R.F. BOOK

RF Note 70

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K800 RF System Again

Time is rapidly passing and not enough is being done on the design of the K800 rf resonators! To be sure we have a conceptual design and certain features are in good shape. The transmitter offers no problem. The low level circuits will be copies of the K500 system. The problem areas are:

1. Can we hold 200 kV with the present design?
2. Can moving shorts in vacuum with linear current densities of 80 amps/cm survive?
3. Is it possible to use an insulator as in the K500 design to permit the shorts to be in air and thus easily accessable?

It is avered that these problems should be attacked! And soon.

In RF Note 64, I talked about building a vacuum test facility for the K800 and I believe this should exist within 6 or 8 months. Of course the prototype transmitter should exist then too so we can test it.

The principle empetus for writing this note is due to a comment from H.B. that it would be nice if we could use an insulator as in the K500. I agree that it would be nice; further, I think it is possible. Extrapolating from the experience at FNAL I conclude that the insulators will not overheat if enough air is blown on them. The next problem is to hold the voltage on the air side and with the space available this is also possible. Therefore, I propose that in the vacuum test facility we include provision for testing the insulator design.

Therefore I propose that we build the test facility of Fig. 1 which can test both schemes.

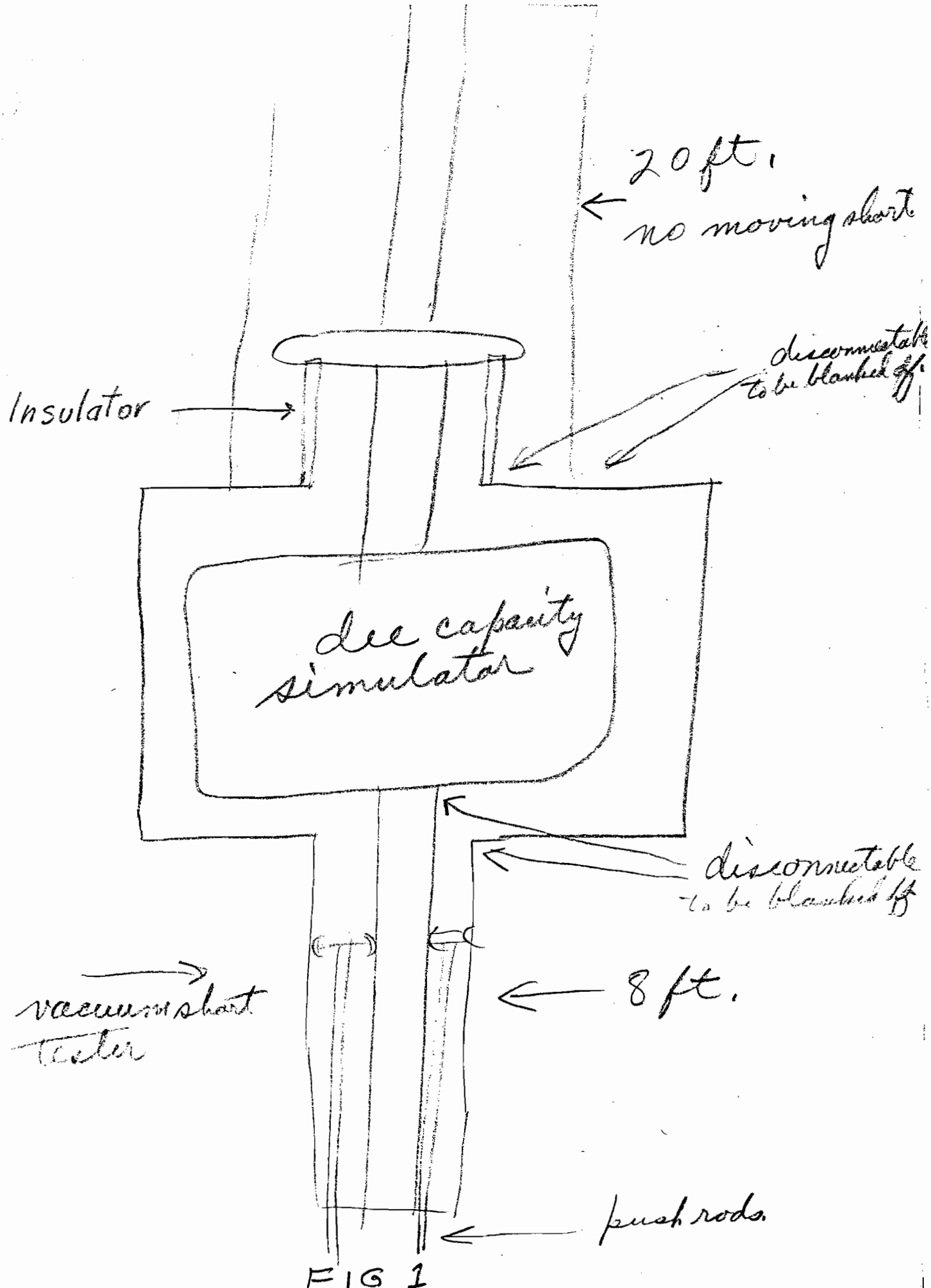
20 ft.
no moving short
Insulator
disconnectable
to be blanked off
dee capacity
simulator
disconnectable
to be blanked off
vacuum short
tester
8 ft.
push rods.

FIG 1