

## References

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Figure 1 EARLY KIRLIAN DEVICE

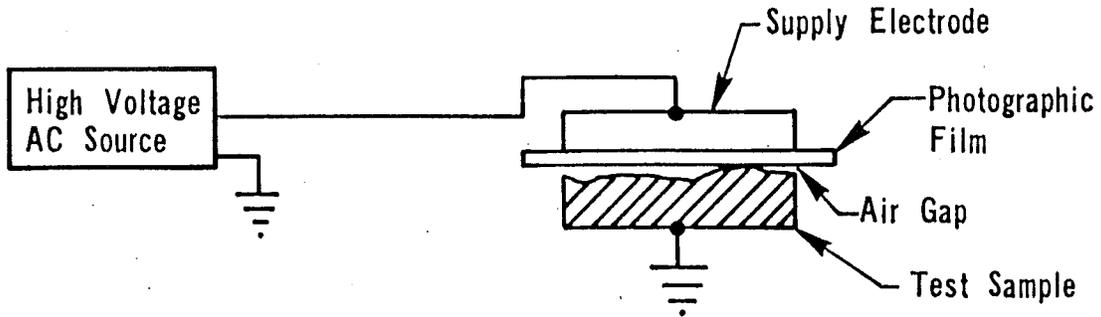


Figure 2 SCHEMATIC OF MOSS AND JOHNSON DEVICE

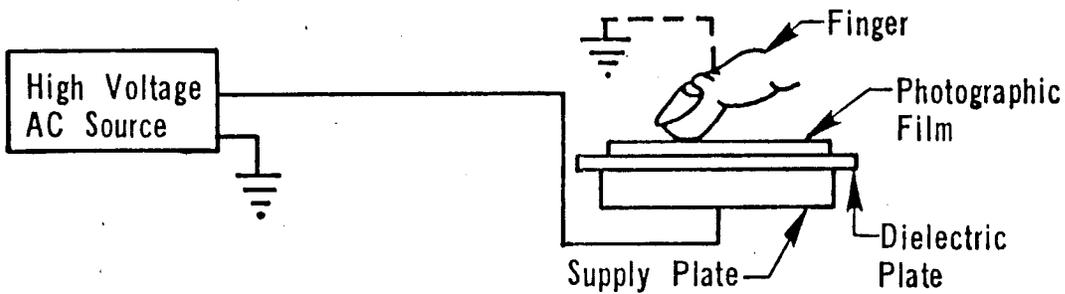


Figure 5 SCHEMATIC OF LORD AND PETRINI'S ADVANCED VACUUM APPARATUS

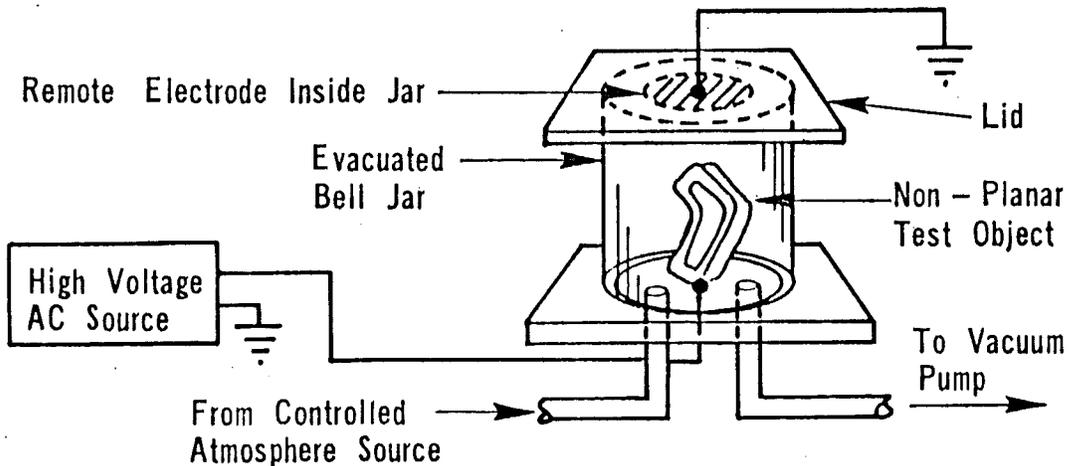


Figure 3

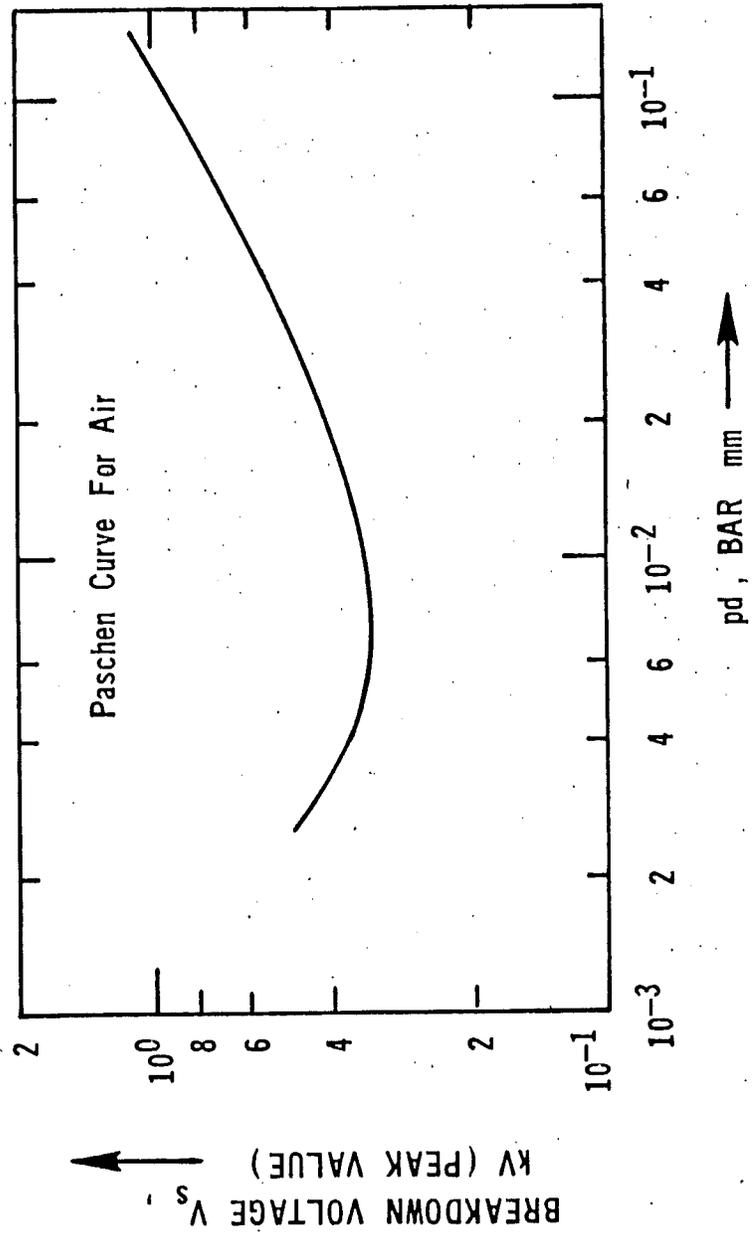


Figure 4

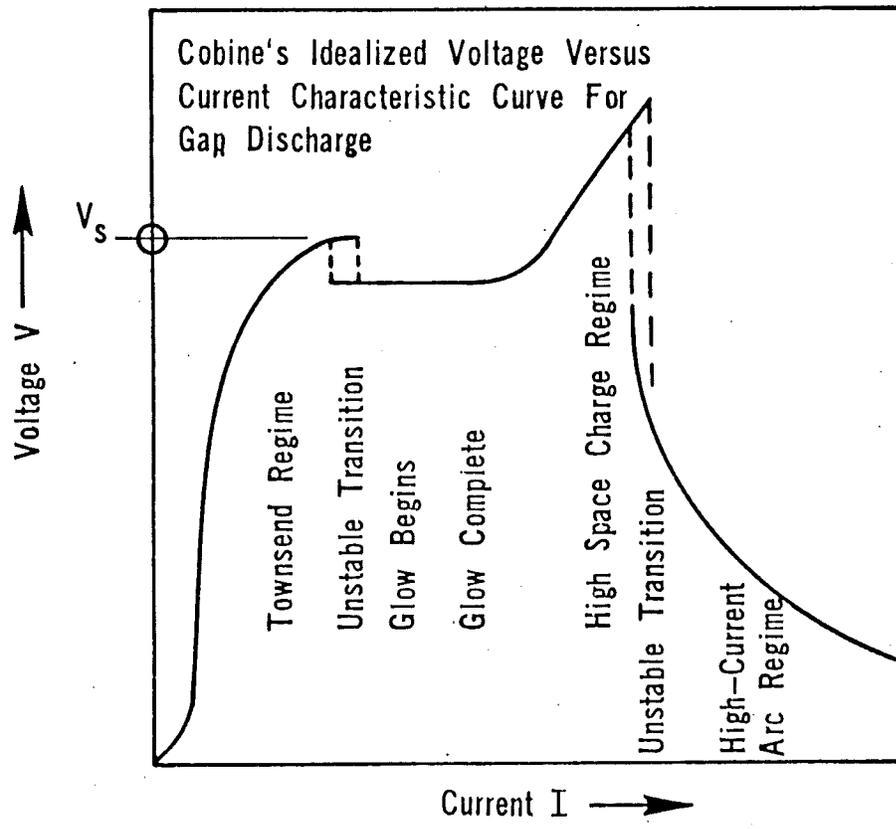
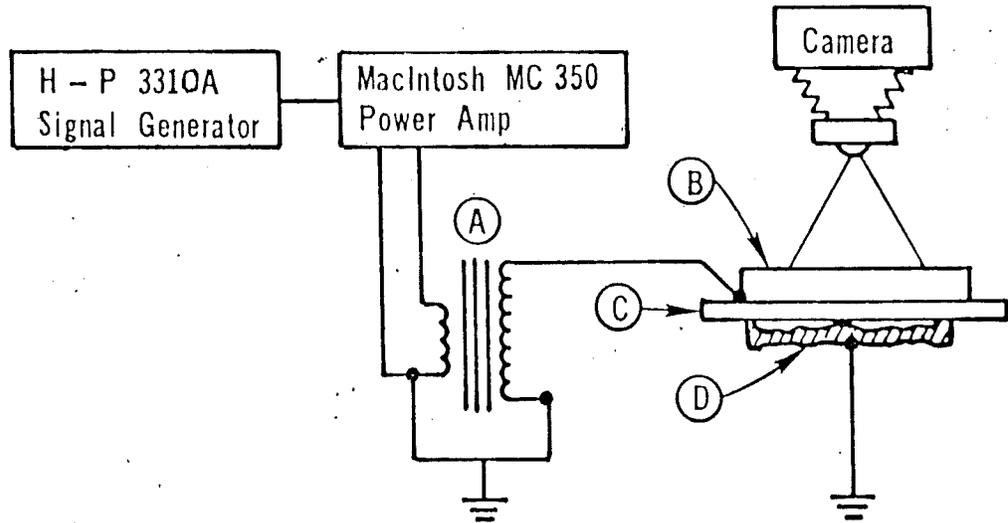


Figure 6

## REMOTE CAMERA METHOD SCHEMATIC



- A-Automobile ignition coil
- B-Glass electrode w/attached high voltage line
- C-Mylar dielectric (thickness not to scale)
- D-Silver dollar (shown in cross-section to indicate air gaps next to mylar)

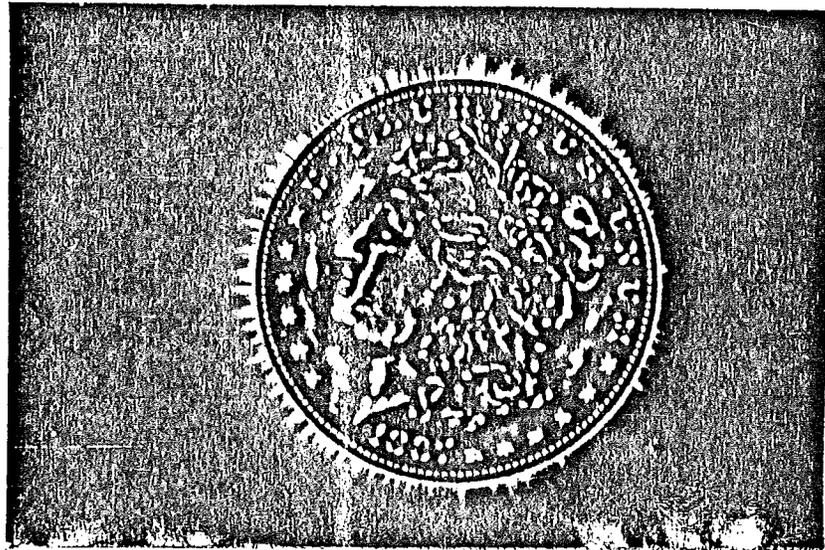
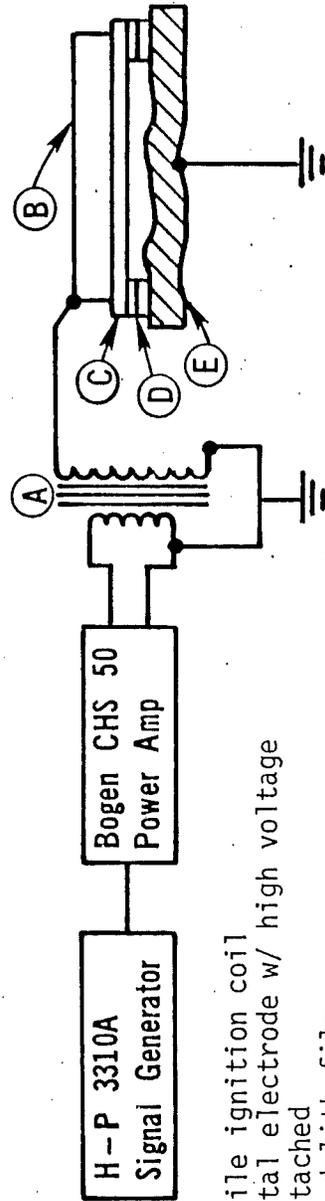


Figure 7

EARLY DIRECT (CONTACT MODE) CAMERA-LESS METHOD



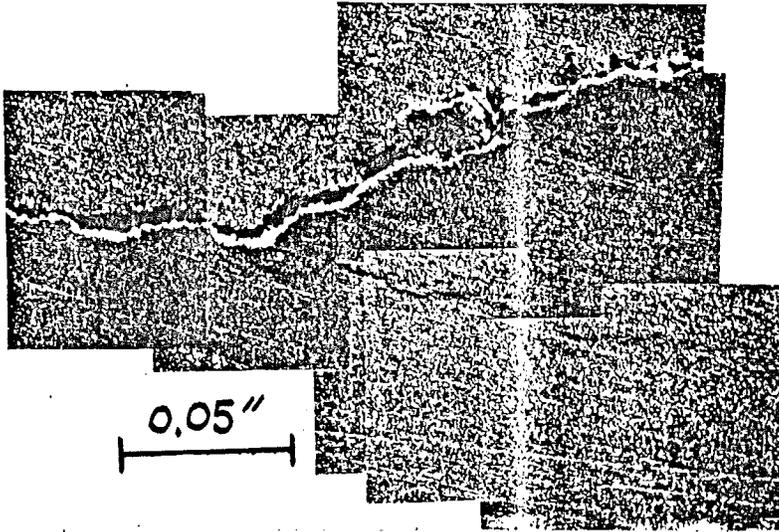
- A-Automobile ignition coil
- B-Flat metal electrode w/ high voltage lead attached
- C-Kodak Kodalith film
- D-Two layers of adhesive tape, thickness not to scale
- E-Aluminum plate sample, shown in cross section to indicate warpage (exaggerated for clarity)



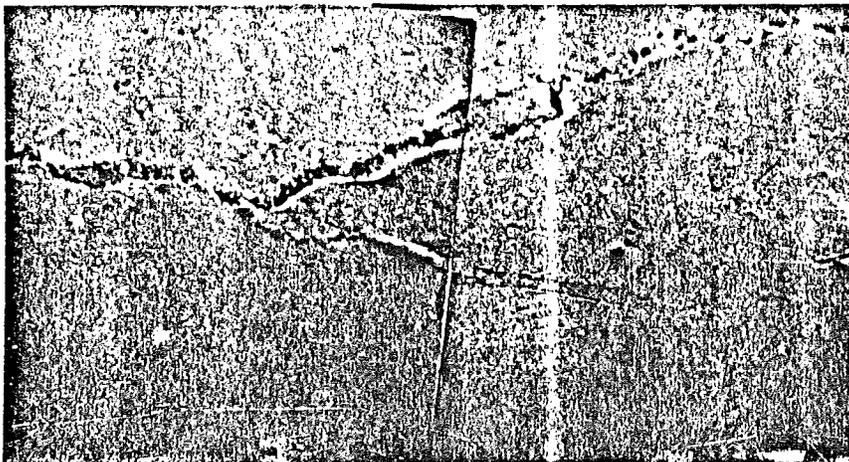
Figure 8



Electrical  
Discharge  
Image



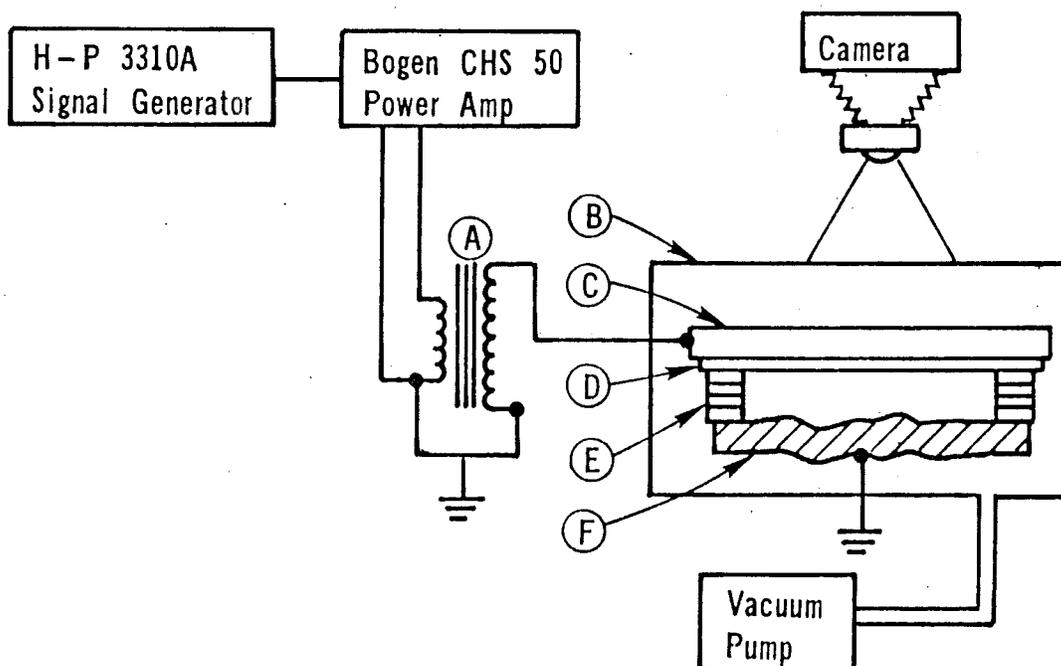
Conventional  
Light  
Microscopy



Scanning  
Electron  
Microscopy

Figure 9

## VACUUM CHAMBER/REMOTE CAMERA METHOD

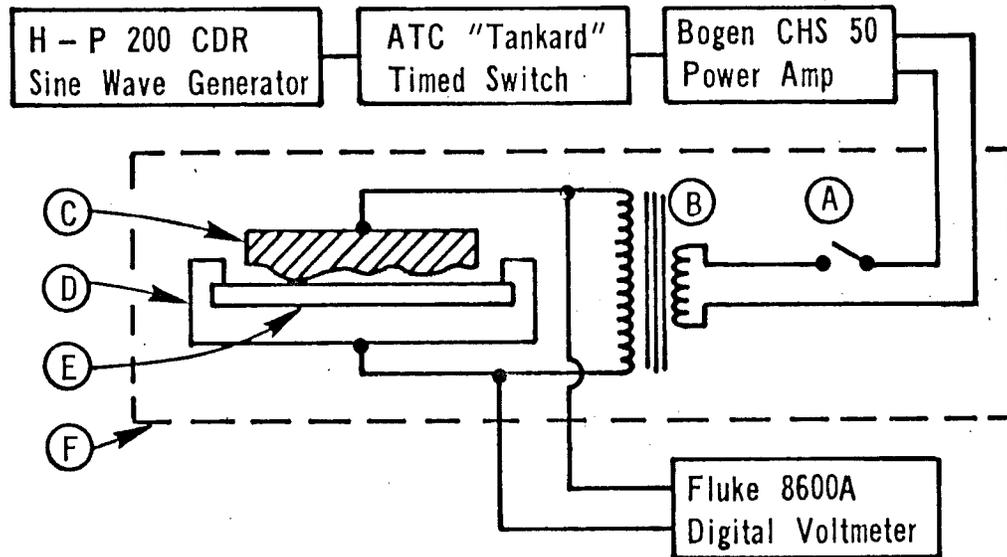


- A-Automobile ignition coil
- B-Vacuum chamber w/ transparent lid
- C-Glass electrode w/ attached high voltage line
- D-Mylar dielectric (thickness not to scale)
- E-Four layers of adhesive tape (thickness not to scale)
- F-Aluminum plate sample, shown in cross section to indicate warpage (exaggerated for clarity)



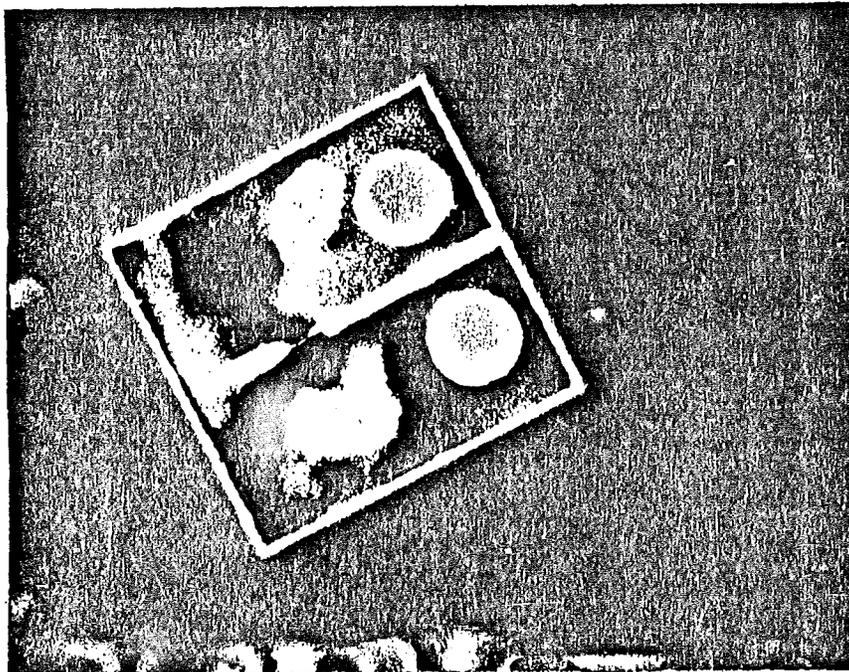
Figure 10

## REFINED DIRECT CONTACT APPARATUS

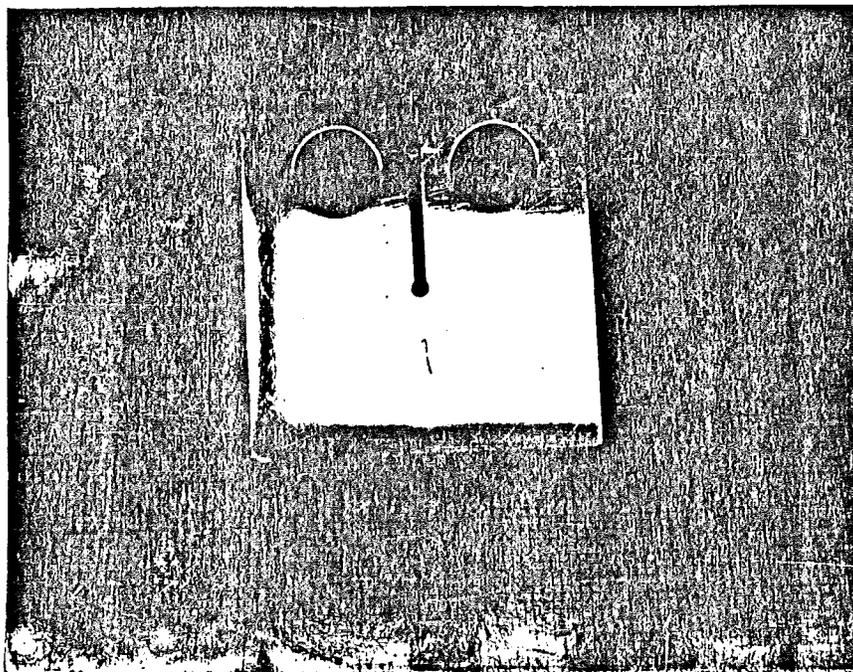


- A-Safety interlock microswitch
- B-Altec-Lansing audio output transformer
- C-Test sample, shown in cross-section, w/ high voltage line attached
- D-Polaroid #545 land film holder
- E-Polaroid type 57 film, in holder
- F-Plastic safety box, removal of lid opens microswitch "A"

Figure 11



Electrical  
Discharge  
Image



Ordinary  
Light Photo

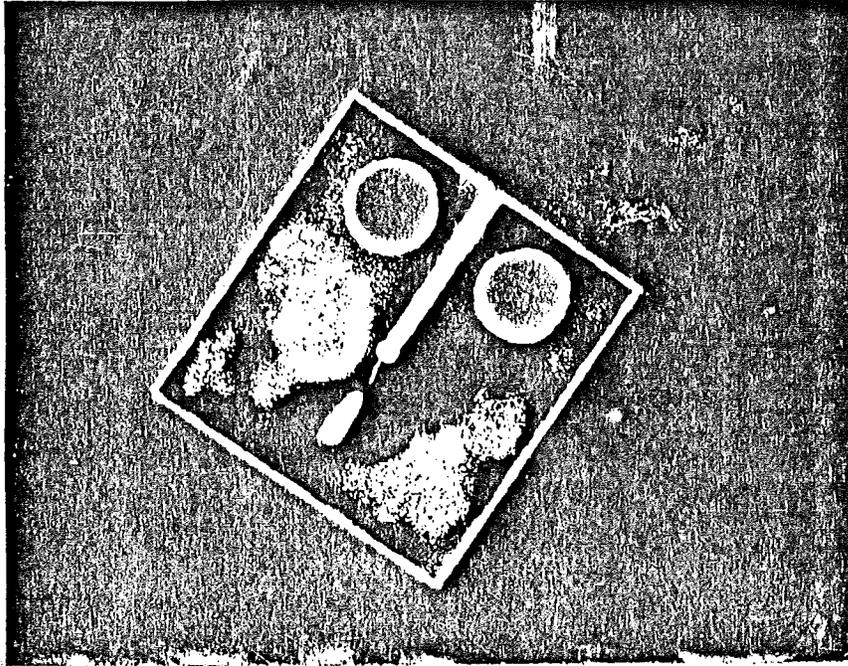


Figure 12a

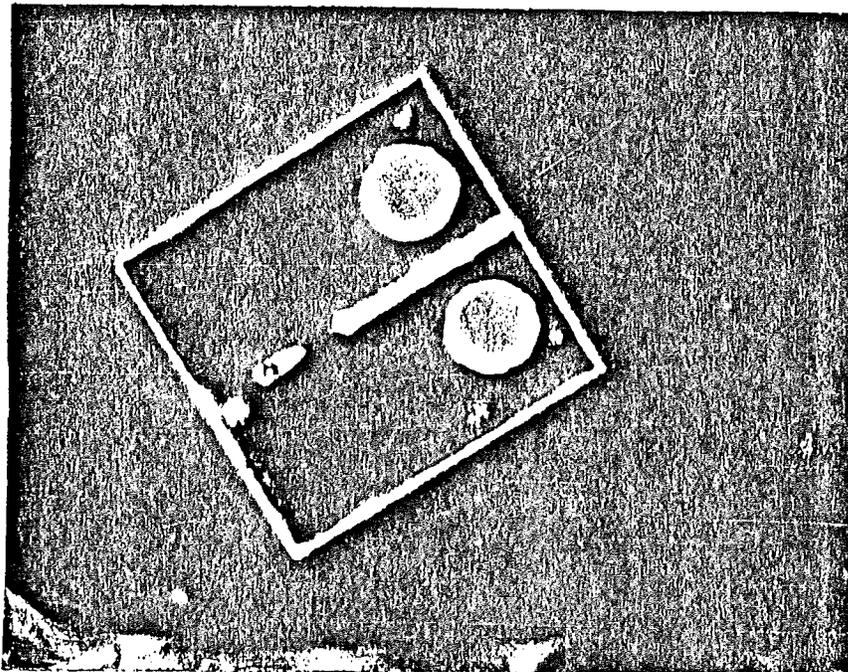


Figure 12b

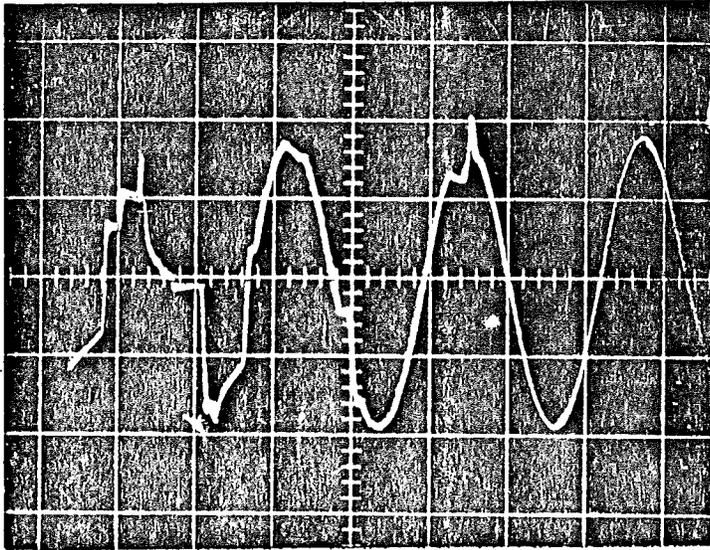


Figure 13a

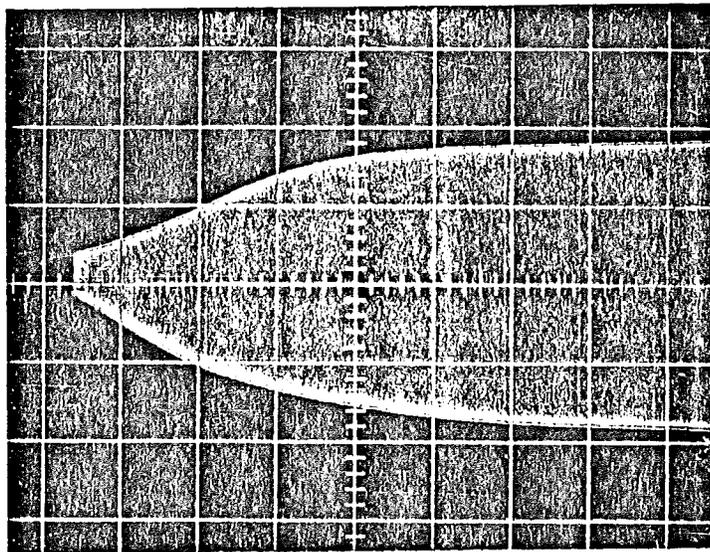


Figure 13b

Figure 14

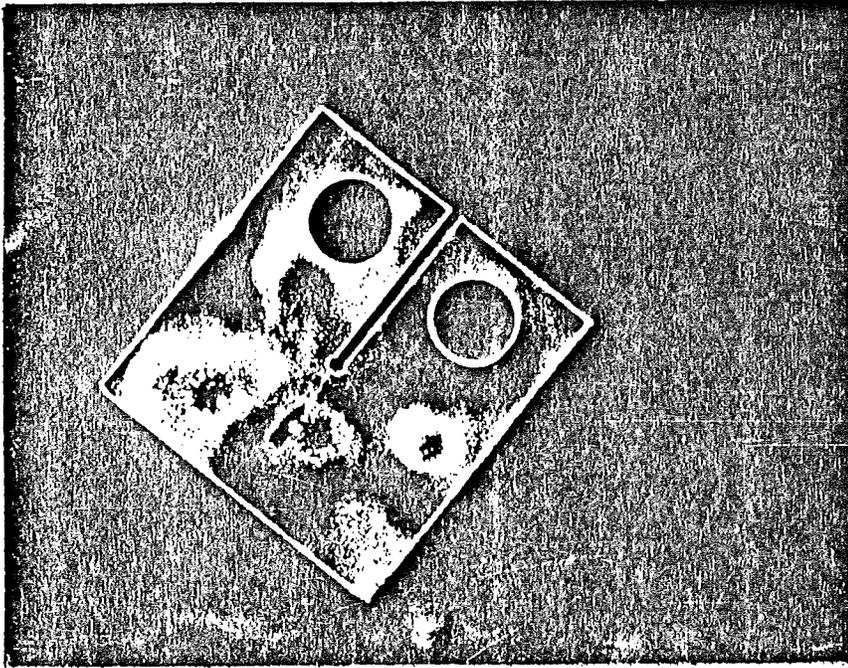
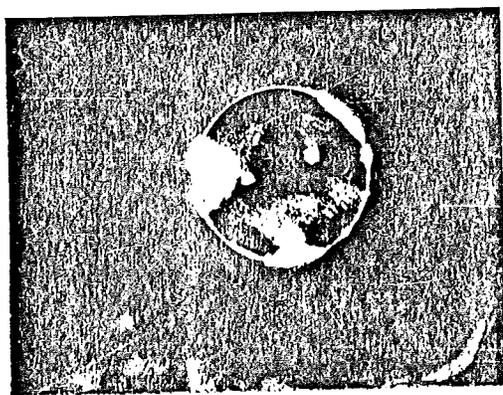
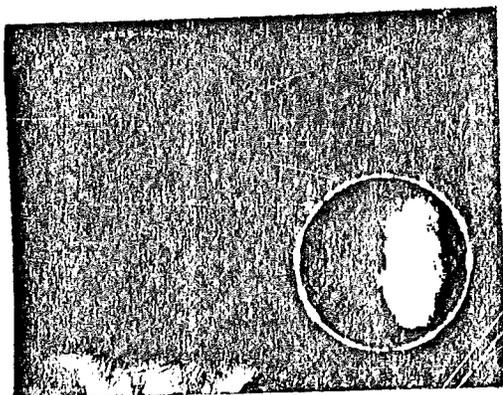
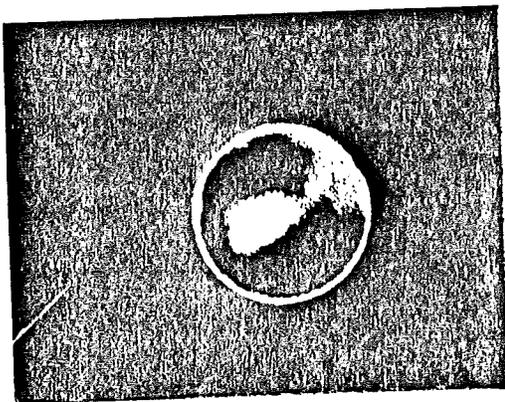


Figure 15

Electrical  
Discharge  
Images



Corresponding  
Interferometry  
Photographs

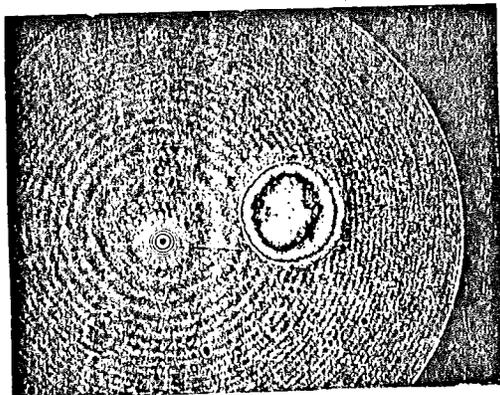
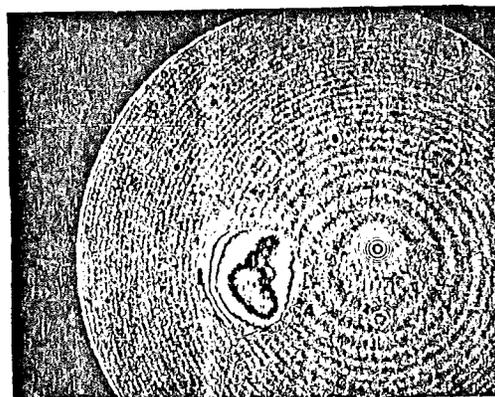
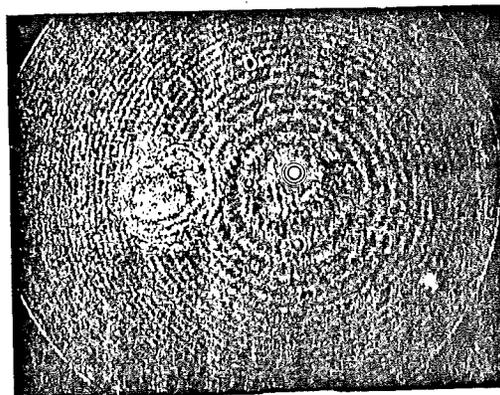


Figure 16

TAPERED GROOVE VARIABLE  
AIR GAP TEST SAMPLE

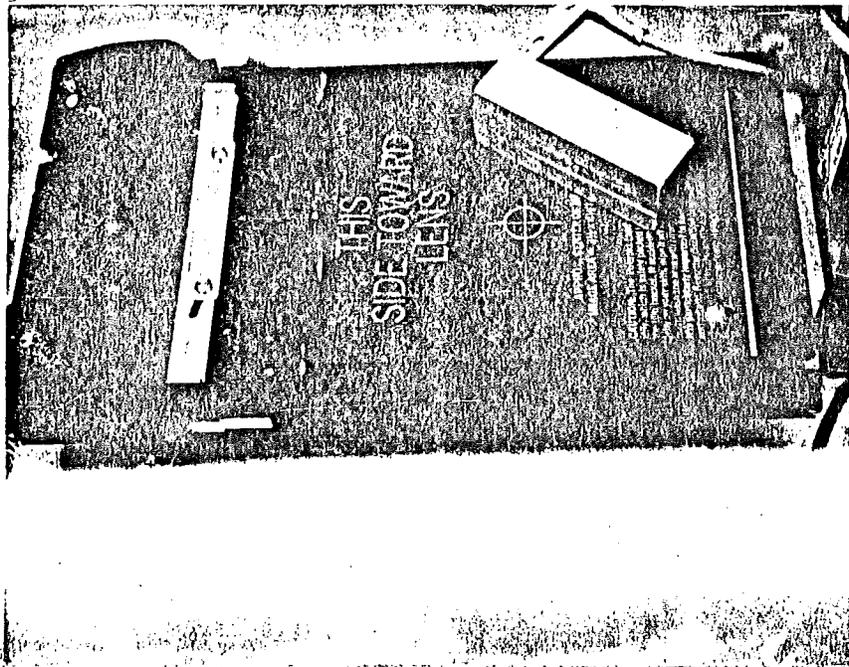
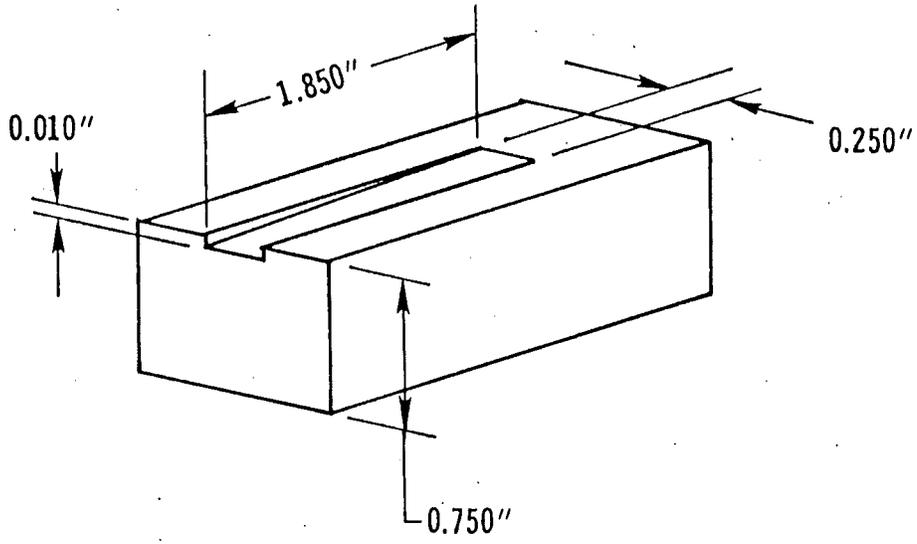


Figure 17

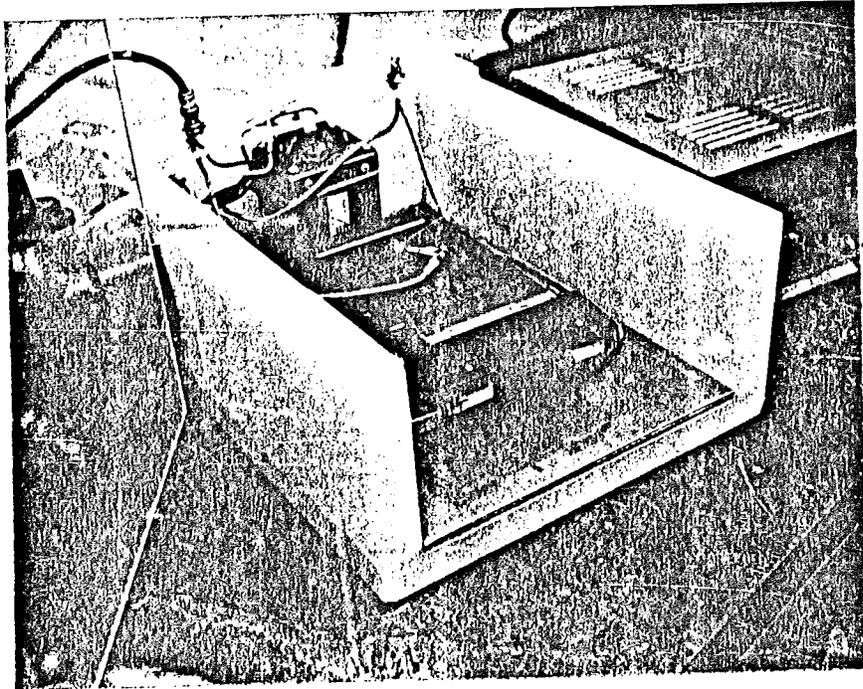
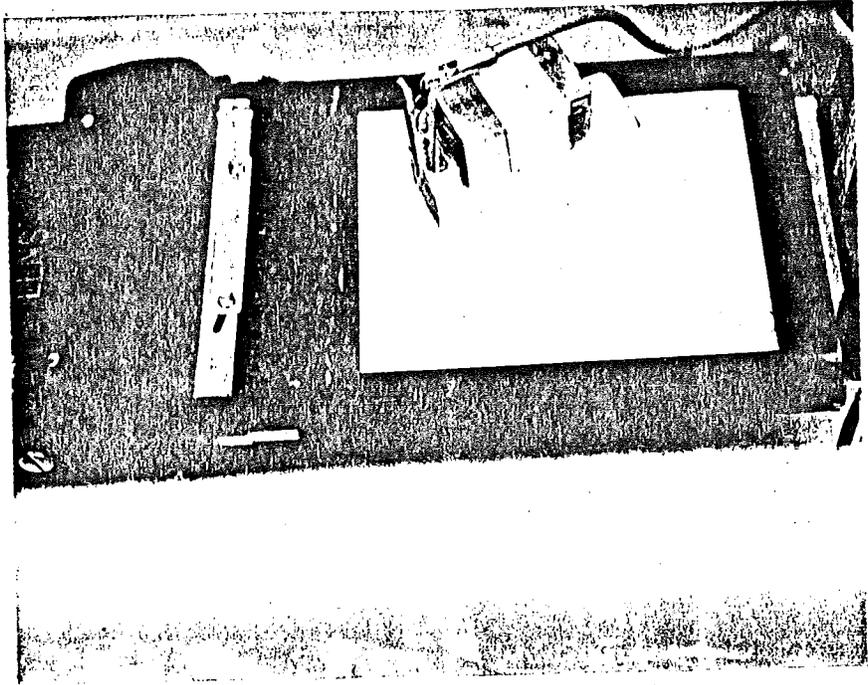
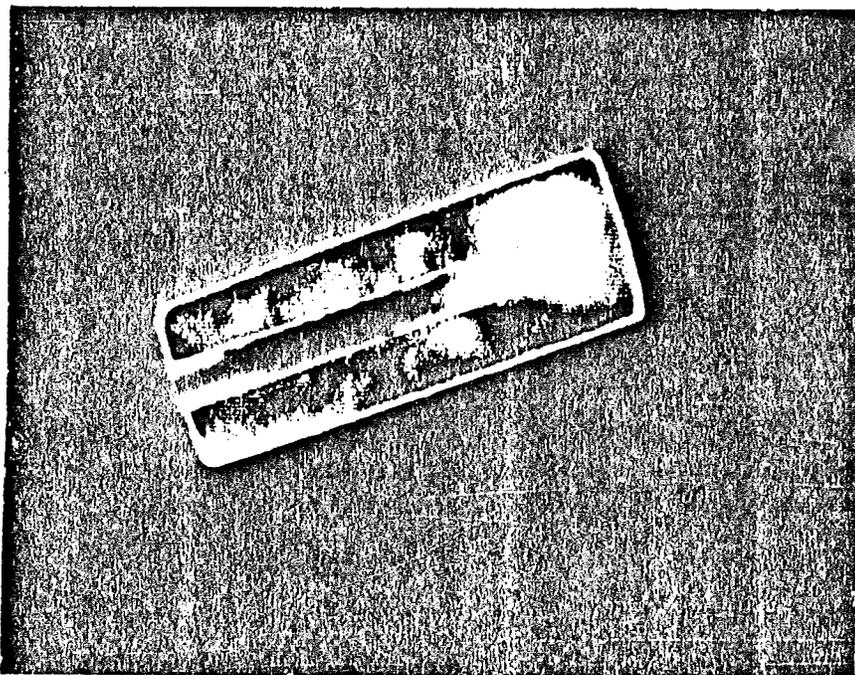
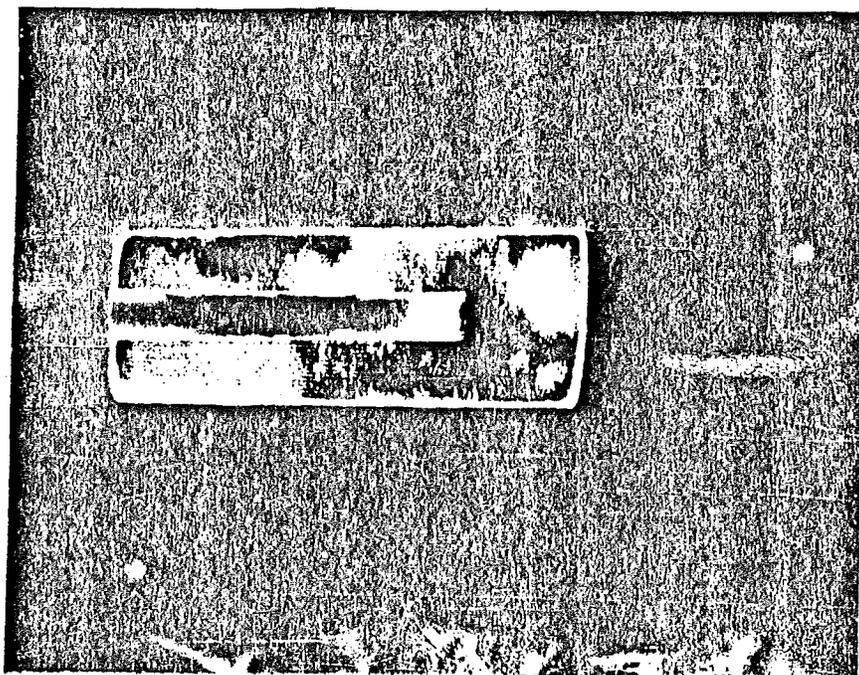


Figure 18



675 volts  
R.M.S.  
1000 Hz.  
0.20 sec.



664 volts  
R.M.S.  
1000 Hz.  
0.10 sec.

Figure 19 EDGE ILLUMINATION TEST SAMPLE

