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Australian/New Zealand Standard™

Spare Parts Provisioning

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Department of Defence (Australian Government)
Engineering New Zealand
Engineers Australia
Independent Transport Safety & Reliability Regulator (NSW)
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Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee QR-005, Dependability.

The objective of this Standard is to describe requirements for spare parts provisioning as a part of supportability activities that affect dependability performance so that continuity of operation of products, equipment and systems for their intended application can be sustained. This document is intended for use by a wide range of suppliers, maintenance support organizations and users and can be applied to all items.

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SPARE PARTS PROVISIONING

FOREWORD

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The text of this standard is based on the following documents:

FDIS	Report on voting
56/1711/FDIS	56/1719/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

Spare parts provisioning is the process for planning necessary spare parts under consideration of a customer's needs and requirements.

Proper planning and control of spare parts is a critical component of effective supportability. If the right parts are not available when needed for routine maintenance or repairs, downtime is prolonged. If too many spare parts are available, the enterprise absorbs excessive costs and the overhead of carrying inventory.

Spare part planning and supply to achieve business objectives are based on four goals:

- the right spare part;
- in the right quantity;
- at the right time;
- at the right place.

Spare parts provisioning is a prerequisite for all types of maintenance tasks, such as replacements and repairs. Spare parts for corrective maintenance tasks should be supplied at random intervals for steady state availability. It may take three to four repairs before steady state availability is reached. In this period repairs may be clustered and the need can vary significantly over time. For preventive and on-condition maintenance, fixed intervals or approximately fixed intervals for replacement items may occur. Coordination of demand for spare parts with supply of spare parts at the required time is an important factor. Unavailable materials are one of the most cited reasons for delays in the completion of maintenance tasks.

The availability of spare parts is one of the factors that impacts system downtime. Methodologies such as integrated logistic support (ILS) and its subsidiary logistic support analysis (LSA) provide necessary information for spare parts provisioning. This information includes system breakdown, maintenance concept, and supply concept. Spare part optimization will cover issues typically given answers to questions such as:

- which spare parts should be stocked within the maintenance organization or by a supplier?
- how many spare parts of each type should be stocked?

Spare part optimization is based on operations research methods and selected reliability methods and may be analytical or use Monte Carlo simulations. The optimization process aims at balancing the cost of holding spare parts against the probability and cost of spare part shortage.

Before spare parts can be ordered, procedures for procurement, administration and storage of required material should be specified. Additionally, a general supply concept should be compiled and specified.

Correct material supply procedures will guarantee that spare parts are ordered in time and delivered when requested. The procedures also include control of the repair of replacement parts as well as the monitoring of repair turn-around times. All organizations involved, from production to purchasing and storage, via maintenance, should have complete transparency about material availability and possible completion of the task. The planned material costs in the task should be compared with its consumption. These are then documented and form the basis of usage-controlled materials planning. With this process, inventory of spare parts can be optimized to meet availability requirements with minimum inventory levels.

This document is applicable to all industries where supportability has a major impact on the dependability of the item through its life cycle.

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SPARE PARTS PROVISIONING

1 Scope

This document describes requirements for spare parts provisioning as a part of supportability activities that affect dependability performance so that continuity of operation of products, equipment and systems for their intended application can be sustained.

This document is intended for use by a wide range of suppliers, maintenance support organizations and users and can be applied to all items.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviated terms

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

NOTE Some terms listed in IEC 60050-192 are also included here for the convenience of the reader.

3.1 Terms and definitions

3.1.1
consumables
any item which is expendable, may be regularly replaced and generally is not product specific

EXAMPLE Oil, grease, nuts, bolts and screws, gaskets, etc.

Note 1 to entry: Generally consumable items are relatively low cost.

3.1.2
corrective maintenance
maintenance carried out after fault detection to effect restoration

Note 1 to entry: Corrective maintenance of software invariably involves some modification.

[SOURCE: IEC 60050-192:2015, 192-06-06]

3.1.3
failure
<of an item> loss of ability to perform as required

Note 1 to entry: A failure of an item is an event that results in a fault state of that item: see fault [IEC 60050-192:2015, 192-04-01].

Note 2 to entry: Qualifiers, such as catastrophic, critical, major, minor, marginal and insignificant, may be used to categorize failures according to the severity of consequences, the choice and definitions of severity criteria depending upon the field of application.

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