April 3, 1992

John Lubinski
Mail Stop 6H3
United States Nuclear Regulatory Commission
1 White Flint North
1155 Rockville Pike
Rockville MD 20852

FYRNETICS INC.

Regarding; Response to your letter of February 7 referencing Amendment to NRC License No. 12-16856-01E control # 121188

Dear Mr. Lubinski;

We have reviewed your response letter of February 7, 1992 and through the phone conversations of the past weeks are addressing the specific issues of your February 7 letter.

This letter of response is a rewrite if my letter of March 13, and my fax of March 30. It incorporates all the original information and the requested changes and negates those earlier responses.

Per our phone conversation of April 3, 1992 you stated that the requirements for the testing which the NRC requires in order to be granted a license fall under CFR 32.29 (a). You also stated that there is not a standard test procedure which all smoke detector manufacturers must follow. You commented that each license is treated as an individual case and that the procedures are somewhat flexible in order to allow for different manufacturing processes.

We have concerns that since there is no standard test procedure which all manufacturers must follow, that the NRC may be requiring MIT / Fyrnetics to perform a much more stringent testing and inspection procedure than is required of other smoke detector manufacturers.

We are enclosing the information which you have requested in order that we may be granted our license amendment. We reserve the option to appeal the testing requirements of this amendment at a later date if we determine that we have been treated unfairly.

You also mentioned in our phone conversation that MIT would be allowed to perform the design conformity (mechanical assembly, labeling verification and removable contamination) tests based on the 5 % LTPD chart you enclosed in your fax of April 2, 1992, And not perform the test 100 % as was called out in item 3 of the same fax. This decision was based on the fact that MIT will be performing a 100 % leakage test on the mounted foil sources during the assembly process.

1021 Davis Road, Elgin, Illinois 60123 * (708) 742-0282 * Fax: (708) 888-3612

As I mentioned to you on the phone we have recently decided to relocate our place of business. We would like to incorporate the change of address in this amendment of our licen e. Our new business address as of May 1, 1992 will be:

Fyrnetics Inc.
1055 Stevenson Court
Suite 102-W
Roselle, IL 60172
(708) 893 4592

We have also recently requested that our State of Illinois distribution licence be changed to this location. I am enclosing a copy of that request as Appendix G. Susan Green had requested that I enclose a copy.

The updated responses to the specific items in your letter of February 7 and your fax of April 2 are as follows:

1. The type 200 ionization chamber will be used in six detector models. Three of the models are 120 volt A.C. powered, two of which have battery backup. The other three models are battery powered.

   All six models share common tooling for the plastic parts, and differ only in the features they provide. The models and features of the models are as follows:

   120 VOLT AC POWERED UNITS.

MODEL #	DESCRIPTION OF FEATURES
1235	120 VOLT A.C. POWERED IONIZATION TYPE WITH "HUSH"".
1275	120 VOLT A.C. POWERED IONIZATION TYPE WITH 9 VOLT BATTERY BACK-UP AND "HUSH"".
1285	120 VOLT A.C. POWERED IONIZATION TYPE WITH 9 VOLT BATTERY BACK-UP, "HUSH"· AND BATTERY POWERED SAFETY LIGHT.

   9 VOLT BATTERY POWERED UNITS

0915	9 VOLT BATTERY POWERED IONIZATION TYPE.
0916	9 VOLT BATTERY POWERED IONIZATION TYPE WITH "HUSH"".
0918	9 VOLT BATTERY POWERED IONIZATION TYPE WITH "HUSH"" AND SAFETY LIGHT.

2. Enclosed are copies of the drawings for the plastic parts used in the six detectors.

   ILL # 6 Detector cover drawing used on models 0918 and 1285.

   ILL # 7 Detector base drawing used on models 0918 and 1285.

ILL # 25	Detector cover drawing used on models 0915, 0916, 1235 and 1275.
ILL # 26	Detector base drawing used on models 0915, 0916, 1235, and 1275.
ILL # 19	Circuit board used in the models 0915, 0916, and 0918.
ILL # 19A	Circuit board used in the models 1235, 1275 and 1285.

3. Fyrnetics is a subsidiary of Management Investment & Technology Co. Limited (MIT). Fyrnetics is the marketing and distribution channel for smoke detectors produced by MIT. (see structure chart appendix "A") Fyrnetics takes care of all agency approval submittal and correspondence relating to the smoke detector product line. Fyrnetics does no manufacturing, only distribution.

Mit is located in Hong Kong and their address is:

Management Investment & Technology Co. LTD.
Wah Ming Building 15th floor
94 Wong Chuk Hang Road
Aberdeen Hong Kong

MIT manufacturers the complete smoke detector including the ionization chamber.

All quality testing is performed by MIT at the manufacturing site, a complete copy of the Quality Assurance procedure for the chamber assembley and final audit is included in appendix "B".

Not withstanding the extensive quality assurance program conducted by MIT, Fyrnetics will select randomly a sample of the units from each production run to verify the following items:

A. The mechanical assembly of the detector.
B. Compliance of the N.R.C. labeling requirements for the detector labeling the point of sale package labeling,
C. Perform a leakage test on the case of the detector.

The sample size for the testing by Fyrnetics will be selected based on the 5 % LTPD chart. The inspection procedure that Fyrnetics Inc will use and a copy of the chart are enclosed as Appendix E.

4. EAD has been removed as a vendor from the source list (see Appendix C).

5. All detectors are sealed and the consumer has no access to the ionization chamber, consequently all consumer information is provided on the label on the back of the detector.
All models of detectors will incorporate the following information on the product label:

CONTAINS RADIOACTIVE MATERIAL. THIS DEVICE CONTAINS 0.9 MICROCURIE OF AMERICIUM 241. THIS DETECTOR IS DISTRIBUTED UNDER U.S. NRC LICENCE NO. 12-16856-01E

All models of detectors will contain the following information on the point of sale packaging:

THIS PRODUCT IS DESIGNED TO DETECT PRODUCTS OF COMBUSTION USING THE IONIZATION TECHNIQUE. IT CONTAINS 0.9 MICROCURIE OF AMERICIUM 241, A RADIOACTIVE MATERIAL. DISTRIBUTED UNDER NRC LICENCE NO 12-16856-01E. MANUFACTURED IN COMPLIANCE WITH U.S. NRC SAFETY CRITERIA IN 10 CFR 32.27. THE PURCHASER IS EXEMPT FROM ANY REGULATORY REQUIREMENTS.

The name of the licence holder (Fyrnetics Inc Elgin ILL. 60123) is included on the product label (the address will be changed once we receive our new Illinois Distribution licence). A copy of the label (model 0915) showing its placement on the back of the detector is included in Appendix F.

6. A detailed evaluation of the safety criteria outlined in 32.27 10 of the CFR was prepared and is included as appendix "D".

7. All tests were performed on the model 0918 since it is the unit which has all the features possible. The original evaluation report has several typing errors in the appendix 2 portion. In the appendix 2 the model number is called out as 0908 and 0608. The reference to 0908 and 0608 are both typing errors and should be 0918. There is also a reference to the model 0908 on the cover letter and report from J.R. Peterson & Assoc., Inc. All testing outlined in appendix 2 of the original report and the J.R. Peterson & Assoc., Inc. report was done on the model 0918.
The model 1285 is identical to the 0918 except the 1285 is 120 volt AC powered with battery back up.
The rest of the models have various features deleted from the full featured 0918 and 1285.

1275	same as 1285 but with safety light deleted
1235	same as 1275 but with battery backup deleted.
0916	same as 0918 but with safety light deleted.
0915	same as 0916 but with "HUSH" deleted.

We have revised the source inspection procedure to meet the 100% testing requirements the N.R.C. mandates. It is included in the revised Appendix B.

We feel that the enclosed information fulfills your requests for the additional information you need to finalize the licence amendment.

If there are any questions or items on which you need an explanation, please contact me at 1-800-654-7665.

Sincerely;
Fyrnetics Inc.

Larry Ratzlaff
Product Eng.

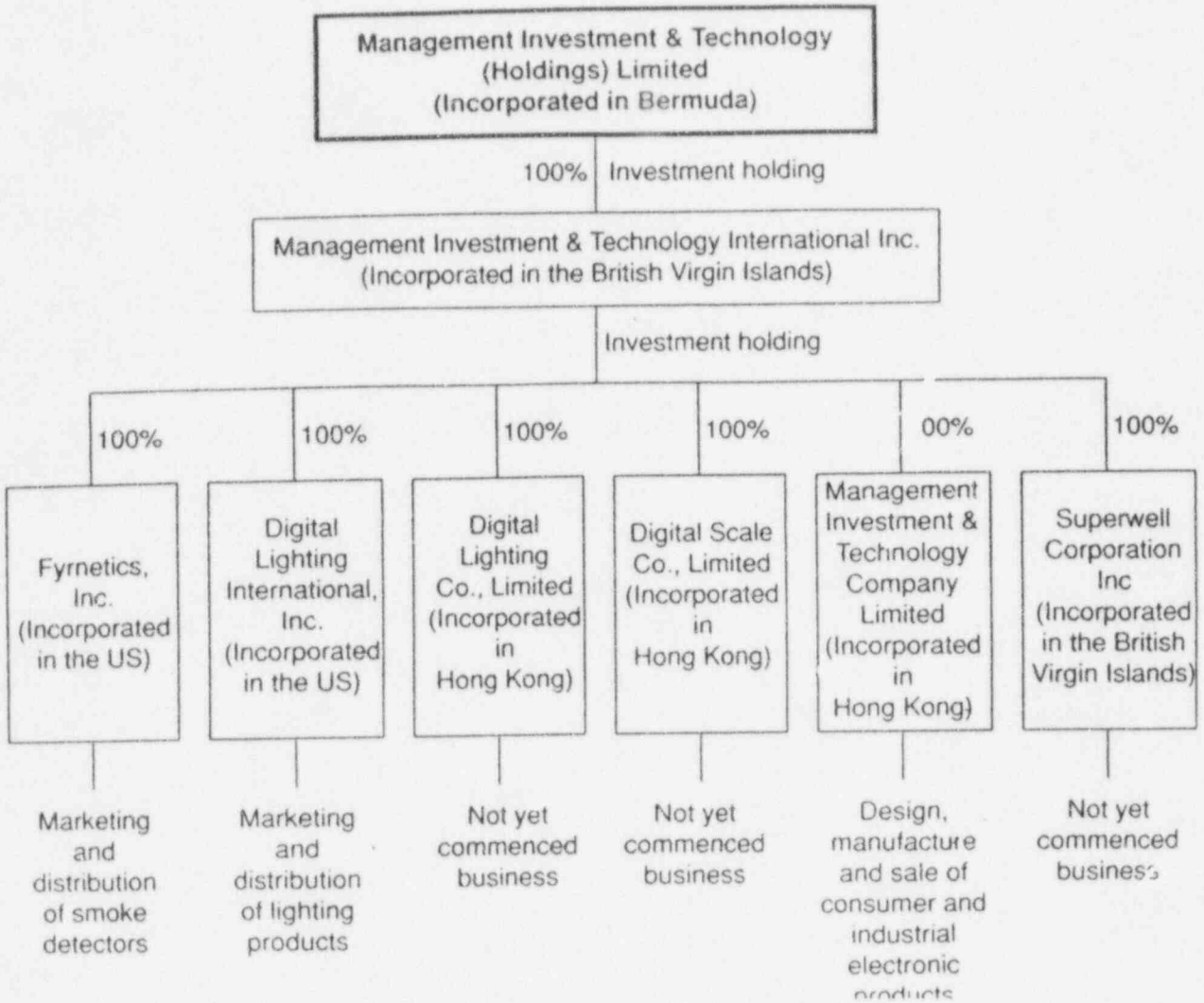
c.c. Marlova Bacon, Tom Russo, Joanne Sha, Jerry Rork

APPENDIX A

INFORMATION RELATING TO THE MIT GROUP

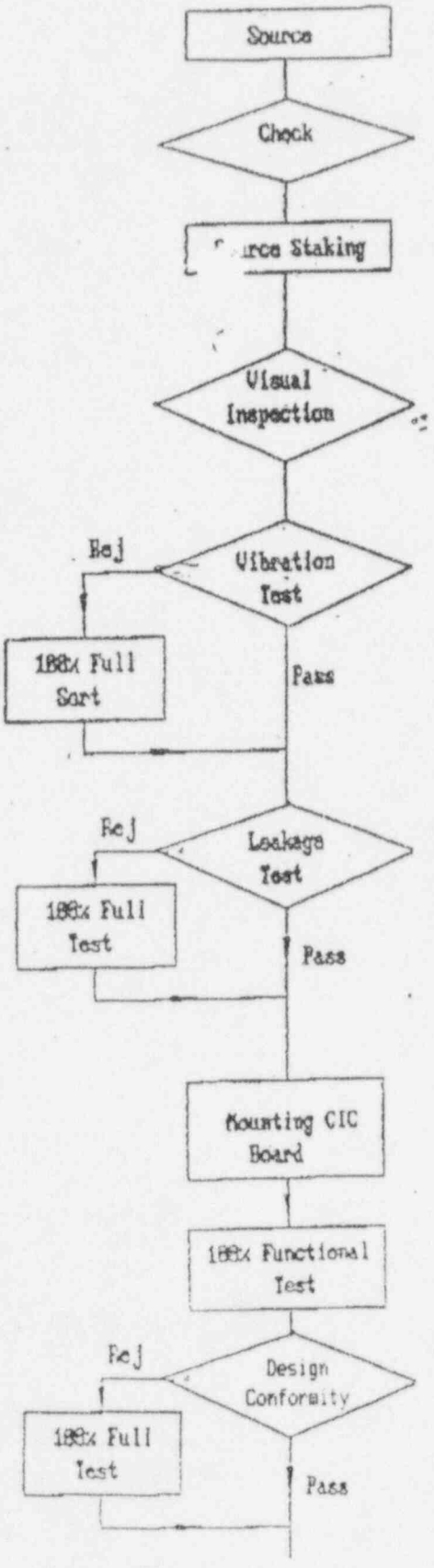
CORPORATE STRUCTURE AND PRINCIPAL ACTIVITIES

The following chart shows the present group structure and the principal activities of each company in the Group:—



APPENDIX B

Chamber Assembly QC/QA Procedure



100 % CHECK

MIL-STD-105D
LOT SIZE 1000
Sample Size 80

100 % CHECK

Sample Check
of mechanical
assembly,
labeling,
and leakage.
Lot size based on
Modified 5% chart
32.110, 10 CFR

MANAGEMENT INVESTMENT &
TECHNOLOGY CO., LTD.
榮文科技有限公司

1. SOURCE CHECK

After the sources are received from NRD or AMERSNAM we will inspect the sources in order to assess its suitability for the following items.

a. Visual Check
b. Packing

2. SOURCE STAKING VISUAL INSPECTION

The source holders will be 100 % inspected after assembly. The stake marks must clearly be seen. No damage of the source is accepted.

3. VIBRATION TEST

Every 1000 pieces of production source holders assemblies will form a control batch, 80 samples will be drawn for vibration testing (MIL-STD-105D).

Conditions	Frequency:	50 - 60 HZ
	Amplitude:	0.5 mm P-P
	Duration:	1.0 minute

100 % visual check after vibration test, no loose source is allowed. If a loose source is found 100 % of the batch will be put through the vibration test and visual inspection procedure.

4. LEAKAGE TEST

4.1 EQUIPMENT

a. Scintillation Alpha Counter: Eberline Model SAC-4
b. Certified calibration source: Manufacturer Eberlinr Instrument Corporation

Model: S-1872
Isotope: TH- 230
Quantity: 23,230 dpm

WAH MING BUILDING 11TH FLOOR
34 WONG CHUK HANG ROAD
ABERDEEN HONG KONG
ABERDEEN P.O. BOX
CABLE MANAGEMENT
TELEX
FACSIMILE

4.2 CALIBRATION OF COUNTER

a. Connect the counter to line voltage 220 VAC.
b. Push the START / OFF button upward.
c. Allow counter to warm up for 5 minutes.
d. Set counting time to 30 seconds.
e. Clean the moveable drawer with a test paper, then shut the drawer.
f. Push the START / RESET button to COUNT.
g. After the counting has stopped, note the total number of counts. This background leakage is L1.
h. Insert the calibrated source in the counter drawer and close the drawer. Count for 30 seconds. This reading is L2.
i. ACCEPT REJECT COUNTS equals (L1 minus L2) divided by the calibration source quantity times ACCEPT / REJECT QUANTITY.
j. Post this ACCEPT / REJECT COUNTS on the counter.

4.3 TEST PROCEDURE FOR MOUNTED SOURCES

100 % testing of mounted sources

1. After selected vibration testing and visual inspection 100 % of the mounted sources in the 1000 piece control batch will be placed in rows or groups of 75 pieces.
2. A test paper is moistened with alcohol, that test paper is then wiped across each of the individual units (the same paper is wiped across each of the 75 units) in the row or group. All mounted sources in the lot are wiped following this procedure and in no case will the amount of sources wiped with one moistened test paper exceed 75 pieces.
3. Each test paper is evaporated to dryness.
4. Each Individual test paper is put into the door of the counter and the door closed.
5. Push the start / reset button and count for 30 seconds
   A. If the count is less than the acceptable leakage limit for a single source (100 pCi) those 75 pieces will be accepted.

B. If the count is greater than the acceptable leakage limit for a single source that batch of 75 pieces will be rejected.
   a. If rejected the entire 75 piece lot will be cleaned and the complete test repeated.
      a1. If the second test count is now less than the acceptable limit for a single source . (100 pCi) the 75 piece lot will be accepted.
      a2. If after the second test the count is greater then the acceptable limit for a single source all 75 pieces will be returned to the source vendor.

5. MIT AUDIT PROCEDURE FOR COMPLETED DETECTORS

After the smoke detectors are completely assembled and prior to packaging MIT will perform an inspection on a random sample of each production lot of smoke detectors. The size of the audit sample will be based on the 5 % LTPD sampling chart.
The detectors will be checked for the following items

1. Mechanical integrity of the detector (insurer that the detector is properly assembled).
   1a. Zero defects allowed, if defects are found the lot will be handled in the manner outlined in 5, b1. of this test procedure.
2. Labeling, The point of sale packaging labeling and the detector labeling will be checked to insure that they meet the N.R.C. labeling requirements.
   2a. Zero defects allowed, if defects are found the lot will be handled in the manner outlined in 5, b1. of this test procedure.

3. A leakage test to insure that no radioactive contamination is present on the case of the detector will be performed using the equipment called out in the preceding test and the following procedure:

1. A test paper will be moistened with alcohol.
2. These audited detectors (75 pieces maximum) will be wiped with the same moistened test paper.
3. The test paper will be evaporated to dryness.
4. The test paper will be placed in the drawer of the counter and the door closed.
5. Push the Start / Reset button and count for 30 seconds.
   a. If the total count is less than the acceptability limit for one unit (100pCi) the whole lot would be accepted. and released for shipment

b. If the total count is greater than the acceptable limit for a single detector the whole lot will be rejected.

b1. The rejected lot will be segregated from the other units in house and a 100 percent testing of the entire lot will be performed using the appropriate procedure. All units passing the 100% test will be released for shipment.

b2. All rejected units will be scraped.

6. All records from the testing will be sent to Fyrnetics along with the product and kept at Fyrnetics for inspection by the N.R.C..

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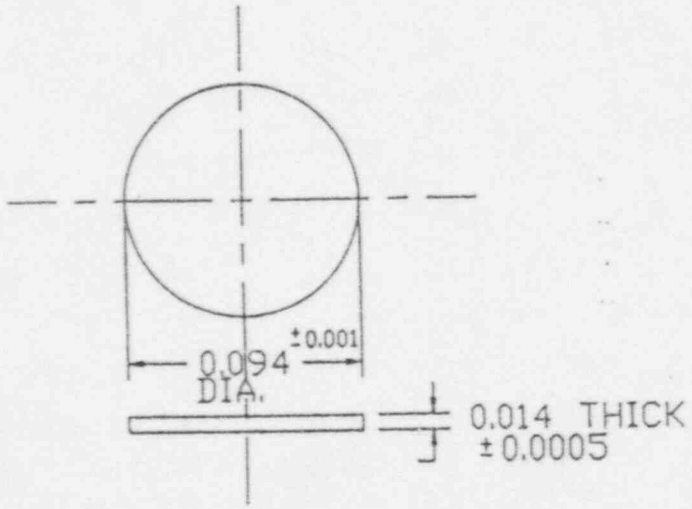
REVISIONS			
SYM.	DESCRIPTION	DATE	APP.

PART NO.	MATERIAL	ACTIVITY (SEE NOTE 1)	ENERGY (SEE NOTE 1)
0905-4109	AM-241		4.5 MeV ±5%



NOTES:

1. ACTIVITY AND ENERGY TO BE FUNCTIONALLY DETERMIND BY MEASURING IONIZATION CURRENT IN A TEST APPARATUS AND CALIBRATED WITH LIMIT ACTIVITY SAMPLES. BOTH SUPPLIED BY FYRNETICS, INC.
2. PACKING: 250 INDIVIDUAL FOIL ELEMENTS TO BE PACKED IN GLASS OR PLASTIC VIALS AND PACKED IN APPROPRIATE OUTER CONTAINERS AS TO CONFORM TO INTERNATIONAL SHIPPING REGULATIONS.
3. APPROVED VENDORS:
   a. NRD, INC MODEL A-001
   b. AMERSHAM SEARLE A-1001
4. IONIZATION CURRENT TO BE WITHIN ±5% FACE TO FACE.

MANAGEMENT INVESTMENT & TECHNOLOGY CO., LTD.

UNLESS SPECIFIED , ALL DIMENSIONS ARE IN MM
TOLERANCE ON :
FRACTIONS ± .40 DECIMALS ± .12 ANGLE ± 0.15°

THIRD ANGLE PROJECTION

PART NAME: SOURCE RADIOACTIVE SINGLE FACE

PART NO: 0905-4109

QTY. REQ'D PER UNIT : 1

MATERIAL: AM-241

FINAL PROTECTIVE FINISH:

MODEL NO: ALL

SCALE: N.T.S

SHEET 1 OF 1

☐ PLASTIC ☐ P.C.B. ■ METAL ☐ OTHERS

DWG SIZE : A4 REV. 2

DWG. CM.WONG

CHK. Simon Lee

APP.

APPENDIX C

APPENDIX D

EVALUATION OF
SAFETY CRITERIA per 32.27 10 CFR

PREPARED FOR:

Fyrnetics, Inc.
Type 200 Ionization Chamber

Prepared by:
Gerald D. Rork
Smoke Detector Consultant
P.O. Box 142
Dundee, Illinois 60118
(708) 428-4409

Risk Analysis Page 1

Exposure, Dose and Dose Commitment

Note: Measured exposure rates are shown in Appendix 1.

1. Normal handling and use of a single unit

A. Transport by consumer.

Assumptions:
1. 1.0 uCi Am 241 per detector.
2. Transport time - 0.5 hours
3. Distance - 1 meter.
4. Exposure rate is the maximum measured for these model detectors - 0.83 uR/hr at 25 cm or 5.19E-3 uR/hr at 1 meter.
5. 0.93 rem/R.

Whole body dose = 5.19E-9 R/hr X 0.5 hr X 0.93 rem/R
= 2.4E-9 rem.

B. Installation by consumer.

Assumptions:
1. 1.0 uCi Am 241 per detector.
2. Installation time by consumer - 0.25 hr.
3. Average distance = 0.5 meter.
4. Exposure rate is the maximum measured for these model detectors - 0.83 uR/hr at 25 cm or 2.1E-8 uR/hr at 0.5 meter.
5. 0.93 rem/R.

Whole body dose = 2.1E-8 uR/hr X 0.5 hr X 0.93 rem/R
= 9.77E-9 rem.

C. Detector in home.

Assumptions:
1. 1.0 uCi Am 241 per detector.
2. Occupancy factor in bedroom is 8 hr per day.
3. Average distance = 3 meter.
4. Exposure rate is the maximum measured for these model detectors - 0.83 uR/hr at 25 cm or 6.9E-9 uR/hr at 3 meter.
5. 0.93 rem/R.

Whole body dose = 6.9E-9 R/hr X (8 X 365 hr/year)
X 0.93 rem/R.
= 1.87E-5 rems.

D. Disposal of a single unit.

The consequences of disposal of smoke detectors in normal household trash is discussed in Reference 1. This discussion is not repeated here.

These doses or dose commitments do not exceed those specified in Column 1 of the table in 32.28 10 CFR.

Exposure, Dose and Dose Commitment (cont.)

2. Normal handling and storage of quantities of detectors.

A. Warehouse worker

Assumptions:
1. 1.0 uCi Am 241 per detector.
2. 40 hour work week, 2000 hours per year.
3. 4 hours per week with hands in contact with a detector in a box and 36 hours per week at 25 cm from a detector.
4. Box provides shielding equivalent to 5 cm of distance.
5. 40 hours per week at 3 meters from a stacked array of 1000 detectors.
6. Exposure rate is the maximum measured for these detectors - 0.741 uR/hr at 5 cm and 0.083 uR/hr at 25 cm.
7. 0.93 rem per R.

Single Detector

Dose to hands = 7.41E-7 R/h X 4 hr/wk X 50 wk/yr
X 0.93 rem/R
= 1.38E-4 rem/yr.

Whole Body Dose = 8.3E-8 R/hr X 36 hr/wk X 50 wk/yr
X 0.93 rem/R
= 1.39E-4 rem/yr.

Stacked Array (Reference 2)

Whole Body Dose = 0.25 uR/hr X 2000 hr/yr X 0.93 rem/R /3
= 1.55E-4 rem/yr.

Total Whole Body Dose = 1.39E-4 rem + 1.55E-4 rem
= 2.94E-4 rem/yr.

These doses or dose commitments do not exceed those specified in Column 1 of the table in 32.28 10 CFR.

Exposure, Dose and Dose Commitment

3. Reduction in containment or shielding from normal wear and abuse.

A. Normal wear.

The outer surfaces of the ionization chamber consist of the sense chamber and the printed wiring board. The sense chamber is made out of 0.3 mm stainless steel. There are no known wear-out mechanisms of this material. The printed wiring board is made out of 1.6 mm epoxy impregnated fiberglass. There are no known wear-out mechanisms of this material. The ionization chamber is further protected by the plastic cover and base which are snapped together.

Thus, it is unlikely that there will be a reduction in the containment or shielding of the ionization chamber due to wear during normal handling of the product.

B. Abuse.

Since there are no wear out mechanisms of the materials used in the ionization chamber, a reduction in the containment or shielding could only occur due to intentional tampering or from the effects of a fire.

1. External Exposure - Intentional Tampering.

Assumptions: 1. 1.0 uCi source removed from detector and placed at 1 cm air equivalent from body for 24 hours.
2. Specific gamma constant for Am 241 is 1.2E-8 R/hr at 1 m/uCi.
3. 0.93 rem/R.

Dose = 1.2E-8 R/hr X $(100 \text{ cm/m})^2$ X 24 hr X 0.93 rem/R
= 2.68E-3 rem.

Note: In order for the source assembly to be placed next to the body the detector and the ionization chamber would have to be disassembled. This is unlikely but possible.

Exposure, Dose and Dose Commitment

B. Abuse (cont.)

2. Ingestion of a Single Source Assembly

Assumptions:
1. 1.0 uCi per Source Assembly.
2. 50 year dose commitment.
3. 1.0% of foil content removed while in GI tract (Reference 4).
4. 1.5% of Am 241 lost from foil absorbed by blood (Reference 4).
5. Fifty (50) year dose conversion factors for ingestion (Reference 1).

Whole Body = 5.42E - 2 (rem/uCI)
Liver = 2.85E - 1 (rem/uCi)
Skeleton = 8.21E - 1 (rem/uCi)
Kidneys = 4.07E - 1 (rem/uCi)

Dose Commitment = 1uCi X 0.01 X 0.015 X Dose Conversion Factor

= 8.13E - 6 rem Whole Body
= 4.28E - 5 rem Liver
= 1.23E - 4 rem Skeleton
= 6.11E - 5 rem Lungs

Note: In order for the source assembly to be ingested the detector and ionization chamber would have to be disassembled. This is unlikely but possible.

Even under these abnormal conditions, these doses or dose commitments do not exceed those specified in Column 1 of the table in 32.28 10 CFR.

Exposure, Dose and Dose Commitment

3. Dose and Dose Commitment from Fire in a Warehouse Containing Storred Detectors.

Note: The worst case condition that could occur would be due to a fire in Fyrnetics' warehouse since this building would contain the largest number of units likely to accumulate in aany one place.

1. Inhabitants of Building

Assumptions: 1. Fifty (50) year dose conversion factors for inhalation (Reference 1).

Whole Body = 2.4E+1 (rem/uCi)
Liver = 3.2E+2 (rem/uCi)
Skeleton = 3.3E+2 (rem/uCi)
Lungs = 5.2E+1 (rem/uCi)

2. Ten percent (10%) of the 0.5 Ci present (500,000 units) is incinerated.
3. 0.1% of the Am 241 incinerated is converted to airborne particulates (Reference 3).
4. Total air mixing with no air exchange from outside building.
5. Inhabitants remain in the building for two minutes after Am 241 is incinerated.
6. Breathing rate = 14 liters per 2 minutes.
7. Volume of building = 3.06E+6 liters.

Dose Commitment = 1E-1 X 0.5E+6 uCi X 1E-3 X 14 l X Dose Conversion Factor/3.06E+6 l
= 2.28E-4 uCi X Dose Conversion Factor

= 5.49E-3 rem Whole Body
= 7.32E-2 rem Liver
= 7.54E-2 rem Skeleton
= 1.18E-2 rem Lungs

Even under these abnormal conditions, these doses or dose commitments do not exceed those specified in Column 2 of the table in 32.28 10 CFR. Thus, it may be concluded that the probability is low that the containment could fail in a manner such that these doses or dose commitments would be exceeded.

Exposure, Dose and Dose Commitment

2. Fireman Fighting Fire From Downwind

Assumptions:
1. Dose Conversion Factors as above.
2. One hundred percent (100%) of the 0.5 Ci present is incinerated during a one hour fire.
3. 0.1% of the Am 241 incinerated is converted to airborne particulates. (Reference 3)
4. Breathing rate = 420 l/hr.
5. Building integrity is breached.
6. Venting causes a ten-fold reduction in concentration.
7. Volume of building = 3.06E+6 liters.
8. One hour is spent in fighting the fire from downwind.

Note: Due to the chemical toxicity of the smoke, it is impossible that a fireman could spend one hour breathing the smoke without breathing apparatus. A reasonable estimate of the reduction in dose commitment due to use of breathing apparatus is at least a factor of ten.

It is also unlikely that all of the Am 241 would be incinerated since this assumes that the sprinkler system does not work and the fire fighting efforts are totally unsuccessful in putting out the fire in less than one hour. Thus, this calculation represents only an extremely unlikely worst case scenario.

Dose Commitment = 5E+5 uCi X 1E-3 X 420 l X 1E-1 X 1E-1
X Dose Conversion Factors/3.06E+6 l

= 6.86E-4 X Dose Conversion Factors

Dose Commitment = 0.0165 rem Whole Body
= 0.220 rem Liver
= 0.226 rem Skeleton
= 0.0357 rem Lungs

Even under these abnormal conditions, these doses or dose commitments do not exceed those specified in Column 2 of the table in 32.28 10 CFR. Thus, it may be concluded that the probability is negligible that the containment could fail in a manner such that these doses or dose commitments would exceeded those specified in Column 3 of the table.

REFERENCES (Copies available upon request)

1."Environmental Assessment of Ionization Chamber Smoke Detectors Containing Am 241", NUREG/CR-1156.

2. This calculation uses the same assumptions shown in 3.2.4.2 of Reference 1, except for the 1/3 factor to account for the 1 uCi per detector.

3. Reference 1 uses this same assumption. It is consistent with the data shown in : Niemeyer, R.G., "Containment Integrity of Ra 226 and Am 241 Foils Employed in Smoke Detectors" ORNL-TM-2684.

4. Rundo, J.,et al. "Ingestion of Am Sources Intended for Domestic Smoke Detectors: Report of a Case". Health Physics Volume 33, Pages 561-566, (1977).

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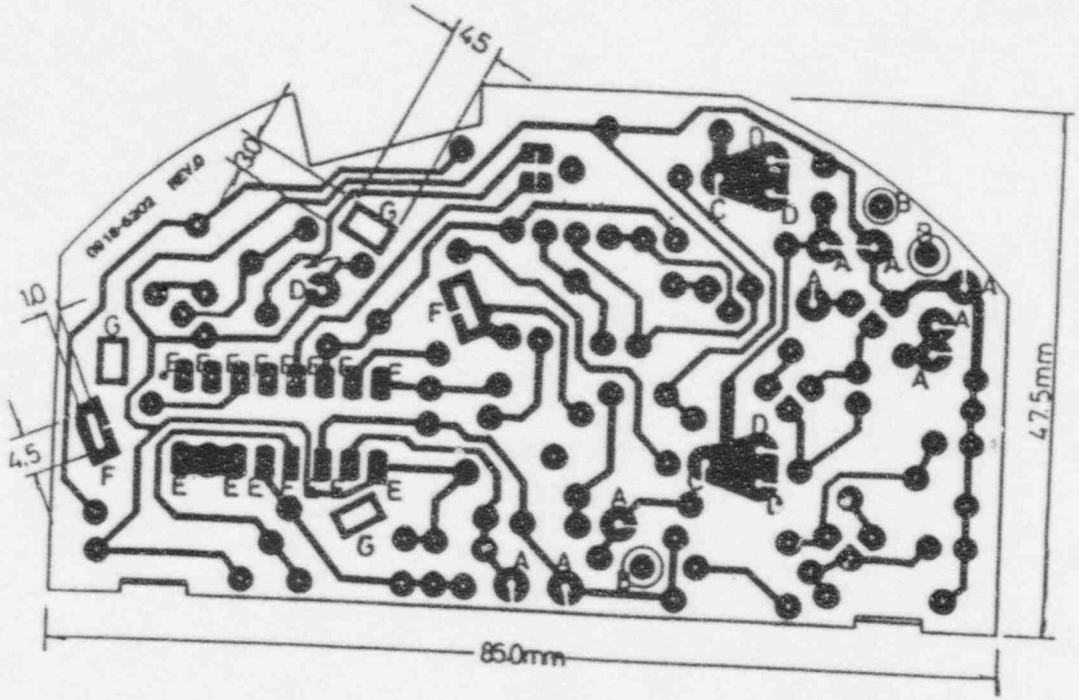
REVISIONS			
SYM	DESCRIPTION	DATE	APPR.



HOLE	SIZE(mm)	QTY.
A	Ø1.1	9
B	Ø3.0	3
C	Ø1.9	2
D	Ø1.5	5
E	Ø0.8	15
F	RECT. 4.5X1.0	2
G	RECT. 4.5X3.0	3
OTHER	Ø1.0	97

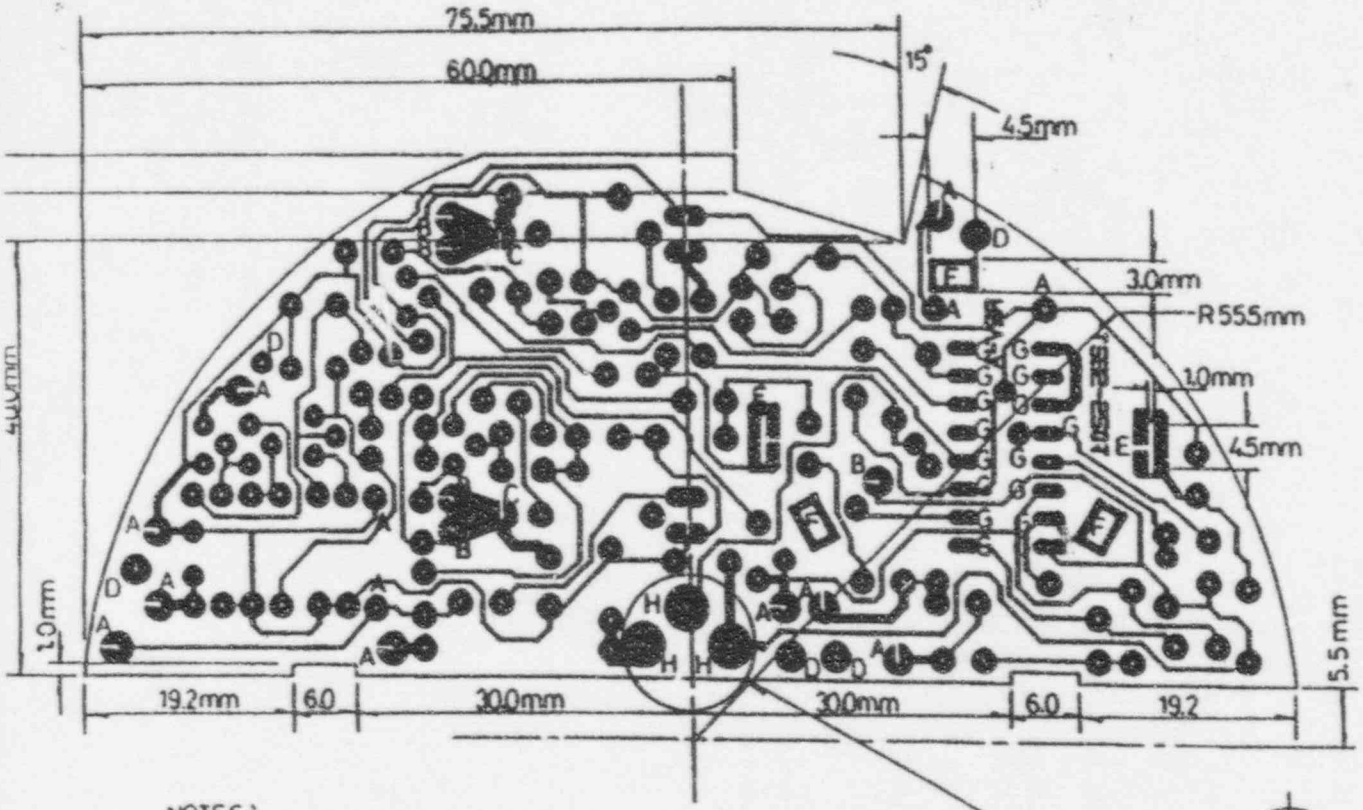
S1816
VOL.10
SEC.1
ILL.19
PG.2

UNLESS SPECIFIED, ALL DIMENSIONS ARE mm. TOLERANCES ON: FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/2°	QTY. REQ'D PER UNIT: 1	TR.		MANAGEMENT INVESTMENT & TECHNOLOGY CO., LTD.
MATERIAL: 1.6mm THICKNESS PAPER PHENOLIC UL-94HB 1oz COPPER	USED ON: 0918	DR.	CM.WONG 22-8-90	P.C.B DIE CUT
FINAL PROTECTIVE FINISH:		DES.		
		CH.		SCALE N.I.S
		ENG.	D. Lotto	SHEET OF
				DWG SIZE B
				0918-5202 REV PR

0915 0916

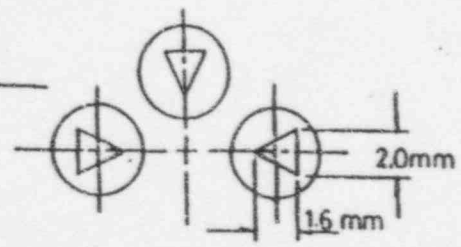
NOT APPROVED FOR PRODUCTION

REVISIONS			
DWG.	DESCRIPTION	DATE	APP.



HOLE	SIZE(mm)	QTY.
A	Ø1.1	13
B	Ø1.5	5
C	Ø1.9	2
D	Ø2.5	5
E	RECT. 4.5X1.0	2
F	RECT. 4.5X3.0	3
G	Ø0.8	16
OTHER	Ø1.0	120
H	TRIANGLE 2X1.6	3

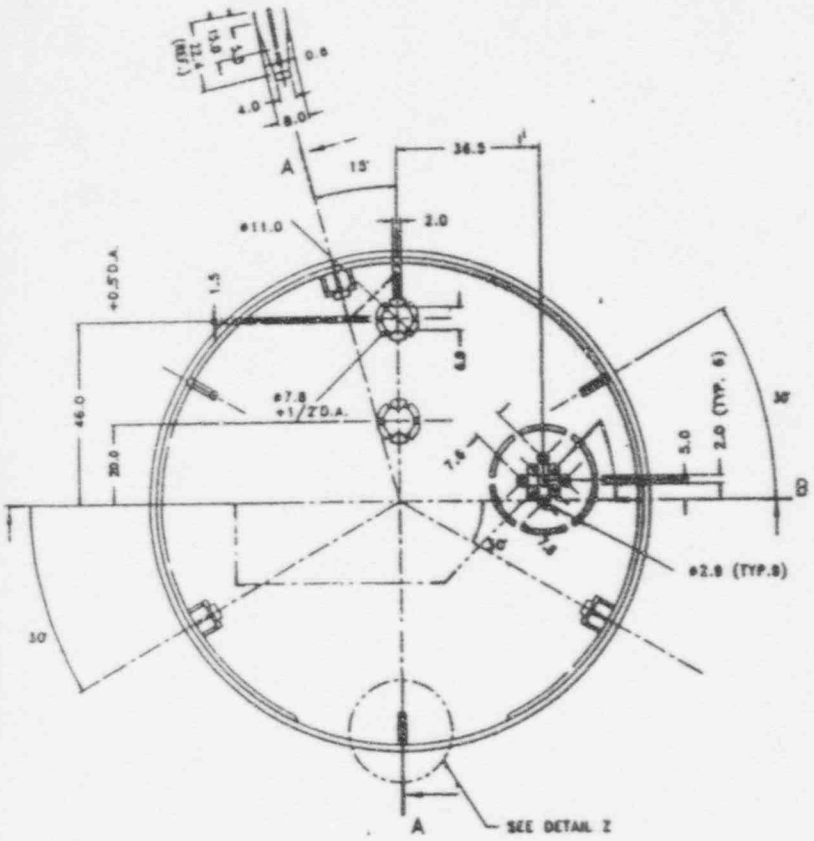
NOTES:
1. BOARD TO HAVE A "SEAL BRITE" FINISH.
2. FABRICATORS UL CODE TO APPEAR ON ALL BOARDS.

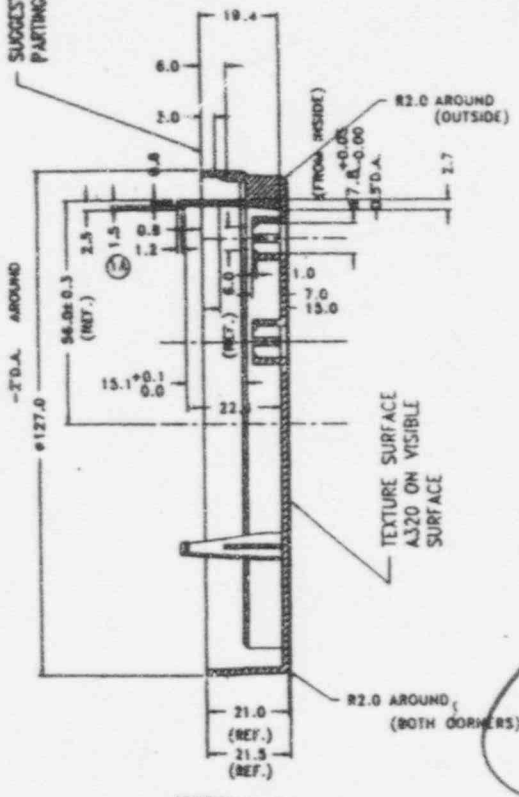


File S1816
Vol. 10
Sec. 2
Ill. 19A

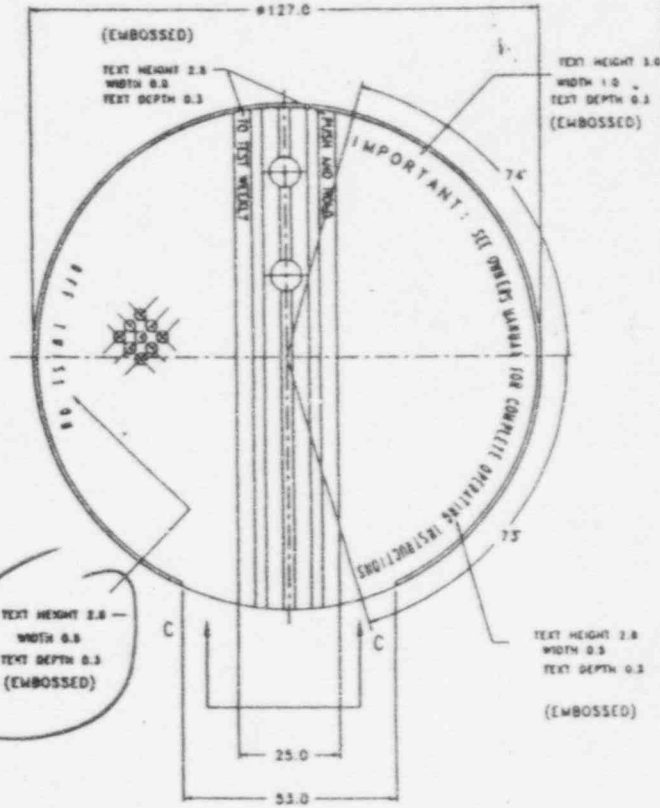
MANAGEMENT INVESTMENT & TECHNOLOGY CO., LTD.	UNLESS SPECIFIED, ALL DIMENSIONS ARE IN MM TOLERANCE ON: FRACTIONS ± .40 DECIMALS ± .13 ANGLE ± 0.13°	MODEL NO. 1285	DWG SIZE: A3	REV. A	
THIRD ANGLE PROJECTION	PART NAME: PCB DIE CUT OF 1285	MATERIAL: 1.6mm THICKNESS, 1 SIDE 1oz COPPER, UL-94V0	SCALE 2:1	DWG. C.M.WONG	30-7-1991
	PART NO. 1285-5201 QTY. REQ'D PER UNIT: 1	FINAL PROTECTIVE FINISH	SHEET 1 OF 1	CHK.	
				APP.	

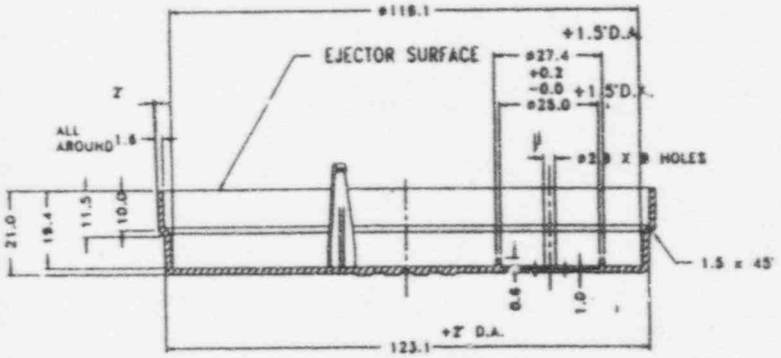
P/S	REVISION DETAIL	DATE
1A	±0% THICKNESS TO 1.5mm	12/3/98
1B	ADD 3 SUPPORT	11/20/98
2	GEN. REL.	11/12/98



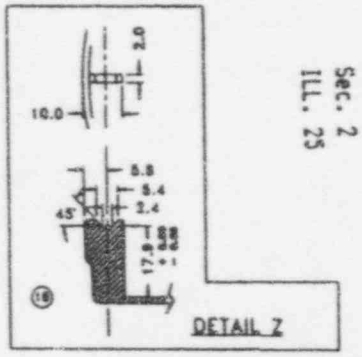


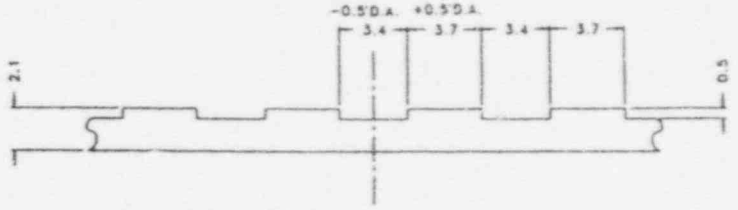
SECTION A-A





SECTION B-B





SECTION C-C (SCALE 5 : 1)

FILE S1816
Vol. 10
Sec. 2
ILL. 25

NOTES : 1) PARTS SHOULD BE APPROVED BY ENG'G BEFORE PRODUCTION
2) PARTS MUST BE FREE OF ALL MOLD DEFECTS
3) WORDINGS MOLDED ON SURFACE ARE ALL EMBOSSED
4) MOLD SHRINKAGE FACTOR 5/1000

MATERIAL: DC UNIT : HIPS BASF 456M AC UNIT : HS-2000	TR.		MANAGEMENT INVESTMENT & TECHNOLOGY CO. LTD
	DR.	K.L. NG	
	DES.		COVER
	CH.		SCALE FULL SHEET OF
	ENG.		A2
			DC UNIT : 0918 AC UNIT : 1285-1285

APPENDIX E

FYRNETICS INC.

FYRNETICS INSPECTION PROCEDURE

After the smoke detectors are received in the U.S., Fyrnetics will perform an inspection on a random sample of each production lot of smoke detectors received. The size of the sample will be based on the 5 % LTPD chart.

The detectors will be checked for the following items:

1. Mechanical integrity of the detector (insurer that the detector is properly assembled).
   1a Zero defects allowed, if defects are found the lot will be handled in the manner outlined in 5, b1. of the Fyrnetics test procedure.
2. Labeling, The point of sale packaging labeling and the detector labeling will be checked to insure that they meet the N.R.C. labeling requirements.
   2a. Zero defects allowed, if defects are found the lot will be handled in the manner outlined in 5, b1. of the Fyrnetics test procedure.

3. A leakage test to insure that no radioactive contamination is present on the case of the detector will be performed using the following procedure:

4. LEAKAGE TEST

4.1 EQUIPMENT

a. Scintillation Alpha Counter: Eberline Model SAC-4
b. Certified calibration source: Manufacturer Eberline Instrument Corporation
   Model: DNS-1 SN 7716
   Isotope: Pu- 239
   Quantity: 19,210 dpm

4.2 CALIBRATION OF COUNTER

a. Connect the counter to line voltage 120 VAC.
b. Turn on the A.C. power to the counter
c. Allow counter to warm up for 5 minutes.
d. Set counting time to 1 minute.
e. Clean the moveable drawer with a test paper, then shut the drawer.
f. Push the START / RESET button to COUNT.
g. After the counting has stopped, note the total number of counts. This background leakage is L1.
h. Insert the calibrated source in the counter drawer and close the drawer. Count for 1 minute. This reading is L2.
i. ACCEPT REJECT COUNTS equals (L1 minus L2) divided by the calibration source quantity times ACCEPT / REJECT QUANTITY.
j. Post this ACCEPT / REJECT COUNTS on the counter.

4.3 TEST PROCEDURE

1. A test paper will be moistened with alcohol.
2. These audited detectors will be wiped with the same moistened test paper(75 pieces maximum per test paper).
3. The test paper will be evaporated to dryness.
4. the test paper will be placed in the drawer of the counter and the door closed.
5. Push the Start / Reset button and count for 1 minute.
   a. If the total count is less than the acceptability limit for one unit (100pCi) the whole lot would be accepted. and released for shipment
   b. If the total count is greater than the acceptable limit for a single detector the whole lot will be rejected.
      b1. The rejected lot will be segregated form the other units in house and a 100 percent testing of the entire lot will be performed using the appropriate procedure. All units passing the 100% test will have to be sent our for repackaging prior to returning them to shippable goods.
      b2. All rejected units will be returned to the manufacturing location.
6. All records from the testing will kept at Fyrnetics for inspection by the N.R.C..

ENCLOSURE 1

LTPD = 3%

LOT SIZE	*n*	*c*
1 - 40	All	0
41 - 55	40	0
56 - 100	55	0
101 - 200	65	0
201 - 500	70	0
501 - 3000	75	0
3001 - 100,000	130	0

LTPD = 5%

LOT SIZE	*n*	*c*
1 - 30	All	0
31 - 50	30	0
51 - 100	37	0
101 - 200	40	0
201 - 300	43	0
301 - 400	44	0
401 - 2000	45	0
2001 - 100,000	75	0

Acceptance Number (*c*) means the largest number of defectives (or defects) in the sample or samples under consideration that will permit the acceptance of the inspection lot.

Sample (*n*) means in acceptance sampling, one or more units of product (or a quantity of material) drawn from a lot for purposes of inspection to reach a decision regarding acceptance of the lot.

Samples must be chosen at random which means the process of selecting sample units must be done in such a manner that all units within the lot have the same probability of being selected.

APPENDIX F


LIFESAVER
SMOKE ALARM
S/N 109078
FOR REPAIR OR SERVICE RETURN TO MANUFACTURER
FYRNETICS, INC ELGIN, IL 60123
DO NOT PAINT
CONSTANT PULSATING ALARM INDICATES THAT COMBUSTION PARTICLES HAVE BEEN DETECTED.
NOT RECOMMENDED FOR OPERATION AT TEMPERATURES BELOW 40°F OR ABOVE 100°F OR IN HUMIDITY HIGHER THAN 85% R.H.
CONTAINS RADIOACTIVE MATERIAL. THIS DEVICE CONTAINS 0.5 MICROCURIE OF AMERICIUM 241. THIS DETECTOR IS DISTRIBUTED UNDER U.S. NRC LICENCE NO. 12-18856-01E.
FOR FURTHER INFORMATION REFER TO THE OWNERS MANUAL.
MADE IN
CHINA C
Sensitivity = 1.26 percent/ft
±0.38 percent
01 92 2

APPENDIX F


LIFESAVER
SMOKE ALARM
S/N 109078
FOR REPAIR OR SERVICE RETURN TO MANUFACTURER
FYANETICS, INC. ELGIN, IL. 60123
DO NOT PAINT
CONSTANT PULSATING ALARM INDICATES THAT COMBUSTION PARTICLES HAVE BEEN DETECTED.
NOT RECOMMENDED FOR OPERATION AT TEMPERATURES BELOW 40°F OR ABOVE 100°F OR IN HUMIDITY HIGHER THAN 85% R.H.
CONTAINS RADIOACTIVE MATERIAL. THIS DEVICE CONTAINS 0.9 MICROCURIE OF AMERICIUM 241. THIS DETECTOR IS DISTRIBUTED UNDER U.S. NRC LICENCE NO. 12-16856-01E.
FOR FURTHER INFORMATION REFER TO THE OWNERS MANUAL.
Sensitivity = 1.26 percent/ft ±0.38 percent
MADE IN CHINA C

APPENDIX G

March 31, 1992

FYRNETICS INC.

Ms. Mary E. Burkhart
Licensing Section
Dept. of Nuclear Safety
1035 Outer Park Drive
Springfield, IL 62704

RE: RADIOACTIVE MATERIAL LICENSE #IL-01200-01

Dear Mary:

This is to inform you that on May 1, 1992, we will move to the following address:

1055 Stevenson court
Suite 102-W
Roselle, IL 60172
(708) 893-4592

A diagram in duplicates of our storage area are enclosed. Please change to the new address on the license.

Sincerely yours,

FYRNETICS, INC.

Joanne Y. Sha

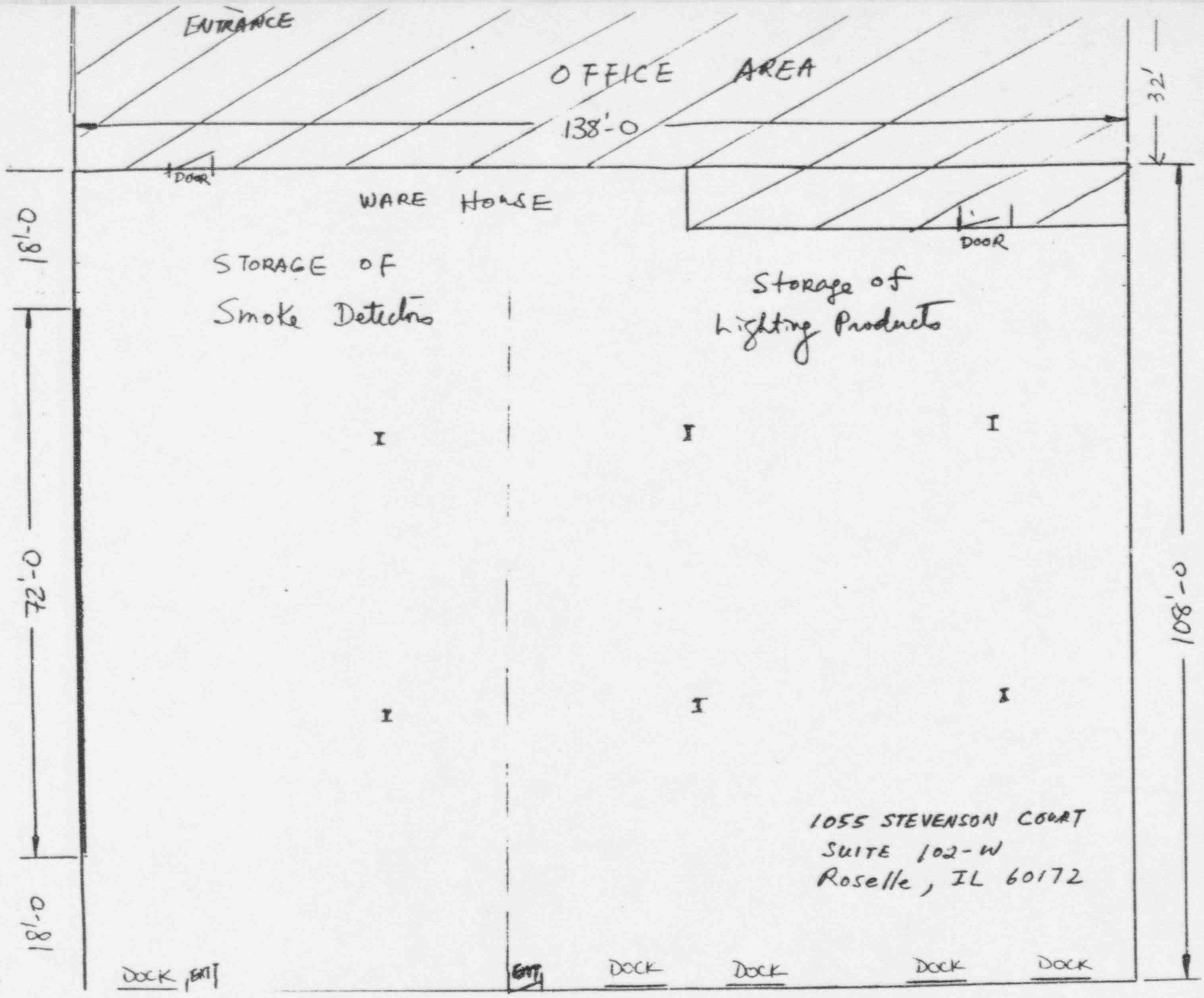
Joanne Y. Sha
Secretary/Treasurer

JYS/mls

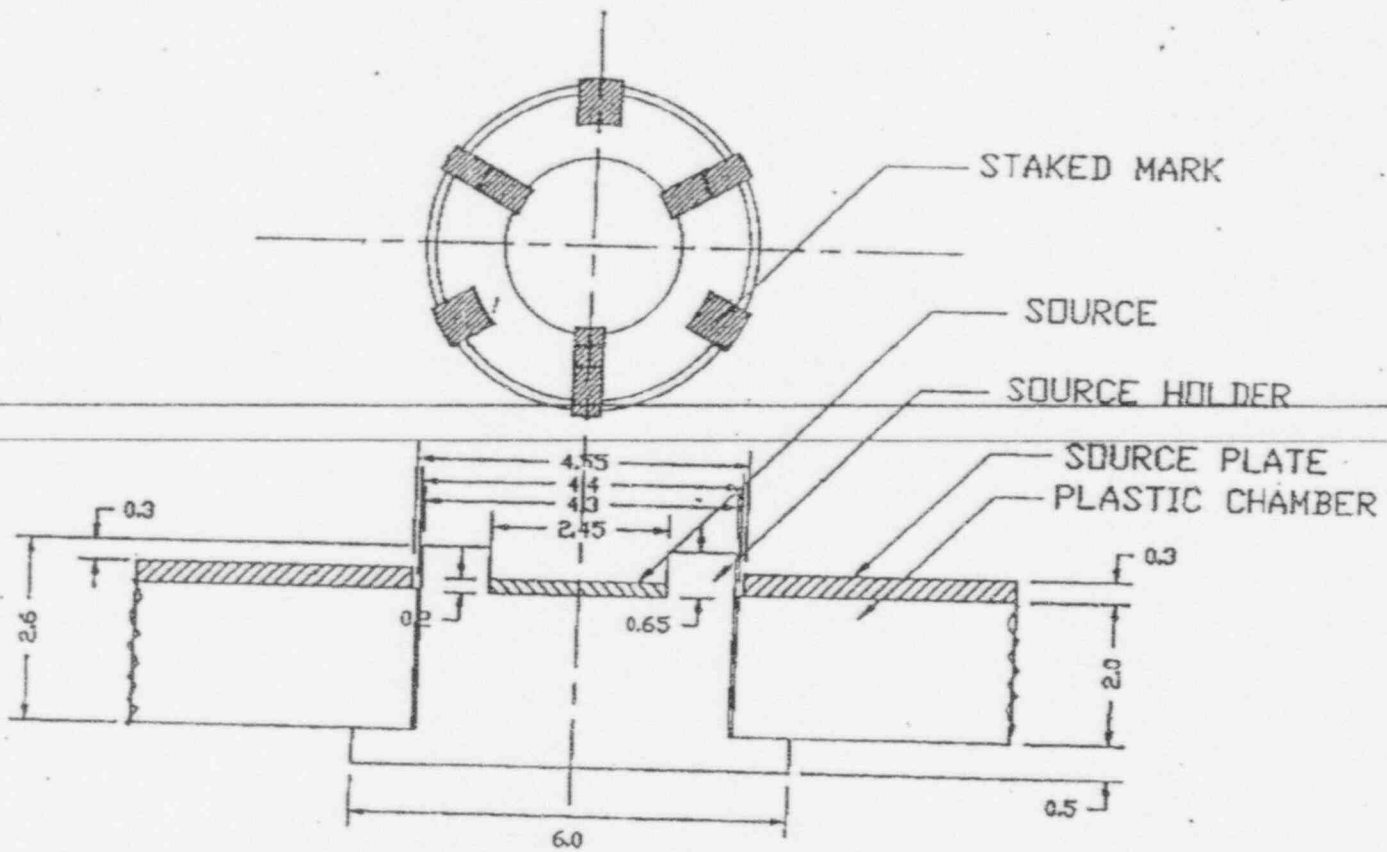
Enclosures

CC: Larry

1021 Davis Road, Elgin, Illinois 60123 * (708) 742-0282 * Fax: (708) 888-2612


ENTRANCE
OFFICE AREA
138'-0
32'
DOOR
WARE HOUSE
DOOR
18'-0
STORAGE OF
Smoke Detectors
Storage of
Lighting Products
CT
72
72'-0
108'-0
18'-0
1055 STEVENSON COURT
SUITE 102-W
Roselle, IL 60172
DOCK
EXIT
DOCK
DOCK
DOCK
DOCK

APPENDICS 1
PAGE 1

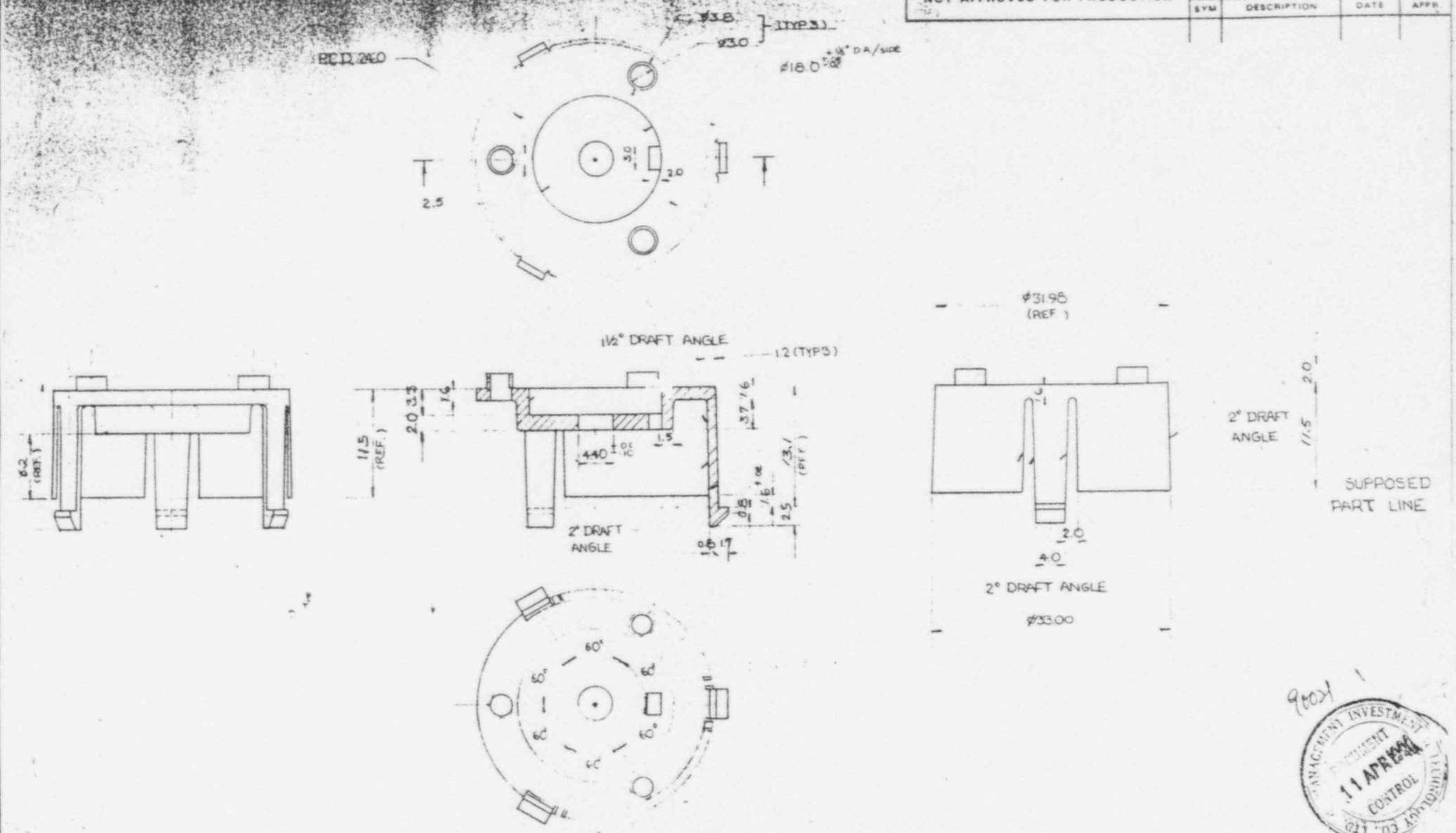


SCALE 10:1

MANAGEMENT INVESTMENT & TECHNOLOGY CO., LTD.	UNLESS SPECIFIED, ALL DIMENSIONS ARE IN MM TOLERANCE ON : FRACTIONS ± .40 DECIMALS ± .12 ANGLE ± 0.15°	MODEL NO:	DWG SIZE : A4	REV. PR	
THIRD ANGLE PROJECTION	PART NAME: CHAMBER ASSEMBLY DRAWING	MATERIAL:	SCALE: N.T.S	DWG.	CM.WONG
	PART NO:	QTY. REQ'D PER UNIT : 1	SHEET OF	CHK.	
		FINAL PROTECTIVE FINISH:	☐ PLASTIC ☐ P.C.B. ☒ METAL ☐ OTHERS	APP.	TIKLHO

NOT APPROVED FOR PRODUCTION

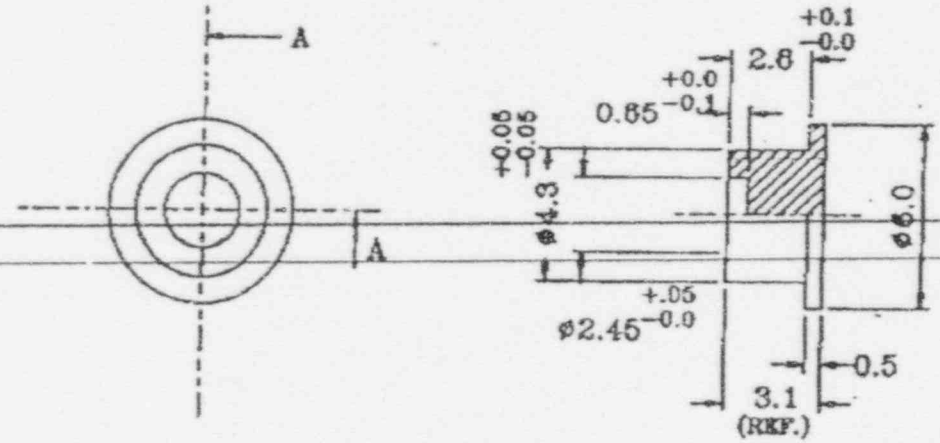
REVISIONS			
SYM	DESCRIPTION	DATE	APPR.



UNLESS SPECIFIED, ALL DIMENSIONS ARE IN ~~INCHES~~ MM. TOLERANCES ON: ~~FRACTIONS ± 1/64~~ ~~DECIMALS ± .005~~ ANGLES ± 1/2° ± .05	QTY REQ'D PER UNIT: 1	TR.	
		DR. C.M. CHUI 5/6/93	MANAGEMENT INVESTMENT & TECHNOLOGY CO., LTD.
MATERIAL: POLYSTYRENE (PS) DEGREE OF SHRINKAGE : 5/1000	USED ON: 0908S	DES.	CHAMBER PLASTIC HOUSING
		CH.	SCALE: 2/1 · DWG SIZE: B · 0910-2106 · REV: 1
FINAL PROTECTIVE FINISH		ENG.	SHEET OF

NOT APPROVED FOR PRODUCTION

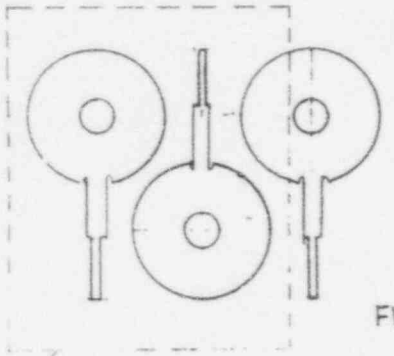
REVISIONS			
SYM.	DESCRIPTION	DATE	APP.
2	CHANGE THE HIGHT FROM 2.9mm TO 26mm	5-24-90	



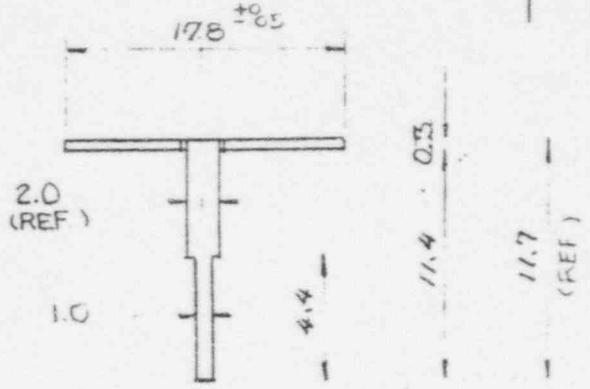
MANAGEMENT INVESTMENT & TECHNOLOGY CO., LTD.	UNLESS SPECIFIED, ALL DIMENSIONS ARE IN MM TOLERANCE ON : FRACTIONS ± .40 DECIMALS ± .12 ANGLE ± 0.15°	MODEL NO: 0910 1265	DWG SIZE : A4	REV. 2	
THIRD ANGLE PROJECTION	PART NAME: SOURCE HOLDER	SCALE: 4:1	DWG.	CM.WONG	
	PART NO: 0910-4103 QTY. REQ'D PER UNIT : 1	SHEET 1 OF 1	CHK.		
	MATERIAL: STAINLESS STEEL 303		APP.	TIKI.HO	
	FINAL PROTECTIVE FINISH: NATURAL	☐ PLATED ☐ P.C.B. ☐ MOLD ☐ OTHERS			

NOT APPROVED FOR PRODUCTION

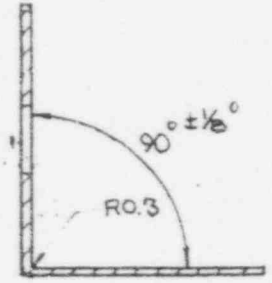
REVISIONS			
SYM	DESCRIPTION	DATE	APPR

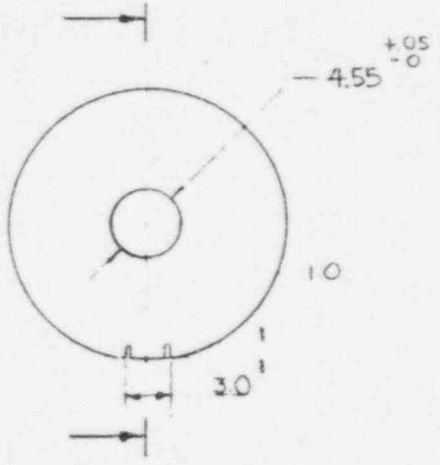


FULL SIZE



SUPPOSED TOOLING PATTERN
TO SAVE MAT'L





UNLESS SPECIFIED, ALL DIMENSIONS ARE IN ~~INCHES~~ MM
TOLERANCES ON:
~~FRACTIONS ± 1/64~~ DECIMALS ~~± .005~~ ±.05 ANGLES ~~± 1/2°~~ ±1/4°

QTY. REQ'D PER UNIT: 1

MATERIAL: 0.3 mm STAINLESS STEEL (#304)

USED ON: 0910

FINAL PROTECTIVE FINISH:

TR.	
DR.	C.M.CHU 3/6/88
DES.	
CH.	
ENG.	3/6/88

MANAGEMENT INVESTMENT & TECHNOLOGY CO., LTD.

SOURCE PLATE

SCALE: N.T.S

DWG. SIZE: A

0910 - 4102

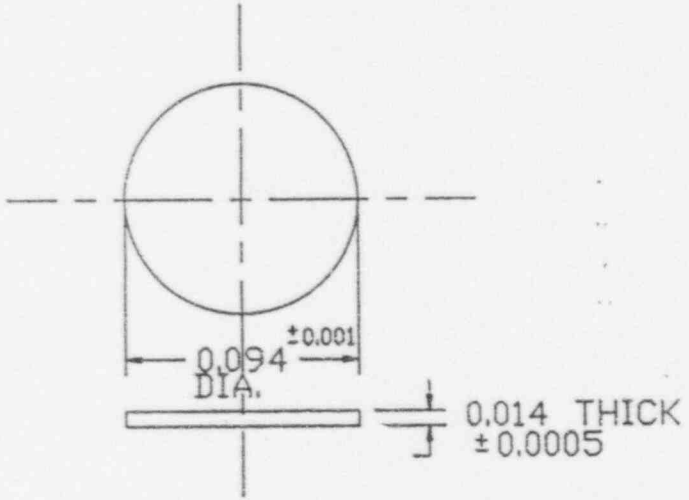
REV: 1

SHEET OF

NOT APPROVED FOR PRODUCTION

REVISIONS			
SYM.	DESCRIPTION	DATE	APP.

PART NO.	MATERIAL	ACTIVITY (SEE NOTE 1)	ENERGY (SEE NOTE 1)
0905-4109	AM-241		4.5 MeV ±5%



NOTES:

1. ACTIVITY AND ENERGY TO BE FUNCTIONALLY DETERMIND BY MEASURING IONIZATION CURRENT IN A TEST APPARATUS AND CALIBRATED WITH LIMIT ACTIVITY SAMPLES, BOTH SUPPLIED BY FYRNETICS, INC.
2. PACKING: 250 INDIVIDUAL FOIL ELEMENTS TO BE PACKED IN GLASS OR PLASTIC VIALS AND PACKED IN APPROPRIATE OUTER CONTAINERS AS TO CONFORM TO INTERNATIONAL SHIPPING REGULATIONS.
3. APPROVED VENDORS:
   a. NRD, INC MODEL A-001
   b. AMERSHAM SEARLE A-1001
4. IONIZATION CURRENT TO BE WITHIN ±5% FACE TO FACE.

MANAGEMENT INVESTMENT & TECHNOLOGY CO., LTD.

UNLESS SPECIFIED, ALL DIMENSIONS ARE IN MM
TOLERANCE ON :
FRACTIONS ± .40 DECIMALS ± .12 ANGLE ± 0.15°

MODEL NO: ALL

DWG SIZE : A4 REV. 2

THIRD ANGLE PROJECTION

PART NAME: SOURCE RADIOACTIVE SINGLE FACE

PART NO: 0905-4109

QTY. REQ'D PER UNIT : 1

MATERIAL: AM-241

FINAL PROTECTIVE FINISH:

SCALE: N.T.S

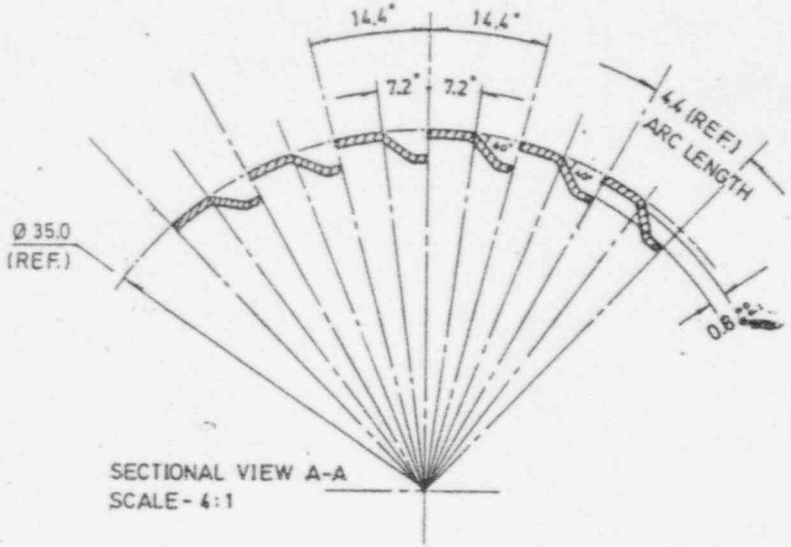
SHEET 1 OF 1

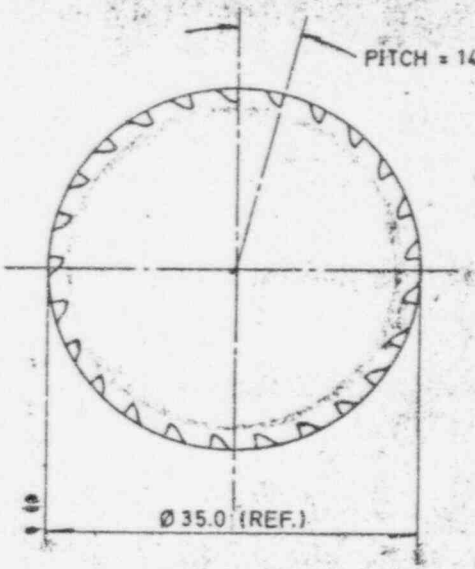
☐ PLASTIC ☐ P.C.B. ☒ METAL ☐ OTHERS

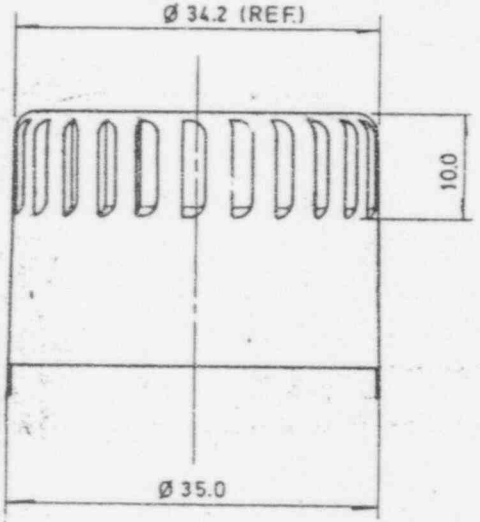
DWG.	CM.WONG	25 JAN 1991
CHK.	[signature]	25 JAN 91
APP.		

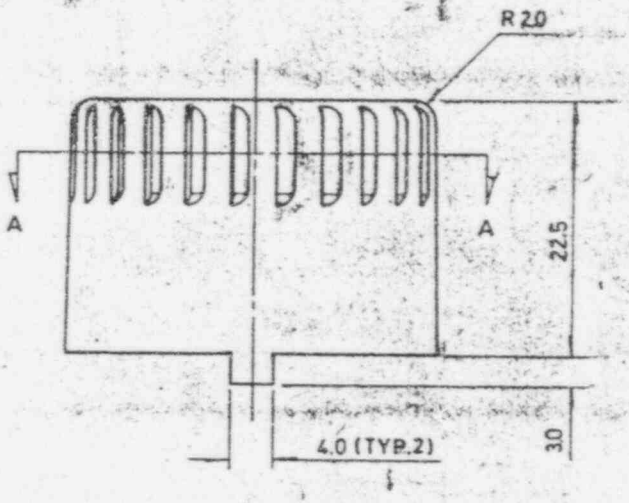
NOT APPROVED FOR PRODUCTION

REVISIONS			
SYM	DESCRIPTION	DATE	APP'D
1	HIGHT OF THE CHAMBER CHANGED	14-4-89	





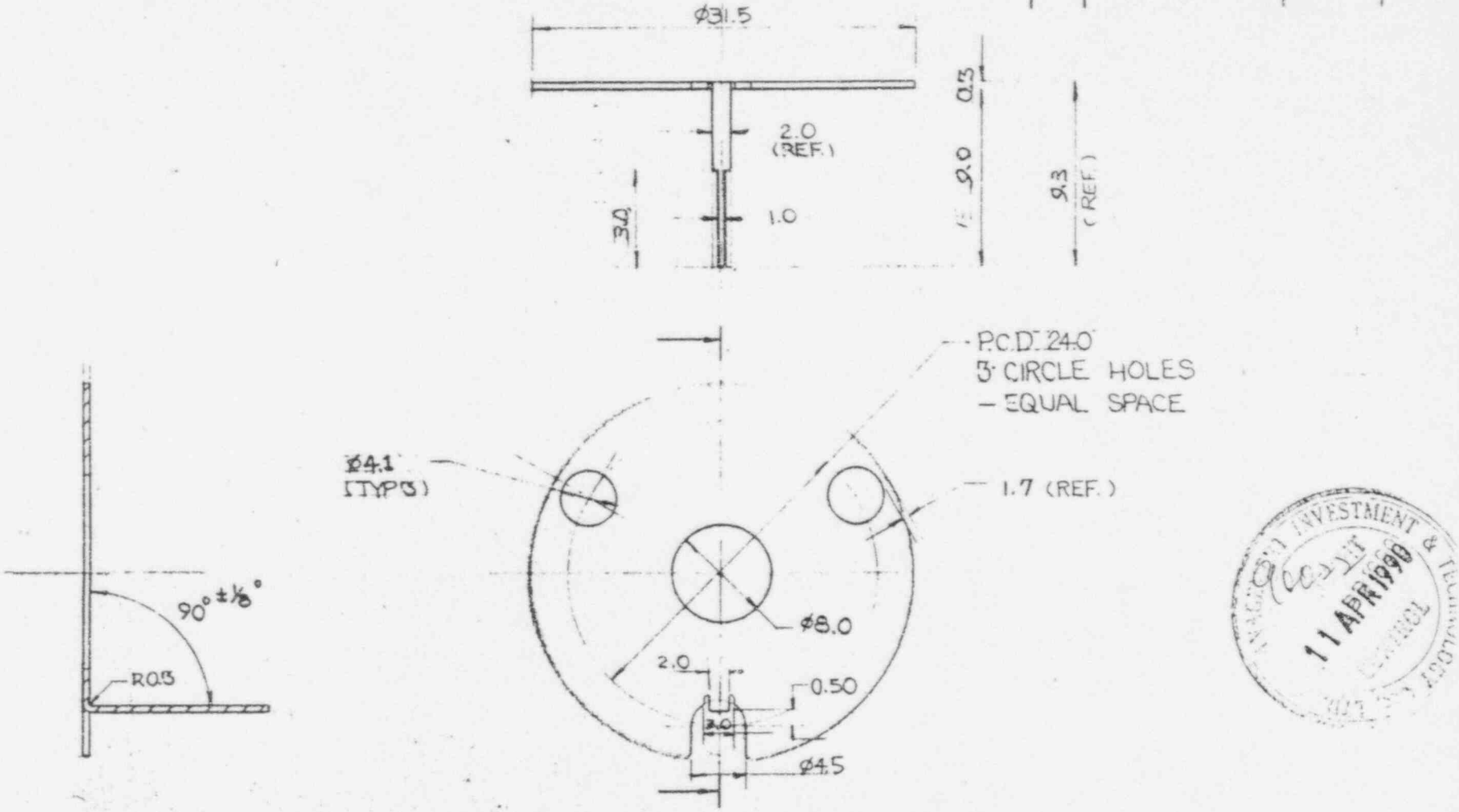




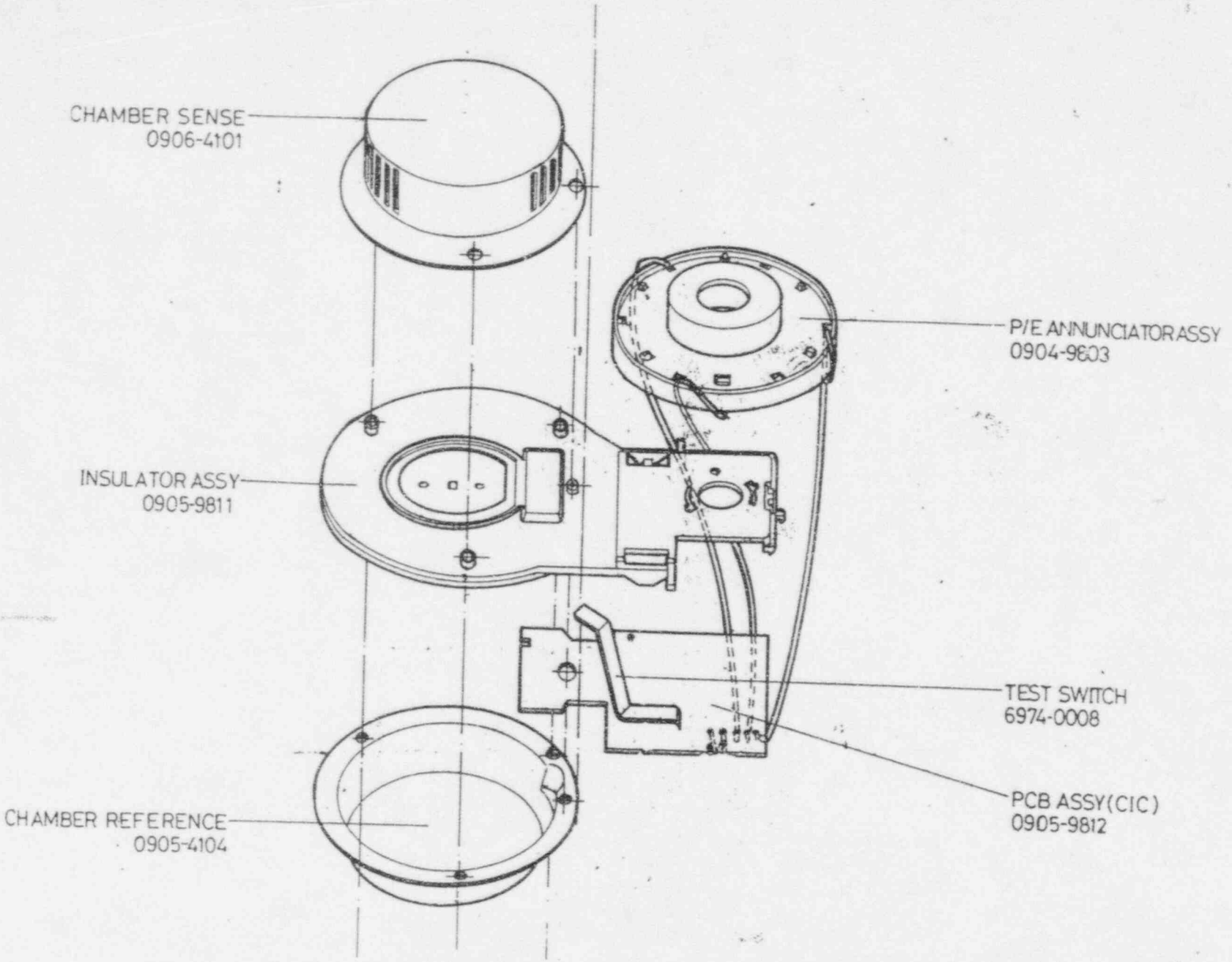
UNLESS SPECIFIED, ALL DIMENSIONS ARE IN MM TOLERANCES ON: DECIMALS ± 0.05	QTY. REQ'D PER UNIT 1	TR.		MANAGEMENT INVESTMENT & TECHNOLOGY CO., LTD	
		DR.	C.C.WAI 15/11/88		
MATERIAL: DEGREASED 0.3mm STAINLESS STEEL	USED ON 0910	DES.		CHAMBR SENSE (NEW MODEL DESIGN)	
		CH.		SCALE: 2:1	DWG SIZE: B
FINAL PROTECTIVE FINISH: NATURAL		ENG.		SHEET 1 OF 1	0910- 4106 REV 1

NOT APPROVED FOR PRODUCTION

REVISIONS			
SYM	DESCRIPTION	DATE	APPR.



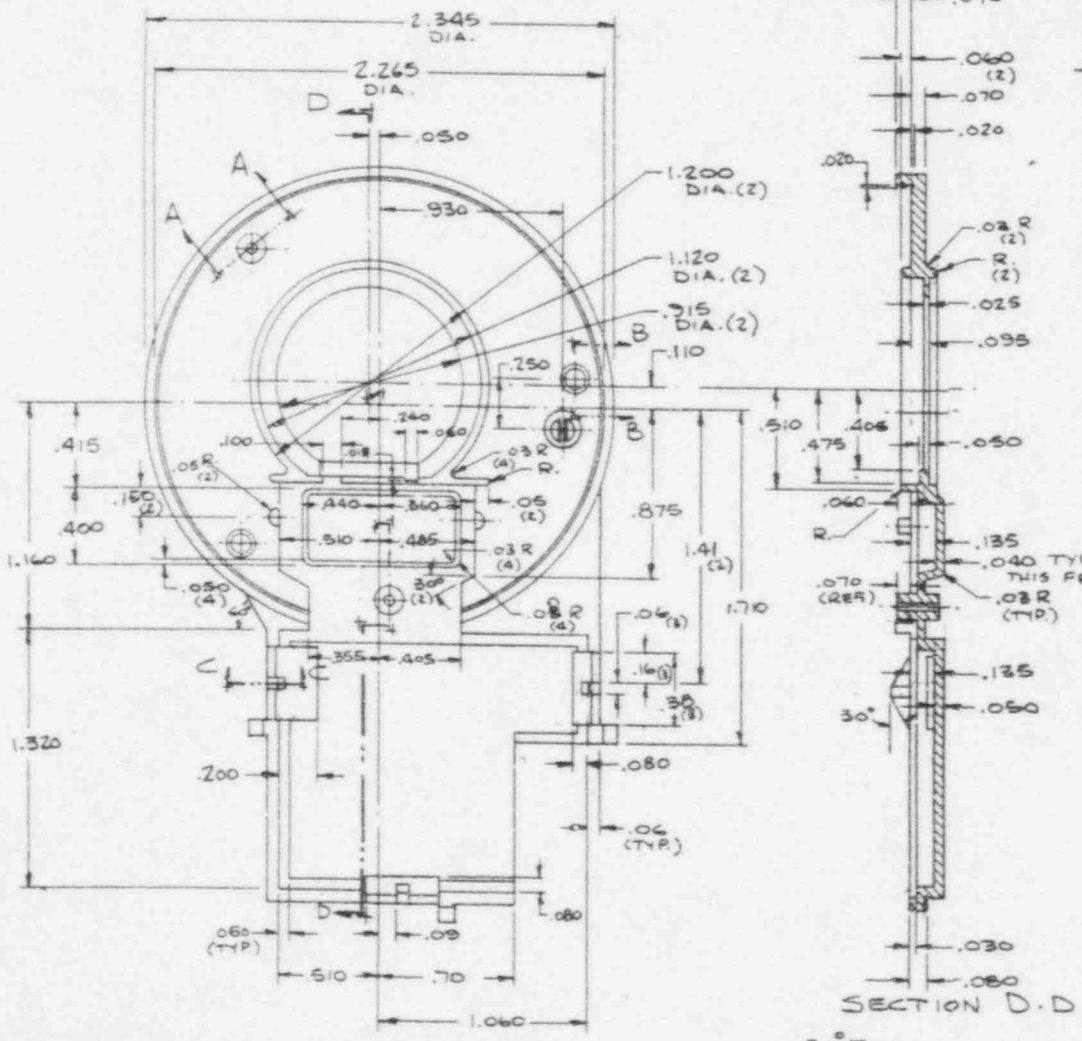
UNLESS SPECIFIED, ALL DIMENSIONS ARE IN ~~INCHES~~ MM TOLERANCES ON: ~~FRACTIONS ± 1/64~~ DECIMALS ~~± .005~~ ± .05 ANGLES ~~± 1/2°~~ ± 1/4	QTY REQ'D PER UNIT: 1	TR.	
		DR. C.M. CHUI 3/6/88	MANAGEMENT INVESTMENT & TECHNOLOGY CO., LTD.
MATERIAL: 0.3 mm STAINLESS STEEL #304	USED ON: 0910	DES.	REFERENCE PLATE
		CH.	SCALE: N.T.S. / OWG. SIZE: A / 0910 - 4101 / REV: 1
FINAL PROTECTIVE FINISH: NATURAL		ENG. 3/6/88	SHEET 1 OF 1


CHAMBER SENSE
0906-4101
P/E ANNUNCIATOR ASSY
0904-9803
INSULATOR ASSY
0905-9811
TEST SWITCH
6974-0008
PCB ASSY(CIC)
0905-9812
CHAMBER REFERENCE
0905-4104

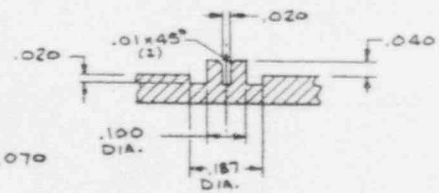
-001

Appendix A

AUG 31 1992



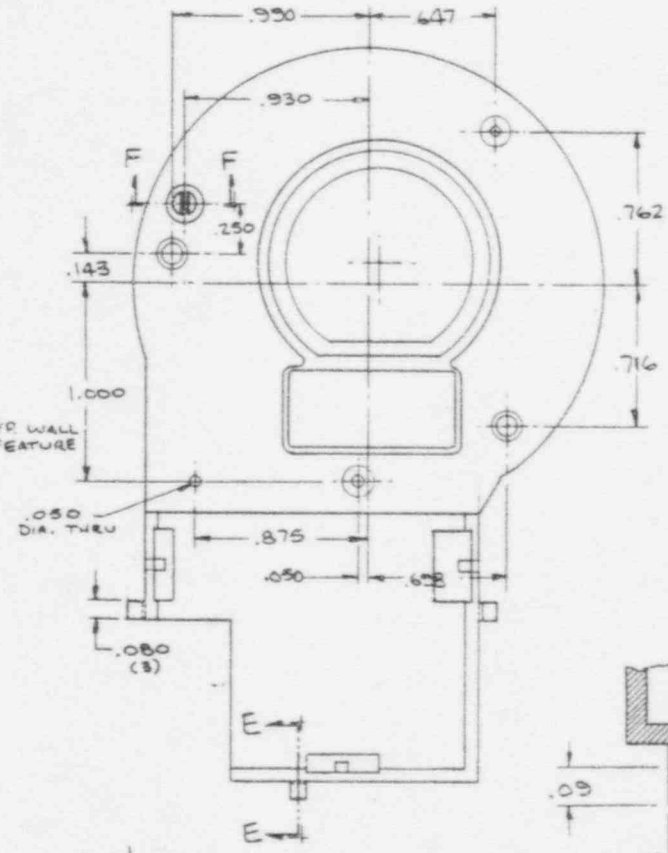
SECTION D-D

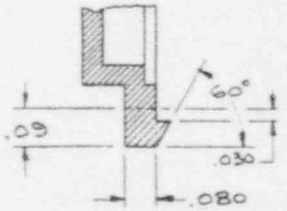


SECTION F-F

SCALE 4:1

(2 PLACES)





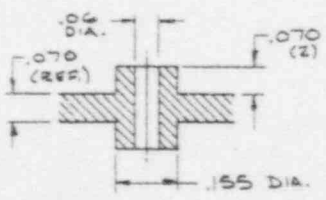
SECTION E-E

SCALE 4:1

(3 PLACES)

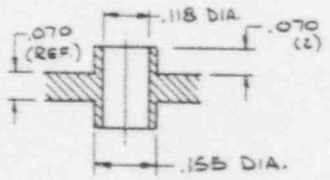
NOTES

1. UNSPECIFIED DRAFT ANGLE TO BE 2°.
2. SAMPLE PARTS TO BE APPROVED BY ENG'G PRIOR TO PRODUCTION.
3. PARTS TO BE FREE OF FLASH & OTHER DEFECTS.
4. SHARP EDGES .01 R. MAX.
5. GATE & EJECTOR PINS MUST BE LOCATED IN AREAS APPROVED BY ENG'G.
6. PART NO. & CAVITY NO. TO BE MARKED ON PART IN AREA APPROVED BY ENG'G.



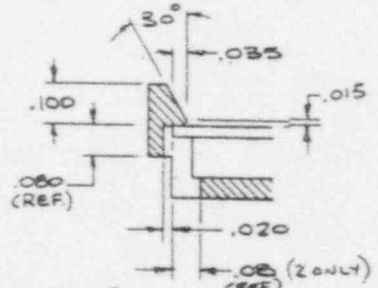
SECTION A-A

SCALE: 4/1



SECTION B-B

SCALE: 4/1



SECTION C-C

SCALE: 4/1

REV.	REVISION DESCRIPTION	DATE	APPD.
5	APPROVED PER ECN 91-0380	-90	
4	ADDED .118 DIA. ECN 89-0328	11-89	
3	NOTED .050 HOLE ECN 89-0328	10-89	
2	PRELIM. RELEASE	7-89	
1	REL. FOR PRINT AND	7-89	

DWN BY: MS | CKD BY: | APPD BY:

TOLERANCE UNLESS NOTED

1 PLACE (.0) ± .030 MACHINED L'S
2 PLACE (.00) ± .010 FORMED L'S
3 PLACE (.000) ± .005

FINISH: MOLDED

MATERIAL: SE-100 NORYL (WHT)

FIRST USED ON

SCALE: 2/1

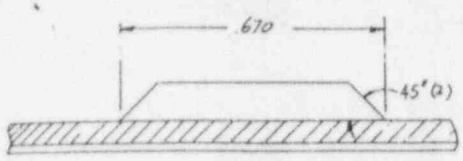
Magnetics Inc.
ELGIN, ILLINOIS

PART NAME: INSULATOR (ZIC)

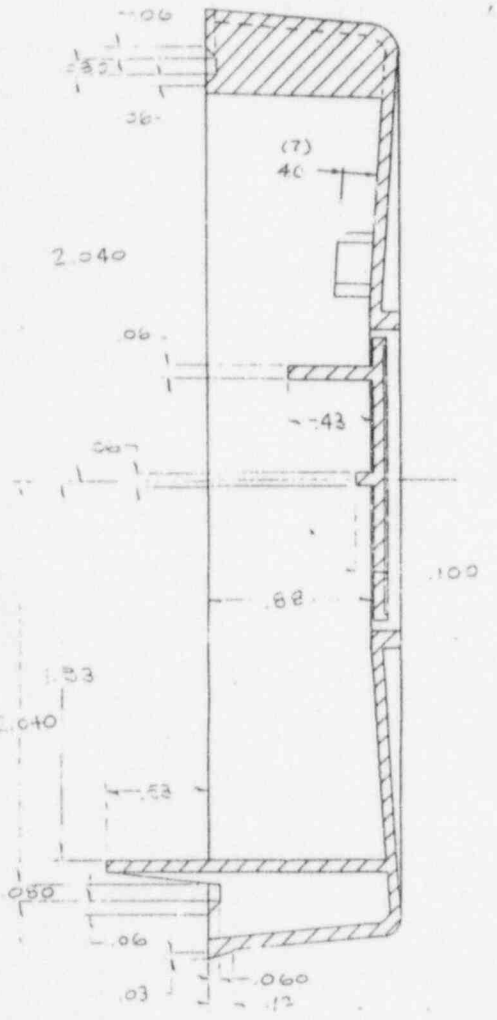
DWG NO. 01478

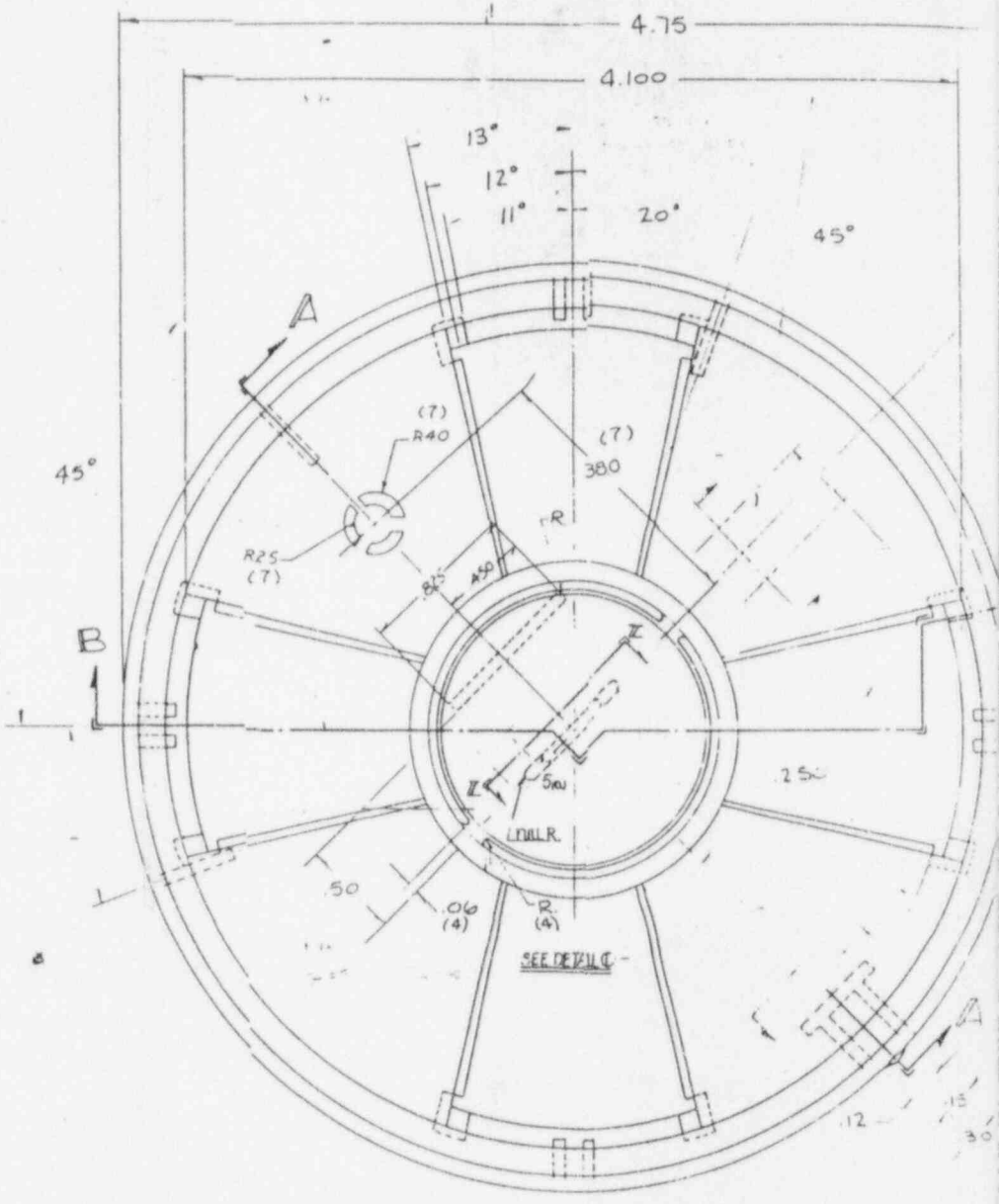
SHEET 1 OF 1

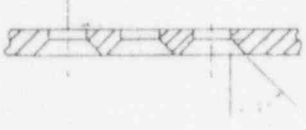
AUG 3 1 1992

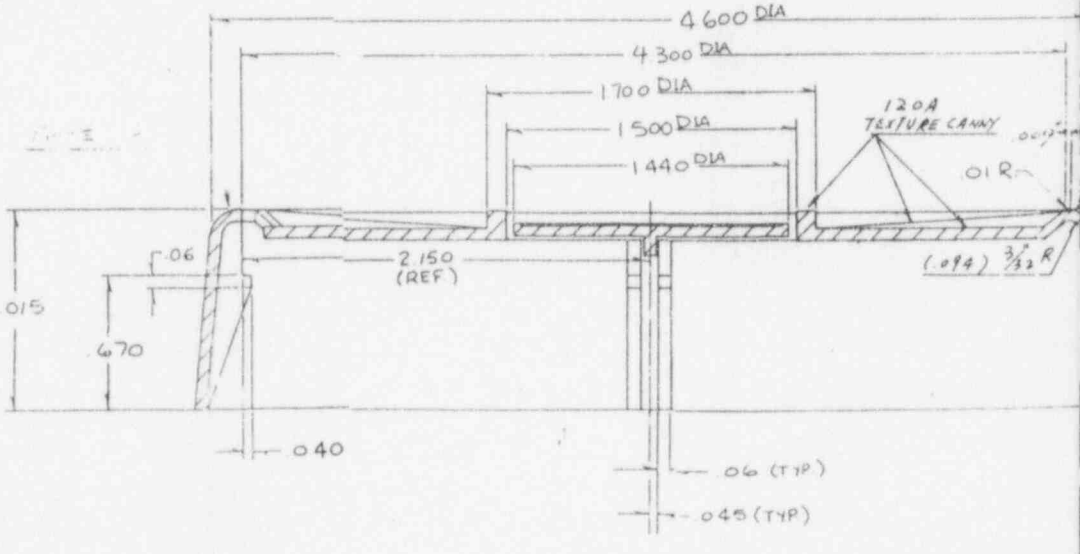


SECTION II - II SCALE: 4 X

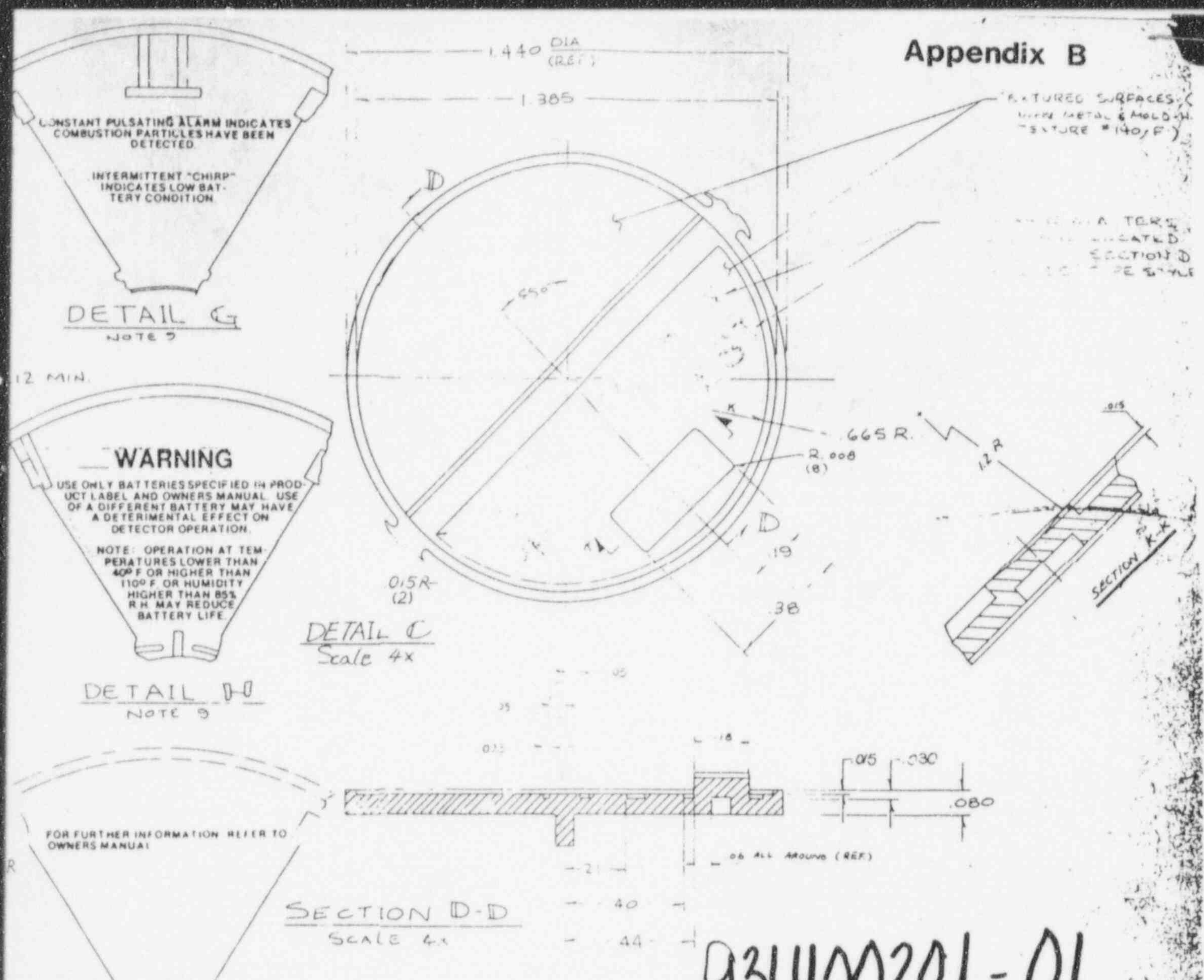


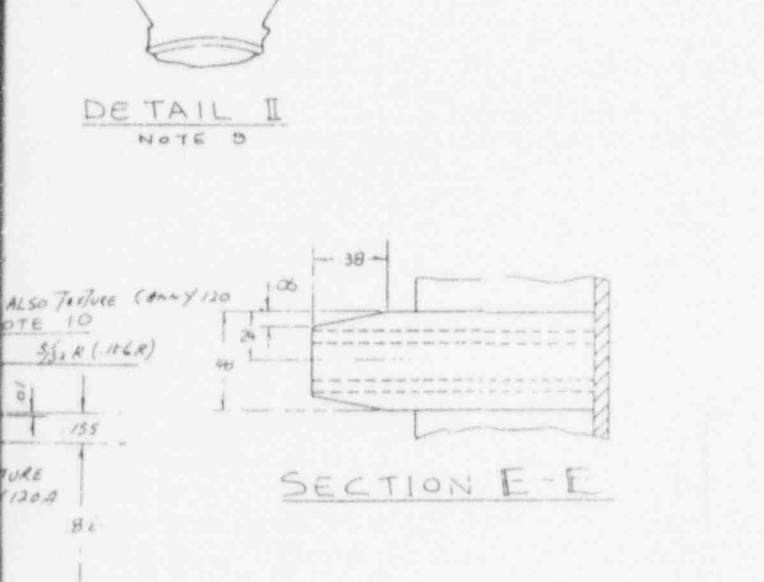






Appendix B





9311100201 - 01

NOTES

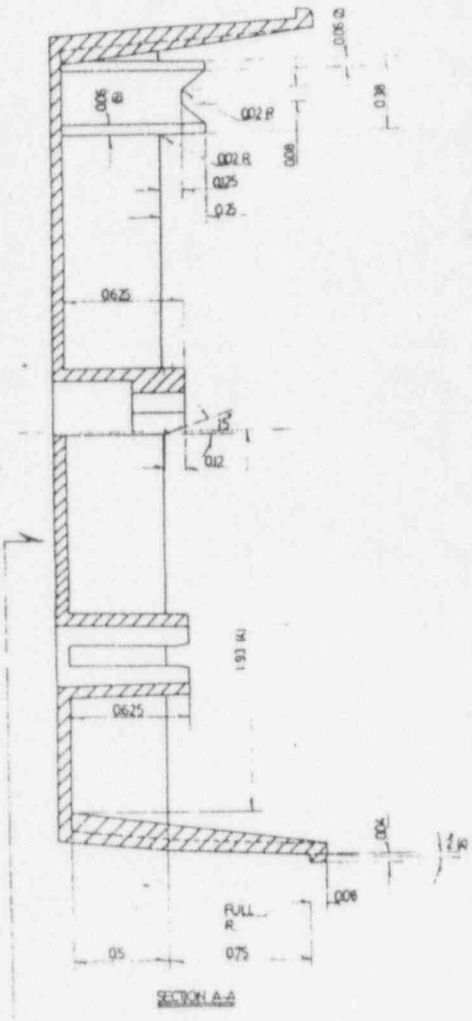
1. UNSPECIFIED DRAFT ANGLE ≤ 1°
2. SAMPLE PARTS MUST BE APPROVED BY ENG'G DEPT BEFORE FIRST PRODUCTION.
3. PARTS MUST BE FREE OF FLASH & OTHER DEFECTS.
4. ALL SHARP EDGES TO BE .010 R MAX.
5. WALL THICKNESS TO BE .06 UNLESS SPECIFIED.
6. GATE & EJECTOR MARKS MUST BE LOCATED ON CONCEALED SURFACE.
7. PART NO & CAVITY NO TO BE MARKED ON CONCEALED SURFACE.
8. MAT'L: HIGH IMPACT POLYSTYRENE 466M BASF
9. ALL LETTERING SHOWN IN DETAILS G, H, I TO BE ON INSIDE CONTR SURFACE IN APPROX. LOCATION SHOWN. ALL LETTERING .05 IN HIGH CHARACTERS (EXCEPT WHERE NOTED IN DETAIL H) RAISED .010 ABOVE SURFACE.
10. LETTERING "PULL COVER DOWN TO REMOVE" TO BE ... ON SURFACE NOTED. LETTERING TO BE SHOWN ... ON NOTED OUTSIDE RING SURFACE APPROX ... APART WITH LETTERING READ FROM CENTER ... IN BOTH PLACES. CHARACTERS TO BE ... HIGH RAISED .005 TO .010 ABOVE SURFACE.

805
905

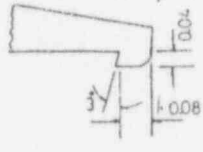
COVER

SI
APERTURE
CARD

Also Available On
Aperture Card

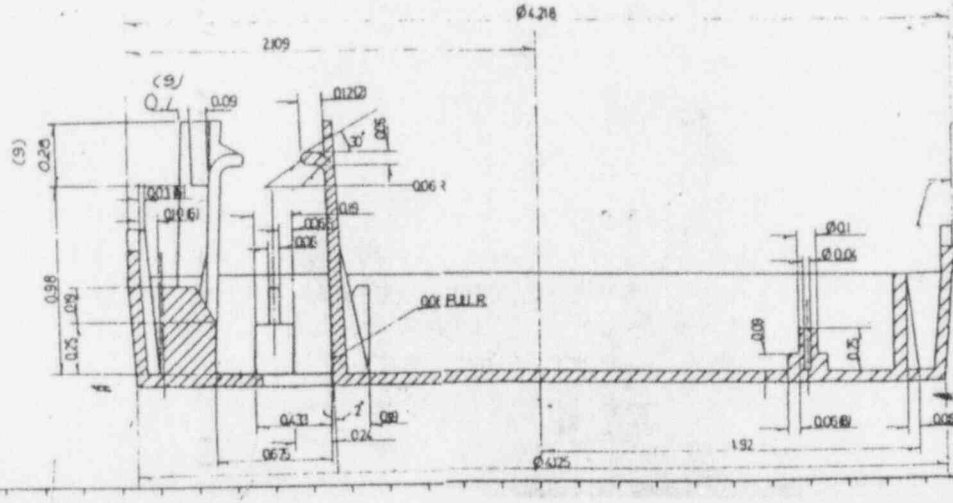


SECTION A-A



SCALE 4:1

SEE VIEW H FOR LETTERING ON THIS SURFACE



SECTION B-B

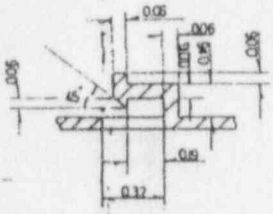
NOT APPROVED FOR PRODUCTION

LTR	DESCRIPTION	DATE	APPR.
4	a. 4 WEBS ARE ADDED (E.N-111/86)	20-3-86	SC
5	INSETS CORNERS ARE SLOTTED	3-10-86	SC
6	[illegible]	26-2/87	[illegible]
7	[illegible]	11-4/11	[illegible]
8. a	ADD FIVE LIBS FOR INTERLOCK SYSTEM	[illegible]	
b	1.0 MICROCURIE CHANGE TO 0.9 MICROCURIE		
9	0.28 WAS 0.08	7-4	
	0.1 WAS 0.05	91	

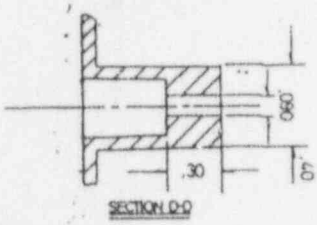
.008 HIGH CHARACTERS, RAISED
.0005 TO .001 ABOVE SURFACE

VIEW H
SCALE 4X
ALL LETTERING LOCATED AS SHOWN

.007 HIGH CHARACTERS, RAISED
.0005 TO .001 ABOVE SURFACE



SECTION C-C



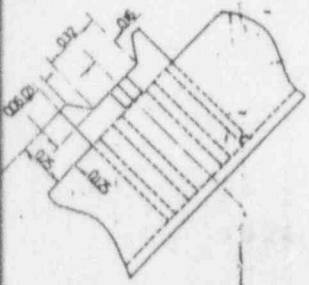
SECTION D-D

SI APERTURE CARD

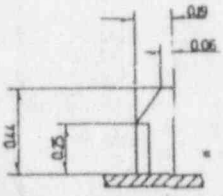
Also Available On Aperture Card

0905	813A9092	813A9096
0906	813A9092	813A8096
MODEL	CHINA	HONG KONG
	P/N	

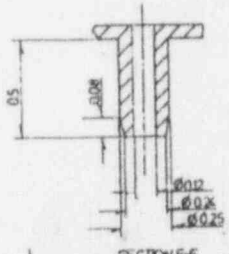
9311100201-02



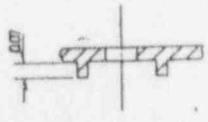
(COLOR MATCHED TO 8834 WHITE NORYL.
8. MAT'L: NORYL SE-100 (8834 WHITE) OR MONSANTO LUSTREX (HIPS) 3150.
7. PART NO. AND CAVITY NO. TO BE MARKED ON CONCEALED SURFACE.
6. GATE AND EJECTOR MARKS MUST BE LOCATED ON CONCEALED SURFACE.
5. WALL THICKNESS TO BE .006 UNLESS SPECIFIED.
4. ALL SHARP EDGES TO BE 0.010 R. MAX.
3. PARTS MUST BE FREE OF FLASH AND OTHER DEFECTS.
2. SAMPLE PARTS SHOULD BE APPROVED BY ENG'G DEPT. BEFORE FIRST PRODUCTION.
NOTES: 1. UNSPECIFIED DRAFT ANGLE IS 1°.



SECTION E-E



SECTION F-F

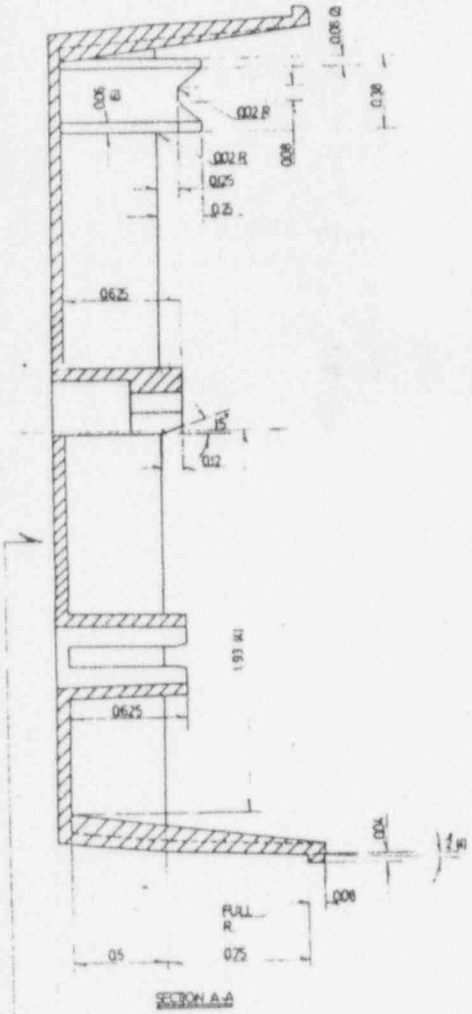


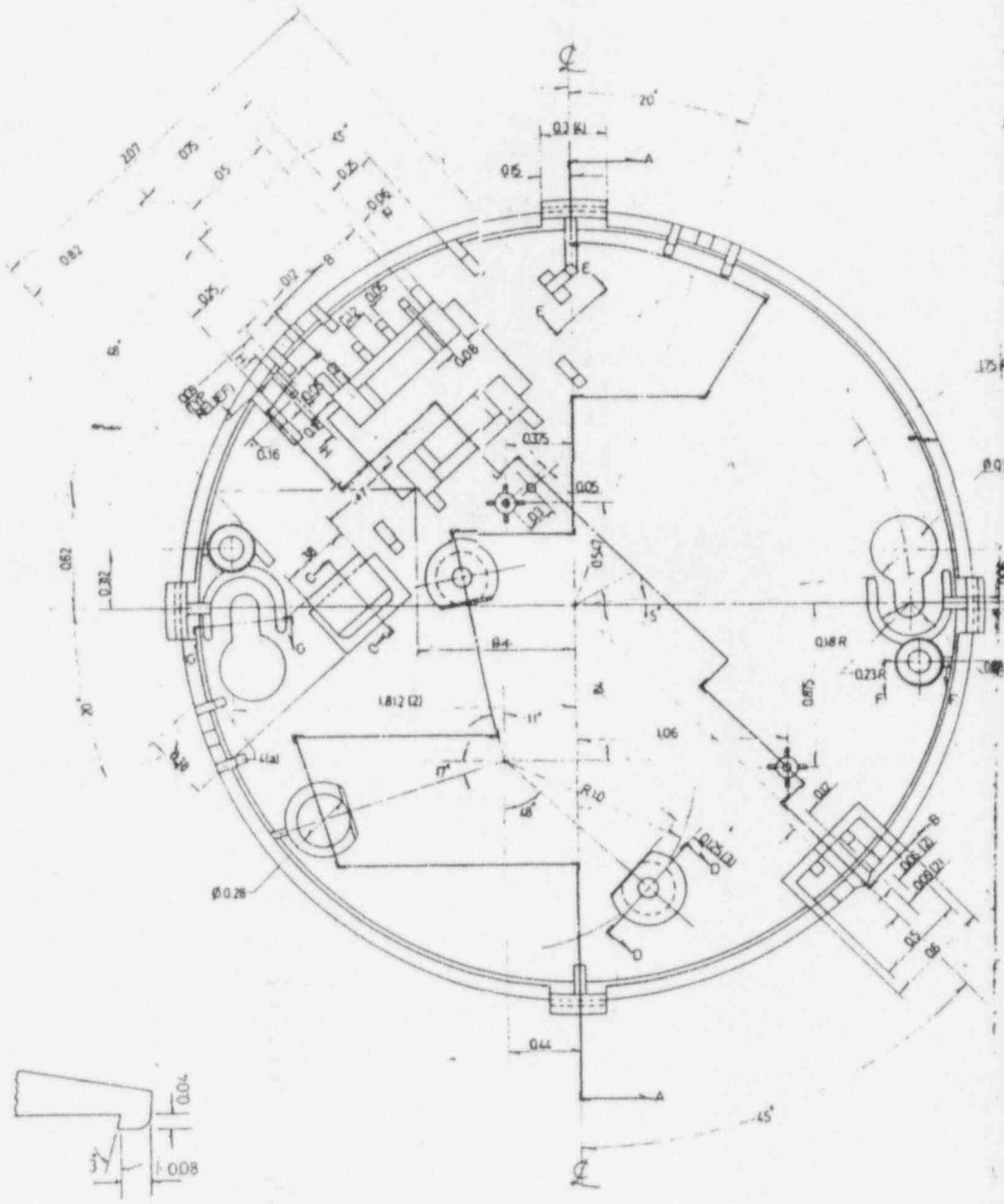
SECTION G-G

SECTION H-H

UNLESS SPECIFIED, ALL DIMENSIONS ARE IN INCHES. TOLERANCES ON: FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/2°	REVISED PER UNIT 1	DATE DRAF. YY MM DD	MANAGEMENT INVESTMENT & TECHNOLOGY CO., LTD.
MATERIAL: SEE NOTES	USED ON	CH.	5" DC SMOTEC BASE (813A9096)
FINISH PROTECTIVE FINISH: AS MOLDED	SEE NOTE	ENG.	SCALE: 2X
		PROD.	SHEET OF
			Dwg Size D
			0905-2114
			REV. B

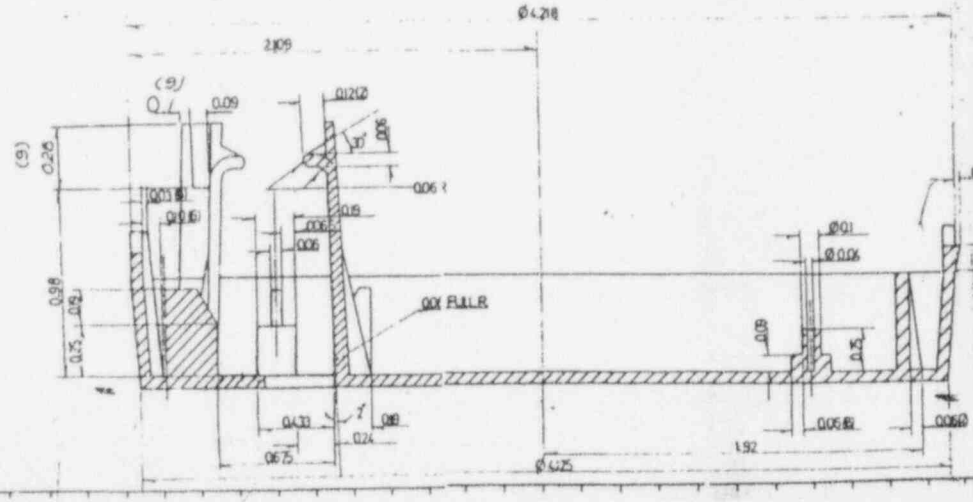
AUG 3 1 1992



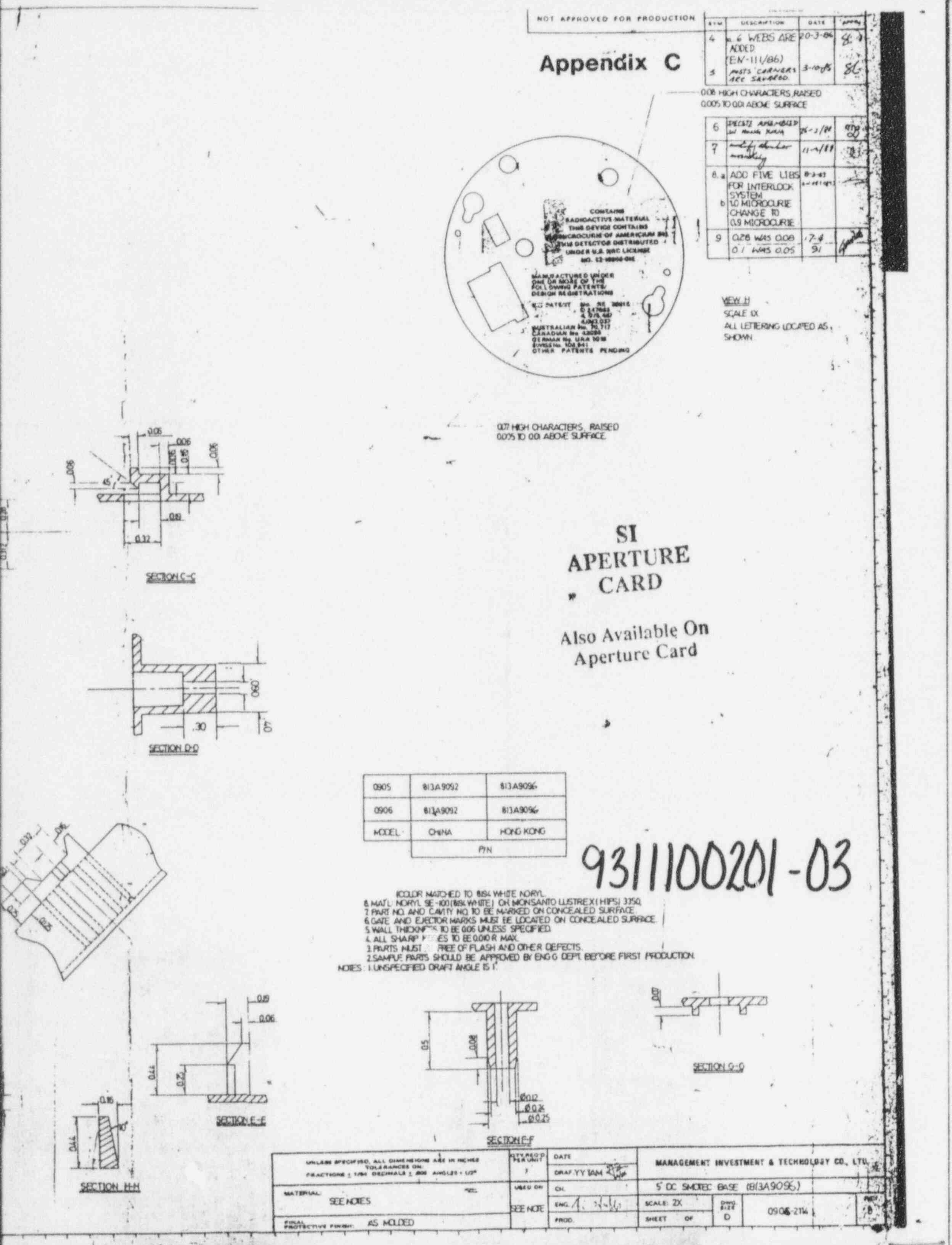


SCALE 4:1

SEE VIEW 'A' FOR LETTERING ON THIS SURFACE



Appendix C

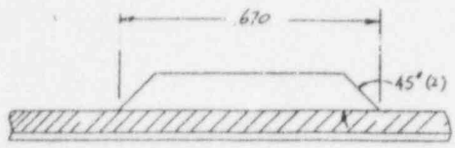


SYM	DESCRIPTION	DATE	APPR
4	6 WEBS ARE ADDED (EN-111/86)	20-3-86	
5	posts' corners are savaged	3-10-86	
6	Decals amended ...	26-2/88	
7	modify ... marking	11-?/88	
8. a	ADD FIVE LIBS FOR INTERLOCK SYSTEM		
b	1.0 MICROCURIE CHANGE TO 0.9 MICROCURIE		
9	0.28 WAS 0.08 0.1 WAS 0.05	17-4-91	

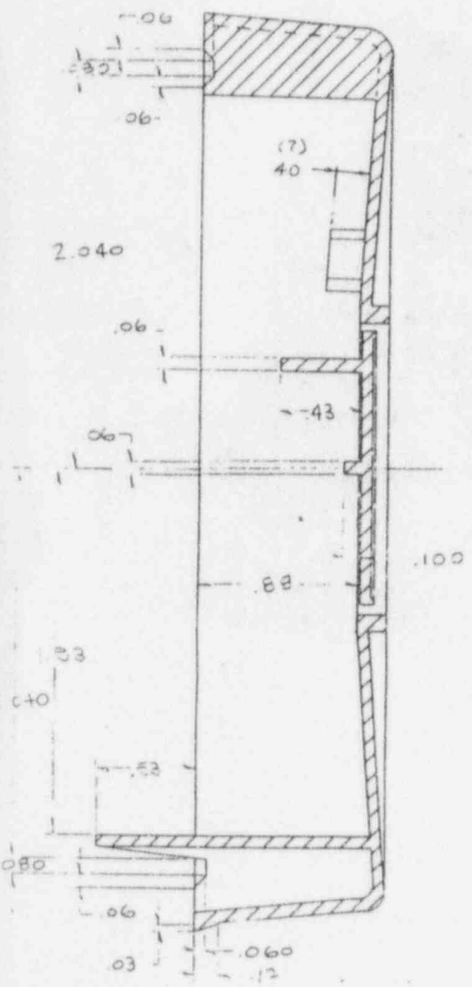
0905	813A9092	813A9096
0906	813A9092	813A9096
MODEL	CHINA	HONG KONG
	P/N	

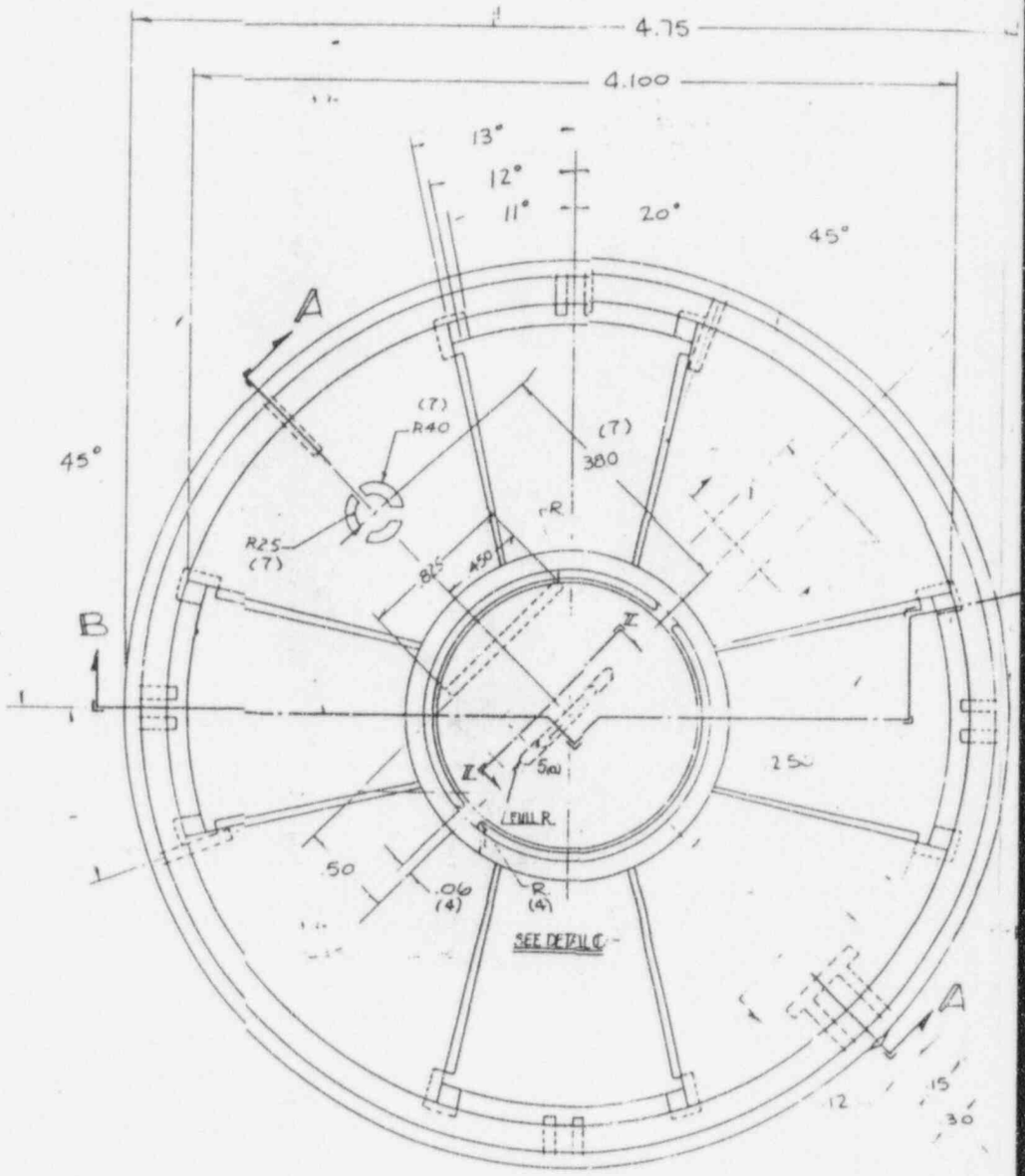
NOTES:
1. UNSPECIFIED DRAFT ANGLE IS 1°.
2. SAMPLE PARTS SHOULD BE APPROVED BY ENG'G DEPT. BEFORE FIRST PRODUCTION.
3. PARTS MUST BE FREE OF FLASH AND OTHER DEFECTS.
4. ALL SHARP EDGES TO BE 0.010 R MAX.
5. WALL THICKNESS TO BE 0.06 UNLESS SPECIFIED.
6. GATE AND EJECTOR MARKS MUST BE LOCATED ON CONCEALED SURFACE.
7. PART NO. AND CAVITY NO. TO BE MARKED ON CONCEALED SURFACE.
8. MAT'L: NORYL SE-100 (8154 WHITE) OR MONSANTO LUSTREX (HIPS) 3350.
9. COLOR MATCHED TO 8154 WHITE NORYL.

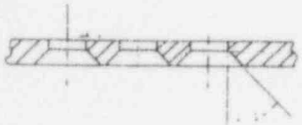
UNLESS SPECIFIED, ALL DIMENSIONS ARE IN INCHES. TOLERANCES ON: FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/2°	DATE	MANAGEMENT INVESTMENT & TECHNOLOGY CO., LTD.
MATERIAL: SEE NOTES	DRAF. YY TAM	5" DC SMOTEC BASE (813A9096)
USED ON: SEE NOTE	ENG.	SCALE: 2X · DWG SIZE: D · 0906-2114
FINAL PROTECTIVE FINISH: AS MOLDED	PROD.	SHEET OF

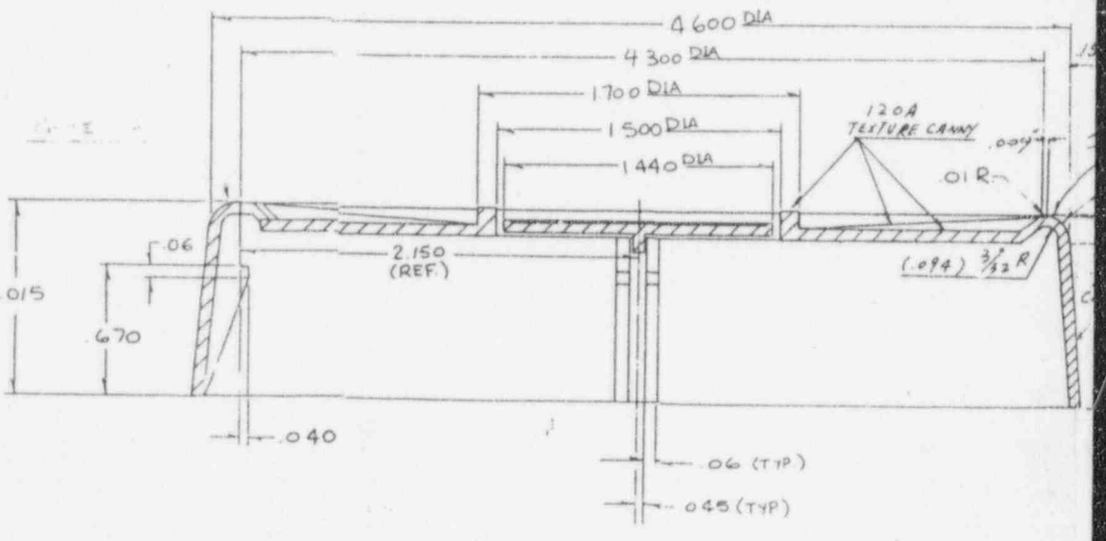


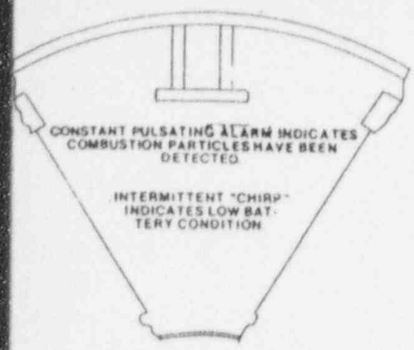
SECTION II - II SCALE : 4 X





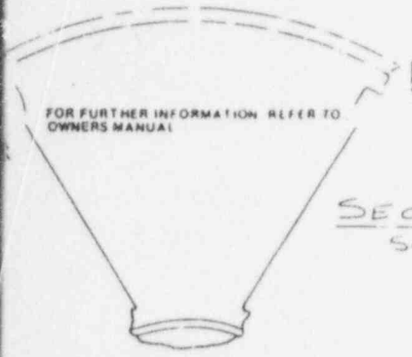




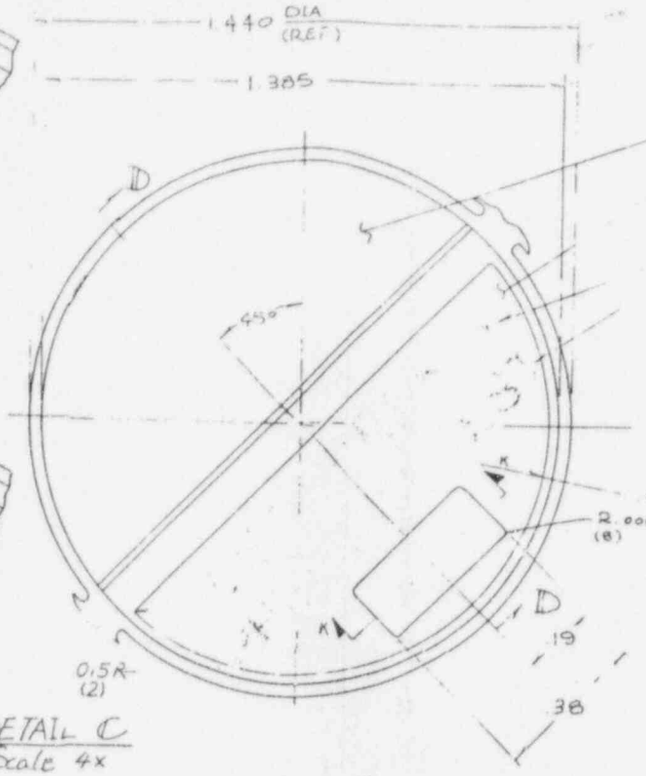


DETAIL G
NOTE 9

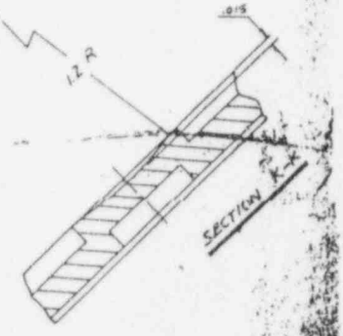
DETAIL D
NOTE 9

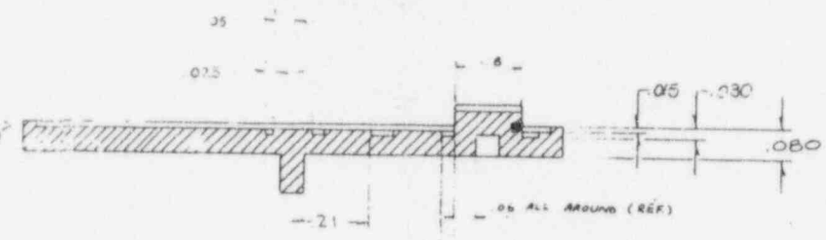


DETAIL H
NOTE 9



DETAIL C
Scale 4x



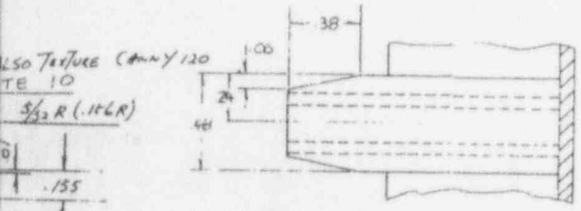


SECTION D-D
SCALE 4x

9311100201-04

NOTES

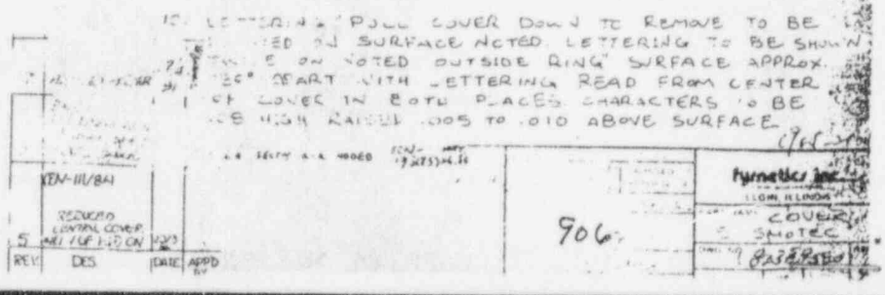
1. UNSPECIFIED DRAFT ANGLE ≤ 1°
2. SAMPLE PARTS MUST BE APPROVED BY ENG'G DEPT BEFORE FIRST PRODUCTION.
3. PARTS MUST BE FREE OF FLASH & OTHER DEFECTS.
4. ALL SHARP EDGES TO BE .010 R MAX.
5. WALL THICKNESS TO BE .06 UNLESS SPECIFIED.
6. GATE & EJECTOR MARKS MUST BE LOCATED ON CONCEALED SURFACE
7. PART NO. & CAVITY NO. TO BE MARKED ON CONCEALED SURFACE.
8. MAT'L: HIGH IMPACT POLYSTYRENE 456M BASF
9. ALL LETTERING SHOWN IN DETAILS C & D & II TO BE ON INSIDE COVER SURFACE AS APPROX. LOCATIONS SHOWN. ALL LETTERING .05 (.1 IN. HIGH CHARACTERS (EXCEPT WHERE NOTED IN DETAIL H) RAISED .010 ABOVE SURFACE.
10. LETTERING ON POLL COVER DOWN TO REMOVE TO BE RAISED ON SURFACE NOTED. LETTERING TO BE SHOWN ON NOTED OUTSIDE RING SURFACE APPROX. 90° APART WITH LETTERING READ FROM CENTER OF COVER IN BOTH PLACES. CHARACTERS TO BE .06 HIGH RAISED .005 TO .010 ABOVE SURFACE.



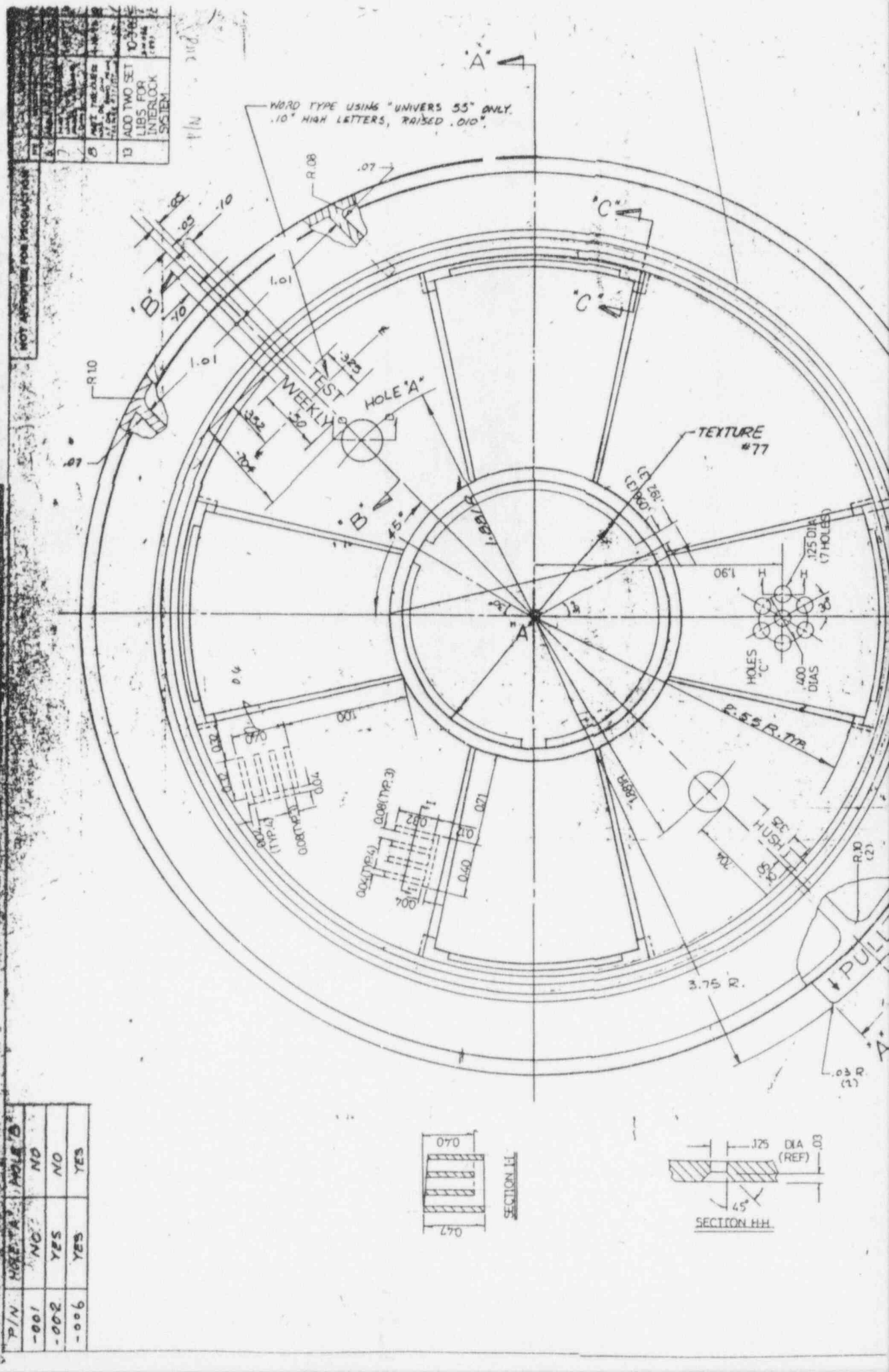
SECTION E-E

SI APERTURE CARD

Also Available On Aperture Card



AUG 3 1 1992

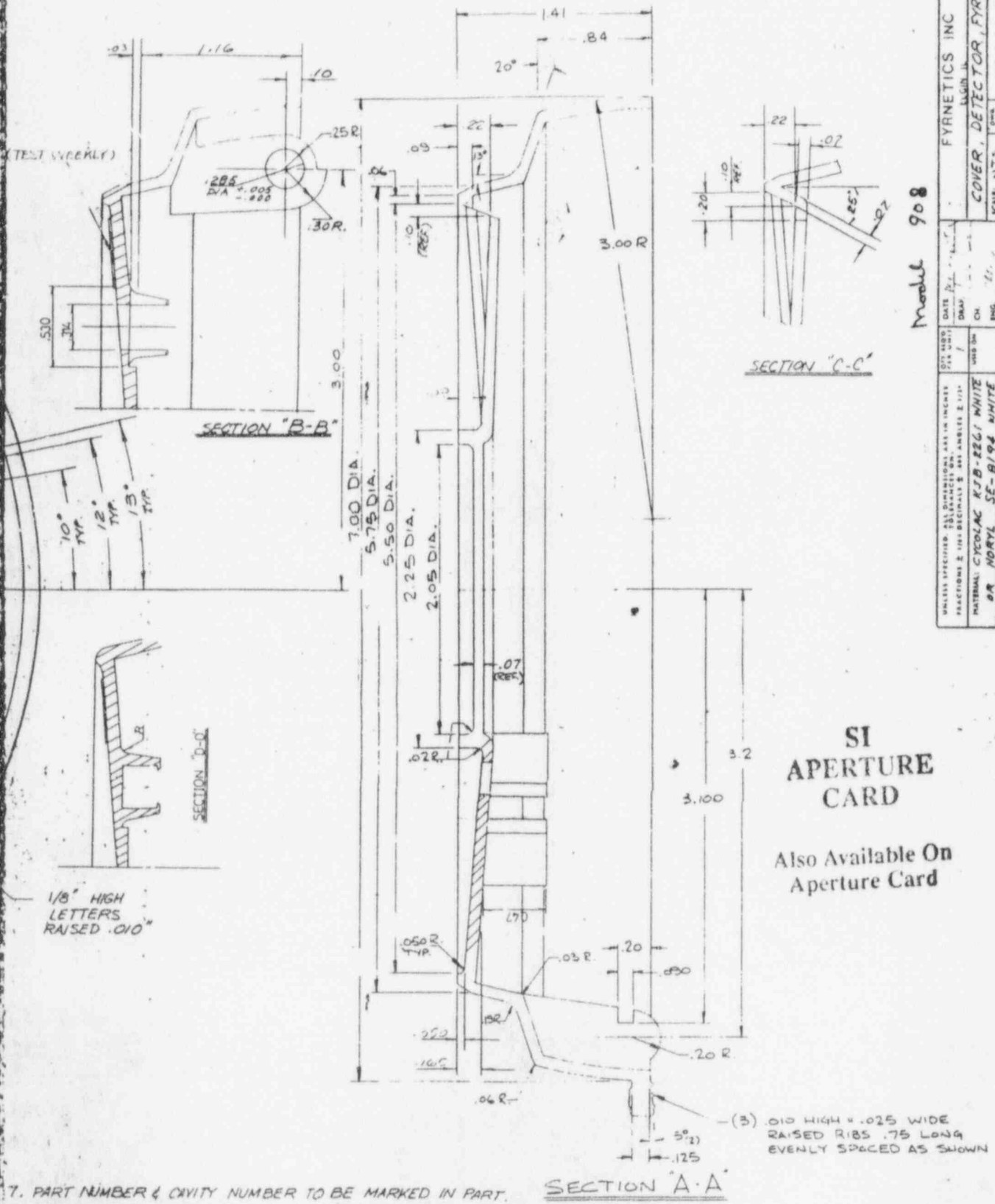


P/N	NOTE 4	NOTE 5
-001	NO	NO
-002	YES	NO
-006	YES	YES

13	ADD TWO SET LIBS FOR INTERLOCK SYSTEM	10-30-89	
8	NOT RELEASED FOR PRODUCTION		
7			
6			
5			

NOT APPROVED FOR PRODUCTION

Appendix D



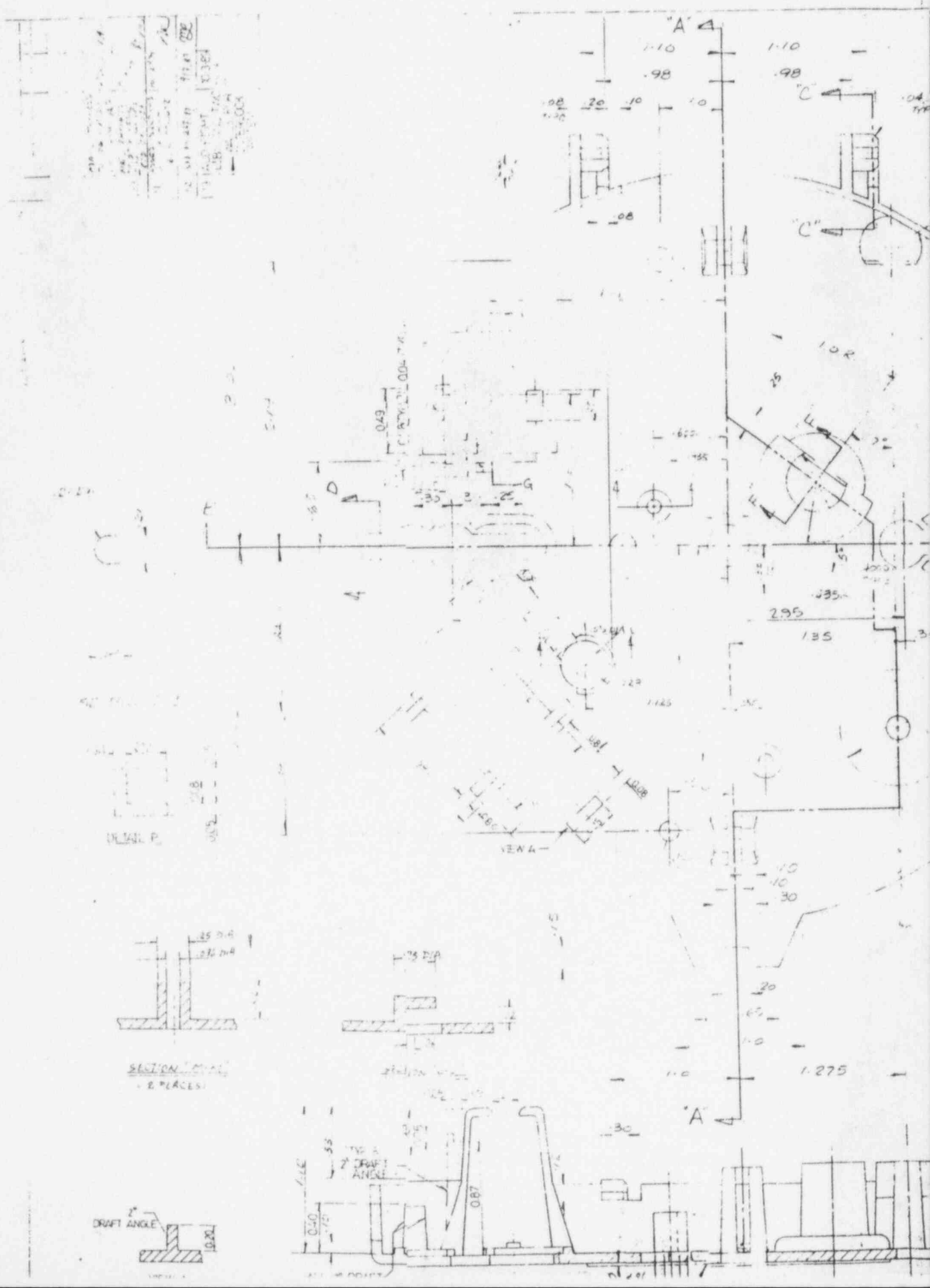
FYRNETICS INC
COVER, DETECTOR, FYRNETICS
SCALE: NTS
SHEET 2 OF 3
SIZE C
101000
REV D
MATERIAL: CYCOLAC KJB-2261 WHITE OR NORYL SE-B194 WHITE
FINISH: MOLDED
Model 908
MASTER

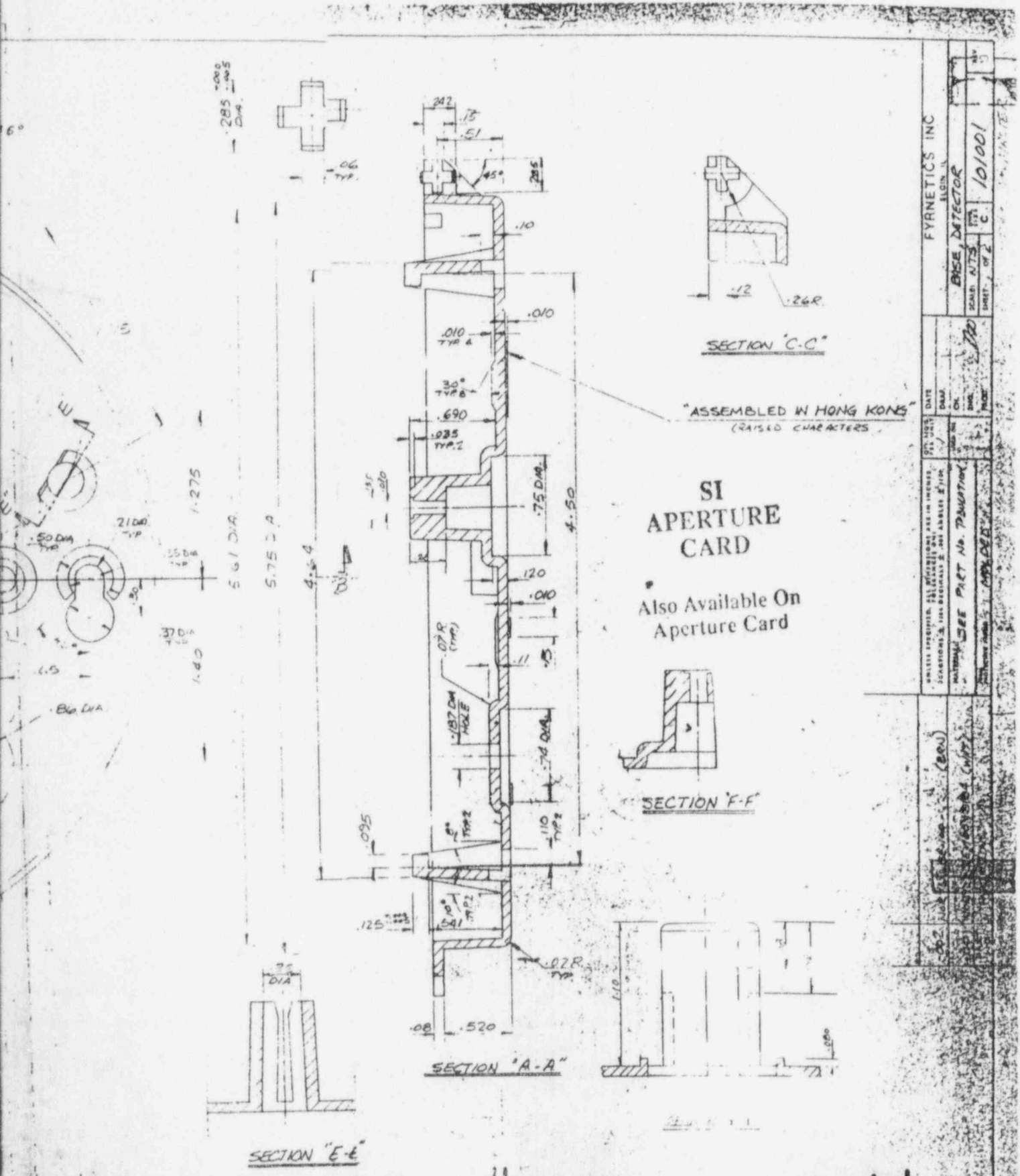
SI APERTURE CARD

Also Available On Aperture Card

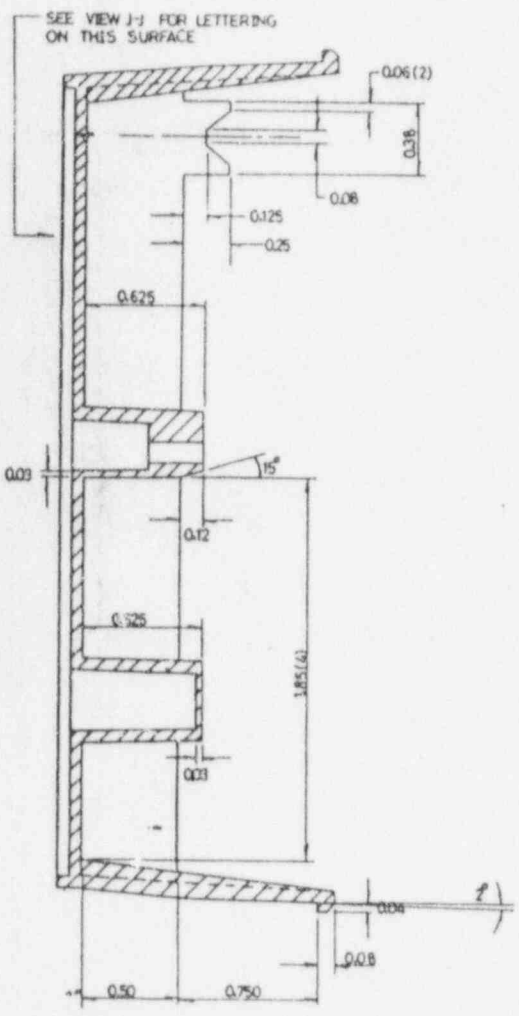
7. PART NUMBER & CAVITY NUMBER TO BE MARKED IN PART.
6. GATE & EJECTOR PINS MUST BE LOCATED ON CONCEALED AREA.
5. WALL THICKNESS TO BE .07 UNLESS OTHERWISE SPECIFIED.
4. ALL SHARP EDGES MAY BE .010R MAX.
3. PART MUST BE FREE FROM FLASH & OTHER DEFECTS.
2. SAMPLE PARTS MUST BE APPROVED BY ENGINEERING DEPT. BEFORE FIRST PRODUCTION.
1. UNSPECIFIED DRAFT ANGLE TO BE 2°

NOTES:

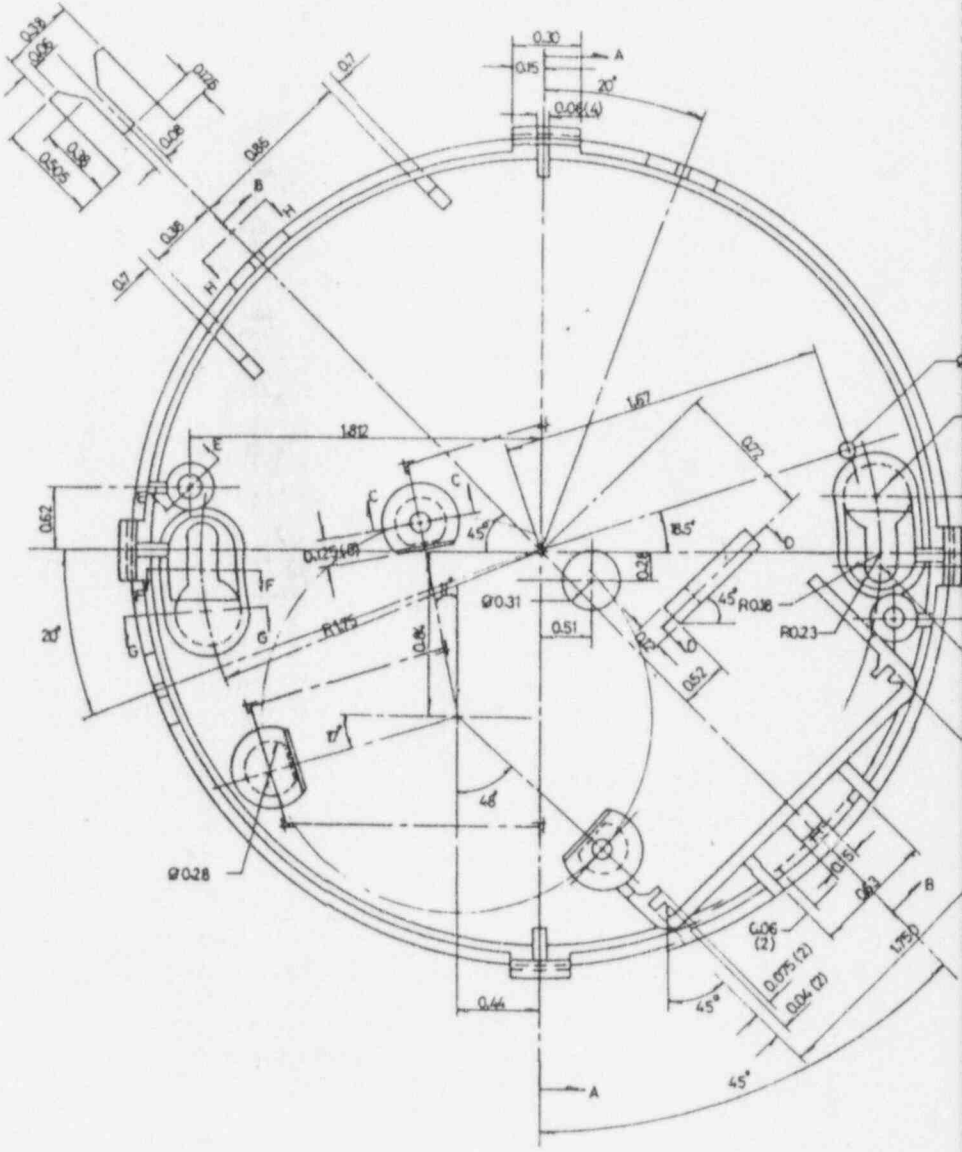

"A"
"C"
2.95
1.35
1.275
SECTION "C-C"
(2 PLACES)
2° DRAFT ANGLE
2° DRAFT ANGLE

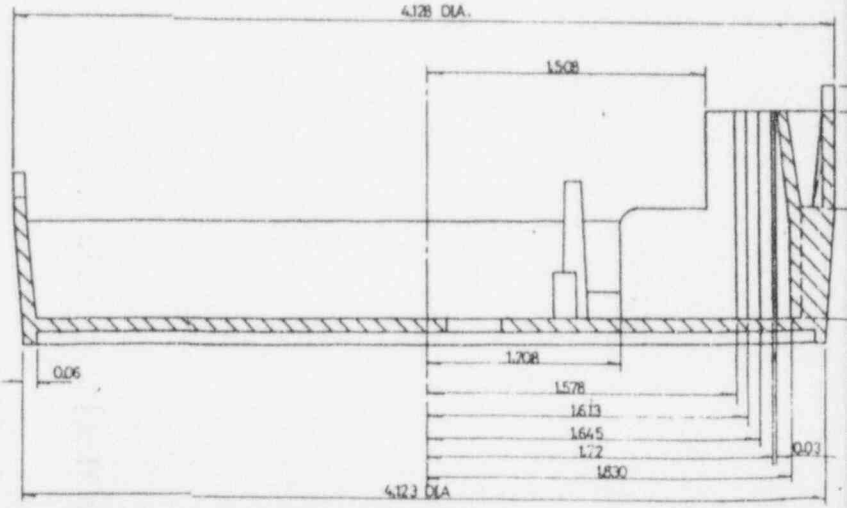


AUG 3 1 1992



SECTION A-A





SECTION B-B

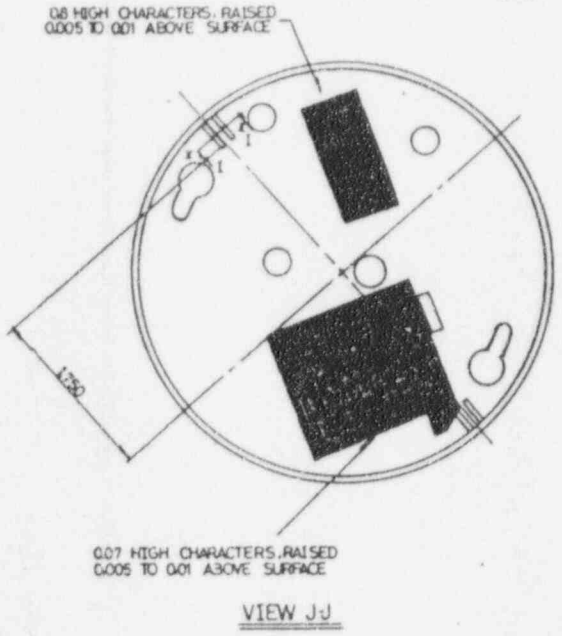
NO. REVISION DETAILS
7 SEE EN-HS(M)1 15-6-11

NOT APPROVED FOR PRODUCTION	REVISIONS			
	STM	DESCRIPTION	DATE	APPR.

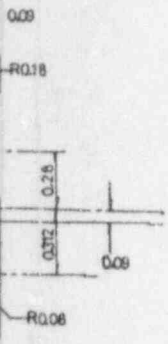
Appendix E

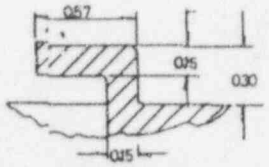
SI APERTURE CARD

Also Available On Aperture Card

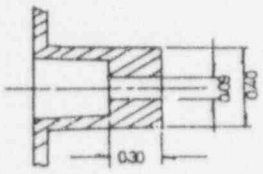


VIEW J-J

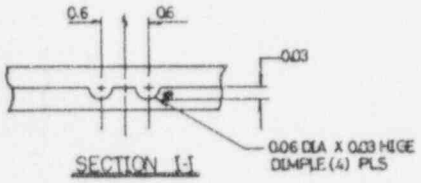




SECTION D-D



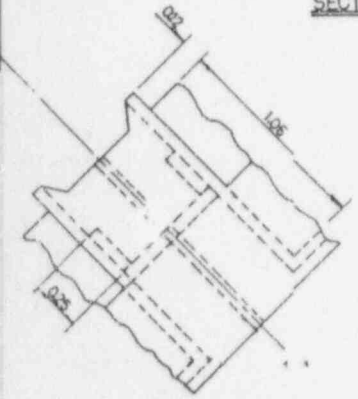
SECTION C-C

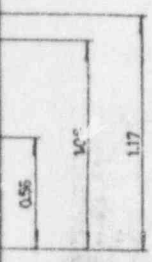


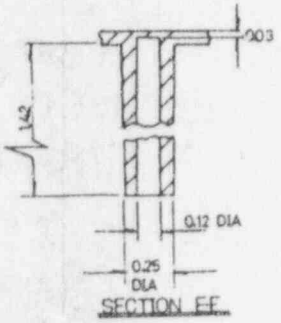
SECTION I-I

93111002O1-07

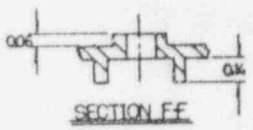
NOTE.
1 UNSPECIFIED DRAFT ANGLE IS 1°
2 SAMPLE PARTS MUST BE APPROVED BY ENG'G DEPT BEFORE FIRST PRODUCTION
3 PARTS MUST BE FREE OF FLASH & OTHER DEFECTS
4 ALL SHARP EDGES TO BE .010R MAX
ALL RADII SHOWN TO BE .03 UNLESS SPECIFIED
5 WALL THICKNESS TO BE .06 UNLESS SPECIFIED
6 GATE & EJECTOR MARKS MUST BE LOCATED ON CONCEALED SURFACE
7 PART NO & CAVITY NO TO BE MARKED ON CONCEALED SURFACE
8 MAT'L : NORYL SE 100 (8194 (WHITE)



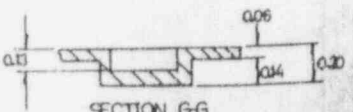




SECTION E-E



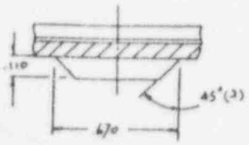
SECTION F-F



SECTION G-G

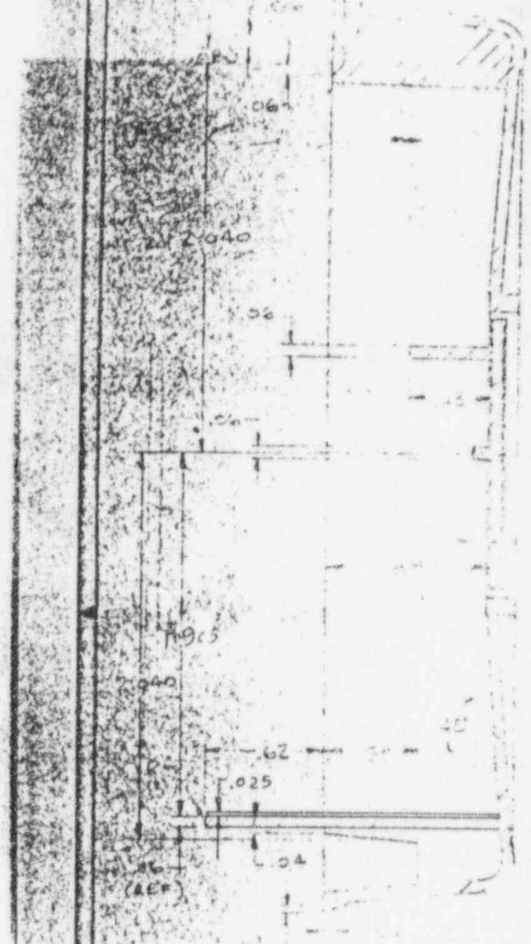
UNLESS SPECIFIED, ALL DIMENSIONS ARE IN INCHES TOLERANCES ON: FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/2°	QTY REQ'D PER UNIT 1	DATE 15-5-89	MANAGEMENT INVESTMENT & TECHNOLOGY CO., LTD.
		DRAW. CM.WONG	
MATERIAL: NORYL SE-100 (8194 WHITE)	USED ON 1215 1225	CH.	5" AC SMOKE BASE
		ENG.	SCALE: N.I.S. SIZE D DWG. NO. 1205-2116 REV.

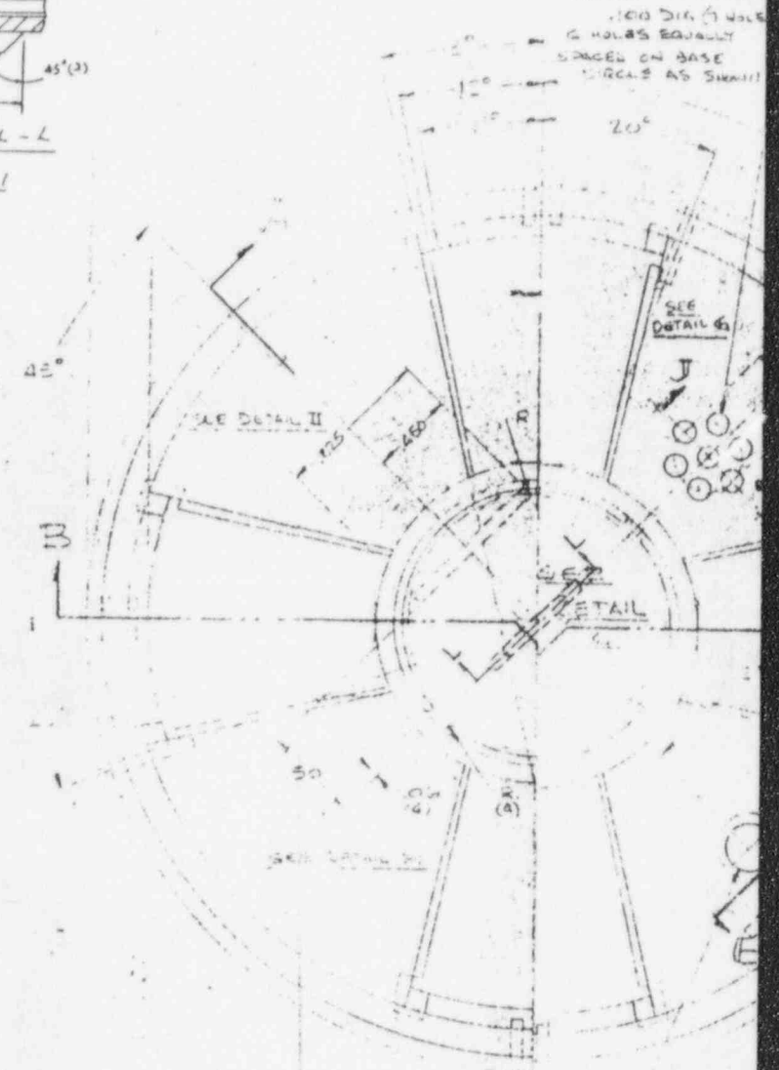
ZONE	REVISION	DESCRIPTION	DATE	APP'D
	1.	ADD .03" RADS TO TWO RADS	4/	

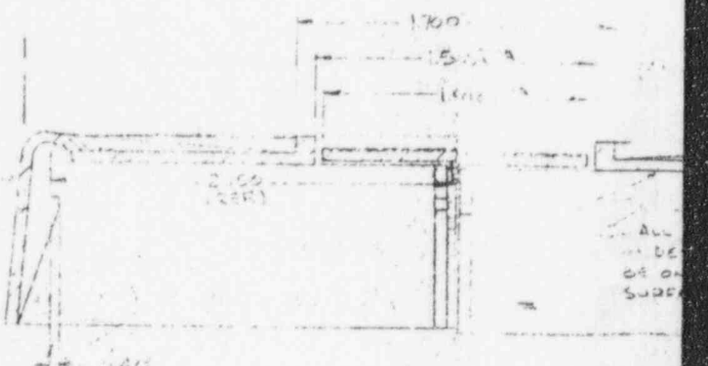


SECTION L - L

SCALE : 2 : 1



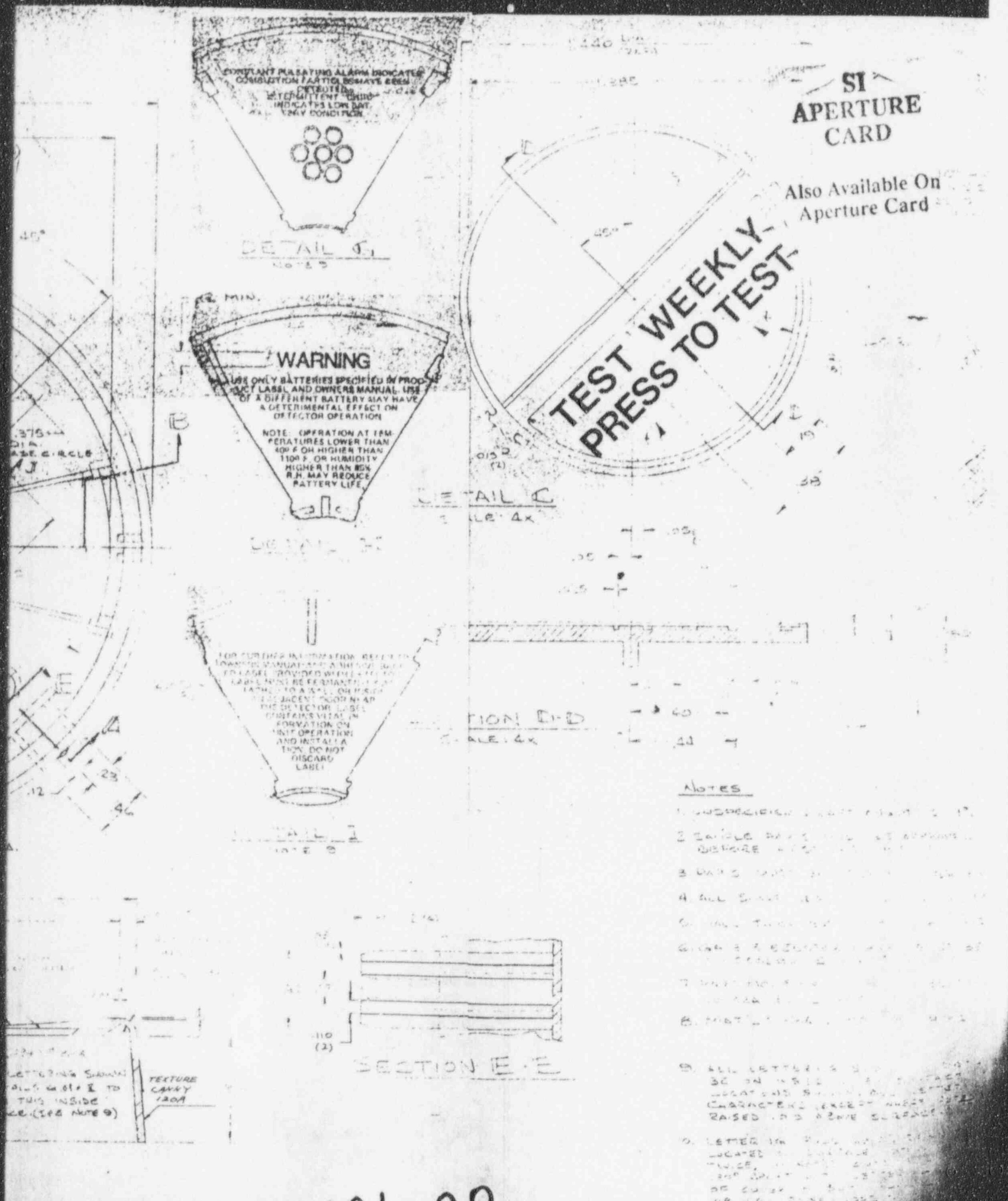




SECTION B

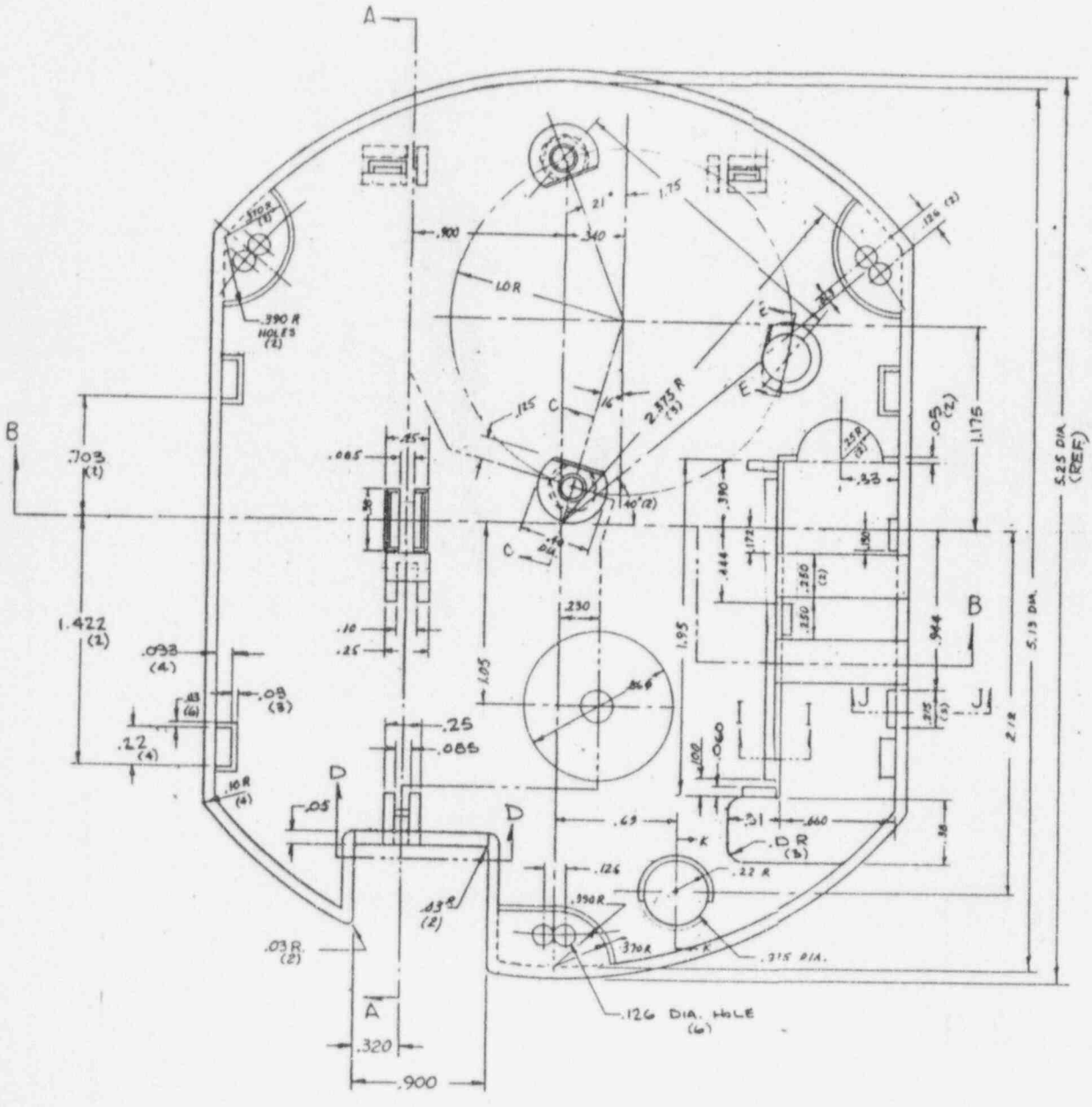
SI APERTURE CARD

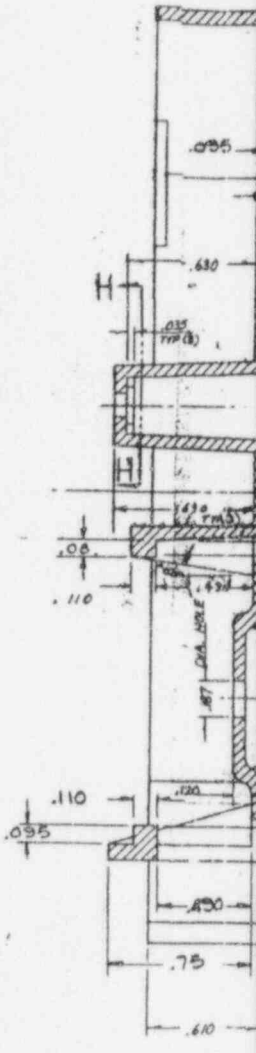
Also Available On Aperture Card



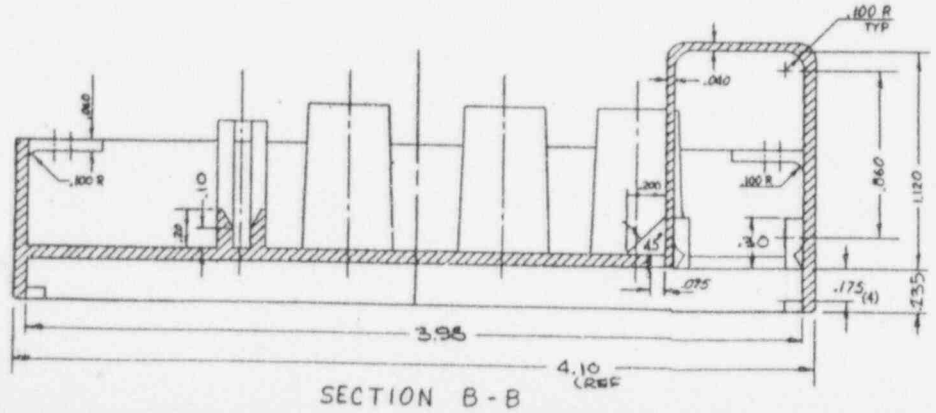
9311100201-08

Model 1225



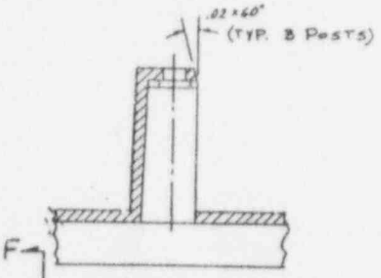


SECTION A

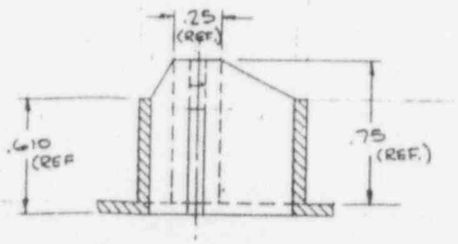


SECTION B-B

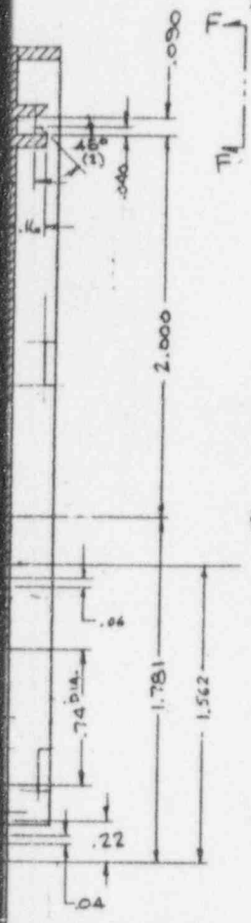
SECTION H-H

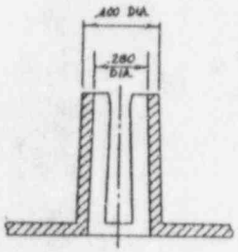


SECTION C-C

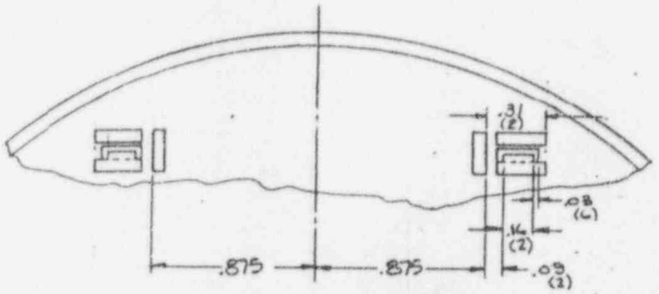


SECTION D-D





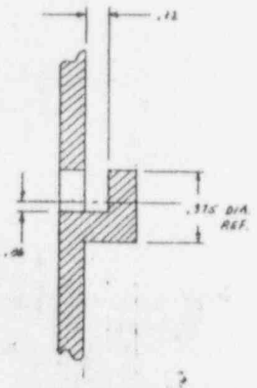
SECTION E-E



VIEW F-F

NOTES

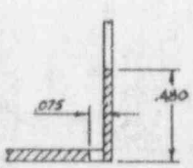
1. UNSPECIFIED DRAFT ANGLE TO BE 1°.
2. SAMPLE PARTS MUST BE APPROVED BY ENGINEERING BEFORE FIRST PRODUCTION.
3. PARTS MUST BE FREE FROM FLASH AND OTHER DEFECTS.
4. ALL SHARP EDGES MAY BE .010 R. MAX.
5. WALL THICKNESS TO BE .060 UNLESS OTHERWISE SPECIFIED.
6. GATE AND EJECTOR PINS MUST BE LOCATED ON CONCEALED AREA.
7. PART NO. AND CAVITY NO. TO BE MARKED ON PARTS IN CONCEALED AREA.

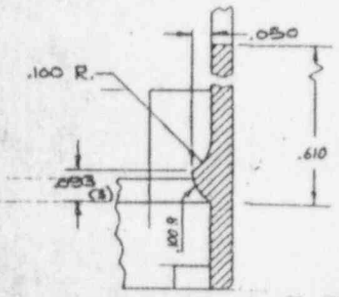


SECTION K-K

SI APERTURE CARD

Also Available On Aperture Card





SECTION I-I

SECTION J-J

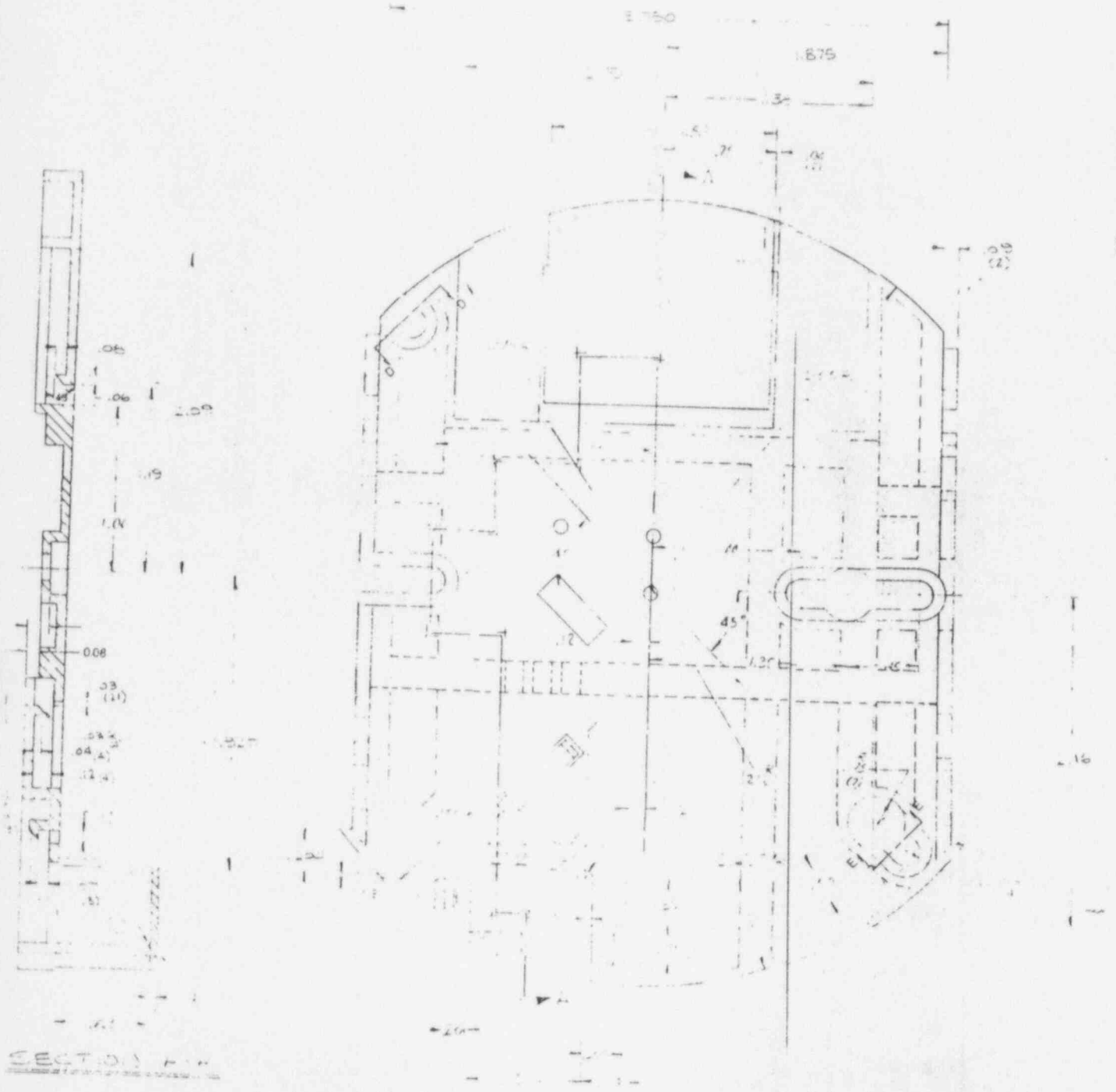
9311100201-09

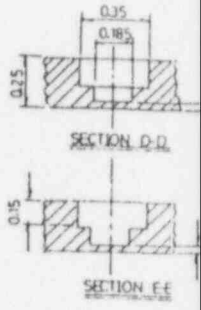
					TOLERANCE UNLESS NOTED		
					1 PLACE (.X) ± .030	MACHINED S'S	
					2 PLACE (.XX) ± .010	FORMED S'S	
					3 PLACE (.XXX) ± .005		
					FINISH MOLDED		
2					MATERIAL NORYL SE-1003-B225 WHITE		
1	REL. FOR PROTO						

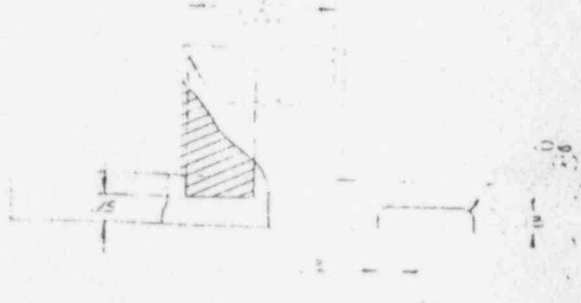
Pyrometics Inc. ELGIN, ILLINOIS

PART NAME BASE - DETECTOR 6" w/ CONN.

NO
001

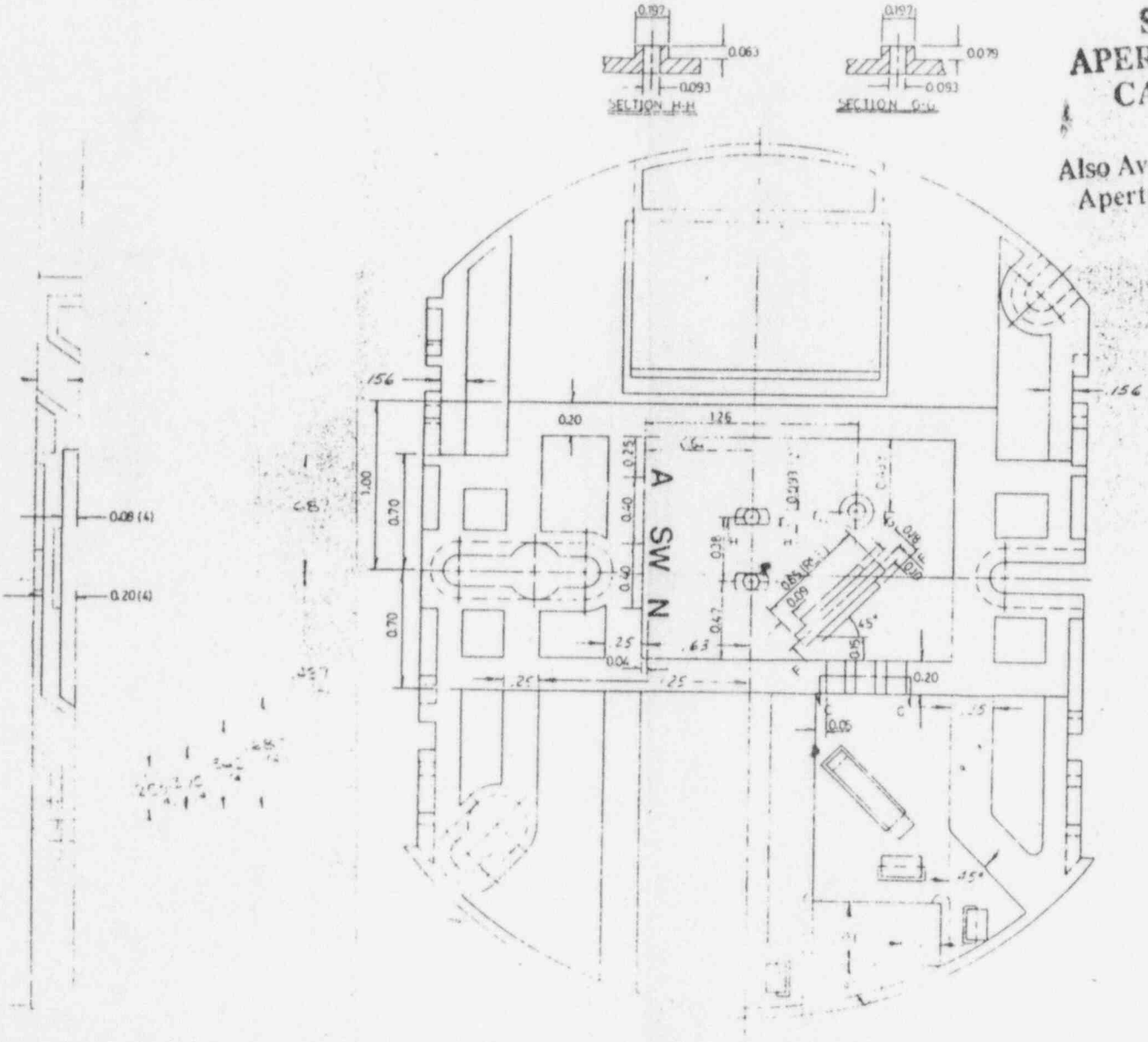






NOTES

1. ALL DIMENSIO
2. UNSPECIFIED
3. SAMPLE PART
DEPT. BEFOR
4. PARTS TO B
5. ALL SHARP
6. WALL THICKNE
OTHERWISE SP
7. GATE & EJECT
ON CONCEAL
8. PART NO. &
ON PARTS IN



S ARE IN INCHES.
RAFT ANGLE TO BE 1° MAX.
TO BE APPROVED BY ENG'G
PRODUCTION.
FREE OF FLASH & OTHER DEFECTS.
OGES TO BE .010 R MAX.
S TO BE .060 UNLESS
ECIFIED.
R PINS TO BE LOCATED
ED AREA.
AVITY NO. TO BE MARKED
CONCEALED AREA.

9311100201-10