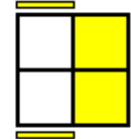
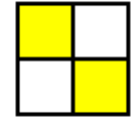
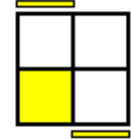
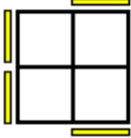
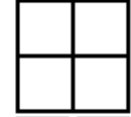


[Link to Tutorial](#)

OLL

Case	Algorithm	Alternate Algorithm
	$F (R U R' U') F'$	
	$(R U R' U') (R' F R F')$	
	$F R U' (R' U' R U) R' F'$	
	$(R U R' U) R U^2 R'$	
	$R U^2 R' (U' R U' R')$	
	$F (R U R' U') (R U R' U') F'$	
	$R^2 U^2 R' U^2 R^2$	3x3 alg [not recommended]- $F (R U R' U') (R U R' U') (R U R' U') F'$

PBL

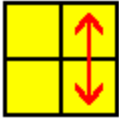
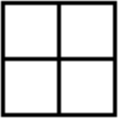
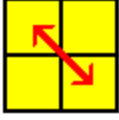
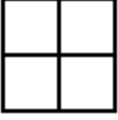
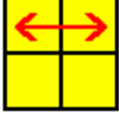
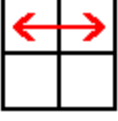
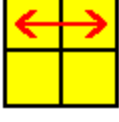
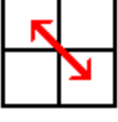
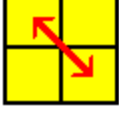
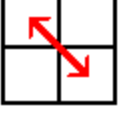
Case	Optimal Algorithm	Alternate Algorithm
UP  DOWN 	T perm- $(R\ U\ R'\ U')\ R'\ F\ R^2\ U'$ $(R'\ U'\ R\ U)\ R'\ F'$	Jb Perm- $(R\ U\ R'\ F')\ (R\ U\ R'\ U')$ $(R'\ F)\ (R^2\ U')\ (R'\ U')$
UP  DOWN 	$(R\ U'\ R'\ U')\ F^2\ (U'\ R\ U\ R')\ D\ R^2$	Y Perm [not recommended]- $(F\ R\ U')\ (R'\ U'\ R\ U)\ (R'\ F')\ (R\ U\ R'\ U')\ (R'\ F\ R\ F')$
UP  DOWN 	$R^2\ U'\ B^2\ (U^2\ R^2\ U'\ R^2)$	
UP  DOWN 	$(R\ U'\ R)\ F^2\ (R'\ U\ R')$	
UP  DOWN 	$R^2\ F^2\ R^2$	

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