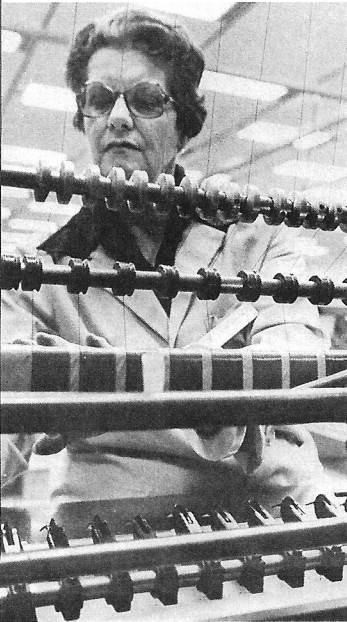


Power Transformers

JUNE BARROW winds primary coils for several transformers at once, a machine process called stick winding. The "stick" is then cut apart into individual units.



MARIE HAGGARD applies paper insulation to separate primary coils from secondary layers that will be applied in a later step. Each layer must be snug enough to stay firmly in place, but not tight enough to compress the layers.



HOW DO YOU KNOW when you've wound the exact number of coils required? Jane Childers shows how it's done, with an electronic counter hooked up to winding machine.



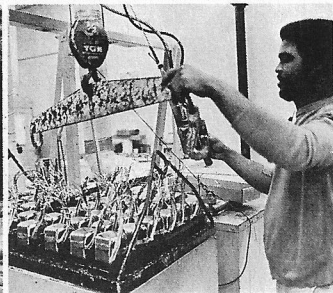
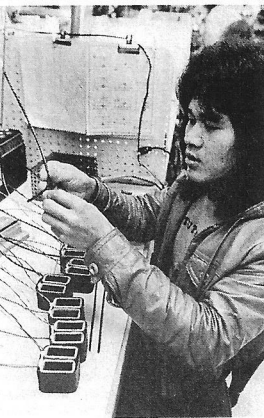
NASSOS KOSMAS applies secondary windings to transformers, the layer that's applied after the paper insulation. In background, Bernie Miller, Reliability engineer, explains the operation to Tekweek writer.



AND HERE'S HOW the transformer looks as it leaves coil winding to go into coil finish area. Norma Corder shows how leads from different windings of wire protrude from layers of insulation.



IN COIL FINISH area, Pat Gratreks (above) solders leads to ends of wires left extending from layers of insulation during winding; operator sometimes has to carefully probe between the layers to locate all the ends that have to be finished. In right photo, Mike Phonthany installs insulation sleeving over exposed wires left protruding in winding process; these will be self-leaded coils.



AFTER DUNKING in an insulating solution, such as varnish, that fills every tiny crevice, transformer has to be thoroughly dried. Some kinds are baked after this step, and some are put through a heated-air blow dryer. Here Tom Moore moves a tray of freshly dipped transformers to the drying area.

TRANSFORMER ASSEMBLY TEAM, left to right, Chuck White, Dave Tengan, Lee Oakley, John Bearden and Sandy Sherwood are performing "finish core insertion." Cores, thin pieces of metal, are inserted by machine into center of donut-shaped coil; then final pieces must be added by hand when core becomes too tightly packed for machine to finish.

SPECS

Today's story continues the Tekweek series on Tek jobs and how they all contribute to customer satisfaction. If there's a job you'd like to see featured here, please send a note to del. sta. 58-166, or call ext. 5405.

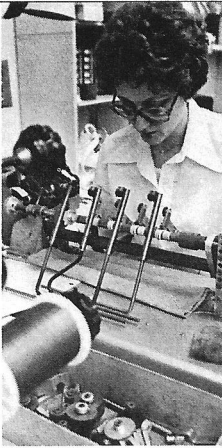
It takes a lot of people doing a lot of different jobs to produce even one small component in the quantities and quality that Tek requires. And it takes hundreds of components, built to meet demanding specifications and schedules, to finally provide our customers with satisfactory products.

SPECS (Special Electrical Components) people produce a wide variety of components used in almost every Tektronix product. Within SPECS are groups responsible for transformers and relays, capacitors and coils, and wire prep and cables.

Here's a pictorial tour of just part of the SPECS area.



ROSE ROHRBACK, hand-winds high-voltage transformers, using very fine wire and delicate machinery. These components are much smaller than the low voltage power transformers shown in the last few pictures, and require different techniques and processes.

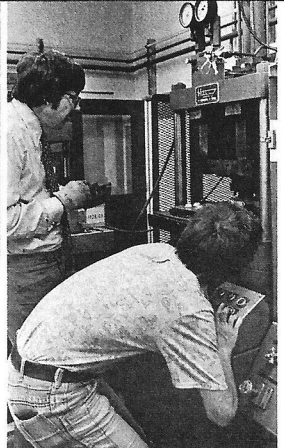


KAY STOOP machine-winds high-voltage transformer coils. Multiple spindles of machine have to be threaded right, and the tension adjusted right, to produce correctly wound coils. Mistakes can produce a big tangle of wire spaghetti.



PAULA DOYLE and Judy Ro Kyung Kim are soldering tiny leads to the wires on these transformers, very delicate and precise work. Twisted tentacles of tubing in front of work benches are vents for carrying away solder flux fumes.

## High-Voltage Transformers



TEK MANAGERS help solve problems wherever they're needed. Tom Morisky (Production Engineering Support manager), left, helps Dennis Lamm with a process that uses a high-pressure transfer molding machine to vacuum-impregnate transformers with thermo-setting plastic encapsulant.



IRENE MANLOV is using a solder pot to solder coil wire ends to coil form leads, a quick process that tins the whole lead at the same time.



PHANAT PROCH and Helen Wilder, left to right, are coating fixed coils with varnish protection while Donna Foster, in background, observes. This process protects the part from dirt and moisture that would cause it to short out.



PAT ERICKSON winds a trace rotation coil for the Tektronix 455 oscilloscope.



VERA NEFF machine-winds another kind of toroid coil, this one used for CRT deflection. At nearby bench, someone winding another kind of coil remarked, "This one is for the medical monitor." Tek people take a lot of interest in the finished products they're helping produce.



IS THAT REALLY a crochet hook? Yes, and it's the best tool we've found for hand-winding very heavy wire on a toroid coil. (We don't make enough of this kind to justify machinery investment.) Cecil Jones is making very precise windings by hand.

## Toroids and Fixed Coils

### What is a transformer?

A transformer consists basically of primary and secondary windings or coils of wire with a common core. They are used to increase voltage (force of electrical current) or reduce it. For example, if the secondary winding has more turns than the primary winding, the voltage is increased. Transformers are also used within power supply circuits to convert alternating current (AC) to direct current (DC), which then powers the other operating circuits of the instrument.

KURT ODIEN tests a high-voltage multiplier built for use in a Tektronix 650A monitor, using a Tek 650A monitor in the process. We use many of our own products throughout the company; we're one of our own best customers.

## Power Supplies Group

ROBIN ULVELING is repairing a finished high-voltage multiplier found defective during a quality check, part of the "QPN" (quality problem notice) process. Cause of failure turned out to be a faulty part from stock. SPECS checks components carefully and reworks them if necessary before they leave the area.

PENNY WOOD assembles a low-voltage power supply for IDG products. SPECS is consolidating power-supply production for many Tek product lines, an effort toward efficiency and cost-saving that helps serve customers better.

