

TABLE OF CONTENTS

FATIGUE FAILURES OF COMPRESSOR IMPELLERS AND RESONANCE EXCITATION TESTING	1
<i>Fred L. VanLaningham, Senior Staff Engineer, Machinery Management, Union Carbide Corporation, Houston, Texas; Dave E. Wood, Staff Engineer, Union Carbide Corporation, South Charleston, West Virginia</i>	
MAINTENANCE TECHNIQUES FOR TURBOMACHINERY	11
<i>William E. Nelson, Manager, Maintenance Services, Amoco Texas Refining Company, Texas City, Texas</i>	
A REVIEW OF DESIGN ANALYSIS METHODS FOR A HORIZONTAL END SUCTION CENTRIFUGAL PUMP	21
<i>Robert C. Cherry, Project Staff Engineer, Brown & Root, Inc., Houston, Texas</i>	
EFFECTS OF FLUID-FILLED CLEARANCE SPACES ON CENTRIFUGAL PUMP AND SUBMERGED MOTOR VIBRATIONS	29
<i>Henry F. Black, Professor of Mechanical Engineering, Heriot-Watt University, Edinburgh, U.K.</i>	
DESIGN AND FULL LOAD TESTING OF A HIGH PRESSURE CENTRIFUGAL NATURAL GAS INJECTION COMPRESSOR	35
<i>Vijay K. Sood, Senior Product Engineer, MB Compressors, Elliott Company, Jeannette, Pennsylvania</i>	
SELECTION AND DESIGN OF TILTING PAD AND FIXED LOBE JOURNAL BEARINGS FOR OPTIMUM TURBOROTOR DYNAMICS	43
<i>John C. Nicholas, Analytical Engineer; R. Gordon Kirk, Supervisor; Rotor Dynamics Analysis, Ingersoll-Rand Company, Phillipsburg, New Jersey</i>	
A NEW VIBRATION CRITERIA FOR HIGH SPEED LARGE CAPACITY TURBOMACHINERY	59
<i>Kazuhiro Shiraki, Manager; Hiroshi Kanki, Research Engineer; Vibration Research Laboratory, Takasago Technical Institute, Mitsubishi Heavy Industries, Ltd., Takasago, Japan</i>	
CENTRIFUGAL COMPRESSOR LABYRINTH SEAL SYSTEMS	71
<i>J. Gerhardt Torborg, Engineering Associate, Exxon Research and Engineering Company, Florham Park, New Jersey</i>	
COUPLINGS — A USER'S POINT OF VIEW	77
<i>Charles Zirkelback, Senior Staff Engineer, Union Carbide Corporation, Port Lavaca, Texas</i>	
AIR FILTRATION AND SOUND CONTROL SYSTEMS FOR GAS TURBINES — THE STATE OF THE ART	83
<i>F. P. Lages, III, Manager, Sales-Gas Turbine Products, Sound Control Systems Group, Environmental Elements Corporation, Baltimore, Maryland</i>	
A REVIEW OF THE INDUSTRIAL DEVELOPMENT AND USAGE OF ELECTRONIC GOVERNORS	95
<i>Peter E. Jenkins, Mechanical Engineering Department, Texas A&M University, College Station, Texas</i>	
MECHANICAL DRIVE TURBINE CONTROL SYSTEMS FOR THE 1980'S	109
<i>Anthony J. Rossi, Manager, Turbine Systems Development Engineering, Mechanical Drive Turbine Department, General Electric Company, Fitchburg, Massachusetts</i>	
DESIGN, PERFORMANCE AND OPERATIONAL CHARACTERISTICS OF A 6500 HORSEPOWER HIGH PERFORMANCE INDUSTRIAL GAS TURBINE	121
<i>James R. Strother, Manager, Process Oil and Gas Applications, Detroit Diesel Allison Division, General Motors Corporation, Indianapolis, Indiana</i>	
SPECIAL PAPERS	
API ORGANIZATION AND MECHANICAL EQUIPMENT SPECIFICATIONS	133
<i>John G. Housman, Chief Engineer, Mechanical Equipment, Refining and Transportation Engineering Department, Amoco Oil Company, Chicago, Illinois</i>	
PRINCIPLES OF TURBOMACHINERY BEARINGS	135
<i>J. D. McHugh, Manager, Bearings/Seals/Rotor Systems Design, Gas Turbine Products Division, General Electric Company, Schenectady, New York</i>	
DISCUSSION LEADERS	147

API PANEL MEMBERS	153
SPECIAL EVENTS SPEAKERS	155
ADVISORY COMMITTEE	157
EXHIBITORS	161
GAS TURBINE LABORATORIES.....	167