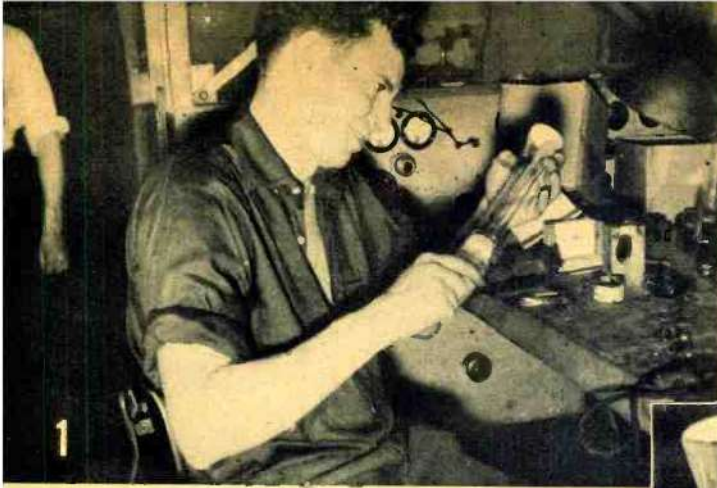


HOW TELEVISION TUBES ARE MADE

Cathode Ray Tubes are almost universally used in the reception of television signals. How these complicated tubes are manufactured is clearly shown in the series of pictures below. At present the C.R. tubes are used in oscillographs.



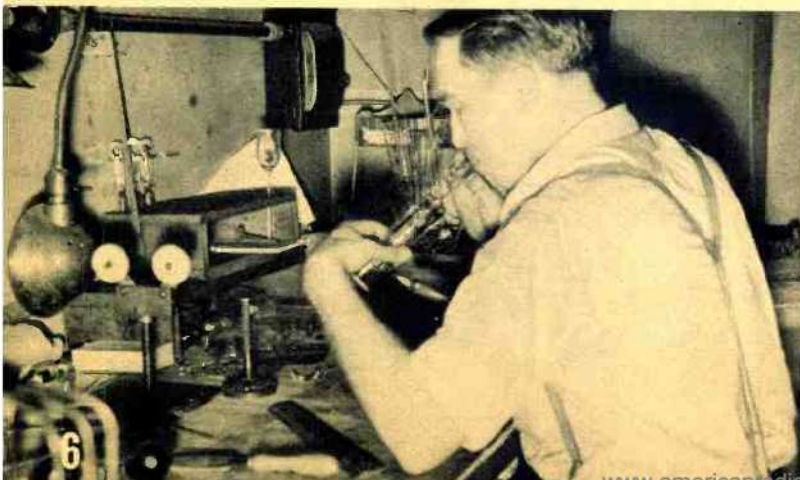
(1, 2, and 3) Trimming screens of 2", 9", and 12" tubes. They must be evenly trimmed to insure a perfect picture. Tubes must stand tremendous pressure.



(4.) Annealing tubes. Stress in glass must be minimized or moved to center, out of danger zone. This process shortens and flares blank to prevent any chipping.

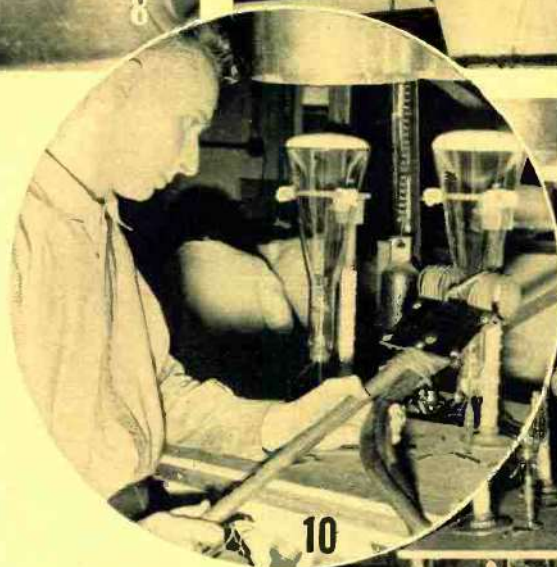


(5.) Assembling stem mounts. Wires are placed between jaws with glass collar. Jaws revolve between flames which heat collar and "cement" it to wires forming stem mount. (6.) The exhaust port of 2" tube is formed by a glass blower. An ancient art for the most modern discovery. (7 and 8.) Stem mounts being assembled prior to insertion in collars. Essentials are spot-welded to insure complete rigidity. Frequent inspections assure early discovery of imperfections.

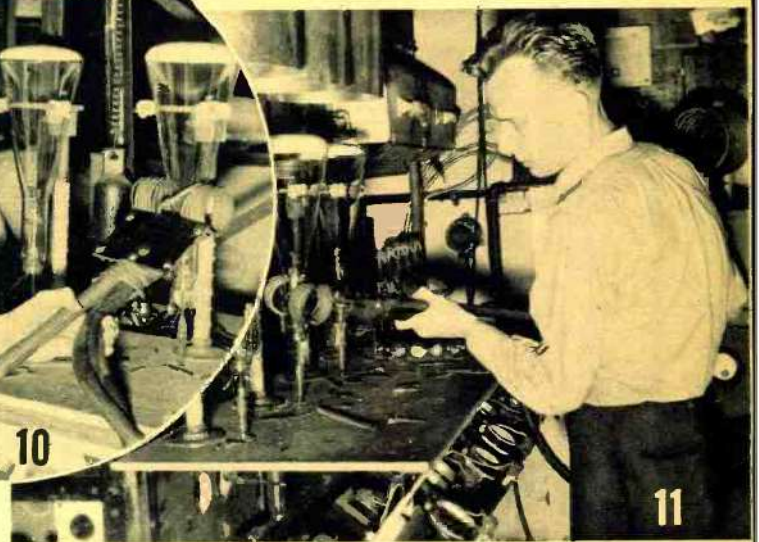




(9, 10, and 11.) Bombarding tubes. This heats elements of tube to white-hot temperature. Released gases are drawn off by the mercury pump. (12.) The finished tube is examined for stress and strain by means of a polariscope. Variegated hues reflected indicate strain is present.



(13, and 14.) Oscillographs on the production line. Here raw parts are wired in and components are properly mounted.



(15.) Testing the action of the completed oscillograph. Long tests are necessary to insure against breakdown in use. Accuracy is essential and tubes are so designed to give this result. Time studies are made to determine deterioration.

(16.) Allen B. DuMont examines a 12 in. Cathode Ray tube. This is one of the largest manufactured. They must be gingerly handled because of the constant danger of an implosion (the opposite of "explosion"). With careful construction and the shifting of the stresses to the center of the tube (See picture No. 4), this occurrence is minimized. The source of the implosion is the external air pressure of 15 lbs. to the square inch to which the tube is constantly subjected. Without the outside air pressure, C.R. tubes could be built to any size and the picture projected could be as large as the ordinary movie.

