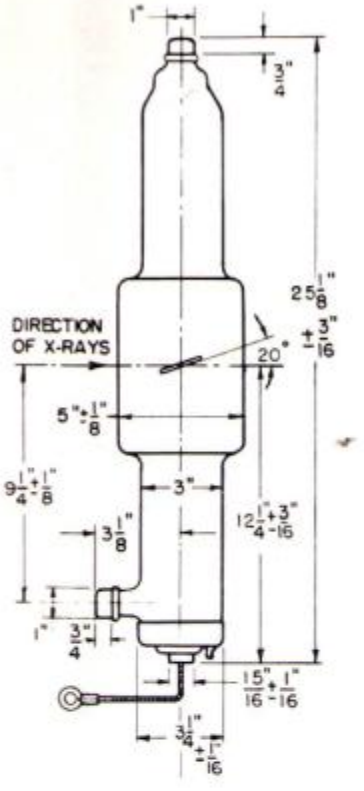


MICRONEX ULTRA HIGH SPEED OIL INSULATED 360 KV RADIOGRAPHIC X-RAY TUBE TYPE WL389

VOLTAGE RATING

SURGE GENERATOR.....360 KV

APPLICATION

The Micronex tube energized by a Micronex Surge Generator comprises a unit for industrial and medical applications capable of producing ultra high speed radiographs of rapidly moving objects through opaque substances.

In ballistics for instance, radiographs made with this equipment recording the passage of shells through gun barrels are now considered routine in nature.

SPECIFICATIONS

FOCAL SPOT:

The target is 25 x 38 mm and the focal spot may be considered as covering about ½ of this area.

CATHODE:

The cathode is of the field emission type employing an auxiliary electrode to initiate the discharge. With voltage applied to the anode and cathode, application of a high potential between the two closely spaced cathode elements causes the formation of a metallic arc and the electron discharge immediately transfers itself to the anode, thus producing x-rays.

RATING DATA:

VOLTAGE: *300 kv in air, 360 kv in oil, with .006 mfd. condenser capacity.*

CURRENT: *Of the order of one-thousand amperes.*

EXPOSURE TIME: *Approximately one-millionth of a second.*

MINIMUM TIME BETWEEN EXPOSURES AT MAXIMUM RATING: *A series of 25 exposures may be made at two second intervals, after which 5 minutes shall be allowed for cooling.*

GENERAL DESIGN INFORMATION

ANODE:

The thick tungsten anode supported by a heavy molybdenum rod provides a rugged structure of ample heat dissipating ability.

BULB:

Bulbs are made of hard, high transmission glass capable of withstanding a high degree of thermal shock.

WESTINGHOUSE X-RAY TUBES

OPERATING CONDITIONS

CIRCUIT:

The tube is designed for operation on a Marx surge generator type of circuit as used in the Westinghouse Micronex High Speed unit, Model 490.

OPERATING POSITION:

May be operated in any position and at a reasonable distance from the generator by use of ¼" copper tubing connections.

OIL INSULATED OPERATION:

At high altitudes it is necessary to immerse the tube in oil to avoid spark-over. This procedure is always desirable if conditions permit, since it results in more stable operation and permits use of the tube at its 360 kv rating.

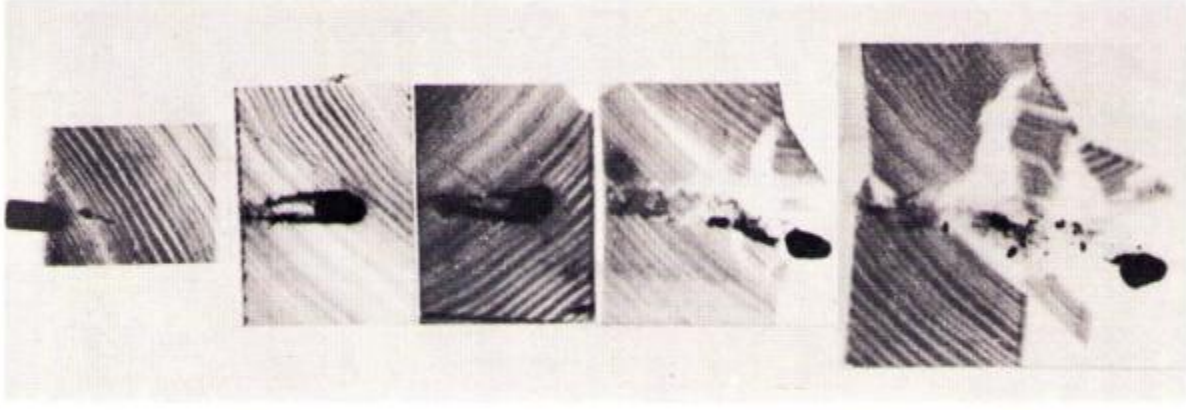
PERFORMANCE DATA

r OUTPUT:

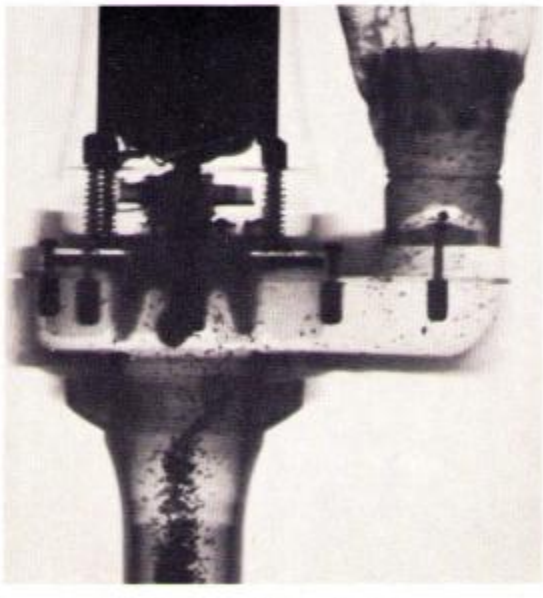
At 300 kv and 36" distance, approximately 0.04 r units per exposure.

PENETRATION:

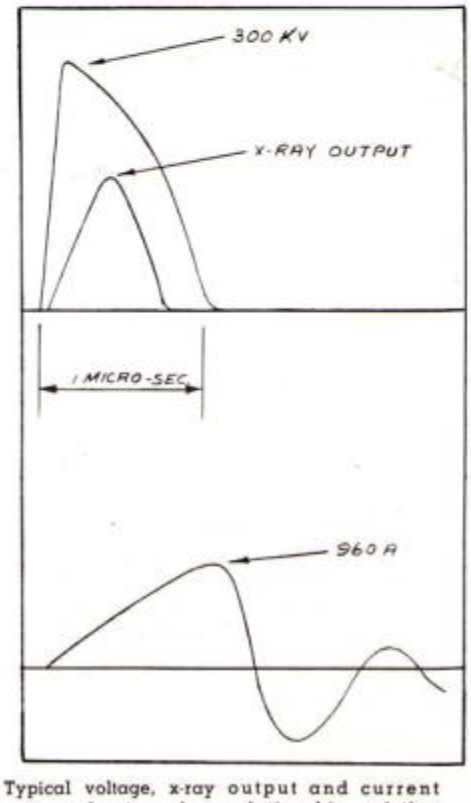
At 300 kv the tube will produce a useful radiograph through 1" of steel at 36" target-film distance.



Micronex radiographs of 0.22 caliber bullets passing through wood blocks. Note how quickly the fibers of the wood tend to close up the hole.



Micronex radiograph of hand vacuum cleaner in operation showing flow pattern of lead particles in passages within housing.



Typical voltage, x-ray output and current curves showing close relationship existing between output and voltage.

WESTINGHOUSE ELECTRIC CORPORATION
Electronic Tube Sales Department
BLOOMFIELD, NEW JERSEY