



I worked as a lean manufacturing consultant for a local consulting company that contracted me to provide certain specialized services to their clients. This consisted of warehouse analysis, many 5S TPM and SMED training workshops, surveying of manufacturing processes and recommending ideas to improve flows of work content and materials presentation, sometimes designing and making work stations to the afore.

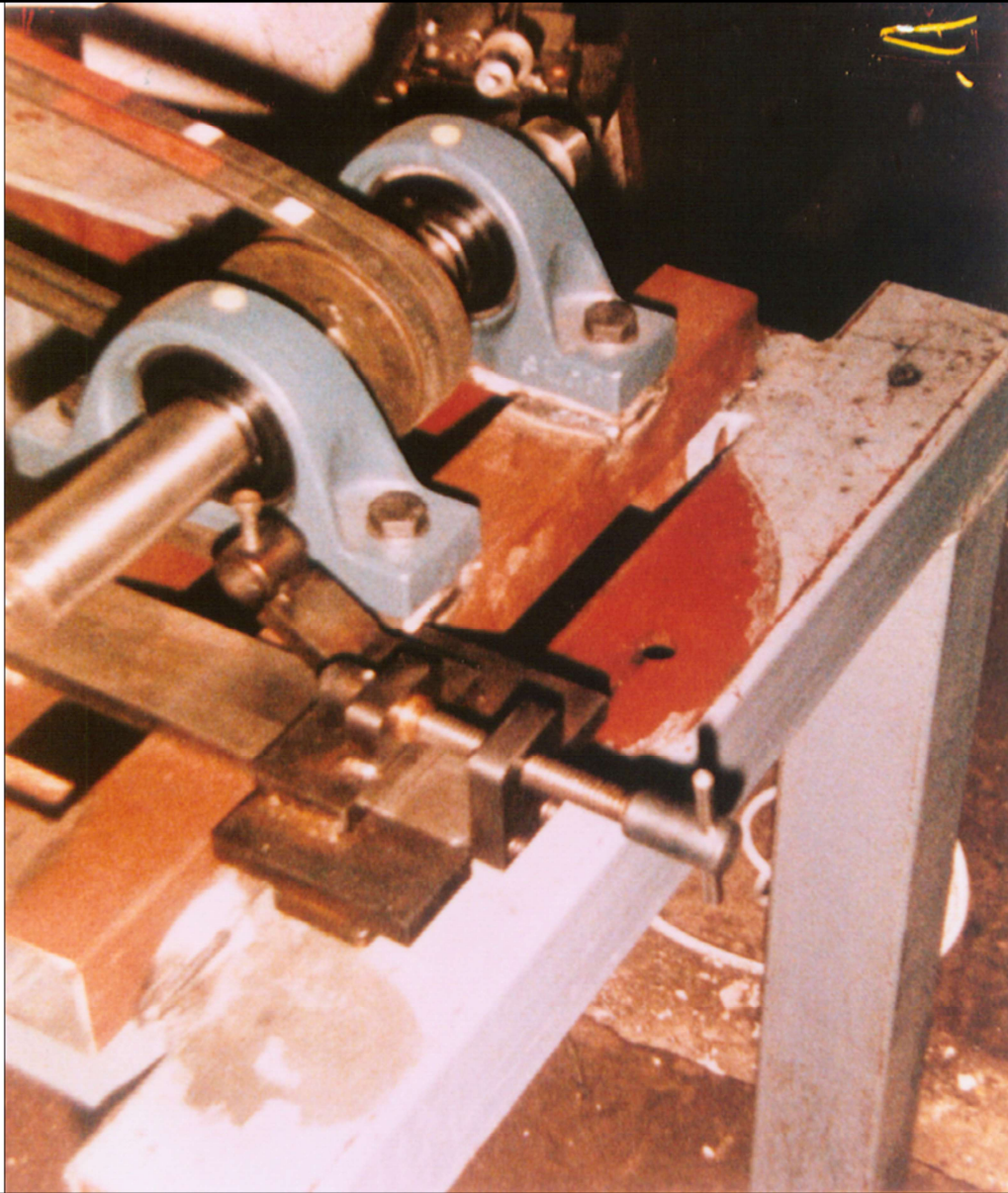
It was very interesting work and it certainly had variety; one of the clients I serviced was a hydraulic pump manufacturer and one other had a corner in the exclusive market of making tutus costumes for little girls, yep, that's right, tutus... Where there's work, there's a process and where there's a process there's waste and opportunities for improvement albeit hydraulic pumps or tutus. I helped this small company lean out their value stream with standardizing the work of making tutus.

This picture shows a prototype work station that I made from plywood to make the different sizes of tutus for a better standardized way of work content - they used to make the tutus by holding the different sized elastic bands between their knees and tying the tulle - that's the sheer rayon net used chiefly for the frilly bits on the tutu costumes - which was not always reproducible from worker to worker.



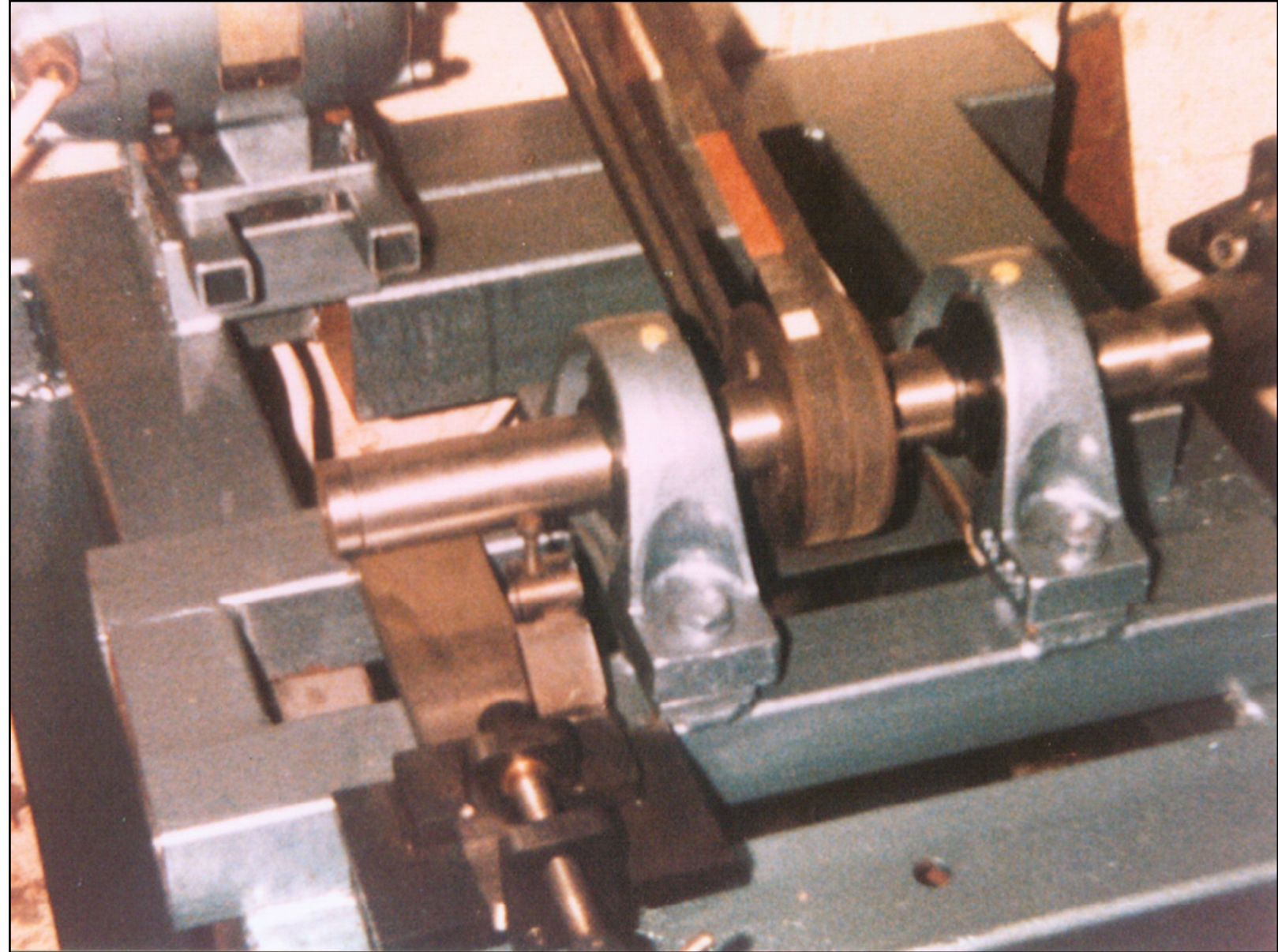
Another refinement to the tutu making process was the method of inspection, detailing and final packaging. Shown in the picture is a traffic cone with 6" inches cut off of it and affixed to a cake decorating turntable.

This was to inspect and detail the tutus on and I also suggested a method change of putting the packaging bag over the tutus and not putting the tutus in the bag which was difficult and creased the tulle lessening the packaged presentation - inexpensive process improvements...

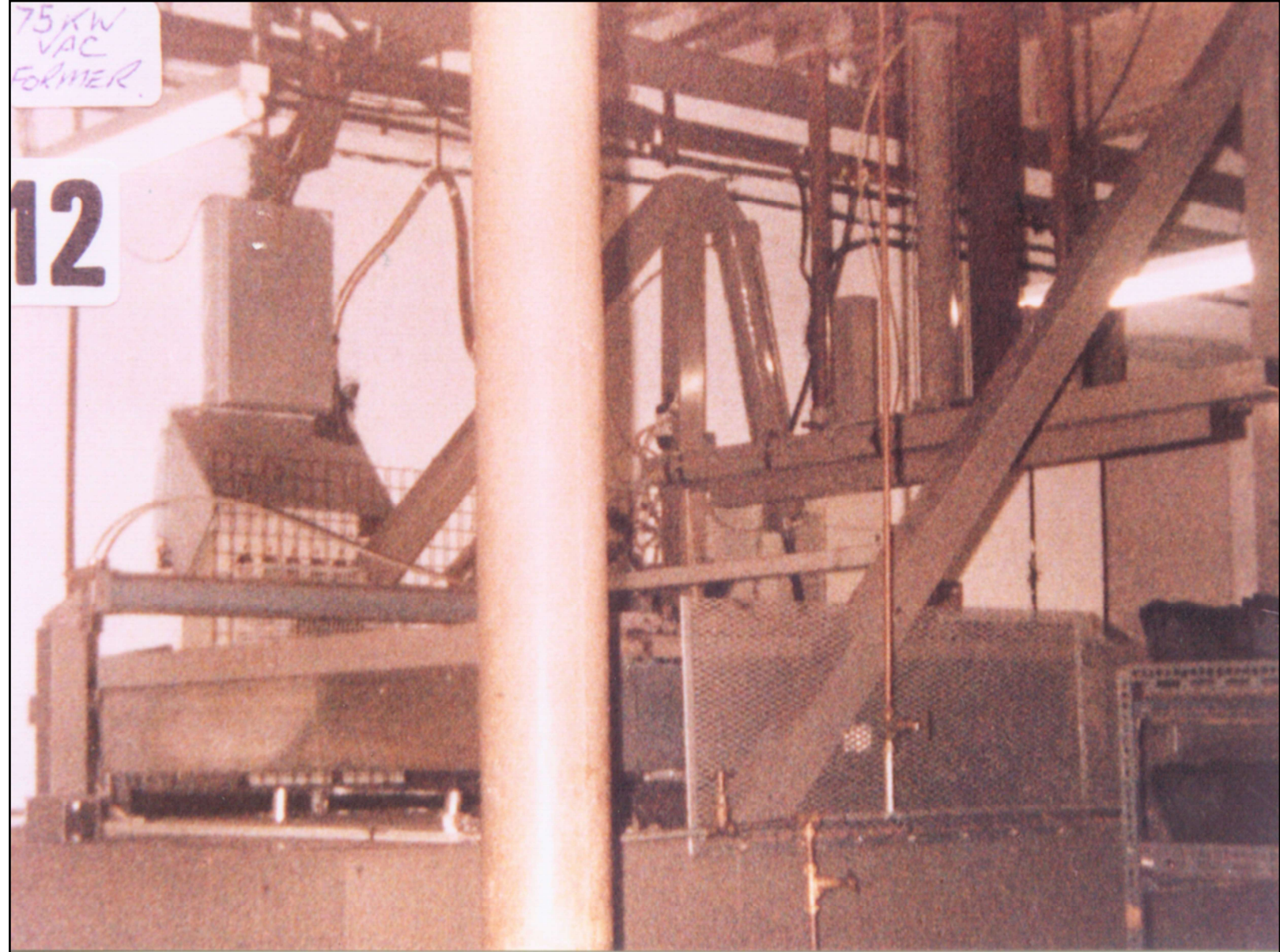


Circa 1982. At one of my former employers we used to go through a lot of tungsten router bits for trimming plastic panels in the automotive business and they are quite expensive \$25 dollars a piece. Picture shows a re-sharpener station which could be used by the production operators to cut and grind a new edge on the their trimming tool bits.

This idea took a lot of workload off the maintenance department as production personnel could now re-sharpen their own tool bits when needed.



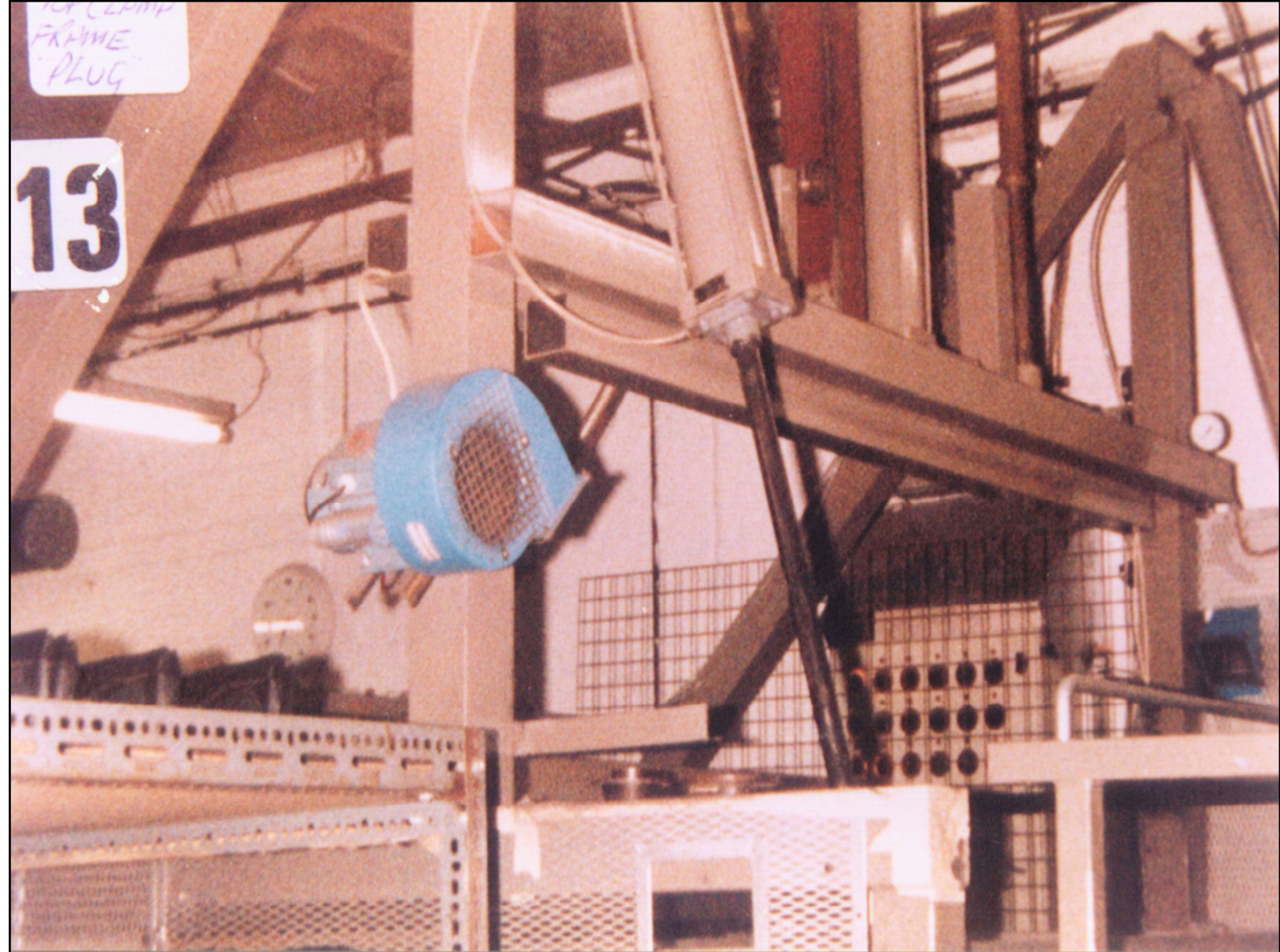
This picture show the router bit re-sharpener station after being painted. You know as I do this portfolio it takes me back down memory lane. I took this picture no doubt with a 35 mm camera I had at the time circa 1984?



The next four slides illustrate various views of 75,000 thousand kilo watts vacuum former machine that the plant engineering manager, myself and three other maintenance and electrical technicians of a former employer conceived, designed and build ourselves entirely from scratch from raw materials.

Shown here are the cooling radiators - which were residential heating radiators, side panels to the machine and support structure to the plug assist.

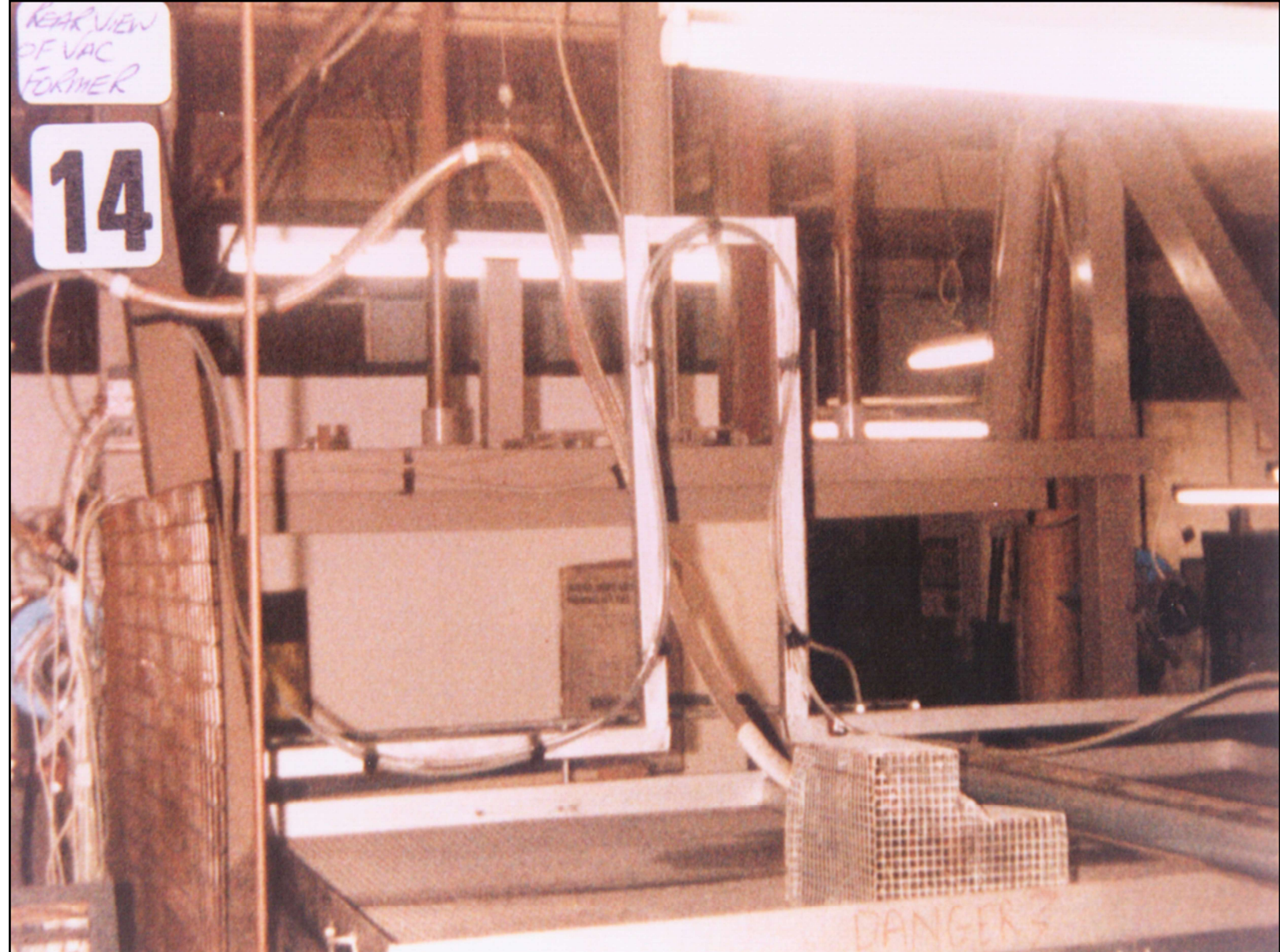
I was about 22 years old at this time, I wonder if that machine is still around. I know the former employer long since went out of business...



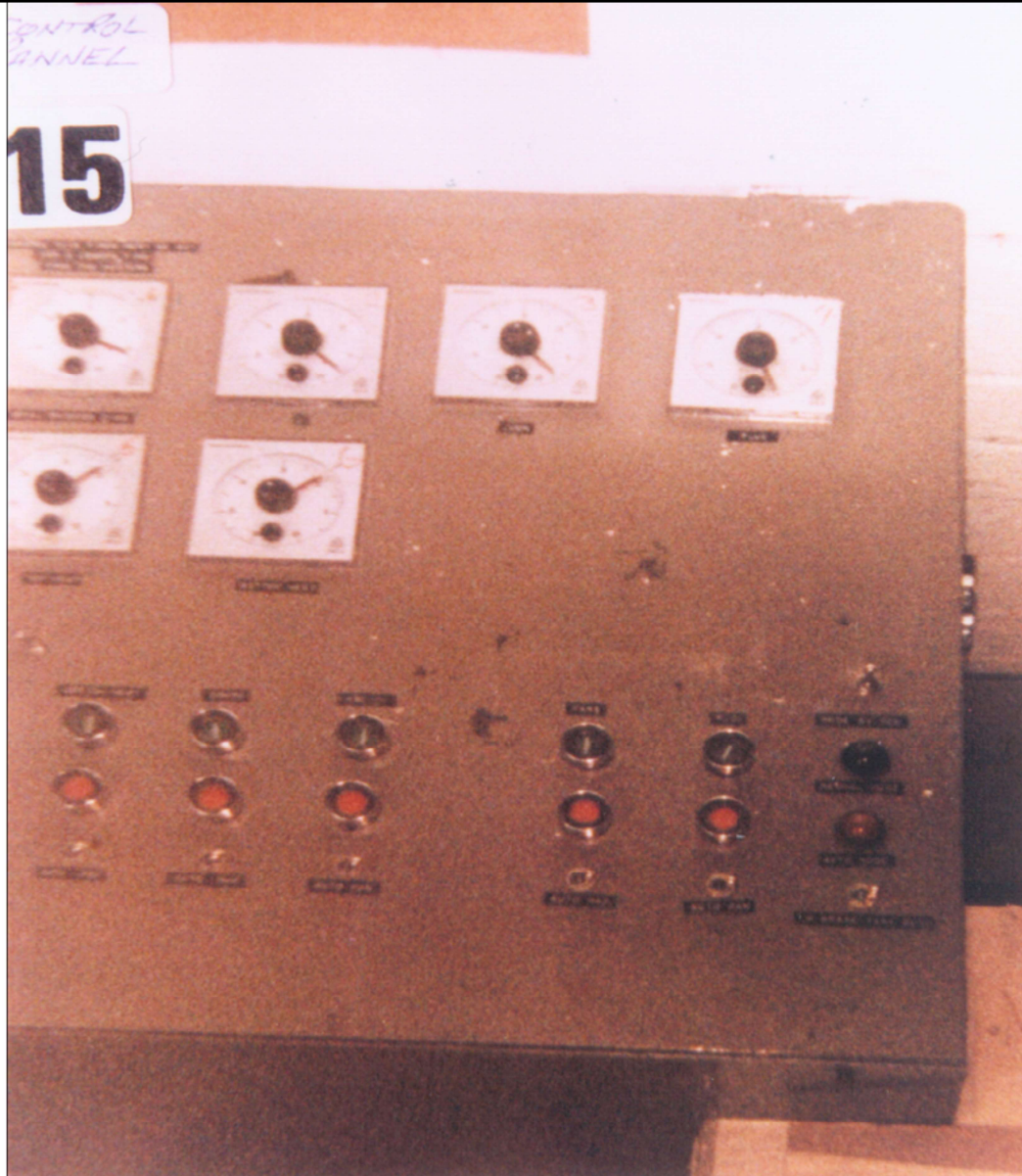
Pneumatic cylinders that operate the material clamp and plug assist.

REAR VIEW
OF VAC
FORMER

14



This view shows the rear of the machine with the top heater bank frame carrier with its umbilical armored 27 core cable.



We made this machine as inexpensive as possible making use of some second hand old mechanical timers. Even the electrical panel is made from scratch.

We saved \$370, 000.00 dollar in capital cost...