

<u>122 mm howitzer 2A18 (D-30)</u>					
<u>HE: Close</u>					
range (m)	elevation (mils)	Altitude -100m Change in		flytime (s)	1 mil sideways (m)
		elevation (mils)	flytime (s)		
4500	1240	4	0.5	49.8	4.42
4600	1230	4	0.5	49.7	4.52
4700	1220	4	0.5	49.5	4.61
4800	1210	4	0.5	49.3	4.71
4900	1200	4	0.5	49.1	4.81
5000	1189	4	0.5	48.9	4.91
5100	1178	5	0.5	48.6	5.01
5200	1167	5	0.5	48.4	5.11
5300	1156	5	0.5	48.2	5.2
5400	1145	5	0.5	47.9	5.3
5500	1133	6	0.6	47.6	5.4
5600	1120	6	0.6	47.3	5.5
5700	1107	7	0.6	47	5.6
5800	1094	7	0.6	46.7	5.69
5900	1081	7	0.6	46.4	5.79
6000	1066	8	0.6	46	5.89
6100	1051	9	0.7	45.6	5.99
6200	1035	10	0.7	45.2	6.09
6300	1018	11	0.8	44.7	6.19
6400	1000	12	0.8	44.2	6.28
6500	979	14	0.9	43.6	6.38
6600	957	16	1	42.9	6.48
6700	930	20	1.1	42.1	6.58
6800	897	27	1.4	41	6.68

6900	843	47	2.1	39.1	6.77
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<u>122 mm howitzer 2A18 (D-30)</u>					
<u>HE: Medium</u>					
range (m)	elevation (mils)	Altitude -100m Change in		flytime (s)	1 mil sideways (m)
		elevation (mils)	flytime (s)		
6900	1240	2	0.4	61.8	6.77
7000	1234	2	0.4	61.6	6.87
7100	1227	2	0.4	61.5	6.97
7200	1221	3	0.4	61.3	7.07
7300	1214	3	0.4	61.2	7.17
7400	1208	3	0.4	61	7.26
7500	1201	3	0.4	60.8	7.36
7600	1194	3	0.4	60.7	7.46
7700	1187	3	0.4	60.5	7.56
7800	1180	3	0.4	60.3	7.66
7900	1173	3	0.4	60.1	7.76
8000	1166	3	0.4	59.9	7.85
8100	1159	3	0.4	59.7	7.95
8200	1151	4	0.4	59.5	8.05
8300	1144	4	0.4	59.3	8.15
8400	1136	4	0.4	59.1	8.25
8500	1128	4	0.5	58.9	8.34
8600	1120	4	0.5	58.6	8.44
8700	1112	4	0.5	58.4	8.54
8800	1103	4	0.5	58.1	8.64
8900	1094	5	0.5	57.9	8.74
9000	1086	5	0.5	57.6	8.84
9100	1076	5	0.5	57.3	8.93
9200	1067	5	0.5	57	9.03

9300	1057	6	0.5	56.7	9.13
9400	1047	6	0.6	56.4	9.23
9500	1037	6	0.6	56	9.33
9600	1026	7	0.6	55.6	9.42
9700	1014	7	0.6	55.2	9.52
9800	1002	8	0.6	54.8	9.62
9900	990	9	0.7	54.3	9.72
10000	976	9	0.7	53.9	9.82
10100	961	10	0.8	53.3	9.92
10200	945	12	0.8	52.7	10.01
10300	927	14	0.9	52	10.11
10400	906	16	1	51.1	10.21
10500	879	23	1.3	50	10.31
10600	838	37	2	48.2	10.41

<u>122 mm howitzer 2A18 (D-30)</u>					
<u>HE: Far</u>					
range (m)	elevation (mils)	Altitude -100m Change in		flytime (s)	1 mil sideways (m)
		elevation (mils)	flytime (s)		
10000	1241	2	0.3	74.4	9.82
10100	1236	2	0.3	74.3	9.92
10200	1232	2	0.3	74.2	10.01
10300	1228	2	0.3	74.1	10.11
10400	1223	2	0.3	73.9	10.21
10500	1219	2	0.3	73.8	10.31
10600	1214	2	0.3	73.7	10.41
10700	1210	2	0.3	73.6	10.5
10800	1205	2	0.3	73.4	10.6
10900	1200	2	0.3	73.3	10.7
11000	1196	2	0.3	73.1	10.8

11100	1191	2	0.3	73	10.9
11200	1186	2	0.3	72.8	11
11300	1181	2	0.3	72.7	11.09
11400	1177	2	0.3	72.5	11.19
11500	1172	2	0.4	72.4	11.29
11600	1167	2	0.4	72.2	11.39
11700	1162	2	0.4	72.1	11.49
11800	1157	2	0.4	71.9	11.58
11900	1151	2	0.4	71.7	11.68
12000	1146	2	0.4	71.6	11.78
12100	1141	3	0.4	71.4	11.88
12200	1135	3	0.4	71.2	11.98
12300	1130	3	0.4	71	12.08
12400	1125	3	0.4	70.8	12.17
12500	1119	3	0.4	70.6	12.27
12600	1113	3	0.4	70.4	12.37
12700	1107	3	0.4	70.2	12.47
12800	1102	3	0.4	70	12.57
12900	1096	3	0.4	69.8	12.66
13000	1090	3	0.4	69.6	12.76
13100	1084	3	0.4	69.3	12.86
13200	1077	4	0.4	69.1	12.96
13300	1071	4	0.4	68.8	13.06
13400	1064	4	0.4	68.6	13.16
13500	1057	4	0.5	68.3	13.25
13600	1050	4	0.5	68	13.35
13700	1043	4	0.5	67.8	13.45
13800	1036	4	0.5	67.4	13.55
13900	1028	5	0.5	67.1	13.65
14000	1021	5	0.5	66.8	13.74

14100	1013	5	0.5	66.5	13.84
14200	1005	5	0.5	66.1	13.94
14300	996	5	0.5	65.8	14.04
14400	987	6	0.6	65.4	14.14
14500	978	6	0.6	65	14.24
14600	968	7	0.6	64.5	14.33
14700	957	7	0.6	64	14.43
14800	946	8	0.7	63.5	14.53
14900	933	9	0.8	62.9	14.63
15000	920	10	0.8	62.3	14.73
15100	905	12	0.9	61.6	14.82
15200	888	15	1.1	60.7	14.92
15300	865	19	1.3	59.6	15.02
15400	831	31	2	57.7	15.12

<u>122 mm howitzer 2A18 (D-30)</u>					
<u>White phosphorous: Close</u>					
range (m)	elevation (mils)	Altitude -100m Change in		flytime (s)	1 mil sideways (m)
		elevation (mils)	flytime (s)		
4500	1240	4	0.5	49.8	4.42
4600	1230	4	0.5	49.7	4.52
4700	1220	4	0.5	49.5	4.61
4800	1210	4	0.5	49.3	4.71
4900	1200	4	0.5	49.1	4.81
5000	1189	4	0.5	48.9	4.91
5100	1178	5	0.5	48.6	5.01
5200	1167	5	0.5	48.4	5.11
5300	1156	5	0.5	48.2	5.2
5400	1145	5	0.5	47.9	5.3

5500	1133	6	0.6	47.6	5.4
5600	1120	6	0.6	47.3	5.5
5700	1107	7	0.6	47	5.6
5800	1094	7	0.6	46.7	5.69
5900	1081	7	0.6	46.4	5.79
6000	1066	8	0.6	46	5.89
6100	1051	9	0.7	45.6	5.99
6200	1035	10	0.7	45.2	6.09
6300	1018	11	0.8	44.7	6.19
6400	1000	12	0.8	44.2	6.28
6500	979	14	0.9	43.6	6.38
6600	957	16	1	42.9	6.48
6700	930	20	1.1	42.1	6.58
6800	897	27	1.4	41	6.68
6900	843	47	2.1	39.1	6.77

<u>122 mm howitzer 2A18 (D-30)</u>					
<u>White phosphorous: Medium</u>					
range (m)	elevation (mils)	Altitude -100m Change in		flytime (s)	1 mil sideways (m)
		elevation (mils)	flytime (s)		
6900	1240	2	0.4	61.8	6.77
7000	1234	2	0.4	61.6	6.87
7100	1227	2	0.4	61.5	6.97
7200	1221	3	0.4	61.3	7.07
7300	1214	3	0.4	61.2	7.17
7400	1208	3	0.4	61	7.26
7500	1201	3	0.4	60.8	7.36
7600	1194	3	0.4	60.7	7.46
7700	1187	3	0.4	60.5	7.56
7800	1180	3	0.4	60.3	7.66

7900	1173	3	0.4	60.1	7.76
8000	1166	3	0.4	59.9	7.85
8100	1159	3	0.4	59.7	7.95
8200	1151	4	0.4	59.5	8.05
8300	1144	4	0.4	59.3	8.15
8400	1136	4	0.4	59.1	8.25
8500	1128	4	0.5	58.9	8.34
8600	1120	4	0.5	58.6	8.44
8700	1112	4	0.5	58.4	8.54
8800	1103	4	0.5	58.1	8.64
8900	1094	5	0.5	57.9	8.74
9000	1086	5	0.5	57.6	8.84
9100	1076	5	0.5	57.3	8.93
9200	1067	5	0.5	57	9.03
9300	1057	6	0.5	56.7	9.13
9400	1047	6	0.6	56.4	9.23
9500	1037	6	0.6	56	9.33
9600	1026	7	0.6	55.6	9.42
9700	1014	7	0.6	55.2	9.52
9800	1002	8	0.6	54.8	9.62
9900	990	9	0.7	54.3	9.72
10000	976	9	0.7	53.9	9.82
10100	961	10	0.8	53.3	9.92
10200	945	12	0.8	52.7	10.01
10300	927	14	0.9	52	10.11
10400	906	16	1	51.1	10.21
10500	879	23	1.3	50	10.31
10600	838	37	2	48.2	10.41

122 mm howitzer 2A18 (D-30)

White phosphorous: Far

range (m)	elevation (mils)	Altitude -100m Change in		flytime (s)	1 mil sideways (m)
		elevation (mils)	flytime (s)		
10000	1241	2	0.3	74.4	9.82
10100	1236	2	0.3	74.3	9.92
10200	1232	2	0.3	74.2	10.01
10300	1228	2	0.3	74.1	10.11
10400	1223	2	0.3	73.9	10.21
10500	1219	2	0.3	73.8	10.31
10600	1214	2	0.3	73.7	10.41
10700	1210	2	0.3	73.6	10.5
10800	1205	2	0.3	73.4	10.6
10900	1200	2	0.3	73.3	10.7
11000	1196	2	0.3	73.1	10.8
11100	1191	2	0.3	73	10.9
11200	1186	2	0.3	72.8	11
11300	1181	2	0.3	72.7	11.09
11400	1177	2	0.3	72.5	11.19
11500	1172	2	0.4	72.4	11.29
11600	1167	2	0.4	72.2	11.39
11700	1162	2	0.4	72.1	11.49
11800	1157	2	0.4	71.9	11.58
11900	1151	2	0.4	71.7	11.68
12000	1146	2	0.4	71.6	11.78
12100	1141	3	0.4	71.4	11.88
12200	1135	3	0.4	71.2	11.98
12300	1130	3	0.4	71	12.08
12400	1125	3	0.4	70.8	12.17
12500	1119	3	0.4	70.6	12.27
12600	1113	3	0.4	70.4	12.37

12700	1107	3	0.4	70.2	12.47
12800	1102	3	0.4	70	12.57
12900	1096	3	0.4	69.8	12.66
13000	1090	3	0.4	69.6	12.76
13100	1084	3	0.4	69.3	12.86
13200	1077	4	0.4	69.1	12.96
13300	1071	4	0.4	68.8	13.06
13400	1064	4	0.4	68.6	13.16
13500	1057	4	0.5	68.3	13.25
13600	1050	4	0.5	68	13.35
13700	1043	4	0.5	67.8	13.45
13800	1036	4	0.5	67.4	13.55
13900	1028	5	0.5	67.1	13.65
14000	1021	5	0.5	66.8	13.74
14100	1013	5	0.5	66.5	13.84
14200	1005	5	0.5	66.1	13.94
14300	996	5	0.5	65.8	14.04
14400	987	6	0.6	65.4	14.14
14500	978	6	0.6	65	14.24
14600	968	7	0.6	64.5	14.33
14700	957	7	0.6	64	14.43
14800	946	8	0.7	63.5	14.53
14900	933	9	0.8	62.9	14.63
15000	920	10	0.8	62.3	14.73
15100	905	12	0.9	61.6	14.82
15200	888	15	1.1	60.7	14.92
15300	865	19	1.3	59.6	15.02
15400	831	31	2	57.7	15.12

122 mm howitzer 2A18 (D-30)

<u>Illuminating: Close</u>					
range (m)	elevation (mils)	Altitude -100m Change in		flytime (s)	1 mil sideways (m)
		elevation (mils)	flytime (s)		
4400	1238	4	0.5	48.6	4.32
4500	1228	4	0.5	48.4	4.42
4600	1218	4	0.5	48.2	4.52
4700	1207	4	0.5	48	4.61
4800	1197	5	0.5	47.7	4.71
4900	1186	5	0.5	47.5	4.81
5000	1174	5	0.6	47.3	4.91
5100	1163	6	0.6	47	5.01
5200	1151	6	0.6	46.7	5.11
5300	1139	6	0.6	46.5	5.2
5400	1126	7	0.6	46.1	5.3
5500	1113	7	0.6	45.8	5.4
5600	1099	8	0.6	45.5	5.5
5700	1085	8	0.6	45.1	5.6
5800	1070	9	0.7	44.7	5.69
5900	1054	10	0.7	44.3	5.79
6000	1036	11	0.8	43.8	5.89
6100	1018	13	0.9	43.3	5.99
6200	998	14	0.9	42.7	6.09
6300	976	17	1	42	6.19
6400	949	20	1.2	41.1	6.28
6500	916	28	1.4	40	6.38
6600	859	50	2.3	38.1	6.48

<u>122 mm howitzer 2A18 (D-30)</u>				
<u>Illuminating: Medium</u>				
		Altitude -100m		

range (m)	elevation (mils)	Change in		flytime (s)	1 mil sideways (m)
		elevation (mils)	flytime (s)		
6800	1239	2	0.4	60.7	6.68
6900	1233	3	0.4	60.6	6.77
7000	1226	3	0.4	60.4	6.87
7100	1220	3	0.4	60.3	6.97
7200	1213	3	0.4	60.1	7.07
7300	1206	3	0.4	59.9	7.17
7400	1199	3	0.4	59.8	7.26
7500	1192	3	0.4	59.6	7.36
7600	1185	3	0.4	59.4	7.46
7700	1178	3	0.4	59.2	7.56
7800	1171	3	0.4	59	7.66
7900	1163	3	0.4	58.8	7.76
8000	1156	4	0.4	58.6	7.85
8100	1148	4	0.5	58.4	7.95
8200	1140	4	0.5	58.2	8.05
8300	1132	4	0.5	57.9	8.15
8400	1124	4	0.5	57.7	8.25
8500	1115	5	0.5	57.4	8.34
8600	1107	5	0.5	57.2	8.44
8700	1098	5	0.5	56.9	8.54
8800	1088	5	0.5	56.6	8.64
8900	1079	6	0.5	56.3	8.74
9000	1069	6	0.6	56	8.84
9100	1059	6	0.6	55.7	8.93
9200	1049	6	0.6	55.3	9.03
9300	1038	7	0.6	54.9	9.13
9400	1027	8	0.6	54.5	9.23
9500	1015	8	0.7	54.1	9.33

9600	1002	9	0.7	53.6	9.42
9700	988	10	0.7	53.1	9.52
9800	973	11	0.8	52.6	9.62
9900	957	12	0.9	52	9.72
10000	939	14	1	51.2	9.82
10100	918	18	1.1	50.4	9.92
10200	891	23	1.4	49.3	10.01
10300	849	39	2.1	47.4	10.11

<u>122 mm howitzer 2A18 (D-30)</u>					
<u>Illuminating: Far</u>					
range (m)	elevation (mils)	Altitude -100m Change in		flytime (s)	1 mil sideways (m)
		elevation (mils)	flytime (s)		
9900	1240	2	0.3	73.6	9.72
10000	1236	2	0.3	73.5	9.82
10100	1231	2	0.3	73.3	9.92
10200	1227	2	0.3	73.2	10.01
10300	1222	2	0.3	73.1	10.11
10400	1218	2	0.3	72.9	10.21
10500	1213	2	0.3	72.8	10.31
10600	1209	2	0.3	72.7	10.41
10700	1204	2	0.3	72.5	10.5
10800	1199	2	0.3	72.4	10.6
10900	1194	2	0.3	72.2	10.7
11000	1190	2	0.3	72.1	10.8
11100	1185	2	0.3	72	10.9
11200	1180	2	0.4	71.8	11
11300	1175	2	0.4	71.6	11.09
11400	1170	2	0.4	71.5	11.19
11500	1165	2	0.4	71.3	11.29

11600	1160	2	0.4	71.1	11.39
11700	1154	2	0.4	71	11.49
11800	1149	3	0.4	70.8	11.58
11900	1144	3	0.4	70.6	11.68
12000	1138	3	0.4	70.4	11.78
12100	1133	3	0.4	70.2	11.88
12200	1127	3	0.4	70	11.98
12300	1122	3	0.4	69.8	12.08
12400	1116	3	0.4	69.6	12.17
12500	1110	3	0.4	69.4	12.27
12600	1104	3	0.4	69.2	12.37
12700	1098	3	0.4	69	12.47
12800	1092	3	0.4	68.7	12.57
12900	1085	3	0.4	68.5	12.66
13000	1079	4	0.4	68.3	12.76
13100	1072	4	0.4	68	12.86
13200	1066	4	0.5	67.7	12.96
13300	1059	4	0.5	67.5	13.06
13400	1052	4	0.5	67.2	13.16
13500	1044	5	0.5	66.9	13.25
13600	1037	5	0.5	66.6	13.35
13700	1029	5	0.5	66.3	13.45
13800	1021	5	0.5	65.9	13.55
13900	1013	5	0.5	65.6	13.65
14000	1004	6	0.6	65.2	13.74
14100	995	6	0.6	64.8	13.84
14200	986	7	0.6	64.4	13.94
14300	976	7	0.7	63.9	14.04
14400	965	8	0.7	63.4	14.14
14500	954	9	0.7	62.9	14.24

14600	942	9	0.8	62.3	14.33
14700	929	11	0.8	61.7	14.43
14800	914	12	0.9	61	14.53
14900	896	15	1.1	60.1	14.63
15000	875	19	1.3	59	14.73
15100	840	33	2.1	57.1	14.82

