

24 units. These tests showed good contact. Inspection of the lower units in the shipyard this week shows good conditions and good tooth contacts in both units. Upper gear tooth contact under load has not heretofore been tested, because the loads (torques) were presumed to be small, but depending on results of the Thompson upper gear failure analysis, this view could change.

Revelle probably contacted ground while still at HMI, but rather gently. There is no evidence of a severe grounding/collision that may have shocked the gears, and the inspections of last week lend credibility to the notion that the HMI groundings, while deplorable as shipbuilding practice, have not yet led to a major adverse effect on this particular ship.

8. Atlantis: Initial lower gear installation was tested under load, similar to Revelle. No subsequent issues arising. It is worth noting that Atlantis was grounded by HMI at New Orleans sufficiently to overload the SCR drives.

9. Brown: no experience; too new.

10. Future course of action:

a. Continue regular oil and vibration checks

b. Continue regular inspections of lower units, to establish tooth contact patterns under load.

Budget/plan/schedule for gear replacement at end of expected life, with good margin of safety.

c. Consider more extensive inspections/tests of upper units in future, depending on results of investigation into recent Thompson failure.

d. Pursue study (Glosten, subcontract to SIO, funded by NAVSEA via ONR) to do a review of problems to date, operation/inspection protocols, etc., consider any resultant recommendations.

e. If Knorr failure proves traceable to bad metallurgy in whole or in part, procure spare lower set, and possibly do this procurement in any event

f AGOR 23/4/5/6 spare lower sets are funded, and in shipment to SIO as custodian, for all ships.

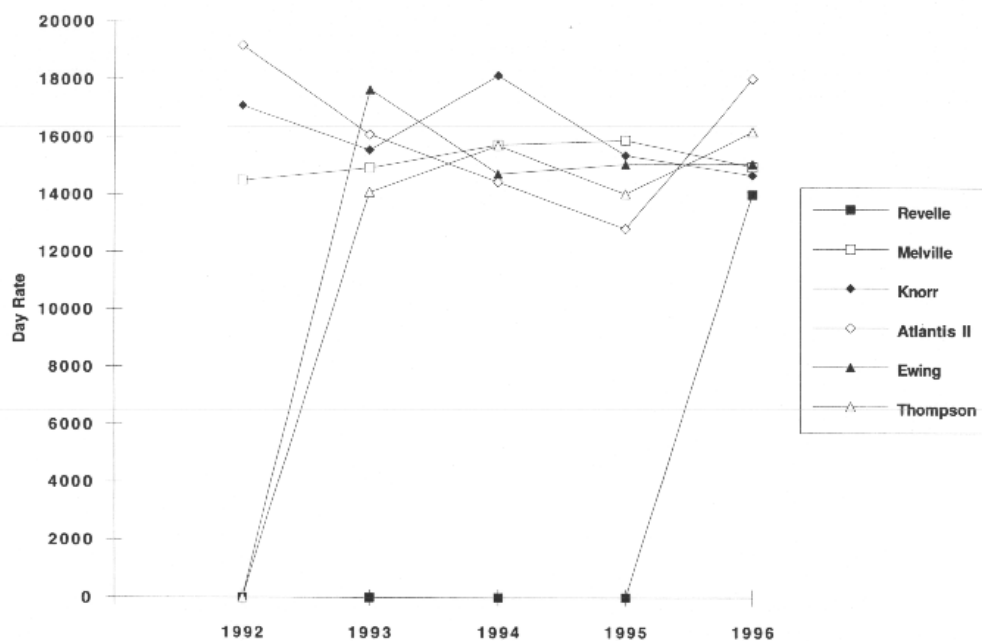
g. It is probably too early to consider upper gear spares (no Knorr/Melville failures, one AGOR failure with cause still unknown); revisit later after study (d) is complete.

h. Keep careful records of any groundings or collisions that could impact thrusters.

i. Premature to move toward more drastic remedies (whole drive system changes, etc.)

Appendix XII

Large Vessel Day Rate Trends



	Revelle	Melville	Knorr	Atlantis II	Ewing	Thompson
1992	0	14,489	17,079	19,167	0	0
1993	0	14,929	15,549	16,090	17,647	14,091
1994	0	15,730	18,131	14,440	14,726	15,701
1995	0	15,893	15,375	12,830	15,068	14,032
1996	14,021	14,997	14,703	18,044	15,097	16,208

Actual (prior years) day rates, NSF budget sec. 7, incl. OH

Appendix XIII

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