

Chapter Two: Understanding the Health Model Solution Process

The TACTRAC Health Model provides you with the capability of managing your complex system configurations in the context of DMS or manufacturer availability, obsolescence, and supportability issues. Using available data and analysis techniques, the Health Model provides you with recommended solutions. The embedded solution process makes determinations with respect to the solution evaluation.

It is important to understand and follow the process using the program to ensure that the solution meets your individual needs. The process depends on accurate and comprehensive data to evaluate each individual situation. Using the solution summary provided allows the program to answer the questions for you. The recommended solutions may not be the best for your individual situation. In order to achieve the most accurate solution, the

questions in the process need to be answered by someone with the experience to know what the best choice for the situation is.

What is the Health Model Solution Process?

The Health Model Solution Process is a flow of information that leads to an informed decision. The process begins by assessing the health of a system. Once an item is identified as unprocurable or obsolete, the next step is to assess the current stock levels. If the stock levels are inadequate, then a direct replacement option must be explored. While exploring the direct replacement option, SRU Health with respect to possible redesign candidates needs to be explored before making a component level decision. If no direct replacement is found, a Life of Type Buy decision needs to be investigated. The next steps are to investigate the availability of excess assets, identify suggested replacements, and identify a GEM or Custom Device. The possibility of repackage or redesign of the component is explored as some of the final options.

How can TACTRAC Help?

The TACTRAC Health Model contains features that allow you to use the Health Model Solution Process to make informed decisions about possible solutions. The different dialogs throughout the program help to evaluate available data throughout each step of the solution process.

Is There Anything I Should Pay Special Attention to?

While using this process, it is important to keep the big picture in mind. If an assembly uses five separate parts to make it function and four of those five parts are obsolete, finding a procurement solution at the component level is not necessarily the best solution to the problem. If your car has four flat tires, what good would fixing only one of the tires do you? Take the time to look at the whole picture and see how all the individual parts work together before making any decisions for individual items.

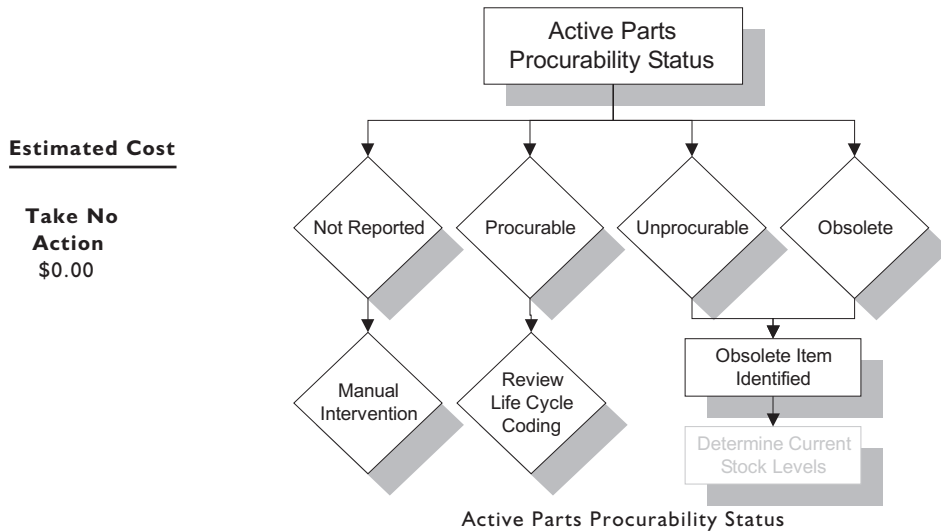
The Health Model program provides projections for SRUs that will help with this big picture analysis. The program projects the availability of the parts in the system over two

year, four year, or six year periods, as well as displaying current availability.



Each action has an Estimated Average Cost associated with that event. The estimated cost is shown in the margin next to the action.

In this chapter we will follow one particular area (Active Semiconductor Obsolescence) through the process.



The first step in the process is to assess the health of the system. In the Active Parts area, there are four categories of procurability status.

- Not Reported** ➤ The first category of procurability status is Not Reported. Your goal here is to try to move these parts into the other categories for obsolescence evaluation. This generally requires manual intervention to research vendor base part number for cross reference. For more information, see Chapter Eight in the *TACTRAC Database Server Administration Users' Guide*.

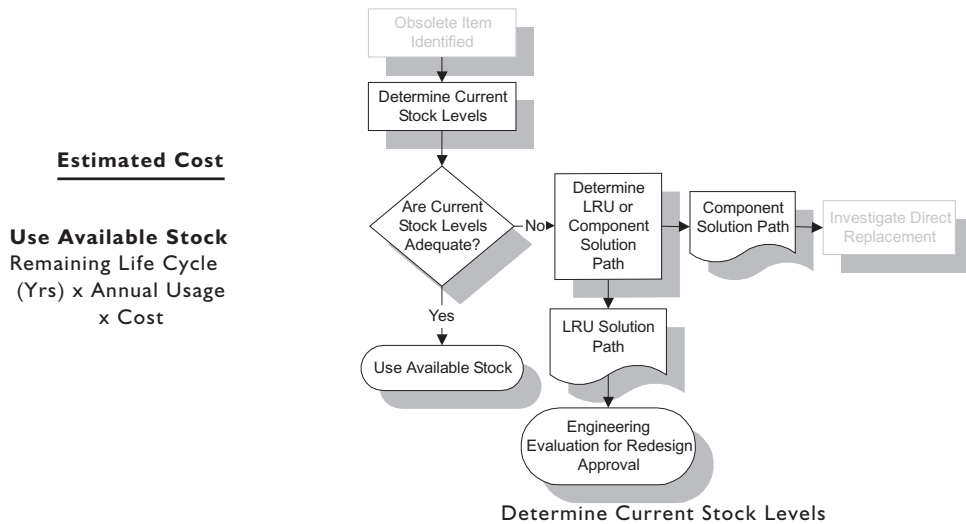
- Procurable** ➤ The second category of procurability status is Procurable. These items currently have one or more manufacturers providing the part. A possible action necessary under this category is to review and research the life cycle of these items to foresee any future availability issues. It is possible to have a “Take No Action” solution when everything is OK with the part, and no action is required.

- Unprocurable with Replacements/ Obsolete** ➤ The last two categories of procurability status use the same multiple-step process to reach a solution. The third category is the Unprocurable with Replacements yellow category and it contains items that are in danger of becoming obsolete and are in need of a procurement solution in the near future. The last category is the Obsolete red category and it contains items that have already become obsolete and are in need of a solution immediately. After an item is placed in the yellow or red category and determined to be unprocurable or obsolete, the next step is to examine the current stock level of the item.

The difference between the Unprocurable with Replacements and Obsolete categories is that the TACTRAC system has identified replacements that are pin-for-pin direct FFF parts for the unprocurable parts. The obsolete parts have no automatic replacement identified at this point. Therefore, the solution process will use available data to evaluate these different category situations as appropriate and applicable to the part in question and its usage within the overall system.

Determining Current Stock Levels

After an item is considered a procurability concern, the next logical step is to evaluate the current stock levels.



The first question to ask is if the current stock levels can support the projected future demand. To check the supply support for a part in the TACTRAC system, use the Supply Posture option from the Part Level toolbar. For more information see “Checking Supply Posture” on page 88.

- If the current stock is at a level that can support future demand, the possible solution is to use the available stock.
- If the stock is at a level that cannot support the demand, the next step is to determine whether to solve at the SRU level or at the component level.

To check the health of an SRU in the TACTRAC system, use the SRU Usage option from the Part Level toolbar. For more information see “Evaluating SRU Usage” on page 83. Choosing the SRU Solution path leads you to a

possible solution which involves an approval for an engineering evaluation for a redesign of the assembly.

The Component Solution path leads to the next step, where you investigate using a direct replacement part for the component.

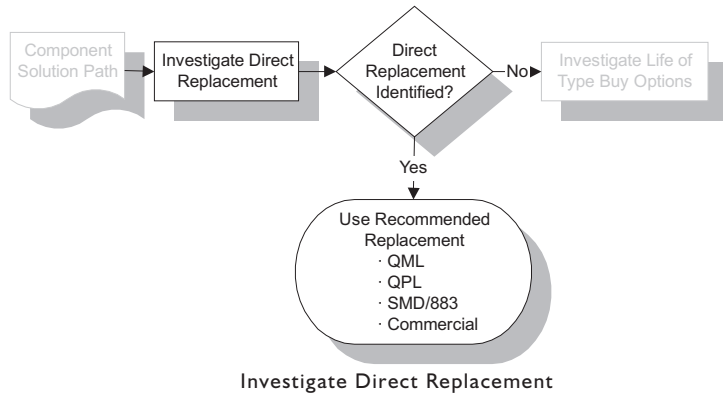
Investigating Direct Replacement

Choosing the Component Solution path leads you to an investigation of a direct replacement(s) for the component.

Estimated Cost

Use Recommended Replacements

QML - \$10,000.00
 QPL - \$10,000.00
 SMD - \$10,000.00



To check a direct replacement for a part, use the Part Correlation option from the parts toolbar. For more information see “Using Part Correlation” on page 77. A direct or exact replacement is an item that should have the same form, fit, and function (FFF) as the original component does. Use the FFF rating provided for all replacement parts in the Health Model as a guide when selecting a replacement part. The replacements with the best ratings should be investigated first. The direct replacement will be a recommended replacement that falls within the QML, QPL, SMD/883, or Commercial Quality levels.

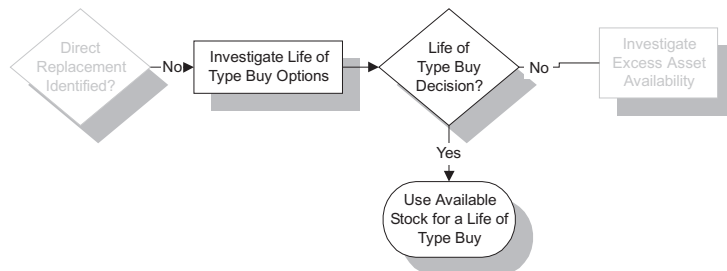
- If a direct replacement is identified, use the recommended replacement as the solution.
- If no direct replacement is identified, the next step is to investigate the Life of Type Buy Options.

Investigating Life of Type Buy Options

Investigating the Life of Type Buy Options involves determining the total quantity of the item needed to support the demand over the life of the program, including spare parts and support quantities.

Estimated Cost

**Life of Type (LOT)
Buy or Bridge Buy**
Remaining Life Cycle
(Yrs) x Annual Usage x
Cost x 20% PHS&T



Investigate Life of Type Buy Options

You may also want to check the health of the SRU to see if there are more parts that may be problem areas. This may aid in the decision process. If the rest of the parts will be obsolete in two years, you may want to make a purchase of parts to last until then. To check the health of an SRU, use the SRU Usage option from the Part Level toolbar. For more information see “Evaluating SRU Usage” on page 83.

After the quantity is determined, and there is sufficient stock available, a one-time buy of the item can be made to fill the quantity. Check your current stock for the quantity to fill the order. To check stock in the TACTRAC

system and to evaluate Life of Type Buy Options, use the Summary/Solutions option from the Part Level toolbar. When viewing the Recommended Solutions, a Configure button is available that allows you to play what-if scenarios with System Life, Demand/Usage, Cost and Storage, and Handling mark-up. For more information see “Understanding Summary/Solutions” on page 97.

- If sufficient stock is located to support the demand of the item throughout the life of the program, use the available stock for a Life of Type Buy.
- If you do not have sufficient stock to fill the quantity, a supplier must be found. All possible suppliers should be investigated, including other supply depots and manufacturers. To see the manufacturers of a part, use the Manufacturer option from the Part Level toolbar. For more information see “Viewing Manufacturers” on page 85.

Investigating Excess Asset Availability

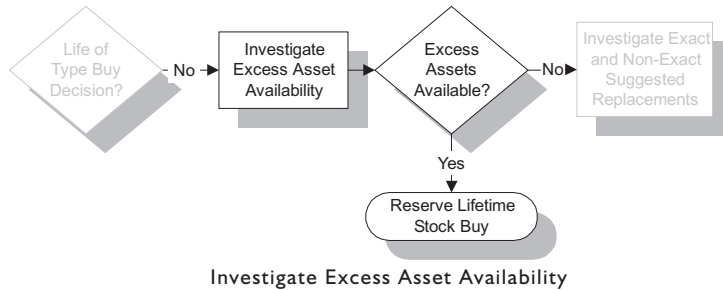
If the quantity cannot be determined or the determined quantity is not available from any source, the next step is to investigate excess asset availability.

Estimated Cost

Excess Assets

Remaining Life Cycle (Yrs) x Annual Usage x Cost x 30% Protect Markup

Reclamation
\$50,000.00



This involves searching suppliers for excess inventory. It is also good to check other supply depots for excess inventory. In order to conduct a full search of all the possible suppliers of the part, use the Inventory Lo-K-Tor feature of the TACTRAC system, which allows you to search the TACTech database of suppliers listing excess inventories of hard-to-find parts. For more information, see “To Use Inventory Lo-K-Tor” on page 131.

Additionally, the investigation of a possible reclamation of parts should be explored. This involves removing components from a system that is no longer being used and performing tests to ensure that the component continues to meet its design tolerances. A Lifetime Stock buy or Reclamation provides parts to keep the system in service until a redesign can be done or a replacement found.

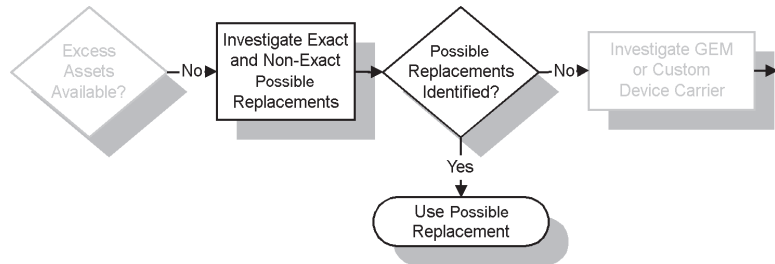
- If the correct quantity to fill the Life of Type Buy is found, a Lifetime Stock buy is reserved from the supplier and is a final solution.
- If the excess assets are not available, the next step is to investigate non-exact possible replacements.

Investigating Non-Exact Possible Replacements

All possible sources for non-exact replacements should be investigated.

Estimated Cost

**Use Possible
Non-Exact
Replacement**
\$20,000.00



Investigate Non-Exact Possible Replacements

To check the non-exact replacements for a part, use the Part Correlation option from the Part Level toolbar. For more information, see “Using Part Correlation” on page 77. Use the FFF rating provided for all replacement parts in the Health Model as a guide when selecting a replacement part. The replacements with the best ratings should be investigated first. You can also use the Component Look-Up option to search the TACTech “living library” database for parts that resemble your specifications. For more information, see “Using Component Look-Up” on page 126.

- If a possible replacement is identified, and a sufficient quantity can be procured, its use is a final solution.
- If no suggested replacement is identified, the next step is to investigate GEM (Generalized Emulation of Microcircuits) or Custom Device Carriers.

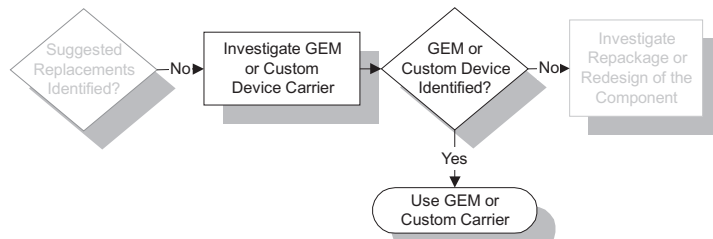
Investigating GEM or Custom Device Carrier

A GEM is a part fabricated by using engineering emulation techniques. A Custom Device Carrier modifies an existing part with a custom device to render the part usable for your application.

Estimated Cost

Generalized Emulation of Microcircuits (GEM)

Emulated (100 part minimum)
 \$75.00/per part
 Family \$25,000.00
 Unique \$50,000.00



Investigate GEM or Custom Device Carrier

To evaluate a GEM or custom device candidate will require some research beyond using this program. Already-GEMed devices are listed with the recommended and possible replacements in Part Correlation. Check with the known GEM companies for information on the possibility of custom fabrication.

All possible suppliers and manufacturers of GEM and custom devices should be investigated during the search. You may need to send the manufacturer schematics or other information before getting an answer.

- If an acceptable GEM or custom device is identified, its use is a final solution.
- If no GEM or custom device is identified, the next step is to investigate the possibility of a repackage or a redesign of the component.

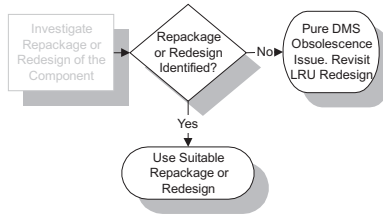
Investigating Repackage or Redesign of the Component

Repackaging or redesigning a component is the most costly of all options; this solution should only be investigated if there is no other possible option.

Estimated Cost

Repackage (Dye & Wafer)
\$25,000.00

SRU Redesign
\$250,000.00



Investigate Repackage or Redesign of the Component

Repackaging and redesigning of components requires contact with your engineering department and should take into consideration the time and money required to do such a task. Both repackaging and redesigning the component should be investigated. This is the last step before the component is considered purely obsolete.

- If a suitable repackage or redesign is available, it is the final solution.
- If no repackage or redesign is available, the component is considered a pure DMS obsolescence issue and the SRU redesign should be revisited and reviewed.

Solution Process Summary

This chapter led you through the logical steps embedded in the TACTRAC Health Model Solution Process. This provides a conceptual understanding of the data and analysis requirements and the steps that take place during the process. The Health Model is not an absolute tool; it is only a diagnostic tool. You and your team can use the information provided to make informed and intelligent solution determinations.