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Preface

The book "Marine Power Plant" provides an insight of the history and development of the whole variety of power plants, the current state of the marine power engineering and its achievements.

For the first time ever in the educational literature, the book presents a detailed retrospective of the appearance and establishment of the main types of heat engines used on ships, ranging from steam engines to gas turbine engines and nuclear power plants.

The issues of energy conversion and transfer in marine power plants are discussed in detail, since they lay the basis for determining the plants' energy efficiency.

When considering characteristics of the fuels employed in marine power plants, a lot of attention is paid to alternative fuels, which have found an extensive application on ships over the last few years.

There is also an elaborate analysis of the sources of air pollution during the operation of marine power plants with heat engines of various types.

The greatest attention has been given to diesel marine power plants, which entirely corresponds to the place they occupy on ships as compared to the plants with other types of heat engines. The analysis of thermal and structural diagrams of diesel power plants reveals the sheer variety of ways to use the products of engine building in marine power engineering. The detailed description of the issues of labeling marine diesels of the world's leading manufacturers makes it possible to be conversant in their types, dimensions, special features, and structures.

The atlas of major devices, components, assemblies, and systems of marine diesel engines is based on the design of modern diesel units; considerable attention is paid to the engines with an electronic control system.

On top of that, there are presented the main methods and patterns for reducing the harmful emissions released by diesel plants into the atmosphere. Of undoubted interest is the example of placing the equipment of a diesel power plant in the modern ship's engine room.

The book also shows the principal and thermal schemes of marine steam turbine units with account to their characteristics and general arrangement of their elements.

Gas turbine plants have found application not only on warships, but also on transport vessels, especially the high-speed ones. Thus, formation of the world and

Ukrainian marine gas turbine construction and application of gas turbine plants on marine transport are considered in detail; the characteristics of advanced gas turbine engines of the world's leading manufacturers are given as well.

The book contains a lot of illustrations, which are mainly published for the first time; they help to get a better understanding of the educational content. The actual designs of modern ship internal combustion engines, gas turbine engines, and steam turbine units, specifications of power equipment and propulsion complexes, thermal and principal schemes of marine power plants given in the book all offer ample opportunities for their application in the readers' individual work.

The book content is systematized in such a way that the reader could navigate through it easily at the self-study of the subject.

Zhenjiang, China — Zongming Yang
Zhenjiang, China — Huabing Wen
Zhenjiang, China — Xinglin Yang
Mykolayiv, Ukraine — Viktor Gorbov
Mykolayiv, Ukraine — Vira Mitienkova
Mykolayiv, Ukraine — Serhiy Serbin