

MICROFICHE—WHERE NOW?

BY

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ABSTRACT

Intended replacements for the RNA3 microfiche reader printer are described. Digital technology is being investigated for the future.

Introduction

In 1982 Commander Austin¹ reported that, 'in the words of one percipient observer, "there has been an outbreak of microform"'. Some six years later, most engineering drawings have been supplied on 35 mm microfilm and have been well received but the rest of the microfiche programme has not progressed as quickly as expected and it has been the subject of some criticism and resistance by the user. Why? In the following paragraphs the author attempts to give some of the reasons, and answers, and also to give some indication of future intentions.

Microfiche Policy

The original policy set by the Navy Department Standing Technical Publications Policy Committee (NDSTPPC) and endorsed by the Naval Projects Committee (NPC) envisaged 50% of technical publications in fiche by 1986. The policy was based upon the majority of new BRs being published in the fiche format, together with those which required revision either because of extensive new material or because of an unmanageable number of amendments, and also some retrospective conversion to microfiche of BRs likely to remain in service for a considerable time. BRs that related to an obsolescent equipment would remain in printed form ('hard copy'). Commercial (Type B support) handbooks were never intended to be produced in fiche, nor were ephemeral documents such as S2022, NES, etc.

The basic microfiche policy remains that new technical BRs will be produced in microfiche but it has recently been modified in two main areas. Firstly, due to the limited funds available, no timescale is now set for the retrospective conversion to fiche of existing BRs; and, secondly, it is accepted that new BRs sponsored by DNW and other operational authorities along with the associated Category 2 material of equipment handbooks will still be produced in hard copy. Where properly justified, further exceptions will be permitted, but decisions to produce new BRs in hard copy will be fully costed and documented by the Equipment/System Project Manager since space considerations and reduced complements in Type 23, Type 2400, VANGUARD SSBNs and SRMH classes all dictate the need for microfiche to be used to the maximum extent acceptable to user authorities.

The User Problem

The need for microfiche BRs and other documentation arose from the large quantity required to support modern equipments/systems afloat and the associated problems of supply and onboard maintenance of this documentation. It is significant that the weight of technical documentation in a cruiser in 1935 was estimated at 1½ tons compared with over 7 tons in a typical frigate today—even with much of it in microfiche—and the situation is not improving.

It is well recognized that microform cannot provide certain aspects of hard copy (e.g. the ability to browse) and that, like any new technique, it requires a slightly different approach to obtain the full benefit. Nonetheless, given the size of the management problem for documentation in a ship, it remains the most effective means of containing the problem in the short term.

Of course, fundamental to the success of microfiche is the availability of good quality readers and reader printers and the readability of the fiche itself, and here it is recognized that there have been difficulties which have aggravated reluctance to adapt fully to this medium.

In surface ships, the portable readers and the equipment supplied to minor war vessels appear to be satisfactory. However, the main equipment for larger ships, the A3 size RNA3 reader printer, requires excessive maintenance to produce good quality print. In an attempt to overcome this shortcoming trials are being conducted on three commercial machines. As these are 'off-the-shelf', their overall specifications are lower than that of the RNA3 in a number of respects—namely they are too large to pass through standard doors and hatches without extensive alteration, not robust, unable to be operated or maintained from the front, require extensive modification to meet security regulations, and use sensitized paper. All reports received so far indicate, however, that these machines have met the user's essential requirements under peacetime conditions.

The most serious problem lies in submarines where the RNA3 had to be withdrawn due to toxicity hazards from the liquid toner when the vessel is dived. Hence submarines have had to use the 3M500LF dry process machine which, although having an A3 screen, can only print to A4 size.

Regrettably the RNA3 cannot be simply converted to dry print so there are now trials in an SSBN of a commercial machine that may be a suitable solution in that class, although almost certainly too large for SSNs. In the meantime FOSM is liaising closely with the Technical Publications Authorities for a temporary embargo on the ficing of certain publications.

A large proportion of the weapon fiche originally issued to the Fleet was simply a photographic reduction of existing hard copy which did not readily lend itself to diagnostic use by maintainers. In an attempt to improve this, a feasibility study was mounted, with the agreement of users, into better ways of presenting technical information in fiche. As a result, the Type 1006 radar handbook was recast and issued in fiche to some ships of the Fleet for comparison with the hardcopy version. Reaction to the new style fiche was favourable so it is now being adopted for weapon equipment handbooks and appropriate documentation is being amended accordingly.

Future Developments

Positive steps are being taken to examine what new technology has to offer. Vickers Shipbuilding and Engineering Ltd. (VSEL) has been tasked to carry out studies on the suitability and availability of optical/digital storage and access of technical documentation in a seagoing environment. A demonstration model, containing typical sample documentation, will be presented very widely in 1989 to increase awareness of the capability of such systems. A decision may then be made to undertake formal sea trials.

The U.S. Navy is similarly and to a much greater extent moving towards these techniques with the aim of achieving a 'paperless ship' in the early 1990s. We are hoping to learn from their research as part of our own process of considering whether and how to adopt these new systems. Certainly such technology offers many potential benefits—user-friendly, massive storage capacity (150 000 pages of A4 text on one 5¼" CD ROM disc, for example), instant retrieval by multiple users, and high quality print-outs. The cost of initial digitizing of the data base (presumably several millions of pounds for the current BR inventory) would be considerable and would be a lengthy operation which would take some time to recover in terms of the investment involved. Nevertheless, it is an exciting prospect and one which could give the maintainer access to far greater amounts of more accurate information than can be achieved by either paper or microform. It is hoped to produce an article on the technical aspects of optical disc technology and its application to the ship environment in a future issue of the JNE.

It appears inevitable that this new digital technology will replace the bulk of onboard technical documentation in the late 1990s. However, in the medium term there will still be a requirement for microform, and the importance of continuing to provide and sustain reliable reader printers is well understood in Headquarters.

Reference

1. Austin, B. J., and Coleman, E. C.: Storage and presentation of technical information, Part II—an outbreak of microform; *Journal of Naval Engineering*, vol. 27, no. 2, Dec. 1982, pp. 278-287.