



## CORPORATION

P. O. BOX 1015

• 338 DELAWANNA AVE.

• CLIFTON, N.J. 07014

• PHONE: 201 - 773-9400

TELEX: 188559 XID CORP CLIF

April 10, 1984

Division of Fuel Cycle and Material Safety  
Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Gentl~~est~~, ,

Since September 1982 Alex Ionescu has been instructed in handling calibration of radiation instruments by Joseph Dewton.

Sincerely,

*Marty Cogan*

Marty Cogan  
Vice President

MC/er

8506190196 850603  
REG1 LIC30  
29-13064-02 PDR

JOSEPH DEWTON  
96 Linden Avenue  
Verona, NJ 07044  
(201) 239-0871

- 1928            Graduated from commercial college, Vienna, Austria.
- 1928-29        Basic Radiation Training received in the Physics Dept. of the University Clinic-Roentgentechnische Versuchsanstalt-Institut Prof. Dr. Guido Holzknacht, Vienna, Austria (x-ray and radium).
- 1928-38        X-ray engineering and design with Philips Corp. and C.H.F. Mueller, Europe (Medical Diagnostic and Therapy).
- 1939            Industrial Radiographer for Eastern Metals Products Co.
- 1940            Course in Industrial Radiography at N.Y.C., one semester (Herbert Isenburger). Registered Radiological Technologist.
- 1940-43        Industrial Radiographer in charge at Cooper Alloy Corp., Union, NJ, handling x-ray and radium sources.
- 1943-45        In charge of the radiographic group (radium and x-ray) at American Locomotive Company, Metallurgical Dept., Schenectady, NY. During this period attended courses in physics and metallurgy at Union College, Schenectady, and R.P.I., Rensselaer, NY (non-credit).
- 1945-55        Sales and service engineer for Keleket X-ray Corp. Attended various seminars on radiation therapy at Columbia University and affiliated hospitals covering cobalt, cesium and super voltage radiation.
- 1955-71        Sales and service representative for Picker Corp., White Plains, NY. Responsible for northern NJ, eastern PA, and southeastern NY. Supervised on-the-job training of technicians in handling radioisotopes for radiographic purposes. Lectured each year in the courses of the ASNT on radiation and radiation safety. Held AEC License 34-7225-6 (July 10, 1957) and included on AEC Licenses 31-04601-03 and 34-7225-13.
- During this period attended upgrading instructions periodically by Picker personnel as well as Technical Operations personnel in retrieving sources and correcting other problems confronted with in operating industrial exposure devices. Radioisotopes covered were cobalt 60, iridium 192, thulium 170 and ytterbium 169.
- 1972-1979     Independent consultant to users of industrial radiographic equipment. Manufacturer's Representative and consultant for Technical Operations, Burlington, MA.
- 1972-1981     Lecturer at Kean College in courses sponsored by the American Society for Nondestructive Testing. Taught Introductory NDT and Radiography.
- 1982-present    Independent consultant. Amongst clients, XID Corporation, Clifton, NJ and Universal Testing Laboratories, Cedar Grove, NJ.
- A.S.N.T. Fellow; member, AWS, ASM.
- Lockheed Electronics, Plainfield, New Jersey  
              Singer Kearfott, Little Falls, New Jersey

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# BERLITZ<sup>®</sup>

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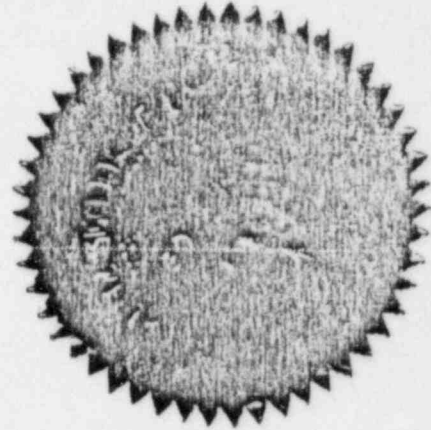
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BERLITZ TRANSLATION SERVICE  
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COMMONWEALTH OF PENNSYLVANIA )

MONTGOMERY COUNTY )

SS



### CERTIFICATION

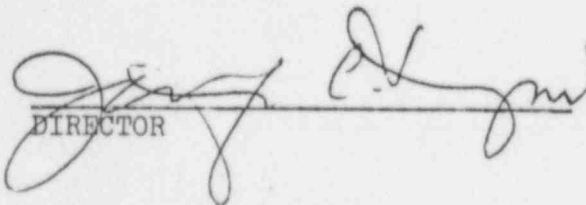
This is to certify that the attached translation No. 2769 is to the best of my knowledge and belief, a true and accurate rendition into ENGLISH of the

DIPLOMA AND GRADES of IONESCU V. ALEXANDRU-GABRIEL from the POLITECHNICAL INSTITUTE "GHEORGHE ASACHI" OF IASI, ROMANIA

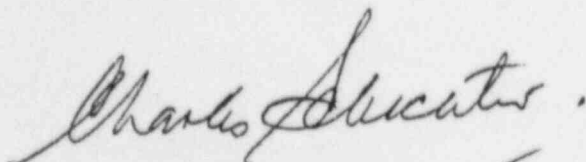
Written in ROMANIAN.

Jenkintown, Pa. the 20<sup>th</sup> day of January, 1982.

THE BERLITZ TRANSLATION SERVICE

  
DIRECTOR

Sworn and Subscribed Before Me On This 20<sup>th</sup> Day of January, 1982.



CHARLES SCHECHTER, NOTARY PUBLIC  
PHILADELPHIA, PHILADELPHIA COUNTY  
MY COMMISSION EXPIRES JULY 5, 1992  
Member, Pennsylvania Association of Notaries

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No. 238542

/Photo/

SOCIALISTIC REPUBLIC OF ROMANIA

(Ministry)

POLITECHNICAL INSTITUTE "GHEORGHE ASACHI" OF IASI

/Signature/

FACULTY OF: ELECTROTECHNICS

## D I P L O M A

Based on the decision of the Commission for the Diploma Examination for the  
June 1975 session,

IONESCU V. ALEXANDRU-GABRIEL

born in the 1947 month of June, day 11th, in the city of Bucharest,  
county .....

has obtained DIPLOMA OF ENGINEERING

in the specialty: electroenergetics, with an average grade of 7 (seven)  
at the diploma examination.

The present diploma is awarded so he can benefit from all rights in accordance to the laws in effect.

RECTOR,

DEAN,

/signature/ (seal)

Chief Secretary  
/signature/

/signature/

No. 17304/June 30, 1975  
(institute)

The present diploma is accompanied  
by an annex including a list of courses

SOCIALISTIC REPUBLIC OF ROMANIA  
POLITECHNICAL INSTITUTE OF IASI  
FACULTY: ELECTROTECHNICS  
SECTION: ELECTROENERGETICS

## G R A D E S

Obtained during academic years of study by the graduate:

IONESCU V. ALEXANDRU -GABRIEL, son of  
Vasile and Ana

Annex to the Diploma No. 238542/17304 - 1975

First Year (1965-1966)G R A D E S

<u>No.</u>	<u>Course</u>	<u>Exam</u>	<u>Other forms of Grading</u>	<u>Final</u>
1	Dialectical Materialism	8	-	-
2	Analitical + Differential Geometry	7,7	-	-
3	Mathematical Analysis	8,5	-	-
4	Chemistry	10	-	-
5	Descriptive Geometry + Application	7	-	-
6	Drawing	-	6,5	-
7	Mechanics	6	-	-
8	French	-	9	-
9	Physical Education	-	Promoted	-

- PROMOTED -

Second Year (1966-1967)G R A D E S

<u>No.</u>	<u>Course</u>	<u>Exam</u>	<u>Other forms of Grading</u>	<u>Final</u>
1	Political Economics	8	-	-
2	Special Mathematics	5,5	-	-
3	Mechanics	5	-	-
4	Resistance of Materials	5	-	-
5	Technics of Materials + Mechanical Tools	7	-	-
6	Basics of Electrotechnics	7,7	-	-
7	Thermotechnics + Thermomachines	8	-	-
8	French	-	8	-
9	Practice in Production	-	8	-

- PROMOTED -



Third Year (1967-1968)GRADES

<u>No.</u>	<u>Course</u>	<u>Exam</u>	<u>Other forms of Grading</u>	<u>Final</u>
1	Scientific Socialism	5	-	-
2	Physics	6	-	-
3	Theory of Mechanisms + of Machine Components	-	-	5
4	Basis of Electrotechnics	6	-	-
5	Electrotechnical Materials	5	-	-
6	Electrical + Magnetical Measurements	7	-	-
7	Hydraulics + Hydraulical Machines	7	-	-
8	Electrical Machines	5	-	5
9	Industrial Electronics	6	-	-
10	French	8	-	-
11	Practice in Production	-	8	-

- PROMOTED -

Fourth Year (1972-1973)GRADES

<u>No.</u>	<u>Course</u>	<u>Exam</u>	<u>Other forms of Grading</u>	<u>Final</u>
1	Psychosociology of Labor	6	-	-
2	Electrical Apparatus	5	-	-
3	Technics of High Voltage	5	-	-
4	Calculators, Automation, Programming	7	-	-
5	Hydro + Thermo Power Plants	6	-	-
6	Electrical Systems + Distribution Network	5	-	5
7	Practice in Production	-	8	-
8	The Electrical Part of Power Plants and Stations	5	-	7
9	Labor Safety	-	5	-

- PROMOTED -

Fifth Year (1973-1974)GRADES

<u>No.</u>	<u>Course</u>	<u>Exam</u>	<u>Other forms of Grading</u>	<u>Final</u>
1	Automation in Energetical Systems	5	-	-
2	Protection through Relays	5	-	-
3	Electrical Systems + Distribution Network	5	-	-
4	Managment, Organization, Analysis of Ecomonical Activity of Entreprises	8	-	-
5	Special problems of Automation and Teleguidance of Energetical Systems	5	-	-
6	Practice	-	10	-

- PROMOTED -

D I P L O M A   E X A M I N A T I O N

Session: June, 1975

Grade: 7 (seven)

RECTOR,

Academician Professor,

Cristofor Simionescu

/signature/

DEAN,

Lecturer Engineer,

Aurel Popovici

/signature/

CHIEF SECRETARY,

Elena Cristache

/signature/



COMITETUL DE STAT PENTRU ENERGIA  
NUCLEARĂ  
Centrul de Pregătire și Specializare a  
Cadrelor în domeniul Nuclear

CERTIFICAT DE ABSOLVIRE

Nr. 168

Tovarășul (■) Ionescu Alex. Gabriel  
născut(ă) în anul 1947 luna unie ziua 11  
în localitatea București județul .....  
absolvent al facultății de Electrotehnică  
din anul 1974

a urmat cursurile postuniversitare, specialitatea  
Utilizarea Izotopilor Radio-  
activi în perioada 7 X - 29 XII 1974  
forma învățămînt de zi

și a promovat examenul de absolvire.

Prezentul certificat de absolvire acordă titularu-  
lui drepturile prevăzute de lege.

DIRECTOR

Secretar

Dr. V. Martaleza *[Signature]*



*[Signature]*

Semnătura posesorului

Data eliberării

17 DEC 1974

STATE COMITEE FOR NUCLEAR ENERGY  
THE CENTER FOR SCHOOLING AND SPECIALIZING PEOPLE  
IN THE NUCLEAR FIELD

CERTIFICATE OF PROMOTION  
No "168"

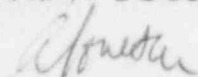
COMRADE "IONESCU ALEX, GABRIEL" BORN IN YEAR "1947" MONTH "JUNE"  
DAY "11" IN "BUCHAREST" COUNTY WHICH PROMOTED THE FACULTY OF  
"ELECTROTECHNICA" IN YEAR "1947" HAS FOLLOWED THE POSTUNIVERSITARY  
COURSES, SPECIALITY "USE OF THE RADIOACTIVE ISOTOPES" DURING THE  
PERIOD "7th OCTOBER - 29th DECEMBER 1974" FORM "DAY SCHOOLING" AND  
PASSED THE PROMOTION EXAMINATION.

THIS CERTIFICATE OF PROMOTION CONFERS ALL THE RIGHTS FORSEEN BY LAW.

DIRECTOR

SECRETARY

TRANSLATED FROM THE ROMANIAN DOCUMENT



UNITED STATES DEPARTMENT OF JUSTICE  
IMMIGRATION AND NATURALIZATION SERVICE

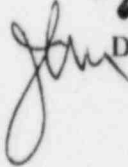
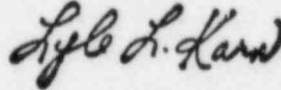
REFER TO THIS FILE NO.

Date: MAY 27 1982

. IONESCU-BUTANESCU, Alexandru  
Gabriel  
303 Conastoga Way, Apt. 312  
Norristown, PA 19403

The application for adjustment of status to  
that of a permanent resident filed by the  
above named has been granted.

Sincerely yours,



District Director

PROCESSED FOR I-551.  
TEMPORARY EVIDENCE OF  
LAWFUL ADMISSION FOR  
PERMANENT RESIDENCE  
VALID UNTIL NOV 26, 1982  
EMPLOYMENT AUTHORIZED.

ATTORNEY

---

## R E S U M E

NAME Alexandru G. IONESCU-BUTANESCU  
ADDRESS 303 Conestoga Way, B-12 Norristown, PA 19403  
BIRTH June 11, 1947 Bucharest, Romania  
HEALTH Excellent  
WEIGHT/HEIGHT 180 lbs/ 6 ft  
FAMILY Married, no children  
STATUS U.S. Permanent resident

### STUDIES

High-school, Bucharest, Romania

Faculty of Electrotechnics, section Electroenergetics, Romania  
5 years day courses. Diploma of Engineering.

Postuniversity specialisation in the use of radioisotopes at the  
Atom-physics Institute of Romania. 3 months, day courses.

### WORK EXPERIENCE

Since Apr. 1981 Seifert X-Ray Corporation, U.S.A.

Title: service engineer

Tasks: repair of industrial X-ray equipment; electro-mechanical interfacing; design and recalibration and hands-on execution in case the equipment has to meet HEW and customer's specific requirements; service trips; troubleshooting in the electronical components; check-up of performances in both electro-mechanical and radiological respects for all the lines of constant potential and portable units produced by the company; fluoroscopic inspection systems with/out TV monitoring

Jan. 1980-Apr. 1981 Rich. Seifert & Co., West Germany

Title: test engineer

Tasks: testing and calibration of new industrial X-ray equipment; presentation of Seifert products to French and English and Romanian speaking customers and solutions to meet their inspection needs; dosimetric measurements for research and development purposes.

Febr. 1978-Aug. 1979 Chemical Plants' Construction Trust, Romania

Title: chief energetician

Tasks: energy (electricity, gas, gasoline, Diesel) consumption quota for the Trust's construction sites throughout the country and ways to diminish it per unit of product; energy conservation; electrical networks symmetry survey; power factor optimisation; studies on network development

Jan.1975-Febr.1978 Turceni Power Plant Construction Site(coal),Romania

Title:chief of nuclear unit

Tasks: non destructive inspection of weldings by means of Ir 192 ,Co 60;  
radiation protection; legislation; film processing and interpretation;  
accept/reject decision; tests for welders followed by both destructive  
and non destructive inspectins methods; certification of the nuclear  
unit's team

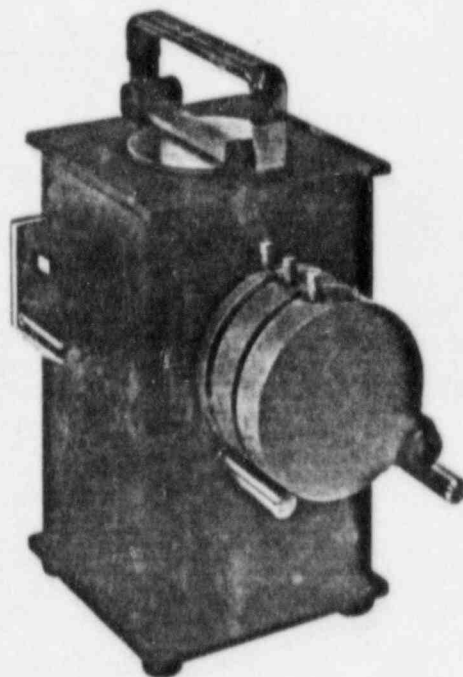
SPECIAL Translations(technical and medical) in French and German and  
Romanian.



# Tech/Ops Model 773 Instrument Calibration Device Operation Manual

**IMPORTANT:** The 773  
Calibrator is authorized to  
be used with 165 mci of  
Cs137. Please make cer-  
tain your license or amend-  
ment reflects this.

Tech/Ops



TECHNICAL OPERATIONS, INC.  
Radiation Products Division  
Burlington, Mass. 01803  
Phone (800) 225-1383 (toll free)  
[in Mass. call (617) 272-2000]



## Technical Data

Size: 5 in (12.7 cm) wide, 5 in (12.7 cm) deep, 8.5 in (21.6 cm) high  
Weight: (with attenuators) 52 lbs. (24 kg)  
(without attenuators) 45 lbs. (20 kg)  
Source: Model 77302, <sup>137</sup>Cesium, ~~150~~ 165 millicuries  
Transport Status: DOT Specification 7A Type A Package  
Shielding Material: Lead Approx. 29 lbs. (13 kg)

## General

\* 165 The Model 773 is a small, portable radiation survey instrument calibration device. The unit consists of a ~~150~~ millicurie <sup>137</sup>Cesium source permanently attached to a movable source rod which is installed in a lead shield casting. The source is exposed by raising the source rod which positions the source in a 36° x 20° collimated beam port.

The unit is equipped with three attenuators (Transmission of 0.25, 0.10 and 0.10) to allow a survey instrument with three ranges to be calibrated at 20% and 80% of each range without changing the position of the survey instrument. The Model 773 can be used to calibrate survey instruments with ranges up to 2000 milliroentgens per hour.

The unit is equipped with a carrying handle which also serves as a source locking bar to prevent unauthorized use of the calibrator. A shipping cover is also attached to provide and additional means of securing the source.

## Receiving

Survey the device for excessive radiation levels. The device should have radiation levels less than 200 mR/hr at the surface and less than 10 mR/hr at three feet from the surface. Inspect the device for shipping damage and insure that the device is locked.

## Safety Precautions

The Model 773 Meter Calibration Device contains a ~~150~~ millicurie <sup>137</sup>Cesium source that  
165

emits gamma radiation which can cause injury if improperly used. Disassembly of the device or removal of the source requires special equipment. We recommend that any service requiring disassembly of the device or removal of the source be performed by the manufacturer.

## Instrument Devices

Although the device has radiation levels which are well below the maximum radiation level permitted on storage containers, personnel should not stay close to the device any longer than necessary.

Precautions should be taken to store the instrument calibration device in an area that meets the requirements of Title 10 Code of Federal Regulations 20.202(b) (2), 20.203(b) and 20.203(e).

It is recommended that personnel operating the equipment use a calibrated and operable survey instrument and wear appropriate personnel monitoring devices. The radiation level at the source rod when the source is in the "operate" position is approximately 50 milliroentgens per hour.

Movement of the source rod should be accomplished as expeditiously as practicable. An alternative method of raising the source rod would be the use of a string and pulley arrangement.

In no case should anyone enter the area of the radiation beam or expose any part of his body to the radiation beam.

## Preparation for Use

Place the source shield in a restricted area so that the directional port is aimed horizontally. To minimize the effects of scattered radiation, the unit should be 16 feet from any wall in the direction of the primary beam.

Position a support horizontally from the Model 773 Instrument Calibration Device as shown in Figures 1 and 2.

Restrict access to the area where the radiation level is in excess of 2 milliroentgens per hour. (See Figure 4).



## Operation

**Note:** To properly calibrate a survey instrument it is necessary to check the instruments response at two points on each of the instruments ranges. These points must be separated by at least 50% of the full scale reading. The instruments reading should agree with the actual radiation intensity within 10% to be in proper calibration.

The following procedure is designed for a survey instrument with three scales and a range of 0-1000 mr/hr. For instruments with different ranges, the procedure will be similar but the points will differ.

1. Turn on the survey meter and allow it to "warm up" for approximately 10 minutes.
2. Determine the activity of the source on the date of calibration from the decay chart provided with the source.
3. Determine the distance from the source at which the radiation intensity would be 800 mr/hr (use Figure 3).
4. Using the tape measure attached to the Model 773, place the survey meter such that the axis of the detector is located at the proper distance from the source as determined above.

### Note:

The survey meter should be located so that the center of the detector is at the correct distance and centered on the center line of the radiation beam. The axis of the detector should be perpendicular to the centerline of the radiation beam. Depending upon the physical size of your survey instrument, it may be necessary to mount it somewhat higher than the bench surface. When the proper geometry for your instrument has been established, use the same physical arrangement consistently in future calibration operations.

At short distances, using survey instruments with large detector volumes, the radiation intensity will not be uniform across the detector. Consideration should be given to this effect when determining the radiation intensities to be checked.

5. Unlock the handle of the Model 773. Re-

move the shipping plate. Remove all the attenuators from the radiation beam.

6. Standing away from the radiation beam, expose the source by manually raising the source rod. Note and record the survey meter reading, return the source to the stored position. The actual intensity is 800 mr/hr. If the reading is within  $\pm 10\%$  of the actual intensity, continue checking the instrument. If the instrument reading is not within  $\pm 10\%$  of the actual intensity, the instrument must be adjusted and recalibrated.

**CAUTION:** Do not enter the area of the radiation beam while the source is exposed.

7. Place the 0.25 attenuator in the beam. Repeat step 6; the actual intensity is 200 mr/hr.
8. Remove the 0.25 attenuator from the beam and place a 0.10 attenuator in the beam. Repeat step 6; the actual intensity is 80 mr/hr.
9. Place the 0.25 attenuator in the beam. Repeat step 6; the actual intensity is 20 mr/hr.
10. Remove the 0.25 attenuator from the beam and place the other 0.10 attenuator in the beam. Repeat step 6; the actual intensity is 8 mr/hr.
11. Place the 0.25 attenuator in the beam. Repeat step 6; the actual intensity is 2 mr/hr.

## Leak Testing

The Tech/Ops Model 773 Meter Calibration Kit contains a  $^{137}\text{Cesium}$  source which must be leak tested at intervals not to exceed six months. This may be accomplished using the Tech/Ops Model 518 leak test kit.

1. Place the Model 773 calibrator in a restricted area.
2. Remove the lock and rotate the handle from the top of the source rod. Remove the shipping cover.
3. Moisten the leak test swab with EDTA solution. Blot off the excess.
4. Wipe around the top of the source rod.
5. Standing away from the beam port, raise the source rod to the open position and

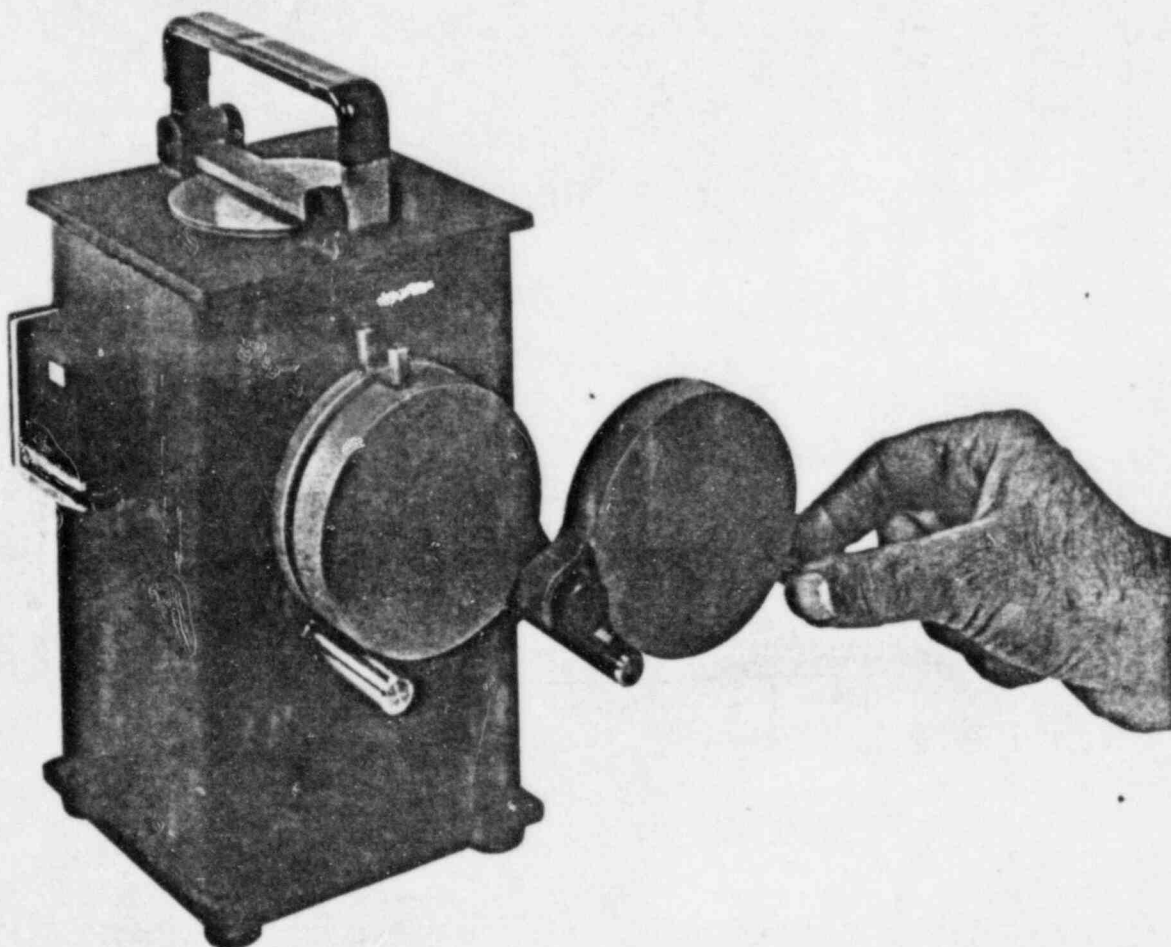
- wipe the exposed source rod thoroughly.
6. Place the leak test swab in the plastic envelope.
  7. Set the survey meter on its most sensitive range and place the meter in a low background area. Move the swab, in its plastic envelope, to the meter, not the meter to the swab.
  8. If the meter indication is less than 0.2 mr/hr above background, place the plastic envelope with the swab into the mailing box and mail to Technical Operations, Inc., Burlington, Massachusetts. BE SURE TO FILL OUT AND RETURN

#### THE IDENTIFICATION SHEET.

9. If the swab should show more than 0.2 mr/hr. DO NOT MAIL. Contact Technical Operations, Inc. for specific instructions.

#### Note:

The wipe test swab will be subjected to a precise radioassay when received by Tech/Ops and a leak test certificate will be mailed promptly. This certificate must be kept with your records as it is subject to N.R.C. inspection.



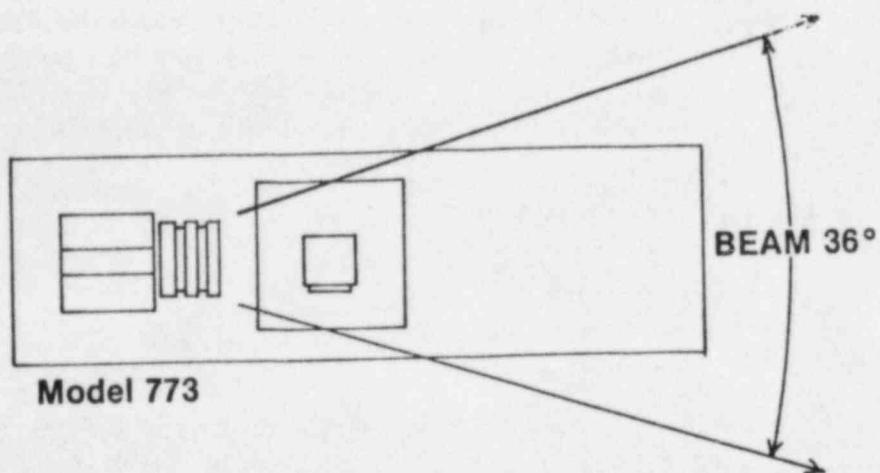


FIGURE 1

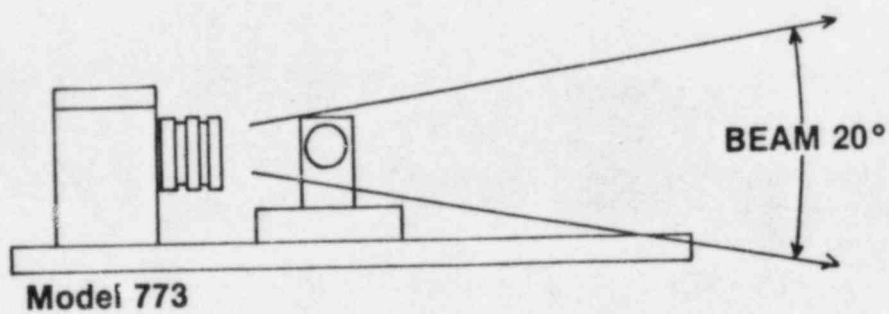
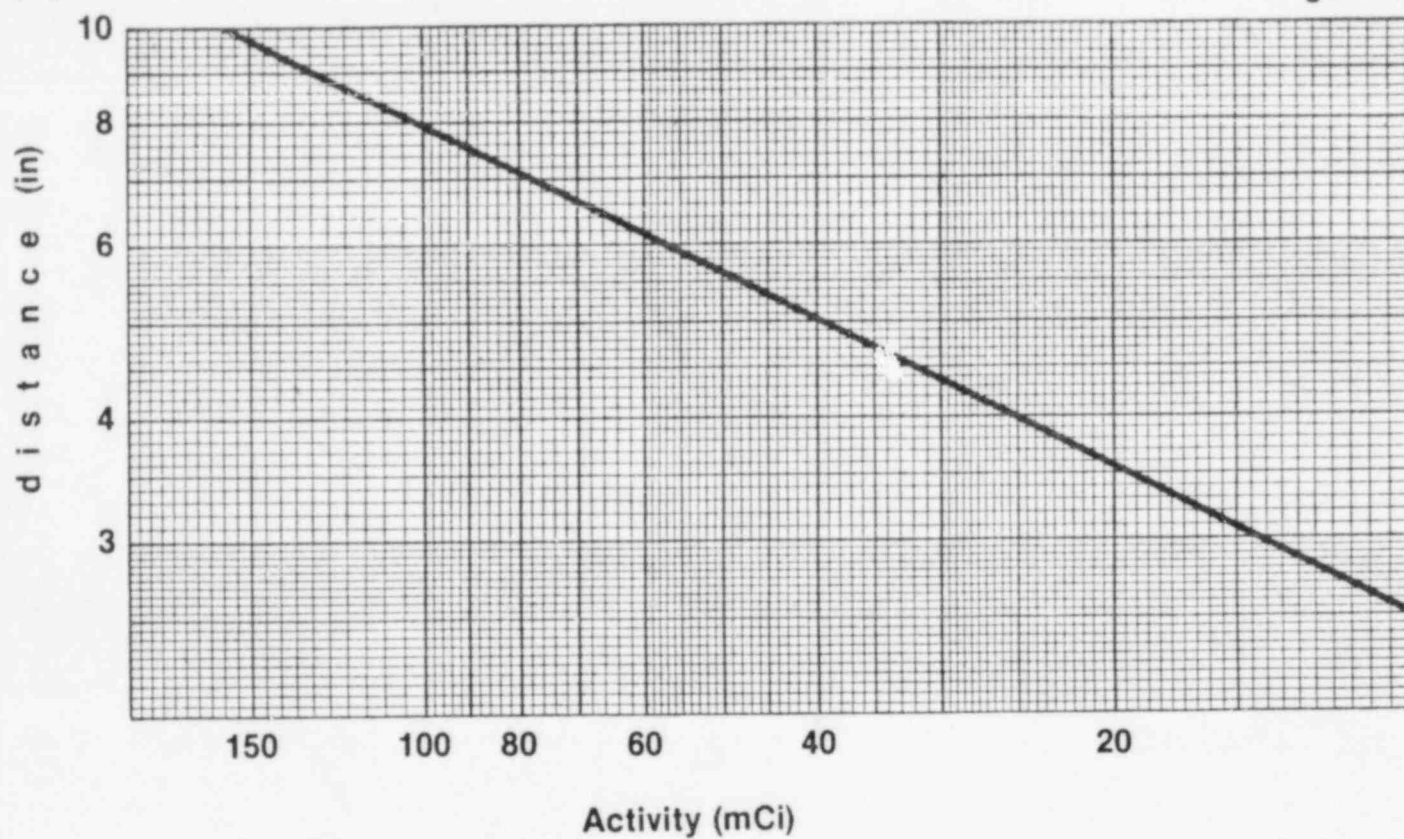


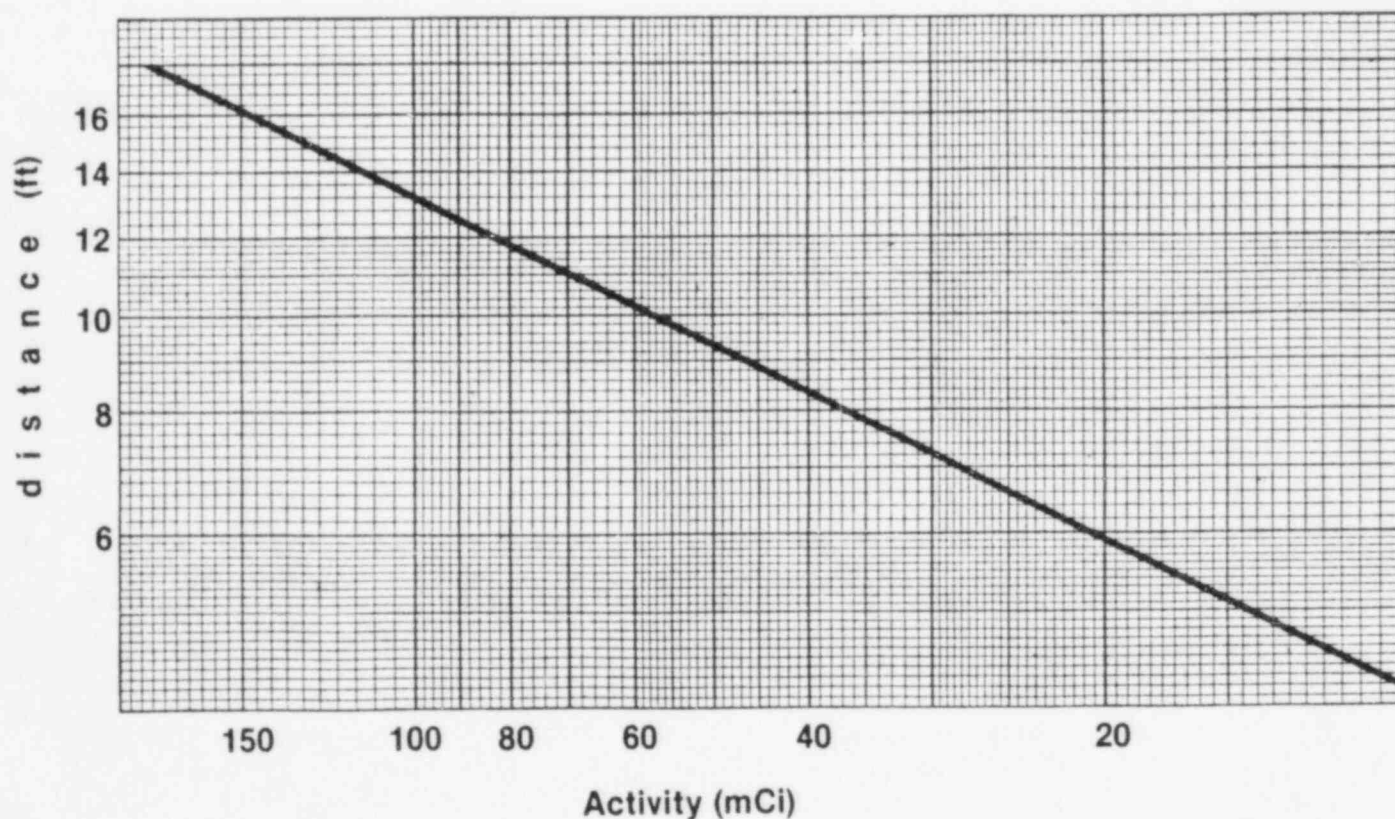
FIGURE 2

Figure 3



Distance to 800mR/hr isodose line as a Function of Activity

Figure 4



Distance to 2mR/hr isodose line as a Function of Activity