

PLATE I (NEG. 28937)

Overall view of ELF laboratory in its final Configuration
 Scale = 1:150



PLATE 2 (NEG. 26058)

ELF laboratory before machine construction looking South. Shows lined-out area where ELF is to be sited



PLATE 3 (NEG. 26057)

As for plate 2 but looking west. Shows Marx Capacitors and screened room

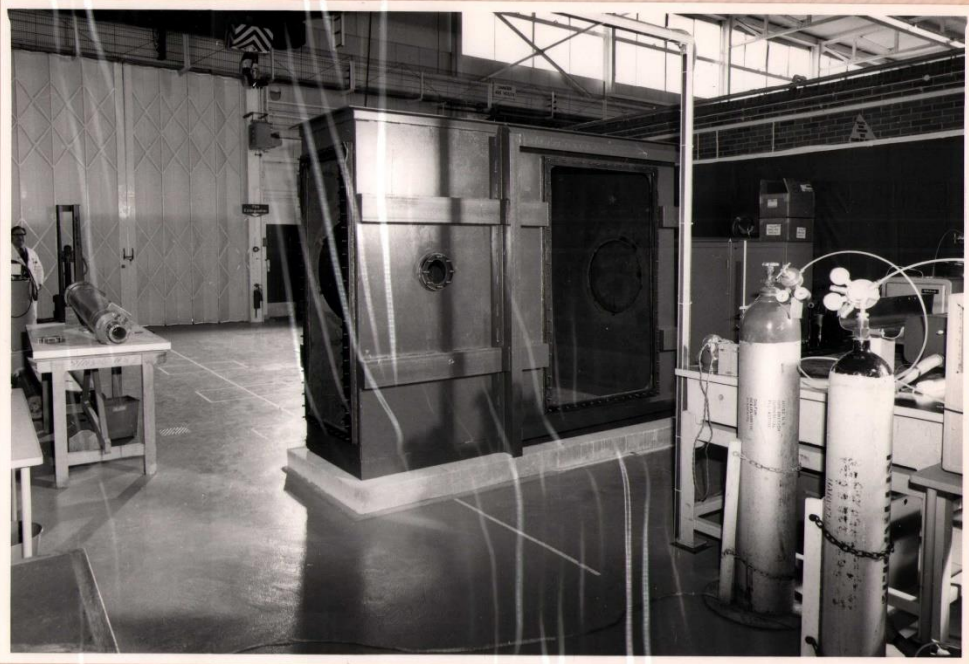


PLATE 4 (NEG. 26220)

Marx oil tank in position on its concrete base. Looking south.
Shows Marx access doors.

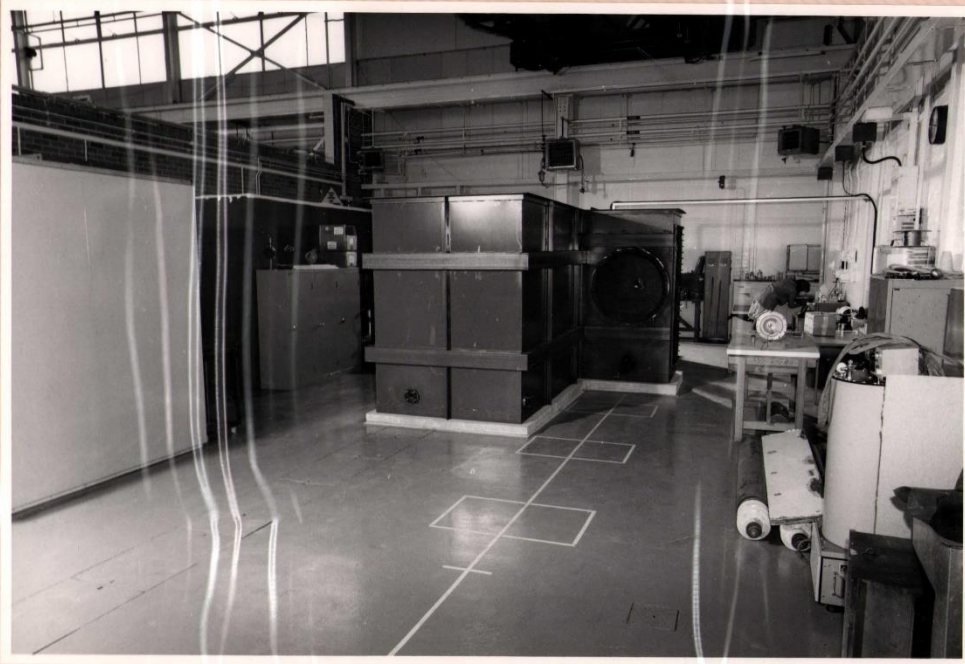


PLATE 5 (NEG 26219)

View of Marx oil tank looking west showing hole on the hole
on the right where Blumlein tube will connect.

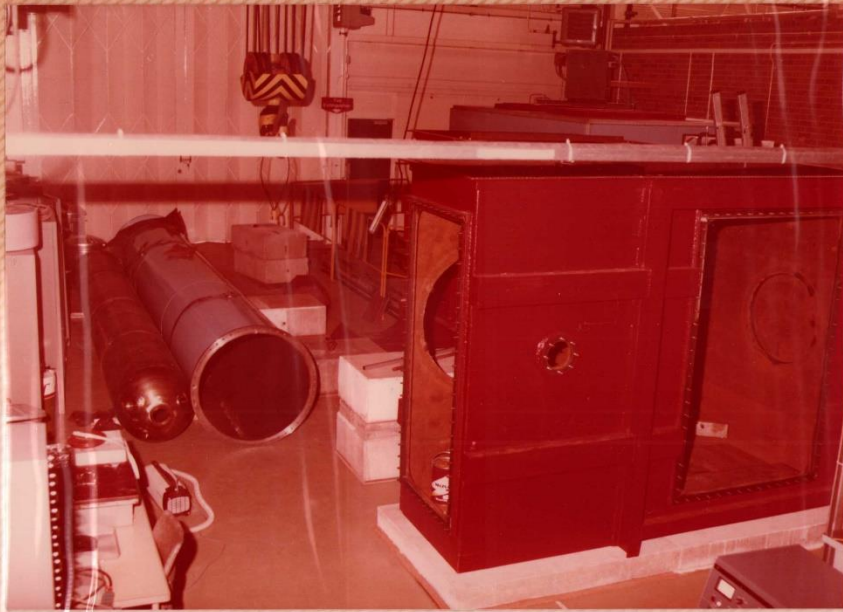


PLATE 6 (NEG. 26286)

Marx tank, Blumlein outer tube
and Blumlein inner tube.

PLATE 7 (NEG. 26287)

As for plate 6 but looking west.
Shows Blumlein support pillars
being positioned.



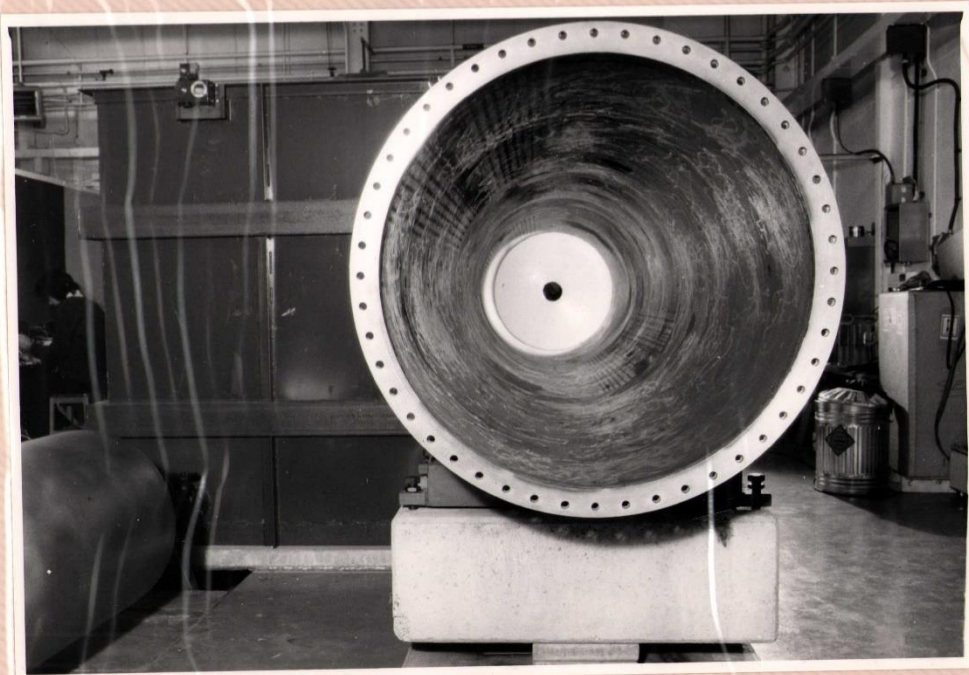


PLATE 8 (NEG. 26361)

View down the bore of the Blumlein outer, looking north.
Shows hole in the back wall of the Marx tank for the Blumlein
switch adjustment control knob.



PLATE 9 (NEG. 26437)

View of Blumlein outer bolted onto Marx tank and resting on its support pillars. Blumlein intermediate tube visible on the left.



PLATE 10 (NEG. 26436)

As for plate 9 but view of ELF looking south.

PLATE 11 (NEG. 26438)

Pair of Marx Capacitors showing
field grading spinning on base
of one of the capacitors.

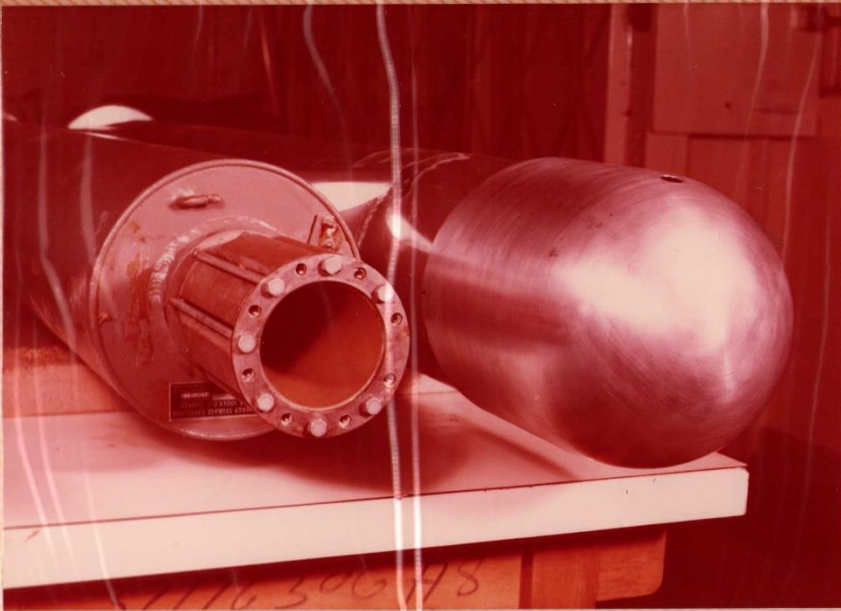
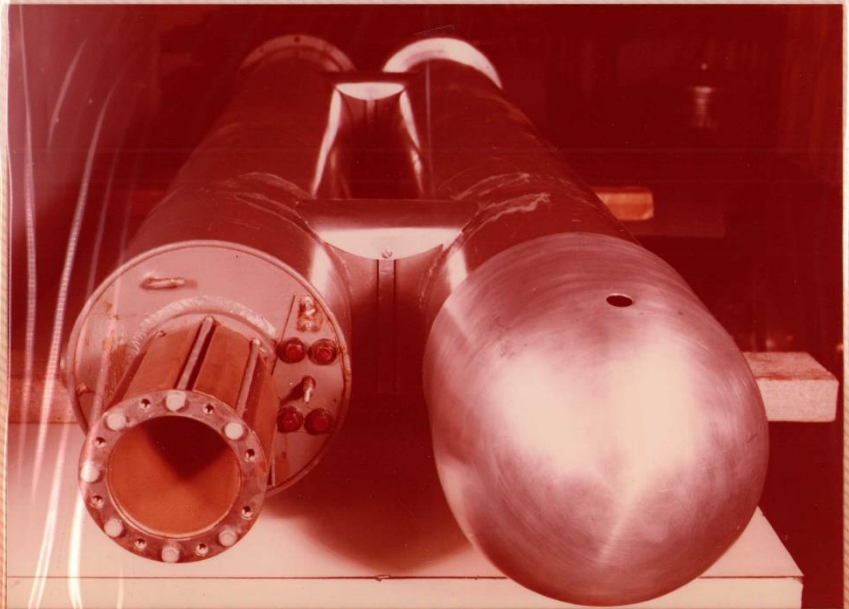


PLATE 12 (NEG. 26439)

As for plate 11 but photographed
from a different angle.



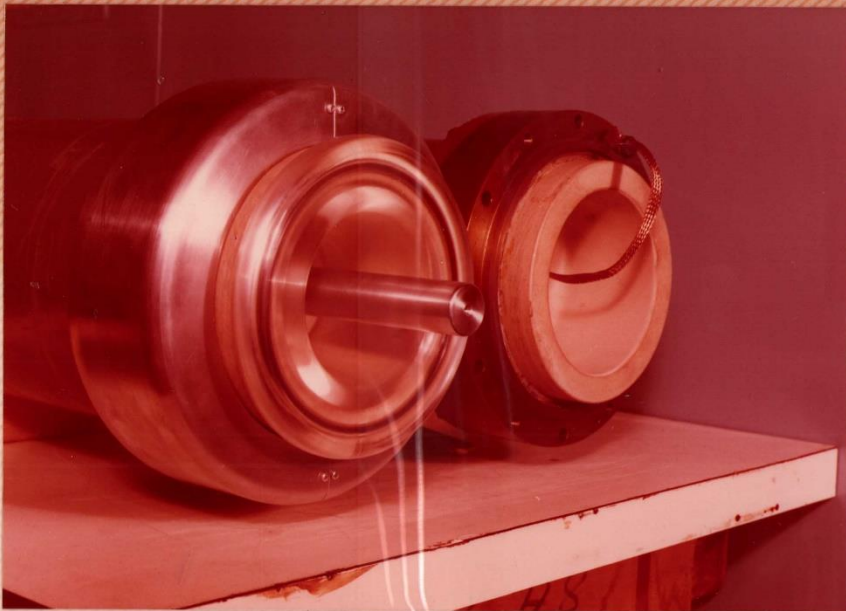


PLATE 13 (NEG. 26440)

Output end of Marx Capacitor pair showing spinning, cup-insert and output connection rod in position in one capacitor.

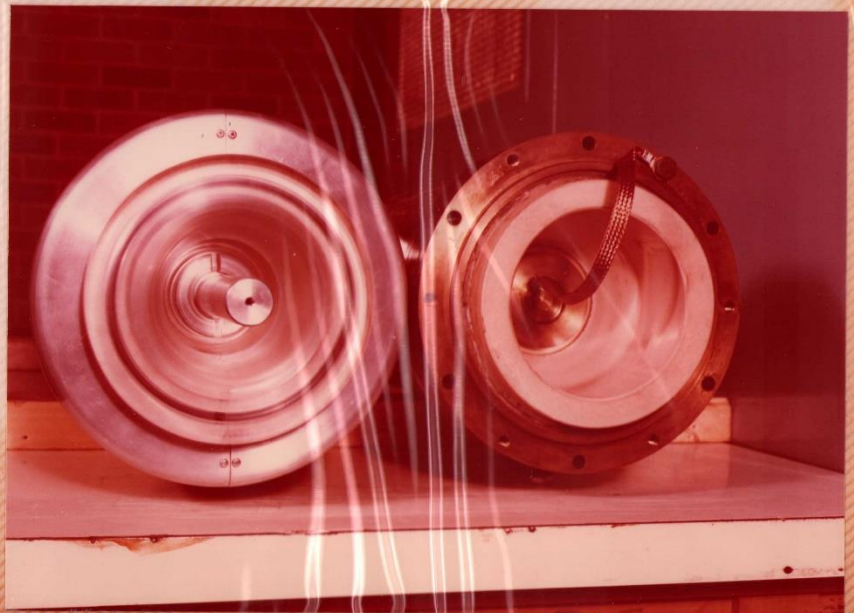


PLATE 14 (NEG. 26441)

As for plate 13 but photographed from a different angle.

PLATE 15 (NEG. 26701)

Complete Marx bank assembled in
Marx tank. Looking south



PLATE 16 (NEG. 26700)

Top view of Marx bank inside Marx
oil tank





PLATE 17 (NEG. 27268)

View of north end of Blumlein.
Shows cone end of intermediate and
inner support pillar.



PLATE 18 (NEG. 26271)

Close-up end of Blumlein. Inner
tube tie rods are visible through
hole in top of intermediate core
end.

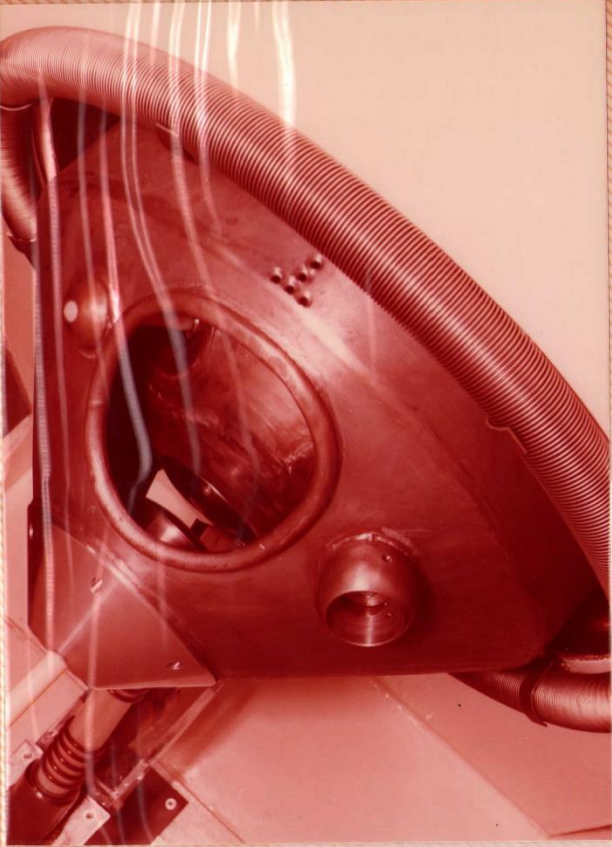


PLATE 19 (NEG. 27340)
View looking down through hole in
top of intermediate cone end
showing Blumlein switch electrodes

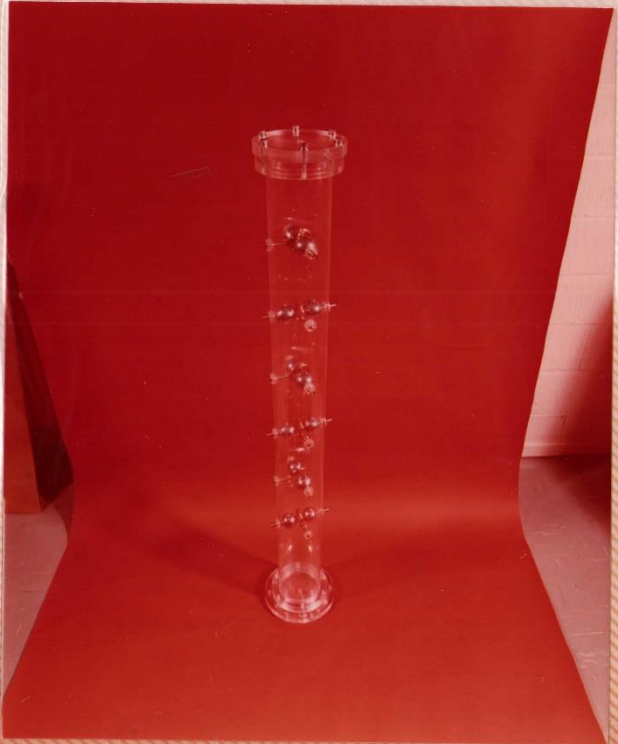


PLATE 20 (NEG. 27554)
Marx spark-gap column

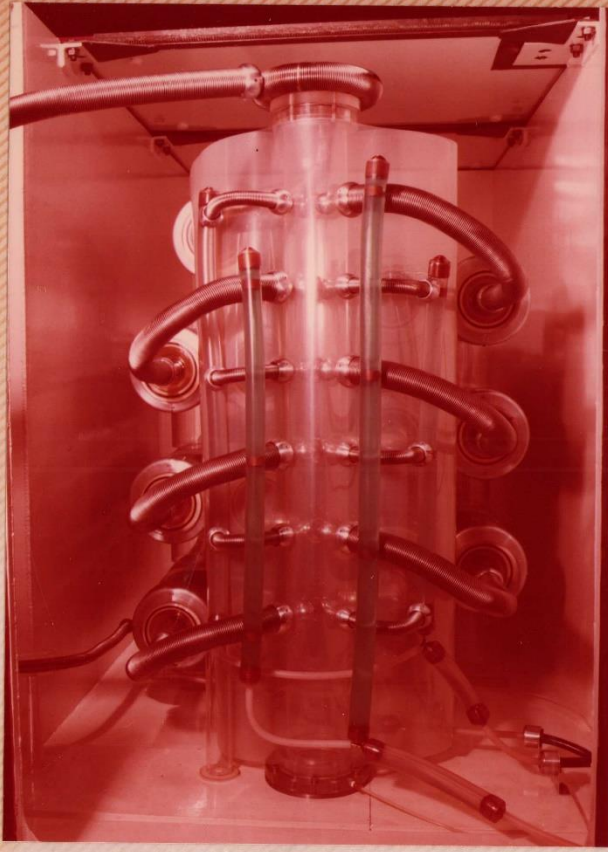


PLATE 21 (NEG. 27812)
End view of Marx bank with
spark-gap column, charging
resistors, and connection
tubes in position.



PLATE 22 (NEG. 27265)
View of south end of Blumlein.
Shows the end of the inner tube
with field shaper and pre-pulse
gaps.

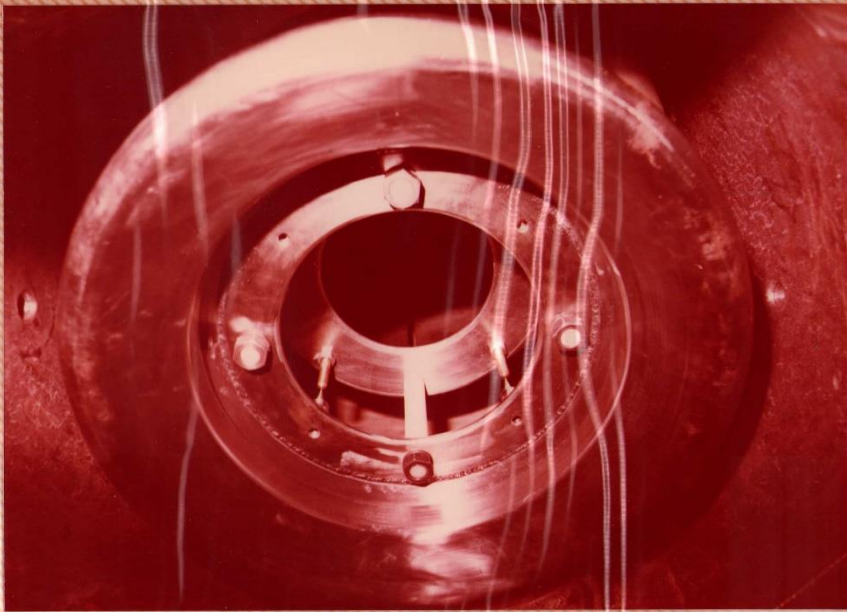


PLATE 23 (NEG. 27269)
As for plate 22 but photographed
from a different angle.



PLATE 24 (NEG. 27811)
Top view of output end of Marx
bank showing connecting tubes
between capacitors and spark-gap
column.

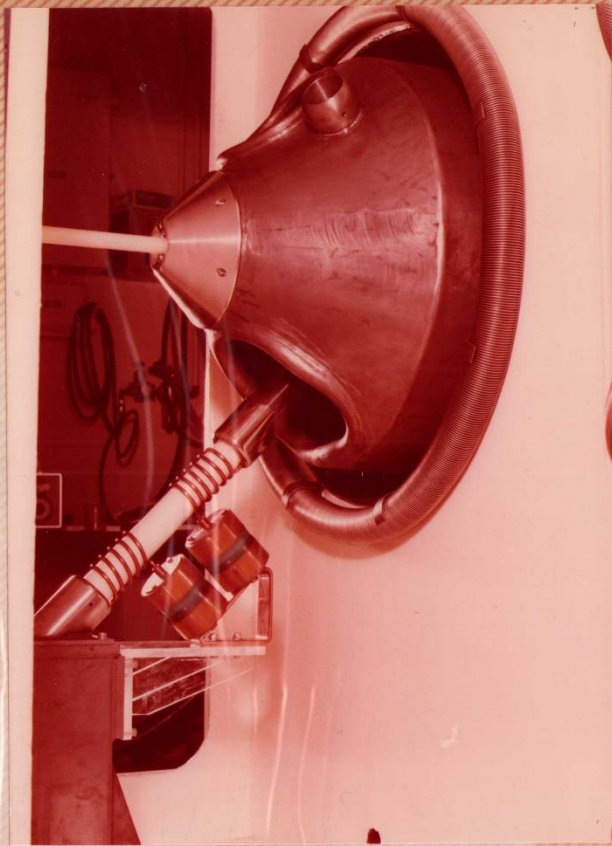


PLATE 25 (NEG. 27336)
North end of Blumlein showing
charging inductors and resistors
in position on the intermediate
line support pillar and also
showing connection rod to Blumlein
switch. Photograph taken looking
east.

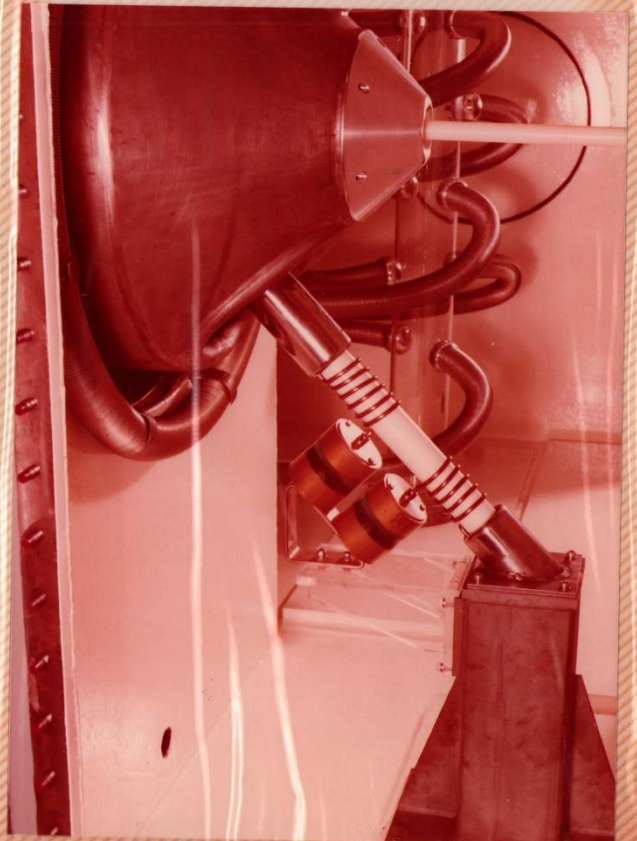


PLATE 26 (NEG. 27337)
As for Plate 25 but photograph
taken looking west.



PLATE 27 (NEG. 27813)
As for plate 25 but with Marx
connecting tubes in place. High
voltage one to cup on Blumlein
intermediate tube. Low voltage
one to charging resistors.



PLATE 28 (NEG. 27266)
Closure plate for south (output)
end of Blumlein.



PLATE 29 (NEG. 27264)
As plate 28 but different view.

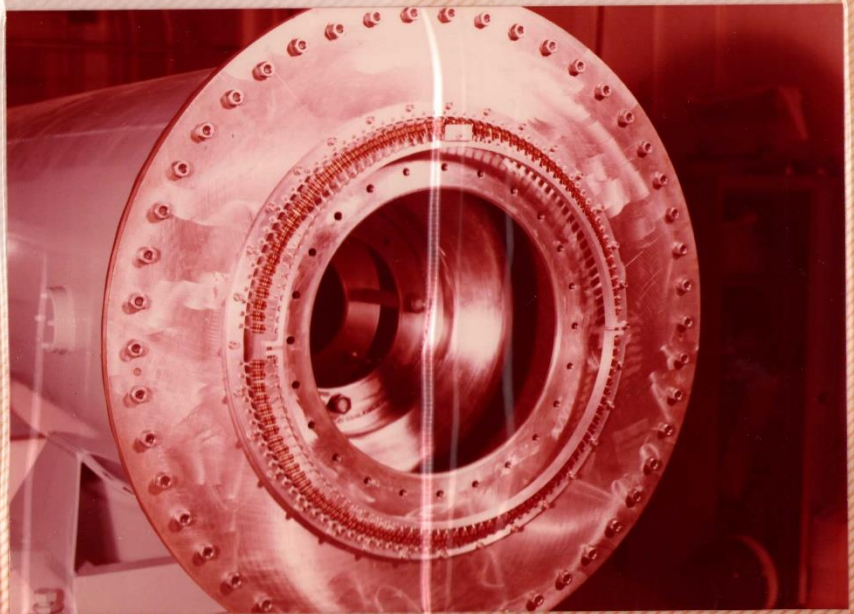


PLATE 30 (NEG. 27341)
Closure plate in position with
diode current monitor resistors
attached.



PLATE 31 (NEG. 27442)
Diode insulator stack.

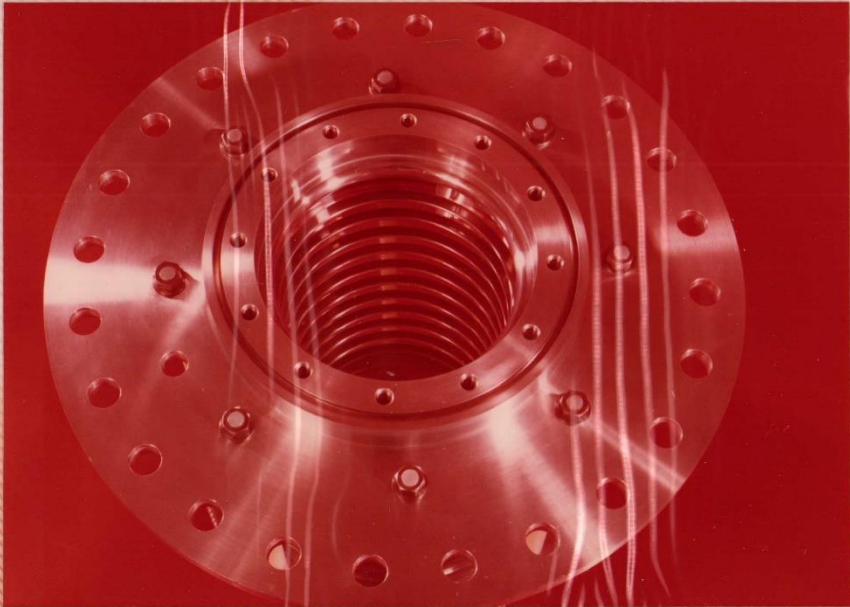


PLATE 32 (NEG. 27437)
Diode insulator stack.
View of inside.

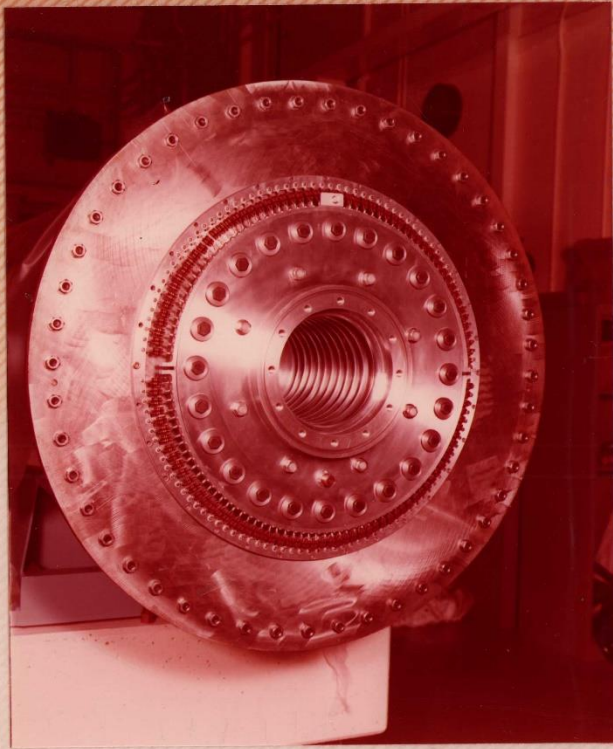


PLATE 33 (NEG. 27439)
Diode insulator stack inserted
into Blumlein Closure plate.

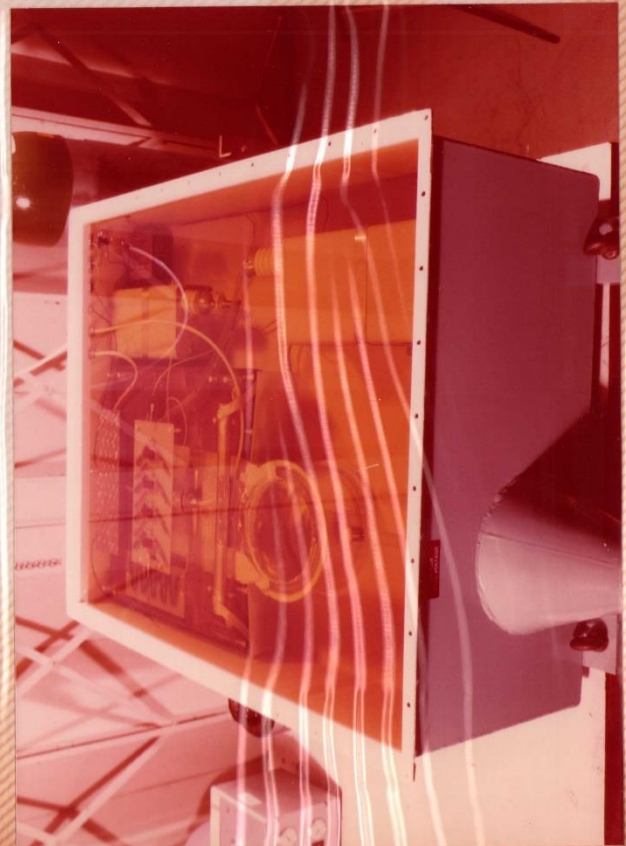


PLATE 34 (NEG. 27814)
Marx trigger generator filled
with insulating oil.

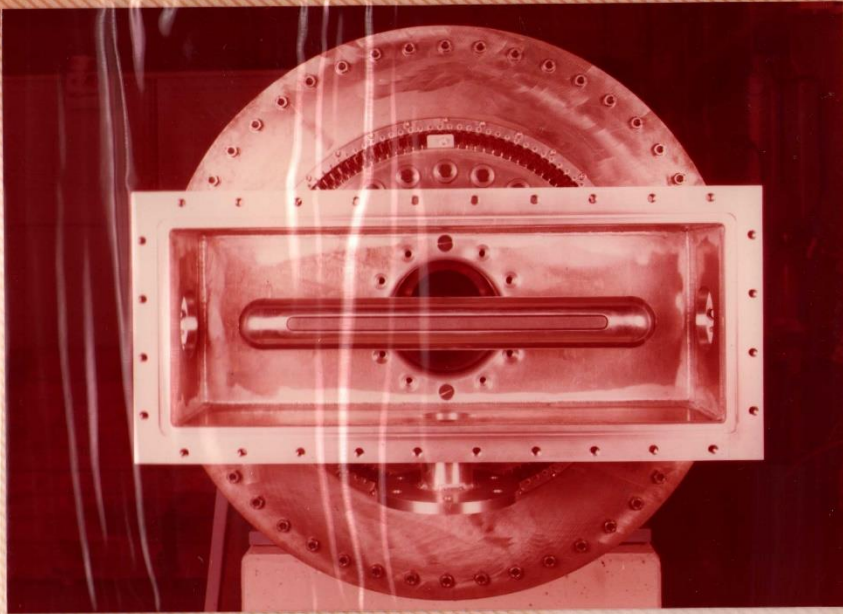


PLATE 35 (NEG. 27810)
Diode vacuum box and diode
connected to end of Blumlein.

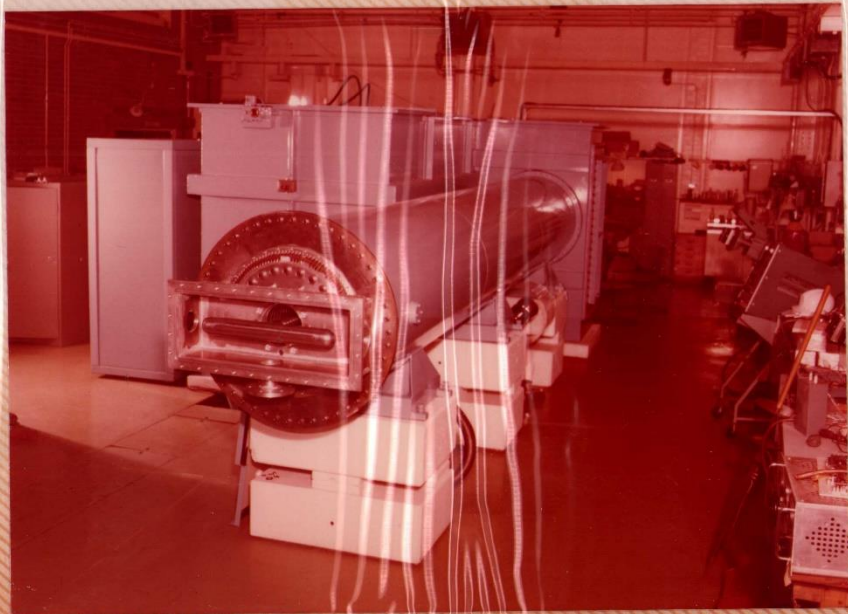


PLATE 36 (NEG. 27815)
Overall view of machine looking
west. Note pumping port on bottom
of diode box.

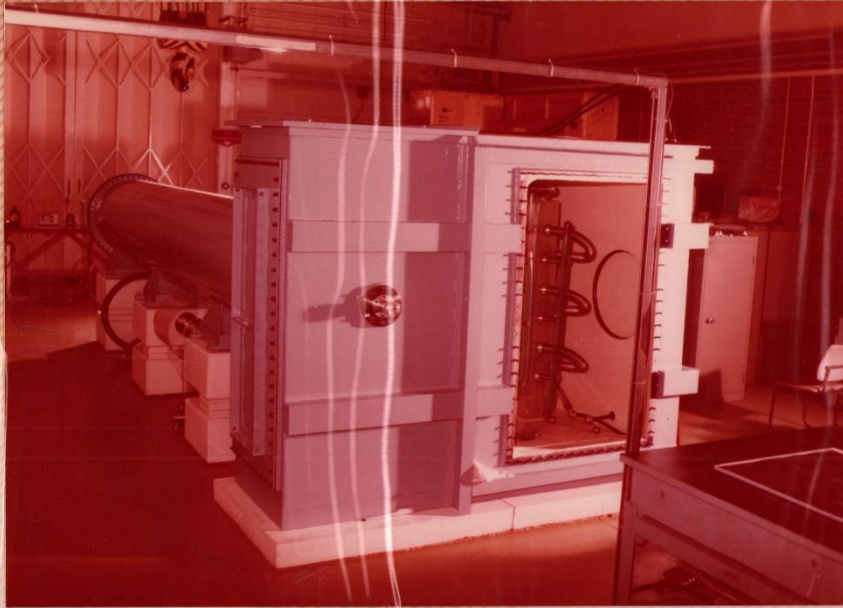


PLATE 37 (NEG. 27818)
View of machine looking south.
One Marx access door in position.
Also note large knob for external
adjustment of Blumlein switch
spacing.

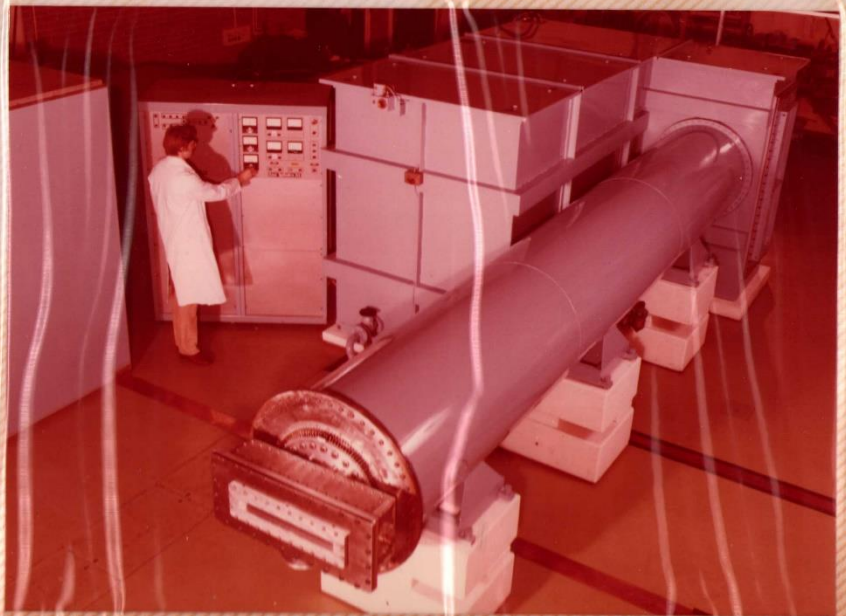
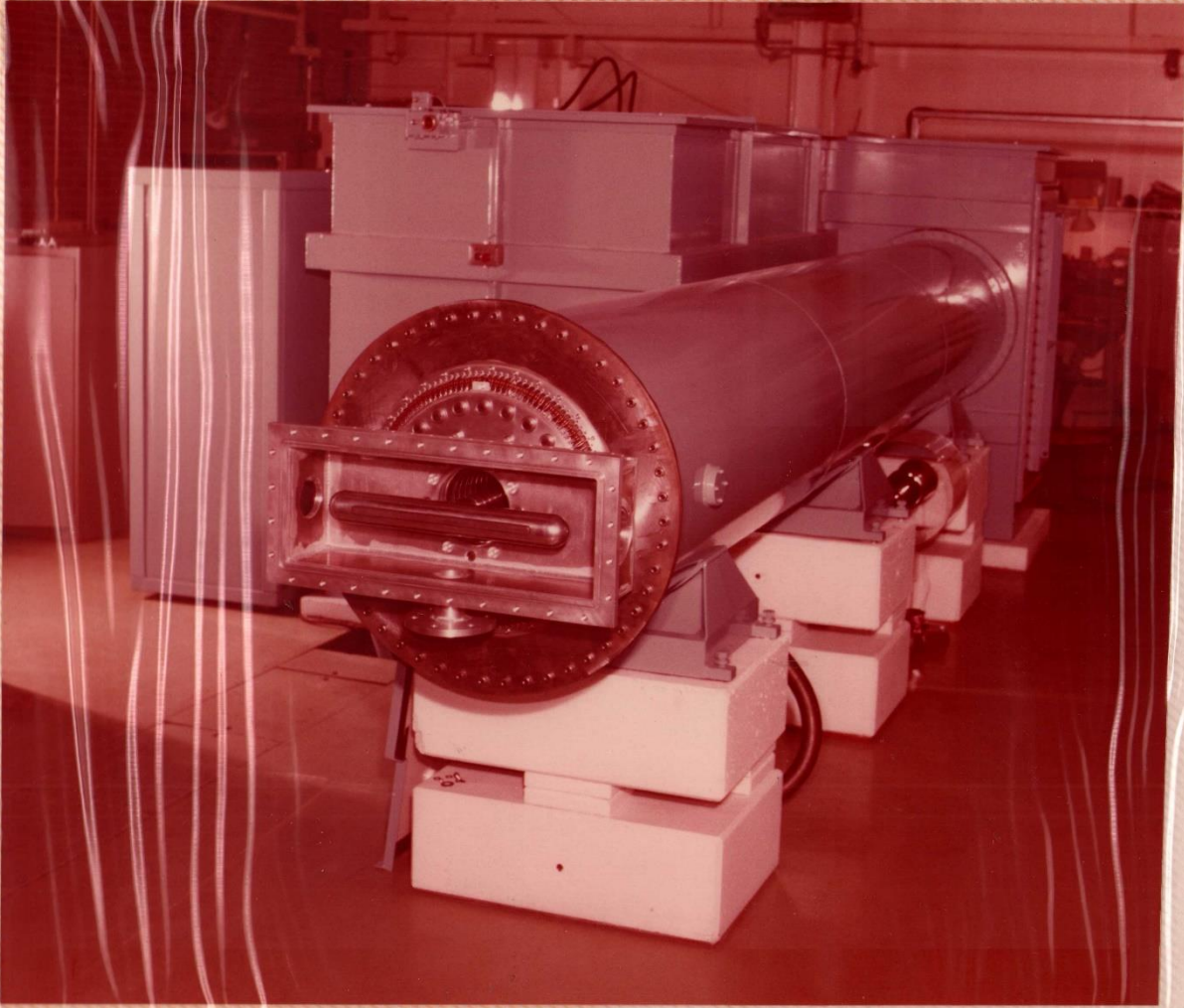
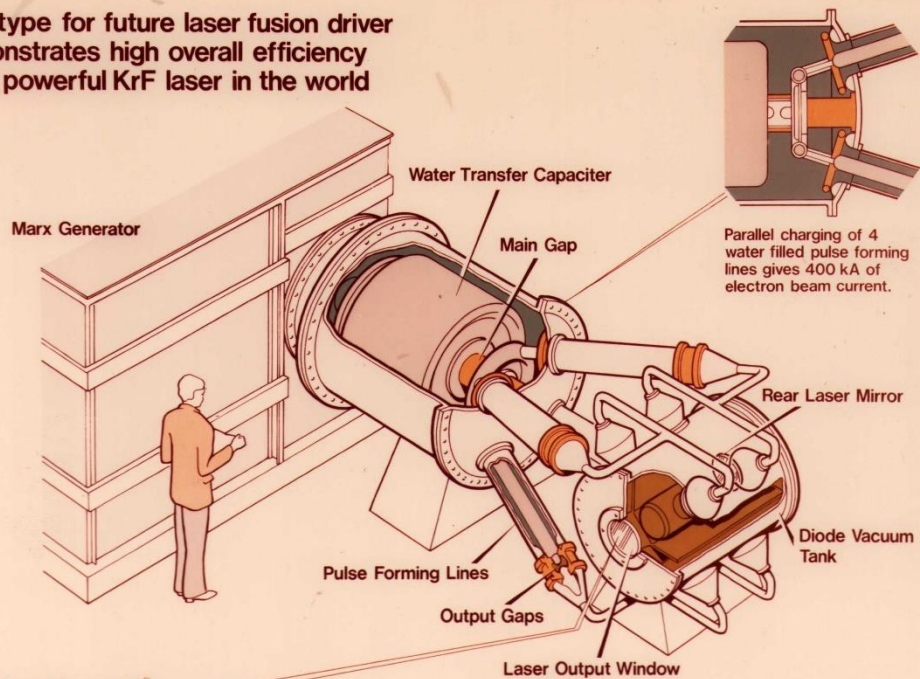


PLATE 38 (NEG. 28254)
Complete machine and charging
unit. Concrete shielding and
safety enclosure not in position
at this stage.



Sprite-a 200 J KrF Laser

- Prototype for future laser fusion driver
- Demonstrates high overall efficiency
- Most powerful KrF laser in the world

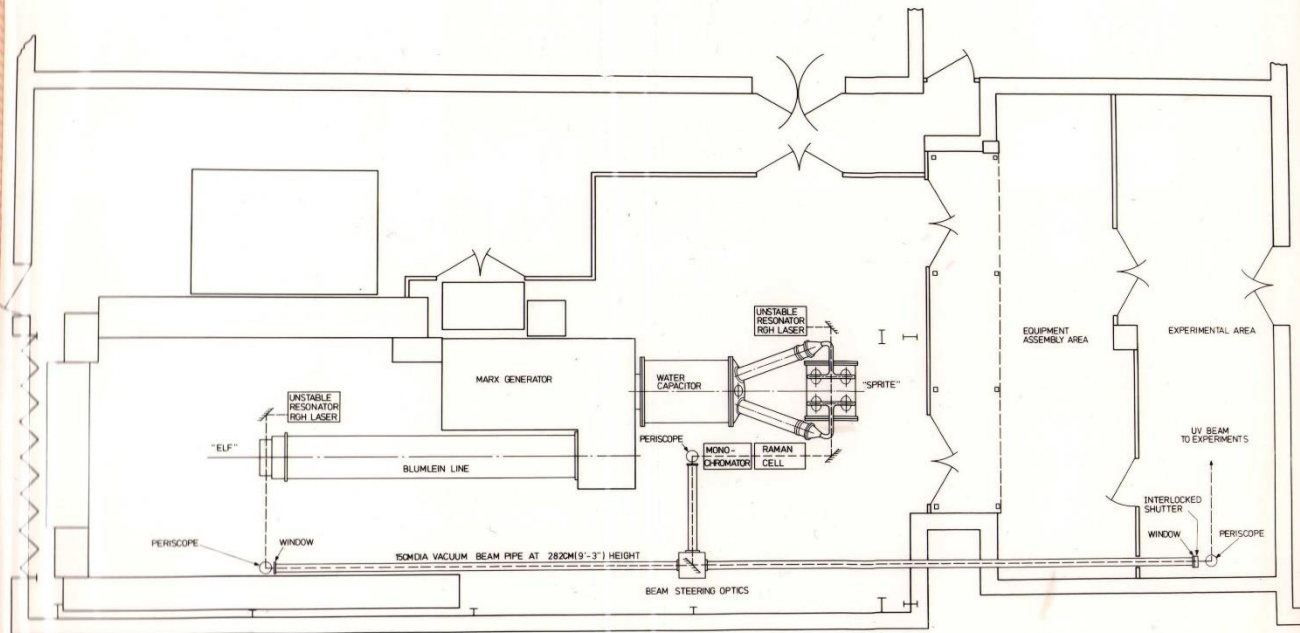


4 sided pumping ensures laser beam uniformity

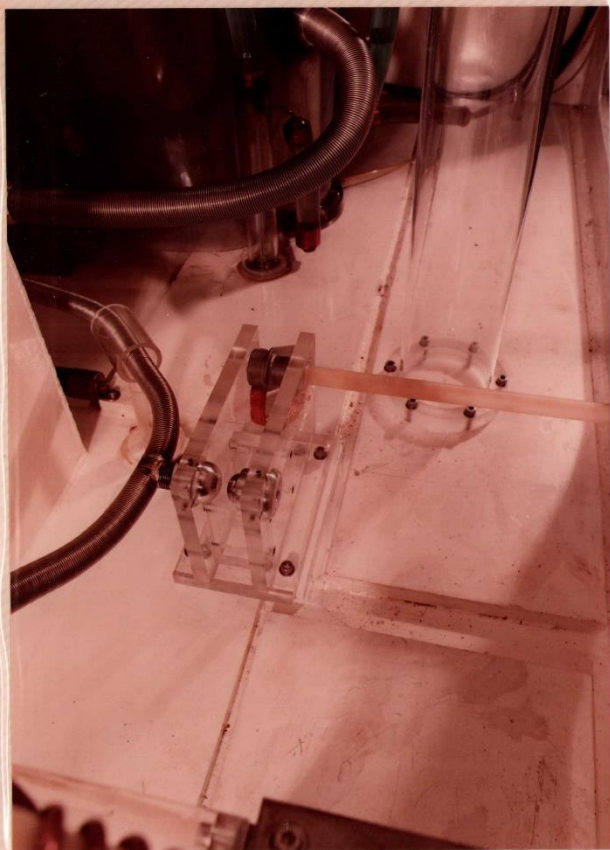
■ Metal
■ Insulator
■ Water
■ Vacuum/gas

'Sprite' laser design characteristics

E-beam voltage	450 kV
Pulse duration	60 ns
Impedance	50 /diode, 4 diodes
	1.2 Ω overall
Pumping Configuration	4 sided, transverse
	no external B-field
Laser volume	25 cm (dia) x 75 cm (long)
Specific pump rate	-1.5 MW/cm ³
KrF laser output	>200 J (500 J max)
Overall KrF laser efficiency	>1% (3% max)



HIGH POWER UV RADIATION FACILITY - BEAM LAYOUT



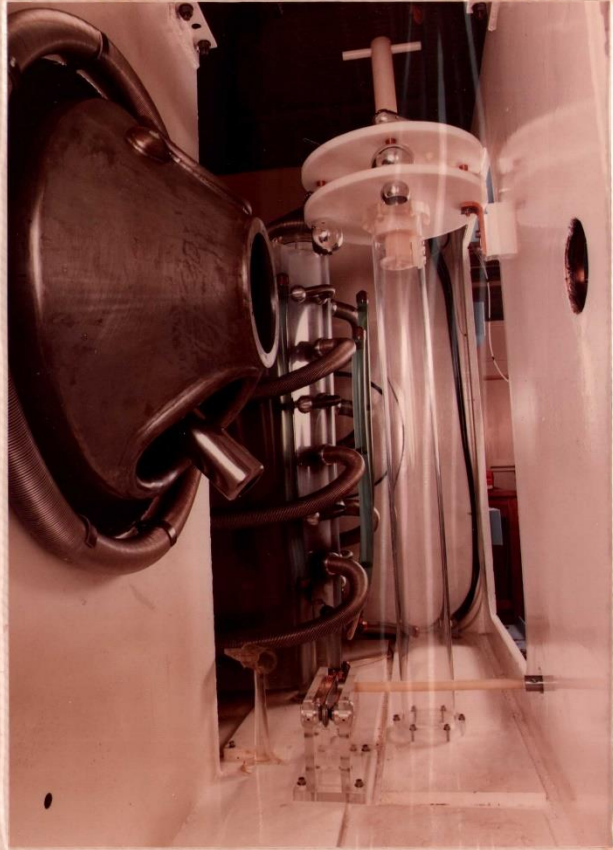
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