Representing Information Applicability Using SGML Constructs

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The Age of Customization

Which model did I buy????

Another new model???

Wow! This tells me exactly what I need

Yesterday

Today

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"Old World" Example

Replacing the Battery

The battery in your cordless telephone needs to be changed if you hear two beeps during a call. Once you hear the beeps, you have one to two hours of battery life remaining. To replace the battery, perform the following steps:

1. Remove the battery panel door. The panel door is located on the top of the handset (see figure 4-5).

2. Remove the battery.

3. Insert new battery into the cavity.
   For models 7650, 8820, and T323:
   Use replacement battery Bat9920
   For model 1000:
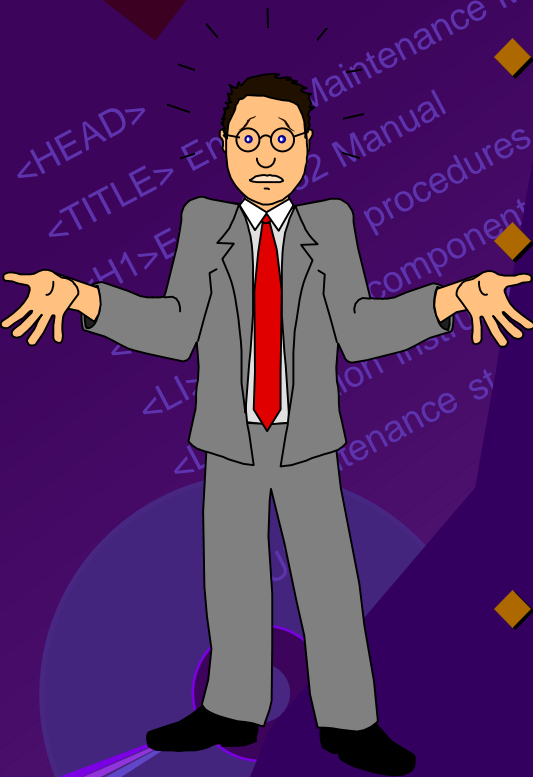   Use replacement battery BT1000
   For all other models:
   Use replacement battery Bat5000

4. Slide panel door over battery.

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Getting the Right Information Faster!

- ◆ **Number of Product Choices is Growing**
- ◆ **Information Quantity is Becoming Overwhelming for Users**
- ◆ **Difficult for Users to Decide Which Information is Applicable:**
  - • **Sophistication of Products**
  - • **Interdependencies of Data**
- ◆ **Electronic Tools/Browsers Instill "less is better" Paradigm**

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SGML for Added Intelligence

SGML Adds:

- **Structure for Reuse**
- **Neutral Format for Data Transferability Between Applications**
  - Editorial
  - Management
  - Paper Publishing
  - Electronic Viewing
- **INTELLIGENCE for Qualifying Information Applicability**

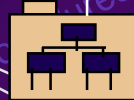**XYVISION**

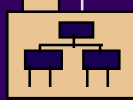# SGML and Document Management

IETM View   **Subject View**   **SGML/Document View**

IETM

SYSTEMS

ENGINES   MECHANICAL

MAINTENANCE

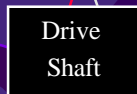DIAGNOSTICS   REPAIR   TROUBLE SHOOTING
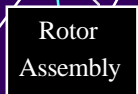
<document>

ONE   TWO   THREE

<section>

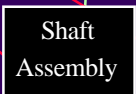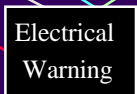| Drive Shaft | Input Flange | Rotor Assembly | Fan Housing | Shaft Assembly | Electrical Warning | Replace Bearing |

<task author="Bob">

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Minimum Revisable Unit

<!ELEMENT proc - o (title, step+)>

<proc><title>Remove Procedure</title>
<step>....

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Publishing from MRU's

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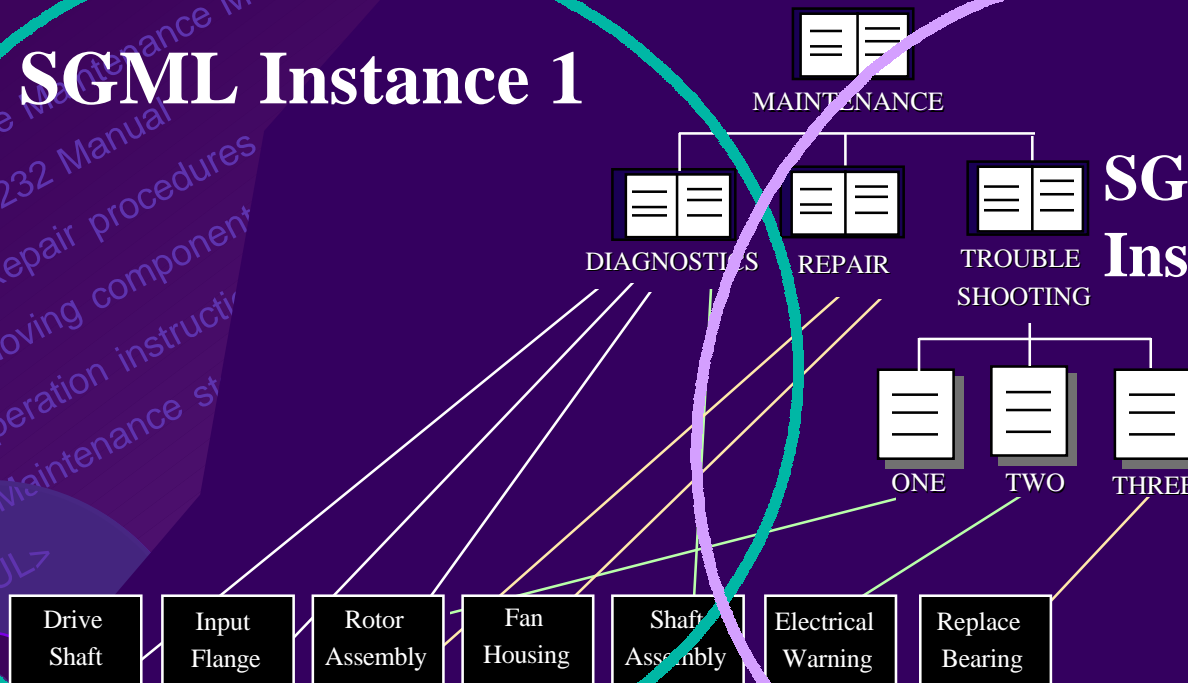
Extent of Customization

- ◆ **Large Units (e.g., entire procedures, sections, units)**
  - • Maintain as separate objects
  - • Managed through repository
- ◆ **Smaller Units (e.g., steps within a procedure, units of measurement, part numbers)**
  - • Control through Elements & Attributes

  or
  - • Marked Sections

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Element and Attribute Approach

- ◆ **Attributes Added to Elements Indicate Applicability**
- ◆ **Attributes Can Indicate When Information is Not Applicable**
- ◆ **Elements with Attributes Can be Used for:**
  - **Small Changes within Data**
  - **Grouping of Applicable Elements**

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DTD Example Using Elements and Attributes

```
<!ELEMENT  para  - -  (#PCDATA)
<!ATTLIST  para  effect    CDATA    "all">
```

OR

```
<!ATTLIST  para  effect    (7650 | 8820 | T323
                            | 1000 | all)  "all">
```

OR

```
<!ATTLIST  para  effect    CDATA    "all"
                 noteffect  CDATA  "none">
```

Example Instance Using Elements & Attributes

`<proc><title>`Replacing the Battery

`<intro><para effect="all">`The battery in your cordless phone needs to be changed...

....

`<step><para>`Insert new battery into the cavity.

`<!-- For models 7650, 8820, and T323 -->`

`<para effect="7650 8820 T323">`Use replacement battery...

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Example Instance Using Elements & Attributes - Continued

<!-- For all other models -->

<para noteffect="7650 8820 T323 1000">Use replacement battery...

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Processing of Effectivities

◆ **Based Upon Presence of Attribute Value, Data is Displayed or Suppressed**

◆ **Display or Suppression of Data is Controlled via:**

- **FOSI's**
- **Style Sheets**
- **Transformation Software**

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Spanning Elements for Effectivity

```
<!ELEMENT effectgrp  - -  (para+)>
<!ATTLIST  effectgrp effect    CDATA  "all"
                     noteffect CDATA "none">


<!ELEMENT effectitem  - -  (#PCDATA)>
<!ATTLIST  effectitem effect    CDATA  "all"
                      noteffect CDATA "none">
```

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Application Driven Approach

SGML Instance

Contains All Applicability's

SGML Transformation

Rendering Tool
(FOSI, Style Sheets, etc.)

Custom Document

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Marked Section Approach

- ◆ **SGML Construct**
- ◆ **Controls Applicability through Parser**
  - • **Effectivity Contained within Marked Sections**
  - • **SGML Declarations Set to:**
    - · **IGNORE (to not use)**

      OR
    - · **INCLUDE (to use effectivity)**
- ◆ **Contains Data or Collection of Elements**

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Example Instance Using Marked Sections

<step><para>Insert new battery into the cavity.

<!-- For models 7650, 8820, and T323 -->

<![%M7650; [<para>Use replacement battery Bat9920]]>

...

<!-- For all other models -->

<![%NOTREF1; [<para>Use replacement battery Bat5000]]>

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Example Declarations

```
<!ENTITY  %  M7650   "INCLUDE">
<!ENTITY  %  M8820  "IGNORE">
...
<!ENTITY % NOTREF1  "IGNORE">
```

Example for "Not" Case

<!ENTITY % M7650   "IGNORE">

<!ENTITY % M8820 "IGNORE">

...

<!ENTITY % NOTREF1 "INCLUDE">

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Issues with Using Marked Sections

- **One to One Relationship Between Applicable Data and Marked Sections**
- **Application Dependent (Entity Declarations Must be Built)**
- **"Not" Effectivity Difficult to Specify**
- **Potential for Parsing Errors is Higher**

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Summary

◆ **Combination of Approaches Can be Used for Marking Effectivity:**

- **MRU Level Changes Managed through Document Management**
- **Elements and Attributes**
- **Marked Sections**

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Approach Benefits

Elements & Attributes

- Adopted by Industry Initiatives
- Intelligence Contained within Data
- Effectivities can be Nested
- Interdependencies of Data can be Specified

Marked Sections

- SGML Parser Resolves Effectivities
- Easier to Extend for New Applicability's
- Can Mark Varying Sizes of Information

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Approach Drawbacks

Elements & Attributes

- ◆ Requires Application Development & Maintenance
- ◆ Looser Content Models Required (to Permit Nesting)

Marked Sections

- ◆ Creation of Declarations Done by Application Software
- ◆ Cannot Nest Effectivities
- ◆ Cannot Create Data Interdependencies
- ◆ Prone to Parsing Errors

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