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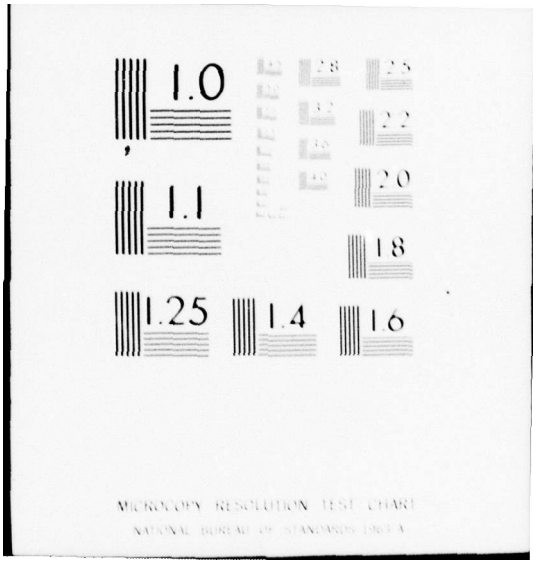
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DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM (DMPPS)

VOLUME 6 – REPORT GENERATOR SUBSYSTEM

by

Jean K. St. Laurent
Linda L. Lamatrice

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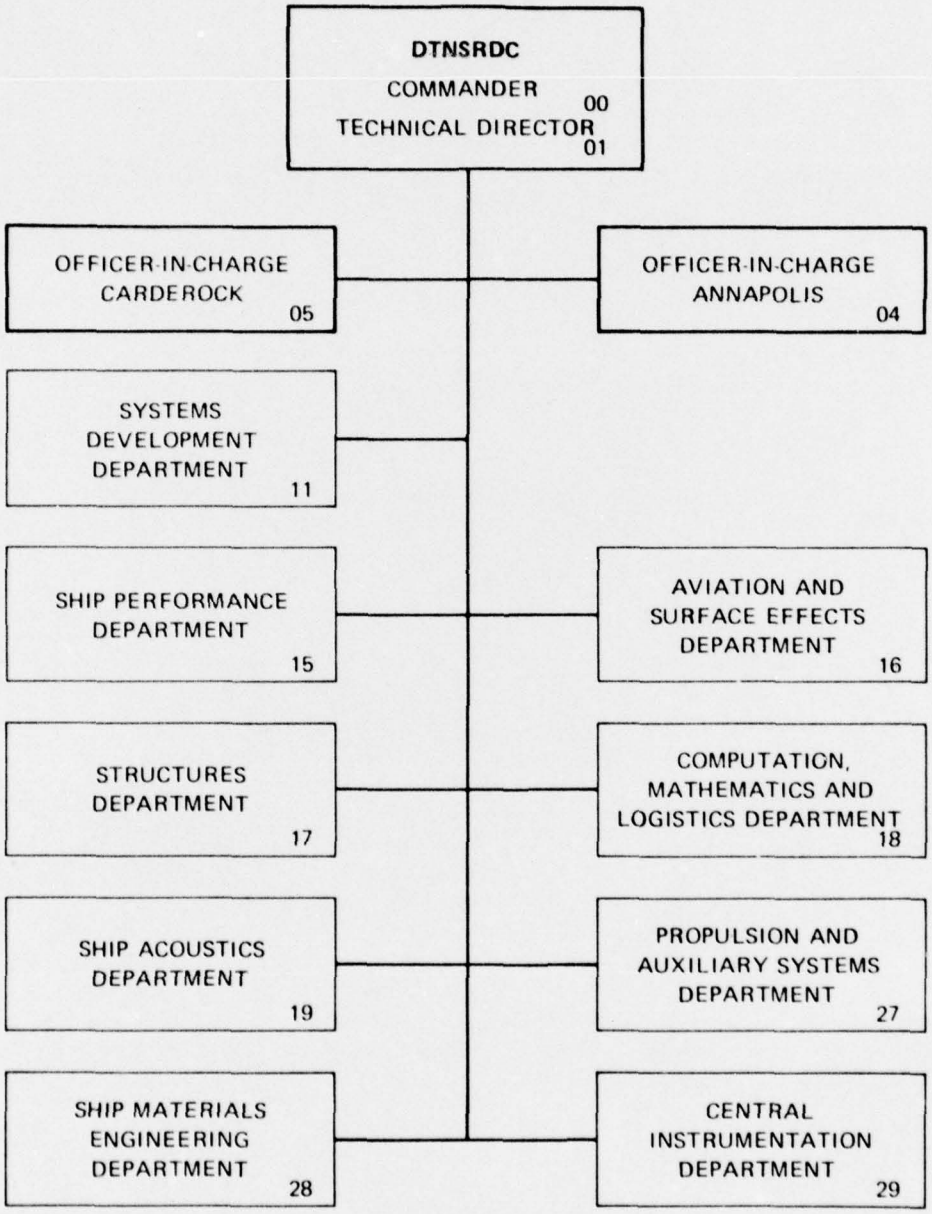

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The Depot Maintenance Planning and Programming System (DMPPS) is a large computer system developed over a period of two and a half years by the David W. Taylor Naval Ship Research and Development Center (DTNSRDC), Code 186 for the Naval Sea Systems Command (NAVSEA), Code 070T. The System was developed to project shipyard resource requirements (i.e., labor mandays and costs as

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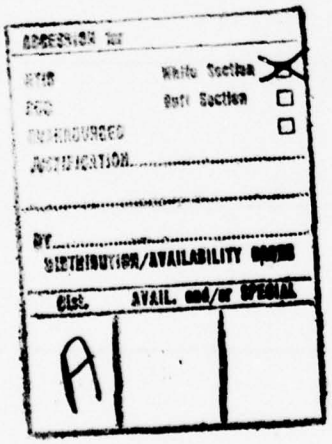
well as material costs) by shipyard production shop and by ship work breakdown structure (SWBS). It enables management to assess the impact on the shipyards and ship systems of

- Changes in depot-level maintenance/alterations policy,
- Major changes in force levels and/or composition, and
- Budgetary constraints.

DMPPS consists of a network of interdependent computer programs written in FORTRAN IV. It was developed at DTNSRDC using the CDC 6000 series computers and was subsequently converted for the IBM 360/370 series computers. It is now installed and operational at the NAVSEA 070 computer terminal (which accesses an IBM 370/168 computer). This document presents the IBM 360/370 version of the DMPPS program modules. The modules have been grouped into six subsystems. Each of Volumes 2-7 of this document describes, in detail, one of these subsystems. An executive summary of the entire DMPPS is presented in Volume 1. The content of the seven volumes is indicated as follows:

Volume 1 - Executive Summary
Volume 2 - Preprocessor Subsystem
Volume 3 - Alterations Subsystem
Volume 4 - Repair Subsystem
Volume 5 - Synthesizer Subsystem
Volume 6 - Report Generator Subsystem.
Volume 7 - Feedback Subsystem



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ABSTRACT

The Depot Maintenance Planning and Programming System (DMPPS) is a large computer system developed over a period of two and a half years by the David W. Taylor Naval Ship Research and Development Center (DTNSRDC), Code 186 for the Naval Sea Systems Command (NAVSEA), Code 070T. The System was developed to project shipyard resource requirements (i.e., labor mandays and costs as well as material costs) by shipyard production shop and by ship work breakdown structure (SWBS). It enables management to assess the impact on the shipyards and ship systems of

- Changes in depot-level maintenance/alterations policy
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DMPPS consists of a network of interdependent computer programs written in FORTRAN IV. It was developed at DTNSRDC using the CDC 6000 series computers and was subsequently converted for the IBM 360/370 series computers. It is now installed and operational at the NAVSEA 070 computer terminal (which accesses an IBM 370/168 computer). This document presents the IBM 360/370 version of the DMPPS program modules. The modules have been grouped into six subsystems. Each of Volumes 2-7 of this document describes, in detail, one of these subsystems. An executive summary of the entire DMPPS is presented in Volume 1. The content of the seven volumes is indicated as follows:

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Volume 7 - Feedback Subsystem

6. REPORT GENERATOR SUBSYSTEM

DoD Instruction 4151.15 imposed certain reporting requirements on depot level maintenance facilities. In particular it required cost and workload projections by Ship Work Breakdown Structure (SWBS) for the current and five succeeding fiscal years. SWBS is used to classify work with respect to its cause or purpose. The Report Generator Subsystem is the final module in the Depot Maintenance Programming and Planning System (DMPPS) and was designed to meet those requirements. The subsystem consists of four programs: REPSHOP, PREWBS, REPWBS, and REPMAT whose functions are to produce summary reports. Forecasting of work breakdown may be specified by SWBS, by Shop, or by SWBS-Shop Matrix reports. The program XPLODE (Volume 5 - Synthesizer Subsystem) generates files showing the distribution of projected workloads among the nine single-digit SWBS categories and the 20 shipyard production shop categories (19 shops and "other direct" work). The program PREWBS (Section 6.2) is a preprocessor that reads the SWBS File and a Group Definition Card Deck defining various ship groupings. Groups are identified by ship type and hull number range combinations and may encompass broad categories such as surface ships, amphibious ships, or carriers; or may specify a single ship type and hull number. The program PREWBS creates a file which has as a header record the ship group definition and contains all availabilities pertaining to those ships. The program REPWBS uses this file as input and, with a data deck containing material factors and manday rates, produces reports on projected direct labor mandays, direct labor dollars, and material dollars. Reports may be generated for all work in a given shipyard for designated ship groupings and fiscal years. Additional report options include ownership (Navy or private), coast (east or west), type of work (work on active ships, MAP (Military Assistance Program) work, NRT (Naval Reserve Training) work and conversion work) as well as a separation of repair and alteration work.

Reports produced by the program REPSHOP reflect projected workloads in the various production shops pertaining to repair work, alteration work, or their total. Reporting is done by shipyard, then within a

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yard by ship groups, and within groups by year. Input cards are used to define ship groupings. Workload projections may be formulated at both the shipyard and individual ship and ship group level.

The program REPMAT forecasts the distribution of work to be performed in both shops and SWBS categories by producing a matrix for a given shipyard, ship group, and year. The mandays are spread over the production shops and "other direct" categories and the nine single-digit SWBS categories and their totals, formulating a 10-by-20 matrix. Reports specify repair mandays, alteration mandays, or total mandays, according to input options.

6.1 PROGRAM REPSHOP

6.1.1 DESCRIPTION

REPSHOP is a report generator that produces summary reports of projected workloads to be performed in the various production shop categories. The 19 production shop categories referred to in these reports are as follows:

Shop Number	Shop Name
06	Central Tool Shop
11	Shipfitter Shop
17	Sheetmetal Shop
23	Forge Shop
26	Welding Shop
31	Inside Machine Shop
36	Weapons System Shop
38	Outside Machine Shop
41	Boiler Shop
51	Electric Shop
56	Pipe and Copper Shop
64	Woodworking Shop
65	Module Repair and Maintenance Facilities
67	Electronics Shop
71	Paint Shop
72	Rigging Shop
81	Foundry Shop
94	Patternmaker Shop
99	Temporary Service Shop

Those areas, in which productive work is performed, that are not covered by these categories are referred to as "other direct." The projections are for a period of five years and reflect total direct labor mandays for repairs and for alterations. The program uses as input the Shop File created by the program XPLODE (Volume 5 - Synthesizer Subsystem), a Group Definition Card Deck, and input cards defining report options.

Each record on the Shop File corresponds to a record on the Depot Maintenance Assignment File (DMAF). It contains the ship type and hull number, type of work, shipyard, sector, and fiscal year, as well as the 20 repair manday values and the 20 alteration manday values projected for the shipyard production shop categories. (The 19 shop categories and "other direct" will be referred to as the 20 shops.)

Shop 65 has been deleted from the matrix for reporting purposes, since Charleston Shipyard is the only yard that uses it. Historical data collected to date from Charleston showed no work in that shop. In the future, if work is projected for shop 65, it will be combined with shop 68.

Reports can be generated for repair mandays, for alteration mandays, or for the total of both. Any five fiscal years may be chosen. Selection of shipyard is made first and ship groupings are determined within a given yard. The desired years remain constant for all reports.

A Group Definition Card Deck defines the ship groupings which may be reported on. Since the user may define the ship groupings, there is great flexibility in levels of reporting. A group may consist of a single ship, a ship class, functional ship groupings, or any combination of these. Also since the Group Definitions are input values, it is quite simple to redefine groups, but this should not be necessary as provision has been made for 100 ship groupings. For each grouping there may be as many as six sets of lower and upper ship-type/hull-number range combinations. For example, surface combatants might be described by the following grouping: CG 4 through CGN 39, CV 19 through CVN 70, DD 714 through DDG 41, FF 1037 through FFG 7, and CVT 16 through CVT 16.

A group number is assigned to this grouping. This group number is compared to the one requested on the Yard Option card. If there is agreement, the ship type and hull number are examined. Those that fall within the grouping are reported on. The capability to select various groupings means that reports can be made on broad categories, such as all surface ships, or to the detail of a single ship type and hull number. In the sample run, work projected for all CGN's was desired. Therefore,

Group 1 was defined as CGN 1 through CGN 9999. Thus every hull number between 1 and 9999 was included. Group 2 consisted of one ship and was defined as CGN 35 through CGN 35.

A type A Yard Option card, the first of two to describe the various options, contains the shipyard name and the word "ALL" if the entire yard is to be reported on. To designate the type of work desired, the word "REP" for repairs, "ALT" for alterations, and "TOT" for total of repairs and alterations must be requested. Any combination of these options may be selected. In addition, the required years to be reported on are input on this card. The years do not have to be sequential.

The second Yard Option card, a type B card, contains the yard name and group numbers required for that yard. There may be 15 sets of Yard Option cards with as many as 25 groups per yard. A Yard Option Terminator card follows the final type B Yard Option card and contains the word "LAST." A sample input set-up is shown in Figure 6.1-1.

All yard information is read at the beginning of the program and is stored in arrays. The first record of each yard on the Shop File is examined. If that yard is not required, the entire yard is skipped. The subroutine SUM is called to process the data for each record in which the year and ship type are among those requested. As a yard is completed, subroutine REPORT is called and data are extracted for reports by year and group number. Figure 6.1-2 presents a hierarchical diagram of REPSHOP.

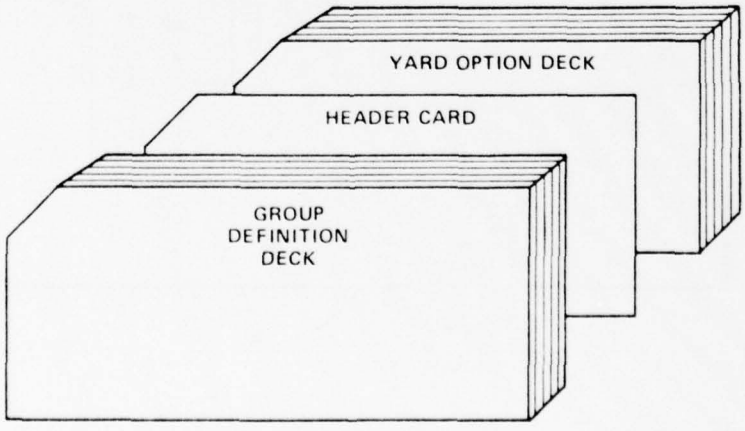


Figure 6.1-1 - Input Deck for REPSHOP

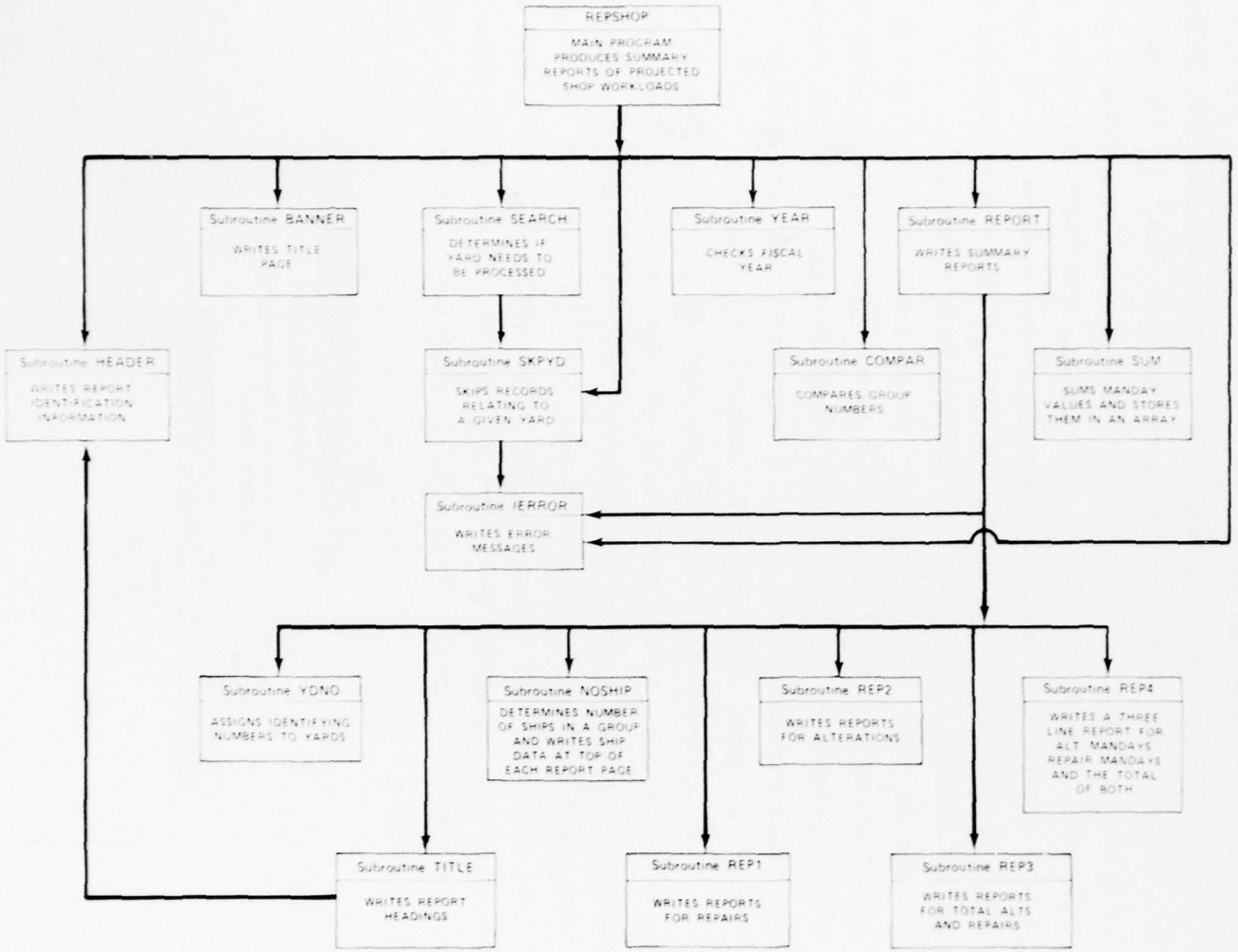


Figure 6.1-2 - REPSHOP Hierarchical Diagram

Main Program

The function of the main program is to collect data for summary reports of projected shop workloads for repairs, alterations, or the total of both. It uses as input the Shop File created by program XPLODE and input cards defining the report options. In addition, it creates a Group Definition Data Base from the Group Definition Card Deck.

Subroutine BANNER

This subroutine writes a title page with the words "SHOP REPORTS." The date and identifying information appear in the upper left corner.

Subroutine COMPAR

Subroutine COMPAR is called for each shop record whose fiscal year is among these requested. This subroutine compares the group numbers to be processed for a given shipyard with the array of group numbers in the Group Definition Data Base. If there is agreement, the ship type and hull number are examined to see that they fall within the lower and upper limits of any of the selected groupings. Matching group numbers are stored in the JGROUP array for use in subroutine REPORT. A flag is set if a match has been found and the data processing proceeds; otherwise an alternate return is made.

Subroutine HEADER

This subroutine writes report identification information in the upper left corner of each page and the page number on the right. Shop reports are identified by the number "61" followed by the yard number and type of report. Yard numbers are assigned in Subroutine YDNO and carried in the argument list as "ID."

The identifications for type of work are as follows:

01 for repairs
02 for alterations
03 for total of repairs and alterations
04 for all three options

Therefore 61-02-02 would represent a report of total alterations shop mandays for Long Beach.

Subroutine IERROR

Subroutine IERROR is called to indicate lack of data in any requested ship grouping. An error message is written on unit 7 and is not interspersed with the summary reports. When an end-of-file mark is encountered on the Ship File, a message is written and the program is terminated.

Subroutine NOSHIP

NOSHIP determines the number of ships in a given group and writes the ship type and hull numbers at the top of each report page.

Subroutine REPORT

Using the yard name, the options, and the arrays of data collected by other subroutines, subroutine REPORT extracts the data elements for the individual reports. Tests are made to ensure that there is data for each of the requested groups. If all work done in an entire yard has been calculated, it is stored as the first "group number" in the data array and must be extracted as such. The flag JOPT is used to determine the type of manday package required. When JOPT = 3, the manday values for repairs must be added to the manday values for alterations to give total mandays. The values for a given yard, group number, and year are transferred to the subroutines REP1, REP2, REP3, and REP4 for final output.

Subroutine REP1

Subroutine REP1 uses the repair mandays for a given yard, group number, and year as extracted by subroutine REPORT and writes them in a report format for repairs.

Subroutine REP2

Subroutine REP2 uses the alteration mandays for a given yard, group number, and year as extracted by subroutine REPORT and writes them in a report format for alterations.

Subroutine REP3

Subroutine REP3 uses the total of repairs and alteration mandays calculated in subroutine REPORT and presents them in a report format for total of alterations and repairs.

Subroutine REP4

Subroutine REP4 uses the alteration mandays, the repair mandays, and the total of repair and alteration mandays for a given yard, group number, and year and presents them as a three-line report.

Subroutine SEARCH

Subroutine SEARCH is used in determining whether a yard needs to be processed. The yard name read from the Shop File is compared with the array of yard names requested by input data. If there is no match, subroutine SKPYD is called to skip to the next yard and an alternate return is made.

Subroutine SKPYD

This subroutine is used to skip all records on the Shop File relating to a given yard. As each record is read, its yard name is compared to the name of the yard to be skipped. When a new yard name appears, the file is backspaced and the program continues.

Subroutine SUM

This subroutine sums the manday values and stores them according to group number and year in an array for repairs and an array for alterations. Subroutine SUM is called with one of three options: (1) to sum the values for given groups but not for an entire yard, (2) to sum the values for an entire yard but not for groups, (3) to sum the values for an entire yard as well as for given groups. Values are stored in two arrays, one for repairs and one for alterations. The first subscript refers to the group number, the second subscript refers to the year, and the third subscript refers to the 20 shops. If an entire yard is processed, the data for it are stored as the first "group number" in the array and later treated accordingly.

Subroutine TITLE

This subroutine is called by the subroutine REPORT with an argument designating identifying notation to be written with the data. The options are: (1) TOTAL DIRECT REPAIR MANDAYS BY SHOPS, (2) TOTAL DIRECT ALTERATION MANDAYS BY SHOPS, (3) TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SHOPS.

Subroutine YEAR

This subroutine checks the fiscal year for a given data record against the array of years requested by input. If there is no agreement, transfer is made to that portion of the program that reads the next data record from the Shop File.

Subroutine YDNO

Subroutine YDNO assigns a number to each yard for report identification. For example: Charleston is 01, Long Beach is 02. The subroutine argument "ID" is transferred to subroutine HEADER with this identifying number to be used for report identification.

6.1.2 RUN SET-UP

The following set-up is used to run the REPSHOP program on the IBM 360/370 computer:

```
//NVSREPS  JOB (XXXXXXXXXX,XXXXX),USER,CLASS=C,TIME=(,15),MSGLEVEL=1
//JOBLIB DD DSN=NVS01.DEPOT.LIB,DISP=SHR
// EXEC PGM=RESHOP
//GO.FT05F001  DD *
 ┌──────
 │
 │    REPSHOP card inputs (unit 5)
 │
 └──────
//GO.FT06F001 DD SYSOUT=A                                  (SHOP REPORTS)
//GO.FT07F001 DD SYSOUT=A                                 (ERROR MESSAGES)
//GO.FT11F001 DD DSN=NVS01.SHOP.EXPLODE.DATA,DISP=SHR      (INPUT FILE)
```

6.1.3 INPUTS

Card inputs are made using unit 5. The format for these cards is shown in Section 6.1.3.1.

Unit 5 - Card inputs which (1) define ship groups by setting lower and upper limits on ship type and hull number, (2) give identifying report information, (3) set the desired options and years required, (4) determine which yards and groups are to be reported on.

The following additional unit is used to input information from a disk file created by the program XPLODE:

Unit 11 - Shop File

The format for this file is given in Section 6.1.3.2.

6.1.3.1 Unit 5 - Card Inputs

Group Definition Cards. The Group Definition Deck describes the various ship groupings. Two cards, a type A and a type B, are required to define each group. There may be as many as 100 groups. A group definition terminator card follows the last type B group definition card.

Type A Group Definition Card

Variable Name	Description	Field	Format
IGRPNO(I)	Group Number	1-3	I3
GRPDEF(I,1,1)	Ship Set 1 Ship-Type/Hull-Number (Lower Bound)	9-16	A8
GRPDEF(I,1,2)	Ship Set 1 Ship-Type/Hull-Number (Upper Bound)	20-27	A8
GRPDEF(I,2,1)	Ship Set 2 Ship-Type/Hull-Number (Lower Bound)	33-40	A8
GRPDEF(I,2,2)	Ship Set 2 (Upper Bound)	44-51	A8
GRPDEF(I,3,1)	Ship Set 3 (Lower Bound)	57-64	A8
GRPDEF(I,3,2)	Ship Set 3 (Upper Bound)	68-75	A8

Type B Group Definition Card

Variable Name	Description	Field	Format
GRPDEF(I,4,1)	Ship Set 4 Ship-Type/Hull-Number (Lower Bound)	9-16	A8
GRPDFF(I,4,2)	Ship Set 4 Ship-Type/Hull-Number (Upper Bound)	20-27	A8
GRPDFF(I,5,1)	Ship Set 5 (Lower Bound)	33-40	A8
GRPDEF(I,5,2)	Ship Set 5 (Upper Bound)	44-51	A8
GRPDEF(I,6,1)	Ship Set 6 (Lower Bound)	57-64	A8
GRPDEF(I,6,2)	Ship Set 6 (Upper Bound)	68-75	A8

Group Definition Deck Terminator Card

Variable Name	Description	Field	Format
Terminator	Terminator of Ship Group Definition Deck (any negative number)	1-3	I3

Identification Card

Variable Name	Description	Field	Format
DATE	Date (mo/dy/yr)	1-12	3A4
COMENT	Comment	15-34	5A4

Yard Option Cards. There are two cards for each required yard: a type A card which describes the options and years and a type B card for requesting the group numbers. A Yard Option terminator card follows the final type B Option card.

Type A Yard Option Card

Variable Name	Description	Field	Format
IYDSFL	Yard name	1-5	A5
ALL	The punch characters "ALL" will sum entire yard	8-10	A3
REP	The punch characters "REP" will compute repairs only	13-15	A3
ALT	The punch characters "ALT" will compute alterations only	18-20	A3
TOTAL	The punch characters "TOT" will compute total of repairs and alterations	23-25	A3
IYEAR(1)	2-digit year	30-31	I2
IYEAR(2)	2-digit year	33-34	I2
IYEAR(3)	2-digit year	36-37	I2
IYEAR(4)	2-digit year	39-40	I2
IYEAR(5)	2-digit year	42-43	I2

Type B Yard Option Card

Variable Name	Description	Field	Format
IYDSEL	Yard name	1-5	A5
IYDGRP(1-25)	Group numbers to be processed	7-80	15(1X,I2)

Yard Option Terminator Card

Variable Name	Description	Field	Format
LAST	End card of input data	1-5	A5

Figure 6.1-1 gives an example of an input deck for REPSHOP.

6.1.3.2 Unit 11 - Shop File

The Shop File is a binary file, so the format presented is to be used as a guide to indicate the size of the variables. No Shop File is created for private yards. The following format is used for each record on the Shop File:

Variable Name	Description	Position	Format
ISHULL	Ship type and hull number	1	(A8)
ITYPWK	Type work	2	(A3)
IYD	Yard	3	(A5)
IGROUP	Group number (set = 0)	4	(I3)
IFYR	Fiscal year (this record)	5	(I2)
OWN	Yard ownership indicator	6	(A1)
COAST	Coast	7	(A1)
IPERD	Period (this record)	8	(A1)
ICONT	Continuation indicator	9	(A1)
ISTRT	Availability start date (mo/dy/yr)	10	(I6)
IEND	Availability end date (mo/dy/yr)	11	(I6)
ISPEC	Specialization category	12	(A3)
SVALP(1-20)	Total direct repair mandays for shops	13-32	(20F10.2)
SVALA(1-20)	Total direct alteration mandays for shops	33-52	(20F10.2)
IDAYS	Production shop productive (PSP) mandays this period	53	(I7)
IPERCT	Percent of PSP mandays for alterations	54	(I3)

6.1.4 OUTPUTS

The following units are used by REPSHOP for generating hard-copy output:

Unit 6 - Summary shop reports

Unit 7 - Error messages

Section 6.1.7 shows a sample of these outputs.

6.1.5 PROGRAM LISTING

```
C*****PROGRAM REPSHOP(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT,TAPE11,      ****  10
C****1  TAPE7)                                                           ****  20
C                                                                        REPS  30
C       PROGRAMMER JEAN ST LAURENT  CODE 1863                            REPS  50
C       WRITTEN JAN 1976                                                 REPS  60
C       REPSHOP IS A REPORT GENERATOR FOR TOTAL DIRECT LABOR MANDAYS      REPS  61
C         BY SHOPS                                                       REPS  62
C                                                                        REPS  63
C       SHOP DATA IS REPORTED FIRST BY YARD                              REPS  64
C                        WITHIN A YARD BY GROUP                          REPS  65
C                         AND WITHIN A GROUP BY YEAR                     REPS  66
C                                                                        REPS  70
C       THERE ARE 4 OPTIONS FOR OUTPUT OF SHOP DATA                      REPS  80
C           REPAIRS, ONLY              - INPUT AS REP - USED AS IOPT = 1 REPS  90
C           ALTS, ONLY                 - INPUT AS ALT - USED AS IOPT = 2 REPS 100
C           TOTAL OF ALTS AND REPAIRS - INPUT AS TOT - USED AS IOPT = 3  REPS 110
C           REPAIRS, ALTS AND TOTALS                 - USED AS IOPT = 4  REPS 120
C                                                                        REPS 130
C           DATA MAY BE PRODUCED FOR SELECTED GROUPS OF SHIP CLASSES     REPS 140
C           THERE IS ALSO A PROVISION TO SUM ALL DATA FOR A YARD         REPS 150
C             IALL = 1                                                   REPS 160
C                                                                        REPS 170
C           DATA IS REPORTED BY YEAR AND THE YEARS REQUIRED              REPS 180
C               ARE INPUT AS - IYEAR                                     REPS 190
C                                                                        REPS 200
C                                                                        REPS 210
C       TAPE ASSIGNMENTS                                                 REPS 220
C         TAPE5 - INPUT - CARDS                                          REPS 230
C         TAPE6 - OUTPUT                                                 REPS 240
C         TAPE7 - OUTPUT - ERRORS, ONLY                                  REPS 250
C         TAPE11 - INPUT OF SHOP DATA FILE CREATED BY PROGRAM XPLODE      REPS 260
C                                                                        REPS 270
      REAL*8 GRPDEF, IYDSEL, IYD, LAST,IYDP, ISHULL, D8LANK              **** 280
C                                                                        REPS 290
      INTEGER GRPDEF                                                     REPS 300
      COMMON/IDATA/ GRPDEF(100,6,2), IYDSEL(15)                          REPS 320
      COMMON/WORK/ ARRAYR(25,5,20),ARRAYA(25,5,20),SVALR(20), SVALA(20)  REPS 330
      COMMON/REP/ ISHIP(100,6,2), IHULL(100,6,2)                         REPS 350
      COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), NGROUP(25)      REPS 360
      COMMON/IDENT/COMENT(5), DATE(3)                                    REPS 370
      COMMON/VAL/VALR(20), VALA(20), VALT(20)                            REPS 380
      DIMENSION NYEARS(15), IYEAR(15,5), IYDYR(5)                        REPS 390
      DIMENSION IGRPNO(100),NGRPS(25), IALL(15), IOPT(15)                REPS 410
C                                                                        REPS 450
      DATA LAST/5HLAST /                                                 REPS 460
      DATA ZREP/3HREP/                                                   REPS 470
      DATA ZALT/3HALT/                                                   REPS 480
      DATA ZTOT/3HTOT/                                                   REPS 490
      DATA ZALL/3HALL/                                                   REPS 500
      DATA D8LANK/8H        /                                          REPS 503
C                                                                        REPS 510
C        INITIAL CONDITIONS                                              REPS 520
      IYDP = D8LANK                                                      REPS 530
C                                                                        REPS 540
C          ZERO OUT ARRAYS                                               REPS 550
```

```
      DO 15 I = 1, 25                                                    REPS 560
      DO 10 J = 1,15                                                     REPS 570
      DO 5 K = 1,5                                                       REPS 580
      IYDGRP(J,I) = 0                                                    REPS 590
      IYDSEL(J) = DBLANK                                                 REPS 600
      NGRPS(I) = 0                                                       REPS 610
      IYEAR(J,K) = 0                                                     REPS 620
    5 CONTINUE                                                           REPS 630
   10 CONTINUE                                                           REPS 640
   15 CONTINUE                                                           REPS 650
C                                                                        REPS 660
C          READ GROUP DEFINITION CARD DECK.                              REPS 670
C                                                                        REPS 680
      DO 30 I = 1, 100                                                   REPS 690
      READ(5,100) IGRPNO(I), (GRPDEF(I,J,1),GRPDEF(I,J,2),J=1,3),       REPS 710
     1  IGRPNO(I),((ISHIP(I,K,L),IHULL(I,K,L),L=1,2),K=1,3)             REPS 720
  100 FORMAT(I3, 3(5X,A8,3X,A8), T1,I3, T9,A4, T13,A4, T20,A4,T24,A4,    REPS 730
     1  T33,A4, T37,A4, T44,A4, T48,A4, T57,A4, T61,A4, T68,A4, T72,A4)  REPS 740
C                                                                        REPS 750
C          TEST FOR TERMINATOR                                           REPS 760
C                                                                        REPS 770
      IF(IGRPNO(I).LT.0) GO TO 35                                        REPS 780
      READ(5,100) IDUMMY,    (GRPDEF(I,J,1),GRPDEF(I,J,2),J=4,6),       REPS 790
     1  IDUM1,    ((ISHIP(I,K,L),IHULL(I,K,L),L=1,2),K=4,6)             REPS 800
C                                                                        REPS 805
C        THIS SECTION REPLACES BLANKS WITH ZEROS (FOR CDC ONLY)          REPS 810
C*****DO 25 J = 1,6                                                      **** 820
C*****DO 20 K = 1,2                                                      **** 830
C*****GRPDEF(I,J,K) = ICBZ(GRPDEF(I,J,K))                                **** 840
C**20 CONTINUE                                                           **** 850
C**25 CONTINUE                                                           **** 860
   30 CONTINUE                                                           REPS 870
C                                                                        REPS 880
C          READ HEADER CARD                                              REPS 890
C                                                                        REPS 900
   35 READ(5,101) DATE, (COMENT(I),I=1,5)                                REPS 910
  101 FORMAT(3A4, 2X, 5A4)                                               REPS 920
C                                                                        REPS 930
C          READ YARD CARDS WITH OPTIONS AND REQUIRED YEARS               REPS 940
C                                                                        REPS 950
      DO 40 I = 1, 15                                                    REPS 960
      III = I                                                            REPS 970
      READ(5,102) IYDSEL(I), ALL,    REP,ALT,TOTAL, (IYEAR(I,J),J=1,5)   REPS 980
  102 FORMAT(A5, 4(2X,A3), 4X, 5(I2,1X))                                 REPS 990
      IF(IYDSEL(I).EQ.LAST) GO TO 45                                     REPS1000
C                                                                        REPS1010
C          SET FLAG FOR VARIOUS OPTIONS                                  REPS1020
C                                                                        REPS1030
      IOPT(I) = 0                                                        RESP1035
      IALL(I) = 0                                                        REPS1038
      IF(REP.EQ.ZREP) IOPT(I) = 1                                        REPS1040
      IF(ALT.EQ.ZALT) IOPT(I) = 2                                        REPS1050
      IF(TOTAL.EQ.ZTOT) IOPT(I) = 3                                      REPS1060
      IF(REP.EQ.ZREP .AND. ALT.EQ.ZALT .AND.TOTAL.EQ.ZTOT) IOPT(I)=4     REPS1070
      IF(ALL.EQ.ZALL) IALL(I) = 1                                        REPS1080
C                                                                        REPS1085
C          READ GROUP SELECTION CARDS GIVING WHICH OF THE GROUP          REPS1090
C            NUMBERS (IGRPNO) ARE TO BE PROCESSED FOR EACH YARD          REPS1100
C          THIS CARD IS THE 2ND OF THE PAIR WITH YARD SELECTION CARD     REPS1110
C                                                                        REPS1120
```

```
      READ(5,103) IYDSEL(I),  (IYDGRP(I,J),J=1,25)                      REPS1130
  103 FORMAT(A5, 25(1X,I2))                                             REPS1140
   40 CONTINUE                                                          REPS1150
      NYDS = III                                                        REPS1160
      GO TO 48                                                          REPS1170
   45 NYDS = III - 1                                                    REPS1180
   48 IDONE = NYDS                                                      REPS1190
C                                                                       REPS1195
C      DETERMINE NUMBER OF GROUPS PER YARD TO BE PROCESSED              REPS1200
      DO 60 I = 1, NYDS                                                 REPS1210
      DO 50 J = 1, 25                                                   REPS1220
      JJ = J                                                            REPS1230
      IF(IYDGRP(I,J) .EQ. 0) GO TO 55                                   REPS1240
   50 CONTINUE                                                          REPS1250
      NGRPS(I) = JJ                                                     REPS1260
      GO TO 60                                                          REPS1270
   55 NGRPS(I) = JJ - 1                                                 REPS1280
   60 CONTINUE                                                          REPS1290
C                                                                       REPS1300
C     DETERMINE NUMBER OF YEARS (NYEARS) TO BE PROCESSED FOR EACH YARD  REPS1310
C                                                                       REPS1320
      DO 75 I = 1,NYDS                                                  REPS1330
      DO 65 J = 1,5                                                     REPS1340
      JJ = J                                                            REPS1350
      IF(IYEAR(I,J) .EQ.0) GO TO 70                                     REPS1360
   65 CONTINUE                                                          REPS1370
      NYEARS(I) = JJ                                                    REPS1380
      GO TO 75                                                          REPS1390
   70 NYEARS(I) = JJ - 1                                                REPS1400
   75 CONTINUE                                                          REPS1410
      CALL HEADER(1,IDUM2,IDUM2)                                        REPS1420
      CALL BANNER                                                       REPS1430
C                                                                       REPS1440
C           INITIALIZE FLAGS FOR EACH YARD  AND ZERO OUT ARRAYS         REPS1450
   80 IFIRST = 0                                                        REPS1460
      DO 95 I = 1,25                                                    REPS1470
      DO 90 J = 1,5                                                     REPS1480
      DO 85 K = 1,20                                                    REPS1490
      ARRAYR(I,J,K) = 0.0                                               REPS1500
      ARRAYA(I,J,K) = 0.0                                               REPS1510
      MGROUP(I) = 0                                                     REPS1520
      KGROUP(I) = 0                                                     REPS1530
      JGROUP(I) = 0                                                     REPS1535
      IYDYR(J) = 0                                                      REPS1540
   85 CONTINUE                                                          REPS1550
   90 CONTINUE                                                          REPS1560
   95 CONTINUE                                                          REPS1570
C                                                                       REPS1580
C                                                                       REPS1590
C      READ SHOP RECORD                                                 REPS1600
C*200 READ(11) ISHULL, ITYPWK,IYD, IGROUP, IFYR, OWN, COAST, IPERD,     ****1610
C****1  ICONT, ISTRT, IEND, ISPEC, (SVALR(K),K=1,20), (SVALA(K),K=1,20),****1620
C****2  IDAYS, IPERCT                                                   ****1630
  200 READ(11,END=255) ISHULL,ITYPWK,IYD,IGROUP,IFYR, OWN,COAST,IPERD,  ****1640
     1  ICONT, ISTRT, IEND, ISPEC, (SVALR(K),K=1,20), (SVALA(K),K=1,20),****1650
     2  IDAYS, IPERCT                                                  ****1660
C*****IF(EOF(11) .NE. 0) GO TO 255                                      ****1670
      IF(IFIRST.EQ.0) GO TO 210                                         REPS1680
      DO 205 I = 1,25                                                   REPS1690
      MGROUP(I) = 0                                                     REPS1700
```

```
  205 CONTINUE                                                          REPS1710
      IF(IYDP.NE.IYD) GO TO 250                                         REPS1720
      GO TO 230                                                         REPS1730
  210 IFIRST = 1                                                        REPS1740
      IYDP = IYD                                                        REPS1750
C                                                                       REPS1760
C           SEE IF THIS YARD NEEDS TO BE PROCESSED                      REPS1770
C                                                                       REPS1780
C*215 CALL SEARCH(IYD,NYDS,II ), RETURNS(80)                            ****1790
  215 CALL SEARCH(IYD,NYDS,II, $80)                                     ****1800
C                                                                       REPS1810
C                                                                       REPS1820
C        SET OPTION FOR THIS YARD                                       REPS1830
      JOPT = IOPT(II)                                                   REPS1840
C           IF ALL RECORDS ARE TO BE PROCESSED, SET KOPT                REPS1850
      KOPT = IALL(II)                                                   REPS1860
C                                                                       REPS1870
C           DETERMINE ARRAY OF YEARS PER YARD (IYDYR)                   REPS1880
C                                                                       REPS1890
      NYEAR = NYEARS(II)                                                REPS1900
      DO 220 K = 1, NYEAR                                               REPS1910
      IYDYR(K) = IYEAR(II, K)                                           REPS1920
  220 CONTINUE                                                          REPS1930
C                                                                       REPS1940
C           DETERMINE NUMBER OF GROUPS FOR THIS YARD  (NGROUP)          REPS1950
C                                                                       REPS1960
      NGROUP = NGRPS(II)                                                REPS1970
      IF(NGROUP.EQ.0) GO TO 230                                         REPS1980
      DO 225 K = 1, NGROUP                                              REPS1990
      KGROUP(K) = IYDGRP(II, K)                                         REPS2000
  225 CONTINUE                                                          REPS2010
C                                                                       REPS2020
C           CHECK TO SEE IF THIS YEARS DATA IS REQUIRED                 REPS2030
C                                                                       REPS2040
  230 CALL YEAR(IFYR, IYDYR,$200)                                       ****2050
C*230 CALL YEAR(IFYR, IYDYR), RETURNS(200)                              ****2060
C           IF THERE IS NO MATCH ON YEAR, READ NEXT SHOP RECORD         REPS2070
      IF(NGROUP.GT.0) GO TO 240                                         REPS2080
C                                                                       REPS2090
C           IF NO GROUPS ARE TO BE PROCESSED, CHECK ON ENTIRE YARD      REPS2100
C                                                                       REPS2110
      IF(KOPT.EQ.1) GO TO 235                                           REPS2120
      CALL SKPYD(IYD)                                                   REPS2130
      GO TO 80                                                          REPS2140
C                                                                       REPS2150
C           IF NO GROUPS HAVE BEEN SELECTED FOR THIS YARD BUT ENTIRE YARDREPS2160
C             IS TO BE PROCESSED - CALL SUM                             REPS2170
C                                                                       REPS2180
  235 KK = 1                                                            REPS2190
      CALL SUM(NGROUP,IFYR,KK,IYDYR,KOPT)                               REPS2200
      GO TO 200                                                         REPS2210
C                                                                       REPS2220
C           CHECK ON GROUP NUMBERS TO BE PROCESSED                      REPS2225
C                                                                       REPS2250
C*240 CALL COMPAR(ISHULL,IGRPNO,NGROUP), RETURNS(242)                   ****2260
  240 CALL COMPAR(ISHULL,IGRPNO,NGROUP, $242)                           ****2270
C                                                                       REPS2280
C           IN ADDITION TO GROUPS, ENTIRE YARD IS TO BE PROCESSED       REPS2290
      IF(KOPT.EQ.1) GO TO 245                                           REPS2300
      KK = 0                                                            REPS2310
```

```
      CALL SUM(NGROUP,IFYR,KK,IYDYR,KOPT)                                REPS2320
      GO TO 200                                                          REPS2330
C          IF THERE IS NO MATCH ON GROUP NUMBER, CHECK IF ENTIRE         REPS2331
C              YARD IS TO BE PROCESSED                                   REPS2332
  242 IF(KOPT.EQ.1) GO TO 235                                            REPS2340
      GO TO 200                                                          REPS2350
  245 KK = 2                                                             REPS2360
      CALL SUM(NGROUP,IFYR,KK,IYDYR,KOPT)                                REPS2370
      GO TO 200                                                          REPS2380
C                                                                        REPS2385
C          AT END OF YARD, PROCESS DATA FOR THAT YARD                    REPS2390
  250 CONTINUE                                                           REPS2400
C                                                                        REPS2410
C          REPORT IS THE REPORT SUMMARIZER FOR REPAIRS, ONLY             REPS2420
C              ALTS, ONLY                                                REPS2430
C              TOTAL OF REPAIRS AND ALTS                                 REPS2440
C                                                                        REPS2450
      CALL REPORT(IYDP,NGROUP,MYEAR,JOPT,IYDYR, KOPT)                    REPS2460
C                                                                        REPS2470
      IDONE = IDONE - 1                                                  REPS2480
      IF(IDONE.EQ.0) STOP                                                REPS2490
      BACKSPACE 11                                                       REPS2492
      GO TO 80                                                           REPS2494
C                                                                        REPS2500
C        END OF FILE MARK WAS READ - PROCESS DATA                        REPS2501
  255 CALL REPORT(IYDP,NGROUP,MYEAR,JOPT,IYDYR, KOPT)                    REPS2502
      CALL IERROR(1,IDUM,IYDP)                                           REPS2504
      STOP                                                               REPS2510
      END                                                                REPS2520
```

```
      SUBROUTINE BANNER                                                  BANN  10
C                                                                        BANN  20
C          SUBROUTINE TO PRINT BANNER PAGE                               BANN  30
C                                                                        BANN  40
      WRITE(6,100)                                                       BANN  50
  100 FORMAT(///, 27X, 79(1HX) //,                                       BANN  60
     1  28X, 77H XXXX  X   X   XXX   XXXX     XXXX   XXXXX  XXXX    XXX BANN  70
     2  XXXX   XXXXX   XXXX /                                           BANN  80
     3  28X, 77HX      X   X  X   X  X   X    X   X  X      X   X  X   XBANN  90
     4  X   X    X    X     /                                          BANN 100
     5  28X, 77HX      X   X  X   X  X   X    X , X  X      X   X  X   XBANN 110
     6  X   X    X    X     /                                          BANN 120
     7  28X, 77H XXX   XXXXX  X   X  XXXX     XXXX   XXXX   XXXX   X   XBANN 130
     8  XXXX     X     XXX  /                                          BANN 140
     9  28X, 77H    X  X   X  X   X  X        X X    X      X      X   XBANN 150
     A  X X      X        X /                                         BANN 160
     B  28X,77H    X  X   X  X   X  X        X  X   X      X      X   X BANN 170
     C X  X      X        X /                                         BANN 180
     D 28X, 77HXXXX   X   X   XXX   X        X   X  XXXXX  X       XXX  BANN 190
     E X   X    X    XXXX  //                                         BANN 200
     F  27X, 79(1HX) / )                                              BANN 210
      RETURN                                                           BANN 220
      END                                                              BANN 230
```

```
C*****SUBROUTINE COMPAR(ISHULL,IGRPNO, NGROUP), RETURNS(NONE)          **** 10
      SUBROUTINE COMPAR(ISHULL,IGRPNO, NGROUP,*)                      **** 20
C                                                                     COMP 21
C        SUBROUTINE TO DETERMINE IF THIS SHIP TYPE AND HULL NUMBER    COMP 22
C          FALL WITHIN THE RANGE OF A REQUESTED SHIP GROUPING         COMP 23
C                                                                     COMP 24
      INTEGER GRPDEF                                                  COMP 30
      REAL*8 GRPDEF, IYDSEL, IYD, ISHULL                              **** 40
      COMMON/IDATA/ GRPDEF(100,6,2), IYDSEL(15)                       COMP 50
      COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), NGROUP(25)   COMP 70
      DIMENSION IGRPNO(100)                                           COMP 90
C                                                                     COMP 100
      IFLAG = 0                                                       COMP 110
C                                                                     COMP 120
C        CHECK GROUP NUMBERS TO BE PROCESSED FOR THIS YARD(KGROUP)    COMP 130
C          AGAINST GROUP NUMBER OF GROUP DEFINITION DATA BASE (IGRPNO) COMP 140
      DO 40 K = 1, NGROUP                                             COMP 170
      DO 30 I = 1,100                                                 COMP 190
      IF(IGRPNO(I) .NE. KGROUP(K)) GO TO 30                           COMP 200
C                                                                     COMP 210
C          CHECK SHIP AND HULL RANGE                                  COMP 220
      DO 20 J = 1,6                                                   COMP 230
C**** IF(ISHULL.GE. GRPDEF(I,J,1) .AND. ISHULL.LE.GRPDEF(I,J,2))      COMP 240
C****1       GO TO 10                                                 **** 250
C        REVERSE THE TEST ON THE 360                                  COMP 252
      IF(ISHULL.LE. GRPDEF(I,J,1) .AND. ISHULL.GE.GRPDEF(I,J,2))      **** 254
     1       GO TO 10                                                 **** 256
      GO TO 20                                                        COMP 260
C                                                                     COMP 270
C          NGROUP IS AN ARRAY OF MATCHED GROUPS FOR THIS RECORD       COMP 280
C          JGROUP IS AN ARRAY OF MATCHED GROUPS FOR THIS YARD         COMP 290
C                                                                     COMP 300
   10 NGROUP(K) = IGRPNO(I)                                           COMP 310
      JGROUP(K) = NGROUP(K)                                           COMP 320
      IFLAG = 1                                                       COMP 330
   20 CONTINUE                                                        COMP 340
   30 CONTINUE                                                        COMP 350
   40 CONTINUE                                                        COMP 360
      IF(IFLAG.EQ.1) RETURN                                           COMP 370
C                                                                     COMP 380
C          IF NONE OF THE GROUP NUMBERS MATCH, ALTERNATE RETURN THAT  COMP 390
C            CHECKS ON PROCESSING ENTIRE YARD                         COMP 400
C*****RETURN NONE                                                     **** 410
      RETURN 1                                                        **** 420
      END                                                             COMP 430
```

```
      SUBROUTINE HEADER(NOPG,ID,JOPT)                                   HEAD  10
C                                                                       HEAD  20
C        SUBROUTINE TO WRITE REPORT IDENTIFICATION AND NUMBER PAGES      HEAD  30
C                                                                       HEAD  40
      COMMON/IDENT/COMENT(5), DATE(3)                                   HEAD  50
      IF(NOPG.GT.1) GO TO 10                                            HEAD  60
      IPAGE = 0                                                         HEAD  70
      WRITE(6,100) DATE,COMENT                                          HEAD  80
  100 FORMAT(1H1, 2X, 4HDATE, 2X, 3A4, /, 3X, 5A4)                      HEAD  90
      RETURN                                                            HEAD 100
   10 IF(ID.NE.IDP) IPAGE = 0                                           HEAD 110
      IPAGE = IPAGE + 1                                                 HEAD 120
      IDP = ID                                                          HEAD 130
      WRITE(6,101) ID,JOPT,DATE,IPAGE,COMENT                            HEAD 140
  101 FORMAT(1H1, 2X, 12HREPORT# 61-0,I1, 1H-, I1, 2X, 5HDATE#, 1X,     HEAD 150
     1  3A4, 80X, 4HPAGE, I4,/ 3X, 5A4)                                 HEAD 160
      RETURN                                                            HEAD 170
      END                                                               HEAD 180
```

```
      SUBROUTINE IERROR(N,IDUMMY,IDBL)                                  IERR  10
C                                                                       IERR  20
C           SUBROUTINE TO PRINT ERROR MESSAGES                          IERR  30
C                                                                       IERR  35
      REAL*8 IDBL                                                       **** 40
C                                                                       IERR  45
      GO TO (10,20,30), N                                               IERR  50
   10 WRITE(7,100) IDBL                                                 IERR  60
  100 FORMAT( 1X, 37H * * END OF FILE ENCOUNTERED IN YARD , A5)         IERR  70
      STOP                                                              IERR  80
   20 WRITE(7,101) IDBL                                                 IERR  90
  101 FORMAT( 1X, 50H * * * ERROR IN GROUP NUMBERS - NO MATCH FOR YARD ,IERR 100
     1  A5)                                                            IERR 110
      RETURN                                                            IERR 120
   30 WRITE(7,102) IDUMMY, IDBL                                         IERR 130
  102 FORMAT( 1X, 25H * * * NO SHIPS IN GROUP , I3, 1X, 4HFOR , A5)     IERR 140
      RETURN                                                            IERR 150
      END                                                               IERR 160
```

```
      SUBROUTINE NOSHIP(JJ)                                              NOSH  10
C                                                                        NOSH  20
C        SUBROUTINE TO DETERMINE THE NUMBER OF SHIPS PER GROUP           NOSH  30
C            AND PRINT SHIP AND HULL VALUES                              NOSH  40
C                                                                        NOSH  50
      COMMON/REP/ ISHIP(100,6,2), IHULL(100,6,2)                         NOSH  70
C                                                                        NOSH  80
      REAL*8 ISHULL                                                      ****  90
C                                                                        NOSH 100
      DATA IBLANK/4H                                                     NOSH 110
      L = 1                                                              NOSH 120
      DO 10 KK = 1,6                                                     NOSH 130
      KKK = KK                                                           NOSH 140
      IF(ISHIP(JJ,KK,L) .EQ.IBLANK) GO TO 12                             NOSH 150
   10 CONTINUE                                                           NOSH 160
      GO TO 15                                                           NOSH 165
   12 KKK = KKK - 1                                                      NOSH 168
   15 IF(KKK.GT.3) GO TO 20                                              NOSH 170
      MM = KKK                                                           NOSH 180
      WRITE(6,102) ((ISHIP(JJ,KK,L), IHULL(JJ,KK,L),L=1,2),KK=1,MM)      NOSH 190
      RETURN                                                             NOSH 200
   20 MM = 3                                                             NOSH 210
      WRITE(6,102) ((ISHIP(JJ,KK,L), IHULL(JJ,KK,L),L=1,2),KK=1,MM)      NOSH 220
      MM = KKK                                                           NOSH 230
      WRITE(6,102) ((ISHIP(JJ,KK,L), IHULL(JJ,KK,L),L=1,2),KK=4,MM)      NOSH 240
  102 FORMAT(1H , 30X, 3(A4,1X,A4,1X,1H-,1X,A4,1X,A4,4X))                NOSH 250
      RETURN                                                             NOSH 260
      END                                                                NOSH 270
```

```
      SUBROUTINE REPORT(IYD, NGROUP, MYEAR, JOPT, IYDYR, KOPT)          REPT  10
C                                                                       REPT  20
C          SUBROUTINE TO PROCESS DATA FOR REPAIRS, ALTS,                REPT  30
C              AND TOTAL OF REPAIRS AND ALTS                            REPT  40
C                                                                       REPT  50
      REAL*8 IYD                                                        ****  60
C                                                                       REPT  65
      COMMON/WORK/ ARRAYR(25,5,20),ARRAYA(25,5,20),SVALR(20), SVALA(20) REPT  70
      COMMON/REP/ ISHIP(100,6,2), IHULL(100,6,2)                        REPT  90
      COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), MGROUP(25)     REPT 100
      COMMON/VAL/VALR(20), VALA(20), VALT(20)                           REPT 110
      DIMENSION IYDYR(5)                                                REPT 120
C                                                                       REPT 130
C                                                                       REPT 140
C          ASSIGN YARD NUMBER FOR REPORT IDENTIFICATION                 REPT 150
C                                                                       REPT 160
      CALL YDNO(IYD, ID)                                                REPT 170
C                                                                       REPT 180
C          IF ENTIRE YARD  HAS BEEN PROCESSED (KOPT = 1)    IT IS      REPT 190
C            STORED AS THE 1ST GROUP IN THE ARRAY                       REPT 200
C                                                                       REPT 210
      IF(KOPT.NE.1) GO TO 5                                             REPT 220
      NGROUP = NGROUP + 1                                               REPT 230
C                                                                       REPT 240
C                                                                       REPT 250
C        NGROUP IS THE NUMBER OF GROUPS FOR THIS YARD                   REPT 260
C        JGROUP  IS THE ARRAY OF GROUP NUMBERS THAT MATCH               REPT 270
C            FOR THIS YARD                                              REPT 280
C                                                                       REPT 290
    5 DO 80 J = 1,NGROUP                                                REPT 300
C                                                                       REPT 310
C          TEST IF ENTIRE YARD (BUT NO GROUPS) IS TO BE PROCESSED       REPT 320
      IF(NGROUP.EQ.1) GO TO 10                                          REPT 330
      IF(KOPT.EQ.1 .AND. J.EQ.1) GO TO 10                               REPT 334
      LL = J - KOPT                                                     REPT 336
      JJ = JGROUP(LL)                                                   REPT 340
C                                                                       REPT 350
C          CHECK IF THERE ARE MATCHING SHIPS IN EACH REQUIRED GROUP      REPT 360
C                                                                       REPT 370
      IF(JJ.NE.0) GO TO 10                                              REPT 380
      KK = KGROUP(LL)                                                   REPT 390
      CALL IERROR(3,KK,IYD)                                             REPT 400
      GO TO 80                                                          REPT 410
   10 CALL TITLE(JOPT, ID)                                              REPT 420
      WRITE(6,100) IYD                                                  REPT 430
  100 FORMAT(1H , 60X, 5HYARD:, 1X, A5,/)                               REPT 440
      IF(KOPT.EQ.1 .AND. J.EQ.1) GO TO 15                               REPT 450
      WRITE(6,101) JGROUP(LL)                                           REPT 460
  101 FORMAT(1H , 44X, 24HSUMMATION FOR GROUP NO. , I2,                 REPT 470
     1  16H - CONSISTING OF )                                          REPT 480
      IF(JOPT.EQ.4) GO TO 12                                            REPT 482
      WRITE(6,105)                                                      REPT 484
C                                                                       REPT 490
C          DETERMINE THE NUMBER OF SHIPS PER GROUP FOR PRINTOUT         REPT 500
C                                                                       REPT 510
   12 CALL NOSHIP(JJ)                                                   REPT 520
      WRITE(6,105)                                                      REPT 530
  105 FORMAT(1H )                                                       REPT 540
      GO TO 20                                                          REPT 550
```

```
   15 WRITE(6,106)                                                    REPT 560
  106 FORMAT(1H , 51X, 28HSUMMATION FOR AN ENTIRE YARD, /)            REPT 570
C                                                                     REPT 580
C                                                                     REPT 590
C          MYEAR IS THE NUMBER OF YEARS FOR THIS YARD                 REPT 600
C                                                                     REPT 610
   20 DO 75 I = 1, MYEAR                                              REPT 620
C                                                                     REPT 630
C        JOPT = 1  COMPUTE REPAIRS, ONLY                              REPT 640
C        JOPT = 2  COMPUTE ALTS, ONLY                                 REPT 650
C        JOPT = 3  COMPUTE TOTAL OF REPAIRS AND ALTS                  REPT 660
C        JOPT = 4  COMPUTE REPAIRS, ALTS, AND TOTAL                   REPT 670
C                                                                     REPT 680
      GO TO (25,35,45,25), JOPT                                       REPT 690
   25 DO 30 L = 1, 20                                                 REPT 700
      VALR(L) = ARRAYR(J,I,L)                                         REPT 710
   30 CONTINUE                                                        REPT 720
      IF(JOPT.EQ.4) GO TO 35                                          REPT 730
      GO TO 55                                                        REPT 740
   35 DO 40 L = 1, 20                                                 REPT 750
      VALA(L) = ARRAYA(J,I,L)                                         REPT 760
   40 CONTINUE                                                        REPT 770
      IF(JOPT.EQ.4) GO TO 45                                          REPT 780
      GO TO 55                                                        REPT 790
   45 DO 50 L = 1, 20                                                 REPT 800
      VALT(L) = ARRAYR(J,I,L) + ARRAYA(J,I,L)                         REPT 810
   50 CONTINUE                                                        REPT 820
   55 IF(I.EQ.4) GO TO 60                                             REPT 830
      GO TO 70                                                        REPT 840
   60 CALL TITLE(JOPT,ID)                                             REPT 850
      WRITE(6,100) IYD                                                REPT 860
      IF(KOPT.EQ.1 .AND. J.EQ.1) GO TO 65                             REPT 870
      WRITE(6,101) JGROUP(LL)                                         REPT 880
      IF(JOPT.EQ.4) GO TO 62                                          REPT 882
      WRITE(6,105)                                                    REPT 884
   62 CALL NOSHIP(JJ)                                                 REPT 890
      WRITE(6,105)                                                    REPT 900
      GO TO 70                                                        REPT 910
   65 WRITE(6,106)                                                    REPT 920
   70 WRITE(6,107) IYDYR(I)                                           REPT 930
  107 FORMAT(1H , 60X, 9HFISCAL 19, I2,/, T62, 11H----------, /)      REPT 940
      IF(JOPT.EQ.1) CALL REP1                                         REPT 950
      IF(JOPT.EQ.2) CALL REP2                                         REPT 960
      IF(JOPT.EQ.3) CALL REP3                                         REPT 970
      IF(JOPT.EQ.4) CALL REP4                                         REPT 980
   75 CONTINUE                                                        REPT 990
   80 CONTINUE                                                        REPT1000
      RETURN                                                          REPT1010
      END                                                             REPT1020
```

```
      SUBROUTINE REP1                                                   REP1  10
C                                                                       REP1  20
C        SUBROUTINE TO PRINT REPAIR VALUES                              REP1  30
C                                                                       REP1  40
      COMMON/VAL/VALR(20), VALA(20), VALT(20)                           REP1  50
      DIMENSION ISHP(19)                                                REP1  60
      DATA ISHP/6, 11, 17, 23, 26, 31, 36, 38, 41, 51, 56, 64, 67,      REP1  70
     1   71, 72, 81, 94, 99, 3HOTH /                                    REP1  80
C                                                                       REP1  81
      TOTR = 0.                                                         REP1  82
      DO 10 I = 1,20                                                    REP1  83
      TOTR = TOTR + VALR(I)                                             REP1  84
   10 CONTINUE                                                          REP1  85
      WRITE(6,100) (ISHP(K),K=1,10), (VALR(M),M=1,10),                  REP1  90
     1  (ISHP(K), K=11,19), (VALR(M),M=11,12), (VALR(N),N=14,20), TOTR  REP1 100
  100 FORMAT(1H ,18X,10(1X,6HSHOP# ,I2,1X)/T20,10(1X,2(4H----), 1X) /,  REP1 110
     1  2X, 14HREPAIR MANDAYS, 3X, 10(F9.0,1X), ///T20, 8(1X,6HSHOP# ,  REP1 120
     2  I2,1X), (3X,A4),5X,5HTOTAL, /, T20,10(1X,2(4H----), 1X)/, 2X,   REP1 130
     3 14HREPAIR MANDAYS, 3X, 10(F9.0,1X) /// )                         REP1 140
      RETURN                                                            REP1 150
      END                                                               REP1 160
```

```
      SUBROUTINE REP2                                                   REP2  10
C                                                                       REP2  20
C        SUBROUTINE TO PRINT ALT VALUES                                 REP2  30
C                                                                       REP2  40
      COMMON/VAL/VALR(20), VALA(20), VALT(20)                           REP2  50
      DIMENSION ISHP(19)                                                REP2  60
      DATA ISHP/6, 11, 17, 23, 26, 31, 36, 38, 41, 51, 56, 64, 67,      REP2  70
     1   71, 72, 81, 94, 99, 3HOTH /                                    REP2  80
C                                                                       REP2  81
      TOTA = 0.                                                         REP2  82
      DO 10 I = 1,20                                                    REP2  83
      TOTA = TOTA + VALA(I)                                             REP2  84
   10 CONTINUE                                                          REP2  85
      WRITE(6,100) (ISHP(K),K=1,10), (VALA(M),M=1,10),                  REP2  90
     1  (ISHP(K), K=11,19), (VALA(M),M=11,12), (VALA(N),N=14,20), TOTA  REP2 100
  100 FORMAT(1H ,22X,10(1X,6HSHOP# ,I2,1X)/T24,10(1X,2(4H----), 1X) /,  REP2 110
     1  2X, 18HALTERATION MANDAYS, 3X, 10(F9.0,1X),/// T24,             REP2 120
     2  8(1X,6HSHOP# ,I2,1X), (3X,A4) ,5X,5HTOTAL/,                    REP2 130
     3  T24,10(1X,2(4H----), 1X)/, 2X,                                 REP2 135
     3  18HALTERATION MANDAYS, 3X, 10(F9.0,1X) /// )                   REP2 140
      RETURN                                                            REP2 150
      END                                                               REP2 160
```

```
      SUBROUTINE REP3                                                    REP3  10
C                                                                        REP3  20
C        SUBROUTINE TO PRINT TOTAL OF REPAIR AND ALT VALUES              REP3  30
C                                                                        REP3  40
      COMMON/VAL/VALR(20), VALA(20), VALT(20)                            REP3  50
      DIMENSION ISHP(19)                                                 REP3  60
      DATA ISHP/6, 11, 17, 23, 26, 31, 36, 38, 41, 51, 56, 64, 67,       REP3  70
     1   71, 72, 81, 94, 99, 3HOTH /                                     REP3  80
C                                                                        REP3  81
      TOT = 0.                                                           REP3  82
      DO 10 I = 1,20                                                     REP3  83
      TOT = TOT + VALT(I)                                                REP3  84
   10 CONTINUE                                                           REP3  85
      WRITE(6,100) (ISHP(K),K=1,10), (VALT(M),M=1,10),                   REP3  90
     1  (ISHP(K), K=11,19), (VALT(M),M=11,12), (VALT(N),N=14,20),TOT     REP3 100
  100 FORMAT(1H ,22X,10(1X,6HSHOP# ,I2,1X)/                             REP3 110
     1  5X, 12HTOTAL REPAIR, 6X, 10(1X,2(6H----), 1X) /,                 REP3 120
     2 3X, 16HAND ALT. MANDAYS, 4X, 10(F9.0,1X), ///, T24,               REP3 130
     3  8(1X,6HSHOP# ,I2,1X), (3X,A4),  5X, 5HTOTAL /,                  REP3 140
     4  5X, 12HTOTAL REPAIR, 6X, 10(1X,2(6H----), 1X) /,                 REP3 150
     5 3X, 16HAND ALT. MANDAYS, 4X, 10(F9.0,1X), /// )                   REP3 160
      RETURN                                                             REP3 170
      END                                                                REP3 180
```

```
      SUBROUTINE REP4                                                    REP4  10
C                                                                        REP4  20
C           SUBROUTINE TO PRINT REPAIR VALUES, ALT VALUES AND TOTAL OF   REP4  30
C             ALTS AND REPAIRS                                           REP4  40
C                                                                        REP4  50
      COMMON/VAL/VALR(20), VALA(20), VALT(20)                            REP4  60
      DIMENSION ISHP(19)                                                 REP4  70
      DATA ISHP/6, 11, 17, 23, 26, 31, 36, 38, 41, 51, 56, 64, 67,       REP4  70
     1   71, 72, 81, 94, 99, 3HOTH /                                     REP4  79
C                                                                        REP4  80
C**10 READ(11) ISHULL, ITYPWK, IYD                                       ****  70
      TOTR = 0.                                                          REP4  81
      TOTA = 0.                                                          REP4  82
      TOT = 0.                                                           REP4  83
      DO 10 I = 1,20                                                     REP4  84
      TOTR = TOTR + VALR(I)                                              REP4  85
      TOTA = TOTA + VALA(I)                                              REP4  86
      TOT = TOT + VALT(I)                                                REP4  87
   10 CONTINUE                                                           REP4  88
      WRITE(6,100) (ISHP(K),K=1,10), (VALR(M),M=1,10)                    REP4 100
  100 FORMAT(1H , 22X,10(1X,6HSHOP# , I2,1X)/, T24, 10(1X, 2(4H----),1X)REP4 110
     1  /, 2X, 14HREPAIR MANDAYS, 7X, 10(F9.0,1X))                      REP4 120
      WRITE(6,101) (VALA(M),M=1,10)                                      REP4 130
  101 FORMAT(1H , 1X, 18HALTERATION MANDAYS, 3X, 10(F9.0,1X))            REP4 140
      WRITE(6,102) (VALT(M),M=1,10)                                      REP4 150
  102 FORMAT(1H 1X, 13HTOTAL MANDAYS, 8X, 10(F9.0,1X),// )               REP4 160
      WRITE(6,103) (ISHP(K), K=11,19), (VALR(M), M=11,12),               REP4 170
     1  (VALR(N),N=14,20), TOTR                                         REP4 175
  103 FORMAT(1H , 22X, 8(1X,6HSHOP# , I2,1X) ,   3X,A4, 5X,5HTOTAL/,     REP4 180
     1 T24, 10(1X,2(4H----),1X) /, 2X, 14HREPAIR MANDAYS,                REP4 190
     2  7X, 10(F9.0,1X))                                                REP4 200
      WRITE(6,101) (VALA(M),M=11,12), (VALA(N),N=14,20), TOTA            REP4 210
      WRITE(6,102) (VALT(M), M=11,12), (VALT(N),N=14,20), TOT            REP4 220
      RETURN                                                             REP4 230
      END                                                                REP4 240
```

```
C*****SUBROUTINE SEARCH(IYD,NYDS,III), RETURNS(NOYD)                    ****  10
      SUBROUTINE SEARCH(IYD,NYDS,III,*)                                ****  20
      INTEGER GRPDEF                                                   SEAR  40
C                                                                      SEAR  25
      REAL*8 GRPDEF, IYDSEL, IYD                                       ****  30
C                                                                      SEAR  35
      COMMON/IDATA/ GRPDEF(100,6,2), IYDSEL(15)                        SEAR  60
C                                                                      SEAR  70
C        SUBROUTINE TO DETERMINE IF THIS YARD NEEDS TO BE PROCESSED    SEAR  80
C                                                                      SEAR  90
    5 DO 10 III = 1,NYDS                                               SEAR 100
      IF(IYD.EQ. IYDSEL(III)) RETURN                                   SEAR 110
   10 CONTINUE                                                         SEAR 120
C                                                                      SEAR 130
C          IF THIS YARD ISNT REQUIRED, SKIP TO NEXT YARD               SEAR 140
      CALL SKPYD(IYD)                                                  SEAR 150
C*****RETURN NOYD                                                      **** 160
      RETURN 1                                                         **** 170
      END                                                              SEAR 180
```

```
      SUBROUTINE SKPYD(IYD)                                            SKPY  10
C                                                                      SKPY  20
C          SUBROUTINE TO SKIP AN ENTIRE YARD                           SKPY  30
C                                                                      SKPY  40
      REAL*8 IYD, IYDP, ISHULL                                         **** 50
C                                                                      SKPY  55
      IYDP = IYD                                                       SKPY  60
   10 READ(11) ISHULL, ITYPWK, IYD                                     SKPY  70
C*****IF(EOF(11).NE.0) GO TO 20                                        **** 80
   10 READ(11,END=20) ISHULL, ITYPWK, IYD                              **** 90
      IF(IYD.EQ.IYDP) GO TO 10                                         SKPY 100
      BACKSPACE 11                                                     SKPY 110
      RETURN                                                           SKPY 120
   20 CALL IERROR(1,IDUM,IYDP)                                         SKPY 130
      END                                                              SKPY 140
```

```
      SUBROUTINE SUM(NGROUP,IFYR,KK,IYDYR,KOPT)                          SUMM  10
C                                                                        SUMM  20
C        SUBROUTINE TO SUM AND STORE SHOP ALT AND REPAIR DATA ACCORDING  SUMM  30
C          TO GROUP AND YEAR                                             SUMM  40
C                                                                        SUMM  50
      COMMON/WORK/ ARRAYR(25,5,20),ARRAYA(25,5,20),SVALR(20), SVALA(20)  SUMM  60
      COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), MGROUP(25)      SUMM  70
      DIMENSION IYDYR(5)                                                 SUMM  80
C                                                                        SUMM  90
C           IF THE SUBROUTINE IS CALLED WITH                             SUMM 100
C             KK = 0  DONT SUM ENTIRE YARD                               SUMM 110
C             KK = 1  NO GROUPS, BUT SUM ENTIRE YARD                     SUMM 120
C             KK = 2  SUM ENTIRE YARD IN ADDITION TO GROUPS              SUMM 130
C                                                                        SUMM 140
C                                                                        SUMM 150
C        CHECK YEAR WITH ARRAY OF YEARS REQUIRED FOR THIS YARD AND       SUMM 160
C            SAVE SUBSCRIPT                                              SUMM 170
      DO 10 I = 1,5                                                      SUMM 180
      IF(IFYR.EQ.IYDYR(I)) GO TO 15                                      SUMM 190
   10 CONTINUE                                                           SUMM 200
   15 KKK = KK + 1                                                       SUMM 205
      GO TO (20,25,30), KKK                                              SUMM 210
   20 JJJ = 1                                                            SUMM 220
      LLL = NGROUP                                                       SUMM 230
      GO TO 35                                                           SUMM 240
   25 JJJ = 1                                                            SUMM 250
      LLL = 1                                                            SUMM 260
      GO TO 35                                                           SUMM 270
   30 JJJ = 1                                                            SUMM 280
      LLL = NGROUP + 1                                                   SUMM 290
C                                                                        SUMM 295
C        CHECK ARRAY OF MATCHED GROUP NUMBERS WITH ARRAY OF              SUMM 300
C             GROUP NUMBERS REQUIRED                                     SUMM 310
   35 DO 55 J = JJJ, LLL                                                 SUMM 320
      IF(KK.EQ.1) GO TO 40                                               SUMM 330
      IF(KK.GE.1 .AND. J.EQ.1) GO TO 40                                  SUMM 334
      JJ = J - KOPT                                                      SUMM 336
      IF(MGROUP(JJ).EQ. KGROUP(JJ)) GO TO 40                             SUMM 340
      GO TO 55                                                           SUMM 350
C                                                                        SUMM 360
C          ARRAYR AND ARRAYA ARE DATA ARRAYS FOR REPAIRS AND ALTS        SUMM 370
C            WHERE J IS THE GROUP NUMBER,  I IS THE YEAR                 SUMM 380
C                  AND L ARE THE 20 ITEMS OF DATA                        SUMM 390
C                                                                        SUMM 400
   40 DO 50 L = 1, 20                                                    SUMM 410
      ARRAYR(J,I,L) = ARRAYR(J,I,L) + SVALR(L)                           SUMM 420
      ARRAYA(J,I,L) = ARRAYA(J,I,L) + SVALA(L)                           SUMM 430
   50 CONTINUE                                                           SUMM 440
   55 CONTINUE                                                           SUMM 490
      RETURN                                                             SUMM 500
      END                                                                SUMM 510
```

```
      SUBROUTINE TITLE (JOPT, ID)                                       TITL  10
C                                                                       TITL  11
C        SUBROUTINE TO WRITE REPORT TITLES                              TITL  12
C                                                                       TITL  13
      COMMON/IDENT/COMENT(5), DATE(3)                                   TITL  20
      CALL HEADER(2, ID,JOPT)                                           TITL  30
      IF(JOPT.NE.1) GO TO 10                                            TITL  40
      WRITE(6,100)                                                      TITL  50
  100 FORMAT(1H , 47X, 35HTOTAL DIRECT REPAIR MANDAYS BY SHOP, /)       TITL  60
      RETURN                                                            TITL  70
   10 IF(JOPT.NE.2) GO TO 20                                            TITL  80
      WRITE(6,101)                                                      TITL  90
  101 FORMAT(1H , 45X, 39HTOTAL DIRECT ALTERATION MANDAYS BY SHOP, /)   TITL 100
      RETURN                                                            TITL 110
   20 IF(JOPT.NE.3) GO TO 30                                            TITL 120
      WRITE(6,102)                                                      TITL 130
  102 FORMAT(1H , 40X, 50HTOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY TITL 140
     1SHOP, /)                                                          TITL 150
   30 IF(JOPT.NE.4) GO TO 40                                            TITL 160
      WRITE(6,102)                                                      TITL 170
   40 RETURN                                                            TITL 180
      END                                                               TITL 190
```

```
      SUBROUTINE YDNO(IYD, ID)                                          YDNO  10
C                                                                       YDNO  20
C           SUBROUTINE TO ASSIGN A NUMBER TO EACH YARD FOR              YDNO  30
C              REPORT IDENTIFICATION                                    YDNO  40
C                                                                       YDNO  50
      REAL*8 IYD, ICHASN, LBECH, MARE, NORVA, IPEARL, IPHILA, IPTSMH    ****  60
     1  IPUGET                                                         ****  65
C                                                                       YDNO  70
      DATA ICHASN/5HCHASN/                                              YDNO  80
      DATA LBECH/5HLBECH/                                               YDNO  90
      DATA MARE/5HMARE /                                                YDNO 100
      DATA NORVA/5HNORVA/                                               YDNO 110
      DATA IPEARL/5HPEARL/                                              YDNO 120
      DATA IPHILA/5HPHILA/                                              YDNO 130
      DATA IPTSMH/5HPTSMH/                                              YDNO 140
      DATA IPUGET/5HPUGET/                                              YDNO 150
C                                                                       YDNO 160
      ID = 0                                                            YDNO 165
      IF(IYD.EQ.ICHASN) ID = 1                                          YDNO 170
      IF(IYD.EQ. LBECH) ID = 2                                          YDNO 180
      IF(IYD.EQ. MARE) ID = 3                                           YDNO 190
      IF(IYD.EQ. NORVA) ID = 4                                          YDNO 200
      IF(IYD.EQ.IPEARL) ID = 5                                          YDNO 210
      IF(IYD.EQ.IPHILA) ID = 6                                          YDNO 220
      IF(IYD.EQ.IPTSMH) ID = 7                                          YDNO 230
      IF(IYD.EQ.IPUGET) ID = 8                                          YDNO 240
      RETURN                                                            YDNO 250
      END                                                               YDNO 260
```

```
C*****SUBROUTINE YEAR(IFYR,IYDYR), RETURNS(NOYEAR)                    ****  10
      SUBROUTINE YEAR(IFYR,IYDYR,*)                                  ****  20
C                                                                    YEAR  25
C          SUBROUTINE TO SEE IF THE YEAR ON THIS DATA RECORD IS      YEAR  30
C            ONE THAT NEEDS TO BE PROCESSED                          YEAR  40
C                                                                    YEAR  50
      DIMENSION IYDYR(5)                                             YEAR  60
C                                                                    YEAR  70
      DO 10 I = 1,5                                                  YEAR  80
      IF(IFYR.EQ.IYDYR(I)) RETURN                                    YEAR  90
   10 CONTINUE                                                       YEAR 100
C*****RETURN NOYEAR                                                  **** 110
      RETURN 1                                                       **** 120
C                                                                    YEAR 125
C          ALTERNATE RETURN GOES TO THE PLACE IN THE PROGRAM         YEAR 130
C            THAT READS THE NEXT RECORD                              YEAR 131
      END                                                            YEAR 140
```

6.1.6 GLOSSARY

COMMON VARIABLES

Common Block/IDATA/

GRPDEF(100,6,2)	Array of ship group definitions where the first subscript refers to the group number, the second to the ship type and hull number, and the third to (1) lower bound of a set and (2) upper bound of that set.
IYDSEL(15)	Array of yards to be processed.

Common Block/IDENT/

COMENT(5)	Array of report identification information.
DATE(3)	Array containing the date of the run.

Common Block/MISC/

IYDGRP(15,25)	Array of group numbers where the first subscript refers to the yard name and the second to the group number to be processed.
JGROUP(25)	Array of matching group numbers for a specific yard.
KGROUP(25)	Array of group numbers required for a specific yard.
MGROUP(25)	Array of matching group numbers for a specific record.

Common Block/REP/

IHULL(100,6,2)	Array of hull numbers where the first subscript refers to the group number, the second to the hull number, and the third to (1) a lower bound for a set and (2) an upper bound for that set.
ISHIP(100,6,2)	Array of ship types where the first subscript refers to the group number, the second to the ship type, and the third to (1) a lower bound for a set and (2) an upper bound for that set.

Common Block/VAL/

VALA(20)	Array of total direct alteration mandays for shops for a given yard.
VALR(20)	Array of total direct repair mandays for shops for a given yard.
VALT(20)	Array of the total of the repair and alteration mandays for a given yard.

Common Block/WORK/

ARRAYA(25,5,20)	Array of alteration data where the first subscript refers to the ship group number, the second to the year, and the third to the 20 alteration mandays for shops.
ARRAYR(25,5,20)	Array of repair data where the first subscript refers to the ship group number, the second to the year, and the third to the 20 repair mandays for shops.
SVALA(20)	Array of total direct alteration mandays for shops for a given record.
SVALR(20)	Array of total direct repair mandays for shops for a given record.

LOCAL VARIABLES

Main Program

ALL	Variable used to request the summary of data for an entire yard.
ALT	Variable used to request computation of alteration data.
COAST	Coast (east or west).
I	DO-loop index.
IALL(15)	Array used to determine whether the entire yard is to be summed.
ICONT	Continuation indicator.
IDAYS	Production shop productive (PSP) mandays for this period.
IDONE	Variable set equal to the number of yards required and decremented as each one is completed.
IDUMMY	Dummy variable used in reading the second of a pair of group definition cards.
IDUM1	Dummy variable used in re-reading group definition cards for print-out.
IDUM2	Dummy argument in subroutine HEADER.
IEND	Availability end date (mo/dy/yr).
IFIRST	Flag set to "1" after reading first record of a yard; otherwise set to "0".
IFYR	Fiscal year for this record.
IGROUP	Group number read from Shop File.
IGRPNO(100)	Array of group numbers identifying groups in Group Definition Deck.
II	Subscript designating specific yard.
III	Counter used to determine number of yards.
IOPT(15)	Array of options for a given yard.
IPERCT	Percent of PSP mandays for alterations.
IPERD	Period (this record).

Main Program (Continued)

ISHULL	Ship type and hull number, read as a single variable from the Shop File.
ISPEC	Specialization category.
ISTRT	Availability start date (mo/dy/yr).
ITYPWK	Type work.
IYD	Yard name read from Shop File.
IYDP	Name of yard (of previous record).
IYDYR(5)	Array of years for a specific yard.
IYEAR(15,5)	Array of years where the first subscript refers to the yard and the second to the year.
J	DO-loop index.
JJ	Counter used to determine the number of groups and years to be processed for a given yard.
JOPT	Option for a specific yard, which when set to "1", repairs are reported on; when set to "2", alterations are reported on; when set to "3", a total of repairs and alterations are reported on; when set to "4", repairs, alterations and the total are all reported on.
K	DO-loop index.
KK	Flag which when set to "0", groups are summed but not entire yard; when set to "1", entire yard is summed but not groups; when set to "2", entire yard and groups are summed.
KOPT	Flag set to "1" if entire yard is to be processed, otherwise set to "0".
L	DO-loop index.
LAST	Variable containing the letters "LAST" and used in testing termination of input data.
MYEAR	Number of years to be processed for a specific yard.

Main Program (Continued)

NGROUP	Number of groups to be processed for a specific yard.
NGRPS(25)	Array of number of groups for a specific yard.
NYDS	Total number of yards to be processed.
NYEARS(15)	Array containing number of years to be processed.
OWN	Yard ownership indicator.
REP	Variable used to test for computing repair values.
TOTAL	Variable used to test for computing the total of repairs and alterations.
ZALL	Variable used to test for the characters "ALL".
ZALT	Variable used to test for the characters "ALT".
ZREP	Variable used to test for the characters "REP".
ZTOT	Variable used to test for the characters "TOT".

Subroutine COMPAR

I	DO-loop index.
IFLAG	Flag set to "1" after finding an agreement between the group numbers to be processed and the group numbers identifying group definition data base.
IGRPNO(100)	Array of group numbers identifying groups in Group Definition Deck.
ISHULL	Ship type and hull number.
J	DO-loop index.
K	DO-loop index.
NGROUP	Number of groups to be processed for a specific yard.

Subroutine HEADER

ID	Identification number assigned to each yard.
IDP	Yard identification number (of previous record).
IPAGE	Variable used to increment page numbers.

Subroutine HEADER (Continued)

JOPT	Option for a specific yard, which when set to "1", repairs, only are reported on; when set to "2", alterations, only are reported on; when set to "3", a total of repairs and alterations are reported on; when set to "4", repairs, alterations and the total are all reported on.
NOPG	Flag set to "2" when pages are to be numbered, otherwise, set to "1".

Subroutine IERROR

IDBL	Double precision variable used to transfer yard names for error messages.
IDUMMY	Single precision variable used to transfer group numbers for error messages.
N	Error number.

Subroutine NOSHIP

IBLANK	4-character blank space.
JJ	Subscript designating a specific group number in the ISHIP and IHULL arrays.
KK	DO-loop index.
KKK	Subscript designating a specific ship type and hull number in the ISHIP and IHULL arrays.
L	Implied DO-loop index.
MM	Index used in I/O statements.

Subroutine REPORT

I	Index for fiscal year.
ID	Identification number assigned to a specific yard.
IYD	Yard name being processed.
IYDYR(5)	Array of years for a specific yard.
J	DO-loop index.
JJ	Flag for group number.

Subroutine REPORT (Continued)

JOPT	An option for a specific yard when set to "1", repairs only are reported on; when set to "2", alterations, only are reported on; when set to "3", a total of repairs and alterations are reported on; when set to "4", repairs, alterations and the total are reported on.
KK	Group number requested for which there was no data.
KOPT	Flag set to "1" if entire yard is to be processed, otherwise set to "0".
L	DO-loop index.
LL	Index for group number of interest.
MYEAR	Number of years to be processed for a specific yard.
NGROUP	Number of groups to be processed for a specific yard.

Subroutine REP1

ISHP(20)	Array of shop numbers.
K	Index used for I/O statements.
M	Index used for I/O statements.

Subroutine REP2

ISHP(20)	Array of shop numbers.
K	Index used for I/O statements.
M	Index used for I/O statements.

Subroutine REP3

ISHP(20)	Array of shop numbers.
K	Index used for I/O statements.
M	Index used for I/O statements.

Subroutine REP4

ISHP(20)	Array of shop numbers.
K	Index used for I/O statements.
M	Index used for I/O statements.

Subroutine SEARCH

III	Argument used in transferring subscript of required yard.
IYD	Yard name being processed.
NYDS	Total number of yards to be processed.

Subroutine SKPYD

IDUM	Dummy argument in IERROR subroutine.
ISHULL	Ship type and hull number.
ITYPWK	Type work.
IYD	Yard name.
IYDP	Yard name (of previous record).

Subroutine SUM

I	DO-loop index.
IFYR	Fiscal year for this record.
IYDYR(5)	Array of years for this yard.
J	DO-loop index.
JJ	Subscript used in matching group numbers.
JJJ	Initial parameter of DO-loop.
KK	Flag when set to "0", groups are summed but not entire yard; when set to "1", entire yard is summed but no groups; when set to "2", entire yard and groups are summed.
KKK	Control variable in "computed go to".
KOPT	Flag set to "1" if entire yard is to be processed, otherwise set to "0".
L	DO-loop index.
LLL	Terminal parameter of DO-loop.
NGROUP	Number of groups to be processed for a specific yard.

Subroutine TITLE

ID	Identification number assigned to a yard.
JOPT	Option for a specific yard. When set to "1", repairs, only are reported on; when set to "2", alterations, only are reported on; when set to "3", a total of repairs and alterations are reported on; when set to "4", repairs, alterations and the total are reported on.

Subroutine YDNO

ICHASN	Variable containing the characters "CHASN".
ID	Identification number assigned to a yard.
IPEARL	Variable containing the characters "PEARL".
IPHILA	Variable containing the characters "PHILA".
IPTSMH	Variable containing the characters "PTSMH".
IPUGET	Variable containing the characters "PUGET".
IYD	Yard name being processed.
LBECH	Variable containing the characters "LBECH".
MARE	Variable containing the characters "MARE".
NORVA	Variable containing the characters "NORVA".

Subroutine YEAR

I	DO-loop index.
IFYR	Fiscal year for a given record.
IYDYR(5)	Array of years for a given yard.

6.1.7 SAMPLE RUN

The card inputs (unit 5) for the sample run of REPSHOP consisted of Group Definition cards and yard option cards. Three groups were defined. Group 1 was a group of all CGN's and was defined as CGN 1 through CGN 9999. Group 2 consisted of a single ship, the CGN 35. Group 3 defined the CV 59 Class of carriers, so the lower bound of the ship type-hull number was CV 59 and the upper bound was CV 62. Two shipyards were scheduled to be reported on. They were Norfolk and Puget Sound. In both cases, summaries were required for repairs, for alterations, and for their total. All three ship groupings were requested for Norfolk but reports for Puget Sound were to be generated for Group 2 only. Three non-consecutive fiscal years were to be reported on.

The Shop File (unit 11) produced by program XPLODE is a binary file. Ten data records from this file are given in a readable format. Each record was printed on five lines. The first line contains identifying information from the Depot Maintenance Assignment File (DMAF). The second and third lines give the total direct repair mandays for each of the 20 shops and the fourth and fifth lines give the total alteration mandays for each of the 20 shops, plus two other values from DMAF. These are the Production Shop Productive (PSP) mandays for that record and the percent of PSP mandays for alterations.

Shop reports (unit 6) show the mandays projected by shops for five fiscal years at Norfolk Shipyard for Group 1, a group of all CGN's. When projections were requested for Group 2, the CGN 35, an error message was written stating there was no work for that ship at Norfolk for any of the required years. There were, however, projected workloads at Puget Sound for the CGN 35. Summary reports were produced for the CV 59 class at Norfolk and all sample outputs show repair mandays, alteration mandays, and total mandays.

Unit 5 - Card Inputs

```
  1      CGN     1   CGN 9999
  1
  2      CGN    35   CGN   35
  2
  3      CV     59   CV    62
  3
 -1
08/30/77        OMPPS SAMPLE RUN
NORVA          REP  ALT  TOT     78 79 80 81 82
NORVA  1  2  3
PUGET          REP  ALT  TOT     79 81 82
PUGET  2
LAST
```

Unit 11 - Shop File

```
CGN   40  RA  CHASN    0  82  NE  2      50182   70182  AAN
    10.01     767.89     823.50      44.19     952.95    1935.10      18.95    2206.61     451.04     994.11
  1904.66     435.42       0.00     126.67     344.74     884.92       0.02      26.89      64.37     336.45
     0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00
     0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00   12000    0
CGN   37  RA  NORVA    0  78  NE  2      62178   82278  AAN
    10.38     796.30     853.97      45.83     988.21    2006.70      19.65    2288.26     467.73    1030.89
  1975.14     451.53       0.00     131.35     357.50     917.67       0.32      27.89      66.70     348.90
     0.00       0.00      34.52       0.00       3.29     343.59       0.00      25.48       6.58     630.46
  1147.49       0.00       0.00    5393.05      50.14      87.13       0.00       6.58     227.69     263.86   20400   39
CGN   37  RO  NORVA    0  81  NE  1      10281   30582  AAN
    81.11    2417.86    2802.78     142.60    2296.49    6974.20    1165.60    6565.39    1696.20    7601.79
 12176.72    1950.91       0.00    2037.36    2531.11    6346.59      24.10     117.20    1869.23   23149.84
      .13    1703.48     100.86      29.37     376.61     750.66    1075.87     366.43      40.05     581.00
   813.99     216.20       0.00    2678.02     231.48     452.45        .87      14.33     139.86    3373.67   68369   14
CGN   37  RO  NORVA    0  81  NE  2  *   10281   30582  AAN
   191.98    5722.77    6633.84     337.53    5435.52   16507.25    2758.83   15539.47    4014.71   17992.51
 28820.80    4617.57       0.00    4822.18    5990.84   15021.59      57.04     277.40    4424.23   54792.81
      .30    4031.94     238.72      69.51     891.39    1776.73    2546.44     867.31      94.79    1375.16
  1926.62     511.73       0.00    6338.53     547.88    1070.89       2.06      33.92     331.02    7905.07  161821   14
CGN   37  RO  NORVA    0  82  NE  1  *   10281   30582  AAN
    56.72    1690.72    1959.89      99.72    1605.86    4876.86     815.06    4590.94    1186.09    5315.66
  8514.75    1364.20       0.00    1424.65    1769.92    4437.94      16.85      81.96    1307.08   16187.85
      .09    1191.19      70.53      20.54     263.35     524.91     752.31     256.23      28.00     406.27
   569.20     151.18       0.00    1872.64     161.86     316.38        .61      10.02      97.80    2359.09   47800   14
CGN   38  RA  NORVA    0  79  NE  2      80379  100279  AAN
     6.78     520.21     557.88      29.94     645.57    1310.94      12.83    1494.87     305.56     673.46
  1290.31     294.97       0.00      85.81     233.55     599.49       5.43      18.22      43.57     227.93
     0.00     633.11      38.46       1.33     153.86     377.12    1892.24       0.00      19.01     148.99
    56.59      92.40       0.00       0.00      76.93     326.72       0.00       6.63       2.21     995.53   11955   32
CGN   38  RA  NORVA    0  80  NE  1  *   80379  100279  AAN
      .02       1.91       2.05        .11       2.38       4.82        .05       5.50       1.12       2.48
     4.75       1.09       0.00        .32        .86       2.21        .02        .07        .16        .84
     0.00       2.33        .14        .00        .57       1.39       6.96       0.00        .07        .55
      .21        .34       0.00       0.00        .28       1.20       0.00        .02        .01       2.19      44   32
CGN   38  RO  NORVA    0  82  NE  2      70182   90283  AAN
    96.30    2870.63    3327.64     169.31    2726.55    8280.31    1383.88    7794.85    2013.84    9025.34
 14456.99    2316.25       0.00    2418.89    3005.10    7535.08      28.61     139.15    2219.27   27484.98
     0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00
     0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00   69808    0
CV    59  RA  NORVA    0  80  NE  2      50380   72980  CVA
    16.34    2029.70     557.32     130.99    2782.41    4106.27     226.20    4628.55    2591.27    3368.28
  5301.45     997.77       0.00    1208.08    1100.34    4281.21      20.91      76.64     776.28    3394.38
     4.69    1168.45     344.83      25.70    1258.97    2024.81      19.34    4678.06      80.43    1870.65
  8240.93    1239.52       0.00    3543.05     195.87     941.97       2.17      78.62      81.94    3911.91   60000   43
CV    59  RA  NORVA    0  82  NE  1     100181   10182  CVA
    28.66    3560.89     977.76     229.80    4881.43    7203.99     396.84    8120.26    4546.08    5909.26
  9300.79    1750.47       0.00    2119.44    1930.41    7510.90      36.69     134.45    1361.90    5955.04
     0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00
     0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00   60000    0
```

Unit 6 - Shop Reports

DATE 08/30/77
DMPPS SAMPLE RUN

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SHOP

YARD: NORVA

SUMMATION FOR GROUP NO. 1 - CONSISTING OF
CGN 1 - CGN 9999

FISCAL 1978

	SHOP: 6	SHOP: 11	SHOP: 17	SHOP: 23	SHOP: 26	SHOP: 31	SHOP: 36	SHOP: 38	SHOP: 41	SHOP: 51
REPAIR MANDAYS	10.	796.	854.	46.	988.	2007.	20.	2288.	468.	1131.
ALTERATION MANDAYS	0.	0.	35.	0.	3.	344.	0.	25.	7.	530.
TOTAL MANDAYS	10.	796.	889.	46.	991.	2350.	20.	2314.	474.	1661.

	SHOP: 56	SHOP: 64	SHOP: 67	SHOP: 71	SHOP: 72	SHOP: 81	SHOP: 94	SHOP: 99	OTH	TOTAL
REPAIR MANDAYS	1975.	452.	131.	357.	918.	8.	28.	67.	349.	12733.
ALTERATION MANDAYS	1147.	0.	5393.	50.	87.	0.	7.	228.	264.	8223.
TOTAL MANDAYS	3123.	452.	5524.	408.	1005.	8.	34.	294.	613.	21013.

FISCAL 1979

	SHOP: 6	SHOP: 11	SHOP: 17	SHOP: 23	SHOP: 26	SHOP: 31	SHOP: 36	SHOP: 38	SHOP: 41	SHOP: 51
REPAIR MANDAYS	7.	520.	558.	30.	646.	1311.	13.	1495.	306.	673.
ALTERATION MANDAYS	0.	633.	38.	1.	154.	377.	1892.	0.	19.	149.
TOTAL MANDAYS	7.	1153.	596.	31.	799.	1688.	1905.	1495.	325.	822.

	SHOP: 56	SHOP: 64	SHOP: 67	SHOP: 71	SHOP: 72	SHOP: 81	SHOP: 94	SHOP: 99	OTH	TOTAL
REPAIR MANDAYS	1290.	295.	86.	234.	599.	5.	18.	44.	228.	8357.
ALTERATION MANDAYS	57.	92.	0.	77.	327.	0.	7.	2.	596.	4421.
TOTAL MANDAYS	1347.	387.	86.	310.	926.	5.	25.	46.	823.	12778.

FISCAL 1980

	SHOP: 6	SHOP: 11	SHOP: 17	SHOP: 23	SHOP: 26	SHOP: 31	SHOP: 36	SHOP: 38	SHOP: 41	SHOP: 51
REPAIR MANDAYS	0.	2.	2.	0.	2.	5.	0.	6.	1.	2.
ALTERATION MANDAYS	0.	2.	0.	0.	1.	1.	7.	0.	0.	1.
TOTAL MANDAYS	0.	4.	2.	0.	3.	6.	7.	6.	1.	3.

	SHOP: 56	SHOP: 64	SHOP: 67	SHOP: 71	SHOP: 72	SHOP: 81	SHOP: 94	SHOP: 99	OTH	TOTAL
REPAIR MANDAYS	5.	1.	0.	1.	2.	0.	0.	0.	1.	31.
ALTERATION MANDAYS	0.	0.	0.	0.	1.	0.	0.	0.	2.	16.
TOTAL MANDAYS	5.	1.	0.	1.	3.	0.	0.	0.	3.	47.

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SHOP

YARD# NORVA

SUMMATION FOR GROUP NO. 1 - CONSISTING OF
CGN 1 - CGN 9999

FISCAL 1981

	SHOP# 6	SHOP# 11	SHOP# 17	SHOP# 23	SHOP# 26	SHOP# 31	SHOP# 36	SHOP# 38	SHOP# 41	SHOP# 51
REPAIR MANDAYS	273.	8141.	9437.	480.	7732.	23482.	3924.	22105.	5711.	25594.
ALTERATION MANDAYS	0.	5735.	340.	99.	1268.	2527.	3622.	1234.	135.	1956.
TOTAL MANDAYS	274.	13876.	9776.	579.	9000.	26009.	7547.	23339.	5846.	27550.

	SHOP# 56	SHOP# 64	SHOP# 67	SHOP# 71	SHOP# 72	SHOP# 81	SHOP# 94	SHOP# 99	OTH	TOTAL
REPAIR MANDAYS	40998.	6568.	6862.	8522.	21368.	81.	395.	6293.	77343.	275926.
ALTERATION MANDAYS	2741.	728.	9017.	779.	1523.	3.	48.	471.	11359.	43585.
TOTAL MANDAYS	43738.	7296.	15876.	9301.	22892.	84.	443.	6764.	89301.	319491.

FISCAL 1982

	SHOP# 6	SHOP# 11	SHOP# 17	SHOP# 23	SHOP# 26	SHOP# 31	SHOP# 36	SHOP# 38	SHOP# 41	SHOP# 51
REPAIR MANDAYS	153.	4561.	5288.	269.	4332.	13157.	2199.	12386.	3200.	14341.
ALTERATION MANDAYS	0.	1191.	71.	21.	263.	525.	752.	256.	28.	406.
TOTAL MANDAYS	153.	5753.	5358.	290.	4596.	13682.	2951.	12642.	3228.	14747.

	SHOP# 56	SHOP# 64	SHOP# 67	SHOP# 71	SHOP# 72	SHOP# 81	SHOP# 94	SHOP# 99	OTH	TOTAL
REPAIR MANDAYS	22972.	3680.	3844.	4775.	11973.	45.	221.	3526.	43373.	154596.
ALTERATION MANDAYS	569.	151.	1873.	162.	316.	1.	10.	98.	2359.	9252.
TOTAL MANDAYS	23541.	3832.	5716.	4937.	12289.	46.	231.	3624.	45732.	163848.

REPORT: 61-08-4 DATE: 08/30/77 PAGE 1
DMPPS SAMPLE RUN

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SHOP

YARD: PUGET

SUMMATION FOR GROUP NO. 2 - CONSISTING OF
CGN 35 - CGN 35

FISCAL 1979

	SHOP: 6	SHOP: 11	SHOP: 17	SHOP: 23	SHOP: 26	SHOP: 31	SHOP: 36	SHOP: 38	SHOP: 41	SHOP: 51
REPAIR MANDAYS	10.	768.	824.	44.	953.	1935.	19.	2207.	451.	994.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	10.	768.	824.	44.	953.	1935.	19.	2207.	451.	994.

	SHOP: 56	SHOP: 64	SHOP: 67	SHOP: 71	SHOP: 72	SHOP: 81	SHOP: 94	SHOP: 99	OTH	TOTAL
REPAIR MANDAYS	1905.	435.	127.	345.	885.	8.	27.	64.	336.	12336.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	1905.	435.	127.	345.	885.	8.	27.	64.	336.	12336.

FISCAL 1981

	SHOP: 6	SHOP: 11	SHOP: 17	SHOP: 23	SHOP: 26	SHOP: 31	SHOP: 36	SHOP: 38	SHOP: 41	SHOP: 51
REPAIR MANDAYS	90.	2679.	3106.	158.	2545.	7728.	1292.	7275.	1880.	8424.
ALTERATION MANDAYS	0.	393.	117.	7.	267.	792.	805.	464.	38.	770.
TOTAL MANDAYS	90.	3072.	3223.	165.	2812.	8520.	2097.	7739.	1918.	9194.

	SHOP: 56	SHOP: 64	SHOP: 67	SHOP: 71	SHOP: 72	SHOP: 81	SHOP: 94	SHOP: 99	OTH	TOTAL
REPAIR MANDAYS	13493.	2162.	2258.	2805.	7033.	27.	130.	2071.	25652.	90806.
ALTERATION MANDAYS	1665.	202.	4404.	210.	402.	1.	16.	53.	4666.	15272.
TOTAL MANDAYS	15158.	2364.	6661.	3015.	7435.	28.	146.	2125.	30318.	106078.

FISCAL 1982

	SHOP: 6	SHOP: 11	SHOP: 17	SHOP: 23	SHOP: 26	SHOP: 31	SHOP: 36	SHOP: 38	SHOP: 41	SHOP: 51
REPAIR MANDAYS	264.	7877.	9131.	465.	7482.	22722.	3798.	21390.	5526.	24767.
ALTERATION MANDAYS	0.	1155.	344.	19.	785.	2329.	2368.	1365.	112.	2264.
TOTAL MANDAYS	264.	9033.	9475.	484.	8267.	25051.	6166.	22755.	5638.	27031.

	SHOP: 56	SHOP: 64	SHOP: 67	SHOP: 71	SHOP: 72	SHOP: 81	SHOP: 94	SHOP: 99	OTH	TOTAL
REPAIR MANDAYS	39672.	6356.	6638.	8246.	20677.	79.	382.	6090.	75422.	266984.
ALTERATION MANDAYS	4895.	594.	12948.	619.	1183.	2.	46.	157.	13719.	44903.
TOTAL MANDAYS	44566.	6951.	19585.	8865.	21860.	81.	428.	6246.	89141.	311887.

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SHOP

YARD: NORVA

SUMMATION FOR GROUP NO. 3 - CONSISTING OF
CV 59 - CV 62

FISCAL 1978

	SHOP: 6	SHOP: 11	SHOP: 17	SHOP: 23	SHOP: 26	SHOP: 31	SHOP: 36	SHOP: 38	SHOP: 41	SHOP: 51
REPAIR MANDAYS	72.	11445.	3123.	744.	17114.	23759.	529.	27828.	18495.	18557.
ALTERATION MANDAYS	11.	10528.	1231.	270.	6767.	14102.	252.	27869.	679.	15956.
TOTAL MANDAYS	83.	21973.	4354.	1014.	23881.	37861.	781.	55698.	19175.	34513.

	SHOP: 56	SHOP: 64	SHOP: 67	SHOP: 71	SHOP: 72	SHOP: 81	SHOP: 94	SHOP: 99	OTH	TOTAL
REPAIR MANDAYS	27306.	6086.	3679.	10668.	26232.	136.	458.	4407.	17988.	218626.
ALTERATION MANDAYS	24305.	4958.	23573.	1302.	5525.	14.	392.	693.	16533.	159960.
TOTAL MANDAYS	51611.	11044.	27251.	11970.	32757.	150.	850.	5100.	34521.	374586.

FISCAL 1979

	SHOP: 6	SHOP: 11	SHOP: 17	SHOP: 23	SHOP: 26	SHOP: 31	SHOP: 36	SHOP: 38	SHOP: 41	SHOP: 51
REPAIR MANDAYS	46.	7117.	1944.	462.	10516.	14721.	395.	17152.	11158.	11578.
ALTERATION MANDAYS	6.	7587.	1236.	202.	4136.	10144.	3888.	21278.	349.	14278.
TOTAL MANDAYS	52.	14803.	3179.	665.	14552.	24865.	4283.	38430.	11507.	25853.

	SHOP: 56	SHOP: 64	SHOP: 67	SHOP: 71	SHOP: 72	SHOP: 81	SHOP: 94	SHOP: 99	OTH	TOTAL
REPAIR MANDAYS	17209.	3744.	2564.	6239.	16127.	83.	282.	2738.	11287.	135362.
ALTERATION MANDAYS	14651.	3369.	18844.	1033.	4709.	6.	281.	554.	18343.	124887.
TOTAL MANDAYS	31860.	7113.	21409.	7272.	20832.	89.	563.	3292.	29630.	260249.

FISCAL 1980

	SHOP: 6	SHOP: 11	SHOP: 17	SHOP: 23	SHOP: 26	SHOP: 31	SHOP: 36	SHOP: 38	SHOP: 41	SHOP: 51
REPAIR MANDAYS	36.	4761.	1305.	308.	6695.	9794.	442.	11063.	6541.	7849.
ALTERATION MANDAYS	7.	3375.	862.	85.	2744.	5339.	2340.	11633.	215.	6338.
TOTAL MANDAYS	42.	8136.	2167.	393.	9440.	15043.	2782.	22696.	6755.	14187.

	SHOP: 56	SHOP: 64	SHOP: 67	SHOP: 71	SHOP: 72	SHOP: 81	SHOP: 94	SHOP: 99	OTH	TOTAL
REPAIR MANDAYS	12128.	2395.	2461.	3112.	10292.	51.	183.	1825.	7825.	88977.
ALTERATION MANDAYS	15348.	2565.	9273.	572.	2549.	5.	179.	256.	9525.	73209.
TOTAL MANDAYS	27475.	4961.	11734.	3684.	12841.	56.	361.	2081.	17351.	162185.

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SHOP

YARD: NORVA

SUMMATION FOR GROUP NO. 3 - CONSISTING OF
CV 59 - CV 62

FISCAL 1981

	SHOP: 6	SHOP: 11	SHOP: 17	SHOP: 23	SHOP: 26	SHOP: 31	SHOP: 36	SHOP: 38	SHOP: 41	SHOP: 51
REPAIR MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

	SHOP: 56	SHOP: 64	SHOP: 67	SHOP: 71	SHOP: 72	SHOP: 81	SHOP: 94	SHOP: 99	OTH	TOTAL
REPAIR MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

FISCAL 1982

	SHOP: 6	SHOP: 11	SHOP: 17	SHOP: 23	SHOP: 26	SHOP: 31	SHOP: 36	SHOP: 38	SHOP: 41	SHOP: 51
REPAIR MANDAYS	29.	3561.	978.	230.	4881.	7204.	397.	8120.	4546.	5939.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	29.	3561.	978.	230.	4881.	7204.	397.	8120.	4546.	5939.

	SHOP: 56	SHOP: 64	SHOP: 67	SHOP: 71	SHOP: 72	SHOP: 81	SHOP: 94	SHOP: 99	OTH	TOTAL
REPAIR MANDAYS	9301.	1750.	2119.	1930.	7511.	37.	134.	1362.	5955.	65955.
ALTERATION MANDAYS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL MANDAYS	9301.	1750.	2119.	1930.	7511.	37.	134.	1362.	5955.	65955.

6.2 PROGRAM PREWBS

6.2.1 DESCRIPTION

The program PREWBS (Prepare SWBS File) facilitates the generation of SWBS reports by preprocessing the SWBS File for use by the program REPWBS. The SWBS File is a binary file prepared by the program XPLODE (see Section 5.1). It breaks down the work for each scheduled availability (on DMAF) by single-digit SWBS category.

OSD guidelines for reporting by SWBS categories established the primary reporting level as groups of ships. These groups may be quite broad--such as surface combatants, submarines, etc.--or they may be more restrictive--to ship types, ship classes, or even individual hulls. In order to permit such wide variations in ship groupings, DMPPS uses the following scheme to define the groups. A DMPPS ship group consists of sets of ship-type/hull-number ranges (such as CV 19-CVN 70). Up to six sets of ranges are permitted in defining each ship group. Note that a ship may fall within more than one group or, conversely, may not belong to any group. Both these cases are permissible within the SWBS reporting structure.

Cards specifying the desired ship groups form one of the key inputs to PREWBS. The first phase of the PREWBS processing includes reading in these cards, storing the group definitions in an array, and checking them for error. The error check involves examining each ship-type/hull-number range for alphabetical order. A list of all ship groups is produced and any erroneous ranges are indicated by an asterisk. In addition, all ship groups (including those with errors) are written into the PREWBS output file, the SWBS (by Groups) File.

The second (and final) phase of the PREWBS processing involves reading in each record of the SWBS File, examining the ship type and hull number of the record, and determining which, if any, group or groups the ship falls within. All information from the SWBS File record is

duplicated on the SWBS (by Groups) File for each group within which the ship falls. In addition, each new record contains a group number. Thus, if a ship falls within no group, the record is not written at all on the SWBS (by Groups) File. On the other hand, if a ship falls within three groups, three copies of the record are made (each with a different group number).

To expedite its processing, PREWBS compares the ship type and hull number of the current SWBS File record with that of the preceding record. If they are the same, the list of groups to which the ship belongs has already been prepared and need not be regenerated.

A sort must follow the PREWBS program. It is an integral part of the run set-up for PREWBS (see Section 6.2.2) and sorts the output SWBS (by Groups) File first by group, then by fiscal year.

PREWBS consists of a main program and two subroutines. The hierarchical diagram of PREWBS is given in Figure 6.2-1.

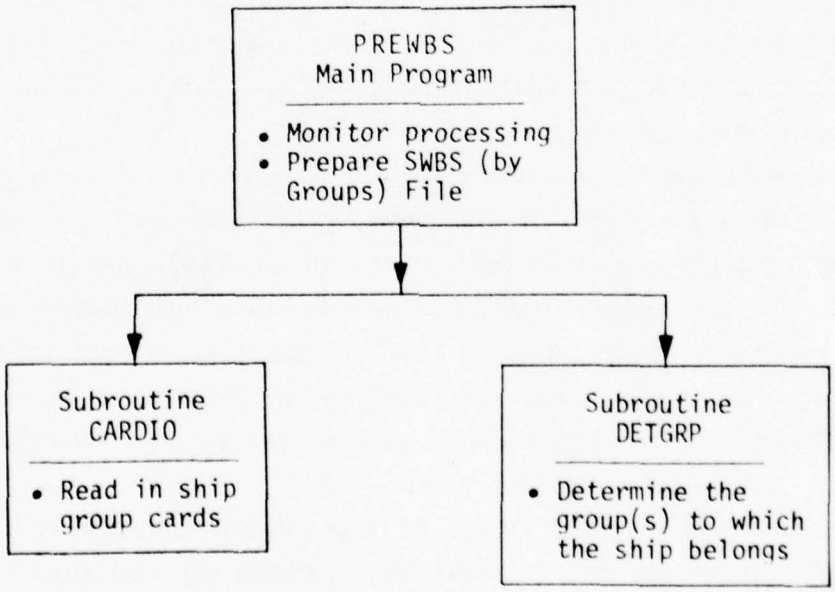


Figure 6.2-1 - PREWBS Hierarchical Diagram

Main Program

The main program of PREWBS calls subroutine CARDIO to read in and process the ship group cards. It then reads in (one at a time) the records of the SWBS File, calls subroutine DETGRP to prepare a list of the groups within which the ship falls, and prepares the SWBS (by Groups) File.

Subroutine CARDIO

Subroutine CARDIO reads in all ship group cards, examines them for error, prints them out, and writes them on the SWBS (by Groups) File.

Subroutine DETGRP

Subroutine DETGRP prepares a list of the groups within which a particular ship falls.

6.2.2 RUN SET-UP

The following set-up is used to run the PREWBS program on the IBM 360/370 computer:

```
//NVSPREWB JOB (XXXXXXXXXX,XXXXX),USER,CLASS=C,TIME=(,15),MSGLEVEL=1
//JOBLIB DD DSN=NVS01.DEPOT.LIB,DISP=SHR

// EXEC PGM=PREWBS                                  (EXECUTE PROGRAM PREWBS)
//GO.FT05F001 DD *
 ┌──────────
 │
 │    PREWBS card inputs (unit 5)
 │
 └──────────
//GO.FT06F001 DD SYSOUT=A                        (LIST OF GROUP DEFINITIONS)
//GO.FT10F001 DD DSN=NVS01.SWBS.EXPLODE.DATA,DISP=SHR      (INPUT FILE)
//GO.FT11F001 DD DSN=&&SWBS,DISP=(,PASS),UNIT=SYSDA,SPACE=(1444,300),
// DCB=(LRECL=144,RECFM=VBS,BLKSIZE=1444)                  (OUTPUT FILE)

// EXEC SDA                                         (SORT SWBS.GROUPS FILE)
//SORTIN DD DSN=&&SWBS,DISP=(OLD,DELETE)
//SORTOUT DD DSN=NVS01.SWBS.GROUPS.DATA,DISP=SHR
//SYSIN DD *        SORT FIRST BY GROUP NUMBER, THEN BY FISCAL YEAR
 SORT FIELDS=(25.0,4.0,A,29.0,4.0,A),FORMAT=BI
```

6.2.3 INPUTS

Card inputs are made using unit 5. The format for these cards is given in Section 6.2.3.1.

Unit 5 - Card inputs which define the ship groups.

The following additional unit is used to input information from a disk file created by a previously run program (XPLODE):

Unit 10 - SWBS File.

The format for this file is given in Section 6.2.3.3.

6.2.3.1 Unit 5 - Card Input

Group Definition Cards. Two cards are required to define each ship group. As many as 100 such pairs of cards may be input.

Type A Card. The format for the first group definition card is:

Variable Name	Description	Field	Format
IGRPNO	Group number	1-3	I3
SHIP(1,1)	Ship type of the lower bound of the first ship range	9-12	A4
IHULL(1,1)	Hull number of the lower bound of the first ship range	13-16	I4
SHIP(1,2)	Ship type of the upper bound of the first ship range	20-23	A4
IHULL(1,2)	Hull number of the upper bound of the first ship range	24-27	I4
.	.	.	.
.	.	.	.
.	.	.	.
SHIP(3,2)	Ship type of the upper bound of the third ship range	68-71	A4
IHULL(3,2)	Hull number of the upper bound of the third ship range	72-75	I4

Type B Card. The format for the second group definition card is:

Variable Name	Description	Field	Format
IGRPNO	Group number	1-3	I3
SHIP(4,1)	Ship type of the lower bound of the fourth ship range	9-12	A4

Type B Card (Continued)

Variable Name	Description	Field	Format
IHULL(4,1)	Hull number of the lower bound of the fourth ship range	13-16	I4
.	.	.	.
.	.	.	.
.	.	.	.
SHIP(6,2)	Ship type of the upper bound of the sixth ship range	68-71	A4
IHULL(6,2)	Hull number of the upper bound of the sixth ship range	72-75	I4

Termination Card. The final input card must be of the following format:

Variable Name	Description	Field	Format
	Must contain a negative number	1-3	I3

6.2.3.2 Unit 10 - SWBS File

The SWBS File is a binary file. Each record on the file corresponds to a record on the Depot Maintenance Assignment File. The organization of each record is as follows:

Variable Name	Description	Position	Format*
SHULL	Ship-type/hull-number	1	(A8)
TW	Type work	2	(A3)
YARD	Shipyard	3	(A5)
INFO(1)	Group number (=0)	4	(I3)
INFO(2)	Fiscal year (this record)	5	(I2)
INFO(3)	Yard ownership indicator	6	(A1)
INFO(4)	Coast	7	(A1)
INFO(5)	Period (this record)	8	(I1)
INFO(6)	Continuation indicator	9	(A1)
INFO(7)	Availability start date (mo/day/yr)	10	(I6)
INFO(8)	Availability end date (mo/day/yr)	11	(I6)
INFO(9)	Specialization category	12	(A3)
RINFO(1-9)	Total direct repair man-days for each SWBS category	13-20	(9F10.2)
RINFO(10-18)	Total direct alterations mandays for each SWBS category	21-29	(9F10.2)
RINFO(19)	Fraction of total direct repair mandays for "other direct"	30	(F10.6)
RINFO(20)	Fraction of total direct alterations mandays for "other direct"	31	(F10.6)

*The format is given for reference only. Since the file is a binary file, formats are not used in reading the file.

6.2.4 OUTPUTS

The following unit is used by PREWBS to generate hard-copy output:

Unit 6 - List of ship group definitions.

Section 6.2.7 shows a sample of this output.

PREWBS uses the following additional unit to store information on disk for use by a subsequent program (REPWBS):

Unit 11 - SWBS (by Groups) File (Unsorted).

The format of this file is given in Section 6.2.4.1.

6.2.4.1 Unit 11 - SWBS (by Groups) File (Unsorted)

The SWBS (by Groups) File is a binary file. The formats given for the variables are thus for reference only.

Group Definition Records. The group definition records precede all other records in the unsorted version of the SWBS (by Groups) File. There may be up to 100 such records on the file. The "format" for each record is:

Variable Name	Description	Position	Format
BLANK	Contains Hollerith blanks	1	(A5)
IDUM	Contains a zero	2	(I1)
BLANK	Contains Hollerith blanks	3	(A5)
IGRPNO	Group number	4	(I3)
IDUM	Contains a zero	5	(I1)
SHIP(1,1)	Ship type of lower bound of first ship range (in the group)	6	(A4)
IHULL(1,1)	Hull number of lower bound of first ship range	7	(I4)
SHIP(1,2)	Ship type of upper bound of first ship range	8	(A4)
IHULL(1,2)	Hull number of upper bound of first ship range	9	(I4)
SHIP(2,1)	Ship type of lower bound of second ship range	10	(A4)
IHULL(2,1)	Hull number of lower bound of second ship range	11	(I4)
.	.	.	.
.	.	.	.
.	.	.	.
SHIP(6,2)	Ship type of upper bound of sixth ship range	28	(A4)
IHULL(6,2)	Hull Number of upper bound of sixth ship range	29	(I4)
FILLER(1-3)	Dummy array	30-32	(3A4)

SWBS Records. Each SWBS record corresponds to a record on the SWBS File (and hence to a record on DMAF). However, there may be more than one SWBS record for any given record on the SWBS File, if the ship (to which the record applies) falls within more than one group. Conversely, if the ship falls within no group, the SWBS File records for the ship do not appear on the SWBS (by Groups) File. The "format" for each SWBS record is as follows:

Variable Name	Description	Position	Format
SHULL	Ship type-hull number	1	(A8)
TW	Type work	2	(A3)
YARD	Shipyard	3	(A5)
INFO(1)	Group number	4	(I3)
INFO(2)	Fiscal year (this record)	5	(I2)
INFO(3)	Yard ownership indicator	6	(A1)
INFO(4)	Coast	7	(A1)
INFO(5)	Period (this record)	8	(I1)
INFO(6)	Continuation indicator	9	(A1)
INFO(7)	Availability start date (mo/day/yr)	10	(I6)
INFO(8)	Availability end date (mo/day/yr)	11	(I6)
INFO(9)	Specialization category	12	(A3)
RINFO(1-9)	Total direct repair man-days for each SWBS category	13-20	(9F10.2)
RINFO(10-18)	Total direct alteration mandays for each SWBS category	21-29	(9F10.2)
RINFO(19)	Fraction of total direct repair mandays for "other direct"	30	(F10.6)
RINFO(20)	Fraction of total direct alteration mandays for "other direct"	31	(F10.6)

6.2.5 PROGRAM LISTING

```
C*****PROGRAM PREWBS(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT,TAPE10,      ****  10
C****.     TAPE11)                                                      ****  20
C                                                                       PREW  30
C                                                                       PREW  40
C UNIT 5 - INPUT  - GROUP DEFINITION CARDS.                             PREW  50
C                                                                       PREW  60
C UNIT 6 - OUTPUT - FORMATTED PRINTOUT OF GROUP DEFINITIONS.            PREW  70
C                                                                       PREW  80
C UNIT 10- INPUT  - BINARY FILE CONTAINING MAN-DAY REQUIREMENTS BY WBS  PREW  90
C                   FOR EACH SHIP AVAILABILITY.                         PREW 100
C                                                                       PREW 110
C UNIT 11- OUTPUT - EXPANDED BINARY FILE CONTAINING GROUP DEFINITIONS   PREW 120
C                   AND MAN-DAY REQUIREMENTS BY WBS FOR EACH SHIP       PREW 130
C                   AVAILABILITY AND EACH GROUP.                        PREW 140
C                                                                       PREW 150
C                                                                       PREW 160
C PROGRAMMED BY LINDA L. LAMATRICE, DTNSRDC (CODE 185), JAN. 1975.      PREW 170
C                                                                       PREW 180
C                                                                       PREW 190
      DIMENSION INFO(9),RINFO(20)                                       PREW 200
C                                                                       PREW 210
C*****INTEGER GRPDEF,SHULL,SHULLP                                       **** 220
      REAL*8  GRPDEF,SHULL,SHULLP,YARD                                  **** 230
C                                                                       PREW 240
      COMMON /GROUPS/GRPDEF(100,5,2),IGRPNO(100),NGRPS,IGRPS(10),NG     PREW 250
C                                                                       PREW 260
C ---------------------------------------------------------------       PREW 270
C                                                                       PREW 280
C                                                                       PREW 290
C CALL CARDIO TO READ IN GROUP DEFINITION CARDS.  ----------------      PREW 300
      CALL CARDIO                                                       PREW 320
      WRITE (6,90)                                                      PREW 330
   90 FORMAT (1H1)                                                      PREW 340
C                                                                       PREW 350
C READ IN NEXT SHIP RECORD.  ------------------------------------       PREW 360
      SHULLP=0                                                          PREW 370
C*100 READ (10)           SHULL,TW,YARD,INFO,RINFO                      **** 380
  100 READ (10,END=140)   SHULL,TW,YARD,INFO,RINFO                      **** 390
C*****IF (EOF(10).NE.0.0)  GO TO 140                                    **** 440
C                                                                       PREW 450
C IF THIS SHIP IS NOT THE SAME AS THE PREVIOUS SHIP, DETERMINE WHICH    PREW 460
C GROUPS IT BELONGS TO.  ----------------------------------------       PREW 470
      IF (SHULL.EQ.SHULLP)  GO TO 120                                   PREW 480
      SHULLP=SHULL                                                      PREW 490
C*****CALL DETGRP(SHULL), RETURNS(150)                                  **** 500
      CALL DETGRP(SHULL,*150)                                           **** 510
      WRITE (6,115)  SHULL,TW,NG,(IGRPS(I),I=1,NG)                      TEMP 520
  115 FORMAT (10X,A8,5H (TW=,A3,14H) - BELONGS TO,I2,8H GROUPS:,10I4)   TEMP 530
C                                                                       PREW 540
C WRITE SHIP RECORD ON UNIT 11 NG TIMES.  ------------------------      PREW 550
  120 DO 130 I=1,NG                                                     PREW 560
      INFO(1)=IGRPS(I)                                                  PREW 570
  130 WRITE (11)  SHULL,TW,YARD,INFO,RINFO                              PREW 580
      GO TO 100                                                         PREW 590
C                                                                       PREW 600
  140 STOP                                                              PREW 610
  150 WRITE (6,160)  SHULL,TW                                           PREW 620
  160 FORMAT (10X,A8, 5H (TW=,A3,24H) - BELONGS TO NO GROUP.)           PREW 630
      SHULLP=0                                                          PREW 635
      GO TO 100                                                         PREW 640
      END                                                               PREW 650
```

```
      SUBROUTINE CARDIO                                                 CARD  10
C                                                                       CARD  20
C                                                                       CARD  30
C     SUBROUTINE CARDIO (CARD INPUT/OUTPUT) READS IN THE INPUT CARDS    CARD  40
C WHICH DEFINE THE GROUPS.  IN ADDITION, IT WRITES THE GROUP DEFINITIONSCARD  50
C ON UNIT 11 (AS BINARY RECORDS) AND RPINTS THEM ON UNIT 6.             CARD  60
C                                                                       CARD  70
      DIMENSION SHIP(6,2),IHULL(6,2),NOTE(6),FILLER( 3)                 CARD  90
C                                                                       CARD 100
C*****INTEGER GRPDEF,BLANK                                              **** 110
      REAL*8  GRPDEF,BLANK                                              **** 120
C                                                                       CARD 130
      COMMON /GROUPS/GRPDEF(100,6,2),IGRPNO(100),NGRPS,IGRPS(10),NG     CARD 140
C                                                                       CARD 150
      DATA IDUM/0/,   IBLANK/1H /, IAST/1H*/, BLANK/1H /,               CARD 160
     .    FILLER/ 3*0.0/                                               CARD 180
C                                                                       CARD 190
C ---------------------------------------------------------------       CARD 200
C                                                                       CARD 210
C                                                                       CARD 220
C READ NEXT GROUP DEFINITION SET.  ------------------------------       CARD 230
      N=1                                                               CARD 240
      IERROR=0                                                          CARD 250
      LINE=70                                                           CARD 260
  100 READ (5,110)  IGRPNO(N),((GRPDEF(N,I,J),J=1,2), I=1,3),          CARD 270
     .     ((SHIP(I,J),IHULL(I,J),J=1,2),I=1,3),                      CARD 280
     .     ((GRPDEF(N,I,J),J=1,2),I=4,6), ((SHIP(I,J),IHULL(I,J),J=1,2), CARD 290
     .     I=4,6)                                                     CARD 300
  110 FORMAT (I3,3(2X,2(3X,A8)),T4,3(2X,2(3X,2A4))/                     CARD 310
     .         3X,3(2X,2(3X,A8)),T4,3(2X,2(3X,2A4)))                  CARD 320
      IF (IGRPNO(N).GT.0)  GO TO 120                                    CARD 330
      NGRPS=N-1                                                         CARD 340
      IF (IERROR.EQ.0)  RETURN                                          CARD 350
      DO 112 I=LINE,55,2                                                CARD 360
  112 WRITE (6,115)                                                     CARD 370
  115 FORMAT(1H0)                                                       CARD 380
      WRITE (6,117)                                                     CARD 390
  117 FORMAT (10X,46H*ERROR - UPPER BOUND OF THIS SHIP SET PRECEDES,    CARD 400
     .    51H (ALPHABETICALLY) THE LOWER BOUND.  RUN IS ABORTED.)      CARD 410
      RETURN                                                            TEMP 420
      STOP                                                              CARD 430
C                                                                       CARD 440
C PRINT PAGE HEADING (IF NEW PAGE). -----------------------------       CARD 450
  120 IF (LINE.LT.60)  GO TO 131                                        CARD 460
      LINE=10                                                           CARD 470
      WRITE (6,130)                                                     CARD 480
  130 FORMAT (1H1/34X,22HSHIP GROUP DEFINITIONS/34X,22(1H-)/            CARD 490
     .    1H0/1H0,10X,5HGROUP/10X,28HNUMBER     S H I P   S E T S/     CARD 500
     .    10X,28H------      -----------------)                        CARD 510
C                                                                       CARD 520
C CHECK SHIP SET LIMITS FOR CORRECT ORDER.  ---------------------       CARD 530
  131 DO 132 I=1,6                                                      CARD 540
      IF (GRPDEF(N,I,1).EQ. BLANK)  GO TO 135                           CARD 550
      NOTE(I)=IBLANK                                                    CARD 560
C*****DO 150 J=1,2                                                      **** 570
C*150 GRPDEF(N,I,J)=ICBZ(GRPDEF(N,I,J))                                 **** 580
C*****IF (GRPDEF(N,I,2).GE.GRPDEF(N,I,1))  GO TO 132                    **** 590
      IF (GRPDEF(N,I,2).LE.GRPDEF(N,I,1))  GO TO 132                    **** 595
      NOTE(I)=IAST                                                      CARD 600
```

```
      IERROR=1                                                          CARD 610
  132 CONTINUE                                                          CARD 620
      NSETS=6                                                           CARD 630
      GO TO 137                                                         CARD 640
  135 NSETS=I-1                                                         CARD 650
C                                                                       CARD 660
C PRINT GROUP DEFINITION (THIS GROUP) ON UNIT 6.  ----------------      CARD 670
  137 WRITE (6,140)  IGRPNO(N),(IBLANK,(SHIP(I,J),IHULL(I,J),J=1,2),    CARD 680
     .     NOTE(I),I=1,NSETS)                                           CARD 690
  140 FORMAT (1H0,11X,I3,3X,A1,3(3X,A4,1X,A4,3H - ,A4,1X,A4,2A1)/       CARD 700
     .                    19X,3(3X,A4,1X,A4,3H - ,A4,1X,A4,2A1))       CARD 710
      LINE=LINE+(NSETS-1)/3 + 2                                         CARD 720
C                                                                       CARD 730
C WRITE GROUP DEFINITION ON UNIT 11.  ----------------------------      CARD 740
      WRITE (11)  BLANK,IDUM,BLANK,IGRPNO(N),IDUM,                      CARD 750
          ((SHIP(I,J),IHULL(I,J),J=1,2),I=1,6),FILLER                   CARD 760
C                                                                       CARD 770
      N=N+1                                                             CARD 780
      GO TO 100                                                         CARD 790
      END                                                               CARD 800
```

```
C*****SUBROUTINE DETGRP(SHULL),  RETURNS(IRET1)                          ****  10
      SUBROUTINE DETGRP(SHULL,*)                                        ****  20
C                                                                       DETG  30
C                                                                       DETG  40
C     SUBROUTINE DETGRP (DETERMINE GROUPS) PREPARES A LIST OF GROUPS    DETG  50
C THE CURRENT SHIP (SHULL) BELONGS TO.  IF THE SHIP BELONGS TO NO       DETG  60
C GROUP, A NON-STANDARD RETURN IS MADE.                                 DETG  70
C                                                                       DETG  80
C                                                                       DETG  90
C*****INTEGER SHULL,GRPDEF                                              **** 100
      REAL*8  SHULL,GRPDEF                                              **** 110
C                                                                       DETG 120
      COMMON /GROUPS/GRPDEF(100,6,2),IGRPNO(100),NGRPS,IGRPS(10),NG     DETG 130
C                                                                       DETG 140
C ---------------------------------------------------------------       DETG 150
C                                                                       DETG 160
      NG=0                                                              DETG 170
      DO 120 I=1,NGRPS                                                  DETG 180
      DO 100 J=1,6                                                      DETG 190
      IF (SHULL.LE.GRPDEF(I,J,1) .AND. SHULL.GE.GRPDEF(I,J,2)) GO TO 110**** 200
C*****IF (SHULL.GE.GRPDEF(I,J,1) .AND. SHULL.LE.GRPDEF(I,J,2)) GO TO 110**** 210
  100 CONTINUE                                                          DETG 220
      GO TO 120                                                         DETG 230
C                                                                       DETG 240
C PLACE THIS GROUP ON THE LIST.  --------------------------------       DETG 250
  110 NG=NG+1                                                           DETG 260
      IF (NG.GT.10)  GO TO 130                                          DETG 270
      IGRPS(NG)=IGRPNO(I)                                               DETG 280
  120 CONTINUE                                                          DETG 290
C*****IF (NG.EQ.0)  RETURN IRET1                                        **** 300
      IF (NG.EQ.0)  RETURN 1                                            **** 310
      RETURN                                                            DETG 320
C                                                                       DETG 330
C SHIP BELONGS TO TOO MANY GROUPS.  -----------------------------       DETG 340
  130 WRITE (6,140)  SHULL                                              DETG 350
  140 FORMAT (10X,A8,                 22H - BELONGS TO TOO MANY,        DETG 360
     .    49H (MORE THAN 10) GROUPS.  LIST IS TRUNCATED TO 10.)         DETG 370
      RETURN                                                            DETG 380
      END                                                               DETG 390
```

```
      FUNCTION ICBZ(IWORD)                                                  ICBZ  10
C                                                                           ICBZ  20
C     ICBZ (CHANGE BLANKS TO ZEROS) EXAMINES THE CHARACTERS OF IWORD        ICBZ  30
C AND CHANGES ANY BLANKS IT FINDS (OCTAL 55) TO ZEROS (OCTAL 00).           ICBZ  40
C                                                                           ICBZ  50
C***************************************************************************ICBZ  60
C********NOTE:  ICBZ IS A MACHINE-DEPENDENT FUNCTION.  USE IT   ********ICBZ  70
C********ONLY WHEN RUNNING ON A CDC 6000 SERIES COMPUTER.       ********ICBZ  80
C***************************************************************************ICBZ  90
C                                                                           ICBZ 100
C*****DATA MASK/77B/,  IBLANK/55B/                                          **** 110
C                                                                           ICBZ 120
C -------------------------------------------------------------------       ICBZ 130
C                                                                           ICBZ 140
C*****JMASK=MASK                                                            **** 150
C*****JBLANK=IBLANK                                                         **** 160
      JCBZ=IWORD                                                            ICBZ 170
C*****DO 110 I=1,10                                                         **** 180
C*****ITEMP=IWORD.AND.JMASK                                                 **** 190
C*****IF (ITEMP.NE.JBLANK)  GO TO 100                                       **** 200
C*****JCBZ=JCBZ.AND..NOT.JMASK                                              **** 210
C*100 JMASK =SHIFT( JMASK,6)                                                **** 220
C*****JBLANK=SHIFT(JBLANK,6)                                                **** 230
C*110 CONTINUE                                                              **** 240
      ICBZ=JCBZ                                                             ICBZ 250
      RETURN                                                                ICBZ 260
      END                                                                   ICBZ 270
```

6.2.6 GLOSSARY

COMMON VARIABLES

Common Block /GROUPS/

GRPDEF(100,6,2)	Lower (third subscript=1) and upper (third subscript =2) bounds of the six ship-type/hull-number ranges for up to 100 ship groups.
IGRPNO(100)	Group number of the ship groups.
NGRPS	Number of ship groups.
IGRPS(10)	List of groups (by group number) to which the current ship belongs.
NG	Number of groups to which the current ship belongs.

LOCAL VARIABLES

Main Program

I	DO-loop index.
INFO(9)	Array used to transfer some of the information from the SWBS File to the SWBS (by Groups) File.
RINFO(20)	Array used to transfer some of the information from the SWBS File to the SWBS (by Groups) File.
SHULL	Ship type and hull number of the current SWBS File record.
SHULLP	Ship type and hull number of the previous SWBS File record.
TW	Type of work of the current SWBS File record.
YARD	Shipyard of the current SWBS File record.

Subroutine CARDIO

BLANK	Contains Hollerith blanks.
FILLER(3)	Array whose elements are all zero.
I	DO-loop index.
IAST	Contains a Hollerith asterisk.
IBLANK	Contains Hollerith blanks.
IDUM	Contains zero.
IERROR	Error indicator. Indicates whether or not any errors were encountered in any of the group definitions.
IHULL(6,2)	Array containing the hull numbers of the six ship ranges of the current group. The second subscript indicates lower versus upper bounds.
J	DO-loop index.
LINE	Line counter for unit 6 hard-copy output.
N	Number of groups processed.
NOTE(6)	Array used in printing out the group definitions to flag erroneous ship ranges with an asterisk.
NSETS	Number of sets of ship ranges for the current group.
SHIP(6,2)	Array containing the ship types of the six ship ranges of the current group. The second subscript indicates lower versus upper bounds.

Subroutine DETGRP

I	DO-loop index.
J	DO-loop index.
SHULL	Ship type and hull number of the current ship.

6.2.7 SAMPLE RUN

The sample run of PREWBS used the SWBS File created by the program XPLODE (Volume 5) as its basic input file. Since this is a binary file, it cannot be merely printed out. However, a formatted version was prepared by XPLODE for the sample run and is reproduced in this section to enable the user to trace the processing done by PREWBS. Similarly, the PREWBS output file, the SWBS (by Groups) File (unit 11), is a binary file and, as such, cannot be meaningfully printed out. In this case, the file was sorted and a formatted version of the sorted SWBS (by Groups) File is displayed.

Card inputs to PREWBS defined the following three groups:

1. All CGN's
2. CGN 35
3. CV 59 Class ships

Unit 5 - Card Inputs

```
1       CGN     1   CGN 9999
1
2       CGN    35   CGN   35
2
3       CV     59   CV    62
3
-1
```

Unit 10 (Input) - Partial Printout of SWBS File (Formatted for Display)

```
CGN   40  RA  CHASN     0  82  NE  2       50182    70182  AAN
  1764.11     4288.15      479.89      213.42     4233.87     1318.77        0.00        0.00       38.24
     0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00    .027273    0.000000
CGN   37  RA  NORVA     0  78  NE  2       62178    82278  AAN
  1829.38     4446.81      497.64      221.32     4390.52     1367.56        0.00        0.00       39.66
     0.00        0.00        0.00     8219.86        0.00        0.00        0.00        0.00        0.00    .027273    .032100
CGN   37  RO  NORVA     0  81  NE  1       10281    30582  AAN
  1089.90    26796.73     4720.16     3876.10     9104.33     5187.26      647.38    14152.28    16373.05
  2347.35        0.00      166.75     7266.02     1015.13      166.75     1983.32        0.00        0.00    .282497    .260609
CGN   37  RO  NORVA     0  81  NE  2  *    10281    30582  AAN
  2579.65    63424.55    11172.03     9174.25    21548.83    12277.60     1532.28    33496.70    38752.98
  5555.90        0.00      394.68    17197.77     2402.70      394.68     4694.28        0.00        0.00    .282497    .260609
CGN   37  RO  NORVA     0  82  NE  1  *    10281    30582  AAN
   762.13    18737.99     3300.64     2710.42     6366.33     3627.28      452.69     9896.18    11449.09
  1641.42        0.00      116.60     5080.87      709.85      116.60     1386.87        0.00        0.00    .282497    .260609
CGN   38  RA  NORVA     0  79  NE  2       80379   100279  AAN
  1195.10     2905.01      325.10      144.58     2868.23      893.40        0.00        0.00       25.91
     0.00        0.00        0.00        0.00        0.00        0.00     4421.13        0.00        0.00    .027273    .134700
CGN   38  RA  NORVA     0  80  NE  1  *    80379   100279  AAN
     4.40       10.69        1.20         .53       10.56        3.29        0.00        0.00         .10
     0.00        0.00        0.00        0.00        0.00        0.00       16.27        0.00        0.00    .027273    .134700
CGN   38  RO  NORVA     0  82  NE  2       70182    90283  AAN
  1294.00    31814.81     5604.08     4601.96    10809.25     6158.65      768.61    16802.50    19439.14
     0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00    .282497    0.000000
CV    59  RA  NORVA     0  80  NE  2       50380    72980  CVA
  1007.53     7879.78     1924.83     3646.65    14470.07     2928.60     1838.36        0.00     3898.54
   840.03     1040.09        0.00     3316.43    13443.44      509.85    10562.08        0.00        0.00    .090289    .131661
CV    59  RA  NORVA     0  82  NE  1      100181   10182  CVA
  1767.60    13824.18     3376.90     6397.64    25386.10     5137.90     3225.20        0.00     6839.54
     0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00        0.00    .090289    0.000000
CV    60  RO  NORVA     0  79  NE  2       42079   120179  CVA
  8826.54    30881.64     3917.90     5505.33    37479.03    12170.27     3411.28       11.26    10380.20
  1969.72     4069.19        0.00    30904.94    17698.76      903.04    52928.20        0.00        0.00    .082278    .154559
CV    60  RO  NORVA     0  80  NE  1  *    42079   120179  CVA
  2039.97     7137.29      905.50     1272.38     8662.07     2812.76      788.41        2.60     2399.05
   455.24      940.46        0.00     7119.56     4090.50      208.71    12232.64        0.00        0.00    .082278    .154559
CV    62  RO  NORVA     0  78  NE  1      112177   101978  CVA
  7080.07    24771.21     3142.68     4416.01    30063.20     9762.19     2736.30        9.03     8326.30
     0.00      657.45      119.61    14637.83    18161.35      892.04    29953.32        0.00        0.00    .082278    .106010
CV    62  RO  NORVA     0  78  NE  2  *   112177   101978  CVA
 10060.25    35198.04     4465.52     6274.82    42717.57    13871.34     3888.08       12.83    11831.86
     0.00      934.19      169.96    20799.27    25805.83     1267.53    42561.44        0.00        0.00    .082278    .106010
CV    62  RO  NORVA     0  79  NE  1  *   112177   101978  CVA
   316.83     1108.51      140.64      197.62     1345.33      436.86      122.45         .40      372.60
     0.00       29.42        5.35      655.04      812.72       39.92     1340.41        0.00        0.00    .082278    .106010
```

Unit 6 - PREWBS Printed Output

SHIP GROUP DEFINITIONS

GROUP NUMBER	SHIP SETS
1	CGN 1 - CGN 9999
2	CGN 35 - CGN 35
3	CV 59 - CV 62

Unit 12 (Output of Sort) - Partial Printout of Sorted SWBS (by Groups) File (formatted for display)

GROUP 1 - CGN 1-CGN 9999

CGN	37	RA	NORVA	1	78	NE	2		62178	82278	AAN					
	1829.38		4446.81		497.64		221.32		4390.52	1367.56		0.00	0.00	39.66		
	0.00		0.00		0.00		8219.86		0.00	0.00		0.00	0.00	0.00	.027273	.032100
CGN	39	RA	PUGET	1	79	NW	2		71579	91579	AAN					
	0.00		0.00		0.00		0.00		0.00	0.00		0.00	0.00	0.00		
	0.00		0.00		0.00		8646.64		0.00	0.00		4803.69	0.00	0.00	.027273	.107829
CGN	36	RA	PUGET	1	79	NW	2	*	11579	41679	AAN					
	366.24		890.25		99.63		44.31		878.98	273.78		0.00	0.00	7.94		
	0.00		0.00		0.00		0.00		983.40	0.00		0.00	0.00	0.00	.027273	1.000000
CGN	36	RA	PUGET	1	79	NW	1		11579	41679	AAN					
	4907.61		11929.27		1335.01		593.72		11778.27	3668.73		0.00	0.00	106.39		
	0.00		0.00		0.00		0.00		13177.50	0.00		0.00	0.00	0.00	.027273	1.000000
CGN	35	RA	PUGET	1	79	NW	1		11579	31579	AAN					
	1764.11		4288.15		479.89		213.42		4233.87	1318.77		0.00	0.00	38.24		
	0.00		0.00		0.00		0.00		0.00	0.00		0.00	0.00	0.00	.027273	0.000000
CGN	25	RA	PUGET	1	79	NW	1		11579	31579	AAN					
	3528.22		8576.30		959.78		426.84		8467.74	2637.53		0.00	0.00	76.49		
	0.00		0.00		0.00		0.00		0.00	0.00		6934.91	0.00	0.00	.027273	.134700
CGN	9	C	PUGET	1	79	NW	2		40179	40182	AAN					
	6578.82		24263.38		2929.80		5880.75		27722.02	2003.61		3596.14	9254.78	23533.57		
	0.00		0.00		0.00		0.00		0.00	0.00		0.00	0.00	0.00	.220272	0.000000
CGN	38	RA	NORVA	1	79	NE	2		80379	100279	AAN					
	1135.10		2905.01		325.10		144.58		2868.23	893.40		0.00	0.00	25.91		
	0.00		0.00		0.00		0.00		0.00	0.00		4421.13	0.00	0.00	.027273	.134700
CGN	38	RA	NORVA	1	80	NE	1	*	80379	100279	AAN					
	4.40		10.69		1.20		.53		10.56	3.29		0.00	0.00	.10		
	0.00		0.00		0.00		0.00		0.00	0.00		16.27	0.00	0.00	.027273	.134700
CGN	9	C	PUGET	1	80	NW	1	*	40179	40182	AAN					
	13043.26		48104.87		5808.65		11659.24		54962.01	3984.27		7129.75	18348.63	46657.95		
	0.00		0.00		0.00		0.00		0.00	0.00		0.00	0.00	0.00	.220272	0.000000
CGN	9	C	PUGET	1	80	NW	2	*	40179	40182	AAN					
	13094.63		48294.34		5831.53		11705.17		55178.49	3999.37		7157.84	18420.90	46841.72		
	0.00		0.00		0.00		0.00		0.00	0.00		0.00	0.00	0.00	.220272	0.000000

6.3 PROGRAM REPWBS

6.3.1 DESCRIPTION

The REPWBS program produces summary reports of total direct labor mandays, direct labor dollars, and material dollars for various Ship Work Breakdown Structure (SWBS) categories projected for five fiscal years. These reports are generated for various ship groupings. The following nine SWBS categories are referred to in these reports:

1. Hull Structure
2. Propulsion Plant
3. Electrical Plant
4. Command and Surveillance (Shipboard Installations)
5. Auxiliary Systems
6. Outfit and Furnishings
7. Armament (Shipboard Installations)
8. Integration/Engineering (Shipboard Response)
9. Ship Assembly and Support Services

REPWBS uses as input a file, SWBS (by Groups), created by the program PREWBS. This program is a preprocessor that reads the SWBS File produced by the program XPLODE (Volume 5 - Synthesizer Subsystem) and a Group Definition Card Deck which defines various ship groupings. For each grouping there may be as many as six sets of lower and upper ship-type/hull-number range combinations. A group may consist of a single ship, a ship class, functional ship groupings, or any combination of these. In the sample run, work projected for all CGN's was desired. Therefore, group 1 was defined as CGN 1 through CGN 9999. Thus any hull number between 1 and 9999 was included. Group 2 consisted of one ship and was defined as CGN 35 through CGN 35. For each ship on the SWBS File, the program determines to which group, or groups, the ship belongs. The program PREWBS then creates and sorts a new file which has as a header

record the ship group definition, and which contains all records pertaining to those ships. These records are sorted by fiscal year within a group. The format for this file, SWBS (by Groups), is shown in Section 6.3.3.2.

REPWBS input data consist of a header card containing run identification information, the years to be reported on, and a material factor. In addition, a set of cards specifying manday rates must be input for each yard and year. Group Option Cards specify the reporting options and the shipyards for each of the groups to be reported on.

A "group total" report is always printed. Twelve other reports may optionally be generated for each ship group. Table 6.3-1 gives the 12 options. In addition, there may be 13 "yard" reports. That is, the work in as many as 13 shipyards may be reported on for each ship group. These reports show the direct labor mandays, direct labor dollars, and material dollars for all ships in a given shipyard for that ship grouping and the requested fiscal year.

Since data for one ship group are always printed before the next group is processed, any combination of reports may be selected. Therefore the sets of reports requested for one ship group may be entirely different from those selected for another. A ship group identification page, which lists the lower and upper limits of the ship type and hull number of all ships in the group, precedes all reports for that group.

As each record of the SWBS File is read, subroutine DOLLAR is called to determine the manday rate for the yard and year. Data are stored in an array according to the option and year, or in an array for yard and year. There are also arrays for "other" shipwork (UNOW). Such work is tabulated as a separate column since no breakdown of UNOW work by SWBS is currently available to the DMPPS. The subroutine REPORT calculates the material costs and extracts the data for reports by options and year for each requested ship group.

Figure 6.3-1 is a hierarchical diagram of REPWBS.

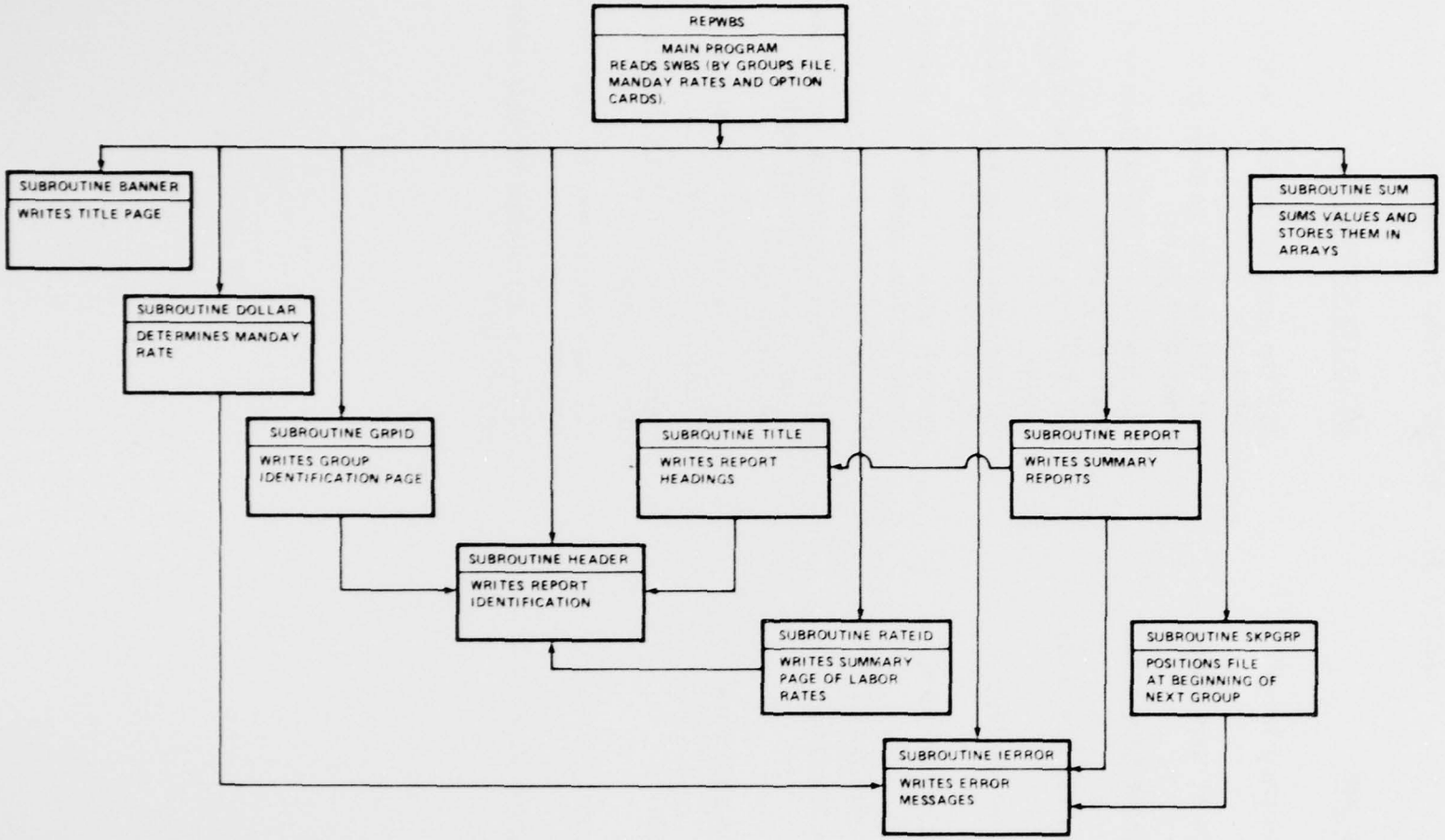


Figure 6.3-1 - PEPWBS Hierarchical Diagram

TABLE 6.3-1 - REPORT OPTIONS FOR REPWBS

REPORT NAME	INCLUSIVE CRITERIA
Work in Navy Yards	All the work to be done in Navy yards
East Coast Navy Yards	All the work to be done in east coast Navy yards
West Coast Navy Yards	All the work to be done in west coast Navy yards
Work in Private Yards	All the work to be done in private yards
East Coast Private	All the work to be done in east coast private yards
West Coast Private	All the work to be done in west coast private yards
Conversion Work	The type of work is Conversion
Active Ship Work	All the work performed on active ships (i.e., type of work is not NRT or MAP)
Reserve Ship Work	All work performed on Naval Reserve Training (NRT) ships
MAP Work	Type of work is Military Assistance Program (MAP)
Repair Work	All work attributed to ship/ordnance repairs
Alteration Work	All work attributed to ship/ordnance alterations

Main Program

The function of the main program is to produce data for summary reports of projected workload by Ship Work Breakdown Structure (SWBS) for direct labor mandays, direct labor costs, and material costs. Reports may be generated by ownership, coast, active shipwork, Conversion, Reserve shipwork, Military Assistance Program (MAP) work, and repair and alteration work. All work in any given shipyard may be reported on by ship group and by year. The program uses as input the SWBS (by Groups) File, Manday Rate cards, and Group Option cards.

Subroutine BANNER

This subroutine writes a report title page with the words "SWBS REPORTS". The date and identifying information appear in the upper left corner.

Subroutine DOLLAR

Subroutine DOLLAR uses the year and yard from each record on the SWBS File and determines the appropriate manday rate. Since no rates have been stored for the private yards, the value of $150 per manday is used. If no manday rates are stored for a particular year and yard, an error message is written and that record is omitted.

Subroutine GRPID

This subroutine writes the group identification page which precedes all reports (for the group). It gives the lower and upper limits of all the ship-type/hull-number range combinations in the group.

Subroutine HEADER

Subroutine HEADER writes report identification information in the upper left corner of each page and the page number in the upper right corner. SWBS reports are identified by the number "63" followed by the date and the identifying information input from the header card.

Subroutine IERROR

The function of subroutine IERROR is to generate error messages indicating lack of data for specific conditions. Table 6.3-2 lists the conditions which cause error messages to be printed and the message that is written on unit 8. A group number of zero will cause the program to stop.

Subroutine RATEID

The purpose of subroutine RATEID is to write a summary page of labor rates which are expressed in dollars per manday. The rates are tabulated for the required years for each shipyard. This subroutine also gives the material factor as a percent of total labor cost.

Subroutine REPORT

Subroutine REPORT uses the group number, the options, and the arrays of data collected by other subroutines and extracts the data elements by SWBS for individual reports. Any "other" shipwork (UNOW) data are tabulated as individual items under a heading of "OTHER". Material costs are calculated as a percent of total direct labor cost. If a report has been requested but no data are found, subroutine IERROR is called and an error message is written.

Subroutine SKPGRP

Subroutine SKPGRP is used to skip all records on the SWBS (by Groups) File relating to a given ship group. A negative value for the fiscal year signals the header record for a new group. When a negative value is encountered, the file is backspaced and is positioned at the beginning of the next group.

Subroutine SUM

This subroutine sums the manday values and labor costs and stores them in arrays for scheduled shipwork and for "other" shipwork (UNOW). Unless repair and alteration data are to be reported on separately, their values are combined. In the arrays for scheduled work, the first subscript refers to the option or to the yard, the second subscript refers to the year, and the third subscript refers to the manday values or to the labor costs. In the UNOW arrays, the first subscript refers to the option or yard, the second subscript refers to the year, and the third subscript refers to (1) total other manday work and (2) total other labor costs.

Subroutine TITLE

This subroutine is called by subroutine REPORT with a flag designating the type of report headings to be written. If there is UNOW work, an extra column for "other" work must be included.

TABLE 6.3-2 - ERROR MESSAGES GENERATED BY REPWBS

Flag	Option	Condition	Printed Message
1	-	Group number is zero or blank	GROUP NUMBER = 0, USE OTHER VERSION OF PRO-GRAM
2	-	End of file mark encountered in reading SWBS (By Groups) File	END OF FILE ENCOUNTERED
3	-	No manday rates found for the required year	NO MANDAY RATES FOR 19xx
4	-	No manday rates found for the required yard	NO MANDAY RATE FOR xxxx
5	1	No data for Navy shipyard work for the required year and group	NO NAVY YARD WORK FOR 19xx FOR GROUP xx
	2	No data for east coast Navy shipyard work for the required year and group	NO EAST COAST NAVY YARD WORK FOR 19xx FOR GROUP xx
	3	No data for west coast Navy shipyard work for the required year and group number	NO WEST COAST NAVY YARD WORK FOR 19xx FOR GROUP xx
	4	No data for private yard work for the required year and group number	NO PRIVATE YARD WORK FOR 19xx FOR GROUP xx
	5	No data for east coast private yard work for the required year and group number	NO EAST COAST PRIVATE YARD WORK FOR 19xx FOR GROUP xx
	6	No data for west coast private yard work for the required year and group number	NO WEST COAST PRIVATE YARD WORK FOR 19xx FOR GROUP xx
	7	No data for Conversion work done for the required year and group number	NO CONVERSION WORK FOR 19xx FOR GROUP xx
	8	No data for Active ship work (all work except NRT and MAP) for the required year and group number	NO ACTIVE SHIP WORK FOR 19xx FOR GROUP xx
	9	No data for Naval Reserve Training work for the re-quired year and group number	NO RESERVE WORK FOR 19xx FOR GROUP xx

ERROR MESSAGES (Continued)

Flag	Option	Condition	Printed Message
5	10	No data for Military Assistance Program work for the required year and group number	NO MAP WORK FOR 19xx FOR GROUP xx
	11	No data for any of the ships in the required group	NO DATA FOR GROUP xx
6	-	No data for a specified yard for the required group	NO DATA FOR xxxxx FOR GROUP xx

6.3.2 RUN SET-UP

The following set-up is used to run the REPWBS program on the IBM 360/370 computer:

```
//NVSWBS   JOB (XXXXXXXXXX,XXXXX),USER,CLASS=C,TIME=(,15),MSGLEVEL=1
//JOBLIB DD DSN=NVS01.DEPOT.LIB,DISP=SHR
// EXEC PGM=REPWBS
//GO.FT05F001  DD *
```

REPWBS card inputs (unit 5)

```
//GO.FT06F001 DD SYSOUT=A                                    (SWBS REPORTS)
//GO.FT08F001 DD SYSOUT=A                                   (ERROR MESSAGES)
//GO.FT12F001 DD DSN=NVS01.SWBS.GROUPS.DATA,DISP=SHR          (INPUT FILE)
```

6 3.3 INPUTS

Card inputs are made using unit 5. Section 6.3.3.1 shows the format for the input cards.

Unit 5 - Card inputs which: (1) give identifying report information and desired years, (2) give manday rates, (3) select group numbers and report options, (4) request yards to be reported on.

The following additional unit is used to input information from a disk file previously created by the program PREWBS:

Unit 12 - SWBS (by Groups) Data File.

The format for this file is given in Section 6.3.3.2.

6.3.3.1 Unit 5 - Card Inputs

Header Card. This card must appear as the first input card. Its format is:

Variable Name	Description	Field	Format
DATE(1-3)	Date (mo/dy/yr)	1-12	3A4
COMENT(1-5)	Report identification information	15-34	5A4
IYEAR(1-5)	Array of years to be reported on	40-53	5I2
IMAT	Percent of direct labor costs for material	72-74	I3

Manday Rate Cards. The Manday Rate Deck consists of one card for each shipyard giving manday rates for the fiscal years to be reported on. A Manday Rate Terminator Card follows the final Manday Rate Card.

Manday Rate Card

Variable Name	Description	Field	Format
IYARD	Yard name	1-5	A5
RATE(1-5)	Array of manday rates for five fiscal years	6-40	5(1X,F6.2)

Manday Rate Terminator Card

Variable Name	Description	Field	Format
LAST	Terminator; contains the characters "LAST"	1-4	A4

Group Option Cards. The Group Option Deck describes the various report options. There are two cards for each required group: a type A card which describes the report options, and a type B card which designates the yards to be reported on. The Group Option Deck is terminated with a negative group number.

Type A Group Option Card

Variable Name	Description	Field	Format
IGRP	Group number	1-3	I3

	To Request Reports on:	Punch Characters:*		
ZNAVWK	Work in Navy Yards	"NAV"	5-7	A3
ZNAVE	East Coast Navy Yards	"NE"	9-10	A2
ZNAVW	West Coast Navy Yards	"NW"	12-13	A2
ZPRI	Work in Private Yards	"PRI"	15-17	A3
ZPRIE	East Coast Private	"PE"	19-20	A2
ZPRIW	West Coast Private	"PW"	22-23	A2
ZCON	Conversion Work	"C"	25	A1
ZACT	Active Ship Work	"ACT"	29-31	A3
ZRES	Reserve Ship Work	"RES"	33-35	A3
ZZMAP	Map Work	"MAP"	37-39	A3
ZREP	Repair Work	"REP"	41-43	A3
ZALT	Alteration Work	"ALT"	45-47	A3

*Variable contains the noted characters if that report is requested; otherwise those fields are left blank.

Type B Group Option Card

Variable Name	Description	Field	Format
IYDSEL(1-13)	Array of yards to be reported on	1-78	13(A5,1X)

6.3.3.2 Unit 12 - SWBS (by Groups) Data File

The program PREWBS sorts the SWBS File, created by program XPLODE, by ship groupings. A Group Definition Record precedes the ship availability data for those ships in the group. Each record contains direct labor repair mandays and direct labor alteration mandays by SWBS.

The SWBS (by Groups) File is sorted in ascending order by the following parameters:

Group number
Fiscal year

Since this is a binary file, the format presented is given only as a guide to indicate the size of the variables.

Group Definition Records. The format of each Group Definition Record on the SWBS (by Groups) File is as follows:

Variable Name	Description	Position	Format
DUM	Double precision dummy variable	1	(A8)
IDUM1	Dummy variable	2	(A3)
DUM1	Double precision dummy variable	3	(A5)
IGROUP	Group number	4	(I3)
IDUM2	Variable contains zero	5	(I2)
SHIP(1,1)	Lower bound of first ship type in a group	6	(A4)
IHULL(1,1)	Lower bound of first hull number in a group	7	(A4)
SHIP(1,2)	Upper bound of first ship type in a group	8	(A4)
IHULL(1,2)	Upper bound of first hull number in a group	9	(A4)
SHIP(2,1)	Lower bound of second ship type in a group	10	(A4)

Group Definition Records. (Continued)

Variable Name	Description	Position	Format
IHULL(2,1)	Lower bound of second hull number in a group	11	(A4)
.	.	.	.
.	.	.	.
.	.	.	.
SHIP(6,2)	Upper bound of sixth ship type in a group	28	(A4)
IHULL(6,2)	Upper bound of sixth hull number in a group	29	(A4)
FILLER(1-3)	Dummy array	30-33	(3A4)

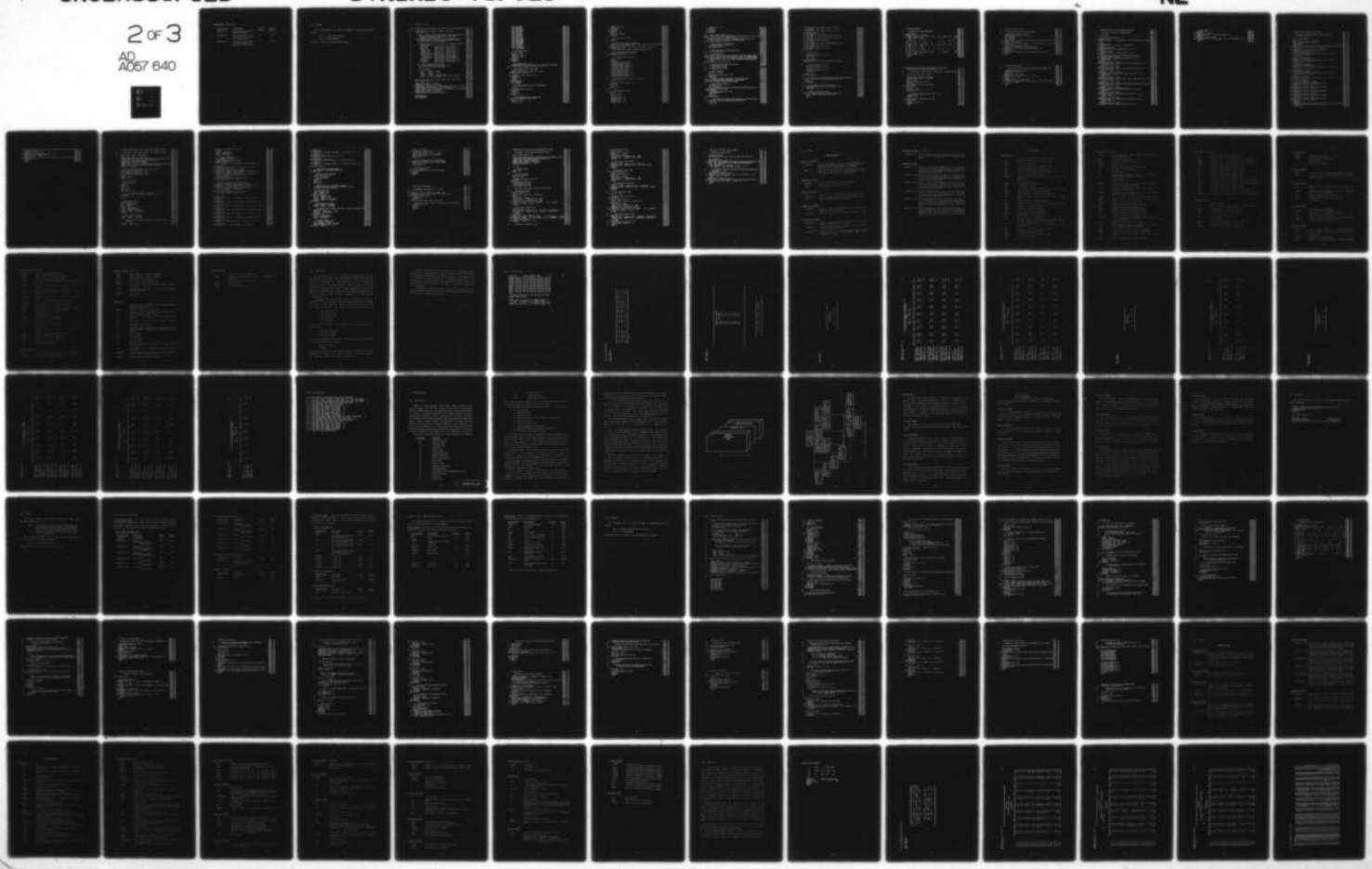
SWBS Record. Each SWBS Record corresponds to a DMAF Record. Any DMAF record describing ships specified by the Group Definition Record are included. The format of each SWBS Record is as follows:

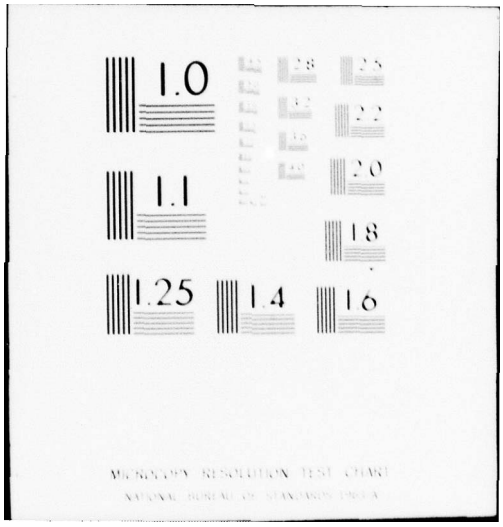
Variable Name	Description	Position	Format
ISHULL	Ship-type/hull-number	1	(A8)
ITYPWK	Type work	2	(A3)
IYD	Yard	3	(A5)
IGROUP	Group number	4	(I3)
IFYR	Fiscal year (this record)	5	(I2)
OWN	Yard ownership indicator	6	(A1)
COAST	Coast	7	(A1)
IPERD	Period (this record)	8	(I1)
ICONT	Continuation indicator	9	(A1)
ISTRT	Availability start date (mo/dy/yr)	10	(I6)
IEND	Availability end date (mo/dy/yr)	11	(I6)
ISPEC	Specialization category	12	(A3)
WVALR(1-9)	Total direct repair man-days for SWBS	13-21	(9F10.2)

AD-A057 640 DAVID W TAYLOR NAVAL SHIP RESEARCH AND DEVELOPMENT CE--ETC F/G 15/5
DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM (DMPPS). VOLU--ETC(U)
AUG 78 J K ST. LAURENT, L L LAMATRICE

UNCLASSIFIED DTNSRDC-78/025 NL

2 OF 3
AD
A057 640

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1.1
1.25
1.4
1.6
2.0
2.2
2.5
2.8
3.2
3.6
4.0
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

SWBS RECORD. (Continued)

Variable Name	Description	Position	Format
WVALA(1-9)	Total direct alteration mandays for SWBS	22-30	(9F10.2)
MATREP(10,20)	Fraction of total direct repair mandays required for "other direct"	31	(F10.6)
MATALT(10,20)	Fraction of total direct alteration mandays required for "other direct"	32	(F10.6)

6.3.4 OUTPUT

The following units are used by REPWBS for generating hard-copy output:

Unit 6 - Summary SWBS reports.

Unit 8 - Error messages.

Section 6.3.7 shows a sample of these outputs.

6.3.5 PROGRAM LISTING

```
C*****PROGRAM REPWBS(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT,TAPE8,TAPE12)****  10
C                                                                            REPW  20
C      PROGRAMMER JEAN ST LAURENT - DTNSRDC - CODE 1863                      REPW  30
C      WRITTEN MAY 1976                                                      REPW  40
C                                                                            REPW  50
C        REPWBS IS A REPORT GENERATOR FOR TOTAL DIRECT LABOR MANDAYS          REPW  60
C          AND MATERIAL DOLLARS BY SWBS FOR SHIP GROUPINGS,                  REPW  70
C            BROKEN DOWN BY FISCAL YEAR                                      REPW  80
C      SHIP GROUPINGS (IGRP) AND YEAR (IYEAR) ARE INPUT VALUES               REPW  90
C      THE PROGRAM PREWBS IS A PREPROCESSOR FOR REPWBS WHICH SORTS           REPW 100
C          THE SWBS DATA FILE BY SHIP GROUPINGS                              REPW 110
C                                                                            REPW 120
C        IN ADDITION TO A GROUP TOTAL REPORT, THE FOLLOWING OPTIONS          REPW 130
C            ARE AVAILABLE                                                   REPW 140
C            NAVY WORK -        INPUT AS NAV - USED AS IOPT = 1              REPW 150
C            NAVY EAST -        INPUT AS NE  - USED AS IOPT = 2              REPW 160
C            NAVY WEST -        INPUT AS NW  - USED AS IOPT = 3              REPW 170
C            PRIVATE WORK -     INPUT AS PRI - USED AS IOPT = 4              REPW 180
C            PRIVATE EAST -     INPUT AS PE  - USED AS IOPT = 5              REPW 190
C            PRIVATE WEST -     INPUT AS PW  - USED AS IOPT = 6              REPW 200
C            CONVERSION WORK -  INPUT AS CON - USED AS IOPT = 7              REPW 210
C            ACTIVE SHIPS -     INPUT AS ACT - USED AS IOPT = 8              REPW 220
C               (ACTIVE WORK IS ALL WORK EXCEPT NRT AND MAP)                 REPW3225
C            RESERVE SHIPS -    INPUT AS RES - USED AS IOPT = 9              REPW 230
C            MAP WORK -         INPUT AS MAP - USED AS IOPT = 10             REPW 240
C            REPAIR WORK -      INPUT AS REP - USED AS IOPT = 11             REPW 250
C            ALT WORK -         INPUT AS ALT - USED AS IOPT = 12             REPW 260
C                                                                            REPW 270
C       ALSO, SUMMARIES MAY BE MADE BY YARD                                  REPW 280
C          UP TO 13 DIFFERENT YARDS MAY BE SELECTED                          REPW 290
C          THEY ARE INPUT IN THE IYDSEL ARRAY                                REPW 300
C                                                                            REPW 310
C          TAPE ASSIGNMENTS                                                  REPW 320
C          --------------------------                                        REPW 330
C            TAPE5  -  INPUT  -  CARDS                                       REPW 340
C            TAPE6  -  OUTPUT                                                REPW 350
C            TAPE8  -  OUTPUT  -  ERRORS, ONLY                               REPW 360
C            TAPE12  -  INPUT OF SWBS DATA FILE SORTED BY PREWBS             REPW 370
C          --------------------------                                        REPW 380
C                                                                            REPW 390
      REAL*8 IYDSEL, IYD, LAST, ISHULL, IYARD, DUM1, IDBL, IBLANK            **** 400
      REAL ITYPWK, IUNOW                                                     REP  405
C                                                                            REPW 410
      COMMON/IDENT/COMENT(5), DATE(3)                                        REPW 420
      COMMON/IDATA/ SHIP(6,2), IHULL(6,2)                                    REPW 430
      COMMON /WORK/ ARRAY1(13,5,18), ARRAY2(13,5,18), ARRAYD(13,5,18),       REPW 440
     1  ARRAYM(13,5,18), UARRAY(13,5,2), UYARD(13,5,2)                       REPW 450
      COMMON /OTHER/ IFLAG(15,5), IFLAGG(15,5), IUNOS(15,5),IUNOSS(15,5)     REPW 460
      COMMON /MISC/ IYEAR(5), RATE(15,5)                                     REPW 470
      COMMON /NPUT/ IYDSEL(13), IYARD(15)                                    REPW 480
      DIMENSION IOPT(14), FILLER(3), VALUES(18)                              REPW 490
C                                                                            REPW 500
      DATA ZN/1HN/                                                           REPW 510
      DATA ZNAVY/3HNAV/                                                      REPW 520
      DATA EAST/1HE/                                                         REPW 530
```

```
      DATA WEST/1HW/                                                    REPW 540
      DATA ZNE/2HNE/                                                    REPW 550
      DATA ZNW/2HNW/                                                    REPW 560
      DATA PRIV/3HPRI/                                                  REPW 570
      DATA PRI/1HP/                                                     REPW 580
      DATA ZPE/2HPE/                                                    REPW 590
      DATA ZPW/2HPW/                                                    REPW 600
      DATA CON/3HCON/                                                   REPW 610
      DATA CONV/3HC  /                                                  REPW 620
      DATA ACT/3HACT/                                                   REPW 630
      DATA RES/3HRES/                                                   REPW 640
      DATA ZNRT/3HNRT/                                                  REPW 650
      DATA ZMAP/3HMAP/                                                  REPW 660
      DATA REP/3HREP/                                                   REPW 670
      DATA ALT/3HALT/                                                   REPW 680
      DATA IBLANK/8H        /                                           REPW 690
      DATA LAST/5HLAST /                                                REPW 700
      DATA IUNOW/3HOW /                                                 REPW 730
C                                                                       REPW 750
C        INITIALIZE ARRAYS                                              REPW 760
      DO 15 J = 1,13                                                    REPW 770
      DO 10 I = 1,5                                                     REPW 780
      IYEAR(I) = 0                                                      REPW 790
      IYARD(J) = IBLANK                                                 REPW 800
      RATE(J,I) = 0                                                     REPW 810
   10 CONTINUE                                                          REPW 820
   15 CONTINUE                                                          REPW 830
      IONCE = 0                                                         REPW 840
C                                                                       REPW 850
C        READ HEADER CARD                                               REPW 860
      READ(5,100) DATE, (COMENT(I),I=1,5),  (IYEAR(I),I=1,5),IMAT       REPW 870
  100 FORMAT(3A4,2X, 5A4,5X, 5(I2,1X), 17X, I3)                         REPW 880
C                                                                       REPW 890
C        READ LABOR RATES FOR EACH YARD                                 REPW 900
      DO 20 I = 1,15                                                    REPW 910
      READ (5,101) IYARD(I), (RATE(I,J), J=1,5)                         REPW 920
  101 FORMAT(A5, 5(1X,F6.2))                                            REPW 930
      II = I                                                            REPW 940
      IF(IYARD(I) .EQ. LAST) GO TO 25                                   REPW 950
   20 CONTINUE                                                          REPW 960
      NOYARD = II                                                       REPW 970
      GO TO 27                                                          REPW 980
   25 NOYARD = II - 1                                                   REPW 990
   27 CALL HEADER(1)                                                    REPW1000
      CALL BANNER                                                       REPW1010
C                                                                       REPW1020
C        DETERMINE NUMBER OF YEARS TO BE PROCESSED                      REPW1030
      DO 30 I = 1,5                                                     REPW1040
      II = I                                                            REPW1050
      IF(IYEAR(I).EQ.0) GO TO 35                                        REPW1060
   30 CONTINUE                                                          REPW1070
      NYEAR = II                                                        REPW1080
      GO TO 38                                                          REPW1090
   35 NYEAR = II - 1                                                    REPW1100
C                                                                       REPW1110
C        WRITE SUMMARY PAGE OF MANDAY RATES                             REPW1120
   38 CALL RATEID(NOYARD, NYEAR, IMAT)                                  REPW1130
   40 DO 45 I = 1,15                                                    REPW1140
      DO 43 J = 1,5                                                     REPW1150
      IFLAG(I,J) = 0                                                    REPW1160
```

```
      IFLAGG(I,J) = 0                                                   REPW1170
      IUNOS(I,J) = 0                                                    REPW1180
      IUNOSS(I,J) = 0                                                   REPW1190
   43 CONTINUE                                                          REPW1200
   45 CONTINUE                                                          REPW1210
      DO 48 J = 1,13                                                    REPW1220
      IYDSEL(J) = IBLANK                                                REPW1230
   48 CONTINUE                                                          REPW1240
C                                                                       REPW1250
C        SET FLAG FOR UNOS WORK                                         REPW1260
      III = 0                                                           REPW1270
      IEXTRA = 0                                                        REPW1280
C                                                                       REPW1290
C        READ 1ST GROUP CARD WITH OPTIONS                               REPW1300
      READ(5,102) IGRP, ZNAVWK, ZNAVE, ZNAVW, ZPRI, ZPRIE, ZPRIW, ZCON, REPW1310
     1  ZACT, ZRES, ZZMAP, ZREP, ZALT                                   REPW1320
  102 FORMAT(I3, 1X, A3, 2(1X,A2), 1X, A3, 2(1X,A2), 6(1X,A3))          REPW1330
      IF(IGRP.LT.1) STOP                                                REPW1340
      IF(IGRP.EQ.0) CALL IERROR(1,IDUMMY,IDUM3,IDUM4,IDBL)              REPW1350
C                                                                       REPW1360
C        READ 2ND GROUP CARD WITH YARDS                                 REPW1370
      READ(5,103) (IYDSEL(I),I=1,13)                                    REPW1380
  103 FORMAT(13(A5,1X))                                                 REPW1390
C                                                                       REPW1400
C        SET FLAG FOR VARIOUS OPTIONS                                   REPW1410
      DO 50 I = 1,14                                                    REPW1420
      IOPT(I) = 0                                                       REPW1430
   50 CONTINUE                                                          REPW1440
      IF(ZNAVWK.EQ.ZNAVY) IOPT(1) = 1                                   REPW1450
      IF(ZNAVE.EQ.ZNE) IOPT(2) = 2                                      REPW1460
      IF(ZNAVW.EQ.ZNW) IOPT(3) = 3                                      REPW1470
      IF(ZPRI.EQ.PRIV) IOPT(4) = 4                                      REPW1480
      IF(ZPRIE.EQ.ZPE) IOPT(5) = 5                                      REPW1490
      IF(ZPRIW.EQ.ZPW) IOPT(6) = 6                                      REPW1500
      IF(ZCON.EQ.CON) IOPT(7) = 7                                       REPW1510
      IF(ZACT.EQ.ACT) IOPT(8) = 8                                       REPW1520
      IF(ZRES.EQ.RES) IOPT(9) = 9                                       REPW1530
      IF(ZZMAP.EQ.ZMAP) IOPT(10) = 10                                   REPW1540
      IF(ZREP.EQ.REP) IOPT(11) = 11                                     REPW1550
      IF(ZALT.EQ.ALT) IOPT(12) = 12                                     REPW1560
C                                                                       REPW1570
C        DETERMINE NUMBER OF YARDS TO BE PROCESSED                      REPW1580
      DO 60 I = 1,13                                                    REPW1590
      II = I                                                            REPW1600
      IF(IYDSEL(I).EQ.IBLANK) GO TO 65                                  REPW1610
   60 CONTINUE                                                          REPW1620
      NYDS = II                                                         REPW1630
      GO TO 70                                                          REPW1640
   65 NYDS = II - 1                                                     REPW1650
C                                                                       REPW1660
C        INITIALIZE DATA ARRAYS                                         REPW1670
   70 DO 85 I = 1,13                                                    REPW1680
      DO 80 J = 1,5                                                     REPW1690
      DO 75 K = 1,18                                                    REPW1700
      DO 72 L = 1,2                                                     REPW1710
      ARRAY1(I,J,K) = 0.0                                               REPW1720
      ARRAY2(I,J,K) = 0.0                                               REPW1730
      ARRAYD(I,J,K) = 0.0                                               REPW1740
      ARRAYM(I,J,K) = 0.0                                               REPW1750
      UARRAY(I,J,L) = 0.0                                               REPW1760
```

```
      UYARD(I,J,L) = 0.0                                                    REPW1770
   72 CONTINUE                                                              REPW1780
   75 CONTINUE                                                              REPW1790
   80 CONTINUE                                                              REPW1800
   85 CONTINUE                                                              REPW1810
C                                                                           REPW1820
C        READ HEADER RECORD OF FILE                                         REPW1830
C**90 READ(12) DUM1, IDUM1, DUM1, IGROUP, IDUM2,((SHIP(I,J), IHULL(I,J),*****1840
C****1  J=1,2), I=1,6), (FILLER(K),K=1,3)                                   *****1850
   90 READ(12,END=400) DUM1,IDUM1,DUM1,IGROUP,IDUM2,((SHIP(I,J),           *****1860
     1  IHULL(I,J),J=1,2), I=1,6), (FILLER(K),K=1,3)                       *****1870
C*****IF(EOF(12).NE.0) GO TO 400                                            *****1880
C                                                                           REPW1890
C        CHECK ON MATCH OF GROUP NUMBER                                     REPW1900
      IF(IGRP.EQ.IGROUP) GO TO 95                                           REPW1910
      CALL SKPGRP(IONCE)                                                    REPW1920
      GO TO 90                                                              REPW1930
C                                                                           REPW1940
C        WRITE SHIP GROUP IDENTIFICATION PAGE                               REPW1950
   95 CALL GRPID(IGROUP)                                                    REPW1960
C                                                                           REPW1970
C        READ DATA RECORD                                                   REPW1980
C*200 READ(12) ISHULL, ITYPWK, IYD, IGROUP, IFYR, OWN, COAST, IPERD,       *****1990
C****1  ICONT, ISTRT, IEND, ISPEC, (VALUES(I),I=1,18), MATREP,MATALT        *****2000
  200 READ(12,END=400) ISHULL, ITYPWK, IYD, IGROUP, IFYR, OWN, COAST,       *****2010
     1  IPERD, ICONT, ISTRT, IEND, ISPEC, (VALUES(I),I=1,18),MATREP,       *****2020
     I  MATALT                                                              *****2030
C*****IF(EOF(12) .NE.0) GO TO 400                                           *****2040
C                                                                           REPW2050
C        CHECK FOR END OF THIS SHIP GROUPING                                REPW2060
      IF(IFYR.LT.0) GO TO 360                                               REPW2070
C        REVERSE TEST FOR 360
C**** IF(IFYR.LE.0) GO TO 360                                               REPW2070
C                                                                           REPW2080
C        CHECK ON YEAR                                                      REPW2090
      DO 205 I = 1,NYEAR                                                    REPW2100
      JJ = I                                                                REPW2110
      IF(IFYR.EQ.IYEAR(I)) GO TO 208                                        REPW2120
  205 CONTINUE                                                              REPW2130
      GO TO 200                                                             REPW2140
C        DETERMINE CORRECT MANDAY RATE FOR YARD AND YEAR                    REPW2150
C*208 CALL DOLLAR(IYD,IFYR,OWN,YDRATE), RETURNS(200)                        *****2160
  208 CALL DOLLAR(IYD,IFYR,OWN,YDRATE,$200)                                 *****2170
C                                                                           REPW2180
C        CHECK VARIOUS OPTIONS                                              REPW2190
      DO 330 I = 1,12                                                       REPW2200
      II = IOPT(I) + 1                                                      REPW2210
      GO TO (330,210,220,230,240,250,260,270,280,290,300,215,215), II       REPW2220
  210 IF(OWN.NE.ZN) GO TO 330                                               REPW2230
  215 CONTINUE                                                              REPW2240
      IF(ITYPWK.NE.IUNOW) GO TO 218                                         REPW2246
      IUNOS(I,JJ) = 1                                                       REPW2250
      III = 1                                                               REPW2260
      GO TO 219                                                             REPW2270
  218 IFLAG(I,JJ) = 1                                                       REPW2280
C                                                                           REPW2290
C        STORE VALUES IN AN ARRAY WITH SUBSCRIPT FOR OPTION AND YEAR        REPW2300
  219 CALL SUM(II,VALUES,IYD,IFYR,YDRATE,III,IEXTRA)                        REPW2310
      III = 0                                                               REPW2320
      GO TO 330                                                             REPW2330
```

```
  220 IF(OWN.EQ.ZN .AND. COAST.EQ.EAST) GO TO 215                    REPW2340
      GO TO 330                                                      REPW2350
  230 IF(OWN.EQ.ZN .AND. COAST.EQ.WEST) GO TO 215                    REPW2360
      GO TO 330                                                      REPW2370
  240 IF(OWN.EQ.PRI) GO TO 215                                       REPW2380
      GO TO 330                                                      REPW2390
  250 IF(OWN.EQ.PRI .AND. COAST.EQ.EAST) GO TO 215                   REPW2400
      GO TO 330                                                      REPW2410
  260 IF(OWN.EQ.PRI .AND. COAST.EQ.WEST) GO TO 215                   REPW2420
      GO TO 330                                                      REPW2430
  270 IF(ITYPWK.EQ.CONV) GO TO 218                                   REPW2440
      GO TO 330                                                      REPW2450
  280 IF(ITYPWK.NE.ZNRT .AND. ITYPWK.NE.ZMAP) GO TO 215              REPW2460
      GO TO 330                                                      REPW2470
  290 IF(ITYPWK.EQ.ZNRT) GO TO 218                                   REPW2480
      GO TO 330                                                      REPW2490
  300 IF(ITYPWK.EQ.ZMAP) GO TO 218                                   REPW2500
  330 CONTINUE                                                       REPW2510
C                                                                    REPW2520
C        GROUP TOTAL                                                 REPW2530
      II = 1                                                         REPW2540
      IF(ITYPWK.NE.IUNOW) GO TO 335                                  REPW2550
      IUNOS(13,JJ) = 1                                               REPW2560
      III = 1                                                        REPW2570
      GO TO 340                                                      REPW2580
  335 IFLAG(13,JJ) = 1                                               REPW2590
  340 CALL SUM(II,VALUES,IYD,IFYR,YDRATE,III,IEXTRA)                 REPW2600
      III = 0                                                        REPW2610
C                                                                    REPW2620
C        CHECK ON YARDS THAT MATCH                                   REPW2630
      DO 355 J = 1, NYDS                                             REPW2640
      IF(IYD.NE.IYDSEL(J)) GO TO 355                                 REPW2650
      II = 14                                                        REPW2660
      IF(ITYPWK.NE.IUNOW) GO TO 345                                  REPW2670
      IUNOSS(J,JJ) = 1                                               REPW2680
      III = 1                                                        REPW2690
      GO TO 350                                                      REPW2700
  345 IFLAGG(J,JJ) = 1                                               REPW2710
C                                                                    REPW2720
C        STORE VALUES IN AN ARRAY WITH SUBSCRIPT FOR YARD AND YEAR   REPW2730
  350 CALL SUM(II,VALUES,IYD,IFYR,YDRATE,III,IEXTRA)                 REPW2740
      III = 0                                                        REPW2750
  355 CONTINUE                                                       REPW2760
      GO TO 200                                                      REPW2770
C                                                                    REPW2780
C        CALL REPORT FOR THIS SHIP GROUPING                          REPW2790
  360 CALL REPORT(NYEAR,IOPT,IMAT,NYDS,IEXTRA,IGRP)                  REPW2800
      BACKSPACE 12                                                   REPW2810
      GO TO 40                                                       REPW2820
C                                                                    REPW2830
C        ERROR PATH FOR END OF FILE                                  REPW2840
  400 CALL REPORT(NYEAR,IOPT,IMAT,NYDS,IEXTRA,IGRP)                  REPW2845
      CALL IERROR(2,IDUMMY,IDUM3,IDUM4,IDBL)                         REPW2850
      STOP                                                           REPW2860
      END                                                            REPW2870
```

```
      SUBROUTINE BANNER                                                  BANN  10
C                                                                        BANN  20
C        SUBROUTINE TO PRINT BANNER PAGE                                 BANN  30
C                                                                        BANN  40
      WRITE(6,100)                                                       BANN  50
  100 FORMAT(////, 27X, 79(1HX) //,                                      BANN  60
     1  28X, 77H XXXX   X    X  XXXX     XXXX     XXXX    XXXXX  XXXX     XXX BANN  70
     2  XXXX   XXXXX    XXXX/                                           BANN  80
     3  28X, 77HX       X    X  X    X  X         X    X  X       X    X  X   XBANN  90
     4  X    X     X     X    /                                         BANN 100
     5  28X, 77HX       X    X  X    X  X         X    X  X       X    X  X   XBANN 110
     6  X    X     X     X    /                                         BANN 120
     7  28X, 77H XXX    X X X  XXXX     XXX      XXXX    XXXX    XXXX   X   XBANN 130
     8  XXXX      X      XXX /                                          BANN 140
     9  28X, 77H     X   X X X  X    X       X     X X     X       X      X   XBANN 150
     A  X X       X          X/                                         BANN 160
     B  28X, 77H     X   XX XX  X    X       X     X  X    X       X      X   XBANN 170
     C  X  X      X          X/                                         BANN 180
     D  28X, 77HXXXX    X    X  XXXX   XXXX     X    X  XXXXX  X        XXX BANN 190
     E  X    X     X     XXXX //                                        BANN 200
     F  27X, 79(1HX) / )                                               BANN 210
      RETURN                                                           BANN 220
      END                                                              BANN 230
```

```
C*****SUBROUTINE DOLLAR(IYD,IFYR,OWN,YDRATE), RETURNS(NONE)            **** 10
      SUBROUTINE DOLLAR(IYD,IFYR,OWN,YDRATE,*)                         **** 20
C                                                                      DOLL 30
C        SUBROUTINE TO DETERMINE CORRECT MANDAY RATE FOR YARD AND YEAR DOLL 40
C                                                                      DOLL 50
      REAL*8 IYD, IYARD, IDBL, IYDSEL                                  **** 60
C                                                                      DOLL 70
      COMMON /MISC/ IYEAR(5), RATE(15,5)                               DOLL 80
      COMMON /NPUT/ IYDSEL(13), IYARD(15)                              DOLL 90
      DATA PRI/1HP/                                                    DOLL 100
      DO 10 I = 1,5                                                    DOLL 110
      IF(IFYR.EQ.IYEAR(I)) GO TO 15                                    DOLL 120
   10 CONTINUE                                                         DOLL 130
      CALL IERROR(3,IFYR,IDUM1,IDUM2,IDBL)                             DOLL 140
C*****RETURN NONE                                                      **** 150
      RETURN 1                                                         **** 160
   15 DO 20 J = 1,15                                                   DOLL 170
      IF(IYD.EQ.IYARD(J)) GO TO 30                                     DOLL 180
   20 CONTINUE                                                         DOLL 190
C                                                                      DOLL 200
C        IF NO RATE GIVEN FOR PRIVATE YARD, USE 150.                   DOLL 210
      IF(OWN.NE.PRI) GO TO 25                                          DOLL 220
      YDRATE = 150.                                                    DOLL 230
      RETURN                                                           DOLL 240
   25 CALL IERROR(4,IDUMMY,IDUM1,IDUM2,IYD)                            DOLL 250
C*****RETURN NONE                                                      **** 260
      RETURN 1                                                         **** 270
   30 YDRATE = RATE(J,I)                                               DOLL 280
      RETURN                                                           DOLL 290
      END                                                              DOLL 300
```

```
      SUBROUTINE GRPID(IGROUP)                                          GRPI  10
C                                                                       GRPI  20
C        SUBROUTINE TO PRINT GROUP DEFINITIONS                          GRPI  30
C                                                                       GRPI  40
      COMMON/IDENT/COMENT(5), DATE(3)                                   GRPI  50
      COMMON/IDATA/ SHIP(6,2), IHULL(6,2)                               GRPI  60
      DATA BLANK/4H    /                                                GRPI  70
      CALL HEADER(1)                                                    GRPI  80
      WRITE(6,100)                                                      GRPI  90
  100 FORMAT(/////, 50X, 38H************************************ , /)   GRPI 100
      WRITE(6,101) IGROUP                                               GRPI 110
  101 FORMAT(1H , 61X, 11HSHIP GROUP , I3, /, T63, 3(4H----), 2H--, //) GRPI 120
      DO 10 J = 1,6                                                     GRPI 130
      IF(SHIP(J,1).EQ.BLANK) GO TO 20                                   GRPI 140
      WRITE(6,102) (SHIP(J,K), IHULL(J,K),K=1,2)                        GRPI 150
  102 FORMAT(1H , 56X, A4,1X,A4,2X,1H-,3X,A4,1X,A4, /)                  GRPI 160
   10 CONTINUE                                                          GRPI 170
   20 WRITE(6,103)                                                      GRPI 180
  103 FORMAT(/, 50X, 38H************************************ )          GRPI 190
      RETURN                                                            GRPI 200
      END                                                               GRPI 210
```

```
      SUBROUTINE HEADER(NOPG)                                           HEAD  10
C                                                                       HEAD  20
C        SUBROUTINE TO WRITE REPORT IDENTIFICATION AND NUMBER PAGES      HEAD  30
C                                                                       HEAD  40
      COMMON/IDENT/COMENT(5), DATE(3)                                   HEAD  50
      IF(NOPG.GT.1) GO TO 10                                            HEAD  60
      IPAGE = 0                                                         HEAD  70
      WRITE(6,100) DATE, COMENT                                         HEAD  80
  100 FORMAT(1H1,1X, 4HDATE, 2X, 3A4, / , 2X, 5A4)                      HEAD  90
      RETURN                                                            HEAD 100
   10 IPAGE = IPAGE + 1                                                 HEAD 110
      WRITE(6,101) DATE, IPAGE, COMENT                                  HEAD 120
  101 FORMAT(1H1, 1X,10HREPORT: 63, 2X, 5HDATE: ,1X,3A4, 85X, 4HPAGE,   HEAD 130
     1  I4, /, 2X, 5A4)                                                HEAD 140
      RETURN                                                            HEAD 150
      END                                                               HEAD 160
```

```
      SUBROUTINE IERROR (N,IDUMMY,IDUM1,IDUM2,IDBL)                     IERR  10
C                                                                       IERR  20
C        SUBROUTINE TO PRINT OUT ERROR MESSAGES                         IERR  30
C                                                                       IERR  40
      REAL*8 IDBL                                                       ****  50
C                                                                       IERR  60
      GO TO (10,20,30,40,50,213), N                                     IERR  70
   10 WRITE(6,100)                                                      IERR  80
  100 FORMAT(1X, 53H * * * GROUP NUMBER = 0, USE OTHER VERSION OF PROGRAIERR  90
     1M )                                                               IERR 100
      STOP                                                              IERR 110
   20 WRITE(6,101)                                                      IERR 120
  101 FORMAT(1X, 30H * * * END OF FILE ENCOUNTERED )                    IERR 130
      RETURN                                                            IERR 140
   30 WRITE(6,102) IDUMMY                                               IERR 150
  102 FORMAT(1X, 29H * * * NO MANDAY RATES FOR 19, I2)                  IERR 160
      RETURN                                                            IERR 170
   40 WRITE(6,103) IDBL                                                 IERR 180
  103 FORMAT(1X, 26H * * * NO MANDAY RATE FOR , A5)                     IERR 190
      RETURN                                                            IERR 200
   50 GO TO (55,60,65,70,75,80,85,90,95,200,205), IDUMMY                IERR 210
   55 WRITE(6,104) IDUM1, IDUM2                                         IERR 220
  104 FORMAT(1X, 31H * * * NO NAVY YARD WORK FOR 19, I2, 1X,            IERR 230
     1  10HFOR GROUP , I3 )                                            IERR 240
      RETURN                                                            IERR 250
   60 WRITE(6,105) IDUM1, IDUM2                                         IERR 260
  105 FORMAT(1X, 42H * * * NO EAST COAST NAVY YARD WORK FOR 19, I2,      IERR 270
     1  1X, 10HFOR GROUP , I3 )                                         IERR 280
      RETURN                                                            IERR 290
   65 WRITE(6,106) IDUM1, IDUM2                                         IERR 300
  106 FORMAT(1X, 42H * * * NO WEST COAST NAVY YARD WORK FOR 19, I2,      IERR 310
     1  1X, 10HFOR GROUP , I3 )                                         IERR 320
      RETURN                                                            IERR 330
   70 WRITE(6,107) IDUM1, IDUM2                                         IERR 340
  107 FORMAT(1X, 34H * * * NO PRIVATE YARD WORK FOR 19, I2, 1X,         IERR 350
     1  10HFOR GROUP , I3 )                                            IERR 360
      RETURN                                                            IERR 370
   75 WRITE(6,108) IDUM1, IDUM2                                         IERR 380
  108 FORMAT(1X, 45H * * * NO EAST COAST PRIVATE YARD WORK FOR 19, I2,   IERR 390
     1  1X, 10HFOR GROUP , I3 )                                         IERR 400
      RETURN                                                            IERR 410
   80 WRITE(6,109) IDUM1, IDUM2                                         IERR 420
  109 FORM&T(1X, 45H * * * NO WEST COAST PRIVATE YARD WORK FOR 19, I2,   IERR 430
     1  1X, 10HFOR GROUP , I3 )                                         IERR 440
      RETURN                                                            IERR 450
   85 WRITE(6,110) IDUM1, IDUM2                                         IERR 460
  110 FORMAT(1X, 32H * * * NO CONVERSION WORK FOR 19, I2, 1X,           IERR 470
     1  10HFOR GROUP , I3 )                                            IERR 480
      RETURN                                                            IERR 490
   90 WRITE(6,111) IDUM1, IDUM2                                         IERR 500
  111 FORMAT(1X, 33H * * * NO ACTIVE SHIP WORK FOR 19, I2, 1X,          IERR 510
     1  10HFOR GROUP , I3 )                                            IERR 520
      RETURN                                                            IERR 530
   95 WRITE(6,112) IDUM1, IDUM2                                         IERR 540
  112 FORMAT(1X, 34H * * * NO RESERVE SHIP WORK FOR 19, I2, 1X,         IERR 550
     1  10HFOR GROUP , I3 )                                            IERR 560
      RETURN                                                            IERR 570
  200 WRITE(6,113) IDUM1, IDUM2                                         IERR 580
  113 FORMAT(1X, 25H * * * NO MAP WORK FOR 19, I2, 1X,                  IERR 590
```

```
     1  10HFOR GROUP , I3 )                                                    IERR 600
        RETURN                                                                 IERR 610
  205 WRITE(8,114) IDUM2                                                       IERR 620
  114 FORMAT(1X, 25H * * * NO DATA FOR GROUP , I3)                             IERR 630
        RETURN                                                                 IERR 640
  210 WRITE(8,115) IDBL, IDUM2                                                 IERR 650
  115 FORMAT(1X, 19H * * * NO DATA FOR , A5, 1X, 10HFOR GROUP , I3)            IERR 660
        RETURN                                                                 IERR 670
        END                                                                    IERR 680
```

```
      SUBROUTINE RATEID(NOYARD, NYEAR, IMAT)                                RATE  10
C                                                                           RATE  20
C         SUBROUTINE TO WRITE SUMMARY PAGE FOR MANDAY RATES                 RATE  30
C           AND MATERIAL FACTOR                                             RATE  40
C                                                                           RATE  50
      REAL*8 IYARD, IYOSEL                                                  **** 60
C                                                                           RATE  70
      COMMON /INPUT/ IYOSEL(13), IYARD(15)                                  RATE  80
      COMMON /MISC/ IYEAR(5), RATE(15,5)                                    RATE  90
      CALL HEADER(1)                                                        RATE 100
      WRITE(6,100)                                                          RATE 110
  100 FORMAT(/////, 22X, 90H**********************************************RATE 120
     1********************************************** , / )                 RATE 130
      WRITE(6,101)                                                          RATE 140
  101 FORMAT(1H , 52X, 23HLABOR RATES IN $/MANDAY /)                        RATE 150
      IF(NYEAR.NE.5) GO TO 20                                               RATE 160
      WRITE(6,102) (IYEAR(I),I=1,5)                                         RATE 170
  102 FORMAT(1H , 33X, 4HYARD, 5(3X,8HYEAR: 19,I2) / T32, 4H----,           RATE 180
     1  5(3X, 2(4H----), 2H-- ))                                           RATE 190
      GO TO 60                                                              RATE 200
   20 IF(NYEAR.NE.4) GO TO 30                                               RATE 210
      WRITE(6,103) (IYEAR(I),I=1,4)                                         RATE 220
  103 FORMAT(1H , 36X, 4HYARD, 4(3X,8HYEAR: 19,I2) / T38, 4H----,           RATE 230
     1  4(3X, 2(4H----), 2H-- ))                                           RATE 240
      GO TO 60                                                              RATE 250
   30 IF(NYEAR.NE.3) GO TO 40                                               RATE 260
      WRITE(6,104) (IYEAR(I),I=1,3)                                         RATE 270
  104 FORMAT(1H , 42X, 4HYARD, 3(3X,8HYEAR: 19,I2) / T44, 4H----,           RATE 280
     1  3(3X, 2(4H----), 2H-- ))                                           RATE 290
      GO TO 60                                                              RATE 300
   40 IF(NYEAR.NE.2) GO TO 50                                               RATE 310
      WRITE(6,105) (IYEAR(I), I=1,2)                                        RATE 320
  105 FORMAT(1H , 48X, 4HYARD, 2(3X,8HYEAR: 19,I2) / T50, 4H----,           RATE 330
     1  2(3X, 2(4H----), 2H-- ))                                           RATE 340
      GO TO 60                                                              RATE 350
   50 WRITE(6,106) IYEAR(1)                                                 RATE 360
  106 FORMAT(1H , 54X, 4HYARD, 3X, 8HYEAR: 19, I2, / T56, 4H----, 3X,       RATE 370
     1  2(4H----), 2H-- )                                                  RATE 380
   60 DO 220 I = 1,NOYARD                                                   RATE 390
      GO TO (70,80,90,200,210), NYEAR                                       RATE 400
   70 WRITE(6,107) IYARD(I), (RATE(I,J),J=1,NYEAR)                          RATE 410
  107 FORMAT(1H , 54X, A5, 3X, F9.2, / )                                    RATE 420
      GO TO 220                                                             RATE 430
   80 WRITE(6,108) IYARD(I), (RATE(I,J),J=1,NYEAR)                          RATE 440
  108 FORMAT(1H , 48X, A5, 2(3X,F9.2) / )                                   RATE 450
      GO TO 220                                                             RATE 460
   90 WRITE(6,109) IYARD(I), (RATE(I,J),J=1,NYEAR)                          RATE 470
  109 FORMAT(1H , 42X, A5, 3(3X,F9.2) / )                                   RATE 480
      GO TO 220                                                             RATE 490
  200 WRITE(6,110) IYARD(I), (RATE(I,J),J=1,NYEAR)                          RATE 500
  110 FORMAT(1H , 36X, A5, 4(3X,F9.2) / )                                   RATE 510
      GO TO 220                                                             RATE 520
  210 WRITE(6,111) IYARD(I), (RATE(I,J),J=1,NYEAR)                          RATE 530
  111 FORMAT(1H , 30X, A5, 5(3X,F9.2) / )                                   RATE 540
  220 CONTINUE                                                              RATE 550
      WRITE(6,112)                                                          RATE 560
  112 FORMAT(///, 22X, 90H**********************************************RATE 570
     1********************************************** )                     RATE 580
      WRITE(6,113)                                                          RATE 590
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113 FORMAT(//////////, 37X, 59H**********************************************RATE 600
   1********************* , /)                                                RATE 610
    WRITE(6,114) IMAT                                                       RATE 620
114 FORMAT(1H , 44X, 18HMATERIAL FACTOR = , I3,                             RATE 630
   1  23H PERCENT OF LABOR COSTS, /)                                        RATE 640
    WRITE(6,115)                                                            RATE 650
115 FORMAT(/, 37X, 59H**********************************************************RATE 660
   1************ , )                                                        RATE 670
    RETURN                                                                  RATE 680
    END                                                                     RATE 690
```

```
      SUBROUTINE REPORT (NYEAR, IOPT, IMAT, NVOS, IEXTRA, IGROUP)        REPT  10
C                                                                        REPT  20
C        SUBROUTINE TO WRITE REPORTS FOR A SHIP GROUPING BY YEAR         REPT  30
C                                                                        REPT  40
      REAL*8 IDBL, IIYARD  IYARD, IYDSEL                                 ****  50
C                                                                        REPT  60
      COMMON/IDATA/ SHIP(6,2), IHULL(6,2)                                REPT  70
      COMMON /WORK/ ARRAY1(13,5,18), ARRAY2(13,5,18), ARRAYD(13,5,18),   REPT  80
     1  ARRAYM(13,5,18), UARRAY(13,5,2), UYARD(13,5,2)                   REPT  90
      COMMON /MISC/ IYEAR(5), RATE(15,5)                                 REPT 100
      COMMON /NPUT/ IYDSEL(13), IYARD(15)                                REPT 110
      COMMON /OTHER/ IFLAG(15,5), IFLAGG(15,5), IUNOS(15,5),IUNOSS(15,5)REPT 120
      DIMENSION DAY(9), DOL(9), IDOL(9), IDAY(9), IOPT(14)               REPT 130
      DO 300 J = 1, NYEAR                                                REPT 140
C                                                                        REPT 150
C        TEST IF THERE IS ANY DATA AT ALL IN THIS GROUP                  REPT 160
      IF(IFLAG(13,J).NE.0) GO TO 1                                       REPT 170
      CALL IERROR(5,11,IDUM1,IGROUP, IDBL)                               REPT 180
      IF(IUNOS(13,J).NE.0) GO TO 1                                       REPT 182
      CALL IERROR(5,11,IDUM1,IGROUP, IDBL)                               REPT 184
      RETURN                                                             REPT 190
    1 JYEAR = IYEAR(J)                                                   REPT 200
      NUMBER = 0                                                         REPT 210
C                                                                        REPT 220
C        CHECK ALL OPTIONS                                               REPT 230
      DO 250 I = 1,13                                                    REPT 240
C        INITIALIZE VALUES                                               REPT 250
      JSUMDY = 0                                                         REPT 260
      JSUMDL = 0                                                         REPT 270
      USUM = 0.0                                                         REPT 280
      UDOL = 0.0                                                         REPT 290
      IF(I.EQ.13) GO TO 2                                                REPT 300
      IF(IOPT(I) .EQ. 0) GO TO 250                                       REPT 310
C                                                                        REPT 320
C        CHECK FOR ANY DATA IN REQUESTED OPTIONS                         REPT 330
      IF(IFLAG(I,J).EQ.0 .AND. IUNOS(I,J).EQ.0) GO TO 245                REPT 340
      II = IOPT(I) + 1                                                   REPT 350
      GO TO 5                                                            REPT 360
    2 II = 1                                                             REPT 370
C                                                                        REPT 380
C       DETERMINE UNOS WORK                                              REPT 390
    5 IF(IUNOS(I,J).EQ.0) GO TO 6                                        REPT 400
      USUM = UARRAY(II,J,1)                                              REPT 410
      UDOL = UARRAY(II,J,2)                                              REPT 420
    6 DO 10 K = 1,9                                                      REPT 430
      DAY(K) = ARRAY1(II,J,K)                                            REPT 440
      DOL(K) = ARRAY2(II,J,K)                                            REPT 450
      JSUMDY = JSUMDY + IFIX(DAY(K))                                     REPT 460
      JSUMDL = JSUMDL + IFIX(DOL(K))                                     REPT 470
   10 CONTINUE                                                           REPT 480
C                                                                        REPT 490
C        ADD UNOS DATA TO TOTALS                                         REPT 500
      JSUMDY = JSUMDY + IFIX(USUM)                                       REPT 510
      JSUMDL = JSUMDL + IFIX(UDOL)                                       REPT 520
C                                                                        REPT 530
C        PUT MANDAY DATA IN INTEGER FORM AND COST DATA IN THOUSANDS      REPT 540
C          OF DOLLARS                                                    REPT 560
      DO 12 KK = 1,9                                                     REPT 550
      IDAY(KK) = IFIX(DAY(KK))                                           REPT 560
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      IDOL(KK) = IFIX(DOL(KK) / 1000.)                                  REPT 570
   12 CONTINUE                                                          REPT 580
      ISUMOL = JSUMOL/1000                                              REPT 590
      IUDOL = IFIX(UDOL/1000.)                                          REPT 600
      IUSUM = IFIX(USUM)                                                REPT 610
C                                                                       REPT 620
C        CALCULATE MATERIAL COSTS                                       REPT 630
      MAT = ISUMOL * IMAT/100                                           REPT 640
      IF(MOD(NUMBER,4) .NE.0) GO TO 15                                  REPT 650
      CALL TITLE(JYEAR,IEXTRA, IGROUP)                                  REPT 660
   15 NUMBER = NUMBER + 1                                               REPT 670
      GO TO (20,30,40,50,60,70,80,90,200,210,220,230,240), II           REPT 680
C                                                                       REPT 690
   20 WRITE(6,100)                                                      REPT 700
  100 FORMAT(1H , 11HGROUP TOTAL, / 1X, 2(4H----), 3H---)               REPT 710
   25 IF(IEXTRA.NE.0) GO TO 28                                          REPT 720
      WRITE(6,101) (IDAY(K), K=1,9), JSUMDY                             REPT 730
  101 FORMAT(1H , 20HDIRECT LABOR MANDAYS, 2X, 10(I9,1X) / )            REPT 740
      WRITE(6,102) (IDOL(K),K=1,9), ISUMDL                              REPT 750
  102 FORMAT(1H , 18HDIRECT LABOR COSTS, 4X, 9(I9,1X), I9, / ,          REPT 760
     1  1X, 22H(THOUSANDS OF DOLLARS), / )                             REPT 770
      WRITE(6,103) MAT                                                  REPT 780
  103 FORMAT(1H , 14HMATERIAL COSTS, 97X, I10, / ,                      REPT 790
     1  1X, 22H(THOUSANDS OF DOLLARS), // )                            REPT 800
      GO TO 250                                                         REPT 810
C                                                                       REPT 820
C        WRITE STATEMENTS FOR EXTRA UNOS VALUES                         REPT 830
   28 WRITE(6,117) (IDAY(K),K=1,9), IUSUM, JSUMDY                       REPT 840
  117 FORMAT(1H , 20HDIRECT LABOR MANDAYS, 1X, 11(I9,1X), / )           REPT 850
      WRITE(6,118) (IDOL(K),K=1,9), IUDOL, ISUMDL                       REPT 860
  118 FORMAT(1H , 18HDIRECT LABOR COSTS, 3X, 10(I9,1X),  I9, / ,        REPT 870
     1  1X, 22H(THOUSANDS OF DOLLARS), / )                             REPT 880
      WRITE(6,119) MAT                                                  REPT 890
  119 FORMAT(1H , 14HMATERIAL COSTS, 106X, I10, / ,                     REPT 900
     1  1X, 22H(THOUSANDS OF DOLLARS), // )                            REPT 910
      GO TO 250                                                         REPT 920
C                                                                       REPT 930
   30 WRITE(6,134)                                                      REPT 940
  134 FORMAT(1H , 19HWORK IN NAVY YARDS, / 1X, 4(4H----), 2H--)         REPT 950
      GO TO 25                                                          REPT 960
   40 WRITE(6,135)                                                      REPT 970
  135 FORMAT(1H , 21HEAST COAST NAVY YARDS, / 1X, 5(4H----), 1H- )      REPT 980
      GO TO 25                                                          REPT 985
   50 WRITE(6,136)                                                      REPT 990
  136 FORMAT(1H , 21HWEST COAST NAVY YARDS, / , 1X, 5(4H----), 1H- )    REPT1000
      GO TO 25                                                          REPT1010
   60 WRITE(6,137)                                                      REPT1020
  137 FORMAT(1H , 21HWORK IN PRIVATE YARDS, / , 1X, 5(4H----), 1H- )    REPT1030
      GO TO 25                                                          REPT1040
   70 WRITE(6,138)                                                      REPT1050
  138 FORMAT(1H , 18HEAST COAST PRIVATE, /, 1X, 4(4H----), 2H--)        REPT1060
      GO TO 25                                                          REPT1070
   80 WRITE(6,139)                                                      REPT1080
  139 FORMAT(1H , 18HWEST COAST PRIVATE, /, 1X, 4(4H----), 2H--)        REPT1090
      GO TO 25                                                          REPT1100
   90 WRITE(6,110)                                                      REPT1110
  110 FORMAT(1H , 15HCONVERSION WORK, /, 1X, 3(4H----), 3H---)          REPT1120
      GO TO 25                                                          REPT1130
  200 WRITE(6,111)                                                      REPT1140
  111 FORMAT(1H , 16HACTIVE SHIP WORK, / 1X, 4(4H----))                 REPT1150
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      GO TO 25                                                          REPT1160
  210 WRITE(6,112)                                                      REPT1170
  112 FORMAT(1H , 17HRESERVE SHIP WORK, / , 1X, 4(4H----), 1H- )        REPT1180
      GO TO 25                                                          REPT1190
  220 WRITE(6,113)                                                      REPT1200
  113 FORMAT(1H , 8HMAP WORK/,1X, 2(4H----))                            REPT1210
      GO TO 25                                                          REPT1220
  230 WRITE(6,114)                                                      REPT1230
  114 FORMAT(1H , 11HREPAIR WORK, / , 1X, 2(4H----), 3H--- )            REPT1240
      GO TO 25                                                          REPT1250
  240 WRITE(6,115)                                                      REPT1260
  115 FORMAT(1H , 15HALTERATION WORK, / , 1X, 3(4H----), 3H--- )        REPT1270
      GO TO 25                                                          REPT1280
  245 IIOPT = IOPT(I)                                                   REPT1290
C                                                                       REPT1300
C        ERROR PATH FOR VARIOUS OPTIONS                                 REPT1310
      CALL IERROR(5,IIOPT,JYEAR,IGROUP,IDBL)                            REPT1320
  250 CONTINUE                                                          REPT1330
C                                                                       REPT1340
C        SECTION FOR YARD SUMMARIES                                     REPT1350
      IF(NYDS.EQ.0) GO TO 300                                           REPT1355
      DO 275 I = 1, NYDS                                                REPT1360
C        INITIALIZE VALUES                                              REPT1370
      JSUMDY = 0                                                        REPT1380
      JSUMDL = 0                                                        REPT1390
      USUM = 0.0                                                        REPT1400
      UDOL = 0.0                                                        REPT1410
C                                                                       REPT1420
C        CHECK FOR ANY DATA IN REQUESTED OPTIONS                        REPT1430
      IF(IFLAGG(I,J).EQ.0 .AND.IUNOSS(I,J).EQ.0) GO TO 270              REPT1440
      IF(IUNOSS(I,J).EQ.0) GO TO 255                                    REPT1450
C                                                                       REPT1460
C       DETERMINE UNOS WORK                                             REPT1470
      USUM = UYARD(I,J,1)                                               REPT1480
      UDOL = UYARD(I,J,2)                                               REPT1490
  255 DO 260 K = 1,9                                                    REPT1500
      DAY(K) = ARRAYD(I,J,K)                                            REPT1510
      DOL(K) = ARRAYM(I,J,K)                                            REPT1520
      JSUMDY = JSUMDY + IFIX(DAY(K))                                    REPT1530
      JSUMDL = JSUMDL + IFIX(DOL(K))                                    REPT1540
  260 CONTINUE                                                          REPT1550
C                                                                       REPT1560
C        ADD UNOS DATA TO TOTALS                                        REPT1570
      JSUMDY = JSUMDY + IFIX(USUM)                                      REPT1580
      JSUMDL = JSUMDL + IFIX(UDOL)                                      REPT1590
C                                                                       REPT1600
C        PUT MANDAY DATA IN INTEGER FORM AND COST DATA IN THOUSANDS OF $REPT1610
      DO 262 KK = 1,9                                                   REPT1620
      IDOL(KK) = IFIX(DOL(KK) / 1000.)                                  REPT1630
      IDAY(KK) = IFIX(DAY(KK))                                          REPT1640
  262 CONTINUE                                                          REPT1650
      ISUMDL = JSUMDL/1000                                              REPT1660
      IUDOL = IFIX(UDOL/1000.)                                          REPT1670
      IUSUM = IFIX(USUM)                                                REPT1680
C                                                                       REPT1690
C        CALCULATE MATERIAL COSTS                                       REPT1700
      MAT = ISUMDL * IMAT/100                                           REPT1710
      IF(MOD(NUMBER,4) .NE.0) GO TO 265                                 REPT1720
      CALL TITLE(JYEAR,IEXTRA, IGROUP)                                  REPT1730
  265 NUMBER = NUMBER + 1                                               REPT1740
```

```
      WRITE(6,116) IYDSEL(I)                                          REPT1750
  116 FORMAT(1H , 5HYARD#, 1X, A5, / 1X, 4H----, 1H- )                REPT1760
      IF(IEXTRA.NE.0) GO TO 267                                       REPT1770
      WRITE(6,101) (IDAY(K), K=1,9), JSUMDY                           REPT1780
      WRITE(6,102) (IDOL(K),K=1,9), ISUMDL                            REPT1790
      WRITE(6,103) MAT                                                REPT1800
      GO TO 275                                                       REPT1810
C                                                                     REPT1820
C        WRITE STATEMENTS FOR EXTRA UNOS VALUES                       REPT1830
  267 WRITE(6,117) (IDAY(K),K=1,9), IUSUM, JSUMDY                     REPT1840
      WRITE(6,118) (IDOL(K),K=1,9), IUDOL,ISUMDL                      REPT1850
      WRITE(6,119) MAT                                                REPT1860
      GO TO 275                                                       REPT1870
C                                                                     REPT1880
C        ERROR PATH FOR YARDS                                         REPT1890
  270 IIYARD = IYDSEL(I)                                              REPT1900
      CALL IERROR(6,IDUMMY,IDUM1,IGROUP,IIYARD)                       REPT1910
  275 CONTINUE                                                        REPT1920
  300 CONTINUE                                                        REPT1930
      RETURN                                                          REPT1940
      END                                                             REPT1950
```

```
      SUBROUTINE SKPGRP(IONCE)                                        SKPG  10
C                                                                     SKPG  20
C        SUBROUTINE TO SKIP TO NEXT SHIP GROUP                        SKPG  30
      REAL*8 ISHULL, IYD, IDBL                                        ****  40
C                                                                     SKPG  50
C**10 READ(12) ISHULL, IIYPWK, IYD, IGROUP, IFYR                      ****  60
   10 READ(12,END=20) ISHULL, IIYPWK, IYD, IGROUP, IFYR               ****  70
C*****IF(EOF(12) .NE.0) GO TO 20                                      ****  80
      IF(IFYR.GT.0) GO TO 10                                          SKPG  90
      BACKSPACE 12                                                    SKPG 100
      RETURN                                                          SKPG 110
   20 CALL IERROR(2,IDUMMY,IDUM1,IDUM2, IDBL)                         SKPG 120
C                                                                     SKPG 130
C        REWIND FILE ONCE IF UNABLE TO FIND REQUESTED GROUP NUMBER    SKPG 140
      IF(IONCE.EQ.1) STOP                                             SKPG 150
      REWIND 12                                                       SKPG 160
      IONCE = 1                                                       SKPG 170
      RETURN                                                          SKPG 180
      END                                                             SKPG 190
```

```
      SUBROUTINE SUM(JOPT,VALUES,IYD,IFYR,YDRATE,III,ISAVE)                SUMM  10
C                                                                          SUMM  20
C        SUBROUTINE TO SUM VALUES FOR VARIOUS OPTIONS                      SUMM  30
C                                                                          SUMM  40
      REAL*8 IYARD, IYDSEL, IYD                                            ****  50
C                                                                          SUMM  60
      COMMON /WORK/ ARRAY1(13,5,18), ARRAY2(13,5,18), ARRAYD(13,5,18),     SUMM  70
     1  ARRAYM(13,5,18), UARRAY(13,5,2), UYARD(13,5,2)                     SUMM  80
      COMMON/IDATA/ SHIP(6,2), IHULL(6,2)                                  SUMM  90
      COMMON /MISC/ IYEAR(5), RATE(15,5)                                   SUMM 100
      COMMON /NPUT/ IYDSEL(13), IYARD(15)                                  SUMM 110
      DIMENSION VALUES(18)                                                 SUMM 120
C                                                                          SUMM 130
      II = JOPT                                                            SUMM 140
C                                                                          SUMM 150
C        INITIALIZE VALUES                                                 SUMM 160
      USUM = 0.0                                                           SUMM 170
      UDOL = 0.0                                                           SUMM 180
C                                                                          SUMM 190
C        SET FLAG FOR UNOS                                                 SUMM 200
      IF(III.NE.0) ISAVE = 1                                               SUMM 210
      DO 10 JJ = 1,5                                                       SUMM 220
      J = JJ                                                               SUMM 230
      IF(IFYR.EQ.IYEAR(JJ)) GO TO 15                                       SUMM 240
   10 CONTINUE                                                             SUMM 250
   15 IF(JOPT.LE.11) GO TO 20                                              SUMM 260
      IF(JOPT.EQ.12) GO TO 30                                              SUMM 270
      IF(JOPT.EQ.13) GO TO 40                                              SUMM 280
      IF(JOPT.EQ.14) GO TO 50                                              SUMM 290
C                                                                          SUMM 300
C        SUM VALUES FOR OPTIONS 1 THRU 10 AND FOR TOTAL                    SUMM 310
C                                                                          SUMM 320
C        CHECK FOR UNOS WORK                                               SUMM 330
   20 IF(III.EQ.0) GO TO 22                                                SUMM 340
      DO 21 K = 1,9                                                        SUMM 350
      USUM = USUM + (VALUES(K) + VALUES(9+K))                              SUMM 360
   21 CONTINUE                                                             SUMM 370
      UDOL = USUM * YDRATE                                                 SUMM 380
      UARRAY(II,J,1) = UARRAY(II,J,1) + USUM                               SUMM 390
      UARRAY(II,J,2) = UARRAY(II,J,2) + UDOL                               SUMM 400
C     WRITE(6,996) II,J,UARRAY(II,J,1), USUM                               SUMM 410
  996 FORMAT(1H , 6HOPT = , I3, 2X, 7HYEAR = , I2, 2X, 9HUARRAY = ,        SUMM 420
     1  F8.1, 2X, 7HUSUM = , F9.1)                                         SUMM 430
      RETURN                                                               SUMM 440
C                                                                          SUMM 450
C        SECTION FOR SCHEDULED WORK                                        SUMM 460
   22 DO 25 K = 1,9                                                        SUMM 470
      ARRAY1(II,J,K) = ARRAY1(II,J,K) + (VALUES(K) + VALUES(9+K))          SUMM 480
      ARRAY2(II,J,K) = ARRAY2(II,J,K) + (VALUES(K) + VALUES(9+K))          SUMM 490
     1  * YDRATE                                                          SUMM 500
   25 CONTINUE                                                             SUMM 510
C     WRITE(6,999) II,J, ARRAY1(II,J,1)                                    SUMM 520
  999 FORMAT(1H , 6HOPT = , I3, 2X, 7HYEAR = , I2, 2X, 8HARRAY = , F8.1)SUMM 530
  998 FORMAT(1H , 6HOPT = , I3, 2X, 7HYEAR = ,I2, 2X, 9HARRAYD = ,F8.1) SUMM 540
C     WRITE(6,997) VALUES(1)                                               SUMM 550
  997 FORMAT(1H , 9HVALUES = , F9.1)                                       SUMM 560
      RETURN                                                               SUMM 570
C                                                                          SUMM 580
C        SUM VALUES FOR REPAIRS, ONLY                                      SUMM 590
```

```
   30 IF(III.EQ.0) GO TO 32                                              SUMM 600
      DO 31 K = 1,9                                                      SUMM 610
      USUM = USUM + VALUES(K)                                            SUMM 620
   31 CONTINUE                                                           SUMM 630
      UDOL = USUM * YDRATE                                               SUMM 640
      UARRAY(II,J,1) = UARRAY(II,J,1) + USUM                             SUMM 650
      UARRAY(II,J,2) = UARRAY(II,J,2) + UDOL                             SUMM 660
      RETURN                                                             SUMM 670
C                                                                        SUMM 680
C        SECTION FOR SCHEDULED WORK                                      SUMM 690
   32 DO 35 K = 1,9                                                      SUMM 700
      ARRAY1(II,J,K) = ARRAY1(II,J,K) + VALUES(K)                        SUMM 710
      ARRAY2(II,J,K) = ARRAY2(II,J,K) + VALUES(K) * YDRATE               SUMM 720
   35 CONTINUE                                                           SUMM 730
      RETURN                                                             SUMM 740
C                                                                        SUMM 750
C        SUM VALUES FOR ALTS. ONLY                                       SUMM 760
   40 IF(III.EQ.0) GO TO 42                                              SUMM 770
      DO 41 K = 10,18                                                    SUMM 780
      USUM = USUM + VALUES(K)                                            SUMM 790
   41 CONTINUE                                                           SUMM 800
      UDOL = USUM * YDRATE                                               SUMM 810
      UARRAY(II,J,1) = UARRAY(II,J,1) + USUM                             SUMM 820
      UARRAY(II,J,2) = UARRAY(II,J,2) + UDOL                             SUMM 830
      RETURN                                                             SUMM 840
C                                                                        SUMM 850
C        SECTION FOR SCHEDULED WORK                                      SUMM 860
   42 DO 45 K = 10,18                                                    SUMM 870
      ARRAY1(II,J,K-9) = ARRAY1(II,J,K-9) + VALUES(K)                    SUMM 880
      ARRAY2(II,J,K-9) = ARRAY2(II,J,K-9) + VALUES(K) * YDRATE           SUMM 890
   45 CONTINUE                                                           SUMM 900
      RETURN                                                             SUMM 910
C                                                                        SUMM 920
C        FOR SUMMATIONS BY YARD                                          SUMM 930
   50 DO 55 L = 1,13                                                     SUMM 940
      I = L                                                              SUMM 950
      IF(IYD.EQ.IYDSEL(L)) GO TO 60                                      SUMM 960
   55 CONTINUE                                                           SUMM 970
   60 IF(III.EQ.0) GO TO 62                                              SUMM 980
      DO 61 K = 1,9                                                      SUMM 990
      USUM = USUM + (VALUES(K) + VALUES(K+9))                            SUMM1000
   61 CONTINUE                                                           SUMM1010
      UDOL = USUM * YDRATE                                               SUMM1020
      UYARD(I,J,1) = UYARD(I,J,1) + USUM                                 SUMM1030
      UYARD(I,J,2) = UYARD(I,J,2) + UDOL                                 SUMM1040
C     WRITE(6,995) II,J,UYARD(I,J,1), USUM                               SUMM1050
  995 FORMAT(1H , 6HOPT = , I3, 2X, 7HYEAR = , I2, 2X, 8HUYARD = ,      SUMM1060
     1  F8.1, 2X, 7HUSUM = , F9.1)                                       SUMM1070
      RETURN                                                             SUMM1080
C                                                                        SUMM1090
C        SECTION FOR SCHEDULED WORK                                      SUMM1100
   62 DO 65 K = 1,9                                                      SUMM1110
      ARRAYD(I,J,K) = ARRAYD(I,J,K) + (VALUES(K) + VALUES(9+K))          SUMM1120
      ARRAYM(I,J,K) = ARRAYM(I,J,K) + (VALUES(K) + VALUES(9+K))          SUMM1130
     1  * YDRATE                                                         SUMM1140
   65 CONTINUE                                                           SUMM1150
C     WRITE(6,998) II,J,ARRAYD(I,J,1)                                    SUMM1160
C     WRITE(6,997) VALUES(1)                                             SUMM1170
      RETURN                                                             SUMM1180
      END                                                                SUMM1190
```

```
      SUBROUTINE TITLE(IFYR, IEXTRA, IGROUP)                              TITL  10
C                                                                         TITL  20
C         SUBROUTINE TO WRITE TITLE                                       TITL  30
C                                                                         TITL  40
      DIMENSION ISWBS(9)                                                  TITL  50
      DATA ISWBS/ 100, 200, 300, 400, 500, 600, 700, 800, 900/            TITL  60
C                                                                         TITL  70
      CALL HEADER(2)                                                      TITL  80
      WRITE(6,100) IGROUP, IFYR                                           TITL  90
  100 FORMAT(1H , 41X, 49HDEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTITL 100
     1TEM, / 46X, 39HMISSION ESSENTIAL WORKLOAD REQUIREMENTS,/            TITL 110
     2  62X, 7HBY SWBS, //,                                              TITL 120
     3  54X, 6HGROUP , I3,3X,9HFISCAL 19, I2 /                           TITL 130
     4  T55, 2(4H----), 1H-, 3X, 2(4H----), 3H---,  // )                 TITL 140
C                                                                         TITL 150
C         USE DIFFERENT HEADING IF HAVE ANY UNOS DATA FOR A GIVEN SHIP    TITL 160
C           GROUPING                                                      TITL 170
      IF(IEXTRA.EQ.1) GO TO 10                                            TITL 180
      WRITE(6,101) (ISWBS(I), I=1,9)                                      TITL 190
  101 FORMAT(1H , 22X, 9(1X,5HSWBS , I3, 1X), 2X, 5HTOTAL, /, T24,        TITL 200
     1  10(1X, 2(4H----), 1X))                                           TITL 210
      RETURN                                                              TITL 220
   10 WRITE(6,102) (ISWBS(I),I=1,9)                                       TITL 230
  102 FORMAT(1H , 21X, 9(1X,5HSWBS , I3,1X), 2X,5HOTHER,5X,5HTOTAL, /,    TITL 240
     1  T23, 10(1X,2(4H----),1X), 1X, 2(4H----))                         TITL 250
      RETURN                                                              TITL 260
      END                                                                 TITL 270
```

6.3.6 GLOSSARY

COMMON VARIABLES

Common Block /IDATA/

IHULL(6,2)	Array of hull numbers; the first subscript refers to the hull number and the second to (1) lower bound of a ship group and (2) upper bound of that group.
SHIP(6,2)	Array of ship names; the first subscript refers to the ship type and the second to (1) lower bound of a ship group and (2) upper bound of that group.

Common Block /IDENT/

COMENT(5)	Array of report identification information.
DATE(3)	Array containing the date of the run.

Common Block /MISC/

IYEAR(5)	Array of years to be reported on, determined by input.
RATE(15,5)	Array of manday rates; the first subscript refers to the yard and the second to the year.

Common Block /INPUT/

IYARD(15)	Array of yards corresponding to the manday rates specified by the array RATE.
IYDSEL(13)	Array of yards to be processed, determined by input.

Common Block /OTHER/

IFLAG(15,5)	Array of flags; the first subscript refers to the option and the second to the year.
IFLAGG(15,5)	Array of flags; the first subscript refers to the yard and the second to the year.
IUNOS(15,5)	Array of flags; the first subscript refers to the option with respect to "other" shipwork (UNOW) and the second to the year.

Common Block /OTHER/ (Continued)

IUNOSS(15,5) Array of flags; the first subscript refers to the yard with respect to UNOW work and the second to the year.

Common Block /WORK/

ARRAY1(13,5,18) Array of direct labor mandays; the first subscript refers to the option, the second to the year, and the third to the nine single-digit SWBS categories for repairs and for alterations.

ARRAY2(13,5,18) Array of material dollar values; the first subscript refers to the option, the second to the year, and the third to the nine single-digit SWBS categories for repairs and for alterations.

ARRAYD(13,5,18) Array of direct labor mandays; the first subscript refers to the yard, the second to the year, and the third to the nine single-digit SWBS categories for repairs and for alterations.

ARRAYM(13,5,18) Array of material dollar values; the first subscript refers to the yard, the second to the year, and the third to the nine single-digit SWBS categories for repairs and for alterations.

UARRAY(13,5,2) Array containing (1) direct labor mandays for UNOW (if the third subscript is "1"), and (2) UNOW material dollars (if the third subscript is "2"). The first subscript refers to the option and the second to the year.

UYARD(13,5,2) Array containing (1) direct labor mandays for UNOW (if the third subscript is "1"), and (2) UNOW material dollars (if the third subscript is "2"). The first subscript refers to the yard and the second to the year.

LOCAL VARIABLES

Main Program

ACT	Variable containing the characters "ACT".
ALT	Variable containing the characters "ALT".
COAST	Coast (east or west).
CON	Variable containing the characters "CON".
CONV	Variable containing the character "C".
DUMI	Dummy variable in header record of SWBS File.
EAST	Variable containing the character "E".
FILLER(3)	Dummy array used in reading the header record of the SWBS File.
I	DO-loop index.
IBLANK	8-character blank space.
ICONT	Continuation indicator.
IDBL	Double precision dummy argument in subroutine IERROR.
IDUMMY	Dummy argument in subroutine IERROR.
IDUM1	Dummy variable in header record of SWBS File.
IDUM2	Additional dummy variable in header record of SWBS File.
IDUM3	Dummy argument in subroutine IERROR.
IDUM4	Additional dummy argument in subroutine IERROR.
IEND	Availability end date (mo/dy/yr).
IEXTRA	Argument in subroutine REPORT.
IFYR	Fiscal year for this availability.
IGROUP	Group number read from SWBS File.
IGRP	Group number to be reported on.
II	Variable used as the option number in a "computed go to". Also a counter used to determine numbers of yards and number of years to be processed.
III	A flag set to "1" when there is UNOW work, otherwise set to "0".
IMAT	Percent of direct labor costs for material.
IONCE	Argument in subroutine SKPGRP.
IOPT(14)	Array of options for a given ship group.
IPERD	Period (this record).

Main Program (Continued)

ISHULL	Ship type and hull number - read as a single variable from the SWBS File.
ISPEC	Specialization category.
ISTRT	Availability start date (mo/dy/yr).
ITYPWK	Type of work.
IUNOW	Variable containing the characters "OW".
IYD	Yard name read from SWBS File.
J	DO-loop index.
JJ	Subscript designating a given year in the IFLAG, IFLAGG, IUNOS, and IUNOSS arrays.
K	DO-loop index.
L	DO-loop index.
LAST	Variable containing the letters "LAST" to test for termination of Manday Rate Deck.
MATALT	Fraction of total other direct repair work, read from SWBS (by Group) File.
MATREP	Fraction of total other direct alteration work, read from SWBS (by Groups) File.
NOYARD	Number of yards for which there are manday rates.
NYDS	Number of yards to be processed for a given group.
NYEAR	Number of years to be reported on.
OWN	Yard ownership indicator (Navy or private).
PRI	Variable containing the character "P".
PRIV	Variable containing the characters "PRI".
REP	Variable containing the characters "REP".
RES	Variable containing the characters "RES".
VALUES(18)	Array of nine repair and nine alteration mandays read from the SWBS File.
WEST	Variable containing the character "W".
YDRATE	Manday rate for a given yard and year, returned as an argument in subroutine DOLLAR.
ZACT	Variable used to test for "ACT", active work.
ZALT	Variable used to test for "ALT", alterations.
ZCON	Variable used to test for "CON" - type work is conversion.
ZMAP	Variable containing the characters "MAP".

Main Program (Continued)

ZN	Variable containing the character "N".
ZNAVE	Variable used to test for "NE" - sector is Navy-east.
ZNAVW	Variable used to test for "NW" - sector is Navy-west.
ZNAVWK	Variable used to test for "NAV" - ownership is Navy.
ZNAVY	Variable containing the characters "NAV".
ZNE	Variable containing the characters "NE".
ZNRT	Variable containing the characters "NRT".
ZNW	Variable containing the characters "NW".
ZPE	Variable containing the characters "PE".
ZPRI	Variable used to test for "PRI" - ownership is private.
ZPRIE	Variable used to test for "PE" - sector is private-east.
ZPRIW	Variable used to test for "PW" - sector is private-west.
ZPW	Variable containing the characters "PW".
ZREP	Variable used to test for "REP" - repair work.
ZRES	Variable used to test for "RES" - type of work is NRT.
ZZMAP	Variable used to test for "MAP" - type of work is MAP.

Subroutine DOLLAR

I	DO-loop index.
IDBL	Double precision dummy argument in subroutine IERROR.
IDUMMY	Dummy argument in subroutine IERROR.
IDUM1	Dummy argument in subroutine IERROR.
IFYR	Fiscal year for this availability.
IYD	Yard name being processed.
J	DO-loop index.
OWN	Yard ownership indicator (Navy or private).
PRT	Variable containing the character "P".
YDRATE	Manday rate for a given yard and year.

Subroutine GRPID

BLANK	4-character blank space.
IGROUP	Group number being processed.
J	DO-loop index.
K	Index for I/O statement.

Subroutine HEADER

IPAGE	Variable used to increment page numbers in reports.
NOPG	A flag set to "2" when pages are to be numbered, otherwise set to "1".

Subroutine IERROR

IDBL	Double precision argument used to transfer yard names.
IDUMMY	Argument used to transfer the year or to designate which error message to write.
IDUM1	Argument used to transfer the year.
IDUM2	Argument used to transfer the group number.
N	Error number.

Subroutine RATEID

I	Index used for I/O statements.
IMAT	Percent of direct labor costs for material.
J	Index used for I/O statements.
NOYARD	Number of yards for which there are manday rates.
NYEAR	Number of years to be reported on.

Subroutine REPORT

DAY(9)	Array of manday values for a given yard and year.
DOL(9)	Array of material costs for a given yard and year.
I	DO-loop index.
IDAY(9)	Integer form of the array DAY.
IDBL	Double precision dummy argument in subroutine IERROR.

Subroutine REPORT (Continued)

IDOL(9)	Integer form of the array DOL.
IDUMMY	Dummy argument in subroutine IERROR.
IDUM1	Dummy argument in subroutine IERROR.
IEXTRA	Flag set to "1" for printing UNOW data, otherwise set to "0".
IGROUP	Variable used to transfer group number to subroutine IERROR.
II	Subscript used to designate a given option.
IIOPT	Variable used to transfer the option to subroutine IERROR.
IIYARD	Variable used to transfer a yard name to subroutine IERROR.
IMAT	Percent of direct labor costs for material.
IOPT(14)	Array of options for a given ship grouping.
ISUMDL	Direct labor costs in thousands of dollars.
IUDOL	Direct labor costs for UNOW in thousands of dollars.
IUSUM	Integer form of labor mandays for UNOW.
J	DO-loop index.
JSUMDL	Total labor cost for all SWBS.
JSUMDY	Total direct costs for material.
JYEAR	Year being reported on.
K	Index used for I/O statements.
KK	DO-loop index.
MAT	Direct labor costs for material in thousands of dollars.
NUMBER	Counter for number of reports per page.
NYDS	Number of yards being reported on.
NYEAR	Number of years being reported on.
UDOL	Direct labor costs for UNOW.
USUM	Labor mandays for UNOW.

Subroutine SKPGRP

IDBI	Double precision dummy argument in subroutine IERROR.
IDUMMY	Dummy argument in subroutine IERROR.

Subroutine SKPGRP (Continued)

IDUM1	Dummy argument in subroutine IERROR.
IDUM2	Dummy argument in subroutine IERROR.
IFYR	Fiscal year for this availability.
IGROUP	Group number read from SWBS File.
IONCE	Flag set to "1" when file has been rewound, otherwise set to "0".
ISHULL	Ship type and hull number - read as a single variable from the SWBS File.
ITYPWK	Type of work.
IYD	Yard name.

Subroutine SUM

I	Subscript used to designate a given yard in the UYARD, ARRAYD, and ARRAYM arrays.
IFYR	Fiscal year for this availability.
II	Subscript used to designate a given option in the UARRAY, ARRAY1, and ARRAY2 arrays.
III	Flag set to "1" when there is UNOW work, otherwise set to "0".
ISAVE	Flag set to "1" when UNOW work is summed, otherwise set to "0".
IYD	Yard name being processed.
J	Subscript used to designate a given year in the ARRAY1, ARRAY2, ARRAYD, ARRAYM, UARRAY, and UYARD arrays.
JJ	DO-loop index.
JOPT	Option number.
K	DO-loop index.
L	DO-loop index.
UDOL	Material dollar value for UNOW for a given option and a given year.
USUM	Labor manday value for UNOW for a given option and a given year.
VALUES(18)	Array of repair and alteration labor manday values for a given option and a given year.
YDRATE	Manday rate for a given yard and year.

Subroutine TITLE

I	Index used for I/O statements.
IEXTRA	Flag set to "1" for printing headings for UNOW data, otherwise set to "0".
IFYR	Fiscal year for this availability.
IGROUP	Group number.
ISWBS(9)	Array of SWBS numbers.

6.3.7 SAMPLE RUN

The card inputs (unit 5) for the sample run requested that reporting be projected for one year, 1982. The percent of direct labor costs for material was defined as 25. Manday rates were given for eight Navy shipyards and one rate was used for the private yards. All options (shipyard ownership, coastal location, and type of work) as well as yard summaries were requested for Group 1. Various combinations of options and yards were requested for the other groups. The SWBS (by Groups) Data File (unit 12) was used as input to REPWBS. A sample of this file may be found in Section 6.3.3.2 .

The sample output (unit 6) shows Direct Labor Mandays, Labor Costs, and Material Costs, projected for SWBS. Reports produced show breakdowns by sector and work categories. All options were requested for Group 1, a group of all CGN's. The following categories were reported on:

Work in Navy Yards
East Coast Navy Work
West Coast Navy Work
Conversion Work
Active Ship Work

There was no private work for this group, so the following three reports were omitted:

Work in Private Yards
East Coast Private
West Coast Private

Of the work categories requested, the following categories contained no data for the required group and year:

Reserve Ship Work
MAP Work

Any request for which there was no data produced an error message (unit 8) which gave the option, year, and group number. Three yard summaries were requested, but there was no data for Long Beach.

Group 2 was defined as an individual ship and a yard summary was the only request. Output included the projection of all work for the CGN 35 in Puget Sound Naval Shipyard for 1982. A group total is always produced and includes all work projected for that group of ships for the given year. In this case the group total and the Puget Sound summary were identical as any work projected for the CGN 35 is performed at Puget Sound Naval Shipyard.

The reports for Group 3, a group of carriers (CV 59 through CV 62), were presented to show a spread of work in both Navy and private shipyards and the totals for the individual yards.

Unit 5 - Card Inputs

```
08/02/77       DMPPS SAMPLE RUN          82          25
CHASN 159.80 159.80 159.80 159.80 159.80
NORVA 140.76 140.76 140.76 140.76 140.76
PHILA 148.76 148.76 148.76 148.76 148.76
PTSMH 153.04 153.04 153.04 153.04 153.04
LBECH 143.28 143.28 143.28 143.28 143.28
MARE  160.04 160.04 160.04 160.04 160.04
PEARL 161.56 161.56 161.56 161.56 161.56
PUGET 137.28 137.28 137.28 137.28 137.28
PRIV  150.00 150.00 150.00 150.00 150.00
LAST
  1 NAV NE NW PRI PE PW CON ACT RES MAP
NORVA PUGET LBECH
  2
NORVA PUGET LBECH D 11  NWPAC CHASN
  3 NAV     NW PRI PE PW CON ACT RES MAP
NORVA PUGET LBECH D 11  NWPAC CHASN D 06
 -1
```

DATE 08/02/77
DMPPS SAMPLE RUN

DATE 08/02/77
OMPPS SAMPLE RUN

LABOR RATES IN $/MANDAY

YARD	YEAR: 1982
CHASN	159.88
NORVA	140.76
PHILA	148.76
PTSMH	153.84
LBECH	143.28
MARE	160.84
PEARL	161.56
PUGET	137.28
PRIV	150.88

MATERIAL FACTOR = 25 PERCENT OF LABOR COSTS

DATE 08/02/77
OMPPS SAMPLE RUN

****

SMIP GROUP 1

CGN 1 - CGN 9999

****

DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM
MISSION ESSENTIAL WORKLOAD REQUIREMENTS
BY SWBS

GROUP 1 FISCAL 1982

	SWBS 100	SWBS 200	SWBS 300	SWBS 400	SWBS 500	SWBS 600	SWBS 700	SWBS 800	SWBS 900	TOTAL
WORK IN NAVY YARDS										
DIRECT LABOR MANDAYS	15453	103413	38370	88587	84171	35588	12283	98454	109832	642071
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	2174	25451	4211	11111	11713	4939	1695	12511	15186	88991
MATERIAL COSTS (THOUSANDS OF DOLLARS)										22247
EAST COAST NAVY YARDS										
DIRECT LABOR MANDAYS	5461	54841	9502	12606	22119	11222	2689	26698	30926	175984
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	802	7881	1347	1779	3194	1685	367	3758	4354	25807
MATERIAL COSTS (THOUSANDS OF DOLLARS)										6251
WEST COAST NAVY YARDS										
DIRECT LABOR MANDAYS	9992	128572	28868	67981	62052	24286	9674	63756	78906	466087
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	1372	17650	2865	9332	8519	3334	1328	8753	10832	63985
MATERIAL COSTS (THOUSANDS OF DOLLARS)										15996
CONVERSION WORK										
DIRECT LABOR MANDAYS	3372	12438	1581	3815	14211	1838	1843	4744	12863	54217
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	463	1707	206	414	1951	141	253	651	1656	7442
MATERIAL COSTS (THOUSANDS OF DOLLARS)										1868

DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM
MISSION ESSENTIAL WORKLOAD REQUIREMENTS
BY SWBS

GROUP 1 FISCAL 1982

	SWBS 100	SWBS 200	SWBS 300	SWBS 400	SWBS 500	SWBS 600	SWBS 700	SWBS 800	SWBS 900	TOTAL
ACTIVE SHIP WORK										
DIRECT LABOR MANDAYS	15453	183413	30370	80587	84171	35508	12283	90454	109832	642071
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	2174	25451	4211	11111	11713	4939	1695	12511	15186	88991
MATERIAL COSTS (THOUSANDS OF DOLLARS)										22247
GROUP TOTAL										
DIRECT LABOR MANDAYS	15453	183413	30370	80587	84171	35508	12283	90454	109832	642071
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	2174	25451	4211	11111	11713	4939	1695	12511	15186	88991
MATERIAL COSTS (THOUSANDS OF DOLLARS)										22247
YARD: NORVA										
DIRECT LABOR MANDAYS	3697	50553	9022	12393	17885	9903	2609	26698	30888	163648
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	520	7115	1270	1744	2518	1394	367	3758	4348	23035
MATERIAL COSTS (THOUSANDS OF DOLLARS)										5758
YARD: PUGET										
DIRECT LABOR MANDAYS	9992	128572	20858	67981	62052	24286	9674	63756	78906	466087
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	1372	17650	2865	9332	8519	3334	1328	8753	10832	63985
MATERIAL COSTS (THOUSANDS OF DOLLARS)										15996

DATE 08/02/77
DMPPS SAMPLE RUN

SMIP GROUP 2

CGN 35 - CGN 35

REPORT: 63 DATE: 08/02/77 PAGE 1
DMPPS SAMPLE RUN

DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM
MISSION ESSENTIAL WORKLOAD REQUIREMENTS
BY SWBS

GROUP 2 FISCAL 1982

	SWBS 100	SWBS 200	SWBS 300	SWBS 400	SWBS 500	SWBS 600	SWBS 700	SWBS 800	SWBS 900	TOTAL
GROUP TOTAL										
DIRECT LABOR MANDAYS	4383	87304	15921	46576	35739	15900	5615	46108	53343	311889
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	602	11985	2186	6394	4906	2320	771	6330	7323	42817
MATERIAL COSTS (THOUSANDS OF DOLLARS)										10704
YARD: PUGET										
DIRECT LABOR MANDAYS	4383	87304	15921	46576	35739	15900	5615	46108	53343	311889
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	602	11985	2186	6394	4906	2320	771	6330	7323	42817
MATERIAL COSTS (THOUSANDS OF DOLLARS)										10704

DATE 08/02/77
DMPPS SAMPLE RUN

****

SHIP GROUP 3

CV 59 - CV 62

****

DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM
MISSION ESSENTIAL WORKLOAD REQUIREMENTS
BY SWBS

GROUP 3 FISCAL 1982

	SWBS 100	SWBS 200	SWBS 300	SWBS 400	SWBS 500	SWBS 600	SWBS 700	SWBS 800	SWBS 900	TOTAL
WORK IN NAVY YARDS										
DIRECT LABOR MANDAYS	1768	13824	3377	6398	25386	5138	3225	0	6840	65956
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	249	1946	475	901	3573	723	454	0	963	9284
MATERIAL COSTS (THOUSANDS OF DOLLARS)										2321
WORK IN PRIVATE YARDS										
DIRECT LABOR MANDAYS	4304	23021	5417	28604	58059	18470	36241	0	10755	184871
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	646	3453	813	4291	8709	2771	5436	0	1613	27732
MATERIAL COSTS (THOUSANDS OF DOLLARS)										6933
EAST COAST PRIVATE										
DIRECT LABOR MANDAYS	1753	9233	2049	8214	18280	3662	15235	0	3933	68359
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	263	1385	307	1232	2742	1449	2285	0	590	10253
MATERIAL COSTS (THOUSANDS OF DOLLARS)										2563
WEST COAST PRIVATE										
DIRECT LABOR MANDAYS	2551	13788	3368	20390	39779	8808	21006	0	6822	116512
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	383	2068	505	3059	5967	1321	3151	0	1023	17477
MATERIAL COSTS (THOUSANDS OF DOLLARS)										4369

DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM
MISSION ESSENTIAL WORKLOAD REQUIREMENTS
BY SWBS

GROUP 1 FISCAL 1982

	SWBS 100	SWBS 200	SWBS 300	SWBS 400	SWBS 500	SWBS 600	SWBS 700	SWBS 800	SWBS 900	TOTAL
ACTIVE SHIP WORK										
DIRECT LABOR MANDAYS	6172	36845	8734	35012	83445	23618	19466	1	17595	251827
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	894	5339	1288	5191	12282	3494	5898	1	2576	37314
MATERIAL COSTS (THOUSANDS OF DOLLARS)										9251
GROUP TOTAL										
DIRECT LABOR MANDAYS	6172	36845	8734	35012	83445	23618	19466	1	17595	251827
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	894	5339	1288	5191	12282	3494	5898	1	2576	37314
MATERIAL COSTS (THOUSANDS OF DOLLARS)										4251
YARDS NSRWA										
DIRECT LABOR MANDAYS	1768	13824	3377	6398	25386	5138	3225	1	6841	65956
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	249	1946	475	901	3571	723	454	1	963	9284
MATERIAL COSTS (THOUSANDS OF DOLLARS)										2321
YARDS O 11										
DIRECT LABOR MANDAYS	2551	13788	3358	20390	33779	8818	21836	1	6822	110512
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	383	2358	515	3359	5357	1321	3151	1	1123	17477
MATERIAL COSTS (THOUSANDS OF DOLLARS)										4359

DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM
MISSION ESSENTIAL WORKLOAD REQUIREMENTS
BY SWBS

GROUP 3 FISCAL 1982

	SWBS 100	SWBS 200	SWBS 300	SWBS 400	SWBS 500	SWBS 600	SWBS 700	SWBS 800	SWBS 900	TOTAL
FAPD: D 06										
DIRECT LABOR MANDAYS	1753	9233	2049	8214	18280	9662	15235	0	3933	68359
DIRECT LABOR COSTS (THOUSANDS OF DOLLARS)	263	1385	307	1232	2742	1449	2285	0	590	10253
MATERIAL COSTS (THOUSANDS OF DOLLARS)										2563

Unit 8 - Error Messages

```
* * * NO PRIVATE YARD WORK FOR 1982 FOR GROUP    1
* * * NO EAST COAST PRIVATE YARD WORK FOR 1982 FOR GROUP    1
* * * NO WEST COAST PRIVATE YARD WORK FOR 1982 FOR GROUP    1
* * * NO RESERVE SHIP WORK FOR 1982 FOR GROUP    1
* * * NO MAP WORK FOR 1982 FOR GROUP    1
* * * NO DATA FOR LBECH FOR GROUP    1
* * * NO DATA FOR NORVA FOR GROUP    2
* * * NO DATA FOR LBECH FOR GROUP    2
* * * NO DATA FOR D 11  FOR GROUP    2
* * * NO DATA FOR NWPAC FOR GROUP    2
* * * NO DATA FOR CHASN FOR GROUP    2
* * * NO WEST COAST NAVY YARD WORK FOR 1982 FOR GROUP    3
* * * NO CONVERSION WORK FOR 1982 FOR GROUP    3
* * * NO RESERVE SHIP WORK FOR 1982 FOR GROUP    3
* * * NO MAP WORK FOR 1982 FOR GROUP    3
* * * NO DATA FOR PUGET FOR GROUP    3
* * * NO DATA FOR LBECH FOR GROUP    3
* * * NO DATA FOR NWPAC FOR GROUP    3
* * * NO DATA FOR CHASN FOR GROUP    3
* * * END OF FILE ENCOUNTERED
```

6.4 PROGRAM REPMAT

6.4.1 DESCRIPTION

REPMAT is a report generator that produces summary reports of projected workloads for the various production shop and Ship Work Breakdown Structure (SWBS) categories. Each report contains a 10-by-20 matrix whose rows reflect the mandays projected for the SWBS categories and whose columns show the mandays in shops. The shops consist of the 19 production shop categories and the SWBS represents the nine single-digit SWBS categories. Shop 65 (Module Repair and Maintenance Facilities) has been deleted from the matrix for reporting purposes, since Charleston is the only shipyard that uses it. Historical data collected to date from Charleston Shipyard showed no work performed in that shop. In the future, if work is projected for shop 65, it will be combined with shop 68.

The 19 shop categories referred to in these reports are as follows:

Shop Number	Shop Name
06	Central Tool Shop
11	Shipfitter Shop
17	Sheetmetal Shop
23	Forge Shop
26	Welding Shop
31	Inside Machine Shop
36	Weapon System Shop
38	Outside Machine Shop
41	Boiler Shop
51	Electric Shop
56	Pipe and Copper Shop
64	Woodworking Shop
65	Module Repair and Maintenance Facilities
67	Electronics Shop
71	Paint Shop
72	Rigging Shop

PRECEDING PAGE BLANK

81	Foundry Shop
94	Patternmaker Shop
99	Temporary Service Shop

Those areas, in which productive work is performed, that are not covered by these categories are referred to as "other direct."

The following nine SWBS categories are referred to in these reports:

1. Hull Structure
2. Propulsion Plant
3. Electrical Plant
4. Command and Surveillance (Shipboard Installations)
5. Auxiliary Systems
6. Outfit and Furnishings
7. Armament (Shipboard Installations)
8. Integration/Engineering (Shipboard Response)
9. Ship Assembly and Support Services

The program uses as input the SWBS-Shop Matrix File created by the program XPLODF (Volume 5 - Synthesizer Subsystem), a Group Definition Card Deck, and input cards defining report options. Reports can be generated for one of three options: (1) repair mandays, (2) alteration mandays, or (3) total mandays. Data are reported first by yard, then within a yard by ship groups, and within groups by year.

A Group Definition Card Deck defines the ship groupings which may be reported on. Ship groupings are defined by the user. A group may consist of a single ship, a ship class, functional ship groupings, or any combination of these. For each grouping there may be as many as six sets of lower and upper ship-type/hull-number range combinations. For example, surface combatants might be described by the following groupings: CG 4 through CGN 39, CV 19 through CVN 70, DD 714 through DDG 41, FF 1037 through FFG 7, and CVT 16 through CVT 16.

A group number is assigned to this grouping. This group number is compared to the one requested on the Yard Option card. If there is agreement, the ship type and hull number are examined. Those that fall within the grouping are reported on. The capability to select various

groupings means that reports can be made on broad categories, such as all surface ships, or to the detail of a single ship type and hull number. Provision has been made for 100 ship groupings.

A type A Yard Option card, the first of two to describe the various options, contains the shipyard name and the word "ALL" if the entire yard is to be reported on. For the type of work desired, the word "REP" for repairs, "ALT" for alterations, or "TOT" for total of repairs and alterations must be requested. This option must agree with the option used in creating that specific yard on the SWBS-Shop Matrix File. In addition, the years to be reported on are input on this card.

The second Yard Option card, a type B card, contains the shipyard name and the group numbers. A Yard Option Terminator card follows the final type B Yard Option card. A sample input set-up is shown in Figure 6.4-1.

Due to the tremendous amount of data involved, it is feasible to execute the program XPLODE creating a SWBS-Shop Matrix File for only two or three yards prior to generating reports. It is unlikely that one would store SWBS-Shop Matrix data for all shipyards, as each Depot Maintenance Assignment File (DMAF) availability produces 21 data records and requires a tremendous amount of machine storage space. When processing a yard, the program XPLODE reads a ship availability from the DMAF and produces one record for each of the 20 shops within the shipyard. This record shows the mandays that the shop will expend in the nine SWBS categories.

All yard information is read at the begining of the program and is stored in arrays. The first record of the SWBS-Shop Matrix File is examined. If that yard is not required, the entire yard is skipped. The subroutine SUM is called to process the data for each record containing the year and the ship type requested. As a yard is completed, subroutine REPORT is called and data are extracted for reports by year and group number. Figure 6.4-2 shows a hierarchical diagram of REPMAT.

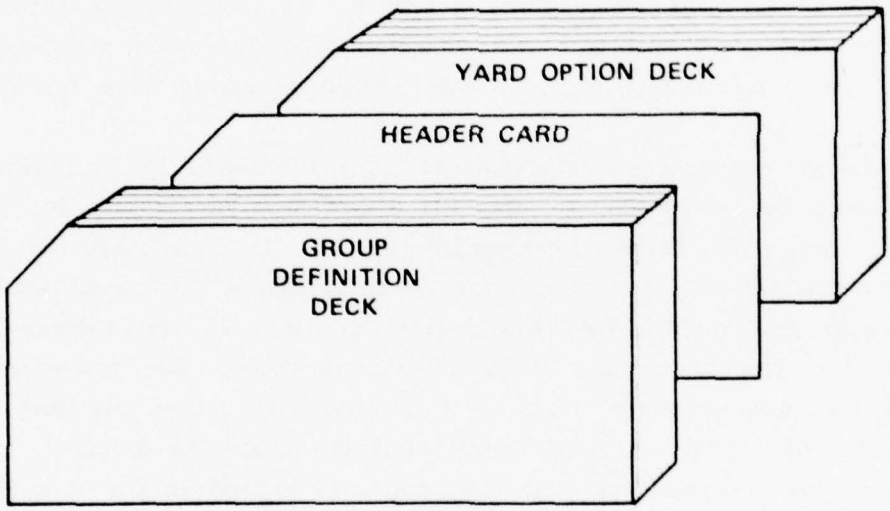

Figure 6.4-1 - Input Deck for RFPMAT

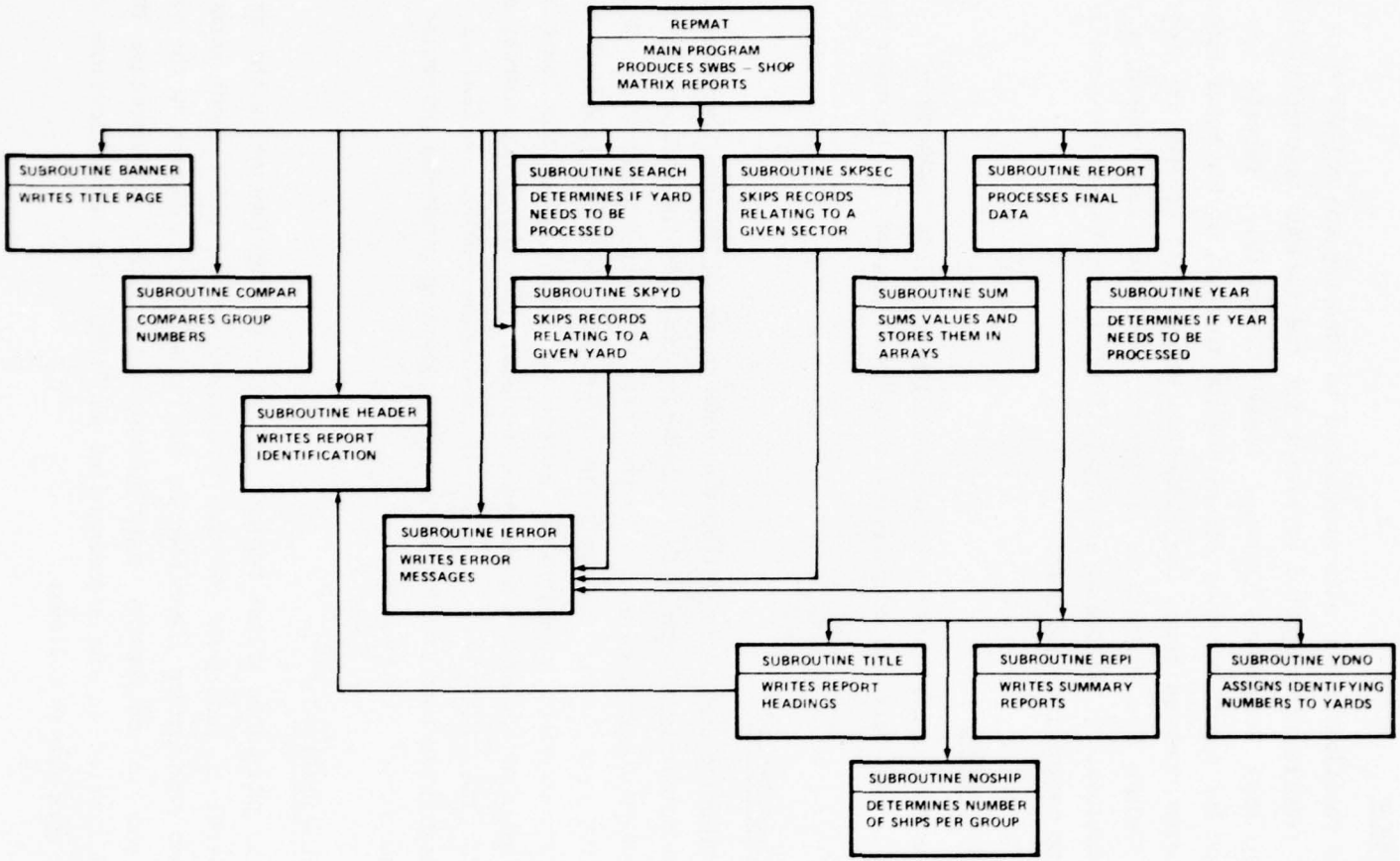

Figure 6.4-2 - REPMAT Hierarchical Diagram

Main Program

The function of the main program is to identify and collect data for summary reports of projected workloads for the various production shops and Ship Work Breakdown Structure (SWBS) categories. Reports may be generated for repair mandays, for alteration mandays, or for total mandays. The program uses as input the SWBS-Shop Matrix File created by program XPLODE (Volume 5 - Synthesizer Subsystem), and input cards defining the report options. In addition, a Group Definition Data Base is created from the Group Definition Card Deck.

Subroutine BANNER

This subroutine writes a title page with the words "SWBS-SHOP REPORTS". The date and identifying information appear in the upper left corner.

Subroutine COMPAR

Subroutine COMPAR is called for each group of 20 shop records with the designated fiscal year. This subroutine compares the group numbers to be processed for a given yard with the array of group numbers in the Group Definition Data Base. If there is agreement, the ship type and hull number are examined to determine whether they fall within the lower and upper limits of any of the selected groupings. Matching group numbers are stored in the JGROUP array for use in subroutine REPORT. A flag is set when a match has been found and the data processing proceeds; otherwise an alternate return is made.

Subroutine HEADER

This subroutine writes report identification information in the upper left corner of each page and the page number in the upper right corner. SWBS-Shop reports are identified by the number "62" followed by the yard number and type of report. Yard numbers are assigned in subroutine YDNO and are carried in the argument list as "ID". The identifications for type of work are as follows:

01 for repairs
02 for alterations
03 for the total of repairs and alterations

Therefore, 62-01-02 would represent a report of total alteration mandays for Charleston.

Subroutine IERROR

The subroutine IERROR is called to indicate lack of data in any requested ship grouping. If the SWBS-Shop Matrix File was not created for an option that was requested (repairs, alterations, or total), an error message is written on unit 7.

Subroutine NOSHIP

The NOSHIP subroutine determines the number of ships in a given group and writes the ship type and hull numbers at the top of each report page.

Subroutine REPORT

Using the yard name, the option, and the arrays of data collected by other subroutines, subroutine REPORT extracts the data elements for the individual reports. Data are stored in separate arrays for each of the required years. Tests are made to ensure that there are data for each of the desired groups. If all work in an entire yard has been calculated, the total is stored as the first "group number" in the data array and must be extracted as such. The values for a given yard, group number, and year are transferred to the subroutine REP1 for final output.

Subroutine REP1

Subroutine REP1 uses the manday values for a given yard, group number, and year as extracted by subroutine REPORT and writes them in a report format.

Subroutine SEARCH

Subroutine SEARCH is used to determine whether a yard is to be processed. The yard name, read from the SWBS-Shop Matrix File, is compared with the array of yard names requested by input data. If there is no match, subroutine SKPYD is called to position the file at the beginning of the next yard and an alternate return is made.

Subroutine SKPSEC

This subroutine is used to skip all records on the SWBS-Shop Matrix File for a given sector. As each record is read, it is checked for a separator record which is a record of all "9's". After the separator record is encountered, the program proceeds to the next sector.

Subroutine SKPYD

Subroutine SKPYD is used to skip all records on the SWBS-Shop Matrix File relating to a given yard. As each record is read, the yard name is compared with the name of the yard to be skipped. When a new yard name appears, the file is backspaced and the program continues.

Subroutine SUM

This subroutine sums the manday values for the nine SWBS categories and the 20 shops and stores them in arrays according to group number. There is an array for each of the five years. Subroutine SUM is called with one of three options: (1) to sum the values for given groups but not for an entire yard; (2) to sum the values for an entire yard but not for groups; (3) to sum the values for an entire yard as well as for given groups. In these data arrays the first subscript refers to the group number, the second subscript refers to the nine single-digit SWBS categories, and the third subscript refers to the 20 shops. If an entire yard is processed, the data are stored as the first "group number" in the array and later treated accordingly.

Subroutine TITLE

This subroutine is called by subroutine REPORT with an argument designating identifying notation to be written with the data. The options are: (1) TOTAL DIRECT REPAIR MANDAYS BY SWBS AND SHOPS, (2) TOTAL DIRECT ALTERATION MANDAYS BY SWBS AND SHOPS, (3) TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SWBS AND SHOPS.

Subroutine YEAR

This subroutine checks the fiscal year for a given data record with the array of years requested by input. If there is no agreement, transfer is made to that portion of the program that reads the next group of data records.

Subroutine YDNO

This subroutine assigns a number to each yard for report identification. For example: Charleston is 01, Long Beach is 02. The subroutine argument "ID" is transferred to subroutine HEADER with this identifying number to be used for report identification.

6.4.2 RUN SET-UP

The following set-up is used to run the REPMAT program on the IBM 360/370 computer:

```
//NVSREPM  JOB (XXXXXXXXXX,XXXXX),USER,CLASS=C,TIME=(,15),MSGLEVEL=1
//JOBLIB DD DSN=NVS01.DEPOT.LIB,DISP=SHR
// EXEC PGM=REPMAT
//GO.FT05F001  DD *
 |
 |
 |    REPMAT card inputs (unit 5)
 |
 |
//GO.FT06F001 DD SYSOUT=A                          (SWBS-SHOP REPORTS)
//GO.FT07F001 DD SYSOUT=A                             (ERROR MESSAGES)
//GO.FT11F001 DD DSN=NVS01.MATRIX.EXPLODE.DATA,DISP=SHR  (INPUT FILE)
```

6.4.3 INPUTS

Card inputs are made using unit 5. The format for these cards is shown in Section 6.4.3.1.

Unit 5 - Card inputs which (1) define ship groups by setting lower and upper limits on ship type and hull number, (2) give identifying report information, (3) set the desired options and years required, (4) determine which yards and groups are to be reported on.

The following additional unit is used to input information from a disk file created by the program XPLODE:

Unit 8 - SWBS-Shop Matrix File.

The format for this file is given in Section 6.4.3.2.

6.4.3.1 Unit 5 - Card Inputs

Group Definition Cards. The Group Definition Deck describes the various ship groupings. Two cards, a type A and a type B, are required to define each group. There may be as many as 100 groups. A group definition terminator card follows the last type B group definition card.

Type A Group Definition Card

Variable Name	Description	Field	Format
IGRPNO(I)	Group Number	1-3	I3
GRPDEF(I,1,1)	Ship Set 1 Ship-Type/Hull-Number (Lower Bound)	9-16	A8
GRPDEF(I,1,2)	Ship Set 1 Ship-Type/Hull-Number (Upper Bound)	20-27	A8
GRPDEF(I,2,1)	Ship Set 2 Ship-Type/Hull-Number (Lower Bound)	33-40	A8
GRPDEF(I,2,2)	Ship Set 2 (Upper Bound)	44-51	A8
GRPDEF(I,3,1)	Ship Set 3 (Lower Bound)	57-64	A8
GRPDEF(I,3,2)	Ship Set 3 (Upper Bound)	68-75	A8

Type B Group Definition Card

Variable Name	Description	Field	Format
GRPDEF(I,4,1)	Ship Set 4 Ship-Type/Hull-Number (Lower Bound)	9-16	A8
GRPDEF(I,4,2)	Ship Set 4 Ship-Type/Hull-Number (Upper Bound)	20-27	A8
GRPDEF(I,5,1)	Ship Set 5 (Lower Bound)	33-40	A8
GRPDEF(I,5,2)	Ship Set 5 (Upper Bound)	44-51	A8
GRPDEF(I,6,1)	Ship Set 6 (Lower Bound)	57-64	A8
GRPDEF(I,6,2)	Ship Set 6 (Upper Bound)	68-75	A8

Group Definition Deck Terminator Card

Variable Name	Description	Field	Format
Terminator	Terminator of Ship Group Definition Deck (any negative number)	1-3	I3

Identification Card

Variable Name	Description	Field	Format
DATE	Date (mo/dy/yr)	1-12	3A4
COMENT	Comment	15-34	5A4

Yard Option Cards. There are two cards for each required yard: a type A card which describes the options and years and a type B card for requesting the group numbers. A Yard Option terminator card follows the final type B Option card.

Type A Yard Option Card

Variable Name	Description	Field	Format
IYDSEL	Yard name	1-5	A5
ALL	The punch characters "ALL" will sum entire yard	8-10	A3
REP	The punch characters "REP" will compute repairs only	13-15	A3
ALT	The punch characters "ALT" will compute alterations only	18-20	A3
TOTAL	The punch characters "TOT" will compute total of repairs and alterations	23-25	A3
IYEAR(1)	2-digit year	30-31	I2
IYEAR(2)	2-digit year	33-34	I2
IYEAR(3)	2-digit year	36-37	I2
IYEAR(4)	2-digit year	39-40	I2
IYEAR(5)	2-digit year	42-43	I2

Type B Yard Option Card

Variable Name	Description	Field	Format
IYDSEL	Yard name	1-5	A5
IYDGRP(1-25)	Group numbers to be processed	7-80	25(1X,I2)

Yard Option Terminator Card

Variable Name	Description	Field	Format
LAST	End card of input data	1-5	A5

An example of an input deck for REPMAT is shown in Figure 6.4-1.

6.4.3.2 Unit 8 - SWBS-Shop Matrix File

The SWBS-Shop Matrix File is a binary file so the format is given only as a guide to the size of the variables.

Header Record. The format for the Header Record is described below. The arrays of yards and their options are dimensioned for 13.

Variable Name	Description	Position	Format
OWN	Yard ownership indicator	1	(A1)
COAST	Coast	2	(A1)
IYEAR	First fiscal year of LRPS projection	3	(I2)
IYDSEC(1)	Yard name	4	(A5)
IOPTS(1)	Option flag	5	(A1)
IYDSEC(2)	Yard name	6	(A5)
IOPTS(2)	Option Flag	7	(A1)
.	.	.	.
.	.	.	.
.	.	.	.
IYDSEC(13)	Yard name	28	(A5)
IOPTS(13)	Option flag	29	(A1)

Manday Record. There is one Manday Record for each of the 20 shops for each six-month period of an availability.

Variable Name	Description	Position	Format
ISHULL	Ship-type/hull-number	1	(A8)
ITYPWK	Type work	2	(A3)
IYD	Yard	3	(A5)
IGROUP	Group number	4	(I3)
IFYR	Fiscal year (this record)	5	(I2)
OWN	Yard ownership indicator	6	(A1)
COAST	Coast	7	(A1)
IPERD	Period (this record)	8	(I1)
ICONT	Continuation indicator	9	(A1)
ISTRT	Availability start date (mo/dy/yr)	10	(I6)
IEND	Availability end date (mo/dy/yr)	11	(I6)
ISPEC	Specialization category	12	(A3)
VALUES(1-9)	Mandays for SWBS for this Shop	13-21	(9F10.2)
ISHOP	Index used to identify the shop number	22	(I2)

Figure 6.4-3 shows an example of a SWBS-Shop Matrix File.

6.4.4 OUTPUTS

The following units are used by REPMAT for generating hard-copy output:

Unit 6 - Summary SWBS-Shop Matrix reports.

Unit 7 - Error messages.

Section 6.4.7 gives a sample of the SWBS-Shop Matrix reports.

6.4.5 PROGRAM LISTING

```
      PROGRAM REPMAT(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT,TAPE8,        **** 10
     1  TAPE7)                                                           **** 20
C                                                                       REPM 30
C       REPMAT IS A REPORT GENERATOR WHICH GIVES TOTAL DIRECT LABOR      REPM 40
C           MANDAYS IN THE FORM OF A SWBS-SHOP MATRIX                   REPM 50
C       PROGRAMMER JEAN ST LAURENT  CODE 1863                           REPM 60
C       WRITTEN APRIL 1976                                              REPM 70
C                                                                       REPM 80
C       PRIOR TO RUNNING REPMAT, PROGRAM XPLODE MUST CREATE A           REPM 90
C           SWBS-SHOP FILE FOR GIVEN YARDS AND OPTIONS                  REPM 91
C       THE OPTIONS ARE:                                                REPM 92
C         REPAIRS, ONLY                - JOPT = 1                       REPM 100
C         ALTERATIONS, ONLY            - JOPT = 2                       REPM 110
C         TOTAL OF ALTS AND REPAIRS    - JOPT = 3                       REPM 120
C                                                                       REPM 130
C       REPORTS MAY BE PRODUCED FOR SELECTED GROUPS OF SHIP CLASSES      REPM 140
C           FOR A GIVEN YARD AND YEAR                                   REPM 141
C           THERE IS ALSO A PROVISION TO SUM ALL DATA FOR A YARD        REPM 150
C             SET IALL = 1                                              REPM 160
C                                                                       REPM 170
C           DATA MAY BE REPORTED ON FOR AS MANY AS 5 YEARS              REPM 180
C             THE REQUIRED YEARS ARE INPUT AS - IYEAR                   REPM 190
C                                                                       REPM 200
C                                                                       REPM 210
C       TAPE ASSIGNMENTS                                                REPM 220
C         TAPE5 - INPUT - CARDS                                         REPM 230
C         TAPE6 - OUTPUT                                                REPM 240
C         TAPE7 - OUTPUT - ERRORS, ONLY                                 REPM 250
C         TAPE8 - INPUT OF MATRIX DATA FILE CREATED BY PROGRAM XPLODE   REPM 260
C                                                                       REPM 270
C**** REAL*8 GRPDEF, IYDSEL, IYD, LAST,IYDP, ISHULL, IYARD, ISEP        **** 280
C                                                                       REPM 290
      INTEGER GRPDEF                                                    **** 300
      COMMON/IDATA/ GRPDEF(100,6,2), IYDSEL(15), IYARD(13)              REPM 310
      COMMON/WORK/ARRAY1(25,9,20), ARRAY2(25,9,20), ARRAY3(25,9,20),    REPM 320
     1  ARRAY4(25,9,20), ARRAY5(25,9,20), VALUES(9,20)                   REPM 330
      COMMON/REP/ ISHIP(100,6,2), IHULL(100,6,2)                        REPM 340
      COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), MGROUP(25)     REPM 350
      COMMON/IDENT/COMENT(5), DATE(3)                                   REPM 360
      COMMON/VAL/ VALYR(9,20), SUMWBS(20), SUMSHP(9), TOT               REPM 370
      DIMENSION NYEARS(15), IYEAR(15,5), IYDYR(5)                       REPM 380
      DIMENSION IGRPNO(100),NGRPS(25), IALL(15), IOPT(15),IIOPT(15)     REPM 390
C                                                                       REPM 400
C***  REAL*8 ISEP/5H99999/                                              **** 410
C                                                                       REPM 440
C                                                                       REPM 450
      DATA LAST/5HLAST /                                                REPM 460
      DATA ZREP/1HR/                                                    REPM 470
      DATA ZALT/1HA/                                                    REPM 480
      DATA ZTOT/1HT/                                                    REPM 490
      DATA ZALL/3HALL/                                                  REPM 500
      DATA IREP/1HR/                                                    REPM 510
      DATA IALT/1HA/                                                    REPM 520
      DATA ITOT/1HT/                                                    REPM 530
      DATA ISEP/5H99999/                                                **** 531
```

```
C                                                                       REPM 550
C      INITIAL CONDITIONS                                               REPM 560
      IYDP = 0                                                          **** 570
C**** IYDP = 0.0                                                        **** 572
      NGROUP = 0                                                        REPM 575
C                                                                       REPM 580
C           ZERO OUT ARRAYS                                             REPM 590
      DO 15 I = 1, 25                                                   REPM 600
      NGRPS(I) = 0                                                      REPM 610
      DO 10 J = 1,15                                                    REPM 620
      IYDSEL(J) = 0                                                     **** 630
C**** IYDSEL(J) = 0.0                                                   **** 635
      IYDGRP(J,I) = 0                                                   REPM 640
      DO 5 K = 1,5                                                      REPM 650
      IYEAR(J,K) = 0                                                    REPM 660
    5 CONTINUE                                                          REPM 670
   10 CONTINUE                                                          REPM 680
   15 CONTINUE                                                          REPM 690
      DO 19 I = 1,100                                                   REPM 691
      DO 17 K = 1,6                                                     REPM 692
      DO 16 L = 1,2                                                     REPM 693
      ISHIP(I,K,L) = 0                                                  REPM 694
      IHULL(I,K,L) = 0                                                  REPM 695
      GRPDEF(I,K,L) = 0                                                 **** 696
C***  GRPDEF(I,K,L) = 0.0                                               **** 697
   16 CONTINUE                                                          REPM 698
   17 CONTINUE                                                          REPM 699
   19 CONTINUE                                                          REPM 700
      DO 18 I = 1,13                                                    REPM 705
C**18 IYARD(I) = 0.0                                                    **** 705
   18 IYARD(I) = 0                                                      **** 710
C                                                                       REPM 720
C           READ GROUP DEFINITION CARD DECK                             REPM 730
C                                                                       REPM 740
      DO 30 I = 1, 100                                                  REPM 750
C                                                                       REPM 760
      READ(5,100) IGRPNO(I), (GRPDEF(I,J,1),GRPDEF(I,J,2),J=1,3),      REPM 770
     1  IGRPNO(I),((ISHIP(I,K,L),IHULL(I,K,L),L=1,2),K=1,3)            REPM 780
  100 FORMAT(I3, 3(5X,A8,3X,A8), T1,I3, T9,A4, T13,A4, T20,A4,T24,A4,   REPM 790
     1  T33,A4, T37,A4, T44,A4, T48,A4, T57,A4, T61,A4, T68,A4, T72,A4) REPM 800
C                                                                       REPM 810
C           TEST FOR TERMINATOR                                         REPM 820
C                                                                       REPM 830
      IF(IGRPNO(I).LT.0) GO TO 35                                       REPM 840
      READ(5,100) IDUMMY,    (GRPDEF(I,J,1),GRPDEF(I,J,2),J=4,6),      REPM 850
     1  IDUM1,    ((ISHIP(I,K,L),IHULL(I,K,L),L=1,2),K=4,6)            REPM 860
C                                                                       REPM 861
C        THIS SECTION REPLACES BLANKS WITH ZEROS FOR CDC, ONLY          REPM 870
      DO 25 J = 1,6                                                     **** 880
      DO 20 K = 1,2                                                     **** 890
      GRPDEF(I,J,K) = ICBZ(GRPDEF(I,J,K))                               **** 900
   20 CONTINUE                                                          **** 910
   25 CONTINUE                                                          **** 920
   30 CONTINUE                                                          REPM 930
C                                                                       REPM 940
C           READ IDENTIFICATION CARD                                    REPM 950
C                                                                       REPM 960
   35 READ(5,101) DATE, (COMENT(I),I=1,5)                               REPM 970
  101 FORMAT(3A4, 2X, 5A4)                                              REPM 980
C                                                                       REPM 990
```

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C           READ TYPE A YARD OPTION CARDS CONTAINING OPTIONS AND YEARS    REPM1000
C                                                                         REPM1010
      DO 40 I = 1, 15                                                     REPM1020
      III = I                                                             REPM1030
      READ(5,102) IYDSEL(I), ALL,    REP,ALT,TOTAL, (IYEAR(I,J),J=1,5)    REPM1040
  102 FORMAT(A5, 2X,A3, 2X,A1, 2(4X,A1), 6X, 5(I2,1X))                    REPM1050
      IF(IYDSEL(I).EQ.LAST) GO TO 45                                      REPM1060
C                                                                         REPM1070
C           SET FLAG FOR VARIOUS OPTIONS                                  REPM1080
C                                                                         REPM1090
      IOPT(I) = 0                                                         REPM1100
      IALL(I) = 0                                                         REPM1110
      IF(REP.EQ.ZREP) IOPT(I) = 1                                         REPM1120
      IF(ALT.EQ.ZALT) IOPT(I) = 2                                         REPM1130
      IF(TOTAL.EQ.ZTOT) IOPT(I) = 3                                       REPM1140
      IF(ALL.EQ.ZALL) IALL(I) = 1                                         REPM1150
C                                                                         REPM1160
C           READ TYPE B YARD OPTION CARDS                                 REPM1170
C             THESE GIVE WHICH GROUP NUMBERS (IGRPNO) ARE                 REPM1180
C               TO BE PROCESSED FOR EACH YARD                             REPM1181
C           THIS CARD IS THE 2ND OF THE PAIR OF YARD OPTION CARDS         REPM1190
C                                                                         REPM1200
      READ(5,103) IYDSEL(I),  (IYDGRP(I,J),J=1,25)                       REPM1210
  103 FORMAT(A5, 25(1X,I2))                                               REPM1220
   40 CONTINUE                                                            REPM1230
      NYDS = III                                                          REPM1240
      GO TO 48                                                            REPM1250
   45 NYDS = III - 1                                                      REPM1260
   48 IDONE = NYDS                                                        REPM1270
C                                                                         REPM1280
C      DETERMINE NUMBER OF GROUPS PER YARD TO BE PROCESSED                REPM1290
      DO 60 I = 1, NYDS                                                   REPM1300
      DO 50 J = 1, 25                                                     REPM1310
      JJ = J                                                              REPM1320
      IF(IYDGRP(I,J) .EQ. 0) GO TO 55                                     REPM1330
   50 CONTINUE                                                            REPM1340
      NGRPS(I) = JJ                                                       REPM1350
      GO TO 60                                                            REPM1360
   55 NGRPS(I) = JJ - 1                                                   REPM1370
   60 CONTINUE                                                            REPM1380
C                                                                         REPM1390
C     DETERMINE NUMBER OF YEARS (NYEARS) TO BE PROCESSED FOR EACH YARD    REPM1400
C                                                                         REPM1410
      DO 75 I = 1,NYDS                                                    REPM1420
      DO 65 J = 1,5                                                       REPM1430
      JJ = J                                                              REPM1440
      IF(IYEAR(I,J) .EQ.0) GO TO 70                                       REPM1450
   65 CONTINUE                                                            REPM1460
      NYEARS(I) = JJ                                                      REPM1470
      GO TO 75                                                            REPM1480
   70 NYEARS(I) = JJ - 1                                                  REPM1490
   75 CONTINUE                                                            REPM1500
      CALL HEADER(1,IDUM,IDUM)                                            REPM1510
      CALL BANNER                                                         REPM1520
C                                                                         REPM1530
C                                                                         REPM1540
C      READ HEADER RECORD OF SWBS-SHOP MATRIX FILE                        REPM1550
C                                                                         REPM1560
   76 READ(8) OWN, COAST, IYEAR1,(IYARD(I),IIOPT(I),I=1,13)               ****1570
      IF(EOF(8).NE.0) GO TO 255                                           ****1580
```

```
C**76 READ(8,END=255) OWN, COAST,IYEAR1,(IYARD(I),IIOPT(I),I=1,13)        ****1590
C                                                                        REPM1600
C       CHECK IF ANY OF THE SELECTED YARDS (IYDSEL) ARE IN THIS SECTOR   REPM1610
C                                                                        REPM1620
      DO 79 I = 1,15                                                     REPM1630
      DO 78 J = 1,13                                                     REPM1640
      IF(IYARD(J).EQ. IYDSEL(I)) GO TO 80                                REPM1650
   78 CONTINUE                                                           REPM1660
   79 CONTINUE                                                           REPM1670
C                                                                        REPM1680
C       IF NO YARD TO BE PROCESSED IS IN THIS SECTOR, SKIP TO            REPM1690
C           THE NEXT SECTOR                                              REPM1700
      CALL SKPSEC                                                        REPM1710
      GO TO 76                                                           REPM1720
C                                                                        REPM1730
C           INITIALIZE FLAGS FOR EACH YARD AND ZERO OUT ARRAYS           REPM1740
   80 IFIRST = 0                                                         REPM1750
      DO 89 M = 1,20                                                     REPM1760
      DO 87 L = 1,9                                                      REPM1770
      DO 85 K = 1,25                                                     REPM1790
      ARRAY1(K,L,M) = 0.0                                                REPM1800
      ARRAY2(K,L,M) = 0.0                                                REPM1810
      ARRAY3(K,L,M) = 0.0                                                REPM1820
      ARRAY4(K,L,M) = 0.0                                                REPM1830
      ARRAY5(K,L,M) = 0.0                                                REPM1840
   85 CONTINUE                                                           REPM1850
   87 CONTINUE                                                           REPM1860
   89 CONTINUE                                                           REPM1870
      DO 90 J = 1,5                                                      REPM1880
      IYDYR(J) = 0                                                       REPM1890
   90 CONTINUE                                                           REPM1900
      DO 95 I = 1,25                                                     REPM1910
      MGROUP(I) = 0                                                      REPM1920
      JGROUP(I) = 0                                                      REPM1930
      KGROUP(I) = 0                                                      REPM1940
   95 CONTINUE                                                           REPM1950
C                                                                        REPM1960
C         READ AND THROW AWAY 1ST RECORD OF ALL ZEROS                    REPM1970
  200 READ(8) ISHULL, ITYPWK, IYD                                        ****1980
      IF(EOF(8).NE.0) GO TO 255                                          ****1990
C*200 READ(8,END=255) ISHULL, ITYPWK, IYD                                ****2000
      IF(IYDP.EQ.0) GO TO 201                                            ****2001
C**** IF(IYDP.EQ.0.0) GO TO 201                                          ****2002
      IF(IYDP.NE.IYD) GO TO 250                                          REPM2003
C                                                                        REPM2010
C       READ 20 SWBS-SHOP RECORDS                                        REPM2020
C                                                                        REPM2030
  201 DO 202 K = 1,20                                                    REPM2040
      READ(8)  ISHULL, ITYPWK,IYD, IGROUP, IFYR, OWN, COAST, IPERD,      ****2050
     1  ICONT, ISTRT, IEND, ISPEC, (VALUES(I,K),I=1,9), ISHOP            ****2060
C***  READ(8, END=255) ISHULL,ITYPWK,IYD,IGROUP,IFYR, OWN,COAST,IPERD,   ****2070
C**   1  ICONT, ISTRT, IEND, ISPEC, (VALUES(I,K), I=1,9), ISHOP          ****2080
      IF(EOF(8)  .NE. 0) GO TO 255                                       ****2090
  202 CONTINUE                                                           REPM2100
      IF(IFIRST.EQ.0) GO TO 210                                          REPM2110
      DO 205 I = 1,25                                                    REPM2120
      MGROUP(I) = 0                                                      REPM2130
  205 CONTINUE                                                           REPM2140
      IF(IYDP.NE.IYD) GO TO 250                                          REPM2150
      GO TO 230                                                          REPM2160
```

```
  210 IFIRST = 1                                                        REPM2170
      IYDP = IYD                                                        REPM2180
C                                                                       REPM2190
C          SEE IF THIS YARD NEEDS TO BE PROCESSED                       REPM2200
C                                                                       REPM2210
  215 CALL SEARCH(IYD,NYDS,II,KKK), RETURNS(80)                         ****2220
C*215 CALL SEARCH(IYD,NYDS,II, KKK, $80)                                ****2230
C                                                                       REPM2240
C                                                                       REPM2250
C        SET OPTION FOR THIS YARD                                       REPM2260
C        JOPT IS OPTION REQUESTED BY INPUT CARDS                        REPM2270
C        JJOPT IS THE OPTION USED TO CREATE THE XPLODE FILE             REPM2280
C                                                                       REPM2290
      JJJOPT = 0                                                        REPM2300
      JOPT = IOPT(II)                                                   REPM2310
      JJOPT = IIOPT(KKK)                                                REPM2320
      IF(IIOPT(KKK) .EQ. IREP) JJJOPT = 1                               REPM2330
      IF(IIOPT(KKK) .EQ. IALT) JJJOPT = 2                               REPM2340
      IF(IIOPT(KKK) .EQ. ITOT) JJJOPT = 3                               REPM2350
      IF(JOPT.EQ.JJJOPT) GO TO 217                                      REPM2360
      CALL IERROR(4,JJOPT,IYD)                                          REPM2370
      IF(IDONE.LE.1) STOP                                               REPM2375
      CALL SKPYD(IYD)                                                   REPM2380
      GO TO 80                                                          REPM2390
C                                                                       REPM2400
C          IF A YARD TOTAL HAS BEEN REQUESTED, SET KOPT                 REPM2410
  217 KOPT = IALL(II)                                                   REPM2420
C                                                                       REPM2430
C          DETERMINE ARRAY OF YEARS PER YARD (IYDYR)                    REPM2440
C                                                                       REPM2450
      MYEAR = NYEARS(II)                                                REPM2460
      DO 220 K = 1, MYEAR                                               REPM2470
      IYDYR(K) = IYEAR(II, K)                                           REPM2480
  220 CONTINUE                                                          REPM2490
C                                                                       REPM2500
C          DETERMINE NUMBER OF GROUPS (NGROUP) TO BE PROCESSED          REPM2510
C              FOR THIS YARD                                            REPM2511
C                                                                       REPM2520
      NGROUP = NGRPS(II)                                                REPM2530
      IF(NGROUP.EQ.0) GO TO 230                                         REPM2540
      DO 225 K = 1, NGROUP                                              REPM2550
      KGROUP(K) = IYDGRP(II, K)                                         REPM2560
  225 CONTINUE                                                          REPM2570
C                                                                       REPM2580
C          CHECK TO SEE IF THIS YEARS DATA IS REQUIRED                  REPM2590
C                                                                       REPM2600
C*230 CALL YEAR(IFYR, IYDYR,$200)                                       ****2610
  230 CALL YEAR(IFYR, IYDYR), RETURNS(200)                              ****2620
C          IF THERE IS NO MATCH ON YEAR, READ NEXT SHOP RECORD          REPM2630
      IF(NGROUP.GT.0) GO TO 240                                         REPM2640
C                                                                       REPM2650
C          IF NO GROUPS ARE TO BE PROCESSED, CHECK ON ENTIRE YARD       REPM2660
C                                                                       REPM2670
      IF(KOPT.EQ.1) GO TO 235                                           REPM2680
      CALL SKPYD(IYD)                                                   REPM2690
      GO TO 215                                                         REPM2700
C                                                                       REPM2710
C          IF NO GROUPS HAVE BEEN SELECTED FOR THIS YARD BUT            REPM2720
C            ENTIRE YARD IS TO BE PROCESSED - CALL SUM                  REPM2730
C                                                                       REPM2740
```

```
  235 KK = 1                                                              REPM2750
      CALL SUM(NGROUP,IFYR,KK,IYDYR,KOPT)                                 REPM2760
      GO TO 200                                                           REPM2770
C                                                                         REPM2780
C        CHECK FOR MATCH OF GROUP NUMBERS                                 REPM2790
C                                                                         REPM2800
  240 CALL COMPAR(ISHULL,IGRPNO,NGROUP), RETURNS(242)                     ****2810
C*240 CALL COMPAR(ISHULL,IGRPNO,NGROUP, $242)                             ****2820
C          IF THERE IS NO MATCH ON GROUP NUMBER, CHECK IF ENTIRE          REPM2830
C              YARD IS TO BE PROCESSED                                    REPM2840
C                                                                         REPM2850
      IF(KOPT.EQ.1) GO TO 245                                             REPM2860
C                                                                         REPM2870
C        GROUPS ONLY (NOT ENTIRE YARD) ARE TO BE PROCESSED                REPM2880
C                                                                         REPM2890
      KK = 0                                                              REPM2900
      CALL SUM(NGROUP,IFYR,KK,IYDYR,KOPT)                                 REPM2910
      GO TO 200                                                           REPM2920
  242 IF(KOPT.EQ.1) GO TO 235                                             REPM2930
      GO TO 200                                                           REPM2940
C                                                                         REPM2950
C          IN ACCITION TO GROUPS, ENTIRE YARD IS TO BE PROCESSED          REPM2960
C                                                                         REPM2970
  245 KK = 2                                                              REPM2980
      CALL SUM(NGROUP,IFYR,KK,IYDYR,KOPT)                                 REPM2990
      GO TO 200                                                           REPM3000
C                                                                         REPM3009
C          AT END OF A YARD, WRITE REPORTS FOR THAT YARD                  REPM3010
  250 CONTINUE                                                            REPM3020
C                                                                         REPM3030
C          SUBROUTINE REPORT PRODUCES THE MANDAY REPORTS                  REPM3040
C              FOR A GIVEN YARD AND YEAR                                  REPM3050
C                                                                         REPM3070
      CALL REPORT(IYDP,NGROUP,MYEAR,JOPT,IYDYR, KOPT)                     REPM3080
C                                                                         REPM3090
      IDONE = IDONE - 1                                                   REPM3100
      IF(IDONE.EQ.0) GO TO 260                                            REPM3110
C                                                                         REPM3119
C        IS THIS THE LAST RECORD OF A SECTOR                              REPM3120
      IF(IYD.EQ.ISEP) GO TO 76                                            REPM3130
      BACKSPACE 8                                                         REPM3135
      GO TO 80                                                            REPM3140
C                                                                         REPM3160
C        CHECK FOR RECORD OF 9 S                                          REPM3170
  255 IF(IYDP.EQ.ISEP) STOP                                               REPM3180
      CALL REPORT(IYDP,NGROUP,MYEAR,JOPT,IYDYR, KOPT)                     REPM3190
  260 STOP                                                                REPM3200
      END                                                                 REPM3210
```

```
      SUBROUTINE BANNER                                                  BANN  10
C                                                                        BANN  20
C           SUBROUTINE TO PRINT BANNER PAGE                              BANN  30
C                                                                        BANN  40
      WRITE(6,100)                                                       BANN  50
  100 FORMAT( ///, 36X, 59(1HX) //,                                      BANN  60
     1  37X, 58H XXXX   X    X   XXXX     XXXX         XXXX   X     X    XXX    XXBANN  70
     2XX /                                                               BANN  80
     3  37X, 58HX       X    X   X    X   X            X       X    X   X    X  X  BANN  90
     4 X/                                                                BANN 100
     5  37X, 58HX       X    X   X    X   X            X       X    X   X    X  X  BANN 110
     9 X /                                                               BANN 120
     /  37X, 58H XXX    X X X   XXXX     XXX   XXXX   XXX    XXXXX   X    X   XXXBANN 130
     8X  /                                                               BANN 140
     9  37X, 58H     X   X X X   X    X       X            X   X    X   X    X  X  BANN 150
     A   /                                                               BANN 160
     B  37X, 58H     X   XX XX   X    X       X            X   X    X   X    X  X  BANN 170
     C   /                                                               BANN 180
     D  37X, 58HXXXX    X    X   XXXX    XXXX         XXXX    X    X     XXX    X   BANN 190
     E   ////                                                            BANN 200
     F  44X, 47HXXXX    XXXXX   XXXX     XXX    XXXX    XXXXX    XXXX /          BANN 210
     G  44X, 47HX    X  X       X    X   X    X   X    X    X      X      /          BANN 220
     H  44X, 47HX    X  X       X    X   X    X   X    X    X      X      /          BANN 230
     I  44X, 47HXXXX    XXXX    XXXX    X    X   XXXX      X       XXX  /          BANN 240
     J  44X, 47HX X     X       X       X    X   X X       X          X )          BANN 250
      WRITE(6,101)                                                       BANN 260
  101 FORMAT(1H 43X,47HX  X    X       X       X    X   X   X      X          X /BANN 270
     1  44X, 47HX    X  XXXXX  X        XXX    X    X     X     XXXX  ///       BANN 280
     2  35X, 59(1HX) / )                                                BANN 290
      RETURN                                                             BANN 300
      END                                                                BANN 310
```

```
      SUBROUTINE COMPAR(ISHULL,IGRPNO, NGROUP), RETURNS(NONE)          ****  10
C**   SUBROUTINE COMPAR(ISHULL,IGRPNO, NGROUP,*)                      ****  20
C                                                                     COMP  30
C        SUBROUTINE TO DETERMINE WHICH REQUIRED GROUPS                COMP  40
C            THIS DATA RECORD FALLS IN                                COMP  50
C                                                                     COMP  60
      INTEGER GRPDEF                                                  ****  70
C**** REAL*8 GRPDEF, IYDSEL, IYD, ISHULL, IYARD                       ****  80
      COMMON/IDATA/ GRPDEF(100,6,2), IYDSEL(15), IYARD(13)            COMP  90
      COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), MGROUP(25)   COMP 100
      DIMENSION IGRPNO(100)                                           COMP 110
C                                                                     COMP 120
      IFLAG = 0                                                       COMP 130
C                                                                     COMP 140
C        CHECK GROUP NUMBERS TO BE PROCESSED FOR THIS YARD(KGROUP)    COMP 150
C          AGAINST GROUP NUMBER OF GROUP DEFINITION DATA BASE (IGRPNO) COMP 160
      DO 40 K = 1, NGROUP                                             COMP 170
      DO 30 I = 1,100                                                 COMP 180
      IF(IGRPNO(I) .NE. KGROUP(K)) GO TO 30                           COMP 190
C                                                                     COMP 200
C          CHECK SHIP AND HULL RANGE                                  COMP 210
      DO 20 J = 1,6                                                   COMP 220
      IF(ISHULL.GE. GRPDEF(I,J,1) .AND. ISHULL.LE.GRPDEF(I,J,2))      **** 230
     1       GO TO 10                                                 **** 240
C                                                                     COMP 250
C        REVERSE THE TEST FOR 360                                     COMP 260
C**** IF(ISHULL.LE. GRPDEF(I,J,1) .AND. ISHULL.GE.GRPDEF(I,J,2))      **** 270
C*** 1       GO TO 10                                                 **** 280
      GO TO 20                                                        COMP 290
C                                                                     COMP 300
C          MGROUP IS AN ARRAY OF MATCHED GROUPS FOR THIS RECORD       COMP 310
C          JGROUP IS AN ARRAY OF MATCHED GROUPS FOR THIS YARD         COMP 320
C                                                                     COMP 330
   10 MGROUP(K) = IGRPNO(I)                                           COMP 340
      JGROUP(K) = MGROUP(K)                                           COMP 350
      IFLAG = 1                                                       COMP 360
   20 CONTINUE                                                        COMP 370
   30 CONTINUE                                                        COMP 380
   40 CONTINUE                                                        COMP 390
      IF(IFLAG.EQ.1) RETURN                                           COMP 400
C                                                                     COMP 410
C          IF NONE OF THE GROUP NUMBERS MATCH, ALTERNATE RETURN THAT  COMP 420
C            CHECKS ON PROCESSING ENTIRE YARD                         COMP 430
      RETURN NONE                                                     **** 440
C**   RETURN 1                                                        **** 450
      END                                                             COMP 460
```

```
      SUBROUTINE HEADER(NOPG,ID,JOPT)                                   HEAD  10
C                                                                       HEAD  20
C        SUBROUTINE TO WRITE REPORT IDENTIFICATION AND NUMBER PAGES      HEAD  30
C                                                                       HEAD  40
      COMMON/IDENT/COMENT(5), DATE(3)                                   HEAD  50
      IF(NOPG.GT.1) GO TO 10                                            HEAD  60
      IPAGE = 0                                                         HEAD  70
      WRITE(6,100) DATE,COMENT                                          HEAD  80
  100 FORMAT(1H1, 2X, 4HDATE, 2X, 3A4, /, 3X, 5A4)                      HEAD  90
      RETURN                                                            HEAD 100
   10 IF(ID.NE.IDP) IPAGE = 0                                           HEAD 110
      IPAGE = IPAGE + 1                                                 HEAD 120
      IDP = ID                                                          HEAD 130
      WRITE(6,101) ID,JOPT,DATE,IPAGE,COMENT                            HEAD 140
  101 FORMAT(1H1, 2X, 12HREPORT# 62-0,I1, 1H-, I1, 2X, 5HDATE:, 1X,     HEAD 150
     1  3A4, 80X, 4HPAGE, I4,/ 3X, 5A4)                                 HEAD 160
      RETURN                                                            HEAD 170
      END                                                               HEAD 180
```

```
      SUBROUTINE IERROR(N,IDUMMY,IDBL)                                  IERR  10
C                                                                       IERR  20
C           SUBROUTINE TO PRINT OUT ERROR MESSAGES                      IERR  30
C                                                                       IERR  40
C***  REAL*8 IDBL                                                       ****  50
C                                                                       IERR  60
      GO TO (10,20,30,40), N                                            IERR  70
   10 WRITE(7,100) IDBL                                                 IERR  80
  100 FORMAT( 1X, 37H * * END OF FILE ENCOUNTERED IN YARD , A5)         IERR  90
      STOP                                                              IERR 100
   20 WRITE(7,101) IDBL                                                 IERR 110
  101 FORMAT( 1X, 50H * * * ERROR IN GROUP NUMBERS - NO MATCH FOR YARD ,IERR 120
     1  A5)                                                            IERR 130
      RETURN                                                            IERR 140
   30 WRITE(7,102) IDUMMY, IDBL                                         IERR 150
  102 FORMAT( 1X, 25H * * * NO SHIPS IN GROUP , I3, 1X, 4HFOR , A5)     IERR 160
      RETURN                                                            IERR 170
   40 WRITE(7,103) IDBL, IDUMMY                                         IERR 180
  103 FORMAT(1X, 18H * * * OPTION FOR , A5, 6H IS - , A3,               IERR 190
     1  15H * * * NO MATCH )                                           IERR 200
      RETURN                                                            IERR 205
      END                                                               IERR 210
```

```
      SUBROUTINE NOSHIP(JJ)                                              NOSH  10
C                                                                        NOSH  20
C        SUBROUTINE TO DETERMINE THE NUMBER OF SHIPS PER GROUP           NOSH  30
C            AND PRINTS OUT SHIP HULL VALUES                             NOSH  40
C                                                                        NOSH  50
      COMMON/REP/ ISHIP(100,6,2), IHULL(100,6,2)                         NOSH  70
C***  REAL*8 ISHULL                                                      ****  80
C                                                                        NOSH  90
      DATA IBLANK/4H    /                                              NOSH 100
      L = 1                                                              NOSH 110
      DO 10 KK = 1,6                                                     NOSH 120
      KKK = KK                                                           NOSH 130
      IF(ISHIP(JJ,KKK,L) .EQ.IBLANK) GO TO 12                            NOSH 140
   10 CONTINUE                                                           NOSH 150
      GO TO 15                                                           NOSH 160
   12 KKK = KKK - 1                                                      NOSH 170
   15 IF(KKK.GT.3) GO TO 20                                              NOSH 180
      MM = KKK                                                           NOSH 190
      WRITE(6,102) ((ISHIP(JJ,KK,L), IHULL(JJ,KK,L),L=1,2),KK=1,MM)      NOSH 200
      RETURN                                                             NOSH 210
   20 MM = 3                                                             NOSH 220
      WRITE(6,102) ((ISHIP(JJ,KK,L), IHULL(JJ,KK,L),L=1,2),KK=1,MM)      NOSH 230
      MM = KKK                                                           NOSH 240
      WRITE(6,102) ((ISHIP(JJ,KK,L), IHULL(JJ,KK,L),L=1,2),KK=4,MM)      NOSH 250
  102 FORMAT(1H , 30X, 3(A4,1X,A4,1X,1H-,1X,A4,1X,A4,4X))                NOSH 260
      RETURN                                                             NOSH 270
      END                                                                NOSH 280
```

```
      SUBROUTINE REPORT(IYD, NGROUP, MYEAR, JOPT, IYDYR, KOPT)          REPT  10
C                                                                       REPT  20
C           SUBROUTINE TO PROCESS DATA FOR REPAIRS, ALTS,               REPT  30
C               AND TOTAL OF REPAIRS AND ALTS                           REPT  40
C                                                                       REPT  50
C***  REAL*8 IYD                                                        ****  60
C                                                                       REPT  70
      COMMON/WORK/ARRAY1(25,9,20), ARRAY2(25,9,20), ARRAY3(25,9,20),    REPT  80
     1  ARRAY4(25,9,20), ARRAY5(25,9,20), VALUES(9,20)                  REPT  90
      COMMON/REP/ ISHIP(100,6,2), IHULL(100,6,2)                        REPT 100
      COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), MGROUP(25)     REPT 110
      COMMON/VAL/ VALYR(9,20), SUMWBS(20), SUMSHP(9), TOT               REPT 120
      DIMENSION IYDYR(5)                                                REPT 130
C                                                                       REPT 140
C                                                                       REPT 150
C           ASSIGN YARD NUMBER FOR REPORT IDENTIFICATION                REPT 160
C                                                                       REPT 170
      CALL YDNO(IYD, ID)                                                REPT 180
C                                                                       REPT 190
C           IF ENTIRE YARD  HAS BEEN PROCESSED (KOPT = 1)    IT IS     REPT 200
C             STORED AS THE 1ST GROUP IN THE ARRAY                      REPT 210
C                                                                       REPT 220
      IF(KOPT.NE.1) GO TO 5                                             REPT 230
      NGROUP = NGROUP + 1                                               REPT 240
C                                                                       REPT 250
C                                                                       REPT 260
C         NGROUP IS THE NUMBER OF GROUPS FOR THIS YARD                  REPT 270
C         JGROUP  IS THE ARRAY OF GROUP NUMBERS THAT MATCH              REPT 280
C             FOR THIS YARD                                             REPT 290
C                                                                       REPT 300
    5 DO 400 J = 1, NGROUP                                              REPT 310
C                                                                       REPT 320
C           TEST IF ENTIRE YARD (BUT NO GROUPS) IS TO BE PROCESSED      REPT 330
      IF(NGROUP.EQ.1 .AND. KOPT.EQ.1) GO TO 10                          REPT 340
      IF(KOPT.EQ.1 .AND. J.EQ.1) GO TO 10                               REPT 350
      LL = J - KOPT                                                     REPT 360
      JJ = JGROUP(LL)                                                   REPT 370
C                                                                       REPT 380
C           CHECK IF THERE ARE MATCHING SHIPS IN EACH REQUIRED GROUP     REPT 390
C                                                                       REPT 400
      IF(JJ.NE.0) GO TO 10                                              REPT 410
      KK = KGROUP(LL)                                                   REPT 420
      CALL IERROR(3,KK,IYD)                                             REPT 430
      GO TO 400                                                         REPT 440
C                                                                       REPT 450
C           MYEAR IS THE NUMBER OF YEARS FOR THIS YARD                  REPT 460
C                                                                       REPT 470
   10 DO 350 I = 1, MYEAR                                               REPT 480
      II = I                                                            REPT 490
C                                                                       REPT 500
C         ZERO OUT ARRAYS                                               REPT 510
      DO 30 M = 1,20                                                    REPT 520
      DO 20 L = 1,9                                                     REPT 530
      SUMWBS(M) = 0.0                                                   REPT 540
      SUMSHP(L) = 0.0                                                   REPT 550
   20 CONTINUE                                                          REPT 560
   30 CONTINUE                                                          REPT 570
      TOT = 0.0                                                         REPT 580
      GO TO (200, 220, 240, 260, 280), II                               REPT 590
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C                                                                       REPT 600
  200 DO 210 M = 1,20                                                   REPT 610
      DO 205 L = 1,9                                                    REPT 620
      VALYR(L,M) = ARRAY1(J,L,M)                                        REPT 630
  205 CONTINUE                                                          REPT 640
  210 CONTINUE                                                          REPT 650
      GO TO 300                                                         REPT 660
C                                                                       REPT 670
  220 DO 230 M = 1,20                                                   REPT 680
      DO 225 L = 1,9                                                    REPT 690
      VALYR(L,M) = ARRAY2(J,L,M)                                        REPT 700
  225 CONTINUE                                                          REPT 710
  230 CONTINUE                                                          REPT 720
      GO TO 300                                                         REPT 730
C                                                                       REPT 740
  240 DO 250 M = 1,20                                                   REPT 750
      DO 245 L = 1,9                                                    REPT 760
      VALYR(L,M) = ARRAY3(J,L,M)                                        REPT 770
  245 CONTINUE                                                          REPT 780
  250 CONTINUE                                                          REPT 790
      GO TO 300                                                         REPT 800
C                                                                       REPT 810
  260 DO 270 M = 1,20                                                   REPT 820
      DO 265 L = 1,9                                                    REPT 830
      VALYR(L,M) = ARRAY4(J,L,M)                                        REPT 840
  265 CONTINUE                                                          REPT 850
  270 CONTINUE                                                          REPT 860
      GO TO 300                                                         REPT 870
C                                                                       REPT 880
  280 DO 290 M = 1,9                                                    REPT 890
      DO 285 L = 1,9                                                    REPT 900
      VALYR(L,M) = ARRAY5(J,L,M)                                        REPT 910
  285 CONTINUE                                                          REPT 920
  290 CONTINUE                                                          REPT 930
C                                                                       REPT 940
C           FIND VALUES OF TOTAL SWBS FOR 20 SHOPS                      REPT 950
  300 DO 310 M = 1,20                                                   REPT 960
      DO 305 L = 1,9                                                    REPT 970
      SUMWBS(M) = SUMWBS(M) + VALYR(L,M)                                REPT 980
  305 CONTINUE                                                          REPT 990
  310 CONTINUE                                                          REPT1000
C                                                                       REPT1010
C           FIND VALUES OF TOTAL SHOPS FOR 9 SWBS                       REPT1020
      DO 320 L = 1,9                                                    REPT1030
      DO 315 M = 1,20                                                   REPT1040
      SUMSHP(L) = SUMSHP(L) + VALYR(L,M)                                REPT1050
  315 CONTINUE                                                          REPT1060
  320 CONTINUE                                                          REPT1070
C                                                                       REPT1080
C           FIND VALUE OF TOTAL-TOTAL                                   REPT1090
      DO 325 M = 1,20                                                   REPT1100
      TOT = SUMWBS(M) + TOT                                             REPT1110
  325 CONTINUE                                                          REPT1120
      CALL TITLE(JOPT,ID)                                               REPT1130
      WRITE(6,100) IYD                                                  REPT1140
  100 FORMAT(1H , 60X, 5HYARDS, 1X, A5,/)                               REPT1150
      IF(KOPT.EQ.1 .AND. J.EQ.1) GO TO 65                               REPT1160
      WRITE(6,101) JGROUP(LL)                                           REPT1170
  101 FORMAT(1H , 44X, 24HSUMMATION FOR GROUP NO. , I2,                 REPT1180
     1  16H - CONSISTING OF, /)                                        REPT1190
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C                                                                       REPT1200
C          DETERMINE THE NUMBER OF SHIPS PER GROUP FOR PRINTOUT         REPT1210
C                                                                       REPT1220
      CALL NOSHIP(JJ)                                                   REPT1230
      WRITE(6,105)                                                      REPT1240
  105 FORMAT(1H )                                                       REPT1250
      GO TO 70                                                          REPT1260
   65 WRITE(6,106)                                                      REPT1270
  106 FORMAT(1H , 51X, 28HSUMMATION FOR AN ENTIRE YARD, /)              REPT1280
   70 WRITE(6,107) IYDYR(I)                                             REPT1290
  107 FORMAT(1H , 60X, 9HFISCAL 19, I2,/, T62, 11H-----------, /)       REPT1300
C                                                                       REPT1310
      CALL REP1                                                         REPT1320
  350 CONTINUE                                                          REPT1330
  400 CONTINUE                                                          REPT1340
      RETURN                                                            REPT1350
      END                                                               REPT1360
```

```
      SUBROUTINE REP1                                                   REP1  10
C                                                                       REP1  20
C         SUBROUTINE TO PRINT SWBS- SHOP VALUES                         REP1  30
C                                                                       REP1  40
      COMMON/VAL/ VALYR(9,20), SUMWBS(20), SUMSHP(9), TOT               REP1  50
      DIMENSION ISHP(20)                                                REP1  60
      DIMENSION ISWBS(9)                                                REP1  70
      DATA ISHP/6, 11, 17, 23, 26, 31, 36, 38, 41, 51, 56, 64, 65, 67,  REP1  80
     1    71, 72, 81, 94, 99, 3HOTH /                                   REP1  90
      DATA ISWBS/100,200,300,400,500,600,700,800,900/                   REP1 100
C                                                                       REP1 110
      WRITE(6,100) (ISWBS(N),N=1,9)                                     REP1 120
  100 FORMAT(1H , 20X, 9(1X,5HSWBS , I3,1X), 2X, 5HTOTAL, / T22,        REP1 130
     1  10(1X, 2(4H----), 1X))                                         REP1 140
      DO 10 M = 1,12                                                    REP1 150
      WRITE(6,101) ISHP(M), (VALYR(L,M), L=1,9), SUMWBS(M)              REP1 160
   10 CONTINUE                                                          REP1 170
      DO 20 M = 14,19                                                   REP1 171
      WRITE(6,101) ISHP(M), (VALYR(L,M), L=1,9), SUMWBS(M)              REP1 172
   20 CONTINUE                                                          REP1 173
  102 FORMAT(1H , 6X, 5HOTHER, 9X, 10(F9.0,1X) / )                      REP1 180
      WRITE(6,102) (VALYR(L,20), L=1,9), SUMWBS(20)                     REP1 190
      WRITE(6,103) (SUMSHP(L),L=1,9), TOT
  101 FORMAT(1H , 5X, 6HSHOP1 , I2, 7X, 10(F9.0,1X) / )                 REP1 210
  103 FORMAT(1H , 6X, 5HTOTAL,9X, 10(F9.0,1X))                          REP1 220
      RETURN                                                            REP1 230
      END                                                               REP1 240
```

```
      SUBROUTINE SEARCH(IYD,NYDS,III,KKK), RETURNS(NOYD)                ****  10
C***  SUBROUTINE SEARCH(IYD,NYDS,III,KKK,*)                            ****  20
C                                                                      SEAR  30
C        SUBROUTINE TO DETERMINE IF THIS YARD NEEDS TO BE PROCESSED    SEAR  40
C                                                                      SEAR  50
C**** REAL*8 GRPDEF, IYDSEL, IYD, IYARD                                ****  60
      INTEGER GRPDEF                                                   ****  70
      COMMON/IDATA/ GRPDEF(100,6,2), IYDSEL(15), IYARD(13)             SEAR  80
C                                                                      SEAR  90
    5 DO 10 II = 1,NYDS                                                SEAR 100
      III = II                                                         SEAR 110
      IF(IYD.EQ.IYDSEL(II)) GO TO 20                                   SEAR 120
   10 CONTINUE                                                         SEAR 130
C                                                                      SEAR 140
C          IF THIS YARD ISNT REQUIRED, SKIP TO NEXT YARD               SEAR 150
      CALL SKPYD(IYD)                                                  SEAR 160
      RETURN NOYD                                                      ****  170
C***  RETURN 1                                                         ****  180
C                                                                      SEAR 190
C        DETERMINE SUBSCRIPT OF MATCHING YARD NAME (IYARD)             SEAR 200
C            TO FIND ITS ORDER ON HEADER RECORD                        SEAR 210
C                                                                      SEAR 220
   20 DO 30 KK = 1,13                                                  SEAR 230
      KKK = KK                                                         SEAR 240
      IF(IYD.EQ.IYARD(KK)) RETURN                                      SEAR 250
   30 CONTINUE                                                         SEAR 260
      RETURN                                                           SEAR 265
      END                                                              SEAR 270
```

```
      SUBROUTINE SKPSEC                                              SKPS  10
C                                                                    SKPS  20
C         SUBROUTINE TO SKIP AN ENTIRE SECTOR                        SKPS  30
C                                                                    SKPS  40
C**** REAL*8 IYD, IYDP, ISHULL, ISEP                                 ****  50
      DATA ISEP/5H99999/                                             SKPS  60
C                                                                    SKPS  70
   10 READ(8)  ISHULL, ITYPWK, IYD                                   ****  80
      IF(EOF(8) .NE.0) GO TO 20                                      ****  90
C**10 READ(8, END=20) ISHULL, ITYPWK, IYD                            **** 100
      IYDP = IYD                                                     SKPS 110
      IF(IYD.NE.ISEP) GO TO 10                                       SKPS 120
      RETURN                                                         SKPS 130
   20 CALL IERROR(1,IDUM,IYDP)                                       SKPS 140
      RETURN                                                         SKPS 145
      END                                                            SKPS 150
```

```
      SUBROUTINE SKPYD(IYD)                                          SKPY  10
C                                                                    SKPY  20
C          SUBROUTINE TO SKIP AN ENTIRE YARD                         SKPY  30
C                                                                    SKPY  40
C**   REAL*8 IYD, IYDP, ISHULL                                       ****  50
C                                                                    SKPY  60
      IYDP = IYD                                                     SKPY  70
   10 READ(8)  ISHULL, ITYPWK, IYD                                   ****  80
      IF(EOF(8) .NE.0) GO TO 20                                      ****  90
C**10 READ(8, END=20) ISHULL, ITYPWK, IYD                            **** 100
      IF(IYD.EQ.IYDP) GO TO 10                                       SKPY 110
      BACKSPACE 8                                                    SKPY 120
      RETURN                                                         SKPY 130
   20 CALL IERROR(1,IDUM,IYDP)                                       SKPY 140
      RETURN                                                         SKPY 145
      END                                                            SKPY 150
```

```
      SUBROUTINE SUM(NGROUP,IFYR,KK,IYDYR,KOPT)                          SUMM  10
C                                                                        SUMM  20
C         PROGRAM TO SUM AND STORE ALT AND REPAIR DATA ACCORDING         SUMM  30
C           TO GROUP AND YEAR                                            SUMM  40
C                                                                        SUMM  50
      COMMON/WORK/ARRAY1(25,9,20), ARRAY2(25,9,20), ARRAY3(25,9,20),     SUMM  60
     1  ARRAY4(25,9,20), ARRAY5(25,9,20), VALUES(9,20)                   SUMM  70
      COMMON/MISC/IYDGRP(15,25), JGROUP(25), KGROUP(25), MGROUP(25)      SUMM  80
      DIMENSION IYDYR(5)                                                 SUMM  90
C                                                                        SUMM 100
C           IF THE SUBROUTINE IS CALLED WITH                             SUMM 110
C             KK = 0  DONT SUM ENTIRE YARD                               SUMM 120
C             KK = 1  NO GROUPS, BUT SUM ENTIRE YARD                     SUMM 130
C             KK = 2  SUM ENTIRE YARD IN ADDITION TO GROUPS              SUMM 140
C                                                                        SUMM 150
C                                                                        SUMM 160
C         CHECK YEAR WITH ARRAY OF YEARS REQUIRED FOR THIS YARD AND      SUMM 170
C             USE THE INDEX TO DETERMINE WHICH ARRAY TO USE              SUMM 180
      DO 10 I = 1,5                                                      SUMM 190
      II = I                                                             SUMM 200
      IF(IFYR.EQ.IYDYR(I)) GO TO 15                                      SUMM 210
   10 CONTINUE                                                           SUMM 220
C                                                                        SUMM 230
C         CHECK ARRAY OF MATCHED GROUP NUMBERS WITH ARRAY OF             SUMM 240
C               GROUP NUMBERS REQUIRED                                   SUMM 250
   15 KKK = KK + 1                                                       SUMM 260
      GO TO (20,25,30), KKK                                              SUMM 270
   20 LLL = NGROUP                                                       SUMM 290
      GO TO 35                                                           SUMM 300
   25 LLL = 1                                                            SUMM 320
      GO TO 35                                                           SUMM 330
   30 LLL = NGROUP + 1                                                   SUMM 350
   35 DO 55 J = 1,LLL                                                    SUMM 360
      IF(KK.EQ.1) GO TO 40                                               SUMM 370
      IF(KK.GE.1 .AND. J.EQ.1) GO TO 40                                  SUMM 380
      JJ = J - KOPT                                                      SUMM 390
      IF(MGROUP(JJ).EC.KGROUP(JJ)) GO TO 40                              SUMM 400
      GO TO 55                                                           SUMM 410
C                                                                        SUMM 420
C           ARRAY1, ARRAY2, ARRAY3, ARRAY4 AND ARRAY5 ARE DATA ARRAYS    SUMM 430
C             WHERE J IS THE GROUP NUMBER, L IS THE SHOP                 SUMM 440
C                   AND K IS SWBS FOR YEAR II                            SUMM 450
C                                                                        SUMM 460
   40 GO TO (200, 220, 240, 260, 280), II                                SUMM 470
C                                                                        SUMM 480
  200 DO 210 L = 1,20                                                    SUMM 490
      DO 205 K = 1,9                                                     SUMM 500
      ARRAY1(J,K,L) = ARRAY1(J,K,L) + VALUES(K,L)                        SUMM 510
  205 CONTINUE                                                           SUMM 520
  210 CONTINUE                                                           SUMM 530
C     WRITE(6,999) II, J, ARRAY1(J,1,3), VALUES(1,3)                     SUMM 540
  999 FORMAT(1H , 7HYEAR = , I3, 2X, 6HGROUP , I2, 2X, 8HARRAY = F9.1,   SUMM 550
     1  2X,9HVALUES = , F9.1)                                            SUMM 560
      GO TO 55                                                           SUMM 570
C                                                                        SUMM 580
  220 DO 230 L = 1,20                                                    SUMM 590
      DO 225 K = 1,9                                                     SUMM 600
      ARRAY2(J,K,L) = ARRAY2(J,K,L) + VALUES(K,L)                        SUMM 610
  225 CONTINUE                                                           SUMM 620
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```
  230 CONTINUE                                                          SUMM 630
C     WRITE(6,999) II, J, ARRAY2(J,1,3), VALUES(1,3)                   SUMM 640
      GO TO 55                                                          SUMM 650
C                                                                       SUMM 660
  240 DO 250 L = 1,20                                                   SUMM 670
      DO 245 K = 1,9                                                    SUMM 680
      ARRAY3(J,K,L) = ARRAY3(J,K,L) + VALUES(K,L)                       SUMM 690
  245 CONTINUE                                                          SUMM 700
  250 CONTINUE                                                          SUMM 710
C     WRITE(6,999) II, J, ARRAY3(J,1,3), VALUES(1,3)                   SUMM 720
      GO TO 55                                                          SUMM 730
C                                                                       SUMM 740
  260 DO 270 L = 1,20                                                   SUMM 750
      DO 265 K = 1,9                                                    SUMM 760
      ARRAY4(J,K,L) = ARRAY4(J,K,L) + VALUES(K,L)                       SUMM 770
  265 CONTINUE                                                          SUMM 780
  270 CONTINUE                                                          SUMM 790
C     WRITE(6,999) II, J, ARRAY4(J,1,3), VALUES(1,3)                   SUMM 800
      GO TO 55                                                          SUMM 810
C                                                                       SUMM 820
  280 DO 290 L = 1,20                                                   SUMM 830
      DO 285 K = 1,9                                                    SUMM 840
      ARRAY5(J,K,L) = ARRAY5(J,K,L) + VALUES(K,L)                       SUMM 850
  285 CONTINUE                                                          SUMM 860
  290 CONTINUE                                                          SUMM 870
C     WRITE(6,999) II, J, ARRAY5(J,1,3), VALUES(1,3)                   SUMM 880
   55 CONTINUE                                                          SUMM 890
      RETURN                                                            SUMM 900
      END                                                               SUMM 910
```

```
      SUBROUTINE TITLE (JOPT, ID)                                        TITL  10
C                                                                        TITL  20
C        SUBROUTINE TO WRITE CORRECT TITLE ACCORDING TO THE OPTION        TITL  30
C                                                                        TITL  40
      COMMON/IDENT/COMENT(5), DATE(3)                                    TITL  50
C                                                                        TITL  60
      CALL HEADER(2, ID,JOPT)                                            TITL  70
      IF(JOPT.NE.1) GO TO 10                                             TITL  80
      WRITE(6,100)                                                       TITL  90
  100 FORMAT(1H , 42X, 45HTOTAL DIRECT REPAIR MANDAYS BY SWBS AND SHOPS  TITL 100
     1  , / )                                                           TITL 110
      RETURN                                                             TITL 120
   10 IF(JOPT.NE.2) GO TO 20                                             TITL 130
      WRITE(6,101)                                                       TITL 140
  101 FORMAT(1H , 40X, 49HTOTAL DIRECT ALTERATION MANDAYS BY SWBS AND SHTITL 150
     1OPS, / )                                                          TITL 160
      RETURN                                                             TITL 170
   20 IF(JOPT.NE.3) GO TO 30                                             TITL 180
      WRITE(6,102)                                                       TITL 190
  102 FORMAT(1H , 35X, 60HTOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY  TITL 200
     1SWBS AND SHOPS, / )                                               TITL 210
   30 RETURN                                                             TITL 220
      END                                                                TITL 230
```

```
      SUBROUTINE YDNO(IYD, ID)                                          YDNO  10
C                                                                       YDNO  20
C           SUBROUTINE TO ASSIGN A NUMBER TO EACH YARD FOR              YDNO  30
C              REPORT IDENTIFICATION                                    YDNO  40
C                                                                       YDNO  50
C**** REAL*8 IYD, ICHASN, LBECH, MARE, NORVA, IPEARL, IPHILA, IPTSMH,   ****  60
C****1  IPUGET                                                          ****  70
C                                                                       YDNO  80
      DATA ICHASN/5HCHASN/                                              YDNO  90
      DATA LBECH/5HLBECH/                                               YDNO 100
      DATA MARE/5HMARE /                                                YDNO 110
      DATA NORVA/5HNORVA/                                               YDNO 120
      DATA IPEARL/5HPERAL/                                              YDNO 130
      DATA IPHILA/5HPHILA/                                              YDNO 140
      DATA IPTSMH/5HPTSMH/                                              YDNO 150
      DATA IPUGET/5HPUGET/                                              YDNO 160
C                                                                       YDNO 170
      IF(IYD.EQ.ICHASN) ID = 1                                          YDNO 180
      IF(IYD.EQ. LBECH) ID = 2                                          YDNO 190
      IF(IYD.EQ. MARE) ID = 3                                           YDNO 200
      IF(IYD.EQ. NORVA) ID = 4                                          YDNO 210
      IF(IYD.EQ.IPEARL) ID = 5                                          YDNO 220
      IF(IYD.EQ.IPHILA) ID = 6                                          YDNO 230
      IF(IYD.EQ.IPTSMH) ID = 7                                          YDNO 240
      IF(IYD.EQ.IPUGET) ID = 8                                          YDNO 250
      RETURN                                                            YDNO 260
      END                                                               YDNO 270
```

```
      SUBROUTINE YEAR(IFYR,IYDYR), RETURNS(NOYEAR)                      ****  10
C**   SUBROUTINE YEAR(IFYR,IYDYR,*)                                     ****  20
C                                                                       YEAR  30
C           SUBROUTINE TO SEE IF THE YEAR ON THIS DATA RECORD IS        YEAR  40
C             ONE THAT NEEDS TO BE PROCESSED                            YEAR  50
C                                                                       YEAR  60
      DIMENSION IYDYR(5)                                                YEAR  70
C                                                                       YEAR  80
      DO 10 I = 1,5                                                     YEAR  90
      IF(IFYR.EQ.IYDYR(I)) RETURN                                       YEAR 100
   10 CONTINUE                                                          YEAR 110
      RETURN NOYEAR                                                     **** 120
C***  RETURN 1                                                          **** 130
C           ALTERNATE RETURN GOES TO READ THE NEXT RECORD               YEAR 140
      END                                                               YEAR 150
```

6.4.6 GLOSSARY

COMMON VARIABLES

Common Block /IDATA/

GRPDEF(100,6,2)	Array of ship group definitions in which the first subscript refers to the group number, the second to the ship type and hull number, and the third to (1) lower bound of a set and (2) upper bound of that set.
IYARD(13)	Array of yard names for a given sector.
IYDSEL(15)	Array of yards to be processed.

Common Block /IDENT/

COMENT(5)	Array of report identification information.
DATE(3)	Array containing the date of the run.

Common Block /MISC/

IYGRP(15,25)	Array of group numbers in which the first subscript refers to the yard name and the second to the group number to be processed.
JGROUP(25)	Array of matching group numbers for a specific yard.
KGROUP(25)	Array of group numbers required for a specific yard.
MGROUP(25)	Array of matching group numbers for a specific record.

Common Block /REP/

IHULL(100,6,2)	Array of hull numbers in which the first subscript refers to the group number, the second to the hull number, and the third to (1) the lower bound for a set and (2) an upper bound for that set.
ISHIP(100,6,2)	Array of ship types in which the first subscript refers to the group number, the second to the ship type, and the third to (1) a lower bound for a set and (2) an upper bound for that set.

Common Block /WORK/

ARRAY1(25,9,20) Array of direct labor mandays for the first year requested; the first subscript refers to the group number, the second to the nine single-digit SWBS categories, and the third to the 20 shops.

ARRAY2(25,9,20) Array of direct labor mandays for the second year requested; the first subscript refers to the group number, the second to the nine single-digit SWBS categories, and the third to the 20 shops.

ARRAY3(25,9,20) Array of direct labor mandays for the third year requested; the first subscript refers to the group number, the second to the nine single-digit SWBS categories, and the third to the 20 shops.

ARRAY4(25,9,20) Array of direct labor mandays for the fourth year requested; the first subscript refers to the group number, the second to the nine single-digit SWBS categories, and the third to the 20 shops.

ARRAY5(25,9,20) Array of direct labor mandays for the fifth year requested; the first subscript refers to the group number, the second to the nine single-digit SWBS categories, and the third to the 20 shops.

VALUES(9,20) Array of direct labor mandays; the first subscript refers to the nine single-digit SWBS categories and the second to the 20 shops.

Common Block /VAL/

SUMSHIP(9) Array of total direct labor mandays for the nine SWBS categories.

SUMWBS(20) Array of total direct labor mandays for the 20 shops.

TOT Total direct labor mandays for a given yard and year.

VALYR(9,20) Array of direct labor mandays for a given year; the first subscript refers to the nine single-digit SWBS categories and the second to the 20 shops.

LOCAL VARIABLES

Main Program

ALL	Variable used to request the summary of data for an entire yard.
ALT	Variable used to request computation of alteration data.
COAST	Coast (east or west).
I	DO-loop index.
IALL(15)	Array used to determine whether the entire yard is to be summed.
IALT	Variable containing the character "A".
ICONT	Continuation indicator.
IDONE	Variable set equal to the number of yards required and decremented as each one is completed.
IDUMMY	Dummy variable used in reading the second of a pair of group definition cards.
IDUM1	Dummy variable used in re-reading group definition cards for print-out.
IEND	Availability end date (mo/dy/yr).
IFIRST	Flag set to "1" after reading first record of a yard; otherwise set to "0".
IFYR	Fiscal year for this record.
IGROUP	Group number read from SWBS-Shop Matrix File.
IGRPNO(100)	Array of group numbers identifying groups in Group Definition Deck.
II	Subscript designating a specific yard.
III	Counter used to determine number of yards.
IIOPT(15)	Array of options used when the SWBS-Shop Matrix File was created.
IOPT(15)	Array of options requested for a given yard.
IPERD	Period (this record).
IREP	Variable containing the character "R".
ISEP	Variable containing the characters "99999".
ISHOP	Shop number.
ISHULL	Ship type and hull number read as a single variable from the SWBS-Shop Matrix File.

Main Program (Continued)

ISPEC	Specialization category.
ISTRT	Availability start date (mo/dy/yr).
ITOT	Variable containing the character "T".
ITYPWK	Type of work.
IYD	Yard name read from SWBS-Shop Matrix File.
IYDP	Yard name (of previous yard).
IYDYR(5)	Array of years for a specific yard.
IYEAR(15,5)	Array of years; the first subscript refers to the yard and the second to the year.
IYEAR1	First fiscal year of the LRPS projection.
J	DO-loop index.
JJ	Counter used to determine the number of groups to be processed.
JJJOPT	Option for a specific yard.
JJOPT	Option used in creating the SWBS-Shop Matrix File.
JOPT	Type of report requested for a specific yard.
K	DO-loop index.
KK	Flag when set to "0", groups are summed, but not entire yard; when set to "1", entire yard is summed but not groups; when set to "2", entire yard and groups are summed.
KKK	Subscript designating a specific yard.
KOPT	Flag set to "1" if entire yard is to be processed, otherwise set to "0".
L	DO-loop index.
LAST	Variable containing the characters "LAST" and used in testing termination of input data.
M	DO-loop index.
MYEAR	Number of years to be processed for a specific yard.
NGROUP	Number of groups to be processed for a specific yard.
NGRPS(25)	Array of number of groups for a specific yard.
NYDS	Total number of yards to be processed.
NYEARS(15)	Array containing the number of years to be processed for a specific yard.
OWN	Yard ownership indicator (Navy or private).

Main Program (Continued)

REP	Variable used to test for computing repairs.
TOTAL	Variable used to test for computing the total of repairs and alterations.
ZALL	Variable used to test for the characters "ALL".
ZALT	Variable used to test for the characters "ALT".
ZREP	Variable used to test for the characters "REP".
ZTOT	Variable used to test for the characters "TOT".

Subroutine COMPAR

I	DO-loop index.
IFLAG	Flag set to "1" after finding an agreement between the group numbers to be processed and the group numbers identifying the group definition data base.
IGRPNO(100)	Array of group numbers identifying groups in Group Definition Deck.
ISHULL	Ship type and hull number, read as a single variable.
J	DO-loop index.
K	DO-loop index.
NGROUP	Number of groups to be processed for a specific yard.

Subroutine HEADER

ID	Identification number assigned to each yard.
IDP	Yard identification number (of previous record).
IPAGE	Variable used to increment page numbers.
JOPT	Variable used to identify type of report. When set to "1", repairs are reported on; when set to "2", alterations are reported on; when set to "3", a total of repairs and alterations are reported on.
NOPG	Page counter.

Subroutine IERROR

IDBL	Double precision variable used to transfer yard names for error messages.

Subroutine IERROR (Continued)

IDUMMY	Single precision variable used to transfer group number for error messages.
N	Error number.

Subroutine NOSHIP

IBLANK	Four-character blank space.
JJ	Subscript designating a specific group number in the ISHIP and IHULL arrays.
KK	DO-loop index.
KKK	Subscript designating a specific ship type and hull number in the ISHIP and IHULL arrays.
L	Implied DO-loop index.
MM	Index used for I/O statements.

Subroutine REPORT

I	Index for fiscal year.
ID	Identification number assigned to a specific yard.
II	Control variable designating the year in a "computed go to".
IYD	Yard name being processed.
IYDYR(5)	Array of years for a specific yard.
J	DO-loop index.
JJ	Flag for group number.
JOPT	An option for a specific yard. When set to "1", repairs only are reported on; when set to "2", alterations only are reported on; when set to "3", a total of repairs and alterations are reported on.
KK	Group number requested for which there were no data.
KOPT	Flag set to "1" if entire yard is to be processed; otherwise set to "0".
L	DO-loop index.
LL	Index for group numbers.
M	DO-loop index.

Subroutine REPORT (Continued)

MYEAR	Number of years to be processed for a specific yard.
NGROUP	Number of groups to be processed for a specific yard.

Subroutine REP1

ISHP(20)	Array of shop numbers.
ISWBS(9)	Array of SWBS numbers.
L	Index for I/O statements.
M	DO-loop index.
N	Index for I/O statements.

Subroutine SEARCH

II	DO-loop index.
III	Argument used in transferring subscript of required yard.
IYD	Yard name being procesed.
KK	DO-loop index.
KKK	Argument used in transferring subscript of yard read from the header record.
NYDS	Total number of yards to be processed.

Subroutine SKPSEC

IDUM	Dummy argument in IERROR subroutine.
ISEP	Variable containing the characters "99999".
ISHULL	Ship type and hull number.
ITYPWK	Type of work.
IYD	Yard name being processed.
IYDP	Yard name (of previous record).

Subroutine SKPYD

IDUM	Dummy argument in IERROR subroutine.
ISHULL	Ship type and hull number.

Subroutine SKPYD (Continued)

ITYPWK	Type of work.
IYD	Yard name.
IYDP	Yard name (of previous record).

Subroutine SUM

I	DO-loop index.
IFYR	Fiscal year for this record.
II	Control variable used in designating the required year in a "computed go to".
IYDYR(5)	Array of years for this yard.
J	DO-loop index.
JJ	Subscript used in matching group numbers.
JJJ	Initial parameter of DO-loop.
K	DO-loop index.
KK	Flag when set to "0", groups are summed but not entire yard; when set to "1", entire yard is summed but not groups; when set to "2", entire yard and groups are summed.
KKK	Control variable in "computed go to".
KOPT	Flag set to "1" if entire yard is to be processed, otherwise set to "0".
L	DO-loop index.
LLL	Terminal parameter of DO-loop.
NGROUP	Number of groups to be processed for a specific yard.

Subroutine TITLE

ID	Identification number assigned to a yard.
JOPT	Option for a specific yard. When set to "1", repairs are reported on; when set to "2", alterations are reported on; when set to "3", a total of repairs and alterations are reported on.

Subroutine YDNO

ICHASN	Variable containing the characters "CHASN".
ID	Identification number assigned to a yard.
IPEARL	Variable containing the characters "PEARL".
IPHILA	Variable containing the characters "PHILA".
IPTSMH	Variable containing the characters "PTSMH".
IPUGET	Variable containing the characters "PUGET".
IYD	Yard name being processed.
LBECH	Variable containing the characters "LBECH".
MARE	Variable containing the characters "MARE".
NORVA	Variable containing the characters "NORVA".

Subroutine YEAR

I	DO-loop index.
IFYR	Fiscal year for a given record.
IYDYR(5)	Array of years for a given yard.

6.4.7 SAMPLE RUN

A Group Definition Deck, a Header Card and a Yard Option Deck formed the card input (unit 5) to the program REPMAT. The SWBS-Shop Matrix File (unit 8) was created by program XPLODE for specific yards and options. For the sample run, Norfolk Shipyard was selected to be "exploded" and a file was created for the total of repair and alteration mandays. For each record on the Depot Maintenance Assignment File (DMAF), the SWBS-Shop Matrix File contained a record reserved for material costs and one record of SWBS data for each of the 20 shops. The sample input shows a header record for Norfolk and data for two DMAF records. The yard option card requested that a SWBS-Shop Matrix be projected for Norfolk for total mandays. In addition, the summation of total work to be performed in the yard was requested. This option disregards any ship groupings and produces a SWBS-Shop Matrix report for the given yard and year.

SWBS-Shop Matrix reports are 10-by-20 matrices in which the rows reflect the work projected for SWBS categories and the columns show shop mandays. For example, in the summation martrix for Norfolk, the portion of work projected for SWBS 3 and Shop 38 is 2514 mandays. Group 1 was a group of all CGN's and was defined as CGN 1 through CGN 9999. The nine SWBS values for each shop are totaled and these values correspond to the report produced by REPSHOP for the same group number and year (Section 6.1.7).

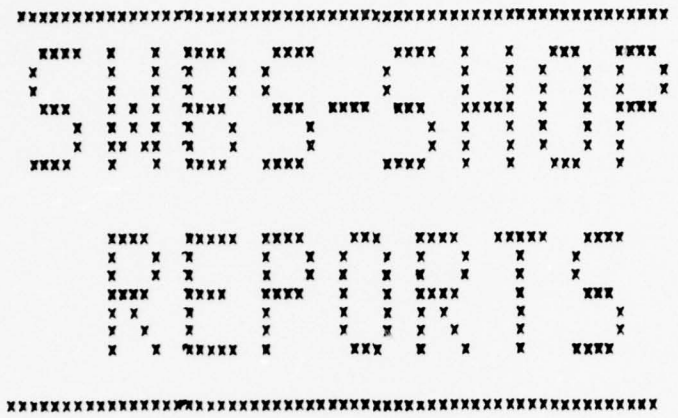
Group 3 was a group of carriers in the CV 59 class and had a hull number lower bound of 59 and an upper bound of 62. This same grouping was used in reports produced by program REPWBS.

In the SWBS-Shop Matrix reports, 19 shops are summed and totals are tabulated for each SWBS category. Comparisons may be made with the projections in reports produced by REPWBS for Norfolk (Section 6.3.7).

Unit 5 - Card Inputs

```
  1      CGN     1   CGN 9999
  1
  2      CGN    35   CGN   35
  2
  3      CV     59   CV    62
  3
 -1
09/08/77        OMPPS SAMPLE RUN
NORVA  ALL                T       82
NORVA  1  3
LAST
```

DATE 09/08/77
DMPPS SAMPLE RUN



REPORT: 62-04-3 DATE: 09/08/77 PAGE 1
ONPPS SAMPLE RUN

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SWBS AND SHOPS

YARD: NORVA

SUMMATION FOR AN ENTIRE YARD

FISCAL 1982

	SWBS 100	SWBS 200	SWBS 300	SWBS 400	SWBS 500	SWBS 600	SWBS 700	SWBS 800	SWBS 900	TOTAL
SHOP: 6	2.	87.	2.	0.	86.	2.	1.	0.	3.	182.
SHOP: 11	2232.	534.	425.	228.	1672.	1813.	531.	0.	2677.	9313.
SHOP: 17	88.	1002.	300.	218.	1875.	2134.	56.	0.	670.	6336.
SHOP: 23	43.	91.	24.	11.	95.	63.	21.	0.	171.	519.
SHOP: 26	995.	2297.	458.	193.	2973.	911.	324.	1.	1324.	9477.
SHOP: 31	184.	7567.	2492.	1002.	6987.	270.	532.	7.	1845.	20886.
SHOP: 36	2.	0.	37.	1591.	8.	43.	1070.	0.	597.	3348.
SHOP: 38	137.	6988.	2514.	160.	6907.	144.	1141.	0.	2773.	20762.
SHOP: 41	31.	5975.	180.	13.	724.	223.	9.	0.	619.	7774.
SHOP: 51	124.	9079.	2689.	3898.	3147.	175.	488.	0.	1135.	20657.
SHOP: 56	275.	14764.	1328.	1468.	10969.	728.	311.	0.	3888.	32842.
SHOP: 64	163.	624.	182.	224.	1021.	1143.	191.	79.	1955.	5582.
SHOP: 67	10.	568.	316.	6162.	11.	186.	82.	0.	581.	7836.
SHOP: 71	167.	789.	191.	439.	930.	3491.	113.	1.	748.	6867.
SHOP: 72	724.	4869.	833.	389.	3616.	2465.	495.	2.	6487.	19888.
SHOP: 81	1.	26.	5.	9.	21.	6.	0.	0.	14.	83.
SHOP: 94	6.	96.	25.	20.	110.	30.	11.	1.	67.	366.
SHOP: 99	124.	265.	81.	89.	210.	301.	36.	0.	3881.	4986.
OTHER	165.	8757.	315.	2686.	1989.	1792.	503.	26687.	9252.	51987.
TOTAL	5465.	64377.	12398.	18791.	43272.	15840.	5833.	26699.	37728.	229603.

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SWBS AND SHOPS

YARD: NORVA

SUMMATION FOR GROUP NO. 1 - CONSISTING OF

CGN 1 - CGN 9999

FISCAL 1982

	SWBS 100	SWBS 200	SWBS 300	SWBS 400	SWBS 500	SWBS 600	SWBS 700	SWBS 800	SWBS 900	TOTAL
SHOP: 6	0.	86.	2.	0.	60.	2.	0.	0.	3.	153.
SHOP: 11	1846.	383.	322.	110.	377.	322.	228.	0.	2164.	5753.
SHOP: 17	34.	752.	245.	129.	1543.	2014.	34.	0.	607.	5358.
SHOP: 23	31.	37.	17.	4.	30.	27.	2.	0.	142.	290.
SHOP: 26	713.	768.	380.	87.	928.	467.	61.	1.	1191.	4596.
SHOP: 31	112.	5925.	1807.	715.	3271.	51.	177.	7.	1619.	13682.
SHOP: 36	2.	8.	37.	1228.	1.	43.	1046.	0.	596.	2951.
SHOP: 38	72.	5751.	1797.	79.	1869.	139.	264.	0.	2672.	12642.
SHOP: 41	22.	2042.	154.	5.	215.	198.	7.	0.	585.	3228.
SHOP: 51	111.	8861.	1839.	1592.	1143.	160.	79.	0.	963.	14747.
SHOP: 56	84.	11853.	1106.	1153.	5748.	695.	70.	0.	2832.	23541.
SHOP: 64	101.	464.	109.	118.	380.	675.	62.	79.	1844.	3832.
SHOP: 67	9.	562.	116.	4321.	5.	185.	77.	0.	521.	5716.
SHOP: 71	125.	643.	164.	318.	378.	2529.	69.	1.	711.	4937.
SHOP: 72	233.	3926.	609.	224.	968.	1882.	154.	2.	4370.	12289.
SHOP: 81	1.	8.	5.	9.	6.	6.	0.	0.	13.	46.
SHOP: 94	3.	73.	19.	12.	42.	16.	3.	1.	61.	231.
SHOP: 99	96.	210.	57.	44.	60.	195.	5.	0.	2959.	3624.
OTHER	103.	8212.	239.	2245.	864.	456.	269.	26607.	7038.	46032.
TOTAL	3698.	50553.	9021.	12393.	17885.	9903.	2688.	26699.	30888.	163648.

TOTAL DIRECT REPAIR AND ALTERATION MANDAYS BY SWBS AND SWOPS

YARD: NORVA

SUMMATION FOR GROUP NO. 3 - CONSISTING OF

CV 59 - CV 62

FISCAL 1982

	SWBS 100	SWBS 200	SWBS 300	SWBS 400	SWBS 500	SWBS 600	SWBS 700	SWBS 800	SWBS 900	TOTAL
SWOP: 6	2.	1.	0.	0.	25.	0.	0.	0.	0.	29.
SWOP: 11	385.	151.	103.	118.	1296.	692.	304.	0.	512.	3561.
SWOP: 17	46.	258.	55.	89.	332.	128.	22.	0.	64.	978.
SWOP: 23	12.	54.	8.	6.	65.	36.	19.	0.	29.	230.
SWOP: 26	283.	1529.	78.	186.	2844.	445.	263.	0.	134.	4881.
SWOP: 31	73.	1642.	685.	287.	3716.	219.	355.	0.	227.	7204.
SWOP: 36	0.	0.	1.	363.	8.	0.	24.	0.	2.	397.
SWOP: 38	65.	1237.	717.	81.	5038.	4.	877.	0.	101.	8120.
SWOP: 41	9.	3933.	26.	8.	510.	25.	2.	0.	34.	4546.
SWOP: 51	14.	219.	850.	2386.	2005.	16.	329.	0.	172.	5909.
SWOP: 56	190.	2911.	222.	307.	5220.	34.	248.	0.	176.	9381.
SWOP: 64	63.	160.	73.	186.	641.	468.	129.	0.	112.	1758.
SWOP: 67	1.	6.	200.	1842.	6.	0.	4.	0.	60.	2119.
SWOP: 71	41.	146.	27.	121.	553.	962.	44.	0.	37.	1930.
SWOP: 72	490.	943.	224.	165.	2648.	663.	348.	0.	2038.	7511.
SWOP: 81	0.	19.	1.	0.	15.	0.	0.	0.	1.	37.
SWOP: 94	3.	23.	6.	8.	67.	13.	8.	0.	7.	134.
SWOP: 99	28.	55.	25.	45.	150.	106.	31.	0.	922.	1362.
OTHER	62.	545.	77.	441.	1846.	1336.	234.	0.	2214.	5955.
TOTAL	1768.	13824.	3377.	6398.	25386.	5138.	3225.	0.	6840.	65955.

Unit 8 - SWBS-Shop Matrix File

```
NE 78 NORVA T
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00  0
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN     0.00      .26      .70     0.00     9.43     0.00     0.00     0.00     0.00  1
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN   611.93    54.82    30.31     2.95    49.27    47.45     0.00     0.00      .38  2
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN    28.72   169.05    16.47    37.85   243.21   392.08     0.00     0.00     1.11  3
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN    17.93    17.21     1.19      .89     7.26     2.05     0.00     0.00      .18  4
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN   453.14   218.76    24.19     5.85   182.83   185.83     0.00     0.00     1.69  5
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN    16.83  1114.15    33.39   360.59   814.91     6.84     0.00     0.00     3.59  6
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN     2.01     0.00    15.53      .32      .86     0.00     0.00     0.00     1.73  7
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN    27.44   930.15    14.98    27.83  1297.44     9.30     0.00     0.00     7.40  8
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN    15.37   383.14     2.54     6.61    58.84     6.29     0.00     0.00     1.51  9
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN    92.20   117.75   245.84   686.15   476.64    48.48     0.00     0.00     2.29 10
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN    99.70   926.00    19.76  1170.87   869.92    30.09     0.00     0.00     7.10 11
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN    57.63    47.18     9.85     1.75    41.22   293.62     0.00     0.00      .29 12
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00 13
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN    10.98     9.06    14.53  5488.24      .39     0.00     0.00     0.00     1.21 14
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN    95.86    47.43    12.44    54.93    54.70   141.68     0.00     0.00      .60 15
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN   206.72   299.78    35.13    91.50   194.87   175.73     0.00     0.00     1.14 16
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN      .37     5.93      .10     0.00     1.89     0.00     0.00     0.00      .03 17
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN     1.10     9.29      .30     6.81    11.72     5.20     0.00     0.00      .05 18
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN    26.16     4.13     4.28   228.18    15.59    16.00     0.00     0.00      .04 19
CGN   37 RA NORVA   0 78 NE 2    62178  82278 AAN    65.31    93.59    16.12   272.25   140.34    15.73     0.00     0.00     9.41 20
CGN   37 RO NORVA   0 81 NE 1    10281  30582 AAN     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00  0
CGN   37 RO NORVA   0 81 NE 1    10281  30582 AAN      .06    45.47      .87      .11    31.93     1.17      .26     0.00     1.37  1
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CGN   37 RO NORVA   0 81 NE 1    10281  30582 AAN    32.96    19.53     8.77     2.65    16.84    14.64     1.30     0.00    75.28  4
CGN   37 RO NORVA   0 81 NE 1    10281  30582 AAN   505.65   406.85   206.81    63.04   534.51   248.53    75.79      .73   631.17  5
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CGN   37 RO NORVA   0 81 NE 1    10281  30582 AAN     5.23   297.77    61.63  3968.38     2.52    62.65    41.84     0.00   276.16 14
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CGN   37 RO NORVA   0 81 NE 1    10281  30582 AAN      .56     4.02     2.44     4.55     3.31     3.22      .19     0.00     6.67 17
CGN   37 RO NORVA   0 81 NE 1    10281  30582 AAN     3.68    38.75    10.11     9.92    24.00     8.75     3.55      .56    32.21 18
CGN   37 RO NORVA   0 81 NE 1    10281  30582 AAN   120.64   111.14    29.96    37.68    34.30   103.72     3.10     0.00  1568.55 19
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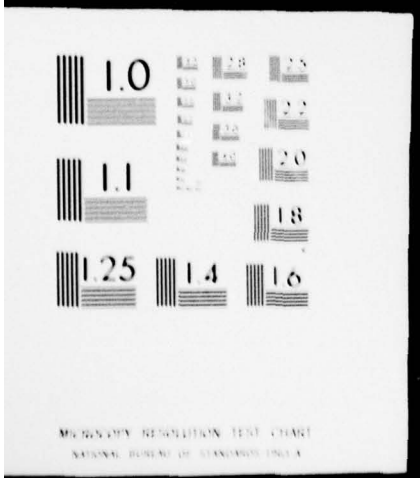

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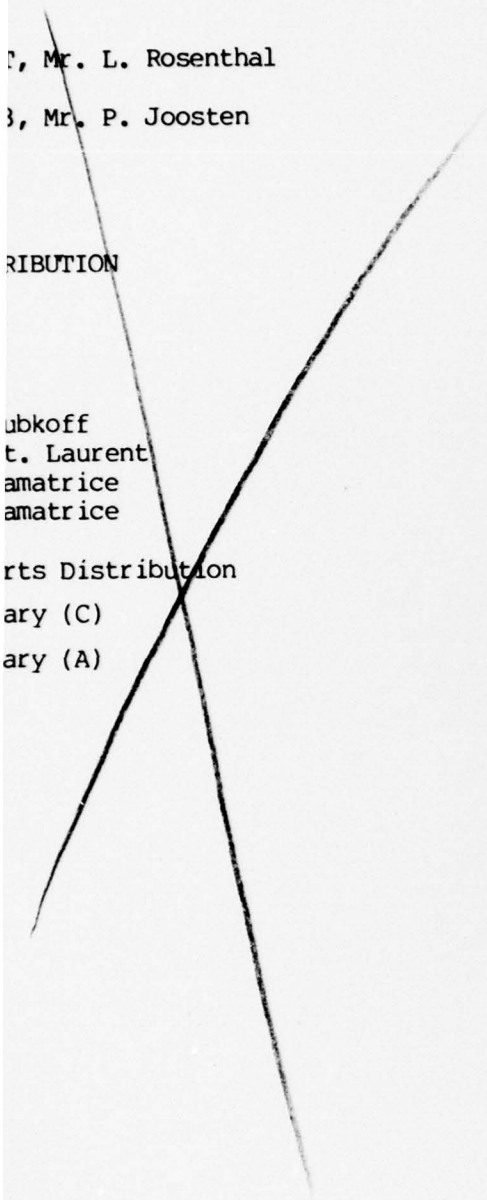

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