ENTRY NO. 123

NAME OF MACHINE W.U. Med. School Cyclotron II
INSTITUTION Washington University Medical School, Barnard Hospital
ADDRESS St. Louis, MO 63110 USA
TEL 314-889-6509 TELEX
IN CHARGE J.T. Hood REPORTED BY J.T. Hood

HISTORY AND STATUS

DESIGN, date Model tests
ENG DESIGN, date Cyc. Corp. CS-15
CONSTRUCTION, date
FIRST BEAM, date (or goal) June, 1978
MAJOR ALTERATIONS

COST, ACCELERATOR $650,000
COST, FACILITY, total $900,000
FUNDED BY NIH (Heart & Lung)

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT

SCIENTISTS 2 ENGINEERS 1
TECHNICIANS 3 CRAFTS 2
GRAD STUDENTS involved during year
OPERATED BY Research staff or X Operators
OPERATION hr/wk. On target hr/wk
TIME DISTR. in house %, outside %
BUDGET, op & dev
FUNDED BY NIH

RESEARCH STAFF, not included above

USERS, in house 6 outside
GRAD STUDENTS involved during year 2
RESEARCH BUDGET, in house
FUNDED BY NIH

MAGNET

POLE FACE, diameter (compact) 81 cm, R-extraction 35 cm
R injection cm
GAP, min cm, Field kG
max cm, Field kG } at
AVERAGE FIELD at R ext 16.5 kG Ampere turns
B max/<B>
NUMBER OF SECTORS { compact 3 / separated } Spiral, max deg
SECTOR ANGLE (SSC) deg
TRIMMING COILS

CONDUCTOR, material and type Aluminum ribbon
STORED ENERGY (cryogenic) MJ
POWER: main coils 60 max kW: current stability
trimming coils max kW: current stability
WEIGHT: Fe tons: coils tons
COOLING system Water
ION ENERGY (Bending limit) E/A = q^2/A^2 MeV/amu
(Focusing limit) E/A = q/A MeV/amu

ACCELERATION SYSTEM

DEES, number 2 angle 120 deg
BEAM APERTURE cm; DC Bias kV
TUNED by, coarse short fine
RF 12 to 25 MHz, stable ±
Orb F to MHz
HARMONICS, RF/Orb F, used
DEE–Gnd, max kV, min gap cm
STABILITY, (pk-pk noise)/(pk RF volt)
ENERGY GAIN, max kV/turn
RF PHASE, stable to ± deg
RF POWER input, max. kW
FREQUENCY MODULATION, rate /s
modulator, type
beam pulse, width

VACUUM SYSTEM

OPERATING PRESSURE 10 μ Torr or mbar
PUMPS, No, Type, Size 1 - oil diffusion
ten inch

ION SOURCES

Penning

INJECTION SYSTEM

EXTRACTION SYSTEM

Electrostatic and Magnetic Channel

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed m^2; movable m^2
TARGET STATIONS 3 in 1 rooms
STATIONS served at same time, max
MAG SPECTROGRAPH, type
COMPUTER model
OTHER FACILITIES

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV) Goal	Achieved	CURRENT (pμA) Internal	External
p		15		50
d		8		75
α		16		
^{3}He		20		50
SECONDARY			(part/s)	

BEAM PROPERTIES

	MEASURED	CONDITIONS
PULSE WIDTH	RF deg	pμA of MeV ions
PHASE EXC. max	RF deg	pμA of MeV ions
EXTRACT eff	%	pμA of MeV ions
RESOL ΔE/E	1 %	pμA of MeV ions
EMITTANCE (π mm-mrad)	.50 axial, .50 rad	pμA of MeV

OPERATING PROGRAMS, time distribution

BASIC NUCLEAR PHYSICS SOLID STATES PHYSICS
BIOMEDICAL APPLICAT. 100% ISOTOPE PRODUCTIONS

REFERENCES/NOTES

1)
2)

PLAN VIEW OF FACILITY, COMMENTS, ETC.