

HYDRAULICS IN THE SEA SYSTEMS CONTROLLERATE

BY

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Changes

Reorganisation is the watchword of the hour. Hydraulics is no exception. Since 'New Look'¹ in August 1983, when Director General Marine Engineering (DGME) accepted formal responsibility for all hydraulic equipment and systems in surface ships, there have been two significant changes which occurred virtually simultaneously.

The first of these was the demise of the Central Hydraulics Authority (Royal Navy). CHA(RN)² had for nearly thirteen years ensured that the Navy's hydraulic expertise was wisely directed by attacking significant problems, such as uniformity of standards for contamination measurement and subsequent control, a programme of filter evaluation, and procurement of a computer-aided design (CAD) programme for assessment of hydraulic and other systems. The pressure of manpower cuts, combined with the realization that CHA(RN) had already obtained solutions to the major hydraulic problems, forced management reluctantly to agree to its winding up in the autumn of 1984. Its uncompleted tasks have been transferred to DGME who will seek to provide a similar consultative service but with less staff effort. The individual people with whom many readers have done business over the years are generally still the same.

The second change was the transfer of responsibility for submarine hydraulic systems and equipment from Director General Submarines (DGSM) to DGME on 1 October 1984. Submariners whose safety depends on hydraulics and who might therefore be understandably nervous at leaving hydraulics to a team consisting mainly of surface ship and weapon experts will be reassured to learn that all installation matters remain DGSM's responsibility and any aspect that affects boat safety must be approved by an appropriate officer in DGSM.

The Future

Apart from these administrative changes, there are also some technical changes under way.

In the surface fleet the next major step forward is the introduction of a proprietary fire-resistant fluid³ in the Type 23. Called HS 200X, this fluid is an aqueous polyglycol (an antifreeze) with additives. Apart from failing to ignite easily, it is also water-soluble and can more easily be removed when spilled. It is more expensive than OM-33 so as a taxpayer I hope that the leak rate drops to a new low level, namely zero.

In the submarine world work has begun to ensure that the next generation of submarines will have the most appropriate system design. Answers are being sought to such questions as:

- (a) What is the optimum operating pressure?
- (b) Should there be integrated or dispersed systems?
- (c) Can salt water be kept out of hydraulics and how?
- (d) Where should we use hydraulics and where an alternative power source?

The results of these deliberations will be at sea towards the end of the century, giving more reliable and effective operation.

References

1. Williams, R. J.: Sea Systems Controllerate reorganization; *Journal of Naval Engineering*, vol. 28, no. 1, Dec. 1983, pp. 146-154.
 2. Stafford, A. J.: Cleanliness is next to godliness--the Central Hydraulics Authority (R.N.); *Journal of Naval Engineering*, vol. 23, no. 2, Dec. 1976, pp. 192-197.
 3. Eastaugh, P. R., Hargreaves, M. R. O., and Jones, H. J.: Fire hazards with hydraulic equipment; *Journal of Naval Engineering*, vol. 28, no. 2, June 1984, pp. 308-317.
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