

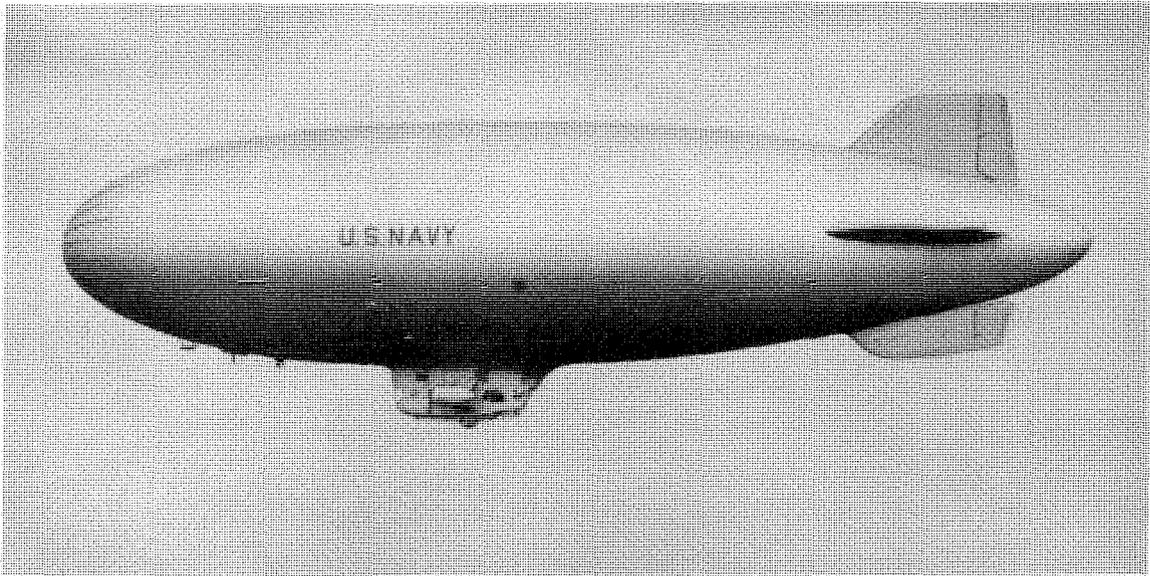
NAVAER 01-195PAC-501

Flight Handbook

NAVY MODEL

ZSG-4

AIRSHIP



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**PUBLISHED BY DIRECTON OF
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FOREWORD

A BRIEF DESCRIPTION OF THE SCOPE AND FUNCTION OF THIS HANDBOOK

The primary function of this handbook is to furnish all the information required by each crew member to operate the ZSG-4 airship intelligently, safely, and efficiently. The handbook is not intended for use by pilots alone, but is a reference source for all crew members concerned in the operation of the airship. Each crew member should read thoroughly all sections to fully understand his responsibility and the relation of his function to the airship and the rest of the crew. Ground check all duties and procedures aboard the airship before attempting a flight. Keep the handbook readily available as a source of technical information and refer to it frequently.

Although crew duties are listed in section VIII of this handbook it should not be assumed that all the information a crew member needs to execute his duties is included in this section. It will be necessary to refer to all sections of the handbook. For example, the flight mechanic's duties are outlined in section VIII, but initial operation of the engines should not be attempted until the descriptions of the engine and power plant systems in section I are understood. Next, the mechanic should read the applicable portions of section VII covering engine, fuel system, oil system, and other power plant systems operation. Spark plug fouling, mixture leaning, cylinder head temperatures, fuel flow, oil cooling, and similar considerations are discussed in this section. Additional information of importance is contained in appendix I on the engine performance chart, the engine operating limits chart, and the combat allowance chart. Further information on power plant operating limitations is included in section V. Finally, the instructions in sections II and III for normal and emergency operation of the engines and related systems must be read thoroughly and understood. Special aspects of engine operation in cold or hot weather conditions are discussed in section IX. After studying all of the data related to his duties, the flight mechanic is prepared to make a ground check of operating procedures. Other crew members should use the handbook in a similar manner to learn their duties.

The technical information in this handbook reflects the most current data available at this writing and will be kept current by frequent revision of the handbook. However, since time delay is unavoidable in the processing of the books, flight crews are expected to keep abreast of pertinent technical directives covering critical flight restrictions or new techniques which have not yet been incorporated in the handbook.

It is assumed that crew members are trained lighter-than-air personnel who are familiar with certain basic types of equipment. Consideration has been given to new applications of familiar equipment to ensure correct operation of the equipment as used on the ZSG-4 airship. Flight instructions of a general nature are included only where necessary for clarity of description.

Descriptions, procedures, and illustrations applicable to all ZSG-4 airships are not coded in this handbook. Where differences in airship systems or component installations occur, the earliest installation is discussed first and discussion of later configurations follows in order. Identification of text or illustration material applicable to a limited number of airships is by BuAer airship serial number. The serial numbers, in parentheses, appear in the applicable paragraph headings, illustration titles, or illustration call-out lists to identify limited application of the subject matter. The serial numbers appear as a footnote on pages where space is insufficient for direct notation. Unless specifically noted, all installations and procedures applicable to airship 131919 are applicable to 133639.

The handbook is divided into nine sections and an appendix as follows:

IMPORTANT

READ THESE PAGES CAREFULLY TO
GAIN THE MAXIMUM BENEFITS
FROM THIS HANDBOOK

SECTION I - DESCRIPTION. This section contains a description of the airship, the power plant, and all controls and systems essential to flight. Descriptions are presented in the following sequence: airship, engines, propellers, oil system, fuel system, constant speed drive, electrical power systems, air pressure system, helium system, surface controls, handling lines, water ballast system, landing gear, instruments, emergency equipment, and a list of auxiliary equipment.

SECTION II - NORMAL PROCEDURES. This section explains the sequence of procedures necessary to accomplish a complete flight. It includes all normal preflight, inflight, and post-flight procedures.

SECTION III - EMERGENCY PROCEDURES. Airship emergency procedures are covered in the following order: engine failure; propeller failure; engine fires; car fires; electrical fires; smoke and vapor elimination; envelope emergencies; landing gear failure; ditching and crash landings; emergency operation of fuel system, electrical system, air pressure system, surface controls, and landing gear; and constant speed drive failure.

SECTION IV - DESCRIPTION AND OPERATION OF AUXILIARY EQUIPMENT. Descriptions and the operating procedures for all equipment on the airship that is not essential to flight are included in this section. Discussed in the following order are: heating and ventilating, propeller anti-icing, communication and electronics, lighting equipment, autopilot, auxiliary power unit, armament system, galley, winch, and in-flight refueling. Coverage of other systems will be added as required.

SECTION V - OPERATING LIMITATIONS. Normal flight limitations are described in this section. Minimum crew requirement, instrument markings, engine limitations, propeller limitations, envelope limitations, and weight limitations are discussed. Additional limitations will be included in the section as the necessity arises.

SECTION VI - FLIGHT CHARACTERISTICS. The effectiveness and reaction of flight controls are discussed in this section. The discussion of flight characteristics will be expanded when data becomes available after flight test and service evaluation of the airship.

SECTION VII - SYSTEMS OPERATION. Instructions for operation of major systems in various conditions of flight are presented. Discussed in the following sequence are: operation of engines, propellers, oil system, fuel system, constant speed drive, surface controls, and ballast system. Also in this section are instructions for coordinated operations each as flight refueling, ballast pick-up, and sonar fish towing.

SECTION VIII - CREW DUTIES. The crew duties section of the handbook includes lists of the checks and jobs to be performed by each crew member in addition or incidental to the normal flight duties discussed in section II. All phases of airship operation are considered, but special emphasis is given the duties necessary to safe flight.

SECTION IX - ALL WEATHER OPERATION. Special procedures for the operation of the airship in extreme weather conditions are discussed in this section to supplement the normal and emergency operating instructions appearing elsewhere in the handbook.

APPENDIX I. The appendix includes all the necessary operating data for mission planning.

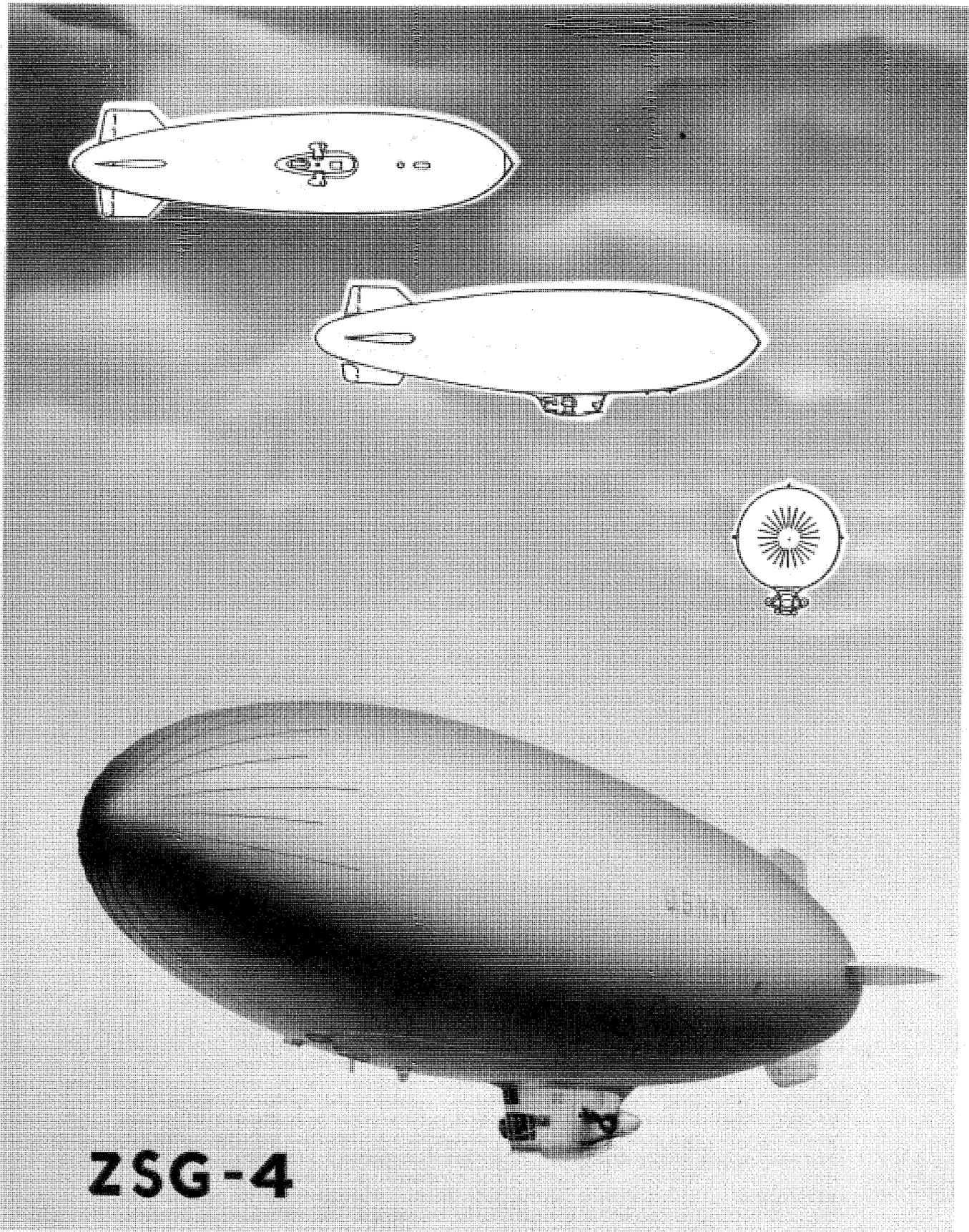


Figure 1-1. The Airship