

APPENDIX II

ADDITIONAL TECHNIQUE FOR DISTRIBUTION SHAPE
NOT ASSUMED

RUN TESTS

In addition to the rank test for two groups given in Section V A3, there is another simple test called the run test that may be used, although it is probably not as sensitive as the rank test.

First arrange all individuals of both samples in ascending or descending order. Then count the number of "runs" from each sample. For example, suppose the observations from the two samples are identified by A and B, and the ordered series gives

A B B A A A B A B B

Here the number of runs is six: A - BB - AAA - B - A - BB. From Table 31, it can be established whether this number of runs is too small for the observations of both samples to have been drawn from one population. If the number of runs is too small, it may be concluded that the samples are probably different.

EXAMPLE—Inspection of the data in the rank test example, Table 12, shows a total of ten "runs." Ranks 1 and 2 count as a run, rank 3 counts as a run, and, similarly, 4 to 6, 7, 8 to 10, and so on. According to Table 31, eight or less runs should not occur, for $N_1 = 10$ and $N_2 = 17$, more than once in 40 times (2.5 per cent), on the average. In the example used, the run test does not indicate clearly that the machines are not interchangeable. However, the fact that the ten runs found are close to the critical number of eight runs implies the desirability of another check, such as already has been provided by the rank test, for example.