

Project:
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ETAP
12.6.0H

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Series Impedance/Shunt Admittance
Matrices (Phase Domain)

Line ID	Line ID	Length miles		R (ohms)			X (ohms)			Y (micro-siemens)		
				A	B	C	A	B	C	A	B	C
Co14	Co14		A	0.13800	0	0	0.20300	0	0	0	0	0
			B	0	0.13800	0	0	0.20300	0	0	0	0
			C	0	0	0.13800	0	0	0.20300	0	0	0
Co57	Co57		A	0.01230	0	0	0.01810	0	0	0	0	0
			B	0	0.01230	0	0	0.01810	0	0	0	0
			C	0	0	0.01230	0	0	0.01810	0	0	0
Co58	Co58		A	0.01230	0	0	0.01810	0	0	0	0	0
			B	0	0.01230	0	0	0.01810	0	0	0	0
			C	0	0	0.01230	0	0	0.01810	0	0	0
Co130	Co130		A	0.02800	0	0	0.04130	0	0	0	0	0
			B	0	0.02800	0	0	0.04130	0	0	0	0
			C	0	0	0.02800	0	0	0.04130	0	0	0
Co260	Co260		A	0.05610	0	0	0.08260	0	0	0	0	0
			B	0	0.05610	0	0	0.08260	0	0	0	0
			C	0	0	0.05610	0	0	0.08260	0	0	0
Co261	Co261		A	0.05600	0	0	0.08200	0	0	0	0	0
			B	0	0.05600	0	0	0.08200	0	0	0	0
			C	0	0	0.05600	0	0	0.08200	0	0	0
Co294	Co294		A	0.05700	0	0	0.08400	0	0	0	0	0
			B	0	0.05700	0	0	0.08400	0	0	0	0
			C	0	0	0.05700	0	0	0.08400	0	0	0
Co528	Co528		A	0.11400	0	0	0.16700	0	0	0	0	0
			B	0	0.11400	0	0	0.16700	0	0	0	0
			C	0	0	0.11400	0	0	0.16700	0	0	0
Co600	Co600		A	0.12900	0	0	0.19080	0	0	0	0	0
			B	0	0.12900	0	0	0.19080	0	0	0	0
			C	0	0	0.12900	0	0	0.19080	0	0	0
Co645	Co645		A	0.13900	0	0	0.20500	0	0	0	0	0
			B	0	0.13900	0	0	0.20500	0	0	0	0
			C	0	0	0.13900	0	0	0.20500	0	0	0

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Line ID	Line ID	Length miles		R (ohms)			X (ohms)			Y (micro-siemens)		
				A	B	C	A	B	C	A	B	C
Co999	Co999		A	0.21500	0	0	0.31700	0	0	0	0	0
			B	0	0.21500	0	0	0.31700	0	0	0	0
			C	0	0	0.21500	0	0	0.31700	0	0	0
Co999	Co999		A	0.21500	0	0	0.31700	0	0	0	0	0
			B	0	0.21500	0	0	0.31700	0	0	0	0
			C	0	0	0.21500	0	0	0.31700	0	0	0
Co.1032	Co.1032		A	0.22300	0	0	0.32800	0	0	0	0	0
			B	0	0.22300	0	0	0.32800	0	0	0	0
			C	0	0	0.22300	0	0	0.32800	0	0	0
D240	D240		A	0.06470	0	0	0.07820	0	0	0	0	0
			B	0	0.06470	0	0	0.07820	0	0	0	0
			C	0	0	0.06470	0	0	0.07820	0	0	0
D256	D256		A	0.06470	0	0	0.07820	0	0	0	0	0
			B	0	0.06470	0	0	0.07820	0	0	0	0
			C	0	0	0.06470	0	0	0.07820	0	0	0
D276	D276		A	0.18000	0	0	0.21840	0	0	0	0	0
			B	0	0.18000	0	0	0.21840	0	0	0	0
			C	0	0	0.18000	0	0	0.21840	0	0	0
D634	D634		A	0.17100	0	0	0.20670	0	0	0	0	0
			B	0	0.17100	0	0	0.20670	0	0	0	0
			C	0	0	0.17100	0	0	0.20670	0	0	0
D655	D655		A	0.17660	0	0	0.21350	0	0	0	0	0
			B	0	0.17660	0	0	0.21350	0	0	0	0
			C	0	0	0.17660	0	0	0.21350	0	0	0
D711	D711		A	0.19100	0	0	0.23100	0	0	0	0	0
			B	0	0.19100	0	0	0.23100	0	0	0	0
			C	0	0	0.19100	0	0	0.23100	0	0	0
D718	D718		A	0.19300	0	0	0.23400	0	0	0	0	0
			B	0	0.19300	0	0	0.23400	0	0	0	0
			C	0	0	0.19300	0	0	0.23400	0	0	0
R10	R10		A	0.21600	0	0	0.14200	0	0	0	0	0
			B	0	0.21600	0	0	0.14200	0	0	0	0
			C	0	0	0.21600	0	0	0.14200	0	0	0

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				A	B	C	A	B	C	A	B	C
R36	R36		A	0.01900	0	0	0.01200	0	0	0	0	0
			B	0	0.01900	0	0	0.01200	0	0	0	0
			C	0	0	0.01900	0	0	0.01200	0	0	0
R36	R36		A	0.01900	0	0	0.01200	0	0	0	0	0
			B	0	0.01900	0	0	0.01200	0	0	0	0
			C	0	0	0.01900	0	0	0.01200	0	0	0
R45	R45		A	0.02380	0	0	0.01560	0	0	0	0	0
			B	0	0.02380	0	0	0.01560	0	0	0	0
			C	0	0	0.02380	0	0	0.01560	0	0	0
R106	R106		A	0.05600	0	0	0.03600	0	0	0	0	0
			B	0	0.05600	0	0	0.03600	0	0	0	0
			C	0	0	0.05600	0	0	0.03600	0	0	0
R150	R150		A	0.07900	0	0	0.05100	0	0	0	0	0
			B	0	0.07900	0	0	0.05100	0	0	0	0
			C	0	0	0.07900	0	0	0.05100	0	0	0
R164	R164		A	0.07720	0	0	0.05060	0	0	0	0	0
			B	0	0.07720	0	0	0.05060	0	0	0	0
			C	0	0	0.07720	0	0	0.05060	0	0	0
R190	R190		A	0.10051	0	0	0.06500	0	0	0	0	0
			B	0	0.10051	0	0	0.06500	0	0	0	0
			C	0	0	0.10051	0	0	0.06500	0	0	0
R380	R380		A	0.20102	0	0	0.13180	0	0	0	0	0
			B	0	0.20102	0	0	0.13180	0	0	0	0
			C	0	0	0.20102	0	0	0.13180	0	0	0
R410	R410		A	0.21600	0	0	0.14200	0	0	0	0	0
			B	0	0.21600	0	0	0.14200	0	0	0	0
			C	0	0	0.21600	0	0	0.14200	0	0	0
R436	R436		A	0.23000	0	0	0.15100	0	0	0	0	0
			B	0	0.23000	0	0	0.15100	0	0	0	0
			C	0	0	0.23000	0	0	0.15100	0	0	0
R455	R455		A	0.24000	0	0	0.15700	0	0	0	0	0
			B	0	0.24000	0	0	0.15700	0	0	0	0
			C	0	0	0.24000	0	0	0.15700	0	0	0

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				A	B	C	A	B	C	A	B	C
R560	R560		A	0.29600	0	0	0.19400	0	0	0	0	0
			B	0	0.29600	0	0	0.19400	0	0	0	0
			C	0	0	0.29600	0	0	0.19400	0	0	0
R560	R560		A	0.29600	0	0	0.19400	0	0	0	0	0
			B	0	0.29600	0	0	0.19400	0	0	0	0
			C	0	0	0.29600	0	0	0.19400	0	0	0
R734	R734		A	0.38800	0	0	0.25400	0	0	0	0	0
			B	0	0.38800	0	0	0.25400	0	0	0	0
			C	0	0	0.38800	0	0	0.25400	0	0	0
R803	R803		A	0.42400	0	0	0.27800	0	0	0	0	0
			B	0	0.42400	0	0	0.27800	0	0	0	0
			C	0	0	0.42400	0	0	0.27800	0	0	0
R844	R844		A	0.44640	0	0	0.29200	0	0	0	0	0
			B	0	0.44640	0	0	0.29200	0	0	0	0
			C	0	0	0.44640	0	0	0.29200	0	0	0
R950	R950		A	0.50200	0	0	0.32900	0	0	0	0	0
			B	0	0.50200	0	0	0.32900	0	0	0	0
			C	0	0	0.50200	0	0	0.32900	0	0	0
R1435	R1435		A	0.38800	0	0	0.25400	0	0	0	0	0
			B	0	0.38800	0	0	0.25400	0	0	0	0
			C	0	0	0.38800	0	0	0.25400	0	0	0
R1499	R1499		A	0.79200	0	0	0.52000	0	0	0	0	0
			B	0	0.79200	0	0	0.52000	0	0	0	0
			C	0	0	0.79200	0	0	0.52000	0	0	0

For impedances below center-tap transformers, Phases A, B, and C correspond to (1), (2), and (N) respectively.