

CHAPTER 2

DOCUMENTATION OVERVIEW

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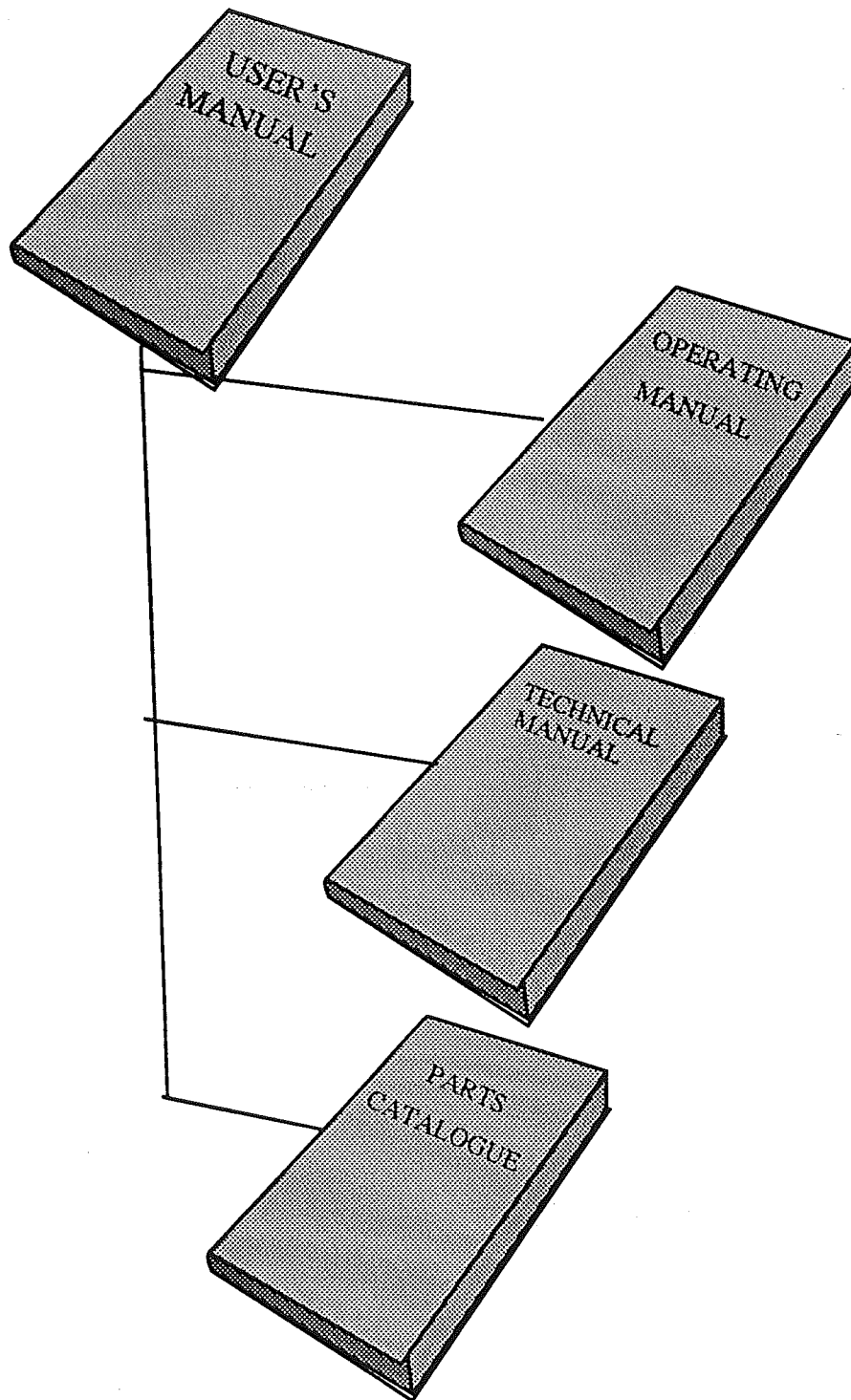


Figure 2.1 - Overall Documentation Structure

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1 OVERALL STRUCTURE

The overall structure of the user documentation for the gas turbine driven equipment set and installation is shown in the diagram opposite: this depicts the main volumes or groups within which all the user information is contained.

The documentation is comprised of three volumes:

Operating Manual (VOLUME 1),

This Manual is to be available to the Gas Turbine Driven Equipment Operator at all times. It provides detailed descriptions of control functions; operational procedures; alarm indications and procedure to be followed.

In addition, information is provided with regard to maintenance procedures, and/or observations to be made, that are within the domain of the Operator. These observations can provide valuable information to the Maintenance Personnel in the diagnosis of corrective maintenance.

Technical (Maintenance) Manual (VOLUME 2),

This Manual provides the reference material considered essential to the Maintenance Technician to enable the recommended procedures to be established.

Each Part will normally be subdivided into logical Chapters that will cover a specific unit, or system, of the Installation.

The Sections within a Chapter will normally be arranged to commence with a general overview and description of how the components operate. This initial description is intended to be used for the familiarity training of Maintenance Personnel and subsequently as a reference.

Subsequent Sections will provide detailed information on specific components of the installation, with all relevant maintenance procedures and specifications.

Sub-suppliers information will be inserted in the appropriate segment of the Manual 'as is', when such information is considered of value.

Engineering drawings considered relevant to the operation and maintenance of the installation are contained within a Part of this manual; as are the test reports and data that detail the specific set-points and other values determined during the initial testing of this installation.

Parts Catalogue (VOLUME 3),

This Manual contains the Components Lists for the various systems of this Turbine/Generator Units installation. The Component Lists, in general, only contain the component assemblies that make up the complete installation.

A TAG Number Reference List in this Volume provides a reference to the Piping and Installation Drawing Number for that unit. From that Drawing Number a Reference to the P & I D List will identify the Part and Chapter of the Parts Catalogue that contains the relevant Component List.

Additional components for the maintenance of the component assemblies are also listed within the respective Chapters.

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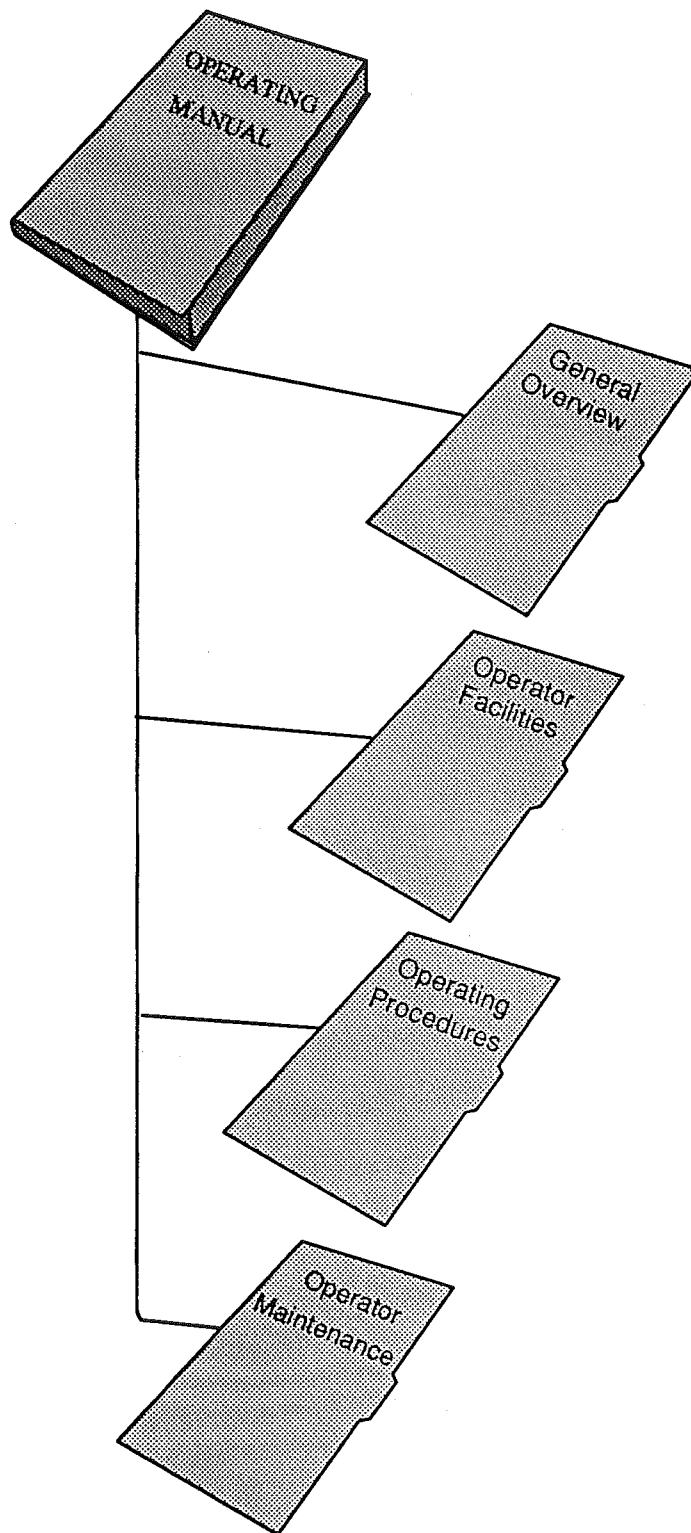


Figure 2.2 - Documentation "Family Tree"

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These manuals provide those personnel that are of approved knowledge and experience with adequate information for the safe, correct and efficient, operation and maintenance of the installed equipment, systems and/or plant.

The structure for this Operating Manual is shown in detail in the opposite diagrammatic representation. This 'road map' illustrates the breakdown of the entire installation into a logical grouping of all Operator Facilities, from a total overview down to a step-by-step Operating Procedure/Check List.

2 FAMILY TREE

The first three volumes of the documentation is produced from a standard Family Tree which covers all aspects of the installed hardware from Sales Specifications to Parts Catalogues. This Family Tree is a data-based documenting system which is constantly updated as hardware products are developed. At the 'kick-off' stage of a project the special-to-customer and standard products of a purchase order are evaluated to produce an 'as built' documentation status overview for that customer; this drawing is used by project engineering and documentation teams to provide for the customer a both accurate and practical coverage of the ordered hardware.

3 USING THE MANUALS

The user manuals are simple to use and enable the reader to locate, at a glance, a particular package, system, unit or operative item. Because the construction of the Parts Catalogue is a facsimile of the Technical Manual, once having located the required description in say the Technical Manual, without further reference, the respective information in the Parts Catalogue can be turned to, e.g. Technical Manual (VOLUME 2), Part 4 describes the turbine support systems, and Chapter 4 describes the start system. Thus, if one is referring to the technical and maintenance information on the start system and require parts details, it is only to turn to VOLUME 3, Part 4, Chapter 4; the reverse also applies for all parts of the system.

The above ease of use is achieved by using the data-based page references, which, on the one hand identify individual pages within the basic three-volume manual and, on the other hand provide detailed text-file 'addresses' within the data processing system documentation library.

4 PRESENTATION

Irrespective of the number of binders which the submitted (Dresser-Rand Power) documentation occupies, the subject matter in VOLUMES 1, 2 and 3 will always remain fixed. The individual manuals will be identified on the spine with the 'cover' number e.g. VOLUME 2 - Cover 2 of 22. This method of submittal has two advantages: the first is that the on-site documentation can be modified in physical volume with no more re-arrangement than a new spine label, and the second is that the Dresser-Rand Power standard specification for handbooks can be upheld.

LANGUAGE Ref.-optional
(Netherlands)

BUILD Ref.
(DRP Purposes)

TURBINE
(Type)

VOLUME (Operating
Manual)

PART (Operator
Facilities)

CHAPTER (Turbine
Control Panel)

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1 GENERAL

The Turbine Control Cabinet, for the Gas Turbine/Generator Unit, is located in the local control room. The alphanumeric codes in parentheses "(" following the descriptive titles refer to the Figures, representing the front panels of the Turbine Control Cabinet, opposite the descriptions. The actual Dutch Labels appearing on the respective components are given in the "(" brackets to avoid any potential translation errors.

2 METERS AND COUNTERS

START COUNTER (TELLER AANTAL STARTS) (1)

This recording instrument indicates the total number of times that the gas turbine has been started. An attempted start, where the exhaust gas temperature does not reach 204°C, will not be registered by the counter.

RUNNING TIME METER (BEDRYFSUREN TELLER) (3)

This instrument records the total gas turbine running time. The hours are recorded by a digital counter and the minutes by an analogue scale.

PEAK RUNNING TIME METER (BEDRYFSUREN MEKBEDRYF) (4)

This instrument records the total of the time that the gas turbine is running with the exhaust gas temperature above 822.2°C. The hours are recorded by a digital counter and the minutes by an analogue scale.

GAS GENERATOR SPEED (TOERENTAL GG (N1)) (8)

This is a five digit digital indicator, continuously displaying the rotational speed (RPM) of the gas turbine gas generator rotor, as detected by a magnetic pick-up.

POWER TURBINE SPEED (TOERENTAL PT (N2)) (9)

This is a five digit digital indicator, continuously displaying the rotational speed (RPM) of the gas turbine power turbine rotor (and directly driven generator), as detected by a magnetic pick-up.

POWER TURBINE INLET TEMPERATURE (AVERAGE) (10)

This is a five digit digital indicator, continuously displaying the temperature (°C) of the gases exiting from the gas generator power turbine. The reading is the mean level obtained from thermocouples equispaced around the turbine.

3 INDICATORS

The Turbine Control Panel contains 6 red indicator lamps. In addition an audible warning horn (2) is provided to sound at the same time as a visual alarm is given.

These red lamps indicated that a parameter has exceeded a preset limit, or an action has been taken which requires immediate automatic shut-down of the turbine.

All indicator lamps may be tested for operation by the Operator selecting the 'LAMP TEST' item on the 'CONTROL FUNCTIONS' menu screen on the Video Display and depressing the 'Enter' key on the Control Keyboard.

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SECTION
[or CHAPTER Number if Chapter not sub-divided]

PAGE NUMBER

Figure 2.3 - Typical Page Format

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5 PAGE FORMAT

As the illustration opposite shows, the volumes are divided into clearly separate subjects or PARTS. These Parts are divided naturally into subject-related CHAPTERS which, where the complexity of the particular hardware item requires it, are comprised of SECTIONS. These Sections are stand-alone documents or 'building blocks' which the handbook is assembled from: these are paginated and paragraphed using standard 'weight of headings'. Where the simplicity of the hardware topic allows it, a Chapter may comprise only of text as for a Section; and furthermore, where the text of either a Section or simple Chapter does not lend itself to paragraphing, the 'List of Contents' is excluded from the 'Title Page'.

The sketch opposite, of a typical page in a Chapter, explains the meaning of the data-based 'headers' and 'footers'.

NOTES:

- » The CHAPTER number will be copied from the 'header' to replace the SECTION number in the 'footer', for non-sectional Chapters.
- » All text is presented on right-hand pages (obverse), and all Figures are presented on facing left-hand 'A' pages (reverse).
- » The Figure Number will comprise the Section (or Chapter) Number separated from a sequence number for that section by a decimal point. Should a figure be repeated in that section it will be referenced by the original figure number.
- » Documentation in english will not include a language reference in the 'header'.
- » Subsequent revisions to all pages will be indicated by the inclusion of REV. 'X' in the bottom right-hand page corner. Where 'X' represents the sequential letter allocated to that revision.