



**Table 5.** M–CO and C–O Bond Lengths (Å) of M(CO)<sub>5</sub>

method	Fe(CO) <sub>5</sub>				Ru(CO) <sub>5</sub>				Os(CO) <sub>5</sub>			
	M–C <sub>ax</sub>	M–C <sub>eq</sub>	C–O <sub>ax</sub>	C–O <sub>eq</sub>	M–C <sub>ax</sub>	M–C <sub>eq</sub>	C–O <sub>ax</sub>	C–O <sub>eq</sub>	M–C <sub>ax</sub>	M–C <sub>eq</sub>	C–O <sub>ax</sub>	C–O <sub>eq</sub>
LDA	1.769	1.789	1.145	1.149	1.934	1.931	1.142	1.147	2.003	1.988	1.140	1.147
NL-SCF	1.819	1.816	1.153	1.157	1.983	1.980	1.149	1.154	2.061	2.050	1.147	1.153
NL-SCF+QR	1.817	1.813	1.153	1.156	1.968	1.960	1.150	1.157	2.000	1.975	1.147	1.156
MRCI <sup>a</sup>	1.798	1.835										
MCPF <sup>b</sup>	1.878	1.847	1.168	1.177								
exp <sup>c</sup>	1.807	1.827	1.152	1.152	1.950 <sup>d</sup>	1.969 <sup>d</sup>	1.143	1.143	1.990 <sup>e</sup>	1.943 <sup>e</sup>	1.142	1.142

<sup>a</sup> Reference 41. <sup>b</sup> Reference 39. <sup>c</sup> Fe(CO)<sub>5</sub> from ref 41, Ru(CO)<sub>5</sub> from ref 42, Os(CO)<sub>5</sub> from ref 43. <sup>d</sup> Estimated errors are 0.01 Å for Ru–CO bonds. <sup>e</sup> Estimated errors are 0.02 Å for Os–CO bonds.