```
 08/20/93 UW ARCHIVE           100.0  1961 W IEEE 30 Bus Test Case
BUS DATA FOLLOWS                            30 ITEMS
   1 Glen Lyn 132  1  1  3 1.060    0.0       0.0      0.0    260.2   -16.1   132.0
1.060     0.0     0.0   0.0    0.0        0
   2 Claytor  132  1  1  2 1.043  -5.48     21.7     12.7     40.0    50.0   132.0
1.045    50.0   -40.0   0.0    0.0        0
   3 Kumis    132  1  1  0 1.021  -7.96      2.4      1.2      0.0     0.0   132.0  0.0
0.0      0.0   0.0    0.0        0
   4 Hancock  132  1  1  0 1.012  -9.62      7.6      1.6      0.0     0.0   132.0  0.0
0.0      0.0   0.0    0.0        0
   5 Fieldale 132  1  1  2 1.010 -14.37     94.2     19.0      0.0    37.0   132.0
1.010    40.0   -40.0   0.0    0.0        0
   6 Roanoke  132  1  1  0 1.010 -11.34      0.0      0.0      0.0     0.0   132.0  0.0
0.0      0.0   0.0    0.0        0
   7 Blaine   132  1  1  0 1.002 -13.12     22.8     10.9      0.0     0.0   132.0  0.0
0.0      0.0   0.0    0.0        0
   8 Reusens  132  1  1  2 1.010 -12.10     30.0     30.0      0.0    37.3   132.0
1.010    40.0   -10.0   0.0    0.0        0
   9 Roanoke  1.0  1  1  0 1.051 -14.38      0.0      0.0      0.0     0.0     1.0  0.0
0.0      0.0   0.0    0.0        0
  10 Roanoke   33  1  1  0 1.045 -15.97      5.8      2.0      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.19       0
  11 Roanoke   11  1  1  2 1.082 -14.39      0.0      0.0      0.0    16.2    11.0
1.082    24.0    -6.0   0.0    0.0        0
  12 Hancock   33  1  1  0 1.057 -15.24     11.2      7.5      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  13 Hancock   11  1  1  2 1.071 -15.24      0.0      0.0      0.0    10.6    11.0
1.071    24.0    -6.0   0.0    0.0        0
  14 Bus 14    33  1  1  0 1.042 -16.13      6.2      1.6      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  15 Bus 15    33  1  1  0 1.038 -16.22      8.2      2.5      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  16 Bus 16    33  1  1  0 1.045 -15.83      3.5      1.8      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  17 Bus 17    33  1  1  0 1.040 -16.14      9.0      5.8      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  18 Bus 18    33  1  1  0 1.028 -16.82      3.2      0.9      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  19 Bus 19    33  1  1  0 1.026 -17.00      9.5      3.4      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  20 Bus 20    33  1  1  0 1.030 -16.80      2.2      0.7      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  21 Bus 21    33  1  1  0 1.033 -16.42     17.5     11.2      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  22 Bus 22    33  1  1  0 1.033 -16.41      0.0      0.0      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  23 Bus 23    33  1  1  0 1.027 -16.61      3.2      1.6      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  24 Bus 24    33  1  1  0 1.021 -16.78      8.7      6.7      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.043      0
  25 Bus 25    33  1  1  0 1.017 -16.35      0.0      0.0      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  26 Bus 26    33  1  1  0 1.000 -16.77      3.5      2.3      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  27 Cloverdle 33  1  1  0 1.023 -15.82      0.0      0.0      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  28 Cloverdle132  1  1  0 1.007 -11.97      0.0      0.0      0.0     0.0   132.0  0.0
0.0      0.0   0.0    0.0        0
  29 Bus 29    33  1  1  0 1.003 -17.06      2.4      0.9      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
  30 Bus 30    33  1  1  0 0.992 -17.94     10.6      1.9      0.0     0.0    33.0  0.0
0.0      0.0   0.0    0.0        0
-999
BRANCH DATA FOLLOWS                         41 ITEMS
   1    2  1  1 1 0  0.0192    0.0575      0.0528     0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
   1    3  1  1 1 0  0.0452    0.1652      0.0408     0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
   2    4  1  1 1 0  0.0570    0.1737      0.0368     0     0     0    0 0  0.0
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0.0 0.0    0.0     0.0    0.0   0.0
   3    4  1  1 1 0  0.0132    0.0379      0.0084     0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
   2    5  1  1 1 0  0.0472    0.1983      0.0418     0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
   2    6  1  1 1 0  0.0581    0.1763      0.0374     0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
   4    6  1  1 1 0  0.0119    0.0414      0.0090     0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
   5    7  1  1 1 0  0.0460    0.1160      0.0204     0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
   6    7  1  1 1 0  0.0267    0.0820      0.0170     0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
   6    8  1  1 1 0  0.0120    0.0420      0.0090     0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
   6    9  1  1 1 0  0.0       0.2080      0.0        0     0     0    0 0  0.978
0.0 0.0    0.0     0.0    0.0   0.0
   6   10  1  1 1 0  0.0       0.5560      0.0        0     0     0    0 0  0.969
0.0 0.0    0.0     0.0    0.0   0.0
   9   11  1  1 1 0  0.0       0.2080      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
   9   10  1  1 1 0  0.0       0.1100      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
   4   12  1  1 1 0  0.0       0.2560      0.0        0     0     0    0 0  0.932
0.0 0.0    0.0     0.0    0.0   0.0
  12   13  1  1 1 0  0.0       0.1400      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  12   14  1  1 1 0  0.1231    0.2559      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  12   15  1  1 1 0  0.0662    0.1304      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  12   16  1  1 1 0  0.0945    0.1987      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  14   15  1  1 1 0  0.2210    0.1997      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  16   17  1  1 1 0  0.0524    0.1923      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  15   18  1  1 1 0  0.1073    0.2185      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  18   19  1  1 1 0  0.0639    0.1292      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  19   20  1  1 1 0  0.0340    0.0680      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  10   20  1  1 1 0  0.0936    0.2090      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  10   17  1  1 1 0  0.0324    0.0845      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  10   21  1  1 1 0  0.0348    0.0749      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  10   22  1  1 1 0  0.0727    0.1499      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  21   22  1  1 1 0  0.0116    0.0236      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  15   23  1  1 1 0  0.1000    0.2020      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  22   24  1  1 1 0  0.1150    0.1790      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  23   24  1  1 1 0  0.1320    0.2700      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  24   25  1  1 1 0  0.1885    0.3292      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  25   26  1  1 1 0  0.2544    0.3800      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  25   27  1  1 1 0  0.1093    0.2087      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  28   27  1  1 1 0  0.0       0.3960      0.0        0     0     0    0 0  0.968
0.0 0.0    0.0     0.0    0.0   0.0
  27   29  1  1 1 0  0.2198    0.4153      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
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  27   30  1  1 1 0  0.3202    0.6027      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
  29   30  1  1 1 0  0.2399    0.4533      0.0        0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
   8   28  1  1 1 0  0.0636    0.2000      0.0428     0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
   6   28  1  1 1 0  0.0169    0.0599      0.0130     0     0     0    0 0  0.0
0.0 0.0    0.0     0.0    0.0   0.0
-999
LOSS ZONES FOLLOWS                    1 ITEMS
  1 IEEE 30 BUS
-99
INTERCHANGE DATA FOLLOWS                1 ITEMS
-9
 1    2 Claytor  132    0.0  999.99  IEEE30  IEEE 30 Bus Test Case
TIE LINES FOLLOWS                     0 ITEMS
-999
END OF DATA
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