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## Engineering Services



Privacy - Terms

Our technical expertise, technology and experience in the field of fluid film bearings and seals define us. But we're not trying to justify a particular technology for its own sake. (While we're proud of our [Fluid Pivot® tilting pad journal bearing](#) technology, it may not be appropriate for your particular application.) While some companies tout "engineering" but only offer "reverse engineering" or what they want to sell you out of a catalog, we serve our customers with non-biased professional engineering services to provide custom-engineered bearing solutions.

**DESIGN LESSONS LEARNED FROM MANUFACTURING AND REPAIRING BEARINGS**

Our theoretical knowledge is enhanced and influenced by what we've observed over the decades in our manufacturing and repair departments.

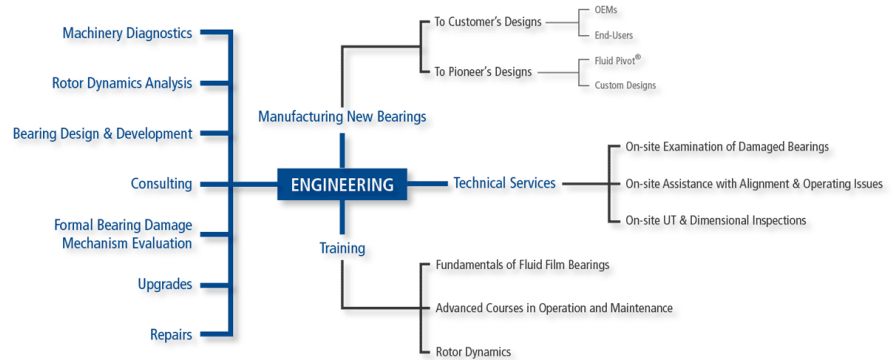
From our heritage of manufacturing large bearings for and designed by power generation OEMs, we've learned to seek "value engineering" opportunities in our own designs. We strive to avoid unnecessary costs.

From what we've observed in our bearing repair department (where we see hundreds of examples of

and Lubrication Engineers). Our engineers have a thorough understanding of materials, friction, lubrication and wear not merely from their formal education but from actually working with large rotating machinery.

Our knowledge of and experience with radial and thrust bearing theory, materials, operations and maintenance is unsurpassed in our industry. Armed with a full set of complex diagnostic tools, we are ready on short notice to perform an analysis of rotordynamics, critical speeds, thrust bearings, oil cooling systems and bearing damage root cause.

Yet the origins of our engineering solutions arise from a simple habit – listening. Our best ideas don't begin around a conference table in our offices. They begin with our customer. That's why the first step in our engineering process is: "We listen." We know that a superior solution starts with an in-depth understanding of the customer's needs. So we're not afraid to crawl around machinery and ask "dumb questions". We integrate the customer into the design/solution process.



*Illustrating the many facets of Pioneer's Engineering department. Click to enlarge.*

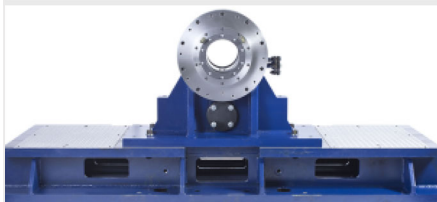


extension while avoiding features that actually may contribute to bearing damage.



### Analysis, Repair and Upgrade of Spring-bed supported Hydroelectric Thrust Bearings

Analysis, Repair and Upgrade of Spring-bed supported Hydroelectric Thrust Bearings [...]



### Fluid Pivot Tilting Pad Journal Bearings

We didn't invent the tilting-pad bearing. We improved it. Bearing [...]



### Excitation Upgrades

Excitation Upgrades The Problem: When upgrading generator [...]



### Engineering and Technical Services

Engineering and Technical Services Beyond the scope of [...]





### Hydrogen Gland Seals and Oil Seals

Pedestals and housings for fluid film bearings using oil lubricants generally have seals to control the lubricant flow and prevent leakage. In electrical motors, such leakage can contaminate



### Bearing Engineering Troubleshooting, Upgrades & Retrofit Replacement Parts

Our experienced engineers are armed with a full set of complex diagnostic tools, including the DyRoBeS® codes, to help you troubleshoot operational

### Sales, Manufacturing, & Engineering

[sales@pioneer1.com](mailto:sales@pioneer1.com)  
[engineering@pioneer1.com](mailto:engineering@pioneer1.com)

Phone: (704) 937-7000

129 Battleground Rd.  
Kings Mountain, NC 28086 USA

**AFTER-HOURS & WEEKEND  
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## Training

Well-trained personnel are critical to operating plants effectively and efficiently. For this reason, Pioneer is committed to offering training services to customers and other industry professionals.

To improve machinery operations and maintenance over the long term, we train maintenance personnel on bearing fundamentals and bearing damage, using a syllabus Pioneer created to help identify a variety of bearing damage mechanisms. We also train end user and OEM maintenance engineers on advanced topics, such as rotordynamics and specific guide and thrust bearing issues.

We tailor courses to fit the customer's allotted time and subjects of interest, from half-day to two full days. We also offer industry wide workshops. In addition, our engineers are often lead speakers at conferences.

For more information on our personnel available to assist OEMs and end users of rotating equipment in the design, manufacture, repair and upgrade of fluid film babbitt (White Metal) radial and thrust bearing assemblies please [download our brochure](#).



*Dr. Lyle Branagan, Engineering Manager, demonstrating the effects of oil lubrication*



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[engineering@pioneer1.com](mailto:engineering@pioneer1.com)

Phone: (704) 937-7000

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Kings Mountain, NC 28086 USA

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