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Maintenance Information Tool



If you maintain industrial equipment, your work involves **real** equipment, **real** problems and **real** time pressure.

To be successful, you must be versatile, work quickly and **have the proper tools.**

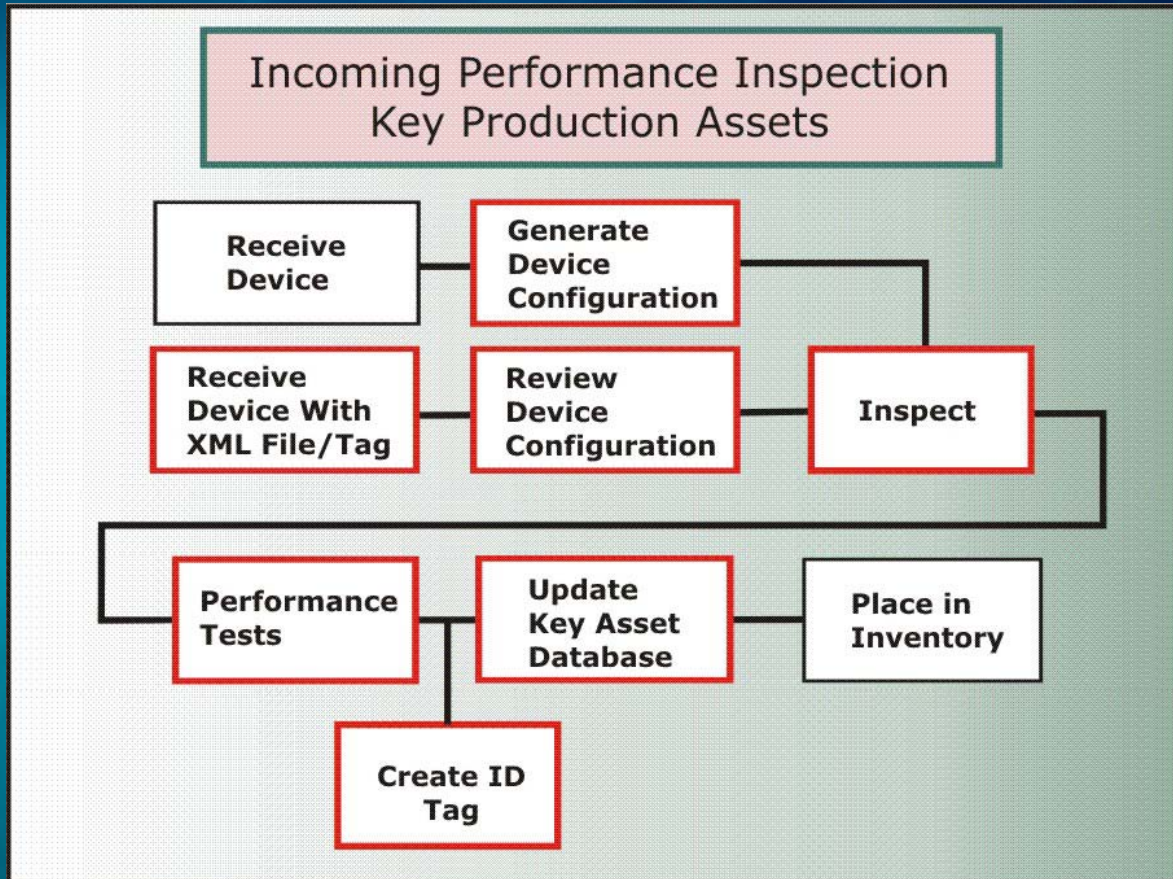
Information is one of those tools



Maintenance Information

- ❖ Routine Tasks **Require** Information
- ❖ Routine Tasks **Generate** Information
- ❖ Needs to be **Managed**:
 - ❖ Quickly
 - ❖ Accurately
 - ❖ Efficiently
 - ❖ Economically

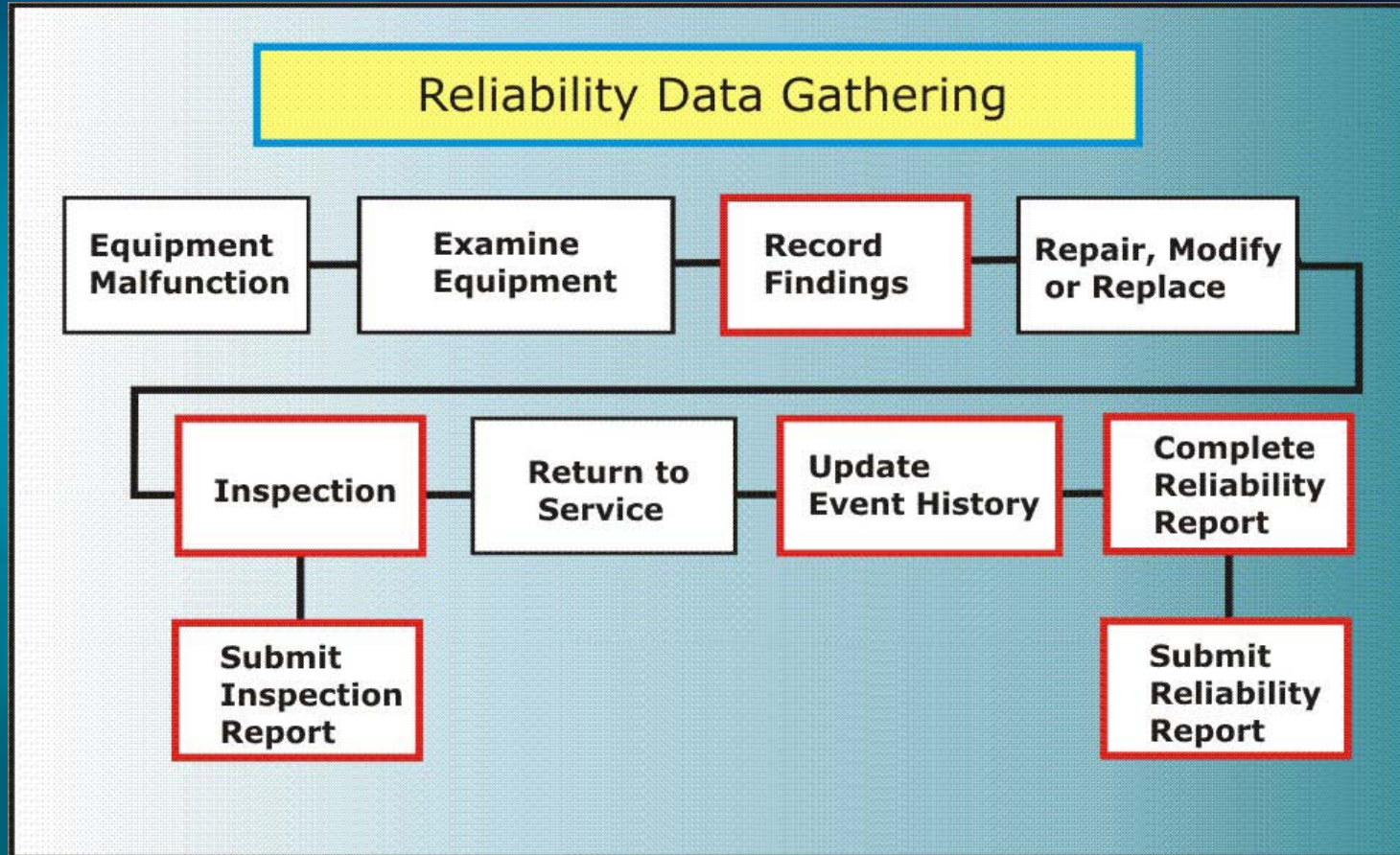




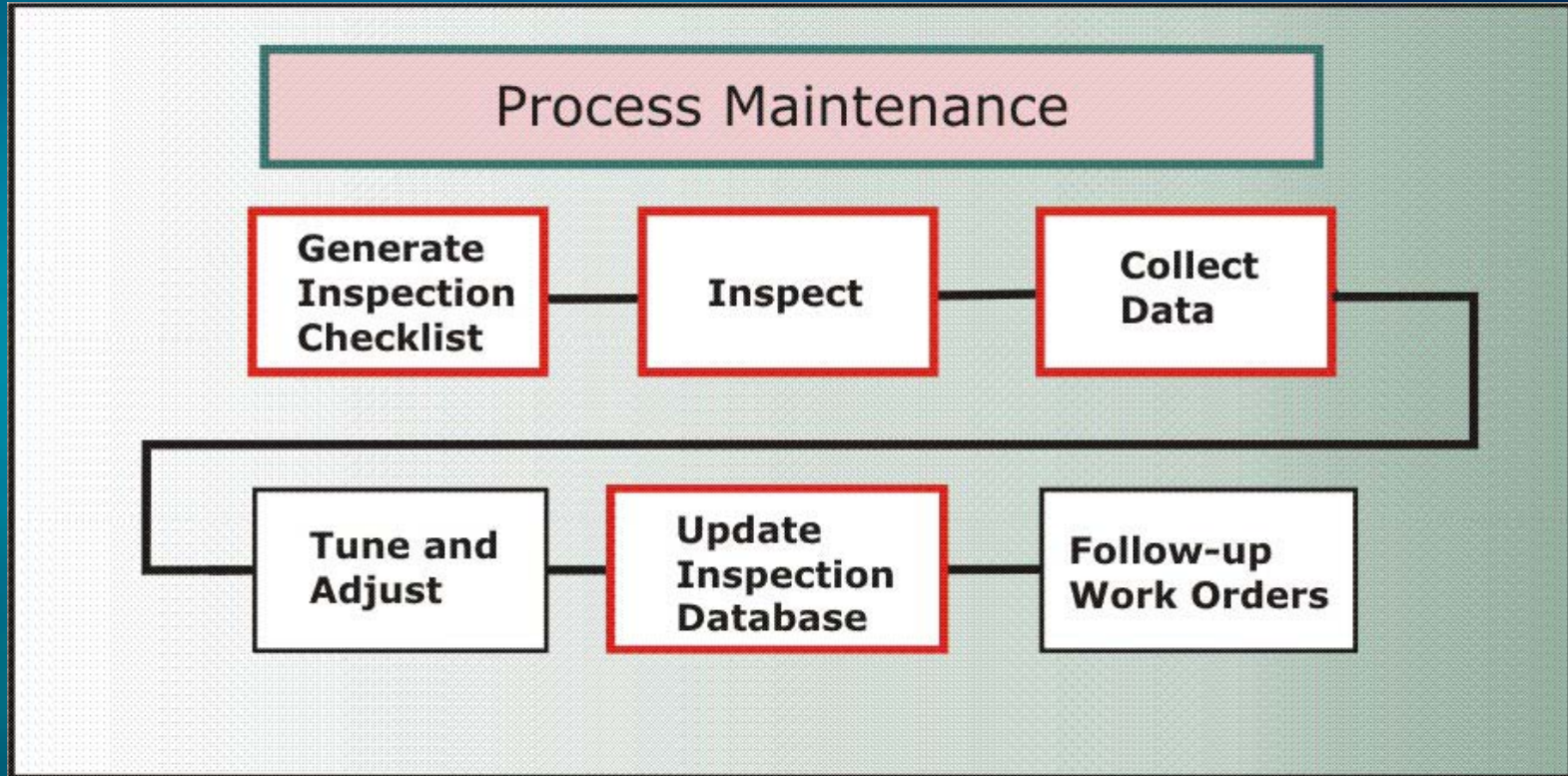
Red Boxes: Data Collected or Managed



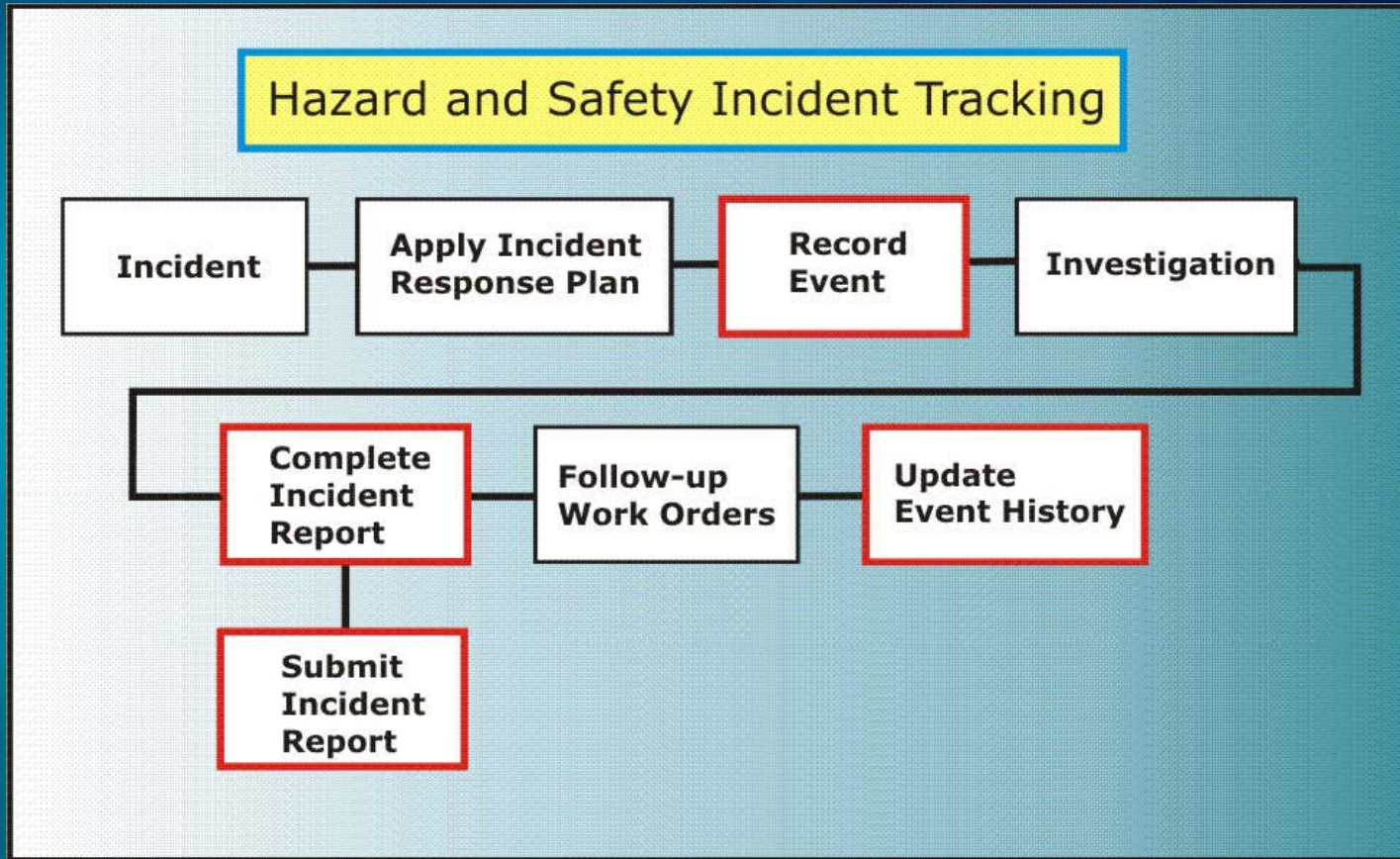
Black Diamond
Engineering™



Red Boxes: Data Collected or Managed



Red Boxes: Data Collected or Managed



Red Boxes: Data Collected or Managed

Essential Maintenance Information:

- ❖ Equipment **Identification**
- ❖ **Configurations** - Asset Description / Specification
- ❖ **Inspections** – Physical Condition / Status
- ❖ Maintenance **Events**:
 - ❖ Failures
 - ❖ Repairs
 - ❖ Modifications



Additional Maintenance Information:

- ❖ Safety / Hazard Information
- ❖ Reliability Failure Events
- ❖ Reliability Status Surveys
- ❖ Work Instructions and Documentation
- ❖ Manufacturer Install / Maintenance Manuals
- ❖ Job Planning
- ❖ Work Assessments



Current Situation



- ❖ Manual Task
- ❖ Data Collection is Inefficient
- ❖ Obsolete Metal Equipment Tags
- ❖ Printed Paper Forms
- ❖ Info / Errors
- ❖ Clerical Data Entry / Delay
- ❖ Information Limited at Work Site



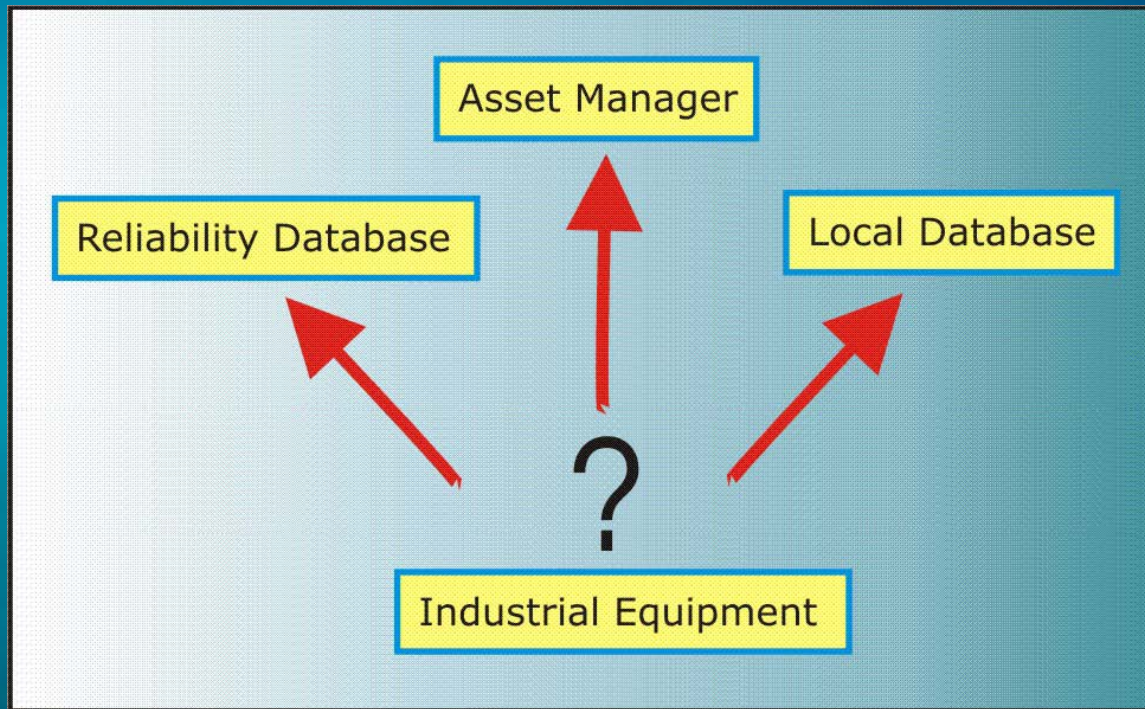
Information Management Strategies



- ❖ Seat of the Pants
- ❖ Notebook in the Pocket
- ❖ Local Databases
- ❖ Computerized Maintenance Management
- ❖ Asset Management



Equipment Information Collection



CMMS Implementation

"The statistics are startling. **Up to 80%** of Computerized Maintenance Management System implementations have failed in the past."

"When considering the costs associated with a CMMS project, an **80% failure rate** is a tough number for any company to overcome."

"Gathering all the necessary and useable data your employees will need to enter into the CMMS is usually the biggest culprit in any implementation project failure."

*"CMMS: 7 Steps to Success",
Kris Bagadia, Plant Engineering, October, 2009*



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Maintenance Information Tool



Equipment Information Collection

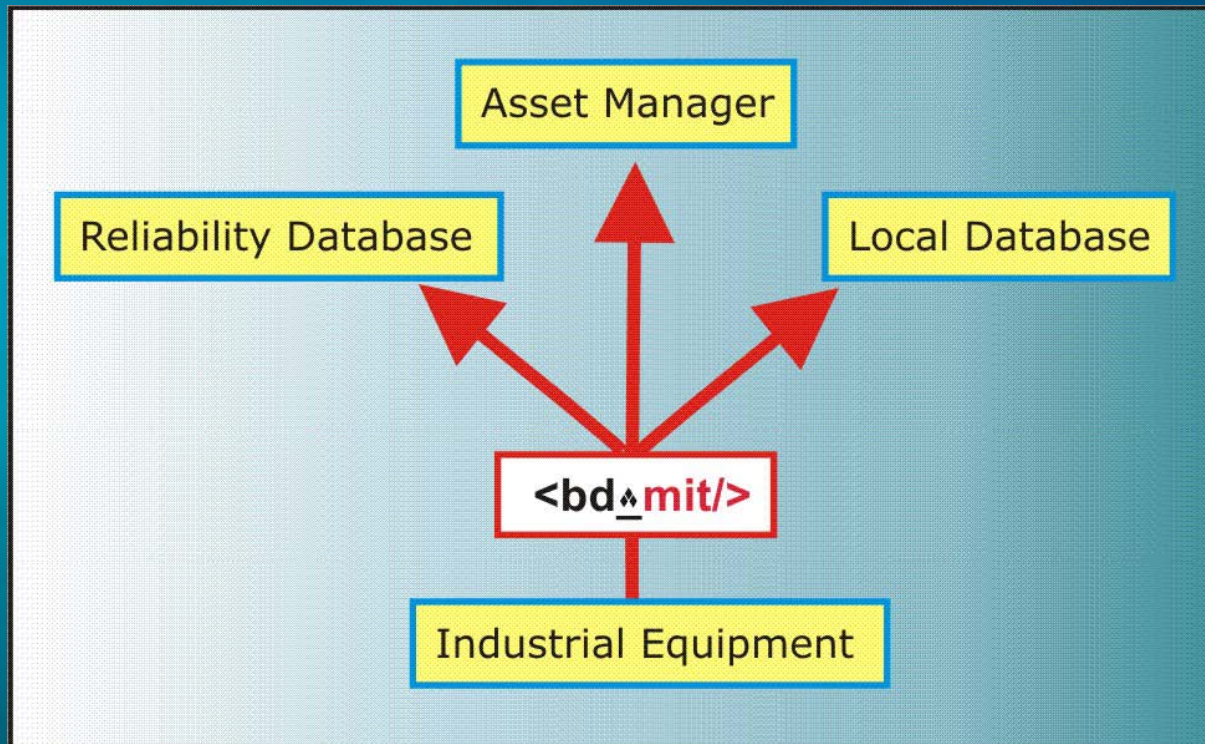


"Information is collected most accurately, effectively and economically **by individuals who understand and have experience** with the device being described."

However,
They Are **Not Clerks Or Computer Programmers.**



Solution: **Apply an Enabling Technology**



Product **Goals**

- ❖ **Improved** Equipment Identification
- ❖ **Improve Access** to Configuration, Inspection and Maintenance Event Records
- ❖ **Improve Access** to Manufacturer Maintenance Manuals
- ❖ **Improve** Reliability Data Gathering
- ❖ Easy and Efficient **Custom** Forms
- ❖ **Compatible** with Business Information Systems
- ❖ **Economic** Solution

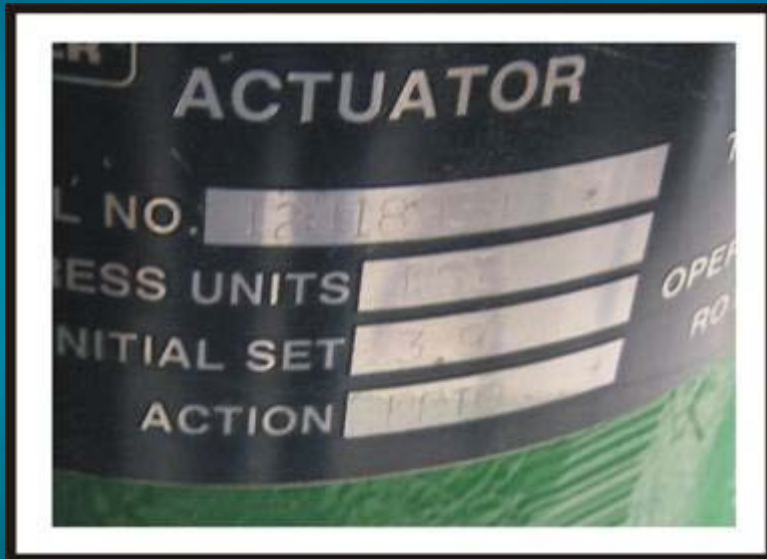


Key Features

- ❖ Handles **Any** Device, **Any** Industry
- ❖ **Digital** Equipment Identification
- ❖ Complete Device **Configurations** (Custom)
- ❖ Detailed **Inspections** (Custom)
- ❖ Maintenance **Event** Database, Local and Upload
- ❖ Easy Access to **Manufacturer Information**
- ❖ XML File Format - **Universal**
- ❖ Completely **Customizable** Content
- ❖ **No** Computer Programming
- ❖ **Intuitive**, Easily Trained



Equipment Identification



Old School: **1930's Technology**
Limited Information
Owner Can't Update
Often Not Accurate



Enabled: **32 kb Data**
Accurate, Editable
XML Format



Black Diamond
Engineering[™]

Maintenance Strategy

Question:

"When your plant Asset Manager is fully deployed, **will you remove** all of your manufacturer equipment tags?"

"If not, why not?"





Intelligent Asset Tags

- ❖ All Equipment - Pumps, Motors, Valves, Instruments, etc.
- ❖ Store **More** Than ID Numbers
- ❖ **32 kb Storage**, Locally on Each Tag (~20 Text Pages)
- ❖ Reliable, **Industrial** Design
- ❖ 304 Stainless Steel, IP56
- ❖ -40 deg C to 85 deg C (-40 to 185 deg F)
- ❖ 100,000+ Writes/Rewrites – **10+ Year Life**
- ❖ **Passive**, No Stored Energy
- ❖ **Economical**



Economics

- ❖ Per Point Cost **\$8 to \$12**
- ❖ Basic System Costs **Less** Than Single Purpose Instrument Calibrator
- ❖ **Inexpensive** to Customize
- ❖ **No** Computer Programming
- ❖ Intuitive, **Easily Trained**
- ❖ **Minimal** Integration Costs



Designed to **Integrate**

- ❖ **XML** Format Files
- ❖ Popular and Easily Exchanged
- ❖ **Standard** Export Format
- ❖ **Direct Input** to Asset Managers / Reliability Databases
- ❖ **Email or File Transfer** → Next Business Process
- ❖ **Database** Defines Input File (XML)
- ❖ Expert's Design the **Interface**



Designed For **Real People**

- ❖ Built-In **Template** Generator
- ❖ Built-In **Custom Report** Generator
- ❖ **Easy** Custom Templates, Forms and Reports
- ❖ **No** Computer Programming Required
- ❖ **Dropdown Content** from Text, Spreadsheet or Database
- ❖ Input Fields Include **Signature Panels** and Links
- ❖ Collect **USB / Serial Port** Data
- ❖ Collect Measurements **Directly** from **Calipers / Micrometer**





Photo Courtesy MobileDemand

- ❖ Any PC with Windows XP, Win 7 or Later
- ❖ Rugged Tablets Available
- ❖ 2.5 lbs, 1+ kg
- ❖ 8 hr Battery Life
- ❖ Solid State Drive
- ❖ IP65 Rating
- ❖ Affordable



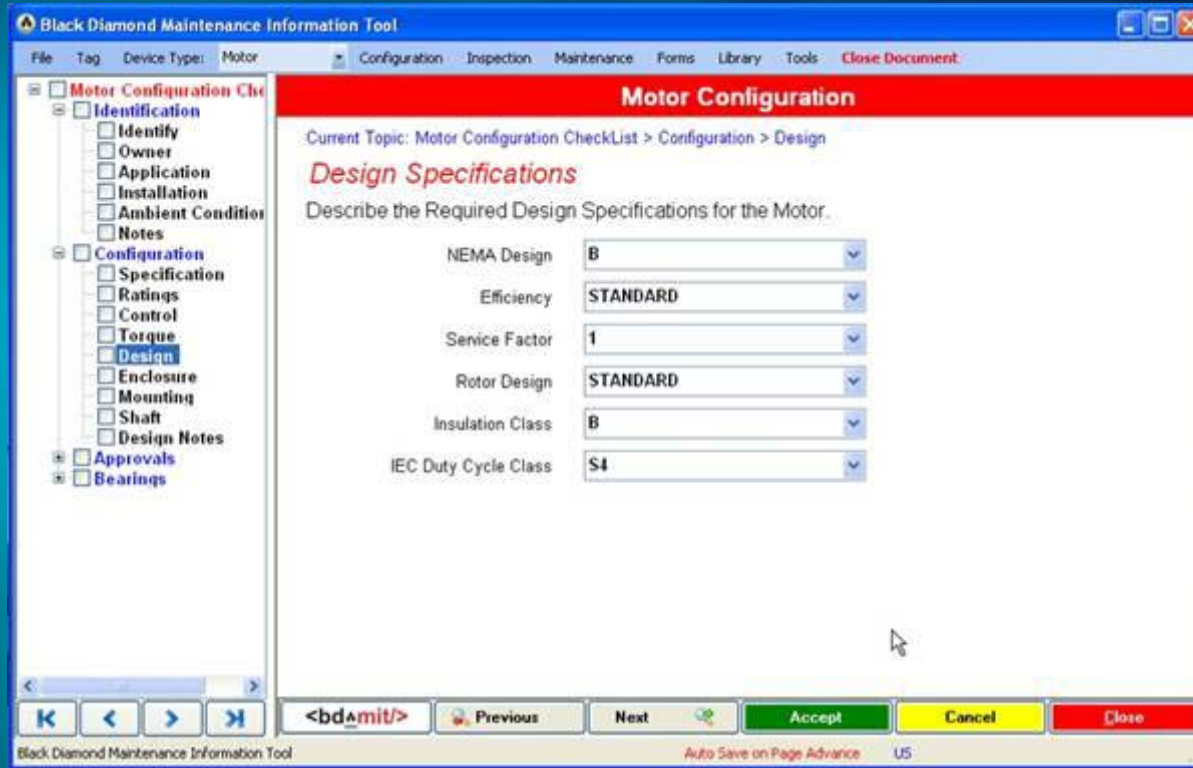


Maintenance Information Tool

Content and Organization Easily Customized

Output Directly to Tag, Disk and/or Asset Manager

Detailed Instructions and Controlled Inputs



Detailed Equipment Specifications

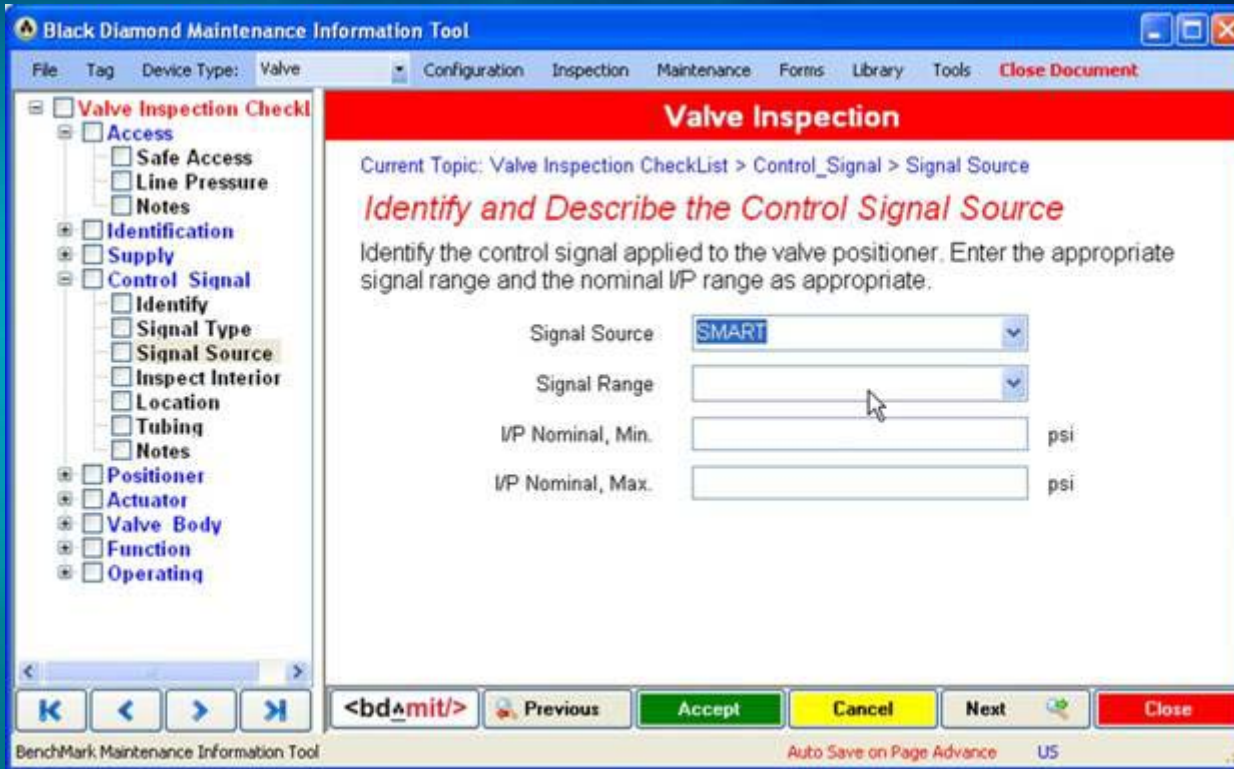




Maintenance Information Tool

Clear Checklist Format

Easily Customized



Detailed Instructions and Controlled Inputs

Completely Describe Condition of Asset

Customizable Equipment Inspections





Maintenance Information Tool

Logged
Directly on
Tag and
Computer

Export in
Any
Popular
Format

Easily
Customized

Tags Can
Be Reused

The screenshot shows the 'Black Diamond Maintenance Information Tool' window. The 'Maintenance Event Log' is displayed with the following data:

Num	Asset Num	MfgSerial	APSerial	Device	Company	Plant	Unit	Location	Floor	Room	Description
1	M-12345	1234567	2224456	MOTOR	Black Diamond Engineering, Inc.	Main Office		Bluffdale, Utah USA	Main	100	FAILURE
2	M-12345	1234567	2224456	MOTOR	Black Diamond Engineering, Inc.	Main Office		Bluffdale, Utah USA	Main Floor	101	EVALUATE

At the bottom of the window, there are navigation buttons: Read Tag, Configuration, Inspection, Write Tag, Maint. Log, and Pump Library. The status bar at the bottom indicates 'Auto Save on Page Advance' and 'US'.

Maintenance Event Log



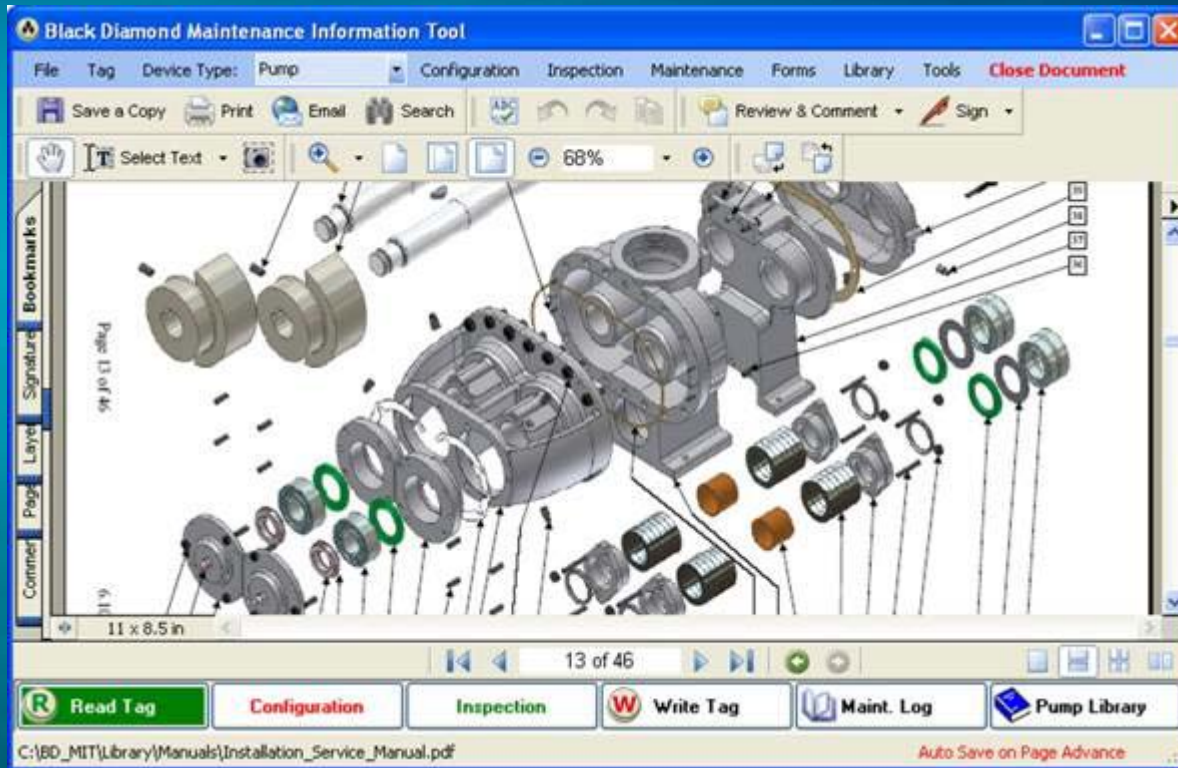


Maintenance Information Tool

Maintenance Libraries That Are Portable

Critical
Maintenance
Information
at Work Site

Email Photos
Directly to
and from
Manufacturer



Get Updated
Information
with
Broadband
Modem
(USB)



**(A Picture is Worth More Than a 1000
Words Over the Radio)**





Maintenance Information Tool

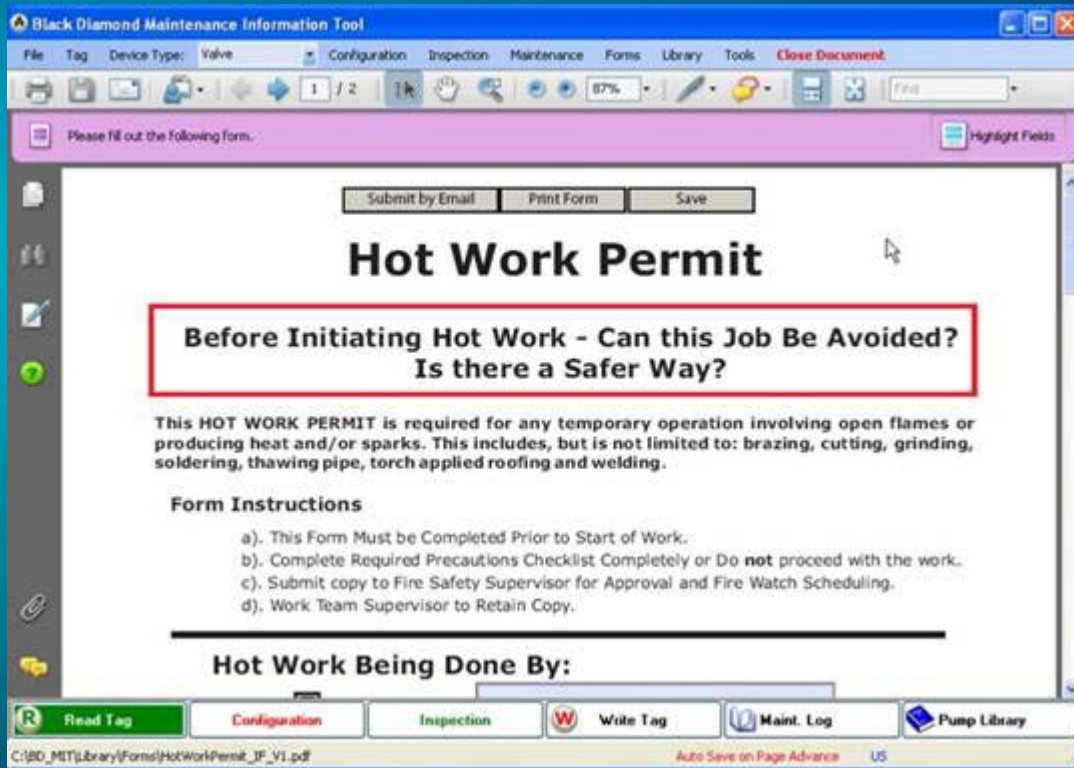
Custom, Paperless, Interactive Forms

Completed Digitally with Controlled Inputs

Work Order Can Be Closed by Email from Work Site

Output in Format Asset Manager Requires

Content Can be Emailed, Saved to Disk and / or Placed on Tag



- ❖ “Rubber Meets Road” **Solution**
- ❖ Benefits **All** Maintenance Strategies
- ❖ **Modern** Equipment Tagging Solution
- ❖ **Low Per Point Cost** / Low System Cost
- ❖ Custom Checklists, Data Entry, Reports – **No Computer Programming**
- ❖ **Easily Integrates** with Modern Asset Managers
- ❖ Completely **Customizable**
- ❖ **Easily Trained**, Fully Supported





Maintenance Information Tool

Questions / Discussion

Your Comments and Questions Are Welcomed

