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MIL-DTL-24784C IM/IP DTD Set V2.2
SNIPP Tagging and Authoring Guidelines
for Technical Manuals

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1. Introduction

The purpose of the MIL-DTL-24784C IM/IP DTD Set V2.2 SNIPP (Standard NAVSEA Integrated Publishing Process) Tagging and Authoring Guidelines is to provide guidance to technical manual authors on how to tag and author data for MIL-DTL-24784C DTD compliant technical manuals. Appendix A is the MIL-DTL-24784C IM/IP DTD Set V2.2 SNIPP Tagging Guidelines, and Appendix B is the MIL-DTL-24784C IM/IP DTD Set V2.2 SNIPP Authoring Guidelines for Page-Based (Linear) Technical Manuals.

1.1. Standard NAVSEA Information Publishing Process (SNIPP)

NAVSEAINST 4160.3B (the NAVSEA Technical Manual Management Program) states: "A conforming process known as the Standard NAVSEA Integrated Publishing Process (SNIPP) under the cognizance of NAVSEA 04L shall be used for the acquisition, development, maintenance, data storage, and distribution of NAVSEA TM source data and presentation files. NAVSEA TMs shall be acquired, developed, and distributed through this process with the current components consisting of: Technical Data Management Information System (TDMIS), Streamlined Modular Acquisition Requirements Tailoring Tool (SMART-T), Naval Engineering Technical Library (NETL), Data Content Management System and NAVSEA Publishing Application (CMS/NPA), Technical Data Knowledge Management (TDKM), and Advanced Technical Information Support System (ATIS)." Using SNIPP assures proper integration of TM life cycle development and distribution within the Navy infrastructure. SNIPP includes the Common Source Database software necessary to support MIL-DTL-24784C acquisition, authoring, development, and management, as well as, the publishing software to produce technical manuals.

1.2. MIL-DTL-24784C

MIL-DTL-24784C establishes the general acquisition and development requirements needed to prepare digital technical information for multi-output presentation of NAVSEA technical manuals. The technical content and style and format requirements can be used to develop and assemble complete TMs for ships, shipboard systems, and equipment. The requirements apply to the output of paper technical manuals or to the display of page-oriented linear and non-linear Interactive Electronic Technical Manuals (IETMs) on an Electronic Display System (EDS). Technical manuals developed in accordance with this specification are intended for use in the installation, operation, maintenance, repair, personnel training and logistics support of weapon systems and equipment or for accomplishment of assigned missions.[1]

The specification introduces the concept of information modules (IMs) and information packages (IPs) as a way to define and build TM content. A MIL-DTL-24784C information package is a collection of data required for a certain function, such as, troubleshooting, or operator's instructions. The information package consists of a title, set-up information (when required), supporting information, and technical content as required in MIL-DTL-24784C. The technical content may be further subdivided into paragraphs, tasks, and subtasks (procedures). Information modules, in MIL-DTL-24784C, are "organizational containers" into which the technical content information packages are grouped.

TM Authors must refer to the applicable Technical Manual Contract Requirement (TMCR) (or Technical Manual SEATASK Requirement)) for the specific requirements for the TM being developed. The TMCR/TMSR reflects tailored requirements that are based on requirements within MIL-DTL-24784C (the actual specification itself).

The SNIPP-approved MIL-DTL-24784C IM/IP DTD Set V2.2, its associated entity files, data dictionary, and tagging guidelines may be obtained from the Navy XML/SGML Repository at http://navycals.dt.navy.mil/xml-sgm-rep.

[1] MIL-DTL-24784C, Paragraphs 1.1 and 6.1.

2. Conventions Used in this Document

- XML non-empty element names within the text are in bold type and between < and > characters (e.g., **<para>**).
- XML empty element names within the text are in bold type between the < and /> delimiters (e.g., **<no/>**) in accordance with the W3C XML Recommendation.
- Element attribute names within the text are italicized and enclosed between single quotes (e.g., *'security'*).
- Values for attributes within the text are enclosed between double quotes (e.g., security="s").
- Entity names within the text are in bold type and are preceded by a percent symbol and followed by a semicolon (e.g., **%pctext;**).
- Tagging examples are indented and are in bold type.

3. Assistance

If you require immediate assistance or need additional guidance regarding working within the Content Management System/NAVSEA Publishing Application (CMS/NPA) (Contenta), or you require guidance or help with Document type Definitions (DTDs), or assistance using this guide, please submit a Customer Service Request (CSR) from the NSDSA website at https://nsdsa.nmci.navy.mil." From the NSDSA website homepage, click on the button labeled **Click here to submit a Customer Service Request (CSR)**, then from the CSR **Main Menu**, click on **TM MANAGEMENT**, then under the category **SNIPP TM DEVELOPMENT**, click on the CSR titled **CMS/NPA (Contenta) Customer Service**.

4. Feedback Reporting

Errors found, comments, or recommendations to improve this guide should be reported on a Technical Manual Deficiency/Evaluation Report (TMDER). Feedback comments will be thoroughly investigated and originators will be advised of action resulting there from.

There are three ways to submit a TMDER. The most expedient and preferred method of TMDER generation and submission is via the Technical Data Management Information System (TDMIS) website (https://mercury.tdmis.navy.mil) (TDMIS account required). TMDERs can also be generated and submitted via the NSDSA website (https://nsdsa.nmci.navy.mil).

When internet access is not available, a TMDER can be submitted via hardcopy to:

COMMANDER
CODE 310 TMDERs
NAVSURFWARCENDIV NSDSA
4363 MISSILE WAY, BLDG 1388
PORT HUENEME, CA 93043-4307

A copy of the NAVSEA/SPAWAR Technical Manual Deficiency/Evaluation Report form, NAVSEA 4160/1 is included at the end of this document.

Appendix A
MIL-DTL-24784C IM/IP DTD Set V2.2 SNIPP Tagging Guidelines for Technical Manuals

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A.1. Scope

This document provides guidance in tagging basic constructs defined in the MIL-DTL-24784C XML DTD Set and specified in the applicable Technical Manual Contract Requirement (TMCR) or Technical Manual SEATASK Requirement (TMSR). The TMCR/TMSR requirements are based on tailored requirements originating in the Detail Specification MIL-DTL-24784C. These guidelines are applicable to the Version 2.2 DTD Set, dated March 4, 2011 and apply to the development of page-based (linear) TMs as well as frame-based (non-linear) Interactive Electronic TMs (IETMs). Unless otherwise specified in these tagging guidelines, the term "IETM" is used to denote both page and frame based TMs. Users are cautioned that they must review and meet all specified requirement documents cited in the TMCR/TMSR. These Tagging Guidelines are in no way a substitute for the TMCR/TMSR. In addition, these guidelines assume the user has a working knowledge of tagging XML data.

A.2. General

Throughout these guidelines, the term "IETM Product" refers to a tagged file (XML instance) that conforms to MIL-DTL-24784C DTD (IETMProduct.dtd). The IETM Product DTD is essentially an assembly DTD of an IETM's Front Matter and Functional IMs that, with the exception of the Combat System Technical Operation Manual (CSTOM) Modules, are organized in a system/subsystem/equipment/unit hierarchy. The CSTOM is organized as a collection of IMs. An IETM Product may be anything from a complete set of technical manuals for complete weapon system down to a stand-alone manual for a piece of equipment.
Unless otherwise specified, in these tagging guidelines, the term "system" is used to denote a product that the IETM supports and does not indicate a level of equipment breakdown.
NOTE: Where sample markup is provided in these guidelines, indents and line breaks serve no purpose other than illustrating various data relationships (such as nesting levels). Such indents may not be evident in an actual authoring session.

A.3. <IETMProduct>

The MIL-DTL-24784C DTD Set is a collection of DTDs including Front Matter, IMs, and Systems. The root element of an IETM Product, **<IETMProduct>**, is implemented in terms of external entities to allow for modular presentation and potential data reuse. The IMs created as entities are collections of one or more Information Packages (IPs). Authors will typically develop and maintain an IETM Product at the IP level. The IP elements and elements within IPs are defined so that information is marked-up based on the content's description, purpose, or function (e.g., **<DetailedPart>**, **<Disassembly>**, and **<Dimensions>**). In XML the use of external general entities allows markup and text to be modularized through subdivision and referenced at the appropriate place in the assembled instance. Accordingly, no instruction on the use of such entities will be discussed here. The entities should be broken down to the IM level (e.g., **&FrontMatter**; **&GeneralIM-Compressor**; **&SupportingIM-Compressor**; **&DescriptiveIM-Compressor**; and **&HMEEquipFunctionalDescIM-Compressor**). The placement of order of the entities in the parent XML instance either **<IETMProduct>** or one of the IMs is significant and the resulting order of elements derived from the expanded entities must match the order as specified in the MIL-DTL-24784C XML DTD in order to parse. It should be noted that it is possible that the content management system is managing entities separately from the Authoring Tool in which case the tool within the content management system is probably auto-generating the entity file names for the author. The author needs to be aware of the available entities that such a tool has created so that the author can (point) use these entities within their source XML. This will require an initial connection to the CMS prior to authoring (to download the names of the entities) by the authoring tool.

A.3.1. MIL-DTL-24784C DTD Set

The MIL-DTL-24784C DTD Set consists of the DTDs listed in Table A-1. After the initial list, the DTDs are separated into categories of descriptive information, procedural information, illustrated parts breakdown, and combat system technical operations manual (CSTOM). These categories are derived from the entity files in which the elements are declared.

Table A - 1 MIL-DTL-24784C DTD Set

Element Name	DTD File Name	Module Name
<IETMProduct>	IETMProduct.dtd	IETM Product
<FrontMatter>	IETM Front Matter.dtd	IETM Front Matter
<GeneralIM>	GeneralIM.dtd	General IM
<SupportingIM>	SupportingIM.dtd	Supporting IM
<system>	System.dtd	System
Descriptive Information		
<DescriptiveIM>	DescriptiveIM.dtd	Descriptive IM
<HMESysFunctionalDescIM>	HMESysFunctionalDesc IM.dtd	HM&E systems functional description IM
<HMEEquipFunctionalDescIM>	HMEEquipFunctionalDesc IM.dtd	HM&E equipment functional description IM
<WeaponSysFunctionalDescIM>	WeaponSysFunctionalDesc IM.dtd	Weapon systems functional description IM
<WeaponEquipFunctionalDescIM>	WeaponEquipFunctional DescIM.dtd	Weapons equipment functional description IM
<ElectronicSysFunctionalDescIM>	ElectronicSysFunctional DescIM.dtd	Electronic systems functional description IM
<ElectronicEquipFunctionalDescIM>	ElectronicEquipFunctional DescIM.dtd	Electronic equipment functional description IM
Procedural Information		
<OperationIM>	OperationIM.dtd	Operational IM
<MaintenanceIM>	MaintenanceIM.dtd	Maintenance IM
<SystemEquipInstallationIM>	SystemEquipInstallation.dtd	System/ Equipment Installation IM
<IllustratedPartsBreakdownIM>	IllustratedPartsBreakdown IM.dtd	Parts IM
Troubleshooting Information		
<OperationalCheckoutTroubleshootingIM>	OperationalCheckout TroubleshootingIM.dtd	Operational Checkout Troubleshooting IM
Parts Information		
<PartsInformationDataBase>	PartsInformationDataBase.dtd	Parts Information DataBase
CSTOM Information		
<CSTOMIntroductionIM>	CSTOMIntroductionIM.dtd	Combat system introduction and description IM
<CombatSystemDescriptionIM>	CombatSystemDescription IM.dtd	Combat system description IM
<CSTOMOperationIM>	CSTOMOperationIM.dtd	Combat system operational description IM
<CSTOMSystemReadinessIM>	CSTOMSystemReadiness IM.dtd	Combat system readiness assessment IM
<FaultDetectionIM>	FaultDetectionIM.dtd	Fault detection and impact evaluation IM
<FaultIsolationIM>	FaultIsolationIM.dtd	Fault isolation IM

A.3.2. <IETMProduct> Attributes

A.3.2.1. 'docstat'

The *'docstat'* attribute is used to set the status of the manual. The permitted values and corresponding auto-generated text are "reviewdraft" which outputs REVIEW DRAFT COPY, "draft" which outputs DRAFT, "finaldraft" which outputs FINAL DRAFT, and "prelim" which outputs PRELIMINARY. The default value is "prelim". The *'docstat'* attribute has three additional values ("revision", "change", and "formal") which are not permitted in SNIPP manuals.

A.3.2.2. 'security'

The *'security'* attribute is used to indicate the security of the overall manual. The permitted values are "s" for secret, "c" for confidential, and "u" for unclassified. The default value for *'security'* is "u".

A.3.2.3. 'caveat'

The *'caveat'* attribute is used to select the handling instructions for the manual. The permitted values and corresponding output are "none" which is used when there are no handling instructions and "NOFORN" which outputs NOFORN. The value "FOUO" is not permitted in NAVSEA technical manuals. The default value for *'caveat'* is "none". There is also an "otherHandling" value for *'caveat'* that allows the author to set a value for the "otherHandling". The following is an example of using "otherHandling":
caveat="otherHandling" otherHandling="EYES ONLY"

A.4. Information Modules

The IM elements serve as containers of IPs. IMs are children of the **<IETMProduct>** element and are nested within the **<system>/<SubSystems>** construct. Information types covered by IMs include front matter, general information, supporting information, descriptive information, procedural information, illustrated parts breakdown, and combat system technical operations manual (CSTOM). Tables A-2 through A-11 provide the content models for each information type.

Table A - 2 <FrontMatter> Content Model

Name	Type	Required Status	Number	Comments
<TitlePage>	Element	Required	Only One	
<ListOfEffectiveIPs>	Element	Optional	Only One	Could be autogenerated by publisher.
<RevisionSummaryInfo>	Element	Optional	Only One	
<HowToUseEtm>	Element	Optional	Only One	
<ConfigurationIDList>	Element	Optional	Only One	
<AlphaIndexIP>	Element	Optional	Only One	Contains **<AutoGenerate>** element. See B.5.5.2 for more information.
<PartNoIndexIP>	Element	Optional	Only One	Contains **<AutoGenerate>** element. See B.5.5.3 for more information.
<RefDesIndexIP>	Element	Optional	Only One	Contains **<AutoGenerate>** element. See B.5.5.4 for more information.

Table A - 3 <GeneralIM> Content Model

Name	Type	Required Status	Number	Comments
<GeneralIntroIP>	Element	Required	Only One	
<ModelDiffIP>	Element	Optional	Only One	

Table A - 4 <SupportingIM> Content Model

Name	Type	Required Status	Number	Comments
<SafetyPrecautionIP>	Element	Required	Only One	
<RefPubIP>	Element	Optional	Only One	Contains **<AutoGenerate>** element. See B.5.2.5 for more information. **<AutoGenerate>** is only supported for page-based TMs in RefPubIP.
<SttelP>	Element	Optional	Only One	Contains **<AutoGenerate>** element. See B.5.2.7 for more information.
<MatReqIP>	Element	Optional	Only One	Contains **<AutoGenerate>** element. See B.5.2.3 for more information.
<EquipModIP>	Element	Optional	Only One	**<AutoGenerate>** is NOT supported for page- or framed-based.
<EquipDocSupplP>	Element	Optional	Only One	
<EquipDocNotSupplP>	Element	Optional	Only One	

Table A - 5 '%IETMDataCollection;' Replacement Text

Name	Type	Required Status	Number	Comments
%DescriptiveInformation;	Entity	Optional	Only One	See Table A-6.
%ProceduralInformation;	Entity	Optional	Only One	See Table A-7.
%TroubleshootingInformation;	Entity	Optional	Only One	Contains the OperationalCheckoutTroubleshooting IM element which is required and may not be repeated.
%PartsInformation;	Entity	Optional	Only One	Contains the PartsInformationDatabase element which is required and may not be repeated.

Table A - 6 '%DescriptiveInformation;' Replacement Text

Name	DTD File Name	Required Status	Number	Comments
<DescriptiveIM>	DescriptiveIM.dtd	Optional	Only One	Descriptive IM
<HMESysFunctionalDescIM>	HMESysFunctionalDescIM.dtd	Optional	Only One	HM&E systems functional description IM
<HMEEquipFunctionalDescIM>	HMEEquipFunctionalDescIM.dtd	Optional	Only One	HM&E equipment functional description IM
<WeaponSysFunctionalDescIM>	WeaponSysFunctionalDescIM.dtd	Optional	Only One	Weapon systems functional description IM
<WeaponEquipFunctionalDescIM>	WeaponEquipFunctionalDescIM.dtd	Optional	Only One	Weapons equipment functional description IM
<ElectronicSysFunctionalDescIM>	ElectronicSysFunctionalDescIM.dtd	Optional	Only One	Electronic systems functional description IM
<ElectronicEquipFunctionalDescIM>	ElectronicEquipFunctionalDescIM.dtd	Optional	Only One	Electronic equipment functional description IM

Table A - 7 '%ProceduralInformation;' Replacement Text

Name	DTD File Name	Required Status	Number	Comments
<OperationIM>	OperationIM.dtd	Optional	Only One	Operational IM
<MaintenanceIM>	MaintenanceIM.dtd	Optional	Only One	Maintenance IM
<SystemEquipInstallationIM>	SystemEquipInstallation.dtd	Optional	Only One	System/ Equipment Installation IM
<IllustratedPartsBreakdownIM>	IllustratedPartsBreakdownIM.dtd	Optional	Only One	Parts IM

Table A - 8 '%TroubleshootingInformation;' Replacement Text

Name	DTD File Name	Required Status	Number	Comments
<OperationalCheckoutTroubleshootingIM>	OperationalCheckout TroubleshootingIM.dtd	Optional	Only One	Operational Checkout Troubleshooting IM

Table A - 9 '%PartsInformation;' Replacement Text

Name	DTD File Name	Required Status	Number	Comments
<PartsInformationDataBase>	PartsInformationDataBase.dtd	Optional	Only One	Parts Information DataBase

Table A - 10 <system> Content Model

Name	Type	Required Status	Number	Comments
<SystemIdentificationInformation>	Element	Required	Only One	
%IETMDataCollection	Entity	Required	Only One	See Table A-5 for details.
<SubSystems>	Element	Optional	Only One	

Table A - 11 '%CSTOMInformation;' Replacement Text

Name	DTD File Name	Required Status	Number	Comment
<CSTOMIntroductionIM>	CSTOMIntroductionIM.dtd	Required	Only One	Combat system introduction and description IM
<CombatSystemDescriptionIM>	CombatSystemDescriptionIM.dtd	Optional	Repeatable	Combat system description IM
<CSTOMOperationIM>	CSTOMOperationIM.dtd	Optional	Repeatable	Combat system operational description IM
<CSTOMSystemReadinessIM>	CSTOMSystemReadinessIM.dtd	Optional	Repeatable	Combat system readiness assessment IM
<FaultDetectionIM>	FaultDetectionIM.dtd	Optional	Repeatable	Fault detection and impact evaluation IM
<FaultIsolationIM>	FaultIsolationIM.dtd	Optional	Repeatable	Fault isolation IM

A.4.1. Information Module Attributes

The IM elements contain the common attributes: *'databaseident'*, *'sssn'*, *'skilltrk'*, *'deltype'*, *'inschlvl'*, *'delchlvl'*, *'status'*, *'revchg'*, *'chglvl'*, *'chgdate'*, *'security'*, *'id'*, and *'TrainingContent'*. The IM attribute *'ApplicableManual'* can take a value of "HMESystems", "HMEEquipment", "WeaponSystems", "WeaponsEquipment", "ElectronicSystem", or "ElectronicEquipment".

A.4.2. <system> (Organization by System/Subsystem Hierarchy)

The overall system covered by the **<IETMProduct>** is indicated in the Title Page's System Identification. After the General and Supporting IPs are included, all first level systems are specified using the **<system>** tag. If a first level system **<system>** contains subsystems, those subsystems are tagged as **<system>** elements wrapped in **<SubSystems>** elements that are contained in the content of the first level **<system>** element. The hierarchical order of the **<system>** elements indicates the relationships between the components, equipment, subsystems, and system. Although the DTD allows the **<system>** tag to be indefinitely nested; it is suggested that the hierarchical levels be limited to 4.

The following provides an example of how the **<system>** tag is used to organize systems/subsystems/ equipment/components. Suppose an **<IETMProduct>** is for a Weapon with serial numbers 1 through 100. The Weapon contains 3 systems. System 1 is effective for all Weapon serial numbers (1-100). System 2 has 2 Models: Model A is on Serial numbers 1-49 and Model B is on Serial Numbers 50-100. System 2 contains 3 subsystems: Subsystem 1 is for Model A only; Subsystem 2 is for Model A and Model B; Subsystem 3 is for Model B Only. This Subsystem 3 is further defined as having its own serial numbers: Serial Numbers 1-40 are effective for the Weapon's serial numbers 50-75; Serial Numbers 41-80 are effective for Weapon Serial Numbers 76-80; and Serial Numbers 81-90 are effective for Weapon Serial Numbers 81-100. The following outlines the Weapon:

Weapon (Serial Nos. 1-100)
System 1 (On Weapon Serial Nos. 1-100)
System 2 (Model "A" is on Weapon Serial Nos. 1-49)
(Model "B" is on Weapon Serial Nos. 50-100)
Subsystem 1 (For Model "A" Only is on Weapon Serial Nos. 1-49)
Subsystem 2 (For Models "A" and "B" is on Weapon Serial Nos. 1-100)
Subsystem 3 (For Model "B" Only is on Weapon Serial Nos. 50-100)
(Serial Number 1-40 is on Weapon Serial Nos. 50-75)
(Serial Number 41-80 is on Weapon Serial Nos. 76-80)
(Serial Number 81-90 is on Weapon Serial Nos. 81-100)
System 3 (On Weapon Serial Nos. 1-100)

In order to allow IETM navigation by systems and subsystems, the **<system>** element must be utilized after the IETM's front matter, General and Supporting IMs, and any IMs that are applicable to the Weapon. In order to allow an IETM Viewer to filter IMs based on effectivity, the **<Effectivity>** elements must be used to identify or refer to configurations. Below is sample markup that reflects the Weapon's system hierarchy and effectivities. There are no IMs included in this sample. Refer to A.5.1 for a description of how an IM's Title Block can inherit the system name from the **<system>** element.

```
<IETMProduct>
    <FrontMatter>
        <TitlePage>
            ...
            <TMTitle>
                ...
                <SystemNomenclature>
                    <name>Weapon</name>
                    ...
                    <Effectivity>
                        <ConfigurationID id="serial1-100">
```

```
                        <SerialNumberInfo>
                            <BoundedRange lowrange="1" highrange="100"/>
                        </SerialNumberInfo>
                    </ConfigurationID>
                </Effectivity>
            </SystemNomenclature>
        </TMTitle>
        ...
    </TitlePage>
    ...
</FrontMatter>

 <GeneralIM> ... </GeneralIM>
<SupportingIM> ... </SupportingIM>
...
<system>
    <SystemIdentificationInformation>
        <SystemNomenclature>
            <name>System 1</name>
            <Effectivity>
                <ConfigurationIDRef ConfigIDRef="serial1-100"/>
            </Effectivity>
        </SystemNomenclature>
    </SystemIdentificationInformation>
</system>

<system>
    <SystemIdentificationInformation>
        <SystemNomenclature>
            <name>System 2</name>
            <ModelDesInfo>
                <single number="A"/>
            </ModelDesInfo>
            <Effectivity>
                <ConfigurationID id="serial1-49">
                    <SerialNumberInfo>
                        <BoundedRange lowrange="1" highrange="49"/>
                    </SerialNumberInfo>
                </ConfigurationID>
            </Effectivity>

            <ModelDesInfo>
                <single number="B"/>
            </ModelDesInfo>
            <Effectivity>
                <ConfigurationID id="serial50-100">
                    <SerialNumberInfo>
                        <BoundedRange lowrange="50" highrange="100"/>
                    </SerialNumberInfo>
                </ConfigurationID>
            </Effectivity>
        </SystemNomenclature>
    </SystemIdentificationInformation>

    <SubSystems>
        <system>
```

```
    <SystemIdentificationInformation>
        <SystemNomenclature>
            <name>Subsystem 1</name>
            <Effectivity>
                <ConfigurationIDRef ConfigIDRef="serial1-49"/>
            </Effectivity>
        </SystemNomenclature>
    </SystemIdentificationInformation>
</system>

<system>
    <SystemIdentificationInformation>
        <SystemNomenclature>
            <name>Subsystem 2</name>
        </SystemNomenclature>
    </SystemIdentificationInformation>
</system>

<system>
    <SystemIdentificationInformation>
        <SystemNomenclature>
            <name>Subsystem 3</name>
            <SerialNumberInfo>
                <BoundedRange lowrange="1" highrange="40"/>
            </SerialNumberInfo>
            <Effectivity>
                <ConfigurationID id="serial50-75">
                    <SerialNumberInfo>
                        <BoundedRange lowrange="50" highrange="75"/>
                    </SerialNumberInfo>
                </ConfigurationID>
            </Effectivity>
            <SerialNumberInfo>
                <BoundedRange lowrange="41" highrange="80"/>
            </SerialNumberInfo>
            <Effectivity>
                <ConfigurationID id="serial76-80">
                    <SerialNumberInfo>
                        <BoundedRange lowrange="76" highrange="80"/>
                    </SerialNumberInfo>
                </ConfigurationID>
            </Effectivity>
            <SerialNumberInfo>
                <BoundedRange lowrange="81" highrange="90"/>
            </SerialNumberInfo>
            <Effectivity>
                <ConfigurationID id="serial81-100">
                    <SerialNumberInfo>
                        <BoundedRange lowrange="81" highrange="100"/>
                    </SerialNumberInfo>
                </ConfigurationID>
            </Effectivity>
        </SystemNomenclature>
    </SystemIdentificationInformation>
</system>
```

```
        </SubSystems>

    </system>

    <system>
        <SystemIdentificationInformation>
            <SystemNomenclature>
                <name>System 3</name>
                <Effectivity>
                    <ConfigurationIDRef ConfigIDRef="serial1-100"/>
                </Effectivity>
            </SystemNomenclature>
        </SystemIdentificationInformation>
    </system>

</IETMProduct>
```

A.4.3. <Effectivity> and <ConfigurationID>

The MIL-DTL-24784C DTD provides a means of creating many different publications from the same data collection through the use of configuration control and effectivity. The element **<Effectivity>** is used for filtering data based on effectivity or applicability. **<Effectivity>** may point to a configuration identified in the **<ConfigurationIDList>** of the IETM Product using the element **<ConfigurationIDRef>**, or may be entered directly using the element **<ConfigurationID>**. The element **<ConfigurationID>** identifies a single configuration as part of the Configuration Identification List. The element **<ConfigurationIDRef>** links effectivity data to an entry in the Configuration ID List **<ConfigurationIDList>**.

A.4.3.1. <Effectivity>

The element **<Effectivity>** is used to either create an effectivity configuration that may be referenced by different IPs, or individual tasks, steps, etc; or to reference an already established effectivity configuration. An effectivity that is being created by the IETM Product or IM identifies the effective Ship Class, Ship Hull, Model Designation, Type Designation, Serial Number, Part Number, Ship Alteration, or Other Configuration using the Configuration Identification element **<ConfigurationID>**. An Effectivity that is being referenced by an IM uses the Configuration Identification Reference element **<ConfigurationIDRef>** which points to an established **<ConfigurationID>**. For elements below the IM level, effectivity configurations are referenced using the *'ConfigIDRef'* attribute.

A.4.3.2. <ConfigurationID>

The element **<ConfigurationID>** identifies a single configuration as part of the Configuration Identification List. The configurations can be identified through the elements **<ShipClass>**, **<ShipHull>**, **<ModelDesInfo>**, **<TypeDesInfo>**, **<SerialNumberInfo>**, **< PartNumberInfo>**, **<ShipAlt>**, **<FieldChange>**, **<Variant>**, or **<OtherConfig>.**
The MIL-DTL-24784C DTD provides a means of creating many different publications from the same data collection through the use of configuration control. For example, three publications share the same **<FuncEleDescIP>,** but Publication One needs an additional **<TitledPara>** that the other two cannot have. Configuration filtering can be accomplished by the doing the following:

1. Create a **<ConfigurationIDList>** in Publication One's front matter. For example:

   ```
   <ConfigurationIDList id="i2-8">
   <ConfigurationID id="cfid-0001">
   …
   </ConfigurationIDList>
   ```

2. Mark the additional **<TitledPara>** with the *'ConfigIDRef'* attribute set to the corresponding configuration (e.g., configuration set to "cfid-0001" via the *'id'* in the <ConfigurationIDList>).

   ```
   <TitledPara id="i22-9" ConfigIDRef="cfid-0001">
   ```

When Publication One is published the **<TitledPara>**'s *'ConfigIDRef'* attribute value is compared against the configuration id list. Since it matches it is passed through. When the other two publications are published, the *'ConfigIDRef'* attribute values of their **<TitledPara>**s will not match any of the **<ConfigurationID>** element's *'id'* attribute values in the **<ConfigurationIDList>** element, so this **<TitledPara>** will not be provided in the other two publications. NOTE: The configuration id list must be tagged but does not appear in the PDF TM.

A.5. Information Packages

IP elements contain the actual technical content for each associated IM. An IM consists of one or more individual IPs. Each IP has its own specific content model usually consisting of a title block with an introduction, specific IP content information and rear matter. Table A - 12 describes the IP elements and is arranged by the entity files common.ent, FrontMatter.ent, General.ent, Supporting.ent, Descriptive.ent, FunctionalDes.ent, Operating.ent, ProceduralInformation.ent, Troubleshooting.ent, and CSTOMData.ent.

Table A - 12 Information Package Elements

IP Element Name	Entity File	Description
<IntroductionIP>	common.ent	Introduction IP
<IPInfoNarrative>	common.ent	Information development for Narrative IPs
<IPInfoProcedural>	common.ent	Information development for Procedural IPs
<AlphaIndexIP>	FrontMatter.ent	Alphabetic Index IP is auto-generated and provides access to the technical content IPs contained in the manual, and further to the primary technical content information contained within each IP.
<ListOfEffectiveIPs>	FrontMatter.ent	List of Effective IPs. Auto-generated.
< PartNoIndexIP>	FrontMatter.ent	Numerical Index of Part Numbers IP. Auto-generated.
< RefDesIndexIP>	FrontMatter.ent	Numerical Index of Reference Designations IP. Auto-generated.
<GeneralIntroIP>	General.ent	General Introduction IP
<ModelDiffIP>	General.ent	Model differences IP. The differences between models of the equipment shall be briefly delineated in this IP.
<EquipDocNotSuppIP>	Supporting.ent	Equipment, accessories, and documents not supplied IP
<EquipDocSuppIP>	Supporting.ent	Equipment, accessories, and documents supplied IP
<EquipModIP>	Supporting.ent	Equipment modification IP
<MatReqIP>	Supporting.ent	Materials required IP
<RefPubIP>	Supporting.ent	Reference publication IP
<SafetyPrecautionIP>	Supporting.ent	Safety Precaution IP
<SttеIP>	Supporting.ent	Special tools and test equipment IP
<PhysicalArrangeIP>	Descriptive.ent	Physical arrangement IP (HM&E systems, weapon systems, and electronic systems and equipment only)
<SoftwareDescriptionIP>	Descriptive.ent	Software description IP
<SystemCharIP>	Descriptive.ent	System/equipment characteristics/ capabilities IP
<SystemDescriptionIP>	Descriptive.ent	System description IP
<DetlCircuitAnalysisIP>	FunctionalDes.ent	Detailed circuit analysis IP
<DetlFuncDescIP>	FunctionalDes.ent	Detailed functional description IP
<FuncEleDescIP>	FunctionalDes.ent	Functional elements IP
<IntegratedCircuitIP>	FunctionalDes.ent	Integrated circuits and micro-miniature capsules IP
<SimplFuncDescIP>	FunctionalDes.ent	Simplified functional description IP

IP Element Name	Entity File	Description
<SysFuncDescIP>	FunctionalDes.ent	Major system functions IPs. Contains simplified and detailed descriptions in one IP.
<SysFuncDirIP>	FunctionalDes.ent	System function directory IP
<WeaponSysInterIP>	FunctionalDes.ent	Weapon system interfaces IP. This IP shall include descriptions of weapon system interface relationships to associated systems and equipment and shall be supported by interface functional block diagrams that illustrate system integration.
<ConditionsOfReadinessIP>	Operating.ent	Conditions of readiness IP (HM&E systems, electronic systems, and weapon systems only).
<ControlsAndIndicatorsIP>	Operating.ent	Controls and indicators IP
<DisplaysAndAlertsIP>	Operating.ent	Displays and Alerts IP
<EquipOperatingProceduresIP	Operating.ent	Equipment operating procedure IP
<NonTacticalOperationIP>	Operating.ent	Non-tactical operation IP (Weapon systems only)
<OperatingProceduresIP>	Operating.ent	System operating procedure IP
<ActiveSystemTestIP>	ProceduralInformation.ent	Active system tests IP (HM&E and electronic systems only)
<IllustratedPartsBreakdownIP>	ProceduralInformation.ent	Illustrated Parts Breakdown (IPB) IP
<InputRequirementsIP>	ProceduralInformation.ent	Input requirements IP
<InstallationCheckoutIP>	ProceduralInformation.ent	Installation checkout IP
<InstallationProceduresIP>	ProceduralInformation.ent	Installation procedures IPs
<MaintenanceIP>	ProceduralInformation.ent	Maintenance IPs
<PreparationFoundationIP>	ProceduralInformation.ent	Preparation of foundations IP
<ProcedureSynopsisIP>	ProceduralInformation.ent	System corrective maintenance procedure synopsis IP (weapon systems only)
<ScheduledMaintenanceIP>	ProceduralInformation.ent	Scheduled Maintenance IP
<SiteLocationIP>	ProceduralInformation.ent	Site or installation IP
<SystemCableInterconnectIP>	ProceduralInformation.ent	System cable interconnection check IP
<UnpackingRepackingIP>	ProceduralInformation.ent	Unpacking and repacking IP
<UtilitiesListIP>	ProceduralInformation.ent	Utilities list IP (HM&E and electronic systems only)
<YardOrTenderMaintenanceIP>	ProceduralInformation.ent	Yard or tender corrective maintenance IP (weapon equipment only)
<MAMsIP>	Troubleshooting.ent	Maintenance assistance modules (MAMs) IP
<OperationalCheckoutIP>	Troubleshooting.ent	Operational checkout IP
<OperationalCheckoutTroubleshootingIP>	Troubleshooting.ent	Combined operational checkout and troubleshooting IP
<ProtectiveDeviceIndexIP>	Troubleshooting.ent	Protective devices index IP
<RedundantPluggableElectronicComponentsIP>	Troubleshooting.ent	redundant pluggable electronic components IP
<SystemFaultDescriptorIP>	Troubleshooting.ent	System fault descriptor IP (system troubleshooting

IP Element Name	Entity File	Description
		only)
<TroubleshootingIndicesIP>	Troubleshooting.ent	System/equipment testing and troubleshooting indices IPs
<TroubleshootingProceduresIP>	Troubleshooting.ent	Troubleshooting procedure IP
<TroubleshootingReferenceIP>	Troubleshooting.ent	System/equipment testing and troubleshooting reference IPs
<AdditionalFuncDescIP>	CSTOMData.ent	Additional functions IP. Based on informative IP.
<AdditionalSysIP>	CSTOMData.ent	Additional systems IPs
<AEGISCombatSysIP>	CSTOMData.ent	AEGIS combat system IP
<AntiSubWarfareSysIP>	CSTOMData.ent	Antisubmarine warfare system IP
<CombatDirSysIP>	CSTOMData.ent	Combat direction system IP
<CombatSupportSysIP>	CSTOMData.ent	Combat support system IP
<CombatSysFuncInterfaceIP>	CSTOMData.ent	Introduction to Combat System Functional Interface Diagrams. Based on informative IP.
<CSTOMCompLocationIP>	CSTOMData.ent	Location of combat system components IP. This IP deviates somewhat from most Combat System Description IPs.
<DetectionEntryFuncDescIP>	CSTOMData.ent	Detection and entry IP. Based on informative IP.
<ElectronicWarfareSysIP>	CSTOMData.ent	Electronic warfare system IP
<EngagementFuncDescIP>	CSTOMData.ent	Engagement and engagement assessment IP. Based on informative IP.
<ExternalCommSysIP>	CSTOMData.ent	External communication system IP
<FaultIsolationIP>	CSTOMData.ent	Fault Isolation IP. Based on informative IP.
<FaultIsolationTechniqueIP>	CSTOMData.ent	Fault isolation techniques IP. Based on informative IP.
<GunWeaponSysIP>	CSTOMData.ent	Gun weapon system IP
<ImpactEvaluationIP>	CSTOMData.ent	Impact evaluation IP. Based on informative IP.
<InternalCommSysIP>	CSTOMData.ent	Internal communication system IP
<LAMPSSysIP>	CSTOMData.ent	LAMPS system IP
<MissileWeaponSysIP>	CSTOMData.ent	Missile weapon system IP
<NavigationSysIP>	CSTOMData.ent	Navigation system IP
<OperationFaultDirectoriesIP>	CSTOMData.ent	Operational fault directories IP
<PMSIP>	CSTOMData.ent	Planned Maintenance System IP
<ReadinessAssessIP>	CSTOMData.ent	Readiness assessment information IP. Based on informative IP.
<ReadinessAssessSynopticTestDescIP>	CSTOMData.ent	Readiness assessment diagrams (RAD) and synoptic test description IP. This IP is structured differently than most CSTOM IPs.
<SearchRadarSysIP>	CSTOMData.ent	Search radar system IP. SERTIP Combat System

IP Element Name	Entity File	Description
		Description SERT information IP. Based on informative IP.
<SERTIP>	CSTOMData.ent	SERT Information IP
<ShipAndCombatSystemDescriptionIP>	CSTOMData.ent	Ship and combat system description IP
<STERFIP>	CSTOMData.ent	Ship test equipment repair facility (STERF) IP
<SystemFaultIsolationIP>	CSTOMData.ent	Support system fault isolation IP. Based on informative IP.
<ThreatEvalFuncDescIP>	CSTOMData.ent	Threat evaluation and threat-to-weapon pairing IP. Based on informative IP.
<TrackingAndIdentFuncDescIP>	CSTOMData.ent	Tracking and identification IP. Based on informative IP.
<TrainingMaintenanceSupportIP>	CSTOMData.ent	Training and maintenance support elements IP. Based on informative IP.
<UnderwaterCounterMeasSysIP>	CSTOMData.ent	Underwater countermeasures system IP

A.5.1. Information Package with Title Blocks

All IP elements contain either a **<TitleBlock>** element or a **<TroubleTitleBlock>** element with the exception of **<ScheduledMaintenanceIP>**. For the **<ScheduledMaintenanceIP>** the publisher will auto-generate the title block and the standard NAVSEA scheduled maintenance content. An IP Title Block **<TitleBlock>** contains an IP Title **<IPTitle>** and optional notices **<IPNotices>**. The optional notices element **<IPNotices>** is not permissible in SNIPP; therefore it should not be used. The IP Title **<IPTitle>** consists of an optional Maintenance Level **<MaintenanceLevel>**, a required Subject **<Subject>**, and a required System Nomenclature **<IPSystemNomenclature>**. The System Nomenclature name **<name>** may be entered directly for an IP, or may be inherited **<Inherit>**. If an IP is part of an IM that is organized by **<system>**, then the inherited system name is taken from the **<system> <SystemIdentificationInformation> <SystemNomenclature> <name>**. If an IP is part of an IM that is collected directly under the **<IETMProduct>**, then the inherited system name is taken from **<IETMProduct> <FrontMatter> <TitlePage> <TMTitle> <SystemNomenclature> <name>**. Note that while the **<TitleBlock>** element and the **<TroubleTitleBlock>** element are identical except for their names, the **<TroubleTitleBlock>** must be used for the following IP elements:

- **<MAMsIP>**
- **<OperationalCheckoutIP>**
- **<OperationalCheckoutTroubleshootingIP>**
- **<ProtectiveDeviceIndexIP>**
- **<RedundantPluggableElectronicComponentsIP>**
- **<SystemFaultDescriptorIP>**
- **<TroubleshootingIndicesIP>**
- **<TroubleshootingProceduresIP>**
- **<TroubleshootingReferenceIP>**

A.6. Common Elements

A.6.1. <para>

The **<para>** element allows for the entry of text from the keyboard through the use of #PCDATA. **<para>** also can contain the elements **<callout>**, **<change>**, **<SubScript>**, **<SuperScript>**, **<ExternalRef>**, **<graphic>**, **<CrossRef>**, **<FigureRef>**, **<tfndisplay>**, **<tfnid>**, **<tfnref>**, **<xlink>**, **<external>**, **<text>**, and elements used to supply mathematical equations. **<para>** can also contain changed text, graphics, references, CALS Table footnotes, and equations.

A.6.2. <change>

The **<change>** element is used to provide level of change mark up on a granular level. **<change>** is used to apply change criteria to words and/or sentences. The value of the attribute *'change'* conveys whether the contained text is to be included in the technical manual (*'change'* set to "add" which is the default value) or removed (*'change'* set to "delete"). The *'date'* attribute is used to record the date of the change. The required *'level'* attribute reflects the change level applicable to the specific IP. This value is compared to the IP's *'xrefRevLevel'* specified by the IP's **<RevisionSummary>** entry. See A.15.3 for more information on configuring the revision summary entry. When these two values match, the contained text is identified in the technical manual through change markings.

A.7. Alerts

Alerts include Dangers **<danger>**, Warnings **<warning>**, Cautions **<caution>**, and Notes **<note>**. **<danger>**s, **<warning>**s, and **<caution>**s should ONLY contain one or more paragraph **<para>** elements. They should NOT contain lists or tables.

A.7.1. <danger>

The Danger **<danger>** element has a *'type'* attribute to indicate the type of danger. The default value of the *'type'* attribute is "non-hazmat" which is used when the **<danger>** element does not involve hazardous materials. When the **<danger>** element applies to hazardous materials the *'type'* attribute value is set to "hazmat". The **<danger>** element contains one or more **<para>** elements that are used to enter text of the

alert. The heading DANGER is automatically generated above the paragraph text. SNIPP allows only paragraph **<para>** elements in a **<danger>** element. Tagging of a Danger with type="non-hazmat" is shown here, followed by an example (Figure A -1).

```
<danger>
        <para id="ia71-17">Lithium Battery. Risk of fire, explosion, or burns. Do not short
        circuit, crush, heat above 100 C, incinerate, or disassemble the battery.</para>
</danger>
```

Figure A - 1 Example of a Danger Alert

A.7.2. <warning>

The Warning **<warning>** element has a *'type'* attribute to indicate the type of warning. The default value of the *'type'* attribute is "non-hazmat" which is used when the **<caution>** element does not apply to hazardous materials. When the **<warning>** element applies to hazardous materials the *'type'* attribute value is set to "hazmat". The **<warning>** element contains one or more **<para>** elements that are used to enter text of the alert. The heading WARNING is automatically generated above the paragraph text. SNIPP allows only paragraph **<para>** elements in a **<warning>** element. Tagging of a Warning with type="non-hazmat" is shown here, followed by an example (Figure A - 2).

```
<warning>
        <para id="ia71-18">Replace worn power cords and/or loose plugs.</para>
</warning>
```

Figure A - 2 Example of a Warning Alert

A.7.3. <caution>

The **<caution>** element contains one or more **<para>** elements that are used to enter text of the alert. Tagging of a caution is shown here, followed by an example (Figure A – 3).

```
<caution>
        <para id="ia71-19">Wear personal protective equipment: hard hat, safety glasses,
        safety shoes, and leather work gloves.</para>
</caution>
```

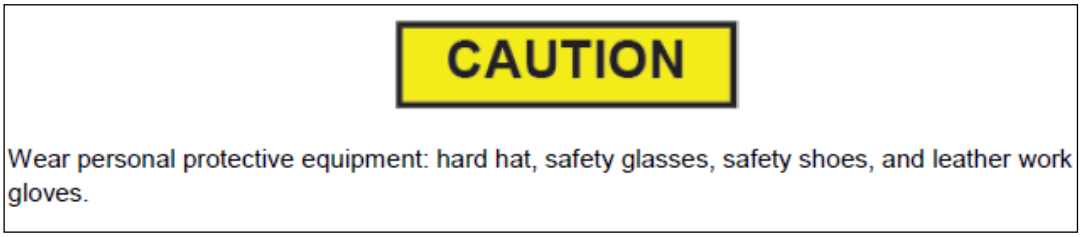

Figure A - 3 Example of a Caution Alert

A.7.4. Notes

Notes are used to convey special information. SNIPP allows paragraph **<para>** elements and random list **<RandomList>** elements in a **<note>** element. However, the use of random list **<RandomList>** elements in a **<note>** is discouraged. Tagging of a **<note>** element is shown below, followed by and example (Figure A – 4).

```
<note>
        <para id="ia71-20">Failure to properly install the antenna will result in intermittent
        operation.</para>
</note>
```

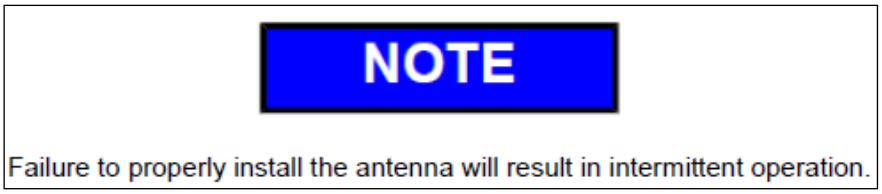

Figure A - 4 Example of a Note Alert

A.8. List Elements

Lists may be used in lieu of tables. The three types of lists allowed are sequential, random, and definition.

A.8.1. Sequential Lists

<SequentialList> is used to present data in a non-random order. Each **<item>** is automatically labled by the publisher based upon its nested depth. Nesting may not exceed four levels. Table A - 13 lists the appropriate labels for each level in a sequential list.

Table A - 13 Sequential List Label Format

Level	List Label Format
1	1.
2	a.
3	(1)
4	(a)

A.8.2. Random Lists

<RandomList> is used to specify random (bulleted) lists.

A.8.3. Definition Lists

<DefinitionList> is used to specify a small definition list. The definition list is made up of entries **<DefinitionEntry>**s comprised of terms **<term>**s and definitions **<def>**s.

A.9. Steps <step>s and Substeps <SubSteps>

The hierarchical organization for dividing procedural information is tasks, procedures, steps, and substeps (if required). MIL-DTL-24784C DTDs provide content specific procedural task level elements, which consist of procedures, steps, and substeps. With the exception of some content specific testing and troubleshooting steps, most steps are tagged as **<step>**, regardless of its hierarchical organization. If a series of **<step>** elements are subordinate to another **<step>** element, the subordinate **<step>** elements are wrapped in a **<SubSteps>** element contained in the original **<step>** element. Sequential lists **<SequentialList>**s should not be placed within steps **<step>**s or substeps**<SubSteps>**. The markup sample below will produce the output shown in Figure A - 5.

```
<Inspect>
    <title>IN-CONTAINER INSPECTION</title>
    <step>
        <para>Attach ground to container.</para>
    </step>
    <step>
        <para>Relieve container pressure by pressing manual relief button on breather
        valve.</para>
    </step>
    <step>
        <para>Remove upper shell as follows:</para>
        <SubSteps>
            <step>
                <para>Loosen the tee head bolt adjustment nuts.</para>
            </step>
            <step>
                <para>Rotate the tee head bolts 90 degrees to align with upper shell
                assembly slots.</para>
            </step>
            <step>
                <para>Remove upper shell assembly and place on deck open side
                up.</para>
            </step>
        </SubSteps>
    </step>
    <step>
        <para>Visually check container interior for battery electrolyte. Electrolyte would
        probably leak from the control section vent holes.</para>
    </step>
</Inspect>
```

1. IN-CONTAINER INSPECTION.

a. Attach ground to container.

b. Relieve container pressure by pressing manual relief button on breather valve.

c. Remove upper shell as follows:

(1) Loosen the tee head bolt adjustment nuts.

(2) Rotate the tee head bolts 90 degrees to align with upper shell assembly slots.

(3) Remove upper shell assembly and place on deck open side up.

d. Visually check container interior for battery electrolyte. Electrolyte would probably leak from the control section vent holes.

Figure A - 5 Example of Steps and Substeps

A.10. <single>, <BoundedRange>, and <UnboundedRange>

The **<ModelDesInfo>**, **<TypeDesInfo>**, **<SerialNumberInfo>**, and **<PartNumberInfo>** elements are all indicated using the same constructs: a single number **<single>** (i.e., Part Number 123), a Bounded Range **<BoundedRange>** (i.e., Serial Numbers 1-100), or an Unbounded Range **<UnboundedRange>** (i.e., Bumper Numbers 101 and up). Attributes *'number'*, *'lowrange'*, and *'highrange'* are used to capture the numbers.

A.11. ALTs Elements

The ALT elements are simple container elements for alternate choices for a particular element (i.e., **<OperatingProcedureALTs>** contains one or more **<OperatingProcedure>**s). Alternate choices are designated for a particular element to handle multiple configurations. For example, if there were a different operating procedure for each of four different configurations of equipment, the **<OperatingProcedureALTs>** element would contain four **<OperatingProcedure>**s. Each of the different elements (each of the **<OperatingProcedure>**s) MUST have a related *'ConfigIDRef'* attribute that identifies the condition that must be met for that particular alternative element to be chosen. The ALTs elements also ensure that there is a persistent cross reference to something that could be filtered out due to configuration control. Rather than creating the cross reference to the element, the link can point to the ALTs container element. Alternately, the ALT container element can be cross-referenced instead of one of the contained elements. The ALTs elements are listed below; the elements that cannot be linked to are marked with an "*".

- **<AdjustAlignALTs>**
- **<AlternatePartALTs>**
- **<AssemblyALTs>**
- **<AttachingPartsALTs>**
- **<CalloutDataALTs>**
- **<cautionALTs>***
- **<CautionSampleALTs>**
- **<dangerALTs>***
- **<DangerSampleALTs>**
- **<DetlFuncDescALTs>**
- **<enditemALTs>**
- **<EquivalentPartALTs>**
- **<FaultDescriptorTableALTs>**
- **<FaultMatrixEntryALTs>**
- **<FaultMatrixTableALTs>**
- **<figureALTs>**
- **<FlowDiagramALTs>**
- **<FlowDiagramFigureALTs>**
- **<InstallALTs>**
- **<introALTs>**
- **<MaterialsListALTs>**
- **<NormalOperationALTs>**
- **<noteALTs>***
- **<NoteSampleALTs>**
- **<OperatingProcedureALTs>**
- **<OperatingStepALTs>**
- **<OperationalProcedureALTs>**
- **<paraALTs>**
- **<PartInfoALTs>**
- **<PartsListGroupALTs>**
- **<ProcedureALTs>**
- **<RelatedDataALTs>**
- **<RelatedDataEntryALTs>**
- **<RelatedDataFigureALTs>**
- **<RelatedDataTableALTs>**
- **<RemoveALTs>**
- **<RepairALTs>**
- **<SimpleRowALTs>**
- **<SimpleTableALTs>**
- **<SimplFuncDescALTs>**
- **<SpecialHandlingALTs>**
- **<stepALTs>**
- **<SubAssemblyALTs>**
- **<SubjectALTs>***
- **<SubstitutePartALTs>**
- **<tableALTs>**
- **<TaskIntroALTs>**
- **<TestDirectionDataALTs>**
- **<TestDirectionDataEntryALTs>**
- **<TestDirectionDataFigureALTs>**
- **<TestDirectionDataGroupALTs>**
- **<TestDirectionDataTableALTs>**
- **<TestProcedureALTs>**
- **<textALTs>***
- **<titleALTs>***
- **<TitledParaALTs>**
- **<warningALTs>***
- **<WarningSampleALTs>**

A.11.1. <ALTEmpty> Element

The **<ALTEmpty>** element occurs as part of an ALTs element content model. For example the content model of **<TitledParaALTs>** is:

<!ELEMENT TitledParaALTs (TitledPara+, ALTEmpty*)>

The **<ALTEmpty>** element is used when a particular configuration of equipment does not have content where other configurations do. If the associated **<ConfigIDRef>** field change selection ("FC_Option1" in the example below) is selected, no content will be shown. The following sample markup shows how the **<ALTEmpty>** element can be used to suppress baseline text when the field change "FC_Option1" has been selected.

```
<TitledParaALTs id="i1980_v1p2">
    <TitledPara ConfigIDRef="FC_BASELINE" id="i1980a_v1p2" security="u">
        <title security="u">MICROMEMORY - 1A4A2</title>
        <para security="u">The control and transfer of emitter file data within the Inner
        Processor (IP) is made through control signals generated by the inner processor
        microprogrammer.</para>
    </TitledPara>
    <ALTEmpty ConfigIDRef="FC_Option1"/>
</TitledParaALTs>
```

A.12. Tables

There are three categories of tables which may be used in a MIL-DTL-24784C DTD-compliant technical manual: CALS Tables, Simple Tables, and Standardized Information Tables.

A.12.1. CALS Table Markup

The CALS Table model is the traditional method of tagging rows and cells to be formatted as a table. CALS Table markup allows the spanning of columns and rows, the setting of column and row alignments, and the definition of column and overall table width. Effectivity cannot be applied at the row level due to possible cell spanning. The following markup will produce the CALS Table shown in Figure A - 6:

```
<table id="CalsTabletab">
    <title>CALS Table.</title>
    <tgroup cols="2">
    <colspec colname="col1"/>
    <colspec colname="col2"/>
        <thead>
            <row>
                <entry>
                    <para>First Column Heading</para>
                </entry>
                <entry>
                    <para>Second Column Heading</para>
                </entry>
            </row>
        </thead>
        <tbody>
            <row>
                <entry>
                    <para>First entry of first row</para>
                </entry>
                <entry>
                    <para>Second entry of first row</para>
                </entry>
            </row>
            <row>
                <entry>
                    <para>First entry of second row</para>
                </entry>
                <entry>
                    <para>Second entry of second row</para>
                </entry>
            </row>
        </tbody>
    </tgroup>
</table>
```

Table 1. CALS Table.

First Column Heading	Second Column Heading
First entry of first row	Second entry of first row
First entry of second row	Second entry of second row

Figure A - 6 Example of a CALS Table

A.12.1.1. CALS Table Footnotes

Footnotes are tagged in a CALS Table using the elements **<tfnid>** and **<tfnref>**. When a footnote is first referenced, the element **<tfnid>** is used as both the reference, and as the footnote text. A unique ID value must be entered for the **<tfnid>**. If the same footnote is referenced within the same table, the element **<tfnref>** is used as a pointer to the first reference. For example, the markup below will produce the CALS Table shown in Figure A - 7.

```
<table id="ACLineDisconnectCharacteristicstab" frame="all" orient="port" colsep="1" rowsep="1"
pgwide="1">
    <title>A/C Line Disconnect Characteristics.</title>
    <tgroup cols="3" align="left">
        <colspec colwidth ="25*"/>
        <colspec colwidth ="40*"/>
        <colspec colwidth ="15*"/>
        <thead>
            <row>
                <entry>Current Rating at 40 degrees C</entry>
                <entry>Drive Horsepower/Voltage Rating</entry>
                <entry>Mounting</entry>
            </row>
        </thead>
        <tfoot>
            <colspec align="left" colwidth="80*" rowsep="0"/>
            <row>
                <entry>
                    <tfnid id="i45-85">Optimal HP is 45/85 HP at 230/460 VAC</tfnid>
                </entry>
            </row>
        </tfoot>
        <tbody>
            <row>
                <entry>250 Amp</entry>
                <entry>40-60/75-125 HP at 230/460 VAC<tfnref xrefid="i45-85"/></entry>
                <entry>Chassis</entry>
            </row>
            <row>
                <entry>250 Amp</entry>
                <entry>40-60/75-125 HP at 230/460 VAC<tfnref xrefid="i45-85"/></entry>
                <entry>NEMA 1</entry>
            </row>
            <row>
                <entry>400 Amp</entry>
                <entry>75/150 HP at 230/460 VAC</entry>
                <entry>Chassis</entry>
            </row>
            <row>
                <entry>400 Amp</entry>
                <entry>75/150 HP at 230/460 VAC</entry>
                <entry>NEMA 1</entry>
            </row>
        </tbody>
    </tgroup>
</table>
```

Table 1. A/C Line Disconnect Characteristics.

Current Rating at 40 degrees C	Drive Horsepower / Voltage Rating	Mounting
250 Amp	40-60 / 75-125 HP at 230 / 460 VAC[1]	Chassis
250 Amp	40-60 / 75-125 HP at 230 / 460 VAC[1]	NEMA 1
400 Amp	75 / 150 HP at 230 / 460 VAC	Chassis
400 Amp	75 / 150 HP at 230 / 460 VAC	NEMA 1

[1] Optimal HP is 45 / 85 HP at 230 / 460 VAC.

Figure A - 7 Example of a CALS Table with Footnotes

The *'tfntype'* and *'tfnsymbol'* attributes of the **<tfnid>** element are used to specify how the footnote is to be enumerated. The default value of the attribute *'tfntype'* is "num" (the footnote is indicated with a number). The alternate values of "alpha" (the footnote is indicated with a letter) and "sym" (the footnote is indicated with a symbol) are not to be used.

A.12.2. Table Elements

The content model of **<table>** includes several elements. These elements are described in the following paragraphs.

A.12.2.1. <graphic>

The content model of **<table>** allows it to contain a **<graphic>** element instead of a **<tgroup>** element. This causes the table to be formatted the same as a figure. While the MIL-DTL-24784C DTD allows this, SNIPP and the TMCR/TMSR do not permit tables that are formatted as graphics.

A.12.2.2. <tgroup>

The **<tgroup>** element provides a subgrouping of rows within a table that all use the same column, span, and formatting specifications. Although the **<table>** allows for multiple instances, only one should be used when the output medium is page-based since header and footer information are carried over from page to page. In page-based TMs, declaring more than one **<tgroup>** in a table will prevent the publishing of the TM.

A.12.2.3. <thead>

The **<thead>** is a formatting element that contains the table's heading information, (e.g., column heads), that appears at the top of the table. The **<thead>** is combined with the table label and title to form the table header.

A.12.2.4. <tfoot>

The **<tfoot>** contains the **<row>** of the table footer information.

A.12.2.5. <tbody>

The **<tbody>** defines the main table content.

A.12.2.6. <colspec>

The optional **<colspec>** element is used to define the characteristics of a single table column. It should only be defined by **<tgroup>**. Although the attribute 'colwidth' is not a required **<colspec>** attribute, it should be specified for each **<colspec>** entry. The *'colwidth'* value should be the width of the column in inches, but “in” MUST NOT BE part of the value.

A.12.2.7. <spanspec>

The optional **<spanspec>** element is used to define a column span profile that can be used repeatedly in a table. The values of the required attributes *'namest'* and *'nameend'* define the columns to span. The value of the required attribute *'spanname'* must be unique within the table and is used by the **<entry>** element to access the pre-defined span parameters.

A.12.2.8. <row>

The **<row>** identifies the row information in a **<thead>**, **<tbody>**, or **<tfoot>** element. It consists of the **<entry>** elements that contain data for the row.

A.12.2.9. <entry>

The **<entry>** identifies a single table cell. Depending on various attribute settings, a cell can span multiple columns and rows. Additional attributes can be used to adjust the cell's border and horizontal and vertical alignment.

A.12.3. Table Attributes

There are several attributes which are used to control the appearance of a CALS Table. They are discussed in the following paragraphs. Where noted, the attributes can also be used with Simple Tables.

A.12.3.1. 'colsep'

The *'colsep'* attribute is used to activate/deactivate the right-side column marker for a given cell. This attribute can be specified on the following elements: **<table>**, **<tgroup>**, **<colspec>**, **<spanspec>**, **<entry>**, **<entrytbl>**, and **<SimpleTable>**. Table A - 14 contains information on using the *'colsep'* attribute.

Table A - 14 *'colsep'* Information

Criteria	Results
<spanspec> with matching *'spanname'*, **colsep="1"**	Cell's column border visible
<spanspec> with matching *'spanname',* **colsep="0"**	No column border
<entry>'s **colsep="1"**	Cell's column border visible
<entry>'s **colsep="0"**	No column border
<colspec> with matching *'colname'*, **colsep="1"**	Cell's column border visible
<colspec> with matching *'colname'*, **colsep="0"**	No column border
<tgroup>'s **colsep="1"**	Cell's column border visible
<tgroup>'s **colsep="0"**	No column border
<table>'s or **<SimpleTable>**'s **colsep="1"**	Cell's column border visible
<table>'s or **<SimpleTable>**'s **colsep="0"**	No column border

A.12.3.2. 'rowsep'

The *'rowsep'* attribute specifies the presence or absence of row separator rules (horizontal rules). This attribute can be specified on the following elements: **<table>, <tgroup>, <spanspec>, <colspec>, <row>, <entry>, <entrytbl>**, and **<SimpleTable>**. Table A - 15 contains information on using the *'rowsep'* attribute.

Table A - 15 'rowsep' Information

Criteria	Results
<spanspec> with matching *'spanname'*, **rowsep="1"**	Cell's column border visible
<spanspec> with matching *'spanname',* **rowsep="0"**	No column border
<entry>'s **rowsep="1"**	Cell's column border visible
<entry>'s **rowsep="0"**	No column border
<colspec> with matching *'colname'*, **rowsep="1"**	Cell's column border visible
<colspec> with matching *'colname'*, **rowsep="0"**	No column border
<tgroup>'s **rowsep="1"**	Cell's column border visible
<tgroup>'s **rowsep="0"**	No column border
<table>'s or **<SimpleTable>**'s **rowsep="1"**	Cell's column border visible
<table>'s or **<SimpleTable>**'s **rowsep="0"**	No column border

A.12.3.3. 'frame'

The *'frame'* attribute defines the outer border of a table. This attribute can be specified on the **<table>** and **<SimpleTable>** elements. Table A - 16 contains information on using the *'frame'* attribute.

Table A - 16 *'frame'* Information

Value	Result
all (default)	The entire table is framed.
top	Only the top is framed.
bot	Only the bottom is framed.
topbot	Top and bottom are framed, but the sides are not.
sides	The sides are framed, but the top and bottom are not.
none	The table is not framed.

A.12.3.4. 'valign'

The *'valign'* attribute sets the cell's vertical alignment. There are three possible values: "top", "middle", and "bottom". The default setting is dependent upon the cell location and attribute inheritance. *'valign'* can be specified on the **<entry>** element and is specified on the **<tbody>**, **<tfoot>**, and **<thead>** elements.

A.12.3.5. 'morerows'

The *'morerows'* attribute, specified on the **<entry>** element, is used to span a cell across multiple rows. The attribute value specifies how many additional rows for the cell to span. For example, if the cell was to occupy two rows it would have a value of "1". The default value is set to "0".

A.12.3.6. 'align'

The *'align'* attribute sets the cell's vertical alignment and can be defined by **<tgroup>, <colspec>, <spanspec>, <entry>**, and **<entrytbl>**. There are five possible values: "left", "right", "center", "justify", and "char".

A.12.3.7. 'orient'

The *'orient'* attribute, specified on the **<table>** element, allows for CALS Tables to be set to portrait or landscape orientation. The default value is "port" (portrait). To have a table display in landscape mode, the *'orient'* attribute must be set to "land". The table will display rotated counterclockwise.

A.12.4. Simple Table Markup

The Simple Table model is a variant of the CALS Table model. A Simple Table is used when cell spanning is not required and field change effectivity is required at the table cell level.

Simple Table Markup Example. Column headings are not tagged in Simple Table markup. For example:

```
<SimpleTable id="SimpleTabletab">
    <title>Simple Table. </title>

    <SimpleTgroup cols="4">

        <SimpleTbody>

            <SimpleRow>
                <SimpleEntry>First entry of first row</SimpleEntry>
                <SimpleEntry>Second entry of first row</SimpleEntry>
                <SimpleEntry>Third entry of first row</SimpleEntry>
                <SimpleEntry>Fourth entry of first row</SimpleEntry>
            </SimpleRow>

            <SimpleRow>
                <SimpleEntry>First entry of second row</SimpleEntry>
                <SimpleEntry>Second entry of second row</SimpleEntry>
                <SimpleEntry>Third entry of second row</SimpleEntry>
                <SimpleEntry>Fourth entry of second row</SimpleEntry>
            </SimpleRow>

            <SimpleRow>
                <SimpleEntry>First entry of third row</SimpleEntry>
                <SimpleEntry>Second entry of third row</SimpleEntry>
                <SimpleEntry>Third entry of third row</SimpleEntry>
                <SimpleEntry>Fourth entry of third row</SimpleEntry>
            </SimpleRow>
        </SimpleTbody>

    </SimpleTgroup>
</SimpleTable>
```

This Simple Table markup will be formatted as shown in Figure A - 8.

Table 1. Simple Table.

First entry of first row	Second entry of first row	Third entry of first row
First entry of second row	Second entry of second row	Third entry of second row
First entry of third row	Second entry of third row	Third entry of third row

Figure A - 8 Example of a Simple Table

A.12.5. Standardized Information Table Markup

MIL-DTL-24784C provides the ability to tag content and identify that content by the element tag (e.g., **<Nomenclature>**, **<desc>**, **<function>**). Standardized Information Tables consist of content-tagged data which is formatted as a table. Each type of Standardized Information Table is always formatted in a standardized way. Each row and each cell within a row is uniquely identified by its content and are not format-tagged as **<row>**s and **<entry>**s. Column heads are NOT tagged and are automatically generated. Tagging and formatting of a Standardized Information Table as a CALS Table is not recommended since such tagged data loses its intelligence (significance) for subsequent data processing.

A.12.5.1. Standardized Information Table Types and Examples

The following tables are designated as Standardized Information Tables:

- Controls and Indcators Table
- Displays/Alerts Table
- Environmental Conditions List
- Equipment, Accessories, and Documents Supplied Table
- Equipment Modification Table
- Fault Descriptions Table
- Field and Factory Changes List
- Major Equipment Table
- Materials List
- Protective Devices Index
- References List
- Required Conditions
- Safety Conditions List
- Special Tools List
- Test Fault Impacts Table
- Electrical Troubleshooting Index
- Abbreviations List
- Troubleshooting Procedure-B
- Useable On Codes List
- Group Assembly Parts List (GAPL)
- Numerical Index of Parts
- Reference Designation Index

In the following figures of templates, **-<title>** indicates that an optional title can be entered. If a title is entered, it will appear after the standard title (e.g., Controls and Indicators – Front Panel will be displayed if a title is supplied).

A.12.5.1.1. Controls and Indicators Table

The Controls and Indicators Table provides the names of panel designations as marked on the equipment, the positions and operating functions for each control, and the normal operating condition of each indicator in each of the operating functions.

Table 1. Controls and Indicators - <title>		
Index No.	**Control/Indicator**	**Position/Function**
Optional <IndexNumber>	<ControlIndicator>	<function>
(Blank no <IndexNumber> provided)	<ControlIndicator>	<function>
…	…	…
Optional <IndexNumber>	<ControlIndicator>	<function>
Notes: *Optional* <NotesList>		

Figure A - 9 Controls and Indicators Table Template

MARKUP EXAMPLE:

```
<ControlsIndicatorsTable>
    <title></title>
    <ControlsIndicatorsEntry>
        <IndexNumber>45A</IndexNumber>
        <ControlIndicator>Condensor Drain Gate Valve</ControlIndicator>
        <function>When open drains "shell side" of condensor into sump can
        drain.</function>
    </ControlsIndicatorsEntry>
    <ControlsIndicatorsEntry>
        <IndexNumber>45B</IndexNumber>
        <ControlIndicator>Pump Drain Gate Valve</ControlIndicator>
        <function>When open drains recirculating pump into sump can
        drain.</function>
    </ControlsIndicatorsEntry>
</ControlsIndicatorsTable>
```

Table 1. Controls and Indicators.		
Index No.	**Control/Indicator**	**Function**
45A	Condenser Drain Gate Valve	When open, drains “shell side” of condenser into sump can drain.
45B	Pump Drain Gate Valve	When open, drains recirculating pump into sump can drain.

Figure A - 10 Controls and Indicators Table Example

A.12.5.1.2. Displays/Alerts Table

The purpose of the Displays/Alerts Table is to provide the required data for each display and alert. The table will indicate the index number (when used) referenced from the illustration, the associated display or alert and its nomenclature, including the reference designator, if applicable, and the function of the display or alert.

Table 1. Displays/Alerts - <title>		
Index No.	**Display/Alert**	**Function**
Optional <IndexNumber>	<DisplayAlert>	<function>
(Blank no <IndexNumber> provided)	<DisplayAlert>	<function>
…	…	…
Optional <IndexNumber>	<DisplayAlert>	<function>
Notes: *Optional* <NotesList>		

Figure A - 11 Displays/Alerts Table Template

MARKUP EXAMPLE:

```
<DisplaysAlertsTable>
    <title>Displays/Alerts</title>
    <DisplaysAlertsEntry>
        <IndexNumber>45A</IndexNumber>
        <DisplayAlert>Primary Widget Monitor</DisplayAlert>
        <function>Monitors Widget Input</function>
    </DisplaysAlertsEntry>
    <DisplaysAlertsEntry>
        <IndexNumber>45B</IndexNumber>
        <DisplayAlert>Secondary Widget Monitor</DisplayAlert>
        <function>Monitors Widget Output</function>
    </DisplaysAlertsEntry>
    <NotesList>
        <NotesEntry id="recycle">Return depleted widgets to Depot for
        recycling.</NotesEntry>
    </NotesList>
</DisplaysAlertsTable>
```

Table 1. Displays/Alerts.		
Index No.	**Display/Alert**	**Function**
45A	Primary Widget Monitor	Monitors Widget Input
45B	Secondary Widget Monitor	Monitors Widget Output
Notes: - Return depleted widgets to Depot for recycling.		

Figure A - 12 Displays/Alerts Table Example

A.12.5.1.3. Environmental Conditions List

For each IP, the Environmental Conditions List provides a list of environmental conditions such as ambient temperatures, heat dissipation per unit, humidity limits, coolants (airflow, water or oil flow rate, chilled and demineralized seawater) that must be satisfied and that can be checked off.

Table 1. Environmental Conditions - <title>	
☐	<EnvironmentEntry>
☐	…
☐	<EnvironmentEntry>

Figure A - 13 Environmental Conditions List Template

Note that the checkboxes to the left are for technicians to either check on paper or electronically.

MARKUP EXAMPLE:

```
<EnvironmentList>
    <title></title>
    <EnvironmentEntry>Widgets must be stored at 25%
    humidity.</EnvironmentEntry>
    <EnvironmentEntry>Widgets must be packed in
    foam.</EnvironmentEntry>
</EnvironmentList>
```

Table 1. Environmental Conditions.

	Widgets must be stored at 25% humidity.
	Widgets must be packed in foam.

Figure A - 14 Environmental Conditions List Example

A.12.5.1.4. Equipment, Accessories, and Documents Supplied Table

The Equipment, Accessories, and Documents Supplied Table is a tabular listing of all equipment, accessories, and other documents supplied.

Table 1. Equipment, Accessories, and Documents Supplied - <title>

Qty.	Name	PIN/RIC/Unit No.	Dimensions	Weight/Volume
<Quantity>	<name>	<PINNumber> or <RICNumber> or <UnitNumber>	<Dimensions>	<WeightVolume>
…	…	…	…	…
<Quantity>	<name>	<PINNumber> or <RICNumber> or <UnitNumber>	<Dimensions>	<WeightVolume>
Notes: *Optional* <NotesList>				

Figure A - 15 Equipment, Accessories, and Documents Supplied Table Template

MARKUP EXAMPLE:

```
<EquipDocSuppTable>
    <title></title>

    <EquipDocSuppEntry>
        <Quantity>3</Quantity>
        <name>Control Panel</name>
        <UnitNumber>TF-3237-F</UnitNumber>
        <Dimensions>69x30x16</Dimensions>
        <WeightVolume>800/19.2</WeightVolume>
    </EquipDocSuppEntry>

    <EquipDocSuppEntry>
        <Quantity>2</Quantity>
        <name>Coil</name>
        <UnitNumber>TF-3246-J</UnitNumber>
        <Dimensions>38Rx69</Dimensions>
        <WeightVolume>7500/230</WeightVolume>
    </EquipDocSuppEntry>

    <EquipDocSuppEntry>
```

```
            <Quantity>1</Quantity>
            <name>Coil</name>
            <UnitNumber>TF-3247-J</UnitNumber>
            <Dimensions>38Rx69</Dimensions>
            <WeightVolume>7500/230</WeightVolume>
        </EquipDocSuppEntry>

        <EquipDocSuppEntry>
            <Quantity>2</Quantity>
            <name>Base</name>
            <UnitNumber>TF-3242-F</UnitNumber>
            <Dimensions>126x120x6</Dimensions>
            <WeightVolume>1930/52.5</WeightVolume>
        </EquipDocSuppEntry>

        <EquipDocSuppEntry>
            <Quantity>1</Quantity>
            <name>Base</name>
            <UnitNumber>TF-3243-F</UnitNumber>
            <Dimensions>126x120x6</Dimensions>
            <WeightVolume>1930/52.5</WeightVolume>
        </EquipDocSuppEntry>

    </EquipDocSuppTable>
```

Table 1. Equipment, Accessories, and Documents Supplied.

Qty.	Name	PIN/RIC/Unit No.	Dimensions	Weight/Volume
3	Control Panel	TF- 3237-F	69x30x16	800/19.2
2	Coil	TF-3246-J	38Rx69	7500/230
1	Coil	TF-3247-J	38Rx69	7500/230
2	Base	TF-3242-F	126x120x6	1930/52.5
1	Base	TF-3243-F	126x120x6	1930/52.5

Figure A - 16 Equipment, Accessories, and Documents Supplied Table Example

A.12.5.1.5. Equipment Modification Table

The Equipment Modification Table contains all equipment modification change data.

Table 1. Equipment Modification - <title>

Change No.	Nomenclature	Description
<ChangeNumber>	<Nomenclature>	<remarks>
<ChangeNumber>	<Nomenclature>	<remarks>
…	…	…
<ChangeNumber>	<Nomenclature>	<remarks>
Notes: *Optional* <NotesList>		

Figure A - 17 Equipment Modification Table Template

MARKUP EXAMPLE:

```
    <EquipModTable>
        <title></title>
        <EquipModEntry>
            <ChangeNumber>45A</ChangeNumber>
```

```
            <Nomenclature>Primary Widget Monitor</Nomenclature>
            <remarks>Do ASAP.</remarks>
        </EquipModEntry>
        <EquipModEntry>
            <ChangeNumber>45B</ChangeNumber>
            <Nomenclature>Secondary Widget Monitor</Nomenclature>
            <remarks>Do next cycle.</remarks>
        </EquipModEntry>
        <NotesList>
            <NotesEntry id="latest">Check date to make sure modification is
            the latest.</NotesEntry>
            <NotesEntry id="cycle">Check to see if cycle modification is
            required.</NotesEntry>
        </NotesList>
    </EquipModTable>
```

Table 1. Equipment Modification.

Change No.	Nomenclature	Description
45A	Primary Widget Monitor	Do ASAP.
45B	Secondary Widget Monitor	Do next cycle.
Notes: - Check date to make sure modification is the latest. - Check to see if cycle modification is required.		

Figure A - 18 Equipment Modification Table Example

A.12.5.1.6. Fault Descriptions Table

The Fault Descriptions Table lists all fault descriptions along with the corresponding maintenance action to be taken.

Table 1. Fault Descriptions - <title>

Fault Description	Maintenance Action
<FaultDescriptor>+	Optional <Reference> <MaintenanceAction>
(Blank because <MaintenanceAction> Repeats)	Optional <Reference> <MaintenanceAction>
	Optional <Reference> <MaintenanceAction>
<FaultDescriptor>+	<%ALTnote;>
System: SystemFaultDescriptor<title>	
<FaultDescriptor>+	Optional <Reference> <MaintenanceAction>
(Blank because <MaintenanceAction> Repeats)	Optional <Reference> <MaintenanceAction>
	Optional <Reference> <MaintenanceAction>
<FaultDescriptor>+	<%ALTnote;>
SubSystem: SubSystemEntry<title>	
<FaultDescriptor>+	Optional <Reference> <MaintenanceAction>
(Blank because <MaintenanceAction> Repeats)	Optional <Reference> <MaintenanceAction>
	Optional <Reference> <MaintenanceAction>
<FaultDescriptor>+	<%ALTnote;>
Notes: *Optional* <NotesList>	

Figure A - 19 Fault Descriptor Table Template

Figure A – 20 shows a template with content under the Fault Description heading of the Fault Descriptions table, along with content under the System title line and the SubSystem title line. It is possible to only have content under the Fault Description heading, to only have content under the Fault Description heading and the System title line, to only have content under the System title line, or to only have content under the System title line and the SubSystem title line. Also, multiple **<FaultDescriptor>**s can be grouped in a single cell if the markup specifies. Finally, multiple **<Reference>** and/or **<MaintenanceAction>**s should appear on the next row with the Fault column set to blank.

MARKUP EXAMPLE:

```
<FaultDescriptorTable>
    <title></title>
    <FaultDescriptorEntry>
        <FaultDescriptor>Steam Leakage</FaultDescriptor>
        <MaintenanceAction>Locate Steam Leak</MaintenanceAction>
        <Reference> - NIST 123</Reference>
        <MaintenanceAction>Plug Steam Leak</MaintenanceAction>
        <Reference> - NIST 567</Reference>
        <MaintenanceAction>Seal Steam Leak</MaintenanceAction>
        <Reference> - NIST 587</Reference>
        <MaintenanceAction>Consult NIST Steam Pubs.</MaintenanceAction>
    </FaultDescriptorEntry>
    <SystemFaultDescriptorEntry>
        <title>Plumbing</title>
        <FaultDescriptorEntry>
            <FaultDescriptor>Water Leak</FaultDescriptor>
            <MaintenanceAction>Locate Water Leak</MaintenanceAction>
            <Reference> - NIST 520</Reference>
            <MaintenanceAction>Plug Water Leak</MaintenanceAction>
            <Reference> - NIST 721</Reference>
            <MaintenanceAction>Seal Water Leak Plug</MaintenanceAction>
            <Reference> - NIST 889</Reference>
            <MaintenanceAction> - Consult NIST Plumbing
            Pubs.</MaintenanceAction>
        </FaultDescriptorEntry>
        <SubSystemEntry>
            <title>Drainage</title>
            <FaultDescriptorEntry>
                <FaultDescriptor>Drainage Leak</FaultDescriptor>
                <MaintenanceAction>Locate Drainage Leak</MaintenanceAction>
                <Reference> - NIST 491</Reference>
                <MaintenanceAction>Plug Drainage Leak</MaintenanceAction>
                <Reference> - NIST 649</Reference>
                <MaintenanceAction>Seal Plug Drainage
                Leak</MaintenanceAction>
                <Reference> - NIST 851</Reference>
                <MaintenanceAction>Consult NIST Plumbing
                Pubs.</MaintenanceAction>
            </FaultDescriptorEntry>
        </SubSystemEntry>
    </SystemFaultDescriptorEntry>
    <NotesList>
        <NotesEntry>All relevant NIST pubs are on-line.</NotesEntry>
    </NotesList>
</FaultDescriptorTable>
```

Table 1. Fault Descriptions.

Fault Description	Maintenance Action
Steam Leakage	Locate Steam Leak - NIST 123
	Plug Steam Leak - NIST 567
	Seal Steam Leak Plug – NIST 587
	Consult NIST Steam Pubs.
System: Plumbing	
Water Leak	Locate Water Leak – NIST 520
	Plug Water Leak – NIST 721
	Seal Water Leak Plug – NIST 889
	Consult NIST Plumbing Pubs.
SubSystem: Drainage	
Drainage Leak	Locate Drainage Leak – NIST 491
	Plug Drainage Leak – NIST 649
	Seal Plug Drainage Leak – NIST 851
	Consult NIST Drainage Pubs.
Notes: - All relevant NIST pubs are on-line.	

Figure A - 20 Fault Descriptor Table Example

A.12.5.1.7. Field and Factory Changes List

The Field and Factory Changes List identifies field changes, factory changes, engineering changes or notices, modifications, and so forth.

Table 1. Field and Factory Changes.

Change No.	Nomenclature	Description
<ChangeNumber>	<Nomenclature>	<desc>
<ChangeNumber>	<Nomenclature>	<desc>
…	…	…
<ChangeNumber>	<Nomenclature>	<desc>
Notes: *Optional* <NotesList>		

Figure A - 21 Field and Factory Changes List Template

MARKUP EXAMPLE:

```
<FieldFactoryChangeList>
    <FieldFactoryChangeListEntry>
        <ChangeNumber>45A</ChangeNumber>
        <Nomenclature>Primary Widget Monitor.<CrossRef xrefid="static"
        StandardTableFootnote="yes"/></Nomenclature>
        <desc>
            <para>Adjust static filter to new tolerance</para>
        </desc>
    </FieldFactoryChangeListEntry>
    <FieldFactoryChangeListEntry>
        <ChangeNumber>45B</ChangeNumber>
        <Nomenclature>Secondary Widget Monitor</Nomenclature>
        <desc>
            <para>Change tuning dial to LCD.
                <CrossRef xrefid="tune"
                StandardTableFootnote="yes"/>
            </para>
```

```
            </desc>
        </FieldFactoryChangeListEntry>
        <NotesList>
            <NotesEntry>Return depleted widgets to Depot for recycling.</NotesEntry>
            <NotesEntry id="static">Use appropriate static filter.</NotesEntry>
            <NotesEntry id="tune">Do not use Plasma option.</NotesEntry>
        </NotesList>
    </FieldFactoryChangeList>
```

Table 1. Field and Factory Changes.

Change No.	Nomenclature	Description
45A	Primary Widget Monitor[1]	Adjust static filter to new tolerance.
45B	Secondary Widget Monitor	Change tuning dial to LCD.[2]
Notes: - Return depleted widgets to Depot for recycling.		

[1] Use appropriate static filter.
[2] Do not use Plasma option.

Figure A - 22 Field and Factory Changes List Example

A.12.5.1.8. Major Equipment Table

A separate Major Equipment Table shall be provided for each combat system element. The tables shall include common name or abbreviation, nomenclature, quantity, and location.

Table 1. Major Equipment.

Common Name	System Nomenclature	Qty.	Location
<CommonName>	<SystemNomenclature>	<Quantity>	<location>
<CommonName>	<SystemNomenclature>	<Quantity>	<location>
…	…	…	…
<CommonName>	<SystemNomenclature>	<Quantity>	<location>
Optional <title> from <MajorEquipmentGroup>			
<CommonName>	<SystemNomenclature>	<Quantity>	<location>
…	…	…	…
<CommonName>	<SystemNomenclature>	<Quantity>	<location>

Figure A - 23 Major Equipment Table Template

MARKUP EXAMPLE:

```
    <MajorEquipmentTable>
        <MajorEquipmentGroup>
            <title>Shipboard Monitoring</title>
            <MajorEquipmentEntry>
                <CommonName>Widget1 Monitor</CommonName>
                <SystemNomenclature>
                    <name>Electrical Device</name>
                </SystemNomenclature>
                <Quantity>1</Quantity>
                <location>Bulkhead1</location>
            </MajorEquipmentEntry>
            <MajorEquipmentEntry>
                <CommonName>Widget1 Sensor</CommonName>
                <SystemNomenclature>
                    <name>Electronic Device</name>
```

```
                </SystemNomenclature>
                <Quantity>5</Quantity>
                <location>Bulkhead 1</location>
            </MajorEquipmentEntry>
            <MajorEquipmentEntry>
                <CommonName>Widget2 Monitor</CommonName>
                <SystemNomenclature>
                    <name>Electronic Device</name>
                </SystemNomenclature>
                <Quantity>3</Quantity>
                <location>Bulkhead 3</location>
            </MajorEquipmentEntry>
        </MajorEquipmentGroup>
    </MajorEquipmentTable>
```

Table 1. Major Equipment.

Common Name	System Nomenclature	Qty.	Location
Shipboard Monitoring			
Widget1 Monitor	Electronic Device	1	Bulkhead 1
Widget1Sensor	Electronic Device	5	Bulkhead 1
Widget2 Monitor	Electronic Device	3	Bulkhead 3

Figure A - 24 Major Equipment Table Example

A.12.5.1.9. Materials List

The Materials List is a list of all materials (consumable materials and/or expendable items) required to perform maintenance type procedures.

Table 1. Materials.

Nomenclature	Restriction(s)	Qty.	Part No. / Spec No.
<Nomenclature>	@maintlevel	<Quantity>	Part No: <PartNumber>
<Nomenclature>	@maintlevel	<Quantity>	Spec No: <SpecNumber>
<Nomenclature>	@maintlevel	<Quantity>	Not Specified here for <NotSpecified>
<Nomenclature>	@maintlevel	<Quantity>	Not Specified
<Nomenclature>	@maintlevel	Blank here for missing <Quantity>	Spec No: <SpecNumber>
<Nomenclature>	@maintlevel		Spec No: <SpecNumber>
…	...	…	…
<Nomenclature>	@maintlevel	<Quantity>	
Notes: *Optional* <NotesList>			

Figure A - 25 Materials List Template

MARKUP EXAMPLE:

```
    <MaterialsList id="i25_v6">
        <MaterialEntry id="i26_v6">
            <Nomenclature>Cooling fan, dual auxiliary, Unit 61</Nomenclature>
            <PartNumber>Not Specified</PartNumber>
        </MaterialEntry>
        <MaterialEntry id="i27_v6">
            <Nomenclature>Oscilloscope, AN/USM-425</Nomenclature>
```

```
            <PartNumber>SCAT 4308</PartNumber>
        </MaterialEntry>
        <MaterialEntry id="i28_v6">
            <Nomenclature>Probe, oscilloscope, 10:1</Nomenclature>
            <PartNumber>Not Specified</PartNumber>
        </MaterialEntry>
        <MaterialEntry id="i29_v6">
            <Nomenclature>Screwdriver, adjustment</Nomenclature>
            <PartNumber>Not Specified</PartNumber>
        </MaterialEntry>
        <MaterialEntry id="i30_v6">
            <Nomenclature>Screwdriver, flat tip, 4"</Nomenclature>
            <PartNumber>Not Specified</PartNumber>
        </MaterialEntry>
        <MaterialEntry id="i31_v6">
            <Nomenclature>Screwdriver, No. 2 Phillips</Nomenclature>
            <PartNumber>Not Specified</PartNumber>
        </MaterialEntry>
        <MaterialEntry id="i32_v6">
            <Nomenclature>System Diagnostic Test (SDT) tape</Nomenclature>
            <PartNumber>Not Specified</PartNumber>
        </MaterialEntry>
    </MaterialsList>
```

Table 1. Materials.

Nomenclature	Restrictions	Qty.	Part No. / Spec No.
Cooling fan, dual auxiliary, Unit 61			Part No: Not Specified
Oscilloscope, AN/USM-425			Part No: SCAT 4308
Probe, oscilloscope, 10:1			Part No: Not Specified
Screwdriver, adjustment			Part No: Not Specified
Screwdriver, flat tip, 4"			Part No: Not Specified
Screwdriver, No. 2 Phillips			Part No: Not Specified
System Diagnostic Test (SDT) tape			Part No: Not Specified

Figure A - 26 Materials List Example

A.12.5.1.10. Protective Devices Index

The Protective Devices Index lists all protective devices, such as fuses, circuit breakers, and so forth. It includes the item reference designation, front panel marking of the device, trip-out value of the circuit breaker and rating of fuses, name of the circuit protected and a reference to troubleshooting diagram(s).

Table 1. Protective Devices Index - <title>

Ref. Desig.	Front Panel Marking	Voltage Rating	Amp Rating	Circuit Protected	Reference
<Reference Designator>	<FrontPanel Marking>	<Rating Volts>	<Rating Amps>	<Circuit Protected>	<Reference>
<Reference Designator>	<FrontPanel Marking>	<Rating Volts>	<Rating Amps>	<Circuit Protected>	<Reference>
<Reference Designator>	<FrontPanel Marking>	<Rating Volts>	<Rating Amps>	<Circuit Protected>	<Reference>
<Reference Designator>	<FrontPanel Marking>	<Rating Volts>	<Rating Amps>	<Circuit Protected>	<Reference>
<Reference Designator>	<FrontPanel Marking>	<Rating Volts>	<Rating Amps>	<Circuit Protected>	<Reference>
…	…	…	…	…	…
<Reference Designator>	<FrontPanel Marking>	<Rating Volts>	<Rating Amps>	<Circuit Protected>	<Reference>
Notes: *Optional* <NotesList>					

Figure A - 27 Protective Devices Index Template

MARKUP EXAMPLE:

```
<ProtectiveDeviceIndex>
    <title></title>
    <ProtectiveDeviceIndexEntry>
        <ReferenceDesignator>123-3456</ReferenceDesignator>
        <FrontPanelMarking>APQ-37</FrontPanelMarking>
        <RatingVolts>123V</RatingVolts>
        <RatingAmps>789A</RatingAmps>
        <CircuitProtected>Zinc jacket</CircuitProtected>
        <Reference>NIST 235-567</Reference>
    </ProtectiveDeviceIndexEntry>
    <ProtectiveDeviceIndexEntry>
        <ReferenceDesignator>456-2348</ReferenceDesignator>
        <FrontPanelMarking>AEVI-8</FrontPanelMarking>
        <RatingVolts>456V</RatingVolts>
        <RatingAmps>321A</RatingAmps>
        <CircuitProtected>Tin top</CircuitProtected>
        <Reference>NIST 434-567/8</Reference>
    </ProtectiveDeviceIndexEntry>
    <NotesList>
        <NotesEntry id="pubs">See other relevant NIST publications for more
        details.</NotesEntry>
    </NotesList>
</ProtectiveDeviceIndex>
```

Table 1. Protective Devices Index.

Ref. Desig.	Front Panel Marking	Voltage Rating	Amp Rating	Circuit Protected	Reference
123-3456	APQ-37	123V	789A	*Zinc jacket*	NIST 235-567
456-2348	AEVI-8	456V	321A	Tin top	NIST 434-567/8
Notes: - See other relevant NIST publications for more details.					

Figure A - 28 Protective Devices Index Example

A.12.5.1.11. References List

The References List is a list of the manuals that pertain to system and subsystem equipment, and other documents of interest or use to operating or maintenance personnel

Table 1. References.

Document Title	Document No.
<title>	<Reference>
…	…
<title>	<Reference>

Figure A - 29 References List Template

MARKUP EXAMPLE:

```
<ReferenceList>
    <ReferenceEntry>
        <title>AN/MK-53 Decoy Launching System</title>
        <Reference>TMINS</Reference>
    </ReferenceEntry>
    <ReferenceEntry>
        <title>AN/SLA-10B</title>
        <Reference>TMINS</Reference>
    </ReferenceEntry>
    <ReferenceEntry>
        <title>AN/ULQ-16(V)2</title>
        <Reference>TMINS</Reference>
    </ReferenceEntry>
    <ReferenceEntry>
        <title>Additional Documentation</title>
        <Reference>TMINS</Reference>
    </ReferenceEntry>
</ReferenceList>
```

Table 1. References.

Document Title	Document No.
AN/MK-53 Decoy Launching System	TMINS
AN/SLA-10B	TMINS
AN/ULQ-16(V)2	TMINS
Additional Documentation	TMINS

Figure A - 30 References List Example

A.12.5.1.12. Required Conditions

Required Conditions presents a list of settings that must be checked before continuing with a procedure.

	Table 1. Required Conditions - <title>
	<RequiredCondEntry>
	….
	<RequiredCondEntry>

Figure A - 31 Required Conditions Template

Note that the checkboxes to the left are for technicians to either check on paper or electronically.

MARKUP EXAMPLE:

```
<RequiredCondList>
    <title></title>
    <RequiredCondEntry>Power is on.</RequiredCondEntry>
    <RequiredCondEntry>Operating Mode is stopped.</RequiredCondEntry>
</RequiredCondList>
```

	Table 1. Required Conditions.
	Power is on.
	Operating Mode is stopped.

Figure A - 32 Required Conditions Example

A.12.5.1.13. Safety Conditions List

The Safety Conditions List is a list of general safety instructions for the IP.

	Table 1. Safety Conditions - <title>
	<SafetyEntry>
	….
	<SafetyEntry>

Figure A - 33 Safety Conditions List Template

Note that the checkboxes to the left are for technicians to either check on paper or electronically.

MARKUP EXAMPLE:

```
<SafetyList>
    <title></title>
    <SafetyEntry>Make sure power is de-energized.</SafetyEntry>
    <SafetyEntry> Make sure pressure is within the operating
            range.</SafetyEntry>
</SafetyList>
```

	Table 1. Safety Conditions.
	Make sure power is de-energized.
	Make sure pressure is within the operating range.

Figure A - 34 Safety Conditions List Example

A.12.5.1.14. Special Tools List

The Special Tools List is a tabular listing of all special tools, tool kits, test equipment, miscellaneous parts, and Government-furnished items that form a part of, or are supplied (or not supplied) with, the system or equipment.

Table 1. Special Tools.

	Nomenclature	Qty.	Part No. / Spec No. / CAGE Code / Stock Code No.
	<Nomenclature>	<Quantity>	**Part No:** <PartNumber>
	<Nomenclature>	<Quantity>	**Spec No:** <SpecNumber>
	<Nomenclature>	<Quantity>	**CAGE:** <CageCode>
	<Nomenclature>	<Quantity>	**Stock No:** <StockCodeNumber>
	…	…	…
	<Nomenclature>	<Quantity>	One of <PartNumber> or <SpecNumber> or <CageCode> or <StockCodeNumber>
Notes: *Optional* <NotesList>			

Figure A - 35 Special Tools List Template

Note that based on the tag used in the right-most column, the words “Part No:”, “Spec No:”, “CAGE:” or “Stock No:” will be automatically generated as appropriate. Also, the checkboxes to the left are for technicians to either check on paper or electronically.

MARKUP EXAMPLE:

```
<SpecialToolsList>
        <SpecialToolEntry>
            <Nomenclature>Torque wrench</Nomenclature>
            <Quantity>1</Quantity>
            <PartNumber>234-12A</PartNumber>
        </SpecialToolEntry>
        <SpecialToolEntry>
            <Nomenclature>Hose fittings</Nomenclature>
            <Quantity>1</Quantity>
            <StockCodeNumber>GAZ90-345</StockCodeNumber>
        </SpecialToolEntry>
        <NotesList>
            <NotesEntry id="reserve">Reserve this tool in advance.</NotesEntry>
        </NotesList>
    </SpecialToolsList>
```

Table 1. Special Tools.

Nomenclature	Qty.	Part No. / Spec No. / CAGE Code / Stock Code No.
Torque wrench	1	**Part No.:** 234-12A
Hose fittings	4	**Stock Code No.:** GAZ90-345
Notes: - Reserve this tool in advance.		

Figure A - 36 Special Tools List Example

A.12.5.1.15. Test Fault Impacts Table

The Test Fault Impacts Table is provided for each major combat system function. This table contains tests with fault isolation pictorial and fault impact evaluation references for each combat mission (AAW, ASW, SUW, and shore bombardment).

Table 1. Test Fault Impacts - <title>

Ref.	Test	Test Brief	Fault Isolation Pictorial	Impact Evaluation Ref.
<IndexNumber>	<Test>	<Equipment>	<FaultIsolationRef>	<ImpactEvaluationRef>
<IndexNumber>	<Test>	<Equipment>	<FaultIsolationRef>	<ImpactEvaluationRef>
…	…	…	…	…
<IndexNumber>	<Test>	<Equipment>	<FaultIsolationRef>	<ImpactEvaluationRef>
<IndexNumber>	<Test>	<Equipment>	<FaultIsolationRef>	<ImpactEvaluationRef>
Notes: *Optional* <NotesList>				

Figure A - 37 Test Fault Impacts Table Template

MARKUP EXAMPLE:

```
<TestFaultImpactTable>
    <title> </title>
    <TestFaultImpactEntry>
        <IndexNumber>45A</IndexNumber>
        <Test>Voltage</Test>
        <Equipment>Volt Meter</Equipment>
        <FaultIsolationRef>Sec. 2, # 3</FaultIsolationRef>
        <ImpactEvaluationRef>Sec. 5, para. 5 </ImpactEvaluationRef>
    </TestFaultImpactEntry>
    <TestFaultImpactEntry>
        <IndexNumber>46B</IndexNumber>
        <Test>Amperage</Test>
        <Equipment>Ammeter</Equipment>
        <FaultIsolationRef>Sec. 3, #16</FaultIsolationRef>
        <ImpactEvaluationRef>Sec. 5, para. 6</ImpactEvaluationRef>
    </TestFaultImpactEntry>
    <NotesList>
        <NotesEntry id="storm">Do not conduct this test if a thunderstorm
        is near by.</NotesEntry>
    </NotesList>
</TestFaultImpactTable>
```

Table 1. Test Fault Impacts.

Ref.	Test	Test Brief	Fault Isolation Pictorial	Impact Evaluation Ref.
45A	Voltage	Volt Meter	Sec. 2, # 3	Sec.5, para. 5
46B	Amperage	Ammeter	Sec. 3, #16	Sec.5, para. 6
Notes: - Do not conduct this test if a thunderstorm is near by.				

Figure A - 38 Test Fault Impacts Table Example

A.12.5.1.16. Electrical Troubleshooting Index

Electrical Troubleshooting Indices are prepared for all relay coils, switches, and indicator lamps. They shall include the item reference designation, the functional name, energizing voltage, and a reference to the troubleshooting diagram(s).

Table 1. Electrical Troubleshooting Index - <index>

Ref. Des.	Functional Name	Voltage	Reference
<ReferenceDesignator>	<name>	<Voltage>	<Reference>
<ReferenceDesignator>	<name>	<Voltage>	<Reference>
…	…		
<ReferenceDesignator>	<name>	<Voltage>	<Reference>
Notes: *Optional* <NotesList>			

Figure A - 39 Electrical Troubleshooting Index Template

MARKUP EXAMPLE:

```
<TroubleshootingIndex>
    <title> </title>
    <TroubleshootingIndexEntry>
        <ReferenceDesignator>Leakage causes</ReferenceDesignator>
        <name>NIST 43-23</name>
        <Voltage>1234</Voltage>
        <Reference>Sec. 3, para.12</Reference>
    </TroubleshootingIndexEntry>
    <TroubleshootingIndexEntry>
        <ReferenceDesignator>Minor shocks</ReferenceDesignator>
        <name>NIST 42-56</name>
        <Voltage>543</Voltage>
        <Reference>Sec. 4, para. 3</Reference>
    </TroubleshootingIndexEntry>
    <NotesList id="pubs">
        <NotesEntry>NIST references are available on-line.</NotesEntry>
    </NotesList>
</TroubleshootingIndex>
```

Table 1. Electrical Troubleshooting Index.

Ref. Des.	Functional Name	Voltage	Reference
Leakage causes	NIST 43-23	1234	Sec. 3, para.12
Minor shocks	NIST 42-56	543	Sec. 4. para. 3
Notes: - NIST references are available on line.			

Figure A - 40 Electrical Troubleshooting Index Example

A.12.5.1.17. Abbreviations List

The Abbreviations List is a consolidated list that identifies and defines all abbreviations, acronyms, and uncommon terms used in the TM. This table is only used in paged-based TMs.

Table 1. Abbreviations - <title>	
Abbreviation/Acronym/Term	**Definition**
<abbrev>	<def>
<abbrev>	<def>
…	…
<abbrev>	<def>
Notes: *Optional* <NotesList>	

Figure A - 41 Abbreviations List Template

MARKUP EXAMPLE:

```
<Abbreviations>
    <title></title>
    <AbbrevList>
        <AbbrevEntry>
            <abbrev>AAA</abbrev>
            <def>Anti-Aircraft Artillery</def>
        </AbbrevEntry>
        <AbbrevEntry>
            <abbrev>AOS</abbrev>
            <def>Acquisition of Signal</def>
        </AbbrevEntry>
        <AbbrevEntry>
            <abbrev>est</abbrev>
            <def>Estimated</def>
        </AbbrevEntry>
        <AbbrevEntry>
            <abbrev>ETA</abbrev>
            <def>Estimated Time of Arrival</def>
        </AbbrevEntry>
        <AbbrevEntry>
            <abbrev>ETD</abbrev>
            <def>Estimated Time of Departure</def>
        </AbbrevEntry>
        <AbbrevEntry>
            <abbrev>LOS</abbrev>
            <def>Loss of Signal</def>
        </AbbrevEntry>
    </AbbrevList>
</Abbreviations>
```

Table 1. Abbreviations.	
Abbreviation/Acronym/Term	**Definition**
AAA	Anti-Aircraft Artillery
AOS	Acquisition of Signal
est	Estimated
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
LOS	Loss of Signal

Figure A - 42 Abbreviations List Example

A.12.5.1.18. Troubleshooting Procedure-B

Troubleshooting Procedure-B lists procedures for detecting, isolating, and correcting systems, subsystems, and equipment failures and malfunctions.

Table 1. Troubleshooting Procedure - <title>

Symptom	Probable Cause/ Malfunction	Corrective Action
<symptom>	<malfunction>	<action> *Optional* <Reference>
(Blank because <SymptomGroup has multiple <MalfunctionGroups>)	<malfunction>	<action> *Optional* <Reference>
	<malfunction>	<action> *Optional* <Reference>
<symptom>	<malfunction>	<action> *Optional* <Reference>
	(Blank because <MalfunctionGroup> has multiple <action>s)	<action> *Optional* <Reference>
		<action>
		<action>
<symptom>	<malfunction>	<action>
…	…	…
<symptom>	<malfunction>	<action>
Notes: *Optional* <NotesList>		

Figure A - 43 Troubleshooting Procedure-B Template

MARKUP EXAMPLE:

```
<TroubleshootingProcedure-B id="tsp065">
    <title></title>
    <SymptomGroup id="mysg345">
        <symptom id="hsplamphigh"> High steam pressure light is on and
        steam pressure has high reading above 110 psig.</symptom>
        <MalfunctionGroup id="mymg780">
            <malfunction><para>Steam dump valve
            malfunction.</para></malfunction>
            <action><para> Check operation of steam dump valve. Manually open valve
            is it is stuck closed. To  open manually, turn hand wheel to full
            counterclockwise (open) position.</para></action>
        </MalfunctionGroup>
        <MalfunctionGroup id="mymg781">
            <malfunction><para> Malfunctioning of the pilot control pneumatic valve
            due to plugged steam  pressure line or cracked pneumatic
            line.</para></malfunction>
            <action><para> Blow down pneumatic lines to
            controller.</para> </action>
            <action><para> Check air supply to pilot controller. </para>
            </action>
        </MalfunctionGroup>
    </SymptomGroup>
    <SymptomGroup id="mysg346">
        <symptom id="fwlamplow"> Low feedwater level light on.
```

```
            </symptom>
            <MalfunctionGroup id="mymg782">
                  <malfunction> <para> Low water level in feedwater
                  tank.</para></malfunction>
                  <action><para>Blow down pneumatic lines to controller.</para> </action>
            </MalfunctionGroup>
      </SymptomGroup>
      <SymptomGroup id="mysg347">
            <symptom id="fwlamphigh"> High feedwater level light on.
            </symptom>
            <MalfunctionGroup id="mymg789">
                  <malfunction><para> High water level in feedwater
                  tank.</para></malfunction>
                  <action><para> Check feedwater tank. Do not overfill.</para> </action>
            </MalfunctionGroup>
      </SymptomGroup>
      <SymptomGroup id="mysg348">
            <symptom id="salinitylamp"> Salinity light on. </symptom>
            <MalfunctionGroup id="mymg790">
                  <malfunction><para>Salinity above .05 epm in the condensate discharge
                  from the boiler condenser or the condensate cooler due to water leak.
                  </para></malfunction>
                  <action><para></para>
                        <RandomList>
                              <item><para> Locate and fix leak.</para></item>
                              <item><para> Flush system to clean salinity
                              cells.</para></item>
                              <item><para> Return system to normal
                              operation.</para></item>
                        </RandomList>
                  </action>
            </MalfunctionGroup>
      </SymptomGroup>
</TroubleshootingProcedure-B>
```

Table 1. Troubleshooting Procedure.

Symptom	Probable Cause/ Malfunction	Corrective Action
High steam pressure light is on and steam pressure has high reading above 110 psig.	Steam dump valve malfunction.	Check operation of steam dump valve. Manually open valve is it is stuck closed. To open manually, turn hand wheel to full counterclockwise (open) position.
	Malfunctioning of the pilot control pneumatic valve due to due to plugged steam pressure line or cracked pneumatic line.	Blow down pneumatic lines to controller.
		Check air supply to pilot controller.
Low feedwater level light on.	Low water level in feedwater tank.	Check feedwater tank. Add water as required.
High feedwater level light on.	High water level in feedwater tank.	Check feedwater tank. Do not overfill.
Salinity light on.	Salinity above .05 epm in the condensate discharge from the boiler condenser or the condensate cooler due to water leak.	• Locate and fix leak. • Flush system to clean salinity cells. • Return system to normal operation.

Figure A - 44 Troubleshooting Procedure-B Example

A.12.5.1.19. Useable On Codes List

The Useable On Codes List provides a list of the useable on codes and their meanings.

Table 1. Useable On Codes for Figure 1 IPB Figure.

Useable on Code	Definition
<UseableOnCode>	<ModelNumber>
<UseableOnCode>	<ModelNumber>*Optional* <remarks>
<UseableOnCode>	<ModelNumber>*Optional* <remarks>

Figure A - 45 Useable On Codes List Template

MARKUP EXAMPLE:

```
<UseableOnCodeList>
        <UseOnEntry id="myid98">
                <UseableOnCode>58934</UseableOnCode>
                <ModelNumber>EL-587</ModelNumber>
        </UseOnEntry>
        <UseOnEntry id="myid99">
                <UseableOnCode>68579</UseableOnCode>
                <ModelNumber>EL-588</ModelNumber>
                <remarks>This is a remark.</remarks>
        </UseOnEntry>
</UseableOnCodeList>
```

Table 1. Useable On Codes for Figure 1 IPB Figure.

Useable on Code	Definition
58934	EL-587
68579	EL-588 This is a remark.

Figure A - 46 Useable On Codes List Example

A.12.5.1.20. Group Assembly Parts List (GAPL)

The GAPL is a tabular listing of all authorized repair parts for use in the performance of maintenance.

Table 1. GAPL for Figure 1 IPB Figure							
Figure and Index No.	**Ref. Desig.**	**Part No.**	**Part Name and Description**	**Qty. Per Assy.**	**CAGE Code**	**Used On Code**	**SM&R Code**
@refs @ConfigIDRef Magnetic Liquid-oxygen QECA ESDS HCI	<ReferenceDesignator>	**GAPLPartNumber @type <GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode>	*Optional* <*UseableOnCode*>	*Optional* <*SMRCode*>
@refs @ConfigIDRef Magnetic Liquid-oxygen QECA ESDS HCI	<ReferenceDesignator>	**Govt: <GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode>	*Optional* <*UseableOnCode*>	*Optional* <*SMRCode*>
@refs @ConfigIDRef Magnetic Liquid-oxygen QECA ESDS HCI	<ReferenceDesignator>	**Vendor: <GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode>	*Optional* <*UseableOnCode*>	*Optional* <*SMRCode*>

@refs @ConfigIDRef Magnetic Liquid-oxygen QECA ESDS HCI	<ReferenceDesignator>	**None**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode>	*Optional* *<UseableOnCode>*	*Optional* *<SMRCode>*
@refs @ConfigIDRef Magnetic Liquid-oxygen QECA ESDS HCI	<ReferenceDesignator>	**Not Assigned**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode>	*Optional* *<UseableOnCode>*	*Optional* *<SMRCode>*
@refs @ConfigIDRef Magnetic Liquid-oxygen QECA ESDS HCI	<ReferenceDesignator>	**NSN: <GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode>	*Optional* *<UseableOnCode>*	*Optional* *<SMRCode>*

@refs @ConfigIDRef Magnetic Liquid-oxygen QECA ESDS HCI	<ReferenceDesignator>	**Commerical:** **<GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode>	*Optional* *<UseableOnCode>*	*Optional* *<SMRCode>*
@refs @ConfigIDRef Magnetic Liquid-oxygen QECA ESDS HCI	<ReferenceDesignator>	***(Standard is not Labeled)*** **<GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode>	*Optional* *<UseableOnCode>*	*Optional* *<SMRCode>*
….	….	….	….	….	….	….	….
<IndexNumber> @refs @nha Shown (not-shown)	<ReferenceDesignator>	**GAPLPartNumber** **@type** **<GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode>	*Optional* *<UseableOnCode>*	*Optional* *<SMRCode>*

<IndexNumber> @refs @ConfigIDRef @nha Shown (not-shown)	<ReferenceDesignator>	**GAPLPartNumber @type <GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode>	*Optional* *<UseableOnCode>*	*Optional* *<SMRCode>*
@refs @ConfigIDRef @nha Shown (not-shown)	<ReferenceDesignator>	**GAPLPartNumber @type <GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode>	*Optional* *<UseableOnCode>*	*Optional* *<SMRCode>*
…	**….**	**….**	….	….	….	….	….
@refs @ConfigIDRef @nha Shown (not-shown	<ReferenceDesignator>	**GAPLPartNumber @type <GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode>	*Optional* *<UseableOnCode>*	*Optional* *<SMRCode>*
…	**….**	**….**	….	….	….	….	….

@refs @ConfigIDRef @nha Shown (not-shown	<ReferenceDesignator> >	**GAPLPartNumber** **@type** **<GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optiona* *l* <units>	*Optional* <CageCode> >	*Optional* *<UseableOnCode* >	*Optional* *<SMRCode* >
…	….	….	….	….	….	….	….
<IndexNumber > @refs @ConfigIDRef @nha Shown (not-shown)	<ReferenceDesignator> >	**GAPLPartNumber** **@type** **<GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optiona* *l* <units>	*Optional* <CageCode> >	*Optional* *<UseableOnCode* >	*Optional* *<SMRCode* >
@refs @ConfigIDRef @nha Shown (not-shown)	….	….	….	….	….	….	….
….	….	….	….	….	….	….	….
<IndexNumber > @refs @ConfigIDRef @nha Shown (not-shown	<ReferenceDesignator> >	**GAPLPartNumber** **@type** **<GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optiona* *l* <units>	*Optional* <CageCode> >	*Optional* *<UseableOnCode* >	*Optional* *<SMRCode* >

@refs @ConfigIDRef @nha Shown (not-shown)	<ReferenceDesignator> 	**GAPLPartNumber** **@type** **<GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode> 	*Optional* *<UseableOnCode> 	*Optional* *<SMRCode>
@refs @ConfigIDRef @nha Shown (not-shown	<ReferenceDesignator> 	**GAPLPartNumber** **@type** **<GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode> 	*Optional* *<UseableOnCode> 	*Optional* *<SMRCode>
@refs @ConfigIDRef @nha Shown (not-shown	<ReferenceDesignator> 	**GAPLPartNumber** **@type** **<GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode> 	*Optional* *<UseableOnCode> 	*Optional* *<SMRCode>

<IndexNumber> @refs @ConfigIDRef @nha Shown (not-shown)	<ReferenceDesignator>	**GAPLPartNumber @type <GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>	*Optional* <CageCode>	*Optional* *<UseableOnCode>*	*Optional* *<SMRCode>*
@refs @ConfigIDRef @nha Shown (not-shown)	**….**	**….**	….	….	….	….	….
….	**….**	**….**	….	….	….	….	….
@refs @nha Shown (not-shown Markings Magnetic Liquid-oxygen Kit Matched-part QECA ESDS HCI		**GAPLPartNumber @type <GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>		*Optional* *<UseableOnCode>*	*Optional* *<SMRCode>*

Markings Magnetic Liquid-oxygen Kit Matched-part QECA ESDS HCI		**GAPLPartNumber** **@type** **<GAPLPartNumber>**	<Nomenclature> *Optional* <NHANote> *Optional* <DrawingSpecNumber> *Optional* <ExternalRef> *Optional* <tolerance> *Optional* <size> *Optional* <drilltrim> *Optional* <DescriptionNote>	*Optional* <units>		*Optional* *<UseableOnCode>*	*Optional* *<SMRCode>*
		....	....	....		…	…
Notes: *Optional* <NotesList>							

Figure A - 47 GAPL Template

MARKUP EXAMPLE:

```
<gapl>

<enditem>
<ReferenceDesignator>1A1</ReferenceDesignator>
<GAPLPartNumber>3052251G1</GAPLPartNumber>
<PartDescription>
<Nomenclature>END ITEM</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
<units>REF</units>
</enditem>

<DetailedPart>
<PartInfo>
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<GAPLPartNumber>3052359G1</GAPLPartNumber>
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<PartDescriptionEnd/>
</PartDescription>
<units>1</units>
<SMRCode>PFOGEN</SMRCode>
</PartInfo>
</DetailedPart>

<Assembly>
<PartInfo>
<IndexNumber>2</IndexNumber>
<GAPLPartNumber>3052398G1</GAPLPartNumber>
<PartDescription>
<Nomenclature>. ASSEMBLY</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
<units>1</units>
</PartInfo>

<AttachingParts>
<AttachStart/>

<AttachingPart>
<PartInfo>
<IndexNumber>3</IndexNumber>
<GAPLPartNumber>3017972G1</GAPLPartNumber>
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<PartDescriptionEnd/>
</PartDescription>
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</PartInfo>
</AttachingPart>

<AttachEnd/>
</AttachingParts>

<DetailedPart>
```

<PartInfo>
<IndexNumber>4</IndexNumber>
<GAPLPartNumber>MS51957-28</GAPLPartNumber>
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</PartDescription>
<units>18</units>
</PartInfo>
</DetailedPart>

<DetailedPart>
<PartInfo>
<GAPLPartNumber>MS15795-805</GAPLPartNumber>
<PartDescription>
<Nomenclature>. . Detailed part B for Assembly</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
<units>18</units>
</PartInfo>
</DetailedPart>

<SubAssembly>
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<GAPLPartNumber>3052395G1</GAPLPartNumber>
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<PartDescriptionEnd/>
</PartDescription>
<units>1</units>
</PartInfo>

<AttachingParts>
<AttachStart/>

<AttachingPart>
<PartInfo>
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<Nomenclature>. . Attaching part A for Subassembly</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
<units>6</units>
</PartInfo>
</AttachingPart>

<AttachingPart>
<PartInfo>
<GAPLPartNumber>MS15795-805</GAPLPartNumber>
<PartDescription>
<Nomenclature>. . Attaching part B for Subassembly</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
<units>6</units>

```
</PartInfo>
</AttachingPart>

<AttachingPart>
<PartInfo>
<IndexNumber>7</IndexNumber>
<GAPLPartNumber>82-35-302-15</GAPLPartNumber>
<PartDescription>
<Nomenclature>. . Attaching part C for Subassembly and this Attaching Part has a runover
line</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
<CageCode>94222</CageCode>
</PartInfo>
</AttachingPart>

<AttachEnd/>
</AttachingParts>

<DetailedPart>
<PartInfo>
<IndexNumber>8</IndexNumber>
<GAPLPartNumber>MS20426AD3-5</GAPLPartNumber>
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<Nomenclature>. . . Detailed part for Subassembly</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
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</PartInfo>
</DetailedPart>

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<units>1</units>
</PartInfo>

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<AttachStart/>

<AttachingPart>
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<IndexNumber>10</IndexNumber>
<GAPLPartNumber>3052395P1</GAPLPartNumber>
<PartDescription>
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<PartDescriptionEnd/>
</PartDescription>
<units>1</units>
</PartInfo>
</AttachingPart>
```

<AttachEnd/>
</AttachingParts>

<DetailedPart>
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<GAPLPartNumber>3052323G2</GAPLPartNumber>
<PartDescription>
<Nomenclature>. . . . Detailed Part A for Sub-Subassembly</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
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</DetailedPart>

<DetailedPart>
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<GAPLPartNumber>3052323G1</GAPLPartNumber>
<PartDescription>
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</PartInfo>
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<AttachingParts>
<AttachStart/>

<AttachingPart>
<PartInfo>
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<ReferenceDesignator>1A1A3</ReferenceDesignator>
<GAPLPartNumber>3052255G1</GAPLPartNumber>
<PartDescription>
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<PartDescriptionEnd/>
</PartDescription>
<units>1</units>

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</AttachingPart>

<AttachingPart>
<PartInfo>
<IndexNumber>14</IndexNumber>
<ReferenceDesignator>1A1A4</ReferenceDesignator>
<GAPLPartNumber>3052328G1</GAPLPartNumber>
<PartDescription>
<Nomenclature> . . . . Attaching part B for Sub-Sub-Subassembly</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
<units>1</units>
</PartInfo>
</AttachingPart>

<AttachingPart>
<PartInfo>
<IndexNumber>15</IndexNumber>
<ReferenceDesignator>1A1A5</ReferenceDesignator>
<GAPLPartNumber>3017930G1</GAPLPartNumber>
<PartDescription>
<Nomenclature> . . . . Attaching part C for Sub-Sub-Subassembly</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
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</PartInfo>
</AttachingPart>

<AttachingPart>
<PartInfo>
<IndexNumber>16</IndexNumber>
<ReferenceDesignator>1A1A6</ReferenceDesignator>
<GAPLPartNumber>3017946G1</GAPLPartNumber>
<PartDescription>
<Nomenclature> . . . . Attaching part D for Sub-Sub-Subassembly</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
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</PartInfo>
</AttachingPart>

<AttachingPart>
<PartInfo>
<IndexNumber>17</IndexNumber>
<ReferenceDesignator>1A1A7</ReferenceDesignator>
<GAPLPartNumber>3017926G1</GAPLPartNumber>
<PartDescription>
<Nomenclature> . . . . Attaching part E for Sub-Sub-Subassembly</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
<units>1</units>
</PartInfo>
</AttachingPart>

<AttachingPart>
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<PartInfo>
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<ReferenceDesignator>1A1A8</ReferenceDesignator>
<GAPLPartNumber>3052333G2</GAPLPartNumber>
<PartDescription>
<Nomenclature> . . . . Attaching part F for Sub-Sub-Subassembly</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
<units>1</units>
</PartInfo>
</AttachingPart>

<AttachEnd/>
</AttachingParts>

<DetailedPart>
<PartInfo>
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<ReferenceDesignator>1A1A9</ReferenceDesignator>
<GAPLPartNumber>3052260G2</GAPLPartNumber>
<PartDescription>
<Nomenclature>. . . . . Detailed part A for Sub-Sub-Subassembly</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
<units>1</units>
<UseableOnCode>A</UseableOnCode>
</PartInfo>
</DetailedPart>

<DetailedPart>
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<ReferenceDesignator>1A1A9</ReferenceDesignator>
<GAPLPartNumber>3052260G1</GAPLPartNumber>
<PartDescription>
<Nomenclature>. . . . . Detailed part B for Sub-Sub-Subassembly</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
<units>1</units>
<UseableOnCode>B</UseableOnCode>
</PartInfo>
</DetailedPart>

<DetailedPart>
<PartInfo>
<ReferenceDesignator>1A1A9</ReferenceDesignator>
<GAPLPartNumber>4667840N3</GAPLPartNumber>
<PartDescription>
<Nomenclature>Detailed part Alternate part for Sub-Sub-Subassembly
</Nomenclature>
<PartDescriptionEnd/>
</PartDescription>
<units>1</units>
<UseableOnCode>*C</UseableOnCode>
</PartInfo>
</DetailedPart>

</SubAssembly>

</SubAssembly>

</SubAssembly>

</Assembly>

</gapl>

Table 1. GAPL for Figure 3 IPB Figure

Figure and Index No.	Ref. Desig.	Part No.	Part Name and Description 1 2 3 4 5 6 7	Qty. Per Assy.	CAGE Code	Used On Code	SM&R Code
Fig 3							
	1A1	3052251G1	END ITEM	REF			
-1		3052359G1	. Detailed part for End Item	1			PFOGEN
-2		3052398G1	. ASSEMBLY	1			
-3		3017972G1	. Attaching Part for Assembly	1			
-4		MS51957-28	. . Detailed part A for Assembly	18			
		MS15795-805	. . Detailed part B for Assembly	18			
-5		3052395G1	. . SUBASSEMBLY	1			
-6		MS51957-28	. . Attaching part A for Subassembly	6			
		MS15795-805	. . Attaching part B for Subassembly	6			
-7		82-35-302-15	. . Attaching part C for Subassembly and this Attaching Part has a runover line	2	94222		
-8		MS20426AD3-5	. . . Detailed part for Subassembly	2			
-9		3065314P3	. . . SUB-SUBASSEMBLY	1			
-10		3052395P1	. . . Attaching part for Sub-Subassembly	1			
-11	1A1A1	3052323G2	. . . . Detailed Part A for Sub-Subassembly	1		A	
	1A1A1	3052323G1	. . . . Detailed Part B for Sub-Subassembly	1		B	
-12	1A1A2	3052333G1	. . . . SUB-SUB-SUBASSEMBLY	1			
-13	1A1A3	3052255G1	. . . . Attaching part A for Sub-Sub-Subassembly	1			
-14	1A1A4	3052328G1	. . . . Attaching part B for Sub-Sub-Subassembly	1			
-15	1A1A5	3017930G1	. . . . Attaching part C for Sub-Sub-Subassembly	1			
-16	1A1A6	3017946G1	. . . . Attaching part D for Sub-Sub-Subassembly	1			
-17	1A1A7	3017926G1	. . . . Attaching part E for Sub-Sub-Subassembly	1			
-18	1A1A8	3052333G2	. . . . Attaching part F for Sub-Sub-Subassembly	1			
-19	1A1A9	3052260G2	. . . . . Detailed part A for Sub-Sub-Subassembly	1		A	
	1A1A9	3052260G1	. . . . . Detailed part B for Sub-Sub-Subassembly	1		B	
	1B1A9	4667840N3	. . . . . Detailed part Alternate part for Sub-Sub-Subassembly	1		*C	

Figure A - 48 GAPL Example

A.12.5.1.21. Numerical Index of Parts

The Numerical Index of Parts is an auto-generated index of part numbers.

Table 1. Numerical Index of Parts.

Part No.	IP/Figure/Index No.
GAPLPartNumber @type <GAPLPartNumber>	IP, Figure #, <IndexNumber>

Figure A - 49 Numerical Index of Parts Template

MARKUP EXAMPLE: This table is auto-generated by the publisher.

Table 1. Numerical Index of Parts.

Part No.	IP/Figure/Index No.
123456789012345	055 00/1/-
A1234567 23456	055 00/1/1
	055 00/2/1
AB1234567 23456	055 00/1/-
AC1234567 23456	055 00/2/-
C1234567 23456	055 00/1/-
D1234567 23456	055 00/1/-
E1234567 23456	055 00/1/2
F1234567 23456	055 00/1/3

Figure A - 50 Numerical Index of Parts Example

A.12.5.1.22. Reference Designation Index

The Reference Desgination Index provides direct access to the specific manual, figure, and index number related to a specific reference designation. It is auto-generated by the publisher.

Table 1. Reference Designation Index.

Ref. Desig.	IP/Figure/Index No.	Part No.
<ReferenceDesignator>	IP, Figure #, <IndexNumber>	**GAPLPartNumber @type <GAPLPartNumber>**

Figure A - 51 Reference Designation Index Template

MARKUP EXAMPLE: This table is auto-generated by the publisher.

Table 1. Reference Designation Index

Ref. Desig.	IP/Figure/Index No.	Part No.
1A1	055 00/1/-	123456789012345
1A1A1	055 00/1/1	A1234567 23456
	055 00/1/-	D1234567 23456
	055 00/2/1	A1234567 23456
1A1A1-EQ	055 00/1/-	C1234567 23456
1A1A2	055 00/1/2	E1234567 23456
	055 00/1/3	F1234567 23456
1A1A21C	055 00/1/-	AB1234567 23456
	055 00/2/-	AC1234567 23456

Figure A - 52 Reference Designation Index Example

A.13. Graphics

Graphics encompass figures and foldouts. Most IPs have an optional Figure Section **<FigureSection>** and an optional Foldout Section **<FoldoutSection>** at the end of the IP. Figures **<figure>**s may be assembled in the Figure Section, and foldouts **<foldout>**s will be assembled in the Foldout Section. The DTD does not support Figure Section **<FigureSection>** or Foldout Section **<FoldoutSection>** for the following IPs.

- AlphaIndexIP
- EquipModIP
- IllustratedPartsBreakdownIP
- MatReqIP
- PartNoIndexIP
- RefDesIndexIP
- RefPubIP
- ScheduledMaintenanceIP
- StteIP

A.13.1. <figure> Element

The **<figure>** element is basically made up of a **<title>** and either a **<graphic>** or at least two **<SubFigure>**s. Figures that don't appear in a Figure Section **<FigureSection>** may appear in any paragraph or step construct or in a Parts List Group **<PartsListGroup>**. Each figure **<figure>** has an *'id'* attribute whose value must be unique for each figure. The **<figure>** element has an *'orient'* attribute that is used to indicate the orientation of the figure. The default value is "port" which indicates portrait. To have the figure display in landscape, the *'orient'* attribute must be set to "land".
The following tagging example would produce a figure with a landscape orientation:

```
<figure id="FeedwaterPumpMotorfig" orient=land”>
        <title>Feedwater Pump Motor</title>
        …
</figure>
```

A.13.2. <foldout> Element

The **<foldout>** element is basically made up of a **<title>** and either a **<graphic>** or at least two **<SubFigure>**s. Foldouts appear in the **<FoldoutSection>** at the end of an IP. Each foldout **<foldout>** has an *'id'* attribute whose value must be unique for each foldout. The *'orient'* attribute has a default value is "port" which indicates portrait. This value should not be changed. The *'pgstyle'* attribute tells the publisher which page size to use when placing the graphic. The allowed values for the *'pgstyle'* attribute are "11x17", "11x20.5", "11x24", and "11x26".

A.13.3. <SubFigure> Element

The **<SubFigure>** element is to be used if the figure contains multiple sheets of graphic art. If the **<SubFigure>** element is selected, there must be at least two **<SubFigure>** elements used within a **<figure>** or **<foldout>**, and each **<SubFigure>** will have one graphic element **<graphic>**. The **<SubFigure>** element has an *'orient'* attribute that is used to indicate the orientation of the figure. The default value is "port" which indicates portrait. To have the figure display in landscape, the *'orient'* attribute must be set to "land1".

```
<figure id="FuelScavengingUnitfig">
    <title>Fuel Scavenging Unit</title>
    <SubFigure id="FuelScavengingUnitSheet1fig" orient="land1">
        <graphic boardno="FSU1fig"/>
    </SubFigure>
    <SubFigure id="FuelScavengingUnitSheet2fig">
        <graphic boardno="FSU2fig"/>
    </SubFigure>
    <SubFigure id="FuelScavengingUnitSheet3fig">
        <graphic boardno="FSU3fig"/>
    </SubFigure>
</figure>
```

A.13.4. <graphic> Element

The **<graphic>** element is the only element to reference a piece of art. **<graphic>** has several possible attributes as shown in Table A - 17.

Table A - 17 <graphic> Element Attributes

Attribute	Explanation	Type	Default Value	Used by SNIPP PDF Publisher	Used by SNIPP IETM Publisher
boardno	Unique identifier that acts as a pointer to reference the external file containing the source graphic	ENTITY	Required to be entered by the author	Yes	Yes
reprowid	Specifies the width of the graphic	CDATA	Optional	Yes	No
reprodep	Specifies the depth of the graphic	CDATA	Optional	Yes	No
graphsty	Allows access to **<graphic>** attribute values that are pre-defined by a publisher	NMTOKEN	Optional	No	Yes

The following is sample tagging for a **<graphic>** declared within a **<figure>** in a **<FigureSection>** at the end of an IP:

```
<FigureSection>
    <figure id="BrewTimerControlThermostatfig">
        <title>Brew Timer and Control Thermostat</title>
        <graphic boardno="coffeepot_Page_24_Image_0001"
        reprowid="2.75in" reprodep="1.79in"></graphic>
    </figure>
    …
</FigureSection>
```

A.13.5. Graphic Supporting Data

The element **<graphic>** may contain a collection of **<CalloutData>** elements within the supporting data element **<GraphicData>**. The supporting data provides for the ability to link to/from a graphic hotspot/callout for vector graphics within a frame-based IETM.

A.14. Cross Reference

Cross reference information such as "**2.2 Primary Antenna**" should not be entered directly. Cross references should always be tagged using either the **<CrossRef>** or **<FigureRef>** elements. The element **<FigureRef>** is used for cross references to figures, while the element **<CrossRef>** is used for cross references to text-type units of information (e.g., IPs, tables, paragraphs, and steps). In order to understand the markup of cross references, it is important to understand *'id'* attribute values.

A.14.1. 'xrefid', 'idref', and 'id' Attributes

The cross reference elements **<CrossRef>** and **<FigureRef>** provide linkage to other elements in the technical manual. The attribute *'xrefid'* (on the element **<CrossRef>**) and the attribute *'idref'* (on the element **<FigureRef>**) are used to identify the ID of the piece of information being pointed to. In order for the link to work, the piece of information being pointed to must have a unique identifier assigned to it. This unique identifier is assigned via the *'id'* attribute on the xml tag declaring the data. The value of the cross-referencing attribute (*'xrefid'* on the element **<CrossRef>**, *'idref'* on the element **<FigureRef>**) must be the same as the *'id'* attribute value on the element referred to. Therefore, it is a good practice to specify unique *'id'* attribute values for all IPs, paragraphs, tables, and figures. The text that is entered in an *'id'* attribute field must be unique compared to the values of the *'id'* attributes of all other elements in the assembled IETM Product (tagged instance). Therefore, it is wise to devise an *'id'* attribute value assignment methodology. For example, the title of the table could be used as the *'id'* attribute value (being careful to remove all blank spaces) and adding the text "tab" at the end of the *'id'* attribute value. This would make the table's *'id'* attribute value unique compared to a figure or titled paragraph containing the same title. Note that *'id'* attribute values CANNOT start with a number and are case sensitive. In the example below, the first line of tagging shows a **<Remove>** step element. The **<Remove>** step element is assigned an *'id'* attribute value of "FrontPanelRemovalpara". The last line of tagging shows a **<para>** element that references the **<Remove>** step element via the *'xrefid'* attribute. The value of the *xrefid'* attribute is also "FrontPanelRemovalpara".

```
<Remove emergency="emerg-notapp" esds="esds-notapp" hcp="hcp-notapp"
id="FrontPanelRemovalpara">
        <title>Front Panel Removal</title>
        <step>Unscrew cover bolts</step>
        …
</Remove>
…
<para>Remove front panel following <CrossRef xrefid="FrontPanelRemovalpara"/>.</para>
```

A.14.2. Using <CrossRef> to Reference Within the Same IP

Within the same IP, cross references to figures are tagged with **<FigureRef>**; all other cross references to pieces of information contained in the assembled manual are tagged as **<CrossRef>**. Assuming that the ID value of the element that is to be referenced has been assigned, insert the **<CrossRef>** element at the place where it would be desired to make a reference. The element **<CrossRef>** requires that the attribute *'xrefid'* be filled out. This field must be filled in with the exact ID (case sensitive) value of the element being referenced. In order to link to a table titled Thermostat Operation Values, the table would be tagged:

```
<table id="ThermostatOperationValuestab">
        <title>Thermostat Operation Values</title>
        …
</table>
```

Then the cross reference that points to the table would be tagged as:

<CrossRef xrefid="ThermostatOperationValuestab"/>

Note that external cross references to other manuals may be tagged using the **<ExternalRef>** element. However, unlike the internal cross reference element **<CrossRef>**, the external manual's number must be supplied as character text of **<ExternalRef>**. Attributes may be used to supply the URL to the manual, if known.

A.14.3. Using <CrossRef> to Reference Steps

Cross references to steps that are within the same procedure are tagged in the same way as described above; the step being referenced must have an ID value assigned, and the cross reference tag **<CrossRef>** would identify that ID value. For example, text such as:

1. If Tank 3 has seawater, perform step 5
…
5. Close Valve 12.

would be tagged as:

```
<step>
        <para>If Tank 3 has seawater, perform
        step <CrossRef xrefid="Valve12proc"/></para>
</step>
...
<step id="Valve12proc">

        <para>Close Valve 12. </para>
</step>
```

A reference to a step that occurs outside the current procedure but within the same IP must be tagged differently in order to adequately identify the referenced step. For example, the paragraph number and step number or the name of the procedure step may be used. Table A-18 illustrates a step that contains a cross reference to a step found in a different task/procedure in the IP. The cross reference **<CrossRef>** contains two attribute values: (1) *'xrefid'* points to the ID value of the step being referenced; and (2) *'otherprocedure'* points to the ID value of the procedure that contains the step. Table A - 18 shows examples of step markup and the resultant output.

Table A - 18 Example of Step Markup and Output

Markup	Formatted text in TM
<step> <para>Turn power on. <CrossRef otherprocedure="gzdi17-1" xrefid="gzdi17-12"/> </para> </step>	**1. Turn power on. 044 00 EquipOperatingProceduresIP 3.1.2 Operating Procedure step 1.**
<EquipOperatingProceduresIP id="gzdi17-1"> … <title>Operating Procedure</title> … <OperatingStep id="gzdi17-12"> <step id="gzdi17-13"> <para id="gzdi17-14">Locate circuit breaker 52Z.</para> </step> </OperatingStep>	**3.1.2 Operating Procedure 1. Locate circuit breaker 52Z.**

A.14.4. Using <CrossRef> to Reference Text Outside the IP

Cross references to text contained in a separate IP are tagged the same as text within an IP (see A.14.2), with an additional attribute *'otherip'* added, which contains the ID value of the referenced IP. Therefore, the markup

<CrossRef xrefid="procparaid" otherip="maintipid"/>

would result in

IP 051 00 MaintenanceIP 3.2 Procedure Title

with the assumption that the referenced text has a unique identifier (id="paraid") and is contained in an IP that has a unique identifier (id="ipid") and is enumerated as “IP 051 00” upon publication of the complete page-based manual. In the IETM, the markup would result in:

MaintenanceIP Procedure Title

where the link would launch the viewer directly to the paragraph.

A.14.5. The External Reference <ExternalRef> Element

External cross references to other manuals may be tagged using the **<ExternalRef>** element. However, unlike internal cross references **<CrossRef>**, the external manual number must be supplied as character text of **<ExternalRef>**. Attributes may be used to supply the URL to the manual, if known.

<ExternalRef href="https://mercury.tdmis.navy.mil">REFER TO JF234-EN-SQR-040 FOR BREAKDOWN</ExternalRef>

A.14.6. Figure References

Figure references found within the body of the IP are tagged using the **<FigureRef>** element. There are two attributes required for this tag: *'boardno'* and *'idref'*. The value of the *'boardno'* attribute is the xml entity that points to the file containing the graphic. The attribute *'idref'* serves the purpose of a cross reference pointer to the *'id'* value of the figure.

A.14.7. Referencing from Graphic Callouts

The graphic element **<graphic>** may contain supporting data **<GraphicData>** which serves as a container of links to data associated with the graphic. This supporting data also provides for the ability to link to/from a graphic hotspot/callout for vector graphics within a frame-based IETM. The element **<GraphicData>** is a collection of **<CalloutData>** elements which will have a unique identifier (e.g., *'id'* attribute values ="calloutlube"). This will allow referencing by other elements, such as a callout <callout idref="calloutlube"> from within a step, or from a vector graphic hotspot within a frame-based IETM. The **<CalloutData>** element can then provide for two types of links; one to Parts Data **<PartDataRef>**, and one to a task or other parts on the IETM **<NavigateRef>**. The **<CalloutData>** element also provides the ability to call in a supporting element **<CompositeGraphic>** that may show a more detailed view or a photograph for a particular hotspot.

A.15. Front Matter

The following guidelines are applicable to front matter of a page-based TM or an IETM. Some elements of front matter are automatically generated.

A.15.1. <TitlePage>

A title page **<TitlePage>** is prepared for all IETMs. **<TitlePage>** is a container element that consists of a number of elements that are detailed in the following paragraphs. Below is an example of tagging for **<TitlePage>** and the elements that make up **<TitlePage>**:

```
<TitlePage>
    <TMidno security="u">S6161-QT-FSE-010</TMidno>
    <PubDate security="u">10 December 2008</PubDate>
    <RevisionNumberDate>
        <RevisionNumber>1</RevisionNumber>
        <date>1 November 2009</date>
    </RevisionNumberDate>
    <TMTitle publicationType="CombatSystemTechnicalOperationsManual">
        <SystemNomenclature>
            <name>LAN/Switchboard Installation and Maintenance for DDG 100 through
            110</name>
            <equiptype>Local Area Network</equiptype>
            <ModelDesInfo>
                <single number="MN 12345-8764"/>
            </ModelDesInfo>
            <TypeDesInfo>
                <single number="TD 2345867"/>
            </TypeDesInfo>
            <SerialNumberInfo>
                <single number="SN G-1000-487364-98745"/>
            </SerialNumberInfo>
            <PartNumberInfo>
                <single number="190-00498-00"/>
            </PartNumberInfo>
            <nsn>0910-LP-0000-000</nsn>
            <Effectivity>
                <ConfigurationID id="configa32">
                    <ShipClass>DDG</ShipClass>
                    <ShipHull>DDG-51</ShipHull>
                    <ModelDesInfo>
                        <single number="MN 12345-8764"/>
                    </ModelDesInfo>
                    <TypeDesInfo>
                        <single number="TD 2345867"/>
```

```
                        </TypeDesInfo>
                        <SerialNumberInfo>
                            <single number="SN G-1000-487364-98745"/>
                        </SerialNumberInfo>
                        <PartNumberInfo>
                            <single number="190-00498-00"/>
                        </PartNumberInfo>
                        <ShipAlt>
                            <single number="543"/>
                        </ShipAlt>
                        <FieldChange value="1, 2, and 7"/>
                        <Variant value="(G)"/>
                        <OtherConfig configtype="configtype">
                            <single number="43"/>
                        </OtherConfig>
                    </ConfigurationID>
                </Effectivity>
            </SystemNomenclature>
            <MaintenanceLevel Organizational="org-app" Intermediate="int-app"/>
            <TMSubtitle>Subtitle text here</TMSubtitle>
        </TMTitle>
        <Notices>
            <SupersedNotice>
                <para id="i22-1">This is para text in a SupersedNotice Data data data
                data data data data data data data data data data data data data data
            data</para>
            </SupersedNotice>
            <SupplementNotice>
                <para>This is text is a SupplementNotice element.  Data data data
                data data data data data data data data data data data data data data
            data</para>
            </SupplementNotice>
            <DistributionStatement type="c">
                <para id="i22-2">DISTRIBUTION AUTHORIZED TO US GOVERNMENT
                AGENCIES AND THEIR CONTRACTORS; (FILL IN REASON); (DATE OF
                DETERMINATION). OTHER REQUESTS FOR THIS DOCUMENT SHALL BE
                REFERRED TO THE NAVAL SEA SYSTEMS COMMAND (SEA-
                09B2).</para>
            </DistributionStatement>
            <DisclosureNotice>
                 <para>This is text contained in the disclosure notice. Data data data data
                data data data data data data data data data data data data</para>
            </DisclosureNotice>
            <AuthorityNotice>
                <para id="i22-3">PUBLISHED BY DIRECTION OF COMMANDER, NAVAL
                SEA SYSTEMS COMMAND</para>
            </AuthorityNotice>
            <ExportControlNotice>
                <para id="i22-4">THIS DOCUMENT CONTAINS TECHNICAL DATA
                WHOSE EXPORT IS RESTRICTED BY THE ARMS EXPORT CONTROL
                ACT (TITLE 22, U.S.C. SEC 2751, ET SEQ.) OR THE EXPORT
                ADMINISTRATION ACT OF 1979, AS AMENDED, TITLE 50, U.S.C., APP
                2401 ET SEQ. VIOLATIONS OF THESE EXPORT LAWS ARE SUBJECT TO
                SEVERE CRIMINAL PENALTIES. DISSEMINATE IN ACCORDANCE WITH
                PROVISIONS OF DOD DIRECTIVE 5230.25</para>
            </ExportControlNotice>
```

```
        <CopyrightNotice>
            <para>This is text of the CopyrightNotice</para>
        </CopyrightNotice>
        <DestructionNotice>
            <para id="i22-5">DESTROY BY ANY METHOD THAT WILL PREVENT
            DISCLOSURE OF CONTENTS OR RECONSTRUCTION OF THE
            DOCUMENT.</para>
        </DestructionNotice>
    </Notices>
    <nsn>0910-LP-449-0700</nsn>
    <Manufacturer>BUNN-O-MATIC corporation
    POST Office BOX 3227
    SPRINGFIELD, ILLINOIS 62708-3227 PHONE: (217) 529-6601
    </Manufacturer>
    <ContractNumber>Contract No.  46531654-5661518</ContractNumber>
</TitlePage>
```

A.15.1.1. <TMidno>

The acquiring activity provides the Government-assigned TM identification number via the required **<TMidno>** element. The *'security'* attribute on this element is used to set the overall security for the manual. The attribute can be set to "u" for unclassified, "c" for confidential, or "s" for secret. The default value is "u". The *'service'* attribute is used if the manual will be used jointly by more than one service or system command. Table A - 19 lists the *'service'* attribute values and the corresponding service or system command.

Table A - 19 <TMidno> *'service'* Attribute Values

Attribute	Service/System Command
navsea	Naval Sea Systems Command
navair	Naval Air Systems Command
spawar	Space and Naval Warfare Systems Command
mc	Marine Corps
army	Army
af	Air Force
cg	Coast Guard
dla	Defense Logistics Agency

A.15.1.2. <PubDate>

The required **<PubDate>** element provides the date for all manuals that are not revisions. **<PubDate>** is a required element and must be provided even if the manual is a revision.

A.15.1.3. <RevisionNumber>

When the technical manual is a revision, the revision number is specified using the child element **<RevisionNumber>** of the optional element **<RevisionNumberDate>**.

A.15.1.4. <date>

When the technical manual is a revision, the date is specified using the child element **<date>** of the optional element **<RevisionNumberDate>**.

A.15.1.5. <TMTitle>

The content of the required technical manual title element **<TMTitle>** consists of a required **<MaintenanceLevel>** element, a required **<SystemNomenclature>** element, an optional **<Subject>** element, and an optional **<TMSubtitle>** element. **<TMTitle>** also has an optional *'publicationType'* attribute.

A.15.1.5.1. <MaintenanceLevel>

<MaintenanceLevel> is a required empty element used to convey maintenance information about the TM. It can also optionally appear in individual IPs. The element has three attributes (*'Organizational'*, *'Intermediate'*, and *'Depot'*). These attributes automatically generate text that is placed on the TM title page. *'Organizational'* defaults to "org-app" (organizational maintenance applicable), *'Intermediate'* defaults to "int-app" (intermediate maintenance applicable), and *'Depot'* defaults to "depot-notapp"(depot maintenance not applicable). A tagging sample using **<MaintenanceLevel>** is shown here:

<MaintenanceLevel Intermediate="int-notapp"/>

Since the *'Organizational'* attribute defaults to "org-app" and the *'Depot'* attribute defaults to "depot-notapp", the auto-generated text on the title page would be:

ORGANIZATIONAL MAINTENANCE

A.15.1.5.2. <SystemNomenclature>

<SystemNomenclature> identifies the end item nomenclature such as the system, subsystem, or equipment. **<SystemNomenclature>** content consists of the required **<name>** element which identifies the publication title, followed by the optional elements **<equiptype>**, **<ModelDesInfo>**, **<TypeDesInfo>**, **<SerialNumberInfo>**, **<PartNumberInfo>**, **<nsn>**, and **<Effectivity>**.

A.15.1.5.2.1. <Effectivity>

The **<Effectivity>** element is used to create an effectivity configuration that may be referenced by different IPs, individual tasks, steps, etc. or to reference an already established effectivity configuration. Within an **<Effectivity>**, only one **<ConfigurationID>** can be declared. The **<ConfigurationID>** element establishes the effectivity using Ship Class **<ShipClass>**, Ship Hull **<ShipHull>**, Model Designator **<ModelDesInfo>**, Type Designator **<TypeDesInfo>**, Serial Number **<SerialNumberInfo>**, Part Number **<PartNumberInfo>**, Ship Alteration **<ShipAlt>**, Field Change **<FieldChange>**, Variant **<Variant>**, and/or Other Configuration **<OtherConfig>**. With the exception of **<OtherConfig>**, only one of each of the above elements can be declared within the **<ConfigurationID>** element. There may be multiple **<OtherConfig>**s.

A.15.1.5.3. <Subject>

The optional **<Subject>** content consists of text, **<change>**s, **<SubScript>**s, and **<SuperScript>**s. **<Subject>** is not currently utilized in SNIPP manuals.

A.15.1.5.4. <TMSubtitle>

The optional **<TMSubtitle>** element defines the publication's secondary title. **<TMSubtitle>** content consists of text, **<change>**s, **<SubScript>**s, and **<SuperScript>**s.

A.15.1.5.5. 'publicationType'

The *'publicationType'* attribute is used to specify the specific type of publication. The specific value of the attribute will generate text that is placed immediately above the **<MaintenanceLevel>**. Sample tagging for publication type is:

<TMTitle publicationType="CombatSystemTechnicalOperationsManual">

The possible values for *'publicationType'* are "CombatSystemTechnicalOperationsManual", "HMESystem", "HMEEquipment", "ElectronicEquipment", "ElectronicSystem", "ServiceTestElectronicEquipment", "ServiceTestElectronicSystem", "ExperimentalElectronicEquipment", "ExperimentalElectronicSystem", "InteriorCommunicationEquipment", "InteriorCommunicationSystem", "WeaponSystem", "WeaponsEquipment", "OperationsStationBook", "TechnicalRepairStandards", "TrainingAidBooklet", "ShipInformationBook", and "IllustratedPartsBreakdown".

A.15.1.6. <Notices>

The element **<Notices>** is a collection of notices that appear on the Title Page of an Assembled Technical Manual. It is comprised of an optional Supersedure Notice **<SupersedNotice>** element, an optional Supplement Notice **<SupplementNotice>** element, a required Distribution Statement **<DistributionStatement>** element, an optional Disclosure Notice **<DisclosureNotice>** element, a required Authority Notice **<AuthorityNotice>** element, an optional Export Control Notice **<ExportControlNotice>** element, an optional Copyright Notice **<CopyrightNotice>** element, and a required Destruction Notice **<DestructionNotice>** element. Each of these notices consist of one or more paragraphs **<para>**. If a heading is required for a notice, the heading is automatically generated. For example, the destruction notice

DESTRUCTION NOTICE: DESTROY BY ANY METHOD THAT WILL PREVENT DISCLOSURE OF CONTENTS OR RECONSTRUCTION OF THE DOCUMENT.

is tagged as:

```
<DestructionNotice>
    <para>DESTROY BY ANY METHOD THAT WILL PREVENT DISCLOSURE OF
    CONTENTS OR RECONSTRUCTION OF THE DOCUMENT.</para>
</DestructionNotice>
```

The required *'type'* attribute value on the **<DistributionStatement>** element must be specified as "a", "b", "c", "d", "e", "f", or "x".

A.15.2. <ListOfEffectiveIPs>

The List of Effective IPs (LOEIPs) **<ListOfEffectiveIPs>** element is only used in page-based TMs. The LOEIP has a required **<title>**. The required **<CurrentChanges>** contains the required **<RevisionNumberDate>** which contains the required **<RevisionNumber>** and **<date>**. The **<RevisionNumber>** and **<date>** contents must be the same as the contents of the **<RevisionNumber>** and **<date>** found in the **<TitlePage>**. **<PageCount>** and **<ChangeHistory>** are required, but since the publisher will usually automatically generate this information, they must be empty. The following xml produces an LOEIP.

```
<ListOfEffectiveIPs>
    <title>RECORD OF CHANGES</title>
    <CurrentChanges>
        <RevisionNumberDate>
            <RevisionNumber>1</RevisionNumber>
            <date>1 November 2003</date>
        </RevisionNumberDate>
    </CurrentChanges>
    <PageCount></PageCount>
    <ChangeHistory></ChangeHistory>
</ListOfEffectiveIPs>
```

A.15.3. <RevisionSummaryInfo>

The optional **<RevisionSummaryInfo>** element is used to provide revision summary data for a technical manual. The **<RevisionSummaryInfo>** element contains at least one required **<RevisionSummary>** element that consists of a required **<title**> element and a required **<desc>** element. The *'xref'* attribute value on the element **<RevisionSummary>** links to the IP that has the revisions. The following xml produces a Revision Summary.

```
<RevisionSummaryInfo>
<RevisionSummary xref="i17-1" xrefRevLevel="22">
    <title>This title should not display</title>
        <desc>
            <para>The following items were corrected as part of this revision.</para>
```

```
                <SequentialList>
                    <item>
                        <para>Changed ice-water to ice/salt solution.</para>
                    </item>
                    <item>
                        <para>Changed to incorporate use of salt and replaced
                        beaker with dewar flask.</para>
                    </item>
                    <item>
                        <para>Added freezers.</para>
                    </item>
                </SequentialList>
            </desc>
        </RevisionSummary>
        <RevisionSummary xref="i18-1">
        <title>This title should not display</title>
            <desc>
                <para>The following items were corrected as part of this revision.</para>
                <SequentialList>
                    <item>
                        <para>Converted to LWP format.</para>
                    </item>
                    <item>
                        <para>Added calibration of IR Thermometer.</para>
                    </item>
                    <item>
                        <para>Corrected the immersion depth.</para>
                    </item>
                </SequentialList>
            </desc>
        </RevisionSummary>
</RevisionSummaryInfo>
```

A.15.4. <HowToUseEtm>

<FrontMatter> contains an optional **<HowToUseEtm>** section that is only used for frame-based IETMs. Tagging for **<HowToUseEtm>** is as shown below:

```
<HowToUseEtm>
        <title>How to use IETM</title>
        <para>Refer to IETM Help Menu.</para>
</HowToUseEtm>
```

A.15.5. <ConfigurationIDList>

The **<ConfigurationIDList>** element is used to provide a method of customizing technical manuals for different configurations of systems, subsystems, and equipment. **<ConfigurationIDList>** must contain at least one and may contain multiple **<ConfigurationID>** elements. The **<ConfigurationID>** element establishes the effectivity using Ship Class **<ShipClass>**, Ship Hull **<ShipHull>**, Model Designator **<ModelDesInfo>**, Type Designator **<TypeDesInfo>**, Serial Number **<SerialNumberInfo>**, Part Number **<PartNumberInfo>**, Ship Alteration **<ShipAlt>**, Field Change **<FieldChange>**, Variant **<Variant>**, and/or Other Configuration **<OtherConfig>**. With the exception of **<OtherConfig>**, only one of each of the above elements can be declared with an **<ConfigurationID>** element. There may be multiple **<OtherConfig>**s.

Appendix B
MIL-DTL-24784C IM/IP DTD Set
V2.2 SNIPP Authoring Guidelines
for Page-Based (Linear)
Technical Manuals

Appendix B Table of Contents

Appendix B List of Tables

Appendix B List of Illustrations

B.1. Scope

This appendix contains the authoring guidelines specific to the SNIPP MIL-DTL-24784C PDF publisher. It is not intended to define which elements should be employed when creating a document. Rather it describes in detail how the publisher processes and formats the elements defined by the MIL-DTL-24784C DTD. A minimal understanding of XML and an understanding of general PDF functionality is required.

B.2. General Information

B.2.1. Page Headers

Common page headers (referred to as “running heads” in the TMCR/TMSR) contain two or three pieces of data depending on the security/handling level. All pages contain the Information Package (IP) number and the publication's identification number. The publisher pulls the IP number from the IP's generated label. The publication identification number is pulled from the first **<TMidno>** element specified in the **<TitlePage>** element. If that **<TMidno>** has the optional *'service'* attribute, the text generated from the optional *'service'* attribute is not carried over to page headers. If the publication's overall security is "s" or "c" (see B.2.4.1 for publication security) then the publisher places security markings in the center of the page header. Additionally, if handling instructions are specified (see B.2.4.2), they are placed after the security. If the security is "u", and there are handling instructions, only the handling instructions are placed in the page header.

B.2.2. Page Footers

Common page footers (referred to as “running feet” in the TMCR/TMSR) contain one or two pieces of data depending on the security/handling level. All pages contain the IP page number. This page number is generated by the publisher. If the publication's overall security is "s" or "c" (see B.2.4.1 for publication security) then security markings are placed in the center of the page footer. Additionally, if handling instructions are specified (see B.2.4.2), they are placed after the security. If the security is "u", and there are handling instructions, only the handling instructions are placed in the page footer.

B.2.3. Bookmarks

During a publishing event, PDF bookmarks are generated in addition to the Table of Contents. The bookmarks catalog the principal front matter items (title page, list of effective IPs, the revision summary, Table of Contents, list of illustrations, and list of tables), all IPs and the principal rear elements (abbreviations, alphabetic index IP, part number index IP, reference designation index IP, and the TMDER sheets). Items that appear in the Table of Contents will also have a bookmark entry. See B.3.4 for more information on the Table of Contents.

B.2.4. Security, Handling, and Special Markings

The following paragraphs detail attributes that apply to the entire technical manual. The security for the technical manual is set using the *'security'* attribute of **<TMidno>**, while the handling and special markings for the technical manual are set using attributes of **<IETMProduct>**.

B.2.4.1. Publication Security

The publication's security is defined by the *'security'* attribute of the first **<TMidno>** listed in **<TitlePage>.** While **<IETMProduct>** does have a *'security'* attribute, it is not processed by the publisher. The *'security'* attribute of the first **<TMidno>** MUST be set in order to set the security level for the entire technical manual. If *'security'* for the first **<TMidno>** is not defined the publisher assumes the publication is unclassified. If the value of *'security'* is "s" or "c" the publisher will place the words SECRET or CONFIDENTIAL in the publication's page headers and footers.

B.2.4.2. Handling Instructions

A publication's handling instruction is defined by **<IETMProduct>**'s *'caveat'* attribute. It can be set to "NOFORN" or "otherHandling". When set to "NOFORN", that value is placed in the header and footer of each page. If it is set to "otherHandling", the publisher will then pull the value of the *'otherHandling'* attribute and place that in the header/footer area. It is recommended to use 5 or fewer characters for the value of *'otherHandling'*. Using more than 5 characters may cause the header and footer markings to wrap to a second line.

B.2.4.3. Emergency, HCP, and ESDS Markings

The MIL-DTL-24784C DTD contains several elements with the optional *'emergency'*, *'hcp'*, and *'esds'* attributes. The *'emergency'* attribute is not supported. The *'hcp'* and *'esds'* attributes are used to signify if the data has special Hazardous Critical Procedures (HCP) or Electrostatic Discharge Sensitive (ESDS) information. The default settings "hcp-notapp" and "esds-notapp" indicate that there is no HCP or ESDS information. The *'hcp'*, and *'esds'* attributes must be set to "hcp-app" or "esds-app", respectively, to indicate that there is HCP or ESDS information. When so specified, the publisher generates the appropriate symbol(s) before the element title. See Figure B-1 for an example.

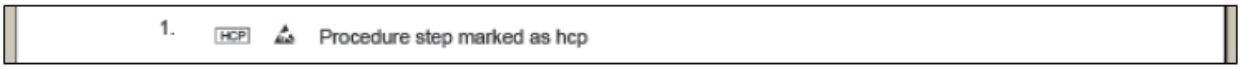

Figure B - 1 ESDS and HCP Sample

B.2.5. Publication Change Management

The MIL-DTL-24784C DTD is designed to allow IPs to be shared/reused across multiple publications. Therefore, it is clear that an IP's change level must be independent of any publication using the IP, and that publication's revision level, the **<RevisionSummaryInfo>** element located in **<FrontMatter>** content is used to indicate to the publisher how to process change markup in each IP. The following paragraphs tell how to configure the **<RevisionSummaryInfo>** and mark up changes within the publication. Note that no changed IP data can be marked up as such unless the publication contains the **<RevisionSummaryInfo>** information.

B.2.5.1. Change Attributes

The MIL-DTL-24784C DTD provides several attributes used to control change markings at the element level. Some of these are used by the publisher, while others are ignored. Each attribute is detailed below.

B.2.5.1.1. 'inschlvl' Attribute

The *'inschlvl'* attribute is used to mark an element as being inserted into the IP at the specified level. When its value matches the IP's *'xrefRevLevel'* attribute all text is formatted in green, italic text.

B.2.5.1.2. 'delchlvl' Attribute

The *'delchlvl'* attribute is used to mark an element to be removed from the IP at the level specified by the IP's *'xrefRevLevel'* attribute value. When the *'delchlvl'* attribute value and the IP's *'xrefRevLevel'* attribute value agree, the publisher removes the element and its contents from the publication. Note that both the *'inschlvl'* and *'delchlvl'* attributes can be specified for the same element. In that case, the *'delchlvl'* attribute value specification takes precedence, and the publisher removes the element and its contents from the publication.

B.2.5.1.3. 'chglvl' Attribute

The *'chglvl'* attribute is used to mark an element to be changed in the IP at the level specified by the IP's *'xrefRevLevel'* attribute value. When the *'chglvl'* attribute value and the IP's *'xrefRevLevel'* attribute value agree, the changed text is formatted in green italics. This attribute should be used only when a large area has so many textual changes that most of it would be in green italics. Otherwise, the **<change>** element should be used to show the exact changes.

B.2.5.2. <change> Element

The **<change>** element allows the most granular level of change mark up. **<change>** is used to apply change criteria to words and/or sentences. The value of the attribute *'change'* conveys whether the contained text is to be included in the publication (*'change'* set to "add") or removed (*'change'* set to "delete"). If the value of the *'change'* attribute is not specified, the publisher uses the default value of "add". The required attribute *'level'* reflects the change level applicable to the specific IP. This value is compared to the IP's *'xrefRevLevel'* specified by the IP's **<RevisionSummary>** entry. See A.15.3 for more information on configuring the revision summary entry. When these two values match, the contained text is formatted in green, italic text as shown in Figure B-2. When the two values do not match, the publisher generates an error in the error log as shown in Figure B-29.

Figure B - 2 <change> Element Sample

B.2.6. Configuration Control

The MIL-DTL-24784C DTD provides a means of creating many different publications from the same data collection through the use of configuration control. For example, three publications share the same **<FuncEleDescIP>,** but Publication One needs an additional **<TitledPara>** that the other two cannot have. Configuration filtering can be accomplished by the doing the following:

3. Create a **<ConfigurationIDList>** in Publication One's front matter. For example:

   <ConfigurationIDList id="i2-8">
   <ConfigurationID id="cfid-0001">
   …
   </ConfigurationIDList>

4. Mark the additional **<TitledPara>** with the *'ConfigIDRef'* attribute set to the corresponding configuration (e.g., configuration set to "cfid-0001").

   <TitledPara id="i22-9" ConfigIDRef="cfid-0001">

When Publication One is published the **<TitledPara>**'s *'ConfigIDRef'* attribute value is compared against the configuration id list. Since it matches it is passed through. When the other two publications are published, the *'ConfigIDRef'* attribute values of their **<TitledPara>**s will not match any of the **<ConfigurationID>** element's *'id'* attribute values in the **<ConfigurationIDList>** element, so this **<TitledPara>** will not be provided in the other two publications. NOTE: The **<ConfigurationIDList>** element is used for configuration control and filtering. This **<ConfigurationIDList>** is used to produce a technical manual specific to a particular configuration at publish time. The configuration elements that can appear on the title page are **<ModelDesInfo>** (B.3.1.5.2.3), **<TypeDesInfo>** (B.3.1.5.2.4), **<SerialNumberInfo>** (B.3.1.5.2.5), **<PartNumberInfo>** (B.3.1.5.2.6), **<ShipClass>** (B.3.1.5.4.7.1), **<ShipHull>** (B.3.1.5.4.7.2), **<ShipAlt>** (B.3.1.5.4.7.3), **<FieldChange>** (B.3.1.5.4.7.4), **<Variant>** (B.3.1.5.4.7.5), and **<OtherConfig>** (B.3.1.5.4.7.6).

B.2.6.1. ALTs Elements

The ALTs elements are simple container elements for a single element type (e.g., **<InstallALTs>** contains **<Install>**s). These elements are useful when it is necessary to have a persistent cross reference to something that could be filtered out due to configuration control. Rather than creating the cross reference to the element, the link can point to the ALTs container element. When ALTs elements are processed, a marker is created so that links will not be broken. The supported ALTs elements are listed below; the elements that can be linked to are marked with an '*'.

- **<AdjustAlignALTs>***
- **<AlternatePartALTs>**
- **<AssemblyALTs>**
- **<AttachingPartsALTs>**
- **<cautionALTs>**
- **<CautionSampleALTs>***
- **<dangerALTs>**
- **<DangerSampleALTs>***
- **<DetlFuncDescALTs>***
- **<enditemALTs>**
- **<EquivalentPartALTs>**
- **<FaultDescriptorTableALTs>***
- **<figureALTs>***
- **<InstallALTs>***
- **<IntroALTs>***
- **<MaterialsListALTs>***
- **<NormalOperationALTs>***
- **<noteALTs>***
- **<NoteSampleALTs>***
- **<OperatingProcedureALTs>***
- **<OperatingStepALTs>***
- **<OperationalProcedureALTs>***
- **<paraALTs>***
- **<PartInfoALTs>***
- **<PartsListGroupALTs>***
- **<ProcedureALTs>***
- **<RemoveALTs>***
- **<RepairALTs>***
- **<SimpleRowALTs>**
- **<SimpleTableALTs>***
- **<SimplFuncDescALTs>***
- **<SpecialHandlingALTs>***
- **<stepALTs>***
- **<SubAssemblyALTs>**
- **<SubjectALTs>**
- **<SubstitutePartALTs>**
- **<tableALTs>***
- **<TaskIntroALTs>***
- **<TestProcedureALTs>***
- **<textALTs>**
- **<titleALTs>**
- **<TitledParaALTs>***
- **<warningALTs>**
- **<WarningSampleALTs>***

The following ALTs elements are not supported by the PDF publisher:

- **<CalloutDataALTs>**
- **<FaultMatrixEntryALTs>**
- **<FaultMatrixTableALTs>**
- **<FlowDiagramALTs>**
- **<FlowDiagramFigureALTs>**
- **<RelatedDataALTs>**
- **<RelatedDataEntryALTs>**
- **<RelatedDataFigureALTs>**
- **<RelatedDataTableALTs>**
- **<TestDirectionDataALTs>**
- **<TestDirectionDataEntryALTs>**
- **<TestDirectionDataFigureALTs>**
- **<TestDirectionDataGroupALTs>**
- **<TestDirectionDataTableALTs>**

B.3. Front Matter

This section details the front matter elements of a MIL-DTL-24784C DTD compliant technical manual.

B.3.1. Title Page

The required, container element **<TitlePage>** contains all the information to be placed on the publication's main title page. The publisher reuses some of its information throughout the publication. Figure B-3 shows a sample title page as it is formatted by the publisher. The yellow blocks show the elements and attributes that are used to create the title page with arrows from the yellow blocks to the items they are used to produce. The blue highlighted text shows the auto-generated text on the title page. Note that the formatting is controlled by the publisher.

B.3.1.1. Technical Manual ID Number

The Technical Manual Identification Number (TMIN) of the technical manual is defined using the required **<TMidno>** element. This information is placed on the title page and also in the page header of pages within the technical manual. Multiple TMINs may be used to accommodate inter-service technical manuals. When more than one TMIN is specified, they are stacked on the title page in the order specified within the data, and only the first TMIN specified is used in the page headers. When multiple TMINs are specified, the publisher automatically reduces the font size to minimize the possibility of the title page spilling over to a second page.

B.3.1.2. Revision Number

The revision number of the technical manual is specified using the child element **<RevisionNumber>** of the optional element **<RevisionNumberDate>**. The auto-generated word “REVISION” precedes the contents of the element. If the technical manual being developed is not a revision, **<RevisionNumberDate>** is not used, and this space appears blank on the title page.

B.3.1.3. Date

The date of the technical manual comes from one of two elements. If the manual IS NOT a revision, then the date is pulled from the required **<PubDate>** element. If the manual IS a revision, then the date is pulled from the child element **<date>** of the optional element **<RevisionNumberDate>**. Note that the element **<PubDate>** is mandatory, so it must be authored even if there is a **<date>** from **<RevisionNumberDate>**. If there is a **<date>, <PubDate>** will not appear on the title page, but it must exist.

B.3.1.4. Document Status

The document status of the technical manual is set using the *'docstat'* attribute of **<IETMProduct>**. See A.3.2.1 for more information on *'docstat'*.

B.3.1.5. <TMTitle>

Paragraphs B.3.1.5.1 through B.3.1.5.4.7.6 detail the elements contained within the required **<TMTitle>** element. **<TMTitle>** has an attribute *'publicationType'* that is detailed in B.3.1.5.5. Depending on the number of child elements of **<TMTitle>** that are used, the author may wish to change the font-size to a smaller size. This is accomplished by using the publisher’s 'downsize' processing instruction. This will cause the contents of the **<SystemNomenclature>** element (with the exception of the child element **<name>**), and the **<TMSubtitle>** element to be displayed in the font-size designated by the author.

B.3.1.5.1. Maintenance Level

The **<MaintenanceLevel>** element has empty content. Its three optional attributes: *'Organizational'*, *'Intermediate'*, and *'Depot'* are used to convey maintenance information about the technical manual and certain IPs and also to trigger the generation of text as detailed in Table B-1. **<MaintenanceLevel>** is required for the publication itself and is optional for all IP title blocks. The *'Organizational'* and *'Intermediate'* attributes default to "org-app" and "int-app" (applicable) while the *'Depot'* attribute defaults to "depot-notapp" (not applicable).

Table B - 1 <MaintenanceLevel> Attribute Values and Auto-Generated Text

Attribute Values			
Organizational	**Intermediate**	**Depot**	**Generated Text**
org-app	int-app	depot-app	ORGANIZATIONAL, INTERMEDIATE, AND DEPOT MAINTENANCE
org-app	int-app	depot-notapp	ORGANIZATIONAL AND INTERMEDIATE MAINTENANCE
org-app	int-notapp	depot-app	ORGANIZATIONAL AND DEPOT MAINTENANCE
org-app	int-notapp	depot-notapp	ORGANIZATIONAL MAINTENANCE
org-notapp	int-app	depot-app	INTERMEDIATE AND DEPOT MAINTENANCE
org-notapp	int-app	depot-notapp	INTERMEDIATE MAINTENANCE
org-notapp	int-notapp	depot-app	DEPOT MAINTENANCE

B.3.1.5.2. System Nomenclature

The required **<SystemNomenclature>** element defines the end item nomenclature for the publication. The contents of the **<name>** element within **<SystemNomenclature>** can be reused by individual IPs when the **<Inherit>** element is declared in **<IPSystemNomenclature>**. The **<SystemNomeclature>** element has seven child elements that are described in the paragraphs below.

B.3.1.5.2.1. Name

The required **<name>** element specifies the publication title.

B.3.1.5.2.2. Equipment Type or Name

The optional **<equiptype>** element defines the end item name for the publication.

B.3.1.5.2.3. Model Information

The optional **<ModelDesInfo>** element designates the model information of the end item on title page or title block. The publisher generates the text "Model Number" or "Model Numbers", and then outputs the element's contents which may be specified as a single number, a bounded range, or an unbounded range. For information on their formatting see B.6.8.1.

B.3.1.5.2.4. Type Designator Information

The optional **<TypeDesInfo>** element specifies the type designator information of the end item on title page or title block. The publisher generates the text "Type", and then outputs the element's contents which may be specified as a single number, a bounded range, or an unbounded range. For information on their formatting see B.6.8.1.

B.3.1.5.2.5. Serial Number Information

The optional **<SerialNumberInfo>** element designates the serial number of the end item on title page or title block. The publisher generates the text "Serial Number" or "Serial Numbers", and then outputs the element's contents which may be specified as a single number, a bounded range, or an unbounded range. For information on their formatting see B.6.8.1.

B.3.1.5.2.6. Part Number Information

The optional **<PartNumberInfo>** element designates the part number information of the end item on title page or title block. The publisher generates the text "Part Number" or "Part Numbers", and then outputs the element's contents which may be specified as a single number, a bounded range, or an unbounded range. For information on their formatting see B.6.8.1.

B.3.1.5.2.7. National Stock Number

The optional **<nsn>** element designates the end item's National Stock Number. When it occurs as part of **<SystemNomenclature>** or **<IPSystemNomenclature>**, the publisher places the text "NSN " before the element's contents. Note that when **<nsn>** occurs as a child of **<TitlePage>** it contains the publication's NSN. For more information see B.3.1.7.

B.3.1.5.2.8. Effectivity

The optional element **<Effectivity>** is used to place a single configuration either on the title page or the first page of an IP. **<Effectivity>** content can be defined in two ways: explicitly by using **<ConfigurationID>**, or by extracting it from the **<ConfigurationIDList>** element content using **<ConfigurationIDRef>**. In either case, the IP's nomenclature consists of the optional elements described below, in addition to the above described **<ModelDesInfo>** (B.3.1.5.2.3), **<TypeDesInfo>** (B.3.1.5.2.4), **<SerialNumberInfo>** (B.3.1.5.2.5), and **<PartNumberInfo>** (B.3.1.5.2.6) elements.

B.3.1.5.2.8.1. Ship Class

When **<ShipClass>** occurs as part of **<SystemNomenclature>** or **<IPSystemNomenclature>**, the publisher places the text "Class " before its contents.

B.3.1.5.2.8.2. Ship Hull

When **<ShipHull>** is occurs as part of **<SystemNomenclature>** or **<IPSystemNomenclature>**, the publisher places the text "Hull " before its contents.

B.3.1.5.2.8.3. Ship Alt

When **<ShipAlt>** occurs as part of **<SystemNomenclature>** or **<IPSystemNomenclature>**, the publisher places the text "Ship Alt " before its contents.

B.3.1.5.2.8.4. Field Change

When **<FieldChange>** occurs as part of **<SystemNomenclature>** or **<IPSystemNomenclature>**, the publisher places the text "Field Change " before its contents.

B.3.1.5.2.8.5. Variant

When **<Variant>** occurs as part of **<SystemNomenclature>** or **<IPSystemNomenclature>**, the publisher places the text "Variant " before its contents.

B.3.1.5.2.8.6. Other Configuration

When **<OtherConfig>** occurs as part of **<SystemNomenclature>** or **<IPSystemNomenclature>**, the publisher places the text "Other Config " before its contents.

B.3.1.5.3. Technical Manual Subtitle

The optional **<TMSubtitle>** element defines the publication's secondary title.

B.3.1.5.4. Publication Type

The specific type of publication can be specified using the **<TMTitle>**'s *'publicationType'* attribute. Table B-2 details the attribute values and auto-generated text that results.

Table B - 2 *'publicationType'* Attribute Values and Auto-Generated Text

Attribute Value	Auto-Generated Text
CombatSystemTechnicalOperationsManual	COMBAT SYSTEM TECHNICAL OPERATIONS MANUAL
HMESystem	HULL, MECHANICAL, AND ELECTRICAL SYSTEM
HMEEquipment	HULL, MECHANICAL, AND ELECTRICAL EQUIPMENT
ElectronicEquipment	ELECTRONIC EQUIPMENT
ElectronicSystem	ELECTRONIC SYSTEM
ServiceTestElectronicEquipment	SERVICE TEST ELECTRONIC EQUIPMENT
ServiceTestElectronicSystem	SERVICE TEST ELECTRONIC SYSTEM
ExperimentalElectronicEquipment	EXPERIMENTAL ELECTRONIC EQUIPMENT
ExperimentalElectronicSystem	EXPERIMENTAL ELECTRONIC SYSTEM
InteriorCommunicationEquipment	INTERIOR COMMUNICATION EQUIPMENT
InteriorCommunicationSystem	INTERIOR COMMUNICATION SYSTEM
WeaponSystem	WEAPON SYSTEM
WeaponsEquipment	WEAPONS EQUIPMENT

There are five other possible attribute values for *'publicationType'* (OperationsStationBook, TechnicalRepairStandards, TrainingAidBooklet, ShipInformationBook, and IllustratedPartsBreakdown). These five values should not be used because these types of technical manuals are to be developed in accordance with the NAVSEA C2 DTD. If any of these five values is used, no text is auto-generated, and the space where the publication type normally appears is blank.

B.3.1.6. Notices

The required **<Notices>** element is a container element comprised of the notices that can appear on the title page. The following paragraphs detail these notices.

B.3.1.6.1. Supersedure Notice

The technical manual's supersedure notice information is defined using the optional **<SupersedNotice>** element.

B.3.1.6.2. Supplement Notice

The optional **<SupplementNotice>** element is used when necessary to identify dependent and supporting technical manuals when one cannot be used without the other.

B.3.1.6.3. Distribution Statement

The required **<DistributionStatement>** element holds the publication's distribution information. It has the required attribute *'type'* that can have one of the following values: "a", "b", "c", "d", "e", "f", or "x". The publisher generates the appropriate text for value of *'type'*. For example, the text, "DISTRIBUTION STATEMENT C:" is generated when "c" is the attribute value for the attribute *'type'*. This text precedes the contents of the child element **<para>**.

B.3.1.6.4. Disclosure Notice

The optional **<DisclosureNotice>** element defines the publication's disclosure information. When specified its data is placed before the distribution notice. The publisher generates the text, "DISCLOSURE NOTICE:" that precedes the contents of the child element **<para>**.

B.3.1.6.5. Authority Notice

The required **<AuthorityNotice>** defines the publication's authorizing activity.

B.3.1.6.6. Export Control Notice

The optional **<ExportControlNotice>** defines any special export control information needed by the publication. When **<ExportControlNotice>** is defined, "WARNING:" is generated by the publisher and precedes the text contained within the child element **<para>**.

B.3.1.6.7. Copyright Notice

The optional **<CopyrightNotice>** contains the copyright information (if any).

B.3.1.6.8. Destruction Notice

The required **<DestructionNotice>** element is used to convey specific publication destruction information. The words "DESTRUCTION NOTICE:" are generated by the publisher and precede the information contained within the child element **<para>**.

B.3.1.7. National Stock Number with Barcode

The required **<nsn>** element is displayed at the bottom of the title page along with an auto-generated barcode.

B.3.1.8. Manufacturer

The optional **<Manufacturer>** element is used to convey manufacturer information such as name, address, and telephone number.

B.3.1.9. Contract Number

The optional **<ContractNumber>** element conveys the contract number.

B.3.1.10. Title Page Classification

When the publication's security is higher than UNCLASSIFIED, and none of the **<TitlePage>** contents have a *'security'* attribute set higher than "u" (excluding **<TMidno>**, which defines the classification for the manual), the text "THIS PAGE IS UNCLASSIFIED" will appear at the bottom of the title page.

B.3.1.11. NAVSEA Seal

The publisher generates and places the DON-NAVSEA seal on the title page.

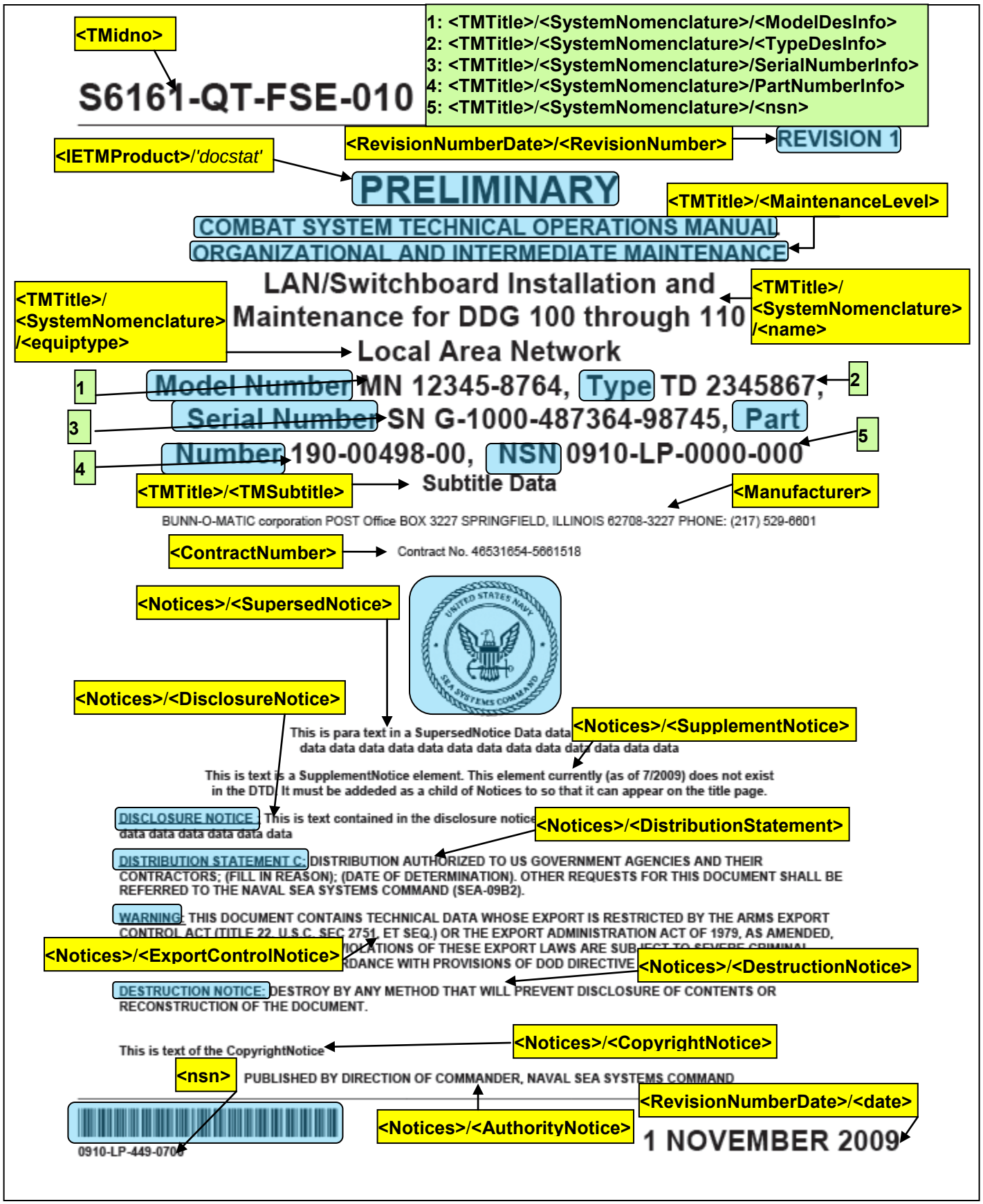

Figure B - 3 Sample Title Page.

B.3.2. List of Effective Information Packages

The **<ListOfEffectiveIPs>** element is optional. Its contents include several required elements and an optional element. When **<ListOfEffectiveIPs>** is specified, the required elements MUST be provided to satisfy the MIL-DTL-24784C DTD requirements; however, the publisher ignores this content and auto-generates the LOEIP. The publisher generates a page(s) with "LIST OF EFFECTIVE INFORMATION PACKAGES/PAGES" displayed at the top and states "The following provides an accounting of the pages with content. Blank pages are not identified." It then lists the front matter and every IP immediately followed by its starting and ending range of pages. The IP number and page numbers are hyperlinked. Blank pages are not listed.

B.3.3. Revision Summary

The revision summary is generated when the optional **<RevisionSummaryInfo>** is declared. **<RevisionSummaryInfo>** is a collection of **<RevisionSummary>**s. Each **<RevisionSummary>** contains a **<title>** and a **<desc>** element and has for its required *'xref'* attribute value the *'id'* attribute value of its IP. When the revision summary is processed, the **<Subject>** of the target IP is pulled replacing the **<title>**. This is done to ensure the title reflects the true IP title. The new title is hyperlinked to the target IP.

B.3.4. Table of Contents

The Table of Contents is generated during each publishing event and lists the auto-generated IM title text, the IP title, and its primary paragraphs. The IM text is bold and is separated from the previous IM by a single line. IP and primary paragraph titles are displayed in standard font and are separated from their respective page numbers with dots. All IP and primary paragraph entries are hyperlinked to displayed page number. See Figure B-4 for an example.

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TABLE OF CONTENTS

Figure B - 4 Sample Table of Contents

B.3.4.1. Front Matter TOC Entries

The publisher automatically generates all the front matter TOC entries based on the publication's contents. Table B-3 details the conditions and text generated for front matter TOC items. These conditions are also applicable to their generation in the PDF bookmarks.

Table B - 3 Front Matter TOC Entries

Criteria	Generated Text	Remarks
If **<ListOfEffectiveIPs>** is used.	LIST OF EFFECTIVE INFORMATION PACKAGES/PAGES	The publisher reserves the value of "LOEP" for its use. This value should not be used for any *'id'* attribute in the technical manual.
If **<RevisionSummaryInfo>** is used.	REVISION SUMMARY	The publisher reserves the value of "RSI" for its use. This value should not be used for any *'id'* attribute in the technical manual.
If publication contains any illustrations that have both a title and an *'id'* attribute value	LIST OF ILLUSTRATIONS	The publisher reserves the value of "LOI" for its use. This value should not be used for any *'id'* attribute in the technical manual.
If publication contains any tables that have both a title and an *'id'* attribute value	LIST OF TABLES	The publisher reserves the value of "LOT" for its use. This value should not be used for any *'id'* attribute in the technical manual.

B.3.4.2. Rear Matter TOC Entries

The publisher automatically generates all the rear matter TOC entries based on the publication's contents. Table B-4 details the conditions and text generated for rear matter TOC items. These criteria are also applicable to their automatic generation in the PDF bookmarks.

Table B - 4 Rear Matter TOC Entries

Criteria	Generated Text	Remarks
If **<Abbeviations>** is used	Contents of **<Abbreviations>** title element	**<Abbreviations>** is treated as an IP. For more information see B.5.5.1.
If **<AlphaIndexIP>** is used	Contents of **<AlphaIndexIP>** titleblock **<Subject>** element	For more information see B.5.5.2.
If **<PartNoIndexIP>** is used	Contents of **<PartNoIndexIP>** titleblock **<Subject>** element	For more information see B.5.5.3.
If **<RefDesIndexIP>** is used	Contents of **<RefDesIndexIP>** titleblock **<Subject>** element	For more information see B.5.5.4.
There will always be a TMDER Sheet.	TMDER	For more information see B.5.5.

B.3.5. List of Illustrations

The List of Illustrations is generated during each publishing event and lists figures as sequenced in the publication. To appear in the List of Illustrations an image must have a title, label and an *'id'* attribute value. Figures are clustered according to IP with a blank line separating each grouping. The figure label and title are in normal text and are connected to their respective page numbers with dots. All entries are hyperlinked to displayed page number. See Figure B-5 for an example.

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LIST OF ILLUSTRATIONS

Figure B - 5 Sample List of Illustrations

B.3.6. List of Tables

The List of Tables is generated during each publishing event and lists tables as sequenced in the publication. To appear in the List of Tables a table must have a title, label, and an *'id'* attribute value. Tables are clustered according to IP with a blank line separating each grouping. The table label and title are in normal text and are connected to their respective page numbers with dots. All entries are hyperlinked to displayed page number. See Figure B-6 for an example.

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LIST OF TABLES

Figure B - 6 Sample List of Tables

B.4. Information Modules

In the MIL-DTL-24784C DTD the information module (IM) elements serve as containers of IPs. IMs are children of the **<IETMProduct>** element and are nested within the **<system>/<SubSytems>** construct. The IM does not appear as a visible item in the content of the TM, but is used in the Table of Contents for grouping related IPs. When an IM is used, it also generates text in the Table of Contents. See Section B.3.4 and Figure B-4 for how the generated IM text appears in the Table of Contents. Table B-5 details the generated text.

Table B - 5 Information Module Elements

IM Element Name	TOC Generated Text
<CombatSystemDescriptionIM>	Combat System Description
<CSTOMIntroductionIM>	Combat System Introduction and Description
<CSTOMOperationIM>	Combat System Operation Description
<CSTOMSystemReadinessIM>	Combat System Readiness Assessment
<DescriptiveIM>	Descriptive
<ElectronicEquipFunctionalDescIM>	Electronic Equipment Functional Description
<ElectronicSysFunctionalDescIM>	Electronic System Functional Description
<FaultDetectionIM>	Fault Detection and Impact Evaluation
<FaultIsolationIM>	Fault Isolation
<GeneralIM>	General
<HMEEquipFunctionalDescIM>	Hull, Mechanical, and Electrical Equipment Functional Description
<HMESysFunctionalDescIM>	Hull, Mechanical, and Electrical System Functional Description
<IllustratedPartsBreakdownIM>	Illustrated Parts Breakdown
<MaintenanceIM>	Maintenance
<OperationalCheckoutTroubleshootingIM>	Operational Troubleshooting and Checkout
<OperationIM>	Operation
<SupportingIM>	Supporting
<SystemEquipInstallationIM>	System/Equipment Installation
<WeaponEquipFunctionalDescIM>	Weapon Equipment Functional Description
<WeaponSysFunctionalDescIM>	Weapon System Functional Description

B.5. Information Packages

IPs contain the content of the technical manual. There are five categories of IPs: CSTOM Information, Descriptive Information, Illustrated Parts Breakdown, Procedural Information, and Rear Matter. For each IP, there is an IP element that defines the content. Table B-6 describes the IP elements and is sorted by the IP Category (the second column). Following Table B-6 are paragraphs describing each category of IP along with subparagraphs of certain IPs that need further authoring explanations.

Table B - 6 Information Package Elements

IP Element	IP Category	Description	Parent Element(s)
<AdditionalFuncDescIP>	CSTOM Information	Additional Function IPs: developed for any additional functions not covered in other IPs in the Combat System Operational Description IM.	**<CSTOMOperationIM>**
<AdditionalSysIP>	CSTOM Information	Additional Systems IPs: developed for any additional functions not covered in other IPs in the Combat System Description IM.	**<CombatSystemDescriptionIM>**
<AEGISCombatSysIP>	CSTOM Information	AEGIS Combat System IP: describes and illustrates the elements of the AEGIS combat system.	**<CombatSystemDescriptionIM>**
<AntiSubWarfareSysIP>	CSTOM Information	Antisubmarine Warfare System IP: describes and illustrates all components of the antisubmarine warfare system.	**<CombatSystemDescriptionIM>**
<CombatDirSysIP>	CSTOM Information	Combat Direction System IP: describes and illustrates all components of a non-AEGIS combat direction system.	**<CombatSystemDescriptionIM>**
<CombatSupportSysIP>	CSTOM Information	Combat System Support System IP: describes and illustrates the support equipment associated with the combat system.	**<CombatSystemDescriptionIM>**

IP Element	IP Category	Description	Parent Element(s)
<CombatSysFuncInterfaceIP>	CSTOM Information	Introduction to Combat System Functional Interface Diagrams IP: introduces and describes the content and intended use of the Combat System Functional Interface Diagrams.	**<FaultIsolationIM>**
<CSTOMCompLocationIP>	CSTOM Information	Location of Combat System Components IP: provides a description of the ship combat system compartments and areas.	**<CSTOMIntroductionIM>**
<DetectionEntryFuncDescIP>	CSTOM Information	Detection and Entry IP: describes the initial track, detection and entry functions, and functional flow between elements performed for all radar, sonar, visual, or remote contacts to include all threats entered manually or automatically into the combat system.	**<CSTOMOperationIM>**
<ElectronicWarfareSysIP>	CSTOM Information	Electronic Warfare System IP: describes and illustrates all components of the electronic warfare subsystem.	**<CombatSystemDescriptionIM>**
<EngagementFuncDescIP>	CSTOM Information	Engagement and Engagement Assessment IP: target engagement and engagement assessment functions for functional flow betw. elements occurring for targets assigned to the electronics warfare system, gun weapon system, underwater weapon system, missile weapon system, intercept or aircraft or LAMPS.	**<CSTOMOperationIM>**

IP Element	IP Category	Description	Parent Element(s)
<ExternalCommSysIP>	CSTOM Information	External Communication System IP: describes and illustrates all external communications systems and related components.	**<CombatSystemDescriptionIM>**
<FaultIsolationIP>	CSTOM Information	Fault Isolation IP: developed for each pair of interfacing combat system elements or to cover the interfaces involving a central element. Also, may be developed to cover the intra-system interfaces for a combat system element without adequate system-level documentation.	**<FaultIsolationIM>**
<FaultIsolationTechniqueIP>	CSTOM Information	Fault Isolation Techniques IP: provides the identification and description of fault isolation tools and procedures, and their effective use.	**<FaultIsolationIM>**
<GunWeaponSysIP>	CSTOM Information	Gun Weapon System IP: describes and illustrates all components of the gun weapon system.	**<CombatSystemDescriptionIM>**
<ImpactEvaluationIP>	CSTOM Information	Impact Evaluation IP: provides SERT with the criteria required to determine the impact of specific faults on combat system capabilities.	**<FaultDetectionIM>**
<InternalCommSysIP>	CSTOM Information	Internal Communication System IP: describes and illustrates all interior communications systems.	**<CombatSystemDescriptionIM>**

IP Element	IP Category	Description	Parent Element(s)
<IntroductionIP>	CSTOM Information	Introduction IP: provides an introduction to the information provided in subsequent IPs.	**<CombatSystemDescriptionIM>** **<CSTOMIntroductionIM>** **<CSTOMOperationIM>** **<CSTOMSystemReadinessIM>** **<FaultIsolationIM>**
<LAMPSSysIP>	CSTOM Information	LAMPS System IP: describes and illustrates all components of the LAMPS system, including all airborne LAMPS equipment, ordnance, and shipboard LAMPS equipment.	**<CombatSystemDescriptionIM>**
<MissileWeaponSysIP>	CSTOM Information	Missile Weapon System IP: each installed missile weapon system (other than AEGIS) will have an IP that describes and illustrates all components of the missile weapon system.	**<CombatSystemDescriptionIM>**
<NavigationSysIP>	CSTOM Information	Navigation System IP: describes and illustrates all components of the navigation system.	**<CombatSystemDescriptionIM>**
<OperationFaultDirectoriesIP>	CSTOM Information	Operational Fault Directories IP: includes operational fault directories for faults observed during combat system operation. These directories identify hardware and software fault isolation tools employed with each element to isolate operationally related fault symptoms.	**<FaultDetectionIM>**
<PMSIP>	CSTOM Information	PMS IP: describes the principles and elements of integrated testing, and explain the concepts and documentation available for testing.	**<CSTOMSystemReadinessIM>**

IP Element	IP Category	Description	Parent Element(s)
<ReadinessAssessIP>	CSTOM Information	Readiness Assessment Information IP: provides the principles and objectives of combat system readiness assessment using the SERT concept.	**<CSTOMSystemReadinessIM>**
<ReadinessAssessSynopticTestDescIP>	CSTOM Information	Readiness Assessment Diagrams and Synoptic Test Description IP: identifies the top-level combat system, element, and equipment level tests required to determine combat system readiness for AAW, ASW, surface warfare (SUW), and shore missions.	**<CSTOMSystemReadinessIM>**
<SearchRadarSysIP>	CSTOM Information	Search Radar System IP: describes and Illustrates major components of the sea and air search radar system that is not included in the AEGIS combat system, including the radar recognition, and radar distribution systems.	**<CombatSystemDescriptionIM>**
<SERTIP>	CSTOM Information	SERT Information IP: explains SERT organization and responsibilities.	**<CSTOMSystemReadinessIM>**
<ShipAndCombatSystemDescriptionIP>	CSTOM Information	Ship and Combat System Description IP: provides a description of ship missions, capabilities, and physical characteristics.	**<CSTOMIntroductionIM>**
<STERFIP>	CSTOM Information	Ship Test Repair Facility (STERF) IP: includes a list of test equipment calibration requirements that show parameters to be calibrated, calibration periodicity, and references to calibration procedures.	**<CSTOMSystemReadinessIM>**

IP Element	IP Category	Description	Parent Element(s)
<SystemFaultIsolationIP>	CSTOM Information	Support System Fault Isolation IP: addresses fault isolation techniques for the various systems that comprise the support system when Combat System Operational Sequencing System (CSOSS) documentation is deemed to be inadequate for any support system.	**<FaultIsolationIM>**
<ThreatEvalFuncDescIP>	CSTOM Information	Threat Evaluation and Threat-to-Weapon Pairing IP: describes threat evaluation and threat-to-weapon pairing function, including weapon assignment.	**<CSTOMOperationIM>**
<TrackingAndIdentFuncDescIP>	CSTOM Information	Tracking and Identification IP: describes combat direction system tracking and identification functions and functional flow between elements occurring for any track entered into the combat system.	**<CSTOMOperationIM>**
<TrainingMaintenanceSupportIP>	CSTOM Information	Training and Maintenance Support Elements IP: identifies and describes the training and maintenance support elements available to, or resident in, the applicable ship class, and shall evaluate their functions as tools to increase combat system personnel and equipment readiness.	**<CSTOMSystemReadinessIM>**

IP Element	IP Category	Description	Parent Element(s)
<UnderwaterCounterMeasSysIP>	CSTOM Information	Underwater Countermeasures System IP: describes and illustrates all components of the underwater countermeasures system, including ancillary equipment.	**<CombatSystemDescriptionIM>**
<DetlCircuitAnalysisIP>	Descriptive Information	Detailed Circuit Analysis IP: describes electronic circuits and refers to the maintenance schematic diagrams provided in troubleshooting.	**<ElectronicEquipFunctionalDescIM>**
<DetlFuncDescIP>	Descriptive Information	Detailed Functional Description IP: HM&E systems, HM&E equipment, electronic systems, electronic equipment, and weapon equipment only. Detailed functional description of each major function or major functional block.	**<ElectronicEquipFunctionalDescIM>** **<ElectronicSysFunctionalDescIM>** **<HMEEquipFunctionalDescIM>** **<HMESysFunctionalDescIM>** **<WeaponEquipFunctionalDescIM>**
<EquipDocNotSuppIP>	Descriptive Information	Equipment, Accessories, and Documents Not Supplied IP: describes equipment and accessories and related publications, which are not furnished with the basic equipment covered by the TM, but which attach or relate importantly to the basic equipment.	**<SupportingIM>**
<EquipDocSupplP>	Descriptive Information	Equipment, Accessories, and Documents Supplied IP: contains a tabular listing of all equipment, accessories, and other documents supplied.	**<SupportingIM>**

IP Element	IP Category	Description	Parent Element(s)
<EquipModIP>	Descriptive Information	Equipment Modification IP: equipment modification change data for the system/equipment covered by the TM.	**<SupportingIM>**
<FuncEleDescIP>	Descriptive Information	Funtional Elements IP: describes the functional elements consisting of electrical, electronic, pneumatic, hydraulic, mechanical, and optical units.	**<WeaponEquipFunctionalDescIM>**
<GeneralIntroIP>	Descriptive Information	General Introduction IP: provides information necessary to use the TM and its IPs.	**<GeneralIM>**
<IntegratedCircuitIP>	Descriptive Information	Integrated Circuits and Micro-Miniature Capsules IP: HM&E equipment and electronic equipment only. A brief description of the overall functional operation for circuits within different types of non-repairable integrated circuits and micro-miniature capsules.	**<HMEEquipFunctionalDescIM>** **<ElectronicEquipFunctionalDescIM>**
<IntroductionIP>	Descriptive Information	Describes the general approach that is used in the functional description. For equipment functional descriptions IMs, it also briefly describes the interrelationship between the equipment and associated components.	**<ElectronicEquipFunctionalDescIM>** **<ElectronicSysFunctionalDescIM>** **<HMEEquipFunctionalDescIM>** **<HMESysFunctionalDescIM>** **<WeaponEquipFunctionalDescIM>** **<WeaponSysFunctionalDescIM>**

IP Element	IP Category	Description	Parent Element(s)
<MatReqIP>	Descriptive Information	Materials Required IP: provides a list of all materials required to perform maintenance type procedures. Can be autogenerated by the publisher.	**<SupportingIM>**
<ModelDiffIP>	Descriptive Information	Model Differences IP: briefly delineates the differences between models of the equipment.	**<GeneralIM>**
<PhysicalArrangeIP>	Descriptive Information	Physical Arrangement IP: HM&E systems, weapon systems, and electronic systems and equipment only. Describes all system areas and compartments and lists the system equipment and units contained in the areas.	**<DescriptiveIM>**
<RefPubIP>	Descriptive Information	Reference Publications IP: contains a list of manuals that pertain to system and subsystem equipment, and other documents of interest or use to operating or maintaining personnel. Can be autogenerated by the publisher.	**<SupportingIM>**
<SafetyPrecautionIP>	Descriptive Information	Safety Precaution IP: contains general safety precautions and the complete warnings applicable to hazardous materials and related information for TMs containing dangers, warnings, or cautions.	**<SupportingIM>**

IP Element	IP Category	Description	Parent Element(s)
<SimplFuncDescIP>	Descriptive Information	Simplified Functional Description IP: contains simplified functional descriptions and, as applicable, supporting electronic, electrical, and mechanical system type block diagrams.	**<ElectronicEquipFunctionalDescIM>** **<ElectronicSysFunctionalDescIM>** **<HMEEquipFunctionalDescIM>** **<HMESysFunctionalDescIM>** **<WeaponEquipFunctionalDescIM>**
<SoftwareDescriptionIP>	Descriptive Information	Software Description IP: provides descriptive information for programming software used for systems, equipment, and test equipment.	**<DescriptiveIM>**
<SttelP>	Descriptive Information	Special Tools and Test Equipment IP: contains a list of all special tools, tool kits, test equipment, miscellaneous parts, and Government-furnished items that form a part of, or are supplied (or not supplied) with the system or equipment. Can be autogenerated by publisher.	**<SupportingIM>**
<SysFuncDescIP>	Descriptive Information	Major System Function IPs: individual IPs that list and define all major system functions.	**<WeaponSysFunctionalDescIM>**
<SysFuncDirIP>	Descriptive Information	System Function Directory IP: includes a system function directory tabulating the operation control functions and the signal data described in the detailed level of functional description.	**<ElectronicEquipFunctionalDescIM>** **<ElectronicSysFunctionalDescIM>** **<HMESysFunctionalDescIM>**

IP Element	IP Category	Description	Parent Element(s)
<SystemCharIP>	Descriptive Information	System/Equipment Characteristics/Capabilties IP: contains the leading particulars or technical characteristics that present the physical, mechanical and electrical characteristics of the system, subsystem, equipment, or major functional components.	**<DescriptiveIM>**
<SystemDescriptionIP>	Descriptive Information	System Description IP: provides a description of ship missions, capabilities, and physical characteristics.	**<DescriptiveIM>**
<WeaponSysInterIP>	Descriptive Information	Weapon System Interfaces IP: includes descriptions of weapon system interface relationships to associated systems and equipment and shall be supported by interface functional block diagrams that illustrate system integration.	**<WeaponSysFunctionalDescIM>**
<IllustratedPartsBreakdownIP>	Illustrated Parts Breakdown	Illustrated Parts Breakdown (IPB) IP.	**<IllustratedPartsBreakdownIM>**
<ActiveSystemTestIP>	Procedural Information	Active System Tests IP: HM&E and electronic systems only. Provides all active system test procedures required to verify the proper installation and operation of the system.	**<SystemEquipInstallationIM>**
<ConditionsOfReadinessIP>	Procedural Information	Conditions of Readiness IP: HM&E systems, electronic systems and weapon systems only. For guidance purposes; represents engineering considerations.	**<OperationIM>**

IP Element	IP Category	Description	Parent Element(s)
<ControlsAndIndicatorsIP>	Procedural Information	Controls and Indicators IP: provides data for the system/equipment hardware controls and indicators; includes a description of all operator controls, indicators, protective devices, and jacks.	**<OperationIM>**
<DisplaysAndAlertsIP>	Procedural Information	Displays and Alerts IP: provides data for the system/equipment software displays and alerts; includes a description of all operator monitor displays and audio alerts.	**<OperationIM>**
<EquipOperatingProceduresIP>	Procedural Information	Equipment Operating Procedures IP: presents the equipment operating procedures in a concise, simply-worded, step-by-step manner.	**<OperationIM>**
<InputRequirementsIP>	Procedural Information	Input Requirements IP: a summary of the input data contained on the installation drawings.	**<SystemEquipInstallationIM>**
<InstallationCheckoutIP>	Procedural Information	Installation Checkout IP: provides step-by-step procedures to demonstrate that the system/equipment operates correctly and within tolerances.	**<SystemEquipInstallationIM>**
<InstallationProceduresIP>	Procedural Information	Installation Procedures IP: for HM&E and electronic systems, provides complete step-by-step instructions for installation of system components not covered in any of the equipment manuals for the equipment comprising the system.	**<SystemEquipInstallationIM>**

IP Element	IP Category	Description	Parent Element(s)
<IntroductionIP>	Procedural Information	Introduction IP: provides an introduction to the information provided in subsequent IPs.	**<MaintenanceIM>** **<OperationalCheckoutTroubleshootingIM>** **<OperationIM>**
<MaintenanceIP>	Procedural Information	Maintenance IPs: maintenance information is functionally divided into as many individual maintenance IPs as necessary to convey the maintenance tasks in a logical and useable manner.	**<MaintenanceIM>**
<MAMsIP>	Procedural Information	Maintenance Assistance Modules (MAMs) IP: provides a list of maintenance assistance modules and other redundant and swappable components for the system/equipment.	**<OperationalCheckoutTroubleshootingIM>**
<NonTacticalOperationIP>	Procedural Information	Non-Tactical Operation IP: includes, but is not limited to, such non-tactical operations as training exercises using dummy missiles and simulated targets, training and evaluation exercises using telemetering missiles and recording equipment.	**<OperationIM>**
<OperatingProceduresIP>	Procedural Information	System Operating Procedures IP: contains preoperational conditions and setup, operating modes, normal operation procedures, and emergency operation procedures.	**<OperationIM>**

IP Element	IP Category	Description	Parent Element(s)
<OperationalCheckoutIP>	Procedural Information	Operational Checkout IP: contains operational checkout procedures or maintenance turn-on procedures that ensure the systems, subsystems, components, accessories, and items of equipment will function in accordance with predetermined test parameters.	**<OperationalCheckoutTroubleshootingIM>**
<OperationalCheckoutTroubleshootingIP>	Procedural Information	Operational Checkout and Troubleshooting IPs: contains operational checkout and troubleshooting procedures for integrated systems and for each independent system and subsystem or equipment.	**<OperationalCheckoutTroubleshootingIM>**
<PreparationFoundationIP>	Procedural Information	Preparation of Foundations IP: provides preparation of foundation data supplemental to the installation drawings.	**<SystemEquipInstallationIM>**
<ProcedureSynopsisIP>	Procedural Information	System Corrective Maintenance Procedure Synopsis IP: provides coverage for a synoptic description of each system alignment. Each synopsis states the objectives of the alignment and lists the initial requirements and the significant parameters or functions to be considered.	**<MaintenanceIM>**
<ProtectiveDeviceIndexIP>	Procedural Information	Protective Device Index IP: lists all protective devices, such as fuses, circuit breakers, etc.	**<OperationalCheckoutTroubleshootingIM>**

IP Element	IP Category	Description	Parent Element(s)
<RedundantPluggableElectronicComponentsIP>	Procedural Information	Redundant Pluggable Electronic Components IP: provides a list of redundant (identical) pluggable electronic components to facilitate the interchange of parts in use within the system/equipment.	**<OperationalCheckoutTroubleshootingIM>**
<ScheduledMaintenanceIP>	Procedural Information	Scheduled Maintenance IP: scheduled maintenance shall not be included in the the technical manual. The publisher will autogenerate the contents of this IP.	**<MaintenanceIM>**
<SiteLocationIP>	Procedural Information	Site or Intalllation Location IP: provides data supplemental to the installation drawings.	**<SystemEquipInstallationIM>**
<SystemCableInterconnectIP>	Procedural Information	System Cable Interconnection Check IP: provides a checklist with procedures to verify the proper installation of all system cables.	**<SystemEquipInstallationIM>**
<SystemFaultDescriptorIP>	Procedural Information	System Fault Descriptor IP: system troubleshooting only. Contains a description of reported malfunctions and related maintenance codes for each system.	**<OperationalCheckoutTroubleshootingIM>**
<TroubleshootingIndicesIP>	Procedural Information	Relay Coil, Switch, and Lamp Indices IP: prepared for all relay coils, switches, and indicator lamps.	**<OperationalCheckoutTroubleshootingIM>**
<TroubleshootingProceduresIP>	Procedural Information	Troubleshooting Procedures IP: developed for detecting, isolating, and correcting systems, subsystems, and equipment failures and malfunctions.	**<OperationalCheckoutTroubleshootingIM>**

IP Element	IP Category	Description	Parent Element(s)
<TroubleshootingReferenceIP>	Procedural Information	System/Equipment Testing and Troubleshooting Reference IPs: contain reference data that is required to support operational checkout and troubleshooting IPs.	**<OperationalCheckoutTroubleshootingIM>**
<UnpackingRepackingIP>	Procedural Information	Unpacking and Repacking IP: provides unpacking and repacking data supplemental to the installation drawings.	**<SystemEquipInstallationIM>**
<UtilitiesListIP>	Procedural Information	Utilities List IP: HM&E and electronic systems only. Provides a utilities list that presents in tabular form all utilities required, and the quantities of each, in each system, compartment, and area, such as air, water, power, steam, refrigerant.	**<SystemEquipInstallationIM>**
<YardOrTenderMaintenanceIP>	Procedural Information	Yard or Tender Corrective Maintenance IP: weapon equipment only. Provides procedures and instructions for performing maintenance that is beyond the capabilities of the ships force.	**<MaintenanceIM>**
<AlphaIndexIP>	Rear Matter	Alphabetic Index IP: provides access to the technical content Information packages contained in the manual, and further to the primary technical content information contained within each IP. Autogenerated by the publisher.	**<FrontMatter>**

IP Element	IP Category	Description	Parent Element(s)
<PartNoIndexIP>	Rear Matter	Numerical Index of Part Numbers: provides direct access to the specific figure and index number related to a specific part number. Autogenerated by the publisher.	**<FrontMatter>**
<RefDesIndexIP>	Rear Matter	Reference Designation Index IP: provides direct access to the specific figure and index number related to a specific reference designation. Autogenerated by the publisher.	**<FrontMatter>**

B.5.1. CSTOM IPs

Most combat system description IP elements contain a **<SystemDescription>** and can have **<MajorEquipmentTable>**. **<SystemDescription>** is used to define a system, subsystem, or component description and can be nested within itself using **<SubSystemDescription>**. Since it is a labeled paragraph, nesting may not exceed five levels.

B.5.1.1. <CSTOMCompLocationIP>

<CSTOMCompLocationIP>'s primary element, **<CSTOMCompLocation>**, is used to provide descriptions of the components and location and can be nested within itself using **<SubCSTOMCompLocations>**. Nesting should not exceed five levels.

B.5.1.2. <ReadinessAssessSynopticTestDescIP>

<ReadinessAssessSynopticTestDescIP>'s primary element, **<ReadinessAssessSynopticTestDesc>**, is a titled paragraph whose content model contains **<TestFaultImpactTable>**, the test and fault impact evaluation table.

B.5.2. Descriptive IPs

Descriptive IPs are used to provide the purpose, physical and functional characteristics, interface requirements, and the operational capabilities of the publication's end item. Many descriptive IP elements contain a **<TitledPara>** which can be nested within itself using **<SubParas>**. Nesting may not exceed five levels.

B.5.2.1. <EquipModIP>

<EquipModIP> is used to create the Equipment Modification IP. **<EquipModIP>** contains **<AutoGenerate>** and **<EquipModTable>**. The publisher does not support **<AutoGenerate>** for the **<EquipModIP**> element, so **<EquipModTable>** element must be used. **<EquipModTable>** creates the Equipment Modification Table which is a Standardized Information Table (see B.6.3.3).

B.5.2.2. <GeneralIntroIP>

<GeneralIntroIP> is used to create the General Introduction IP. It contains a number of titled paragraphs. The **<tmder>** element is used to provide boilerplated information on TMDERs and distance support. The author should enter only the paragraph title, "**TMDER INSTRUCTIONS**"; the publisher will insert the appropriate text. The **<Abbreviations>** element is contained in the **<GeneralIntroIP>**, but the Abbreviations List entered here is placed in rear matter by the publisher. For more information on **<Abbreviations>**, see B.5.5.1. The **<AlertInfo>** element contains the elements **<DangerSample>**, **<WarningSample>**, **<CautionSample>** and **<NoteSample>** which are utilized to provide samples of danger, warning, caution, and notes. The "Sample" content tag ensures the samples are not automatically included in the Safety Summary. The graphic symbols for each sample are auto-generated, but hazardous symbols such as poison or radiation should be tagged as a graphic.

B.5.2.3. <MatReqIP>

<MatReqIP> is used to create the Materials Required IP. This IP can be created either explicitly by using the **<MaterialsList>** element or can be autogenerated by the publisher by using the **<AutoGenerate>** element. When **<AutoGenerate>** is specified, the publisher aggregates all the **<MaterialsList>**s from the procedural IPs into a single master **<MaterialsList>.** When aggregating the Materials Lists, the publisher does not gather the **<NotesList>** entries; the auto generated Materials List will not have a Notes section. This auto generation does not filter out duplicates and assigns the reserved *'id'* attribute value of "genMaterialsList".

B.5.2.4. <PhysicalArrangeIP>

<PhysicalArrangeIP> provides physical arrangement information. It contains **<PhysicalArrange>** which contains **<PhysicalLocation>** and **<desc>**. **<PhysicalLocation>** is used to author the paragraph title and **<desc>** is used to author the paragraph. **<PhysicalArrange>** can be nested using **<SubLocations>**;

however, the nesting should not exceed five levels. While the element name is **<SubLocations>**, it is actually used to author sub-Physical Locations.

B.5.2.5. <RefPubIP>

<RefPubIP> is used to create the Reference Publications IP. It can be created explicitly by using the **<ReferenceList>** element or can be autogenerated by the publisher by using the **<AutoGenerate>** element. When **<AutoGenerate>** is used, the publisher aggregates all the **<ReferenceList>**s from the narrative and procedural into a single master **<ReferenceList>.** This auto generation does not filter out duplicates. This reference list is given a reserved *'id'* attribute value of "genReferenceList".

B.5.2.6. <SafetyPrecautionIP>

The **<SafetyPrecautionIP>** content model contains elements used to provide the required paragraphs of the Safety Precaution IP. The paragraphs comprising the Safety Precaution IP and the element used to implement the paragraph are detailed below.

B.5.2.6.1. Radiation Hazard

Radiation Hazard is a titled paragraph that describes the publication's electromagnetic radiation hazards and the precautions to be taken. The hazards of radiation to flammable or explosive materials also shall be described. It is implemented using the **<RadiationHazard>** element.

B.5.2.6.2. Diver Hazard

Diver Hazard, implemented using the **<DiverHazard>** element, is a titled paragraph used to detail diving hazards.

B.5.2.6.3. System Hazard

System Hazard is a required titled paragraph used to describe system hazards and precautions addressed to system personnel and referenced to particular system equipment. The descriptions shall be organized to be consistent with the operation of the system. The descriptions shall supplement and extend equipment safety instructions to the system level, by warning of potential hazards that can be caused during operation or maintenance. The **<SystemHazard>** element is used to create this paragraph. **<SystemHazard>** can be nested within itself using **<SubSystemHazardParas>.** Nesting may not exceed five levels.

B.5.2.6.4. Operational Hazard

Operational Hazard, implemented using the **<OperationalHazard>** element, is a required titled paragraph used to provide an operational safety summary. A summary shall be included which emphasizes the proper use of equipment controls, describes the hazards to operators, or as applicable, the hazards to persons in areas remote from the operation, and recommends precautions.

B.5.2.6.5. Safety Summary

Safety Summary is a titled paragraph used to provide a maintenance safety summary. A maintenance safety summary shall emphasize the proper use of controls, describe the hazards to maintenance personnel, potential damage to the equipment, and recommend precautions. The Safety Summary is implemented using the **<SafetySummary>** element. By default, the publisher gathers all **<warning>**s, **<caution>**s, and **<danger>**s used within the publication and places them automatically at the end of the **<SafetySummary>.** The publisher compares the contents and only places the unique alerts in the **<SafetySummary>** to avoid duplication. This auto-generation may be overridden by the inclusion of the the processing instruction "**<?noSafeSum?>**" within **<TitlePage>.** The text "The following is generated from all the dangers, warnings, and cautions used in this TM." is generated by the publisher and appears before the alerts.

B.5.2.6.6. Hazardous Components

Hazard Components, implemented using the **<HazardComp>** element, is a titled paragraph used to identify and briefly describe the hazardous components including radioactive devices and elements used with the system and summarize the general handling precautions for such components.

B.5.2.7. <SttelP>

<SttelP> is used to create the Special Tools and Test Equipment IP. It can be created explicitly by using the **<SpecialToolsList>** element or can be autogenerated by the publisher by using the **<AutoGenerate>** element. When **<AutoGenerate>** is specified, the publisher aggregates all the **<SpecialToolsList>**s from the procedural IPs into a single master **<SpecialToolsList>.** This auto generation does not filter out duplicates. When aggregating the Special Tools Lists, the publisher does not gather the **<NotesList>** entries; the auto generated Special Tools List will not have a Notes section. The special tools list is given a reserved *'id'* attribute value of "genSpecialToolsList".

B.5.2.8. <SystemCharIP>

<SystemCharIP>'s primary element, **<SystemChar>**, is used to provide technical characteristics of the system, subsystem, or equipment and can be nested within itself using **<SubSystemChars>**. Nesting should not exceed five levels.

B.5.3. Illustrated Parts Breakdown IP

The Illustrated Parts Breakdown IP is implemented by using the **<IllustratedPartsBreaksownIP>** element. This element contains the **%ALTPartsListGroup;** entity which, in turn contains the **<PartsListgroup>** element and the **<PartsListGroupALTs>** element. **<PartsListGroup>** may contain figures and must contain the Group Assembly Parts List (GAPL) (see A.12.5.1.20) and one or more Useable On Code List (See A.12.5.1.19).

B.5.4. Procedural IPs

Procedural IPs generally describe specific operating tasks or procedures.

B.5.4.1. <InstallationCheckoutIP>

The **<Installation CheckoutIP>** contains the **<InstallationSummarySheet>** which is an EMPTY element where an image file in the format of a jpeg or png must be inserted. The image file name is identified as an attribute. The file attribute is of type ENTITY so it will need to be specified in the entity declaration just like images.

B.5.4.2. <ScheduledMaintenanceIP>

The **<ScheduledMaintenanceIP>** element triggers the publisher to insert boilerplated text as dictated by MIL-DTL-24784C. Nothing should be authored in this IP.

B.5.5. Rear Matter

Rear matter contains items that are displayed at the rear of the technical manual. In addition to IPs, rear matter includes the TMDER sheet(s) and the back cover. The publisher automatically places TMDER sheets before the back cover. These images are pulled from a master graphics directory and are updated when the form changes by the publisher's administrator. The publisher automatically places a back cover at the end of the publication.

B.5.5.1. <Abbreviations>

The required **<Abbreviations>** element is created as part of the **<GeneralIntroIP>,** however; it appears in the rear matter of the technical manual as if it were a separate IP. The publisher performs the formatting and placement; the author only needs to create it. Since it is treated as an IP it inherits the system nomenclature from the title page except for the title. The child element **<AbbrevList>** is formatted and treated as a Standardized Information Table. From more information see A.12.5.1.17.

B.5.5.2. <AlphaIndexIP>

When an **<AlphaIndexIP>** element occurs in the **<FrontMatter>** element content, the publisher automatically builds an alphabetic index and places it in the rear matter of the publication. The index is built from every IP's **<Subject>** and its primary paragraphs (these must have *'id'* and **<title>** declared). The index is first organized based on **<Subject>**'s contents. These entries are aligned to the left margin and

sorted alphabetically. If multiple IP's have the same subject, for instance "Disassembly", only one entry for it will appear in the index. All qualifying primary paragraphs for the subject are placed beneath the subject, sorted alphabetically and indented. All entries are hyperlinked.

B.5.5.3. <PartNoIndexIP>

When a **<PartNoIndexIP>** element occurs in the **<FrontMatter>** element content, the publisher automatically builds a part number index and places it in the rear matter of the publication. The index is built from every **<GAPLPartNumber>** in the publication. The publisher collects the **<GAPLPartNumber>**, its **<IndexNumber>** (if this does not exist, a dash "-" is used instead), and the applicable GAPL figure information and places them in a table. The information is sorted alphabetically based on **<GAPLPartNumber>**. Duplicate **<GAPLPartNumber>**s are not repeated. The IP, figure number, and index number of the listed part are displayed in the right column and are hyperlinked to the corresponding GAPL figure. Note that for the publisher to build a part number index, at least one **<gapl>** is required. If **<PartNoIndexIP>** is declared when there is no GAPL table, publishing will fail.

B.5.5.4. <RefDesIndexIP>

When a **<RefDesIndexIP>** element occurs in the **<FrontMatter>** element content, the publisher automatically builds a reference designation index and places it in the rear matter of the publication. The index is built from every **<ReferenceDesignator>** in a GAPL table. The publisher collects the **<ReferenceDesignator>**, the corresponding **<GAPLPartNumber>**, its **<IndexNumber>** (if this does not exist, a dash "-" is used instead), and the applicable GAPL figure information and places them in a table. The information is sorted alphabetically based on **<ReferenceDesignator>**. Duplicate **<ReferenceDesignator>**s are not repeated. The IP, figure number, and index number of the listed part are displayed in the middle column and are hyperlinked to the corresponding GAPL figure while the **<GAPLPartNumber>** appears in the right column. Note that for the publisher to build a reference designation index, at least one **<gapl>** is required. If **<RefDesIndexIP>** is declared when there is no GAPL table, publishing will fail.

B.5.6. IP Numbering

Each IP is assigned a five digit identification number when published. This sequential number is generated as each IP is processed and formatted as 'XXX XX'. For example the fifth IP processed would receive the IP number '005 00'. The last part of the IP identification number is not used at this time. The publisher places the IP identification number at the top of each page. It is used in cross references and page references.

B.5.7. IP Title Block

Each IP begins with its own title block separated from the IP body by two horizontal rules. The horizontal rules are auto-generated by the publisher. The title block information is generated either from **<TitleBlock>** or **<TroubleTitleBlock>** depending on the IP type. Please note that while the **<TitleBlock>** element and the **<TroubleTitleBlock>** element are are identical except for their names, the **<TroubleTitleBlock>** must be used for Troubleshooting IPs

B.5.7.1. IP Title

The common IP title comes from the contents of **<Subject>**.

B.5.7.2. IP System Nomenclature

The IP's system nomenclature is defined using the **<IPSystemNomenclature>** content model. This content model allows for the **<name>** element to be either explicitly defined by the IP itself or inherited from the publication's **<name>** element defined in **<TitlePage>.** Generally, the **<name>** element within **<IPSystemNomenclature>** should be inherited from the publication’s **<name>** element.

B.5.7.2.1. Inherited <name>

The **<IPSystemNomenclature>** construct allows for using either **<Inherit>** or **<name>**, but not both. Using **<Inherit>** triggers the publisher to pull the **<name>** element information from another area of the

publication. If the IP is part of a **<system>**/**<SubSystems>** construct, the **<name>** element information is pulled from the **<system>**'s **<SystemIdentificationInformation>** construct; otherwise it is pulled from the title page. When **<Inherit>** is used, **<name>** does not need to be defined within **<IPSystemNomenclature>**.

B.5.8. IP Rear Sections

Each IP itself can have its own rear matter comprised of **<FigureSection>, <TableSection>**, and **<FoldoutSection>** in that order. **<FoldoutSection>** is the only location where foldouts can be placed. Figures and/or tables may be placed in the IP body or in **<FigureSection>** or **<TableSection>**, but landscape tables may only be placed in the table section.

B.6. Content Elements

B.6.1. Labeled Paragraphs

The MIL-DTL-24784C DTD contains many elements for which the publisher automatically generates labels. All are very similar in content, but are named differently in order to provide more intelligence to the data. For example, **<TitledPara>** and **<TaskIntro>** have the same content model, but placing the data in **<TaskIntro>** immediately conveys that its data comprises the introduction to a task. Many labeled paragraphs may be nested within each other. This nesting drives both the labeling and format of the paragraph. Often this nesting is controlled with a bucket element like **<SubParas>**. For labeling and formatting of paragraphs see Table B-7.

Table B - 7 Paragraph Labeling

Level	Label Format	Description	Notes
1	**1 TITLE.** This is the paragraph text text text ...	Publisher upper-cases and bolds title. Text starts on following line.	Author shall put the period at the end of the title.
2	**1.1 TITLE.** This is the paragraph text text text ...	Publisher upper-cases and bolds title. Text continues on same line.	Author shall put the period at the end of the title.
3	**1.1.1 Title.** This is the paragraph text text text ...	Publisher bolds title. Text starts on following line. Title case is as authored.	Author shall put the period at the end of the title. Author shall capitalize the first letter of the first word and the first letter of each principal word of the title.
4	1.1.1.1 Title. This is the paragraph text text text …	Text continues on same line. Title and label do not receive any special formatting.	Author shall put the period at the end of the title. Author shall capitalize the first letter of the first word and the first letter of each principal word of the title.
5	1.1.1.1.1 *Title.* Text text text ...	Text continues on same line. Title is formatted with italic text.	Author shall put the period at the end of the title. Author shall capitalize the first letter of the first word and the first letter of each principal word of the title.

B.6.1.1. Primary Paragraphs

Primary paragraphs are those elements that can only occur at the top level of an IP and thus receive a level one label. Primary paragraph elements are listed below. Elements listed below with an asterisk (*) can have the optional *'hcp'*, *'emergency'*, and *'esds'* attributes. For more information on these attributes see B.2.4.3.

- **<ActiveSystemTestInfo>***
- **<AdditionalInfo>**
- **<Adjust>***
- **<AdjustAlign>***
- **<AlertInfo>**
- **<AlignmentSynopsis>***
- **<Calibrate>***
- **<Checkout>***
- **<Cleaning>***
- **<ControlsAndIndicatorsDesc>**
- **<CSTOMCompLocation>**
- **<DetlFuncDesc>**
- **<Disassembly>***
- **<DisplaysAndAlertsDesc>**
- **<DiverHazard>**
- **<Effectivities>**
- **<EmergencyShutdown>***
- **<EndItemDescription>**
- **<EquipOperatingMode>**
- **<ESDInfo>**
- **<ExaminationAcceptanceCriteria>***
- **<FaultDescriptorTable>**
- **<GeneralProcedure>***
- **<Grooming>***
- **<Handling>***
- **<HazardComp>**
- **<InputRequirementsInfo>***
- **<Inspect>***
- **<Install>***
- **<InstallationCheckoutInfo>***
- **<InstallationProcedureInfo>***
- **<Lubrication>***
- **<MaintenanceTurnOn>***
- **<NonTacticalOperation>***
- **<NuclearRequirements>**
- **<OperatingMode>**
- **<OperationalHazard>**
- **<OperationReadiness>**
- **<Packaging>***
- **<PhysicalArrange>**
- **<PreliminarySetup>***
- **<PreparationFoundationInfo>***
- **<Pretest>**
- **<purpose>** (element of **<GeneralIntroIP>**)
- **<RadiationHazard>**
- **<ReadinessAssessSynopticTestDesc>**
- **<Reassembly>***
- **<Refurbishment>***
- **<Remove>***
- **<Repair>***
- **<SafetySummary>**
- **<Shutdown>***
- **<SimplFuncDesc>**
- **<SiteLocationInfo>***
- **<SpecialHandling>***
- **<SpecialPackaging>***
- **<SpecialPreservation>***
- **<SpecialStorage>***
- **<SpecialTransportation>***
- **<Storage>***
- **<SystemCableInterconnectInfo>***
- **<SystemChar>**
- **<SystemDescription>**
- **<SystemHazard>**
- **<TestAndInspection>***
- **<TestProcedure>**
- **<tmder>**
- **<Transportation>***
- **<TroubleshootingProcedure-B>**
- **<UnitBreakIn>***
- **<UnpackingRepackingInfo>***
- **<UtilitiesListInfo>***
- **<volumeinfo>**

B.6.1.2. Multi Level Paragraphs

Multi level paragraphs are those elements appearing at any level where labeling occurs. Multi level paragraph elements are listed below. There may be only five levels of paragraphs. Elements listed below with an asterisk (*) can have the optional *'emergency', 'hcp',* and *'esds'* attributes. For more information on these attributes see B.2.4.3.

- **<ElectromagneticInterference>***
- **<EmergencyOperation>***
- **<EmergencyTurnOff>***
- **<intro>**
- **<NormalOperation>***
- **<Operation>***
- **<OperatingProcedure>***
- **<OperationalNarrative>***
- **<OperationalProcedure>***
- **<OperationUnderInterferingConditions>***
- **<OperatorTurnOff>***
- **<OperatorTurnOn>***
- **<PreopCondition>***
- **<PretestProcedure>***
- **<Procedure>***
- **<SpecialOperation>***
- **<TaskIntro>**
- **<TitledPara>**

B.6.2. Step Elements

The MIL-DTL-24784C DTD contains several step elements that can be used to present data in an ordered sequence. When applicable, the publisher will auto-label the elements and apply any special formatting.

B.6.2.1. Step

Although the MIL-DTL-24784C DTD allows for an infinite level of nesting, only 4 levels of steps are allowed by 24784C. When more than four levels are declared, the publisher generates an error in the error log (Figure B-28). Table B-8 shows the publisher-generated labels for the four levels of steps. Figure B-7 shows how four levels of steps will appear in the PDF (page-based) manual. Note that sequential lists may not be placed within steps.

Table B - 8 Step Label Format

Level	Label Format
1	1.
2	a.
3	(1)
4	(a)

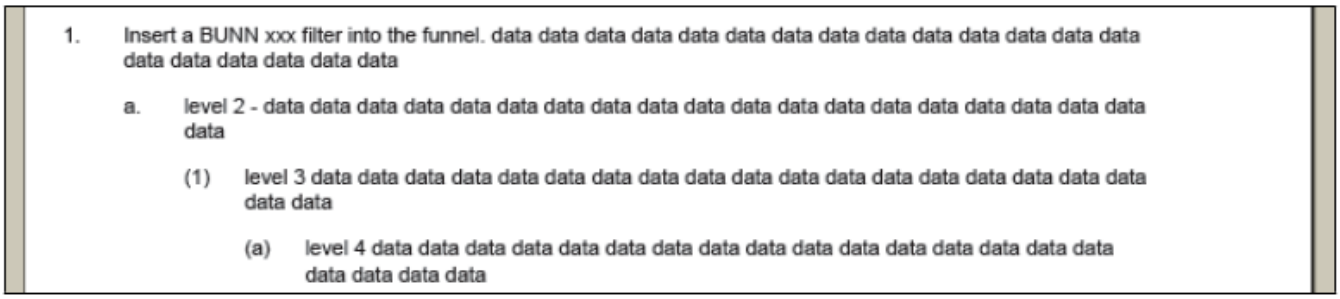


Figure B - 7 Step Sample

B.6.2.2. OperatingStep

<OperatingStep> is a container element that holds information specific to system, subsystem, or equipment operation. Unlike a standard step it also has the optional **<observe>** and **<Reference>** elements to provide additional information. For an example of an **<OperatingStep>** with the optional **<observe>** and **<Reference>** elements, see Figure B-8 and and the tagging example that follows it.

6 ROTATOR POWER OFF

6.1 POWERING OFF THE ROTATOR. Follow the steps below to power off the rotator. Please observe as indicated. If necessary, consult the associated reference.

6.2 PROCEDURE TO SECURE ROTATOR. Please secure rotator by placing the zy52 switch on the main console in the NEUTRAL position. The following procedure will remove power from the rotator.

1. Check convenience lamp indicators.

   OBSERVATION

   Lighted

   See Schematic, figure 5-23

2. Remove all obstructions from the rotational paths of the director main antenna assembly.

   OBSERVATION

   Director clear

3. At track meter panel, 1A340-02, check COOLANT FAILURE lamp.

   OBSERVATION

   Extinguished (Depress RESET button if lamp is lighted)

   See Relay diagram, figure 5-77, SH #(4B)

Figure B - 8 Example of <OperatingStep> with <observe> and <reference>

```
<OperatorTurnOff id="gzdi17-cd900">
    <title>Rotator Power Off</title>
    <TaskIntro>
        <title>Powering off the rotator.</title>
        <para id="gzdi17-cd901">Follow the steps below to power off the rotator. Please
        observe as indicated. If necessary, consult the associated reference.</para>
    </TaskIntro>

    <OperatingProcedureALTs id="lt-cd902">
        <OperatingProcedure id="gzdi17-cd903">
            <title>Procedure to secure rotator.</title>
            <para id="gzdi17-cd904">Please secure rotator by placing the zy52 switch on the
            main console in the NEUTRAL position. The following procedure will remove
            power from the rotator.</para>

            <OperatingStep id="gzdi17-cd905">

                <step id="gzdi17-cd906">
                    <para id="gzdi17-cd907">Check convenience lamp indicators.</para>
                </step>
```

```
                    <observe id="gzdi17-cd908">
                        <para id="gzdi17-cd909">Lighted</para>
                    </observe>

                    <Reference>
                        <ExternalRef>See Schematic, figure 5-23</ExternalRef>
                    </Reference>
                </OperatingStep>

                <OperatingStep id="gzdi17-cd912">
                    <step id="gzdi17-cd913">
                        <para id="gzdi17-cd914">Remove all obstructions from the rotational
                        paths of the director main antenna assembly.</para>
                    </step>

                    <observe id="gzdi17-cd915">
                        <para id="gzdi17-cd916">Director clear</para>
                    </observe>
                </OperatingStep>

                <OperatingStep id="gzdi17-cd917">
                    <step id="gzdi17-cd918">
                        <para id="gzdi17-cd919">At track meter panel, 1A340-02, check
                        COOLANT FAILURE lamp.</para>
                    </step>

                    <observe id="gzdi17-cd920">
                        <para id="gzdi17-cd921">Extinguished (Depress RESET button if
                        lamp is lighted)</para>
                    </observe>

                    <Reference>
                        <ExternalRef>See Relay diagram, figure 5-77, (Sheet 4 of
                        X)</ExternalRef>
                    </Reference>
                </OperatingStep>
            </OperatingProcedure>
</OperatingProcedureALTs>
</OperatorTurnOff>
```

B.6.2.2.1. <observe>

When specified, the **<observe>** element's content is aligned even with its preceding **<step>** sibling. To distinguish it as observation information, the publisher places the bold text "**OBSERVATION**" before its contents. For an example of **<observe>**, see Figure B-8 and and the tagging example that follows it.

B.6.2.2.2. <Reference>

When specified, the **<Reference>** element's content is aligned even with its preceding **<step>** sibling. For an example of **<Reference>**, see Figure B-8 and and the tagging example that follows it. Note that the publisher does NOT place any text before the contents of the **<Reference>** element. The author should use verbiage such as “See” before the reference to indicate to the user that it is a reference.

B.6.2.3. <PretestStep>

The **<PretestStep>** element is formatted and labeled the same as a **<step>.**

B.6.3. Tabular Elements

The tabular elements listed below allow the author to format and present data in table form. In addition to **<SimpleTable>** and **<table>,** which give the author increasing control on the table structure, there are a number of elements classified as Standardized Information Tables. See A.11.5 for more information on Standardized Information Tables. The publisher handles all the formatting for these tables.

B.6.3.1. CALS Tables

CALS table markup is the preferred method of creating tabular data since it gives the author the most control over formatting and size. CALS table markup allows columns and rows to be spanned, alignments to be set and column and overall table width to be defined. When spanning rows and/or columns, attention MUST be paid to the total cell count per row.

B.6.3.1.1. Table Elements

The following paragraphs describe table elements used in CALS tables.

B.6.3.1.1.1. <tgroup>

The **<tgroup>** element provides a subgrouping of rows within a table that all use the same column, span, and formatting specifications. Although the **<table>** allows for multiple instances, only one should be used since header and footer information are carried over from page to page. When more than one **<tgroup>** is specified, the publisher generates an error in the error log (Figure B-24). Declaring more than one **<tgroup>** will prevent the publishing of the TM.

B.6.3.1.1.2. <thead>

The **<thead>** is a formatting element that contains the table's heading information, usually column heads, that appears at the top of the table. The **<thead>** is combined with the table label, and title to form the table header. This information is repeated at the top of every page the table appears on.

B.6.3.1.1.3. <tfoot>

The **<tfoot>** identifies the **<row>** of the table footer information. Like the **<thead>** information, the footer information appears at the bottom of the table and is repeated at the bottom of every page the table appears on. To distinguish the footer from the main table body, its content is in bold text with a light gray background.

B.6.3.1.1.4. <tbody>

The **<tbody>** defines the main table content.

B.6.3.1.1.5. <colspec>

The optional **<colspec>** element is used to define the characteristics of a single table column. Although it is an optional element used by **<tgroup>, <tfoot>, <thead>**, and **<entrytbl>** it should only be defined by **<tgroup>.** The publisher does not process it when it is a child of **<tfoot>, <thead>**, and **<entrytbl>** since it attempts to change the table layout. If **<colspec>** is used, the number defined must match the number specified by **<tgroup>**'s *'cols'* attribute. If they do not match, the publisher generates an error (Figure B-21). Although it is not a required attribute when using **<colspec>,** the attribute *'colwidth'* should be specified for each **<colspec>** entry. The *'colwidth'* value should be the width of the column in inches, but “in” MUST NOT BE part of the value. For example, to have a column two inches wide the *'colwidth'* value should be "2.0". All **<colspec>** *'colwidth'*s are added together to determine the overall table width. If a table does not define **<colspec>**s then the table fills the available page width (7.25 inches for portrait and 9.4 inches for landscape). When the table width exceeds the amount of available space it will flow off the page to the left, and the publisher generates an error (Figure B-23). If only some *'colwidth'*s are defined the publisher generates an error (Figure B-22).

B.6.3.1.1.6. <spanspec>

The optional **<spanspec>** element is used to define a column span profile that can be used repeatedly in a table. The required attributes *'namest'* and *'nameend'* define the columns to span. The required attribute *'spanname'* must be unique for the table and is used by the **<entry>** element to access the pre-defined span parameters. The attributes *'char'* and *'charoff'* are not used by the publisher.

B.6.3.1.1.7. <row>

The **<row>** element identifies the row information in a **<thead>, <tbody>,** or **<tfoot>** element. The number of columns consumed by the **<entry>**'s in a row including their spans, and by columns encroached by an **<entry>** with *'morerows'* from a prior row of a **<tgroup>,** shall not exceed the **<tgroup>**'s *'cols'* attribute value. When this happens, publishing is halted. The content model for the **<row>** element includes an **<entrytbl>** element. The **<entrytbl>** element is not supported by the publisher and should not be used.

B.6.3.1.1.8. <entry>

The **<entry>** element identifies a single table cell. Depending on various attribute settings, a cell can span multiple columns and rows. Additional attributes can be used to adjust the cell's border and horizontal and vertical alignment.

B.6.3.1.1.9. <graphic>

The content model of **<table>** allows it to contain a **<graphic>** element instead of a **<tgroup>** element. SNIPP does not currently permit using a **<graphic>** element instead of a **<tgroup>** element.

B.6.3.1.2. Table Attributes

There are several attributes which are used to control the appearance of a CALS Table. They are discussed in the following paragraphs. Where noted, the attributes can also be used with Simple Tables.

B.6.3.1.2.1. 'colsep'

The *'colsep'* attribute is used to display or not display the right-side column marker for a given cell. By default it is displayed. This attribute can be specified on the following elements: **<table>**, **<tgroup>**, **<colspec>**, **<spanspec>**, **<entry>**, and **<SimpleTable>**. For CALS and Simple tables, the publisher processes all *'colsep'*s at the **<entry>** level. See Table B-9 for *'colsep'* precedence and processing.

Table B - 9 *'colsep'* Processing and Precedence

Criteria	Results
<spanspec> with matching *'spanname'*, **colsep="1"**	Cell's column border visible
<spanspec> with matching *'spanname',* **colsep="0"**	No column border
<entry>'s **colsep="1"**	Cell's column border visible
<entry>'s **colsep="0"**	No column border
<colspec> with matching *'colname'*, **colsep="1"**	Cell's column border visible
<colspec> with matching *'colname'*, **colsep="0"**	No column border
<tgroup>'s **colsep="1"**	Cell's column border visible
<tgroup>'s **colsep="0"**	No column border
<table>'s or **<SimpleTable>**'s **colsep="1"**	Cell's column border visible
<table>'s or **<SimpleTable>**'s **colsep="0"**	No column border

B.6.3.1.2.2. 'rowsep'

The *'rowsep'* attribute specifies the presence or absence of row separator rules (horizontal rules). By default it is active. This attribute can be envoked on the following elements: **<table>**, **<tgroup>**, **<spanspec>**, **<row>**, **<entry>**, and **<SimpleTable>**. See Table B-10 for *'rowsep'* precedence and processing.

Table B - 10 *'rowsep'* Processing and Precedence

Order	Criteria	Results
1	**<spanspec>** with matching *'spanname'*, **rowsep="1"**	Cell's column border visible
2	**<spanspec>** with matching *'spanname',* **rowsep="0"**	No column border
3	**<entry>**'s **rowsep="1"**	Cell's column border visible
4	**<entry>**'s **rowsep="0"**	No column border
5	**<colspec>** with matching *'colname'*, **rowsep="1"**	Cell's column border visible
6	**<colspec>** with matching 'colname', **rowsep="0"**	No column border
7	**<tgroup>**'s **rowsep="1"**	Cell's column border visible
8	**<tgroup>**'s **rowsep="0"**	No column border
9	**<table>**'s or **<SimpleTable>**'s **rowsep="1"**	Cell's column border visible
10	**<table>**'s or **<SimpleTable>**'s **rowsep="0"**	No column border

B.6.3.1.2.3. 'frame'

The *'frame'* attribute defines the outer border of a table. If this attribute is not specified, the table will be completely framed with a 0.25pt black line. See Table B-11 for specific attribute values. The ***'colsep'*** and ***'rowsep'*** attributes can make a table appear as if it has a frame when portions have been explicitly turned off using the ***'frame'*** attribute. For instance, if no ***'colsep'*** or ***'rowsep'*** attributes have been set, the default formatting is to frame the entire cell. If the ***'frame'*** attribute has been set to "none", the table will still have the appearance of being framed due to the cell's formatting. For details on ***'colsep'*** and ***'rowsep'*** behavior see B.6.3.1.2.1 and B.6.3.1.2.2 respectively.

Table B - 11 'frame' Values and Behavior

Value	Result
all (default)	The entire table is framed.
top	Only the top is framed.
bot	Only the bottom is framed.
topbot	Top and bottom are framed, but the sides are not.
sides	The sides are framed, but the top and bottom are not.
none	The table is not framed.

B.6.3.1.2.4. 'valign'

The *'valign'* attribute sets the cell's vertical alignment. There are three possible values: "top", "middle", and "bottom". The default setting is dependent upon the cell location and attribute inheritance. See Table B-12 for attribute precedence.

Table B - 12 'valign' Precedence

Order	Criteria	Results
1	**<entry>**'s *'valign'* specified.	Vertical alignment set to attribute value.
2	**<entry>**'s *'valign'* not specified and element is a part of **<tbody>**	If **<tbody>**'s *'valign'* is specified, cell is set to its value otherwise it is set to "top"
3	**<entry>**'s *'valign'* not specified and element is a part of **<tfoot>**	If **<tfoot>**'s *'valign'* is specified, cell is set to its value otherwise it is set to "top"
4	**<entry>**'s *'valign'* not specified and element is a part of **<thead>**	If **<thead>**'s *'valign'* is specified cell, is set to its value otherwise it is set to "bottom"

B.6.3.1.2.5. 'morerows'

The ***'morerows'*** attribute is used to span a cell across multiple rows. The attribute value specifies how many additional rows for the cell to span. For example, if cell was to occupy two rows it would have a value of "1". It is important when spanning rows to make certain the following rows do not have too many cells. When this occurs the cells will shift to the left. NOTE: Cells will only overflow if the **<colspec>**s are not defined. When they are defined and the subsequent rows contain too many cells, an error will occur and no PDF will be created.

B.6.3.1.2.6. 'align'

The *'align'* attribute sets the cell's vertical alignment and can be defined by **<tgroup>, <colspec>, <spanspec>, <entry>**, and **<entrytbl>.** There are five possible values: "left", "right", "center", "justify", and "char". "char" and "justify" are not supported. The default setting is dependent upon the cell location (**<thead>**-centered, **<tbody>**-left, and **<tfoot>**-left) and attribute inheritance. See Table B-13 for attribute precedence. The publisher attempts to minimize the need to define cell alignments by defaulting them. It is often desired to have one column centered, the next right justified and so on. When this occurs, alignment should be declared on the **<colspec>** element. Each cell will inherit the alignment specified by its colspec unless the **<entry>** is part of a row where column or row spanning occurs. In cases where spanning is present, the publisher cannot accurately determine which column it is in. Therefore, it is recommended to explicitly declare the alignment in rows where spanning occurs. NOTE: **<thead>** alignment does not inherit **<colspec>** alignment. By default they are centered. If another alignment is desired it must be declared.

Table B - 13'align' Precedence

Order	Criteria	Results
1	**<spanspec>** with matching *'spanname'*, *'align'* declared.	Alignment set to **<spanspec>** attribute value.
2	**<entry>**'s*' align'* specified.	Alignment set to attribute value.
3	**<entry>**'s *'align'* not specified and element is a part of **<thead>.**	Alignment defaults to "center"
4	**<entry>**'s *'align'* not specified, **<colspec>** alignment declared and not part of a row with spanning.	Alignment set to **<colspec>** attribute value.
5	**<entry>**'s *'align'* not specified, **<colspec>** alignment not declared and **<tgroup>** alignment declared.	Alignment set to **<tgroup>** attribute value.

B.6.3.1.2.7. 'orient'

CALS tables may be rotated 90 degrees by using the *'orient'* attribute. When this is set to "land" the table is rotated counterclockwise. Rotating the table allows a table width up to 9.4 inches.

B.6.3.2. Simple Tables

Like its name implies, **<SimpleTable>** is a simplified version of the CALS Table model. Its contents do not have many of the attributes used to control formatting. Since the Simple Table model does not contain **<colspec>**s, all columns are proportionally spaced, and the table spans the available page width. Cells within the **<SimpleTbody>** are left justified, while those in **<SimpleThead>** are centered. Column and row separators are on by default and can only be deactivated at the **<SimpleTable>** level.

B.6.3.3. Standardized Information Tables

Standardized Information Tables (SITs) consist of content-tagged data which is presented as a formatted table. Each type of SIT is always formatted in a standardized way. SITs are NOT to be tagged as CALS Tables. Each row and each cell within a row is uniquely identified by its content and are not tagged using the **<row>** and **<entry>** elements. Column heads are automatically generated and are NOT to be tagged. Table B-14 lists the SITs and the IPs in which they can appear. For further information on SITs, see A.11.5 and its subordinate paragraphs. Table B-15 lists IP elements that contain the **%proceduralipinfo;** entity within their content models. The entity is used to reference common information that all of these IPs may contain. Table B-16 lists IP elements that contain the **%narrativeipinfo;** entity within their content models. The entity is used to reference common information that all of these IPs may contain.

Table B - 14 Standardized Information Tables and IPs

Standardized Information Table	Element Name	IP(s) in Which the SIT Can Occur
Controls and Indcators Table	<ControlsIndicatorsTable>	<ControlsAndIndicatorsIP>
Displays/Alerts Table	<DisplaysAlertsTable>	<DisplaysAndAlertsIP>
Environmental Conditions List	<EnvironmentList>	See Table B-15
Equipment, Accessories, and Documents Supplied Table	<EquipDocSuppTable>	<EquipDocSuppIP>
Equipment Modification Table	<EquipModTable>	<EquipModIP>
Fault Descriptions Table	<FaultDescriptorTable>	<SystemFaultDescriptorIP>
Field and Factory Changes List	<FieldFactoryChangeList>	See Table B-15 and Table B-16
Major Equipment Table	<MajorEquipmentTable>	<AdditionalSysIP> <AEGISCombatSysIP> <AntiSubWarfareSysIP> <CombatDirSysIP> <CombatSupportSysIP> <ElectronicWarfareSysIP> <ExternalCommSysIP> <GunWeaponSysIP> <InternalCommSysIP> <LAMPSSysIP> <MissileWeaponSysIP> <NavigationSysIP> <SearchRadarSysIP> <UnderwaterCounterMeasSysIP>
Materials List	<MaterialsList>	<MatReqIP> See Table B-15
Protective Devices Index	<ProtectiveDeviceIndex>	<ProtectiveDeviceIndexIP>
References List	<ReferenceList>	<RefPubIP> See Table B-15 and Table B-16
Required Conditions	<RequiredCondList>	See Table B-15
Safety Conditions List	<SafetyList>	See Table B-15 and Table B-16
Special Tools List	<SpecialToolsList>	<StteIP> See Table B-15
Test Fault Impacts Table	<TestFaultImpactTable>	<ReadinessAssessSynopticTestDescIP>
Electrical Troubleshooting Index	<TroubleshootingIndex>	<TroubleshootingIndicesIP>
Abbreviations List	<Abbreviations>	<GeneralIntroIP>
Troubleshooting Procedure-B	<TroubleshootingProcedure-B>	<OperationalCheckoutTroubleshootingIP> <TroubleshootingProceduresIP>
Useable On Codes List	<UseableOnCodeList>	<IllustratedPartsBreakdownIP> <RefDesIndexIP>
Group Assembly Parts List (GAPL)	<gapl>	<IllustratedPartsBreakdownIP>
Numerical Index of Parts	auto-generated	<PartNoIndexIP>
Reference Designation Index	auto-generated	<RefDesIndexIP>

Table B - 15 IP Elements Containing %proceduralipinfo;

<ActiveSystemTestIP>	<ProtectiveDeviceIndexIP>
<ConditionsOfReadinessIP>	<ReadinessAssessSynopticTestDescIP>
<EquipOperatingProceduresIP>	<RedundantPluggableElectronicComponentsIP>
<InputRequirementsIP>	<SafetyPrecautionIP>
<InstallationCheckoutIP>	<SiteLocationIP>
<InstallationProceduresIP>	<SystemCableInterconnectIP>
<MaintenanceIP>	<SystemFaultDescriptorIP>
<MAMsIP>	<TroubleshootingIndicesIP>
<NonTacticalOperationIP>	<TroubleshootingProceduresIP>
<OperatingProceduresIP>	<TroubleshootingReferenceIP>
<OperationalCheckoutIP>	<UnpackingRepackingIP>
<OperationalCheckoutTroubleshootingIP>	<UtilitiesListIP>
<PreparationFoundationIP>	<YardOrTenderMaintenanceIP>
<ProcedureSynopsisIP>	

Table B - 16 IP Elements Containing %narrativeipinfo;

<AdditionalFuncDescIP>	<FaultIsolationTechniqueIP>	<SearchRadarSysIP>
<AdditionalSysIP>	<FuncEleDescIP>	<SERTIP>
<AEGISCombatSysIP>	<GeneralIntroIP>	<ShipAndCombatSystemDescriptionIP>
<AntiSubWarfareSysIP>	<GunWeaponSysIP>	<SimplFuncDescIP>
<CombatDirSysIP>	<IllustratedPartsBreakdownIP>	<SoftwareDescriptionIP>
<CombatSupportSysIP>	<ImpactEvaluationIP>	<STERFIP>
<CombatSysFuncInterfaceIP>	<IntegratedCircuitIP>	<SysFuncDescIP>
<ControlsAndIndicatorsIP>	<InternalCommSysIP>	<SysFuncDirIP>
<CSTOMCompLocationIP>	<IntroductionIP>	<SystemCharIP>
<DetectionEntryFuncDescIP>	<LAMPSSysIP>	<SystemDescriptionIP>
<DetlCircuitAnalysisIP>	<MissileWeaponSysIP>	<SystemFaultIsolationIP>
<DetlFuncDescIP>	<ModelDiffIP>	<ThreatEvalFuncDescIP>
<DisplaysAndAlertsIP>	<NavigationSysIP>	<TrackingAndIdentFuncDescIP>
<ElectronicWarfareSysIP>	<OperationFaultDirectoriesIP>	<TrainingMaintenanceSupportIP>
<EngagementFuncDescIP>	<PhysicalArrangeIP>	<UnderwaterCounterMeasSysIP>
<ExternalCommSysIP>	<PMSIP>	<WeaponSysInterIP>
<FaultIsolationIP>	<ReadinessAssessIP>	

B.6.3.4. Elements Formatted as Tables

The MIL-DTL-24784C DTD contains several non-tabular elements that the publisher formats as tables. The publisher sets the table's header information, column widths, text alignments, and its title. Each element is detailed below.

B.6.3.4.1. <PartsInformation>

The **<PartsInformation>** element is used to list the parts used in a maintenance IP. For clarity, the information is formatted as an unlabeled table. Each row in the table comes from the **<PartReference>** element. The publisher generates the title "Part Information". The table's header row, column widths, and alignments are set by the publisher. Refer to Table B-17 for specifics. Figure B-9 shows a sample Part Information table.

Table B - 17 <PartsInformation> Table Specifications

Column No.	Header	Element Providing Data
1	Index No.	**<IndexNumber>**
2	Part Name and Description	**<Nomenclature>**
3	Part No.	**<PartNumber>**
4	Part Link	**<PartLink>**

Part Information

Index No.	Part Name and Description	Part No.	Part Link
1.	Nomenclature data	45-69385474-093485	part link text
2.	Nomenclature data	45-14737-3543	Text
3.	Nomenclature data	45-3456-453	part link text

Figure B - 9 <PartsInformation> Sample

B.6.3.4.2. <StepWithIndication>

The **<StepWithIndication>** elements and their contents are combined and presented in a tabular format. Each **<StepWithIndication>** contains a single **<step>** with at least one **<IndicationGroup>**. Each **<IndicationGroup>** contains a single **<condition>** with at least one **<CorrectiveAction>**. Since the MIL-DTL-24784C DTD allows for more than one **<IndicationGroup>** and **<CorrectiveAction>**, the rows generated by the **<StepWithIndication>** element are spanned to keep all information together. Additionally, it is possible that the **<step>** itself could have **<SubSteps>**. When this occurs, the **<step>**'s generated label is placed in the first column and its contents are spanned across the remainder of the row. The publisher sets the table's header information, column widths and text alignments. Refer to Table B-18 for specifics. Figure B-10 shows a sample Step With Indication table.

Table B - 18 <StepWithIndication> Table Specifications

Column No.	Header	Element(s) Providing Data
1	Step No.	The **<step>** element's label
2	Operation	**<step>**
3	Normal Indication	**<condition>**
4	Action If Indication is Abnormal	**<CorrectiveAction>**, **<action>**, **<Reference>**, **<malfunction>**

Step No.	Operation	Normal Indication	Action If Indication Is Abnormal
1.	Step para. Data data data data data	This is a condition para. Data data data data data Is the panel energized?	See MIL-STD-XXXX ACTION Action Para. See MIL-STD-XXXX This is the malfunction paragraph. This would explain the nature or reason for the condition. Second malfunction paragraph. Data data data data data data data data data data data data data data
		This is the second condition/ indication group	See MIL-STD-XXXX ACTION Action Para. See MIL-STD-XXXX This is the malfunction paragraph. This would explain the nature or reason for the condition.
a. Second level step.			
(1) Third level step.			

Figure B - 10 <StepWithIndication> Sample

B.6.3.5. Table Labeling

Tabular elements are sequentially labeled with the label resetting with each IP. The publisher places a period ('.') character immediately following the label.

B.6.4. Graphic Elements

The MIL-DTL-24784C DTD contains several elements used to convey information in a graphic form. At the base of these elements is **<graphic>.** This element specifies the file to be used and defines the image size. For more information on specific graphic elements see paragraphs B.6.4.1 through B.6.4.8. Illustrations are labeled based on the order of appearance within an IP. Numbering does not reset with foldouts. The label and title are placed beneath the image. The period ('.') character is placed immediately following the label.

B.6.4.1. Supported Image Formats

The publisher supports the following image formats: PNG (Portable Network Graphics), TIFF (Tagged Image File Format), BMP (Bitmap), and JPG (Joint Photographic Experts Group).

B.6.4.2. Standard Images

Standard images are defined as images that are placed on a portrait-oriented, 8.5 inch x 11 inch page of the publication. These images should be no wider than 7.25 inches. If the width declared by the *'reprowid'* attribute exceeds 7.25 inches, the publisher generates an error in the error log (Figure B-27).

B.6.4.3. Landscape Images

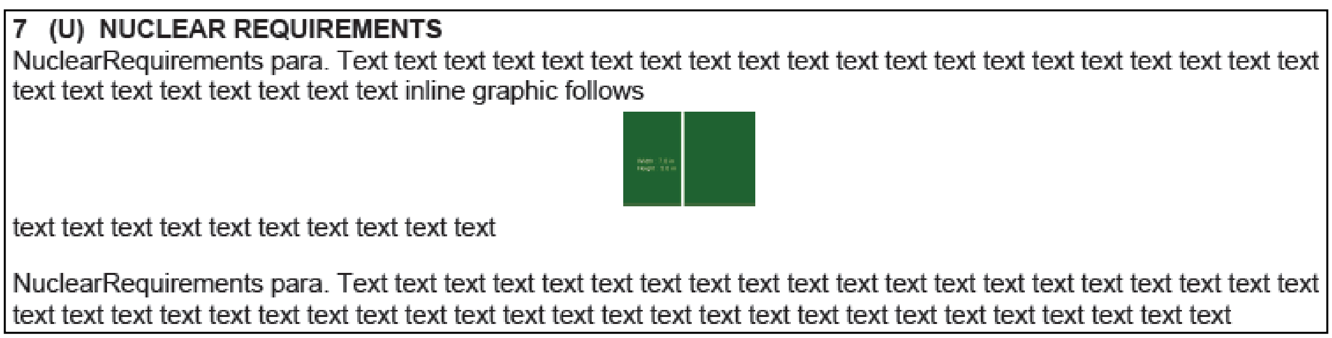
Landscape images are rotated images that are placed on a portrait-oriented, 8.5 inch x 11 inch page of the publication when the *'orient'* is set to "land". These images should be no wider than 9.4 inches and no taller than 7.0 inches to accommodate the label and title. If the width declared by the *'reprowid'* attribute exceeds 9.4 inches, the publisher generates an error in the error log (Figure B-26).

B.6.4.4. Foldout Images

Images too large to be placed on a standard page should be defined using **<foldout>.** The *'pgstyle'* attribute tells the publisher which page size to use when placing the graphic. The preferred maximum image width is 1.25 inches less than the width defined by the *'pgstyle'* attribute. Foldout images should not be rotated. If *'pgstyle'* is not defined, the publisher places the image on an 11 inch x 26 inch page and generates an error in the error log (Figure B-25).

B.6.4.5. Inline Graphics

The MIL-DTL-24784C DTD supports inline images through direct use of **<graphic>** within text. When **<graphic>** is encountered in text, the publisher places the graphic immediately without breaking the line. It is recommended to set the *'reprodep'* attribute to "0.1 in", so that the image does not cause any unwanted whitespace above the line. In some cases (equations, larger graphics, etc.), it might be necessary for the inline image to break the line and then continue the text. To do this, add the *'graphsty'* attribute with a value of "1". See Figure B-11 for an inline graphic example.



7 (U) NUCLEAR REQUIREMENTS

NuclearRequirements para. Text text text text text text text text text text text text text text text text text text text text text text text text text text text text inline graphic follows

text text text text text text text text text text

NuclearRequirements para. Text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text

Figure B - 11 Example of an Inline Graphic in a Procedure

B.6.4.6. <graphic>

The **<graphic>** element tells the publisher which file to place on the page and how to place it. The MIL-DTL-24784C DTD provides many attributes to control the placement of the image, but the publisher only uses three: *'boardno', 'reprowid'*, and *'reprodep'. 'boardno'* tells the publisher the file to use. *'reprowid'* and *'reprodep'* define the size of the image. The publisher will uniformly scale the image based upon the *'reprowid'* attribute. When these attributes are not specified, the publisher will place the image as is. NOTE: *'reprowid'* and *'reprodep'* should be defined in inches using the abbreviation 'in' in lower-case with NO spaces (i.e., reprowid="2.0in"). Other measurements may be used such as centimeters ('cm') or pixels ('px'). Inches are preferred because if the measurements are specified in inches, the publisher will evaluate the width and depth and report an error if it is too large to be placed on a page.

B.6.4.7. <SubFigure>

<SubFigure> is used to group a collection of images. Images thus grouped inherit the title of the parent **<foldout>** or **<figure>.** Additionally, their location within the series is identified with the text "(Sheet X of Y)" where "X" represents the sheets placement and "Y" the total number of images within the collection.

B.6.4.8. <figure>

<figure> can define a single image or a series of images. When the *'orient'* attribute is set to *'land'* the image is rotated counterclockwise 90 degrees. However, when **<figure>** contains **<SubFigure>**s, orientation must be set at the sub-figure level. It is not inherited from **<figure>**.

B.6.5. List Elements

The MIL-DTL-24784C DTD allows for three types of lists: sequential lists, random lists, and definition lists.

B.6.5.1. Sequential Lists

<SequentialList> is used to present data in a non-random order. Each **<item>** is automatically labeled by the publisher based upon its nested depth. Nesting may not exceed five levels. Table B-19 lists the appropriate labels for each level of items in a sequential list. When more than five levels are used, the publisher generates an error (Figure B-20). Note that sequential lists may not be used within the **<step>** element.

Table B - 19 Sequential List Label Format

Level	Label Format
1	**1.**
2	**a.**
3	**(1)**
4	**(a)**
5	**(I)**

B.6.5.2. Random Lists

<RandomList> is used to specify random (bulleted) lists.

B.6.5.3. Definition Lists

<DefinitionList> is used to specify a small definition list. The definition list is mostly made up of entries **<DefinitionEntry>** comprised of terms **<term>** and definitions **<def>**.

B.6.6. Linking Elements

Certain elements allow for the linking of one part of a publication to another. These elements are discussed below. To enable linking, the target object must have a valid *'id'* attribute value. The MIL-DTL-24784C DTD allows *'id'* to be used with most of the elements, but the publisher confines linking to certain elements. These elements and the formatting of the generated link are detailed below. See A.14 for more information.

B.6.6.1. IM Targets

Since IMs are container elements they cannot be linked to. Links should be pointed to an IP.

B.6.6.2. IP Targets

All IP elements are valid cross reference targets. When an IP is referenced the five digit IP number is displayed as part of the hyperlink. See Figure B-12.

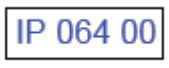


Figure B - 12 Cross Reference Sample Pointing to an IP

B.6.6.3. Labeled Targets

All labeled paragraph elements as listed below are valid link targets. When the target element is external to the IP where the cross reference is being created, the target IP's number and its title (defined by **<Subject>)** are displayed before the target object's label. See Figure B-13. The target object's title is displayed after its label when it is defined.

- **<ActiveSystemTestInfo>**
- **<AdditionalInfo>**
- **<Adjust>**
- **<AdjustAlign>**
- **<AlertInfo>**
- **<AlignmentSynopsis>**
- **<Calibrate>**
- **<Checkout>**
- **<Cleaning>**
- **<ControlsAndIndicatorsDesc>**
- **<CSTOMCompLocation>**
- **<DetlFuncDesc>**
- **<Disassembly>**
- **<DisplaysAndAlertsDesc>**
- **<DiverHazard>**
- **<Effectivities>**
- **<ElectromagneticInterference>**
- **<EmergencyOperation>**
- **<EmergencyShutdown>**
- **<EmergencyTurnOff>**
- **<EndItemDescription>**
- **<EquipOperatingMode>**
- **<ESDInfo>**
- **<ExaminationAcceptanceCriteria>**
- **<GeneralProcedure>**
- **<Grooming>**
- **<Handling>**
- **<HazardComp>**
- **<InputRequirementsInfo>**
- **<Inspect>**
- **<Install>**
- **<InstallationCheckoutInfo>**
- **<InstallationProcedureInfo>**
- **<intro>**
- **<Lubrication>**
- **<MaintenanceTurnOn>**
- **<NonTacticalOperation>**
- **<NormalOperation>**
- **<NuclearRequirements>**
- **<OperatingMode>**
- **<OperatingProcedure>**
- **<Operation>**
- **<OperationalHazard>**
- **<OperationalNarrative>**
- **<OperationalProcedure>**
- **<OperationReadiness>**
- **<OperationUnderInterferingConditions>**
- **<OperatorTurnOff>**
- **<OperatorTurnOn>**
- **<Packaging>**
- **<PhysicalArrangement>**
- **<PreliminarySetup>**
- **<PreopCondition>**
- **<PreparationFoundationInfo>**
- **<Pretest>**
- **<PretestProcedure>**
- **<Procedure>**
- **<purpose>**
- **<RadiationHazard>**
- **<ReadinessAssessSynopticTestDesc>**
- **<Reassembly>**
- **<Refurbishment>**
- **<Remove>**
- **<Repair>**
- **<SafetySummary>**
- **<Shutdown>**
- **<SimplFuncDesc>**
- **<SiteLocationInfo>**
- **<SpecialHandling>**
- **<SpecialOperation>**
- **<SpecialPackaging>**
- **<SpecialPreservation>**
- **<SpecialStorage>**
- **<SpecialTransportation>**
- **<Storage>**
- **<SystemCableInterconnectionInfo>**
- **<SystemChar>**
- **<SystemDescription>**
- **<SystemHazard>**
- **<TaskIntro>**
- **<TestAndInspection>**
- **<TestProcedure>**
- **<TitledPara>**
- **<tmder>**
- **<Transportation>**
- **<TroubleshootingIndex>**
- **<UnitBreakIn>**
- **<UnpackingRepackingInfo>**
- **<UtilitiesListInfo>**
- **<volumeinfo>**
- **<WarrantyInfo>**

Figure B - 13 Cross Reference Sample Pointing to a Labeled Paragraph

B.6.6.4. Step/Item Targets

All step or item elements are valid link targets. The elements that can be link targets are **<item>, <PretestStep>, <step>,** and **<StepWithIndication>**. When the target element is external to the IP where the cross reference is being created, the target IP's number and its title (defined by **<Subject>**) are displayed before the target object's label as well as its labeled paragraph. Additionally the word 'step' or 'item' precedes the label to distinguish it from a primary labeled paragraph. See Figure B-14.

Figure B - 14 Cross Reference Sample Pointing to a Step/Item

B.6.6.5. Figure Targets

All illustration elements are valid link targets. The elements that can be link targets are **<figure>, <foldout>,** and **<SubFigure>**. When the target element is external to the IP where the cross reference is being created, the target IP's number and its title (defined by **<Subject>**) are displayed before the target's label. Additionally the text “Figure” precedes the label. If the figure is part of a multi-sheet illustration, then "(Sheet X of Y)" follows the label. See Figure B-15.

Figure B - 15 Cross Reference Sample Pointing to an Illustration

B.6.6.6. Table Targets

Most table elements are valid link targets. When the target element is external to the IP where the cross reference is being created, the target IP's number and its title (defined by **<Subject>**) are displayed before the target's label. Additionally the text 'Table' precedes the label while its title, when defined, follows. See Figure B-16. The list of valid link targets is:

- **<ControlsIndicatorsTable>**
- **<DisplaysAlertsTable>**
- **<EquipDocSuppTable>**
- **<EquipModTable>**
- **<FaultDescriptorTable>**
- **<FieldFactoryChangeList>**
- **<gapl>**
- **<MajorEquipmentTable>**
- **<MaterialsList>**
- **<ProtectiveDeviceIndex>**
- **<SimpleTable>**
- **<SpecialToolsList>**
- **<table>**
- **<TestFaultImpactTable>**
- **<UseableOnCodeList>**
- **<TroubleshootingProcedure-B>**

Figure B - 16 Cross Reference Sample Pointing to a Tabular Element

B.6.6.7. Non-Targets

There are several elements that, although they have specified the *'id'* attribute, cannot be linked to due to document structure constraints or because the element is not supported by the current publisher version. These are detailed below.

- **<Abbreviations>**
- **<AlternatePartsALTs>**
- **<Assembly>**
- **<AssemblyALTs>**
- **<AttachingPart>**
- **<AttachingPartsALTs>**
- **<DetailedPart>**
- **<enditemALTs>**
- **<EquivalentPartALTs>**
- **<figureALTs>**
- **<IETMProduct>**
- **<InstallationSummarySheet>**
- **<ListOfEffectiveIPs>**
- **<malfunction>**
- **<MalfunctionGroup>**
- **<PartInfoALTs>**
- **<PartReference>**
- **<PartsInformation>**
- **<PartsKit>**
- **<SimpleRowALTs>**
- **<SubAlertInfo>**
- **<SubAssembly>**
- **<SubAssemblyALTs>**
- **<SubstitutePartALTs>**
- **<SubSystemHazardParas>**
- **<system>**
- **<SystemIdentificationInformation>**
- **<SystemValveLineupTable>**
- **<xlink>**
- **<CablePin>**
- **<ConfigurationID>**
- **<ConfigurationIDList>**
- **<external>**
- **<FaultCode>**
- **<FaultCodeDescription>**
- **<FaultCondition>**
- **<FaultMatrixEntry>**
- **<FaultMatrixEntryALTs>**
- **<FaultMatrixTable>**
- **<FaultMatrixTableALTs>**
- **<FlowDiagram>**
- **<FlowDiagramALTs>**
- **<FlowDiagramFigure>**
- **<FlowDiagramFigureALTs>**
- **<GraphicData>**
- **<HowToUseETM>**
- **<LoadPin>**
- **<MeasurementSetup>**
- **<PartsInformationDataBase>**
- **<RelatedData>**
- **<RelatedDataALTs>**
- **<RelatedDataEntry>**
- **<RelatedDataEntryALTs>**
- **<RelatedDataFigure>**
- **<RelatedDataFigureALTs>**
- **<RelatedDataTable>**
- **<RelatedDataTableALTs>**
- **<SourcePin>**
- **<TestDirectionData>**
- **<TestDirectionDataALTs>**
- **<TestDirectionDataEntry>**
- **<TestDirectionDataEntryALTs>**
- **<TestDirectionDataFigure>**
- **<TestDirectionDataFigureALTs>**
- **<TestDirectionDataGroup>**
- **<TestDirectionDataGroupALTs>**
- **<TestDirectionDataHeader>**
- **<TestDirectionDataTable>**
- **<TestDirectionDataTableALTs>**
- **<TestDirectionFunction>**
- **<TestDirectionSignal>**
- **<TestLocation>**
- **<tfnid>**

B.6.6.8. <CrossRef>

Standard cross references are defined using **<CrossRef>.** Cross references may be internal or external to an IP. The *'pretext'* and *'posttext'* attributes are NOT to be used in SNIPP technical manuals. Generally, cross references should be made to objects that have generated labels. For more information see see A.14.

B.6.6.9. <xlink>

The **<xlink>** element is similar to **<CrossRef>** except that it lacks the *'pretext'* and *'posttext'* attributes. This linking element should only point to objects which have a generated label.

B.6.6.10. <UseableOnCode>

The **<UseableOnCode>** element has an optional ***'idref'*** attribute that can be used to link to a single **<UseableOnCodeList>** entry. The specified value must match the ***'id'*** attribute of element **<UseOn Entry>**.

B.6.6.11. <IPBRef>

The **<IPBRef>** element is nearly identical to the **<CrossRef>** elements and formatted the same. The purpose of this element is to allow linking from one GAPL table to the other. The target of the *'xrefid'* attribute should be the **<figure>** or **<gapl>** children of a **<PartsListGroup>**. While the *'pretext'* and *'posttext'* attributes are defined for **<IPBRef>**, they are NOT to be used in SNIPP technical manuals.

B.6.6.12. <ExternalRef>

<ExternalRef> creates a link external to the PDF. The functioning of this link is dependent upon the connections and conditions where the PDF is being viewed. The attribute *'name'* is not used.

B.6.7. Alert Elements

The MIL-DTL-24784C DTD contains four levels of alert: Danger **<danger>**, Warning **<warning>**, Caution **<caution>**, and Note **<note>**.

B.6.7.1. Danger

The **<danger>** is used to highlight a statement or some other notification about an operating or maintenance procedure, practice, or condition that, if not strictly observed **WILL** result in death or serious injury, or threatens the primary mission of the ship. The publisher formats the signal word "DANGER". See A.7.1 for more information.

B.6.7.2. Warning

The **<warning>** is used to highlight a statement or some other notification about an operating or maintenance procedure, practice, or condition that, if not strictly observed, **COULD** result in death, injury, or long-term health hazards. The publisher formats the signal word "WARNING". See A.7.2 for more information.

B.6.7.3. Caution

The **<caution>** is used to highlight statement or other notification about an essential operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in damage to or destruction of equipment, or loss of mission effectiveness. The publisher formats the signal word "CAUTION". See A.7.3 for more information.

B.6.7.4. Note

The **<note>** is used to indicate a special piece of information. The publisher automatically formats the signal word "NOTE". See A.7.4 for more information.

B.6.8. Miscellaneous Elements

The following elements are elements that did not fall into any of the previous categories. They are mentioned here due to specific handling by the publisher.

B.6.8.1. <single>, <BoundedRange>, and <UnboundedRange>

<single> defines a number such as "Model Number X" where "X" is captured by the attribute *'number'.* **<BoundedRange>** defines a range of numbers such as "Model Numbers X through Y" where "X" is captured by the attribute *'lowrange'* and "Y" is captured by the attribute *'highrange'*. When this element is used, the publisher connects the *'lowrange'* and *'highrange'* attributes with the text " through ". **<UnboundedRange>** defines a range of numbers such as "Model Numbers X and Up" where "X" is captured by the attribute *'lowrange'*. When this element is used, the publisher connects the *'lowrange'* attribute with the text " and Up ". For an example see Figure B-17 and and the tagging example that follows it.

Table 1. Major Equipment.

Common Name	System Nomenclature	Qty.	Location
Common Name	Equipment Name Model Number 1234 Type 1 through 7 Serial Numbers 1 and Up Part Numbers 1 and Up	1	Aft end

Figure B - 17 Example of <single>, <BoundedRange>, and <UnboundedRange> Output in a Page-Based Technical Manual

```
<MajorEquipmentTable id="i26-20">
    <MajorEquipmentEntry id="i26-21">
        <CommonName>Common Name</CommonName>
        <SystemNomenclature>
            <name>Equipment Name</name>
            <ModelDesInfo>
                <single number="1234"/>
            </ModelDesInfo>
            <TypeDesInfo>
                <BoundedRange lowrange="1" highrange="7"/>
            </TypeDesInfo>
            <SerialNumberInfo>
                <UnboundedRange lowrange="1"/>
            </SerialNumberInfo>
            <PartNumberInfo>
                <UnboundedRange lowrange="1"/>
            </PartNumberInfo>
        </SystemNomenclature>
        <Quantity>1</Quantity>
        <location>Aft end</location>
    </MajorEquipmentEntry>
</MajorEquipmentTable>
```

B.6.8.2. <symptom>, <condition>, <decision>, and <action>

The **<symptom>** element is used to convey the problem that needs to be troubleshot. The **<condition>** element is used to convey conditions in a troubleshooting procedure. When **<condition>** is used in a **<TroubleshootingStep>,** it is followed by **<decision>**. The **<decision>** is used to guide a technician to the next appropriate step or action in a troubleshooting procedure. The publisher generates the text “NO” and “YES” from the elements **<no>** and **<yes>** respectively, and links these words to the object specified by their required *'idref'* attributes. The specified object is the next appropriate step or action in a troubleshooting procedure. If the target of *'idref'* does not exist, a warning appears in the publishing error report. The **<action>** element is used to convey an action to be taken. To distinguish between symptom, condition, and action, the publisher separates the information using bold titled-text for “SYMPTOM,” "CONDITION," and “ACTION.” For an example see Figure B-18 and the tagging example that follows it.

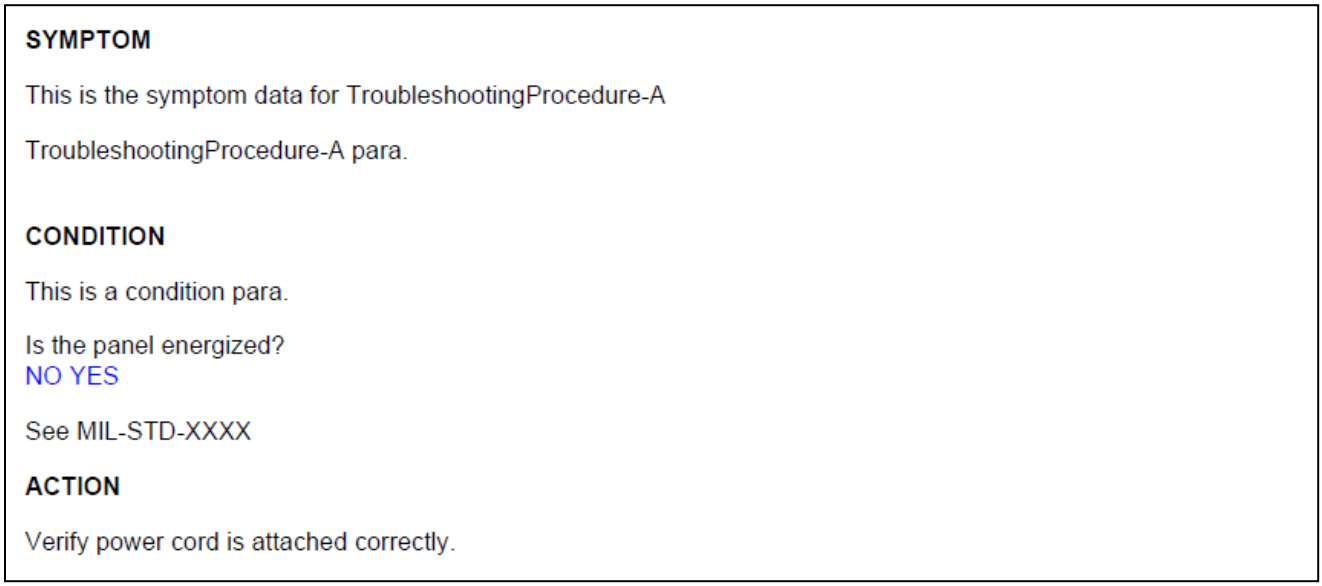


Figure B - 18 Example of <symptom>, <condition>, <decision>, and <action> Output in a Page-Based Technical Manual

```
<symptom id="ia71-8">
    This is the symptom data for TroubleshootingProcedure-A
</symptom>
<para id="ia71-9">
    TroubleshootingProcedure-A para.
</para>
<condition>
    <para id="ia71-10">This is a condition para.</para>
    <para id="ia71-11">Is the panel energized?</para>
</condition>
<decision id="ia71-12">
    <no idref="i1234"/>
    <yes idref="i5678"/>
</decision>
<TroubleshootingStep id="ia71-13">
    <Reference>See MIL-STD-XXXX</Reference>
    <action id="i1234">
        <para id="ia71-15">Verify power cord is attached correctly.</para>
    </action>
</TroubleshootingStep>
```

B.6.8.3. <FinalAction>

The **<FinalAction>** element conveys the final action/malfunction in a troubleshooting procedure. To distinguish it as final action information, the publisher places the bold text "FINAL ACTION" before its contents. Figure B-19 is an example of **<FinalAction>** as displayed in a page-based technical manual and is followed by the corresponding tagging example.

FINAL ACTION

See MIL-STD-XXXX

This is the final action paragraph. This would detail the final action to be taken and/or explain the nature of or reason for the malfunction.

Figure B - 19 Example of <FinalAction> Output in a Page-Based Technical Manual

```
<FinalAction id="ia71-43">
    <Reference>See MIL-STD-XXXX</Reference>
    <malfunction id="ia71-44">
        <para id="ia71-45">This is the final action paragraph. This would detail the final action
        to be taken and/or explain the nature of or reason for the malfunction.</para>
    </malfunction>
</FinalAction>
```

B.6.9. Unused Elements

The following elements are not supported by the PDF publisher for PDF (page-based) TMs.

- **<ALTEmpty>**
- **<AttachEnd>**
- **<AttachStart>**
- **<CablePin>**
- **<CablePinGroup>**
- **<CalloutData>**
- **<CalloutDataALTs>**
- **<ChangeHistory>**
- **<CompositeGraphic>**
- **<CurrentChanges>**
- **<external>**
- **<FaultCode>**
- **<FaultCodeDescription>**
- **<FaultCondition>**
- **<FaultDescriptorGroup>**
- **<FaultMatrixEntry>**
- **<FaultMatrixEntryALTs>**
- **<FaultMatrixTable>**
- **<FaultMatrixTableALTs>**
- **<FlowDiagram>**
- **<FlowDiagramALTs>**
- **<FlowDiagramFigure>**
- **<FlowDiagramFigureALTs>**
- **<GraphicData>**
- **<IPHistory>**
- **<LoadPin>**
- **<MeasurementSetup>**
- **<NavigateRef>**
- **<NormalSignalParameter>**
- **<PageCount>**
- **<PageHistory>**
- **<PageNumber>**
- **<PartDataRef>**
- **<PartsInformationDataBase>**
- **<PinGroup>**
- **<RelatedData>**
- **<RelatedDataALTs>**
- **<RelatedDataEntry>**
- **<RelatedDataEntryALTs>**
- **<RelatedDataFigure>**
- **<RelatedDataFigureALTs>**
- **<RelatedDataTable>**
- **<RelatedDataTableALTs>**
- **<SourcePin>**
- **<SourcePinGroup>**
- **<TestDirectionData>**
- **<TestDirectionDataALTs>**
- **<TestDirectionDataEntry>**
- **<TestDirectionDataEntryALTs>**
- **<TestDirectionDataFigure>**
- **<TestDirectionDataFigureALTs>**
- **<TestDirectionDataGroup>**
- **<TestDirectionDataGroupALTs>**
- **<TestDirectionDataHeader>**
- **<TestDirectionDataTable>**
- **<TestDirectionDataTableALTs>**
- **<TestDirectionFigureRef>**
- **<TestDirectionFunction>**
- **<TestDirectionSignal>**
- **<TestDirectionTableRef>**
- **<TestLocation>**

B.7. Error Log Samples

During each publication event, an HTML based error log is generated that details potential and critical data problems and provides suggested solutions. Figures B-20 through B-30 are screen shots from the error log. These are referenced from other parts of this document.

item (z1920)	Nested levels exceeds 5 as stated in the spec.	Levels beyond 5 may not be formatted and/or labeled.

Figure B - 20 Too Many <SequentialList> Levels

tgroup	Colspec mismatch.	tgroup defined 2 but only were defined.

Figure B - 21 <colspec> Error Messsage in ErrorCheck.html

tgroup	Colspec without defined colwidth.	Some of this table's colspecs do not have the attribute colwidth defined.

Figure B - 22 Mismatched <colspec>s

table (tt-test02)	Table too wide.	The total column widths of 11.5 exceed the allowable amount of 7.25 inches. The table may run off the page.

Figure B - 23 Table Too Wide

table(tt-test02)	Too many tgroup elements defined.	Although multiple tgroups can be defined, when creating a PDF only one is allowed.

Figure B - 24 Too Many <tgroup>s Error

foldout(i23-31)	No pgstyle attribute.	No pgstyle attribute has been declared. Defaulting to 11x26.

Figure B - 25 *'pgstyle'* Not Declared Error

graphic (i23-29)	Graphic width may be too wide.	The width specified 13.42in may be too wide for the current block. Value should not exceed 9.4 inches.

Figure B - 26 Landscape Image Too Wide Error Sample

graphic (i23-27)	Graphic width may be too wide.	The width specified 16.6in may be too wide for the current block. Value should not exceed 7.25 inches.

Figure B - 27 Standard Image Too Wide Error Sample

step (ia45-21a)	Nested levels exceeds 4 as stated in the spec.	Levels beyond 4 may not be formatted and/or labeled.

Figure B - 28 Too Many <step> Levels

WAYPOINT PAGE GROUP		
Operation(ia17-36)	Change level exceeded.	Element Operation's change markup exceeds the value specified by its IP's RevisionSummary entry in the front matter. Verify that the values in both the IP and its revision summary entry are correct.

Figure B - 29 Sample “Change Level Exceeded” Log File Entry

Ref: NAVSEAINST 4160.3 NAVSEA S0005-AA-GYD-030/TMMP

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