

TABLE I. Matrices required to have positive semidefinite character as a necessary condition for stability of self-consistent solution of type  $X$  in the space of type  $Y$ .

$X \backslash Y$	Real RHF <sup>a</sup>	Complex RHF	Real UHF	Complex UHF	Real GHF	Complex GHF
Real RHF <sup>a</sup>	${}^1\mathbf{A}' + {}^1\mathbf{B}'$	${}^1\mathbf{A}' - {}^1\mathbf{B}'$	${}^3\mathbf{A}' + {}^3\mathbf{B}'$			
Complex RHF		${}^1\mathbf{H}'$		${}^3\mathbf{H}'$		
Real UHF			$\mathbf{A}' + \mathbf{B}'$	$\mathbf{A}' - \mathbf{B}'$	$\mathbf{A}'' + \mathbf{B}''$	
Complex UHF				$\mathbf{H}'$		$\mathbf{H}''$
Real GHF					$\mathbf{A} + \mathbf{B}$	$\mathbf{A} - \mathbf{B}$
Complex GHF						$\mathbf{H}$

<sup>a</sup>Singlet closed shell case ( $n_\alpha = n_\beta$ ) only.