NASA TECH BRIEF

Intermediate Rotating Ring Improves Reliability of Dynamic Shaft Seal

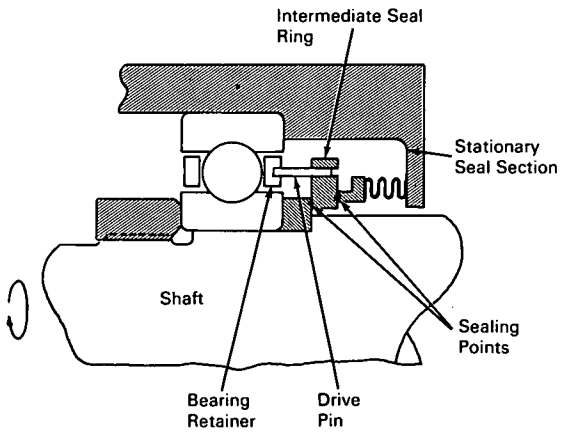

FIGURE 1

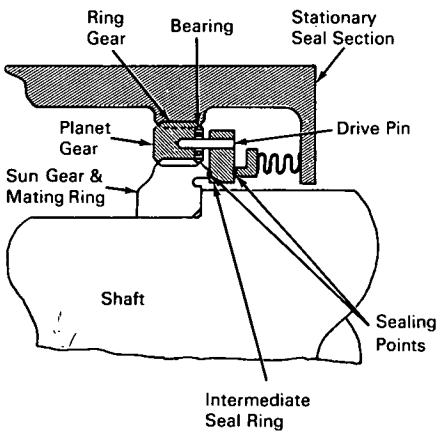

FIGURE 2

The problem:

To improve the reliability of dynamic shaft seals. At high shaft speeds, the seal rubbing surfaces wear down rapidly.

The solution:

An intermediate rotating ring placed between the rotating shaft sealing surface and the stationary surface, and driven at approximately one half the shaft speed, reduces wear on the rubbing surfaces.

How it's done:

There are a number of practical methods for driving the intermediate ring at a speed of 40% to 45% of shaft speed. In Figure 1 the intermediate ring is driven by the retainer of an adjacent ball bearing; in Figure 2 the intermediate ring is driven by a planetary gear system. Other methods of driving the ring will depend on the configuration of surrounding drive mechanisms.

Note:

Inquiries concerning this innovation may be directed to:

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Patent status:

No patent action is contemplated by NASA.

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