

**CONTENT**

	<u>page</u>
<b>1 Introduction</b>	<b>1</b>
<b>2 Experimental Configuration and Instrumentation</b>	<b>1</b>
2.1 Test Facility	2
2.2 Test Configuration	2
2.3 Instrumentation	3
2.3.1 Hot-Film Probes	3
2.3.2 Surface-Mounted Hot-Film Gauges	4
2.4 Test Environment	5
<b>3 Data Recording and Evaluation</b>	<b>5</b>
3.1 Data Recording	6
3.2 Data Evaluation	6
3.2.1 Ensemble Averaging	6
3.2.2 Time Averaging	8
3.2.3 Frequency Spectra	10
<b>4 Blade Row Interaction Phenomena</b>	<b>10</b>
4.1 Time-Averaged Turbulent Fluctuations	10
4.2 Ensemble-Averaged Periodic and Turbulent Fluctuations	11
4.3 Stator-Rotor Interaction	13
4.4 Rotor-Rotor Interaction	16
4.4.1 Mechanism of Rotor-Rotor Interaction	16
4.4.2 Detailed Discussion of Rotor-Rotor Interaction	16

	<u>page</u>
<b>5</b>	<b>Boundary Layer Transition Phenomena</b> 19
5.1	Model of Boundary Layer Transition with Separation Bubble 19
5.2	Static Pressure Distributions 19
5.3	Time-Averaged Results of Surface-Mounted Hot-Film Gauge Measurements 20
5.3.1	Time-Averaged Distributions Vane 1 20
5.3.2	Time-Averaged Distributions Vane 3 20
5.4	Frequency Spectra and Ensemble-Averaged Results of Hot-Film Gauge Measurements 21
5.4.1	Frequency Spectra and Ensemble-Averaged Distributions Vane 1 21
5.4.2	Frequency Spectra and Ensemble-Averaged Distributions Vane 3 22
5.5	Time-Space Distributions 23
5.5.1	Time-Space Distributions Vane 1 23
5.5.2	Time-Space Distributions Vane 3 23
<b>6</b>	<b>Concluding Remarks</b> 24
<b>7</b>	<b>References</b> 25
	<b>Acknowledgements</b> 27
	<b>Figures</b> 28