

The Structured Problem Solving Module is a diagnostic tool for the identification of the source of a plant fault or failure.

When a fault occurs on a plant item, the system is able to guide the user through a series of multiple choice questions regarding the symptoms or characteristics of a breakdown. Depending on the combination of answers, the system is then able to determine the likely cause.

When the fault cause is established, IMPACTxp can suggest a standard remedy and/or identify a library job that has been set up previously in the system to trigger the work to be carried out.

The benefits of utilising the structured problem-solving module include:

- Ability to Diagnose a Fault*
- Structure to the Diagnostic Process*
- Capture of Engineering Experience*
- Faster Repair through quicker Diagnosis*
- Standardisation of Repair Process*

This module is particularly effective in an environment where plant items are of a complex nature and/or of a critical aspect to the operation.

● *Minimal Data Capture*

A series of symptoms are defined that are typical to faults on individual plant items or parts of plant items.

This information can be gathered from employees who have first hand knowledge of assets. This means that the user is able to gather and record vital information that could otherwise be steadily lost through employee turnover. Alternatively, the user can enter theoretical examples of fault characteristics.

The system can ensure that the data is continually updated by attaching checklists to every breakdown work order. When the work order is completed, the checklist is filled out detailing the characteristics and symptoms of the breakdown. The data is therefore highly reliable because it is obtained from real occurrences of breakdowns.

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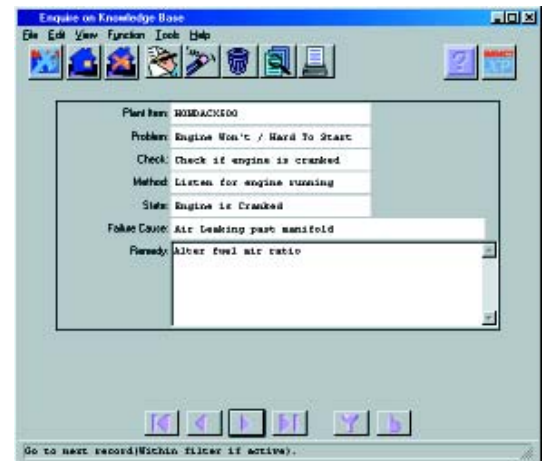
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[Enquire On A Knowledge Base]

● *Dynamic Knowledge Base*

When the symptoms are identified, a knowledge base is created within the system.

Each knowledge base record identifies the plant item, the fault cause and an individual symptom. For each record, the symptom is identified by two categories – Attribute (for example temperature) and State (for example hot). Each plant item may be capable of numerous faults and each fault may be characterised by many symptoms.

The system allows the user to add structure to the identification process in the form of sub categories. These are defined within each record and identify the exact location of a fault. Sub categories are user definable, which means that they can relate to individual parts of a plant item or individual aspects. For example, the sub category Motor would identify a specific part, whereas the sub category electrical identifies a certain aspect.

A standard remedy can also be defined on each record.

● *Diagnostic Flowchart*

During the diagnostic process, a combination of records would combine to identify a single fault cause.

Using the data, the system therefore constructs a series of flowcharts.

● *Problem Solving*

When a problem occurs, all the system requires to start the diagnostic process is the plant item and optionally any sub categories.

IMPACTxp will automatically identify and display the attribute that occurs most often for that item, for example temperature.

The user is given a drop down list of possible states to select after checking this attribute, for example Hot, Frozen, Not Applicable. If Not Applicable is highlighted, the system locates another attribute or check.

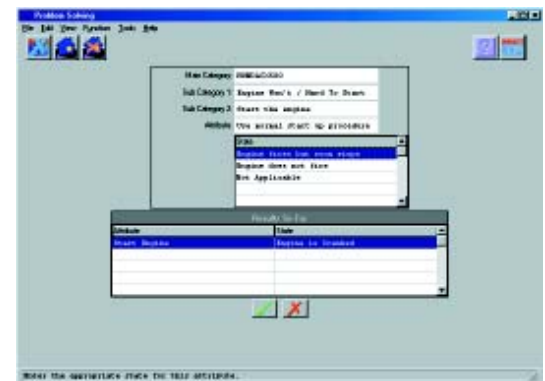
The system continues to prompt for checks until the likely cause is pinpointed, from the combination of symptoms or states selected - usually within five records. The system is therefore able to determine the cause of a fault very quickly in a panic situation.

● *Standardised Repair Process*

When the fault cause is located, the system will automatically suggest the recommended remedy that was specified in the knowledge base earlier.

The remedy can also reference a library job set up previously in the IMPACTxp Base Module; which details the craft, employee, materials and time required to complete the work. The user can then raise the work order.

The Structured Problem Solving Module is of particular value to large organisations, where a quick fix is of vital importance in an environment of an unskilled workforce.



[Problem Solving]