

## Appendix B

# M2 .50 Cal Firing Tables

Table I

### Angles of Elevation, Dimension of Cone and Beaten Zone, Angles of Fall, Time of Flight, and Drift—How to Use

The angle of elevation required to engage a target on flat or uniformly sloping ground is listed for the indicated ranges.

The change in elevation and range for each 100 meters in range has been calculated to permit subsequent changes in the quadrant elevation without recalculation.

The time of flight, maximum ordinate, angle of fall, remaining velocity and drift are listed to assist in determining effect on target.

For ranges not in even hundreds and for ranges not tabulated, the desired information must be determined by interpolation.

Example: The range to the target is 1,000 meters. The angle of elevation is 10.1 mils. The change in elevation between 900 meters and 1,000 meters is 1.5 mils. At 1,000 meters, the change of elevation of 1 mil will change the range 66 meters. The time of flight is 1.6 seconds and the maximum ordinate is 3 meters. The angle of fall is 15 mils, the remaining velocity is 482 meters per second, and the drift is 0.2 mils right.

Table 1

### Angles of Elevation, Dimension of Cone and Beaten Zone, Angles of Fall, Time of Flight, and Drift

FT.50-H-2

Muzzle Velocity, 853.4 M/S

3  
Cartridge, AP, M2  
Cartridge, Ball, M2

Range	Elev	Elev	Range	Time of Flight	Maximum Ordnate	Angel of Fall	Remaining Velocity	Drift
		Change in for 100M Change in Range						
			1 Mil Elev					
Meters	Mils	Mils	Meters	Sec	Meters	Mils	M/S	Mils
0	0.0	0.7	150	0.0	0	0	853	0.0
100	0.7	0.7	140	0.1	0	1	813	0.0
200	1.5	0.8	130	0.2	0	1	772	0.0
300	2.3	0.8	121	0.4	0	3	733	0.0
400	3.1	0.9	112	0.5	0	4	694	0.1
500	4.1	1.0	103	0.7	1	5	656	0.1
600	5.1	1.2	95	0.8	1	6	618	0.1
700	6.2	1.2	87	1.0	1	8	582	0.1
800	7.4	1.3	79	1.2	2	10	547	0.1
900	8.7	1.4	72	1.4	2	12	514	0.2
1000	10.1	1.5	66	1.6	3	15	482	0.2
1100	11.7	1.6	60	1.8	4	18	452	0.2
1200	13.4	1.8	55	2.0	5	21	424	0.2
1300	15.2	2.0	50	2.2	6	25	398	0.3
1400	17.3	2.2	46	2.5	8	30	374	0.3
1500	19.5	2.4	42	2.8	10	35	353	0.3
1600	22.0	2.6	39	3.1	12	41	335	0.4
1700	24.7	2.8	36	3.4	14	48	323	0.4
1800	27.7	3.0	33	3.7	17	15	313	0.4
1900	30.8	3.2	31	4.0	21	62	304	0.5
2000	34.2	3.5	29	4.3	25	70	297	0.5
2100	37.8	3.7	27	4.7	29	78	290	0.6
2200	41.6	4.0	25	5.0	34	86	284	0.7
2300	45.7	4.2	24	5.4	39	95	278	0.7
2400	49.9	4.4	23	5.8	45	104	272	0.8
2500	54.4	4.6	22	6.1	51	113	267	0.8
2600	59.0	4.8	21	6.5	58	123	262	0.9
2700	63.9	5.0	20	6.9	66	133	257	0.9
2800	68.9	5.2	19	7.3	74	143	252	1.0
2900	74.2	5.4	18	7.7	83	154	247	1.1
3000	79.7	5.6	18	8.1	92	166	242	1.2
3100	85.4	5.8	17	8.6	102	178	237	1.3
3200	91.3	6.0	17	9.0	113	190	233	1.4
3300	97.4	6.2	16	9.4	124	203	229	1.5
3400	103.8	6.4	16	9.9	137	216	224	1.6
3500	110.4	6.7	15	10.3	150	230	220	1.7

Table II

**Overhead Fire—How to Use**

*Troop distance* in column 1 is the distance in meters from the gun to the friendly troops over whose heads it is desired to fire.

The quadrant elevation required to strike the ground upon which the troops stand, plus a definite angle of safety given the *minimum quadrant elevation* which can be fired, without danger, over the troops.

The safety angle varies with the range. The minimum quadrant elevation which can be fired with safety over the heads of friendly troops comprises the following factors:

- Safety angle (corresponding to troop distance).
- Angle of elevation (corresponding to troop distance).
- Angle of site.

The safety angle plus the angle of elevation constitutes the *minimum angle of elevation* which can be fired over the heads of troops at the given troop distance. Minimum angles of elevation are listed in column 2.

*Corresponding range* in column 3 is the minimum range expressed in graduation on the rear sight that will give the required clearance. Both the exact and even figures to the nearest 25 meters above are given. When troops to be fired over are visible, the safety angle can be measured by setting the corresponding range (even figures should be used).

Example: Friendly troops are visible and at a distance of 700 meters from the gun. The gun is laid to hit the target. Without disturbing the lay, ensure the rear sight is set at 1,580 meters. In order to ensure that it is safe to fire, the line of aim must clear the troops.

**Table II**  
**Overhead Fire**

1		2		3	
Troop Distance		Minimum Angle of Elevation		Corresponding Range	
				Exact Figure	Even Figure (To Nearest 10 Meters)
Meters	Mils	(Exact Figure)	Mils	Meters	Meters
100	77	(76.68)		2944	2950
200	41	(40.39)	36	2165	2170
300	33	(32.40)	8	1946	1950
400	24	(24.00)	9	1671	1680
500	22	(21.74)	2	1586	1590
600	22	(21.10)	0	1562	1570
700	22	(21.56)	0	1579	1580
800	23	(22.70)	1	1625	1630
900	25	(24.26)	2	1681	1690
1000	26	(26.00)	1	1743	1750
1100	29	(28.16)	3	1814	1820
1200	31	(30.48)	2	1887	1890
1300	33	(33.04)	2	1964	1970
1400	36	(35.84)	3	2044	2050
1500	39	(38.87)	3	2127	2130
1600	43	(42.19)	4	2314	2320
1700	46	(45.87)	3	2304	2310
1800	50	(49.90)	4	2400	2400
1900	55	(54.29)	5	2495	2500
2000	59	(58.95)	4	2595	2600
2100	64	(63.94)	5	2701	2710
2200	70	(69.31)	4	2808	2810
2300	75	(75.02)	5	2915	2920
2400	81	(81.00)	6	3022	3030
2500	88	(87.31)	7	3132	3140
2600	94	(93.90)	6	3274	3280
2700	101	(100.80)	7	3387	3390
2800	108	(108.00)	7	3500	3500
2900	116	(115.50)	8	3615	3620
3000	124	(123.40)	8	3730	3730
3100	132	(131.70)	8	3845	3850
3200	141	(140.30)	9	3960	3960
3300	150	(149.30)	9	4076	4080
3400	159	(158.80)	9	4192	4200
3500	169	(168.80)	10	4308	4410

**Table II**  
**Overhead Fire (Continued)**

1		2		3	
Troop Distance		Minimum Angle of Elevation		Corresponding Range	
				Exact Figure	Even Figure (To Nearest 10 Meters)
Meters	Mils	(Exact Figure)	Mils	Meters	Meters
3600	180	(179.40)	11	4424	4430
3700	191	(190.50)	11	4540	4540
3800	202	(202.00)	11	4656	4670
3900	214	(213.90)	12	4772	4780
4000	227	(226.40)	13	4888	4890
4100	240	(239.40)	13	5005	5010
4200	253	(253.00)	13	5122	5130
4300	268	(267.50)	15	5238	5240
4400	284	(283.10)	16	5353	5360
4500	300	(299.40)	16	5469	5470
4600	317	(316.90)	17	5585	5590
4700	336	(335.70)	19	5702	5710
4800	356	(355.80)	20	5818	5820
4900	378	(377.70)	22	5933	5940
5000	402	(401.80)	24	6047	6050
5100	429	(428.40)	27	6161	6170
5200	459	(458.40)	30	6276	6280
5300	494	(493.50)	35	6391	6400
5400	540	(539.60)	46	6505	6510

Table III

Mask Clearance—How to Use

*Mask distance* in column 1 is the distance in meters from the gun to the highest point of the mask. The minimum quadrant elevation which will clear a mask is such that the lowest shot in the cone will just graze the highest point on the mask. Such a quadrant elevation comprises the following factors:

- Angle of clearance (corresponding to mask distance).
- Angle of elevation (corresponding to mask distance).
- Angle of site to mask.

The angle of clearance is based on the lower one-half of the vertical dimension of the cone. The angle of clearance plus the angle of elevation constitute the *minimum angle of elevation* which will afford clearance at any given mask distance.

*Minimum angles of elevation* are listed in column 2. If the quadrant elevation to the target equals or exceeds the minimum quadrant elevation, clearance exists.

*Corresponding range* in column 3 is the mil angle of required mask clearance expressed in graduations on the rear sight. When the mask is visible, the required mask clearance can be measured by setting the corresponding range on the rear sight.

Example: The mask is visible and is at a distance of 700 meters from the gun. The gun is laid to hit the target; without disturbing the lay, the rear sight is set at 890. If the *line of aim* clears the mask, it is practicable to fire.

**Table III**  
**Mask Clearance**

1		2		3	
Mask Distance		Minimum Angle of Elevation		Difference Corresponding Range Round UP	
Meters	Exact Figure	Mils	Mils	Meters	Meters
100	3.0	0		388	390
200	3.6	4	4	450	450
300	4.4	5	1	530	530
400	5.3	6	1	618	620
500	6.3	7	1	708	710
600	7.4	8	1	800	800
700	8.5	9	1	885	890
800	9.7	10	1	971	980
900	11.0	11	1	1057	1060
1000	12.4	13	2	1141	1150
1100	13.9	14	1	1228	1230
1200	15.6	16	2	1319	1320
1300	17.5	18	2	1409	1410
1400	19.5	20	2	1500	1500
1500	21.6	22	2	1584	1590
1600	24.0	24	2	1674	1680
1700	26.7	27	3	1767	1770
1800	29.6	30	3	1861	1870
1900	32.8	33	3	1959	1960
2000	36.1	37	4	2052	2060
2100	39.7	40	3	2150	2150
2200	43.5	44	4	2246	2250
2300	47.6	48	4	2345	2350
2400	51.9	52	4	2444	2450
2500	56.5	57	5	2547	2550
2600	61.2	62	5	2668	2670
2700	66.1	67	5	2768	2770
2800	71.1	72	5	2868	2870
2900	76.4	77	5	2968	2970
3000	81.9	82	5	3069	3070
3100	87.7	88	6	3171	3180
3200	93.6	94	6	3273	3280
3300	99.7	100	6	3376	3380
3400	106.2	107	7	3478	3480
3500	113.0	114	7	3580	3580

**Table III**  
**Mask Clearance (Continued)**

1		2		3	
Mask Distance		Minimum Angle of Elevation		Difference	
				Corresponding Range	
				Round UP	
Meters	Exact Figure	Mils	Mils	Meters	Meters
3600	120.0	120	6	3682	3690
3700	127.3	128	8	3784	3790
3800	135.0	135	7	3886	3890
3900	142.8	143	8	3988	3990
4000	151.1	152	9	4089	4090
4100	159.5	160	8	4190	4190
4200	168.2	169	9	4291	4300
4300	177.2	178	9	4392	4400
4400	186.4	187	9	4493	4500
4500	195.9	196	9	4594	4600
4600	205.7	206	10	4695	4700
4700	216.1	217	11	4796	4800
4800	226.9	227	10	4897	4900
4900	238.3	239	12	4998	5000
5000	250.2	251	12	5098	5100
5100	262.5	263	12	5198	5200
5200	275.3	276	13	5297	5300
5300	288.7	289	13	5396	5400
5400	302.8	303	14	5494	5500
5500	317.8	318	15	5592	5600
5600	333.6	334	16	5690	5700
5700	350.3	351	17	5788	5790
5800	368.1	369	18	5884	5890
5900	387.2	388	19	5980	5980
6000	407.7	408	20	6076	6080
6100	430.0	430	22	6171	6180
6200	454.7	455	25	6265	6270
6300	482.7	483	28	6359	6360
6400	514.9	515	32	6452	6460



**Table IVa****Target Above Gun—How to Use**

This table combines the angle of sight with the angle of elevation when the target is above the gun and gives directly the quadrant elevation in mils. For ranges not in even hundreds, and for VI's not tabulated, the elevation must be determined by interpolation.

Example: The range to the target is 1200 meters. The VI is +30 meters. In the column headed 1200, look opposite the number 30 in the column headed VI. The quadrant elevation is 39.0 mils.

Table IVa

### Quadrant Elevation in Mils, Knowing Range, and Vertical Interval in Meters—Target Above Gun

VI in Meters	Horizontal Distance From the Gun in Meters																								
	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
5	52	27	19	16	14	14	13	14	14	15	16	18	19	21	23	25	28	30	33	37	40	44	48	52	56
10	102	52	36	29	24	22	21	20	20	20	21	22	23	25	26	28	31	33	36	39	43	46	50	54	58
15	152	78	53	41	35	31	28	26	26	25	25	26	27	28	30	32	34	36	39	42	45	49	52	56	60
20	202	103	70	54	45	39	35	33	31	30	30	30	31	32	33	35	37	39	41	44	47	51	54	58	62
25	250	128	87	67	55	47	43	39	37	36	35	35	35	35	36	38	40	42	44	47	50	53	57	60	64
30	298	153	104	79	65	56	50	46	43	41	39	39	39	39	40	41	43	45	47	49	52	55	59	63	67
35	344	178	121	92	75	64	57	52	48	46	44	43	43	43	43	44	46	47	50	52	55	58	61	65	69
40	388	202	137	105	85	73	64	58	54	51	49	47	47	46	47	47	49	50	52	55	57	60	63	67	71
45	431	227	154	117	95	81	72	65	60	56	53	51	50	50	50	51	52	53	55	57	60	62	66	69	73
50	473	251	170	130	106	90	79	71	65	61	58	56	54	54	53	54	55	56	58	60	62	65	68	71	75
55	513	275	187	142	116	98	86	77	71	66	63	60	58	57	57	57	58	59	60	62	64	67	70	73	77
60	551	298	203	155	126	107	93	84	76	71	67	64	62	61	60	60	61	62	63	65	67	69	72	75	79
65	588	321	220	167	136	115	100	90	82	76	72	68	66	65	64	63	64	64	66	67	69	72	74	77	81
70	623	344	236	180	146	123	108	96	88	81	76	73	70	68	67	67	67	67	68	70	72	74	77	80	83
75	656	367	252	192	156	132	115	103	93	86	81	77	74	72	70	70	70	70	71	72	74	76	79	82	85
80	688	389	268	204	166	140	122	109	99	91	86	81	78	75	74	73	73	73	74	75	77	79	81	84	87
85	718	411	283	216	176	148	129	115	105	96	90	85	82	79	77	76	76	76	76	77	79	81	83	86	90
90	747	432	299	229	185	157	136	121	110	102	95	90	86	83	81	79	79	79	79	80	81	83	85	88	91
95	775	453	315	241	195	165	144	128	116	107	99	94	90	86	84	82	82	81	82	83	84	86	88	90	93
100	801	474	330	253	205	173	151	134	121	112	104	98	93	90	87	86	85	84	84	85	86	88	90	92	95

**Table IVb****Target Below Gun—How to Use**

This table combines the angle of site with the angle of elevation when the target is below the gun and gives directly the quadrant elevation in mils. For ranges not in even hundreds, and for VI's that are not tabulated, the elevation must be determined by interpolation.

Example: The range to the target is 1200 meters. The VI is -30 meters (target below gun). In the column headed 1200, look opposite the number 30 in the column headed VI. The quadrant elevation is -12.0 mils.

Table IVb

### Quadrant Elevation in Mills, Knowing Range, and Vertical Interval in Meters—Target Below Gun

VI in Meters	Horizontal Distance From the Gun in Meters																								
	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
5	-50	-24	-15	-10	-6	-3	-1	+1	3	5	7	9	11	14	16	19	22	25	28	32	35	39	43	48	52
10	-101	-49	-32	-22	-16	-12	-8	-5	-3	0	+2	5	7	10	13	16	19	22	25	29	33	37	41	46	50
15	-151	-75	-49	-35	-26	-20	-16	-12	-8	-5	-2	+1	3	6	9	12	16	19	23	27	31	35	39	43	48
20	-200	-100	-65	-48	-37	-29	-23	-18	-14	-10	-7	-4	0	+3	6	9	13	16	20	24	28	32	37	41	46
25	-249	-125	-82	-60	-47	-37	-30	-24	-20	-15	-11	-8	-4	-1	+3	6	10	13	17	21	26	30	35	39	44
30	-296	-150	-99	-73	-57	-46	-37	-31	-25	-20	-16	-12	-8	-4	-1	+3	7	11	15	19	23	28	32	37	42
35	-342	-175	-116	-86	-67	-54	-45	-37	-31	-25	-21	-16	-12	-8	-4	0	+4	8	12	16	21	25	30	35	40
40	-387	-200	-133	-98	-77	-63	-52	-43	-36	-31	-25	-21	-16	-12	-8	-3	+1	5	9	14	18	23	28	33	38
45	-430	-224	-149	-111	-87	-71	-59	-50	-42	-36	-30	-25	-20	-15	-11	-7	-2	+2	7	11	16	21	26	31	36
50	-472	-248	-166	-123	-97	-80	-66	-56	-48	-41	-35	-29	-24	-19	-14	-10	-5	-1	+4	9	14	18	24	29	34
55	-511	-272	-182	-136	-107	-88	-74	-62	-53	-46	-39	-33	-28	-23	-18	-13	-8	-3	+1	6	11	16	21	27	32
60	-550	-295	-199	-148	-118	-96	-81	-69	-59	-51	-44	-37	-32	-26	-21	-16	-11	-6	-1	+4	9	14	19	24	30
65	-586	-319	-215	-161	-128	-105	-88	-75	-65	-56	-48	-42	-36	-30	-24	-19	-14	-9	-4	+1	6	12	17	22	28
70	-621	-341	-231	-173	-138	-113	-95	-81	-70	-61	-53	-46	-39	-34	-28	-22	-17	-12	-7	-1	+4	9	15	20	26
75	-655	-364	-247	-186	-148	-122	-102	-88	-76	-66	-58	-50	-43	-37	-31	-26	-20	-15	-9	-4	+1	7	12	18	24
80	-687	-386	-263	-198	-157	-130	-110	-94	-82	-71	-62	-54	-47	-41	-35	-29	-23	-17	-12	-6	-1	+5	10	16	22
85	-717	-408	-279	-210	-167	-138	-117	-100	-87	-76	-67	-59	-51	-44	-38	-32	-26	-20	-15	-10	-3	+2	8	14	20
90	-746	-429	-295	-222	-177	-146	-124	-107	-93	-81	-71	-63	-55	-48	-41	-35	-29	-23	-17	-11	-6	0	+6	12	18
95	-773	-450	-310	-234	-187	-155	-131	-113	-98	-86	-76	-67	-59	-52	-45	-38	-32	-26	-20	-14	-8	-2	+4	10	16
100	-799	-471	-325	-246	-197	-163	-138	-119	-104	-91	-81	-71	-63	-55	-48	-41	-35	-29	-23	-17	-11	-5	+1	7	14

**Table V****Ordinates—How to Use**

The figures indicate the height in meters of the center of the cone above the line of site at any distance from the gun. The negative figures indicate the distance of the center of the cone below the line of site any distance from the gun. Example: At a range of 900 meters (col-

umn of figures at left) and at a distance of 700 meters from the gun (line of figures under distance from the gun), the center of the cone is 2 meters above the line of site. At a distance of 2100 meters from the gun, the center of the cone is -59 meters below the line of site.

**Table V—Part 1**  
**Ordinates in Meters**

**Caliber .50 M2**

Range (Meters)	Horizontal Distance (Meters)									
	100	200	300	400	500	600	700	800	900	1000
100	0	0	-1	-1	-1	-2	-3	-5	-7	-9
200	0	0	0	0	-1	-2	-3	-5	-7	-9
300	0	0	0	0	0	-1	-3	-4	-6	-8
400	0	0	0	0	0	-1	-2	-3	-5	-7
500	0	0	0	0	0	-1	-2	-3	-4	-6
600	0	1	1	1	0	0	-1	-2	-3	-5
700	0	1	1	1	1	1	0	-1	-2	-4
800	0	1	2	2	2	2	1	0	-1	-2
900	0	1	2	2	2	2	2	1	0	-1
1000	1	2	3	3	3	3	3	2	1	0
1100	1	2	3	3	4	4	4	3	3	2
1200	1	2	3	4	5	5	5	4	4	3
1300	1	3	4	5	6	6	6	6	6	5
1400	1	3	4	5	6	7	8	8	8	7
1500	2	3	5	6	7	9	9	10	10	9
1600	2	4	6	7	9	10	11	12	12	12
1700	2	5	7	9	10	11	13	14	14	14
1800	3	5	8	10	11	13	15	16	16	17
1900	3	6	9	11	13	15	17	18	19	20
2000	3	6	10	12	15	17	19	21	22	23
2100	4	7	10	13	16	19	21	23	25	26
2200	4	8	11	15	18	21	24	26	28	30
2300	4	8	12	16	20	24	27	29	32	34
2400	5	9	14	18	22	26	30	32	35	38
2500	5	10	15	20	24	28	33	36	39	43
2600	5	11	16	22	26	31	36	39	43	47
2700	6	12	18	24	29	34	39	43	47	52
2800	7	13	19	25	31	37	43	47	52	57
2900	7	14	21	27	34	40	46	52	57	62
3000	8	15	22	29	36	43	49	56	61	67
3100	8	16	24	32	39	46	53	60	66	72
3200	8	17	26	34	42	50	57	64	71	78
3300	9	18	27	36	45	53	61	69	76	83
3400	9	19	29	39	48	56	65	74	82	89
3500	10	20	31	42	51	61	70	79	88	96
3600	11	22	33	44	55	65	75	85	94	102
3700	12	23	35	47	58	69	80	91	100	110
3800	13	25	38	50	62	74	85	96	107	117
3900	14	27	40	53	66	78	90	102	113	125
4000	14	28	42	56	69	82	95	107	120	133
4100	15	30	45	59	73	87	101	114	128	141
4200	16	32	48	63	77	92	107	121	135	149
4300	16	33	50	66	82	98	113	128	143	158
4400	17	35	52	69	86	103	119	135	151	166
4500	18	37	55	73	91	108	126	143	159	176

**Table V—Part 2**  
**Ordinates in Meters**

**Caliber .50 M2**

Range (Meters)	Horizontal Distance (Meters)									
	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
100	-12	-15	-18	-22	-28	-34	-40	-47	-55	-64
200	-11	-14	-17	-21	-26	-32	-38	-45	-53	-62
300	-10	-13	-16	-20	-25	-31	-37	-44	-52	-61
400	-9	-12	-15	-19	-24	-30	-36	-43	-51	-60
500	-8	-11	-14	-18	-23	-28	-34	-41	-49	-58
600	-7	-9	-13	-17	-21	-26	-32	-39	-47	-56
700	-6	-8	-11	-15	-20	-25	-30	-37	-45	-54
800	-4	-6	-9	-13	-18	-23	-28	-35	-43	-52
900	-3	-5	-8	-11	-16	-20	-26	-33	-41	-50
1000	-2	-4	-6	-9	-13	-18	-23	-31	-39	-48
1100	0	-2	-4	-7	-11	-16	-21	-28	-36	-45
1200	2	0	-2	-5	-9	-13	-18	-25	-33	-41
1300	4	2	1	-3	-6	-10	-15	-22	-29	-37
1400	6	5	3	1	-3	-7	-12	-18	-25	-33
1500	8	7	5	3	2	-4	-9	-14	-21	-29
1600	11	10	9	6	3	2	-5	-10	-17	-24
1700	14	13	12	10	7	4	2	-6	-12	-19
1800	17	16	15	14	11	8	5	2	-6	-13
1900	20	20	19	18	16	13	10	5	2	-7
2000	23	24	24	23	21	19	15	11	6	1
2100	27	28	29	28	27	24	21	17	13	7
2200	31	32	33	33	32	30	27	24	20	15
2300	36	37	38	38	38	37	34	31	27	23
2400	40	42	44	44	44	43	41	38	35	30
2500	45	47	49	50	50	50	49	46	43	38
2600	51	53	55	56	57	57	57	54	51	47
2700	56	59	61	63	65	65	65	63	60	56
2800	61	65	68	70	72	73	73	71	69	66
2900	66	70	74	77	79	81	81	80	79	76
3000	72	76	81	84	87	89	90	90	89	87
3100	78	83	88	92	95	98	99	100	100	98
3200	84	89	95	100	103	106	108	109	110	110
3300	90	96	102	108	112	116	118	120	121	122
3400	97	104	110	116	121	125	129	131	133	133
3500	104	112	118	125	130	136	140	143	145	145
3600	111	120	127	134	140	146	151	155	158	159
3700	119	128	136	144	151	157	162	167	171	173
3800	127	136	145	154	162	169	175	180	184	187
3900	135	145	155	164	172	180	187	193	198	201
4000	144	155	165	175	184	192	199	206	212	217
4100	153	164	175	186	196	205	213	220	227	232
4200	162	174	186	198	209	218	227	235	242	248
4300	172	185	197	209	221	232	241	250	258	266
4400	182	196	209	222	235	246	257	267	276	284
4500	192	207	221	235	249	262	273	284	294	303

**Table V—Part 3**  
**Ordinates in Meters**

**Caliber .50 M2**

Range (Meters)	Horizontal Distance (Meters)									
	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000
100	-74	-86	-100	-114	-129	-147	-165	-185	-206	-229
200	-73	-85	-98	-112	-128	-145	-163	-183	-204	-227
300	-71	-83	-97	-111	-126	-143	-161	-181	-202	-225
400	-69	-81	-95	-109	-124	-140	-158	-178	-199	-222
500	-67	-79	-92	-106	-122	-138	-156	-176	-196	-219
600	-65	-77	-90	-104	-119	-135	-153	-173	-193	-216
700	-63	-75	-88	-101	-116	-132	-150	-170	-190	-212
800	-61	-72	-85	-98	-113	-129	-147	-166	-187	-208
900	-59	-70	-82	-95	-110	-126	-144	-162	-183	-204
1000	-57	-67	-79	-92	-106	-122	-140	-158	-179	-200
1100	-54	-64	-75	-88	-102	-118	-136	-154	-175	-196
1200	-50	-60	-71	-83	-98	-114	-132	-150	-170	-191
1300	-46	-56	-67	-79	-93	-109	-126	-145	-165	-186
1400	-42	-51	-62	-75	-88	-104	-120	-139	-159	-180
1500	-37	-46	-57	-69	-83	-98	-115	-133	-152	-174
1600	-32	-41	-51	-63	-77	-92	-108	-126	-145	-166
1700	-27	-36	-46	-57	-71	-85	-101	-119	-138	-158
1800	-20	-29	-39	-51	-64	-78	-94	-111	-130	-150
1900	-14	-23	-33	-44	-57	-71	-86	-103	-121	-140
2000	-7	-16	-26	-37	-49	-62	-77	-93	-111	-130
2100	0	-8	-18	-29	-41	-53	-67	-83	-101	-120
2200	8	1	-9	-19	-31	-43	-58	-73	-91	-109
2300	16	9	2	-10	-21	-33	-47	-62	-80	-98
2400	24	18	10	4	-11	-23	-36	-51	-68	-86
2500	33	27	20	11	5	-12	-25	-39	-55	-72
2600	43	37	30	21	11	6	-13	-27	-42	-58
2700	52	47	41	33	23	12	6	-13	-28	-44
2800	62	58	52	44	35	25	13	6	-14	-30
2900	73	69	64	56	48	38	27	14	5	-16
3000	84	81	76	69	61	51	41	28	15	4
3100	96	93	89	82	75	65	55	43	30	16
3200	108	105	101	95	88	80	70	59	46	33
3300	120	117	114	109	102	95	86	75	64	51
3400	132	130	127	123	117	110	102	92	82	69
3500	145	144	141	138	133	127	119	110	100	88
3600	160	159	156	153	149	144	137	128	119	107
3700	175	174	172	169	166	162	156	148	138	127
3800	190	190	189	186	184	180	175	167	159	148
3900	205	206	206	204	202	199	194	188	180	170
4000	220	222	223	223	222	219	214	208	202	193
4100	236	239	242	242	241	239	235	231	224	216
4200	253	257	260	261	262	260	258	254	248	240
4300	272	276	279	282	283	283	281	277	273	266
4400	291	296	300	303	305	305	303	301	297	292
4500	310	316	321	325	328	328	328	327	324	219



**Table V—Part 4**  
**Ordinates in Meters**

**Caliber .50 M2**

Range (Meters)	Horizontal Distance (Meters)									
	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000
100	-254	-280	-308	-338	-371	-405	-442	-481	-523	-567
200	-252	-278	-306	-336	-369	-403	-440	-488	-526	-564
300	-249	-275	-303	-334	-366	-401	-437	-512	-540	-560
400	-246	-272	-300	-331	-363	-397	-433	-472	-513	-557
500	-243	-269	-297	-327	-360	-393	-429	-468	-509	-553
600	-240	-265	-293	-323	-255	-289	-425	-464	-505	-549
700	-236	-262	-289	-318	-351	-385	-421	-459	-500	-544
800	-232	-258	-285	-314	-347	-381	-416	-454	-495	-539
900	-228	-254	-281	-310	-342	-376	-411	-449	-490	-534
1000	-224	-250	-277	-305	-336	-370	-406	-444	-485	-529
1100	-219	-245	-272	-300	-331	-365	-401	-439	-480	-523
1200	-214	-239	-266	-295	-326	-359	-395	-433	-473	-516
1300	-209	-234	-260	-289	-320	-353	-388	-426	-466	-509
1400	-203	-228	-254	-283	-313	-346	-381	-418	-458	-500
1500	-197	-221	-247	-276	-306	-339	-373	-409	-449	-491
1600	-189	-214	-240	-268	-298	-331	-365	-401	-439	-481
1700	-181	-205	-231	-258	-289	-321	-355	-391	-429	-471
1800	-172	-196	-221	-248	-278	-310	-344	-380	-418	-460
1900	-162	-185	-210	-237	-267	-298	-332	-368	-407	-448
2000	-151	-174	-199	-226	-256	-287	-319	-355	-394	-435
2100	-140	-163	-188	-215	-244	-274	-307	-342	-380	-421
2200	-130	-152	-176	-202	-231	-261	-293	-328	-365	-405
2300	-118	-140	-163	-188	-216	-246	-279	-313	-350	-389
2400	-106	-127	-149	-174	-201	-231	-264	-298	-334	-372
2500	-92	-113	-136	-160	-187	-216	-248	-281	-317	-355
2600	-77	-98	-121	-146	-172	-200	-231	-263	-299	-236
2700	-63	-83	-106	-130	-156	-183	-213	-245	280	-318
2800	-48	-68	-90	-113	-138	-166	-195	-227	-261	-298
2900	-33	-52	-73	-96	-120	-147	-177	-209	-242	-278
3000	-17	-35	-55	-78	-102	-129	-158	-189	-221	-257
3100	3	-18	-37	-59	-83	-110	-138	-168	-200	-235
3200	17	0	-19	-40	-64	-90	-117	-146	-178	-212
3300	36	19	3	-21	-44	-68	-95	-124	-155	-189
3400	55	39	20	6	-22	-47	-73	-101	-132	-165
3500	75	59	41	21	8	-24	-49	-77	-107	-140
3600	94	79	62	43	42	10	-25	-52	-82	-114
3700	114	100	84	65	45	24	11	-26	-55	-87
3800	136	122	106	89	69	48	26	12	-28	-59
3900	159	146	131	113	95	75	53	28	12	-30
4000	182	170	156	139	121	102	80	56	29	11
4100	206	195	181	166	149	130	108	84	59	31
4200	231	221	208	194	177	159	138	115	90	62
4300	257	248	236	222	207	189	169	147	122	96
4400	284	276	265	252	237	221	202	181	157	131
4500	313	305	295	283	269	253	235	216	193	167

**Table V—Part 5**  
**Ordinates in Meters**

**Caliber .50 M2**

Range (Meters)	Horizontal Distance (Meters)									
	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
100	-614	-663	-716	-772	-832	-895	-961	-1031	-1105	-1185
200	-610	-660	-713	-769	-829	-892	-958	-1058	-1102	-1182
300	-607	-656	-709	-765	-825	-887	-854	-1024	-1098	-1177
400	-603	-653	-706	-761	-820	-882	-949	-1019	-1093	-1172
500	-599	-649	-701	-757	-815	-877	-944	-1014	-1088	-1167
600	-595	-644	-696	-752	-810	-872	-939	-1009	-1083	-1162
700	-591	-639	-691	-747	-805	-867	-933	-1004	-1078	-1156
800	-585	-634	-686	-741	-799	-861	-927	-997	-1071	-1150
900	-579	-628	-680	-735	-794	-855	-921	-990	-1064	-1143
1000	-574	-623	-675	-729	-787	-849	-914	-983	-1057	-1157
1100	-568	-617	-668	-722	-780	-842	-907	-976	-1049	-1127
1200	-561	-609	-660	-714	-773	-834	-899	-968	-1041	-1119
1300	-553	-601	-652	-706	-765	-826	-890	-959	-1031	-1109
1400	-545	-592	-643	-698	-756	-817	-881	-949	-1021	-1098
1500	-536	-583	-634	-688	-746	-807	-870	-938	-1010	-1086
1600	-526	-573	-623	-677	-735	-796	-859	-926	-997	-1074
1700	-515	-562	-612	-665	-722	-782	-846	-912	-983	-1060
1800	-502	-550	-600	-653	-709	-768	-832	-898	-969	-1045
1900	-492	-537	-586	-639	-694	-753	-816	-883	-954	-1030
2000	-478	-524	-572	-624	-679	-738	-800	-867	-937	-1012
2100	-463	-509	-557	-608	-663	-721	-783	-849	-919	-913
2200	-447	-492	-540	-591	-646	-703	-765	-831	-900	-974
2300	-430	-475	-523	-573	-627	-684	-746	-811	-880	-953
2400	-413	-457	-504	-555	-608	-665	-726	-791	-859	-932
2500	-395	-439	-485	-535	-588	-645	-705	-769	-837	-909
2600	-377	-420	-466	-515	-567	-623	-683	-747	-814	-885
2700	-357	-400	-445	-494	-546	-601	-661	-724	-790	-861
2800	-337	-379	-424	-473	-524	-578	-637	-699	-766	-836
2900	-316	-358	-403	-450	-501	-555	-613	-674	-740	-809
3000	-295	-336	-380	-427	-478	-531	-587	-648	-712	-781
3100	-273	-313	-357	-403	-453	-506	-562	-621	-685	-753
3200	-250	-289	-332	-378	-428	-480	-535	-595	-658	-725
3300	-226	-265	-307	-352	-401	-453	-508	-566	-630	-696
3400	-201	-239	-281	-325	-373	-424	-478	-537	-600	-665
3500	-175	-213	-254	-298	-344	-394	-448	-506	-568	-633
3600	-148	-186	-226	-269	-315	-364	-418	-475	-535	-599
3700	-121	-157	-197	-239	-284	-333	-386	-442	-502	-565
3800	-92	-128	-166	-208	-253	-300	-352	-408	-467	-530
3900	-62	-97	-136	-176	-220	-267	-318	-373	-431	-493
4000	-32	-66	-103	-143	-186	-232	-283	-337	-394	-455
4100	8	-34	-70	-109	-152	-197	-247	-300	-357	-417
4200	33	4	-36	-74	-116	-161	-209	-262	-317	-377
4300	67	35	2	-38	-79	-123	-170	-222	-277	-336
4400	102	71	37	7	-40	-83	-130	-181	-236	-293
4500	139	108	75	39	13	-42	-88	-138	-192	-248

**Table V—Part 6**  
**Ordinates in Meters**

**Caliber .50 M2**

Range (Meters)	Horizontal Distance (Meters)			
	5100	5200	5300	5400
100	-1270	-1360	-1456	-1557
200	-1266	-1356	-1451	-1552
300	-1262	-1351	-1446	-1547
400	-1257	-1346	-1440	-1541
500	-1251	-1340	-1435	-1535
600	-1246	-1335	-1429	-1529
700	-1240	-1328	-1423	-1523
800	-1233	-1321	-1416	-1516
900	-1226	-1314	-1408	-1508
1000	-1218	-1306	-1400	-1499
1100	-1209	-1297	-1391	-1490
1200	-1201	-1288	-1381	-1480
1300	-1190	-1277	-1370	-1469
1400	-1179	-1266	-1359	-1457
1500	-1168	-1255	-1347	-1447
1600	-1155	-1241	-1333	-1431
1700	-1141	-1227	-1318	-1415
1800	-1125	-1211	-1301	-1397
1900	-1109	-1193	-1283	-1379
2000	-1091	-1174	-1264	-1360
2100	-1071	-1154	-1244	-1339
2200	-1051	-1134	-1223	-1317
2300	-1030	-1113	-1201	-1294
2400	-1008	-1090	-1177	-1269
2500	-985	-1066	-1152	-1244
2600	-961	-1041	-1127	-1219
2700	-936	-1016	-1100	-1191
2800	-910	-989	-1073	-1163
2900	-883	-962	-1046	-1135
3000	-855	-934	-1017	-1105
3100	-827	-905	-987	-1074
3200	-797	-874	-955	-1043
3300	-767	-843	-923	-1009
3400	-735	-810	-889	-974
3500	-702	-776	-855	-939
3600	-668	-741	-820	-904
3700	-633	-705	-783	-866
3800	-596	-668	-745	-827
3900	-559	-629	-705	-786
4000	-520	-590	-665	-745
4100	-481	-551	-624	-703
4200	-441	-509	-582	-660
4300	-398	-465	-537	-614
4400	-354	-420	-491	-567
4500	-309	-374	-444	-519

Table VI

Searching Reverse Slopes—How to Use

To find a position to search a reverse slope, compute from the map the average drop in meters in 100 meters of slope to be searched. In the column headed by this gradient, note the range opposite a VI of zero. This is the range to search the slope when the gun and target are on the same level. On the map, measure back this range from the target and find the VI of this point. Below or above the zero line in the same column, depending upon whether the target is below or above this point, find the range opposite the VI. Move forward or back to this range, and if the VI is not materially changed, the position is suitable. If the VI is materially changed, repeat the operation until a suit-

able position is found. Often a movement to the right or left will secure the proper VI.

Example: It is desired to search a slope with an average drop of 10 meters in 100 meters. In the column under that gradient, and opposite a VI of zero, is found the range 2862. Measure back on the map 2862 meters from the target. Suppose the target is 30 meters below the position found. In the same column, opposite a VI of 30 meters below the gun is found the range 2756. Move forward to a point 2756 meters from the target and determine the QE for that range. Set the QE on the gun and engage the target.

**Table VI**  
**Searching Reverse Slopes**

**Caliber .50 M2**

		Number of Meters Drop																
	Meters	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
VI	90	2225	2321	2417	2513	2609	2702	2789	2876	2959	3041	3124	3201	3279	3352	3422	3490	
	80	2179	2280	2377	2475	2571	2667	2758	2846	2933	3015	3097	3176	3254	3328	3402	3470	
	70	2129	2235	2336	2436	2534	2630	2723	2814	2903	2987	3069	3151	3229	3307	3380	3450	
	60	2079	2188	2291	2393	2494	2592	2688	2781	2873	2960	3042	3124	3204	3282	3357	3430	
Above	50	2026	2138	2246	2353	2454	2555	2653	2749	2840	2930	3015	3097	3179	3257	3335	3410	
Gun	40	1968	2085	2198	2311	2411	2515	1615	2711	2805	2897	2987	3072	3154	3232	3310	3387	
	30	1905	2027	2145	2259	2366	2475	2575	2674	2774	2865	2957	3044	3136	3207	3288	3362	
	20	1836	1963	2090	2208	2321	2431	2535	2639	2740	2835	2927	3014	3100	3182	3264	3341	
	10	1758	1898	2031	2154	2272	2386	2495	2600	2701	2801	2892	2994	3070	3157	3239	3317	
VI	0	1673	1824	1966	2094	2217	2336	2451	2560	2665	2766	2862	2954	3045	3127	3214	3292	
	10	1565	1738	1891	2033	2162	2286	2401	2515	2625	2726	2827	2923	3015	3102	3185	3267	
	20	1410	1634	1809	1961	2101	2230	2351	2470	2581	2691	2792	2888	2980	3072	3159	3242	
	30		1491	1712	1879	2034	2170	2299	2424	2540	2649	2756	2853	2949	3042	3130	3217	
Below	40			1582	1787	1957	2107	2243	2342	2493	2606	2716	2818	2916	3012	3103	3190	
	50				1675	1870	2034	2180	2317	2443	2564	2676	2783	2884	2982	3073	3160	
	60				1473	1763	1954	2113	2257	2390	2516	2633	2746	2849	2949	3043	3133	
	70					1610	1854	2037	2192	2332	2463	2585	2703	2811	2914	3010	3105	
Gun	80					1731	1947	2124	2272	2408	2539	2661	2774	2879	2979	3075		
	90							1836	2042	2208	2353	2490	2617	2735	2844	2945	3045	

Table II

M2 .50 Cal Trajectory Chart—How to Use

To determine the quadrant elevation to a target at a given range and VI, with the trajectory chart, find the point of intersection of the vertical line corresponding to the given range and the horizontal line corresponding to the given VI (plus, if the target is above the gun; minus, if below). If this point lies on a black trajectory curve, the elevation in mils may be read directly from the curve, either at the right or left. If the point lies between two curves, multiply the proportion of the distance from the lower curve to the upper by 10 and add this to the elevation shown on the lower curve.

Example: The range to the target is 1600 meters; VI, 10 meters. Plot the target directly above the range of 1600 meters and to the right of the VI of 10 meters.

This point lies 0.9 of the distance from the curve for an elevation of 20 mils to that for 30 mils. Multiply  $0.9 \times 10 = 9$ . The quadrant elevation to the target is  $20 + 9 = 29$  mils.

If it is required to clear a mask at a given range and VI, plot the mask in the same way as the target. At the same range, locate the position of the trajectory to the target. Above these points, at the top of the chart, is given the distance of the lowest shot below the center of the cone. Measure off this distance below the trajectory and plot the position of the lowest shot. If this is above the mask it will be cleared. If it falls only a small distance below the mask, it may still be practical to fire, as the majority of shots may clear the mask.