

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

PROGRAMME OF ACCEPTED EXPERIMENTS

CERN INTERSECTING STORAGE RINGS

April 1972

- Table 1 : ISR Experiments running or accepted  
Table 2 : Experiments Completed at 1 April, 1972.  
Fig. 1 : Intersection 1 (Layout February 1972)  
Fig. 2 : Intersection 2 " " "  
Fig. 3 : Intersection 4 " " "  
Fig. 4 : Intersection 6 " " "  
Fig. 5 : Intersection 8 " " "

K.M. Potter  
ISR Co-ordinator

Table I  
ACCEPTED CERN ISR EXPERIMENTS

Area	Expt. Code	ISRC Reference Number	Description of Experiment	Present composition of group	Date of NPRC Acceptance	Status
I-1	R-102	CERN/ISRC/69-11/Rev. and Add. 1, 2, 3, 4, 5	a) Study of interactions in which gamma rays and electrons with large transverse momentum are emitted. b) Search for "Quarks" at large angles	Saclay-Strasbg.: <u>Banner</u> , Cheze, Hamel, Stirling, Teiger, Zaccane, Pansart; Bassompierre, Croissiau, Gresser, <u>Morand</u> , Schneegans, Riedinger	NPRC 85 5.11.1969	First phase data taking completed March '72. To be continued Autumn 1972
I-1	R-103	CERN/ISRC/69-43, and Add.1	Search for Massive Dileptons	CERN-Columbia-Rockefeller: <u>Di Lella</u> , Placci, Pope, A. Smith, Joh, Zavattini; Blumenfeld, Lederman; <u>Cool</u> , Segler	NPRC 85 5.11.1969	Complete Installation April 1972
I-1	R-104T	CERN/ISRC/70-19, Add.1, 2	Search for High Energy multigamma events	Brookhaven-Grumman- Rome: <u>L.C.L. Yuan</u> ; <u>Ed. Amaldi</u> , Borgia, Beneventano, Pistilli	NPRC 98 4. 6. 1971	Parasitic on Experiment R-103

(T) = Test

Table 1 (cont'd)  
ACCEPTED CERN ISR EXPERIMENTS

Area	Expt. Code	ISRC Reference Number	Description of Experiment	Present composition of group	Date of NPRC Acceptance	Status
1-2	R-201	CERN/ISRC/69-5, and Add.1, 2, 3, 4 CERN/ISRC/69-9	Production of stable particles at small angles	CERN-Holland-Lancaster-Manchester-Coll. (CHLM): Albrow, Barber, Bogaerts, Bosnjakovic, <u>Erné</u> , <u>Sens</u> , Veen, Terwilliger, <u>Clegg</u> , <u>Locke</u> , <u>Lobinger</u> , <u>Gee</u> , ( <u>Kanaris</u> ), <u>Murphy</u>	NPRC 84 4.7.1969	In Production
1-2	R-202	CERN/ISRC/69-7, and Add.1	Study of particle production in high energy proton-proton collisions at medium angles	Argonne-Bologna: <u>Ratner</u> , <u>Ellis</u> , <u>Bussièrè</u> , <u>Bertin</u> , <u>Capiluppi</u> , <u>D'Agostino-Bruno</u> , <u>Giacomelli</u> , <u>Maroni</u> , <u>Rossi</u> , <u>Vannini</u>	NPRC 84 4.7.1969	1stPhase complete a), 2nd Phase in product.
1-2	R-203	CERN/ISRC/69-2 CERN/ISRC/69-3 CERN/ISRC/69-44 CERN/ISRC/71-9	a) Experiment to determine production spectra of $\pi^{\pm}$ , $K^{\pm}$ , p, d... etc. at large angles. b) Search for "Quarks" at large angles	The collaboration mentioned below and the Scandinavian Coll.: <u>Bøggild</u> , <u>Damgaard</u> , ( <u>Hansen</u> ), <u>Jarlskog</u> , ( <u>Jönsson</u> ), ( <u>Klovning</u> ), <u>Leistam</u> , <u>Lillethun</u> , <u>Lohse</u> , <u>Von Dardel</u> , <u>Korder</u> , <u>Jonstad</u>	NPRC 84 4.7.1969	In Prod. for low momentum measurements
1-2	R-204	CERN/ISRC/69-3	Measurement of muons with large transverse momentum as a search for the intermediate boson	British Universities coll.: <u>Alper</u> , <u>Birge</u> , <u>Bulos</u> , <u>Carrol</u> , <u>Cence</u> , <u>Duff</u> , <u>Potter</u> , <u>Sharp</u> , <u>Sharrock</u> , ( <u>Manning</u> ), ( <u>Heymann</u> ), <u>Quarrie</u> , ( <u>Malos</u> ), ( <u>Booth</u> ), <u>Prentice</u> ( <u>Jackson</u> )	NPRC 84 4.7.1969	In Prod.

( . . . . ) = participating in experiment but not now at CERN.

a) See Table of completed Experiments (Table 2).

Table 1 (cont'd)

## ACCEPTED CERN ISR EXPERIMENTS

Area	Expt. Code	ISRC Reference Number	Description of Experiment	Present composition	Date of NPRC Acceptance	Status
I-4	R-401	CERN/ISRC/69-14	Measurement of energy dependence of isobar excitation in proton-proton collisions	CERN-Hamburg-Orsay-Vienna(CHOV) Coll.: Aubert, Bartl, Broll, Coignet, Dibon, Favier, Flügge, Gottfried, Massonet, Neuhöfer, Niebergall, Regler, Schmidt-Parzefall, Schubert, Schumacher, Smith, Vivargent, Winter	NPRC 83 4.7.1969	Expt. to be performed in Split-Field Magnet (Magnet Installation Jan. '73)
I-4	R-402	CERN/ISRC/71-8 and add. 1	Search for fractionally charged particles	CERN-Munich Coll.: Caldwell, Fabjan, Gruhn, Hyams, Sauli, Zahniser, <u>Bott-Bodenhausen</u> , Stierlin, Rochester, <u>Winstein</u> , Tirlor	NPRC 97 5.5.1971	In Production
I-4	R-403 T	CERN/ISRC/70-5	S.F.M. Test and Survey Collaboration: (S.F.M. = Split Field Magnet)	S.F.M.: Charpak, Coignet, Fischer, Flügge, Gottfried, <u>Minten</u> , Sauli	NPRC 95 3.2.1971	Test Experiment in progress
I-4	R-404 T	CERN/ISRC/70-18 and add. 1, 2	Test of a proposal to search for Heavy Baryon Isomers	CERN-Hamburg-Vienna Coll.: Flügge, <b>Gottfried</b> , Neuhöfer, Niebergall, Regler, Schmidt-Parzefall, Schubert, Winter	-	Test Expt. in progress
I-4	R-405	CERN/ISRC/71-48	Neutron Production at small angles	CERN-Karlsruhe Coll.: <u>Engler</u> , Flauger, Gibbard, Münnig, Runge, Schopper	1.3.1972 NPRC 105	Installation Easter 1972

T = Test experiments

Table 1 (cont'd)  
ACCEPTED CERN ISR EXPERIMENTS

Area	Expt. Code	ISRC Ref. Number	Description of Experiment	Present composition of group	Date of NPRC Acceptance	Status
1-6	R-601	CERN/ISRC/69-20, and add. 1, 2 CERN/ISRC/70-7, and add. 1, 2	a) The measurement of proton-proton differential cross section in the Coulomb interference region	CERN-Rome Coll.: Allaby, Bartel, Cocconi, Block, Diddens, Dobinson, J. Litt, Dimcovski, <u>Wetherell</u> ; U. Amaldi, Biancastelli, Bosio, <u>Matthiae</u>	NPRC 83 4.7.1969	In Prod.
1-6	R-602	CERN/ISRC/69-19, and add. 1, 2, 3	a) Measurement of the elastic scattering cross section beyond the Coulomb interference region. b) Search for "Quarks" at small angles.	CERN-Aachen-Genova-Harvard-Torino Coll.: Boehm, Foeth, Staude, Umbach; Jovanovich, Orito, Rubbia, <u>Strolin</u> , Bozzo, De Zorzi, Diambri, Sete, Ferrero, Maderni	NPRC 83 4.7.1969	Elastic Scattering measurements. In Prod.
1-6	R-603	CERN/ISRC/71-45 and add. 1	$\Delta^{++}$ Spectroscopy Studies	Aachen-UCLA-CERN-Harvard, Torino Coll.: Staude, Boehm, Drickey, Rabin, Rander, Schlein, Hansroul, F. Muller, Palazzi, Rubbia, <u>Strolin</u> , Pilcher, Sulak, Maderni	NPRC 104 2.2.1972	Install. after completion of R-602

Table 1 (Cont'd)  
ACCEPTED CERN ISR EXPERIMENTS

Area	Expt. Code	ISRC Reference Number	Description of Experiment	Present composition of group	Date of NPRC Acceptance	Status
I-8	R-801	CERN/ISRC/69-12	Measurement of the p-p total cross section	Pisa-Stony Brook Coll.: Amendolia, Bellettini, Braccini, Bradaschia, Castaldi, Cerri, Ciancaglini, Del Prete, Finocchiaro, Foà, Giromini, Grannis, D. Green, Laurelli, Menzione, Mustard, Ristori, Sanguinetti, Valada, Thun	NPRC 83 4.7.1969	Installing, anticipated completion of Installation April 1972

Table 2  
ISR Experiments completed at 1 April 1972

Area	Expt. Code	Description of Experiment	Authors	Completion of Data-taking	Status
1-1	R-101	Emulsion Exposures giving:- a) Angular distribution of charged particles between $35^{\circ}$ and $90^{\circ}$ b) Stopping particles at $90^{\circ}$	CERN-Cracow-Bucharest-Tata emulsion collaboration: Annoni, Cordailat, Czyzewski, Friedländer, Gierula, Gurtu, Haiduc, Herz, Marin, Vicky, Wolter	September 1971	a) Published b) Submitted to Phys. Letters.
1-2	R-202	Study of positive particle production with a single arm spectrometer at medium angles	Argonne-Bologna-Michigan Collaboration: Ratner, Ellis, Vannini, Babcock, Krisch, Roberts	September 1971	Published (Study of negative particle production continuing. See Table 1).

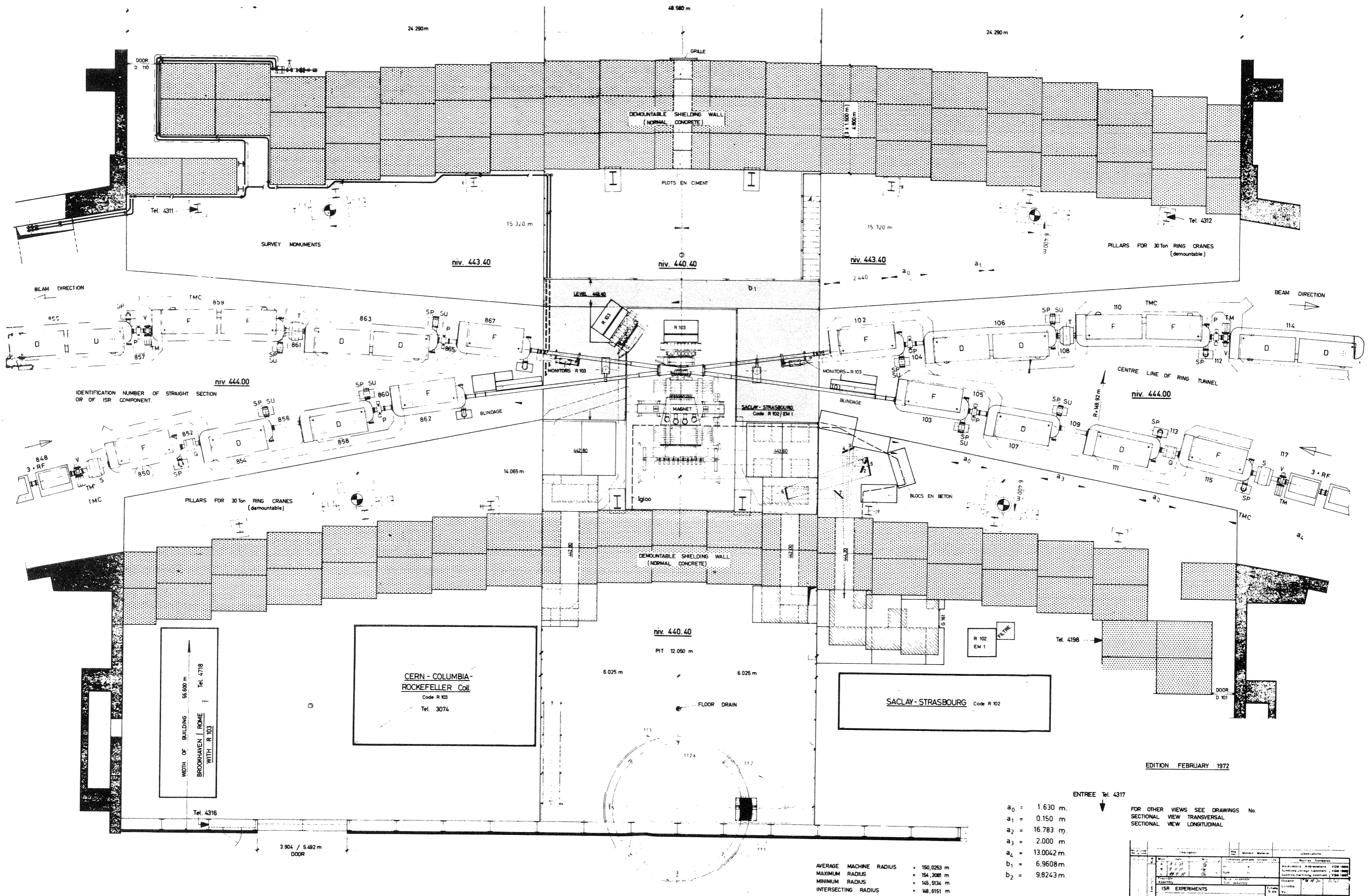


Fig. 1

EDITION FEBRUARY 1972

- $a_0 = 1.630 \text{ m}$
- $a_1 = 0.150 \text{ m}$
- $a_2 = 16.783 \text{ m}$
- $a_3 = 2.000 \text{ m}$
- $a_4 = 13.0042 \text{ m}$
- $b_1 = 6.9608 \text{ m}$
- $b_2 = 9.8243 \text{ m}$

AVERAGE MACHINE RADIUS = 150,0253 m  
 MAXIMUM RADIUS = 154,3081 m  
 MINIMUM RADIUS = 145,5134 m  
 INTERSECTING RADIUS = 148,6151 m

FOR OTHER VIEWS SEE DRAWINGS No.  
 SECTIONAL VIEW TRANSVERSAL  
 SECTIONAL VIEW LONGITUDINAL

Code	Designation	Material	Observations
R 103	CERN - COLUMBIA - ROCKEFELLER COLL.	Code R 103	Tel. 3074
R 102	SACLAY - STRASBOURG	Code R 102	
<b>INTERSECTION 1</b>			
ORGANISATION EUROPÉENNE POUR LA RECHERCHE NUCLEAIRE EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH CERN - CH 1211 GENEVE 23 DIVISION ISR			
			260-247-



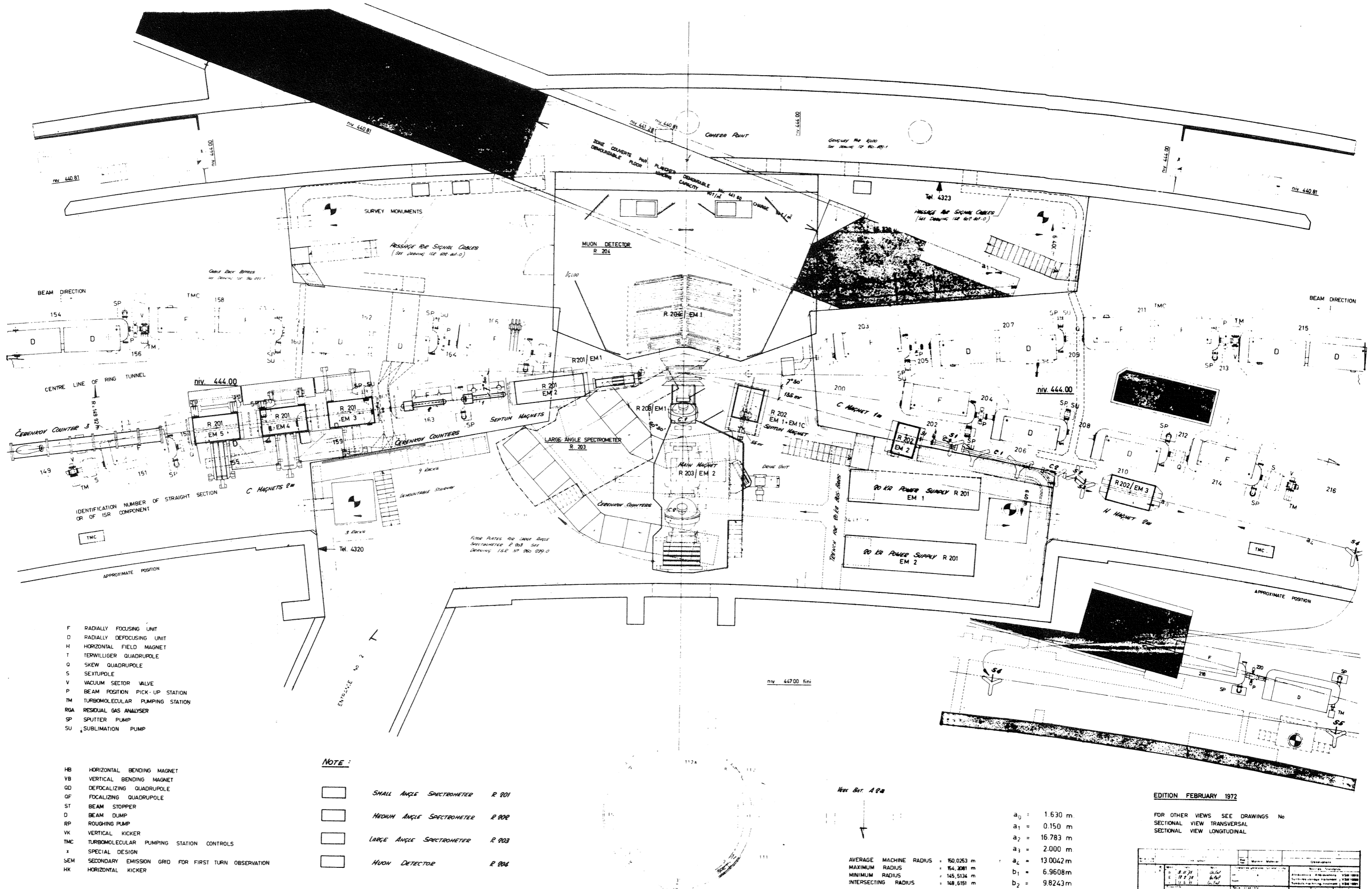


Fig. 2

EDITION FEBRUARY 1972

FOR OTHER VIEWS SEE DRAWINGS No  
SECTIONAL VIEW TRANSVERSAL  
SECTIONAL VIEW LONGITUDINAL

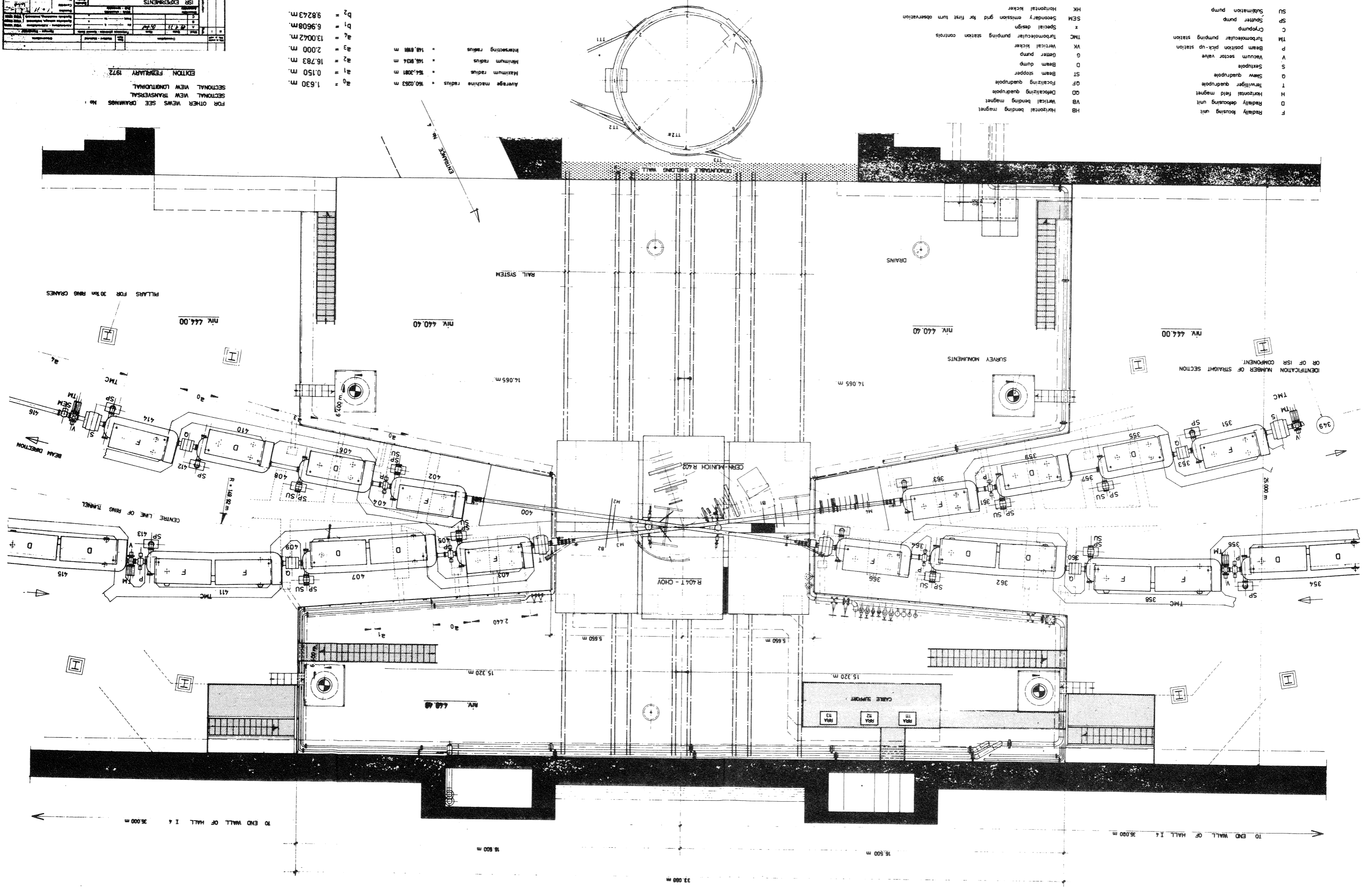
ISR EXPERIMENTS		INTERSECTION 2	
CERN CH 1211 GENEVE 23 DIVISION ISR			

CONSTRUCTION DRAWING FOR THE PROJECT ISRAELI	
CERN - CH - 111 849000 - DIVISION ISRAELI	
260 - 432-	
INTERSECTION 4	
ISR EXPERIMENTS	
Scale: 1:1000	
Author: [illegible]	
Date: [illegible]	
Status: [illegible]	
Description: [illegible]	
Revision: [illegible]	
Drawn: [illegible]	
Checked: [illegible]	
Approved: [illegible]	
Date of Issue: [illegible]	
Date of Revision: [illegible]	

FOR OTHER VIEWS SEE DRAWINGS No. [illegible]  
 SECTIONAL VIEW TRANSVERSAL  
 SECTIONAL VIEW LONGITUDINAL  
 EDITOR: FEBRUARY 1972

Average machine radius = 50.0253 m  
 Maximum radius = 54.3081 m  
 Minimum radius = 16.914 m  
 Intersecting radius = 148.8981 m  
 a<sub>0</sub> = 1.630 m  
 a<sub>1</sub> = 0.150 m  
 a<sub>2</sub> = 16.783 m  
 a<sub>3</sub> = 2.000 m  
 a<sub>4</sub> = 13.002 m  
 b<sub>1</sub> = 6.9608 m  
 b<sub>2</sub> = 9.8243 m

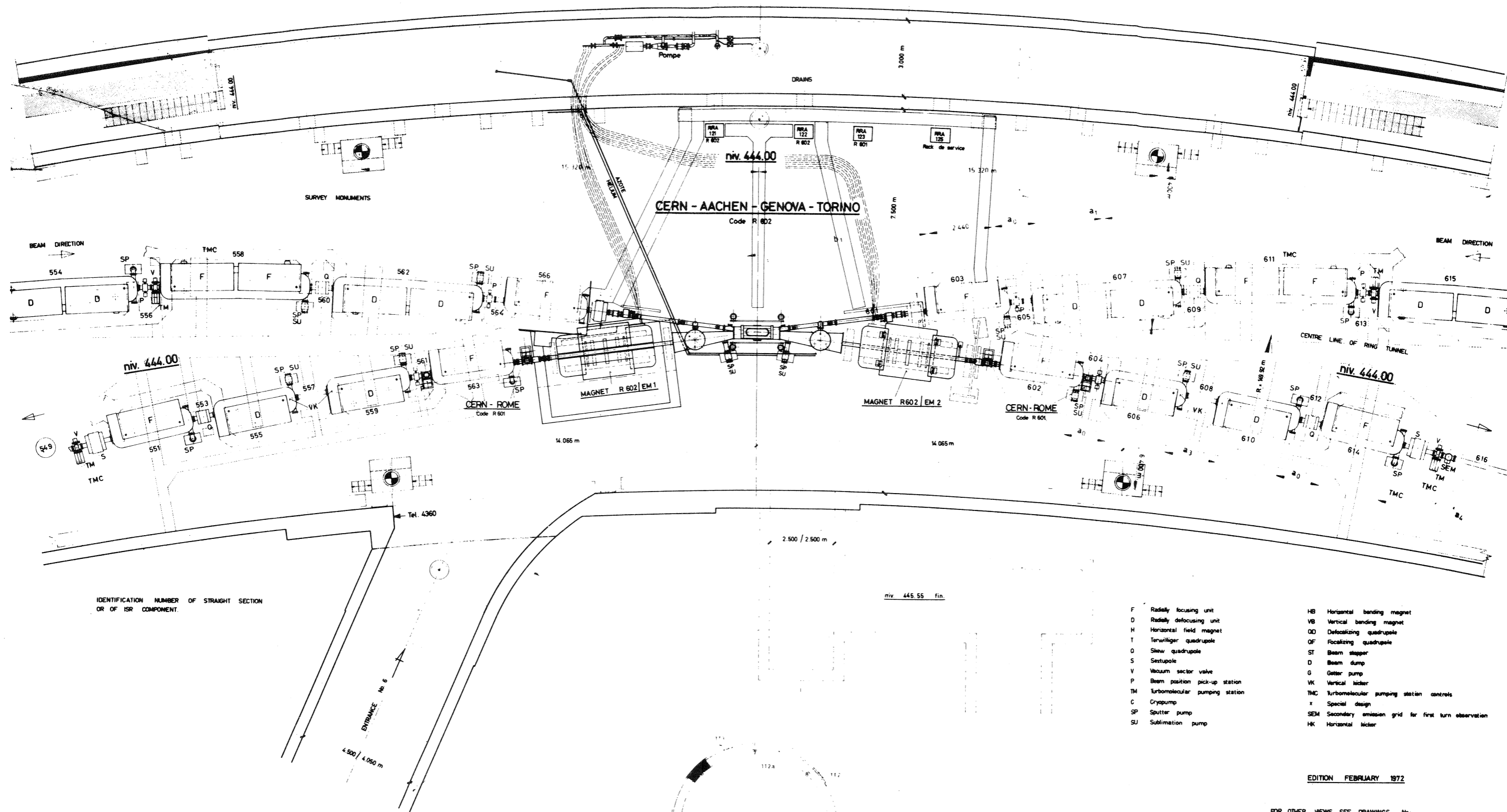
Fig. 3



- F Radially focusing unit
- D Radially decoupling unit
- H Horizontal field magnet
- T Terwilliger quadrupole
- S Sextupole
- D Beam dump
- ST Beam stopper
- OF Focalizing quadrupole
- DQ Decoupling quadrupole
- VB Vertical bending magnet
- HB Horizontal bending magnet
- BR Radially focusing unit
- TM Turbomolecular pumping station
- C Cryopump
- SP Sputter pump
- SU Sublimation pump
- SEM Secondary emission grid for first turn observation
- X Special design
- TMC Turbomolecular pumping station controls
- YK Vertical kicker
- G Getter pump
- V Vacuum sector valve
- P Beam position pick-up station
- V Vacuum sector valve
- S Sextupole
- D Beam dump
- ST Beam stopper
- OF Focalizing quadrupole
- DQ Decoupling quadrupole
- VB Vertical bending magnet
- HB Horizontal bending magnet

TO END WALL OF HALL I A 36.000 m

TO END WALL OF HALL I A 36.000 m



IDENTIFICATION NUMBER OF STRAIGHT SECTION OR OF ISR COMPONENT.

- F Radially focusing unit
- D Radially defocusing unit
- H Horizontal field magnet
- T Terwilliger quadrupole
- QF Focalizing quadrupole
- Q Skew quadrupole
- S Sextupole
- V Vacuum sector valve
- P Beam position pick-up station
- TM Turbomolecular pumping station
- C Cryopump
- SP Sputter pump
- SU Sublimation pump
- HB Horizontal bending magnet
- VB Vertical bending magnet
- QD Defocalizing quadrupole
- OF Focalizing quadrupole
- ST Beam stopper
- D Beam dump
- G Getter pump
- VK Vertical kicker
- TMC Turbomolecular pumping station controls
- x Special design
- SEM Secondary emission grid for first turn observation
- HK Horizontal kicker

EDITION FEBRUARY 1972

FOR OTHER VIEWS SEE DRAWINGS No:  
SECTIONAL VIEW TRANSVERSAL  
SECTIONAL VIEW LONGITUDINAL

Average machine radius = 150,0263 m	$a_0 = 1.630$ m
Maximum radius = 154,3081 m	$a_1 = 0.150$ m
Minimum radius = 146,5134 m	$a_2 = 16.783$ m
Intersecting radius = 148,6151 m	$a_3 = 2.000$ m
	$a_4 = 13.0042$ m
	$b_1 = 6.9608$ m
	$b_2 = 9.8243$ m

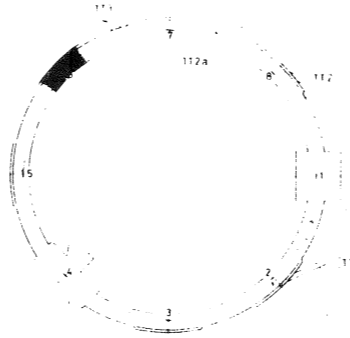


Fig. 4

CERN		CH - 1211 GENÈVE 23		SYNCHRON ISR	
<b>INTERSECTION 6</b>					
260-251-					

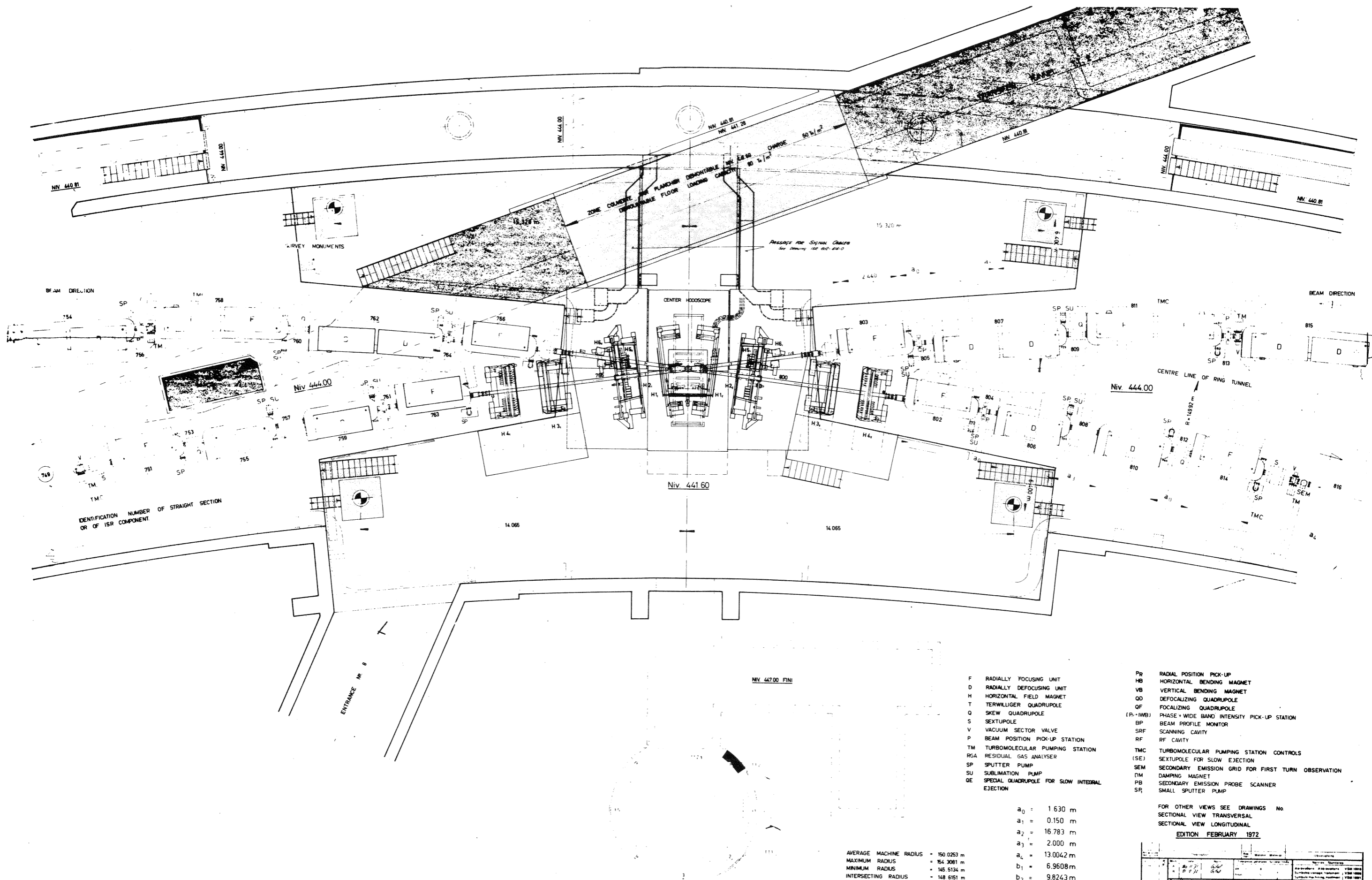


Fig. 5

AVERAGE MACHINE RADIUS = 150.0253 m  
 MAXIMUM RADIUS = 154.3081 m  
 MINIMUM RADIUS = 145.5134 m  
 INTERSECTING RADIUS = 148.6151 m

$a_0 = 1.630$  m  
 $a_1 = 0.150$  m  
 $a_2 = 16.783$  m  
 $a_3 = 2.000$  m  
 $a_4 = 13.0042$  m  
 $b_1 = 6.9608$  m  
 $b_2 = 9.8243$  m

- F RADIALLY FOCUSING UNIT
- D RADIALLY DEFOCUSING UNIT
- H HORIZONTAL FIELD MAGNET
- T TERWILLIGER QUADRUPOLE
- Q SKEW QUADRUPOLE
- S SEXTUPOLE
- V VACUUM SECTOR VALVE
- P BEAM POSITION PICK-UP STATION
- RGA RESIDUAL GAS ANALYSER
- TM TURBOMOLECULAR PUMPING STATION
- SP SPUTTER PUMP
- SU SUBLIMATION PUMP
- QE SPEDAL QUADRUPOLE FOR SLOW INTEGRAL EJECTION
- PR RADIAL POSITION PICK-UP
- HB HORIZONTAL BENDING MAGNET
- VB VERTICAL BENDING MAGNET
- QD DEFOCALIZING QUADRUPOLE
- QF FOCALIZING QUADRUPOLE
- (P-IWB) PHASE-WIDE BAND INTENSITY PICK-UP STATION
- BP BEAM PROFILE MONITOR
- SRF SCANNING CAVITY
- RF RF CAVITY
- TMC TURBOMOLECULAR PUMPING STATION CONTROLS
- (SE) SEXTUPOLE FOR SLOW EJECTION
- SEM SECONDARY EMISSION GRID FOR FIRST TURN OBSERVATION
- DM DAMPING MAGNET
- PB SECONDARY EMISSION PROBE SCANNER
- SPR SMALL SPUTTER PUMP

FOR OTHER VIEWS SEE DRAWINGS No.  
 SECTIONAL VIEW TRANSVERSAL  
 SECTIONAL VIEW LONGITUDINAL  
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ISR EXPERIMENTS		260-450	
INTERSECTION 8			
CERN - CH-1211 GENEVE 23		DIVISION ISR	