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### Please Note

Many of the values in these tables are set by the parameter data table file (PDT) these values can vary between games, and even between scenarios. The values used here are representative of typical values. The actual values for specific scenarios can be reviewed in game from the menu: "Help \ Parameter Data" or pressing F3.

#### **Terrain Codes**



Κ

Х

L

W

Т

Cratered.

Destroyed

The terrain code shows next to the terrain description. Several codes, may apply to a single hex. In the case above the hex is:

- K= Cratered
- $\circ$  X = Destroyed,
- C = Covered
- V unless via a road hex side. (Infantry can enter the hex without restriction)
   O Terrain is obstructed and prevents landing by helicopters.
   C Covered terrain, generates a special Immobility test when vehicles assault into it.

Hex may not be entered or exited by wheeled vehicles unless via a

road hex side (infantry can enter the hex without restriction) Hex may not be entered or exited by tracked vehicles unless via a

road hex side (infantry can enter the hex without restriction) Hex may not be entered by either Wheeled or Tracked Vehicles

NT No Tunnel movement allowed

Indirect fire is not possible from this hex

Whole Hex Terrain: Movement and		Terrain	Movement Costs				
Protection		Height	Protection	Infantry	Wheeled	Tracked	
<b>Clear</b> *Infantry derive their protection in clear terrain from the infantry protection parameter value usually set as 4		0	0*	6	6	6	
Deep Water*		0	X	Х	Х	Х	
Field		0	0	8	12	8	
Brush	500 S	0	0	8	12	8	
Vineyard		0	0	12	24	24	
Orchard		3	4	8	12	12	
Trees		5	8	8	12	12	

Whole Hex Terrain:		Terrain	Movement Costs				
Protection	and	Height	Protection	Infantry	Wheeled	Tracked	
Marsh*	$\langle a \rangle$	0	0	18	Х	Х	
Swamp	and and a	4	4	18	х	х	
Jungle		6	10	18	х	х	
Hard	$\langle \rangle$	0	0	6	6	6	
Broken		1	8	8	х	Х	
Sand	$\langle \rangle$	0	0	8	24	12	
Rough	1	1	8	12	Х	Х	
Village		3	6	8	8	8	
Town		4	12	8	24	24	
City		5	24	8	Х	Х	
Industrial		6	48	8	Х	Х	
Rice Paddy	$\langle \rangle$	0	8	8	12	12	
Shallow Water*	$\langle \rangle$	0	0	8	12	12	
High Grass		2	0	8	12	8	

\*In snow or frozen conditions marsh or swamp terrain has the same movement cost as clear terrain and marsh, streams and all water hexes are not distinguishable from clear terrain.

Effect of Ground Conditions on Movement							
	Normal	Soft	Mud	Snow & Frozen*			
Infantry	100%	125%	200%	150%			
Wheeled	100%	200%	400%	300%			
Tracked	100%	150%	300%	200%			

#### **Linear Features: Movement and Protection**

			1	Novement Co	ost
		Protection	Infantry	Wheeled	Tracked
<b>Trail</b> Trails provide no benefit to movement in snow or frozen terrain, in these conditions the movement cost will be that of the underlying terrain. And Trails will not be visible		0	5	5	5
Secondary Road		0	4	4	4
Primary Road		0	3	3	3
Railway		8*	8	12	8
Stream		8	4	4	4
Gully		12	6	8	8
Craters**	( 10.34 0.00	2	3	3	3

\*For railways protection is afforded only for fire coming from the hex sides crossed by the rail. \*\*Craters impose an additional movement cost to the underlying terrain \*\*\*In frozen & snow conditions Trails & Streams, are not visible. In these conditions the movement cost is the same as that of the underlying terrain.

Defensive			Notes		
Structures, Tunnels & Sewers		Protection	Movement Costs are dependent on the underlying terrain and are not affected by defensive structures, excepting movement between interconnected trench hexes.		
Improved		8	<ul> <li>50% protection to vehicles from owning side. No protection to vehicles from the opposing side</li> <li>50% protection to infantry of opposing side</li> </ul>		
Trench	X	16	<ul> <li>50% protection to vehicles from owning side. No protection to vehicles from the opposing side</li> <li>50% protection to infantry of opposing side</li> <li>movement between interconnected trench hexes has the same cost as clear terrain.</li> </ul>		
Breastwork	June	16	Only provide protection to the unit occupying the associated hex		
Bunker		32	No protection to vehicles		
Pillbox		64	No protection to vehicles		
Cave	G	64	<ul> <li>If a cave has a facing, then units in the cave hex cannot fire at, or be fired upon by, units outside of the covered arc.</li> <li>If an adjacent hex is higher than the cave, then the cave cannot be fire at or be fired upon by a unit occupying that hex.</li> <li>No protection to vehicles</li> <li>No protection to opponent units</li> <li>No retreat if occupying unit loses assault.</li> <li>Not affected by indirect fire</li> </ul>		
Tunnel		0	The notation "NT" in the hex information box of a tunnel hex means no tunnel movement is allowed in that scenario (determined by PDT value)		
Sewer		0			

Hex Side		Protection	n Movement Cost				
Features: Movement & Protection			Infantry	Wheeled	Tracked		
Hedgerow*		24	12	Х	12		
Hedge	Terrere	0	8	12	8		
Tank Ditch		0	12	Х	Х		
Dune	$> \langle$	8	4	12	8		
Embankment**		12	24	24	12		
Dike		12	8	Х	Х		
Escarpment**	X	24	12	Х	Х		
Wall		16	4	24	12		
Reef		0	х	Х	Х		
High Wall		24	Х	Х	6		
Cliff**		24	х	Х	Х		
Fence	X	0	24	Х	х		

\*Vehicles crossing Hedgerows become vulnerable. Firepower against them is doubled and armour is halved. \*\*Embankments, Escarpments and Cliffs only provide protection to the unit **within** the hex they are placed on the edge of. In each case illustrated above the protection is only afforded to the hex in the UPPER part of the image.

Obstacles and Mines						
Wire	Contraction of the second seco	Infantry become pinned automatically. Horses may not enter. No effect on leaders or vehicles				
Barriers		Wheeled and tracked vehicles may not enter. No effect on infantry or horses				
Booby Trap		If tripped always causes one casualty to infantry Can be tripped by vehicles but will cause no damage				
Anti- personnel mine	•••••	<ul> <li>If tripped by Infantry entering hex in ground mode will always cause 1 casualty</li> <li>If tripped by infantry not in ground mode will cause between 1-5 casualties</li> <li>If tripped by soft vehicles will be immobilised no effect on hard vehicles</li> </ul>				
Tank mine		No effect on infantry Will destroy soft vehicle and unload any passengers. Hard vehicles will be immobilised				
Teller Mine	•••••••••••••••••••••••••••••••••••••••	Function as Tank mines when in water hexes, otherwise have no effect. Always visible				
Flame Mine		Combine the damage effects of both AP and Tank Mines				

#### Weapon Types



Specialised weapon types are indicated by the symbol after the Fire Value. In the case above the \* represents an indirect fire weapon

-	Single use.
*	Indirect fire.
&	Lethality doubled against vehicles, bunkers, and Pillboxes.
^	Can only fire in the direction the vehicle is facing.
!	Anti-Air Only
@	Guided Missile
Х	Suicide weapon
+	Sniper
#	Detection Device
+++	Inspirational weapon (Displayed in place of a fire value)

Unit Status	Effects of Unit Status
Disrupted	<ul> <li>Movement costs are doubled.</li> <li>Attack at 1/2 Strength in assaults.</li> <li>Defend at 1/2 Strength if assaulted.</li> <li>Fire value is at 50%</li> <li>Cannot operate remote controls.</li> <li>Sniper weapons lose their advantages and are treated as normal weapons.</li> </ul>
Pinned	<ul> <li>Movement costs are doubled.</li> <li>Unable to attack in assaults.</li> <li>Defend at 1/4 Strength if assaulted.</li> <li>Fire Value is at 50%</li> <li>Must remain in "ground" mode.</li> <li>Cannot move closer to an enemy unit.</li> <li>Will become demoralised if moves.</li> <li>Cannot operate remote controls.</li> <li>Sniper weapons lose their advantages and are treated as normal weapons.</li> </ul>
Demoralised	<ul> <li>Movement costs are normal.</li> <li>Cannot move closer to an enemy unit.</li> <li>Unable to attack in assaults.</li> <li>Defend at 1/8 Strength if assaulted.</li> <li>Fire Value is at 25%</li> <li>Cannot operate remote controls.</li> <li>Sniper weapons lose their advantages and are treated as normal weapons.</li> </ul>

Toolbar Icons and Hotkeys						
Hot Key	lco	n	Function	Group		
Ctrl key	•		Move/fire mode	All		
Ν	Ø		Select Next stack	All		
Р	63		Select Previous stack	All		
Ctrl – Space	0		Roaming mode	All		
J			Open Jump map dialog	All		
Alt – ;			Activate AI	All		
Ctrl – Shift – S	2		Save battle	All		
F5			Slow the speed of the A/I processing within the current phase	All		
F6	O		Return A/I processing to normal speed within the current phase	All		
F7	۲		Increase the speed of the A/I processing within the current phase	All		
F8	۲		Put the A/I in the highest possible processing mode within the current phase	All		
Alt – Space	0		Pause Replay or A/I turn (toggle)	All		
Ctrl – N	Q		Next turn	All		
Ctrl – D	*		Unload/Drop units	Unit		
Ctrl – P	1		Load/Pick Up units	Unit		
Ctrl – G	*		Toggle on <b>G</b> round mode	Unit		
Ctrl – L	1		Turn Left	Unit		
Ctrl – R	•		Turn Right	Unit		
Ctrl – X	•		Remove From Map (e <mark>X</mark> it)	Unit		
Ctrl – W	-		Select Weapon load	Combat		
Ctrl – F	R.		Toggle hold <b>F</b> ire	Combat		
Ctrl – S			Toggle making <mark>S</mark> moke	Combat		
Ctrl – M			Toggle gas <mark>M</mark> asks	Combat		
Ctrl – T	(5)		Toggle weapon timer	Combat		
Ctrl – Y	(j)		Rall Y Units	Combat		
Ctrl – B		-	Artillery/air support dialog ( <b>B</b> ombard)	Combat		
Ctrl – C	<del>ر</del> م.		Attempt human wave Charge	Combat		
Alt – N	(j)		Open arrived dialog ( <b>New</b> units)	Report		
Alt – G	1		Open strength dialog	Report		
Alt – Y	8		Open victor <b>Y</b> Dialog	Report		
Alt – K	3		Open last command dialog	Report		

Toolbar Icons and Hotkeys						
Hot Key	lcon	Function	Group			
Alt – O	F	Open <b>o</b> bjectives dialog	Report			
Mouse wheel Up	+	Zoom-in	Мар			
Mouse wheel Down	-	Zoom-out	Мар			
Keyboard \	Q	Full Screen Map (toggle)	Мар			
Keyboard `	ŧ	Show Location Labels (toggle)	Мар			
Keyboard –	F	Show Objectives (toggle)	Мар			
Keyboard ]	5	Show Map Slopes (toggle)	Мар			
Keyboard [	~	Show Map Contours (toggle)	Мар			
Keyboard '	0	Show Special Markers on Top (toggle)	Мар			
<b>Alt –</b> \	Q	Open find unit dialog	Мар			
Y	$\boxtimes$	Show Company Markings (identif Y) (toggle)	Мар			
Z	E3	Turn Units Off ( <mark>Z</mark> ero) (toggle)	Мар			
W	R	Turn Weapons Off (toggle)	Мар			
V	58	Shade <b>V</b> isible Hexes (toggle)	Unit			
н	0	Shade Reachable Hexes (toggle)	Unit			
С	(p)	Shade <b>C</b> ommand Range (toggle)	Unit			
X	0	Shade maXimum Range (toggle)	Unit			
L L	*	Shade Illuminated Hexes (toggle)	Unit			
F	•	Highlight <b>F</b> ixed Units (toggle)	Highlight			
М	U	Highlight Units using Movement Points (toggle)	Highlight			
S	60	Highlight Spotted Units (toggle)	Highlight			
т	$\odot$	Highlight <b>T</b> arget Units (toggle)	Highlight			
В	· <del>~</del> ))	Highlight Human Wave Units (Berserk) (toggle)	Highlight			
Q	品	Highlight Organization (head Quarters) (toggle)	Highlight			

## Hotkeys Not Accessible From the Toolbar

Hotkey	Function
Alt – A	Open <mark>A</mark> /i menu
Alt – C	Open Command menu
Alt – F	Open File menu
Alt – F5	Slow the speed of the a/i processing for the a/i turn
Alt – F6	Return a/i processing to normal speed for the a/i turn
Alt – F7	Increase the speed of the a/i processing for the a/i turn
Alt – F8	Put the a/i in the highest possible processing mode for the a/i turn
Alt – H	Open Help menu
Alt – I	Open info menu
Alt – J	Open releases dialog ( <b>J</b> oin)
Alt – L	Open Location dialog
Alt – M	Open Mode menu
Alt – Q	Open organization dialog (headQuarters)
Alt – S	Open <mark>S</mark> ettings menu
Alt – T	Open Turn menu
Alt – U	Open <mark>U</mark> nits menu
Alt – V	Open View menu
Alt – X	Open withdrawals dialog (eXit)
Alt – Z	Open scheduled dialog
Ctrl – Alt – F6	Return a/i processing to normal speed for all turn modes
Ctrl – F5	Slow the speed of the a/i processing for the replay
Ctrl – F6	Return a/i processing to normal speed for the replay
Ctrl – F7	Increase the speed of the a/i processing for the replay
Ctrl – F8	Put the a/i in the highest possible processing mode for the replay
Ctrl – U	Undo last movement
Esc key	Halts a/i processing during a/i turns and replays
F1	Display main program help file
F10	Display getting started file
F2	Display user manual
F3	Display parameter data

## Hotkeys Not Accessible From the Toolbar

Hotkey	Function
F4	Display weapon data
F9	Display campaign notes
К	Highlight commanded units (network play only) (toggle)
Keyboard 1	Display the map in 2d zoom-out view
Keyboard 2	Display the map in 2d normal view
Keyboard 3	Display the map in 2d zoom-in view
Keyboard 4	Display the map in 3d zoom-out view
Keyboard 5	Display the map in 3d normal view
Number Pad 0	Toggle on ground mode for the selected units
Number Pad 1	Move the selected units down and to the left one hex
Number Pad 2	Move the selected units down one hex
Number Pad 3	Move the selected units down and to the right one hex
Number Pad 4	Turn the selected units counterclockwise
Number Pad 6	Turn the selected units clockwise
Number Pad 7	Move the selected units up and to the left one hex
Number Pad 8	Move the selected units up one hex
Number Pad 9	Move the selected units up and to the right one hex