

Hot Working of Metals

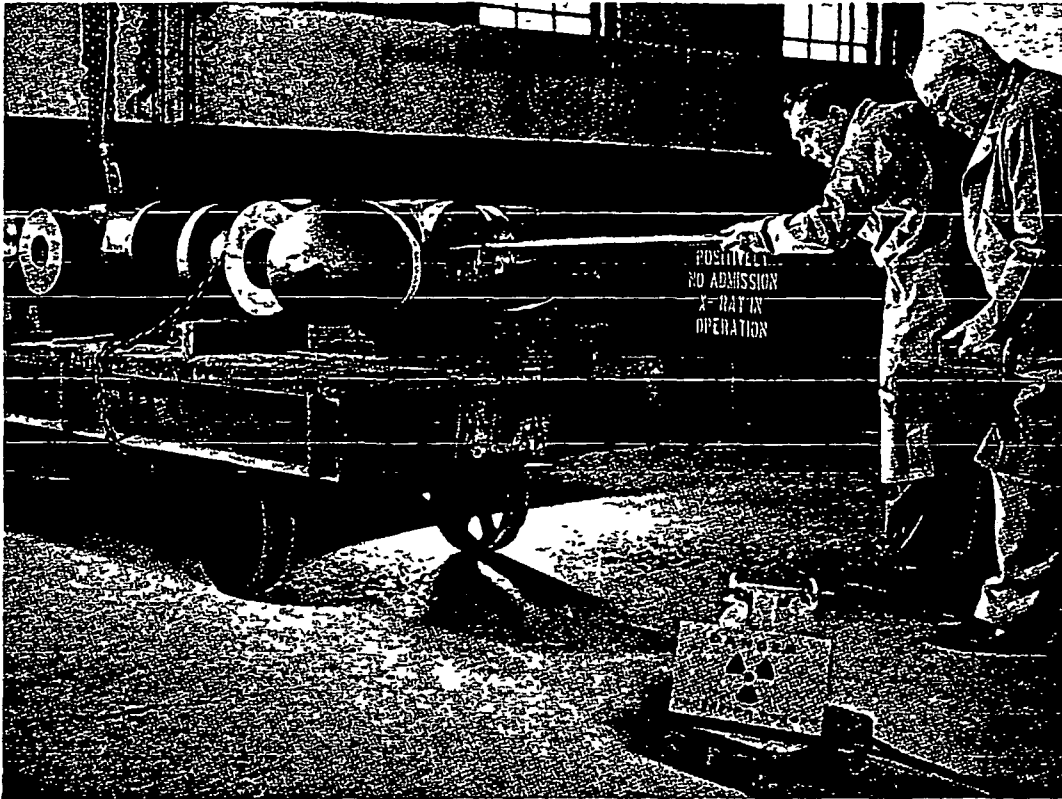


FIG 28-14 — "Pill" of radioactive cobalt-60 is placed inside newly cast pump housings. Radiation exposes X-ray film strapped to outside of castings and shows up defects. Aluminum rod is long enough to keep operators and radiation source safely separated. Second man monitors exposure during inspection.

minute quantities of current generated when two metallurgically or chemically unlike conductors are moved into frictional contact. If the conductors are alike, no current will be generated.

The equipment consists of a control unit and a portable sorting head connected by means of a cable. The sorting head contains all the main controls for actuating the test and is designed for one-handed operation. This method is designed to sort and identify metal parts of not more than four alloy types.

Electromagnetic methods

Two types of electromagnetic tests are currently being used in industry: magneto-inductive and eddy current. A third type, employing radar frequency, is also being used, but only to a limited extent.

- **The magneto-inductive method** utilizes variations in the permeability of magnetic materials to create variations in a pickup coil or probe.

- **Eddy current** The second type of electromagnetic testing utilizes AC in a coil or probe to induce eddy current into the part being tested. Defects and variations in properties or geometry cause changes in the strength and distribution of the eddy current. Readout is presented on a cathode ray tube, on a meter, by audible or visible alarm, or by a combination of these methods.

- **Radar frequency methods** use high-frequency radar waves to measure the electromagnetic properties of thin coatings and surface layers of material. To make such tests, a wave guide or cavity oscillator is