THE ROTODIP PROCESS

Extract from a talk given by Owen McDonald, former Vehicle Planning Engineer, CAR ASSEMBLY, BMC-LEYLAND AUSTRALIA (for full transcript, see:
https://www.engineersaustralia.org.au/portal/system/files/engineering-heritage-australia/report-title/BMC_Plant_Report.pdf#page=13&zoom=auto,47,-274

"…The start of the CAB was the Rotodip – a large spit was passed through the body and the spit carried the body sideways through six pre-treatment stages and through the paint dip and while being moved it was rotated in the stages where it was necessary. As the body was rotated, all of the body was immersed – progressively but never all at once.

The Rotodip process was – Degrease – Zinc Phosphate – Dip paint with stoved primer. It gave the customer a car with very durable protection against corrosion.

The dip paint itself had a number of necessary properties – good adhesion and flexibility, good stone chip performance etc. and the dip process successfully applied enough thickness of paint. This baked primer could be rubbed easily without clogging sandpaper and dip paint provided a good adhesive base for other coats. As a dip coat it looked very good but as soon as the gloss enamel coat was applied a myriad of tiny runs showed through. The result was that all external surfaces that required "showroom finish" had the primer coat almost totally and very expensively rubbed off. The paint removal had no effect on corrosion performance as long as the rubbing did not continue below the last of the primer – even then, corrosion didn't start in the middle of outside panels – it started in seams and joints where the primer coat was intact.

The rest of the paint shop worked very well – good spray booths, good ovens, all paint reticulated to spray booths etc. After I left BMC, I found out what it was like to have poor spray booths and ovens.

We started at twenty bodies per hour (a 3 minute cycle) and stretched capacity to about 25 per hour. The spray booths were not long enough to go any faster.

We sprayed HOT Primer Surface – (Red Oxide). It was hot so that the solvent content could be lower and a heavier single coat could be applied. This was wet rubbed.

We applied a grey SEALER coat which was sprayed Wet on Wet – a full coat of paint – a minute or so to allow the solvent to evaporate and a second full coat. It was given a light dry scuff.

The colour coat was also sprayed Wet on Wet. After stoving, the paint finish was glossy and did not need polishing – not like lacquer finishes that had to be buffed.

Two-tone cars were popular and a second Duo-tone booth allowed cars to get their second colour. In a mind-boggling exercise involving both conveyors and scheduling, it was possible to spray any car, Mono-tone or Duo-tone and have that car catch up its position on the schedule.

Spray Painting stoving enamel was an art – the painter had to put on as much as he dared until the coat was uniform and shiny wet. If part was wet and part was dry, the overspray settled on the dry

parts and showed up later as grainy “Dry Spray”. If he put too much on, it still looked good but when it reached the oven, the paint sagged into “curtain runs” and it was an expensive respray. Dark colours always looked “Wetter” and if you measured the thickness the dark coats were thinner than light colours. It was a very subjective process and not everyone could do it.

Spray painters started in the primer surfacer booth and were promoted until they reached the colour booth where they were finally allowed to spray under bonnets and wheel arches and inside the boot. When and if they reached the hallowed ranks, they were allowed to spray the second coat of finish enamel and then they could adopt all the “Prima Donna” antics of operators who knew they were valuable and knew how far they could “push it”, even with the redoubtable Barry Duncan who was the long term paint shop supervisor…”