

TABLE 5 CONT'D

THREE-CIRCUIT TRANSFORMERS (CONT'D.)			
DESCRIPTION	DIAGRAM OF CONNECTIONS	POSITIVE-SEQUENCE EQUIVALENT CIRCUIT	ZERO SEQUENCE EQUIVALENT CIRCUIT
C-3 STAR / STAR/ DELTA SOLIDLY GROUNDED NEUTRALS		 $Z_{M1}\% = \frac{1}{2} \left[Z_{45}\% + Z_{46}\% - \frac{U_4}{U_5} Z_{56}\% \right]$ $Z_{L1}\% = \frac{1}{2} \left[Z_{46}\% + \frac{U_4}{U_5} Z_{56}\% - Z_{45}\% \right]$ $Z_{H1}\% = \frac{1}{2} \left[\frac{U_4}{U_5} Z_{56}\% + Z_{45}\% - Z_{46}\% \right]$	 $Z_{M0}\% = Z_{M1}\%$ $Z_{L0}\% = Z_{L1}\%$ $Z_{H0}\% = Z_{H1}\%$
C-6 DELTA / STAR/ DELTA SOLIDLY GROUNDED NEUTRAL		 $Z_{M1}\% = \frac{1}{2} \left[Z_{45}\% + Z_{46}\% - \frac{U_4}{U_5} Z_{56}\% \right]$ $Z_{L1}\% = \frac{1}{2} \left[Z_{46}\% + \frac{U_4}{U_5} Z_{56}\% - Z_{45}\% \right]$ $Z_{H1}\% = \frac{1}{2} \left[\frac{U_4}{U_5} Z_{56}\% + Z_{45}\% - Z_{46}\% \right]$	 $Z_{M0}\% = Z_{M1}\%$ $Z_{L0}\% = Z_{L1}\%$ $Z_{H0}\% = Z_{H1}\%$
C-7 DELTA / DELTA/ DELTA		SAME AS C-1	 $Z_{M0}\% = Z_{M1}\%$ $Z_{L0}\% = Z_{L1}\%$ $Z_{H0}\% = Z_{H1}\%$
THREE-CIRCUIT AUTOTRANSFORMERS			
D-1 STAR / STAR/ DELTA SOLIDLY GROUNDED NEUTRAL		 $Z_{M1}\% = \frac{1}{2} \left[Z_{45}\% + Z_{46}\% - \frac{U_4}{U_5} Z_{56}\% \right]$ $Z_{L1}\% = \frac{1}{2} \left[Z_{46}\% + \frac{U_4}{U_5} Z_{56}\% - Z_{45}\% \right]$ $Z_{H1}\% = \frac{1}{2} \left[\frac{U_4}{U_5} Z_{56}\% + Z_{45}\% - Z_{46}\% \right]$	 $Z_{M0}\% = Z_{M1}\%$ $Z_{L0}\% = Z_{L1}\%$ $Z_{H0}\% = Z_{H1}\%$
D-2 STAR / STAR/ DELTA UNGROUND ED NEUTRAL		SAME AS D-1	 $N' = \frac{E_5}{E_4}$ $Z_0\% = N'(N'-1) \left[\frac{U_4}{U_5} Z_{56}\% - \frac{Z_{46}\% + Z_{45}\%}{N' + N'-1} \right]$