



Epic Enterprises, Inc.

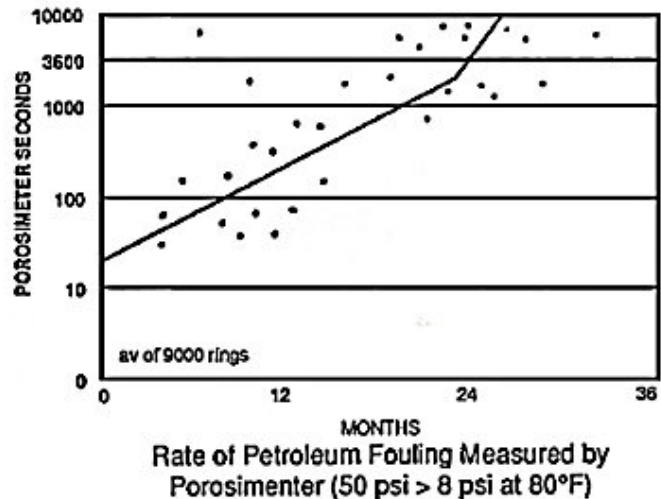
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RING MAINTENANCE TIP #2 MAINTAINING INTERNAL RING CLEANLINESS

REVIEW: Ring Maintenance Tip #1 covered the extreme importance of internal ring cleanliness and the need to have the rings chemically cleaned about every two years, if run with petroleum ring oil or about every three to five years, if maintained with a pure synthetic ring oil.

Over 95% of all rings run with petroleum ring oil will internally plug within two years, so that oil only gets to the ring face by leakage around the ring. Some of the loss of efficiencies from plugging include:

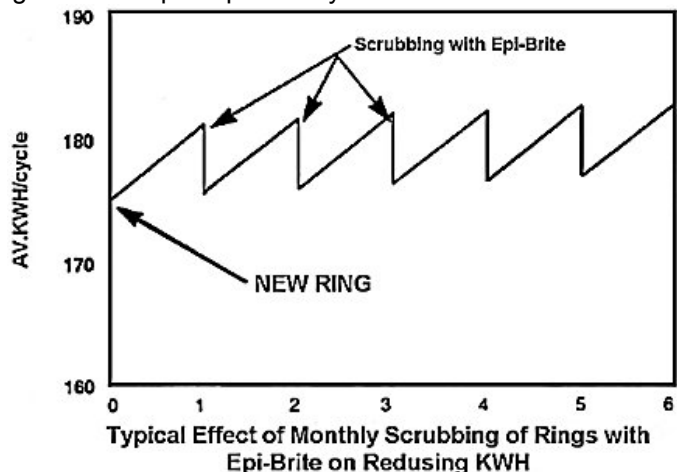
- 1) uneven tensions, resulting in a high frequency of broken ends and scrap yarn
- 2) a typical increase in power (KW) consumption of 15-20% on the plant's largest electric user (spinning and twisting)
- 3) increased ring temperatures
- 4) reduced speed and real lbs/hour efficiency
- 5) reduced traveler life



Chemical ring cleaning and assembly rebuilding restores rings to their original, new efficiency. Epic Ring Service is the only full service agency performing this work in the Americas.

EXTERNAL RING CLEANING can, and should, be performed by the plant on a regular basis: 1X/month for most rings, and more often with very critical yarns such as glass and fine denier manmade. This takes only minutes per frame, and results in very significant production efficiencies. This is done by scrubbing the ring with a plastic scrub pad, such as Epi-Brite™. Epi-Brite is a mildly abrasive grade scrub pad specifically manufactured for external

cleaning of oily rings (sintered and solid steel). Scrubbing with Epi-Brite does not scratch or otherwise harm the ring. It does remove nylon or steel traveler debris, particulate matter in both oil and plant air, and oxidized petroleum that tend to plug sintered ring surface porosity; similarly, Epi-Brite cleans the ring face of the solid steel ring and tends to pull fibers out of the bleed line of a Herr type solid steel ring. The practical effects of regular scrubbing have been observed by several plants to be about a 5-8% frame KW reduction. Results by one plant are shown in the figure. Also observed is a significant reduction in ends-down and scrap yarn.



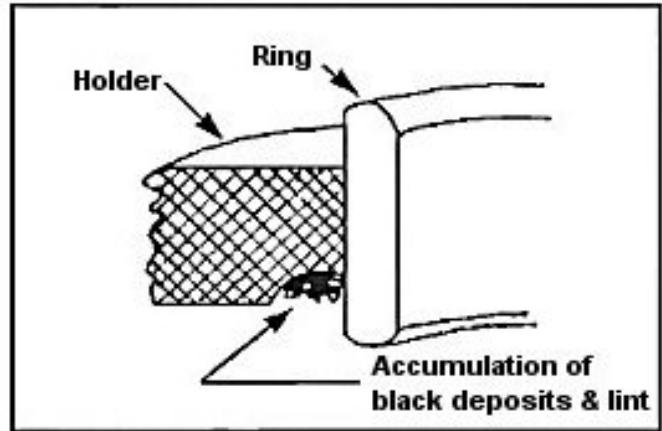


EXTERNAL HOLDER CLEANING: Good practice is to remove the ring assembly (ring & holder without disassembly) every 2-3 months and giving it a vigorous scrubbing with petroleum solvent (varsol) and Epi-Brite. This removes built-up sludge, black aluminum oxide from the holder, and accumulated lint. If these accumulated deposits are not removed, they are drawn by the partial vacuum of the rotating bobbin onto the ring surface and cause random broken ends and scrap yarn, as well as foul sintered ring surface porosity or the bleed line of a Herr-type ring. The process of assembly removal does involve several hours of frame downtime.

ALTERNATIVELY, many plants do not remove the assembly, but externally clean it in-place on the frame, using petroleum solvent and Epi-Brite. This is good practice, PROVIDED that the plant takes special care to clean the Hidden underside of the assembly, particularly the deep groove between the ring and holder, which attracts built-up deposits and yarn lint. This groove can be cleaned with a cotton swab on a stick (e.g., a Q-Tip™) and can be seen with a dental mirror.

After cleaning, and before start up, the ring should be swabbed with a clean rag soaked in ring oil, to replace the oil extracted by solvent cleaning.

Epic Ring Service cleaned and rebuilt holders are given a "bright finish"; functionally, the "bright finish" polishes the rough-cast holder so that particulate matter on the holder face is less adherent and more easily cleaned in the future.



Accumulation of black deposits & lint on Hidden Underside of Assembly should be removed monthly

BLACK DEPOSITS AND BLACK YARN STAINS are a concern to all plants and particularly to fine denier manmade plants. The source of these black deposits and stains includes oxidized petroleum ring oil, acidification of petroleum ring oil, that attacks the aluminum holder, producing black aluminum oxide from the holder and black ferrous oxide from the ring and traveler. Regular cleaning of the ring, holder, rail and separators prevents the build-up of black deposits, and consequent black stains on the yarn.

BLACK DEPOSITS AND STAINS IN HOT DRAWTWISTING: This is a very acute, costly problem for fine denier manmade plants. Not only does the plant face the above black deposit problems, but it also faces the vaporization and oxidation of the spin finish (primarily coconut oil) off the hot rolls. The partial vacuum created by the rotating bobbins pulls the blackened, grease-like spin finish into the ring area, and onto the separators. Any contact of the yarn with the ring or separator will produce semi-continuous black stains, or black flecks, on the yarn. The cure to this problem is the maintenance of an extremely clean (internal and external) ring assembly, rail and separator. Many hot drawtwisting plants have found that cleaning of the entire area, after each package build cycle, has greatly reduced the costly losses of downgrading black stained yarn to seconds and scrap.

YELLOW STAINS are primarily related to oil staining, and have their roots in an internally plugged ring, oil type and in controlling oil flow to the ring face. The cause and cure of yellow stains will be covered in a subsequent Ring Maintenance Tip.

If you did not receive Ring Maintenance Tip #1, contact Epic.

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