



# OSCAM Navy Suite v7.0 Ship Model Data Guide and Historical Dataset Reference

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## Introduction

This document is intended to provide information about the inputs to the OSCAM Navy Suite, Ship Model and the historical data used to populate the historical datasets. This version of the user guide is specific to OSCAM Navy Suite 7.0 and the FY08 datasets. This version is also specific to only Primary Data records.

Each input to the model is described in this document. Inputs can be found by sector and number. For each input the following information is provided:

- A definition of the input
- Units in which input is measured
- Data Source
- Historical Dataset Methodology
- Specific notes about the input (if required)

The FY08 OSCAM Ship historical datasets are the most recent set of historical datasets published. The datasets contain information from VAMOSC for any year that data is available on a particular ship class. VAMOSC data elements are referenced throughout this document. For more information on any of the VAMOSC data elements, download the user guide for the respective universes from the VAMOSC website, [www.navyvamosc.com](http://www.navyvamosc.com).

Other data sources for the datasets include: Maintenance and Material Management (3-M) via OARS (Open Architecture Retrieval System), the OPNAV 4700 Maintenance document, and NCCA FY09 Inflation Indices.

The FY08 historical datasets are kept in two databases that are categorized by ship status. The status may be active or inactive. Any ship class that does not have data through FY07, has been categorized as inactive. The table below shows where each ship class is categorized in the FY08 historical datasets, as well as what years of information are used from the various data sources.

**Table 1.1 Basic Ship Information**

<i>Ship Class</i>	<i>Ship Category</i>	<i>Active/ Inactive</i>	<i>VAMOSC data years</i>	<i>OARS 3-M data years</i>	<i>OPNAV 4700 year</i>
AD-14	Support	Inactive	FY84-93	FY90-94	NA
AD-37	Support	Inactive	FY84-95	FY90-95	NA
AD-41	Support	Inactive	FY84-95	FY90-97	NA
AE-21	Support	Inactive	FY84-94	FY90-97	NA
AE-23	Support	Inactive	FY84-94	FY90-97	NA
AE-26	Support	Inactive	FY84-99	FY92-97	1996
AFS-1	Support	Inactive	FY84-94	FY90-94	NA
AGDS-2	Support	Inactive	FY84-86	FY90-97	NA
AGF-11	Support	Inactive	FY85-06	FY96-05	2004
AGF-3	Support	Inactive	FY84-05	FY96-05	2000
AGSS-555	Submarine	Active	FY84-07	FY98-07	2006
AO-177	Support	Inactive	FY84-99	FY91-99	1996
AO-51	Support	Inactive	FY84-89	No report	NA
AOE-1	Support	Inactive	FY84-06	FY96-05	2004
AOE-6	Support	Inactive	FY95-04	FY95-04	2000
AOR-1	Support	Inactive	FY84-95	FY90-97	1996
AR-5	Support	Inactive	FY84-94	FY90-95	NA

<i>Ship Class</i>	<i>Ship Category</i>	<i>Active/ Inactive</i>	<i>VAMOSC data years</i>	<i>OARS 3-M data years</i>	<i>OPNAV 4700 year</i>
ARL-1	Support	Inactive	FY86-88	No report	NA
ARS-38	Support	Inactive	FY84-93	FY90-97	NA
ARS-50	Support	Active	FY86-07	FY98-07	2005
ARS-6	Support	Inactive	FY88	FY90-97	NA
AS-11	Support	Inactive	FY84-92	FY90-94	NA
AS-19	Support	Inactive	FY84-91	FY90-92	NA
AS-31	Support	Inactive	FY84-95	FY90-97	NA
AS-33	Support	Inactive	FY84-99	FY92-99	1996
AS-36	Support	Inactive	FY84-95	FY90-97	NA
AS-39	Support	Active	FY84-07	FY98-07	2008
ASR-21	Support	Inactive	FY84-94	FY90-97	NA
ASR-7	Support	Inactive	FY84-93	FY90-97	NA
ATF-148	Support	Inactive	FY89-91	FY90-92	NA
ATS-1	Support	Inactive	FY84-95	FY90-96	NA
AVM-1	Support	Inactive	FY84-86	No report	NA
AVT-16	Carrier	Inactive	FY84-91	FY90-97	NA
AVT-59	Carrier	Inactive	FY92	FY90-97	NA
BB-61	Combatant	Inactive	FY84-91	FY90-97	NA
CG-16	Combatant	Inactive	FY84-94	FY90-97	NA
CG-26	Combatant	Inactive	FY84-94	FY90-97	NA
CG-47	Combatant	Active	FY84-07	FY98-07	2008
CGN-25	Combatant	Inactive	FY84-95	FY90-96	NA
CGN-35	Combatant	Inactive	FY84-94	FY90-97	NA
CGN-36	Combatant	Inactive	FY84-99	FY91-99	1996
CGN-38	Combatant	Inactive	FY84-98	FY90-98	1996
CGN-9	Combatant	Inactive	FY84-93	FY90-97	NA
CV-41	Carrier	Inactive	FY84-91	FY91-97	NA
CV-59	Carrier	Inactive	FY84-98	FY91-98	NA
CV-63	Carrier	Active	FY84-07	FY98-07	2004
CV-67	Carrier	Active	FY84-94; FY98-07	FY98-07	2004
CVN-65	Carrier	Active	FY84-07	FY98-07	2008
CVN-68	Carrier	Active	FY84-07	FY98-07	2008
DD-963	Combatant	Inactive	FY84-05	FY96-05	2004
DDG-2	Combatant	Inactive	FY84-92	FY90-97	NA
DDG-37	Combatant	Inactive	FY84-92	FY90-94	NA
DDG-51	Combatant	Active	FY92-07	FY98-07	2008
DDG-51 Flight 1	Combatant	Active	FY92-07	FY98-07	2008
DDG-51 Flight 2	Combatant	Active	FY98-07	FY98-07	2008
DDG-51 Flight 2A	Combatant	Active	FY00-07	FY00-07	2008
DDG-993	Combatant	Inactive	FY84-99	FY92-99	1996
FF-1037	Combatant	Inactive	FY84-90	FY90-92	NA
FF-1040	Combatant	Inactive	FY84-88	No report	NA
FF-1052	Combatant	Inactive	FY84-92	FY90-92	NA
FF-1098	Combatant	Inactive	FY84-89	FY90-96	NA
FFG-1	Combatant	Inactive	FY84-88	No report	NA
FFG-7	Combatant	Active	FY84-07	FY98-07	2008
LCC-19	Amphib	Active	FY84-07	FY98-07	2008
LHA-1	Amphib	Active	FY84-07	FY98-07	2008
LHD-1	Amphib	Active	FY90-07	FY98-07	2008
LKA-113	Amphib	Inactive	FY84-93	FY90-97	NA
LPD-17	Amphib	Active	FY06-07	No report	2008
LPD-1	Amphib	Inactive	FY84-91	FY90-97	NA
LPD-4	Amphib	Active	FY84-07	FY98-07	2008
LPH-2	Amphib	Inactive	FY84-98	FY92-98	1996

<i>Ship Class</i>	<i>Ship Category</i>	<i>Active/ Inactive</i>	<i>VAMOSC data years</i>	<i>OARS 3-M data years</i>	<i>OPNAV 4700 year</i>
LSD-28	Amphib	Inactive	FY84-89	FY90-97	NA
LSD-36	Amphib	Inactive	FY84-04	FY94-003	2000
LSD-41	Amphib	Active	FY86-07	FY98-07	2008
LSD-49	Amphib	Active	FY96-07	FY98-07	2008
LST-1179	Amphib	Inactive	FY84-94; FY98-03	FY93-02	2000
MCM-1	Mine Warfare	Active	FY88-07	FY98-07	2008
MCS-12	Mine Warfare	Inactive	FY98-02	No report	2000
MHC-51	Mine Warfare	Active	FY94-07	FY98-07	2004
MSO-422	Mine Warfare	Inactive	FY84-92	FY90-93	NA
PC-1	Patrol	Active	FY03-07	FY03-07	2004
PHM-1	Patrol	Inactive	FY84-92	No report	NA
SS-576	Submarine	Inactive	FY84-89	FY91	NA
SS-580	Submarine	Inactive	FY84-90	FY91	NA
SSBN-598	Submarine	Inactive	FY84	No report	NA
SSBN-616	Submarine	Inactive	FY84-93	FY91-94	NA
SSBN-627	Submarine	Inactive	FY84-94	FY91-94	NA
SSBN-640	Submarine	Inactive	FY84-94	FY91-94	NA
SSBN-726	Submarine	Active	FY84-07	FY98-07	2008
SSGN-726	Submarine	Active	FY03-07	FY03-07	2008
SSN-21	Submarine	Active	FY98-07	FY98-07	2008
SSN-575	Submarine	Inactive	FY84-86	No report	NA
SSN-578	Submarine	Inactive	FY84-88	No report	NA
SSN-585	Submarine	Inactive	FY84-89	FY91	NA
SSN-594	Submarine	Inactive	FY84-95	FY91-96	NA
SSN-597	Submarine	Inactive	FY84-87	No report	NA
SSN-608	Submarine	Inactive	FY84-91	FY91-94	NA
SSN-637	Submarine	Inactive	FY84-05	FY96-05	2000
SSN-640	Submarine	Inactive	FY92-02	FY92-01	NA
SSN-671	Submarine	Inactive	FY84-99	FY91-99	NA
SSN-685	Submarine	Inactive	FY84-89	No report	NA
SSN-688	Submarine	Active	FY84-07	FY98-07	2008
SSN-688 Flight 1	Submarine	Active	FY84-07	FY98-07	2008
SSN-688 Flight 2	Submarine	Active	FY86-07	FY98-07	2008
SSN-688 Flight 3	Submarine	Active	FY86-07	FY98-07	2008
SSN-774	Submarine	Active	FY05-07	FY05-07	2008

# Operations Sector

## Ship Characteristics

### 1. Light Ship Displacement Weight (LT):

Definition: The Light Ship Displacement weight of the ship in long tons when it is commissioned. Light ship displacement is the weight of the ship without fuel, water, or ammunition.

Data Source: [www.nvr.navy.mil](http://www.nvr.navy.mil)

Historical dataset methodology: Direct input from the Naval Vessel Registry for the first ship of the class. Lightship Displacement data was not able to be found on the following ship classes. The hull used as reference is listed.

**Table 1.2 Light Ship Displacement Weight Exceptions**

Ship Class	Reference Hull	Number in Class
DDG37	DDG40	4
FF1040	FF1041	2
FFG1	FFG2	2
SSBN616	SSBN620	4
SSBN627	SSBN632	6
SSBN640	SSBN641	2
SSN594	SSN595	2
SSN608	SSN618	5
SSN637	SSN638	2
LPD1	LPD2	2
LPH2	LPH3	2
MSO422	MSO424	2
ARL1	ARL24	7
ASR7	ASR8	2

NVR Lightship Displacement data was not able to be found for the following classes, and therefore their weight input is zero.

Ship Class
FF1037
FF1098
SSBN598
SSN575
SSN578
SSN597
SSN671

SSN685
SSN774
LPD17
AS19
AVM1

NOTE: This input is only necessary if disposal costs are going to be estimated.

## Steaming Characteristics

### 2. % Steaming Underway IFT (%)

Definition: Percentage of time the ship is steaming underway while In Fleet Time (IFT), i.e. not in overhaul. For example, a value of 50 indicates that, outside of any time spent in overhaul, the ship will spend 50% of its time underway and 50% of its time not underway.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{\text{VAMOSC Element E.1 Steaming Hours Underway}}{\text{Hours per Year IFT}}$$

### 3. % Not Underway On External Power IFT (%)

Definition: Percentage of Not Underway time the ship is using external power (i.e. in home port) while In Fleet Time (IFT). For example, a value of 50 in this field and a value of 50 in field #2 (% Steaming Underway IFT) indicate the ship is underway 50% of the time and not underway, using external power 25% of the time (50% of not underway time).

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$100 - (\text{SHU}\% \text{IFT} + \text{NU(own power)}\% \text{IFT})$$

## Support Services

### 4. Variable Alongside Support Services (\$K/Ship/Year)

Definition: Variable portion of Alongside Support Services cost. This cost is incurred as a cost per year per ship while the ship is in existence.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{\text{VAMOSC Element 1.3 Purchased Services}}{\text{VAMOSC Element A.0 Number of Ships}}$$

## **Manning**

### 5. Enlisted Crew per Ship (person/ship):

Definition: The number of enlisted personnel assigned per ship.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{\text{VAMOSC Element C.1.2 \# Enlisted Personnel - Navy} + \text{VAMOSC Element C.2.2 \# Enlisted Personnel - Marines}}{\text{VAMOSC Element A.0 Number of Ships}}$$

### 6. Officer Crew per Ship (person/ship):

Definition: The number of officer personnel assigned per ship.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{\text{VAMOSC Element C.1.1 \# Officer Personnel - Navy} + \text{VAMOSC Element C.2.1 \# Officer Personnel - Marines}}{\text{VAMOSC Element A.0 Number of Ships}}$$

### 7. Enlisted Monthly Pay Rate (\$K/month):

Definition: Average monthly pay rate per enlisted person. This includes base pay, retirement, allowances, other entitlements, and the government contributions to Federal Insurance Contributions Act (FICA) and Servicemen's Group Life Insurance (SGLI).

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\left( \frac{\text{VAMOSC Element 1.1.1.1.2 Manpower - Navy Enlisted} + \text{VAMOSC Element 1.1.1.2.2 Manpower - Marine Enlisted}}{\text{Enlisted Crew per Ship}} \right) / 12$$

### 8. Officer Monthly Pay Rate (\$K/month):

Definition: Average monthly pay rate per officer. This includes base pay, retirement, allowances, other entitlements, and the government contributions to FICA and SGLL.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\left( \frac{\text{VAMOSC Element 1.1.1.1.1 Manpower - Navy Officer} + \text{VAMOSC Element 1.1.1.2.1 Manpower - Marine Officer}}{\text{Officer per Ship}} \right) / 12$$

9. Temporary Additional Duty Cost (TAD) (\$K/person/year):

Definition: The cost of any temporary additional duty such as travel, mileage allowances, and per diem.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{\text{VAMOSC Element 1.1.3 TAD}}{\text{VAMOSC Element C.0 Total Personnel}} \times \text{VAMOSC Element A.0 Number of Ships}$$

Note: This cost is applied the same to Officers and Enlisted.

### **General Stores/Supplies**

10. General Stores/Supplies Cost (\$K/person/year)

Definition: The cost of general stores and supplies per person, e.g. food.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{\text{VAMOSC Element 1.2.3 Supplies}}{\text{VAMOSC Element C.0 Total Personnel}}$$

Note: This cost is applied the same to Officers and Enlisted.

11. Publications Cost (\$K/Ship/year):

Definition: The cost of publications and technical manuals for each ship.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{\text{VAMOSC Element 4.2 Publications}}{\text{VAMOSC Element A.0 Number of Ships}}$$

## **Fuel Requirements**

### 12. Barrels of Fuel per SHU:

Definition: The number of barrels of fuel used by the ship per steaming hour underway (i.e. operating at sea).

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{\text{VAMOSC Element F.1.1 Barrels DFM - Underway} + \text{VAMOSC Element F.2.1 Barrels JP5 - Underway}}{\text{VAMOSC Element E.1 Steaming Hours Underway}}$$

### 13. Barrels of Fuel per NU Own Power:

Definition: The number of barrels of the ship's own fuel used by the ship per steaming hour not underway (i.e. in port, not in overhaul).

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{\text{VAMOSC Element F.1.2 Barrels DFM - Not Underway} + \text{VAMOSC Element F.2.2 Barrels JP5 - Not Underway}}{\text{VAMOSC Element E.2 Steaming Hours Not Underway}}$$

### 14. Cost per Barrel Fuel (\$K):

Definition: The cost per barrel of fuel.

Data Source: Defense Energy Supply Center (DESC)

Historical dataset methodology: This cost is based on most current DESC price available at the time the datasets are published, as obtained through NAVSEA 05C guidance.

Note: Cost shown reflects the direct cost and the value should not be considered to be the fully burdened cost of fuel.

### 15. Other POL Cost (\$K/Ship/Year):

Definition: The cost of any other POL (Petroleum, Oil, and Lubricant) used by the ship.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

VAMOSC Element 1.2.1.2 POL - Other
VAMOSC Element A.0 Number of Ships

## **Ordnance Requirements**

16. Expendables Cost (\$K/Ship/Year):

Definition: The cost of ordnance and ammunition per ship per year. This includes the cost of training, testing, and combat units.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

VAMOSC Element 1.2.4 Expendable Stores
VAMOSC Element A.0 Number of Ships

17. Handling Cost (\$K/Ship/Year):

Definition: The ordnance handling cost per ship, e.g. the on-loading and off-loading of ordnance to and from ships primarily during scheduled overhauls.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

VAMOSC Element 4.5 Ammunition Handling
VAMOSC Element A.0 Number of Ships

## **Disposal Requirements**

18. Disposal Cost per Long Ton (\$K/LT):

Definition: The cost of disposal of the ship in \$K per long ton. This value can be set as a negative number if the ship is expected to be sold vice disposed.

Data Source: N/A

Historical dataset methodology: This input is not populated in the historical datasets.

## Organizational Maintenance Sector

### ***Unscheduled Actions***

#### 19. Actions per Ship per Year:

Definition: The number of unscheduled actions performed by the ship's crew. Unscheduled actions involve corrective maintenance performed as a result of some degree of system failure.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Actions per ship per year are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 20. Manhours per Action:

Definition: The number of manhours required per unscheduled action by the ship's crew.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Manhours per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 21. Repair Parts per Action:

Definition: The number of repair parts used per unscheduled action by the ship's crew. Repair parts are those parts which do not have a repair philosophy, but instead are maintained with a discard philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repair parts per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

## 22. Cost per Repair Part (\$K):

Definition: The cost per repair part used during an unscheduled action by the ship's crew. The replacement cost includes the cost of purchasing a new part plus all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Costs per repair part are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

## 23. Repairables per Action:

Definition: The number of repairables used per unscheduled action by the ship's crew. A repairable is a component having a repair philosophy; when removed, it is usually sent to the depot to be repaired.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repairables per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

## 24. Average Exchange Cost (\$K):

Definition: The exchange cost per repairable used during an unscheduled action by the ship's crew. The exchange price is charged when a carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSC database. Average Exchange Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Less Fuel weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 25. Average Issue Cost (\$K):

Definition: The issue cost per repairable used during an unscheduled action by the ship's crew. The issue price is charged if no carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSC database. Average Issue Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 26. % of Exchanges:

Definition: The percentage of repairables turned in for repair during an unscheduled action by the ship's crew. The historical data sets have a default value of 95 percent.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 95%.

## **Scheduled Actions**

#### 27. Actions per Ship per Year:

Definition: The number of scheduled actions performed by the ship's crew. Scheduled actions involve maintenance performed on a defined, recurring basis.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Actions per ship per year are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

## 28. Manhours per Action:

Definition: The number of manhours required per scheduled action by the ship's crew.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Manhours per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

## 29. Repair Parts per Action:

Definition: The number of repair parts used per scheduled action by the ship's crew. Repair parts are those parts which do not have a repair philosophy but instead are maintained with a discard philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repair parts per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

### 30. Cost per Repair Part (\$K):

Definition: The cost per repair part used during scheduled action by the ship's crew. The replacement cost includes the cost of purchasing a new part plus all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Costs per repair part are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

### 31. Repairables per Action:

Definition: The number of repairables used per scheduled action by the ship's crew. A repairable is a component having a repair philosophy; when removed, it is usually sent to the depot to be repaired.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repairables per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

### 32. Average Exchange Cost (\$K):

Definition: The exchange cost per repairable used during a scheduled action by the ship's crew. The exchange price is charged when a carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database.

Average Exchange Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Less Fuel weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

### 33. Average Issue Cost (\$K):

Definition: The issue cost per repairable used during a scheduled action by the ship's crew. The issue cost is charged if no carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Average Issue Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

### 34. % of Exchanges:

Definition: The percentage of repairables turned in for repair during a scheduled action by the ship's crew. The historical data sets have a default value of 95 percent.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 95%.

## **Alterations**

### 35. Actions per Ship per Year:

Definition: The number of alteration type actions performed by the ship's crew. Alterations are minor actions performed to replace parts with similar items which may or may not incorporate improvements.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Actions

per ship per year are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

### 36. Manhours per Action:

Definition: The number of manhours required per alteration action by the ship's crew.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Manhours per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

### 37. Repair Parts per Action:

Definition: The number of repair parts used per alteration action by the ship's crew. Repair parts are those parts which do not have a repair philosophy but instead are maintained with a discard philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repair parts per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

### 38. Cost per Repair Part (\$K):

Definition: The cost per repair part used during an alteration action by the ship's crew. The replacement cost includes the cost of purchasing a new part plus all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Costs per repair part are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 39. Repairables per Action:

Definition: The number of repairables used per alteration action by the ship's crew. A repairable is a component having a repair philosophy; when removed, it is usually sent to the depot to be repaired.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repairables per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 40. Average Exchange Cost (\$K):

Definition: The exchange cost per repairable used during an alteration action by the ship's crew. The exchange price is charged when a carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Average Exchange Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Less Fuel weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 41. Average Issue Cost (\$K):

Definition: The issue cost per repairable used during an alteration action by the ship's crew. The issue price is charged if no carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSC database. Average Issue Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

42. % of Exchanges:

Definition: The percentage of repairables turned in for repair during an alteration action by the ship's crew. The historical data sets have a default value of 95 percent.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 95%.

## Intermediate Level Sector

### ***I-Level General***

43. I-Level Contractor Support:

Definition: The cost of intermediate level contractor maintenance services not captured by the 3-M system.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

VAMOSC Element 2.3 CIS/IDIQ (Commercial Industrial Services/Indefinite Services/Indefinite Quantity Contracts)
VAMOSC Element A.0 Number of Ships

### ***I-Level Ashore Maintenance: Labor Rate***

44. Direct Rate (\$K/hr):

Definition: The hourly labor rate (E-5) for maintenance personnel at the intermediate ashore maintenance facility. Includes base pay, retirement, allowances, other entitlements, and the government contributions to FICA and SGLI.

Data Source: Military Composite Standard Pay and Reimbursement Rates: Department of the Navy, for FY09

Historical dataset methodology: This value is based on the yearly salary of maintenance personnel, multiplied by .00055 to obtain an hourly rate.

Cost of E5 in Navy (FY09\$)\*.00055

#### 45. Overhead Factor:

Definition: The overhead factor for the intermediate ashore maintenance facility, e.g. direct rate = \$15/hr, overhead factor = 1.35, then overhead rate would be 35%, and total hourly rate = \$15 x 1.35 = \$20.25. The model is initiated with an overhead factor of 1.00 (i.e. no overhead).

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 1.00.

### ***I-Level Ashore Maintenance: Unscheduled Actions***

#### 46. Actions per Ship per Year:

Definition: The number of unscheduled actions performed by the intermediate ashore maintenance activity. Unscheduled actions involve corrective maintenance performed as a result of some degree of system failure.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Actions per ship per year are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 47. Manhours per Action:

Definition: The number of manhours required per unscheduled action by the intermediate ashore maintenance activity.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSC database. Manhours per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

48. Repair Parts per Action:

Definition: The number of repair parts used per unscheduled action by the intermediate ashore maintenance activity. Repair parts are those parts which do not have a repair philosophy but instead are maintained with a discard philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSC database. Repair parts per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

49. Cost per Repair Part (\$K):

Definition: The cost per repair part used during an unscheduled action by the intermediate ashore maintenance activity. The replacement cost includes the cost of purchasing a new part plus all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSC database. Costs per repair part are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

## 50. Repairables per Action:

Definition: The number of repairables used per unscheduled action by the intermediate ashore maintenance activity. A repairable is a component having a repair philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repairables per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

## 51. Average Exchange Cost (\$K):

Definition: The exchange cost per repairable used during an unscheduled action by the intermediate ashore maintenance activity. It is charged when a carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Average Exchange Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Less Fuel weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

## 52. Average Issue Cost (\$K):

Definition: The issue cost per repairable used during an unscheduled action by the intermediate ashore maintenance activity. The issue price is charged if no carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Average Issue Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases

weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 53. % of Exchanges:

Definition: The percentage of repairables turned in for repair during an unscheduled action by the intermediate ashore maintenance activity.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 95%.

### ***I-Level Ashore Maintenance: Scheduled Actions***

#### 54. Actions per Ship per Year:

Definition: The number of scheduled actions performed by the intermediate ashore maintenance activity. Scheduled actions involve maintenance performed on a defined, recurring basis.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Actions per ship per year are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 55. Manhours per Action:

Definition: The number of manhours required per scheduled action by the intermediate ashore maintenance activity.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Manhours per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS

data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

56. Repair Parts per Action:

Definition: The number of repair parts used per scheduled action by the intermediate ashore maintenance activity. Repair parts are those parts which do not have a repair philosophy but instead are maintained with a discard philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repair parts per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

57. Cost per Repair Part (\$K):

Definition: The cost per repair part used during scheduled action by the intermediate ashore maintenance activity. The replacement cost includes the cost of purchasing a new part plus all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Costs per repair part are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

58. Repairables per Action:

Definition: The number of repairables used per scheduled action by the intermediate ashore maintenance activity. A repairable is a component having a repair philosophy; when removed.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repairables per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

59. Average Exchange Cost (\$K):

Definition: The exchange cost per repairable used during a scheduled action by the intermediate ashore maintenance activity. The exchange price is charged when a carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Average Exchange Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Less Fuel weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

60. Average Issue Cost (\$K):

Definition: The issue cost per repairable used during a scheduled action by the intermediate ashore maintenance activity. The issue cost is charged if no carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Average Issue Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

61. % of Exchanges:

Definition: The percentage of repairables turned in for repair during a scheduled action by the intermediate ashore maintenance activity. The historical data sets have a default value of 95 percent.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 95%.

## ***I-Level Ashore Maintenance: Alterations***

### 62. Actions per Ship per Year:

Definition: The number of alteration type actions performed by the intermediate ashore maintenance activity. Alterations are minor actions performed to replace parts with similar items which may or may not incorporate improvements.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Actions per ship per year are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

### 63. Manhours per Action:

Definition: The number of manhours required per alteration action by the intermediate ashore maintenance activity.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Manhours per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

### 64. Repair Parts per Action:

Definition: The number of repair parts used per alteration action by the intermediate ashore maintenance activity. Repair parts are those parts which do not have a repair philosophy but instead are maintained with a discard philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repair parts per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 65. Cost per Repair Part (\$K):

Definition: The cost per repair part used during an alteration action by the intermediate ashore maintenance activity. The replacement cost includes the cost of purchasing a new part plus all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Costs per repair part are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 66. Repairables per Action:

Definition: The number of repairables used per alteration action by the intermediate ashore maintenance activity. A repairable is a component having a repair philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repairables per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in

service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 67. Average Exchange Cost (\$K):

Definition: The exchange cost per repairable used during an alteration action by the intermediate ashore maintenance activity. The exchange price is charged when a carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSC database. Average Exchange Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Less Fuel weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 68. Average Issue Cost (\$K):

Definition: The issue cost per repairable used during an alteration action by the intermediate ashore maintenance activity. The issue price is charged if no carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSC database. Average Issue Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 69. % of Exchanges:

Definition: The percentage of repairables turned in for repair during an alteration action by the intermediate ashore maintenance activity. The historical data sets have a default value of 95 percent.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 95%.

### ***I-Level Afloat Maintenance: Labor Rate***

70. Direct Rate (\$K/hr.):

Definition: The hourly labor rate (E-5) for maintenance personnel at the intermediate afloat maintenance facility. This includes base pay, retirement, allowances, other entitlements, and the government contributions to FICA and SGLI.

Data Source: Military Composite Standard Pay and Reimbursement Rates: Department of the Navy, for FY09

Historical dataset methodology: This value is based on the yearly salary of maintenance personnel, multiplied by .00055 to obtain an hourly rate.

Cost of E5 in Navy (FY09\$) \*.00055

71. Overhead Factor:

Definition: The overhead factor for the intermediate afloat maintenance facility, e.g. direct rate = \$15/hr, overhead factor = 1.35, then overhead rate would be 35%, and total hourly rate = \$15 x 1.35 = \$20.25. The model is initiated with an overhead factor of 1.00 (i.e. no overhead).

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 1.00.

### ***I-Level Afloat Maintenance: Unscheduled Actions***

72. Actions per Ship per Year:

Definition: The number of unscheduled actions performed by the intermediate afloat maintenance activity. Unscheduled actions involve corrective maintenance performed as a result of some degree of system failure.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Actions per ship per year are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS

data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 73. Manhours per Action:

Definition: The number of manhours required per unscheduled action by the intermediate afloat maintenance activity.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Manhours per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 74. Repair Parts per Action:

Definition: The number of repair parts used per unscheduled action by the intermediate afloat maintenance activity. Repair parts are those parts which do not have a repair philosophy but instead are maintained with a discard philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repair parts per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 75. Cost per Repair Part (\$K):

Definition: The cost per repair part used during an unscheduled action by the intermediate afloat maintenance activity. The replacement cost includes the cost of purchasing a new part plus all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Costs

per repair part are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 76. Repairables per Action:

Definition: The number of repairables used per unscheduled action by the intermediate afloat maintenance activity. A repairable is a component having a repair philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repairables per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 77. Average Exchange Cost (\$K):

Definition: The exchange cost per repairable used during an unscheduled action by the intermediate afloat maintenance activity. It is charged when a carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Average Exchange Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Less Fuel weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 78. Average Issue Cost (\$K):

Definition: The issue cost per repairable used during an unscheduled action by the intermediate afloat maintenance activity. The issue price is charged if no carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Average Issue Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 79. % of Exchanges:

Definition: The percentage of repairables turned in for repair during an unscheduled afloat by the intermediate ashore maintenance activity. The historical data sets have a default value of 95 percent.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 95%.

### ***I-Level Afloat Maintenance: Scheduled Actions***

#### 80. Actions per Ship per Year:

Definition: The number of scheduled actions performed by the intermediate afloat maintenance activity. Scheduled actions involve maintenance performed on a defined, recurring basis.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Actions per ship per year are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 81. Manhours per Action

Definition: The number of manhours required per scheduled action by the intermediate afloat maintenance activity.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Manhours per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

## 82. Repair Parts per Action:

Definition: The number of repair parts used per scheduled action by the intermediate afloat maintenance activity. Repair parts are those parts which do not have a repair philosophy but instead are maintained with a discard philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repair parts per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

## 83. Cost per Repair Part (\$K):

Definition: The cost per repair part used during scheduled action by the intermediate afloat maintenance activity. The replacement cost includes the cost of purchasing a new part plus all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Costs per repair part are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus,

the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 84. Repairables per Action:

Definition: The number of repairables used per scheduled action by the intermediate afloat maintenance activity. A repairable is a component having a repair philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repairables per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 85. Average Exchange Cost (\$K):

Definition: The exchange cost per repairable used during a scheduled action by the intermediate afloat maintenance activity. The exchange price is charged when a carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Average Exchange Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Less Fuel weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

#### 86. Average Issue Cost (\$K):

Definition: The issue cost per repairable used during a scheduled action by the intermediate afloat maintenance activity. The issue cost is charged if no carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Average Issue Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

87. % of Exchanges:

Definition: The percentage of repairables turned in for repair during a scheduled action by the intermediate afloat maintenance activity. The historical data sets have a default value of 95 percent.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 95%.

### ***I-Level Afloat Maintenance: Alterations***

88. Actions per Ship per Year:

Definition: The number of alteration type actions performed by the intermediate afloat maintenance activity. Alterations are minor actions performed to replace parts with similar items which may or may not incorporate improvements.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Actions per ship per year are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

89. Manhours per Action:

Definition: The number of manhours required per alteration action by the intermediate afloat maintenance activity.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Manhours per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

90. Repair Parts per Action:

Definition: The number of repair parts used per alteration action by the intermediate afloat maintenance activity. Repair parts are those parts which do not have a repair philosophy but instead are maintained with a discard philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Repair parts per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

91. Cost per Repair Part (\$K):

Definition: The cost per repair part used during an alteration action by the intermediate afloat maintenance activity. The replacement cost includes the cost of purchasing a new part plus all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSOC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSOC database. Costs per repair part are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

## 92. Repairables per Action:

Definition: The number of repairables used per alteration action by the intermediate afloat maintenance activity. A repairable is a component having a repair philosophy.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSC database. Repairables per action are pulled directly from the OARS 3-M system for the 10 most recent years of data available, and an average is calculated that is used for the OSCAM input. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

## 93. Average Exchange Cost (\$K):

Definition: The exchange cost per repairable used during an alteration action by the intermediate afloat maintenance activity. The exchange price is charged when a carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSC database. Average Exchange Costs are pulled directly from the OARS 3-M system for the 10 most recent years of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Less Fuel weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

## 94. Average Issue Cost (\$K):

Definition: The issue cost per repairable used during an alteration action by the intermediate afloat maintenance activity. The issue price is charged if no carcass is turned in. This includes all associated supply system costs.

Data Source: OARS 3-M

Historical dataset methodology: Data is pulled directly from the OARS 3-M system in a detailed form that is unavailable in the VAMOSC database. The data that is used for the OSCAM historical datasets is rolled up and presented at a higher level in the VAMOSC database. Average Issue Costs are pulled directly from the OARS 3-M system for the 10 most recent years

of data available in TY\$. Each year is inflated to FY09\$ using the NCCA OMN Purchases weighted index. Then an average is calculated of the constant year dollars. Each year, the oldest year of data is dropped and the newest year added for ship classes that are still in service. Thus, the average is a rolling 10 year average. Note that not all ships have 10 years of OARS data available. Please refer to Table 1.1 Basic Ship Information for the data years used for a particular ship class.

95. % of Exchanges:

Definition: The percentage of repairables turned in for repair during an alteration action by the intermediate afloat maintenance activity. The historical data sets have a default value of 95 percent.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 95%.

## Other Depot Maintenance Sector

96. Other Government Depot Maintenance Cost (\$K/Ship):

Definition: The cost of other government depot maintenance, e.g. Naval Aviation Depot (NADEP) not captured by the 3-M system.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

VAMOSC Element 3.4.1 ALRE - Arresting Gear + VAMOSC Element 3.4.2 ALRE - Catapults + VAMOSC Element 3.4.3 ALRE Visual Landing Aids + VAMOSC Element 3.6 Equipment Rework + VAMOSC Element 3.9.4 Other Depot - Program Office
VAMOSC Element A.0 Number of Ships

97. Contractor Depot Maintenance Cost:

Definition: The cost of contractor depot maintenance not captured by the 3-M system and not performed by private shipyards.

Data Source: Default

Historical dataset methodology: Historical datasets assume a default value of \$0.00.

## Software Sector

98. Software Maintenance Cost (\$K/Class/Year):

Definition: The cost per ship class to maintain software. Software maintenance includes correcting faults, improving performance or their attributes, or adapting to a changed environment.

Data Source: N/A

Historical dataset methodology: This input is not populated in the historical datasets.

NOTE: This is a class level cost. This means that the cost will be counted once for each year that there is a ship in service.

## Engineering Technical Services Sector

99. ETS Cost (\$K/Class/Year):

Definition: The cost of contractor and Navy services provided to a ship by Mobile Technical Units (MOTUs), In-Service Engineering Agents (ISEAs), and Navy Sea Center (LANT & PAC).

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

VAMOSC Element 4.3 Engineering and Technical Services
Number of Years of Data

NOTE: This is a class level cost. This means that the cost will be counted once for each year that there is a ship in service, regardless of number in service.

## Training Sector

### Enlisted Training

100. Student-Days per Enlisted per Year:

Definition: The number of student-days required per enlisted for attending training courses per year. A student-day is defined as one enlisted student per training day.

Data Source: VAMOSC Ships Universe Source Data for Training

Historical dataset methodology: This input is based on FY06 Training Data—average training days per enlisted person from FY96-FY05. This is calculated by multiplying curriculum length by number of graduates.

101. Direct \$K per Enlisted Student-Day:

Definition: The direct cost associated with the number of enlisted student-days of training. It includes the cost of instructor pay and materials.

Data Source: VAMOSC Ships Universe Source Data for Training

Historical dataset methodology: Total Enlisted Training Cost per Day is calculated by dividing the total cost of enlisted training by the number of student days of training. Direct Cost per Enlisted Student-Day is calculated as 75% of Total Enlisted Training Cost per Day. Direct Cost was calculated for each year, FY96-05. These values were averaged to obtain Average Direct Cost of Enlisted per Student-Day. Average Direct Cost of Enlisted per Student-Day FY96-FY05 was inflated using Operations and Maintenance, Navy—Less Fuel (O&MN/LF Composite) to obtain FY09 value.

102. Indirect \$K per Enlisted Student-Day:

Definition: The indirect cost per enlisted student-day. It is the cost of overhead, including the cost of facilities, for one student-day of training.

Data Source: VAMOSC Ships Universe Source Data for Training

Historical dataset methodology: Total Enlisted Training Cost per Day is calculated by dividing the total cost of enlisted training by the number of student days of training. Indirect Cost per Enlisted Student-Day is calculated as 25% of Total Enlisted Training Cost per Day. Indirect Cost was calculated for each year, FY96-05. These values were averaged to obtain Average Indirect Cost of Enlisted per Student-Day. Average Indirect Cost of Enlisted per Student-Day FY96-FY05 was inflated using Operations and Maintenance, Navy—Less Fuel (O&MN/LF Composite) to obtain FY09 value.

## **Officer Training**

103. Student-Days per Officer per Year

Definition: The number of student-days requires per officer for attending training courses per year. A student-day is defined as one officer student per training day.

Data Source: VAMOSC Ships Universe Source Data for Training

Historical dataset methodology: This input is based on FY06 Training Data—average training days per officer from FY96-FY05. This is calculated by multiplying curriculum length by number of graduates.

104. Direct \$K per Officer Student-Day

Definition: The direct cost associated with the number of officer student-days of training. It includes the cost of the instructor pay and materials.

Data Source: VAMOSC Ships Universe Source Data for Training

Historical dataset methodology: Total Officer Training Cost per Day is calculated by dividing the total cost of officer training by the number of student-days of training. Direct Cost per Officer Student-Day is calculated as 75% of Total Officer Training Cost per Day. Direct Cost was calculated for each year, FY96-05. These values were averaged to obtain Average Direct

Cost of Officer per Student-Day. Average Direct Cost of Officer per Student-Day FY96-FY05 was inflated using Operations and Maintenance, Navy—Less Fuel (O&MN/LF Composite) to obtain FY09 value.

105. Indirect \$K per Officer Student-Day

Definition: The indirect cost per officer student-day. It is the cost of overhead, including facilities, for one student-day of training.

Data Source: VAMOSC Ships Universe Source Data for Training

Historical dataset methodology: Total Officer Training Cost per Day is calculated by dividing the total cost of officer training by the number of student days of training. Indirect Cost per Officer Student-Day is calculated as 25% of Total Officer Training Cost per Day. Indirect Cost was calculated for each year, FY96-05. These values were averaged to obtain Average Indirect Cost of Officer per Student-Day. Average Indirect Cost of Officer per Student-Day FY96-FY05 was inflated using Operations and Maintenance, Navy—Less Fuel (O&MN/LF Composite) to obtain FY09 value.

# Scheduled Overhaul Sector

## Miscellaneous Services

### 1. Design and Planning Services (\$K/Ship/Year):

Definition: The cost to design and plan availabilities. This is modeled as a \$K/Ship/Year vice a cost per overhaul, since design and planning of availabilities occurs well in advance.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{\text{VAMOSC Element 3.7 Design Services Allocation} + \text{VAMOSC Element 3.8 PERA, SUBMEPP, Planning \& Procurement}}{\text{VAMOSC Element A.0 Number of Ships}}$$

### 2. Other Modification Services (\$K/Ship/Year):

Definition: Modernization costs not captured elsewhere. This would include modernization efforts performed by organizations other than Shipyards such as Field Installation Teams (FITs).

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{\text{VAMOSC Element 3.3.5 Other FM} + \text{VAMOSC Element 3.5 Field Change Installation}}{\text{VAMOSC Element A.0 Number of Ships}}$$

### 3. Outfitting and Spares Factor:

Definition: A factor of the Centrally Provided Material (CPM) cost. It calculates the cost of additional outfitting and sparing needed due to modernization resulting in changes to the ships sparing requirements. For example if this input is set to 0.25 and \$100,000 of CPM is installed during an overhaul, the Outfitting and Spares cost for that overhaul will be \$25,000.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{\text{VAMOSC Element 3.3.6 Outfitting \& Spares}}{\text{VAMOSC Element 3.3.4 Centrally Provided Material}}$$

## Labor Rates

### 4. Refuel Labor Rate(\$K/person-month):

Definition: The labor rate for personnel working on refueling. A person-month is defined as one person per month.

Data Source: N/A

Historical dataset methodology: This input is not populated in the historical datasets.

### 5. Modification Labor Rate (\$K/person-month):

Definition: The labor rate for personnel working on modernization. A person-month is defined as one person per month.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data. This value was inflated from the FY05 Update using NCCA OPN from FY05-FY09.

$\frac{\text{VAMOSC Element 3.3.1.1 FM - Public Yards - Overhead} + \text{3.3.1.2 FM - Public Yards - Labor}}{\text{VAMOSC Element K.1.5 Mandays (FMPublic)}}$
--

### 6. Repair Labor Rate (\$K/person-month):

Definition: The labor rate for personnel working on repair. A person-month is defined as one person per month.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data. This value was inflated from the FY05 Update using NCCA OPN from FY05-FY09.

$\frac{\text{VAMOSC Elements 3.1.1.1.1} + \text{3.1.1.1.2} + \text{3.1.2.1.1} + \text{3.1.2.1.2}}{\text{VAMOSC Elements K.1.1} + \text{K.1.2}}$
---

## Scheduled Overhaul Attributes

Data contained in this section is from the FY08 OPNAV 4700 issued on 25 September 2008 by the Chief of Naval Operations. It represents depot and non-depot availability intervals, durations, maintenance cycles and repair man days for Depot Level Maintenance. These overhauls and overhaul cycles are different for each ship. Start and end months are denoted to indicate duration of overhaul. Many of the ships have not been updated because the ship is out of service, the operating profile has not changed, or there is no maintenance data available. If the profile was not updated, Scheduled Overhaul Attributes were copied from FY06 OSCAM Ship

VAMOSOC Update Dataset and dollars were inflated to FY09 dollars using the NCCA Other Procurement, Navy (OPN) inflation index.

7. Planned Overhaul Duration (months):

Definition: The planned duration of each overhaul of each type.

Data Source: OPNAV 4700

Historical dataset methodology: Duration of overhauls and schedules of entire maintenance cycles are outlined in OPNAV 4700 corresponding to each ship class.

8. Strike Rate (person-months/month):

Definition: Strike Rates is a capacity measure of the number of people that can work on the ship at one time during an availability. It is measured in the number of person-months of effort that can be accomplished in 1 month of an availability.

Data Source: VAMOSOC Detailed Ships Universe

Historical dataset methodology: This value was carried over from the FY05 Depot Maintenance Update. More information on the dataset values can be found in the FY2005 OSCAM Ship Historical Datasets Depot Maintenance Data Guide. With the release of the VAMOSOC Depot Maintenance Universe and OSCAM v8.0, these methodologies will be revisited and updated.

NOTE: Figures shown as strike rate represent the maximum of persons working during a given overhaul, it may not represent the actual maximum capacity of work on the ship.

9. CPM \$K per Overhaul:

Definition: The cost of the centrally provided material (CPM) for each modernization. CPM is material procured to replace older systems/components to enhance capability, maintainability, reliability, etc.

Data Source: VAMOSOC Ships Universe

Historical dataset methodology: This value was inflated from the FY05 Update using NCCA OPN from FY05-FY09. More information on the dataset values can be found in the FY2005 OSCAM Ship Historical Datasets Depot Maintenance Data Guide. With the release of the VAMOSOC Depot Maintenance Universe and OSCAM v8.0, these methodologies will be revisited and updated.

10. Modification Person-Months per CPM Factor:

Definition: A factor used to estimate the required number of person-months of effort to install the Centrally Provided Material (Mod Person-Months/CPM \$K). For example, if this factor equals 0.1 and \$100,000 of CPM is to be installed, 10 Person-Months will be required for the installation.

Data Source: VAMOSC Detailed Ships Universe

Historical dataset methodology: This value was carried over from the FY05 Update using NCCA OPN from FY05-FY09. More information on the dataset values can be found in the FY2005 OSCAM Ship Historical Datasets Depot Maintenance Data Guide. With the release of the VAMOSC Depot Maintenance Universe and OSCAM v8.0, these methodologies will be revisited and updated.

#### 11. Modification Material \$K per Person-Months:

Definition: A factor to determine the cost of the incidental material needed for modernization (i.e. material cost is a function of Modification Person-Months). For example if this field = 1.5 and there are 500 Person-Months of modernization effort, the Modernization Material cost will be \$750K.

Data Source: VAMOSC Detailed Ships Universe

Historical dataset methodology: This value was inflated from the FY05 Update using NCCA OPN from FY05-FY09. More information on the dataset values can be found in the FY2005 OSCAM Ship Historical Datasets Depot Maintenance Data Guide. With the release of the VAMOSC Depot Maintenance Universe and OSCAM v8.0, these methodologies will be revisited and updated.

#### 12. Refuel Replacement Core Cost:

Definition: The cost of the replacement of a nuclear core which is used to refuel nuclear ships.

Data Source: N/A

Historical dataset methodology: This input is not populated in the historical datasets.

#### 13. Refuel Person-Months per Overhaul:

Definition: The number of person-months of effort required for performing refueling tasks during the overhaul.

Data Source: N/A

Historical dataset methodology: This input is not populated in the historical datasets.

#### 14. Refuel Material \$K per Person-Month:

Definition: A factor to determine the cost of the incidental material needed for a refueling overhaul (i.e. material cost is a function of Refuel Person-Months). For example if this field = 1.5 and there are 500 Person-Months of refueling effort, the Refueling Material cost will be \$750K.

Data Source: N/A

Historical dataset methodology: This input is not populated in the historical datasets.

15. Repair Person-Months per Overhaul:

Definition: The number of person-months of effort required for performing repairs during the overhaul.

Data Source: VAMOSC Detailed Ships Universe

Historical dataset methodology: This value was carried over from the FY05 Depot Maintenance Update. It was calculated as an average of repair person-months per availability from FY96-FY05. More information on the dataset values can be found in the FY2005 OSCAM Ship Historical Datasets Depot Maintenance Data Guide. With the release of the VAMOSC Depot Maintenance Universe and OSCAM v8.0, these methodologies will be revisited and updated.

16. Repair Material \$K per Person-Month:

Definition: A factor to determine the cost of material consumed for repair (i.e. material cost is a function of Repair Person-Months). For example if this field = 1.5 and there are 500 Person-Months of repair effort, the Repair Material cost will be \$750K.

Data Source: VAMOSC Detailed Ships Universe

Historical dataset methodology: This value was inflated from the FY05 Update using NCCA OPN from FY05-FY09. More information on the dataset values can be found in the FY2005 OSCAM Ship Historical Datasets Depot Maintenance Data Guide. With the release of the VAMOSC Depot Maintenance Universe and OSCAM v8.0, these methodologies will be revisited and updated.

17. Rate of O-Level Actions:

Definition: A factor which adjusts the occurrence of all types of O-Level maintenance actions (Unscheduled, Scheduled, and Alteration) DURING this overhaul (e.g. 0.7 means 30% reduction during this overhaul).

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 1.00.

18. Rate of I-Level (Afloat) Actions:

Definition: A factor which adjusts the occurrence of all types of I-Level (Afloat) maintenance actions (Unscheduled, Scheduled, and Alteration) DURING this overhaul (e.g. 0.7 means a 30% reduction during this overhaul).

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 1.00.

19. Rate of I-Level (Ashore) Actions:

Definition: A factor which adjusts the occurrence of all types of I-Level (Ashore) maintenance actions (Unscheduled, Scheduled, and Alteration) DURING this overhaul (e.g. 0.7 means a 30% reduction during this overhaul).

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 1.00.

20. During Overhaul Enlisted Crew Factor:

Definition: A factor that reduces (from the CURRENT crew numbers) the number of enlisted people on the ship DURING each type of overhaul. For example, a factor of 0.7 would reduce the number of enlisted people by 70%.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 0.

21. Post Overhaul Enlisted Crew Factor:

Definition: A factor that reduces (from the INITIAL crew numbers) the number of enlisted people AFTER an overhaul (to represent lean manning). For example, a factor of 0.7 would reduce the number of enlisted people by 70%.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 0.

22. During Overhaul Officer Crew Factor:

Definition: A factor that reduces (from the CURRENT crew numbers) the number of officer on the ship DURING each type of overhaul. For example, a factor of 0.7 would reduce the number of officers by 70%.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 0.

23. Post Overhaul Officer Crew Factor:

Definition: A factor that reduces (from the INITIAL crew numbers) the number of officers on the ship AFTER an overhaul (to represent lean manning). For example, a factor of 0.7 would reduce the number of officers by 70%.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 0.

#### 24. Age Reduction:

Definition: The effective reduction in ship age (in months) due to each overhaul type. This assumes that after an overhaul a ship can be considered younger in nature than its actual age. E.g. if this field equals 60 and a ship has an overhaul at 10 years, the ship will have an effective age of 5 years after the overhaul. This field does NOT extend the ship's service life.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 0.

#### 25. O-Level Maintainer Efficiency Factor:

Definition: A factor applied during an overhaul type which modifies the number of person-months per month per maintainer while undergoing overhaul. For example, if this factor = 2, then the O-Level Maintainers will be able to perform twice as much maintenance while the ship is in overhaul than when it is operating.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 1.00.

## Unscheduled Repair Sector

There are two types of Unscheduled Repairs. Type A Repairs are considered Restricted Availabilities (RAVs), which render the ship unable to perform its mission. Type B Repairs are Technical Availabilities (TAVs), during which the ship's ability to fully perform its mission is not affected.

### ***Type A Repairs***

#### 26. Type A Unscheduled Repairs:

Definition: The average number of Type A unscheduled shipyard repairs per ship per year.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a value of 1.00.

#### 27. Repair Cost (\$K):

Definition: The average cost per Type A unscheduled shipyard repair.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{[\# \text{ of type A repairs/year} \times \text{VAMOSC Element 3.2.1 Maint - Nonsch - Depot RAV}]}{\text{VAMOSC Element A.0 Number of Ships}}$$

28. Type A Repair Duration :

Definition: The average duration of Type A unscheduled shipyard repairs.

Data Source: N/A

Historical dataset methodology: This input is not populated in the historical datasets.

Note: A value of zero means that the ship experiences no downtime due to the unscheduled repair.

### **Type B Repairs**

29. Type B Unscheduled Repairs:

Definition: The average number of Type B unscheduled shipyard repairs per ship per year.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a value of 1.00.

30. Repair Cost (\$K):

Definition: The average cost per Type B unscheduled shipyard repairs per ship per year.

Data Source: VAMOSC Ships Universe

Historical dataset methodology: For each ship class, the following formula is used for the available years of VAMOSC data.

$$\frac{[\# \text{ of type B repairs/year} \times \text{VAMOSC Ships 3.2.2 Maint - Nonsch - Depot TAV}]}{\text{VAMOSC Element A.0 Number of Ships}}$$

31. Type B Repair Duration:

Definition: The average duration of Type B unscheduled shipyard repair.

Data Source: N/A

Historical dataset methodology: This input is not populated in the historical datasets.

Note: A value of zero indicated that the ship experiences no downtime due to the unscheduled repair.

## Operating Profile Sector

### Ship Life

32. Ship Life:

Definition: The expected life of the ship in years.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 35 years.

Exceptions to this assumption are listed in the table below, which are set to match the Ship Life found in the OPNAV 4700.

**Table 1.3 Ship Life Exceptions**

Ship	Life (yrs.)
AVT-16	45
AVT-59	45
CV-41	45
CV-59	45
CV-63	45
CV-67	45
CVN-65	51.25
CVN-68	51.25
SSBN-726	42.25
SSGN-726	18
SSN-21	24.17
SSN-688	32.42
SSN-688CL1	22
SSN-688CL2	32.42
SSN-688CL3	32.42
SSN774	30.83

### Overhaul Profiles

Inputs 33-36 exist as right click functionality when on the overhaul profile sector. These attributes are set individually for each availability placed on the table.

33. Overhaul Type:

Definition: The type of overhaul to be performed.

Data Source: OPNAV4700

Historical dataset methodology: #1-9 are used to describe type of availability which correspond to descriptions found in the OPNAV 4700.

34. Overhaul Start Time:

Definition: The planned time scheduled for the overhaul defined as months after fleet introduction.

Data Source: OPNAV4700

Historical dataset methodology: Maintenance profiles and schedules are outlined in OPNAV4700 and vary between ships.

35. CPM Factor:

Definition: This is a factor which modifies the base CPM cost for a corresponding overhaul.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 1.00.

36. Repair Factor:

Definition: This is a factor which modifies the base Material Repair cost for that overhaul.

Data Source: Assumption

Historical dataset methodology: Historical datasets assume a default value of 1.00.

## OSCAM Ships Acronym List

Term	Air	Navy	Definition
*.CER		Y	OSCAM Cost Estimating Relationships (PCT generated) file
*.CHR		Y	OSCAM Characteristics file
*.CSV	Y	Y	Comma Separated Values file
*.DTF	Y	Y	Data Transfer Format file
*.HIS	Y	Y	OSCAM Historical Database file
*.SEC		Y	OSCAM Secondary / Detailed Database file
*.USE	Y	Y	OSCAM User Database file
*.WBD	Y		OSCAM Detailed Work Breakdown Structure file
*.WBS	Y		OSCAM Simplified Work Breakdown Structure file
*.WNA	Y		OSCAM Workspace file
*.WSH		Y	OSCAM Ship Workspace file
*.WSY		Y	OSCAM Sys Workspace file
3M		Y	OARS Ships' 3-M System – Maintenance and Material Management
A/C	Y		Aircraft
AAAV	Y	Y	Advanced Amphibious Assault Vehicle
AAV	Y	Y	Amphibious Assault Vehicle
AE	Y	Y	Ammunition Ship Class
AE/TAE	Y		Ammunition Ship Class
AFS	Y	Y	Combat Store Ship Class
AIMD	Y		Aircraft Intermediate Maintenance Department
AIRRS	Y		Aircraft Inventory & Readiness Reporting System
AMAF	Y		Type Equipment Code (TEC) for F/A-18C
AOA	Y	Y	Analysis of Alternatives
AOE	Y	Y	Fast Combat Support Ship Class
APU	Y		Auxiliary Power Unit
ASN	Y	Y	Assistant Secretary of the Navy
ATMSR	Y		Aircraft Type Model Series Report (database)
AV-3M	Y		Aviation Maintenance, Material, Management
AVDLR	Y		Aviation Depot Level Repair
BAH	Y		Basic Allowance for Housing
Balancing Loop	Y	Y	Loop in an SD ID with an odd number of –ve links
BAS	Y		Basic Allowance for Subsistence
BCM	Y		Beyond Capability of Maintenance
BOS	Y		Base Operations Support
BUNO	Y		Bureau Number
BUPERS	Y		Bureau of Naval Personnel
C-17	Y	Y	Cargo aircraft
C4I	Y	Y	Command & Control, Communications, Computers and Intelligence
CAGE	Y		Commercial And Government Entity

<b>Term</b>	<b>Air</b>	<b>Navy</b>	<b>Definition</b>
CAIG	Y	Y	Cost Analysis Improvement Group
Cats/Traps	Y		Catapults/Landings with Arresting Gear
CBD	Y	Y	Commerce Business Daily
CERs	Y	Y	Cost Estimating Relationships
CES		Y	Cost Element Structure
CETS	Y		Contractor Engineering Technical Services
CIO	Y	Y	Chief Information Officer
CL		Y	Class
CLS	Y		Contractor Logistic Support
CM		Y	Continuous Maintenance
CNA	Y		Center for Naval Analyses
CNET	Y		Chief of Naval Education and Training
CNO	Y	Y	Chief of Naval Operations
COG	Y		Cognizant Code
COH		Y	Complex Overhaul
COMET	Y	Y	Cost of Manpower Estimating Tool
CONUS		Y	Continental United States (?)
COSAL		Y	Coordinated Shipboard Allowance List
CPM		Y	Centrally Provided Material
CY	Y		Calendar Year
DASN	Y	Y	Deputy Assistant Secretary of the Navy
DAU	Y	Y	Defense Acquisition University
DBs	Y	Y	Databases
DCM		Y	Drydock Continuous Maintenance
DD(X)	Y		Multi-Mission Surface Combatant
Delphi	Y	Y	Programming Language
DEMA		Y	Docking Extended Maintenance Availability
DFAS	Y		Defense Finance and Accounting Service
DLIS	Y		Defense Logistics Information Service
DMDC	Y		Defense Manpower Data Center
DMISA	Y		Depot Maintenance Inter-service Support Agreement
DMP		Y	Depot Modernization Period
DMT	Y	Y	Data Management Tool
DoD	Y	Y	Department of Defense
DON	Y	Y	Department of the Navy
DPIA		Y	Docking Planned Incremental Availability
DPMA		Y	Docking Planned Maintenance Availability
DRPM	Y	Y	Direct Reporting Program Manager
DSRA		Y	Dry-Dock Selected Restricted Availabilities
E5	Y		Enlisted personnel – Petty Officer Second Class (Navy)
ECP		Y	Engineering change proposals
EDSRA		Y	Extended Drydocking Selected Restricted Availability
EFV	Y	Y	Expeditionary Fighting Vehicle
EIC		Y	Equipment Identification Code
Eng	Y		Engine

<b>Term</b>	<b>Air</b>	<b>Navy</b>	<b>Definition</b>
EOC		Y	Engineered Operating Cycle
EOH		Y	Engineered Overhaul
ERO		Y	Engineered Refueling Overhaul
ERP		Y	Extended Relief Period
ESRA		Y	Extended Selected Restricted Availability
ESWBS		Y	Expanded Ship Work Breakdown Structure
ETS		Y	Engineering and Technical Services
F-22	Y	Y	US Air Force Fighter Aircraft (F-22 Raptor program)
FAQs	Y	Y	Frequently Asked Questions
FASH	Y	Y	Future Amphibious Support Helicopter
FHP	Y		Flying Hour Program
FICA	Y		Federal Insurance Contributions Act
FLD		Y	Full Load Displacement
FM&C	Y	Y	Financial Management and Comptroller
FMB	Y	Y	Financial Management Budget (Navy Office of Budget)
FMP		Y	Fleet Modernization Program
FRS	Y		Fleet Readiness Squadron
Ft		Y	Feet
FTE	Y		Full-Time Equivalent
FY	Y	Y	Fiscal Year
HQMC	Y		Headquarters Marine Corps
Hrs	Y	Y	Hours
HVR-CSL	Y	Y	HVR Consulting Services Ltd
IBM	Y	Y	IBM Business Consulting Services
ID	Y	Y	Identifier
ID	Y	Y	Influence Diagram
IDD		Y	Interim Dry-docking
IDSRA		Y	Incremental Docking Selected Restricted Availability
IFT		Y	In Fleet Time
I-Level	Y	Y	Intermediate Level
IMP		Y	Incremental Maintenance Program
INAC		Y	Inactivation Availability
IOC		Y	Initial Operating Capability
IPT	Y	Y	Integrated Product Team
IRR		Y	Combined Inactivation, Reactor Compartment Disposal and Hull Recycling Availability
ISD		Y	In Service Date
ISEA		Y	In Service Engineering Agent
ISRA		Y	Incremental Selected Restricted Availability
IT	Y		Information Technology
IV&V	Y	Y	Independent Verification and Validation
JCN Org	Y		Job Control Number
JP-5	Y		Jet Fuel
JSF	Y		Joint Strike Fighter
LANT & PAC		Y	Atlantic Fleet and Pacific Fleet
LCCE	Y	Y	Life Cycle Cost Estimate

<b>Term</b>	<b>Air</b>	<b>Navy</b>	<b>Definition</b>
LMDSS	Y		Logistics Management Decision Support System
LSD		Y	Light Ship Displacement
M	Y	Y	Meters
M1A1	Y	Y	Abrams tank
MALS	Y		Marine Aviation Logistics Squadron
MALS AUG	Y		Marine Aviation Logistics Squadron Augment
MARCORSSYSCOM	Y	Y	Marine Corps Systems Command
MAVD		Y	Materially Available Vessel Days
Max		Y	Maximum
MCC	Y		Monitor command code
MIHA	Y		Moving-In Housing Allowance
Min		Y	Minimum
MMP		Y	Major Maintenance Period
MOD	Y	Y	Ministry of Defence, UK
MOTU		Y	Mobile Technical Unit
MPH	Y	Y	Miles Per Hour
MPN	Y		Military Personnel Navy Appropriation
MSC	Y		Military Sealift Command (database)
MTBR	Y		Mean Time Between Removals
N/A		Y	Not Applicable
NADEP		Y	Naval Aviation Depot
NALC		Y	Naval Ammunition Logistic Code
NAMSR	Y		Naval Aviation Maintenance Subsystem Reporting (database)
NAMSR PLUS	Y		Naval Aviation Maintenance Subsystem Reporting – Expanded (database)
NAPRA	Y		Naval Air Pacific Repair Activity
NATEC	Y		Naval Air Technical Data & Engineering Service Command
NAVAIR	Y	Y	Naval Air Systems Command
NAVICP	Y		Naval Inventory Control Point
NAVSEA	Y	Y	Naval Sea Systems Command
NAVSUP	Y		Naval Supply Systems Command
NAWC-TSD	Y		Naval Air Warfare Center Training Systems Division
NCAD	Y	Y	Naval Cost Analysis Division
NCCA	Y	Y	Naval Center for Cost Analysis
NEC	Y	Y	Navy Enlisted Code
Negative (-ve) Link	Y	Y	SD ID link where an increase/decrease in the influencing variable leads to a change in the opposite direction in the influenced variable
Negative Loop	Y	Y	Loop in an SD ID with an odd number of negative (-ve) links
NETS	Y		Naval Engineering Technical Services
NFO	Y		Naval Flight Officer
NIIN	Y		National Item Identification Number
NMCI	Y		Navy / Marine Corps Intranet
NODES	Y	Y	Navy Obligation Data Extraction System
NOLSC	Y		Naval Operational Logistics Support Center
NPRE	Y		Non-Program Related Engineering
NSWCCD	Y		Naval Surface Warfare Center, Carderock Division

<b>Term</b>	<b>Air</b>	<b>Navy</b>	<b>Definition</b>
NU		Y	Not Underway
O&S	Y	Y	Operating and Support
O3	Y		US Navy Lieutenant
OHA	Y		Overseas Housing Allowance
O-Level	Y	Y	Organizational Level
OMN	Y		Operation and Maintenance Navy Appropriation
OPNAV	Y		Operations Navy
OPTEMPO	Y	Y	Operations Tempo
OSCAM	Y	Y	Operating and Support Cost Analysis Model
OSD	Y	Y	Office of the Secretary of Defense
OSD(C)	Y		Office of the Secretary of Defense Comptroller
PA&E	Y	Y	Program Analysis and Evaluation
PCS	Y	Y	Permanent Change of Station
PCT		Y	Parametric Costing Tool
PDM	Y		Program Depot Maintenance
PEBD	Y		Pay Entry Base Date
PEMA		Y	Pierside Extended Maintenance Availability
PEO IWS 3	Y		Program Executive Office for Integrated Warfare Systems
PIA		Y	Planned Incremental Availability
PIRA		Y	Pre-Inactivation Restricted Availability
PLCCE	Y	Y	Program Life Cycle Cost Estimate
PM	Y		Program Manager
PM		Y	Planned Maintenance
PMA	Y		Program Manager Aviation (NAVAIR PMA-271)
PMA		Y	Planned Maintenance Availability
POCs	Y	Y	Points of Contact
POL		Y	Petroleum, Oils and Lubricants
POM	Y	Y	Program Objective Memorandum
Positive (+ve) Link	Y	Y	SD ID link where an increase/decrease in the influencing variable leads to a change in the same direction in the influenced
Positive Loop	Y	Y	Loop in an SD ID with an even number of negative (-ve) links
Powersim	Y	Y	System Dynamics Software
PRE	Y		Program Related Engineering
PRL	Y		Program Related Logistics
PROG		Y	Progressive Maintenance
PSA		Y	Post Shakedown Availability
PwC		Y	PricewaterhouseCoopers
R&D		Y	Research and Development
RAM	Y		Rolling Airframe Missile
RAND	Y		A nonprofit research and analysis institution
RAV		Y	Restricted Availability Depot Level Repair
RCM		Y	Reliability Centered Maintenance
RCOH		Y	Refueling Complex Overhaul
RD&A	Y	Y	Research, Development and Acquisition
Reinforcing Loop	Y	Y	Loop in an SD ID with an even number of negative (-ve) links
RFP	Y	Y	Request For Proposal

<b>Term</b>	<b>Air</b>	<b>Navy</b>	<b>Definition</b>
ROH		Y	Regular Overhauls
ROH		Y	Regular Overhaul
RPM	Y		Real Property Maintenance
R-TOC	Y	Y	Reduced-Total Ownership Cost
RUC	Y		Reporting Unit Code
S/W		Y	Software
SCO		Y	Service Craft Overhaul
SD	Y	Y	System Dynamics
SEAOPDET	Y		Sea Operational Detachment
SECNAV	Y		Secretary of the Navy
SER	Y		Serial Number
SHU		Y	Steaming Hours Underway
SIMAs		Y	Shore Intermediate Maintenance Activities
SPAWAR	Y	Y	Space and Naval Warfare Systems Command
SPO	Y	Y	System Program Office
SRA	Y		Shop Replaceable Assemblies
SRA		Y	Selected Restricted Availability
SW	Y	Y	Software
Sys		Y	Shipboard Systems
TAD	Y	Y	Temporary Additional Duty
T-ADC(X)	Y	Y	Auxiliary Dry Cargo Carrier
TAFS	Y		Combat Store Ship Class
T-AKE	Y	Y	Advanced Auxiliary Dry Cargo Ship
TAV		Y	Technical Availability Depot Level Repair
TD	Y		Technical Directive
TDY	Y		Temporary Duty
TESS		Y	Tactical Environmental Support System
TMS	Y		Type Model Series
TOC	Y	Y	Total Ownership Cost
UIC	Y	Y	Unit Identification Code
USAF	Y	Y	United States Air Force
USMC	Y	Y	United States Marine Corps
V	Y	Y	Version
V&V	Y	Y	Validation and Verification
VAMOSOC	Y	Y	Visibility and Management of Operating and Support Costs (database)
Ver	Y	Y	Version
VHA	Y		Variable Housing Allowance
Vs.		Y	Versus
WBS	Y	Y	Work Breakdown Structure
WRA	Y		Weapons Replaceable Assemblies
WUC	Y		Work Unit Code
Yr		Y	Year