Plant Operator Selection System (POSS)

POSS is a set of test batteries that were developed and validated to aid in selecting power plant operators. POSS is the culmination of a large research program sponsored by the Edison Electric Institute and carried out by the Personnel Decisions Research Institute. A total of 70 investor-owned electric utility companies initially participated in the project. (There were 92 participating companies in mid-1995.) Research information was obtained and analyzed from thousands of company officials, supervisors, and plant operating personnel working in hundreds of plants. The result of this extensive research effort is a battery of paper-and-pencil tests that predict the likelihood of success in various power plant operator jobs.

POSS can be used to select candidates for operating jobs in fossil, nuclear, or hydro power plants. The tests take about two hours to administer. Components of the batteries measure how a candidate compares with others on a number of important aptitudes or abilities. Each POSS test battery consists of a number of aptitude tests.

The aptitude tests measure the mental abilities found to be important to successful job performance for plant operators. The aptitude tests are arranged in three alternate batteries which differ slightly in the time required for administration.

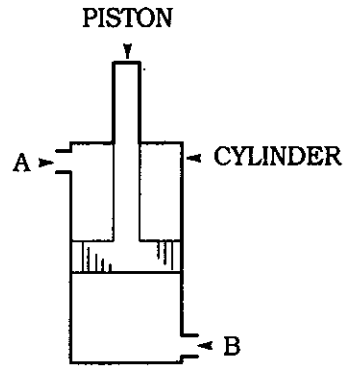
Although the content of the aptitude batteries differs somewhat, each battery has been found to be related to success in plant operations work. Aptitude Battery C, which is most widely used, is comprised of the following tests:

Reading Comprehension. This test measures a person's ability to read and understand the type of material found in power plant operator training and safety manuals. The **Reading Comprehension** test consists of five reading passages, each followed by several multiple-choice questions about the passage. The test has 36 items and a 30-minute time limit.

Mechanical Concepts. This test measures the ability to understand mechanical principals. There are 44 multiple-choice items. Each item contains a pictorial description of a mechanical situation, a question, and three possible answers. This test has a 20-minute time limit.

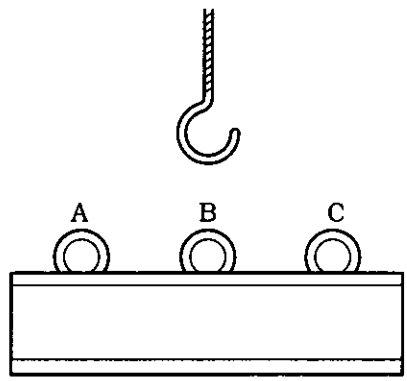
Examples of the Mechanical Concepts Test are:

x) In the figure below, at which point should pressurized air enter the cylinder to lower the piston? (If both, mark C.)



● **A**
○ **B**
○ **C** (Both A & B)

y) To keep the beam horizontal when lifted, at which point should you hook the cable?

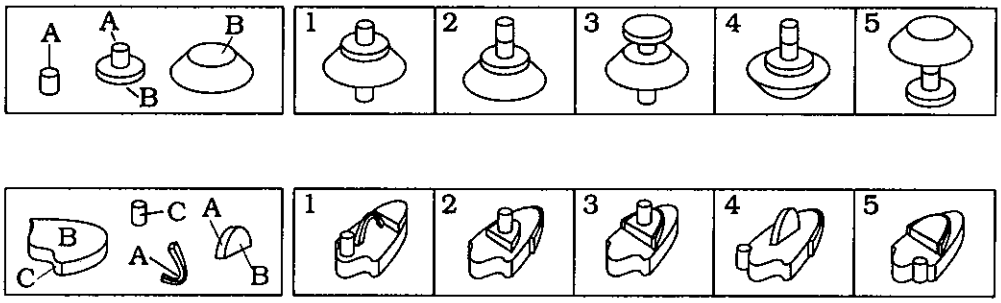


○ **A**
● **B**
○ **C**

Mathematical Usage. This test measures skill in solving and manipulating mathematical relationships. There are three sections: formula conversion problems, algebra problems, and word problems. The total test contains 46 multiple-choice items and has a 17-minute time limit.

Spatial Ability. This test measures the ability to visualize the proper assembled form of an object. In this test, candidates are to assemble the parts so that the places having the same letter are put together. The test contains 20 multiple-choice items and has a 10-minute time limit.

Examples of the **Spatial Ability Test** are:



Tables and Graphs. This test measures speed and accuracy in reading tables and graphs. Part I contains a table of numbers which is used to answer 60 multiple-choice items. It has a five-minute time limit. Part II contains a graph which is used to answer 24 multiple-choice items. It has a four-minute time limit.