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A REVIEW OF NAVY TRAINING DEVICE UTILIZATION REPORTING PROCEDUR--ETC(U)  
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TECHNICAL REPORT NO. 99

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## A REVIEW OF NAVY TRAINING DEVICE UTILIZATION REPORTING PROCEDURES

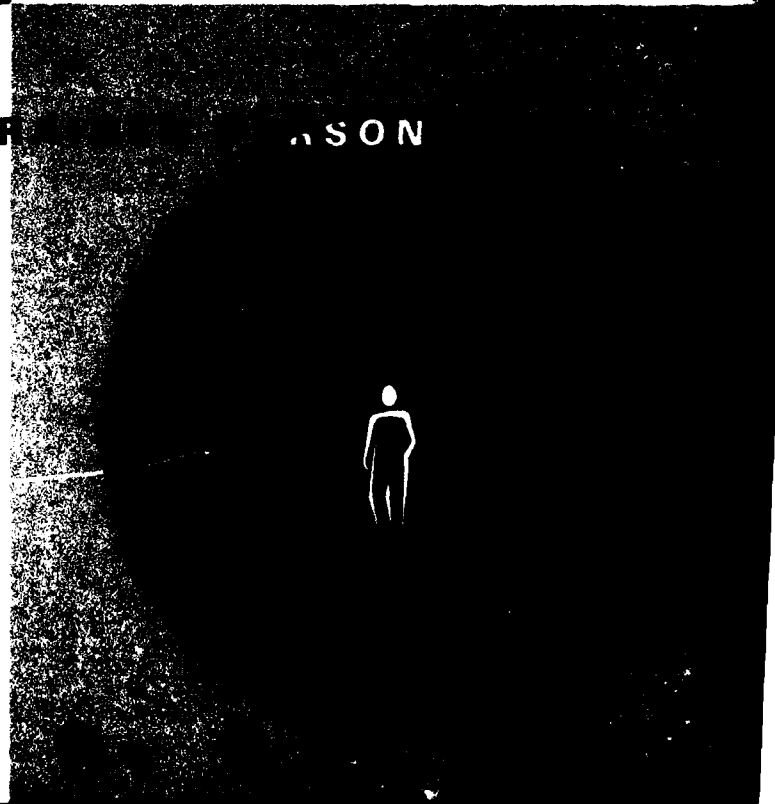
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TRAINING ANALYSIS AND EVALUATION GROUP  
ORLANDO FLORIDA 32811

A REVIEW OF NAVY TRAINING DEVICE UTILIZATION  
REPORTING PROCEDURES

Roger V. Nutter  
Curtis C. Cordell

Training Analysis and Evaluation Group

April 1981

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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)<br>This report recommends a utilization report which will provide managers at all levels with timely decision making information regarding training devices. The objectives of the study were to: <ul style="list-style-type: none"> <li>• identify problems in the existing training device utilization reporting system and recommend solutions</li> <li>• identify utilization data requirements for all commands having a responsibility for the acquisition, support, and operation of</li> </ul> (continued) |                                      |                                                             |

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20. ABSTRACT (continued)

- training devices
- develop a viable reporting system which satisfies management information requirements.

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## TABLE OF CONTENTS

| <u>Section</u> |                                                                                         | <u>Page</u> |
|----------------|-----------------------------------------------------------------------------------------|-------------|
| I              | INTRODUCTION. . . . .                                                                   | 5           |
|                | Background. . . . .                                                                     | 5           |
|                | Tasking . . . . .                                                                       | 6           |
|                | Purpose of the Study. . . . .                                                           | 6           |
|                | Approach. . . . .                                                                       | 7           |
|                | Organization of the Report. . . . .                                                     | 8           |
| II             | UTILIZATION REPORTS . . . . .                                                           | 9           |
|                | Maintenance and Material Management (3-M) Information<br>System Reports . . . . .       | 9           |
|                | Fleet Aviation Specialized Operational Training Group<br>(FASOTRAGRU) Reports . . . . . | 13          |
|                | Commander, Marine Corps Air Bases (COMCAB) Reporting<br>System . . . . .                | 15          |
| III            | FIELD SURVEY RESULTS. . . . .                                                           | 17          |
|                | Management Utilization Data Requirements. . . . .                                       | 18          |
|                | OP-29, Submarine Manpower and Training Require-<br>ments Division. . . . .              | 18          |
|                | OP-39, Surface Warfare Manpower and Training<br>Requirements Division . . . . .         | 19          |
|                | OP-59, Aviation Manpower and Training Division . . . . .                                | 19          |
|                | Headquarters, Marine Corps (APW) . . . . .                                              | 20          |
|                | CHNAVRES . . . . .                                                                      | 20          |
|                | Operational Commands Utilization Data Requirements. . . . .                             | 21          |
|                | Survey Sample. . . . .                                                                  | 21          |
|                | Discussion of Responses to Questions . . . . .                                          | 22          |
|                | Additional Findings. . . . .                                                            | 26          |
| IV             | ANALYSIS AND FINDINGS . . . . .                                                         | 31          |
|                | Training Device Utilization Situations. . . . .                                         | 31          |
|                | Single Device-Single Station . . . . .                                                  | 31          |
|                | Single Device-Multistation--Independent or<br>Integrated Operation. . . . .             | 31          |
|                | Single Device-Multistation--Independent<br>Operation Only. . . . .                      | 31          |
|                | Multiple Devices, Multiple Station--Independent<br>or Integrated Operation . . . . .    | 32          |
|                | Single Device, Single Station, Event or Cycle Type . . . . .                            | 32          |
|                | Single Device, Multiple Station, Event or Cycle<br>Type. . . . .                        | 32          |

TAEG Report No. 99

TABLE OF CONTENTS (continued)

| <u>Section</u> |                                                             | <u>Page</u> |
|----------------|-------------------------------------------------------------|-------------|
|                | Standards for Training Device Utilization . . . . .         | 33          |
|                | Fixed Standard . . . . .                                    | 33          |
|                | Design Capability Standard . . . . .                        | 34          |
|                | 24-Hour Day Standard . . . . .                              | 35          |
|                | Flexible Standard . . . . .                                 | 35          |
|                | Curriculum Based Standard . . . . .                         | 36          |
|                | Work Period Standard . . . . .                              | 36          |
|                | Recommended Standard . . . . .                              | 37          |
|                | Training Device Utilization Reporting Definitions . . . . . | 37          |
|                | Training Device Utilization Data Elements . . . . .         | 40          |
|                | Proposed Utilization Report . . . . .                       | 46          |
|                | Cost Data . . . . .                                         | 46          |
|                | Units of Measure . . . . .                                  | 46          |
|                | Utilization Report . . . . .                                | 47          |
|                | Report Description (Section 1) . . . . .                    | 47          |
|                | Definition of Terms (Section 2) . . . . .                   | 48          |
|                | Management Alert Data Summary (Section 3) . . . . .         | 49          |
|                | Detailed Utilization Data (Section 4) . . . . .             | 49          |
|                | Data Bank Information . . . . .                             | 49          |
| V              | CONCLUSIONS AND RECOMMENDATIONS . . . . .                   | 53          |
|                | Conclusions . . . . .                                       | 53          |
|                | Recommendations . . . . .                                   | 54          |
| VI             | IMPLEMENTATION PLAN OUTLINE . . . . .                       | 57          |
|                | Initiation Phase . . . . .                                  | 57          |
|                | Action Phase . . . . .                                      | 59          |
|                | MAMSO Responsibility . . . . .                              | 59          |
|                | NAVTRAEQUIPCEN Responsibility . . . . .                     | 62          |
|                | General Comments . . . . .                                  | 64          |
|                | Time . . . . .                                              | 64          |
|                | Cost . . . . .                                              | 64          |
|                | Training . . . . .                                          | 64          |

TAEG Report No. 99

TABLE OF CONTENTS (continued)

| <u>Section</u>                                               | <u>Page</u> |
|--------------------------------------------------------------|-------------|
| APPENDIX A Sample of NAMS0 Report 4790.A8092-01. . . . .     | 65          |
| APPENDIX B Sample of NAVTRAEQUIPCEN Report 10171-4 . . . . . | 71          |
| APPENDIX C Commands and Activities Contacted . . . . .       | 75          |
| APPENDIX D Field Survey Questions. . . . .                   | 79          |

# TAEG Report No. 99

## LIST OF ILLUSTRATIONS

| <u>Figure</u> |                                                              | <u>Page</u> |
|---------------|--------------------------------------------------------------|-------------|
| 1             | Sample Management Alert Data Summary Format and Content. . . | 50          |
| 2             | Sample Detailed Utilization Data Format and Content. . . . . | 51          |
| 3             | Flow Diagram of Major Implementation Events. . . . .         | 58          |

## LIST OF TABLES

| <u>Table</u> |                                                                          | <u>Page</u> |
|--------------|--------------------------------------------------------------------------|-------------|
| 1            | Comparison of NAMS0 Report with NAVTRAEQUIPCEN Report. . . .             | 11          |
| 2            | Comparison of FAIR With TEMP and NAMS0/NAVTRA-EQUIPCEN Reports . . . . . | 14          |
| 3            | Responses to Field Survey Questions. . . . .                             | 27          |
| 4            | Potential Utilization Data Elements (Administrative) . . . .             | 41          |
| 5            | Potential Utilization Data Elements (Utilization). . . . .               | 42          |
| 6            | Potential Utilization Data Elements (Maintenance). . . . .               | 45          |
| 7            | Events in the Initiation Phase . . . . .                                 | 57          |
| 8            | Events in the Action Phase (NAMS0) . . . . .                             | 59          |
| 9            | Events in the Action Phase (NAVTRAEQUIPCEN). . . . .                     | 62          |

## SECTION I

### INTRODUCTION

The present training device utilization reporting system was formally implemented in 1969 by the Chief of Naval Operations (CNO) through OPNAVINST 10171.4. In response to the OPNAV instruction, the Naval Training Equipment Center (NAVTRAEQUIPCEN), then the Naval Training Device Center, instituted a Training Device Utilization and Application (TDUA) Report in March 1972. The requirement for this report was cancelled with the issuance of OPNAVINST 10171.4B on 14 April 1975 which directed that training device utilization be reported through the Maintenance and Material Management (3-M) information system. Since incorporation of all training devices in the 3-M reporting system would be a phased process, the TDUA report continued to be issued. Transfer of responsibility for utilization reporting to the 3-M system was completed for all aviation training devices in June 1979, and the final NAVTRAEQUIPCEN TDUA Report was issued at that time. All surface and sub-surface Cog "20" devices not yet included are scheduled to be incorporated into the 3-M report in the near future.

A Chief of Naval Education and Training (CNET) review of recent training device utilization reports revealed that a significant number of simulators within the Naval Education and Training Command (NAVEDTRACOM) have utilization rates less than 50 percent. These low utilization rates are of great concern to both CNO and CNET. As a result of this review, CNET requested the Training Analysis and Evaluation Group (TAEG) to investigate this problem.

### BACKGROUND

The objective of OPNAVINST 10171.4B is to insure the provision of historical training device utilization and maintenance data for use by senior managers in making decisions in the following areas:

- revising the distribution of existing training devices, locating new devices, or removing devices from the inventory
- supporting new requirements, obtaining funding for additional training devices, and/or determining the need for modifying existing devices
- program planning based on a study of utilization trends
- providing adequate and timely logistic support to training device custodians.

The OPNAVINST 10171.4B requires that training device utilization rates be calculated on the basis of a universal training device standard established for each device. Aviation training device standard hours were established by CNO (OP-596). The Commandant of the Marine Corps (CMC) establishes the standard for Marine Corps ground support training devices. Recommended standard hours for surface and subsurface related devices are proposed by CNET and by the Chief of Naval Reserve (CHNAVRES) for devices under his control, and both are forwarded to CNO for approval.

TAEG Report No. 99

Criteria for inclusion of training devices in the utilization reporting system are set forth in enclosure (1) to OPNAVINST 10171.4B. Surface, sub-surface, and Marine Corps training devices (less aviation devices) with a unit cost of \$500,000 or more will be included. Aviation training devices are specifically designated by CNO (OP-596).

The instruction directs the use of the 3-M information system and outlines the specific information to be reported by custodial commands. Detailed directions for the implementation of the reporting procedures are contained in OPNAVINST 4790.2B, the Naval Aviation Maintenance Program (NAMP), Volume III, which was already being used to report operational aircraft maintenance and utilization data.

TASKING

The initial purpose of this study was to determine the reason for low utilization rates of some devices, make recommendations for increasing the utilization of devices, propose devices which should be removed from the inventory, and submit other necessary action items identified during the study. A visit was made to CNET Headquarters to discuss this tasking with personnel who had a need for the utilization report. Their consensus was that the report is not useful. The problems with the existing report included the following:

- the meaningfulness of the standard training hours for all training devices upon which utilization is based
- the accuracy of and the standard meaning of the numbers reported to the Navy Maintenance Support Office (NAMS0)
- cannot be used to extract device use data needed at the annual Program Objective Memorandum (POM) justification meeting
- too much data, very little of which is relevant to senior managers.

Accordingly, these discussions resulted in a redirection of the TAEG effort. It was decided by the conferees that the focus of the study would be on the content of the utilization report, the reporting procedures and the data reported rather than on the use of the report. The ultimate purpose of the study was to provide recommendations for a utilization report which would eliminate the problems identified above. The effort was to be confined to utilization reports only; other reports issued by the 3-M information system were not addressed.

PURPOSE OF THE STUDY

The purpose of this study is to recommend a utilization report which will provide managers at all levels with timely decision making information regarding training devices. There are three specific objectives:

## TAEG Report No. 99

- identify problems in the existing training device utilization reporting system and recommend solutions
- identify utilization data requirements for all commands having responsibility for the acquisition, support, and operation of training devices
- develop a viable reporting system which satisfies management information requirements.

### APPROACH

An analytical approach was taken which compared the training device utilization data requirements with the reported utilization data. Based on the analysis, the training device utilization report could be reformed to include only those data elements essential to users.

Data acquisition was performed in three steps: (1) a review of the instructions/directives establishing utilization reporting and the examination of existing utilization reports, (2) visits to the senior command echelons who use the reports, and (3) visits to field activities which generate the input data for the reports.

A review of the existing reports was made to obtain an understanding of the utilization reporting system, utilization reports, and applicable definitions. The review of utilization reports established the extent of the reporting system and a basis for determining the consistency of data. In addition, this portion of the review allowed the team to locate the various training devices and to determine which devices were being underutilized.

Discussions with personnel at command echelons (CNO, CMC, CNET, CHNAVRES) were held to identify that data which they require to make decisions, and to determine the utility of the report as well as whether or not the existing report satisfied their needs.

Visits to field activities were necessary to examine the method of obtaining reported data and to insure that the report format included the data in the appropriate form needed at these levels. In particular, it was necessary to establish which maintenance information was essential to provide the user with a complete understanding of the reasons for deviations of utilization from an established norm.

The information concerning the consistency of the origin of reported data was available only at the field sites and, for air training devices, at the Fleet Aviation Specialized Operational Training Groups (FASOTRAGRU).

The data were analyzed, with particular emphasis on the specific information needed and the form in which it is presented, to provide management with appropriate decision making tools.

## ORGANIZATION OF THE REPORT

In addition to this introductory section, the report contains five sections and four appendices.

Section II identifies and compares the training device utilization reports published by five different activities. Section III contains a comprehensive examination of responses to survey questions and a discussion of utilization-related issues. Section IV presents the study findings and a proposed new utilization report. Section V contains the study conclusions and recommendations. Section VI presents an implementation plan outline for accomplishing a revision to the utilization reporting system.

Appendix A is a sample of NAMS0 report 4790.A8092-01. Appendix B is a sample of NAVTRAEQUIPCEN report 10171-4. Appendix C contains a list of all activities contacted during the study. Appendix D lists the questions used in the field survey.

## SECTION II

## UTILIZATION REPORTS

This section presents the results of the examination of five utilization reports now published by five different activities. These activities are NAMSO, FASOTRAGRUPAC, FASOTRAGRULANT, and the Commander Marine Corps Air Bases (COMCAB) EAST and WEST. The examination concentrated on report content, presentation (e.g., is the report easy to use), and compatibility of definitions. Also included are the results of a comparison of devices (types and quantity) actually reported in the NAMSO and TDUA reports and those devices required to be reported by the Training Equipment Maintenance Program (TEMP) document and the NAVTRAEQUIPCEN Financial Accounting and Inventory Record (FAIR) document. Results of the examination provided insights into areas requiring emphasis in the field survey (section III) and identified apparent discrepancies in reporting procedures and reported data among activities.

#### MAINTENANCE AND MATERIAL MANAGEMENT (3-M) INFORMATION SYSTEM REPORTS (NAMSO REPORTS)

OPNAV Instruction 10171.4B (14 April 1975) requires the custodians of all reportable training devices to submit their utilization, as well as maintenance, data through the 3-M information system to NAMSO. This information is accumulated and summarized in a monthly Training Device Readiness Utilization Summary (NAMSO 4790.A8092-01). The first of these reports was issued in the last half of 1979. The present study used, for examination purposes, the February 1980 copy of NAMSO 4790.A8092-01; a sample of which is attached as appendix A. A detailed examination of the report revealed a number of problem areas. Each of the major problems identified is discussed in the following paragraphs.

**ORIENTATION.** "NAMSO is the central data bank for Aviation 3-M Data" (NAMSO Instruction 4790.1A of 1 June 1980). Data for the reports are recorded using the reporting codes contained in OPNAVINST 4790.2B, NAMP, Volume III. These codes were designed to report on operational aircraft. As such, the various codes which identify maintenance data elements are frequently too general for training devices. In addition, many needed surface/subsurface training device maintenance reporting codes are omitted.

Information used to prepare the NAMSO reports is submitted by the training device custodian and inserted in the master 3-M data bank. These data are summarized and printed in the NAMSO 4790.A8092-01 report. Even though the report is named a Training Device Readiness Utilization Summary, only five data entries of a total of 24 apply to utilization. The emphasis of this report is on maintenance, not utilization. Requisite management utilization information is not available in a usable form.

NAMSO 4790.A8092-02, Training Device Utilization Summary, another monthly issuance, does emphasize utilization. However, this report is also based on NAMSO Instruction 4790.1A and its orientation is aviation. It suffers from the identical problem as NAMSO 4790.A8092-01. The Training Device Utilization Summary was not available at any of the commands or activities visited.

CONTENTS. The NAMS0 utilization reports contain excessive and too detailed maintenance historical data for use by managers. Utilization data is scattered and difficult to isolate from maintenance data. For managers, certain critical utilization data elements are missing. Some of these missing elements identified during interviews with managers are:

- device standard
- device availability
- utilization rate
- number of students trained or student man-hours
- lost training not due to maintenance
- scheduled training.

PRESENTATION. Data are presented by individual training device at each location, which makes it comparatively simple to examine the status of any single device located at any one station, or of all devices in a given type. However, it is difficult and time consuming for a manager to determine the overall utilization rate or the ratio of device use to device maintenance for all devices located at any given site. Managers have neither the time nor personnel to sort these data.

A number of ratios are presented in the report. Some of these ratios could be highly informative to managers concerning the use and material condition of any given device providing they could be interpreted. However, neither the instructions for using the report (the report itself or NAMS0 Instruction 4790.1A) nor the NAMP state what is, or is not, an acceptable ratio. For example, in the report examined, the Direct Maintenance Man-Hours (DMMH) per Device Hour contained ratios, when computed, which varied from 0 to 11.4. (There are three which exceed 11.4 but these have been discarded as being abnormally large as compared to the other ratios.) The ratio is meaningless since no definition or statement as to what is an acceptable ratio was included.

Report instructions which explain each of the data elements frequently reference reporting codes. These codes are used by operator/maintenance personnel in completing forms submitted to NAMS0. Managers do not have a need, nor the time, to become familiar with the myriad of individual operator/maintenance reporting codes. Because of this practice, it is difficult and time consuming to interpret the report.

COMPATIBILITY. Prior to the issuance of the NAMS0 4790.A8092-01 report, utilization was reported by the NAVTRAEQUIPCEN Report 10171-4, Training Device Utilization and Application Report. A sample of the NAVTRAEQUIPCEN Report 10171-4 is attached as appendix B. In order to determine the number of types of devices and the total number of devices which were reported, these figures were tabulated from the final NAVTRAEQUIPCEN report (June 1979) and the February 1980 NAMS0 report. A high degree of correlation was expected between the reports despite the difference in issue dates. This was not the case as indicated by the data presented in table 1.

TABLE 1. COMPARISON OF NAMSO REPORT WITH NAVTRAEQUIPCEN REPORT

| Situation                                                    | Device Types <sup>1</sup> | % of Device Types <sup>2</sup> | Total Devices <sup>1</sup> | % of Total Devices <sup>3</sup> |
|--------------------------------------------------------------|---------------------------|--------------------------------|----------------------------|---------------------------------|
| Devices in NAMSO & NAVTRAEQUIPCEN Reports                    | 164                       | NA                             | 444                        | NA                              |
| Devices in NAMSO Report 4790.A8092-01                        | 110                       | 67                             | 334                        | 75                              |
| Devices in NAVTRAEQUIPCEN Report 10171-4                     | 122                       | 74                             | 265                        | 60                              |
| Devices in Complete Agreement (Types and Total) Both Reports | 43                        | 26                             | 70                         | 16                              |

<sup>1</sup> Device types are the series. For example, the 2F87, 2F87(F), and 2F87A represent three device types. There is one 2F87, three 2F87(F)s, and two 2F87As for a total of six devices of this type.

<sup>2</sup> Percent computed on the basis of 164 device types.

<sup>3</sup> Percent computed on the basis of 444 total devices.

Another confusing fact is that there are 42 device types in the NAMS0 report which do not appear in the NAVTRAEQUIPCEN report. Adding the total number of devices included in the 42 types gives a discrepancy of 78 individual devices. Conversely, there are 51 device types with a total of 77 devices in the NAVTRAEQUIPCEN report which are missing from the NAMS0 report.

The lack of correlation between the NAMS0 and NAVTRAEQUIPCEN reports indicated a need for additional investigation. The NAVTRAEQUIPCEN Report 10171.4 was the compilation of user reports submitted on the Training Device Utilization (TDU) form, OPNAV 4790/103. Instructions for completing the TDU form were contained in the NAVTRAEQUIPCEN issued TEMP document. The TEMP was cancelled with the cancellation of the NAVTRAEQUIPCEN Report 10171.4. However, on an unofficial basis certain of the TEMP reporting codes are still used in the NAMS0 (3-M) reporting system at this time because they are the only codes available. To illustrate, Type Equipment Codes (TEC) and Utilization Purpose Codes (UPC) are maintained up-to-date by NAVTRAEQUIPCEN and are used in the completion of existing user reporting forms. In addition, much of the TEMP is used by reporting activities as the basic instruction for completing the report form since it is the sole document which addresses training device reporting.

Included in appendix P of the TEMP are Reporting Requirements Codes (RRC) which specify which devices' utilization are required to be reported to the 3-M system. RRC codes are updated; the latest revision was issued in April 1980. It was determined that 186 device types were required to have utilization reported, yet the NAMS0 report contains data on only 110 device types and the NAVTRAEQUIPCEN report contains data on 122 device types (table 1). No reason could be found for this difference in utilization reporting requirements as specified in the TEMP and in the number of device types actually reported.

OPNAVINST 10171.4B (section I) establishes a series of criteria for devices to be reported in the system. Based on these criteria, it was presumed all devices whose cost exceeded \$500,000, and lesser cost devices which appeared in the TEMP RRC listing, were to be included. This was not the case.

The rationale behind the choice of devices for which utilization is required to be reported is not consistent in practice. OPNAVINST 10171.4B specifically requires all devices costing over \$500,000 to be included. Yet many devices, such as the 2D2, 2F87B, 14A2C, and 21A37/8, each costing well over \$1,000,000, are not required to be reported by appendix P of the TEMP. Other devices, including the 9A1B, 9U44C, 15E34, and 18F22, all costing less than \$125,000 are included in the reporting system. No reason for this inconsistency could be found.

The NAVTRAEQUIPCEN issued Financial Accounting and Inventory Record NAVTRAEQUIPCEN COG Symbol "20" In-Use Devices Valued At \$1,000 Or More (FAIR) dated 14 May 1980 was examined. The FAIR is updated on a continuous basis and contains a listing, by cost and location, of all training devices whose original cost, or original plus updating costs, exceeds \$1,000. Devices declared obsolescent are so noted, and obsolete devices are removed from the record. The number of training devices whose costs exceeded \$500,000 was

extracted. Table 2 compares this number with the number of devices reported in the NAVTRAEQUIPCEN report and the NAMS0 report as well as with the reporting requirements as stated in the TEMP.

#### FLEET AVIATION SPECIALIZED OPERATIONAL TRAINING GROUP (FASOTRAGRU) REPORTS

The FASOTRAGRUPAC/LANT are the custodial and maintenance commands for all training devices for which COMNAVAIRPAC/LANT are responsible. In addition to preparing report forms for submission to NAMS0, they prepare another report for COMNAVAIRPAC/LANT. This requirement was levied because the 3-M report (NAMS0 4790.A8092-01) contains too much information which was determined to be superfluous to the commands needs, is formatted improperly for command use, and does not report utilization as it is desired by COMNAVAIRPAC/LANT. These reports, which are quite similar in content and format, are discussed below.

**ORIENTATION.** The purpose of the FASOTRAGRU reports is to report device utilization, hours lost for any cause, and the hours the device was not available. Statistics are reported monthly by both groups and for the prior 11 months by FASOTRAGRUPAC and the prior 12 months by FASOTRAGRULANT.

A major COMNAVAIRPAC use of the report is to determine which squadrons are making use of which devices. Therefore, the FASOTRAGRUPAC report is organized by custodian, by device, and by using squadron. The FASOTRAGRULANT version of the report is organized by custodian and by device. Thus COMNAVAIRLANT is capable of determining only the usage factor for each device and not for the operational squadron(s).

**CONTENTS.** Both the Atlantic and Pacific reports are well organized and contain the minimum data required by a manager. Utilization and maintenance data are easily extracted.

The CNO (OP-59) specified standard of either 140 hours per month per device training station or 4,000 hours per year per device training station is not used because it is inflexible and ignores the training environment. However, there has been developed a common baseline for measuring utilization on both coasts. This is the number of hours the using activity predicts the device will be required during any given month. This figure varies from month to month with squadron deployment, anticipated operational commitments, and leave schedule. It presents a realistic number of anticipated training hours required. From this base are deducted the training hours lost due to maintenance, supply, and other causes. It is notable that the hours lost to maintenance reported are only those hours which affect the base or predicted training requirement. Thus, if a device is inoperable for unscheduled maintenance (corrective maintenance) during a scheduled training session and remains inoperative through a scheduled maintenance period and into another training session, only those corrective maintenance hours affecting the training schedule are reported despite the fact that maintenance crews may have worked on the problem around the clock.

TABLE 2. COMPARISON OF FAIR WITH TEMP AND NAMSO/NAVTRAEQUIPCEN REPORTS

| Situation                                                                             | Number | % of Total      |
|---------------------------------------------------------------------------------------|--------|-----------------|
| FAIR, Type<br>Devices Costing \$500,000                                               | 142    | NA              |
| FAIR, Type<br>Devices Costing \$500,000<br>not included in NAMSO report               | 61     | 43 <sup>1</sup> |
| FAIR, Type<br>Devices Costing \$500,000<br>not included in NAVTRAEQUIP-<br>CEN report | 69     | 49 <sup>1</sup> |
| Device types not in FAIR<br>included in TEMP (appendix P)                             | 43     | 23 <sup>2</sup> |
| Device types not in FAIR<br>included in NAMSO report                                  | 7      | Not Relevant    |
| Device types not in FAIR<br>included in NAVTRAEQUIPCEN<br>report                      | 18     | Not Relevant    |

<sup>1</sup>Percent based on number of device types listed in FAIR (142)

<sup>2</sup>Percent based on the 186 devices listed in the TEMP

## TAEG Report No. 99

FASOTRAGRULANT reports the ratio of Direct Maintenance Man-Hours (DMMH) per actual hour of utilization. The utility of this ratio is not clear for two reasons: (1) the calculated number depends on device use, not the time it was available and ready for use and (2) there is no range of acceptable ratios given for a manager to determine whether the ratio is a predictor of impending problems. No meaningful maintenance trend can be determined from these data.

FASOTRAGRUPAC reports device utilization by device and by using squadron. This is excellent from the point of view of senior commands. However, one problem became apparent. Each device, regardless of the number of training stations, is reported as being used whether only one or all stations are manned. Frequently, in a multiposition trainer, trainees are undergoing instruction from several commands simultaneously. The existing reporting system requires that the hours of use be credited to one squadron only.

PRESENTATION. Both reports present the data in a readable and usable manner. The FASOTRAGRUPAC report includes a summary at the beginning which identifies the major elements of each training wing and the reserve forces. This monthly and 3 month summary is an excellent flag for managers in that it can be used for trend analysis and to highlight sharp deviations from prior periods.

COMPATIBILITY. One basic problem lies in the terms used to describe the various reported hours. No local (Atlantic or Pacific) instruction could be identified which defined terms used, and different terms were used to describe the same reported hours on each coast. To illustrate, FASOTRAGRUPAC uses the term Mission Capable (M/C) to describe the number of hours each trainer was actually available for training. To describe the same hours, FASOTRAGRULANT uses the term Available Hours per Month. Discussion with FASOTRAGRU headquarters personnel on each coast revealed a clear understanding of the term used; however, without written specific definitions comprehension problems could, and sometimes do, arise at lower and higher echelons and with changes in personnel. Without written definitions for the various reporting terms, the reported data are suspect. Whether all reporting stations are reporting from an identical start point is questionable.

The list of training devices contained in the FASOTRAGRUPAC report includes 10 devices not listed in the FAIR and 14 devices not listed in NAMS0 4790.A8092-01. The FASOTRAGRULANT report contains one device not listed in the FAIR and one not contained in the NAMS0 report. It is noteworthy that of the 15 aviation devices not included in the NAMS0 report, nine can be positively identified as major; i.e., cost over \$500,000.

### COMMANDER, MARINE CORPS AIR BASES (COMCAB) REPORTING SYSTEM

Marine Corps air training facilities report utilization to the COMCAB (EAST or WEST as appropriate) monthly on locally prepared forms which include only six data items. These six items fulfill the information needs of the Commanders and Headquarters, U.S. Marine Corps. The work hours, which are established as planned availability, are a number based on an 8 or 16 hour training day and excludes weekends and holidays. Work hours equate to the standard and are established by the COMCAB. Following work hours are the

TAEG Report No. 99

available hours which are the work hours less any time lost due to maintenance. Next are the scheduled hours and then the hours used. To cater for the multiposition device, man-hours of use are reported. Lastly, the percent availability which is the device availability divided by the work hours (standard) is included.

The report is concise, clear, and fulfills the Marine Corps reporting requirements. However, definitions may vary from station to station which could lead to differences in methods of computing utilization hours. Training device utilization data are also submitted through the 3-M reporting system. The resulting NAMS0 report is not used.

### SECTION III

#### FIELD SURVEY RESULTS

The previous section discussed existing utilization reports. The volume of data included in the NAMS0 4790.A8092-01 and the organization of this information presented serious problems for the user. Additionally, report recipients had doubts with respect to the effectiveness and usefulness of the data. This section examines the data elements needed to make utilization reports responsive to user requirements. To accomplish this, a survey was conducted to identify training device utilization data requirements at all levels of command. The field survey results are summarized under two major headings:

- managerial data needs
- operational command data needs and reporting requirements.

A comprehensive examination of responses to the survey questions and the discussions generated by the questions identified a group of utilization-related issues which were not addressed by specific survey questions. These issues are presented for consideration. In addition, where appropriate and for specific problem areas, recommendations proposed by the interviewees are included. These recommendations are reflected in the study recommendations presented in section V. Appendix C contains a listing of all activities contacted during the survey.

It is obvious from the survey that two types of utilization data are needed. The first type are those data which management requires to logistically support the devices and to support decisions with respect to new acquisitions, relocating devices, and removing them from the inventory. The commands requiring management utilization reports are CNO, CMC Headquarters, CNET, CHNAVRES, COMCAB EAST-WEST, the CNET Functional Commands, COMNAVAIRPAC/LANT, and NAVTRAEQUIPCEN. The second type are those data which support commands in their decisions with respect to availability, scheduling, and use. These commands and activities are considered to be operational commands. Two exceptions are COMNAVAIRPAC/LANT who function in the capacity of a manager and as an operational command; hence, they require both types of utilization data.

Utilization data presented in isolation could be misleading. Fluctuations in utilization rates often have comparatively simple explanations which are obvious if a minimum amount of maintenance information is included in the report. These added data can give management personnel a complete description of the training device's status. Therefore, any utilization report will require the inclusion of selected maintenance data.

## MANAGEMENT UTILIZATION DATA REQUIREMENTS

Management utilization data requirements are those elements of information needed to support decisions with respect to device support needs and device acquisition/survey. The information concerning desired data was collected by interview with personnel at the following command levels and commands--CNO (OP-29, OP-39, OP-59), CMC Headquarters, CHNAVRES, CNET, AND NAVTRAEQUIPCEN.

All personnel were familiar with the NAMS0 report (NAMS0 4790.A8092-01). However, two of the OPNAV codes (OP-29 and OP-39) and the NAVTRAEQUIPCEN Field Operations Division Central are not on the distribution list (14 July 1980). One of the OPNAV codes had requested their removal from distribution stating the report was of no value. None of the personnel interviewed used, or could use, the NAMS0 report for any purpose. The major reasons for this are that the report is not timely (i.e., late) and it does not contain the required information to support management decisions. Among frequently stated lesser reasons for the report's nonuse were: (1) data are inaccurate, (2) the report is too complex and difficult to interpret, and (3) the excessive amount of maintenance data included. It should be noted that the needs of each of the agencies exercising managerial control vary considerably in format, desires, and number of data elements.

All management personnel interviewed stated a desire for utilization data with only a minimum of maintenance information included. To be useful, this information should be available within 15 days of the expiration of the reporting period, but a 30 day lag time is acceptable. A consensus was that only utilization data elements covering the following general areas were needed:

- standard for utilization
- scheduled hours
- hours actually used for training
- scheduled hours lost to maintenance.

OP-29, SUBMARINE MANPOWER AND TRAINING REQUIREMENTS DIVISION. The terms utilization and standard have unrealistic meanings to OP-29 personnel. This has caused them to request deletion from distribution of NAMS0 4790.A8092-01. The primary use of utilization data in OP-29 is to justify to the Office of the Secretary of Defense (OSD) and the Navy Comptroller (NAVCOMPT) the need for a device and to obtain continuing support funds.

The only established standard at present is the CNO (OP-59) standard of 140 hours per month upon which utilization percentages are based. This is considered unrealistic by OP-29 personnel. A practical and useful standard would be based on projected use criteria for a given device at a given location. A complicating factor in the development of this type of standard is the training given on multiple integrated devices to a crew at a single training location. A standard would have to cater to the number of students trained as well as individual device reporting. Individual device reporting remains imperative since each device is funded and maintained separately.

OP-29 desires the report to contain only that information required to support the following purposes:

- device planning by location
- a baseline of historical data from which trends can be determined, and
- an internal document for use by Type Commanders to control training.

In addition to utilization reporting, a cost accounting system is needed. This would permit managers to determine annual operating costs and would assist training activities in their submission of operating target (OPTAR) funding requests.

OP-39, SURFACE WARFARE MANPOWER AND TRAINING REQUIREMENTS DIVISION. NAMSO report 4790.A8092-01 on utilization does not include OP-39 on distribution. This is of no great concern to OP-39 personnel since the report is improperly formatted and contains too much detailed information to be of value to them. For the specific needs of OP-39, only the following data elements are required in a utilization report.

1. A utilization rate that is based on the individual training environment, not a fixed standard. No fixed standard is needed.

2. A system to call a manager's attention to marked deviations from prior utilization rates.

At this time there is no cost accounting system for training device operating costs, and such a system is not needed. However, if in the future it is decided to separately budget for training and training support, a cost accounting system by categories of funds may be required.

According to OP-39 personnel any training device utilization reporting system will require careful attention to the terms used and precise definitions of these terms to insure all activities report identically. Included in any system which is developed should be every major device in the Cog "20" inventory. A major device is defined as a system and/or equipment trainer which use either simulation or stimulation techniques.

OP-59, AVIATION MANPOWER AND TRAINING DIVISION. Personnel at OP-59 stated that a revised 3-M report is needed which covers all major devices. The term major was defined to include all Cockpit Procedures Trainers (CPTs), systems trainers, and any other devices costing \$5,000 or more. Only one report is desired. Should the report be large and contain many data elements, then a system is needed to call a manager's attention to a device which deviates markedly from some established norm.

Definitions are considered a problem because utilization, scheduled hours, authorized hours, and, if used, standard do not mean exactly the same thing at every training location.

Two uncoordinated utilization standards for devices have been established by CNO (OP-59); the first is 4,000 hours per year which equates to 16 hours per day, 5 days per week, 50 weeks per year, and the second is 140 hours per month. Neither standard is realistic in the computation of utilization. Criteria should be established for use for each device (standard) which consider the environment, potential student load, and class of device. The criteria should be for a given time frame; i.e., month or quarter.

Utilization data are required for budget decisions and could be a valuable piece of information in the tracking of devices. In this light it would be helpful to have trainer operating cost accounting information available, but the report, to be useful, should indicate type of funds (e.g., OPN, O&MN, APN).

HEADQUARTERS, MARINE CORPS (APW). NAMS0 4790.A8092-01 is of no value to the CMC since no maintenance data is desired, and utilization, as reported, serves no useful purpose. Only four data elements are desired, and these are obtained directly from the commands involved. The four data elements are:

- hours scheduled
- hours used for training
- hours lost due to no-shows
- hours lost due to maintenance.

The baseline for all calculations is hours scheduled. No standard is promulgated. It would be useful but is not imperative to know the types of utilization and who (by command) uses the device.

The term standard is considered the same as desired utilization. These terms have no real meaning other than to satisfy the requirements of a budget review.

CHNAVRES. Persons interviewed at the CHNAVRES Headquarters stated that NAMS0 4790.A8092-01 provides no usable information. The major problem lies in definitions. How the data are reported in the 3-M system is a function of the definitions used. The existing definitions contain ambiguities which permit different interpretations at each training site. In addition, three other factors degrade the 3-M system.

- The TEMP manual is being used, but it has no official standing.
- Personnel are not adequately trained in the 3-M reporting system, particularly as it applies to training devices.
- Government Furnished Equipment (GFE) incorporated in training devices is not included in the 3-M reporting system; therefore, it is not reported. This makes the acquisition of spare parts for GFE extremely difficult.

Utilization rates should be based on a standard, but the standard should not be a fixed number (i.e., 140 hours/month). It should be based on the number of personnel (or teams) which require training per a given time period. The availability of a device should be the period of time the device is operable and manned for training. However, in stating availability, a training shift must not always be 8 hours. When setup time, reset time, change of students and/or stations, and personnel needs are deducted from an 8 hour training shift, the actual available time more closely approaches 6 hours for a normal training day.

#### OPERATIONAL COMMANDS' UTILIZATION DATA REQUIREMENTS

Operational commands have been previously defined as those commands or agencies charged with custodial care and with the maintenance of training devices. Personnel from operational commands may be, and sometimes are, charged with providing device operators and instructors. Whether or not they are provided varies with the command furnishing the training.

**SURVEY SAMPLE.** Twenty-eight operational commands were visited. Of this group, 11 were predominately Naval air oriented, 10 were primarily concerned with providing training to surface ship sailors, 4 with providing training to submariners (although 2 of these commands reported utilization through a single office), and 3 were devoted to Marine Corps air training. Since two subsurface commands reported through a single office, they were counted as a single response. For survey purposes, there were 27 total responses possible.

Structured interviews were held with personnel at each operational activity visited. All of the interviewees were senior petty officers, civilians, and/or officers charged with the maintenance of the device(s) and with the responsibility for submitting and verifying utilization data and receiving the various reports on utilization. In most instances these same persons were responsible for the submission of 3-M maintenance data. Twenty-four questions were asked in a standard way during each interview session, but no attempt was made to guide or restrict the answers. Therefore, even when the persons interviewed could not respond, frequently an open discussion resulted which was more revealing than a direct answer to the question would have been. The questions employed in the interview sessions are listed in appendix D.

As a prelude to addressing the individual questions and the responses thereto, it is necessary to call attention to two outside factors which heavily influenced the answers. These two factors are: (1) an unfamiliarity with the reporting system and (2) a lack of guidance. How each of these factors applied to personnel at the operational activity visited is discussed below.

Unfamiliarity With The Reporting System. All operational activities are familiar with the 3-M system as it applies to their operational hardware. However, it should be noted that there are two versions of the 3-M reporting system as it applies to operational hardware--an air version and a surface version. These two systems pose different requirements on the reporting activity. Training device utilization reporting requirements are derived from OPNAVINST 4790.23 (the NAMP) which is used only by aviation facilities.

Neither the surface nor subsurface technicians are familiar with, or fully understand, the reporting requirements. Marine Corps training devices are maintained exclusively by civilian personnel who do not use the NAMP and are unfamiliar with operational equipment reporting. They are not acquainted with that reporting system and find the application of the NAMP to training devices confusing.

Lack of Guidance. CNET Instruction 10171.1 was issued on 13 August 1975 to establish policy and responsibilities within the NAVEDTRACOM. No detailed instructions for use at the device custodian level could be located; therefore, each activity interprets the controlling directives to the best of its ability. Since the burden for the report generally falls on a single individual at each activity, variations in reporting utilization data are the rule rather than the exception.

DISCUSSION OF RESPONSES TO QUESTIONS. A discussion and an analysis of the responses to the specific questions are provided in the remainder of this section. Since many of the questions were not designed to lend themselves to either a yes/no answer, the open discussions which occurred led to certain additional findings. These findings follow the discussion of the specific questions.

Questions are grouped by subject matter. For each question(s) the purpose is given followed by a discussion of the responses. The questions and responses are summarized in table 3 which appears at the end of this section on foldout sheets for ease of reference. Appendix D presents the entire list of questions. Although 24 questions were posed, only 19 were responded to by over 50 percent of the commands visited. The answers to the five questions having less than a 50 percent response were rejected because of the small number of replies.

Question 1. This question was to determine which commands received either of the NAMS0 utilization reports. Only nine commands receive the Training Device Readiness Utilization Summary (NAMS0 4790.A8092-01). Some persons were familiar with this report from prior duty stations, and others examined a copy of the report during the interview period. Thus, although their present command may not receive the NAMS0 4790.A8092-01 report, some TRADEV-MEN/Aviation Maintenance Administrationmen (TD/AZ) were in a position to discuss it. The Training Device Utilization Summary (NAMS0 4790.A8092-02) is not received by any command. Consequently, the report was not discussed since no one was familiar with it. Subsequent answers to questions 2, 3, and 4 of the interview format refer only to NAMS0 4790.A8092-01.

Questions 2 and 3. These two questions were asked to determine the utility of the utilization report, and, where there was no utility, the reason therefore. Sixteen of seventeen respondents stated that the NAMS0 report was of no value. The two primary reasons given were: (1) the 3-M system is not understood and (2) the 3-M system is not compatible with training devices. These points warrant further discussion if the 3-M reporting system is to continue to be used for utilization reporting.

1. The 3-M System is Not Understood. At the operational level, only the AZ rating personnel have any clear comprehension of the purpose of, and reporting procedures for, the 3-M air reporting system. Since this rating is confined to Naval air training facilities, this means the surface, sub-surface, and Marine facilities are filing reports for which they can see no purpose and have little understanding. In addition, the training device utilization reporting system is based on the operational aircraft 3-M reporting system which is totally different from the surface/subsurface 3-M reporting system. If training device utilization reporting is to remain a portion of the 3-M system, then an educational program is vital.

2. The 3-M System is Not Compatible with Training Devices. Work Unit Codes (WUC), derived from the NAMP, are designed to describe operational equipment. As such, they frequently do not apply, or are too broad in scope for training devices. For example, an operational indicator used in a training device is frequently stimulated by a computer. If this indicator becomes defective, then the WUC used to isolate the system is the one applicable to the indicator. If the malfunction is in the interface or computer rather than the indicator, identification may or may not be correctly reported. The WUCs are air oriented and do not apply to many of the equipments used in surface/subsurface training devices. Existing WUCs are not satisfactory for training devices.

Questions 4 and 5. Errors appear in the NAMS0 report of utilization. These questions were designed to assist in estimating the efficiency of a feedback system and correction procedures. Only six of the activities responding checked the NAMS0 reports for the accuracy of the published data. Four did no checking and nine reviewed the local ADP printout prior to its submission. In a high proportion of the cases where an accuracy review was made, errors were discovered and an attempt made to insert corrections. It is noteworthy that the 11 activities who attempted to correct erroneous data were unable to effect change. Personnel from these activities reported the 3-M system inflexible and unreliable insofar as utilization reporting was concerned.

Question 6. Early in the investigation it became obvious that utilization reports were submitted to various commands, or not submitted at all. This question was designed to determine where reports were sent. The surprising feature of the response to this question is that five of the activities submit only to the NAVTRAEQUIPCEN, and NAVTRAEQUIPCEN no longer publishes a report. This means the data published in the 3-M system cannot be complete.

Questions 7 and 8. These two questions were to assist in determining how the existing standards, either the OPNAV (OP-59) standard or some locally generated standard, were used in reporting. Only the Naval operational training air activities are familiar with the OPNAV (OP-59) established standards; however, Marine Corps operational training air activities, based on COMCAB EAST-WEST instructions, use a modified version of the 140 hours per month standard. No standard has been established for surface/subsurface training devices. Despite this, 9 of the 25 respondents use some form of standard in computing utilization.

At all activities the term standard was discussed in detail. Those commands who do use a standard, in the majority of cases, considered it farcical. The reason is that the standard is varied with the scheduled training to insure a relatively high utilization rate. This means that even though the utilization rate is high, unless one is familiar with the baseline and method of computation at each site, then a comparison of utilization rates between activities has no meaning.

Questions 9, 10, and 11. These opinion questions were posed to determine whether the operational commands feel there is a need for a standard and, if so, what type would best meet their needs. Question 9 was discarded because of insufficient response. The consensus was that a standard is needed to insure utilization rates are consistent between activities. Each activity should have a standard for each device and use local requirements for training as the basis. Local requirements accommodate the unique situations found at each device location. The established standard should be fixed for a given time period, preferably a quarter, and should be published in any utilization report.

Questions 12, 13, and 14. Opinions differ between commands as to when a device should be considered available and the effect of walk-ins (late scheduling of training) on availability. Device availability is, in its present use, a meaningless term to the managerial personnel. Each activity defines it to suit that activity's needs and applies the definition based on varying criteria. The majority of commands base their availability on the scheduled training hours, but include late requested training (24 hours or less prior to the start time) in their scheduled hours. In addition, the device which is considered to be available from the mission aspect at one command may not be available at another command even though the material condition may be identical.

Questions 15, 16, 17, 18 and 19. This series of questions was designed to give an exact use of the term utilization and the elements of which it is composed. Two questions, 18 and 19, were discarded due to an insufficient number of responses. The responses to questions 15, 16, and 17 isolated the major factors in determining utilization rates based on the local definition. The NAMPS gives a definition for utilization based on actual aircraft time and is the actual number of hours a specific aircraft was flown in a calendar month. This does not coincide with the Technical Manual Cover Sheet for NAMS0 4790.A8092-01 which defines utilization in terms of the UPCs included in the TEMP Manual. An examination of the TEMP Manual was made. Reportable utilization, as defined in the TEMP, is "that period of time or number of cycles/events during which primary power is on the equipment and the device is being operated for purposes other than maintenance." Thus, for reporting purposes, the definition of utilization is traced to the TEMP, a document which has no official standing. In addition, there is no way of determining how much of that utilization is devoted to training and how much to other uses (i.e., demonstrations).

Despite the fact that very few activities computed or addressed utilization, most had rather firm ideas concerning its definition. Fifteen of the twenty-five respondents (15c and d) believed utilization should be based on scheduled training. The use of scheduled training as a basis gave the necessary flexibility due to varying numbers of potential students in a given area. To illustrate this concept in an area; e.g., San Diego, operational commitments may require the deployment of an above average number of ships, aircraft squadrons, and/or boats for an extended period. Thus, the population requiring training is reduced and the scheduled training for that period will fall off. This in no way affects the need for training devices. However, for this period, their use will decrease. Utilization rates, upon which logistic support is frequently based, should not decrease under these conditions.

Regardless of the method chosen to compute utilization rates, the basic definitions upon which the rates are based should be consistent. Either briefing time should or should not be included, operator and maintenance training should be included on a consistent basis, and trainer setup time should be regarded in the identical way at all activities.

Scheduled hours, availability, and a standard are closely related and directly affect utilization rates; hence, it is obvious that a consistent application of the terms must be made.

Questions 20, 21, 22, and 23. The purpose of these questions was to obtain an estimate of the reliability and consistency of reported data. Question 23 which was concerned with unscheduled maintenance was discarded due to insufficient response. The use of the TEMP for UPCs was unanimous among the commands who knew of the existence of the TEMP. However, the majority of the using commands did not find the document satisfactory because the codes were too general, or certain types of training were not covered. All too often the UPCs reported were automatic; i.e., someone had decided that each exercise conducted with a particular type of student was a specific code. This decision had been made at some time in the distant past. As students and exercises changed, the codes remained static. A number of personnel complained that, even when they attempted to identify the appropriate UPC, none covered their unique situation. The codes require revision and more detailed instruction for their use.

All of the respondents indicated that the WUCs contained in the NAMP are unsatisfactory. The primary complaint was that WUCs were developed for operational hardware and were too general for training devices. Many of the Cog "20" training devices either do not have or have inadequate WUCs despite the fact that NAVTRAEQUIPCEN Bulletin 40-1A, Integrated Logistics Support for Training Devices, requires their development for all training device acquisitions.

Question 24. This question was posed in the hope that any interference with maintenance caused by completing the 3-M utilization reporting form could be identified. Answers were not forthcoming due to the spread of record keeping among many persons. This question was discarded due to insufficient response.

ADDITIONAL FINDINGS. As stated previously, the field survey questions were designed to stimulate discussion. Certain problem areas which are outside the scope of this study were identified during these discussions. However, they are included because these areas impinge on the efficiency and effectiveness of the support for the 3-M reporting system covering training devices. No conclusions were drawn or recommendations made based on these comments. The comments revealed the following problems:

- There is some ambiguity regarding the use and determination of the terms corrective maintenance (unscheduled maintenance) and preventative maintenance (scheduled maintenance). At some installations any maintenance, regardless of type, which is accomplished during scheduled maintenance time periods is called preventative. At others, any maintenance which requires a deviation from the scheduled use of the device (whether operations or preventative maintenance) is logged as corrective maintenance.
- Time required to complete all of the forms for both the utilization and the maintenance reporting systems is considered excessive at a number of activities. As a result, most commands complete and forward VIDS/MAF forms for major action items only. This results in inaccurate and incomplete 3-M maintenance reports. A number of technicians questioned the need for a 3-M maintenance reporting system for training devices. Major training devices are normally acquired in small numbers and are installed at a limited number of installations which are in frequent communication with each other. Thus, the maintenance information needed at the operational level is available at less cost and more rapidly through other means (i.e., telephone) than the 3-M system.
- The use of an 8-hour shift for reporting and computing training is unrealistic. On the average, a 6 or 7 hour training shift per day is more appropriate. Breaks, reset of problems, change of instructor/student, all reduce the training work day.
- The controlling command is not the same for different training activities even within a limited geographical area. This results in variation in reporting requirements.
- NAVTRAEQUIPCEN is not in the direct reporting chain even though that command is charged with support for Cog "20" training devices. The source of support for non-Cog "20" devices can reside with almost any command. This causes further variances in reporting procedures. All training devices should be supported at one command, and that command should be in the direct reporting chain.
- At a number of activities, the TDs assigned as maintenance personnel are used as instructors. TDs are in short supply, and this situation will become more critical as they are assigned to sea duty. This practice appears to be a misuse of people. In addition, TDs know the device and its capabilities, but they do not necessarily know or understand the operational situations to which the device capabilities can be applied. The use of TDs as instructors could degrade or reduce the effectiveness of training, particularly where tactics are involved.

| QUESTIONS <sup>3</sup>                                                                                                                                                                                                                        | Response By Training Command <sup>1</sup> |        |                 |        |         |         |                 |        |                            |   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------|-----------------|--------|---------|---------|-----------------|--------|----------------------------|---|
|                                                                                                                                                                                                                                               | YES                                       |        |                 |        | NO      |         |                 |        | Multi<br>Res               |   |
|                                                                                                                                                                                                                                               | A                                         | S      | SS              | M      | A       | S       | SS              | M      | A                          | S |
| 1. Do you receive either of the NAMS<br>Reports?<br>a. 4790.A8092-01<br>b. 4790.A8092-02                                                                                                                                                      | 7<br>0                                    | 1<br>0 | 0<br>0          | 1<br>0 | 4<br>11 | 9<br>10 | 3<br>3          | 2<br>3 | NOT                        |   |
| 2. Are either of these reports of any value?                                                                                                                                                                                                  | 1                                         | 0      | NR <sup>4</sup> | 0      | 9       | 5       | NR <sup>4</sup> | 2      | NOT                        |   |
| *3. If not, what are the major reasons?<br>a. Information out of date<br>b. Errors in the report data<br>c. Incomplete information<br>d. 3-M system not understood<br>e. Reporting system not compatible with<br>training devices<br>f. Other | NOT APPLICABLE                            |        |                 |        |         |         |                 |        | 4<br>4<br>3<br>2<br>6<br>1 |   |
| *4. How do you check data submission for<br>accuracy?<br>a. Do not check<br>b. NAMS reports<br>c. Error reports<br>d. Local ADP printout                                                                                                      | NOT APPLICABLE                            |        |                 |        |         |         |                 |        | 1<br>5<br>1<br>3           |   |
| 5. Are your corrections incorporated?                                                                                                                                                                                                         | 2                                         | 0      | 1               | 0      | 6       | 3       | 0               | 2      | NO                         |   |

- <sup>1</sup> Responses are actual number of responses for each Training Command  
<sup>2</sup> Actual number followed by percentage of total responses in parentheses  
<sup>3</sup> Questions with \* may have multiple responses  
<sup>4</sup> NR = No Response

A = Air  
S = Surface  
SS = Subsurface  
M = Marine

TABLE 3. RESPONSES TO FIELD SURVEY QUESTIONS

|        | Response By Training Command <sup>1</sup> |   |                 |   |    |    |                 |   |                             |   |    |   | Commands <sup>2</sup><br>Responding<br>(Total) | Composite Response for<br>All Training Commands<br>(Number) |    |                                |   |    |    |
|--------|-------------------------------------------|---|-----------------|---|----|----|-----------------|---|-----------------------------|---|----|---|------------------------------------------------|-------------------------------------------------------------|----|--------------------------------|---|----|----|
|        | YES                                       |   |                 |   | NO |    |                 |   | Multiple Choice<br>Response |   |    |   |                                                | YES                                                         | NO | Multiple<br>Choice<br>Response |   |    |    |
|        | A                                         | S | SS              | M | A  | S  | SS              | M | A                           | S | SS | M |                                                |                                                             |    |                                |   |    |    |
|        | 7                                         | 1 | 0               | 1 | 4  | 9  | 3               | 2 | NOT APPLICABLE              |   |    |   | 27 (100)                                       | 9                                                           | 18 | NOT<br>APPLICABLE              |   |    |    |
|        | 0                                         | 0 | 0               | 0 | 11 | 10 | 3               | 3 |                             |   |    |   |                                                | 0                                                           | 27 |                                |   |    |    |
| value? | 1                                         | 0 | NR <sup>4</sup> | 0 | 9  | 5  | NR <sup>4</sup> | 2 | NOT APPLICABLE              |   |    |   | 17 (63)                                        | 1                                                           | 16 | NOT<br>APPLICABLE              |   |    |    |
| with   | NOT APPLICABLE                            |   |                 |   |    |    |                 |   | 4                           | 1 | 0  | 2 | 22 (81)                                        | NOT APPLICABLE                                              | 7  |                                |   |    |    |
|        |                                           |   |                 |   |    |    |                 |   | 4                           | 1 | 0  | 2 |                                                |                                                             |    | 7                              |   |    |    |
|        |                                           |   |                 |   |    |    |                 |   | 3                           | 2 | 1  | 0 |                                                |                                                             |    |                                | 6 |    |    |
|        |                                           |   |                 |   |    |    |                 |   | 2                           | 7 | 1  | 1 |                                                |                                                             |    |                                |   | 11 |    |
|        |                                           |   |                 |   |    |    |                 |   | 6                           | 5 | 0  | 1 |                                                |                                                             |    |                                |   |    | 12 |
|        |                                           |   |                 |   |    |    |                 |   | 1                           | 1 | 0  | 0 |                                                |                                                             |    |                                |   |    |    |
| or     | NOT APPLICABLE                            |   |                 |   |    |    |                 |   | 1                           | 3 | 0  | 0 | 19 (70)                                        | NOT APPLICABLE                                              | 4  |                                |   |    |    |
| 5      |                                           |   |                 |   |    |    |                 |   | 0                           | 0 | 1  | 6 |                                                |                                                             |    |                                |   |    |    |
| 1      |                                           |   |                 |   |    |    |                 |   | 0                           | 0 | 0  |   |                                                |                                                             |    | 1                              |   |    |    |
| 3      |                                           |   |                 |   |    |    |                 |   | 4                           | 1 | 1  |   |                                                |                                                             |    |                                | 9 |    |    |
|        |                                           |   |                 |   |    |    |                 |   |                             |   |    |   |                                                |                                                             |    |                                |   |    |    |
|        | 2                                         | 0 | 1               | 0 | 6  | 3  | 0               | 2 | NOT APPLICABLE              |   |    |   | 14 (52)                                        | 3                                                           | 11 | NOT<br>APPLICABLE              |   |    |    |

Responses for each Training Command  
of total responses in parentheses  
Responses

A = Air  
S = Surface  
SS = Subsurface  
M = Marine

2

| QUESTIONS <sup>3</sup>                                                                                                                                                                                                          | Response By Training Command <sup>1</sup> |   |    |   |    |    |    |   |                          |   |    |   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---|----|---|----|----|----|---|--------------------------|---|----|---|
|                                                                                                                                                                                                                                 | YES                                       |   |    |   | NO |    |    |   | Multiple Choice Response |   |    |   |
|                                                                                                                                                                                                                                 | A                                         | S | SS | M | A  | S  | SS | M | A                        | S | SS | M |
| *6. Where do you submit utilization data?<br>a. Local ADP facility for transmission to NAMS0<br>b. Local command only<br>c. NAVTRAEQUIPCEN<br>d. Do not submit                                                                  | NOT APPLICABLE                            |   |    |   |    |    |    |   | 8                        | 5 | 1  |   |
|                                                                                                                                                                                                                                 |                                           |   |    |   |    |    |    |   | 1                        | 0 | 1  |   |
|                                                                                                                                                                                                                                 |                                           |   |    |   |    |    |    |   | 0                        | 5 | 0  |   |
|                                                                                                                                                                                                                                 |                                           |   |    |   |    |    |    |   | 0                        | 0 | 1  |   |
| 7. Are you familiar with either of the OPNAV standards (140 hr/mo or 4000 hrs/yr)?                                                                                                                                              | 8                                         | 0 | 0  | 0 | 2  | 10 | 3  | 2 | NOT APPLICABLE           |   |    |   |
| 8. Do you use a standard in computing utilization?                                                                                                                                                                              | 4                                         | 2 | 0  | 3 | 5  | 8  | 3  | 0 | NOT APPLICABLE           |   |    |   |
| 9. Where does this standard originate?                                                                                                                                                                                          | Insufficient responses                    |   |    |   |    |    |    |   |                          |   |    |   |
| 10. Do you think a standard is required?                                                                                                                                                                                        | 6                                         | 6 | 3  | 2 | 4  | 4  | 0  | 0 | NOT APPLICABLE           |   |    |   |
| 11. What type of standard is required?<br>a. 24-hour, 7-day week<br>b. Scheduled hours (goal for use for specific time frame)<br>c. Flexible estimated required time based on environment<br>d. Device availability<br>e. Other | NOT APPLICABLE                            |   |    |   |    |    |    |   | 1                        | 1 | 0  |   |
|                                                                                                                                                                                                                                 |                                           |   |    |   |    |    |    |   | 2                        | 2 | 0  |   |
|                                                                                                                                                                                                                                 |                                           |   |    |   |    |    |    |   | 1                        | 3 | 2  |   |
|                                                                                                                                                                                                                                 |                                           |   |    |   |    |    |    |   | 0                        | 0 | 0  |   |
|                                                                                                                                                                                                                                 |                                           |   |    |   |    |    |    |   | 1                        | 1 | 1  |   |

<sup>1</sup>Responses are actual number of responses for each Training Command

<sup>2</sup>Actual number followed by percentage of total responses in parentheses

<sup>3</sup>Questions with \* may have multiple responses

<sup>4</sup>NR = No Response

A = Air

S = Surface

SS = Subsurface

M = Marine

TABLE 3. RESPONSES TO FIELD SURVEY QUESTIONS (continued)

|              | Response By Training Command <sup>1</sup> |   |    |   |    |    |    |   |                             |   |    |   | Commands <sup>2</sup><br>Responding<br>(Total) | Composite Response for<br>All Training Comands<br>(Number) |    |                                |
|--------------|-------------------------------------------|---|----|---|----|----|----|---|-----------------------------|---|----|---|------------------------------------------------|------------------------------------------------------------|----|--------------------------------|
|              | YES                                       |   |    |   | NO |    |    |   | Multiple Choice<br>Response |   |    |   |                                                | YES                                                        | NO | Multiple<br>Choice<br>Response |
|              | A                                         | S | SS | M | A  | S  | SS | M | A                           | S | SS | M |                                                |                                                            |    |                                |
| Question     | NOT APPLICABLE                            |   |    |   |    |    |    |   | 8                           | 5 | 1  | 1 | 25 (93)                                        | NOT APPLICABLE                                             |    | 15                             |
|              |                                           |   |    |   |    |    |    |   | 1                           | 0 | 1  | 2 |                                                |                                                            |    | 4                              |
|              |                                           |   |    |   |    |    |    |   | 0                           | 5 | 0  | 0 |                                                |                                                            |    | 5                              |
|              |                                           |   |    |   |    |    |    |   | 0                           | 0 | 1  | 0 |                                                |                                                            |    | 1                              |
| OPNAV<br>r)? | 8                                         | 0 | 0  | 0 | 2  | 10 | 3  | 2 | NOT APPLICABLE              |   |    |   | 25 (93)                                        | 8                                                          | 17 | NOT<br>APPLICABLE              |
|              | 4                                         | 2 | 0  | 3 | 5  | 8  | 3  | 0 | NOT APPLICABLE              |   |    |   | 25 (93)                                        | 9                                                          | 16 | NOT<br>APPLICABLE              |
|              | Insufficient responses                    |   |    |   |    |    |    |   |                             |   |    |   |                                                |                                                            |    |                                |
| ?            | 6                                         | 6 | 3  | 2 | 4  | 4  | 0  | 0 | NOT APPLICABLE              |   |    |   | 25 (93)                                        | 17                                                         | 8  | NOT<br>APPLICABLE              |
| for<br>me    | NOT APPLICABLE                            |   |    |   |    |    |    |   | 1                           | 1 | 0  | 0 | 17 (63)                                        | NOT APPLICABLE                                             |    | 2                              |
|              |                                           |   |    |   |    |    |    |   | 2                           | 2 | 0  | 0 |                                                |                                                            |    | 4                              |
|              |                                           |   |    |   |    |    |    |   | 1                           | 3 | 2  | 2 |                                                |                                                            |    | 8                              |
|              |                                           |   |    |   |    |    |    |   | 0                           | 0 | 0  | 0 |                                                |                                                            |    | 0                              |
|              |                                           |   |    |   |    |    |    |   | 1                           | 1 | 1  | 0 |                                                |                                                            |    | 3                              |

Responses for each Training Command  
of total responses in parentheses  
Responses

A = Air  
S = Surface  
SS = Subsurface  
M = Marine

2

| QUESTIONS <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                             | Response By Training Command <sup>1</sup> |   |    |   |    |   |    |   |                          |   |    |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---|----|---|----|---|----|---|--------------------------|---|----|--|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | YES                                       |   |    |   | NO |   |    |   | Multiple Choice Response |   |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | A                                         | S | SS | M | A  | S | SS | M | A                        | S | SS |  |
| 12. How is availability defined in your command?<br>a. Scheduled hours<br>b. Local training requirements<br>c. Other                                                                                                                                                                                                                                                                                                                                               | NOT APPLICABLE                            |   |    |   |    |   |    |   | 5                        | 6 | 1  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                           |   |    |   |    |   |    |   | 1                        | 1 | 1  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                           |   |    |   |    |   |    |   | 3                        | 1 | 0  |  |
| 13. When is your device considered available?<br>a. Fully mission capable, fully manned<br>b. Fully mission capable<br>c. Mission capable for scheduled mission                                                                                                                                                                                                                                                                                                    | NOT APPLICABLE                            |   |    |   |    |   |    |   | 4                        | 4 | 1  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                           |   |    |   |    |   |    |   | 1                        | 2 | 0  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                           |   |    |   |    |   |    |   | 5                        | 4 | 1  |  |
| 14. Are walk-ins included in scheduled training hours?                                                                                                                                                                                                                                                                                                                                                                                                             | 6                                         | 5 | 2  | 3 | 1  | 0 | 0  | 0 | NOT APPLICABLE           |   |    |  |
| 15. How do you define utilization?<br>a. Percentage of authorized hours the device was used exclusively for training<br>b. Percentage of authorized time the device was committed to training (includes briefing time)<br>c. Percentage of scheduled time the device was used<br>d. Percentage of scheduled time the device was committed to training (includes briefing time)<br>e. Percentage of the OPNAV standard the device was used for training<br>f. Other | NOT APPLICABLE                            |   |    |   |    |   |    |   | 2                        | 0 | 0  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                           |   |    |   |    |   |    |   | 0                        | 1 | 0  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                           |   |    |   |    |   |    |   | 4                        | 1 | 0  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                           |   |    |   |    |   |    |   | 2                        | 4 | 2  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                           |   |    |   |    |   |    |   | 0                        | 1 | 1  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                           |   |    |   |    |   |    |   | 1                        | 3 | 0  |  |

<sup>1</sup>Responses are actual number of responses for each Training Command

<sup>2</sup>Actual number followed by percentage of total responses in parentheses

<sup>3</sup>Questions with \* may have multiple responses

<sup>4</sup>NR = No Response

A = Air

S = Surface

SS = Subsurface

M = Marine

TABLE 3. RESPONSES TO FIELD  
SURVEY QUESTIONS (continued)

|                                       | Response By Training Command <sup>1</sup> |   |    |   |    |   |    |   |                             |   |    |   | Commands <sup>2</sup><br>Responding<br>(Total) | Composite Response for All<br>Training Commands<br>(Number) |    |                                |
|---------------------------------------|-------------------------------------------|---|----|---|----|---|----|---|-----------------------------|---|----|---|------------------------------------------------|-------------------------------------------------------------|----|--------------------------------|
|                                       | YES                                       |   |    |   | NO |   |    |   | Multiple Choice<br>Response |   |    |   |                                                | YES                                                         | NO | Multiple<br>Choice<br>Response |
|                                       | A                                         | S | SS | M | A  | S | SS | M | A                           | S | SS | M |                                                |                                                             |    |                                |
| command?                              | NOT APPLICABLE                            |   |    |   |    |   |    |   | 5                           | 6 | 1  | 2 | 22 (81)                                        | NOT APPLICABLE                                              |    | 14                             |
|                                       |                                           |   |    |   |    |   |    |   | 1                           | 1 | 1  | 0 |                                                |                                                             |    | 3                              |
|                                       |                                           |   |    |   |    |   |    |   | 3                           | 1 | 0  | 1 |                                                |                                                             |    | 5                              |
| able?<br>ned                          | NOT APPLICABLE                            |   |    |   |    |   |    |   | 4                           | 4 | 1  | 2 | 25 (93)                                        | NOT APPLICABLE                                              |    | 11                             |
|                                       |                                           |   |    |   |    |   |    |   | 1                           | 2 | 0  | 0 |                                                |                                                             |    | 3                              |
|                                       |                                           |   |    |   |    |   |    |   | 5                           | 4 | 1  | 1 |                                                |                                                             |    | 11                             |
| ssion                                 |                                           |   |    |   |    |   |    |   |                             |   |    |   |                                                |                                                             |    |                                |
|                                       | 6                                         | 5 | 2  | 3 | 1  | 0 | 0  | 0 | NOT APPLICABLE              |   |    |   | 17 (63)                                        | 16                                                          | 1  | NOT APPLICABLE                 |
| the<br>training<br>the device<br>udes | NOT APPLICABLE                            |   |    |   |    |   |    |   | 2                           | 0 | 0  | 0 | 25 (93)                                        | NOT APPLICABLE                                              |    | 2                              |
|                                       |                                           |   |    |   |    |   |    |   | 0                           | 1 | 0  | 0 |                                                |                                                             |    | 1                              |
|                                       |                                           |   |    |   |    |   |    |   | 4                           | 1 | 0  | 0 |                                                |                                                             |    | 5                              |
|                                       |                                           |   |    |   |    |   |    |   | 2                           | 4 | 2  | 2 |                                                |                                                             |    | 10                             |
|                                       |                                           |   |    |   |    |   |    |   | 0                           | 1 | 1  | 1 |                                                |                                                             |    | 3                              |
|                                       |                                           |   |    |   |    |   |    |   | 1                           | 3 | 0  | 0 |                                                |                                                             |    | 4                              |
| the                                   |                                           |   |    |   |    |   |    |   |                             |   |    |   |                                                |                                                             |    |                                |

Responses for each Training Command  
 of total responses in parentheses  
 responses

A = Air  
 S = Surface  
 SS = Subsurface  
 M = Marine

| QUESTIONS <sup>3</sup>                                                                 | Response By Training Command <sup>1</sup> |   |    |   |    |   |    |   |          |    |
|----------------------------------------------------------------------------------------|-------------------------------------------|---|----|---|----|---|----|---|----------|----|
|                                                                                        | YES                                       |   |    |   | NO |   |    |   | Multiple |    |
|                                                                                        | A                                         | S | SS | M | A  | S | SS | M | A        |    |
| 16. Do you include maintenance and operator training in your utilization calculations? | 5                                         | 6 | 2  | 2 | 0  | 4 | 1  | 1 |          | NO |
| 17. Do you include trainer setup time in your reported utilization?                    | 0                                         | 3 | 2  | 1 | 5  | 5 | 0  | 2 |          | NO |
| 18. How is utilization reported in multi-station devices?                              | Insufficient responses                    |   |    |   |    |   |    |   |          |    |
| 19. How is utilization reported for different devices operating in an integrated mode? | Insufficient responses                    |   |    |   |    |   |    |   |          |    |
| 20. Do you use the NAVTRAEQUIPCEN issued TEMP document for the UPC codes?              | 9                                         | 8 | 2  | 3 | 1  | 1 | 0  | 0 |          | NO |
| 21. Is the TEMP document satisfactory?                                                 | 2                                         | 1 | 0  | 0 | 6  | 7 | 2  | 2 |          | NO |
| 22. Are the WUC in the NAMP instruction satisfactory?                                  | 0                                         | 0 | 0  | 0 | 7  | 8 | 2  | 1 |          | NO |
| 23. Define unscheduled maintenance                                                     | Insufficient responses                    |   |    |   |    |   |    |   |          |    |
| 24. Does time expended in preparing data for 3-M reports interfere with maintenance?   | Insufficient responses                    |   |    |   |    |   |    |   |          |    |

<sup>1</sup>Responses are actual number of responses for each Training Command

<sup>2</sup>Actual number followed by percentage of total responses in parentheses

<sup>3</sup>Questions with \* may have multiple responses

<sup>4</sup>NR = No Response

A = Air

S = Surface

SS = Subsurface

M = Marine

TABLE 3. RESPONSES TO FIELD  
SURVEY QUESTIONS (continued)

|                   | Response By Training Command <sup>1</sup> |   |    |   |    |   |    |   |                             |   |    |   | Commands <sup>2</sup><br>Responding<br>(Total) | Composite Response for<br>All Training Commands<br>(Number) |    |                                |
|-------------------|-------------------------------------------|---|----|---|----|---|----|---|-----------------------------|---|----|---|------------------------------------------------|-------------------------------------------------------------|----|--------------------------------|
|                   | YES                                       |   |    |   | NO |   |    |   | Multiple Choice<br>Response |   |    |   |                                                | YES                                                         | NO | Multiple<br>Choice<br>Response |
|                   | A                                         | S | SS | M | A  | S | SS | M | A                           | S | SS | M |                                                |                                                             |    |                                |
| ator              | 5                                         | 6 | 2  | 2 | 0  | 4 | 1  | 1 | NOT APPLICABLE              |   |    |   | 21 (78)                                        | 15                                                          | 6  | NOT<br>APPLICABLE              |
| In your           | 0                                         | 3 | 2  | 1 | 5  | 5 | 0  | 2 | NOT APPLICABLE              |   |    |   | 18 (67)                                        | 6                                                           | 12 | NOT<br>APPLICABLE              |
| ti-               | Insufficient responses                    |   |    |   |    |   |    |   |                             |   |    |   |                                                |                                                             |    |                                |
|                   | Insufficient responses                    |   |    |   |    |   |    |   |                             |   |    |   |                                                |                                                             |    |                                |
| ed                | 9                                         | 8 | 2  | 3 | 1  | 1 | 0  | 0 | NOT APPLICABLE              |   |    |   | 24 (89)                                        | 22                                                          | 2  | NOT<br>APPLICABLE              |
|                   | 2                                         | 1 | 0  | 0 | 6  | 7 | 2  | 2 | NOT APPLICABLE              |   |    |   | 20 (74)                                        | 3                                                           | 17 | NOT<br>APPLICABLE              |
| on                | 0                                         | 0 | 0  | 0 | 7  | 8 | 2  | 1 | NOT APPLICABLE              |   |    |   | 18 (67)                                        | 0                                                           | 18 | NOT<br>APPLICABLE              |
|                   | Insufficient responses                    |   |    |   |    |   |    |   |                             |   |    |   |                                                |                                                             |    |                                |
| ata for<br>nance? | Insufficient responses                    |   |    |   |    |   |    |   |                             |   |    |   |                                                |                                                             |    |                                |

Responses for each Training Command  
of total responses in parentheses  
Responses

A = Air  
S = Surface  
SS = Subsurface  
M = Marine

## SECTION IV

### ANALYSIS AND FINDINGS

This section provides the findings of the study and presents an alternative report format for improving the existing reporting system. This alternative report format includes training device utilization and that minimum maintenance data which affects utilization. Development of this report required identification of the different types of training device utilization situations, analysis of standards for training device utilization, development of definitions for utilization reporting terms, and analysis of utilization reporting data elements. The discussion of these issues precedes the proposed report.

#### TRAINING DEVICE UTILIZATION SITUATIONS

It was essential to identify and understand the differences among the training device use situations prior to the development of standard procedures for reporting utilization data, computing utilization statistics, and presenting utilization information. These situations influence the procedure to be used in computing utilization as well as the type of data to be reported. Six major use situations have been identified and are discussed in the following paragraphs. A representative device in each category is described to illustrate the application in each situation.

**SINGLE DEVICE-SINGLE STATION.** A cockpit procedures trainer (CPT) such as Device 2C15A, A-7E CPT, is an example of a single device-single station situation. The device is operated in an independent mode (not connected to other student stations or devices) and is used to train one student at a time.

Utilization, in this instance, is best expressed in hours which may be readily converted to student training man-hours where these data are needed.

**SINGLE DEVICE-MULTISTATION--INDEPENDENT OR INTEGRATED OPERATION.** Device 2F64A, SH-3A Helicopter Weapon Systems Trainer (WST), provides pilot training and sonar operator training in aircraft type (independent mode), as well as combined pilot-sonarman anti-submarine warfare (ASW) tactics training (integrated mode). Operation in the independent mode permits pilots and sonar operators to receive separate training either simultaneously or individually; in the integrated mode, the pilot and sonar operator train as a tactical team. In both modes training device utilization is best reported in device hours and student training man-hours.

**SINGLE DEVICE-MULTISTATION--INDEPENDENT OPERATION ONLY.** Device 1D23, Communications and Navigation Trainer, illustrates the single device, multistation situation trainer. It was designed with 40 trainer stations capable of providing simultaneous, individual training for Naval Flight Officers (NFOs).

As in the case of the independent or integrated training situation, device utilization for the multistation, independent operation only situation is best described in student training man-hours as well as device hours. This is graphically illustrated by the fact that 1 hour of Device 1D23 use by one

student (one student training man-hour) is significantly different than 1 hour of use by 40 students (40 student training man-hours).

MULTIPLE DEVICES, MULTIPLE STATION--INDEPENDENT OR INTEGRATED OPERATION. Device X21A38, ASW Submarine Training Facility, Pearl Harbor, and Device 21A38/1, Periscope View Trainer, illustrate this situation. Device X21A38 consists of three attack trainers, a war games complex, and a computer room. Colocated with Device X21A38 are a number of other devices such as Device 21A38/1. Device 21A38/1 provides operator training in the use of the Type 2D periscope and team training in the integration of this visual information in the submarine fire control system. When used as an operator trainer, utilization for the periscope trainer should be expressed as for a single device-single station. However, during an integrated training exercise, Device 21A38/1 operates as an integral subsystem of Device X21A38.

The most meaningful expression of utilization in this instance is to report use separately for each device in both student training man-hours and in device operating hours.

SINGLE DEVICE, SINGLE STATION, EVENT OR CYCLE TYPE. An ejection seat trainer, Device 9E6, illustrates this situation. This device is used to train personnel in pre-ejection procedures and to familiarize them with the sensations experienced during an actual ejection. Time of operation of the device during a firing is measured in seconds, an impractical unit for expressing use particularly if utilization is calculated on the basis of hours in a training day. Even if time for pre-ejection procedure briefing is included, total utilization time compared to other types of devices would be low.

In this situation, utilization is most meaningful when expressed in events or cycles (firings) and utilization calculated on the basis of a standard number of events for a given period of time; i.e., per quarter.

SINGLE DEVICE, MULTIPLE STATION, EVENT OR CYCLE TYPE. Physiological devices as exemplified by Device 9A9, Rapid Decompression Altitude Training Chamber, illustrates this situation. This device is used to provide training for flying personnel in the procedures to be followed during rapid decompression, and familiarization with the effects of rapid decompression. It is designed to accommodate up to 18 trainees during a training session. In addition to training, this device is used as a laboratory for physiological study of the effects of rarified atmosphere on the human body and as a medical aid to correct the effects of rapid decompression. There are certain outside factors unique to this type of device which affect utilization; these are the medical aspects of instructor exposure time, frequency of exposure, and physical condition. They place limitations on the availability of instructors, hence on the amount of use that can be made of the device, and should be reflected in establishing standards.

Because of the utilization limitations and the relatively short duration of a training mission, utilization is most meaningful when expressed in events and in students trained over a specific period of time. Research and use as a medical aid would be covered using the appropriate UPC reporting code.

## STANDARDS FOR TRAINING DEVICE UTILIZATION

A significant finding is that there is no universally accepted method for measuring training device utilization due to the lack of a viable measurement standard.

Standards for training device utilization can be powerful tools to assist in the allocation of resources or to determine the efficacy of training devices from the CNO/CMC/CNET/CHNAVRES to the operational level. Utilization rates based on a logical standard can be used for a variety of purposes: defend training device budget requirements; identify potential personnel manning problems; justify manning levels; establish utilization, maintenance, and training load trends; and support device relocation and disposition decisions.

It was stated previously that aviation training devices have a CNO (OP-59) established standard of 140 hours per month or 4,000 hours per year. These standards have proved impractical in the field. Standards for surface and subsurface training devices are required by CNET Instruction 10171.1 to be established in the Military Characteristics (MC) for each new device, and by written CNO approval for other devices. This practice is not now followed, and no standard is established for most surface/subsurface devices. The consensus derived from discussions with personnel at all levels is that the key to realizing a fully functional utilization reporting system is an understanding of the concept of a training standard and its purpose.

There are major differences of opinion regarding training device utilization measurement standards. These differences may be attributed to such factors as training environments, personnel manning, types of devices, age and material condition of devices, user acceptance of training devices, and type of training. Equally important is the connotation often attached to the term standard, wherein the term is considered to be a mechanism used only for identifying personnel and/or activities that do not perform (in terms of training device utilization) at an acceptable level. This view of a standard, when used in computing training device utilization, may be partially justified if previously imposed standards were not well conceived, properly interpreted, or realistic.

Six viable types of standard were identified during the survey which could be applied in the computation of training device utilization. Each type is discussed in the following paragraphs. The discussions address the concept and the readily identifiable advantages and disadvantages of each.

**FIXED STANDARD.** This standard is normally specified in hours of anticipated device use for a specific time period and is applied across the board for all devices in any training environment. An example is the 140 hours/month standard established by CNO (OP-59) for air devices. There are advantages and disadvantages to this type of standard.

Advantages:

- permits comparison of like devices in like environments
- can recognize a 7-hour standard training day as defined by CNET.

Disadvantages:

- assumes equal training loads and requirements for all training environments
- does not recognize holidays or days set aside for functions other than training
- does not accurately reflect crew or team training situations
- often results in low percent utilization figures even though the device satisfies all training demands
- multi-shift training situations can cause excessively high utilization rates.

DESIGN CAPABILITY STANDARD. Major training devices are normally designed to operate for a specific period, usually 16-hours/day, 5-days/week. This design requirement is specified in the technical specifications and is considered by the contractor in device component design and selection. Although such lengthy periods are atypical in training practice, they can exist and are within the technical capability of modern training devices. Should these design characteristics be accepted as a standard, they present the following advantages and disadvantages.

Advantages:

- defines maximum design utilization capability for devices
- standard common to most major training devices
- permits assessment of training loads relative to device capability.

Disadvantages:

- projects low percent utilization statistics for many training devices without reflecting the relative criticality of the device
- may cause commands to schedule unnecessary training
- does not accurately represent crew or team training situations.

**24-HOUR DAY STANDARD.** The 24-hour day standard is based on a 7-days/week, 52-weeks/year cycle for all training devices. The 24-hour day is divided into three categories: training time, maintenance time, and unallocated time. Units for these three categories are expressed in hours and percentages (of a 24-hour day) for each category, calculated on the basis of projected use over a given period of time; i.e., a quarter. The sum of the percentages for the three categories over the quarter is 100 percent. Training utilization rates will always be significantly less than 100 percent.

**Advantages:**

- provides a standard measurement baseline for all training devices
- readily accommodates unscheduled and weekend training situations
- permits assessment and comparison of training load by device and location
- provides data for maintenance trends
- accommodates multitasking shift situations.

**Disadvantages:**

- does not reflect team or crew training situations
- possibly misleads the uninitiated data user by reflecting trainer utilization as a relatively low percentage figure
- necessitates an increase in record keeping functions
- accepts device utilization rate as optimum for the situation; i.e., no indication of no-shows, trainer downtime, etc.

**FLEXIBLE STANDARD.** The flexible standard concept focuses on the training requirements of a specific training device in its training environment over a given time period. The flexible standard represents the training requirements to meet known or anticipated training needs. This is stated in device hours and may include student training man-hours, projected for a given time period (quarter). The term flexible is used because the standard may be changed from one period to another dependent upon mission training requirements, student load, and curriculum changes. The command level of the using activity/activities, or his superior, is responsible for determining a realistic utilization standard to meet training requirements.

Advantages:

- provides realistic utilization measurement base
- accommodates training requirements unique to specific devices in specific environments
- enhances scheduling and management functions
- applies to all types of devices
- provides a means for accommodating curriculum and training load changes.

Disadvantage:

- possibility of user setting low standards to insure high utilization rates.

CURRICULUM BASED STANDARD. This standard is concerned primarily with training situations in which the curriculum is designed around specific training exercises. The concern lies in the completion of a certain number of training exercises rather than with absolute trainer utilization. This standard requires that all training device requirements be specified in terms of sorties or exercises in a given curriculum. Calculation of utilization rate would be the ratio of the number of sorties or exercises achieved to the number of required sorties or exercises projected for a specific time period; i.e., a quarter.

Advantages:

- reduces record keeping functions
- applicable to individual and team training situations.

Disadvantages:

- does not provide for uses outside of the curriculum
- not adaptable to all training situations
- if device used outside of a given curriculum, then there is the possibility of disruption of the maintenance schedule.

WORK PERIOD STANDARD. The work period standard is based on the premise that every activity has an established work period during which training devices are available to users for required training. The work period (which can equate to the training period) would normally range between 8 hours per day and 16 hours per day, depending on the training environment. For example, the training standard for a 12-hour work period would be 240 hours per month (12 hours/day X 5 days/wk X 4 wks/month) minus an appropriate number of hours required for device setup operations and holidays.

Advantages:

- simple, straightforward approach
- applicable to all training devices.

Disadvantages:

- does not provide complete description of device utilization for team training situations
- does not accommodate variations in user training requirements
- causes many devices to have a low utilization rate irrespective of their importance or restrictions on their use
- does not readily accommodate special situations such as deployment exercises, debugging of programs, or research.

RECOMMENDED STANDARD. The essence of a workable training standard is flexibility. This means that the standard selected must fit any environment, be applicable to all devices, and permit shifts in student load to be accommodated without producing wide variations in the utilization rate. In addition, it must be easily understood and comparatively simple. This requirement for flexibility was recognized by the CNO as stated in his letter OP-142D/mc Ser 11721 P14 dated 27 April 1970:

It is recognized that the training hours standard cannot be a stable figure and that the hours a device will be required is related to the number of personnel who are available and who require training. On this basis, it may be appropriate to recommend changes to individual device utilization standards to conform to changing requirements.

Of the six types of standard enumerated above, only one, the flexible standard, meets all criteria. This has been selected as the recommended standard.

#### TRAINING DEVICE UTILIZATION REPORTING DEFINITIONS

Definitions for the majority of data elements discussed in this report are contained in various official (i.e., NAMP) and unofficial (i.e., TEMP) documents. As indicated elsewhere in this report, consistency of utilization measurement and reporting is essential to a viable reporting system, and this consistency results from the use of precise definitions. Further, analysis of field survey data indicated that an inconsistent interpretation of definitions is a major problem in the 3-M utilization reporting system. Misinterpretation is due largely to a lack of adequate or precise definitions for key utilization terms. It is imperative that explicit definitions of utilization reporting terms be developed and consistently used by all reporting activities. This will insure the credibility and utility of any utilization reporting system.

Data obtained from the field survey and extracted from relevant documents were analyzed to identify those terms and procedures most troublesome to data recorders and users of utilization data. A consensus of respondents at all activities was obtained and is reflected in the recommended definitions which follow. Most organizational commands use the unofficial NAVTRA-EQUIPCEN TEMP document for UPCs and as a procedures manual. It is, therefore, used as the basic reference in the following proposed definitions.

UTILIZATION (U) is that period of time, or number of cycles/events, during which primary power is on the equipment and the device is being operated for purposes other than maintenance. Time required to prepare a device for a training mission or exercise is not reportable utilization; however, time expended for training mission or exercise pre- and post-briefings in the device or in the immediate proximity of the device which precludes use of the device for other purposes is reportable. Power-off familiarization and power-off procedural training is not reportable utilization. There are two categories of reportable utilization--training utilization and other utilization.

a. Training Utilization (TU) is that utilization attributed exclusively to the support of student training requirements and described by UPCs with a first character of 2, 3, 4, 5, 6, or 7. Training utilization equals training standard added to unscheduled training less training lost ( $TU = TS + UT - TL$ ) for a given period of time.

b. Other Utilization (OU) is all reportable utilization not classified as training utilization and described by UPCs that do not have 2, 3, 4, 5, 6, or 7 as their first character.

TOTAL UTILIZATION (TOU) is the sum of training utilization and other utilization, expressed in hours and man-hours for utilization described by UPCs 2, 3, 4, 5, or 6. Utilization described by UPC code 7 shall be expressed in cycles/events and student cycles/events.

TRAINING UTILIZATION RATE (TUR) is the ratio expressed as a percentage of training utilization to the device training standard.

TRAINING STANDARD (TS) is the total amount of student training, expressed in hours or cycles/events, scheduled for a device for a calendar year (CY) quarter. Training standards may vary from quarter to quarter and device to device. Training standards shall be established on the last day of business of the CY quarter preceding the CY quarter for which they are established. Once established, these standards shall not be changed in any manner for that quarter.

SCHEDULED TRAINING (ST). All student training that is scheduled as of the last day of business of the CY quarter preceding the CY quarter during which it will be accomplished is the scheduled training for that specific device for that quarter and equates to the training standard. Student training is that which has been formally requested by the device using activity (i.e., COMNAVAIRLANT/PAC, COMTRALANT/PAC, Squadron Commander), approved by the device custodian, and scheduled for accomplishment at that activity.

TAEG Report No. 99

UNSCHEDULED TRAINING (UT) is student training that is provided during or after normal duty hours and is not included in the scheduled training which make up the training standard for the current training quarter.

NO SHOW (NS) refers to students who failed to appear for scheduled training, or the cancellation of scheduled training less than 1 hour prior to the start of the scheduled training. In addition, unscheduled training for which students fail to appear, or is cancelled less than 1 hour prior to the start of training, is considered a no show. This should be recorded in training hours and number of students.

CANCELLATION (C). Two situations exist for cancellation of training--one requires reporting under the 3-M utilization reporting system and one does not. Cancellations should be recorded in training hours and number of students.

a. Cancellation 1 or more hours in advance of the training start time of scheduled training for the current quarter or of unscheduled training shall be reported as a cancellation in the utilization reporting system. Cancellation of training less than 1 hour prior to training start time shall be reported as a no show.

b. Cancellation of training scheduled for the subsequent CY quarter prior to the close of business of the last working day of the current CY quarter shall not be reported in the 3-M utilization reporting system. No shows do not apply in this situation.

OPERATIONAL AVAILABILITY (OA) applies to training devices in an operational status which, without additional maintenance or servicing, are safe, capable of being used during normal duty hours, and are staffed with personnel necessary to provide training when requested. For reporting purposes, operational availability includes device use time, device setup time, and device turnaround time.

TRAINING AVAILABILITY (TA) is that period of time the device is actually available for the purpose of student training; it does not include device setup and turnaround time. Training availability is equal to operational availability minus device setup and turnaround time.

NORMAL DUTY HOURS refers to that period of time expressed in hours/day and/or hours/week established by the device custodian for the device to be operationally available.

SCHEDULED MAINTENANCE (SM) is that maintenance performed during all periods of time when a device is not available for use due to preplanned maintenance and pre- or post-operation inspection. Scheduled maintenance has the purpose of preserving the operational and physical condition of the equipment. It does not include time spent performing the daily, preoperational, turnaround, postoperational inspections when the requirements of these inspections do not require placing the device in an inoperable condition. Scheduled maintenance includes the look phase of any inspection, look and fix phase of planned inspections, and the calibration of precision measuring equipment. Scheduled maintenance is to be reported in hours and man-hours.

UNSCHEDULED MAINTENANCE (UM) is that maintenance performed during all periods of time in which corrective or unplanned maintenance is being performed to return the device from an inoperable to an operational condition. Unscheduled maintenance represents the correction of a malfunction rather than the performance of preventative or planned maintenance. It does not include the fix phase of scheduled inspections; however, if the device becomes inoperable due to a malfunction which occurs during scheduled maintenance, the time required to correct that malfunction shall be reported as unscheduled maintenance. Unscheduled maintenance is to be reported in hours and man-hours.

MAINTENANCE RATIO (MR) is defined as unscheduled maintenance divided by scheduled maintenance.

STUDENT CAPABILITY (SC) is the maximum training capability of a device, expressed in student hours or student events/cycles per device utilization hour.

TRAINING LOST (TL). Two situations exist which can cause a loss of training; training lost due to user (TLU) and training lost due to maintenance (TLM). Training lost is recorded in hours and student hours of training actually lost. It applies to both scheduled training and unscheduled training.

a. TLU are those hours of training lost due to user activities cancellation or user activities no shows.

b. TLM are those hours of scheduled or unscheduled training lost due to the devices not being mission capable for any maintenance cause.

#### TRAINING DEVICE UTILIZATION DATA ELEMENTS

Training device utilization data may be measured and expressed in a number of ways; a situation which, in itself, is a contributing factor to problems existing in the current reporting system. It is a generally accepted principle that the most efficient information systems are simple in format and include only those data necessary to present a concise accurate description of a situation. Presenting a concise and complete description of training device utilization is complicated by the multi-faceted training situations and environments; utilization cannot be described with only one data element. The key is to identify only those data elements required to completely describe the training device utilization situation and satisfy the managers' needs.

Management utilization data needs identified in this study are discussed in section III. A comprehensive list of potential utilization data reporting elements is presented in tables 4, 5, and 6. These data elements were identified through review of various utilization reporting systems and during the analysis of the information obtained from the field survey. The elements presented in table 4 are administrative in nature, those in table 5 are utilization, and those in table 6 are maintenance. The data elements included in tables 4, 5, and 6 are not prioritized. There are obviously additional data elements which could be developed through manipulation of

TABLE 4. POTENTIAL UTILIZATION DATA ELEMENTS (ADMINISTRATIVE)

| Data Element                                  | Reporting Form                         |
|-----------------------------------------------|----------------------------------------|
| 1. Device Designator                          | Number/Alpha                           |
| 2. Device Nomenclature                        | Not Applicable                         |
| 3. Device Serial Number                       | Number                                 |
| 4. Device Location                            | Name                                   |
| 5. Number Student Stations                    | Number                                 |
| 6. Total Device Capability                    | Student Manhours or<br>Cycles Per Hour |
| 7. Device Cost (Delivery)                     | Dollars                                |
| 8. Total Number of Devices                    | Number                                 |
| 9. Type Device (A, L, S, SS)*                 | Alpha                                  |
| 10. Device Material Condition                 | Alpha                                  |
| 11. Sponsor                                   | Alpha                                  |
| 12. COG "20" Inventory                        | Yes or No                              |
| 13. Reporting Period                          | Number                                 |
| 14. Procuring Agency                          | Alpha                                  |
| 15. Controlling Activity                      | Alpha                                  |
| 16. Device Acceptance Date                    | Number                                 |
| 17. Device Manufacturer                       | Alpha                                  |
| 18. Device Instructor Requirements            | Number                                 |
| 19. Device Maintenance Personnel Req.         | Number                                 |
| 20. Device Operator Personnel Req.            | Number                                 |
| 21. Assigned Instructors                      | Number                                 |
| 22. Assigned Maintenance Personnel            | Number                                 |
| 23. Assigned Operators                        | Number                                 |
| 24. Parts and Supplies Cost Per Quarter       | Dollars                                |
| 25. Cumulative Parts & Supplies Cost Per Year | Dollars                                |
| 26. Device Update/Mod. Costs                  | Dollars                                |
| 27. Cumulative Update/Mod. Costs for Lifetime | Dollars                                |

\*Air, Land, Surface, Subsurface

TABLE 5. POTENTIAL UTILIZATION DATA ELEMENTS (UTILIZATION)

| Data Element                                              | Reporting Form                               |
|-----------------------------------------------------------|----------------------------------------------|
| 1. Device Utilization, Total                              | Hours, Man-hours, Cycles,<br>Per Time Period |
| 2. Scheduled Training                                     | Hours, Man-hours, Cycles,<br>Per Time Period |
| 3. Authorized Training                                    | Hours, Man-hours, Cycles,<br>Per Time Period |
| 4. Availability, Scheduled                                | Hours, Man-hours, Cycles,<br>Per Time Period |
| 5. Operational Availability                               | Hours, Man-hours, Cycles,<br>Per Time Period |
| 6. Scheduled Training Lost to<br>Maintenance              | Hours, Man-hours, Cycles,<br>Per Time Period |
| 7. Device Power On                                        | Hours                                        |
| 8. Average Device Utilization                             | Hours, Man-hours, Cycles,<br>Per Time Period |
| 9. Training Device<br>Standard                            | Hours, Man-hours, Cycles,<br>Per Unit Time   |
| 10. Training Utilization Rate                             | Percent                                      |
| 11. Cumulative Power on Time                              | Hours                                        |
| 12. Training Device Training<br>Utilization               | Hours, Man-hours, Cycles,<br>Per Unit Time   |
| 13. Training Device Maintenance<br>Utilization            | Hours, Man-hours, Cycles                     |
| 14. Training Device Other Utilization                     | Hours, Man-hours, Cycles                     |
| 15. Percent of Maintenance to<br>Total Device Utilization | Percent                                      |

TABLE 5. POTENTIAL UTILIZATION DATA ELEMENTS (UTILIZATION) (continued)

| Data Element                                                                | Reporting Form                          |
|-----------------------------------------------------------------------------|-----------------------------------------|
| 16. Percent of Other to Total Device Utilization                            | Percent                                 |
| 17. Unscheduled Device Utilization                                          | Hours, Man-hours, Cycles, Per Unit Time |
| 18. Percent of Unscheduled Utilization to Total Device Utilization          | Percent                                 |
| 19. Total Number of Students Trained                                        | Number                                  |
| 20. Utilization Lost Due to No-shows                                        | Hours, Man-hours, Cycles, Per Unit Time |
| 21. Percent of Standard of Utilization Lost Due to No-show                  | Percent                                 |
| 22. Average Number Students Trained                                         | Number Per Unit Time Period             |
| 23. Type Utilization by UPC (Utilization Purpose Code) <sup>1</sup>         | Code                                    |
| 24. Percentage of Total Utilization by UPC <sup>1</sup>                     | Percent                                 |
| 25. Percent Deviation of Utilization From Standard                          | $\pm$ Percent                           |
| 26. Percent Deviation of Operational Availability to Scheduled Availability | $\pm$ Percent                           |
| 27. Average Percent Training Standard Accomplished                          | Percent Per Unit Time Period            |
| 28. Engineering Design Utilization Standard                                 | Hours Per Unit Time Period              |
| 29. Percent of Training Utilization to Engineering Design Standard          | Percent                                 |
| 30. Percent of Total Utilization to Engineering Design Standard             | Percent                                 |

<sup>1</sup>This is an extensive data element--numerous UPCs are presented in the TEMP

TAEG Report No. 99

TABLE 5. POTENTIAL UTILIZATION DATA ELEMENTS (UTILIZATION) (continued)

| Data Element                                                 | Reporting Form                             |
|--------------------------------------------------------------|--------------------------------------------|
| 31. Number Training Shifts                                   | Number                                     |
| 32. Number Maintenance Shifts                                | Number                                     |
| 33. Work-hours for Reporting Period                          | Hours                                      |
| 34. Requested Utilization                                    | Hours, Man-hours, Cycles,<br>Per Unit Time |
| 35. Percent of Operational Availability to Total Utilization | Percent                                    |

TABLE 6. POTENTIAL UTILIZATION DATA ELEMENTS (MAINTENANCE)

| Data Element                                                           | Reporting Form                   |
|------------------------------------------------------------------------|----------------------------------|
| 1. Preventive Maintenance Performed                                    | Hours, Man-hours                 |
| 2. Corrective Maintenance Performed                                    | Hours, Man-hours                 |
| 3. Maintenance Ratio                                                   | Number                           |
| 4. Total Maintenance Performed                                         | Hours, Man-hours                 |
| 5. Preventive Maintenance Required                                     | Hours, Man-hours                 |
| 6. Average Preventive Maintenance                                      | Hours, Man-hours Per Time Period |
| 7. Average Corrective Maintenance                                      | Hours, Man-hours Per Time Period |
| 8. Average Total Maintenance                                           | Hours, Man-hours Per Time Period |
| 9. Maintenance Man-hours per<br>Total Device Utilization Hours         | Man-hours/hours                  |
| 10. Maintenance Man-hours Per Student<br>Hour                          | Man-hours/hour                   |
| 11. Organizational Level Maintenance<br>Man-hours (VIDS/MAF)           | Man-hours                        |
| 12. Organizational Level Maintenance<br>Man-hours (SAF)                | Man-hours                        |
| 13. Intermediate Level Maintenance<br>Man-hours (Custodian)            | Man-hours                        |
| 14. Intermediate Level Maintenance<br>Man-hours (Other Than Custodian) | Man-hours                        |
| 15. Lost Training Due to Maintenance                                   | Hours, Student Hours             |

included elements (i.e., ratios, percentages, means), but these were evaluated and rejected as not required in a training device utilization report at this time.

#### PROPOSED UTILIZATION REPORT

**COST DATA.** The proposed report format and content accommodates all identified utilization information needs of managers at this time except cost data, and incorporates solutions to the deficiencies apparent in other utilization reports. Because of the importance of cost data to all echelons it is necessary to understand why they are not included in the proposed report.

Detailed cost data reporting is a subject beyond the scope of this study. A separate investigation should be initiated to resolve this issue. Currently, there is no known existing single source from which operating cost data are readily accessible for all training devices. The utilization reporting system is a logical means of disseminating training device cost information to appropriate management activities; however, a trade-off analysis must be made among the following issues to determine the practicality of including cost data in a utilization report without sacrificing needed utilization data.

- too many data elements in a single report thereby making it difficult to understand
- reprogramming of 3-M software required both utilization and cost to be reported in the same system
- manpower effort necessary to report cost data
- practicality of a separate 3-M report covering current cost information.

Other options which could be used to report cost data include the modification of the NAVTRAEQUIPCEN FAIR report, modification of an existing CNET report, or development of an independent training device cost reporting system.

**UNITS OF MEASURE.** The units of measurement used to express utilization data are critical. They should include training device utilization in hours or cycles and student training hours or total number of students trained. Reporting in this manner informs managers of the magnitude of the training presented as well as time the device was in use. Only by reporting both of these data elements is it possible to obtain a complete picture of true utilization, and from this an estimate of the relative importance of the device.

## UTILIZATION REPORT

The proposed utilization report is described in subsequent paragraphs. An assessment as to whether or not the 3-M system is the most appropriate for reporting training device utilization data is not a primary issue in this study. However, in recognition of the expense and effort involved in implementing a new reporting system, a conscious effort was made to insure that the data requirements of the proposed report are basically compatible with the data elements of the 3-M system. Only minor procedural and programming changes are envisaged. The proposed report, to be published quarterly, includes four major sections:

- Report Description
- Definition of Terms
- Management Alert Data Summary
- Detailed Utilization Data.

The basic content of sections 1 and 2 of the proposed report is standard and self-explanatory. Additions to these two sections may be made by the report implementing activity. Sections 3 and 4 contain specific data elements in an easy to use format; further development of these two sections is not anticipated.

Report Description (Section 1). Section 1 should contain administrative data, a brief, concise description of the report purpose, contents, review procedures, and procedures for obtaining additional data. The objective of this section is to familiarize the report user with the basis for, and the utility and application of, the report. Administrative data includes, as a minimum:

- Report Title: Training Device Utilization Report
- Reference Documents:
  - .. OPNAVINST 10171.4 (effective edition)
  - .. CNETINST 10171.1 (effective edition)
  - .. NAMSINST 4790.1 (effective edition)
  - .. NAVTRAEQUIPCEN TEMP DOCUMENT (Unofficial at this time)
  - .. Others as required
- Report Frequency: Quarterly
- Reporting Period: CY Quarter and Year
- Points of Contact (Location and telephone no.)
  - .. NAMS
  - .. NAVTRAEQUIPCEN
  - .. Others as required.

## TAEK Report No. 99

**Purpose of Report.** This report provides management with utilization and summary maintenance data for all designated training devices. Criteria for inclusion of devices are set forth in OPNAVINST 10171.4B; reporting procedures, data element codes, and data forms are described in the NAVTRAEQUIPCEN TEMP document. Information presented may be used by management to:

- assess the utilization of all devices in the reporting system
- compare device utilization with the established training standard
- justify the need for additional devices
- justify training device support requirements
- isolate potential problems in device utilization and/or maintenance.

**Report Content.** There are three additional sections to the report. Section 2 defines the terms used in the report. Section 3 identifies, for management, those devices which have potential problems as a result of unacceptable ( $\pm 20$  percent is suggested) deviation from the training standard and/or a maintenance ratio greater than 1. Section 4 presents detailed utilization and relevant maintenance data for all devices in the reporting system.

**Report Review Procedures.** The user of this report should become familiar with the terms defined in section 2 prior to reviewing the utilization data presented in sections 3 and 4. The report is organized on the assumption that management is most concerned with those devices which may have utilization problems and requires an indication of the area(s) which cause these problems. The user should, therefore, first review the data presented in section 3 which lists only those devices with problems. If the user cannot identify the cause of the problem through review of the data contained in section 3, reference should be made to the detailed utilization data presented in section 4. Should questions remain after a review of section 4 data, contact should be made with NAMS0 and/or the NAVTRAEQUIPCEN.

The training device reporting system includes many data elements (such as type of training, type of students trained, maintenance actions) not included in this utilization report. The data reported are described in the TEMP document. Special reports covering data elements not included in the utilization report can and will be generated by the NAMS0 upon request.

**Definition of Terms (Section 2).** This section should include a concise definition of each data element term contained in sections 3 and 4 of the report. These definitions were proposed previously in this report and will not be repeated here. If there is a need for additional definitions, care should be taken in developing clear, concise statements. Reference to forms should be avoided; reference to documents should be held to a minimum.

Management Alert Data Summary (Section 3). The format and content of this section of the proposed utilization report is presented in figure 1. Each page of this section should identify all data elements and their units of measure. Devices in this section are the flagged devices and are to be listed by their device designator in numerical sequence. Only data for the current reporting period is presented. The data elements of devices reported by cycles or events is indicated by an asterisk.

Two situations may cause a device to be included (flagged) in this section: (1) the training utilization deviated from the training standard by + 20 percent and/or (2) the maintenance ratio equaled or exceeded 1. Devices flagged for either of these two reasons may not necessarily have a problem; justifiable reasons may exist which explain the situation. Management, however, needs to be aware of these situations and the reasons therefore. Repeated flagging of a device would strongly suggest that some continuing problem exists. For instance, if the maintenance ratio is consistently equal to or greater than 1 (i.e., corrective maintenance consistently exceeds preventative maintenance), the manager is alerted to the problem and can reference section 4, or contact the appropriate point of contact to identify the cause. Once the cause of the problem is identified, corrective measures can be taken.

Detailed Utilization Data (Section 4). Section 4 of the proposed report contains the detailed utilization data for use in investigating the devices flagged in section 3 or for examining the training situation status of particular device(s) of interest. Each page of this section should identify all data elements and their units of measurement. All devices in the utilization reporting system are contained in this section and are listed by their device designator in numerical sequence. Figure 2 presents the proposed format and content of section 4. The data elements contained in rows 1, 2, and 3 are displayed for each device by station. Row 1 contains six data elements necessary to describe the device. Row 2 contains 16 data elements and presents the data for the previous reporting period. Row 3 contains the same 16 data elements as row 2 except that the data presented is for the current reporting period.

#### DATA BANK INFORMATION

In addition to the data elements which appear in the proposed report, certain other identifying administrative codes are needed. The inclusion of these codes in the data base will permit management to relate the utilization reporting system to the Navy Integrated Training Resources and Administrative System (NITRAS) and the Resources Management System (RMS). Thus when supportive data are required for decisions with respect to only specific devices, these data can be obtained from any of the management systems on a demand basis. The codes needed are:

- Course Identification Number (CIN) where this is applicable
- Equipment Identification Code (EIC)
- Unit Identification Code (UIC)
- Course Data Processing (CDP) Code.

| (SECTION 3)<br>MANAGEMENT ALERT DATA SUMMARY |                      |                         |                            |                                                                  |                        |                         |                         |                                 |                            |                              |                      |      |      |
|----------------------------------------------|----------------------|-------------------------|----------------------------|------------------------------------------------------------------|------------------------|-------------------------|-------------------------|---------------------------------|----------------------------|------------------------------|----------------------|------|------|
| REPORT PERIOD:<br>CY QUARTER, YEAR           |                      | (1)                     | (2)                        | (3)                                                              | (4)                    | (5)                     | (6)                     | (7)                             | (8)                        | (9)                          | (10)                 | (11) | (12) |
| Device<br>Designator                         | Device<br>Serial No. | Reporting<br>Activity   | Device<br>Delivery<br>Date | Student<br>Capability                                            | Training<br>Standard   | Training<br>Utilization | Unscheduled<br>Training | Training<br>Utilization<br>Rate | Training<br>Lost<br>(User) | Training<br>Lost<br>(Maint.) | Maintenance<br>Ratio |      |      |
| Name<br>or<br>Number                         | Number               | Name<br>and<br>Location | Month<br>and<br>Year       | Student<br>Man-hours or<br>*Student Cycles<br>Per<br>Device Hour | Hours<br>or<br>*Cycles | Hours<br>or<br>*Cycles  | Hours<br>or<br>*Cycles  | Percent                         | Hours<br>or<br>*Cycles     | Hours<br>or<br>*Cycles       | Ratio                |      |      |

Devices which appear in this section are those flagged due to:

- (1) Training utilization rate below 80% or above 120%.
  - (2) Maintenance ratio equal to or greater than 1.
- \* All devices with a UPC beginning with 7 are reported in cycles.

Figure 1. Sample Management Alert Data Summary Format and Content

(SECTION 4)  
DETAILED UTILIZATION DATA

|       | (1)               | (2)                  | (3)                 | (4)                                  | (5)                                 | (6)                                                                        |
|-------|-------------------|----------------------|---------------------|--------------------------------------|-------------------------------------|----------------------------------------------------------------------------|
|       | Device Designator | Device Serial Number | Device Nomenclature | Reporting Activity (Name & Location) | Device Delivery Date (Month - Year) | Student Capability/ (Student Man-hours or *Student Cycles Per Device Hour) |
| Row 1 |                   |                      |                     |                                      |                                     |                                                                            |

|       | (1)              | (2)               | (3)              | (4)                   | (5)                  | (6)              | (7)                    | (8)                                  | (9)              | (10)            | (11)                 | (12)        | (13)                       | (14)             | (15)            | (16)         |
|-------|------------------|-------------------|------------------|-----------------------|----------------------|------------------|------------------------|--------------------------------------|------------------|-----------------|----------------------|-------------|----------------------------|------------------|-----------------|--------------|
|       | Reporting Period | Training Standard | Training Utiliz. | Training Utiliz. Rate | Unscheduled Training | Other Utiliz.    | Total Students Trained | Total Student/ Hour/ *Cycle          | Student No-Shows | Student Cancels | Training Lost Maint. | Work- Hours | Operational Avail- ability | Scheduled Maint. | Unsched. Maint. | Maint. Ratio |
| Row 2 | CY-Qtr-Yr        | Hours or *Cycles  | Hours or *Cycles | Percent               | Hours or *Cycles     | Hours or *Cycles | Number                 | Student Man-hours or *Student Cycles | Number           | Number          | Hours or *Cycles     | Hours       | Hours                      | Man- hours       | Man- hours      | Ratio        |
| Row 3 | PREVIOUS         |                   |                  |                       |                      |                  |                        |                                      |                  |                 |                      |             |                            |                  |                 |              |
|       | CURRENT          |                   |                  |                       |                      |                  |                        |                                      |                  |                 |                      |             |                            |                  |                 |              |

\* All devices with a UPC beginning with 7 are reported in cycles.

Figure 2. Sample Detailed Utilization Data Format and Content

TAEG Report No. 99

The existing utilization reporting form, OPNAV 4790/103 satisfies all existing reporting requirements. To supplement this report, it is proposed that a short additional report be submitted which will insert and/or upgrade the information in the data base annually or when a change to a device occurs. This proposed report would be made on a proposed OPNAV form 4790/103/1 containing the data items identified below:

| DATE | DEVICE | LOCATION | CIN | EIC | UIC | CDP | * | * |
|------|--------|----------|-----|-----|-----|-----|---|---|
|------|--------|----------|-----|-----|-----|-----|---|---|

\*Reserved for future use.

## SECTION V

### CONCLUSIONS AND RECOMMENDATIONS

This section contains conclusions concerning the policy, practices, and procedures for reporting and evaluating utilization data for Navy and Marine Corps training devices which are required to be reported in the utilization reporting system. Also included are recommendations for improving the efficiency and utility of the reporting system as a resource management tool. Areas which require additional investigation are identified where appropriate.

#### CONCLUSIONS

1. NAMS0 4790.A8092-01, Training Device Readiness Utilization Summary, is received by only 14 of the 37 activities surveyed. It is not considered a viable document and, therefore, is not used by either Navy or Marine Corps management or operational personnel. NAMS0 4790.A8092-02, Training Device Utilization Summary, is received by none of the activities surveyed.

2. The current NAMS0 utilization reports do not satisfy the data requirements of management or of operational commands. At least six data elements, identified as critical by management activities, are not contained in the reports; conversely, too much extraneous detailed data that does not meet management or operational needs are included. These deficiencies have resulted in a multiplicity of reports issued by various commands.

3. The 3-M reports emphasize maintenance rather than device utilization data. Utilization data for various commands contained in 3-M reports are not comparable, cannot be correlated with data in other utilization reports, and lack consistency. Major reasons for these inadequacies lie with the reporting commands and include inconsistent interpretation among commands of definitions of utilization and maintenance reporting terms, inconsistencies in reported data among commands, and the lack of an effective procedure for correcting data errors.

4. The existing 3-M training device utilization reporting system is aviation oriented which causes data reporting problems for the surface and subsurface communities. The present system is not fully compatible with reporting requirements unique to training devices.

5. Numerous personnel charged with the responsibility for reporting training device utilization data have not received training in the 3-M reporting system. Also, refresher training is required for 3-M system trained personnel to keep abreast of changes in the system.

6. Various ratios; i.e., direct maintenance man-hours to device utilization hours, presented in the 3-M reports are not meaningful as numerical values have not been stated which measure the acceptability or unacceptability of the ratios.

TAEG Report No. 99

7. The 3-M report instructions are confusing and difficult to interpret by users. This is caused primarily because of references to report forms and directives rather than being self-contained.

8. A single, integrated utilization report format will not satisfy the data requirements of both managers and operational commands. Brief, summary type data are required by managers and specific detailed data are required by operational commands.

9. CNO, CNET, CMC, and the CHNAVRES require total current training device operating cost data by category of expenditure to meet their resource management responsibilities. These data are not currently available from a known single source.

10. For maximum effectiveness, any training device utilization report should be limited to those utilization and maintenance data elements necessary to present a clear understanding of a device's utilization situation and, where applicable, extrapolate the cause(s) for major variations from established criteria.

11. Current OPNAV instructions for reporting training device utilization lack specific guidance and are confusing to operational commands. Official responsibility has not been assigned for maintenance of the unofficial TEMP document which has been accepted by reporting activities as the basic procedures guide for 3-M training device utilization reporting.

12. An accepted procedure does not presently exist for determining training device utilization efficiency (i.e., utilization rate) because a viable procedure has not been developed for establishing a baseline training standard against which utilization efficiency is measured. A training standard arbitrarily established at the managerial level for all devices or classes of devices is not acceptable as it does not accommodate local training situations. A flexible training standard established at the operational command level and approved by a senior command for each training device is required. The standard must have the flexibility necessary to accommodate the local training environment; i.e., training load variations, deployments.

13. Utilization reports are required only on a quarterly basis and data should be reported only on a quarterly basis.

14. All major training devices required by OPNAVINST 10171.4B to be included in the 3-M reporting system are not included; numerous minor training devices not required are included for no apparent reason.

#### RECOMMENDATIONS

1. Existing 3-M training device utilization reports should be discontinued and replaced with a new report structured after the format and content requirements of the proposed report described in section IV. Further investigation is required to determine if the new report should be generated under the existing 3-M reporting system or if this responsibility should be delegated to the NAVTRAEQUIPCEN.

2. A single point of contact is required at the CNET level with management authority necessary to provide the continuity required to insure consistency of training device utilization reported within the NAVEDTRACOM. As the CNET focal point for training device utilization reporting, this position would provide guidance and control to insure:

- a. All reported data are submitted in accordance with governing directives.
- b. Reporting procedures are consistent among reporting activities.
- c. An effective information feedback system, including data error correction, is established.
- d. Policy or procedural changes in the reporting system are fully coordinated.
- e. All training devices required to be reported, whether Cog "20" or not, are included in the reporting system.
- f. Devices deviating from established utilization or maintenance performance standards are identified, investigated, and resolutions affected where appropriate.

3. Existing OPNAV directives should be revised to insure compatibility with training device utilization reporting requirements. The existing TEMP document should be revised to include the findings of this study and included in the NAMP instruction (OPNAVINST 4790.2B).

4. A study should be performed to determine the feasibility of incorporating training device operating cost data (less personnel costs) in the existing 3-M utilization reporting system. This study should address manpower and funds required to implement the changes, technical problems envisaged, procedures for reporting the cost data, and manpower and funds required to maintain the cost accounting system. Should this study indicate that it is not feasible to use the existing 3-M reporting system for reporting training device operating costs, then a separate cost accounting report should be developed and published.

5. A training program should be instituted to provide training to personnel required to report and/or interpret 3-M training device utilization and maintenance data. Refresher training should be provided to 3-M trained personnel on an as-required basis.

6. The training device utilization report should be published on a quarterly basis. This requirement should be reflected in all training device utilization reporting directives.

7. A single procedure, based on the flexible training standard definition presented in section IV of this report, should be adopted for computation of training device utilization (utilization rate). This flexible training standard should apply to all training devices and reflect the specific training requirements of each training device in its training environment.

TAEG Report No. 99

8. A comprehensive review should be made to insure that all major training devices as defined in OPNAVINST 10171.4B, whether or not classified as COG "20," are included in the training device utilization reporting system. This review should also identify those nonmajor training devices to be included in the reporting system.

9. In concert with recommendation 1, which proposes the adoption of a new reporting format and different contents, section VI of this report provides an Implementation Plan Outline guide.

## SECTION VI

## IMPLEMENTATION PLAN OUTLINE

This section presents the outline of a draft implementation plan for revising the existing utilization reporting system. Two important inter-related considerations must be recognized should the decision be made to activate this plan. The first is the complexity of the task and the second is the time required to complete the task. The complexity of the task differs with the agent who will be responsible for the utilization system output. In addition, the availability of appropriate personnel to perform each event at the action command level is unknown. These factors preclude preparation of a milestone chart and the prediction of time from commencement to completion.

The implementation plan is proposed as a two-phased effort, the initiation phase and the action phase. Figure 3 provides an overview of the major events which must occur prior to implementation. Specific events for each phase, the action command, and supporting command(s) are identified in tables 7, 8, and 9, and are discussed below.

## INITIATION PHASE

The initiation phase is composed of four sequential events. These events determine the direction which will provide the desired reporting system. Table 7 tabulates the events for this phase, the action command, the supporting command(s), and the approving authority. The approval of the plan (event 1) and appointment of the agent (event 4) may require coordination among commands.

TABLE 7. EVENTS IN THE INITIATION PHASE

| Event | Title                                                      | Action Command | Supporting Command(s) | Approval Authority |
|-------|------------------------------------------------------------|----------------|-----------------------|--------------------|
| 1     | Implementation Plan Approval                               | CNET           |                       | CNO/CMC            |
| 2     | Appoint Implementation Manager                             | CNET           |                       | CNET               |
| 3     | Study to Select Utilization Reporting System Control Agent | CNET           | NTEC<br>NAMS0         | CNO                |
| 4     | Control Agent Selected                                     | CNET           |                       | CNO                |

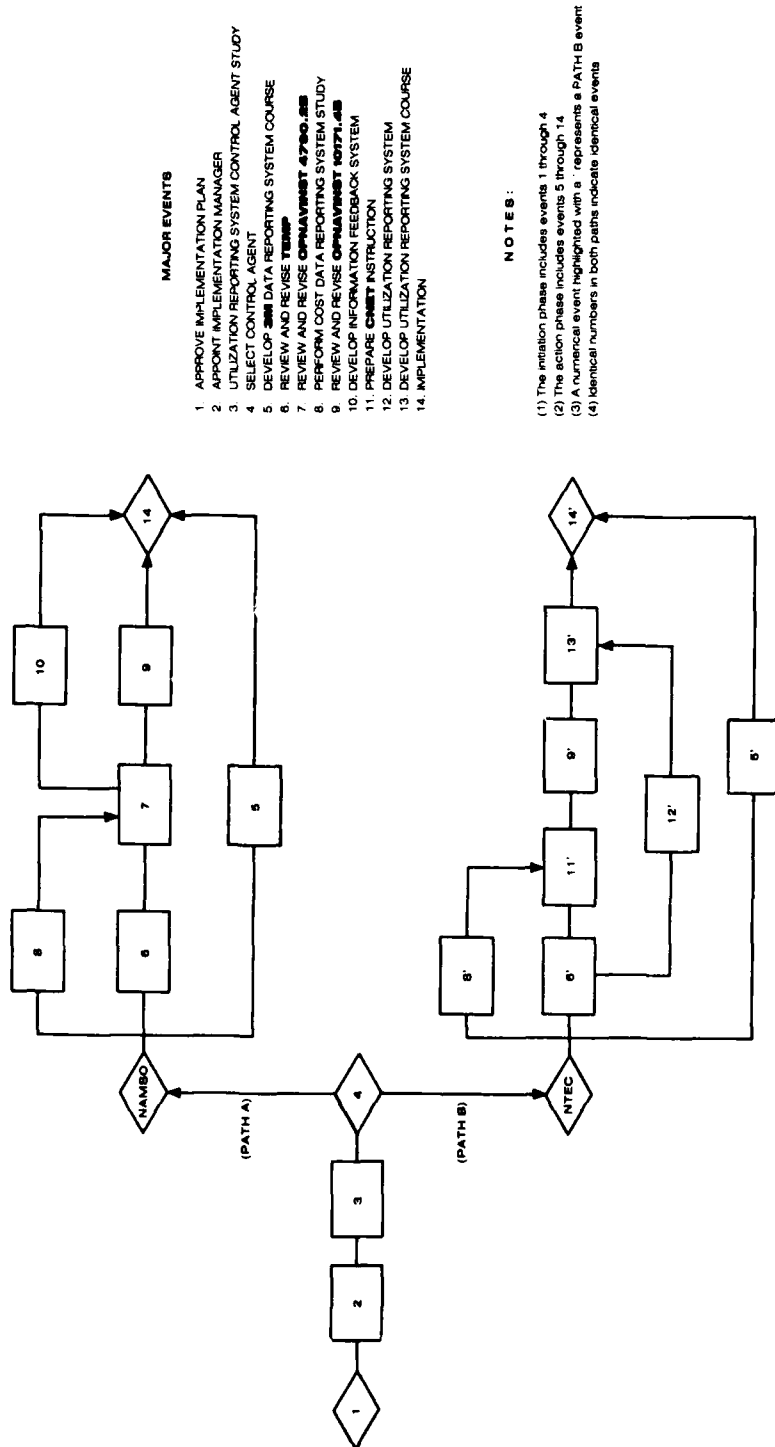


Figure 3. Flow Diagram of Major Implementation Events

EVENT 1. CNO/CMC approval to implement a revised utilization reporting system and acceptance of recommendation number 9 of this study, is the first step in initiating the plan.

EVENT 2. A single point of contact in CNET is needed to act in the capacity of Implementation Manager (IM). The IM's major function will be to coordinate between commands and insure all actions are timely and in accordance with the implementation plan.

EVENT 3. Study recommendation number 1 raised the question as to whether it would be more effective to make utilization reporting a management control responsibility of NAVTRAEQUIPCEN, which is CNET's support agent for Cog "20" material, rather than to permit it to remain a NAMSO responsibility within the 3-M reporting system. There are cogent arguments in favor of a decision in either instance. The first action of the IM would be to initiate this study.

EVENT 4. The final event of the initiation phase is the decision based on the recommendation emanating from event 3. This will determine whether path A or path B of figure 3 will be followed, and which command will assume the responsibility for management control of the system.

#### ACTION PHASE

The action phase can take either of two paths depending upon the decision made in event 4. Although the events may appear to be similar in the two action paths, there are major differences in the approaches to be taken and the contents of the documents produced. These differences are outlined in the following paragraphs.

NAMSO RESPONSIBILITY. Table 8 is the tabulation of events, action commands, supporting command(s), and the approval authority for each event should NAMSO (path A) be delegated the continuing responsibility for utilization reporting.

TABLE 8. EVENTS IN THE ACTION PHASE (NAMSO)

| Event | Title                                                  | Action Command      | Supporting Command(s) | Approval Authority |
|-------|--------------------------------------------------------|---------------------|-----------------------|--------------------|
| 5     | Develop and Establish 3-M Data Reporting System Course | CNATRA<br>CNTECHTRA | NAMSO                 | CNET               |
| 6     | TEMP Review and Revision                               | CNET                | NTEC, NAMSO           | CNET               |
| 7     | Revise OPNAVINST 4790.2B                               | NAMSO               | NTEC                  | CNO                |
| 8     | Perform Cost Data Reporting System Study               | CNET                | NTEC                  | CNO                |
| 9     | Revise OPNAVINST 10171.4B                              | CNO                 | CNET                  | CNO                |
| 10    | Develop Information Feedback System for Processed Data | NAMSO               | Local ADP Facilities  | CNET               |
| 14    | Implementation                                         | CNET                |                       | CNO/CMC            |

EVENT 5. There is inadequate training in the operation and use of the 3-M reporting system (study conclusion 5). This is particularly recognizable among personnel working with surface/subsurface training devices because the records are maintained by TDs rather than AZs. Since the 3-M system undergoes constant revision and change, a one-time training course is not satisfactory. CNET should develop and establish a course at suitable locations which is available to users of, and participants in, the 3-M system. This event is outside of the critical path and should be initiated as soon as possible.

EVENT 6. Revision of the TEMP is critical and will require a major portion of the time needed to complete implementation. The concept of the existing TEMP document is outstanding but the document is in need of revision. Since the revised system requires the incorporation of the TEMP in OPNAV Instruction 4790.2B, care must be exercised to insure the TEMP does not conflict with that document. The following major revisions are needed:

- The basic text contains numerous erroneous references and typographical errors. This portion of the revision should be addressed after the glossary and appendices are completed.
- Revise the Glossary of Definitions to insure compatibility among commands in their interpretation and use of terms.
- Revise appendix D, Work Center Codes. These codes are primarily designed for operational aircraft maintenance. As such they are not adequate in the surface/subsurface training device maintenance environment. In addition, for training devices the codes for aircraft work centers are too detailed. This causes confusion for the user in that training device maintenance work centers frequently combine functions which, in operational units, are distinct entities. Development of appropriate codes will be difficult and time consuming.
- Review and revise as necessary appendix I, Type Maintenance Codes. It will be necessary to review this appendix to insure the code explanations are in conformity with the revised definitions.
- Review and revise as necessary appendix P, Type Equipment Codes. The list of equipments requires review in two specific areas. First, are all equipments which meet the OPNAV criteria included in the list, and, second, is the RRC list correct? RRCs, particularly code "C," which specify the devices included in utilization reporting, should be reviewed with training device management personnel to verify which devices are required to be reported.
- Review and revise as necessary appendix S, Utilization Purpose Codes. Appendix S requires a review to insure the definitions given in the appendix are consistent with the glossary of definitions. To illustrate, the second character, codes A through H, indicates the device was used for familiarization. However, by definition the device must be turned on to be counted in the computation of utilization rates. In addition, the existing NAMS0 4790.A8092-01 refers to a possible nine numbers in the first character of the code, whereas the appendix lists only seven.

- Review and revise as necessary appendix T, Work Unit Codes. Work Unit Codes are designed to apply to operational aircraft. As such they are not necessarily descriptive of the modules in surface/subsurface trainers. In addition, they are not designed for the unique interrelationship of modules as they are assembled in training devices. The revision of these codes is a highly complex procedure which will require in input from both technical specialists (predominantly TDs) and maintenance administrators.

Work unit codes are not always consistent between different types of trainers. This must be corrected since it is one cause of confusion. This revision will require a significant expenditure of manpower resources and time.

- Review and revise appendix V, Student Identification Code. The codes are not sufficiently descriptive and should be expanded to include, at a minimum, the present list and, in addition, foreign students; teams, either officer, enlisted, or a combination; and, if other than Navy, the source of the student.

This may permit the elimination of appendix Q, Using Activity Codes.

EVENT 7. Review OPNAV Instruction 4790.2B, NAMP Manual. This manual is presently issued in five volumes. It is designed to facilitate and to provide direction for reporting operational aircraft data into the 3-M system. Training device utilization reporting was not envisioned at the time of its issuance. This manual requires an inordinate amount of interpretation by the reporting activity when utilization data are inserted in the 3-M data bank. To insure all commands report identically, and the data are consistent, the following minimum actions are necessary:

- Incorporate the revised TEMP into OPNAV Instruction 4790.2B as Volume VI.
- Review and revise Volume III to be consistent with Volume VI.
- Revise the basic cover letter to reflect these changes.

EVENT 8. Initiate a study to determine the most effective method of reporting cost data. Management has need of various types of training device operational cost data. Operational commands require the logistic support costs to prepare their annual budget submissions. Cost data concerning the operation of training devices is not presently available in one report. There is a need to disseminate acquisition costs, maintenance costs, and operating costs to interested commands. To include these data in the utilization report may expand it into an unmanageable document. A decision on how to report cost data is necessary prior to the completion of event 7. Since this study can be conducted at the same time as events 6 and 7, it will not affect the time to complete implementation.

EVENT 9. OPNAV Instruction 10171.4B is the directive which stipulates the requirement for utilization reporting and establishes criteria for the inclusion of specific training devices in the system. Minor revisions to this document are required. Subordinated instructions would be revised as needed.

EVENT 10. A basic problem in the existing utilization reporting system is its lack of flexibility (study conclusion 3). This is due, primarily, to the lack of feedback and the difficulty in executing data corrections. The IM should initiate a feedback study as soon as event 7 is completed.

Note: Path A does not include events 11, 12, and 13.

EVENT 14. The implementation date should be established in the revised OPNAV Instruction 10171.4B. This date should allow adequate time for affected commands to revise subordinate instructions and operational command personnel to become familiar with the changed procedures for and format of the report.

NAVTRAEQUIPCEN RESPONSIBILITY. Should the decision be made to place responsibility for utilization reporting, management, and report publication at the NAVTRAEQUIPCEN (Path B), the implementation plan will be slightly different. The severance of utilization from the maintenance reporting system will, in no way, affect existing maintenance reporting procedures. Table 9 is a tabulation of the Path B events. These events are highlighted with a prime (') to distinguish them from Path A events (see figure 3).

TABLE 9. EVENTS IN THE ACTION PHASE (NAVTRAEQUIPCEN)

| Event | Title                                                  | Action Command      | Supporting Command(s) | Approval Authority |
|-------|--------------------------------------------------------|---------------------|-----------------------|--------------------|
| 5'    | Develop and Establish 3-M Data Reporting System Course | CNATRA<br>CNTECHTRA | NAMSO                 | CNET               |
| 6'    | TEMP Review and Revision                               | CNET                | NTEC, NAMSO           | CNET               |
| 8'    | Perform Cost Data Reporting System Study               | CNET                | NTEC                  | CNO                |
| 11'   | Prepare CNET Instruction                               | CNET                | NTEC                  | CNET               |
| 9'    | Revise OPNAV instruction 10171.4B                      | CNO                 | CNET                  | CNO                |
| 12'   | Develop Utilization Reporting System                   | NTEC                | Local ADP Facilities  | CNET               |
| 13'   | Develop Utilization Reporting System Course            | CNATRA<br>CNTECHTRA | NTEC                  | CNET               |
| 14'   | Implementation                                         | CNET                |                       | CNO/CMC            |

EVENT 5'. This event is identical to event 5. It is, however, a slightly shorter course since utilization reporting will not be included.

EVENT 6'. This event is identical to event 6, with two exceptions. First, the TEMP will not become a section of OPNAVINST 4790.28, rather it will become an appendix to a CNET instruction. Second, the revised version of the TEMP will be devoted exclusively to utilization reporting. This means the document will require an in-depth review with some chapters and appendices being totally deleted.

Note: Path B does not include event 7'.

EVENT 8'. The study proposed as event 8 is identical to this event. However, the timing for completion is earlier. The results will be required prior to event 11' because, if the decision is made to include cost data reporting as a CNET responsibility, this fact should be incorporated in the CNET instruction (event 11'). This event should not affect the time needed to complete the action phase.

Note: Path B does not contain event 10'; event 9' follows event 11'.

EVENT 11'. Since CNET will be responsible for utilization reporting, it will be necessary to prepare an instruction delegating the task of collecting and analyzing the raw data and then of issuing and distributing the report. To preclude the issuance of a plethora of instructions, notices, and other amplifying directives, it is suggested that the instruction contain at least two appendices, one to describe the utilization report and one which is the revised TEMP.

This instruction may include the requirement for cost data reporting. Should this occur, the results of event 8' may appear as a third appendix.

EVENT 9'. This event is identical to event 9.

EVENT 12'. Develop a system for reporting utilization and cost data. Maximum use should be made of existing local ADP facilities. This event can be accomplished simultaneously with events 11' and 9'.

EVENT 13'. Just as it is necessary to educate the reporting activities in the uses of the 3-M system, so it is with the utilization reporting system. A short, probably 1 day, course on the utilization reporting system should be developed. This will not affect the completion time of the action phase.

EVENT 14'. This is identical to event 14.

GENERAL COMMENTS

TIME. The TEMP revision (events 6 and 6'), the review of OPNAVINST 4790.2B (event 7), the revision of OPNAVINST 10171.4B (events 9 and 9'), and the preparation of a CNET instruction (event 11') are the controlling tasks which will establish the time to completion. All other events can be accomplished in parallel with these. Events 6 and 6' are highly complex tasks which will require major coordination between the various operational commands, NAVTRAEQUIPCEN, and data processing facilities. The subject matter experts on the TEMP are at NAVTRAEQUIPCEN, and only they are in a position to make time estimates based on the complexity of the task.

COST. The IM should initiate the cost data reporting study (events 8 and 8') as soon as possible. It can, in fact, be started as early as the study to select the reporting system agent (event 3). This will insure it will not affect the overall time schedule.

TRAINING. Events 5, 5', and 13' require the development of training courses to be incorporated in the CNET inventory and listed in the Catalogue of Navy Training Courses (CANTRAC).

The proposed 3-M course is needed to insure familiarity with the 3-M reporting system whether NAMS0 retains responsibility for utilization reporting or not. Should NAMS0 retain the responsibility, the course will be slightly longer than if NAVTRAEQUIPCEN assumes this responsibility. It is important to recognize the fact that should NAMS0 assume the responsibility for cost data reporting, the course may require revision upon completion of events 8 and 8'.

Development of a utilization reporting system course (event 13) is required to insure all commands fully understand the need for as well as the procedures to be followed in utilization reporting. Should NAVTRAEQUIPCEN also assume responsibility for cost reporting, the course would include training for this.

TAEG Report No. 99

APPENDIX A

SAMPLE OF NAMSO REPORT 4790.A8092-01

NAVY MAINTENANCE AND MATERIAL MANAGEMENT  
INFORMATION SYSTEM

TRAINING DEVICE READINESS UTILIZATION SUMMARY  
FOR THE PERIOD NOV 79 THROUGH JAN 80

NAMSO 4790.A8092-01

27 FEB 80

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NAVSO 4790-48092-01  
PAGE 1 OF 2

# TECHNICAL NARRATIVE COVER SHEET

- A. REPORT TITLE. TRAINING DEVICE READINESS UTILIZATION SUMMARY.
- B. THIS REPORT PROVIDES MANAGEMENT WITH SUMMARY AND DETAIL READINESS AND UTILIZATION INFORMATION BY MAJOR COMMAND, TRAINING DEVICE AND INDIVIDUAL ACTIVITY. IT ALSO PROVIDES COMPARATIVE INFORMATION ON MAINTENANCE EFFORTS RELATED TO TRAINING DEVICE UTILIZATION.
- C. THE BASIC DATA USED IN THE ATTACHED REPORT WERE OBTAINED FROM REPORTS SUBMITTED UNDER THE NAVAL AVIATION MAINTENANCE AND MATERIAL MANAGEMENT SYSTEM #3-M SYSTEM. THE 3-M REPORT FORMS ANALYZED ARE
  1. SUPPORT ACTION FORM, OPNAV FORM 4790-42, RECORD TYPE 01.
  2. VIDS/MAF, OPNAV FORMS 4790/59 AND 4790/60, TRANSACTION CODES BEGINNING WITH 1, 2, 3 OR 4.
  3. MONTHLY EQUIPMENT DISCREPANCY AND UTILIZATION REPORT, SCIR-3, RECORD TYPE 79.
  4. TRAINING DEVICE UTILIZATION FORM, OPNAV FORM 4790/103.
- D. THIS REPORT IS SEQUENCED BY MAJOR COMMAND, TRAINING DEVICE, REPORTING ACTIVITY AND DEVICE SERIAL NUMBER.
- E. THE READINESS/UTILIZATION/MAINTENANCE SUMMARY LINES WILL BE PRECEDED BY A LINE OF INFORMATION CONTAINING THE TRAINING DEVICE MODEL/TYPE, AIRCRAFT/EQUIPMENT APPLICATION, NOMENCLATURE, DEVICE REPORTING ACTIVITY, DEVICE SERIAL NUMBER, UTILIZATION BASE AND FUNCTIONAL CAPACITY. ALL ELEMENTS EXCEPT AIRCRAFT/EQUIPMENT APPLICATION AND NOMENCLATURE ARE OBTAINED FROM THE TRAINING DEVICE UTILIZATION FORM. THE FOLLOWING IS AN EXPLANATION OF THESE DATA ELEMENTS
  1. TRAINING DEVICE MODEL/TYPE. THE DEVICE MODEL NUMBER IDENTIFIED BY THE TYPE EQUIPMENT CODE.
  2. AIRCRAFT/EQUIPMENT APPLICATION. THE AIRCRAFT/EQUIPMENT MODEL NUMBER SIMULATED BY THE TRAINING DEVICE.
  3. NOMENCLATURE. THE NOMENCLATURE FOR THE DEVICE.
  4. DEVICE REPORTING ACTIVITY. THE CUSTODIAN OF THE DEVICE.
  5. DEVICE SERIAL NUMBER. IDENTIFIES THE DEVICE BY SERIAL NUMBER.
  6. UTILIZATION BASE. THE METHOD USED TO RECORD UTILIZATION IN TIME, CYCLES OR HOURS.
  7. FUNCTIONAL CAPACITY. THE NUMBER OF POSITIONS IN THE DEVICE.
- F. EXPLANATION OF COLUMN HEADINGS.
  1. YMM. THIS REPRESENTS THE REPORTING PERIOD AND INCLUDES ALL DATA RECEIVED AT NAVSO WITH ACTION DATES PERTAINING TO THE YEAR/MONTH DISPLAYED.
  2. EIS HRS. #EQUIPMENT IN SERVICE HOURS. THE REPORTED IN SERVICE HOURS FOR THE TRAINING DEVICE AS INDICATED IN THE RECORD TYPE 79 FOR THE REPORTING PERIOD.
  3. MC HRS. #MISSION CAPABLE HOURS. THE EIS HOURS MINUS THE NOT MISSION CAPABLE HOURS DUE TO SCHEDULED MAINTENANCE, UNSCHEDULED MAINTENANCE AND SUPPLY REPORTED IN THE RECORD TYPE 79.
  4. FMC HRS. #FULL MISSION CAPABLE HOURS. THE EIS HOURS MINUS THE NOT MISSION CAPABLE AND PARTIALLY MISSION CAPABLE HOURS DUE TO SCHEDULED MAINTENANCE, UNSCHEDULED MAINTENANCE AND SUPPLY AS REPORTED IN THE RECORD TYPE 79.
  5. SUMMARY HOURS - SCH NMCM. #NMC HOURS DUE TO SCHEDULED MAINTENANCE. THE NUMBER OF NOT MISSION CAPABLE HOURS DUE TO SCHEDULED MAINTENANCE AS REPORTED IN THE RECORD TYPE 79.
  6. SUMMARY HOURS - UNSCH NMCM. #NMC HOURS DUE TO UNSCHEDULED MAINTENANCE. THE NUMBER OF NOT MISSION CAPABLE HOURS DUE TO UNSCHEDULED MAINTENANCE AS REPORTED IN THE RECORD TYPE 79.
  7. SUMMARY HOURS - NMCS. #NMC HOURS DUE TO SUPPLY. THE NUMBER OF NOT MISSION CAPABLE HOURS DUE TO SUPPLY AS REPORTED IN THE RECORD TYPE 79.

NAMSO 4790.A8092-01  
PAGE 2 OF 2

TECHNICAL NARRATIVE COVER SHEET

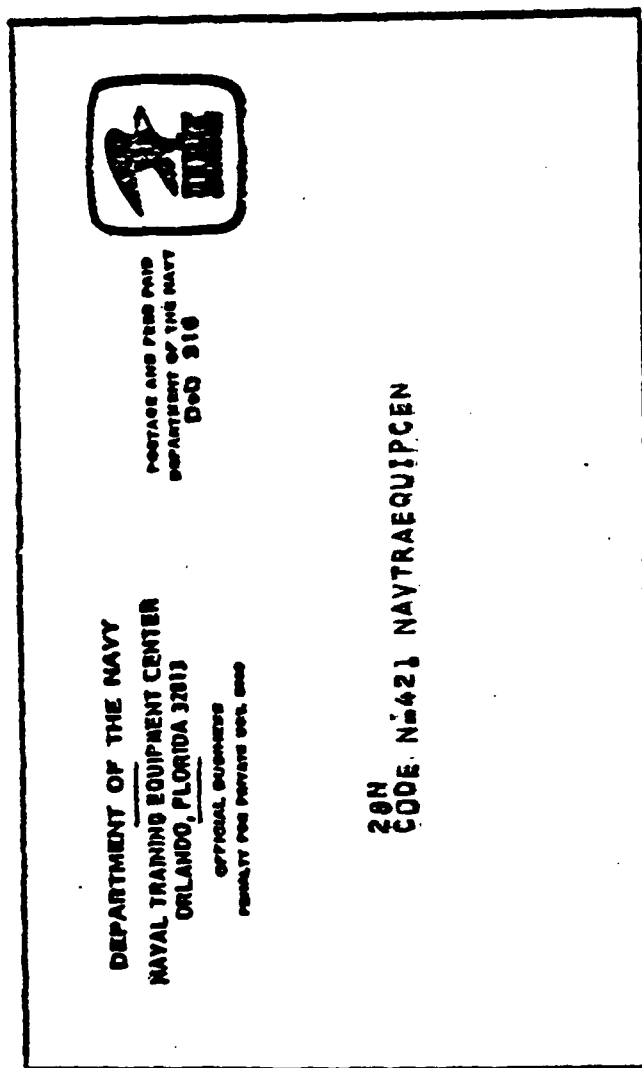
8. SUMMARY HOURS - PMC. #PMC HOURS DUE TO MAINTENANCE#. THE NUMBER OF PARTIALLY MISSION CAPABLE HOURS DUE TO MAINTENANCE AS REPORTED IN RECORD TYPE 79.
9. SUMMARY HOURS - PMCS. #PMC HOURS DUE TO SUPPLY#. THE NUMBER OF PARTIALLY MISSION CAPABLE HOURS DUE TO SUPPLY AS REPORTED IN RECORD TYPE 79.
10. DETAIL HOURS - SCH NMCM. #NMC HOURS DUE TO SCHEDULED MAINTENANCE#. THE NUMBER OF NOT MISSION CAPABLE HOURS DUE TO SCHEDULED MAINTENANCE AS REPORTED IN THE VIDS/MAF.
11. DETAIL HOURS - UNSCH NMCM. #NMC HOURS DUE TO UNSCHEDULED MAINTENANCE#. THE NUMBER OF NOT MISSION CAPABLE HOURS DUE TO UNSCHEDULED MAINTENANCE AS REPORTED IN THE VIDS/MAF.
12. DETAIL HOURS - NMCS. #NMC HOURS DUE TO SUPPLY#. THE NUMBER OF NOT MISSION CAPABLE HOURS DUE TO SUPPLY AS REPORTED IN THE VIDS/MAF.
13. DETAIL HOURS - PMC. #PMC HOURS DUE TO MAINTENANCE#. THE NUMBER OF PARTIALLY MISSION CAPABLE HOURS DUE TO MAINTENANCE AS REPORTED IN THE VIDS/MAF.
14. DETAIL HOURS - PMCS. #PMC HOURS DUE TO SUPPLY#. THE NUMBER OF PARTIALLY MISSION CAPABLE HOURS DUE TO SUPPLY AS REPORTED IN THE VIDS/MAF.
15. TOT DEV UTIL. #TOTAL DEVICE UTILIZATION#. TOTAL DEVICE HOURS FOR UTILIZATION PURPOSE CODES IN THE RANGE 1 THROUGH 9. DATA IS OBTAINED FROM RECORD TYPE 79.
16. TRN DEV HRS. #TRAINING DEVICE HOURS#. TRAINING DEVICE HOURS FOR UTILIZATION PURPOSE CODES IN THE RANGE 2 THROUGH 9. DATA IS OBTAINED FROM THE TRAINING DEVICE UTILIZATION FORM.
17. DMCM/DEV HR. #DIRECT MAINTENANCE MANHOURS PER DEVICE HOUR#. THE NUMBER OF MANHOURS REPORTED IN VIDS/MAF TRANSACTION CODES BEGINNING WITH 1, 2, 3 OR 4 DIVIDED BY THE NUMBER OF TOTAL DEVICE HOURS FOR UTILIZATION PURPOSE CODES IN THE RANGE 1 THROUGH 9. DATA IS OBTAINED FROM RECORD TYPE 79.
18. DMCM/STU HR. #DIRECT MAINTENANCE MANHOURS PER STUDENT HOUR#. THE NUMBER OF MANHOURS REPORTED IN VIDS/MAF TRANSACTION CODES BEGINNING WITH 1, 2, 3 OR 4 DIVIDED BY THE NUMBER OF TRAINING DEVICE HOURS FOR UTILIZATION PURPOSE CODES IN THE RANGE 2 THROUGH 9. DATA IS OBTAINED FROM THE TRAINING DEVICE UTILIZATION FORM.
19. SCH MAF DMCM. #SCHEDULED MAINTENANCE ACTION FORM DIRECT MAINTENANCE MANHOURS#. THE NUMBER OF MANHOURS REPORTED IN VIDS/MAF TRANSACTION CODES BEGINNING WITH 1, 2 OR 3 WHEN THE TYPE MAINTENANCE CODE IS D, E, G, H, J, K, M, P OR Q AND THE WORK CENTER IS LESS THAN 400 AND IN THE VIDS/MAF TRANSACTION CODE BEGINNING WITH 4 WHEN THE WORK CENTER IS LESS THAN 400.
20. UNSCH MAF DMCM. #UNSCHEDULED MAINTENANCE ACTION FORM DIRECT MAINTENANCE MANHOURS#. THE NUMBER OF MANHOURS REPORTED IN VIDS/MAF TRANSACTION CODES BEGINNING WITH 1, 2 OR 3 WHEN THE TYPE MAINTENANCE CODE IS OTHER THAN D, E, G, H, J, K, M, P OR Q AND THE WORK CENTER IS LESS THAN 400.
21. SCH SAF DMCM. #SCHEDULES SUPPORT ACTION FORM DIRECT MAINTENANCE MANHOURS#. THE NUMBER OF MANHOURS REPORTED IN VIDS/MAF TRANSACTION CODE 01 WHEN THE TYPE MAINTENANCE CODE IS OTHER THAN A, F, L, T OR U AND THE WORK CENTER IS LESS THAN 400.
22. UNSCH SAF DMCM. #UNSCHEDULED SUPPORT ACTION FORM DIRECT MAINTENANCE MANHOURS#. THE NUMBER OF MANHOURS REPORTED IN VIDS/MAF TRANSACTION CODE 01 WHEN THE TYPE MAINTENANCE CODE IS A, F, L, T OR U AND THE WORK CENTER IS LESS THAN 400.
23. ORG IML DMCM. #ORGANIZATIONAL INTERMEDIATE LEVEL DIRECT MAINTENANCE MANHOURS#. THE NUMBER OF MANHOURS REPORTED IN VIDS/MAF TRANSACTION CODE 01 OR TRANSACTION CODES BEGINNING WITH 1, 2, 3 OR 4 WHEN THE JOB CONTROL NUMBER ORGANIZATION IS THE SAME AS THE ACTION ORGANIZATION AND THE WORK CENTER IS 400 OR GREATER.
24. AIMA DMCM. #AVIATION INTERMEDIATE MAINTENANCE MANHOURS#. THE NUMBER OF MANHOURS REPORTED IN VIDS/MAF TRANSACTION CODE 01 OR TRANSACTION CODES BEGINNING WITH 1, 2, 3 OR 4 WHEN THE JOB CONTROL NUMBER ORGANIZATION IS DIFFERENT FROM THE ACTION ORGANIZATION AND THE WORK CENTER IS 400 OR GREATER.

TRAINING DEVICE READINESS UTILIZATION SUMMARY  
FOR THE PERIOD NOV 79 THROUGH JAN 80

[illegible]

TAEK Report No. 99

APPENDIX B  
SAMPLE OF NAVTRAEQUIPCEN REPORT 10171-4



NAVTRAERQUITCEN REPORT 10171-4  
(REV 8-75)

## TRAINING DEVICE UTILIZATION AND APPLICATION REPORT

|                                    |   |
|------------------------------------|---|
| EXPLOSIONS GREEN<br>BOMB-ONE TVAL. | Z |
| EXPLOSIONS GREEN<br>BOMB-TWO TVAL. | Z |
| EXPLOSIONS<br>BOMB TVAL.           | Y |
| BOMB<br>STATION 200                | X |
| ON 11 APR<br>BOMB GREEN 5 DAY      | W |
| ON 11 APR<br>BOMB GREEN 5 DAY      | V |
| ON 11 APR<br>ON 11 APR BOMB 5 DAY  | U |
| ON 11 APR<br>BOMB 5 DAY            | P |
| ON 11 APR BOMB GREEN               | O |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | N |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | M |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | L |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | K |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | J |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | I |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | H |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | G |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | F |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | E |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | D |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | C |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | B |
| EXPLOSIONS<br>ON 11 APR BOMB GREEN | A |

REPORT SYMBOL OMAV 10171-5A

This report is forwarded as specified in OTWAYBET 10171-hr. It contains a special computer printout of utilization and maintenance data on training devices held by commands subordinate to the addressee or on devices identified as within the area of interest of the addressee. The following explanations are provided to assist in interpreting the headings and data of each column in this report.

### TRAINING SERVICE UTILIZATION AND APPLICATION REPORT

| Column | Title and Definition                                                                                                                             | Column | Title and Definition                                                                                                                                                                                                                                                                                                                                              |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Device Number: Device designator as to training category and major function.                                                                     | N      | Student No Show/Cancellation: Total hours of scheduled training lost due to student no show or cancellation.                                                                                                                                                                                                                                                      |
| B      | Device Serial Number: Self-explanatory.                                                                                                          | N      | Maintenance: Total hours of scheduled training lost due to maintenance.                                                                                                                                                                                                                                                                                           |
| C      | Device Name: Self-explanatory.                                                                                                                   | O      | Scheduled Training Lost Due to: The code letters indicate the probable cause reason for lost scheduled training. (P) No Shows, (Q) cancellations (R) Maintenance, (A) External equipment not available or not operationally ready, (T) Qualified Instructor/Operator personnel not available, (U) Miscellaneous, i.e., utilization modification or other reasons. |
| E      | Training Hours Standard: Standard hours per month are established by Chief of Naval Operations or Commandant of the Marine Corps.                | P      | Total Hours Utilized Past 12 Months: Obtained by adding Column H for the past 12 months. This figure includes hours from current month's report.                                                                                                                                                                                                                  |
| F      | Training Hours Scheduled: Hours the device was scheduled to fulfill training requirements.                                                       | U      | Average Hours Utilization Per Month for Past 12 Months: Column P divided by 12.                                                                                                                                                                                                                                                                                   |
| G      | Hours Device Operationally Ready: This number is defined as the number of hours in the reporting period that the device was operationally ready. | V      | Average Percent of Training Hours Standard Accomplished Past 12 Months: Column U divided by Column P.                                                                                                                                                                                                                                                             |
| H      | Hours Device was Used for Training: Total hours the device was used for student training.                                                        | W      | Average Percent of Utilization: Based on training hours scheduled during the past 12 months.                                                                                                                                                                                                                                                                      |
| I      | Percentage of Training Hours Standard Accomplished: Column H divided by Column E.                                                                | X      | Coupled: Hours the device was coupled to another device for training purposes.                                                                                                                                                                                                                                                                                    |
| J      | Percent of Utilization Based on Training Hours Scheduled: Column H divided by Column F.                                                          | Y      | Total Hours of Maintenance for Current Month: Self-explanatory.                                                                                                                                                                                                                                                                                                   |
| K      | Individual Training Manhours: Total manhours of individual student training conducted on the device.                                             | Z1     | Total Manhours of Scheduled Maintenance for Current Month: Self-explanatory.                                                                                                                                                                                                                                                                                      |
| L      | Manhours of Crew/Team Training: Total manhours of crew/team training conducted on the device.                                                    | Z2     | Total Manhours of Unscheduled Maintenance for Current Month: Self-explanatory.                                                                                                                                                                                                                                                                                    |

## TRAINING DEVICE UTILIZATION AND APPLICATION REPORT

74

TAEG Report No. 99

APPENDIX C  
COMMANDS AND ACTIVITIES CONTACTED

## COMMANDS AND ACTIVITIES CONTACTED

### NAVY ACTIVITIES

Chief of Naval Operations  
(OP-29, OP-39, OP-59)  
Washington, DC

Chief of Naval Education and Training  
Pensacola, FL

Chief of Naval Reserves  
New Orleans, LA

Navy Fleet Ballistic Missile Submarine Training Center  
Charleston, SC

Fleet and Mine Warfare Training Center  
Charleston, SC

Fleet Training Center  
Mayport, FL

Fleet Aviation Specialized Operational Training Group, Atlantic  
NAS Oceana  
Virginia Beach, VA

Fleet Combat Training Center, Atlantic  
Dam Neck  
Virginia Beach, VA

Naval Amphibious School, Little Creek  
Norfolk, VA

HQ, Fleet Aviation Specialized Operational Training Group  
Atlantic Fleet  
Norfolk, VA

Fleet Anti-Submarine Warfare Training Center, Atlantic  
Norfolk, VA

Naval Aerospace Medical Institute  
Aviation Physiological Laboratory  
Pensacola, FL

Naval Technical Training Center  
Corry Station  
Pensacola, FL

Naval Regional Medical Center  
Physiological Training Unit  
Norfolk, VA

Naval Training Equipment Center  
Field Operations Division, Atlantic  
Norfolk, VA

Naval Training Equipment Center  
Field Operations Division, Central  
Pensacola, FL

Naval Aviation Schools Command  
Pensacola, FL

Naval Training Equipment Center  
Field Operations Division, Pacific  
San Diego, CA

Naval Training Equipment Center  
Orlando, FL

Aviation Training Activity  
NAS North Island  
San Diego, CA

Fleet Aviation Specialized Operational Training Group, Pacific  
NAS Miramar, CA

Fleet Training Center  
San Diego, CA

Naval Amphibious School  
Coronado, San Diego, CA

Fleet Anti-Submarine Warfare Training Center  
San Diego, CA

Fleet Combat Training Center, Pacific  
San Diego, CA

Submarine Training Facility  
San Diego, CA

Submarine Development Group - 1  
Ballast Point  
San Diego, CA

Deep Submergence School  
Ballast Point  
San Diego, CA

Naval Regional Medical Center  
Physiological Medical Facility  
NAS Miramar, CA

Fleet Aviation Specialized Operational Training Group, Pacific  
NAS North Island  
San Diego, CA

NAS Whiting Field  
Training Department  
Milton, FL

MARINE CORPS ACTIVITIES

Headquarters, U.S. Marine Corps  
Washington, DC

Training and Audiovisual Support Center  
MCAS Beaufort  
Beaufort, SC

Training and Audiovisual Support Center  
MCAS El Toro  
Santa Ana, CA

Training and Audiovisual Support Center  
MCAS Yuma  
Yuma, AR

TAEG Report No. 99

APPENDIX D  
FIELD SURVEY QUESTIONS

## FIELD SURVEY QUESTIONS

1. Do you receive either of the NAMS0 Reports?
  - a. 4790.A8092.01
  - b. 4790.A8092.02
2. Are either of these reports of any value?
3. If not, what are the major reasons?
  - a. Information out of date
  - b. Errors in the report data
  - c. Incomplete information
  - d. 3-M system not understood
  - e. Reporting system not compatible with training devices
  - f. Other
4. How do you check data submission for accuracy?
  - a. Do not check
  - b. NAMS0 reports
  - c. Error reports
  - d. Local ADP printout
5. Are your corrections incorporated?
  - a. Locally
  - b. NAMS0
6. Where do you submit utilization data?
  - a. Local ADP facility for transmission to NAMS0
  - b. Local command only
  - c. NTEC
  - d. Do not submit
7. Are you familiar with either of the OPNAV standards (140 hrs/mo or 4000 hrs/yr)?
8. Do you use a standard in computing utilization?
9. Where does this standard originate?
  - a. OPNAV
  - b. TYPCOM
  - c. Other
10. Do you think a standard is required?

11. What type of standard is required?
  - a. 24 hour day, 7 day week
  - b. Scheduled hours (goal for use for specific time frame)
  - c. Flexible estimated required time based on environment
  - d. Device availability
  - e. Other
12. How is availability defined in your command?
  - a. Scheduled hours
  - b. Local training requirements
  - c. Other
13. When is your device considered available?
  - a. Fully mission capable, fully manned
  - b. Fully mission capable
  - c. Mission capable for scheduled mission
  - d. Other
14. Are walk-ins included in scheduled training hours?
15. How do you define utilization?
  - a. Percentage of authorized hours the device was used exclusively for training
  - b. Percentage of authorized time the device was committed to training (includes briefing time)
  - c. Percentage of scheduled time the device was used exclusively for training
  - d. Percentage of scheduled time the device was committed to training (includes briefing time)
  - e. Percentage of the OPNAV standard the device was used for training
  - f. Other
16. Do you include maintenance and operator training in your utilization calculations?
17. Do you include trainer setup time in your reported utilization?
18. How is utilization reported in multi-station devices?
  - a. By individual student station
  - b. By device irrespective of number of manned stations
  - c. By student manhours
19. How is utilization reported for different devices operating in an integrated mode?
  - a. Each device individually whether or not used
  - b. Each device individually but only when used.

20. Do you use the NTEC issued TEMP document for the UPC codes?
21. Is the TEMP document satisfactory?
22. Are the WUCs in the NAMP instruction satisfactory?
23. Define unscheduled maintenance.
  - a. Anytime device is down due to casualty.
  - b. Anytime device is down outside of scheduled maintenance time.
24. Does time expended in preparing data for 3-M reports interfere with maintenance?

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