NRC FORM 313
(1-84)
10 CFR 30, 32, 33, 34, 35 and 40

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED BY OMB
3150-0120
Expires: 5-31-87

APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

FEDERAL AGENCIES FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NMSS
WASHINGTON, DC 20555

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS, IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIAL SECTION B
631 PARK AVENUE
KING OF PRUSSIA, PA 19406

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION II
MATERIAL RADIATION PROTECTION SECTION
101 MARIETTA STREET, SUITE 2900
ATLANTA, GA 30323

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION III
MATERIALS LICENSING SECTION
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
MATERIAL RADIATION PROTECTION SECTION
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TX 76011

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON, AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION V
MATERIAL RADIATION PROTECTION SECTION
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CA 94596

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTION.

1. THIS IS AN APPLICATION FOR *(Check appropriate item)*
   - [X] A. NEW LICENSE
   - [ ] B. AMENDMENT TO LICENSE NUMBER ______
   - [ ] C. RENEWAL OF LICENSE NUMBER ______

2. NAME AND MAILING ADDRESS OF APPLICANT *(Include Zip Code)*
   Sharp Electronics Corporation
   Sharp Plaza, Mahwah, New Jersey
   07430

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED
   See 2., above
   Suite 750, 2001 L Street, NW
   Washington, DC 20036

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION: Richard Linn, Marks Murase & White
   TELEPHONE NUMBER: (202)955-4900

SUBMIT ITEMS 5 THROUGH 11 ON 8½ x 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
   a. Element and mass number; b. chemical and/or physical form; and c. maximum amount which will be possessed at any one time. See Appendix, p. 8
6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED. See Appendix, p. 8
7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE. See Appendix, p. 6
8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS. See Appendix, pp. 7 and 8
9. FACILITIES AND EQUIPMENT. See Appendix, p. 5
10. RADIATION SAFETY PROGRAM. See Append. ;, p. 7
11. WASTE MANAGEMENT. See Appendix, pp. 7 & 8
12. LICENSEE FEES *(See 10 CFR 170 and Section 170.31)*
    FEE CATEGORY: New License
    AMOUNT ENCLOSED $ 520.00
13. CERTIFICATION. *(Must be completed by applicant)* THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN, IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948, 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

SIGNATURE—CERTIFYING OFFICER	TYPED/PRINTED NAME	TITLE	DATE
K. Okuda	Keizo Okuda	Executive Vice President	12/2/87

14. VOLUNTARY ECONOMIC DATA

a. ANNUAL RECEIPTS
- [ ] <$250K
- [ ] $250K – 500K
- [ ] $500K – 750K
- [ ] $750K – 1M
- [ ] $1M – 3.5M
- [ ] $3.5M – 7M
- [ ] $7M – 10M
- [ ] >$10M

b. NUMBER OF EMPLOYEES *(Total for entire facility excluding outside contractors)*

c. NUMBER OF BEDS

d. WOULD YOU BE WILLING TO FURNISH COST INFORMATION *(Dollar and/or staff hours)* ON THE ECONOMIC IMPACT OF CURRENT NRC REGULATIONS OR ANY FUTURE PROPOSED NRC REGULATIONS THAT MAY AFFECT YOU? *(NRC regulations permit it to protect confidential commercial or financial—proprietary—information furnished to the agency in confidence)*
- [ ] YES
- [ ] NO

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	COMMENTS	APPROVED BY
APP	Dec. 1 '88	3I - 3P	8811010351 871211 NMSS LIC30 29-23702-01E PNU	[signature]

AMOUNT RECEIVED	CHECK NUMBER		DATE
$520	11680 (Sharp Electronics Corp.)	020376	12/7/87

PRIVACY ACT STATEMENT ON THE REVERSE

PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission on NRC Form 313. This information is maintained in a system of records designated as NRC-3 and described at 40 Federal Register 45334 (October 1, 1975).

1. **AUTHORITY:** Sections 81 and 161(b) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2111 and 2201(b)).

2. **PRINCIPAL PURPOSE(S):** The information is evaluated by the NRC staff pursuant to the criteria set forth in 10 CFR Parts 30, 32, 33, 34, 35 and 40 to determine whether the application meets the requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations, for the issuance of a radioactive material license or amendment thereof.

3. **ROUTINE USES:** The information may be (a) provided to State health departments for their information and use; and (b) provided to Federal, State, and local health officials and other persons in the event of incident or exposure, for their information, investigation, and protection of the public health and safety. The information may also be disclosed to appropriate Federal, State and local agencies in the event that the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, or local agency to the extent relevant and necessary for an NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you.

4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION:** Disclosure of the requested information is voluntary. If the requested information is not furnished, however, the application for radioactive material license, or amendment thereof, will not be processed. A request that information be held from public inspection must be in accordance with the provisions of 10 CFR 2.790. Withholding from public inspection shall not affect the right, if any, of persons properly and directly concerned need to inspect the document.

5. **SYSTEM MANAGER(S) AND ADDRESS:** U.S. Nuclear Regulatory Commission
Director, Division of Fuel Cycle and Material Safety
Office of Nuclear Material Safety and Safeguards
Washington, D.C. 20555

SHARP ELECTRONICS CORPORATION
APPENDIX TO SPECIFIC LICENSE
FOR EXEMPT BYPRODUCT MATERIAL

I. Background of Application

A. Type of Application

Sharp Electronics Corporation (SEC) is hereby formally requesting a specific license (1) to initially transfer for sale or distribution in the United States products containing exempt byproduct material from the following locations and (2) to initially possess and store such products prior to distribution at a warehouse located in New Jersey, a non-Agreement State. This Application is made pursuant to 42 U.S.C. § 2111 (1982) and 10 C.F.R. Part 20 and §§ 30.3, 30.15 and 32.14 (1987).

The subject of this license is an electron tube in the form of a glow lamp. The tube is within the class of products specifically exempted from certain licensing requirements by operation of 10 C.F.R. § 30.15(a)(8) because it contains less than 5 microcuries of nickel-63 (Ni-63) and radiation levels do not exceed 1 millirad per hour at a distance of 1 centimeter when measured through 7 milligrams per square centimeter of absorber. SEC requests that this license encompass the electron tube itself, a "main frame" unit containing the tube, and a facsimile machine containing the tube and main frame assembly.

The distribution license sought is identical to the distribution license recently obtained by Toshiba America, Inc. under License No. 04-23699-01E. The glow lamps utilized in the Toshiba America, Inc. products and the SEC products are identical. SEC seeks in addition a possession license to cover its temporary storage of the products in the New Jersey warehouse.

B. Products to be Licensed

1. Electron Tube

The electron tube is designed to function as a glow lamp in a facsimile machine. Each tube contains a maximum of 0.32 microcuries of Ni-63. The Ni-63 is plated onto electrodes comprised mainly of nonradioactive nickel-58. There are two electrodes, one at each end of the tube. Each electrode contains a maximum of 0.16 microcuries Ni-63. The outer envelope of the electron tube consists of leaded glass, 0.49-0.61 mm. thick, which is fused to close each end and form a cylinder approximately 261mm, 154mm and 318mm long, and 6mm in diameter. The electron tube will not operate if the seal is imperfect or the glass envelope is cracked or otherwise compromised. A hard plastic mounting cap, which nearly completely covers each electrode, is attached to each end of the tube. A wiring harness completes the tube assembly.

2. The Main Frame

The tube is mounted in a subassembly called the main frame, which in turn is mounted as a unit into the facsimile machine. The main frame is a plastic and metal struc-

ture, bearing the lamp, which functions as an assembly for storing the lamp and servicing the facsimile machine. The main frame is constructed so as to surround and protect the electron tube.

3. Facsimile Machine

The facsimile machine contains the main frame unit, including the electron tube. The facsimile machine encloses the tube within a hard plastic and metal shell comprised of the machine's outer casing and the main frame unit. This case further serves to protect the tube.

C. Production and Shipping

The electron tube, main frame, and facsimile machine are imported by the applicant, SEC. The facsimile machine and main frame are built in Japan by Sharp Corporation ("Sharp"), SEC's parent company. Sharp Corporation purchases the electron tube from Toshiba Corporation, a Japanese Corporation ("Toshiba"), to incorporate it into the facsimile machine. The electron tube is built in Japan for Toshiba Corporation by Harison Electric Company, Ltd. ("Harison"), a subsidiary of Toshiba. The electrodes used in the tube are manufactured for Harison by Nemoto and Co., an unrelated company.

The electron tubes are initially distributed in the United States by SEC. SEC normally distributes the tubes as components of completed facsimile machines, but they may also be distributed as tubes alone or in the form of main frames as maintenance parts. Because tubes and main frames normally would

be installed by service representatives, they are not expected to be distributed in those forms directly to users of the facsimile machines.

SEC distributes the facsimile machines to dealers and distributors. The distributors include both SEC and unrelated companies.

Section II, below, sets out the specific information required by Section 20.33 of the regulations applicable to both the possession and initial distribution aspects of the license. Section III, below sets out the specific information required by Section 32.14 of the regulations applicable only to the initial distribution aspects of the license. References are made to the relevant items on the Application.

II. Section 30.33 -- General Requirements for Issuance of a Specific License

A. Application for a Purpose Authorized by the Act

The stated purpose of the Atomic Energy Act of 1954, as amended, (the Act) is to regulate the development of atomic energy so as to encourage its peaceful uses,[1] including uses that will strengthen free competition in private enterprise,[2] encourage the development of the atomic energy industry,[3] and

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[1] 42 U.S.C. §§ 2011, 2013 (1982).

[2] 42 U.S.C. § 2011 (1982).

[3] 42 U.S.C. § 2012 (1982).

encourage maximum scientific and industrial progress.[4] In addition, Section 2111 of the Act classifies "industrial use" as a useful application. SEC's distribution of the electron tube makes effective industrial use of the byproduct material Ni-63 in a manner that facilitates modern electronic communications, constitutes a peaceful application of atomic energy, and strengthens free competition and private enterprise, thus encouraging both the further development of the atomic energy industry and maximum scientific and industrial progress within the meaning of the Act.

B. Adequate Facilities and Equipment (Application Item 9)

The electron tubes are tested individually by Harison. They will not operate, and are rejected, if the glass envelope is not intact. The radiation emitted by the amount of Ni-63 on an electrode does not penetrate the intact glass tube.

The electron tubes are packed for shipping in cardboard and bubble wrap or other appropriate packaging designed to protect against breakage. Main frames and facsimile machines are similarly packed with appropriate protective material. As previously stated, the main frame assembly and the facsimile housing increase the protection of the tube. A periodic random sample of the electron tubes is subjected to vibration and shock

[4] 42 U.S.C. § 2013 (1982).

tests designed to ensure the tubes will survive the conditions of shipping and handling. No tube has been known to break during such testing.

SEC's warehouses have in-rack sprinkler systems, which are in full compliance with insurers' standards and offer exceptional protection against fire. The warehouses also incorporate modern security systems to prevent theft or tampering.

Attachment 5 provides the layout of the warehouse in New Jersey for which the possession license is sought. SEC has been in the electronics business for many years, and its employees are experienced in the proper handling, shipping, and storage of electronic equipment requiring special care, such as electron tubes. SEC recognizes that special procedures and safeguards are required for electronic goods containing nuclear byproducts. For these reasons, SEC has designated Mr. Steven E. Lockfort as its radiation protection officer. Mr. Lockfort is a graduate electrical engineer and is the Manager of SEC's Compliance Department. By virtue of Mr. Lockfort's background training and experience, he is considered to be quite knowledgable in the use and handling of sensitive electronic equipment and radioactive materials-containing lamps of the type here involved. Mr. Lockfort, in his capacity as radiation protection officer, will have the opportunity to devote sufficient time to the radiation safety aspects of SEC's handling of the lamps, the lamp-

containing frame assemblies, and the lamp-containing facsimile machines, to assure safe handling of these products commensurate with the level of risk involved.

It should be noted that the Nuclear Regulatory Commission's (NRC) regulations recognize that electron tubes containing less than 5 microcuries of nickel-63 are items of relatively small concern in terms of health and safety, since they are exempted from certain licensing requirements under 10 C.F.R. § 15(a)(8) (1987). Furthermore, because the radioactive byproducts are contained in a sealed source and because of the extremely unlikely event of breakage the product does not reasonably present a health hazard. Therefore, pursuant to 10 C.F.R. § 20.20(b) surveys are not believed to be necessary to evaluate the extent of radiation hazards that may be present. Similarly, personnel monitoring is not considered required because there would normally be no exposure to radiation and, in the extremely unlikely event of bulb breakage, any exposure would be far below the dose levels established in 10 C.F.R. § 20.101. Neither will the storage area constitute a "Radioactive area" within the meaning of 10 C.F.R. SEC will comply with 10 C.F.R. § 203(e), if applicable, or any other applicable safety and informal requirement.

All SEC personnel involved with products containing the subject glow lamps will be informed of the existence of byproduct material in the tubes and will receive instruction in

proper handling of the tubes, including clean-up and disposal procedures in case of breakage. All waste disposal will meet or exceed NRC and applicable state regulations.

III. Section 32.14 Requirements for Issuance of a Specific License for Distribution and Possession of Certain Items Containing Exempt Byproduct Material

A. Section 3.214(b)(1) -- [Application Item 5] -- Radioactive Material

The radioactive material contained in the electron tube is nickel-63. The nickel-63 is a solid plated on an electrode composed of nickel-58 (non-radioactive). The maximum quantity per glow lamp is 0.32 microcuries.

B. Section 32.14(b)(2) -- [Application Item 6] -- Purpose for which Licensed Material will be Used

The licensed material will be contained in an electron tube which will function as glow lamp. The tube will be contained in a main frame that will in turn be contained in a facsimile machine. The tube, the main frame containing the tube and the facsimile machine containing the main frame may each be imported and distributed separately by SEC. The measurement of radiation is zero.

C. Section 32.14(b)(2) -- Details of Construction

A drawing of the glow lamp is attached hereto as Attachment 1.

Glass:	Lead glass
Dimensions:	As shown in drawing
Glass Thickness:	0.49 - 0.61 mm

Sealing is achieved by fusing the ends of the glass of each tube together utilizing heat followed by an annealing process.

A separate drawing of the main frame containing the glow lamp is attached as Attachment 2.

A separate drawing of the tube as contained in the facsimile unit is attached as Attachment 3.

D. Section 32.14(b)(3) -- Method of Containment of Binding

The nickel-63 is bound to the nickel-58 by means of electroplating.

For the details of the method of containment by means of the glass bulb, see Section D, above. In addition, hard plastic casing at each end of the electron tube protects each electrode in the extremely unlikely event of breakage of the bulb.

When contained in the facsimile machine or the main frame, the electron tubes are enclosed by the hard plastic and metal material of the finished facsimile product or the main frame. This enclosure would minimize or prevent any exposure to the environment in the extremely unlikely event of breakage of the bulb.

E. Section 32.14(b)(4) -- Procedures for and Results of Prototype Testing

Harison subjects a random sample of glow lamps to a vibration test and a shock test in both the prototype and manufacturing stages. These tests are designed to replicate the

most severe conditions likely to be encountered, i.e., shipping of the product. No breal in the glow lamp has been experienced as a result of these tests, and consequently, there has been no release of the nuclear byproduct material to the environment.

Sharp subjects each facsimile machine containing the glow lamp to a shock test in the prototype stage to ensure that the bulb will not break under the most severe conditions likely to be encountered.

F. Section 32.14(b)(5) -- Quality Control Procedures to be Followed in the Fabrication of Production Lots and Quality Control Standards

A schematic diagram showing all quality control procedures utilized by Harison in the fabrication of the electron tube is contained in Attachment 4. Harison subjects a random sample of the completed glow lamps to the shock and vibration tests described above. In addition, every lamp is test lighted by Harison. A lamp will not light if there is any break in the glass container.

With respect to the electrode itself, a random sample is undertaken by Harison of 10 in every 10,000 units to determine the amount of nickel-63 per electrode.

Sharp test lights every electron tube individually, as assembled in a main frame, and as contained in a facsimile machine prior to shipment to SEC. Any electron tube not lighting, as in the case of a break in the glass container, would be rejected and returned to Harison. No such circumstance is known to have occurred.

SEC will test light imported electron tubes individually, as assembled in a main frame, and as contained in facsimile machines, each such inspection to be conducted in accordance with § 32.110(a). Any faulty electron tube will not be shipped and will be returned to Sharp Corporation or disposed of, in every instance in accordance with applicable federal and/or state law.

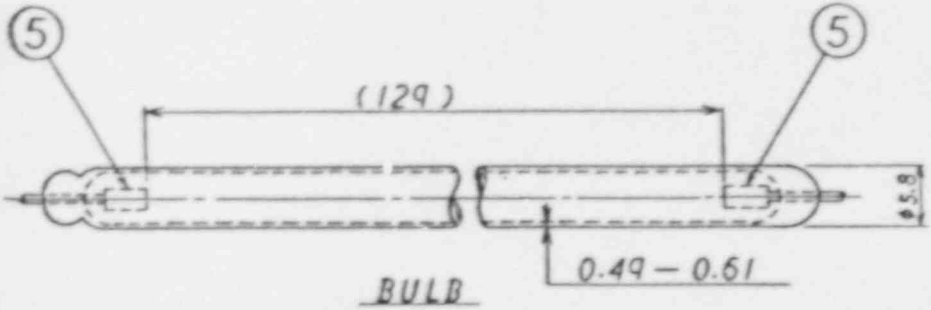
G. Section 32.14(b)(6) -- Labeling

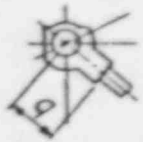
Each electron tube individually and each electron tube within each facsimile machines or main frame will be labeled as follows:

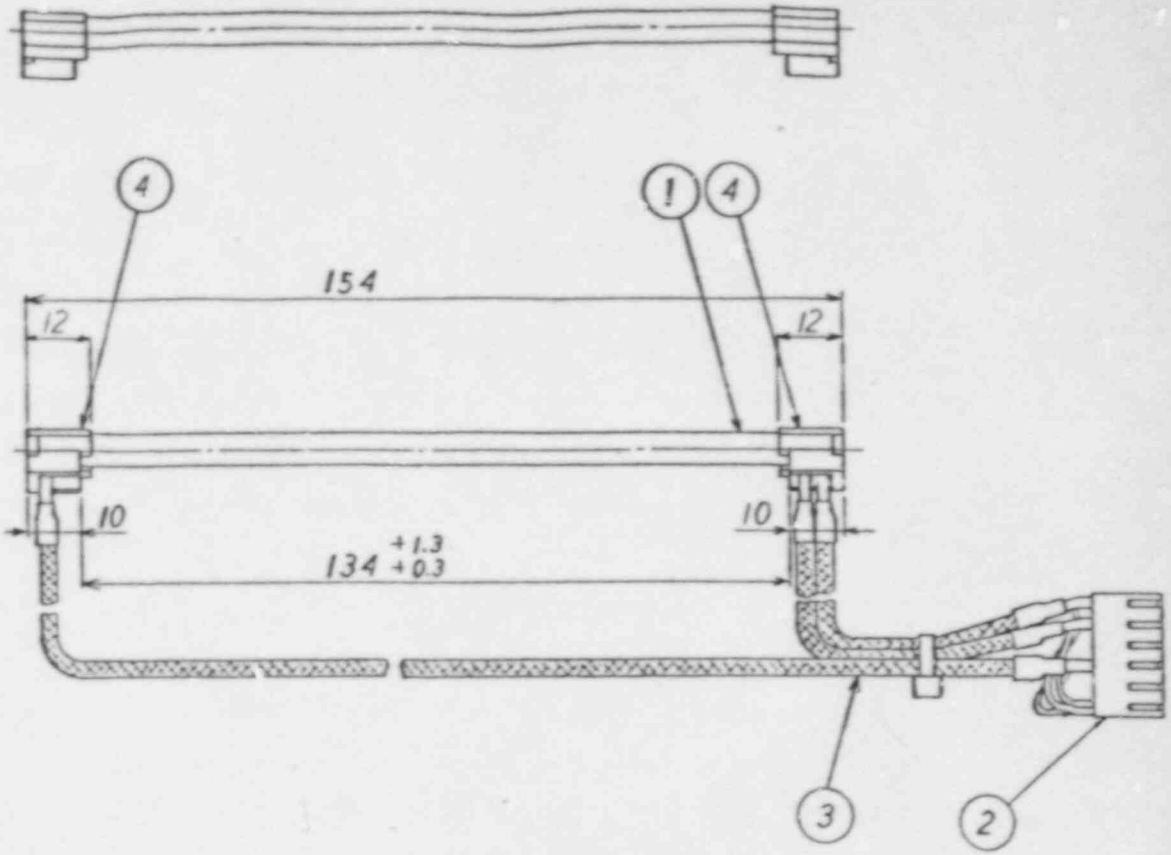
Distributed by
SHARP ELECTRONICS CORPORATION
Ni63

H. Section 32.14(b)(6) -- Radiation Level and Method of Measurement

The level of radiation from the electron tube both individually and as contained within each facsimile machine or within each main frame is zero.



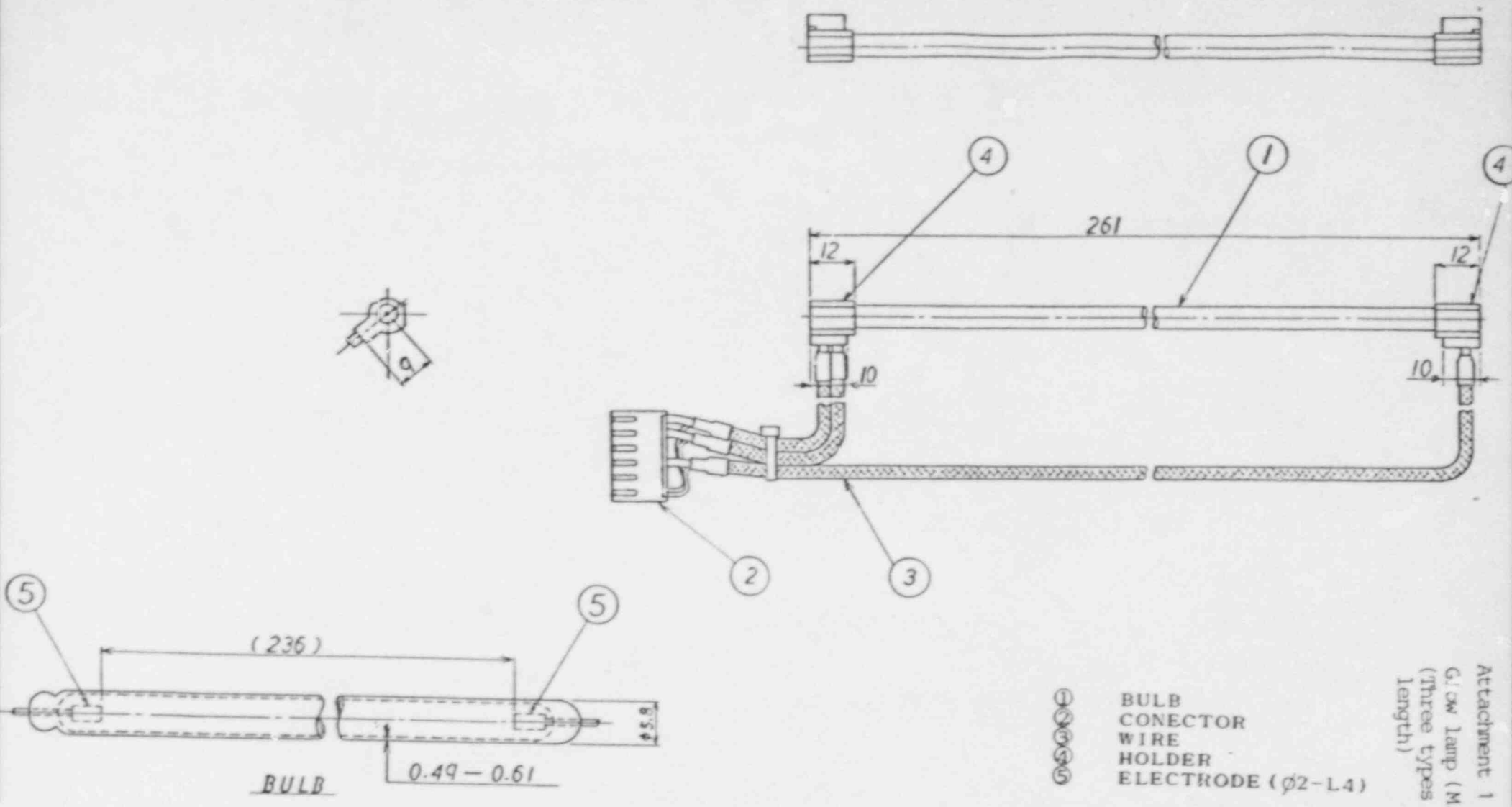




① BULB
② CONECTOR
③ WIRE
④ HOLDER
⑤ ELECTRODE (φ2-L4)

FC3A70G54/147T6/U-SH

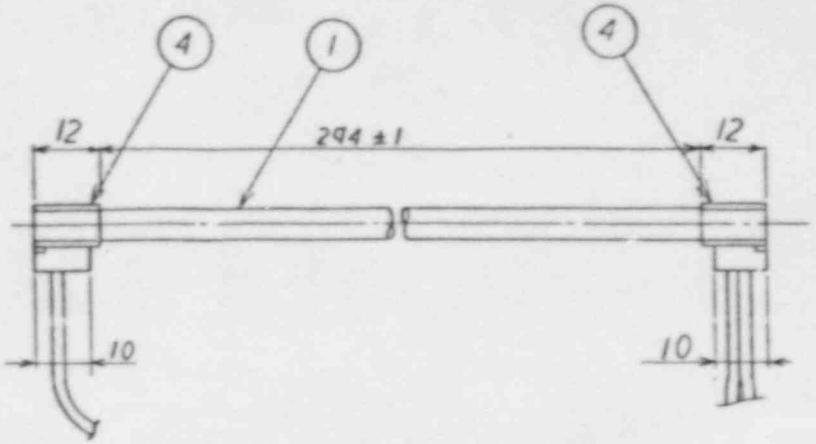
Attachment 1 -1
Glow lamp (M1)
(Three types of cylinder length

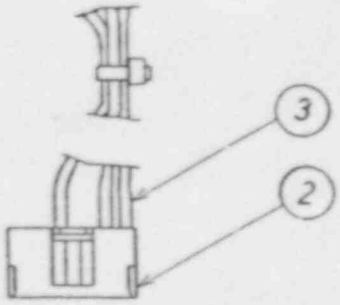


① BULB
② CONECTOR
③ WIRE
④ HOLDER
⑤ ELECTRODE (ϕ2-L4)

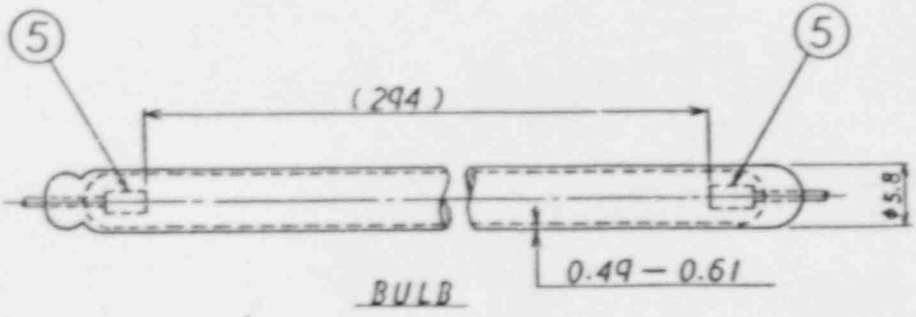
Attachment 1 -2
G.ow lamp (M2)
(Three types of cylinder length)

FC5A70G54/254T6/U-SH





① BULB
② CONECTOR
③ WIRE
④ HOLDER
⑤ ELECTRODE (Ø2-L4)

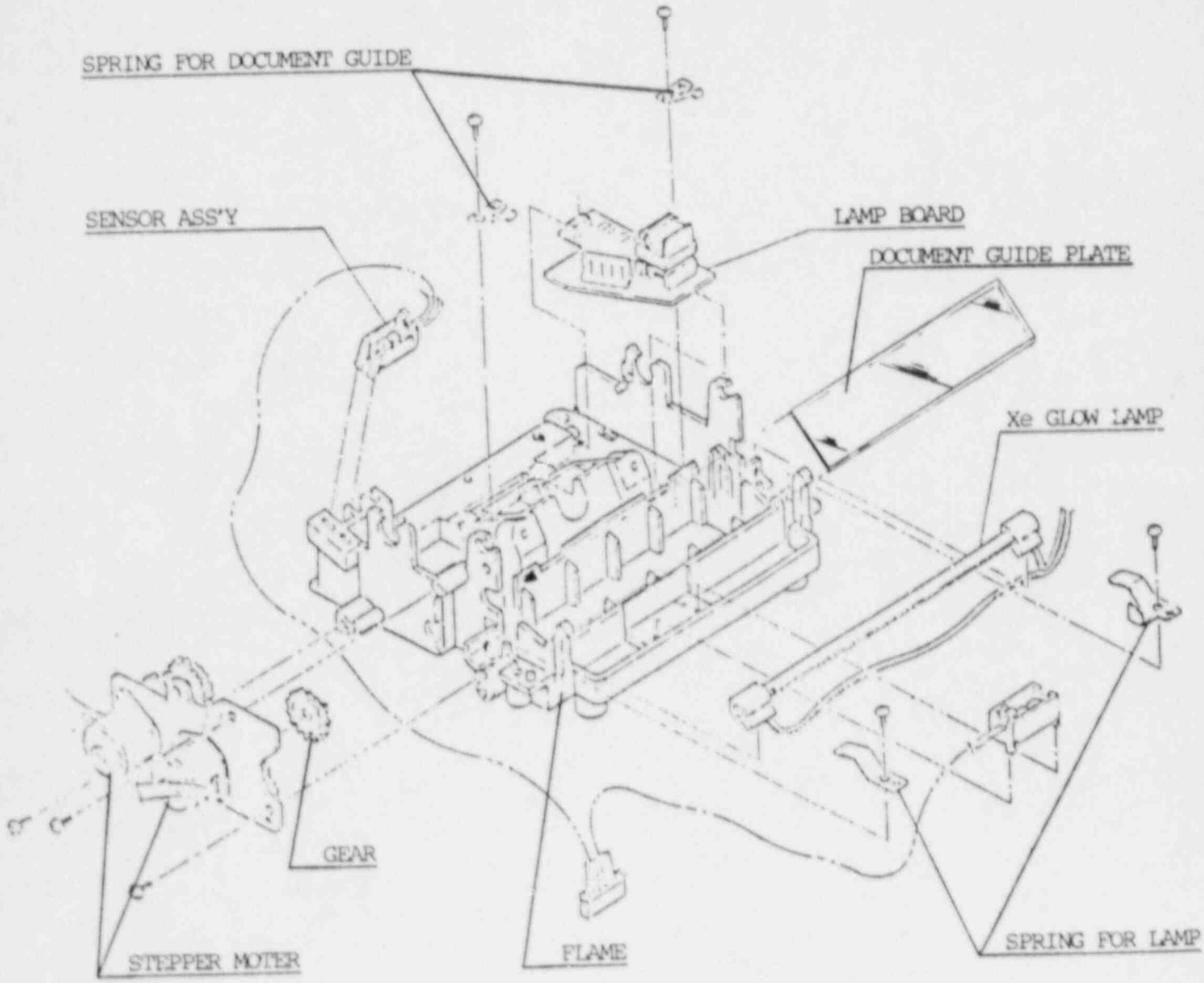


FC6A70G54/312T6/U-SH

Attachment 1 -3
Glow lamp (M3)
(Three types of cylinder length)

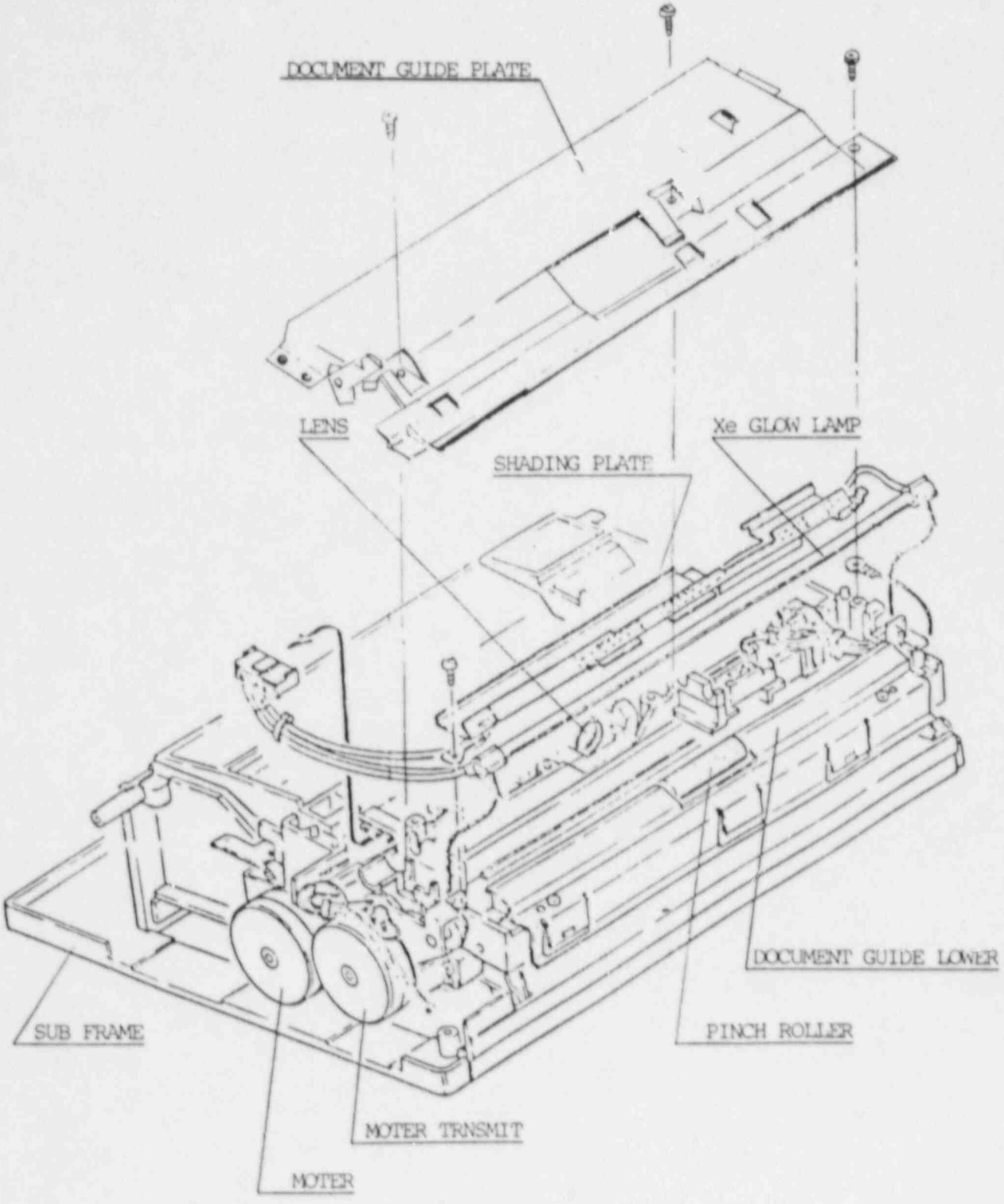
MAIN FRAME UNIT

(Containing the glow lamp Type M1)



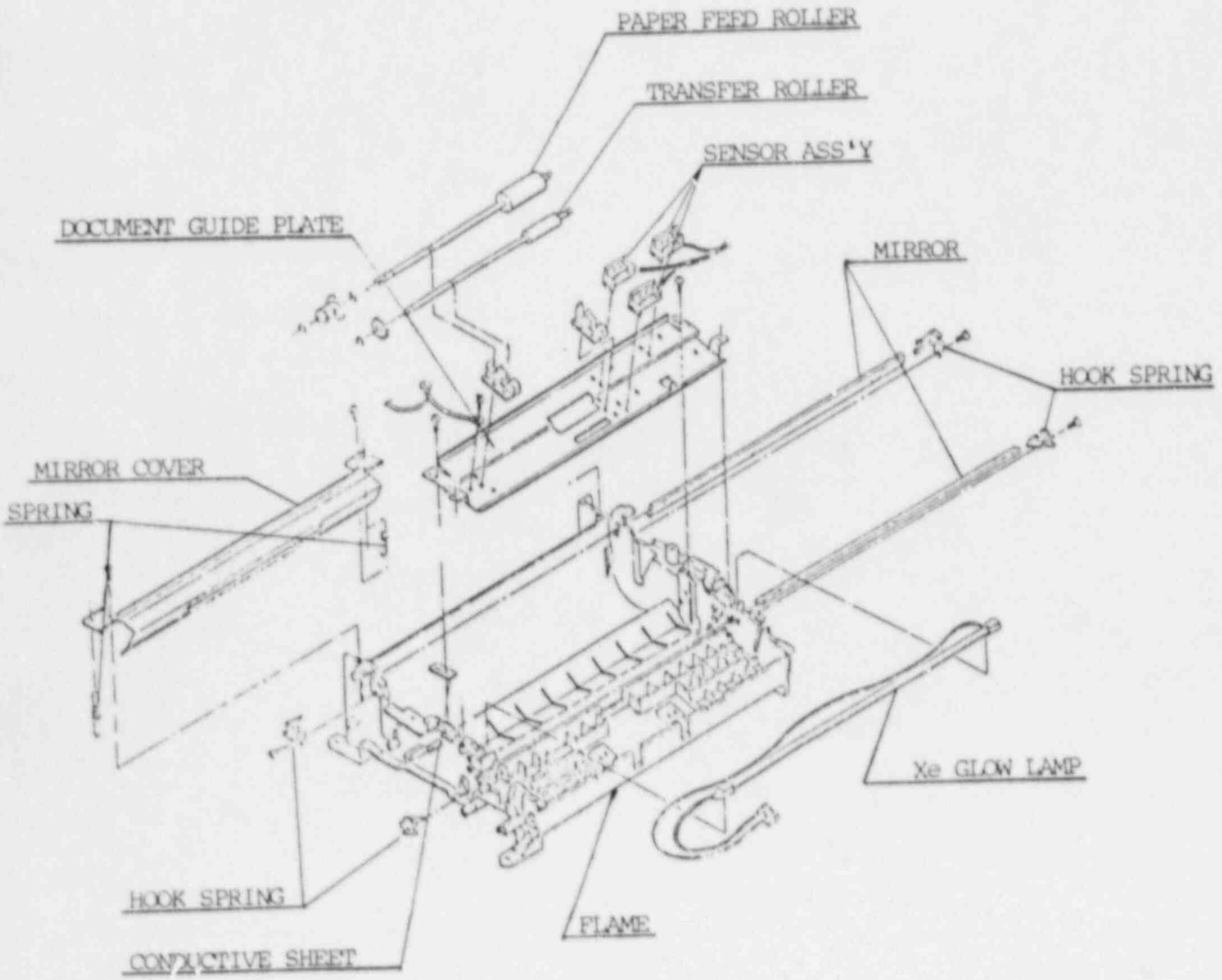
MAIN FRAME UNIT

(Containing the glow lamp Type M2)



MAIN FRAME UNIT

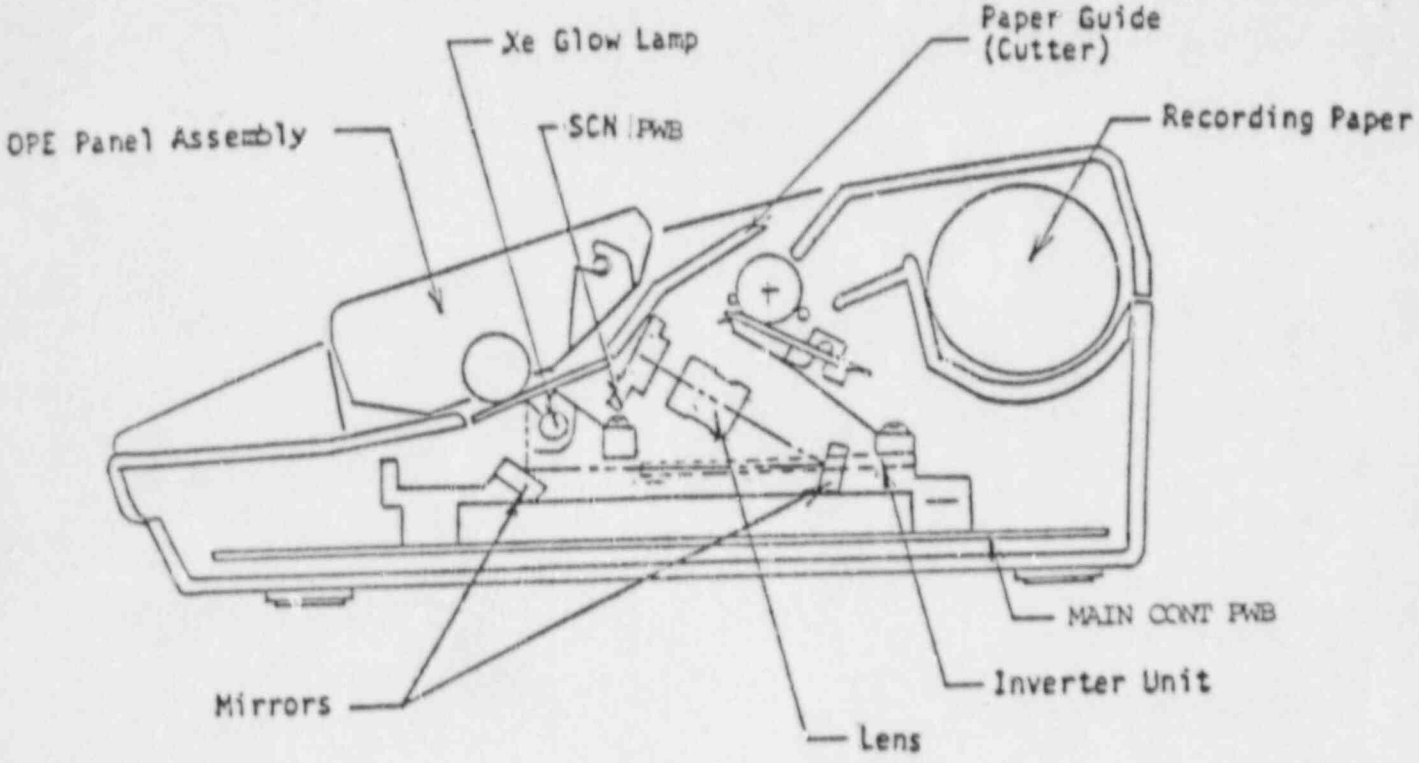
(Containing the glow lamp Type M3)



MECHANICAL DESCRIPTION

Facsimile machine containing glow lamp (M1)

Configuration

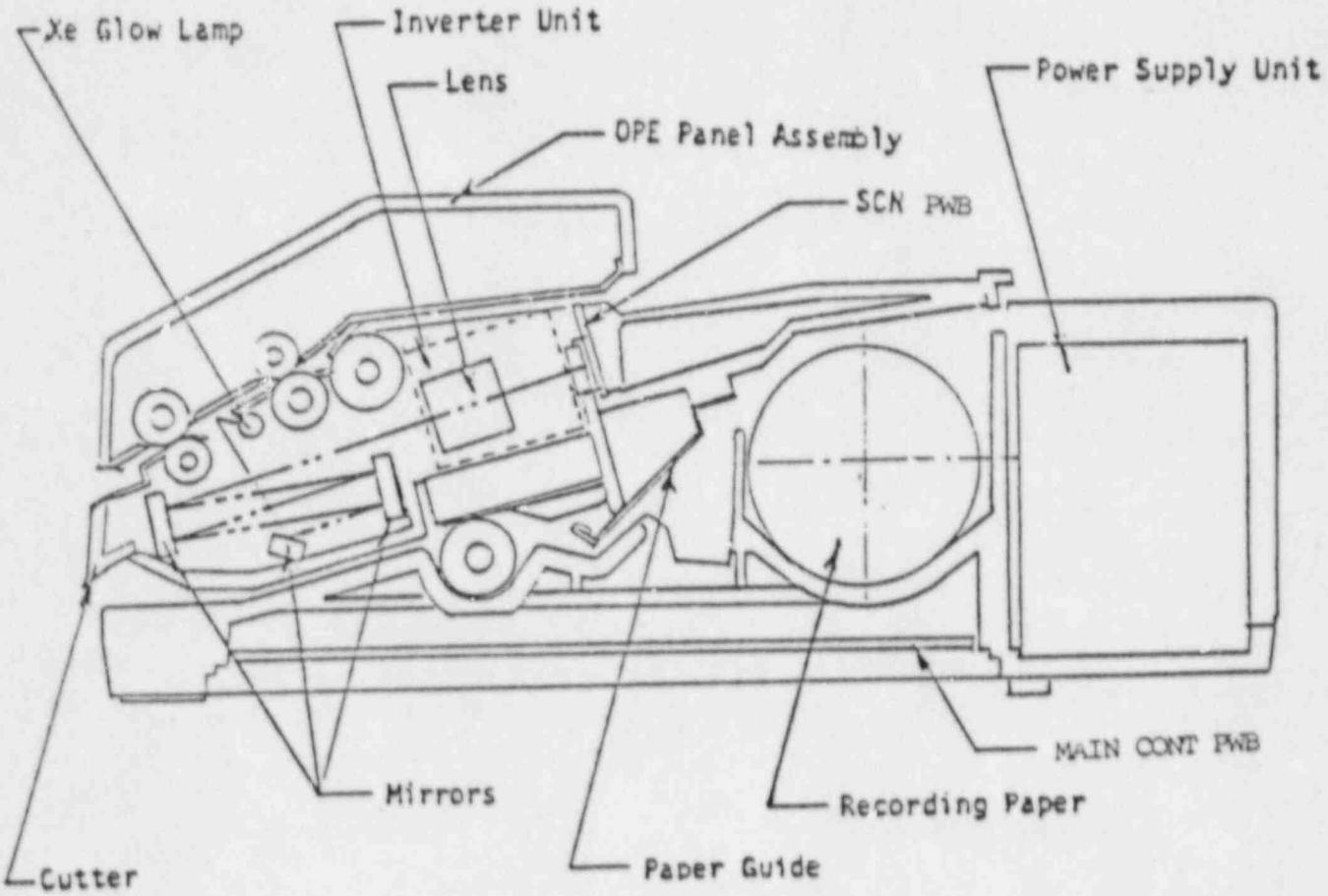


Configuration Diagram

MECHANICAL DESCRIPTION

Facsimile machine containing glow lamp (M2)

Configuration

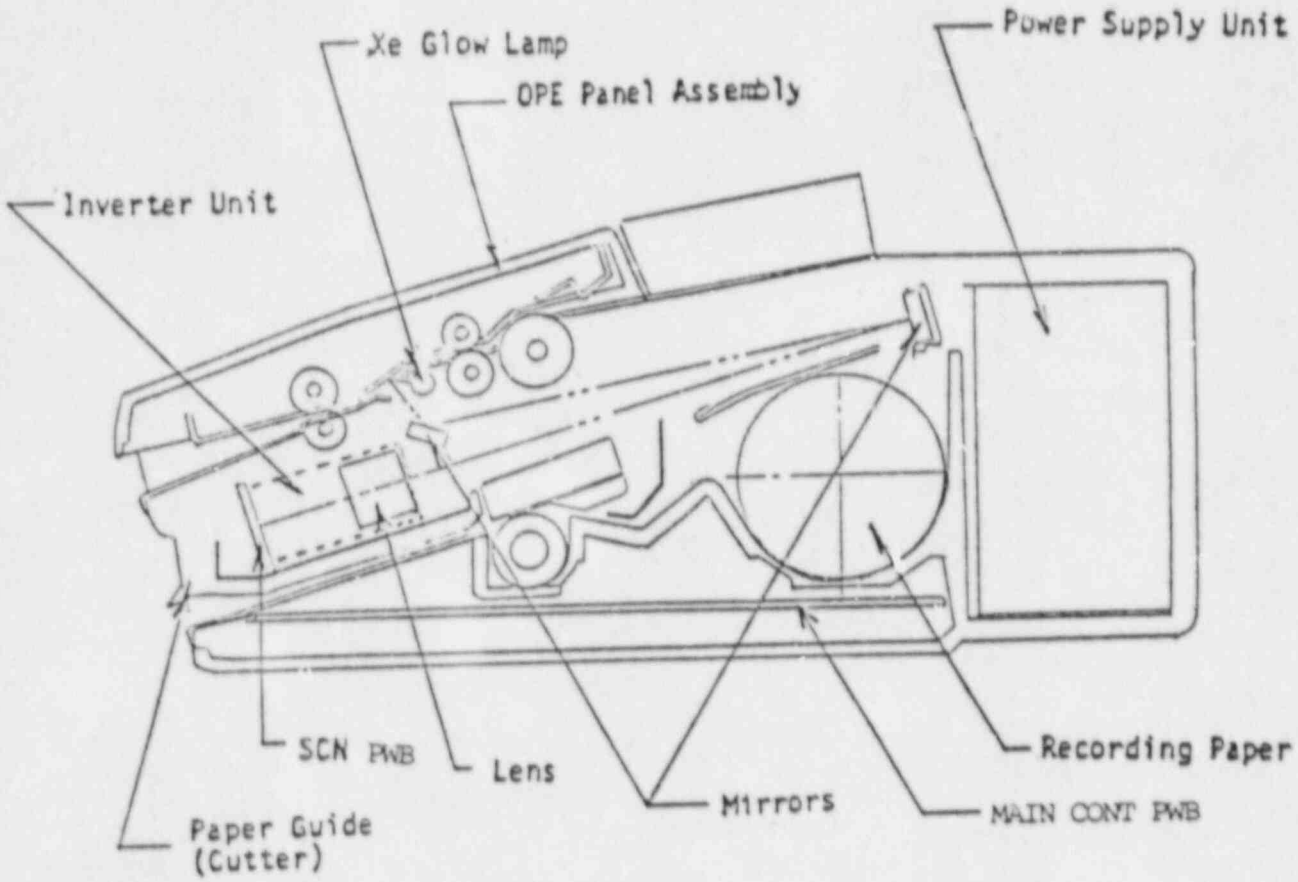


Configuration Diagram

Facsimile machine containing glow lamp (M3)

MECHANICAL DESCRIPTION

Configuration



Configuration Diagram

ADDENDUM to
Attachment 4

Explanation of Quality Control Procedures

The first quality control chart describes procedures during assembly. The second quality control chart describes tests applicable to the finished product. In these quality control procedures "lot" refers to the entire production during an 8-hour shift. Production averages 2000 bulbs per shift, and the maximum number is 2400 bulbs. There is currently one shift per day.

Therefore, in the first chart, "2 pcs per 4 hour" means that for a particular assembly procedure, 2 items are tested per an average of 1000 bulbs.

Similarly in the second chart, "n=3, c=0 per lot per day" means that for a particular assembly procedures, 3 items are sampled per an average of 2000 bulbs, with the lot being rejected if there are any failures. If additional shifts are added these procedures will be repeated for each shift.

Harison views the critical test as the actual lighting of each bulb, because lighting proves the integrity of the bulb envelope. Each and every bulb is test lighted by Harison. In addition, each and every bulb is test lighted by Toshiba Corporation before shipment to SEC. This 100% test lighting exceeds the requirements of § 32.110.

TOSHIBA Xe Glow Lamp QUALITY CONTROL PROCEDURES

Flow Charat	Process	Control Item	Sampling	Testing Measure
	Glass Tube Methanol			
	Tube Washing			
	Phospher			
[ ]	Phospher Coating	Drying Temp	At M/C start in Morning	Thermometer
[ ]	Coating Inspection	Transmission	2 pcs per 4 hour	Transmission device
[ ]	Baking	Oven Temp Bulb Temp	At M/C start in Morning	Thermometer Templiaq
	Electrode			
[ ]	Sealing	Appearance Shape Dimensions	2 pcs per 4 hour 2 pcs per 4 hour 2 pcs per 4 hour	Visual Visual Scale
	Electrode			
	Glass Bead			
[ ]	Bead Mount Making	Appearance Shape Dimensions	2 pcs per 4 hour 2 pcs per 4 hour 2 pcs per 4 hour	Visual Visual Scale
[ ]	Exhausting	Manifold Vacuum	At M/C start in Morning	Vacuum Gauge
	Filling Gas			
[ ]	Gas Filling	Gas Pressure	At M/C start in Morning	Pressure Gauge
[ ]	Aging	Voltage Aging Time	At M/C start in Morning	Voltmeter Timer
[ ]	Aging Bulb Inspection	Lighting Status	All	Visual
	Electric Conductive Adhesive			
[ ]	Printing	Appearance Dimensions	2 pcs at M/C start in Morning	Visual Scale
[ ]	Inspection	Appearance Starting Voltage	All All	Visual Testing Device
[ ]	Outo going Inspection & Test	Lamp Current Lamp Voltage Starting Voltage Dimensions Lighting Distribution Life	5 pcs per lot 5 pcs per lot 5 pcs per lot 5 pcs per lot 5 pcs per lot 3 pcs per week	Characteristics Testing Device Scale Lighting Distribution Testing Device Life Tester
	Packing			
	Delivery			

TOSHIBA Xe Glow Lamp QUALITY STANDARD
(Finished Lamp) (M1)

FC3A70G54/147T6/U-SH

Item	Specification	Sampling	Testing Measure
Lamp Current(mA)	12.5~14.5	n=3,c=0 per lot per day	Characteristic Testing Device
Lamp Voltage(V)	(270)	n=3,c=0 per lot per day	
Starting Voltage(V)	22.8 max.	n=3,c=0 per lot per day	Test device with lighting circuit
Illuminance(lx)	80 ±25%	n=3,c=0 per lot per day	Photometer
Vibration	4 hours min.	n=3,c=0 per month	Vibration Tester
Shock	30 G 3 times min.	n=3,c=0 per lot per day	Shock Tester
Life	120000 times min.	n=3,c=0 per week	Life Tester

TOSHIBA Xe Glow Lamp QUALITY STANDARD

(Finished Lamp) (M2)

FC5A70G54/254T6/U-SH

Item	Specification	Sampling	Testing Measure
Lamp Current(mA)	14.2~15.5	n=3, c=0 per lot per day	Characteristic testing Device
Lamp Voltage(V)	(270)	n=3, c=0 per lot per day	
Starting Voltage(V)	22.5 max.	n=3, c=0 per lot per day	Test device with lighting circuit
Illuminance(Lx)	130 ±25%	n=3, c=0 per lot per day	Photometer
Vibration	4 hours min.	n=3, c=0 per month	Vibration Tester
Shock	30 G 3 times min.	n=3, c=0 per lot per day	Shock Tester
Life	120000 times min.	n=3, c=0 per week	Life Tester

TOSHIBA Xe Glow Lamp QUALITY STANDARD
(Finished Lamp)(M3)

FC6A70G54/312T6/U-SH

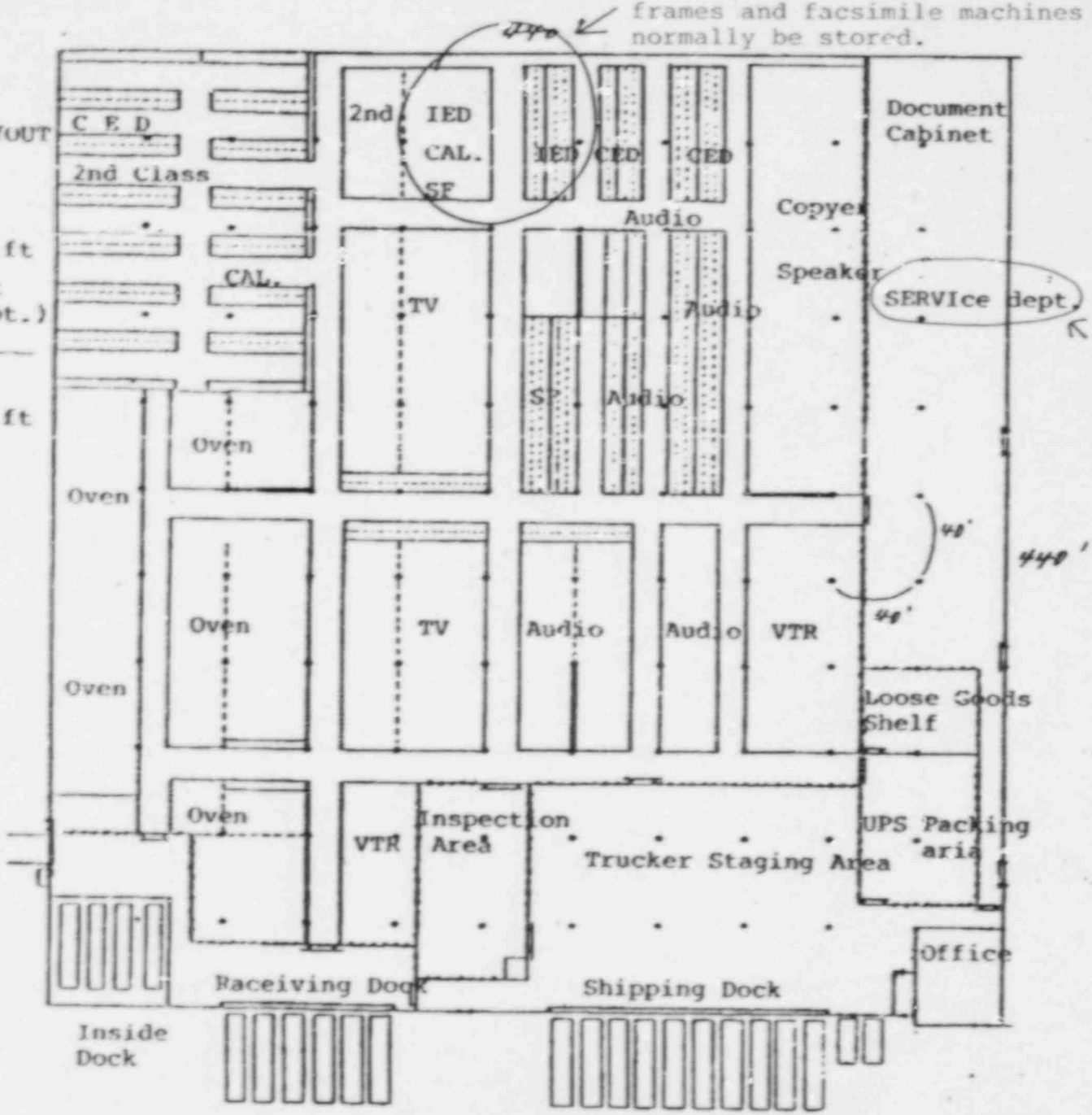
Item	Specification	Sampling	Testing Measure
Lamp Current(mA)	12.0~15.0	n=3, c=0 per lot per day	Characteristic testing Device
Lamp Voltage(V)	(310)	n=3, c=0 per lot per day	
Starting Voltage(V)	25.0 max.	n=3, c=0 per lot per day	Test device with lighting circuit
Illuminance(lx)	18[illegible] 5%	n=3, c=0 per lot per day	Photometer
Vibration	4 hours min.	n=3, c=0 per month	Vibration tester
Shock	30 G 3 times min.	n=3, c=0 per lot per day	Shock tester
Life	120000 times min.	n=3, c=0 per week	Life tester

NEW JERSEY
WAREHOUSE LAYOUT

440' x 440'
= 193,600
Sq.ft

18,760 sq.ft
(service dept.)

Actual W/H
174,840 Sq.ft



Attachment 5-1

DECEMBER 10, 1987

DUPLICATE FOLDER----------REGION III

34-20327-01 Universal Consultants, Inc.

Destroyed this date

REGION PROGRAM CODE _____ REVIEW: 1/3/5/7/9 ~~1/5/10/15/20~~ ~~1/10/20/30/40~~

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