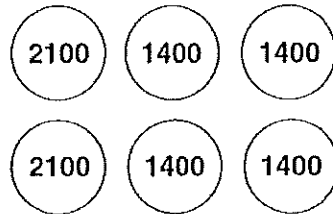
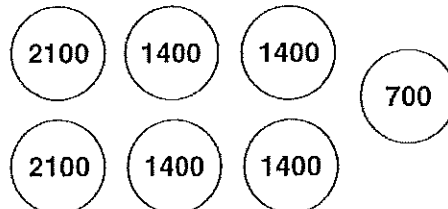


Arrays Based on English Units

DESIGN VELOCITY 25 mph (40 km/h)							
ROW	SAND MASS (lbs)	1800 lb vehicle			4500 lb vehicle		
		EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)
0		25.0			25.0		
1	2800	9.8	5.9	0.12	15.4	4.3	0.10
2	2800	3.8	.9	0.30	9.5	1.6	0.16
3	4200	1.1	.1	0.82	4.9	.7	0.28

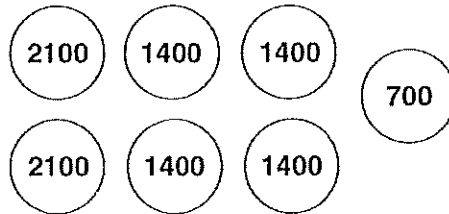


DESIGN VELOCITY 30 mph (48 km/h)							
ROW	SAND MASS (lbs)	1800 lb vehicle			4500 lb vehicle		
		EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)
0		30.0			30.0		
1	700	21.6	4.8	0.08	26.0	2.5	0.07
2	2800	8.5	4.4	0.14	16.0	4.7	0.10
3	2800	3.3	.7	0.35	9.9	1.8	0.16
4	4200	1.0	.1	0.95	5.1	.8	0.27

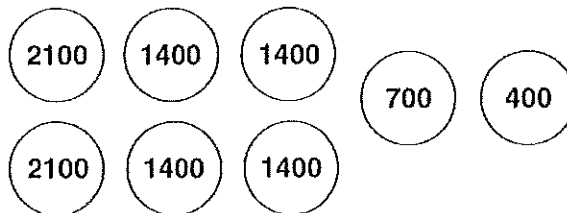


Arrays Based on English Units (cont.)

DESIGN VELOCITY 35 mph (56 km/h)							
ROW	SAND MASS (lbs)	1800 lb vehicle			4500 lb vehicle		
		EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)
0		35.0			35.0		
1	700	25.2	6.6	0.07	30.3	3.4	0.06
2	2800	9.9	6.0	0.12	18.7	6.3	0.08
3	2800	3.9	.9	0.30	11.5	2.4	0.14
4	4200	1.2	.2	0.82	6.0	1.1	0.23

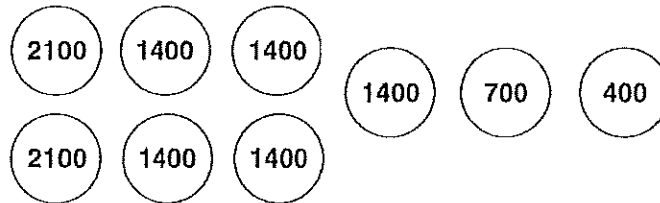


DESIGN VELOCITY 40 mph (64 km/h)							
ROW	SAND MASS (lbs)	1800 lb vehicle			4500 lb vehicle		
		EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)
0		40.0			40.0		
1	400	32.7	5.9	0.06	36.8	2.8	0.05
2	700	23.6	5.7	0.07	31.8	3.8	0.06
3	2800	9.2	5.2	0.12	19.6	7.0	0.08
4	2800	3.6	.8	0.32	12.1	2.7	0.13
5	4200	1.1	.1	0.87	6.2	1.2	0.22

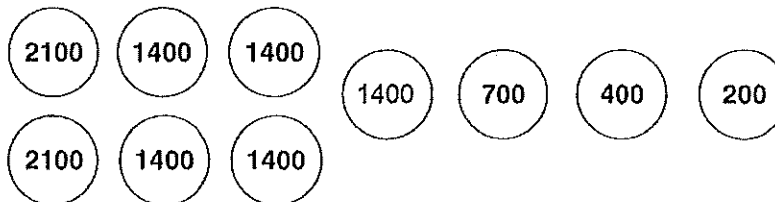


Arrays Based on English Units (cont.)

DESIGN VELOCITY 45 mph (72 km/h)							
ROW	1800 lb vehicle				4500 lb vehicle		
	SAND MASS (lbs)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)
0		45.0			45.0		
1	400	36.8	7.5	0.05	41.3	3.5	0.05
2	700	26.5	7.3	0.06	35.8	4.8	0.05
3	1400	14.9	5.4	0.10	27.3	6.0	0.06
4	2800	5.8	2.1	0.20	16.8	5.1	0.09
5	2800	2.3	.3	0.50	10.4	2.0	0.15
6	4200	.7	.1	1.38	5.4	.9	0.26

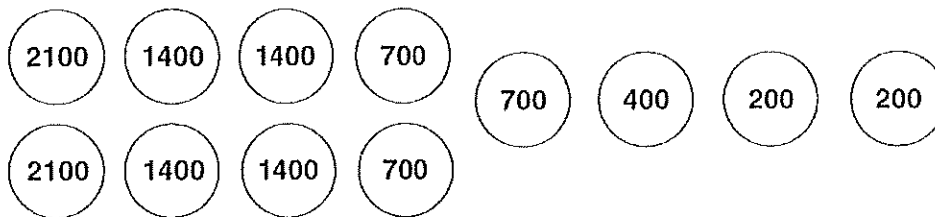


DESIGN VELOCITY 50 mph (80 km/h)							
ROW	1800 lb vehicle				4500 lb vehicle		
	SAND MASS (lbs)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)
0		50.0			50.0		
1	200	45.0	5.3	0.04	47.9	2.3	0.04
2	400	36.8	7.5	0.05	44.0	4.0	0.04
3	700	26.5	7.3	0.06	38.1	5.4	0.05
4	1400	14.9	5.4	0.10	29.0	6.7	0.06
5	2800	5.8	2.1	0.20	17.9	5.8	0.09
6	2800	2.3	.3	0.50	11.0	2.2	0.14
7	4200	.7	.1	1.38	5.7	1.0	0.24



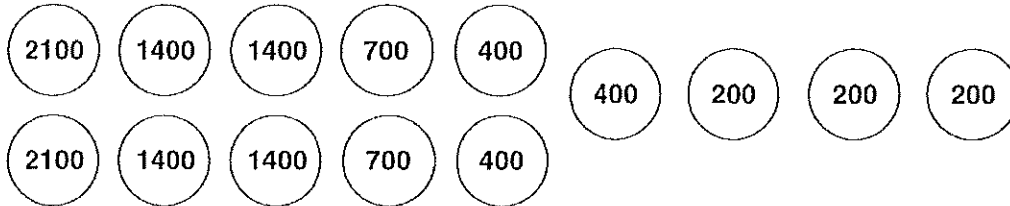
Arrays Based on English Units (cont.)

DESIGN VELOCITY 55 mph (88 km/h)							
ROW	SAND MASS (lbs)	1800 lb vehicle			4500 lb vehicle		
		EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)
0		55.0			55.0		
1	200	49.5	6.4	0.04	52.7	2.8	0.04
2	200	44.6	5.2	0.04	50.4	2.6	0.04
3	400	36.5	7.3	0.05	46.3	4.4	0.04
4	700	26.2	7.1	0.07	40.1	6.0	0.05
5	1400	14.8	5.2	0.10	30.6	7.5	0.06
6	2800	5.8	2.1	0.20	18.8	6.5	0.08
7	2800	2.3	.3	0.51	11.6	2.5	0.13
8	4200	.7	.1	1.39	6.0	1.1	0.23



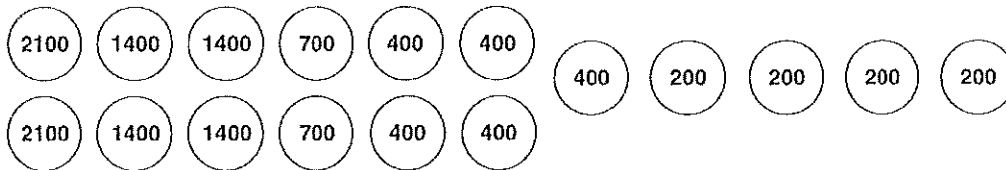
Arrays Based on English Units (cont.)

DESIGN VELOCITY 60 mph (96 km/h)							
ROW	1800 lb vehicle				4500 lb vehicle		
	SAND MASS (lbs)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)
0		60.0			60.0		
1	200	54.0	7.6	0.04	57.5	3.3	0.03
2	200	48.6	6.2	0.04	55.0	3.1	0.04
3	200	43.7	5.0	0.04	52.7	2.8	0.04
4	400	35.8	7.0	0.05	48.4	4.8	0.04
5	800	24.8	7.4	0.07	41.1	7.3	0.05
6	1400	13.9	4.7	0.11	31.3	7.9	0.06
7	2800	5.5	1.8	0.21	19.3	6.8	0.08
8	2800	2.1	.3	0.54	11.9	2.6	0.13
9	4200	.6	.0	1.47	6.2	1.2	0.23



Arrays Based on English Units (cont.)

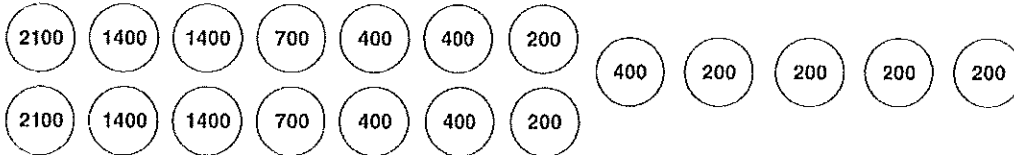
DESIGN VELOCITY 65 mph (104 km/h)*							
ROW	1800 lb vehicle				4500 lb vehicle		
	SAND MASS (lbs)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)
0		65.0			65.0		
1	200	58.5	8.9	0.03	62.2	3.9	0.03
2	200	52.7	7.2	0.04	59.6	3.6	0.03
3	200	47.4	5.9	0.04	57.1	3.3	0.04
4	200	42.6	4.8	0.05	54.6	3.0	0.04
5	400	34.9	6.7	0.05	50.2	5.2	0.04
6	800	24.2	7.1	0.07	42.6	7.8	0.04
7	800	16.7	3.4	0.10	36.2	5.6	0.05
8	1400	9.4	2.1	0.16	27.6	6.1	0.06
9	2800	3.7	.8	0.31	17.0	5.3	0.09
10	2800	1.4	.1	0.80	10.5	2.0	0.15
11	4200	.4	.0	2.18	5.4	.9	0.26



A 104 km/h (65 mph) design speed exceeds NCHRP Report 350, Test Level 3 impact conditions. Typical impacts into this array may not result in acceptable crash performance as described in NCHRP Report 350 relative to structural adequacy, occupant risk, and vehicle trajectory and should not be permitted.

Arrays Based on English Units (cont.)

DESIGN VELOCITY 70 mph (113 km/h)*							
ROW	1800 lb vehicle				4500 lb vehicle		
	SAND MASS (lbs)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)	EXIT VEL (mph)	AVE G'S FOR ROW	IMPULSE TIME (sec)
0		70.0			70.0		
1	200	63.0	10.4	0.03	67.1	4.5	0.03
2	200	56.7	8.4	0.03	64.2	4.2	0.03
3	200	51.1	6.8	0.04	61.5	3.8	0.03
4	200	45.9	5.5	0.04	58.9	3.5	0.03
5	400	37.6	7.8	0.05	54.0	6.0	0.04
6	400	30.8	5.2	0.06	49.6	5.1	0.04
7	800	21.3	5.5	0.08	42.1	7.7	0.04
8	800	14.7	2.6	0.11	35.8	5.5	0.05
9	1400	8.3	1.7	0.18	27.3	6.0	0.06
10	2800	3.2	.6	0.35	16.8	5.1	0.09
11	2800	1.3	.1	0.91	10.4	2.0	0.15
12	4200	.4	.0	2.48	5.4	.9	0.26



A 113 km/h (70 mph) design speed exceeds NCHRP Report 350, Test Level 3 impact conditions. Typical impacts into this array may not result in acceptable crash performance as described in NCHRP Report 350 relative to structural adequacy, occupant risk, and vehicle trajectory and should not be permitted.