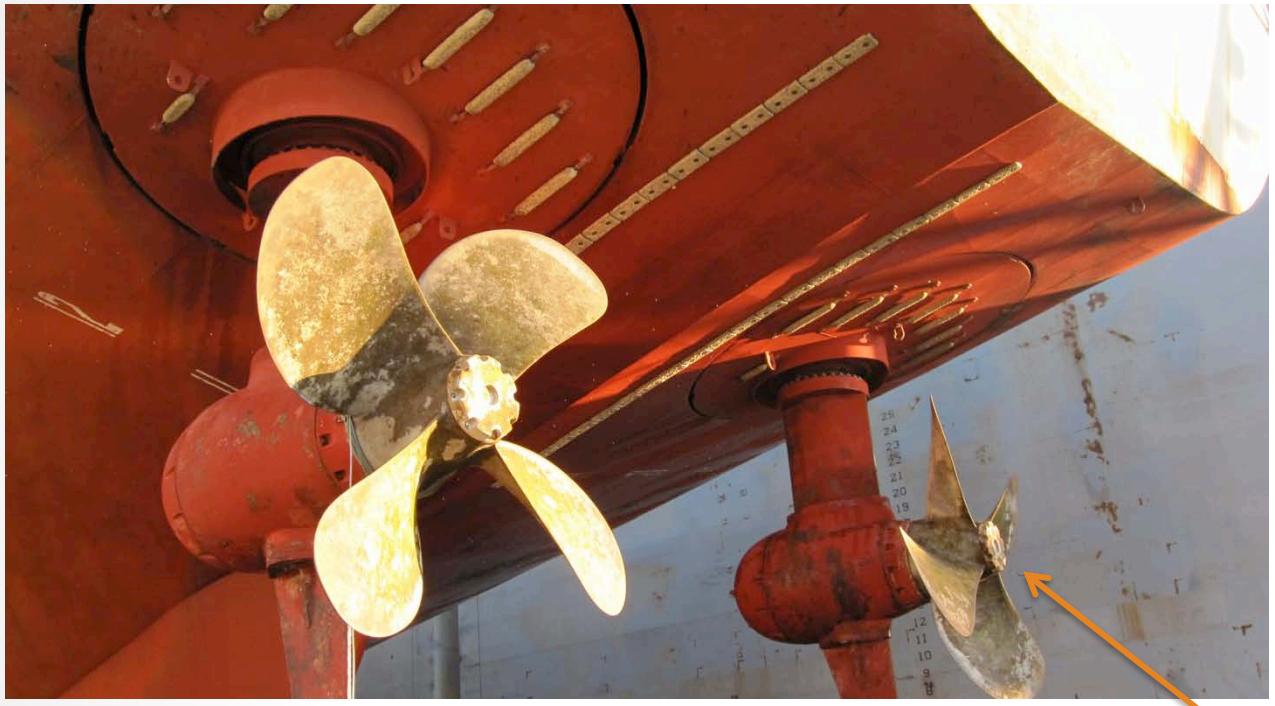
R/V Thompson Update

22 Oct 2012

The Basics

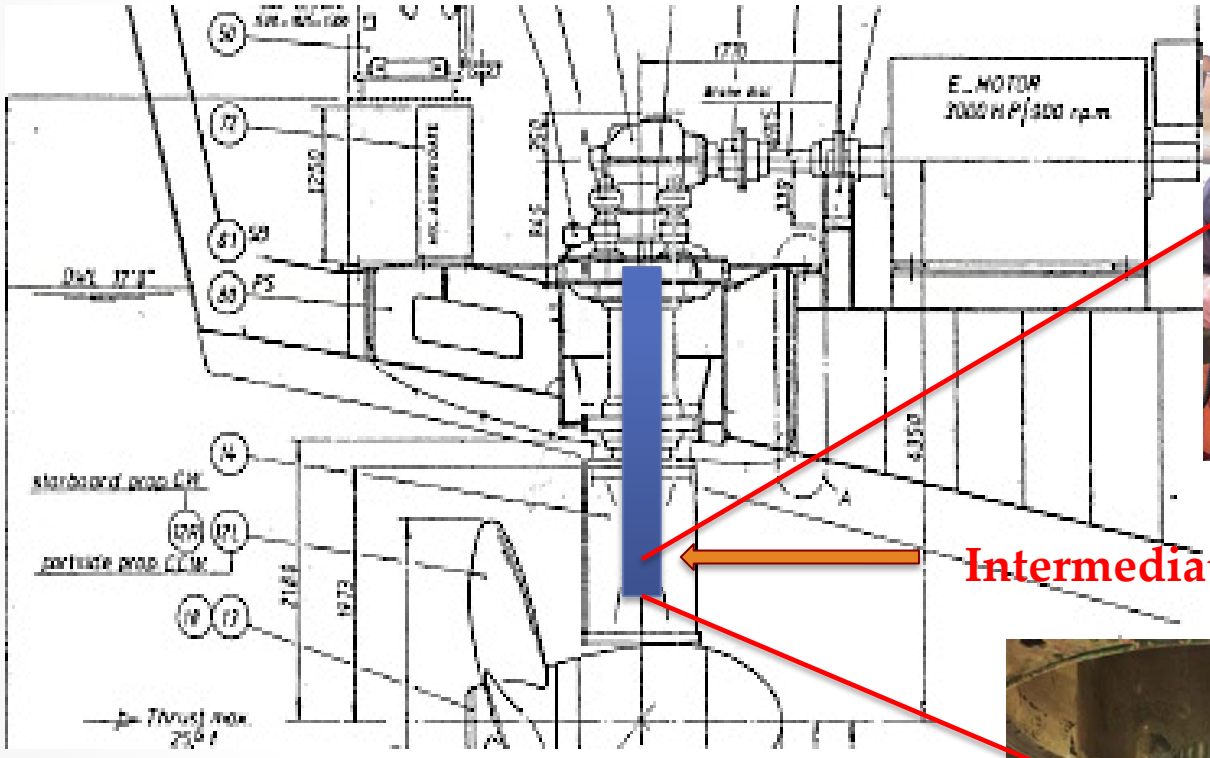
- Failure occurred 23 July in Puget Sound during return to homeport from a science cruise
- In Dakota Creek Industries shipyard since 25 July – Anacortes, WA
- Expected return to service nlt 10 Jan 2013
- Cause: bent lower Z-drive resulted in high stress in the intermediate shaft lower coupling and eventually a low cycle fatigue failure
  - Independent analysis concludes that a “soft” strike (e.g. whale, water logged dead head) caused the bend to the lower Z-drive
- Cost: > $1.5M
- Biggest schedule drivers:
  - long lead time for intermediate & vertical shafts, shank & steering pipe
  - late identification of the bent lower Z-drive problem

The Z-drive



Normal Starboard Z-drive – Jan 2011

Z-drive Internal Arrangement & the Failure



Intermediate Shaft Failure

Result

- Replace all internal components – gears, bearings, shims, spacers, seals, bolts, etc.
- Replace bent Steering Pipe
- Replace bent Shank
  - Have to manufacture the last two items in a foundry

Steering Pipe

Shank