

TABLE OF CONTENTS

I.	INTRODUCTION	1
1.	History of the codes	1
2.	Design of new stellarator experiments	5
3.	List of symbols	7
II.	SAMPLE RUNS	10
1.	Wendelstein VII-A fixed boundary equilibrium	11
2.	Wendelstein VII-AS nonlinear stability test	15
3.	Heliotron E stability for an $m = 2$ mode	20
4.	Heliotron H free boundary stability	26
5.	ATF-1 nonlinear stability test	29
6.	Vertical field in the ATF-1 winding law	32
7.	Resonant Heliac of small aspect ratio	35
8.	TJ-II Heliac equilibrium	38
9.	Heliac stability for an $m = 3$ mode	41
10.	Heliac free boundary equilibrium	47
11.	Helias nonlinear stability test	50
12.	Bifurcated tokamak equilibrium	58
13.	Calculation of ion confinement time	63
14.	Calculation of electron confinement time	71
15.	Confinement time for Heliotron E	78
III.	REVISIONS OF THE EQUILIBRIUM CODE	82
1.	Glossary for the equilibrium and stability code	82
2.	FORTRAN update	89
3.	Variational principle	102

4. The spectral method	106
5. Asymptotic convergence to a weak solution	116
IV. NEOCLASSICAL TRANSPORT	121
1. The Monte Carlo method	121
2. Description of the code	135
3. Glossary of input parameters	143
4. References	145
V. FORTRAN LISTING OF THE TRANSPORT CODE	148
INDEX	189