

COSMEDICO TECHNICAL ADVISORY: Lamp Rotation

We are frequently asked to comment on the practice of rotating lamps from canopy to bench at some time during a lamp's life cycle. This practice is sometimes called "top dropping". Does this process make sense? Can you extend lamp life using this strategy?

The answers are absolutely, probably, probably not and no.

The answer you get depends entirely on the bed in question. To explain: when a bed is measured by the manufacturer to establish an exposure schedule - it is accepted practice that three areas are measured separately. The facial area, the body area beneath the canopy fluorescents, and the bench are all measured independently. Each section produces UV and exposure schedules for each of the three (3) areas are calculated. Seldom do all three (3) areas have identical exposure times. But it is the area that produces the maximum irradiation and has the shortest exposure time that must be used when setting the exposure schedule for the bed.

It is important to note that the most common measurement protocol measures the bench by placing the meter directly on the acrylic facing the lamps. This makes absolute sense because this is where the user's body is situated during the tanning session. When measuring the canopy, typically the meter is placed on the bench facing upwards at a distance where the meter lens is about 10" off the bench. Again, this makes good sense because this would be where the tanner's face and body trunk would be relative to the position of the closed canopy. Since beds seldom have identical output (and exposure times) at both the canopy and bench, let's look at three different beds that have quite different exposure times at canopy and bench yet all end up having 15 minute exposure schedules as total pieces of

BED A	BED B	BED C
Canopy: 21 mW/cm2 [Canopy TE= 19 min]	Canopy: 28 mW/cm2 [Canopy TE= 15 min]	Canopy: 28 mW/cm2 [Canopy TE= 15 min]
Bench: 28 mW/cm2 [Bench TE= 15 min]	Bench: 24 mW/cm2 [Bench TE= 18 min]	Bench: 28 mW/cm2 [Bench TE= 15 min]
<b>Bed TE = 15 min</b>	<b>Bed TE = 15 min</b>	<b>Bed TE = 15 min</b>

equipment. We have not included readings from the facial cassettes in these examples.

While the exposure schedules are identical for all three (3) pieces of equipment - it is obvious that the three beds are quite different.

- **BED A** - the bench of Bed A has the higher output and is the reason why the bed has a 15 minute schedule. Practically speaking, you need four (4) more minutes under the canopy to get your full exposure. This is a perfect example of where "top dropping" can be advantageous. It puts new, fresh, full power lamps into the canopy where they are needed.
- **BED B** - following the same rationale, it is the canopy of Bed B that produces the most UV and it has an exposure schedule that is three minutes shorter than the bench. In this case "top dropping" is not the right thing to do. In fact, the better thing to do would be to rotate upward. This would put the new lamps in the bottom where they are most needed.
- **BED C** - provides identical output from both bench and canopy so moving UV depleted lamps from top to bottom or vice versa makes little sense. The proper procedure here is to replace them all.

This brings us back to the question about what is right for your beds (by understanding the principles you should now know that

every different bed may well have a different answer). The first recommendation is to check with the manufacturer of the bed. The information may not be readily available to the sales, marketing or service staff. But it is there somewhere - probably locked away in the files in the technical or engineering departments.

If this information is not easily gotten - your next option is to do your own test.

Using a simple handheld meter follow the procedure outlined earlier. Start the bed and warm it up for 20 minutes. Cover the lamps in the canopy with a large heavy blanket and measure the bench in about three (3) places with the meter lens tight to the acrylic. Take an average of those readings. Now reverse the process. Cover the bench lamps and lower the canopy. Take another three (3) reading with the lens facing up and about 10" away from the surface of the bench. Again, average your readings.

- If the readings from the canopy are lower than the bench - top dropping may well be a good practice.
- If the readings from the canopy are higher than the bench - putting your new lamps in the bench and moving the older ones up may be prudent.
- If the readings are quite similar - order full sets and replace them all. Rotations would not be a good practice.