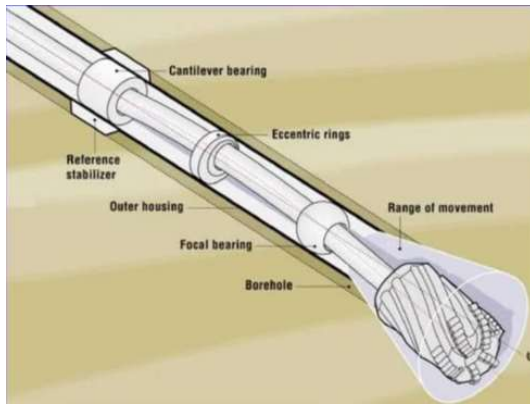


# BoardMaster Case Study: Solving Phantom Fault In RSS Drill Heads



One of the technical advances that has made a huge contribution to increased production in oil well drilling is the **Rotary Steering System (RSS)** drill head. RSS drill heads enable access to oil deposits that could not be reached by drilling straight down or by drilling down at an angle. RSS drilling made it possible to reach oil deposits that might be a mile or more down and miles laterally from the well head.

Since the drill operators need to know the location of the drill head relative to the well head and the oil deposit, an RSS drill head has an array of on-board sensors and instruments.

From Science Direct: *An RSS drill head has an onboard control system which continuously monitors the inclination and azimuth of the RSS. This data is transmitted in real-time back to the surface by mud-pulse telemetry. Many on-board sensor/instruments are used to determine the downhole lithology. These include pressure, temperature, multi-frequency resistivity, density, porosity, on-board acoustic seismology, and even azimuthal gamma ray “radar.”*

Protecting customer identity, “IDS, Inc.” is the designer and manufacturer of RSS drill heads for offshore oil drilling. Prior to discovering ABI and its BoardMaster diagnostic equipment, IDS was experiencing frustrating problems with their RSS drill heads. Deep under the seabed, something was causing a fault in the transmission from the drill head. When this happened, without a drill head location signal, the drill rig operators were forced to pull the drill.

The average cost of drilling one subsea oil well is well over \$500 million. Having to pull a drill head from an incomplete well costs the drilling operator millions of dollars, and days or weeks of delay escalates that cost. As a result of the costs and frustration of the unfinished wells, IDS was accumulating a growing list of angry customers.

IDS analyzed each failed drill head, but no fault could be found. In the lab, each of the failed drill heads worked as they should. IDS began acquiring new diagnostic systems, but none of the new systems could find the problem buried in the faulty drill heads. When IDS heard of ABI, they were desperate. They scheduled a demo, got a quote and issued a PO in just over a week.



Within two days of getting their onsite training and putting the BoardMaster into service, IDS engineers found the problem in the drill head. Although they would not tell us the exact nature of the problem, they did say it was remedied with a change in their design. They said the BoardMaster’s unique 3D V-I and Matrix V-I tests were very helpful in the troubleshooting process. They said BoardMaster showed them the exact nature and location of the fault that eluded their other diagnostic systems.

For more information about the BoardMaster system, please see <https://bit.ly/saeligABI> or email [salesmgr@saelig.com](mailto:salesmgr@saelig.com)

