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# RING MAINTENANCE TIP #8 PERIODIC WICK REPLACEMENT FOR SINTERED & SOLID STEEL RINGS

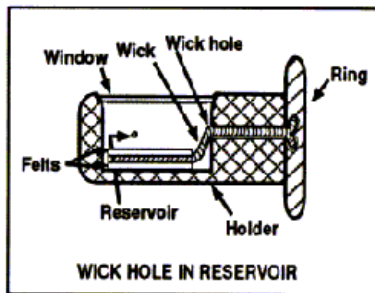
## When Rings Should Be Rewicked

REVIEW: Ring Tip #1 covered the extreme importance of regular chemical cleaning of the ring's internal structure. Ring Tip #2 covered the importance of the external cleaning of the surfaces of the ring, holder, rails, and separators. Ring Tip #3 covered the avoidance of ring breakage. Ring Tip #4 covered avoiding ring breakage with sintered rings. Ring Tip #5 dealt with reducing ring heat and the plant electric bill. Ring Tip #6 reviewed controlling ring oil usage with sintered rings. Ring Tip #7 covered the non-recommended addition of chemical ring cleaners to ring oil.

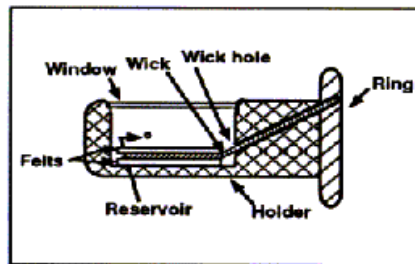
**FUNCTIONS OF THE WICK:** The wick has a triple function:

- 1) **OIL DELIVERY:** Through capillary action, the wick raises oil from either an individual holder reservoir or from a centralized system manifold to the ring. Oil is then pulled to the ring face to lubricate the traveler through the sintered ring porosity or solid steel passageways, assuming a new or cleaned ring, by both heat and partial vacuum created by the rotating package. (Note that injection rings have no wicks.)

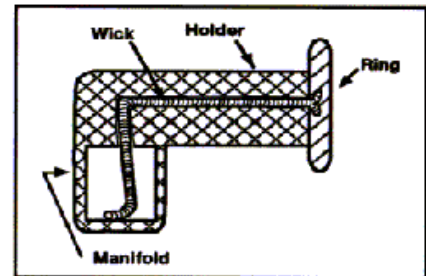
In the case of most individual reservoir sintered rings, the wick hole is located about halfway up the reservoir. It is obvious that, **if the reservoir is filled to capacity or above the wick hole, the wick is bypassed and oil rushes past the wick** and floods the area around the ring and the ring itself; much of the oil leaks onto the frame and onto the floor, creating a housekeeping problem. However, when the porous sintered structure becomes plugged and/or the wick has failed, filling above the wick hole will keep the ring running, at greatly reduced efficiency, as leakage around the ring allows oil to intermittently reach the ring face.



Individual Reservoir  
Sintered Type



Individual Reservoir  
Solid Steel (Herr)



Manifold Feed  
Sintered or Herr

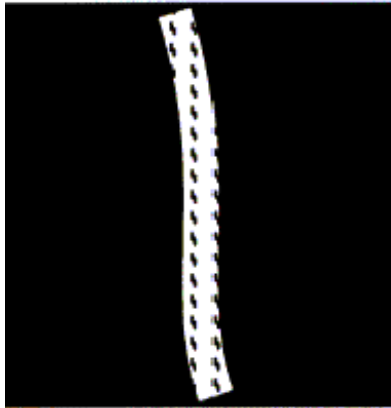
In the case of manifold rings and most solid steel rings (e.g., Herr), the wick feed hole is located above the reservoir, so that over-filling is not a problem. However, if the wick fails to deliver oil for any reason, there is really no way for oil to reach the ring, so the plant must pay very close attention to maintaining the wick's integrity.

- 2) **CONTROLLING OIL FLOW:** The nature (capillarity) of the wicking material, its thickness and density do influence to some degree the amount of oil reaching the ring face, provided the ring has not become internally plugged. Additionally, the fill level either in the manifold or individual reservoir has an effect on the rate of oil delivery.
- 3) **FILTERING THE OIL:** All ring oils contain some amount of particulate matter. In general, petroleum oils, including white oils, contain about 20 times the amount of particulate matter that pure synthetic ring oil contains. The wick acts in part as a filter (like an automobile engine filter) to prevent much of this particulate matter from reaching the ring and plugging it. Over time, the wick becomes saturated with particulate matter and, if petroleum is used, hardened petroleum oxidation products.

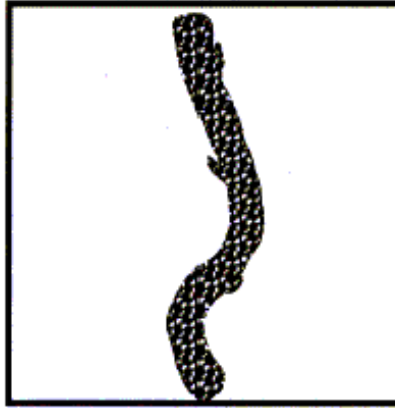
Injection rings are extremely sensitive to ring plugging because there is no wick. It is also obvious that overfilling individual sintered ring reservoirs above the wick hole means that wick filtering capability has been bypassed, resulting in more rapid ring plugging.

**CAUSES OF WICK FAILURE:** Other than a ring becoming loose in its holder, rotating and causing the wick to break, the other primary enemies of the wick are time, heat from a plugged ring, petroleum oxidation products, and particulate matter. Premature wick degradation can often be traced to frequent or continuous use of the so-called “ring cleaners”. (See Ring Maintenance Tip #7)

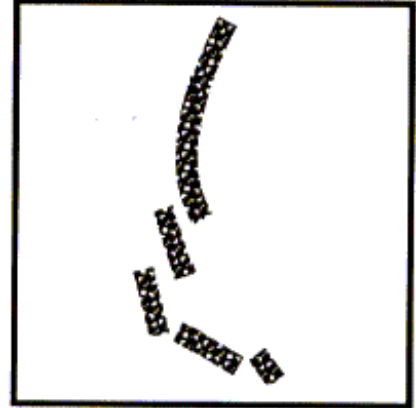
With time and heat, the wick slowly loses its ability to carry oil. At 2 to 3 years on petroleum, most wicks are extremely dirty and have only a limited ability to deliver oil. At about 5 to 10 years, the wick becomes hard and often embrittled with no capability of oil delivery. It is not uncommon to find ring assemblies that have not been rewicked in over ten years to have no wick at all, or if its found only as discontinuous, hardened shreds. The diagrams below show some wick conditions.



**New Wick**



**Dirty Wick**



**Embrittled Wick**

**WHEN SHOULD RINGS BE REWICKED?** A review of the manufacturers’ literature on recommended rewicking points to a frequency as often as every 8 months, to more typically every 2 to 3 years. Our experience at Epic Ring Service, based on cleaning and rebuilding 10,000s of rings, suggests that in most cases rings should be rewicked every 2 to 3 years if run on petroleum or a para-synthetic (some mixture of petroleum and synthetic) and about every 5 years if run on a pure synthetic ring oil. With very critical yarns, such as fine denier man-made, worsted or thread yarns and any fiberglass, rewicking should be more frequent.

In general, the need to rewick occurs at the same time the rings need to be removed for internal cleaning and rebuilding with its holder (a service performed by Epic Ring Service).

**REWICKING INDIVIDUAL RESERVOIR RING ASSEMBLIES:** Because individual reservoir assemblies are complex, most plants do not have the expertise, special tools or new parts to rewick and rebuild. Epic Ring Service performs this work and also internally and externally cleans both the ring and holder, yielding a like-new assembly at a unit cost generally way below what the plant could hope to achieve.

**REWICKING MANIFOLD RING ASSEMBLIES:** Manifold assemblies are not complex and are easy to rewick. Although Epic does clean, rewick (and in the case of some ring types, reseal the wick) and rebuild manifold assemblies, many plants can do part of the work themselves, thus saving cost. In this case, the plant removes the entire assembly and separates the ring from the holder. The holder is solvent washed by the plant and the ring is sent to Epic for internal cleaning. Epic cleans and rewicks and returns the ring. It is a relatively easy job for the plant to pull the wick tail through the holder into the manifold. (Note that in re-assembling, the plant should make sure that the wick tail of the ring immediately upstream of a manifold segment should not be left so long as to allow the wick tail to flow into the manifold connection and block it.)

For additional help, contact Epic Ring Service.

If you did not receive Ring Maintenance Tips #1, 2, 3, 4, 5, 6 and/or 7, contact Epic.