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NASA TECH BRIEF

Marshall Space Flight Center

Predicting Service Life Margins

A method has been developed for establishing hardware service life margins for equipment susceptible to malfunction due to excessive time or operation cycles, and for identifying limited life equipment so that monitoring and replacing can be accomplished before hardware failure.

All functional dynamic hardware, such as engines, gears, actuators, valves, springs, pumps, switches and certain electrical components, are susceptible to failure due to wear. Depending upon the type of hardware, excessive time or operation cycles will normally result in performance degradation or failure. Good practice generally requires replacing hardware that is suspected of approaching its design service life, particularly if its failure could result in personnel hazard, loss of ability to perform a critical function, or excessive cost.

The proposed method of establishing service life is considered applicable to any hardware where a design service life has been established and where a reasonably accurate prediction of expected usage (time or cycles) can be made. The procedures and specifications used in developing the method may be obtained for use as guidelines in developing requirements for specific industrial and consumer items.

Note:

Requests for further information may be directed to:

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No patent action is contemplated by NASA.

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