

# Parameter Data

**Minutes per Turn: 6**

**Meters per Hex: 250**

**Maximum Units per Hex: 6**

**Maximum Strength Points per Hex:  
24**

**Maximum Strength Points per Road: 12** (more than this number of SPs in the hex negates any road/railroad/path in the hex)

**Minimum *Non-Wreck* Strength Points per Hex that Block LOS: 13**

**Minimum *Wreck* Strength Points per Hex that Block LOS: 6**

## COMBAT RESULTS TABLE

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
1	6	0	0	0	0	0
1	5	0	0	0	0	5
1	4	0	0	0	5	5
1	3	0	0	0	5	10
1	2	0	0	5	10	10
2	3	0	0	5	10	20
1	1	0	0	10	15	20
3	2	0	0	10	20	25
2	1	0	0	15	25	25
3	1	0	5	15	25	30
4	1	0	10	20	30	30
5	1	5	15	20	35	20
10	1	10	25	25	25	20
15	1	35	25	25	10	5
20	1	60	25	15	0	0
25	1	75	25	0	0	0
30	1	90	10	0	0	0

**Column A:** net attack strength\*

**Column B:** net defense strength\*

**Column C:** % chance of inflicting a loss of 3 SPs

**Column D:** % chance of inflicting a loss of 2 SPs

**Column E:** % chance of inflicting a loss of 1 SP

**Column F:** % chance of causing Disruption

**Column G:** % chance of causing a Morale Check

When a unit attacks, the program actually conducts a number of attacks equal to the unit's SPs, then takes each individual result and determines the net result vs. the defender.

\* Attack-vs.-defense strengths *between* those listed above are calculated individually by the program on a pro-rated basis, based on the result probabilities of the two CRT lines the attack falls between. For example, a net attack strength of 11 vs. a net defense strength of 4 has slightly lower result probabilities than an attack of 3 vs. a defense of 1, but higher probabilities than an attack of 2 vs. a defense of 1.

### TERRAIN COMBAT MODIFIERS

The amount of the otherwise-applicable attack strength that is allowed to "hit" a target occupying such terrain. If two or more apply, they all have an effect; e.g., a unit attacking a target in a forest hex behind a hedge would use .72 (.8 x .9) or 72% of its "normal" attack strength.

#### FULL-HEX

Open: 1.0	Village: .65	Deep Water: 1.0
Field: 1.0	Suburb: .65	Shallow Water: 1.0
Cactus Patch: 1.0	City: .6	Beach: 1.0
Hammada: 1.0	Building: .6	Marsh: .95
Scrub: 1.0	Industrial: .5	Swamp: .8
Vineyard: .95		Wadi: .8
Orchard: .9		Downhill: 1.1
Soft Sand: .9		Uphill: .9
Rough: .8		
Forest: .8		

#### HEXSIDE

Hedge: .9	Embankment: .8	Escarpment: 1.0
Bocage: .65	Stone Wall: .8	High Wall: N/A

#### SPECIAL

**Improved Position:** .75

**Trench:** .56

**Bunker/Pillbox:** .75 (Also adds 20 to the defense strength of each occupant. In addition, a bunker is a soft target; a pillbox is a hard target. Neither can provide any benefit to vehicular units. Vehicular units cannot assault units in a Pillbox.)

**Beach Obstacles:** 1.0

### TERRAIN MORALE MODIFIERS

These apply to a unit's morale when it must take a Morale Check to see if it will retreat.

Open, Hammada & Soft Sand: -1*	Building: +3	Shallow & Deep Water: -1
Field, Beach: 0	Village: +2	Marsh: -1
Orchard, Scrub: 0	Suburb: +2	Swamp: 0
Rough: 0	City: +3	Bunker/Pillbox: +4**

Forest: +1	Industrial: +4	Trench: +2**
Improved Position: +1**		

\* Does not apply to armored (hard) units.

\*\* These are cumulative with all other applicable morale modifiers, to a maximum of +5.

### TERRAIN HEIGHT (in meters)

Water: 0	Field: 2	Suburb: 10
Open: 0	Vineyard: 2	Building: 15
Soft Sand: 0	Cactus Patch: 2	Smoke: 20
Beach: 0	Rough: 2	Forest: 25
Scrub: 0	Marsh: 3	Swamp: 25
Hammada: 0	Orchard: 8	Industrial: 20
Wadi: 0	Village: 10	City: 25

Base Elevation Change: depends on scenario

### COMMANDERS

**LEADERSHIP:** When a commander is stacked with a friendly unit whose morale is less than that commander's Leadership value, that unit's morale becomes equal to that Leadership value. If the commander's Leadership value is less than or equal to the unit's morale, that unit's morale is increased by one. (Morale increased due to Leadership is displayed in red.)

**COMMAND:** The strength of an attack is increased by an amount equal to the highest Command value of the friendly commander(s) stacked with the attacker(s), provided the commander has at least as many Action Points as that attack costs.

**INCREASING HQ RANGE:** When the Optional Rule for Command Control is enabled, the Leadership value of a leader who is stacked with "his" HQ (e.g., his regiment's HQ if he is a regimental leader) will increase the "supply range" of that HQ (see below) by his Leadership value.

### SUPPLY RANGES

Resupply attempts at the given hex range have a 50% chance of success. The distance between a unit and its HQ is directly proportional to its chance of successful resupply. An HQ that is out of supply cannot resupply any of its units.

Army HQ: infinite
Corps HQ: 90
Division HQ: 30
Brigade HQ: 15
Regiment HQ: 15

Battalion HQ: 8

**VARIED HQ RANGES:** When the Optional Rule for Command Control is enabled, the above "base" values for the HQ ranges are multiplied by the modifier listed in the charts below. These multipliers abstractly represent the increased or lessened range that the HQ will have, depending on the year-date of the scenario and the nationality. The range of a "CP" unit is half of the "50% range" of the Battalion HQ, fractions rounded up.

The "Mod" column lists the modifier for the year listed in the "Year" column. When the "base range" (as listed above) for that HQ type is multiplied by the modifier, the new "50% range" for that HQ type can be found.

<b>Belgium</b>		<b>50% Range</b>			
<b>Year</b>	<b>Mod</b>	<b>BTLN</b>	<b>RGT/BDE</b>	<b>DIV</b>	<b>CORPS</b>
40	0.75	6	11	23	68

<b>France</b>		<b>50% Range</b>			
<b>Year</b>	<b>Mod</b>	<b>BTLN</b>	<b>RGT/BDE</b>	<b>DIV</b>	<b>CORPS</b>
39	0.85	7	13	26	77
40	0.85	7	13	26	77

<b>Free France</b>		<b>50% Range</b>			
<b>Year</b>	<b>Mod</b>	<b>BTLN</b>	<b>RGT/BDE</b>	<b>DIV</b>	<b>CORPS</b>
40	0.9	7	14	27	81
41	1.0	8	15	30	90
42	1.0	8	15	30	90
43	1.1	9	17	33	99
44	1.1	9	17	33	99
45	1.2	10	18	36	108

<b>Germany</b>		<b>50% Range</b>			
<b>Year</b>	<b>Mod</b>	<b>BTLN</b>	<b>RGT/BDE</b>	<b>DIV</b>	<b>CORPS</b>
39	1.0	8	15	30	90
40	1.1	9	17	33	99
41	1.2	10	18	36	108
42	1.2	10	18	36	108
43	1.0	8	15	30	90
44	0.9	7	14	27	81
45	0.85	7	13	26	77

<b>Greece</b>		<b>50% Range</b>			
<b>Year</b>	<b>Mod</b>	<b>BTLN</b>	<b>RGT/BDE</b>	<b>DIV</b>	<b>CORPS</b>
40	0.8	6	12	24	72
41	0.8	6	12	24	72

<b>Italy (Allied)</b>		<b>50% Range</b>			
<b>Year</b>	<b>Mod</b>	<b>BTLN</b>	<b>RGT/BDE</b>	<b>DIV</b>	<b>CORPS</b>
43	0.7	6	11	21	63
44	0.7	6	11	21	63

45	0.7	6	11	21	63
----	-----	---	----	----	----

<b>Italy (Axis)</b>		<b>50% Range</b>			
<b>Year</b>	<b>Mod</b>	<b>BTLN</b>	<b>RGT/BDE</b>	<b>DIV</b>	<b>CORPS</b>
40	0.8	6	12	24	72
41	0.75	6	11	23	68
42	0.7	6	11	21	63
43	0.65	5	10	20	59

<b>Netherlands</b>		<b>50% Range</b>			
<b>Year</b>	<b>Mod</b>	<b>BTLN</b>	<b>RGT/BDE</b>	<b>DIV</b>	<b>CORPS</b>
40	0.8	6	12	24	72

<b>Norway</b>		<b>50% Range</b>			
<b>Year</b>	<b>Mod</b>	<b>BTLN</b>	<b>RGT/BDE</b>	<b>DIV</b>	<b>CORPS</b>
40	0.8	6	12	24	72

<b>UK/Commonwealth</b>		<b>50% Range</b>			
<b>Year</b>	<b>Mod</b>	<b>BTLN</b>	<b>RGT/BDE</b>	<b>DIV</b>	<b>CORPS</b>
39	0.9	7	14	27	81
40	0.9	7	14	27	81
41	1.0	8	15	30	90
42	1.0	8	15	30	90
43	1.1	9	17	33	99
44	1.1	9	17	33	99
45	1.2	10	18	36	108

<b>United States</b>		<b>50% Range</b>			
<b>Year</b>	<b>Mod</b>	<b>BTLN</b>	<b>RGT/BDE</b>	<b>DIV</b>	<b>CORPS</b>
42	0.85	7	13	26	77
43	1.0	8	15	30	90
44	1.2	10	18	36	108
45	1.3	10	20	39	117

<b>Vichy France</b>		<b>50% Range</b>			
<b>Year</b>	<b>Mod</b>	<b>BTLN</b>	<b>RGT/BDE</b>	<b>DIV</b>	<b>CORPS</b>
40	0.8	6	12	24	72
41	0.8	6	12	24	72
42	0.8	6	12	24	72

<b>Yugoslavia</b>		<b>50% Range</b>			
<b>Year</b>	<b>Mod</b>	<b>BTLN</b>	<b>RGT/BDE</b>	<b>DIV</b>	<b>CORPS</b>
41	0.7	6	11	21	63

**MISCELLANEOUS**

Action-Point cost to assault: 20 (in addition to the cost to enter hex)

Action-Point cost to enter a blocked hex: 65

Action-Point cost to dismount from non-transport vehicles (e.g., from tanks or assault guns): 10

Per-turn % chance of creating an Improved Position: 10 (engineer: 20)

The % chance that a commander will be killed during an attack: 2

Maximum elevation change (in meters) that a vehicle can make across one hexside: 49

The % chance that an Air Strike will arrive on the next turn: 65

## HOT KEYS

The following hot keys can be used in the main program:

**F1** - Open Main program help file

**F2** - Open Unit Handbook

**F3** - Open Scenario Parameter Data help file

**F4** - Opens the Miscellaneous (platoon) Data File

**F5** - Opens the Weapons Data File

**Keyboard 1** - Display in 3D Normal View

**Keyboard 2** - Display in 3D Zoom-Out View

**Keyboard 3** - Display in 3D Extreme Zoom-Out View

**Keyboard 4** - Display in 2D Normal View

**Keyboard 5** - Display in 2D Zoom-Out View

**Number Pad 0** - Load/unload unit

**Number Pad 1** - Move selected unit down and left

**Number Pad 2** - Move selected unit down

**Number Pad 3** - Move selected unit down and right

**Number Pad 4** - Turn selected unit counter-clockwise

**Number Pad 5** - Request air attack on Hot Spot hex

**Number Pad 6** - Turn selected unit clockwise

**Number Pad 7** - Move selected unit up and left

**Number Pad 8** - Move selected unit up

**Number Pad 9** - Move selected unit up and right

**Alt** - Used (with Indirect Fire unit) to fire Smoke; also for Organizational "Column" Movement

**Ctrl** - Toggle between Move mode and Fire mode

**Shift** - Display map labels; also for Organizational "Echelon" Movement

**Delete** - Turn selected unit counter-clockwise

**Page Down** - Turn selected unit clockwise

**Home** - Move selected unit forward in hex

**End** - Move selected unit backward in hex

**A** - Brings up the arrival of Reinforcements Dialog

**C** - Toggle display of map's elevation "contour" lines  
**D** - Brings up Opportunity Fire Dialog  
**F** - Display the release schedule for Fixed Units Dialog  
**H** - Toggle display of hexes reachable by selected unit  
**I** - Display scenario information  
**M** - Toggle display of program menu  
**N** - Advance to next unit to move or fire  
**O** - Toggle display of objectives  
**P** - Advance to previous unit to move or fire  
**R** - Rotate map 180°  
**S** - Display the Scheduled Reinforcements Dialog  
**T** - Toggle display of on-map thermometers  
**U** - Toggle display of Unit List  
**V** - Toggle display of Visible Hexes  
**W** - Toggle display of HQ command range  
**X** - Exit Main program  
**Z** - Toggle display of selected unit's maximum range  
**Up Arrow** - Scroll map up  
**Down Arrow** - Scroll map down  
**Right Arrow** - Scroll map right  
**Left Arrow** - Scroll map left  
**Space Bar** - Re-center map on current Hot Spot hex

