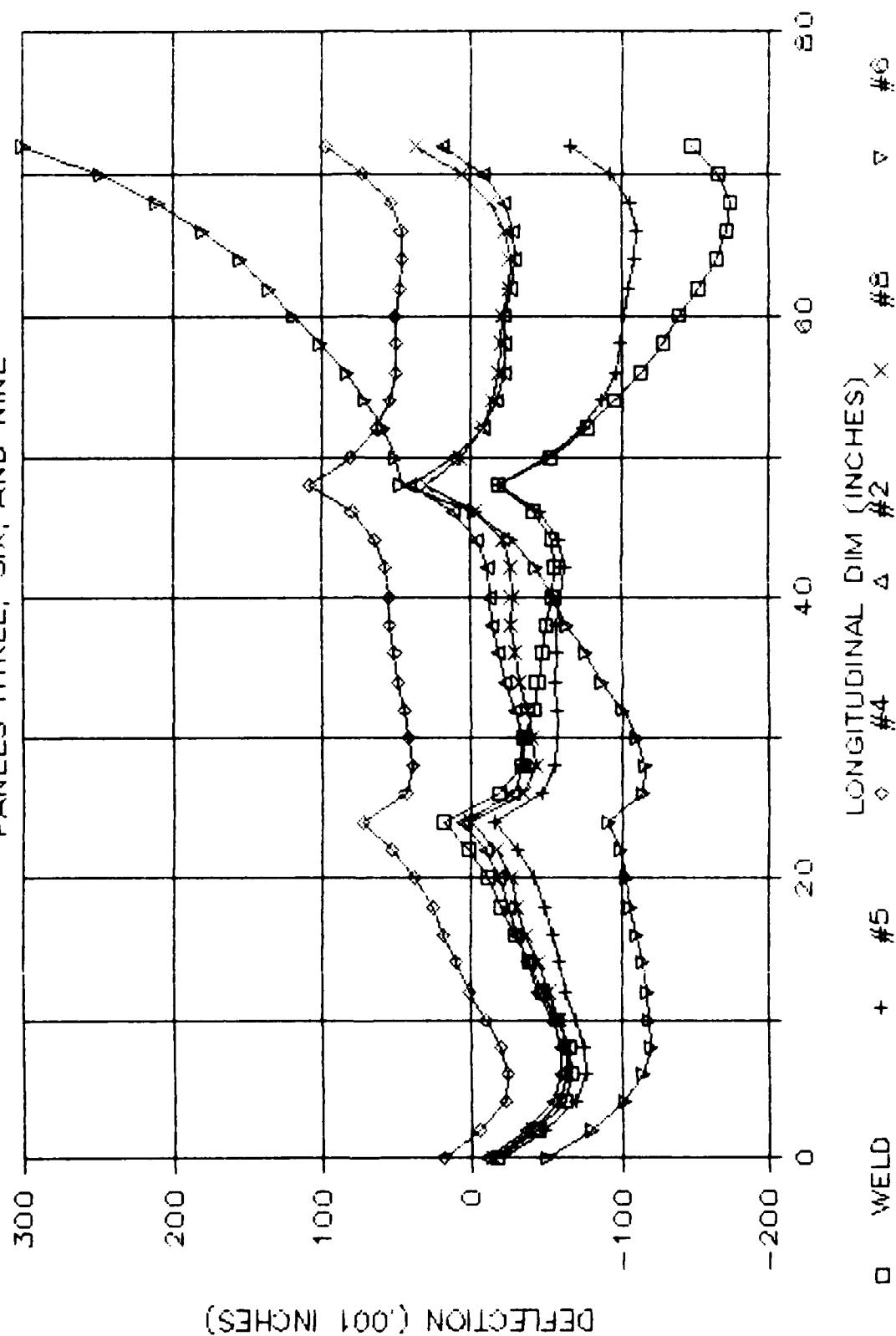
PANELS TWO, FIVE, AND EIGHT



3/16" PLATE DEFLECTION PANELS TWO, FIVE, AND EIGHT

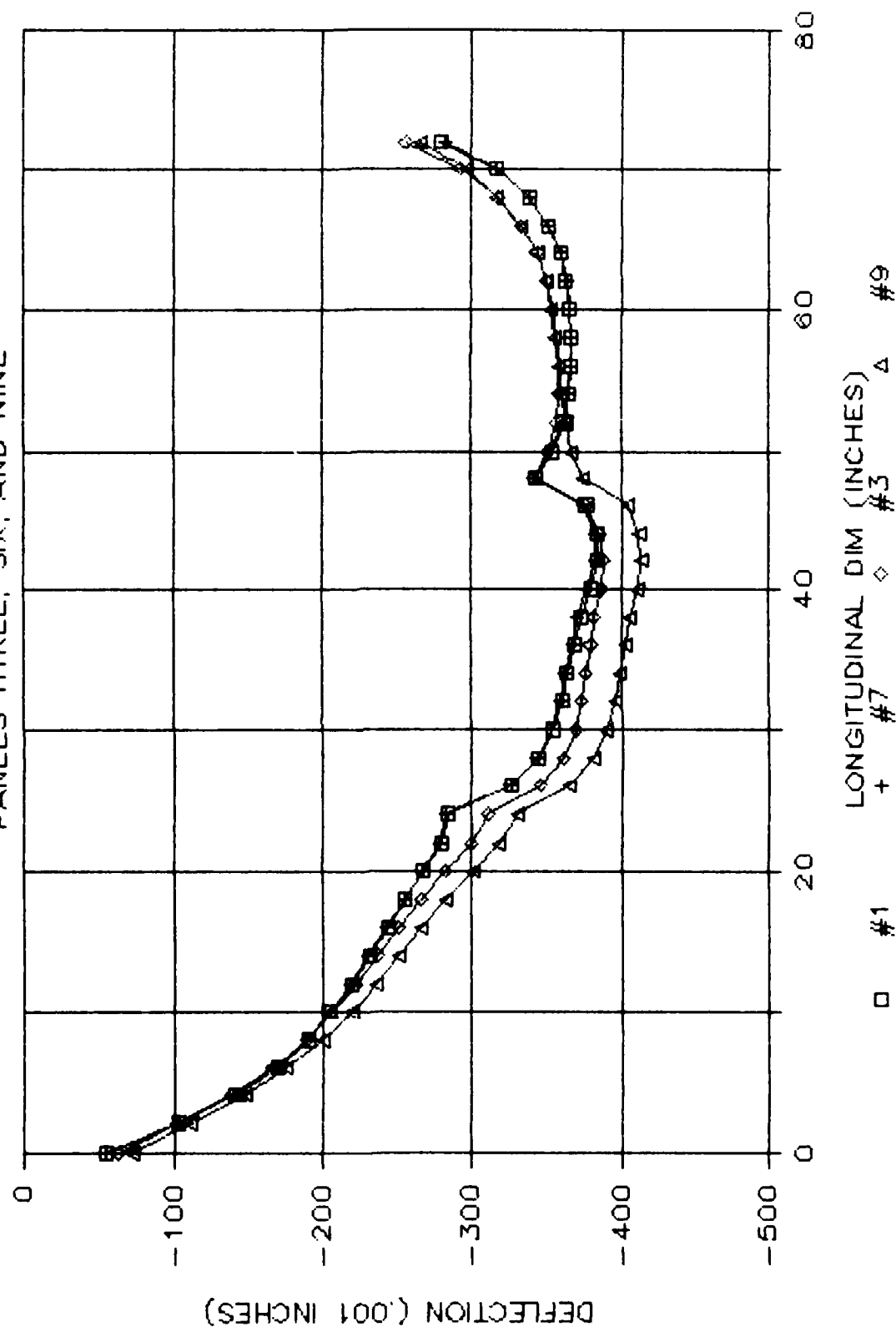


3/16" PLATE DEFLECTION PANELS THREE, SIX, AND NINE



3/16" PLATE DEFLECTION

PANELS THREE, SIX, AND NINE

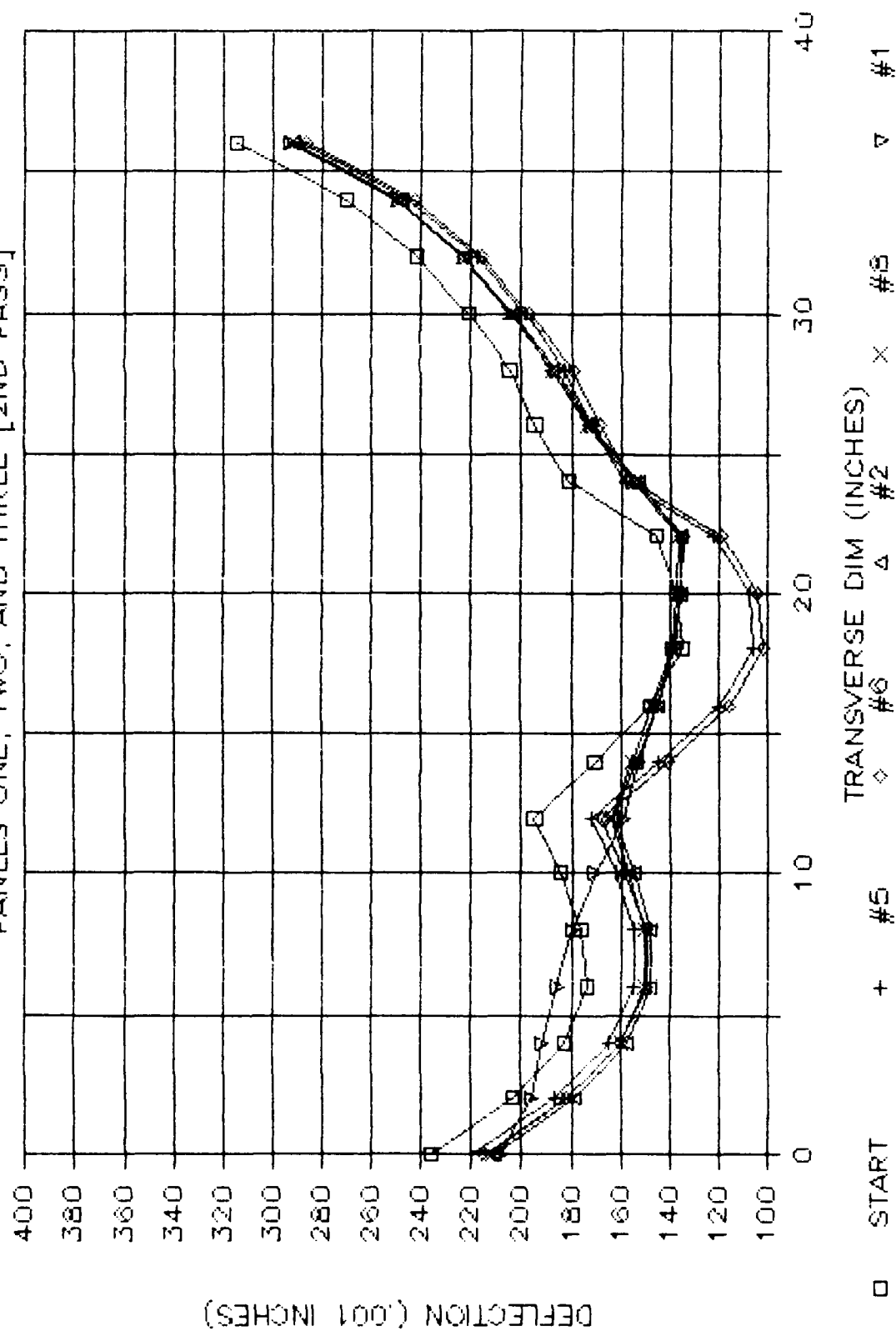


APPENDIX I

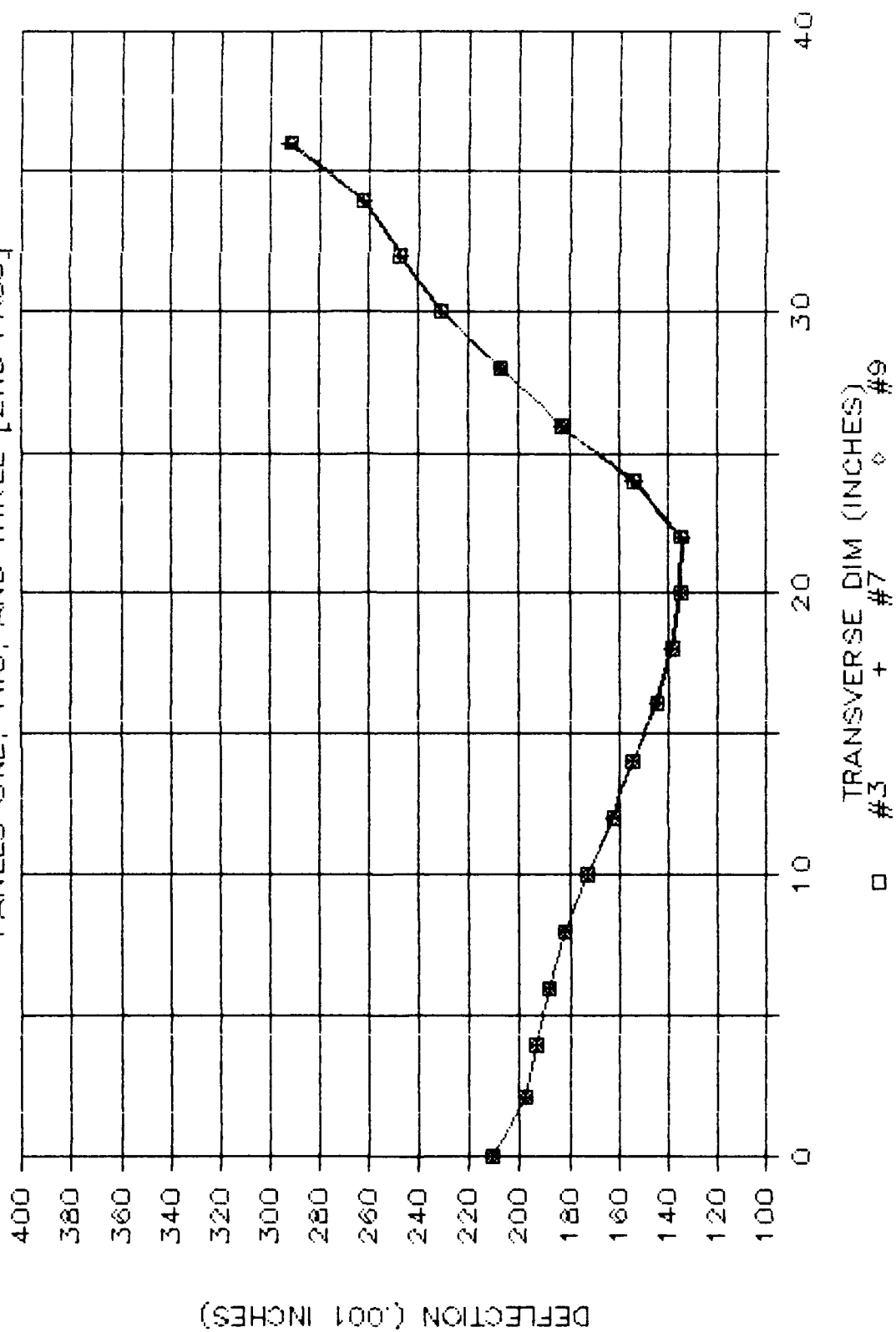
GRAPHS OF THE 3/16" STIFFENED PLATE MID-PANEL DEFLECTIONS AFTER THE SECOND LINE HEATING PASS

The horizontal coordinate is transverse or longitudinal displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

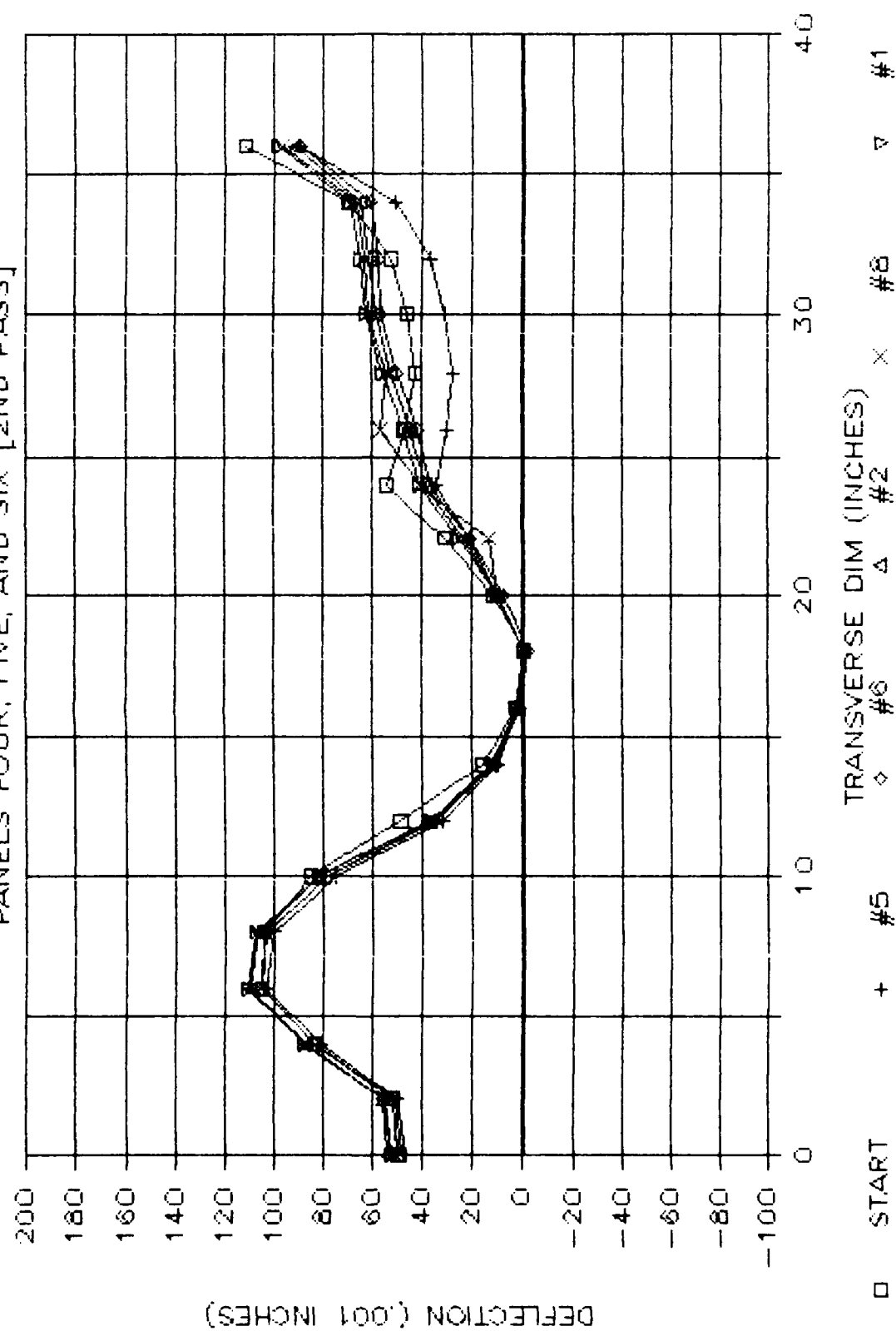
3/16" PLATE DEFLECTION PANELS ONE, TWO, AND THREE [2ND PASS]



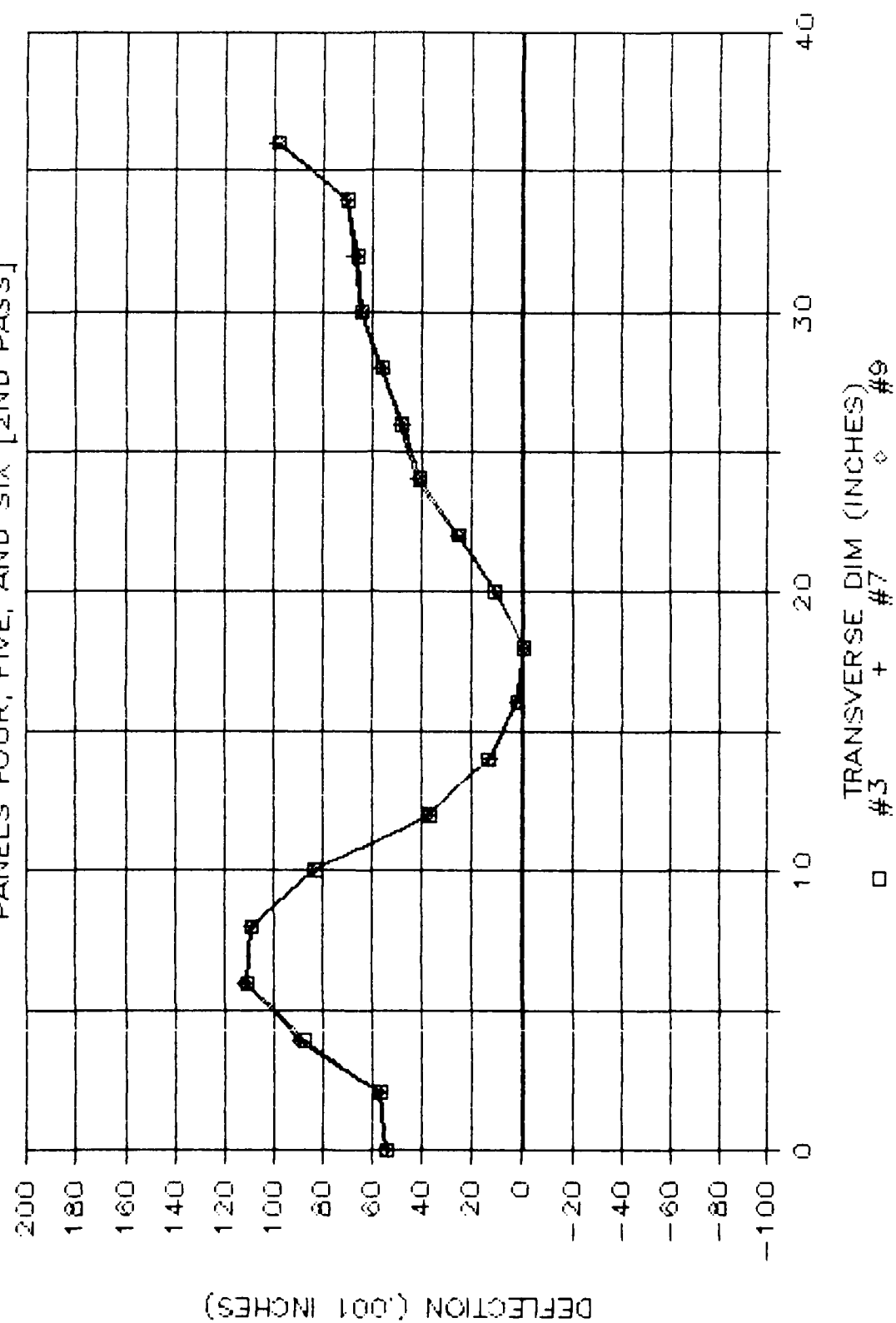
3/16" PLATE DEFLECTION PANELS ONE, TWO, AND THREE [2ND PASS]



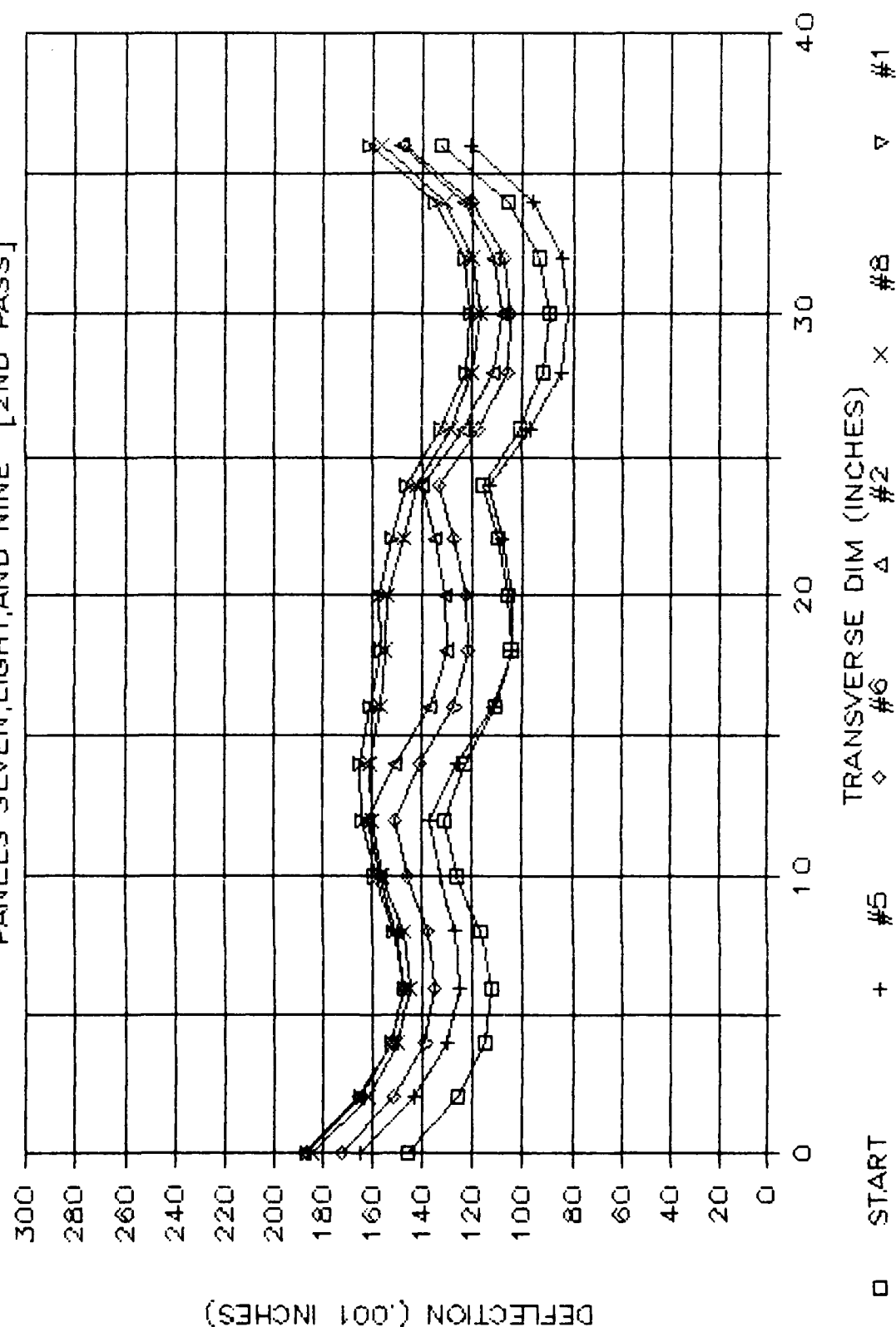
3/16" PLATE DEFLECTION PANELS FOUR, FIVE, AND SIX [2ND PASS]



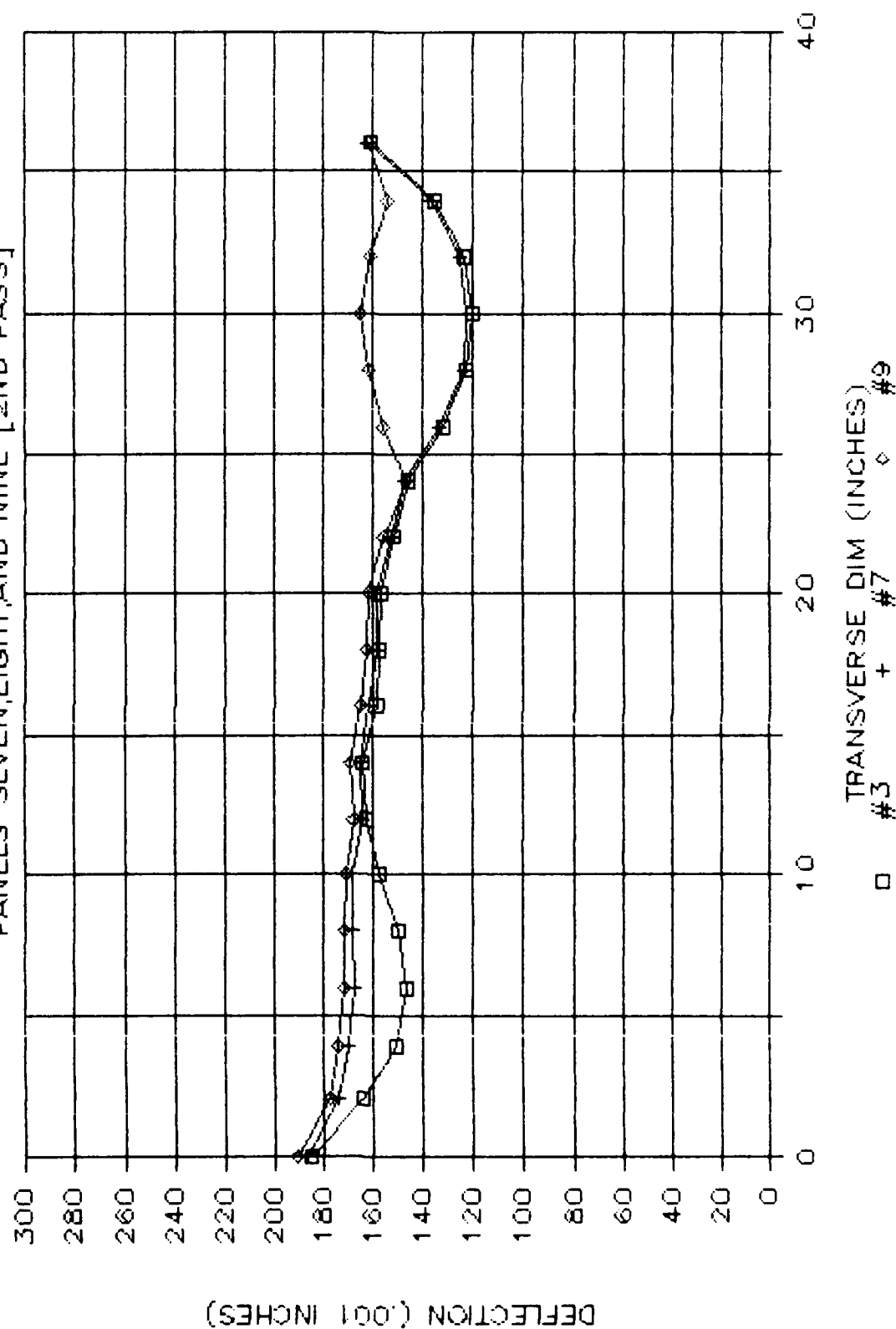
3/16" PLATE DEFLECTION PANELS FOUR, FIVE, AND SIX [2ND PASS]



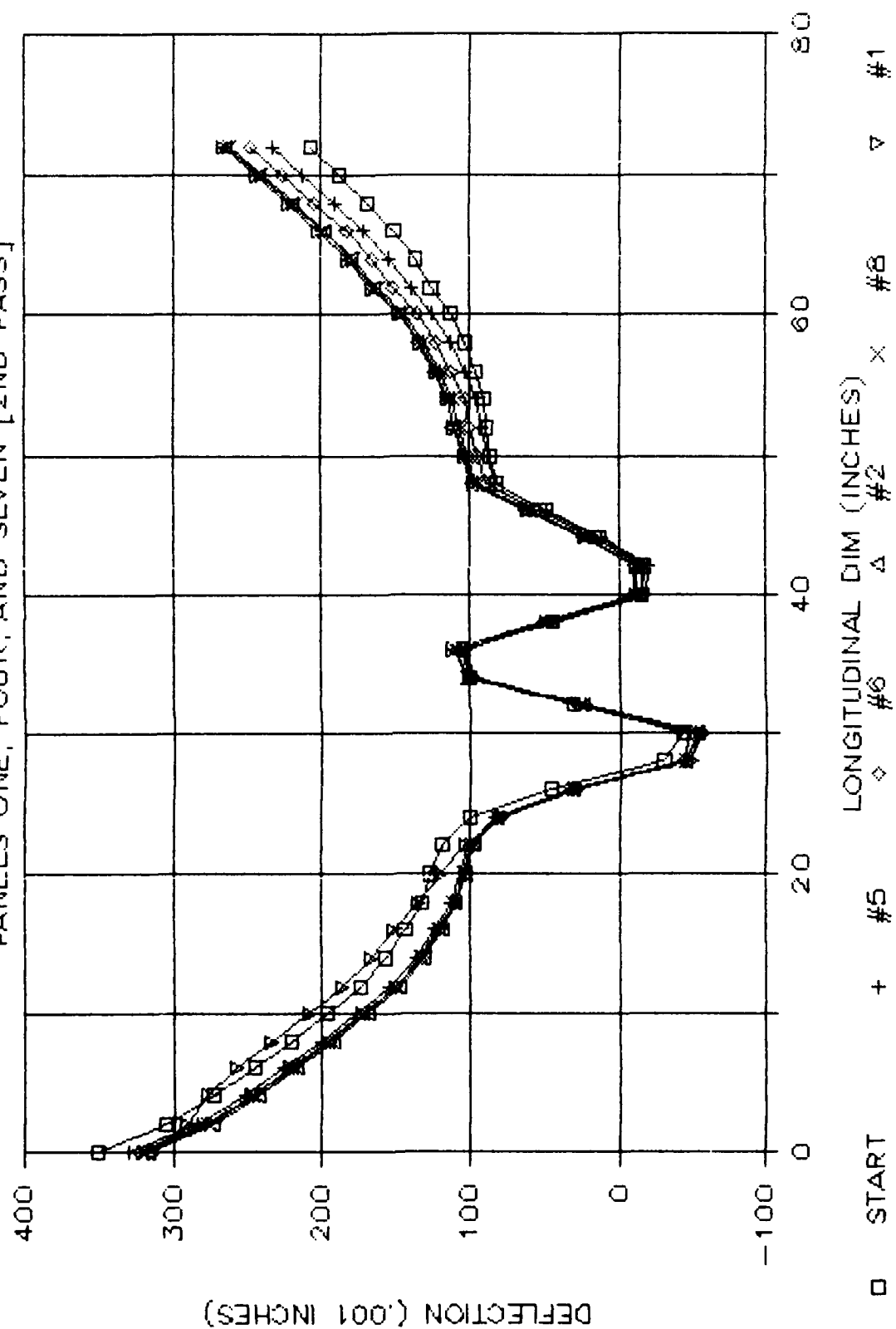
3/16" PLATE DEFLECTION PANELS SEVEN, EIGHT, AND NINE [2ND PASS]



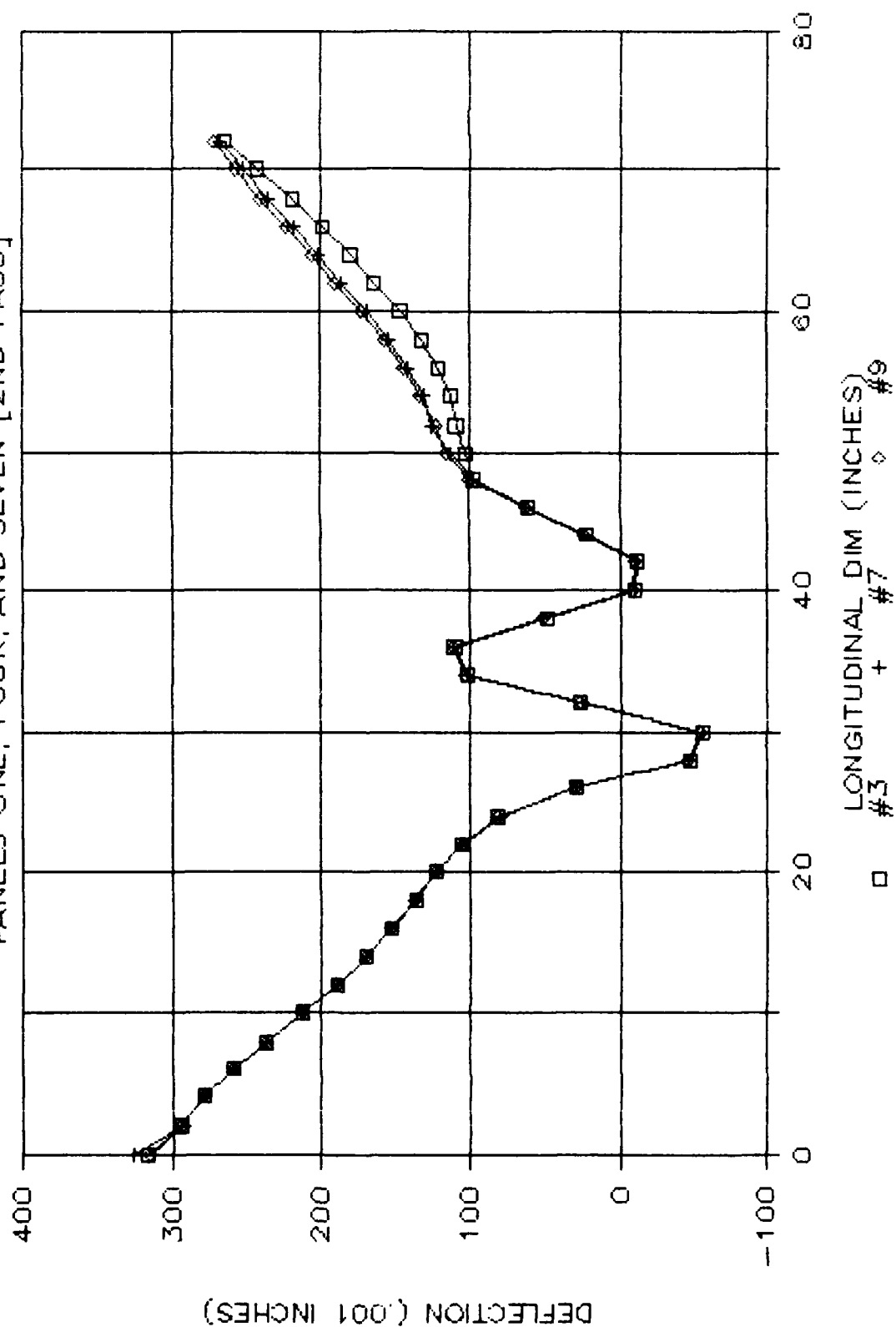
3/16" PLATE DEFLECTION PANELS SEVEN,EIGHT,AND NINE [2ND PASS]



3/16" PLATE DEFLECTION PANELS ONE, FOUR, AND SEVEN [2ND PASS]

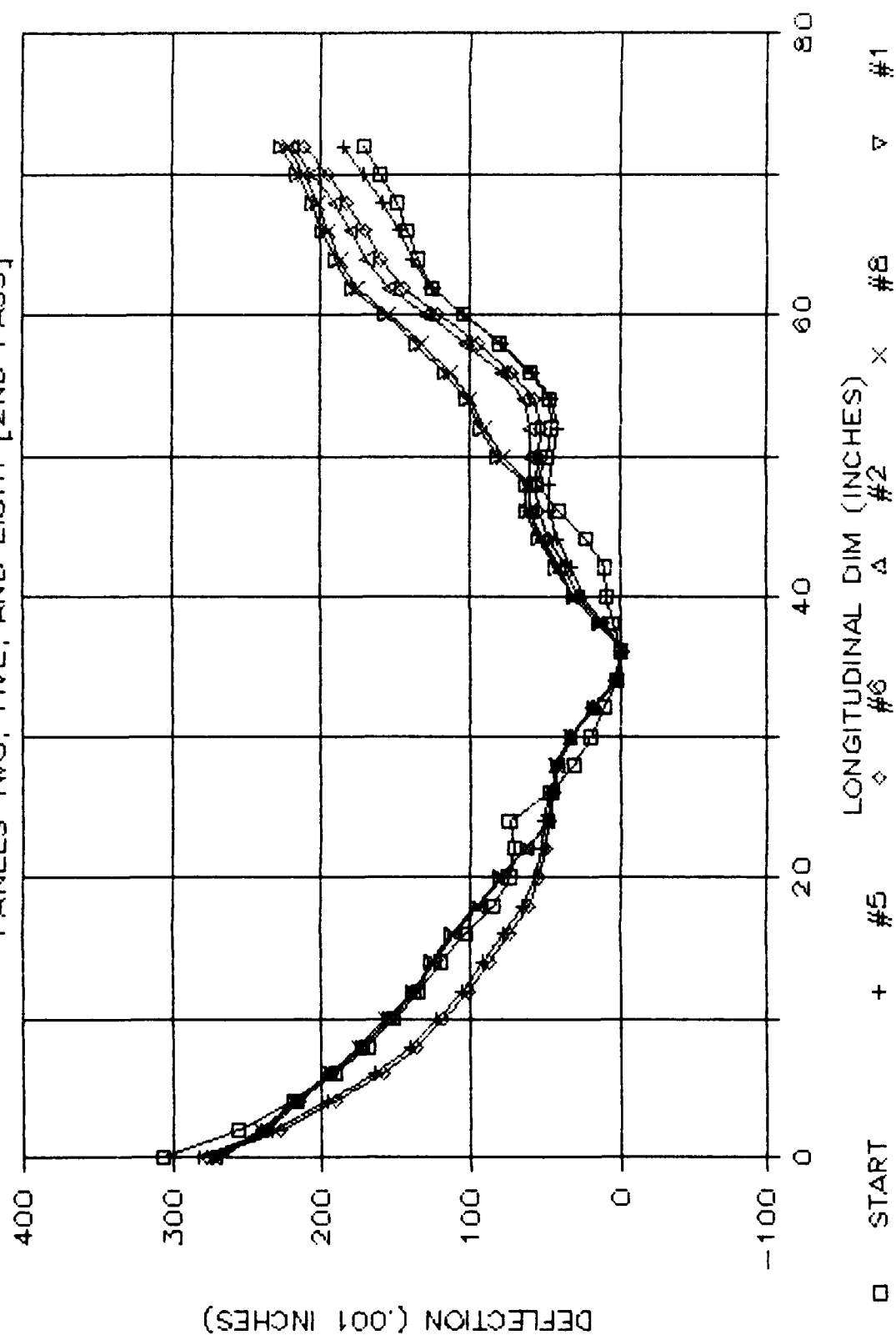


3/16" PLATE DEFLECTION PANELS ONE, FOUR, AND SEVEN [2ND PASS]

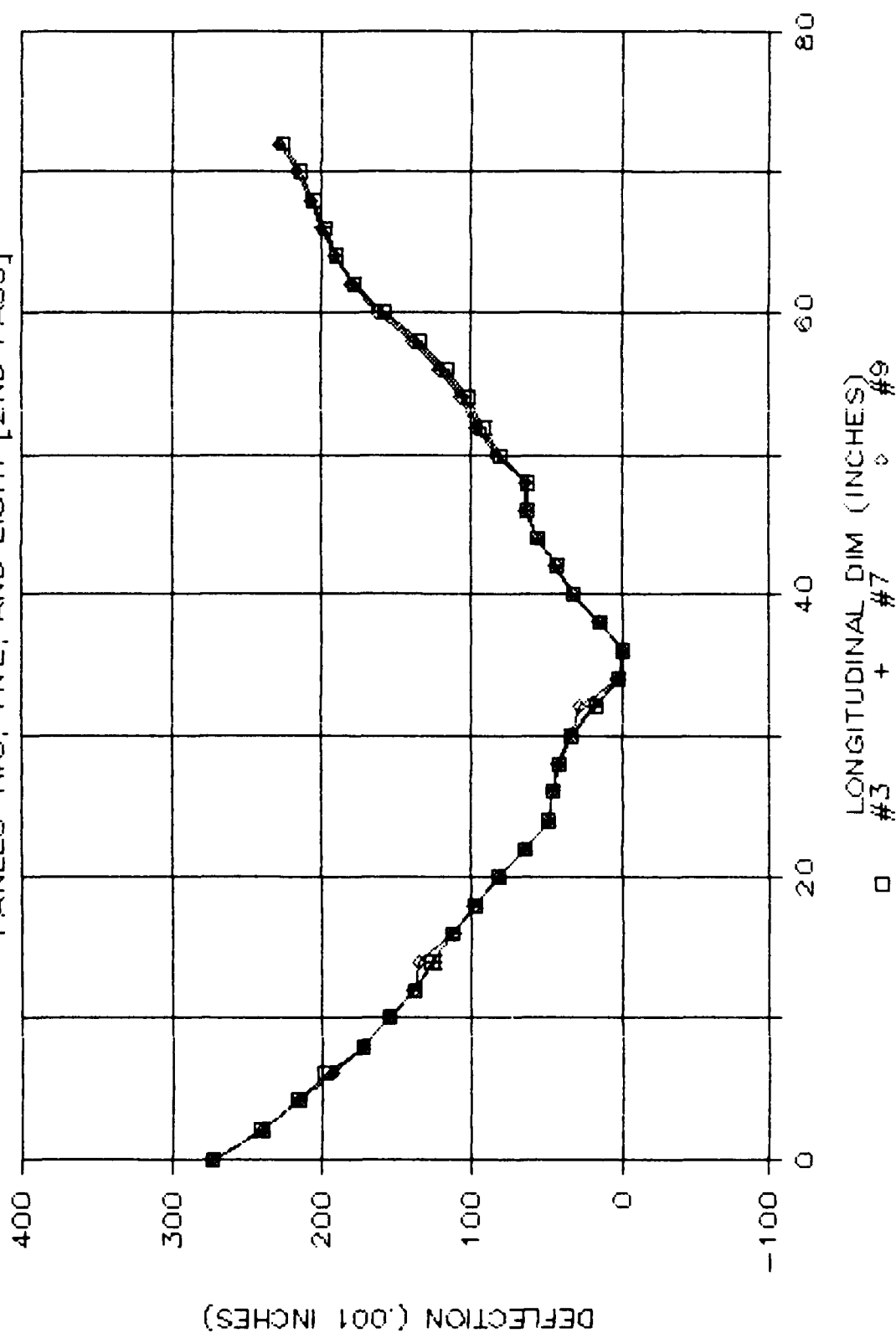


3/16" PLATE DEFLECTION

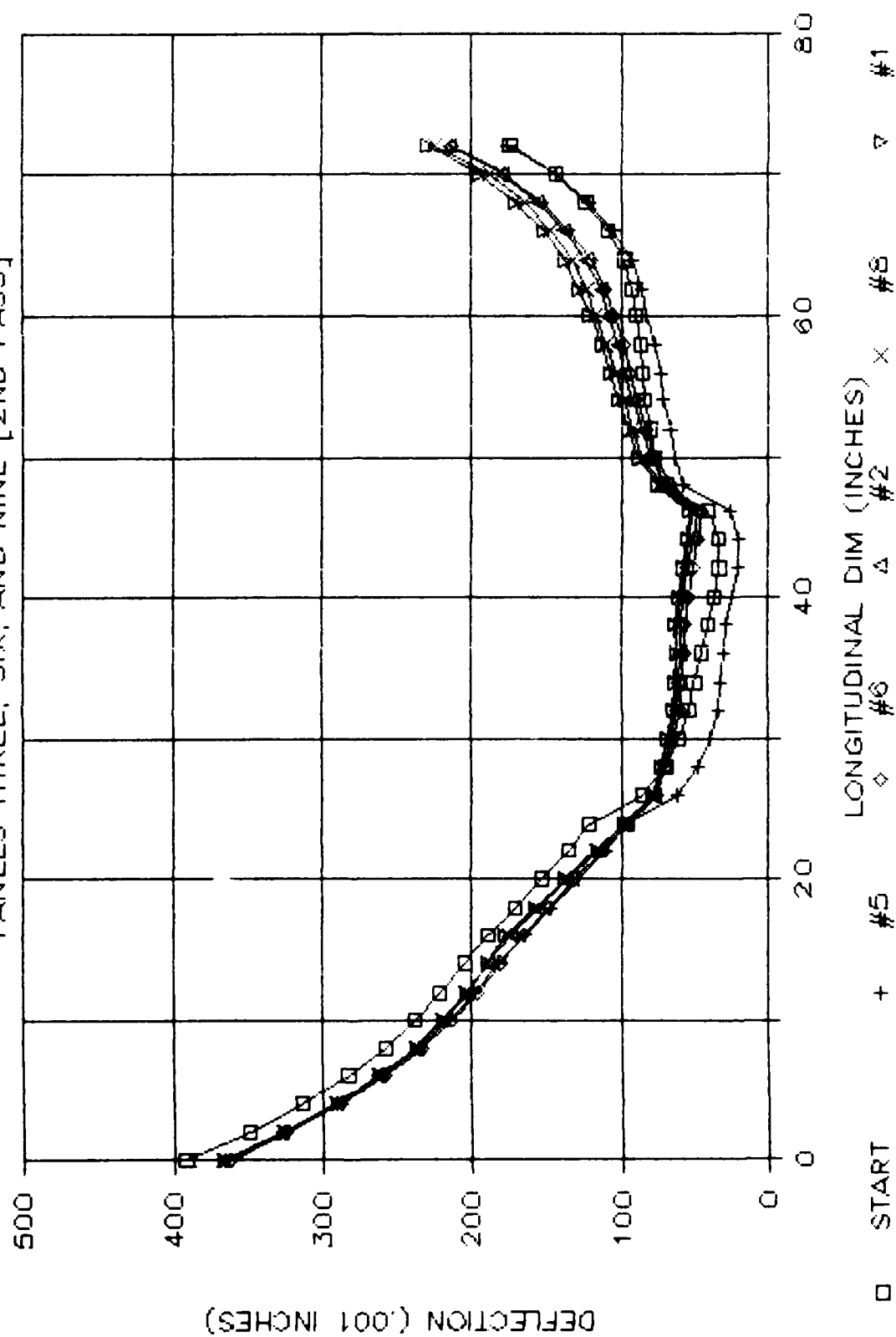
PANELS TWO, FIVE, AND EIGHT [2ND PASS]



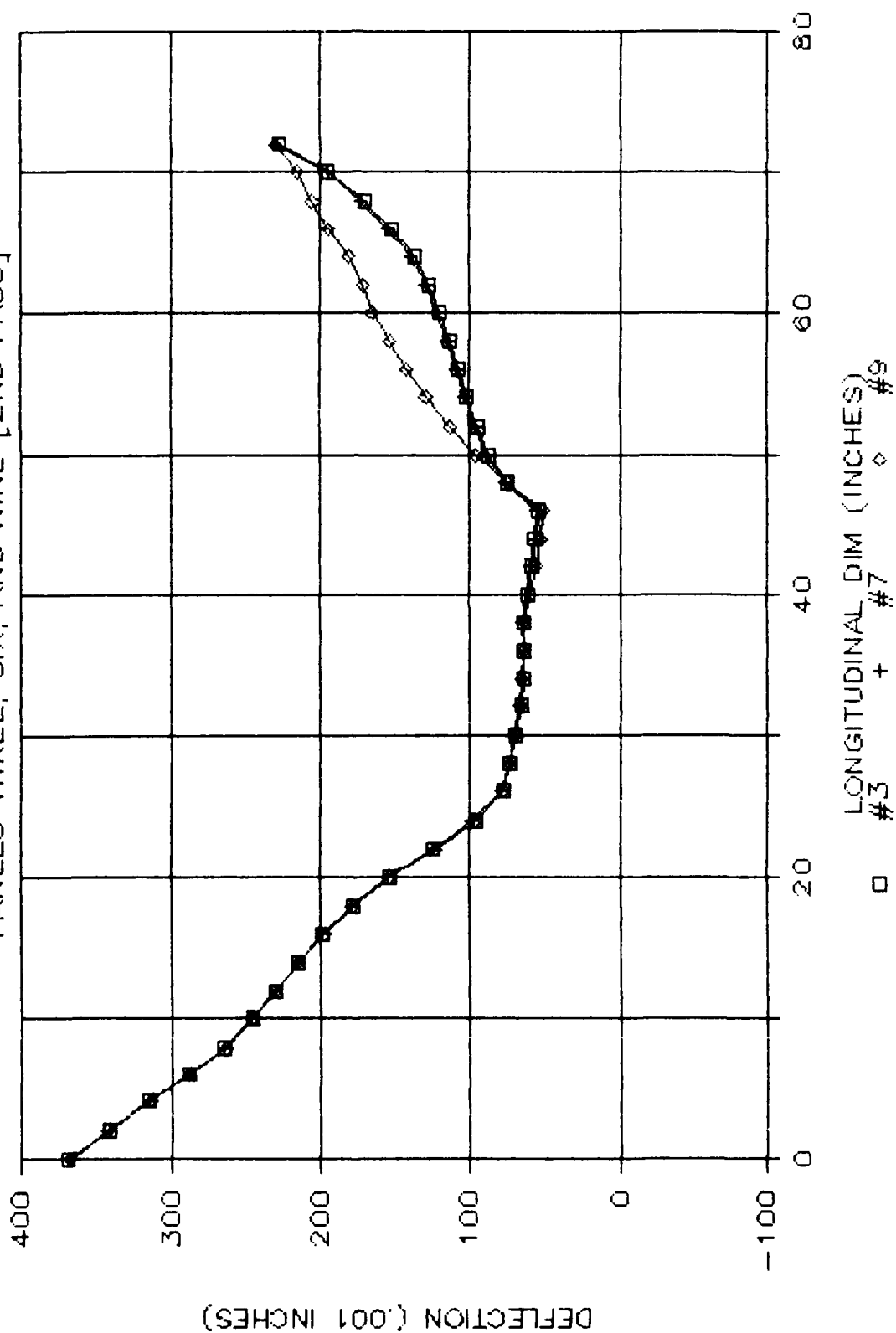
3/16" PLATE DEFLECTION PANELS TWO, FIVE, AND EIGHT [2ND PASS]



3/16" PLATE DEFLECTION PANELS THREE, SIX, AND NINE [2ND PASS]



3/16" PLATE DEFLECTION PANELS THREE, SIX, AND NINE [2ND PASS]



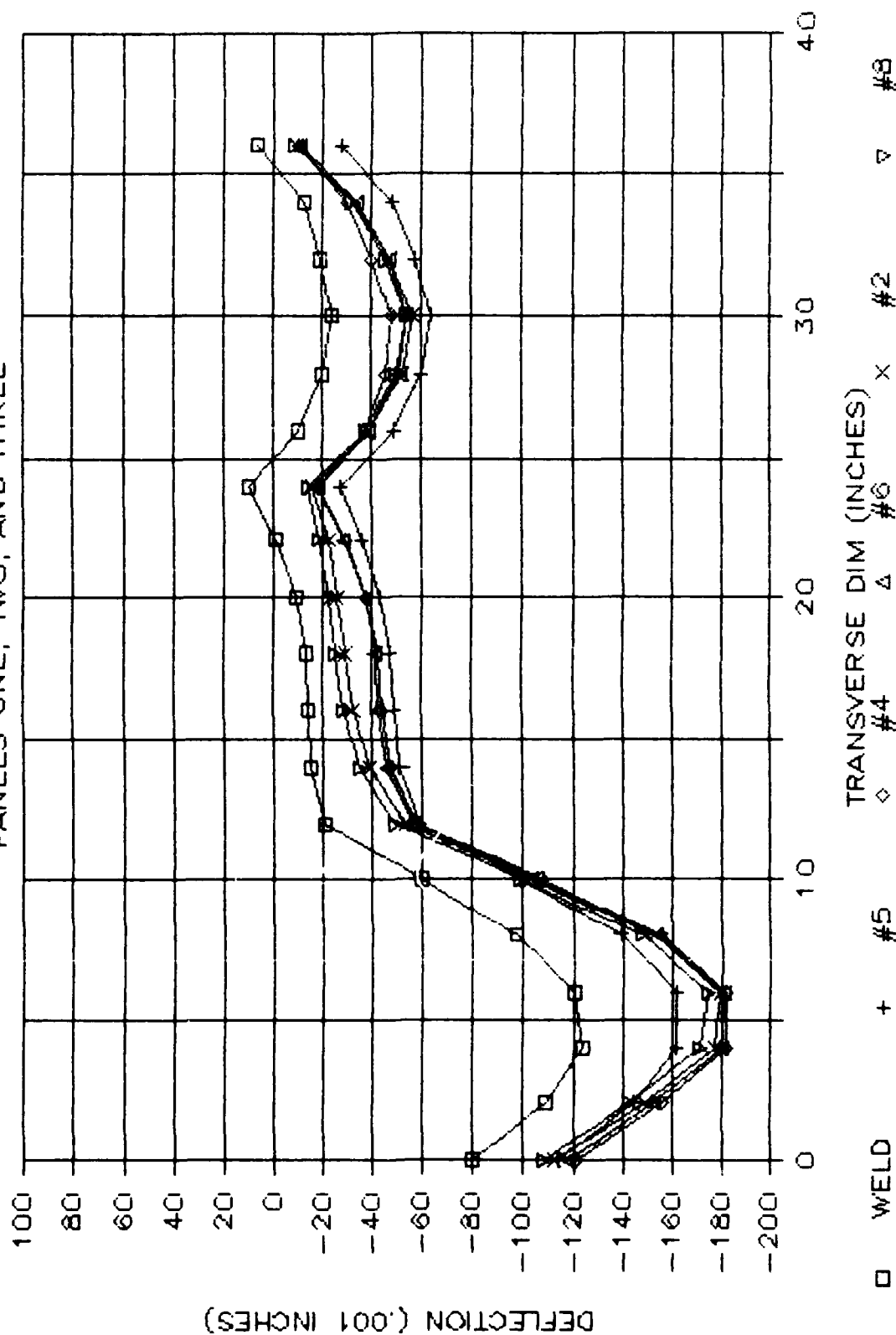
APPENDIX J

GRAPHS OF THE 1/8" STIFFENED PLATE MID-PANEL DEFLECTIONS AFTER THE FIRST LINE HEATING PASS

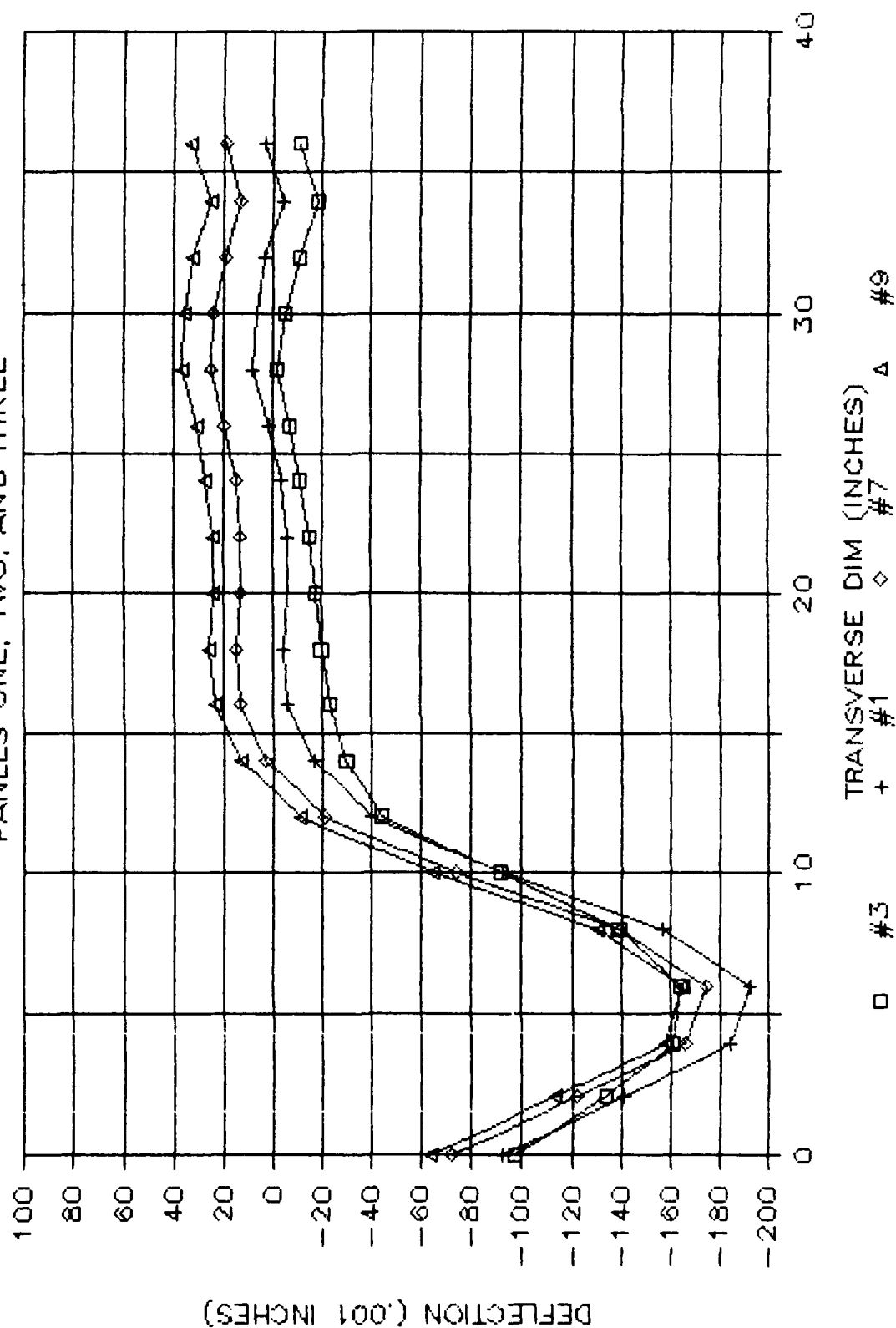
The horizontal coordinate is transverse or longitudinal displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

1/8" PLATE DEFLECTION

PANELS ONE, TWO, AND THREE

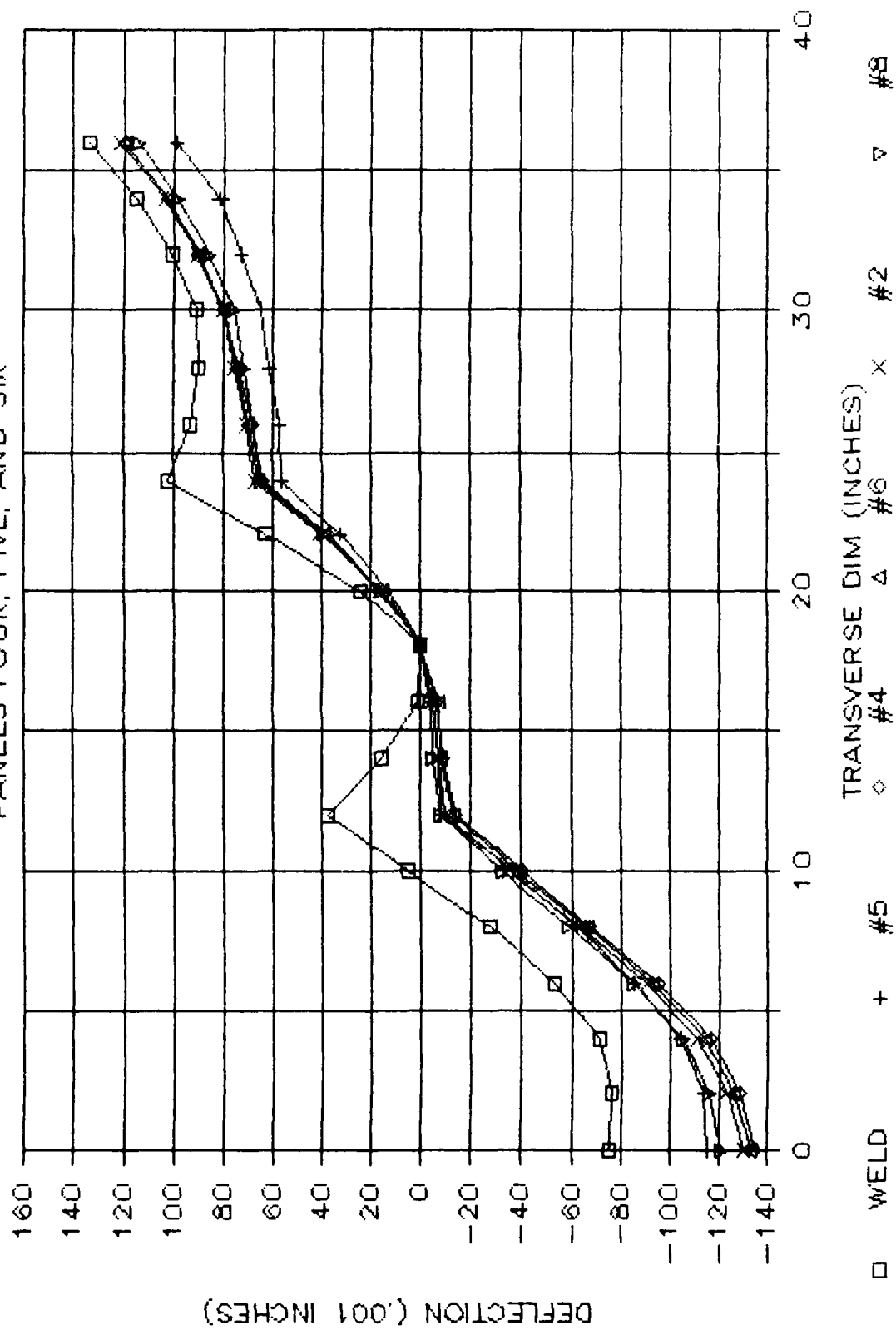


1/8" PLATE DEFLECTION PANELS ONE, TWO, AND THREE

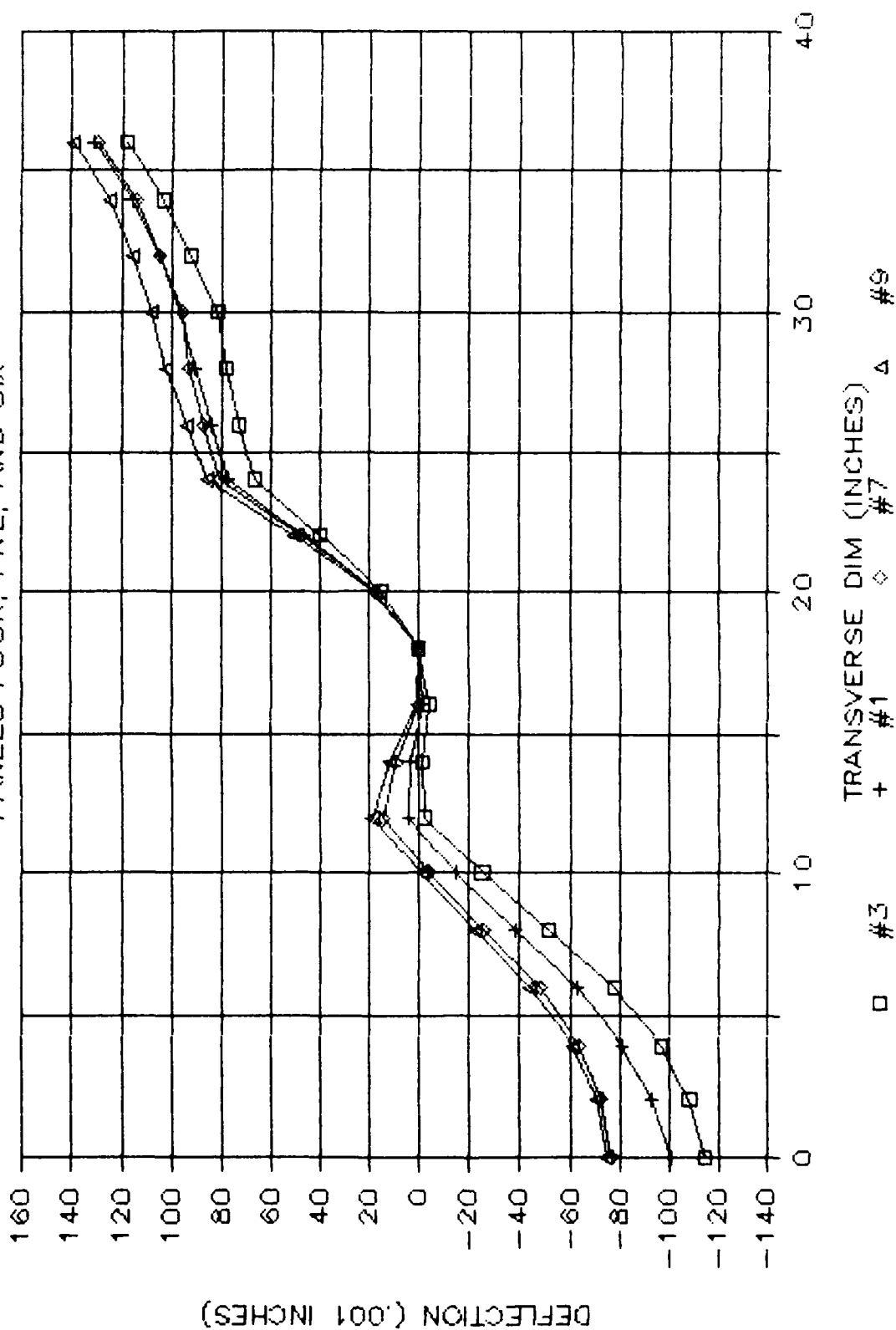


1/8" PLATE DEFLECTION

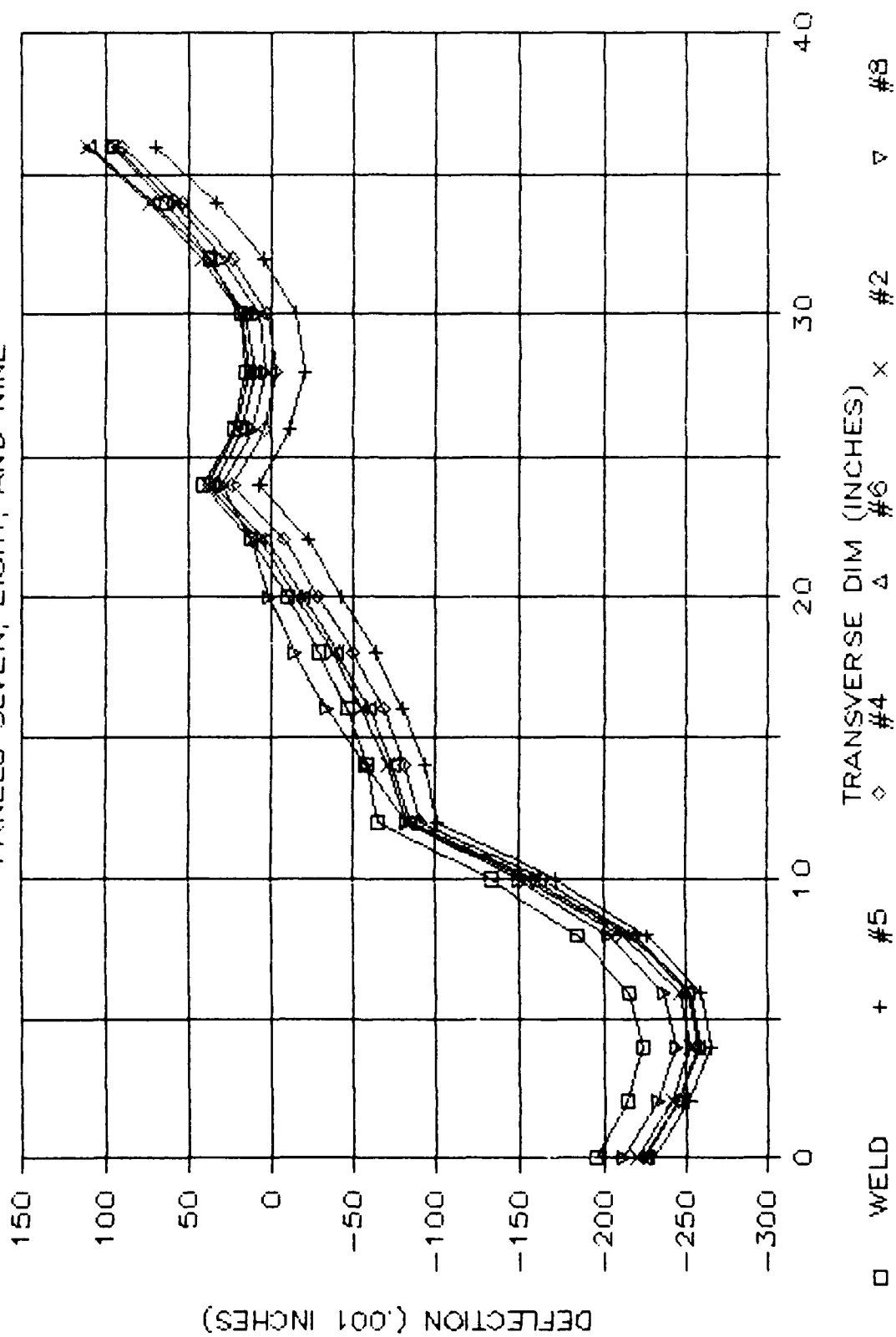
PANELS FOUR, FIVE, AND SIX



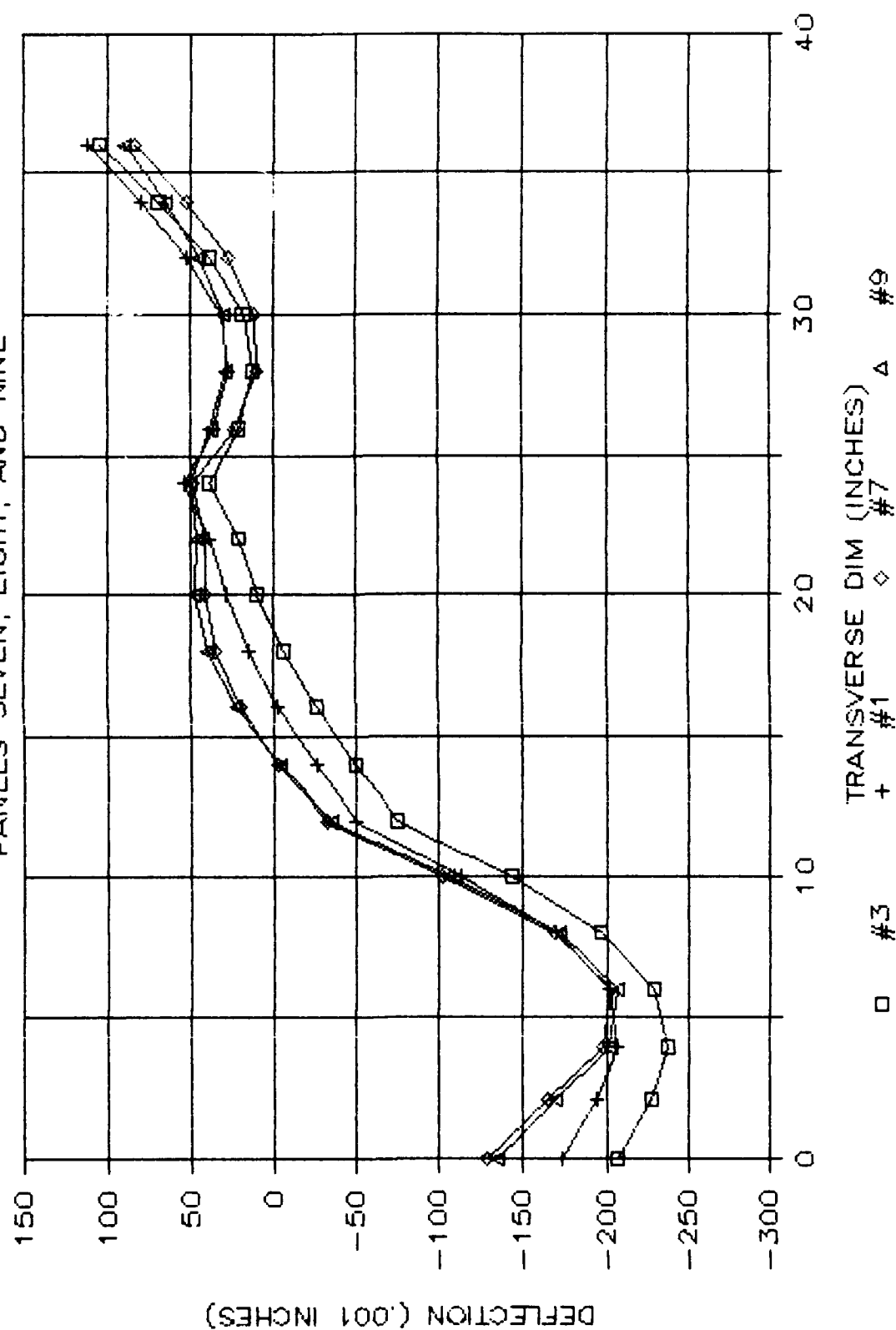
1/8" PLATE DEFLECTION PANELS FOUR, FIVE, AND SIX



1/8" PLATE DEFLECTION PANELS SEVEN, EIGHT, AND NINE

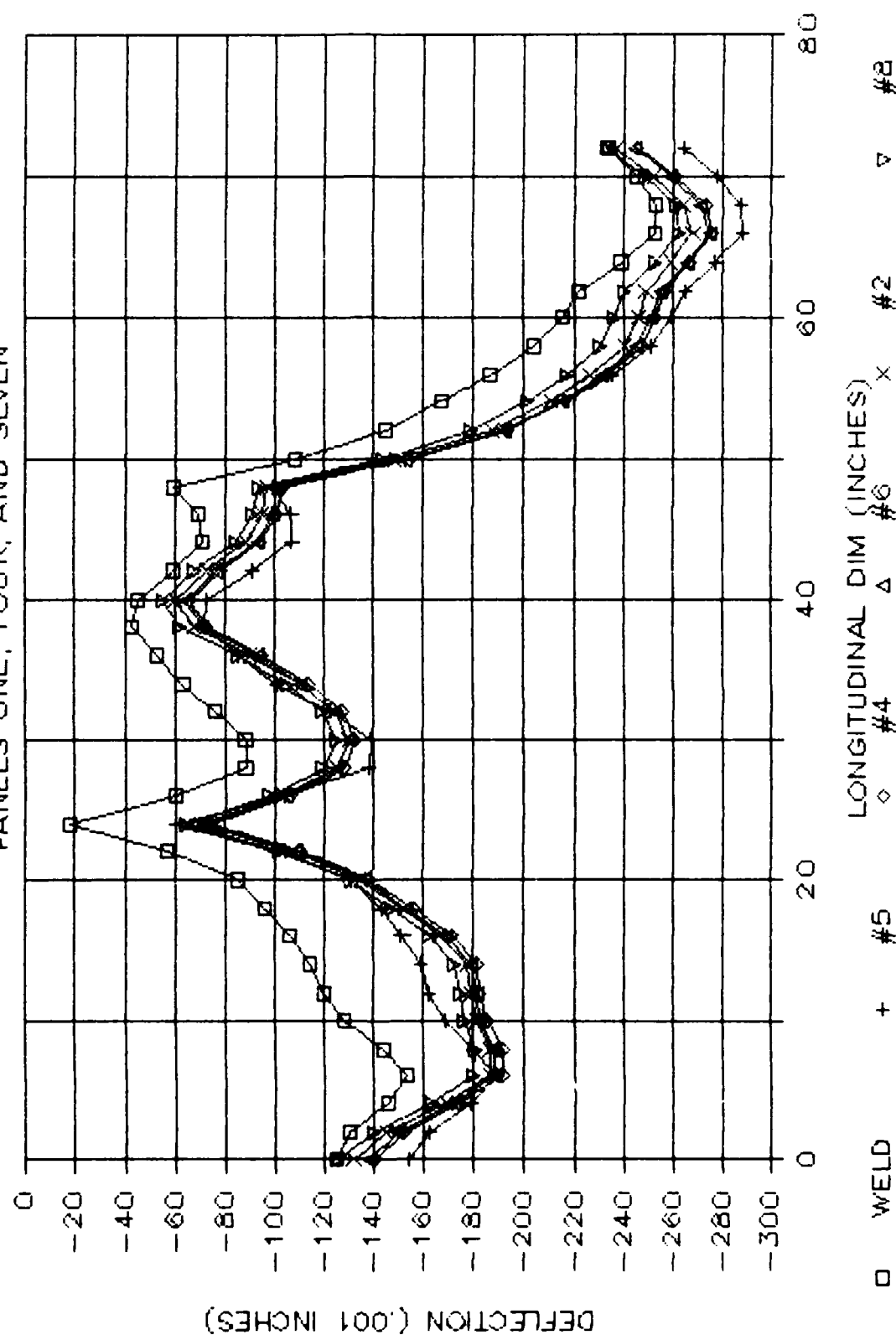


1/8" PLATE DEFLECTION PANELS SEVEN, EIGHT, AND NINE

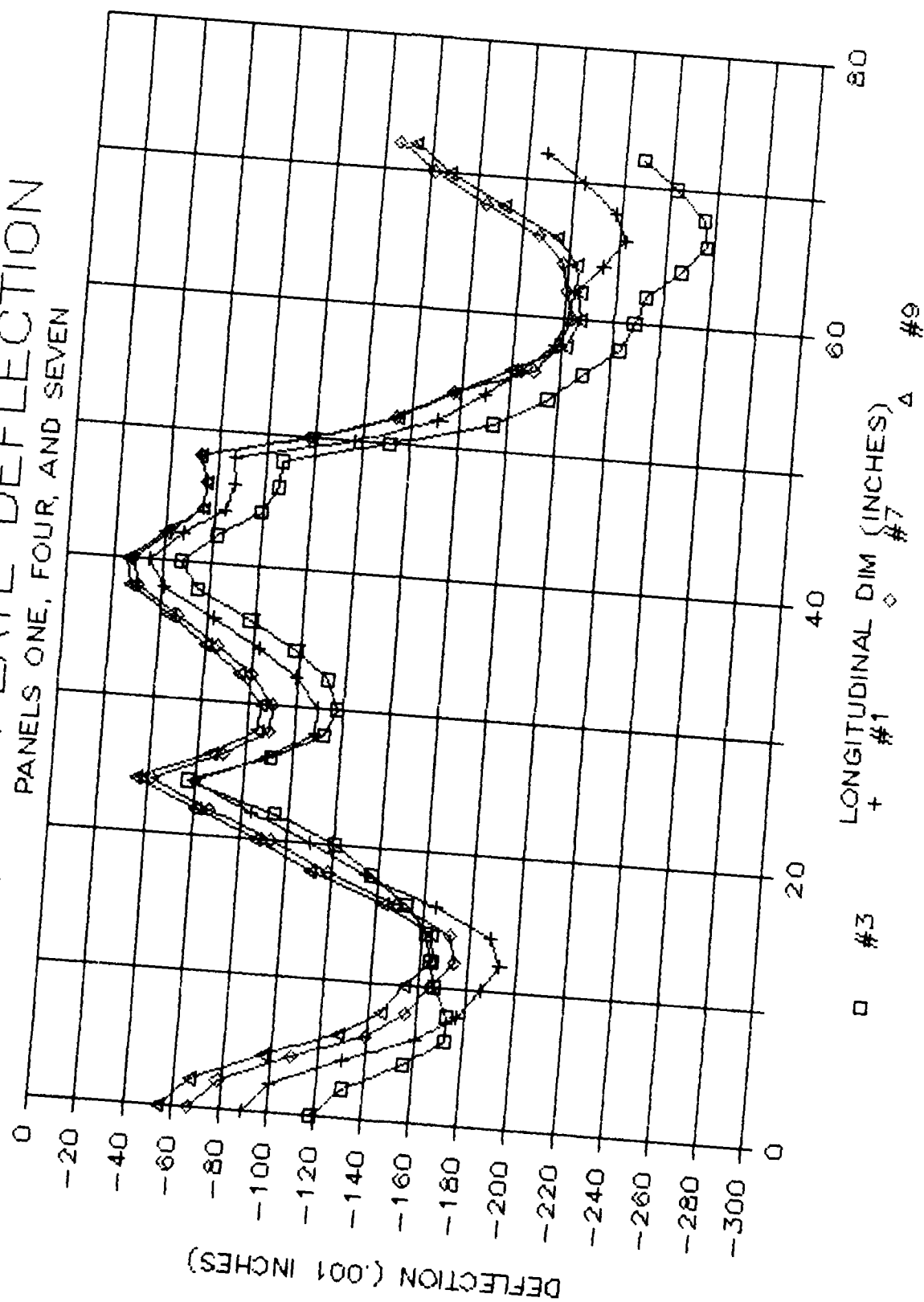


1/8" PLATE DEFLECTION

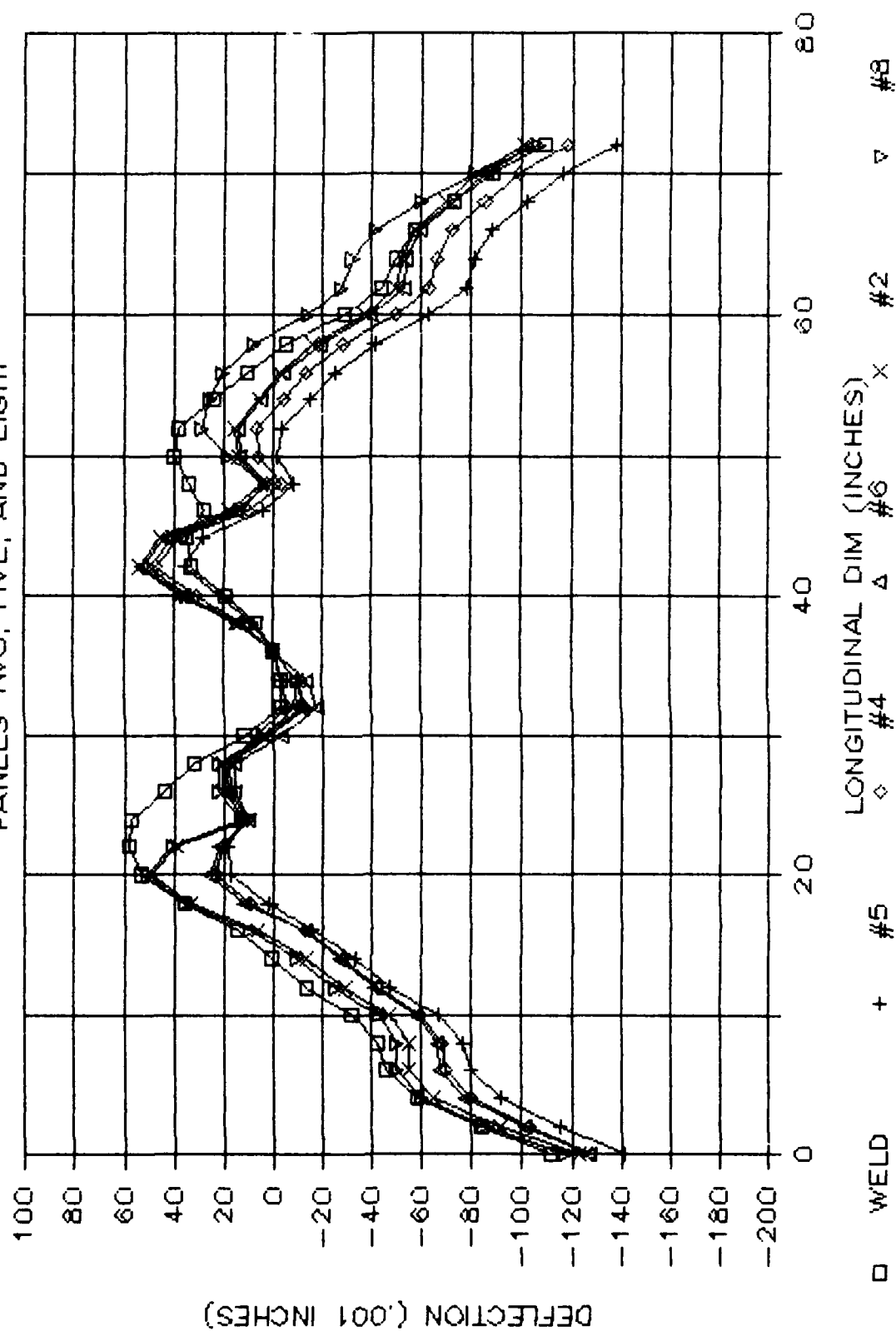
PANELS ONE, FOUR, AND SEVEN



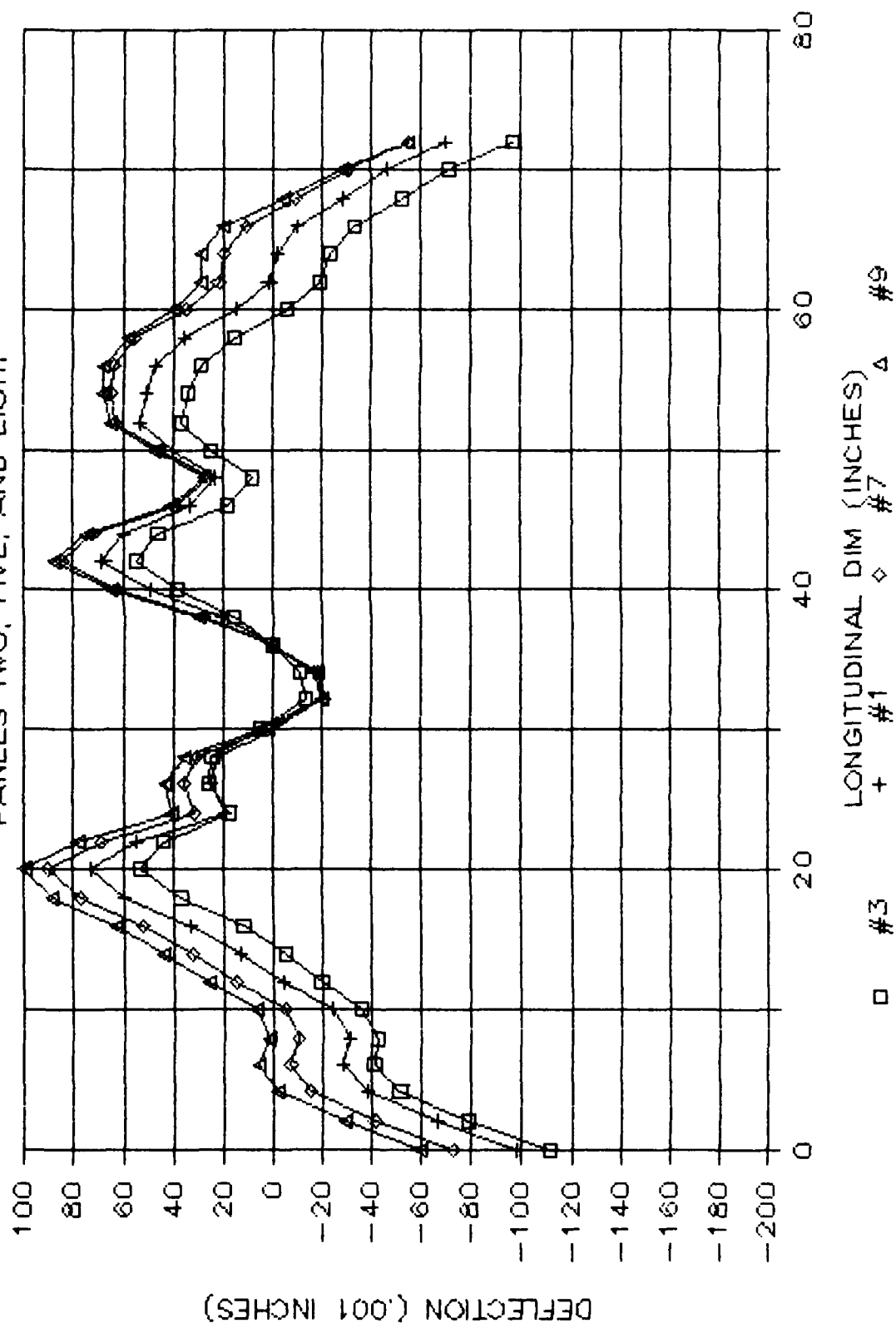
1/8" PLATE DEFLECTION PANELS ONE, FOUR, AND SEVEN



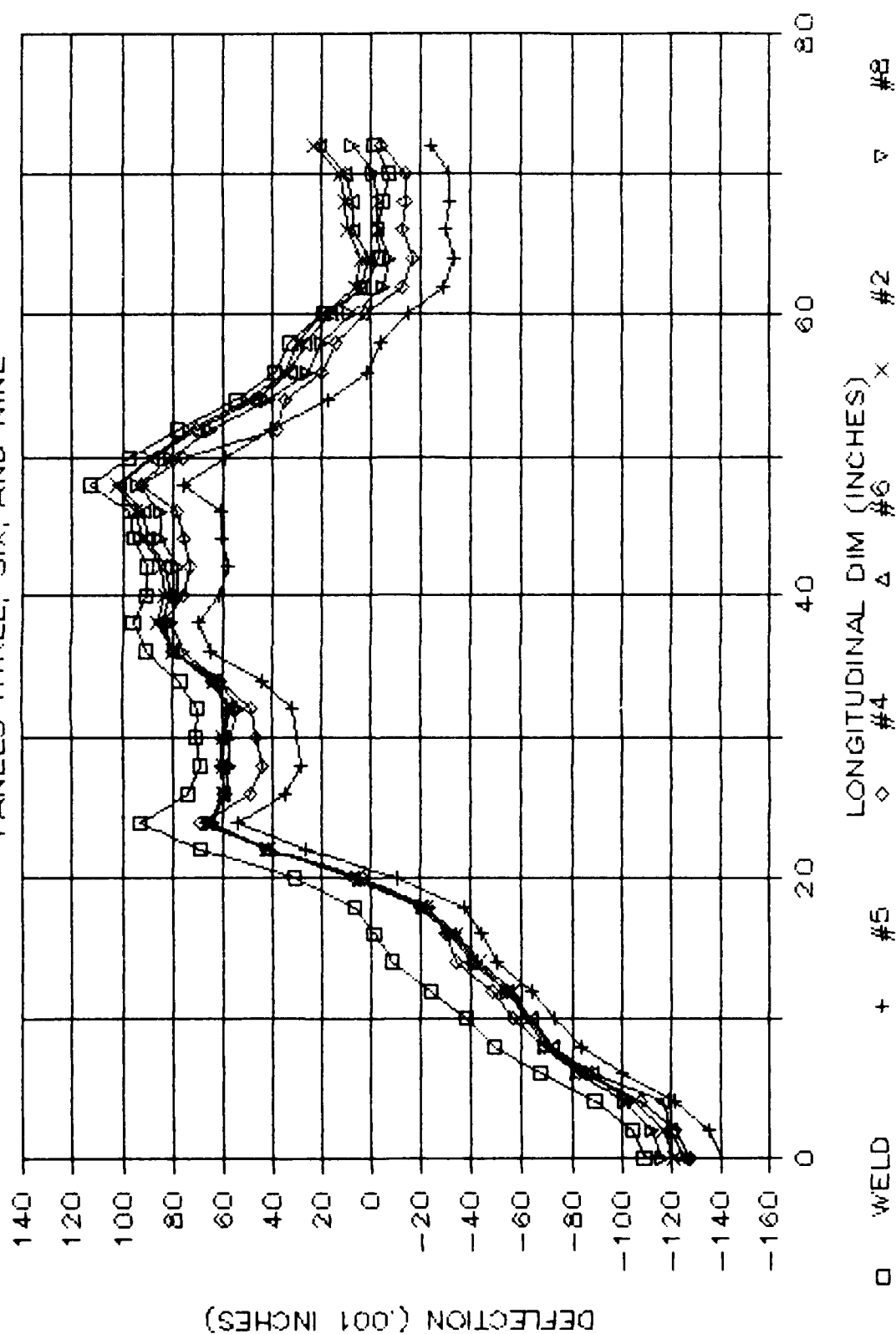
1/8" PLATE DEFLECTION PANELS TWO, FIVE, AND EIGHT



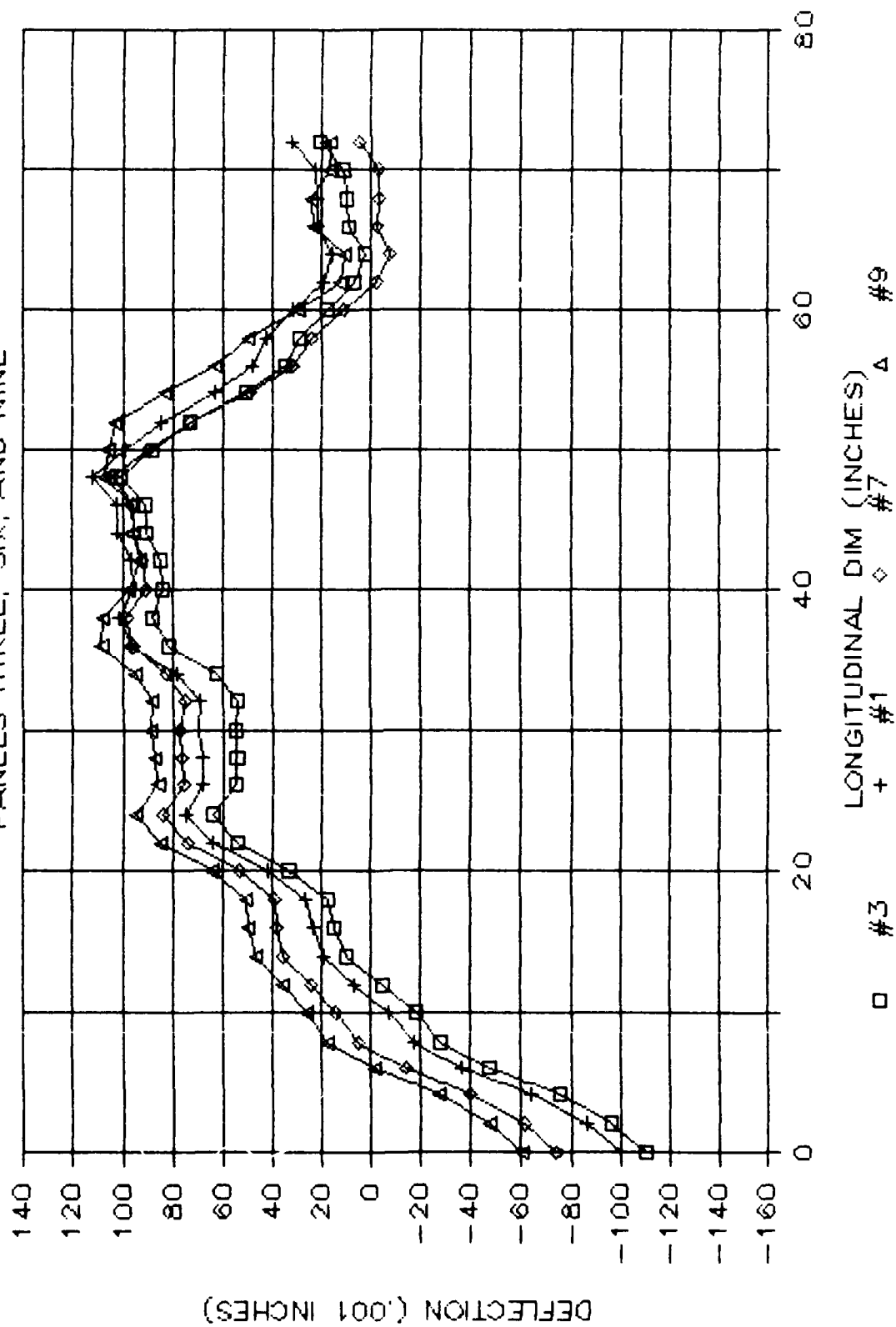
1/8" PLATE DEFLECTION PANELS TWO, FIVE, AND EIGHT



1/8" PLATE DEFLECTION PANELS THREE, SIX, AND NINE



1/8" PLATE DEFLECTION PANELS THREE, SIX, AND NINE



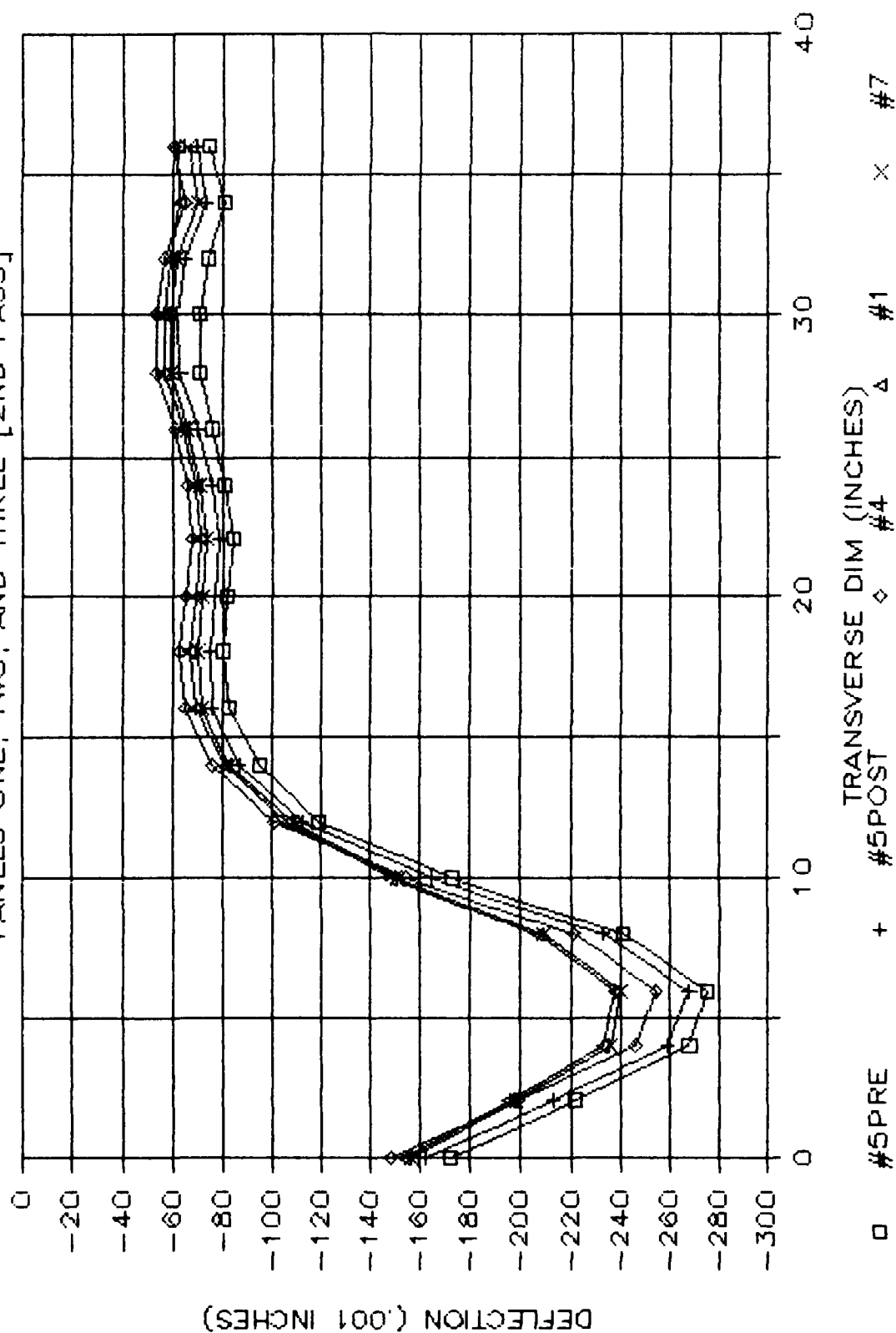
APPENDIX K

GRAPHS OF THE 1/8" STIFFENED PLATE MID-PANEL DEFLECTIONS AFTER THE SECOND LINE HEATING PASS

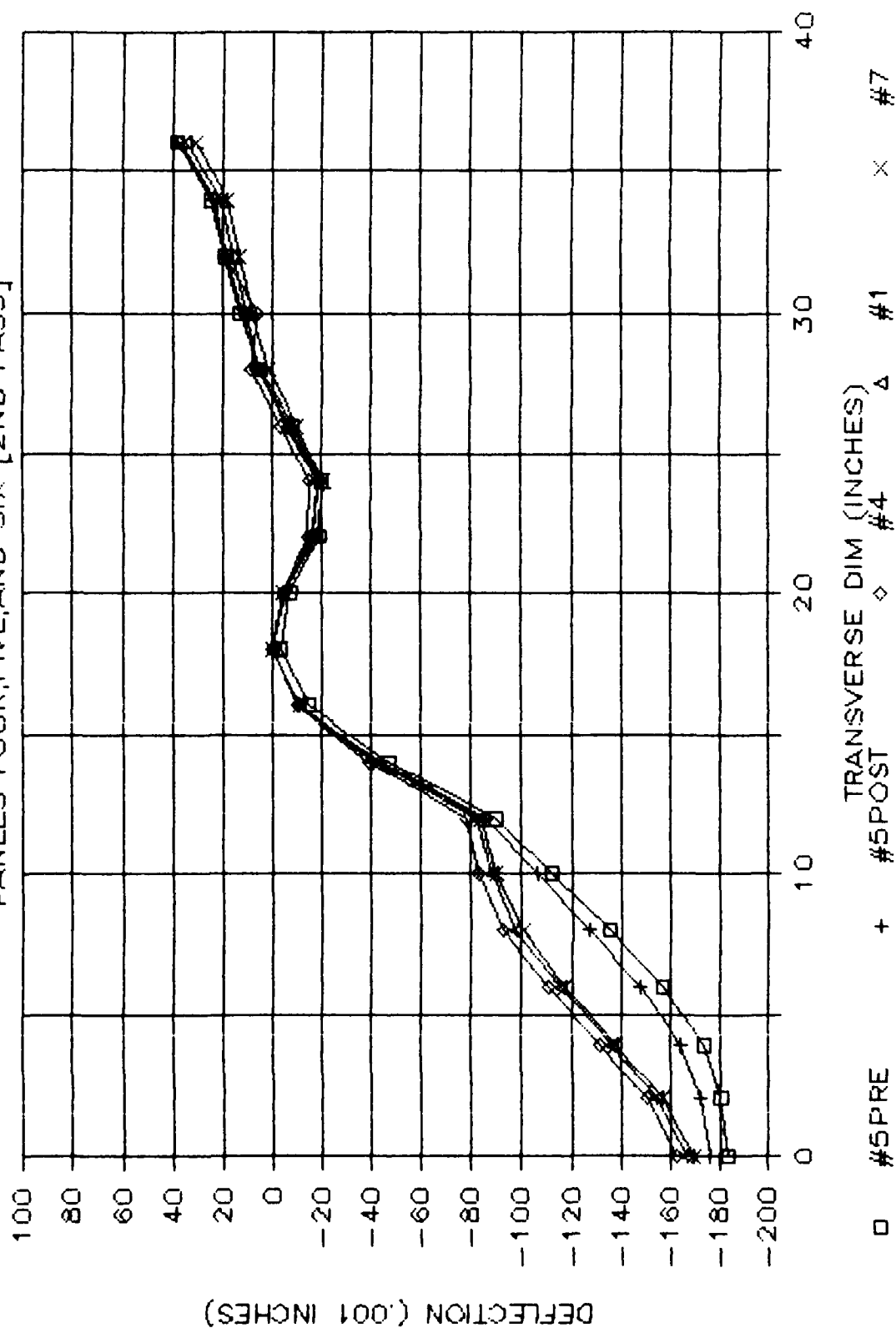
The horizontal coordinate is transverse or longitudinal displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

1/8" PLATE DEFLECTION

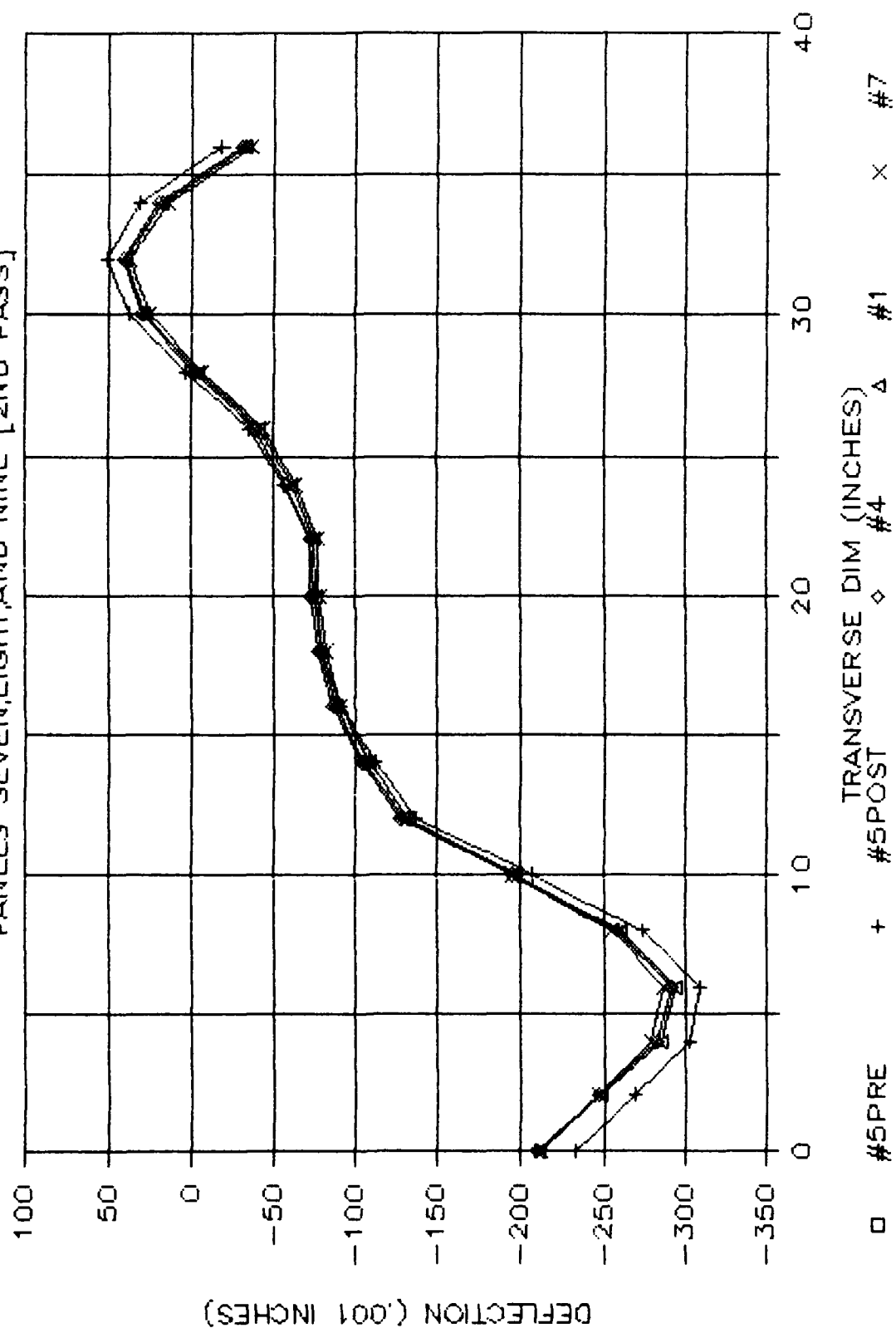
PANELS ONE, TWO, AND THREE [2ND PASS]



1/8" PLATE DEFLECTION PANELS FOUR, FIVE, AND SIX [2ND PASS]

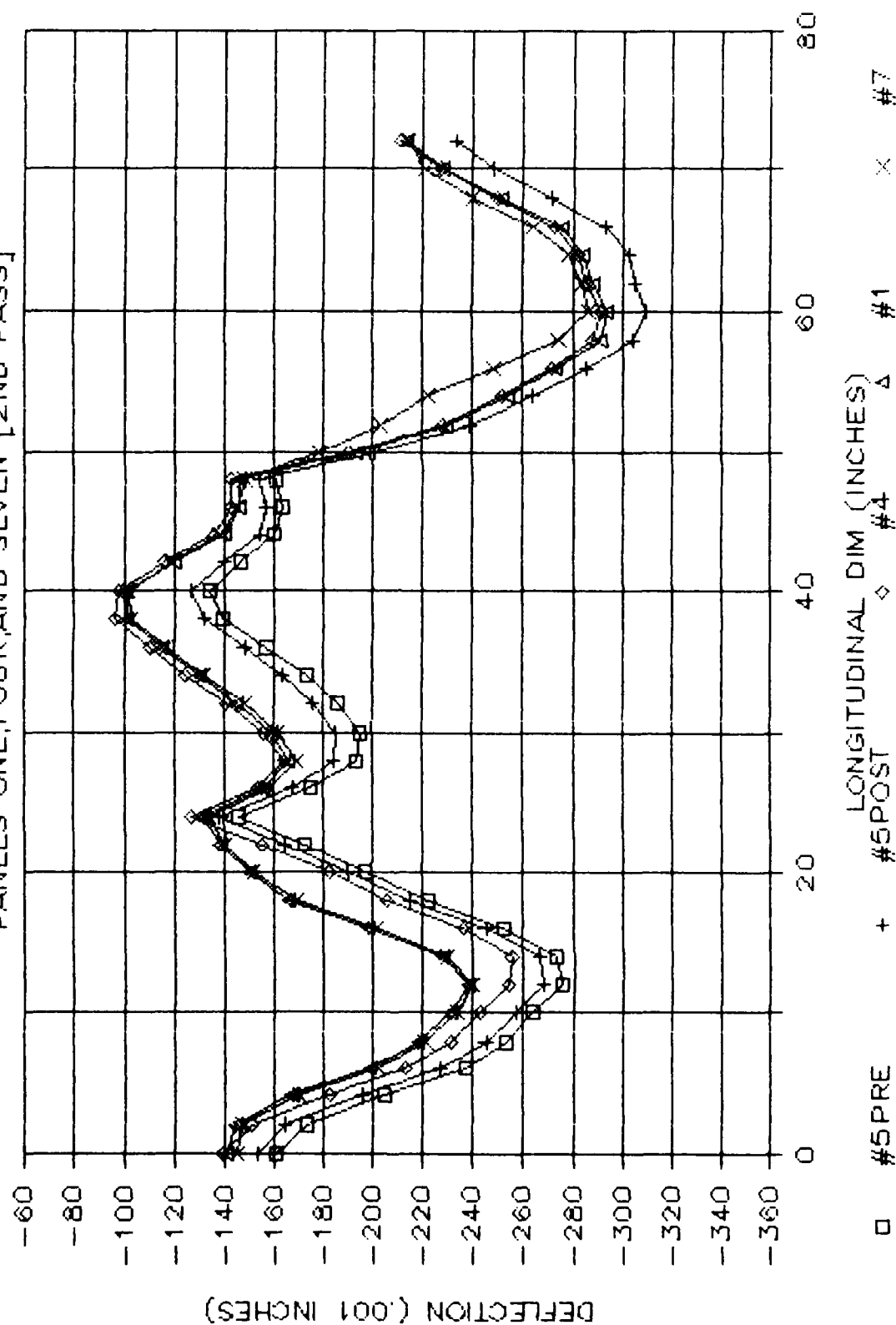


1/8" PLATE DEFLECTION PANELS SEVEN,EIGHT,AND NINE [2ND PASS]

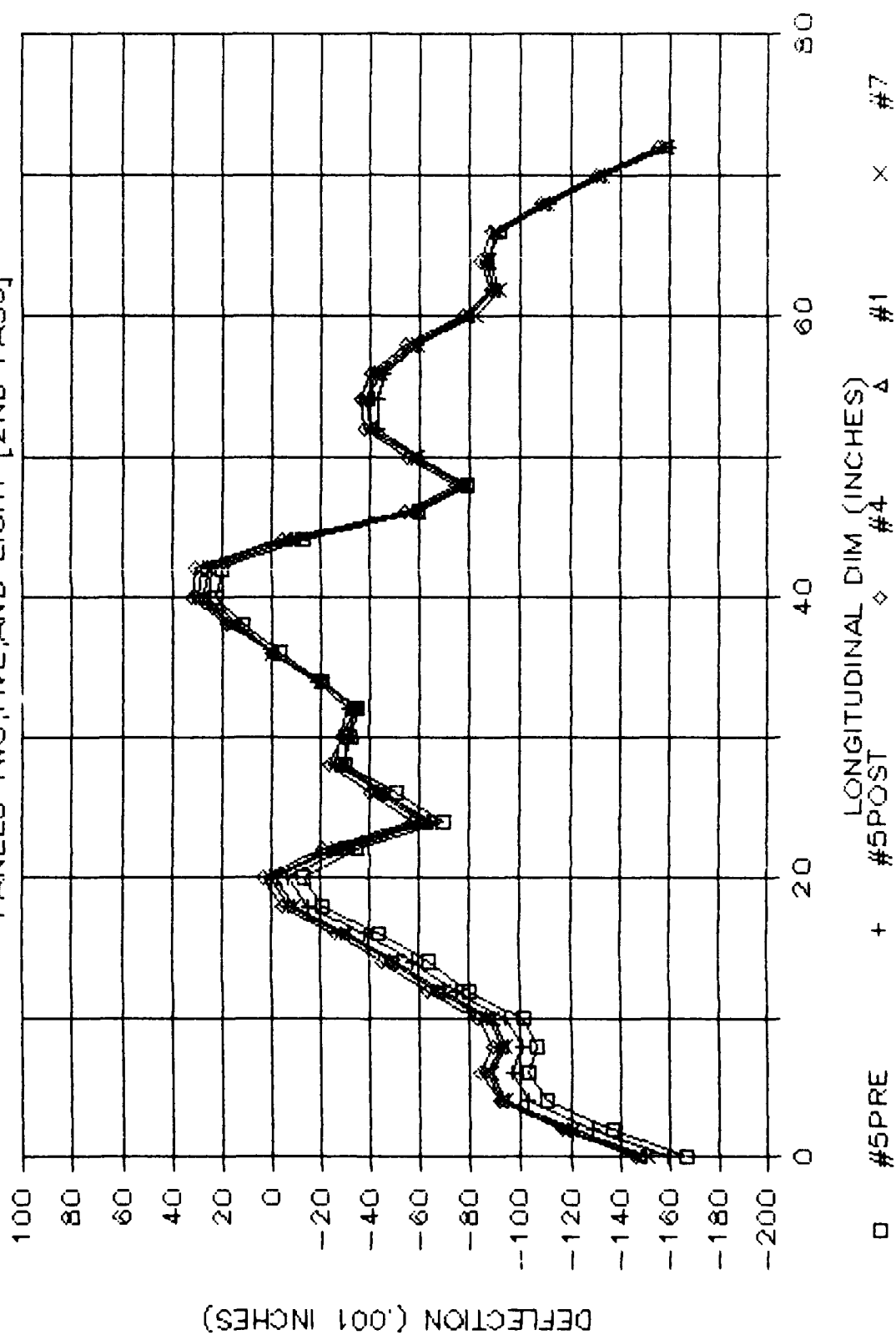


1/8" PLATE DEFLECTION

PANELS ONE, FOUR, AND SEVEN [2ND PASS]

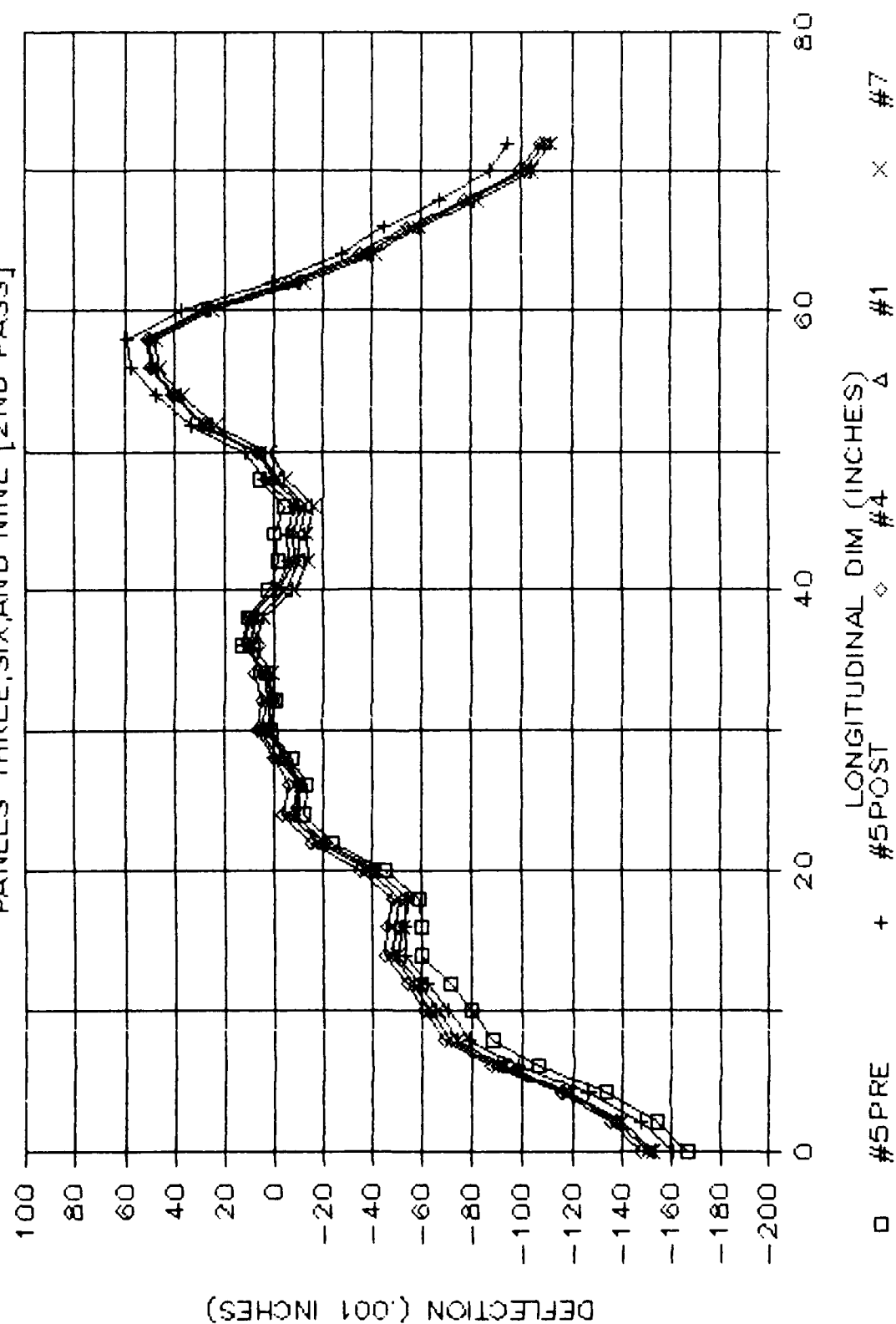


1/8" PLATE DEFLECTION PANELS TWO, FIVE, AND EIGHT [2ND PASS]



1/8" PLATE DEFLECTION

PANELS THREE, SIX, AND NINE [2ND PASS]



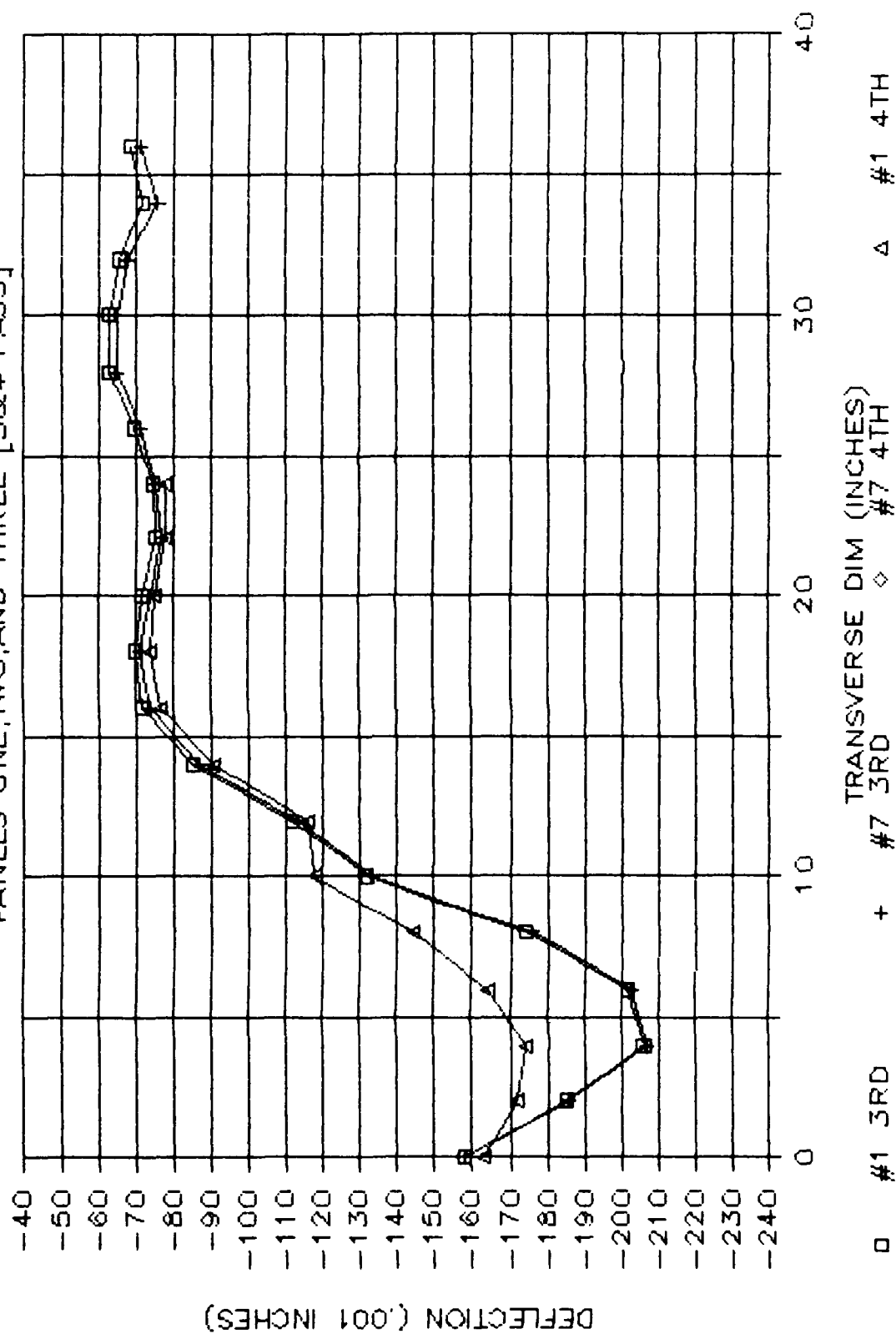
APPENDIX L

GRAPHS OF THE 1/8" STIFFENED PLATE MID-PANEL DEFLECTIONS AFTER THE THIRD AND FOURTH LINE HEATING PASS

The horizontal coordinate is transverse or longitudinal displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

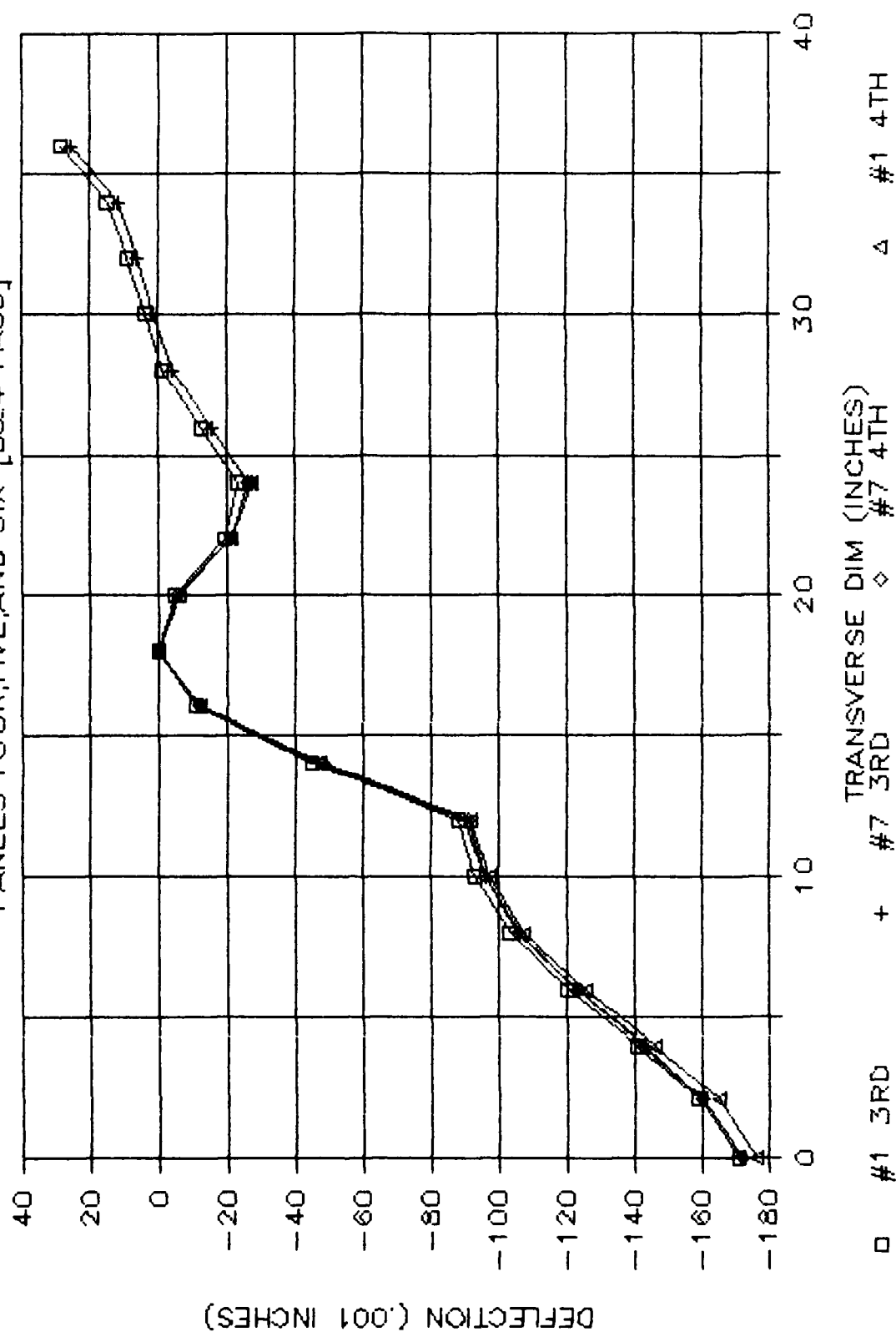
1/8" PLATE DEFLECTION

PANELS ONE, TWO, AND THREE [3&4 PASS]

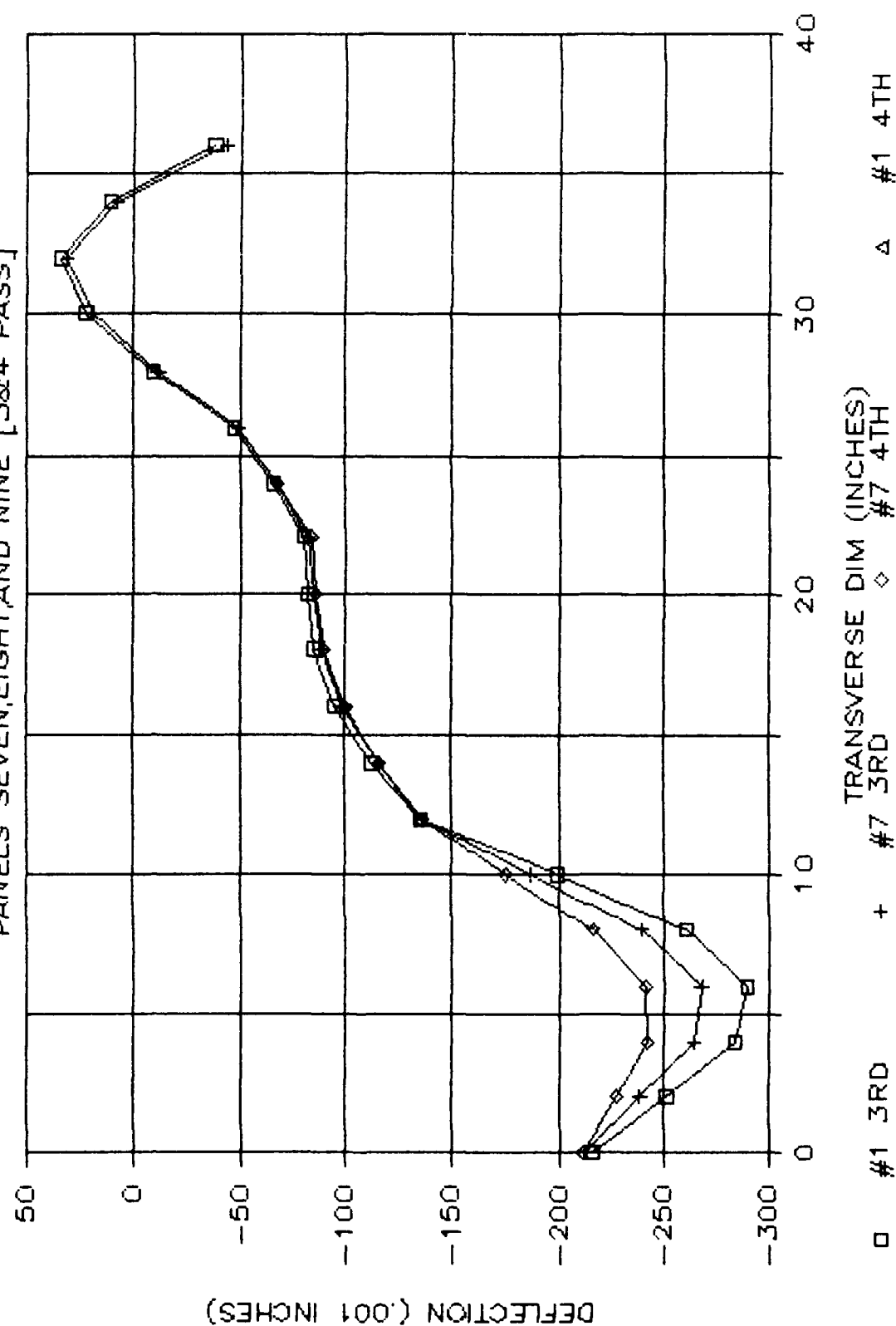


1/8" PLATE DEFLECTION

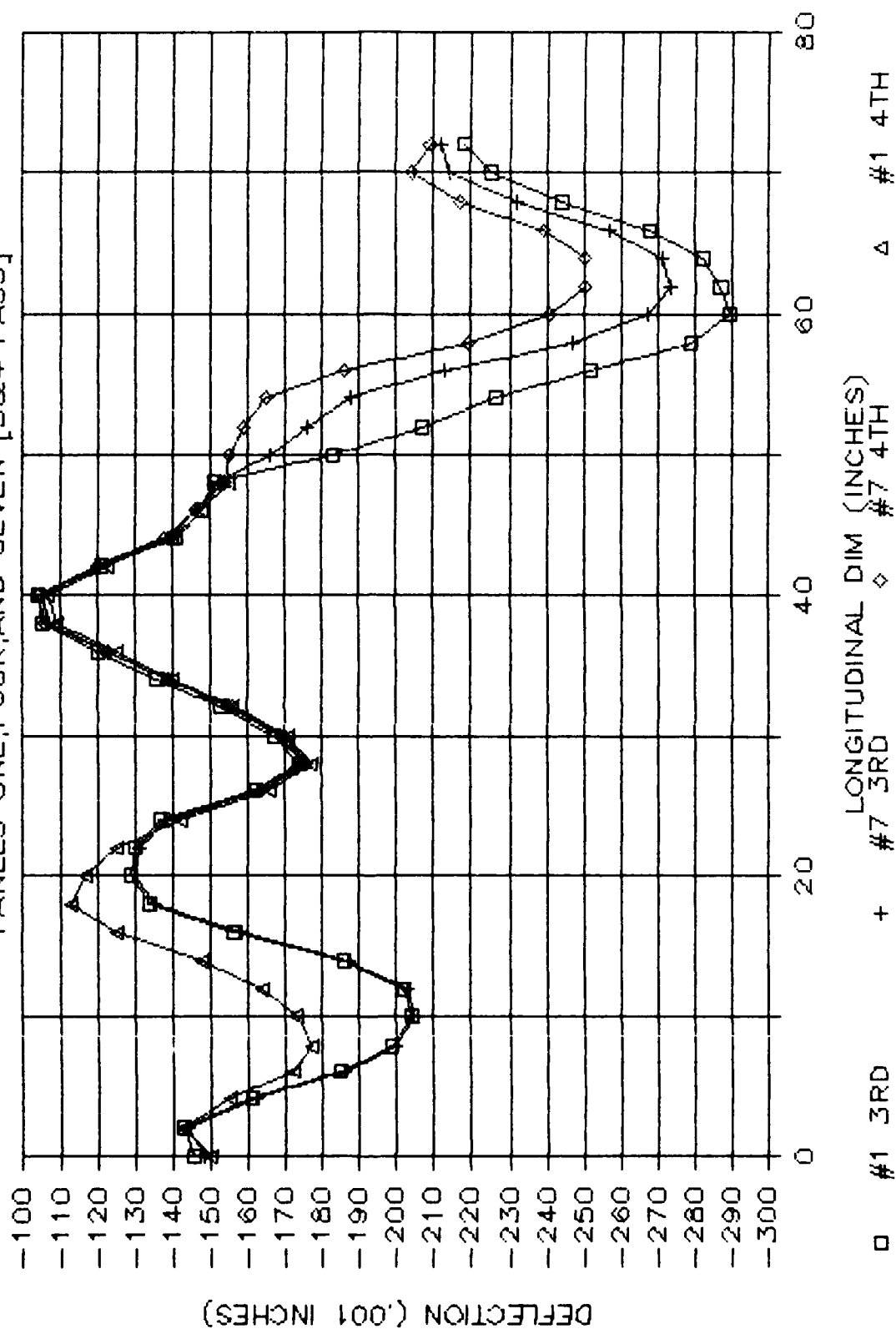
PANELS FOUR, FIVE, AND SIX [3&4 PASS]



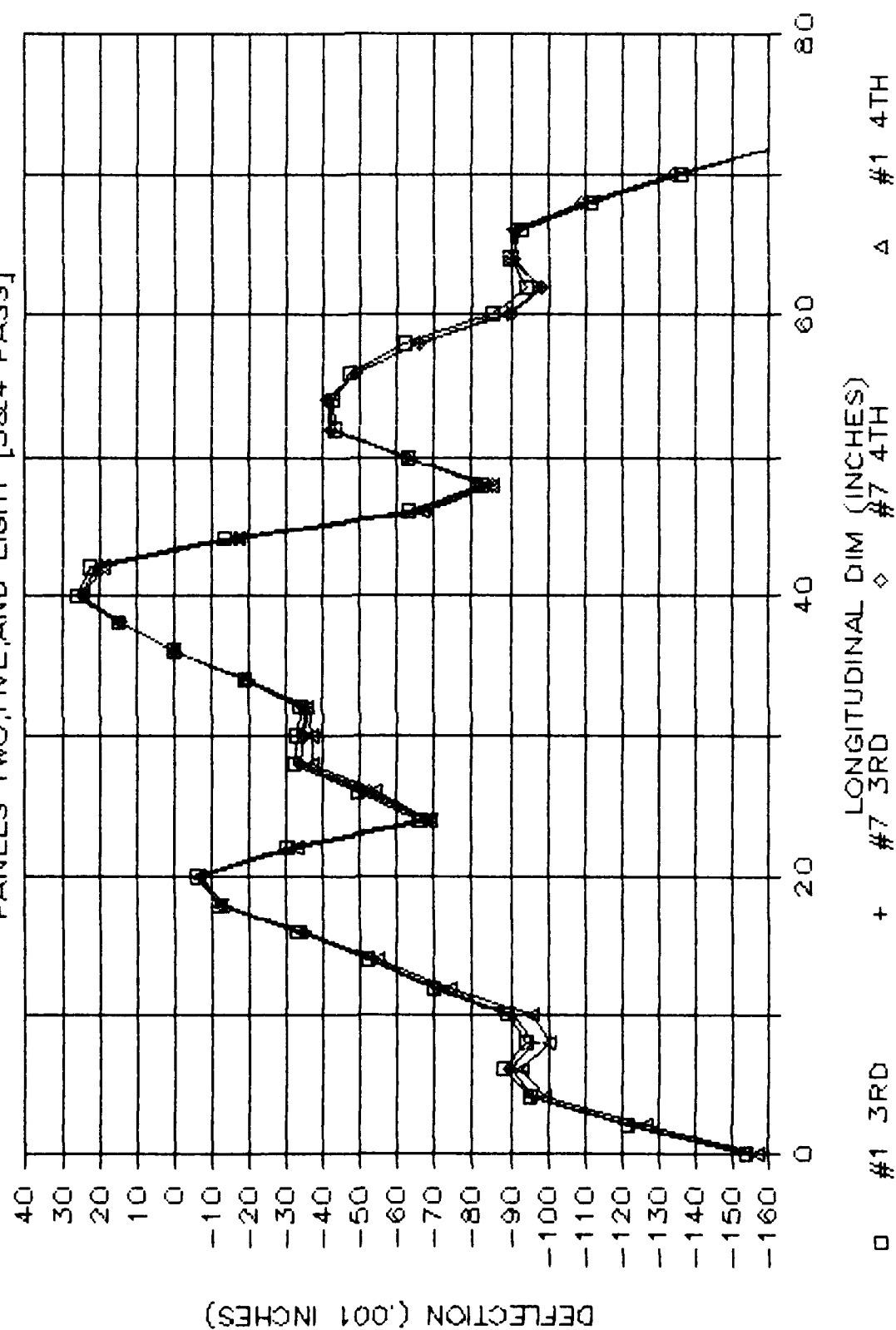
1/8" PLATE DEFLECTION PANELS SEVEN,EIGHT,AND NINE [3&4 PASS]



1/8" PLATE DEFLECTION PANELS ONE, FOUR, AND SEVEN [3&4 PASS]

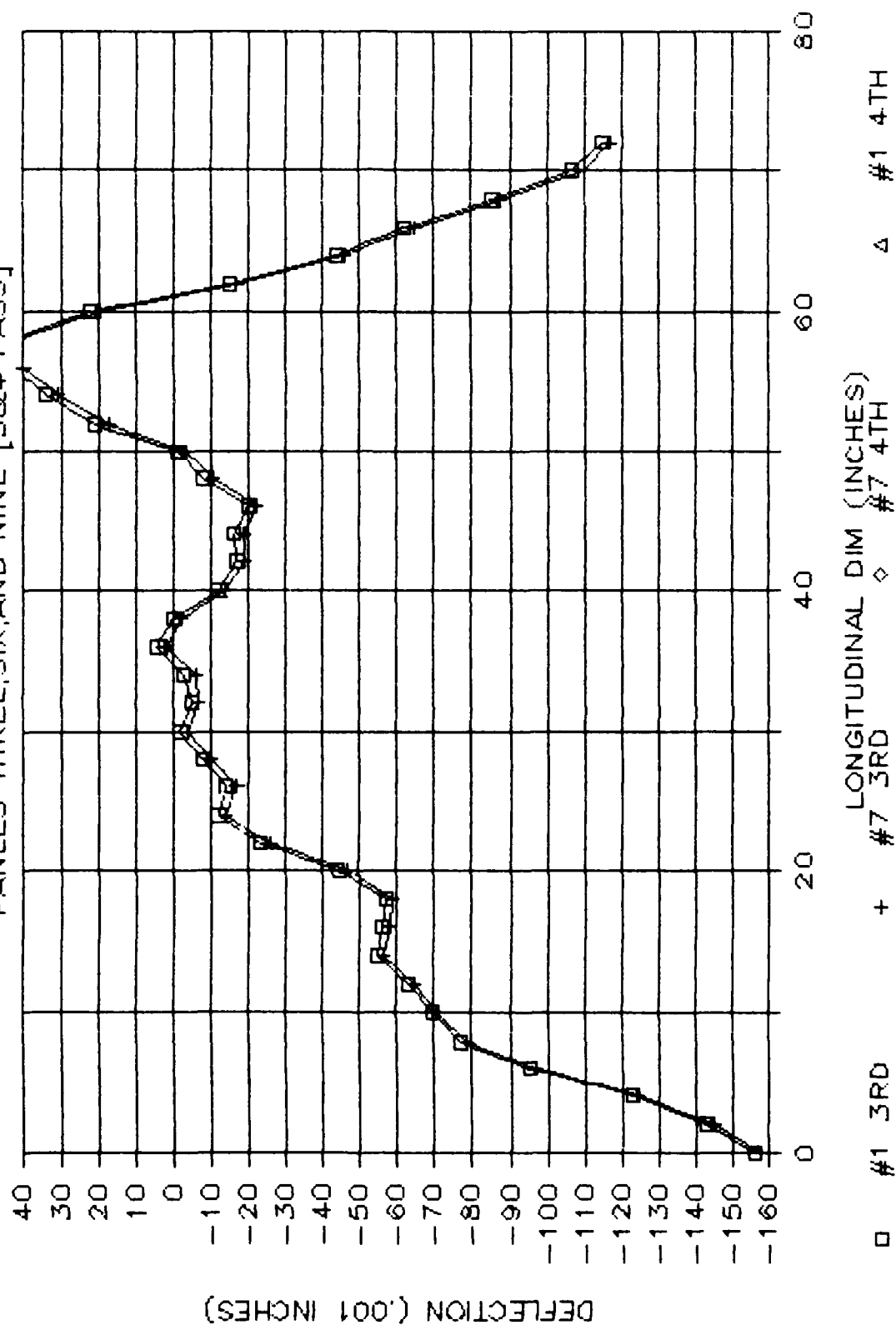


1/8" PLATE DEFLECTION PANELS TWO, FIVE, AND EIGHT [3&4 PASS]



1/8" PLATE DEFLECTION

PANELS THREE, SIX, AND NINE [3&4 PASS]

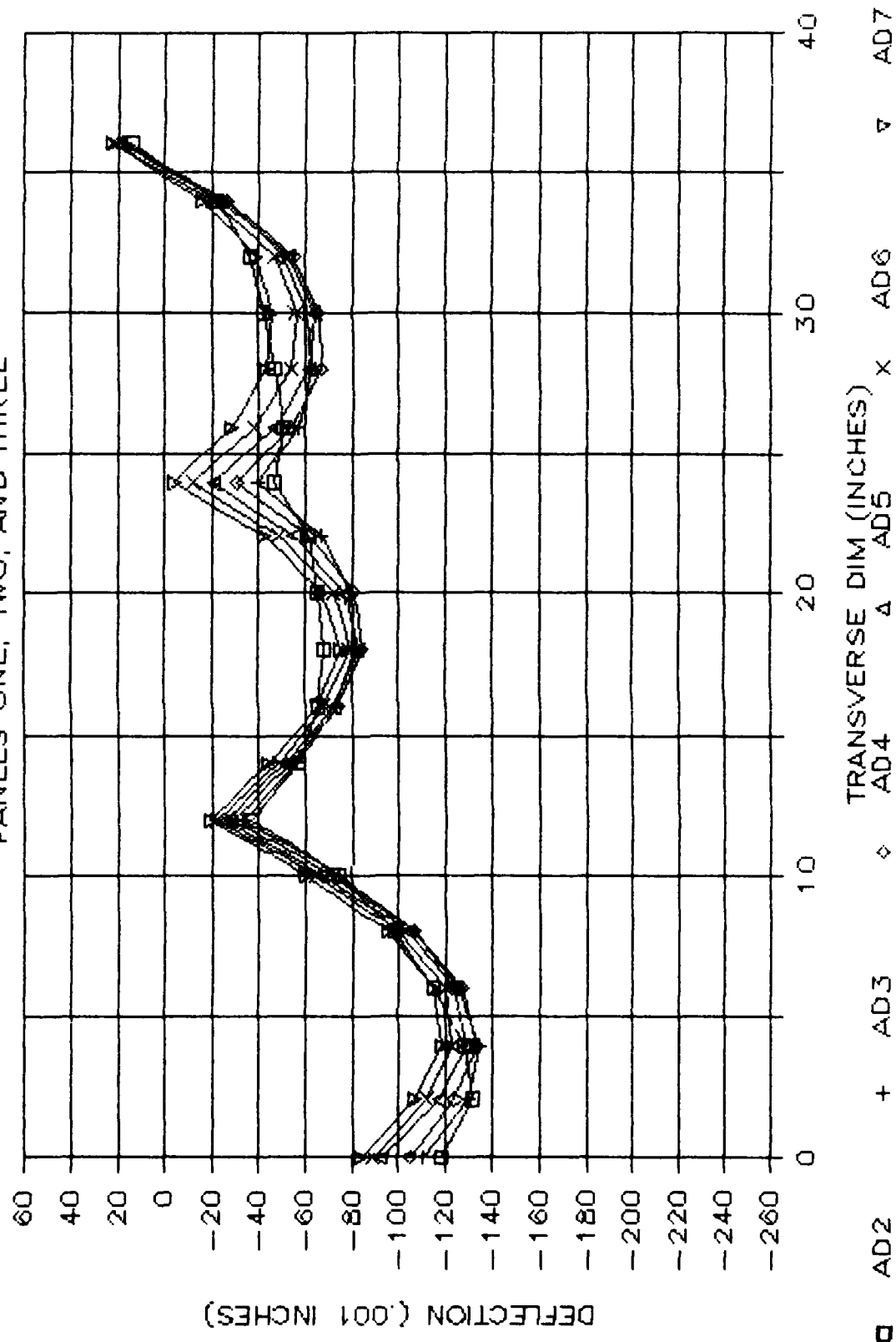


APPENDIX M

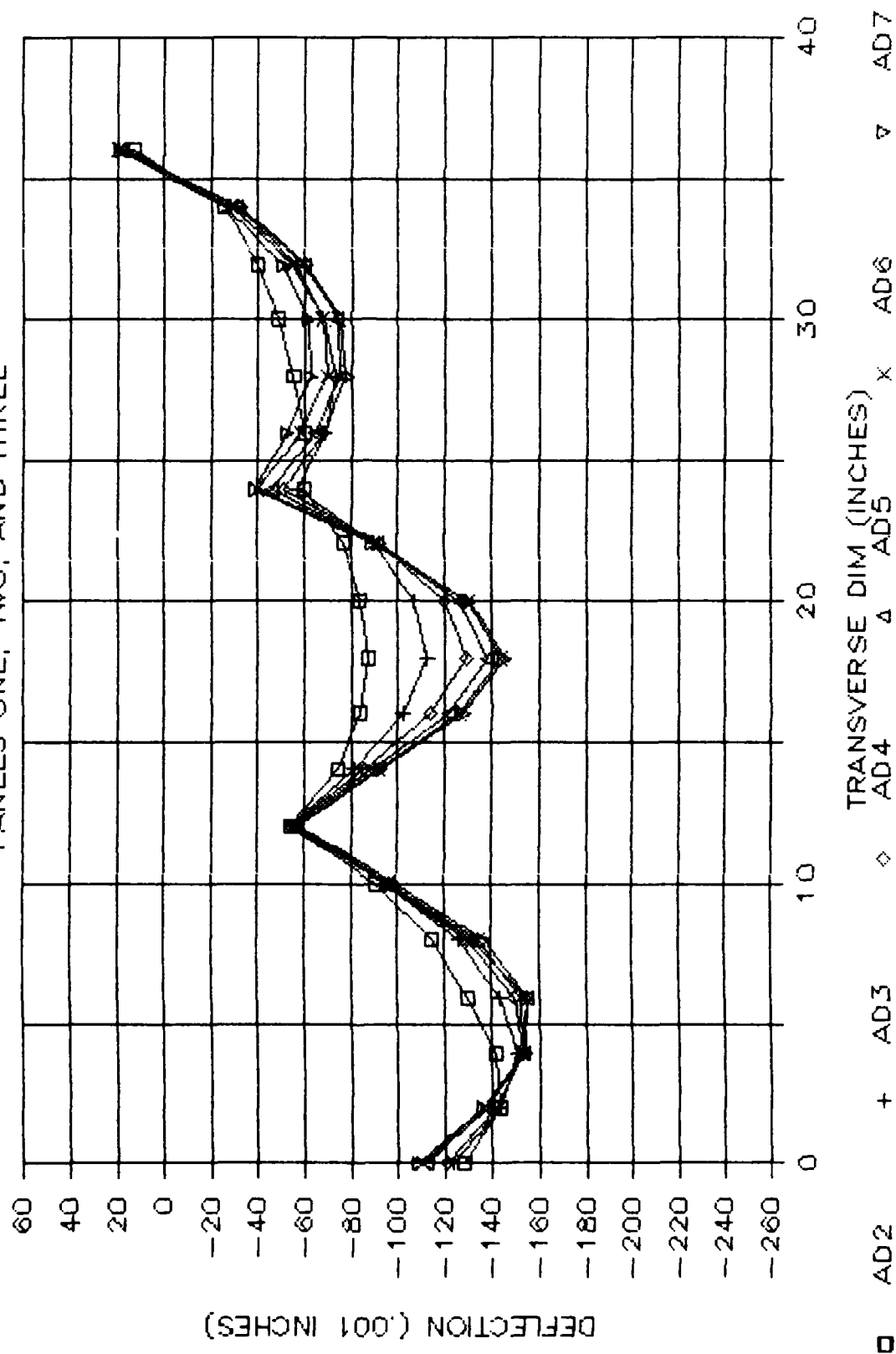
GRAPHS OF THE 3/16" STIFFENED PLATE TRANSVERSE OUT-OF-PLANE DEFLECTION READINGS FOR LINES AD2 THROUGH AD7

The horizontal coordinate is the transverse displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

3/16" PLATE DEFLECTION PANELS ONE, TWO, AND THREE

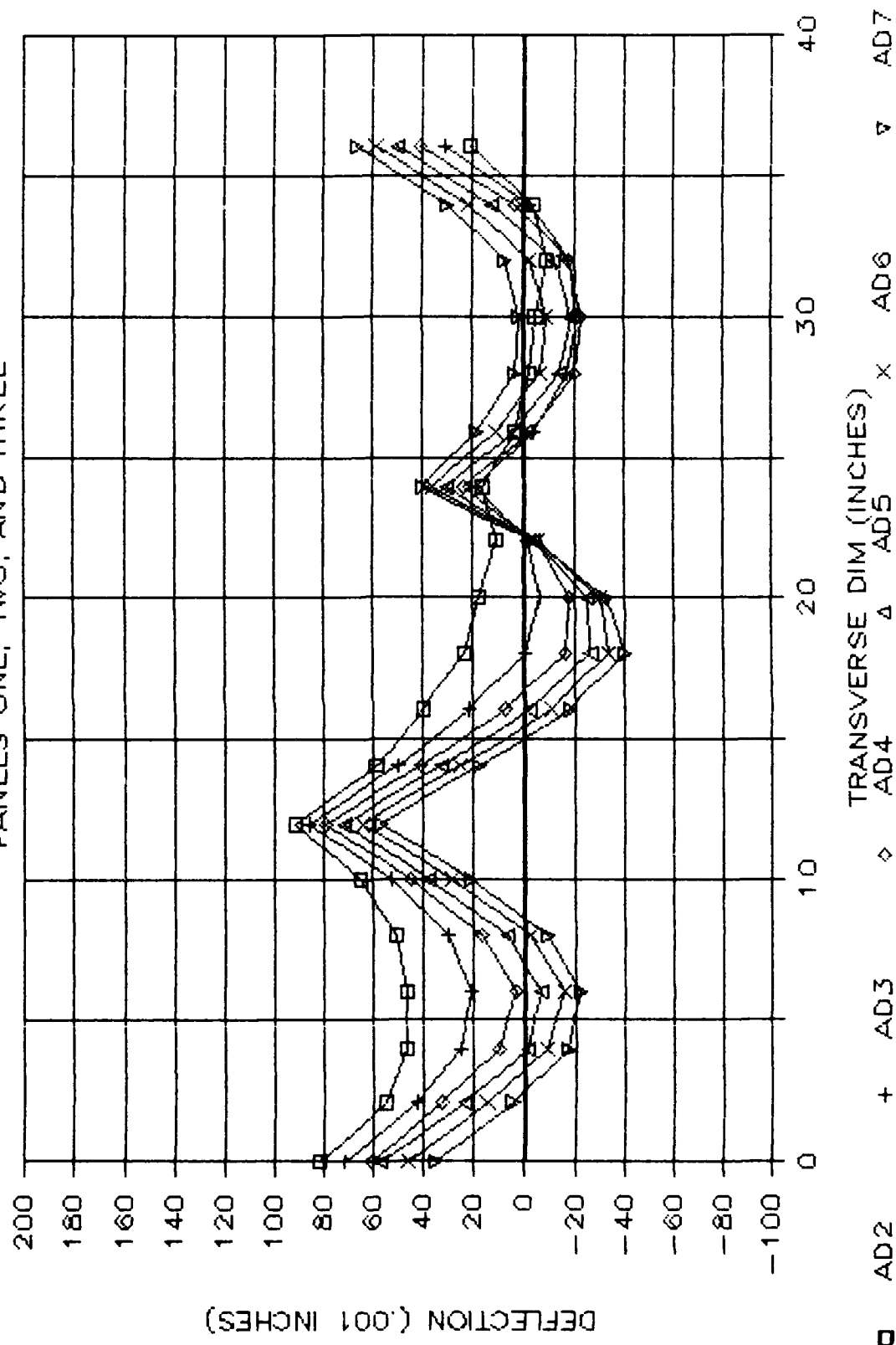


3/16" PANEL #5 HEATED PANELS ONE, TWO, AND THREE

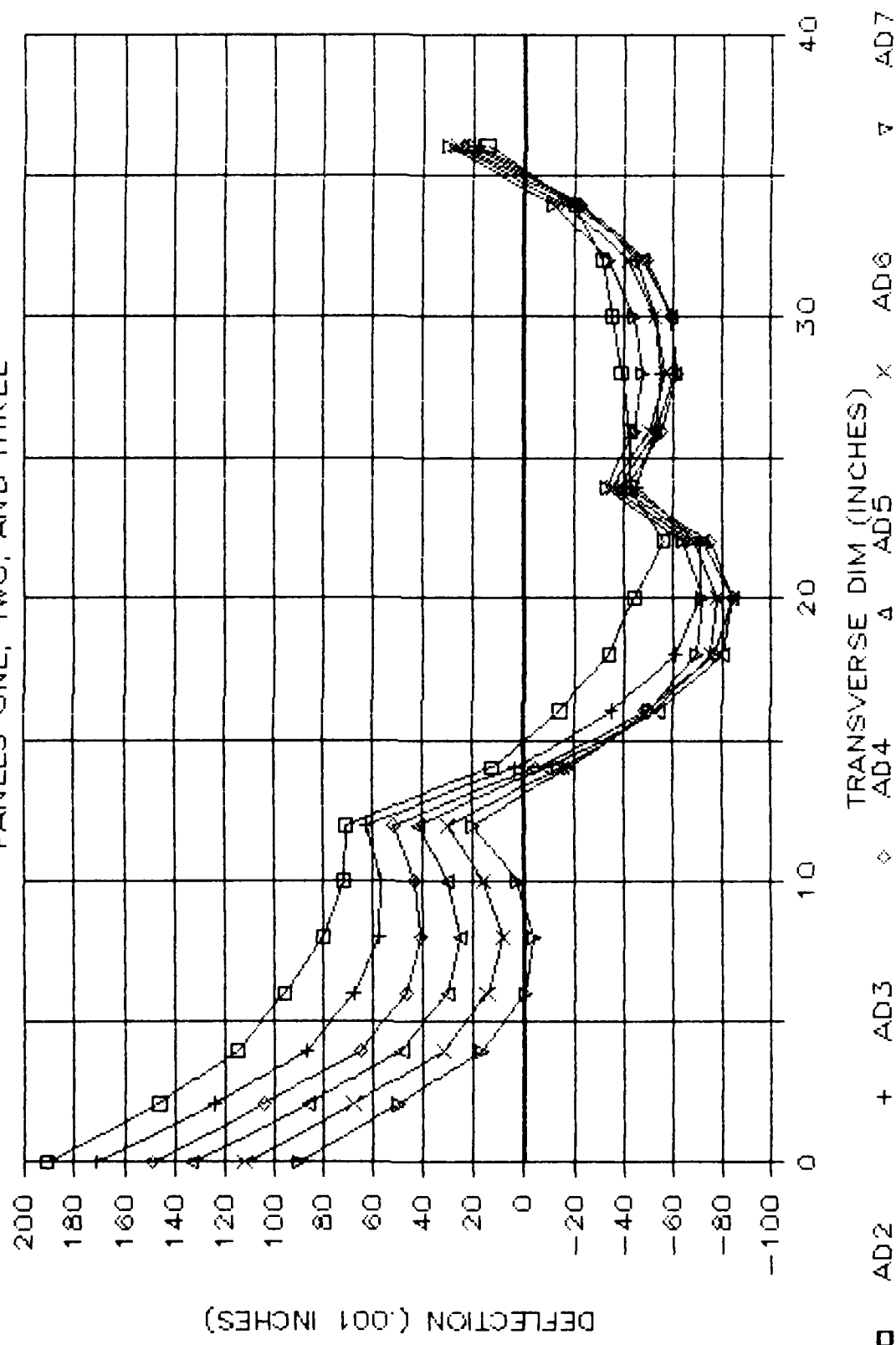


3/16" PANEL #4 HEATED

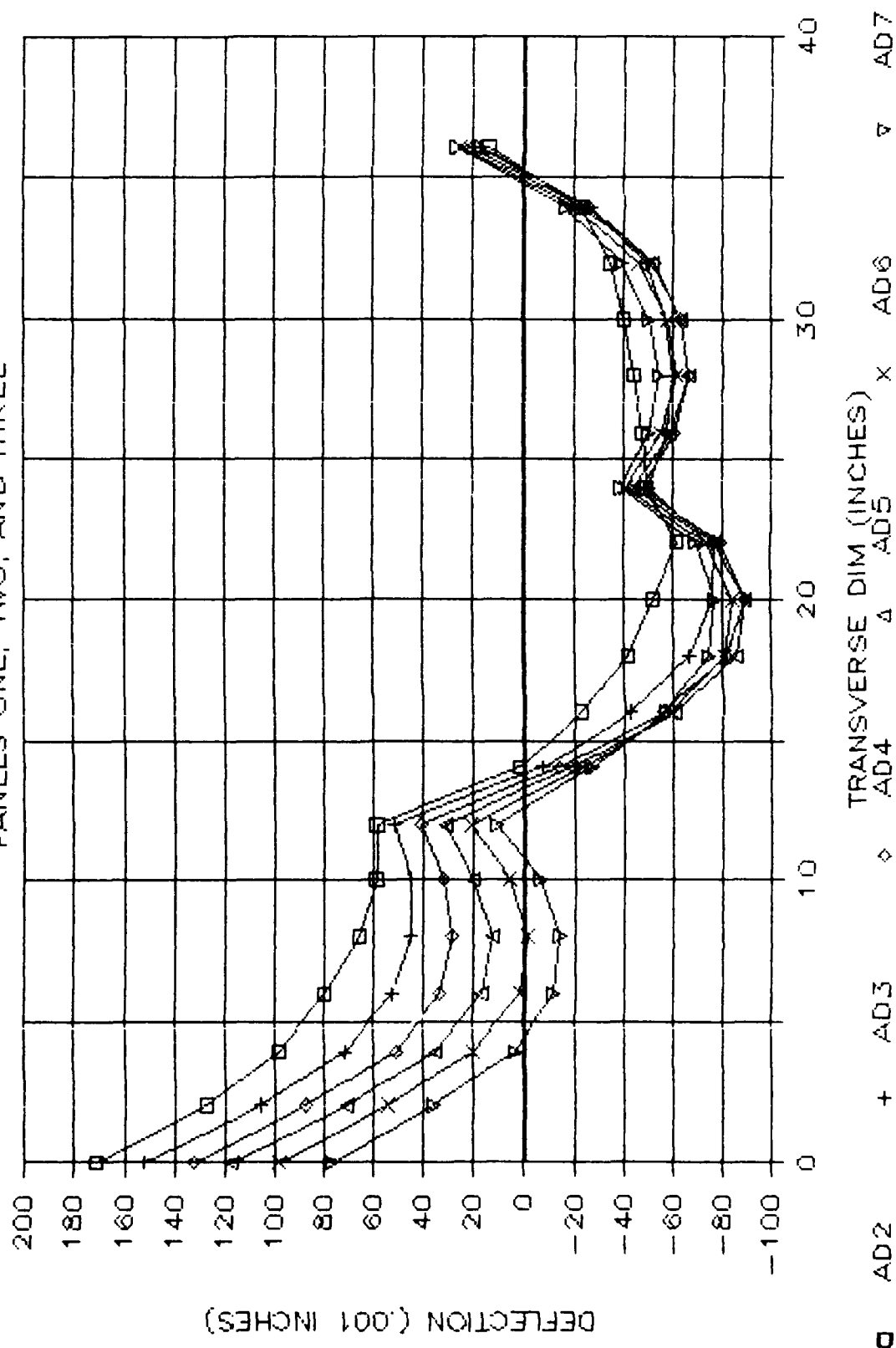
PANELS ONE, TWO, AND THREE



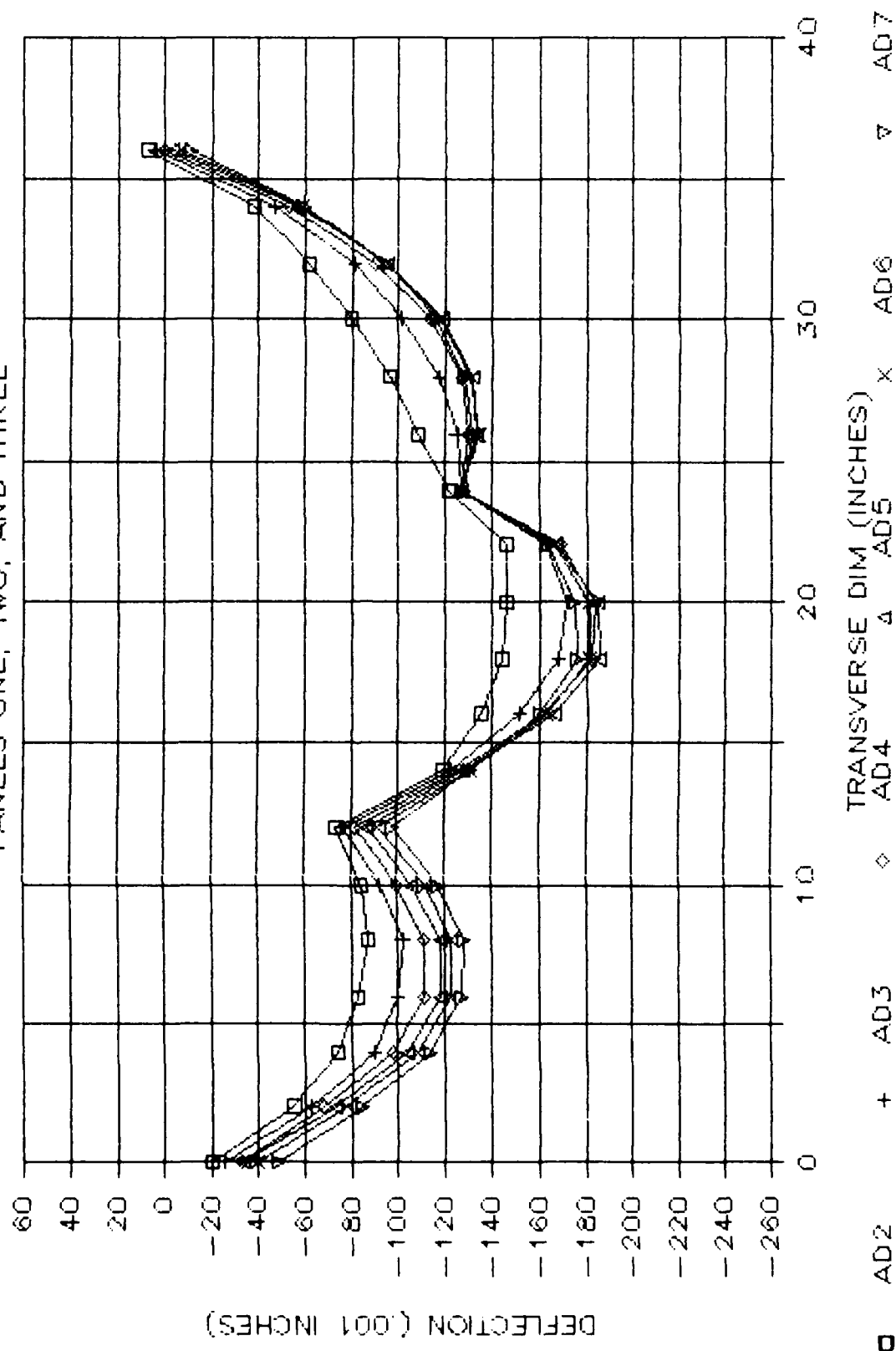
3/16" PANEL #2 HEATED PANELS ONE, TWO, AND THREE



3/16" PANEL #8 HEATED PANELS ONE, TWO, AND THREE



3/16" PANEL #6 HEATED PANELS ONE, TWO, AND THREE



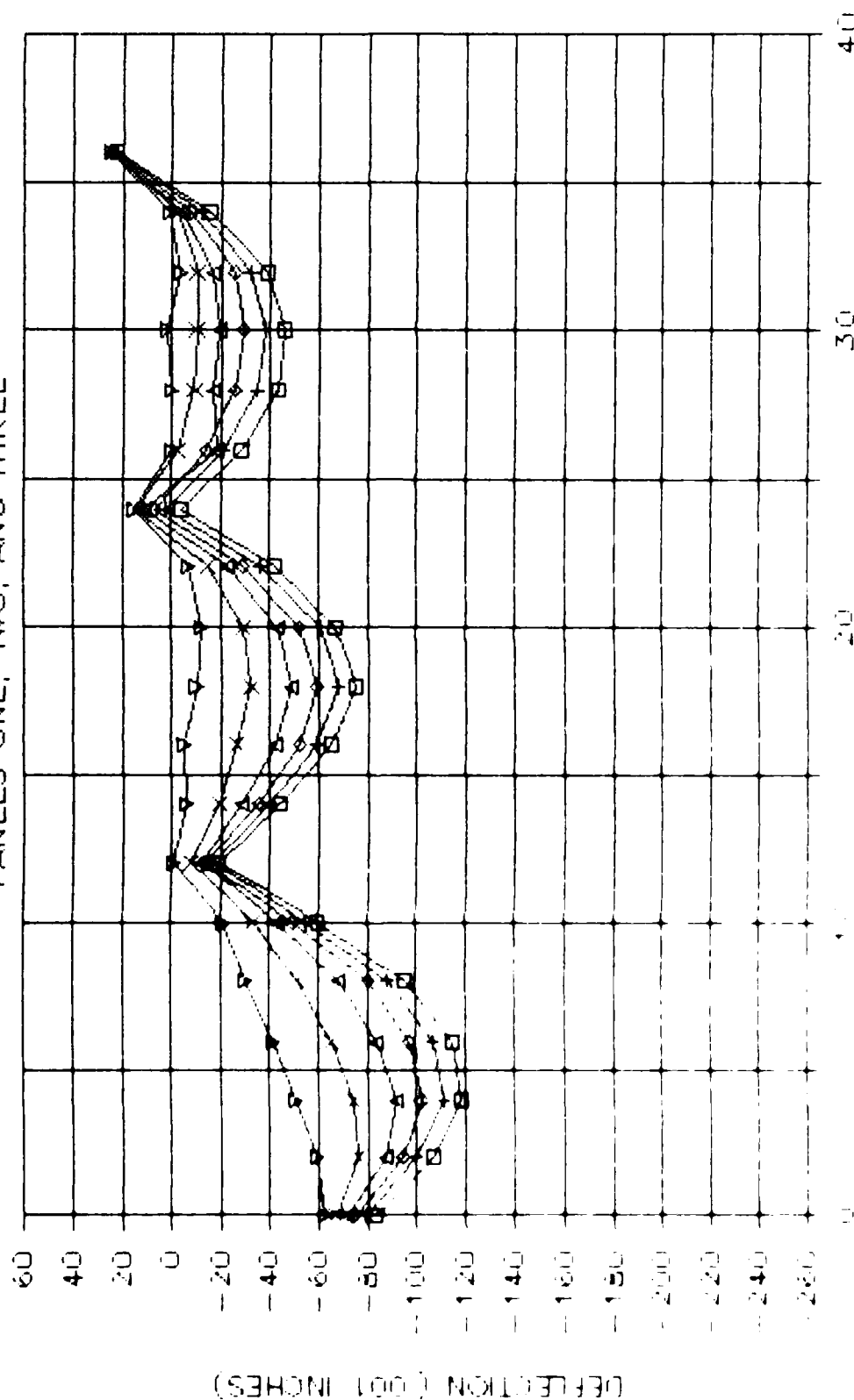
APPENDIX N

GRAPHS OF THE 3/16" STIFFENED PLATE TRANSVERSE OUT-OF-PLANE DEFLECTION READINGS FOR LINES AD7 THROUGH AD12

The horizontal coordinate is the transverse displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

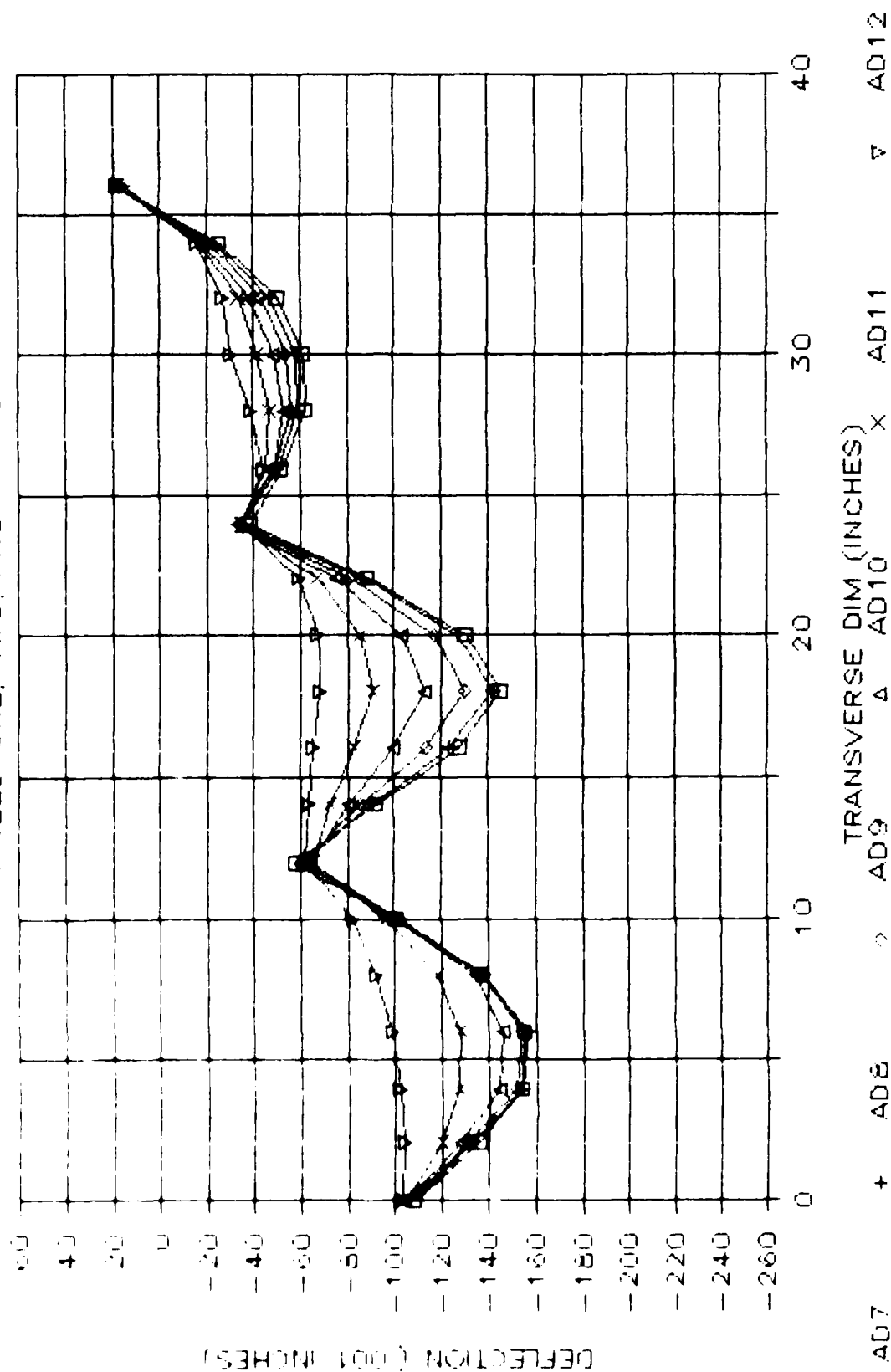
3/16" PLATE DEFLECTION

PANELS ONE, TWO, AND THREE



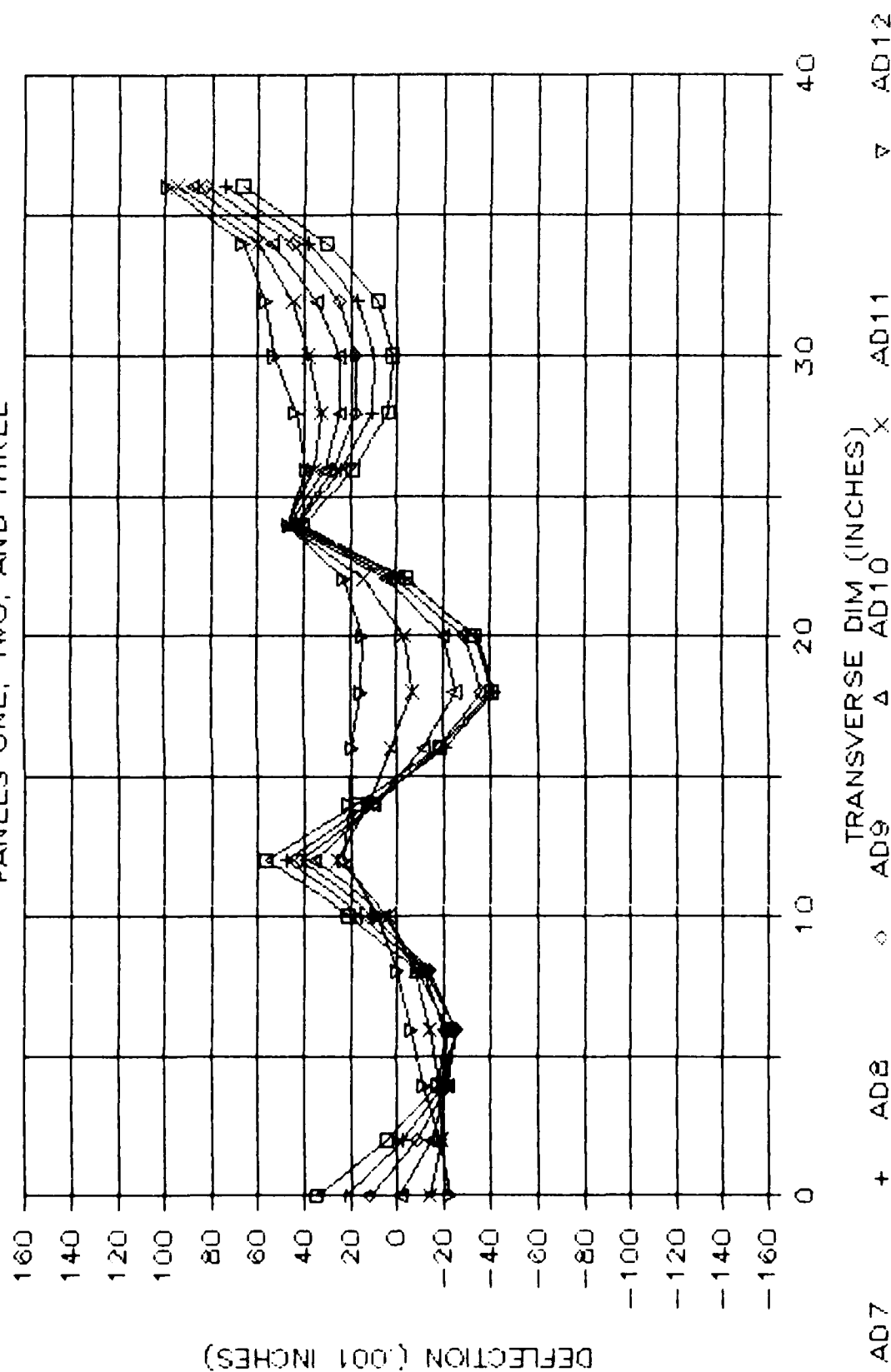
40" + 40" 40" 40" TRANSVERSE DIM (INCHES) AD09 AD10 AD11 AD12

3 16" PANEL #5 HEATED PANELS ONE, TWO, AND THREE



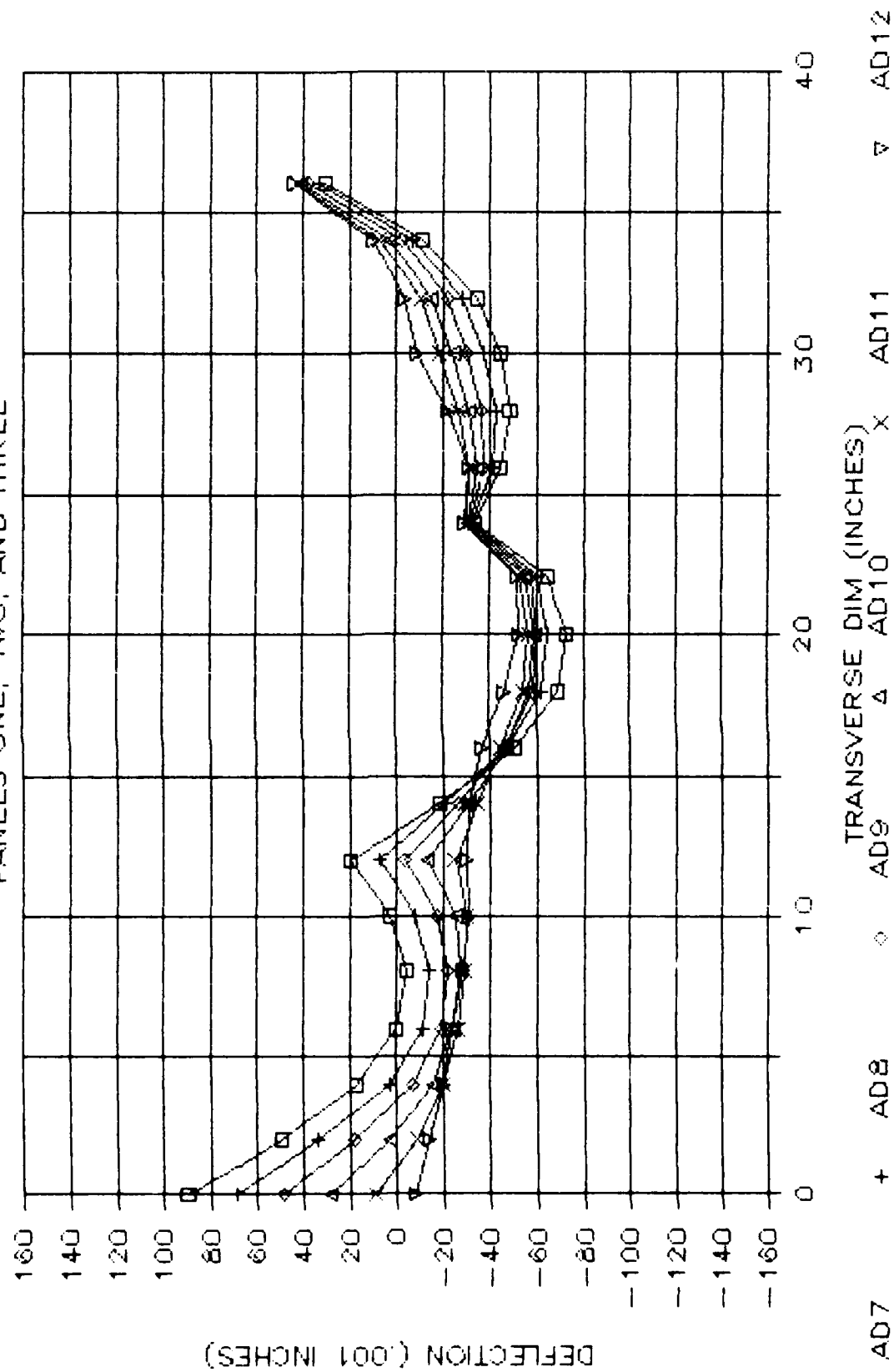
3/16" PANEL #4 HEATED

PANELS ONE, TWO, AND THREE

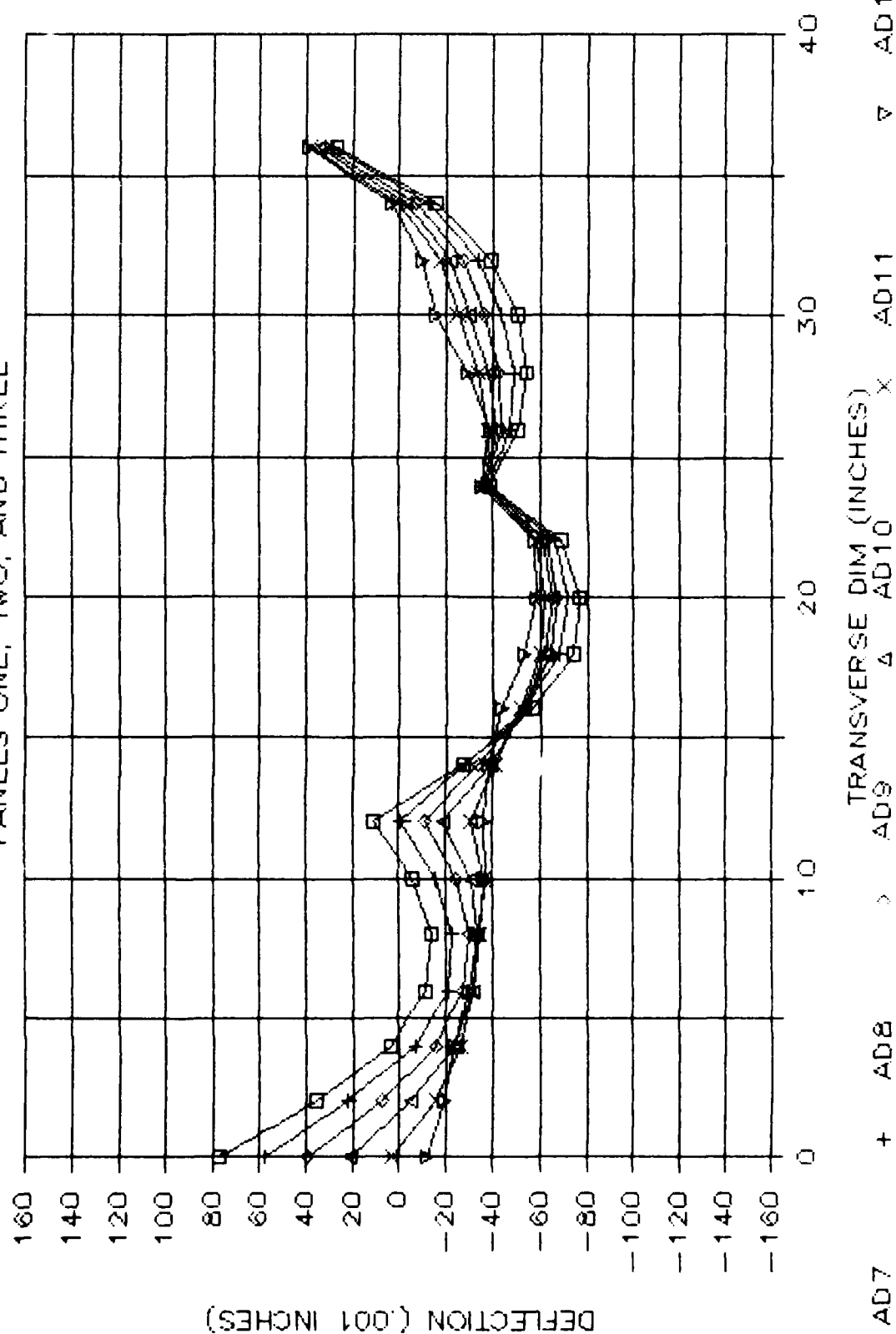


3/16" PANEL #2 HEATED

PANELS ONE, TWO, AND THREE

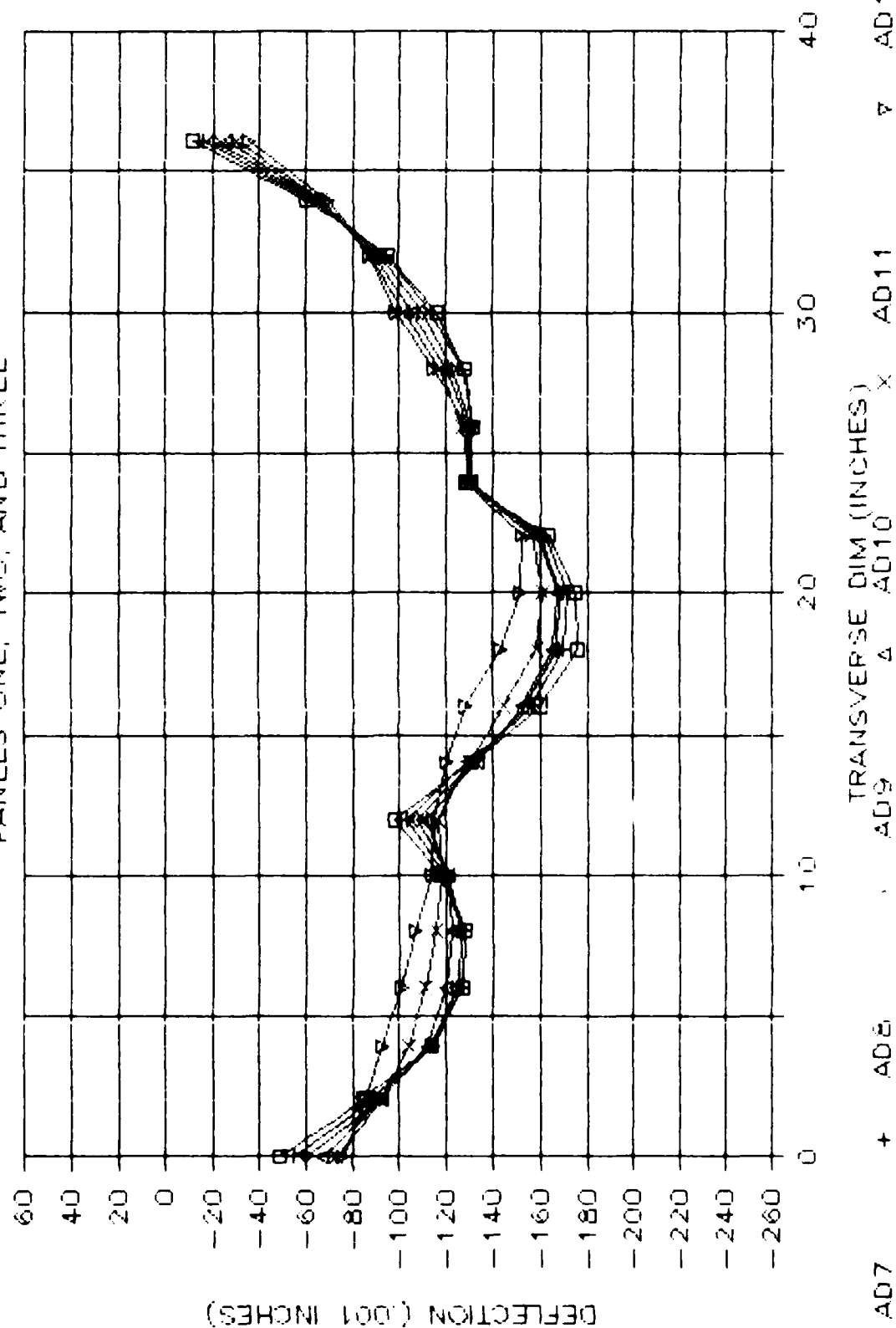


3/16" PANEL #8 HEATED PANELS ONE, TWO, AND THREE



3/16" PANEL #6 HEATED

PANELS ONE, TWO, AND THREE

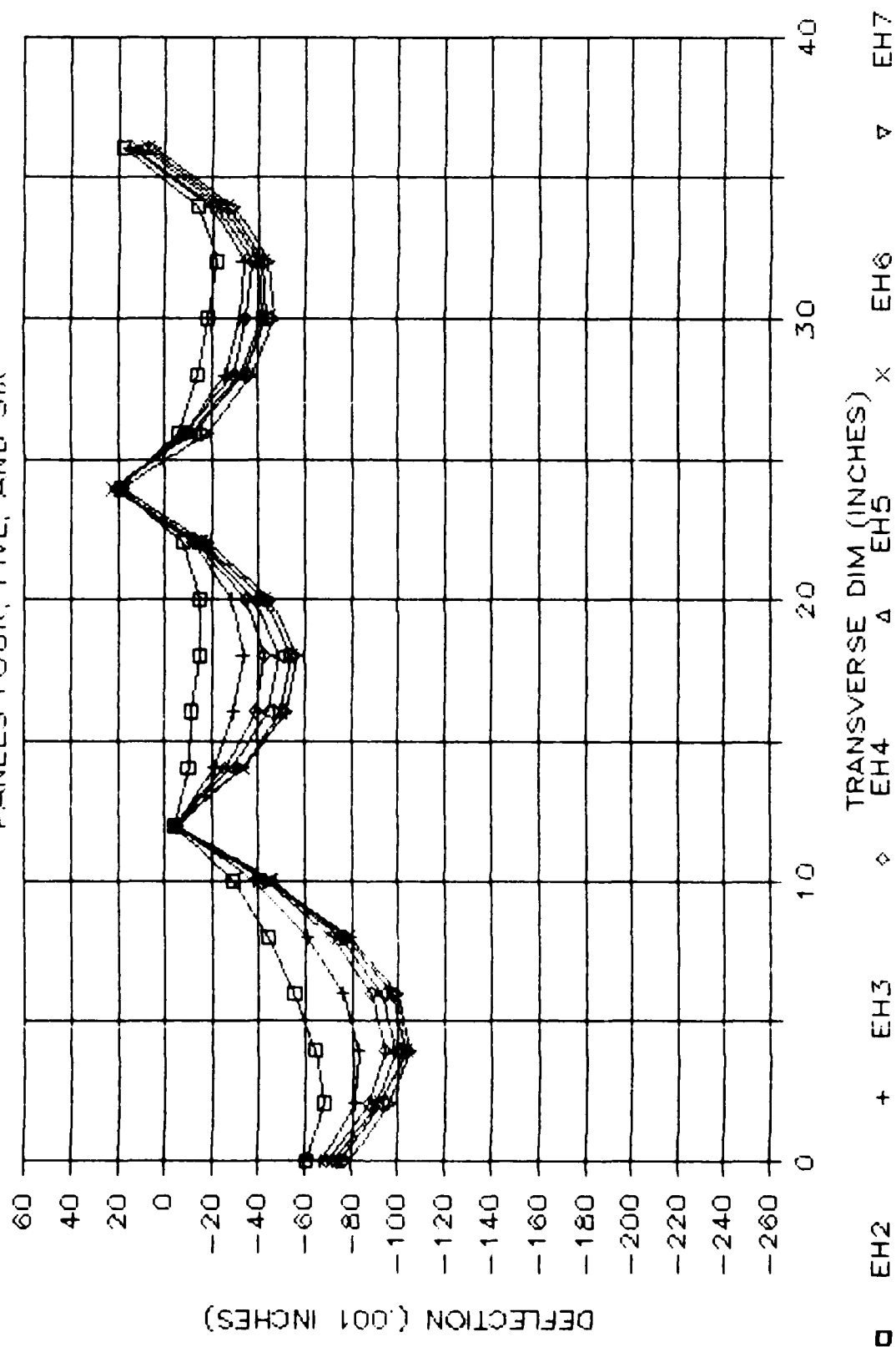


APPENDIX C

GRAPHS OF THE 3/16" STIFFENED PLATE TRANSVERSE OUT-OF-PLANE DEFLECTION READINGS FOR LINES EH2 THROUGH EH7

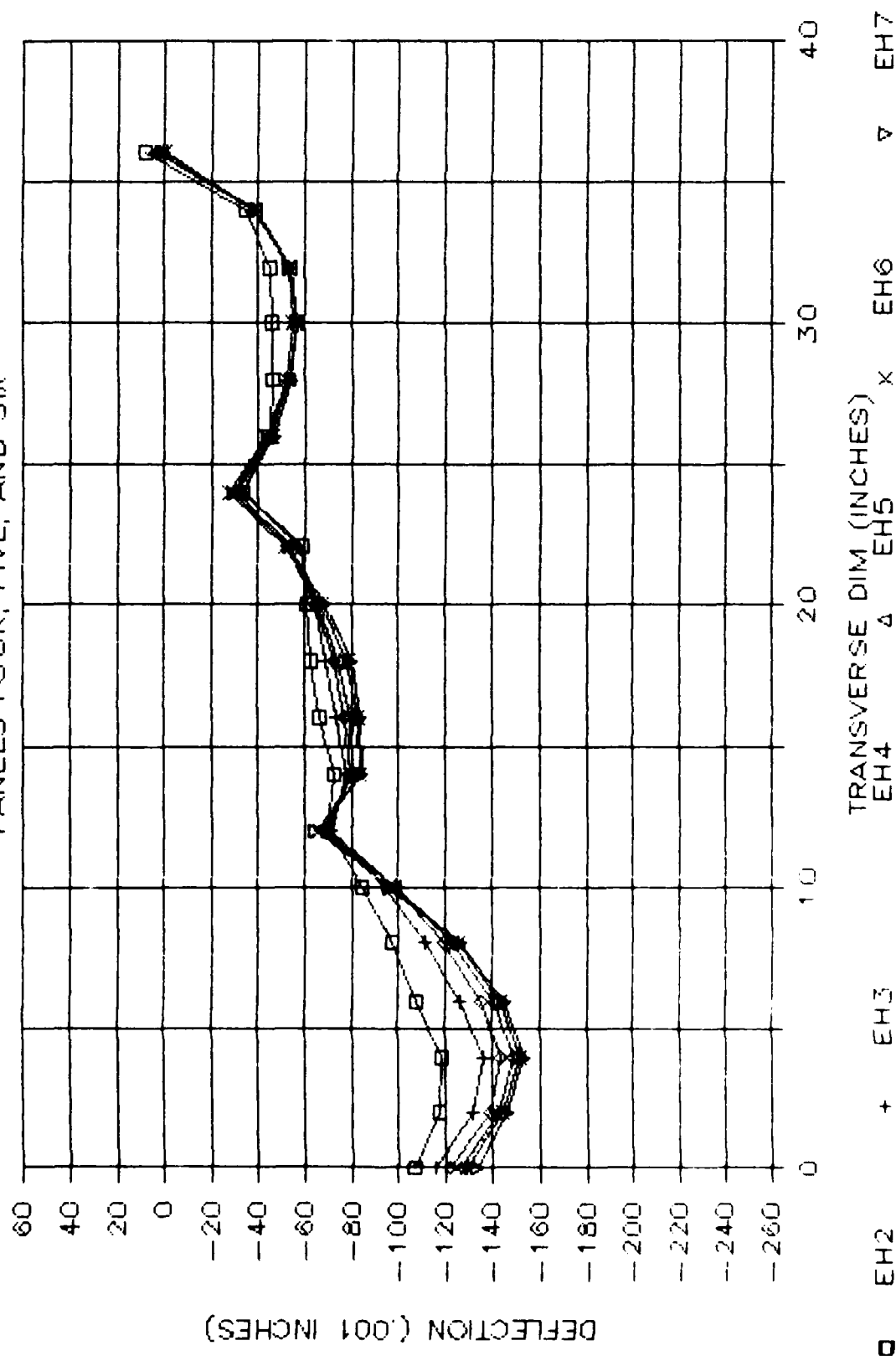
The horizontal coordinate is the transverse displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

3/16" PLATE DEFLECTION PANELS FOUR, FIVE, AND SIX

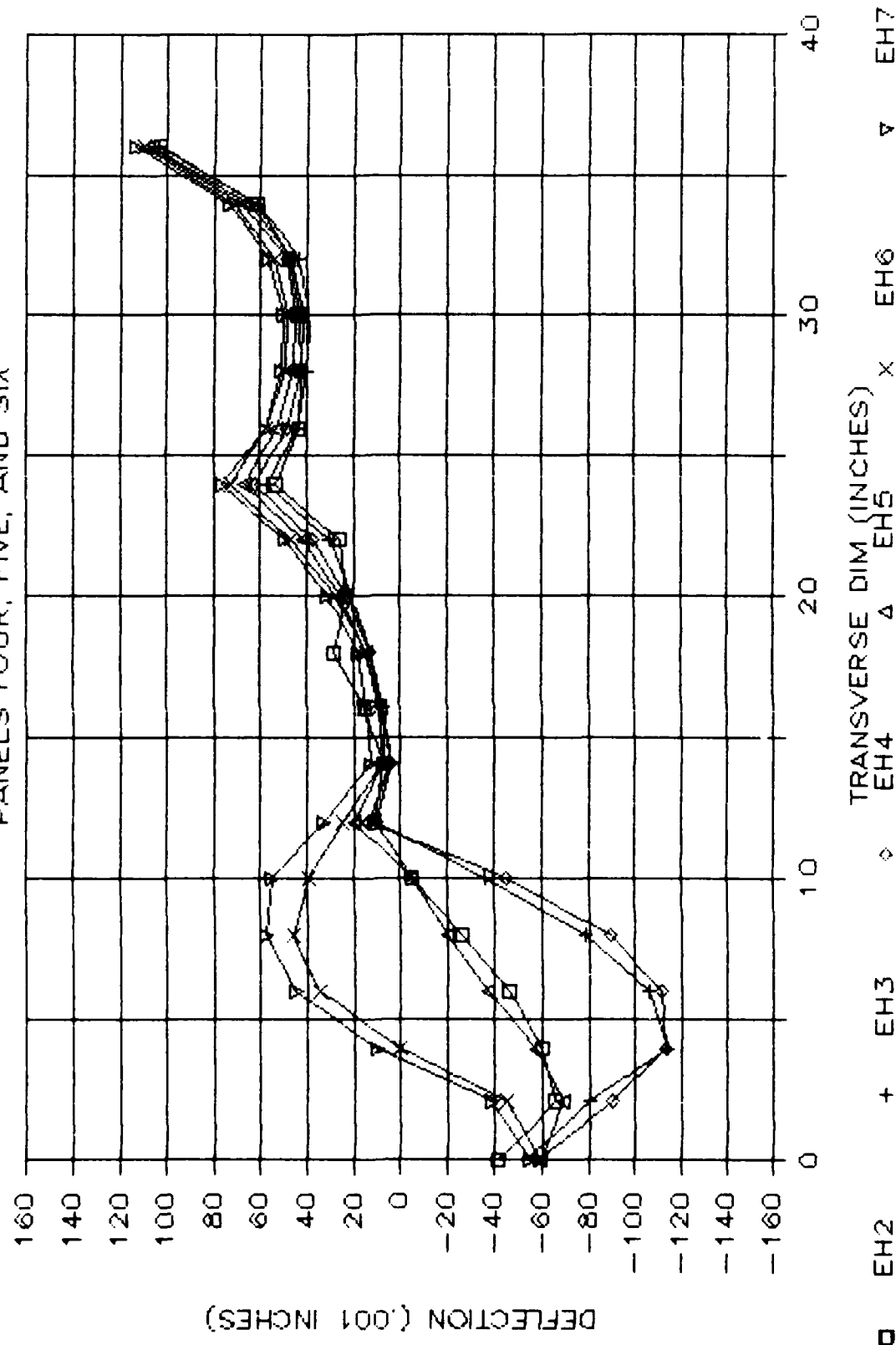


3/16" PANEL #5 HEATED

PANELS FOUR, FIVE, AND SIX

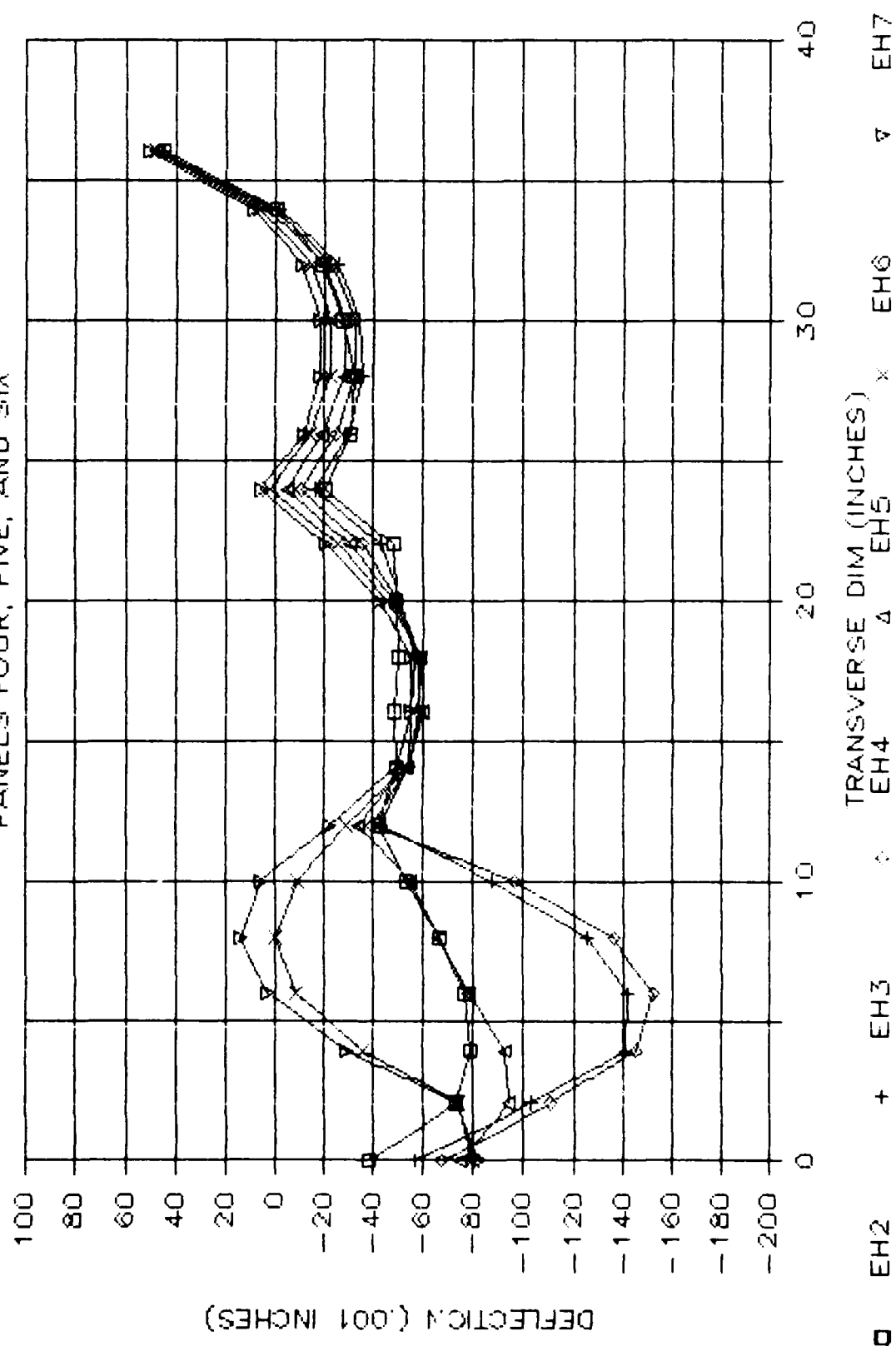


3/16" PANEL #4 HEATED PANELS FOUR, FIVE, AND SIX

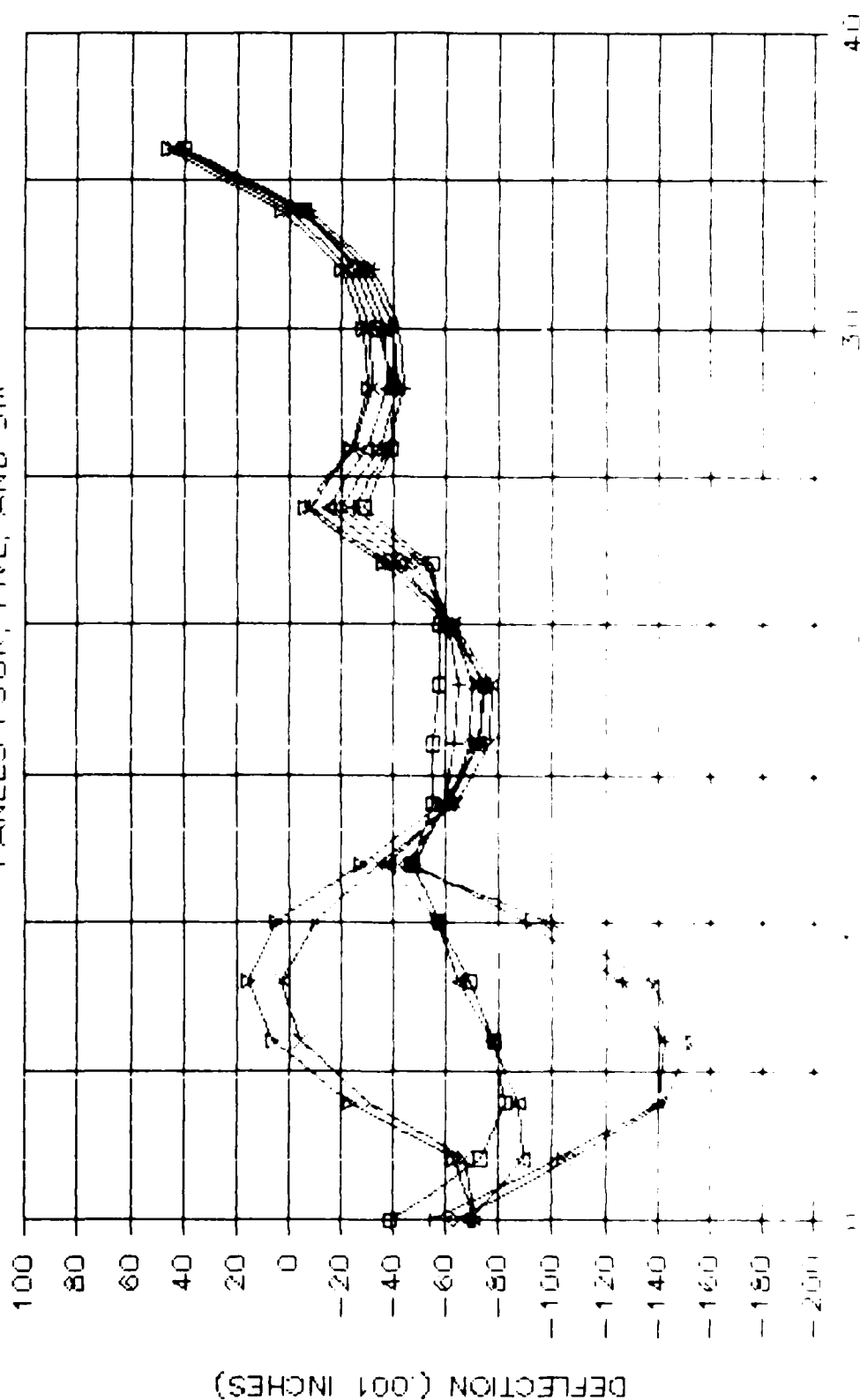


3/16" PANEL #2 HEATED

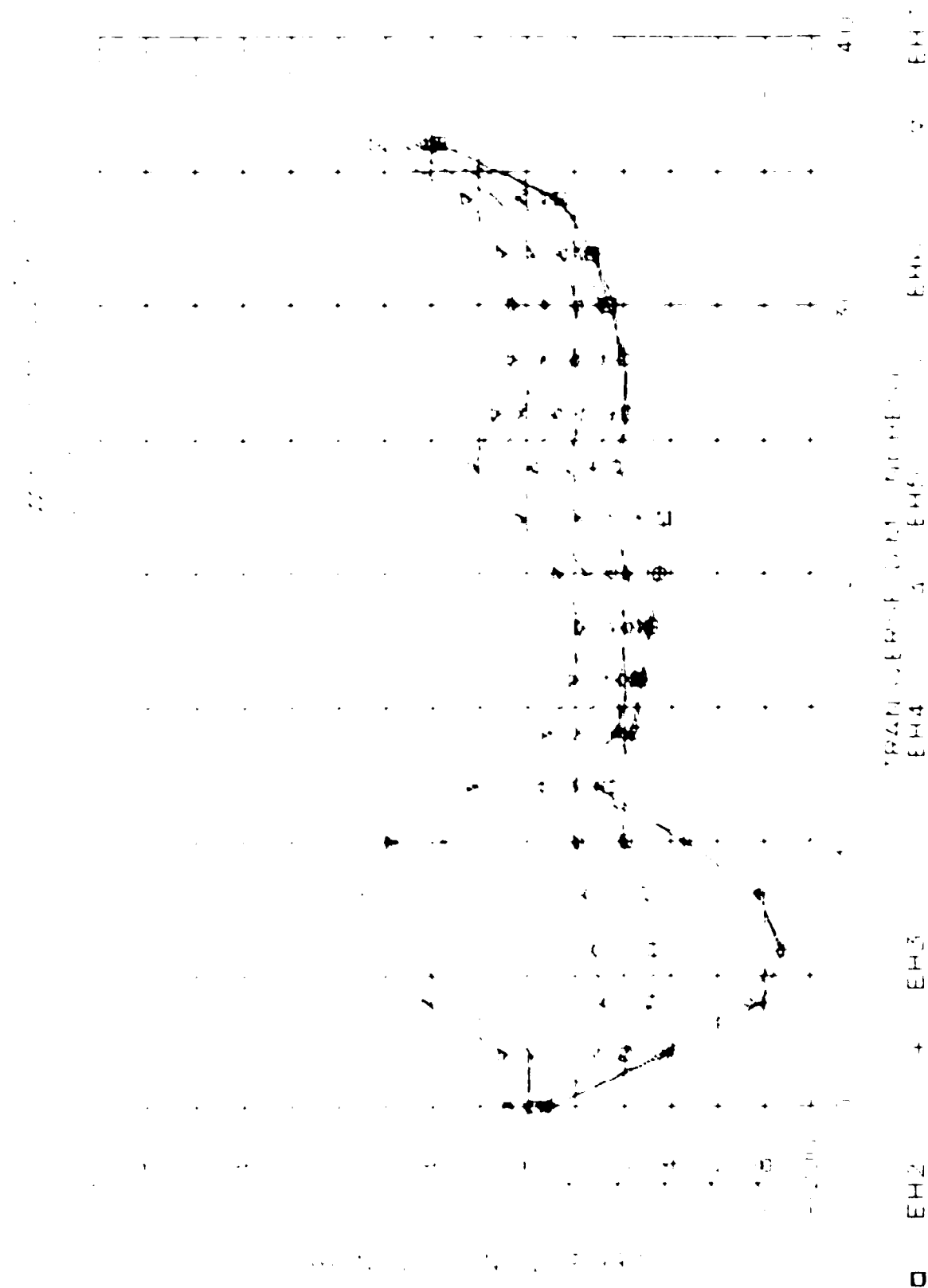
PANELS FOUR, FIVE, AND SIX



3/16" PANEL #8 HEATED PANELS FOUR, FIVE, AND SIX



□ EH2 • EH3 △ EH4 × EH5 + EH6 * EH7



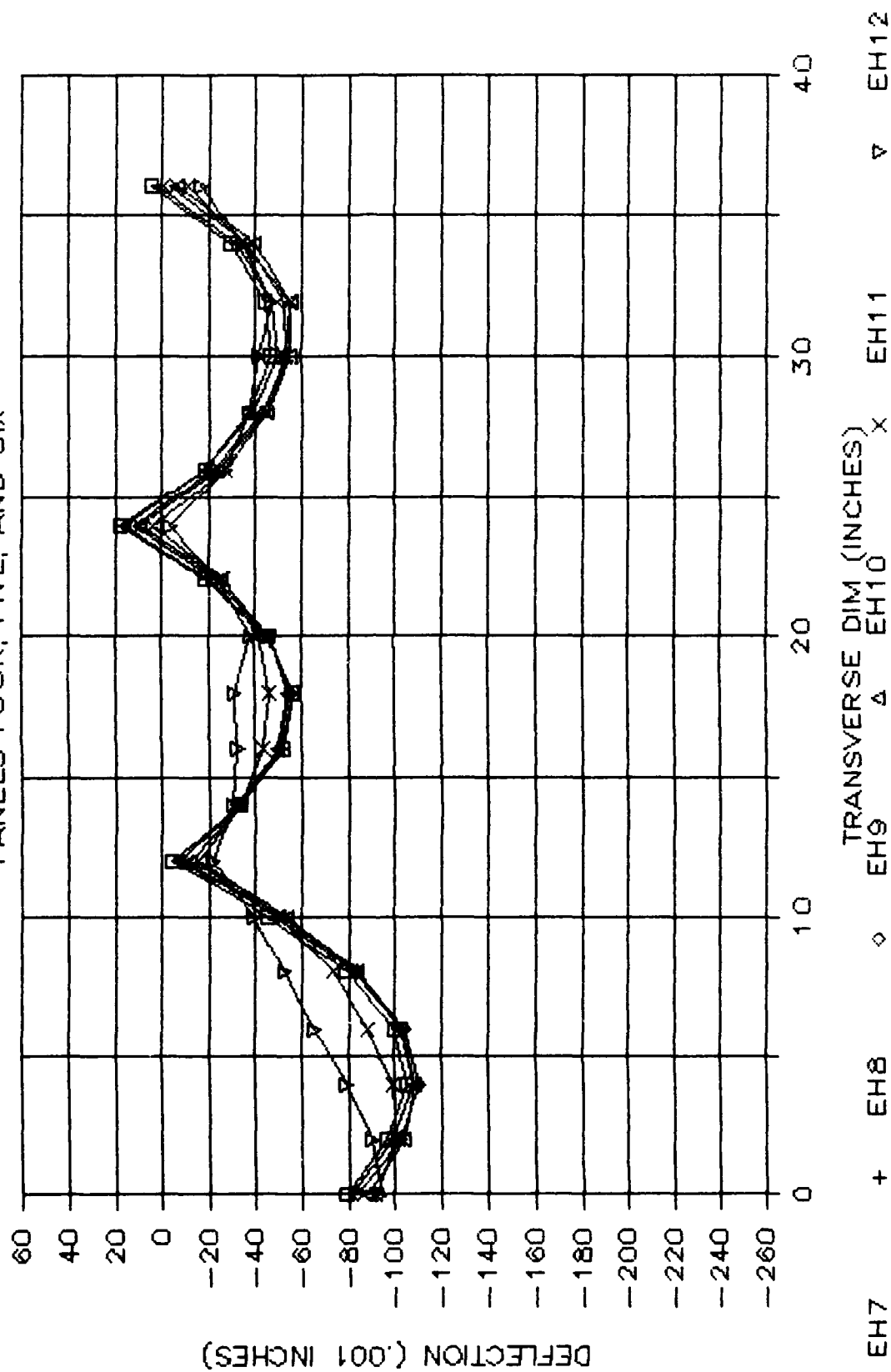
APPENDIX P

GRAPHS OF THE 3/16" STIFFENED PLATE TRANSVERSE OUT-OF-PLANE DEFLECTION READINGS FOR LINES EH7 THROUGH EH12

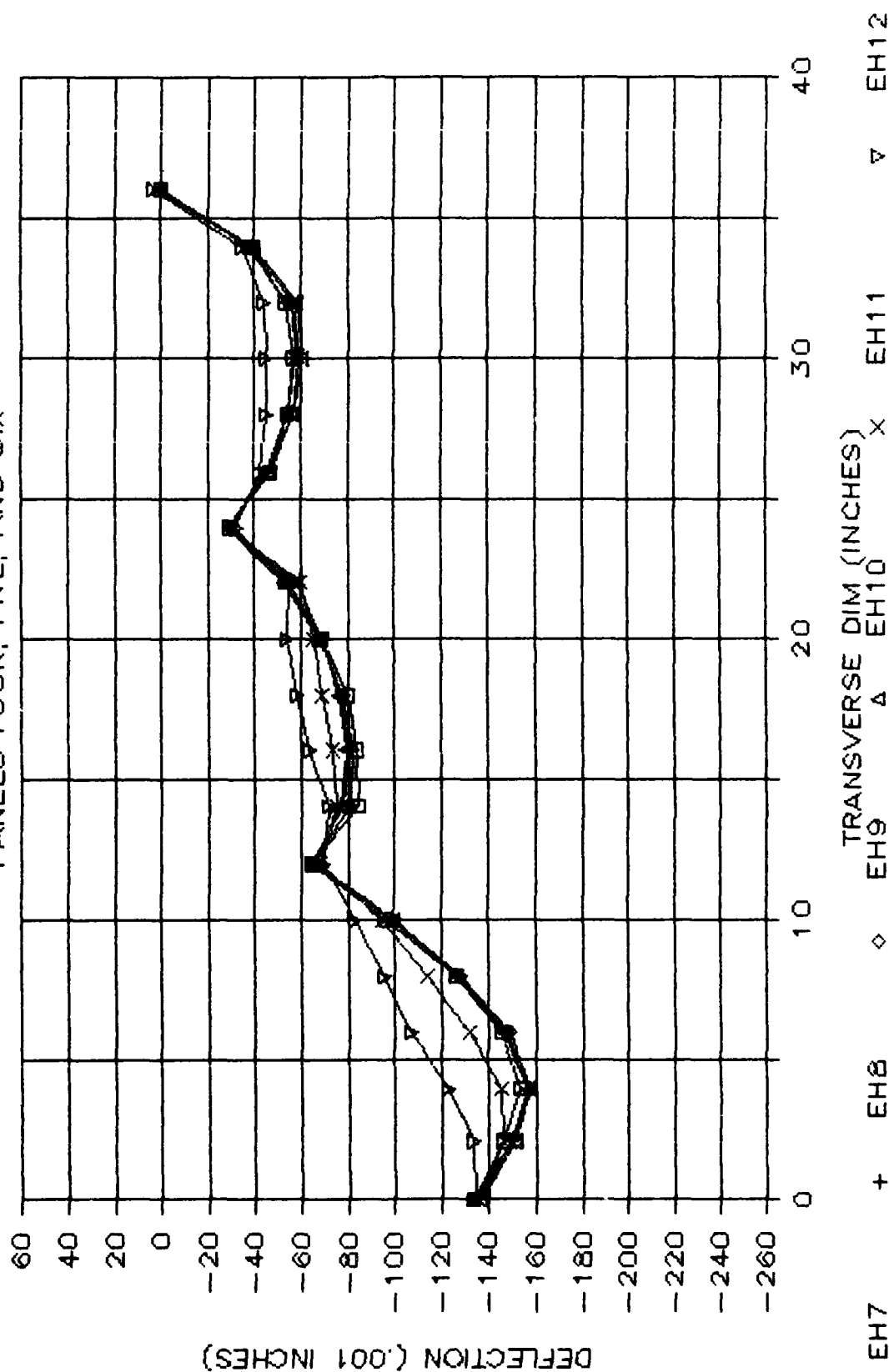
The horizontal coordinate is the transverse displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

3/16" PLATE DEFLECTION

PANELS FOUR, FIVE, AND SIX

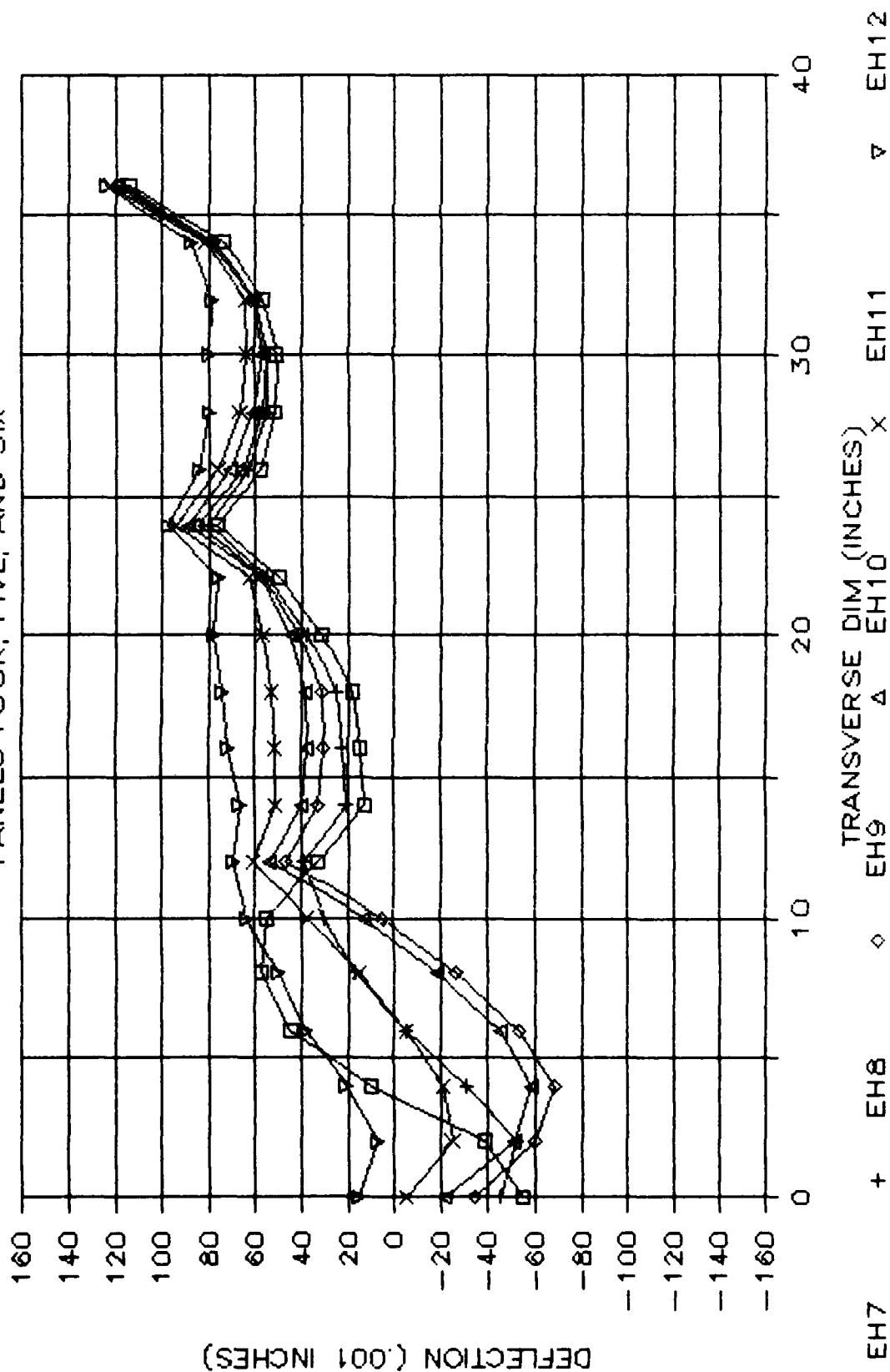


3/16" PANEL #5 HEATED PANELS FOUR, FIVE, AND SIX



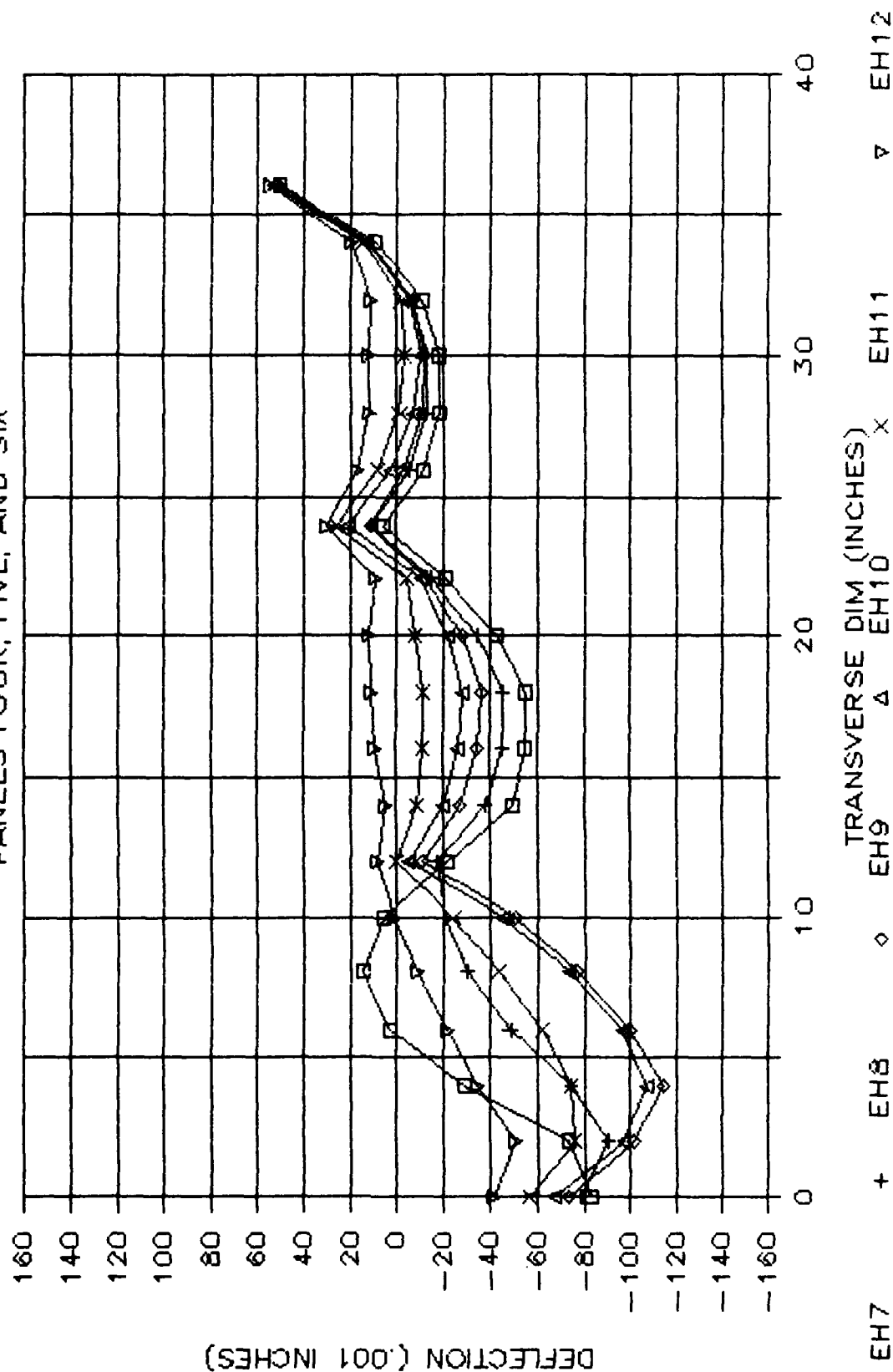
3/16" PANEL #4 HEATED

PANELS FOUR, FIVE, AND SIX



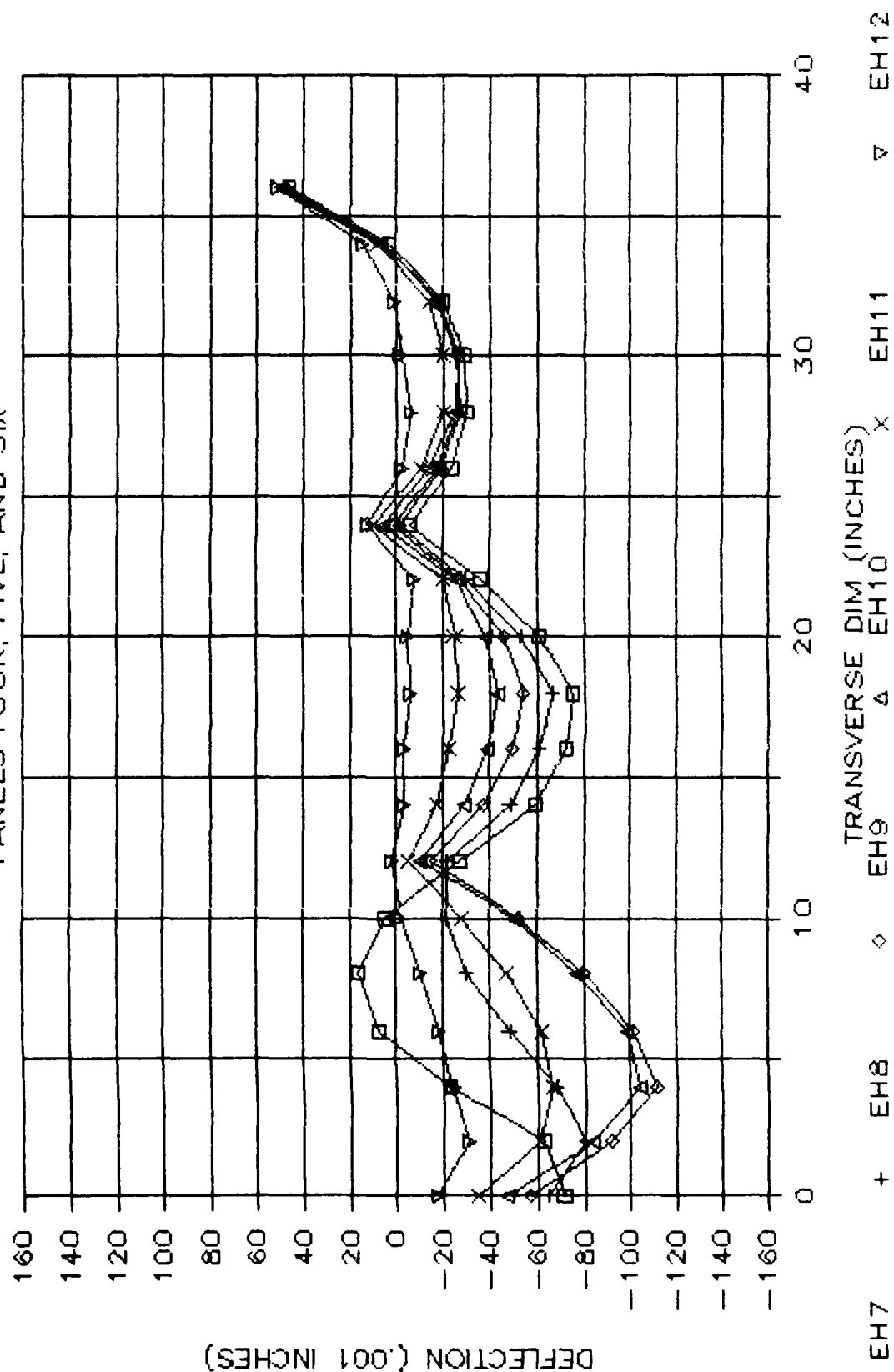
3/16" PANEL #2 HEATED

PANELS FOUR, FIVE, AND SIX

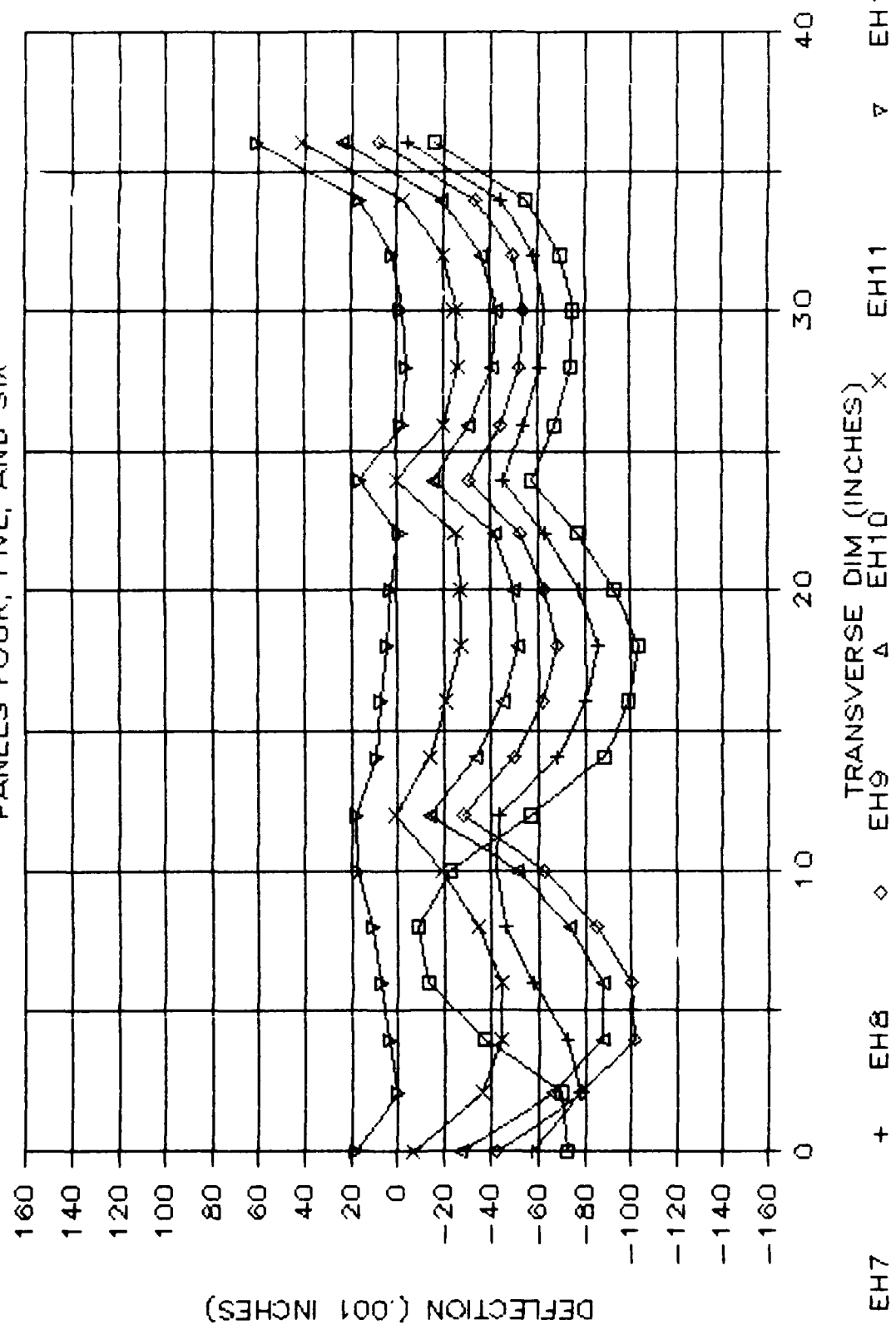


3/16" PANEL #8 HEATED

PANELS FOUR, FIVE, AND SIX



3/16" PANEL #6 HEATED PANELS FOUR, FIVE, AND SIX

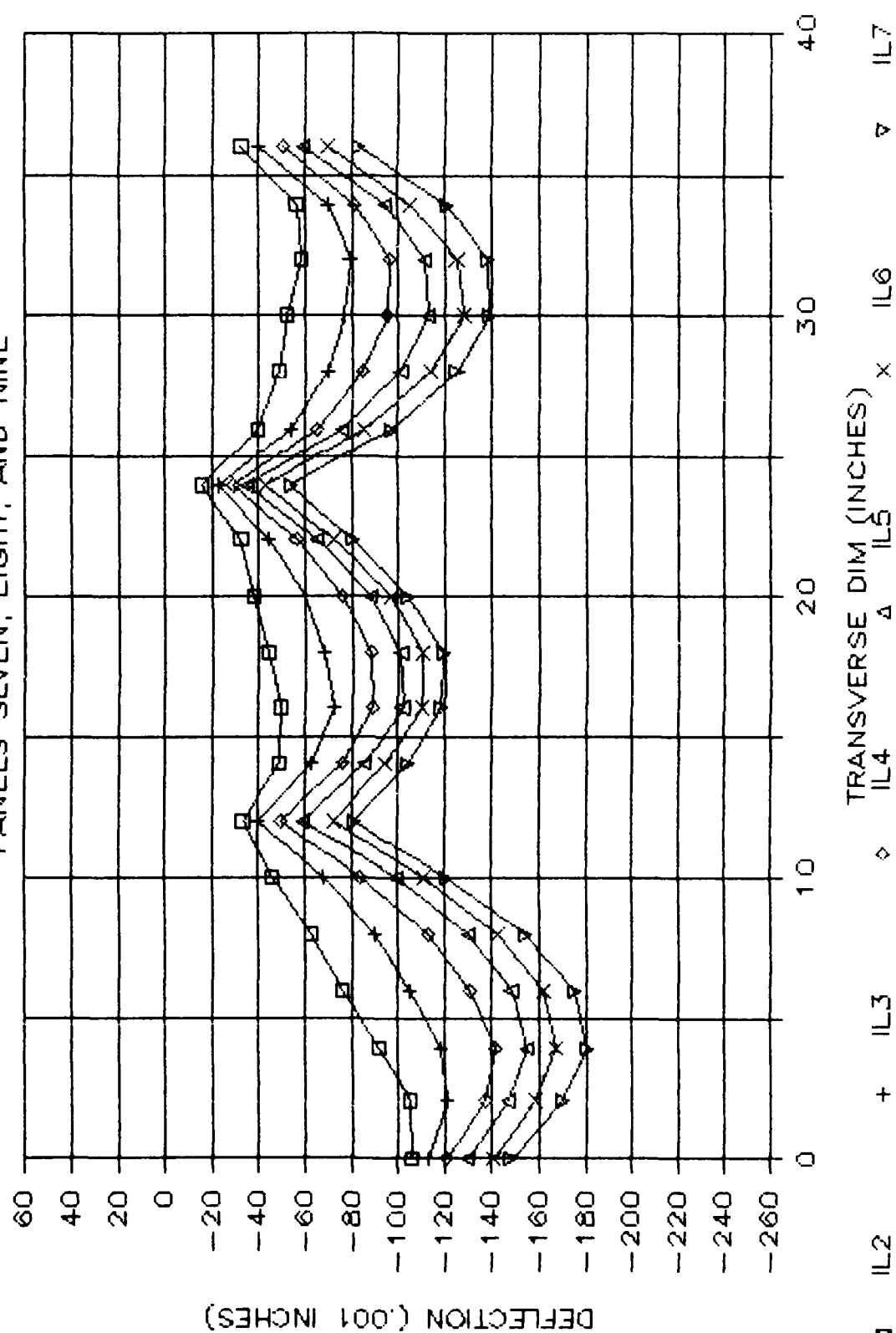


APPENDIX Q

GRAPHS OF THE 3/16" STIFFENED PLATE TRANSVERSE OUT-OF-PLANE DEFLECTION READINGS FOR LINES IL2 THROUGH IL7

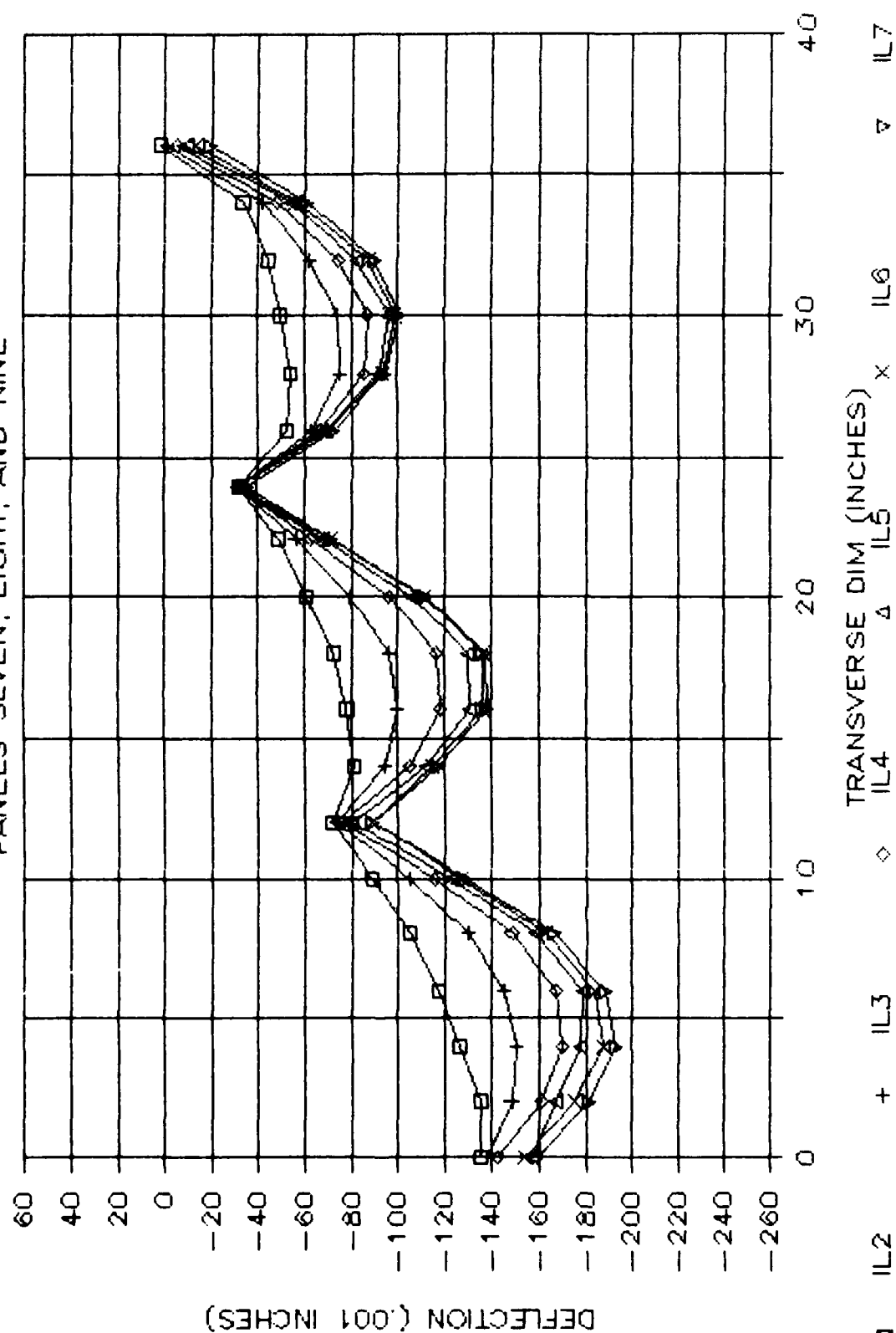
The horizontal coordinate is the transverse displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

3/16" PLATE DEFLECTION PANELS SEVEN, EIGHT, AND NINE

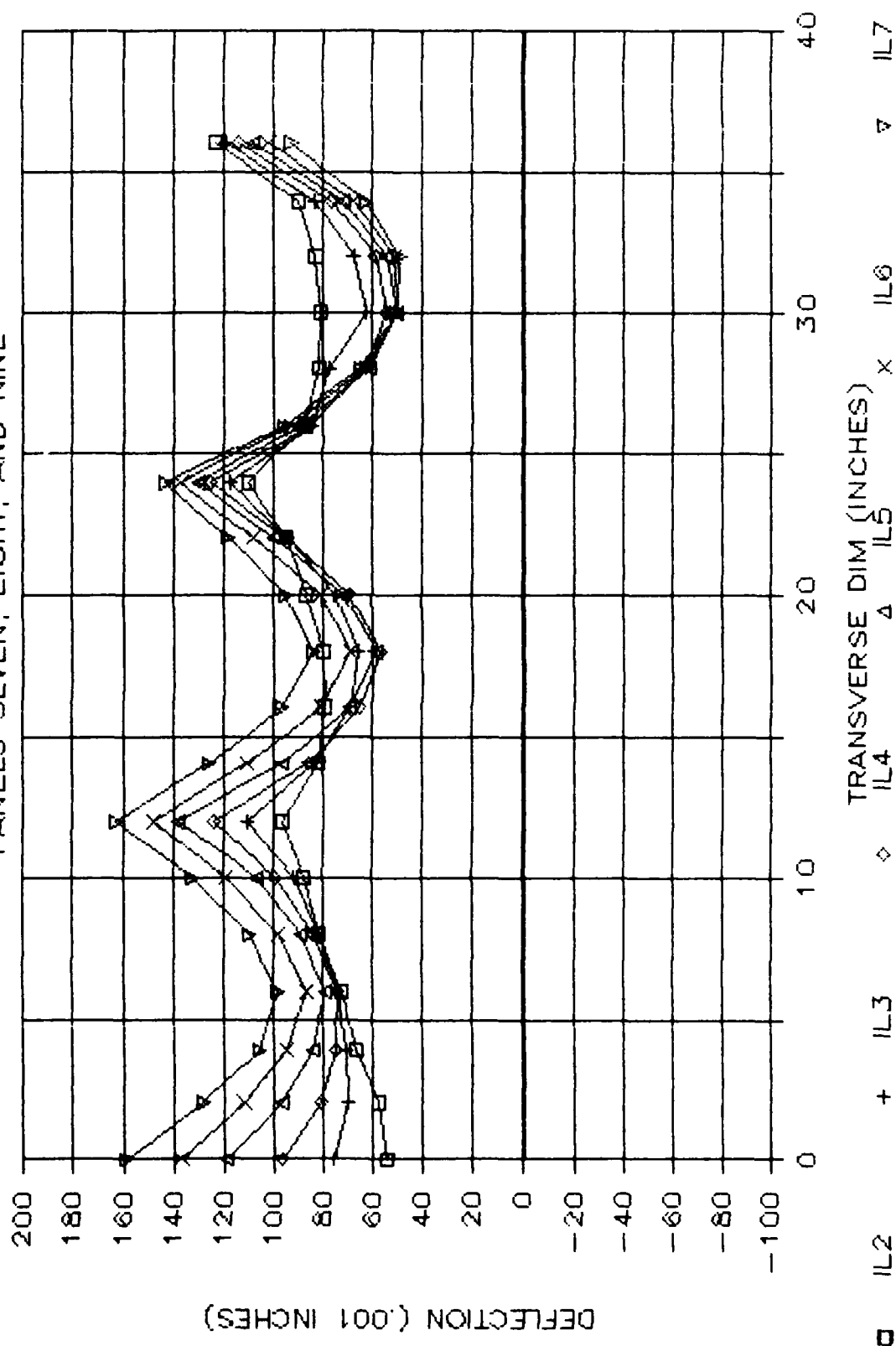


3/16" PANEL #5 HEATED

PANELS SEVEN, EIGHT, AND NINE

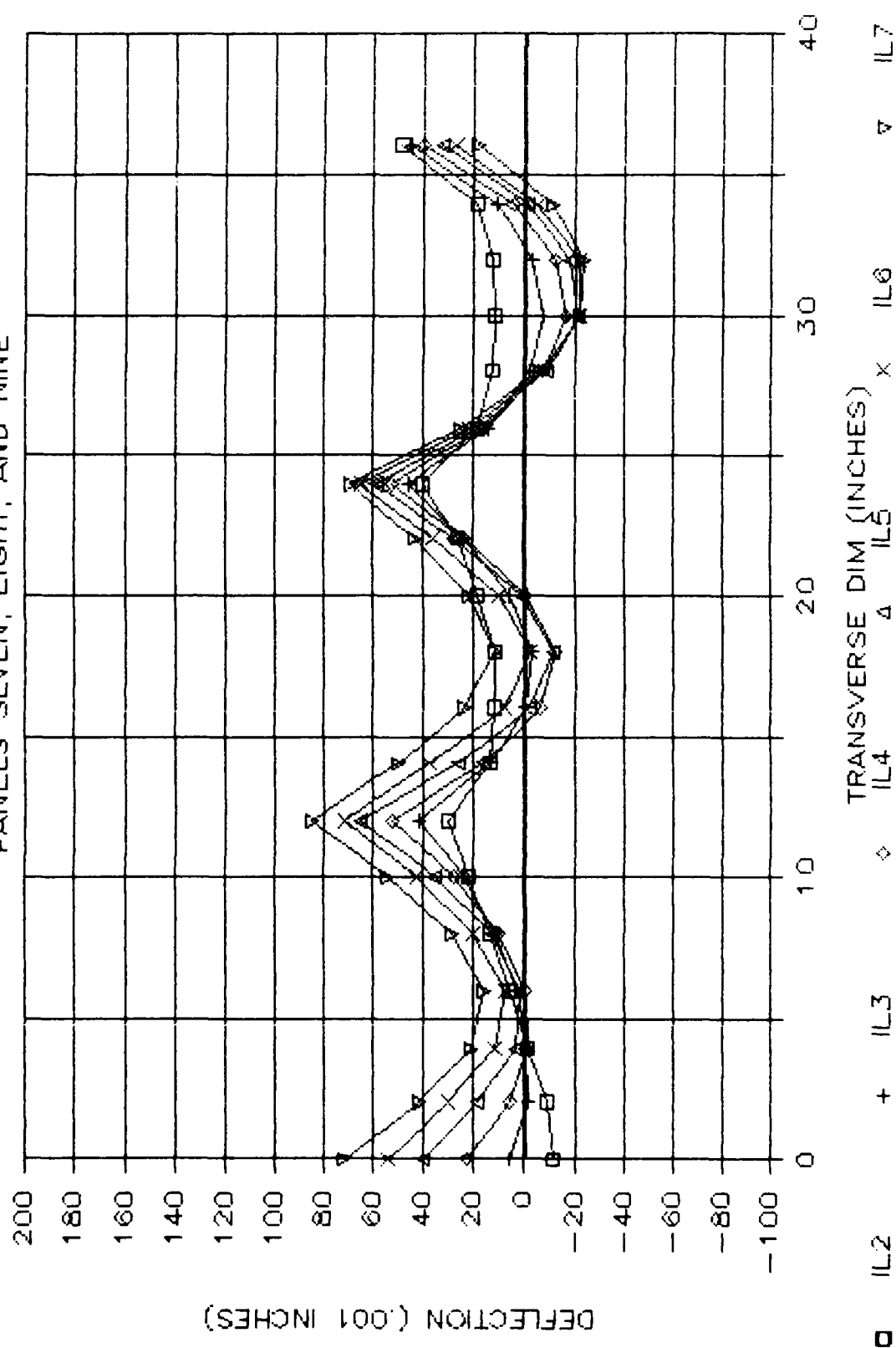


3/16" PANEL #4 HEATED PANELS SEVEN, EIGHT, AND NINE



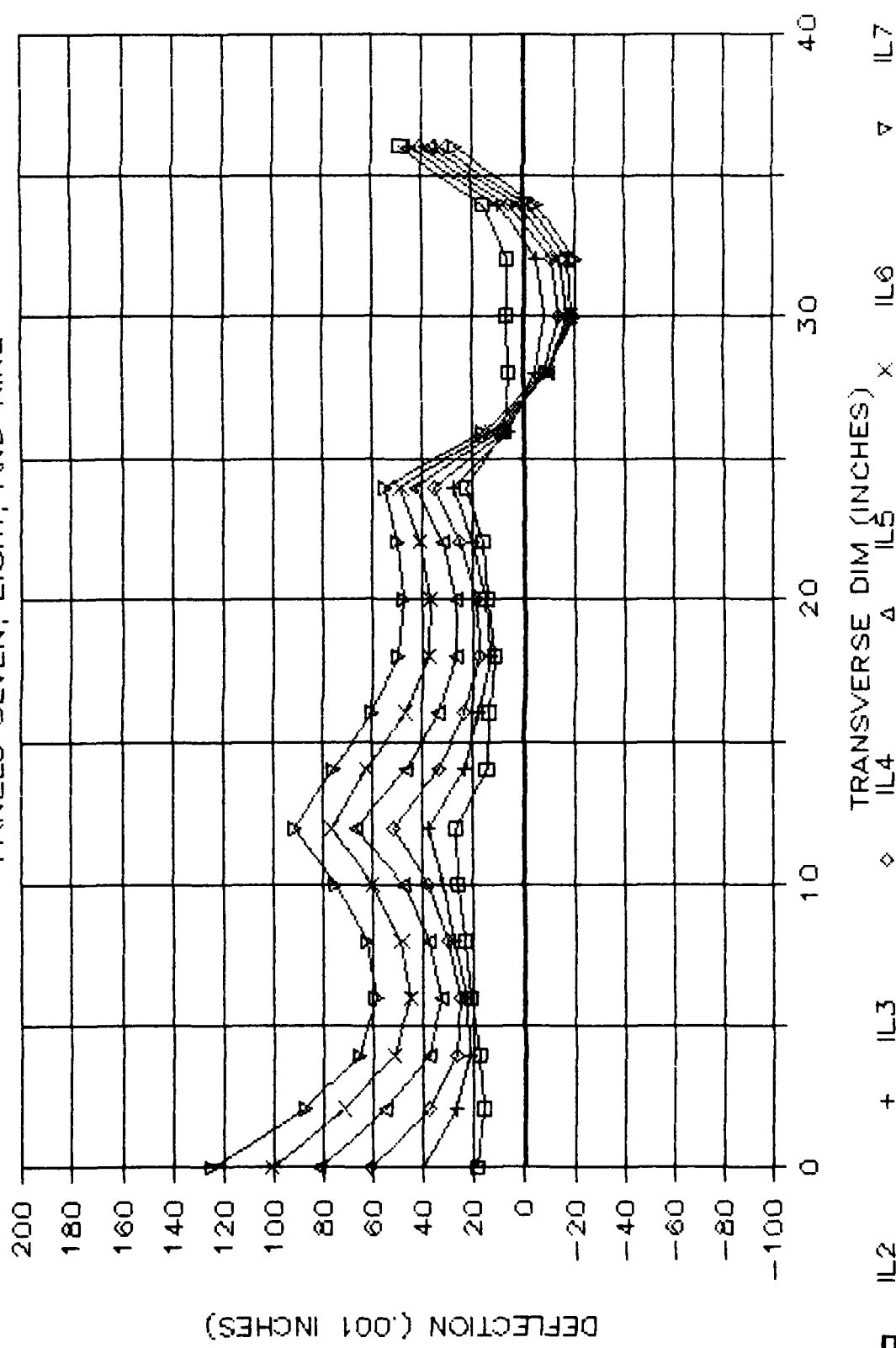
3/16" PANEL #2 HEATED

PANELS SEVEN, EIGHT, AND NINE

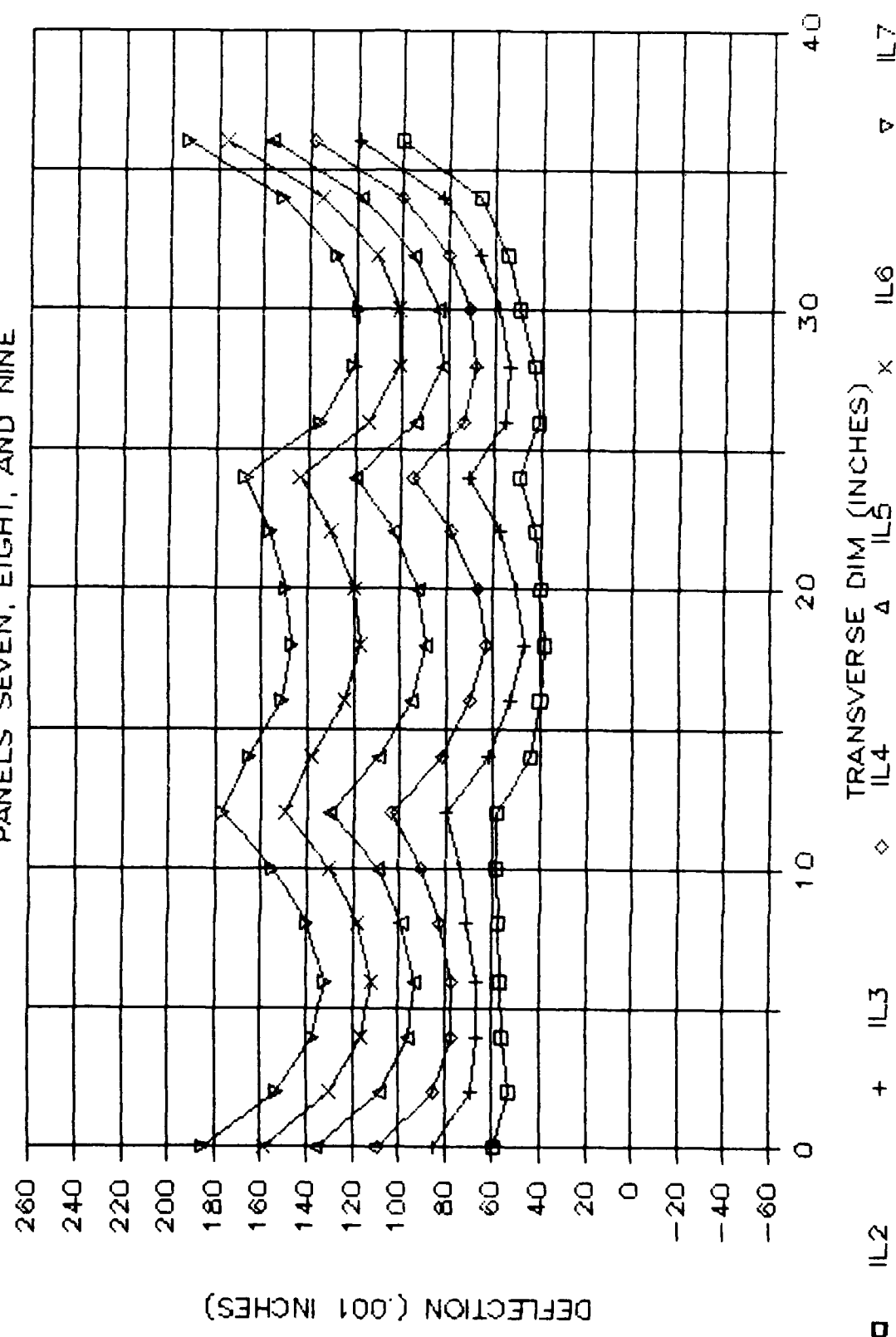


3/16" PANEL #8 HEATED

PANELS SEVEN, EIGHT, AND NINE



3/16" PANEL #6 HEATED PANELS SEVEN, EIGHT, AND NINE

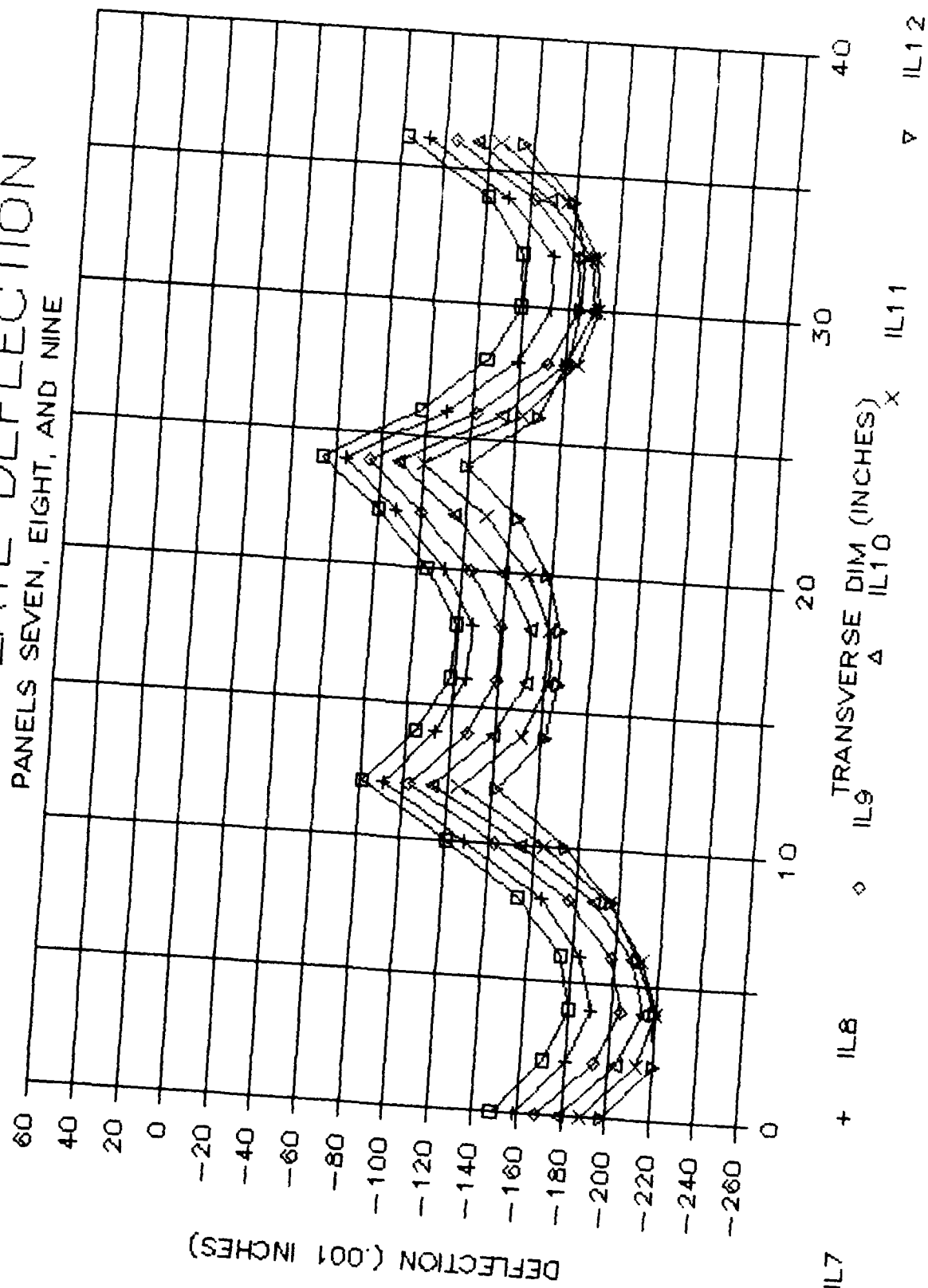


APPENDIX R

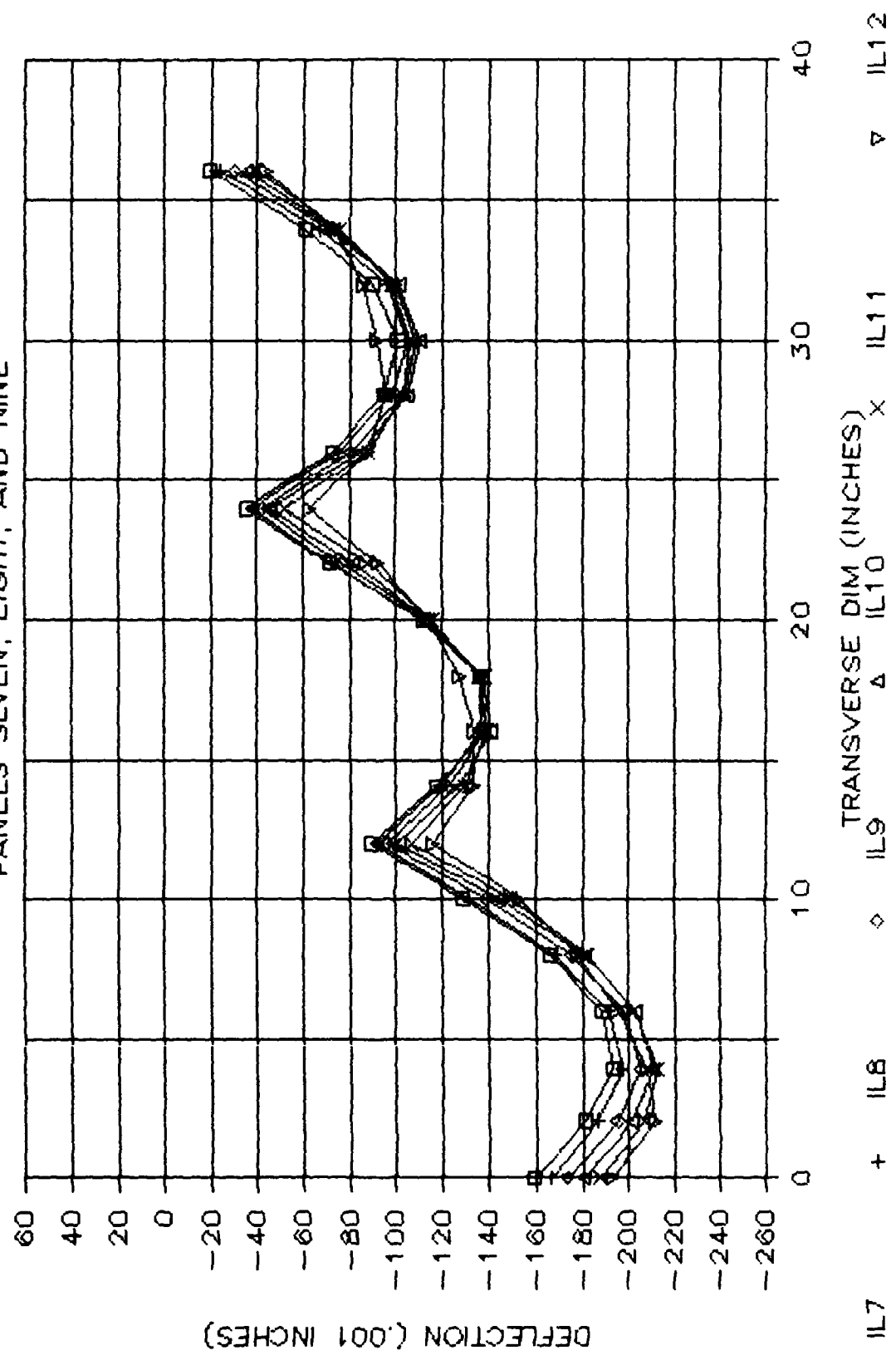
GRAPHS OF THE 3/16" STIFFENED PLATE TRANSVERSE OUT-OF-PLANE DEFLECTION READINGS FOR LINES IL7 THROUGH IL12

The horizontal coordinate is the transverse displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

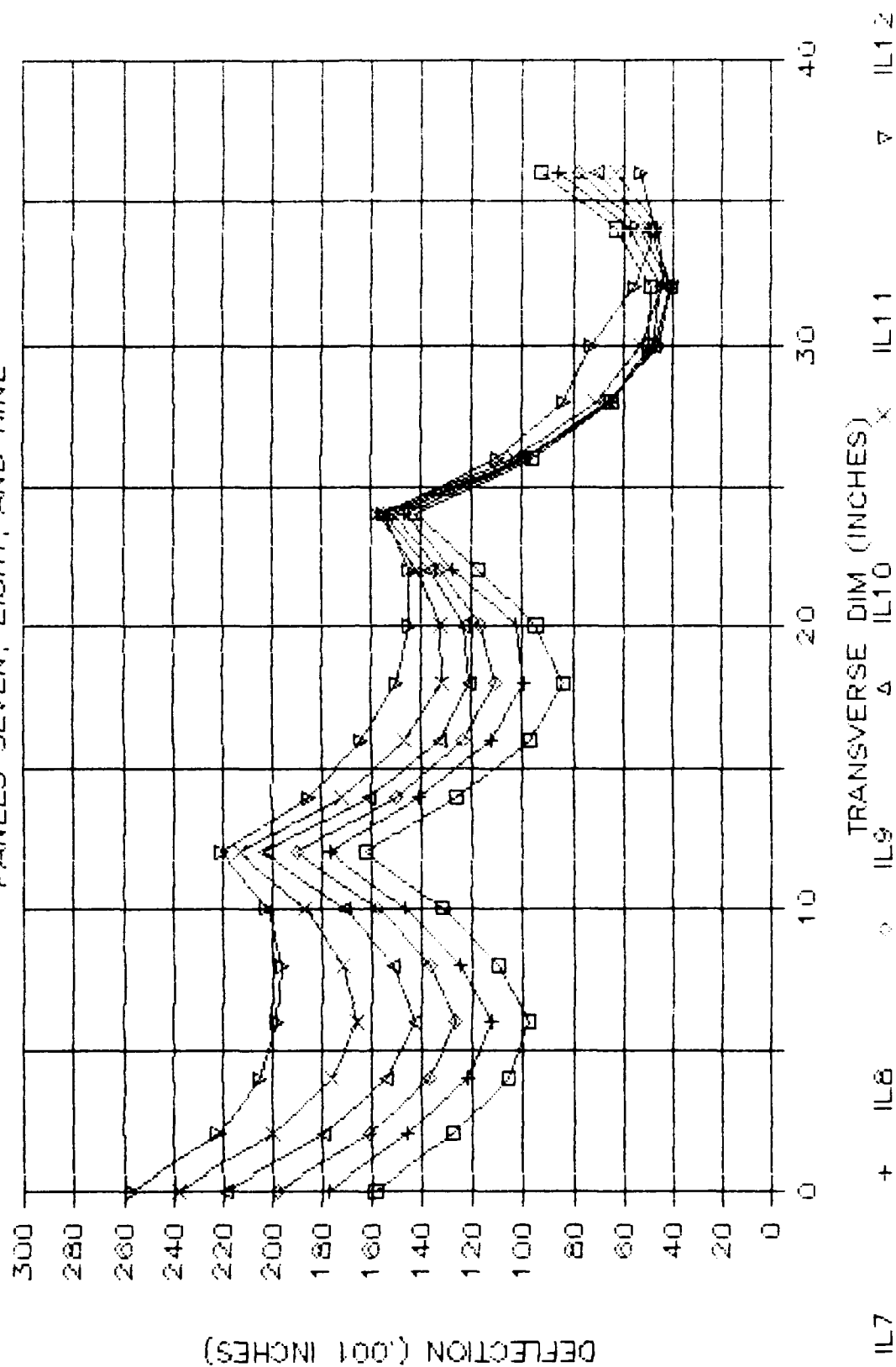
3/16" PLATE DEFLECTION PANELS SEVEN, EIGHT, AND NINE



3/16" PANEL #5 HEATED PANELS SEVEN, EIGHT, AND NINE

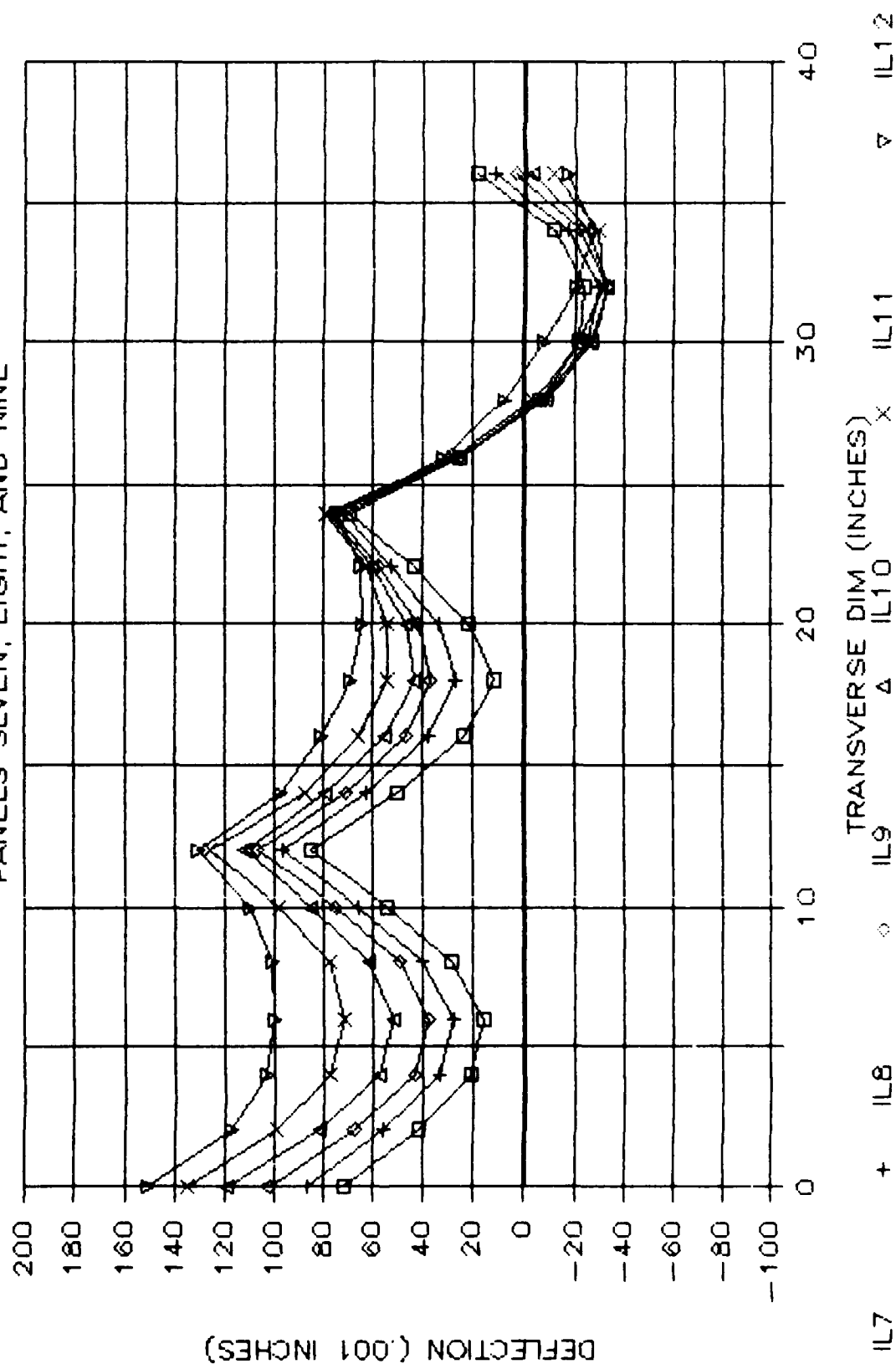


3/16" PANEL #4 HEATED PANELS SEVEN, EIGHT, AND NINE



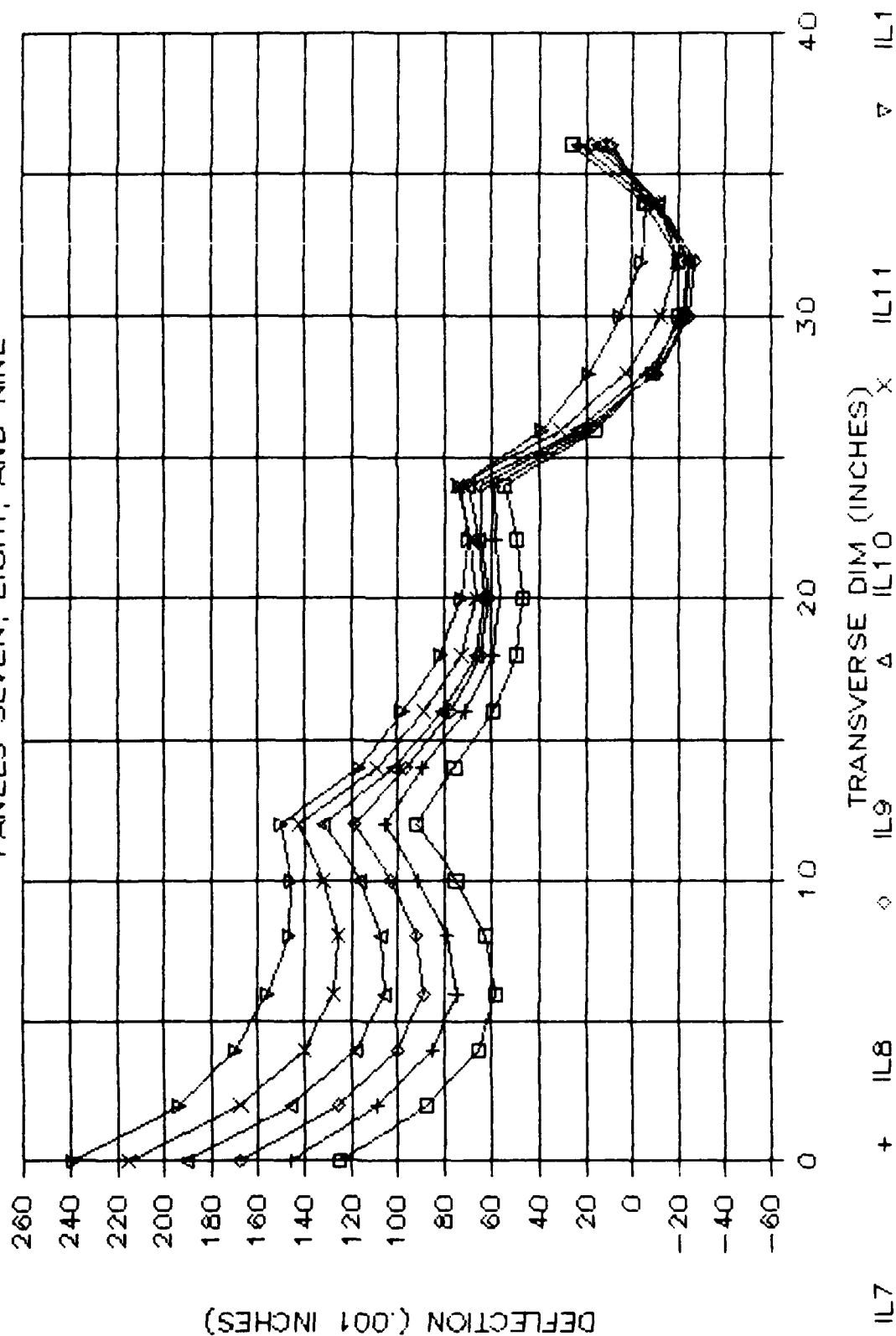
3/16" PANEL #2 HEATED

PANELS SEVEN, EIGHT, AND NINE



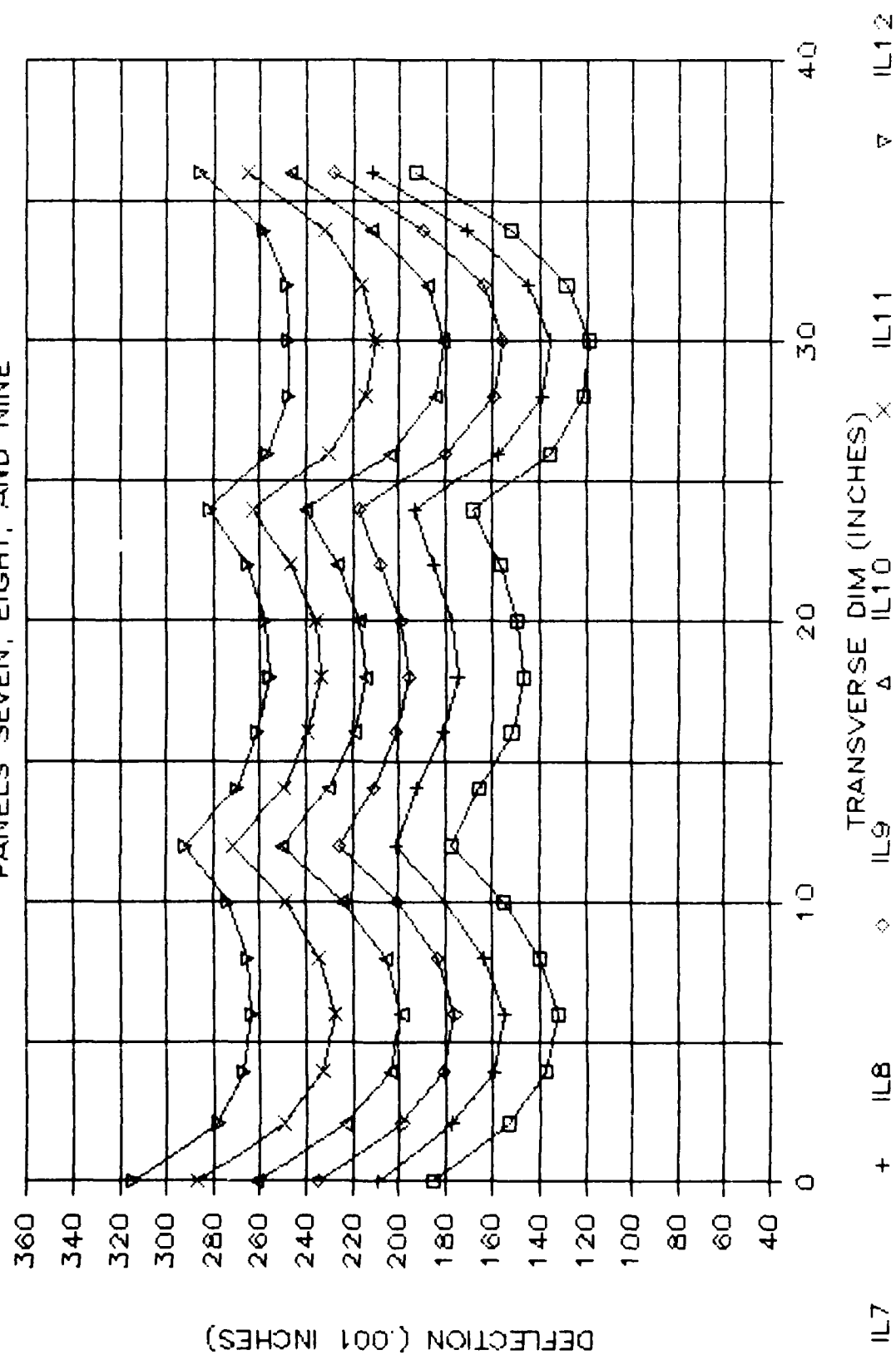
3/16" PANEL #8 HEATED

PANELS SEVEN, EIGHT, AND NINE



3/16" PANEL #6 HEATED

PANELS SEVEN, EIGHT, AND NINE



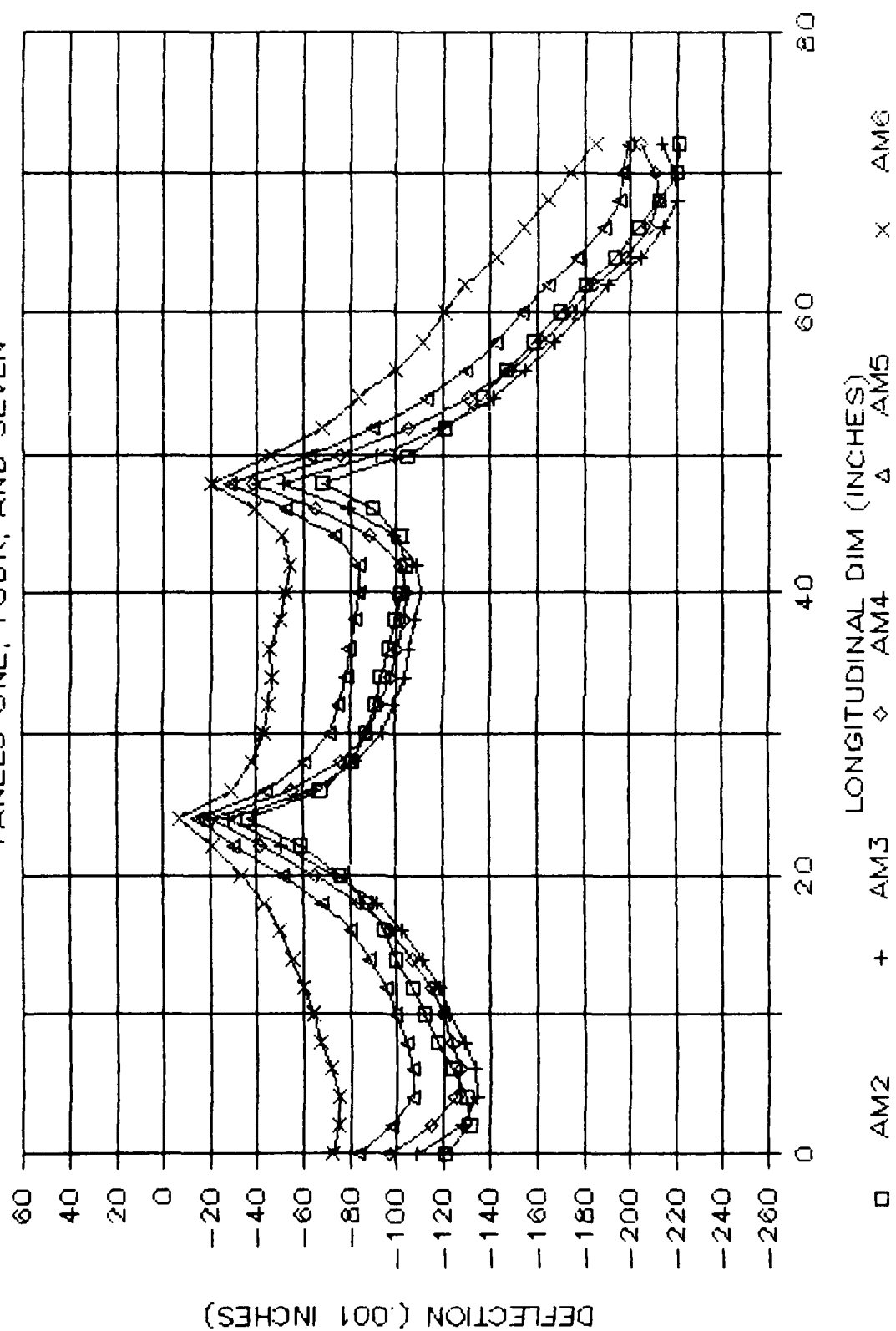
APPENDIX S

GRAPHS OF THE 3/16" STIFFENED PLATE LONGITUDINAL OUT-OF-PLANE DEFLECTION READINGS FOR LINES AM2 THROUGH AM6

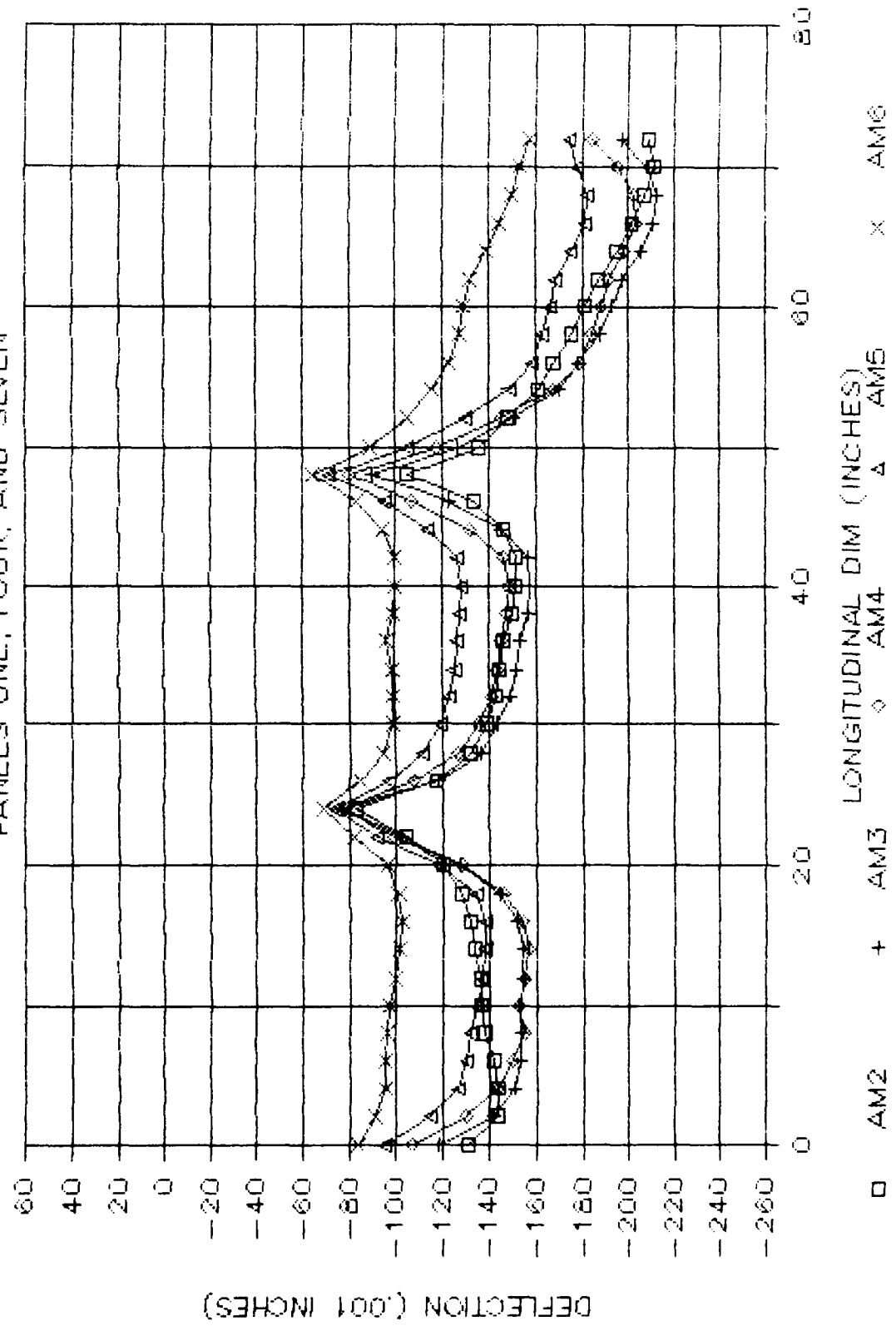
The horizontal coordinate is the longitudinal displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

3/16" PLATE DEFLECTION

PANELS ONE, FOUR, AND SEVEN

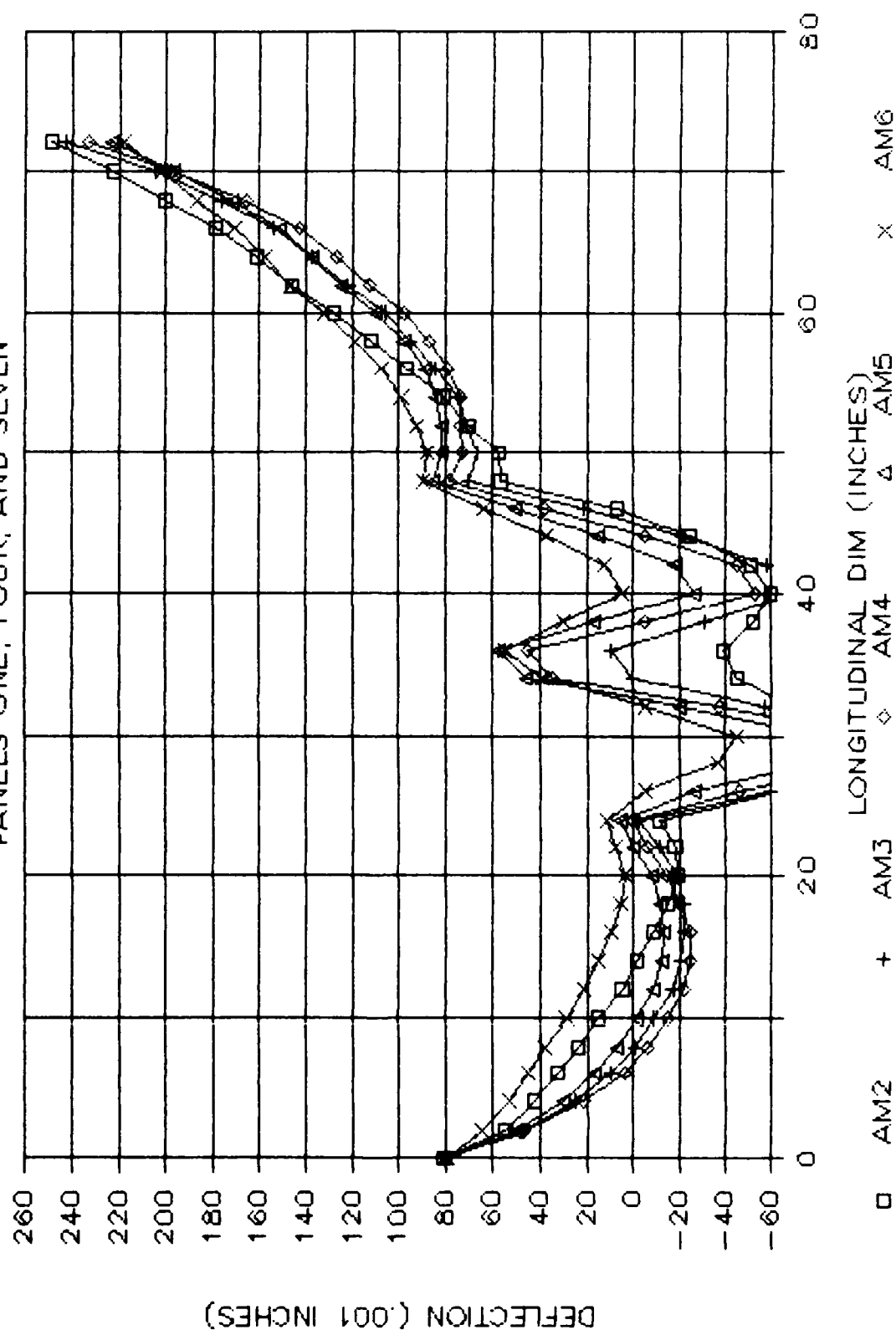


3/16" PANEL #5 HEATED PANELS ONE, FOUR, AND SEVEN



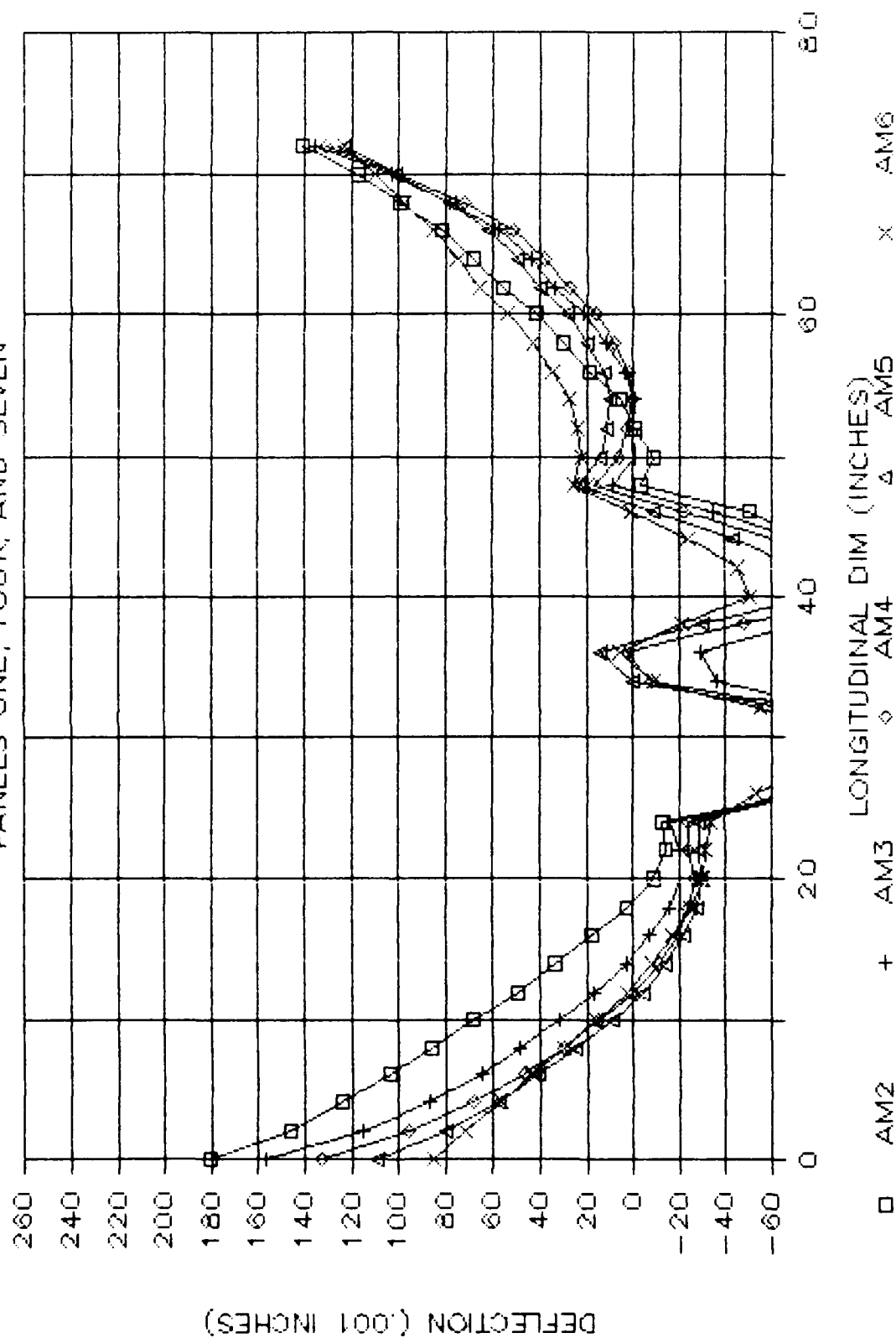
3/16" PANEL #4 HEATED

PANELS ONE, FOUR, AND SEVEN

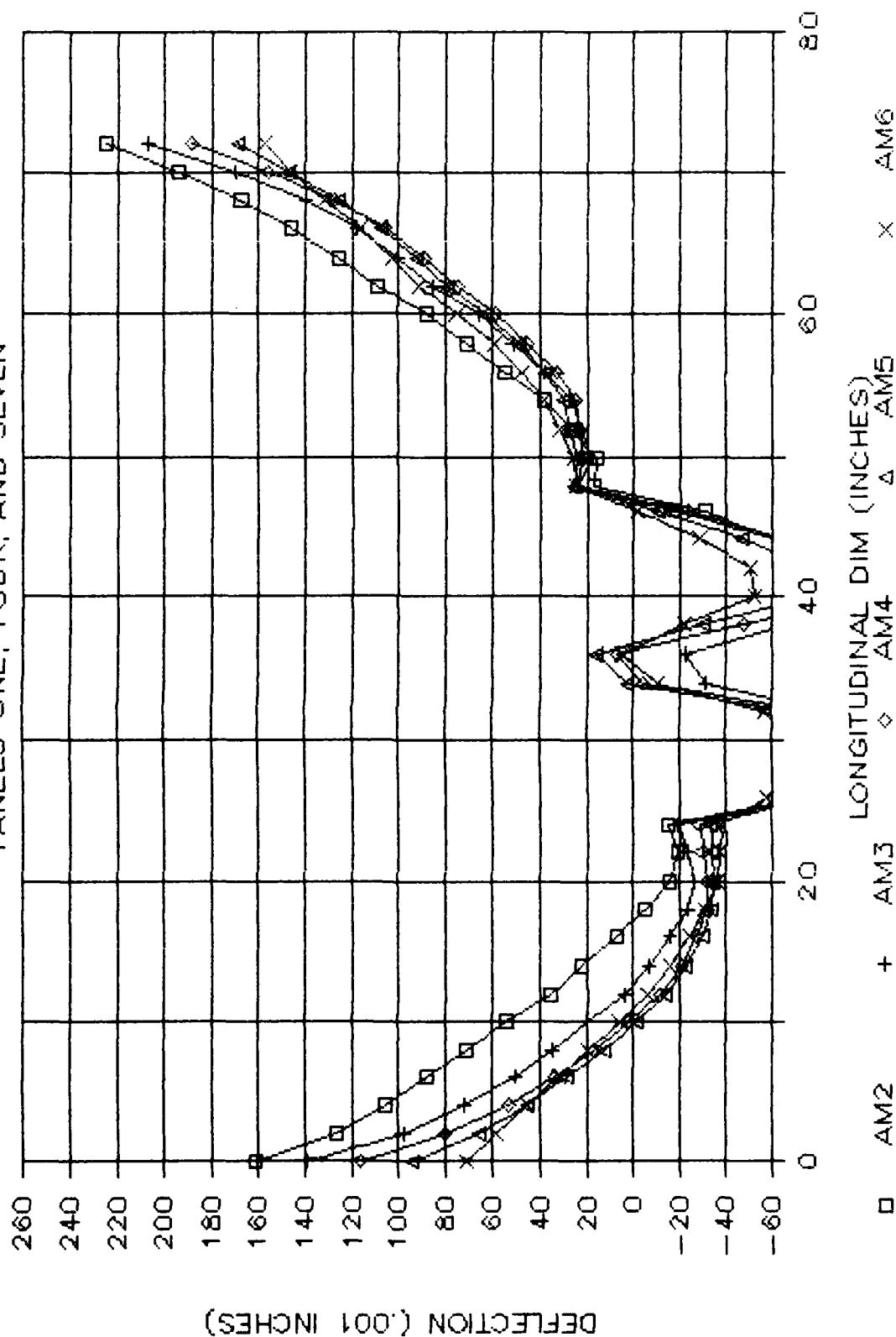


3/16" PANEL #2 HEATED

PANELS ONE, FOUR, AND SEVEN

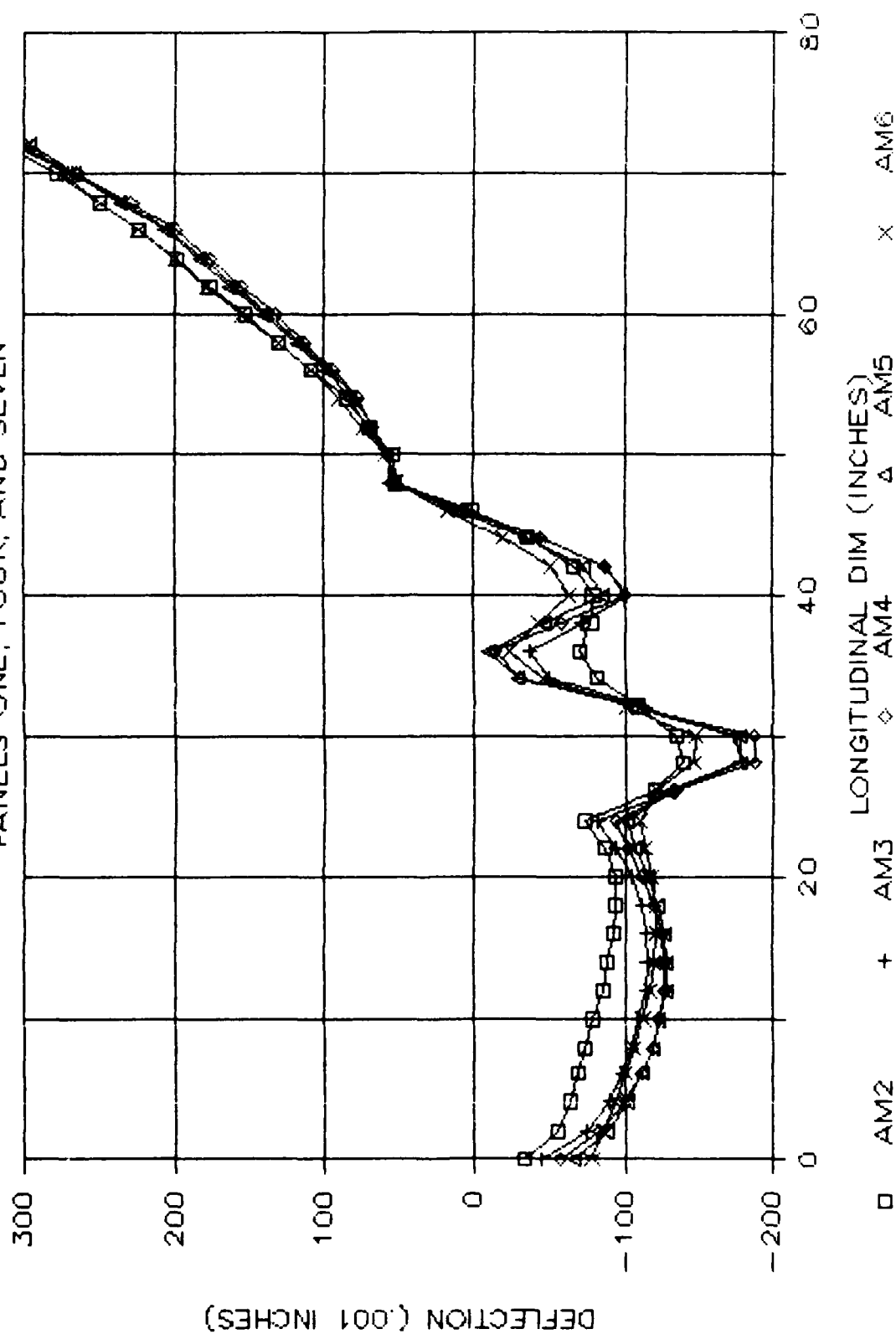


3/16" PANEL #8 HEATED PANELS ONE, FOUR, AND SEVEN



3/16" PANEL #6 HEATED

PANELS ONE, FOUR, AND SEVEN

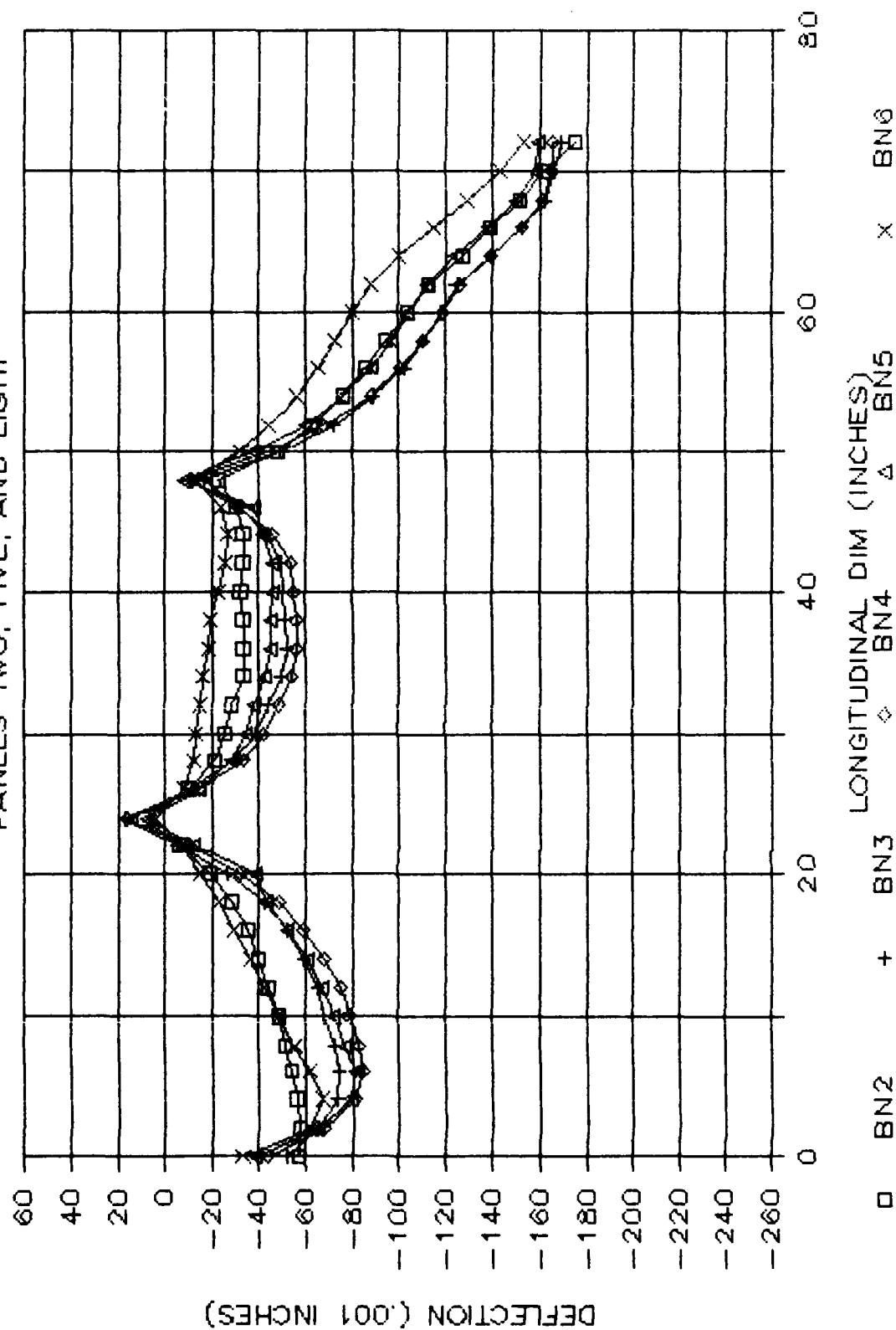


APPENDIX T

GRAPHS OF THE 3/16" STIFFENED PLATE LONGITUDINAL OUT-OF-PLANE DEFLECTION READINGS FOR LINES BN2 THROUGH BN6

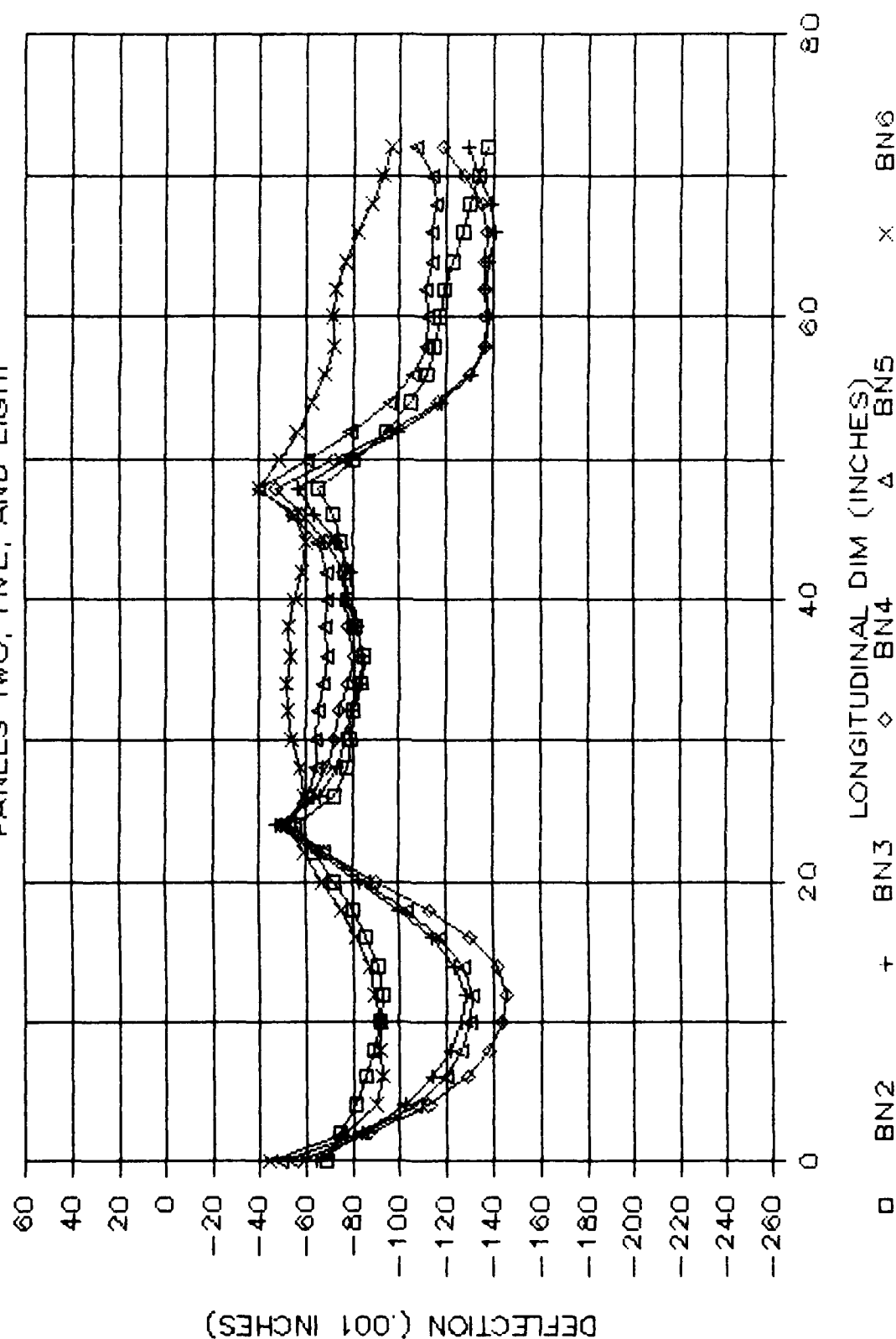
The horizontal coordinate is the longitudinal displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

3/16" PLATE DEFLECTION PANELS TWO, FIVE, AND EIGHT



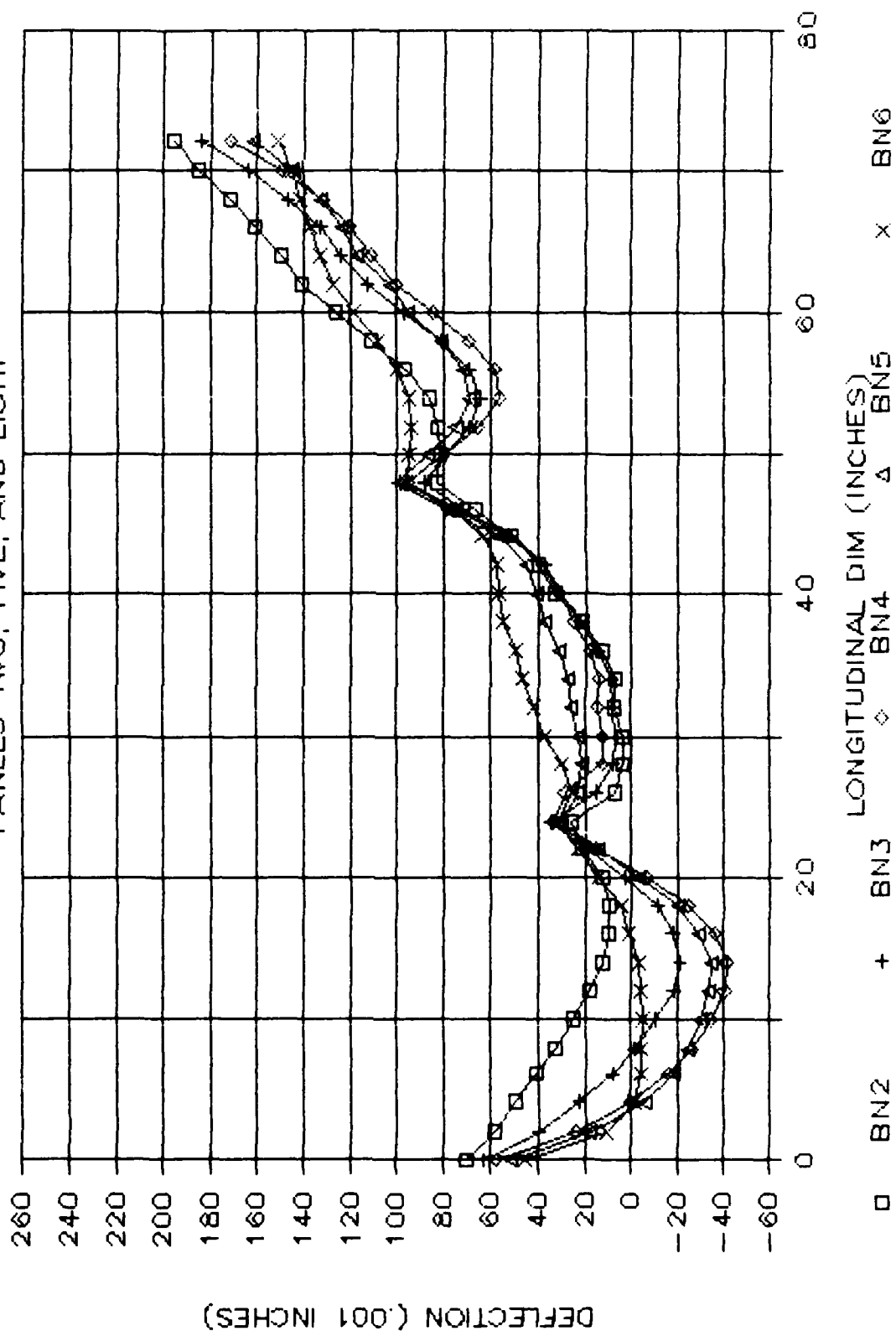
3/16" PANEL #5 HEATED

PANELS TWO, FIVE, AND EIGHT



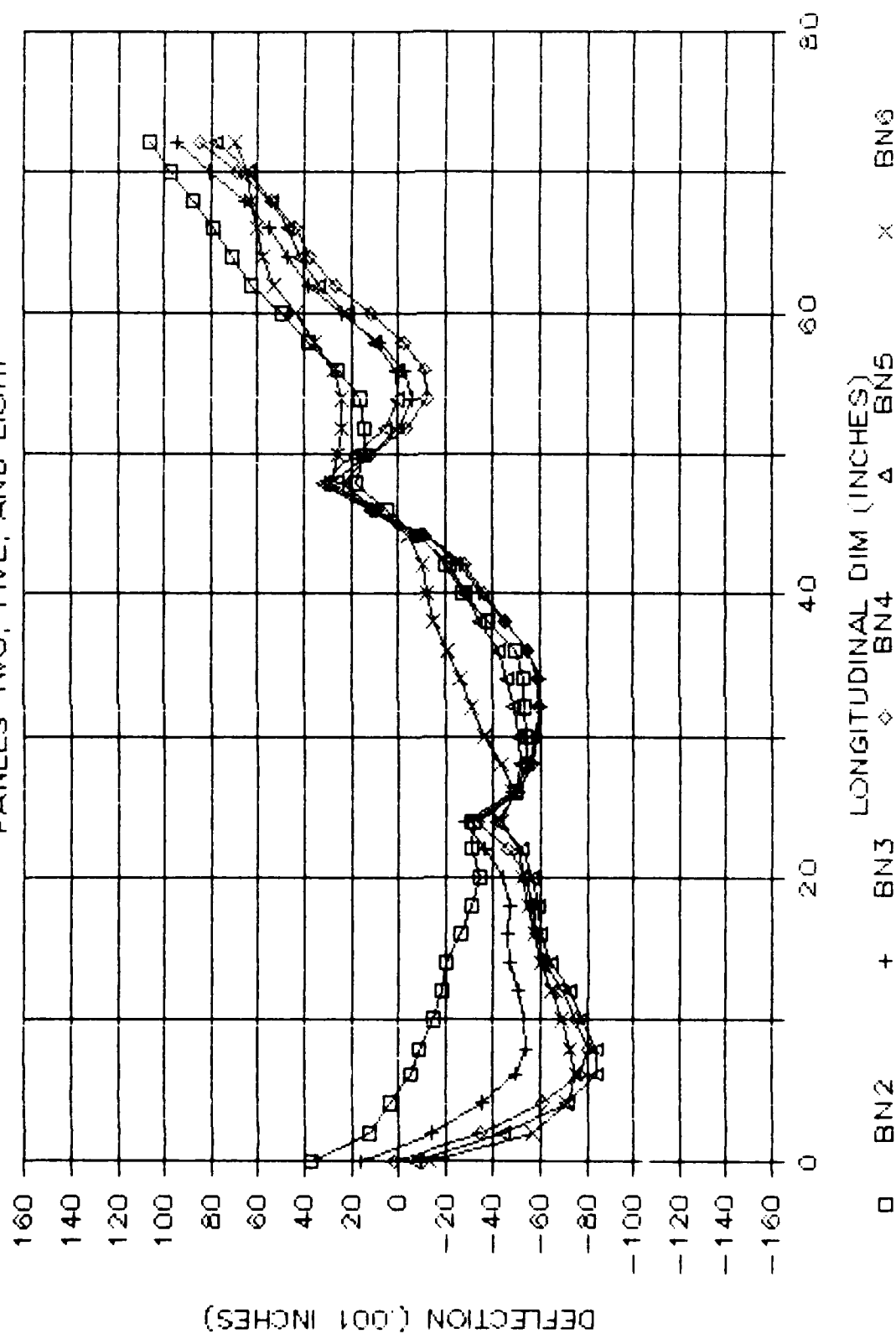
3/16" PANEL #4 HEATED

PANELS TWO, FIVE, AND EIGHT



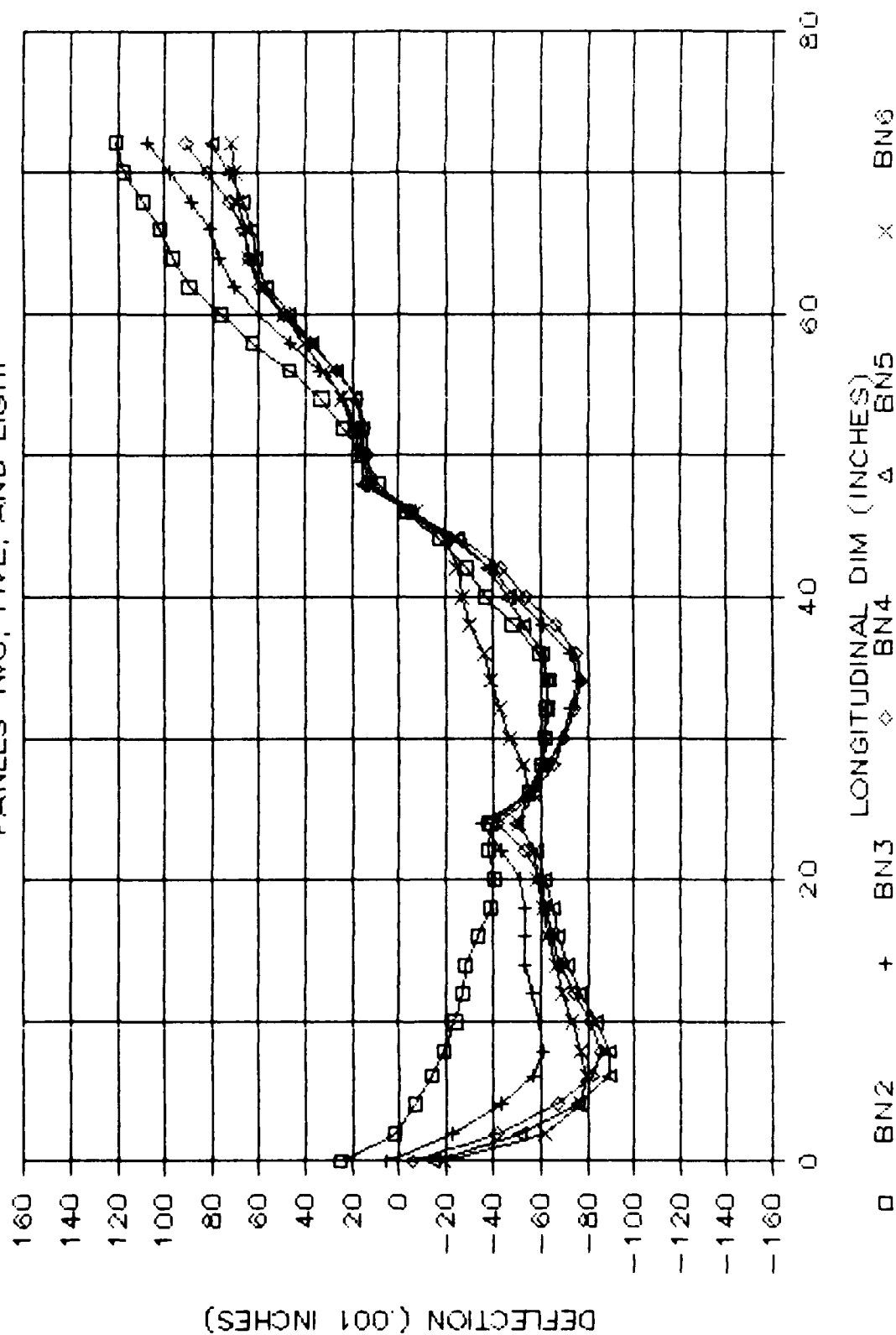
3/16" PANEL #2 HEATED

PANELS TWO, FIVE, AND EIGHT



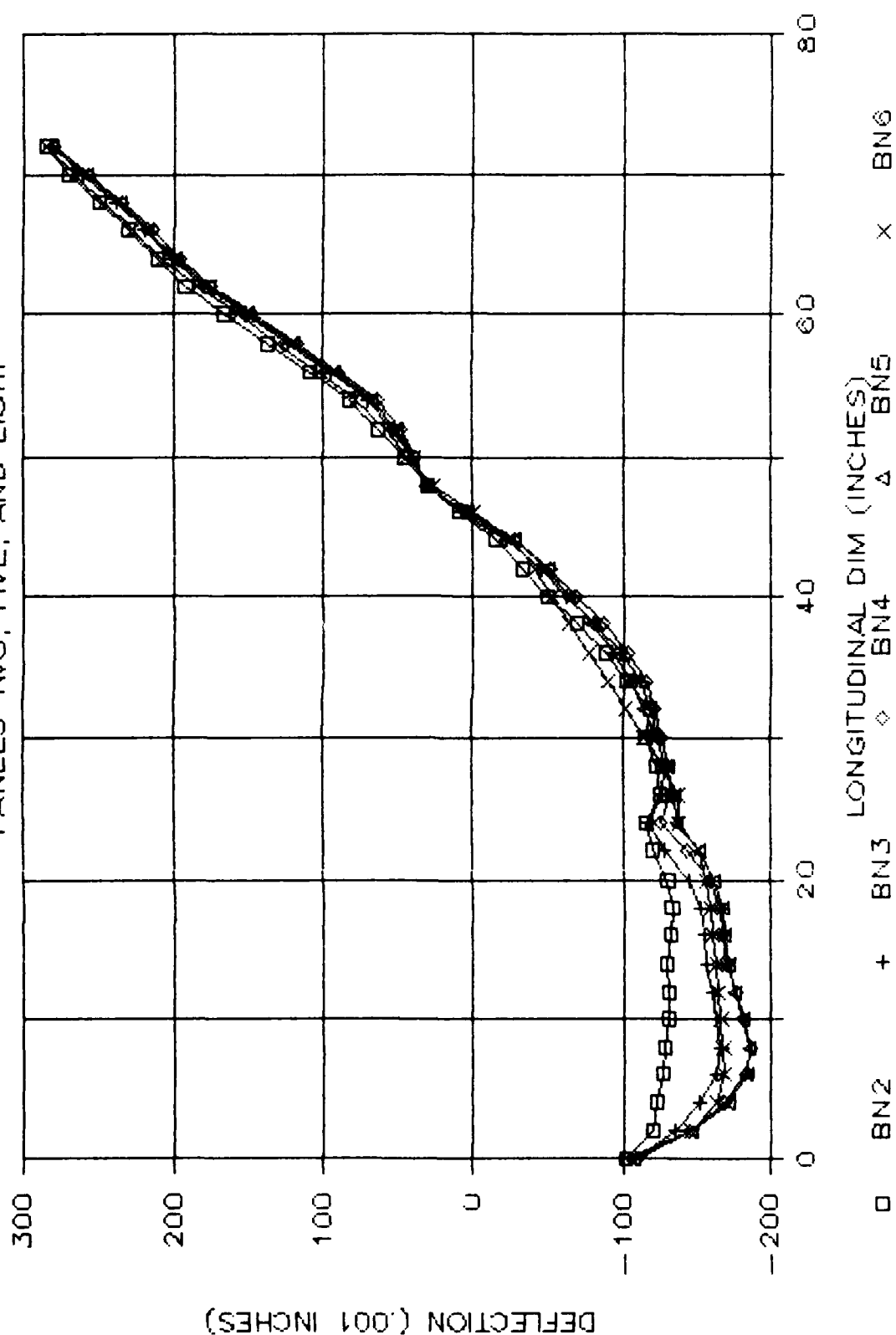
3/16" PANEL #8 HEATED

PANELS TWO, FIVE, AND EIGHT



3/16" PANEL #6 HEATED

PANELS TWO, FIVE, AND EIGHT



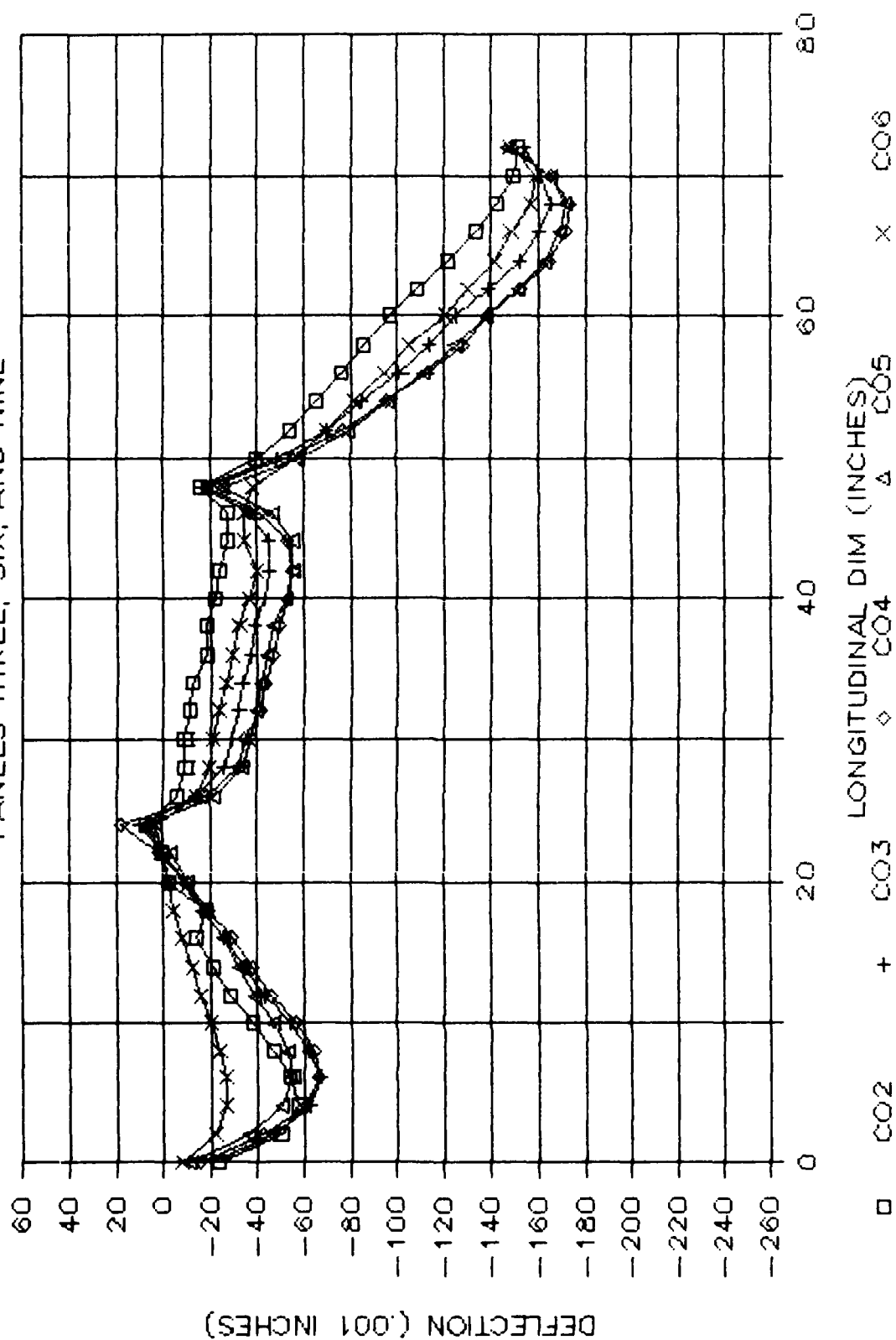
APPENDIX U

GRAPHS OF THE 3/16" STIFFENED PLATE LONGITUDINAL OUT-OF-PLANE DEFLECTION READINGS FOR LINES C02 THROUGH C06

The horizontal coordinate is the longitudinal displacement, measured in inches, and the vertical coordinate is out-of-plane deflection, measured in thousandths of an inch.

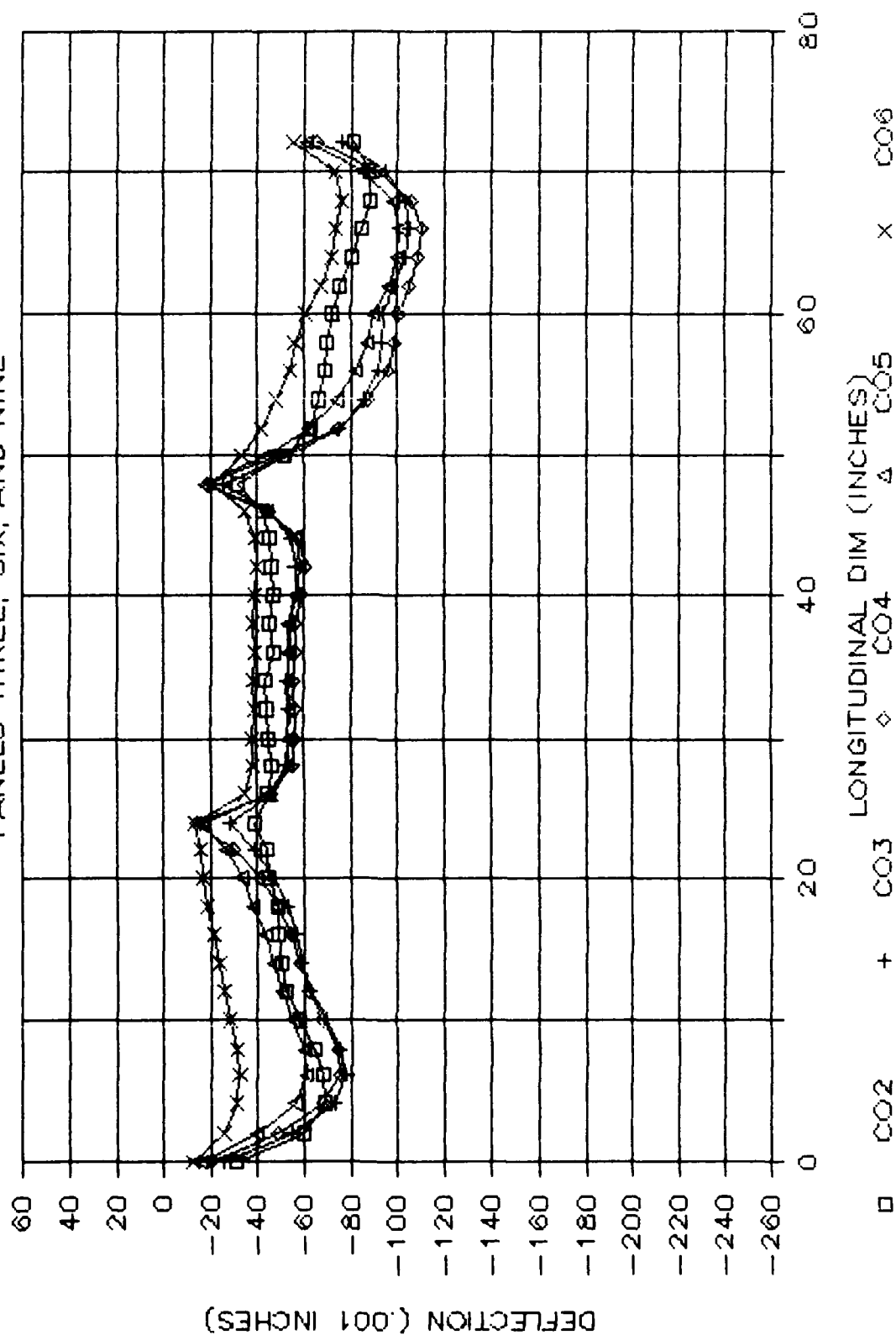
3/16" PLATE DEFLECTION

PANELS THREE, SIX, AND NINE



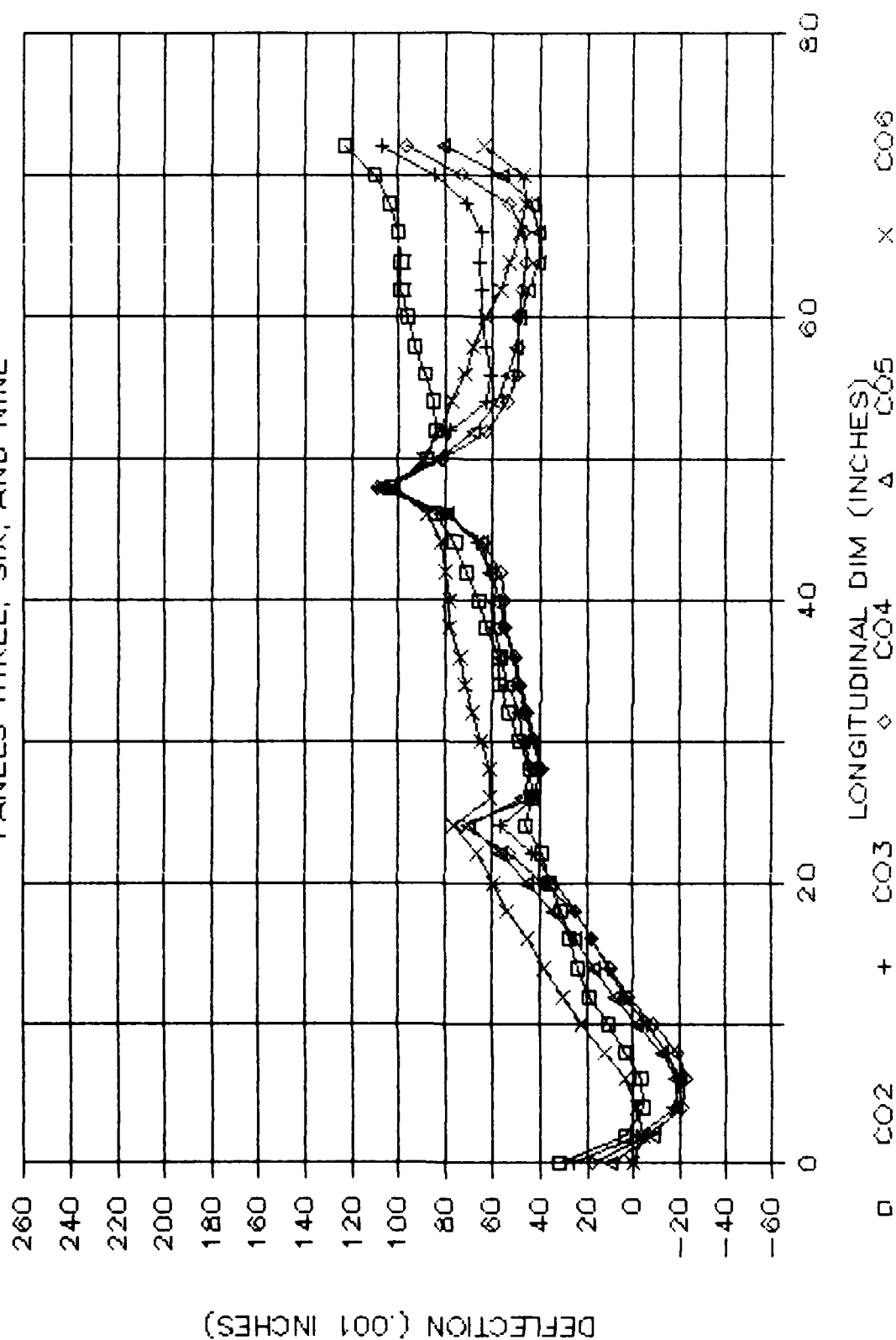
3/16" PANEL #5 HEATED

PANELS THREE, SIX, AND NINE



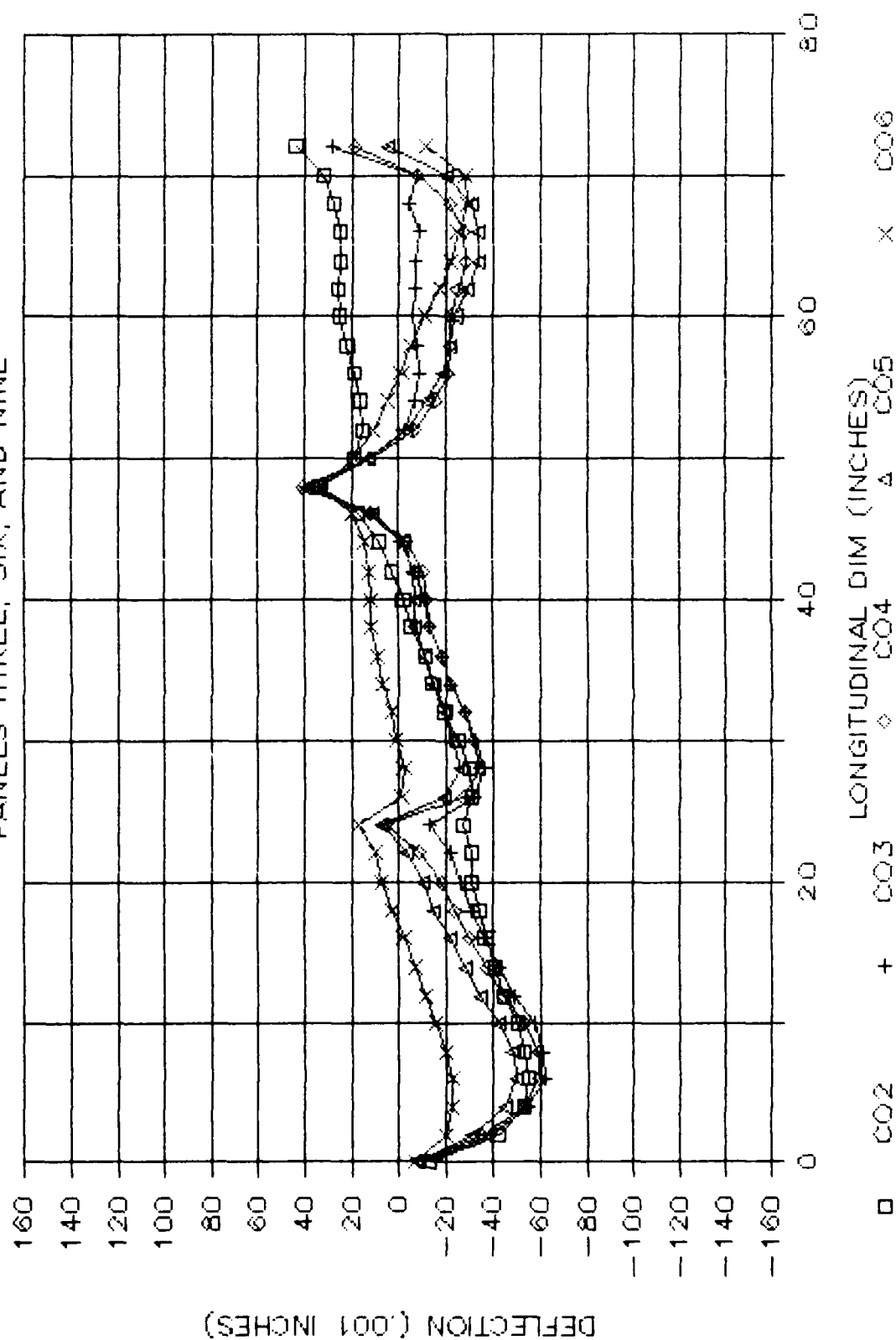
3/16" PANEL #4 HEATED

PANELS THREE, SIX, AND NINE



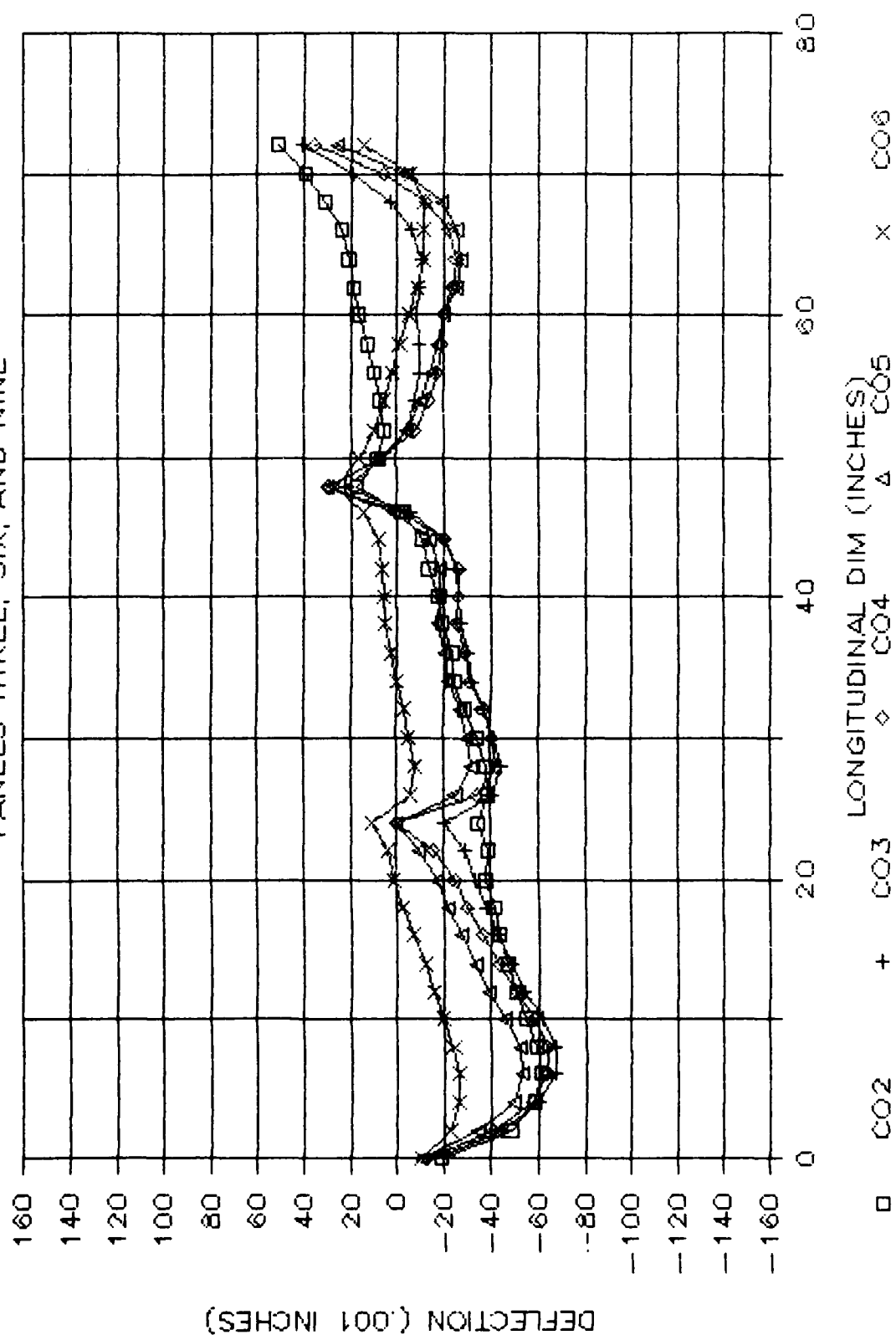
3/16" PANEL #2 HEATED

PANELS THREE, SIX, AND NINE



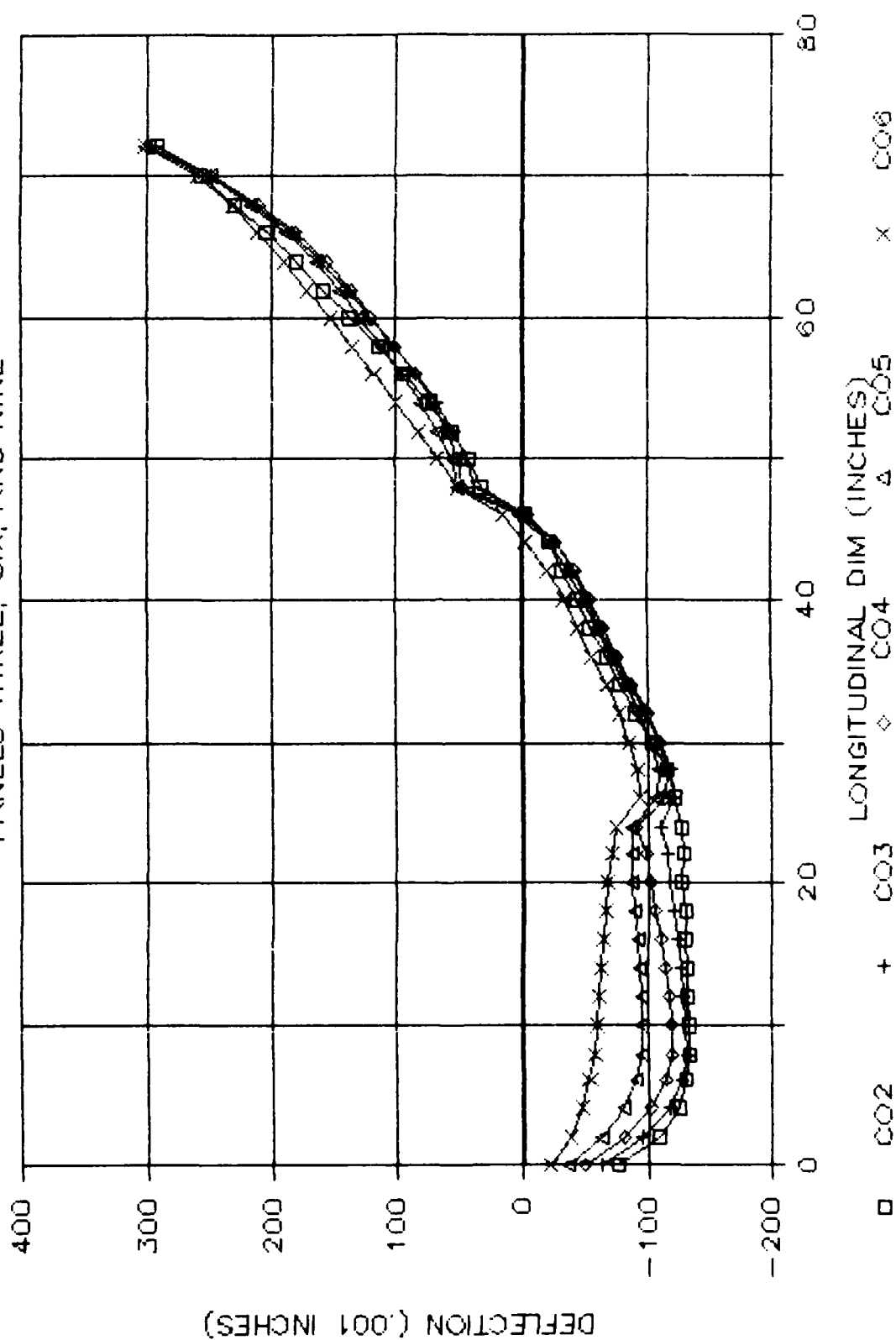
3/16" PANEL #8 HEATED

PANELS THREE, SIX, AND NINE



3/16" PANEL #6 HEATED

PANELS THREE, SIX, AND NINE



APPENDIX V

3/16" STIFFENED PLATE MID-PANEL DEFLECTION DATA D(MAX)iT AND D(MAX)iL

This appendix contains the mid-panel deflection data, D(MAX)iT and D(MAX)iL, for the 3/16" stiffened plate. The data is in tabular form. All deflection readings are in thousandths of an inch. See Figure 3-2 for the definition of D(MAX)iT and D(MAX)iL.

3/16" PLATE

Out of plane deflection at the center of panel i. referenced to the transverse straight line connecting the mid points of that panel's longitudinal stiffeners. See Figure 3-2 for the Definition of D(MAX)iT.

PANEL		D(MAX)1T	D(MAX)2T	D(MAX)3T	D(MAX)4T	D(MAX)5T	D(MAX)6T	D(MAX)7T	D(MAX)8T	D(MAX)9T
F	WELD	63.5	63.5	55	58.5	63	53.5	60.5	51.5	70.5
I	#5	71.75	96.75	52	46.25	33.25	42	64	74.5	74
R	#4	68	88.5	51.5	-56	36.5	43.75	63	69	68
S	#2	55	62.5	42.5	-55.25	47	46.5	62.5	65	66
T	#8	55	60.5	43.75	-56	58.5	40	49.5	23.5	67
	#6	54	63	47	-51	46.5	38.5	49	25.5	61.5
P	#1	39.5	55	47.5	-54	49.5	38.5	48	23.75	60.75
A	#7	40.5	55	47	-55.75	47.75	37.75	26	24.5	61.75
S	#3	41.5	53	25.5	-54.5	50.75	37	26.5	19.25	63.5
S	#9	40.5	53.5	26	-53	51.5	37	25	18.5	33.75
S										
E	#5	41	59	24.5	-63.5	33.25	31.25	26	21	35
C	#6	41.5	59.5	24	-63.25	38	6	26	19.5	35.25
O	#2	39	20	18.5	-64.5	37.75	6.25	27	21	35.5
N	#8	38.5	20.5	19	-65	39	6.75	27	-3.5	33
D	#1	-2	17	19.5	-66.25	38.75	6.5	27.5	-1.5	33.5
	#3	-2.25	20.25	-8	-65.5	39	5.75	27	-3	33
P	#7	-2	20	-7	-66	40.5	6.5	7.5	-3	32.75
A	#9	-2	19.5	-8	-65.5	39.5	5.5	7.5	-5.5	-10.5
S										
S										

3/16" PLATE

Out of plane deflection at the center of panel i. referenced to the longitudinal straight line connecting the mid points of that panel's transverse stiffeners. See Figure 3-2 for the definition of D(MAX)iL.

PANEL										
HEATED*	D(MAX)1L	D(MAX)2L	D(MAX)3L	D(MAX)4L	D(MAX)5L	D(MAX)6L	D(MAX)7L	D(MAX)8L	D(MAX)9L	
F	WELD	56	61	47	70.5	58.5	47	54	31	56
I	#5	62.5	93	45	66	32.5	40.5	56	54	59.5
R	#4	62	85.75	43.5	-6	46.5	40	57.5	49.5	53
S	#2	54	53.5	42.5	-6.5	52.75	41.5	58	44.75	52
T	#8	54.75	51	43.5	-8.75	61.25	43.5	48	2.25	53
	#6	52.5	58.5	46.5	-6	56.25	53	48	8.75	54.5
P	#1	50.75	55.25	49.5	-16.25	62.25	55.75	46.5	7.25	52.5
A	#7	51	55.5	49	-14.5	62	55.25	31.5	9	52.5
S	#3	51.5	55.25	35	-12.75	64.5	53	32.25	10	54.5
S	#9	51	57	35	-11.5	66	51.75	32	9	31.75
S										
E	#5	52	61.75	33.5	-19	50.25	46.75	33.5	10.75	34.5
C	#6	52.5	62	32	-19	55	23.5	33.75	11	34
O	#2	51	22.5	28	-19.5	55.5	24	34	10.5	33.5
N	#8	51	23	27.75	-21	55.5	24	34	-13.5	31.75
D	#1	10.5	20	28.5	-22	55.5	24	34.5	-11.5	31.5
	#3	10	23	2	-21	56	22.5	34.5	-13	31.5
P	#7	9.25	22.5	2.25	-22.5	56.5	22.5	15	-13	31.25
A	#9	10.5	23	2	-20.5	56.5	22.5	14	-16.5	-11.35
S										
S										

APPENDIX W

1/8" STIFFENED PLATE MID-PANEL DEFLECTION DATA D(MAX)iT AND D(MAX)iL

This appendix contains the mid-panel deflection data, D(MAX)iT and D(MAX)iL, for the 1/8" stiffened plate. The data is in tabular form. All deflection readings are in thousandths of an inch. See Figure 3-2 for the definition of D(MAX)iT and D(MAX)iL.

1/8" PLATE

Out of plane deflection at the center of panel 1, referenced to the transverse straight line connecting the mid points of that panel's longitudinal stiffeners. See Figure 3-2 for the definition of D(MAX)11.

PANEL		D(MAX)1T	D(MAX)2T	D(MAX)3T	D(MAX)4T	D(MAX)5T	D(MAX)6T	D(MAX)7T	D(MAX)8T	D(MAX)9T
HEATED*										
F	WELD	69.5	7.5	32.5	34.25	69.75	27.5	85	17	49.5
I	#5	75.5	4	37	24	24.5	13	93.5	16	53.5
R	#4	93	4.5	34	20.5	25	12	95.5	16	54.5
S	#6	94	4	39.5	20	26.5	13	96	15	56
T	#2	96.5	-5.5	43.5	20	28.75	14.25	95.25	15.75	55.25
	#8	96	-6.5	43	20.5	28.5	13.5	89	-12	54.5
P	#3	93.5	-8	-6	19.75	32.25	11	88	-12	54
A	#1	126.5	-17.5	-6.5	14.75	40.75	7.5	90	-13	51.5
S	#7	127.5	-18	-7	16.5	47.75	9.5	123	-26.5	55
S	#9	127.5	-18	-5.5	16.25	52.5	4.5	122	-32.5	40
S										
E	#5	129.5	-20	-6.5	20.25	-52	-4	PLATE	WAS	DAMAGED
C	####									
O	AFTER									
N	DAMAGE									
D	#5	130.75	-19	-10.5	17.5	-52	-3	124.25	-16.5	-73.5
	#4	129.25	-20.5	-9	-10.25	-46.5	-4.25	123	-15.25	-73.75
P	#1	108	-20.5	-9	-9.5	-50	-2.5	124	-16	-74.5
A	#7	108	-19.5	-9.25	-9.5	-52.5	-3	114	-15.5	-74.5
S										
S										
3										
R										
D										
	#1	67.25	-23	-8.5	-9.5	-55.5	-1.25	113.75	-15.75	-74
P	#7	67.25	-23	-8	-8	-58	-1.75	93.5	-13	-74.5
A										
S										
S										
4										
T										
H										
	#7				-8.5	-59		67.75	-11.75	
P	#1	24.5	-23		-8.75	-59.5				
A										
S										
S										

THE PLATE WAS DAMAGED WHILE TAKING OUT-OF-PLANE DISTORTION READINGS AFTER PANEL #5 WAS HEATED. PANELS #9 AND #4 WERE AFFECTED

1/8" FLATE

Out of plane deflection at the center of panel 1, referenced to the longitudinal straight line connecting the mid points of that panel's transverse stiffeners. See Figure 3-2 for the definition of D-MAX 1L.

PANEL		D(MAX)1L	D(MAX)2L	D(MAX)3L	D(MAX)4L	D(MAX)5L	D(MAX)6L	D(MAX)7L	D(MAX)8L	D(MAX)9L
HEATED*										
F	WELD	48.75	-14	16	14.5	45.5	12.5	68.5	-8.5	37
I	#5	55	-17	21	6	2.5	0	77.5	-10	41
R	#4	74.75	-16.5	18.75	6.25	4	0.5	78.75	-10.5	42
S	#6	76	-17.5	24.5	6.5	6.25	3.5	78.5	-10.75	45
T	#2	78	-27	28.25	6.5	8	3.75	79.25	-10	43.75
	#8	79.25	-26.75	28.25	6.25	8.25	3.25	73	-37.5	43
P	#3	76.5	-27.75	-18.25	6	12.5	0.75	71.75	-38	42.75
A	#1	118.5	-35.5	-19.25	0	21	3	74.5	-38.5	40.75
S	#7	119.5	-35.75	-19	0.25	28.75	-2	113.75	-49.5	43.5
S	#9	120	-35.25	-18	-0.25	34	-7.5	113.75	-54	32.25
S										
E	#5	121.5	-38.5	-18.5	3.5	-71.5	-16	PLATE	WAS	DAMAGED
C	####									
O	AFTER									
N	DAMAGE									
D	#5	122.5	-37	-22.75	1.75	-71	-14.75	115.25	-38.5	-82
	#4	121	-38.5	-21.5	-25	-65.5	-17	114	-37.5	-83.5
P	#1	101.5	-37.5	-22.25	-24	-68.75	-15.25	114.5	-38.25	-84
A	#7	100.25	-37	-22	-24.25	-71	-15	105	-37	-83.25
S										
S										
3										
R										
D										
	#1	60.75	-40	-21	-24	-74.25	-14	105	-37.5	-83.25
P	#7	59.75	-40.5	-21	-22	-76	-13.75	85.5	-33.5	-82.75
A										
S										
S										
4										
T										
H										
	#7				-23.5	-77.25		59.5	-33.25	
P	#1	18	-39		-23.5	-77				
A										
S										
S										

THE PLATE WAS DAMAGED WHILE TAKING OUT-OF-PLANE DISTORTION READINGS AFTER PANEL #5 WAS HEATED. PANELS #9 AND #4 WERE AFFECTED

APPENDIX X

AFFECT ON D(MAX)IT AND D(MAX)IL OF LINE HEATING EACH PANEL ON THE 3/16" STIFFENED PLATE

There are two types of comparisons made in this appendix:

1. the affect on D(MAX)IT and D(MAX)IL of line heating each of the panels. and
2. the affect on D(MAX) of all other panels when line heating just one panel.

All data in the tables are in thousandths on an inch.

A. 3/16" STIFFENED PLATE. FIRST PASS

PANEL #1

1. The affect on D(MAX)1T and D(MAX)1L of line heating all other panels.

TRANSVERSE			LONGITUDINAL		
-14.5	-13	1	-1.75	-8	0.5
-3.75	8.25	-1	-0.5	6.5	-2.25
1	0	-1	0.25	0.75	-0.5

2. The affect on D(MAX) of all other panels by heating panel #1

TRANSVERSE			LONGITUDINAL		
-14.5	-8	0.5	-1.75	-3.25	3
-3	3	0	-10.3	6	2.75
-1	0	-0.75	-1.5	-1.5	-2

PANEL #2

1. The affect on D(MAX)2T and D(MAX)2L of line heating all other panels.

TRANSVERSE			LONGITUDINAL		
-8	-26	-2	-3.25	-32.3	-0.25
-8.25	33.3	2.5	-7.25	32	7.5
0	-2	0.5	0.25	-2.5	1.75

2. The affect on D(MAX) of all other panels by heating panel #2

TRANSVERSE			LONGITUDINAL		
-13	-26	-9	-8	-32.3	-1
0.75	10.5	2.75	-0.5	6.25	1.5
-0.5	-4	-2	0.5	-4.75	-1

PANEL #3

1. The affect on D(MAX)3T and D(MAX)3L of line heating all other panels.

TRANSVERSE		
0.5	-9	-21.5
-0.5	-3	3.25
-0.5	1.25	0.5

LONGITUDINAL		
3	-1	-14
-1.5	-2	3
-0.5	1	0

2. The affect on D(MAX) of all other panels by heating panel #3

TRANSVERSE		
1	-2	-21.5
1.25	3	-0.75
0.5	0.75	1.75

LONGITUDINAL		
0.5	-0.25	-14
1.75	2.5	-2.25
0.75	1	2

PANEL #4

1. The affect on D(MAX)4T and D(MAX)4L of line heating all other panels.

TRANSVERSE		
-3	0.75	1.25
-102	-12.3	5
-1.75	-0.75	1.5

LONGITUDINAL		
-10.3	-0.5	1.75
-72	-4.5	2.75
1.75	-2.25	1.25

2. The affect on D(MAX) of all other panels by heating panel #4

TRANSVERSE		
-3.75	-8.25	-0.5
-102	3.25	1.75
-1	-5.5	-6

LONGITUDINAL		
-0.5	-7.25	-1.5
-72	14	-0.5
1.5	-4.5	-6.25

PANEL #5

1. The affect on D(MAX)5T and D(MAX)5L of line heating all other panels.

TRANSVERSE		
3	10.5	3
3.25	-29.8	-12
-1.75	11.5	0.75

LONGITUDINAL		
6	6.25	2.5
14	-26	-5
-0.25	8.5	1.5

2. The affect on D(MAX) of all other panels by heating panel #5

TRANSVERSE		
8.25	33.25	-3
-12.3	-29.8	-11.5
3.5	23	3.5

LONGITUDINAL		
6.5	32	-2
-4.5	-26	-6.5
2	23	3.25

PANEL #6

1. The affect on D(MAX)6T and D(MAX)6L of line heating all other panels.

TRANSVERSE		
0	2.75	-0.75
1.75	-11.5	-1.5
-0.75	-6.5	0

LONGITUDINAL		
2.75	1.5	-2.25
-0.5	-6.5	9.5
-0.5	2	-1.25

2. The affect on D(MAX) of all other panels by heating panel #6

TRANSVERSE		
-1	2.5	3.25
5	-12	-1.5
-0.5	2	-5.5

LONGITUDINAL		
-2.25	7.5	3
2.75	-5	9.5
0	6.5	1.5

PANEL #7

1. The affect on D(MAX)7T and D(MAX)7L of line heating all other panels.

TRANSVERSE		
-1	-0.5	0.5
-1	3.5	-0.5
-22	-13	-1.5

LONGITUDINAL		
-1.5	0.5	0.75
1.5	2	0
-15	-10	-0.25

2. The affect on D(MAX) of all other panels by heating panel #7

TRANSVERSE		
1	0	-0.5
-1.75	-1.75	-0.75
-22	-1.75	1

LONGITUDINAL		
0.25	0.25	-0.5
1.75	-0.25	-0.5
-15	1.75	0

PANEL #8

1. The affect on D(MAX)8T and D(MAX)8L of line heating all other panels.

TRANSVERSE		
0	-4	0.75
-5.5	23	2
-1.75	-41.5	-5.25

LONGITUDINAL		
-1.5	-4.75	1
-4.5	23	6.5
1.75	-42.5	-1

2. The affect on D(MAX) of all other panels by heating panel #8

TRANSVERSE		
0	-2	1.25
-0.75	11.5	-6.5
-13	-41.5	1

LONGITUDINAL		
0.75	-2.5	1
-2.25	8.5	2
-10	-42.5	1

PANEL #9

1. The affect on D(MAX)9T and D(MAX)9L of line heating all other panels.

TRANSVERSE		
-0.75	-2	1.75
-6	3.5	-5.5
1	1	-29.8

LONGITUDINAL		
-2	-1	2
-6.25	3.25	1.5
0	1	-22.8

2. The affect on D(MAX) of all other panels by heating panel #9

TRANSVERSE		
-1	0.5	0.5
1.5	0.75	0
-1.5	-5.25	-29.8

LONGITUDINAL		
-0.5	1.75	0
1.25	1.5	-1.25
-0.25	-1	-22.8

B. 3/16" STIFFENED PLATE. SECOND PASS

PANEL #1

1. The affect on D(MAX)1T and D(MAX)1L of line heating all other panels.

TRANSVERSE		
-40.5	-2.5	0.25
N/A	-0.5	0.5
-0.25	-0.5	0

LONGITUDINAL		
-40.5	-1.5	-0.5
N/A	0.5	0.5
-0.75	0	1.25

2. The affect on D(MAX) of all other panels by heating panel #1

TRANSVERSE		
-40.5	-3.5	0.5
-1.25	-0.25	-0.25
0.5	2	0.5

LONGITUDINAL		
-40.5	-3	0.75
-1	0	0
0.5	2	-0.25

PANEL #2

1. The affect on D(MAX)2T and D(MAX)2L of line heating all other panels.

TRANSVERSE		
-3.5	-39.5	3.25
N/A	6	0.5
-0.25	0.5	-0.5

LONGITUDINAL		
-3	-39.5	3
N/A	5.75	0.25
-0.5	0.5	0.5

2. The affect on D(MAX) of all other panels by heating panel #2

TRANSVERSE		
-2.5	-39.5	-5.5
-1.25	-0.25	0.25
1	1.5	0.25

LONGITUDINAL		
-1.5	-39.5	-4
-0.5	0.5	0.5
0.25	-0.5	-0.5

PANEL #3

1. The affect on D(MAX)3T and D(MAX)3L of line heating all other panels.

TRANSVERSE		
0.5	-5.5	-27.5
N/A	-2.5	-0.5
1	0.5	-1

LONGITUDINAL		
0.75	-4	-26.5
N/A	-2.5	-1.5
0.25	-0.25	-0.25

2. The affect on D(MAX) of all other panels by heating panel #3

TRANSVERSE		
-0.25	3.25	-27.5
0.75	0.25	-0.75
-0.5	-1.5	0.5

LONGITUDINAL		
-0.5	3	-26.5
1	0.5	-1.5
0	-1.5	0

PANEL #4

1. The affect on D(M4X)4T and D(M4L) of of line heating all other panels.

TRANSVERSE		
-1.25	-1.25	0.75
N/A	-8	0.25
-0.5	-0.5	0.5

LONGITUDINAL		
-1	-0.5	1
N/A	-5.5	0
-1.5	-1.5	2

2. The affect on D(MAX) of all other panels by heating panel #4

TRANSVERSE		

LONGITUDINAL		

PANEL #5

1. The affect on D(MAX)5T and D(MAX)5L of line heating all other panels.

TRANSVERSE			LONGITUDINAL		
-0.25	-0.25	0.25	0	0.5	0.5
N/A	-18.3	4.75	N/A	-15.8	4.75
1.5	1.25	-1	0.5	0	0

2. The affect on D(MAX) of all other panels by heating panel #5

TRANSVERSE			LONGITUDINAL		
-0.5	6	-2.5	0.5	5.75	-2.5
-8	-18.3	-5.5	-5.5	-15.8	-4
0.5	0.25	0.5	1.75	1.75	1.25

PANEL #6

1. The affect on D(MAX)6T and D(MAX)6L of line heating all other panels.

TRANSVERSE			LONGITUDINAL		
-0.25	0.25	-0.75	0	0.5	-1.5
N/A	-5.5	-25.5	N/A	-4	-23.3
0.75	0.5	-1	0	0	0

2. The affect on D(MAX) of all other panels by heating panel #6

TRANSVERSE			LONGITUDINAL		
0.5	0.5	-0.5	0.5	0.25	-1.5
0.25	4.75	-25.3	0	4.75	-23.3
0	-1.5	0.25	0.25	0.25	-0.5

PANEL #7

1. The affect on D(MAX)7T and D(MAX)7L of line heating all other panels.

TRANSVERSE		
0.5	1	-0.5
N/A	0.5	0
-19.5	0	0

LONGITUDINAL		
0.5	0.25	0
N/A	1.75	0.25
-19.5	0	-1

2. The affect on D(MAX) of all other panels by heating panel #7

TRANSVERSE		
0.25	-0.25	1
-0.5	1.5	0.75
-19.5	0	-0.25

LONGITUDINAL		
-0.75	-0.5	0.25
-1.5	0.5	0
-19.5	0	-0.25

PANEL #8

1. The affect on D(MAX)8T and D(MAX)8L of line heating all other panels.

TRANSVERSE		
2	1.5	-1.5
N/A	2.5	-1.5
0	-24.5	-2.5

LONGITUDINAL		
2	-0.5	-1.5
N/A	1.75	0.25
0	-24	-3.5

2. The affect on D(MAX) of all other panels by heating panel #8

TRANSVERSE		
-0.5	0.5	0.5
-0.5	1.25	0.5
0	-24.5	-2.5

LONGITUDINAL		
0	0.5	-0.25
-1.5	0	0
0	-24	-1.75

PANEL #9

1. The affect on D(MAX)9T and D(MAX)9L of line heating all other panels.

TRANSVERSE			LONGITUDINAL		
0.5	0.25	-0.5	-0.25	-0.5	0
N/A	0.5	0.25	N/A	1.25	-0.5
-0.25	-2.5	-43.3	-0.25	-1.75	-42.6

2. The affect on D(MAX) of all other panels by heating panel #9

TRANSVERSE			LONGITUDINAL		
0	-0.5	-1	1.25	0.5	-0.25
0.5	-0.5	-1	2	0	0
0	-2.5	-43.8	-1	-3.5	-42.6

APPENDIX Y

AFFECT ON D(MAX)iT AND D(MAX)iL OF LINE HEATING EACH PANEL ON THE 1/8" STIFFENED PLATE

There are two types of comparisons made in this appendix:

1. the affect on D(MAX)iT and D(MAX)iL of line heating each of the panels. and
2. the affect on D(MAX) of all other panels when line heating just one panel.

All data in the tables are in thousandths on an inch.

A. 1/8" STIFFENED PLATE. FIRST PASS

PANEL #1

1. The affect on D(MAX)1T and D(MAX)1L of line heating all other panels.

TRANSVERSE		
33	2.5	-2.5
17.5	6	1
0	-0.5	0

LONGITUDINAL		
42	2	-2.75
19.75	6.25	1.25
1	1.25	0.5

2. The affect on D(MAX) of all other panels by heating panel #1

TRANSVERSE		
33	-9.5	-0.5
-5	8.5	-3.5
2	-1	-2.5

LONGITUDINAL		
42	-7.75	-1
-6	8.5	2.25
2.75	-0.5	-2

PANEL #2

1. The affect on D(MAX)2T and D(MAX)2L of line heating all other panels.

TRANSVERSE		
-9.5	9.5	-1.5
0.5	-3.5	-0.5
-0.5	-1	0

LONGITUDINAL		
-7.75	-9.5	-1
0.5	-3	-1
-0.25	0.25	0.5

2. The affect on D(MAX) of all other panels by heating panel #2

TRANSVERSE		
2.5	-9.5	4
0	2.25	1.25
-0.75	0.75	-0.75

LONGITUDINAL		
2	-9.5	3.75
0	1.75	0.25
0.75	0.75	-1.25

PANEL #3

1. The affect on D(MAX)3T and D(MAX)3L of line heating all other panels.

TRANSVERSE			LONGITUDINAL		
-0.5	4	-49	-1	3.75	-46.5
-3	4.5	5.5	-2.25	5	5.75
-0.5	-0.5	1.5	0.25	0	1

2. The affect on D(MAX) of all other panels by heating panel #3

TRANSVERSE			LONGITUDINAL		
-2.5	-1.5	-49	-2.75	-1	-46.5
-0.75	3.75	-2.5	-0.25	4.25	-2.5
-1	0	-0.5	-1.25	-0.5	-0.25

PANEL #4

1. The affect on D(MAX)4T and D(MAX)4L of line heating all other panels.

TRANSVERSE			LONGITUDINAL		
-5	0	-0.75	-6	0	-0.25
-3.5	-10.3	-0.5	0.25	-8.5	0.25
1.75	0.5	-0.25	0.25	-0.25	-0.5

2. The affect on D(MAX) of all other panels by heating panel #4

TRANSVERSE			LONGITUDINAL		
18.5	0.5	-3	19.75	0.5	-2.25
-3.5	0.5	-1	0.25	1.5	0.5
2	0	1	1.25	-0.5	1

PANEL #5

1. The affect on D(MAX)ST and D(MAX)SL of line heating all other panels.

TRANSVERSE		
8.5	2.25	3.75
0.5	-45.3	1.5
7	-0.25	4.75

LONGITUDINAL		
8.5	1.75	4.25
1.5	-43	2.25
7.75	0.25	5.25

2. The affect on D(MAX) of all other panels by heating panel #5

TRANSVERSE		
6	-3.5	4.5
-10.3	-45.3	-14.5
8.5	-1	4

LONGITUDINAL		
6.25	-3	5
-8.5	-43	-12.5
9	-1.5	4

PANEL #6

1. The affect on D(M6X)6T and D(M6L) of of line heating all other panels.

TRANSVERSE		
-3.5	1.25	-2.5
-1	-14.5	1
2	-0.75	-5

LONGITUDINAL		
2.25	0.25	-2.5
0.5	-12.5	3
-5	-0.5	-5.5

2. The affect on D(MAX) of all other panels by heating panel #6

TRANSVERSE		
1	-0.5	5.5
-0.5	1.5	1
0.5	-1	1.5

LONGITUDINAL		
1.25	1	5.75
0.25	2.25	3
-0.25	-0.25	3

PANEL #7

. The affect on D(MAX)7T and D(MAX)7L of line heating all other panels.

TRANSVERSE			LONGITUDINAL		
2	-0.75	-1	2.75	0.75	-1.25
2	8.5	0.5	1.25	9	-0.25
33	-6.25	-1	39.25	-6.25	0

. The affect on D(MAX) of all other panels by heating panel #7

TRANSVERSE			LONGITUDINAL		
1	-0.5	-0.5	1	-0.25	0.25
1.75	7	2	0.25	7.75	-5
33	-13.5	3.5	39.25	-11	2.75

PANEL #8

. The affect on D(MAX)8T and D(MAX)8L of line heating all other panels.

TRANSVERSE			LONGITUDINAL		
-1	0.75	0	-0.5	0.75	-0.5
0	-1	-1	-0.5	-1.5	-0.25
-13.5	-27.8	-6	-11	-27.5	-4.5

. The affect on D(MAX) of all other panels by heating panel #8

TRANSVERSE			LONGITUDINAL		
-0.5	-1	-0.5	1.25	0.25	0
0.5	-0.25	-0.75	-0.25	0.25	-0.5
-6.25	-27.8	-0.75	-6.25	-27.5	-0.75

PANEL #9

1. The affect on D(MAX)9T and D(MAX)9L of line heating all other panels.

TRANSVERSE		
-2.5	-0.75	-0.5
1	4	1.5
3.5	-0.75	-15

LONGITUDINAL		
-2	-1.25	-2.5
1	4	3
2.75	-0.75	-11.3

2. The affect on D(MAX) of all other panels by heating panel #9

TRANSVERSE		
0	0	1.5
-0.25	4.75	-5
-1	-6	-15

LONGITUDINAL		
0.5	0.5	1
-0.5	5.25	-5.5
0	-4.5	-11.3

B. 1/8" STIFFENED PLATE. SECOND PASS

PANEL #1

1. The affect on D(MAX)1T and D(MAX)1L of line heating panels #5, #4, #1, and #7 a second pass.

TRANSVERSE		
-21.3		
-1.5	3.25	
0		

LONGITUDINAL		
-19.5		
-1.5	2.5	
-1.25		

2. The affect on D(MAX) of all other panels by heating panel #1

TRANSVERSE		
-21.3	0	0
0.75	-3.5	1.75
1	-0.75	-0.75

LONGITUDINAL		
-19.5	1	-0.75
1	-3.25	1.75
0.5	-0.75	-0.5

PANEL #2

1. The affect on D(MAX)2T and D(MAX)2L of line heating panels #5, #4, #1, and #7 a second pass.

TRANSVERSE		
0		
-1.5	-1	
1		

LONGITUDINAL		
1		
-1.5	-1.75	
0.5		

PANEL #3

1. The affect on D(MAX)3T and D(MAX)3L of line heating panels #5, #4, #1, and #7 a second pass.

TRANSVERSE		
0		
1.5	-5	
-0.25		

LONGITUDINAL		
-0.75		
1.25	-4.75	
0.25		

PANEL #4

1. The affect on D(MAX)4T and D(MAX)4L of line heating panels #5, #4, #1, and #7 a second pass.

TRANSVERSE		
0.75		
-27.8	1.25	
0		

LONGITUDINAL		
1		
-26.8	2	
-0.25		

2. The affect on D(MAX) of all other panels by heating panel #4

TRANSVERSE		
-1.5	-1.5	1.5
-27.8	5.5	-1.25
-1.25	1.25	-0.25

LONGITUDINAL		
-1.5	-1.5	1.25
-26.8	5.5	-2.25
-1.25	1	-1.5

PANEL #5

1. The affect on D(MAX)5T and D(MAX)5L of line heating panels #5, #4, #1, and #7 a second pass.

TRANSVERSE		
-4.5		
5.5	-105	
-2.5		

LONGITUDINAL		
-3.25		
5.5	-105	
-2.25		

2. The affect on D(MAX) of all other panels by heating panel #5

TRANSVERSE		
3.25	-1	-5
1.25	-105	-7.5
2.25	16	-114

LONGITUDINAL		
2.5	-1.75	-4.75
2	-105	-7.25
1.5	15.5	-114

PANEL #6

1. The affect on D(MAX)6T and D(MAX)6L of line heating panels #5, #4, #1, and #7 a second pass.

TRANSVERSE			LONGITUDINAL		
1.75			1.75		
-1.25	-7.5		-2.25	-7.25	
-0.5			0.25		

PANEL #7

1. The affect on D(MAX)7T and D(MAX)7L of line heating panels #5, #4, #1, and #7 a second pass.

TRANSVERSE			LONGITUDINAL		
1			0.5		
-1.25	2.25		-1.25	1.5	
-10			-9.5		

2. The affect on D(MAX) of all other panels by heating panel #7

TRANSVERSE			LONGITUDINAL		
0	1	-0.25	-1.25	0.5	0.25
0	-2.5	-0.5	-0.25	-2.25	0.25
-10	0.5	0	-9.5	1.25	0.75

PANEL #8

1. The affect on D(MAX)8T and D(MAX)8L of line heating panels #5, #4, #1, and #7 a second pass.

TRANSVERSE			LONGITUDINAL		
-0.75			-0.75		
1.25	16		1	15.5	
0.5			1.25		

PANEL #9

1. The affect on D(MAX)9T and D(MAX)9L of line heating panels #5, #4, #1, and #7 a second pass.

TRANSVERSE		
-0.75		
-0.25	-114	
0		

LONGITUDINAL		
-0.5		
-1.5	114	
0.75		

C. 1/8" STIFFENED PLATE. THIRD PASS

PANEL #1

2. The affect on D(MAX) of all other panels by heating panel #1

TRANSVERSE			LONGITUDINAL		
-40.7	-3.5	0.75	-39.5	-3	1
0	-3	1.75	0.25	-3.25	1
-0.25	-0.25	0.5	0	-0.5	0

PANEL #7

2. The affect on D(MAX) of all other panels by heating panel #7

TRANSVERSE			LONGITUDINAL		
-25	0	0.5	-1	-0.5	0
1.5	-2.5	-0.5	2	-1.75	0.25
-20.3	2.75	-0.5	-19.5	4	0.5

D. 1/8" STIFFENED PLATE. FOURTH PASS

PANEL #7

2. The affect on D(MAX) of panels #4, #5, #7, and #8 by heating panel #7.

TRANSVERSE			LONGITUDINAL		
-0.5	-1		-1.5	-1.25	
-25.8	1.25		-26	0.25	

PANEL #1

2. The affect on D(MAX) of panels #1, #2, #4, and #5 by heating panel #1.

TRANSVERSE			LONGITUDINAL		
-43	0		-41.8	1.5	
-0.25	-0.5		0	0.25	

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