



September 23, 1996

Mr. Brian W. Smith, Health Physicist
Sealed Source Safety Section
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial Safety
Office of Nuclear Material Safety
and Safeguards
Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Mr. Smith:

This letter will provide the missing information that you requested in para 13 of your letter date stamped Aug 27, 1996. Along with the parts lists, I have included the applicable drawings with the statement "ORIGINAL Do Not Copy" removed for all drawings, except the two drawings that we want protected (Annex A). At Annex B, you will find the responses to your fax of September 5, 1996.

If you require additional information please do not hesitate to give me a call. Thanks for your support.

Sincerely,

A handwritten signature in dark ink, appearing to read "A.L. McEachern".

A.L. McEachern
Director, Business Development

9702260340 961230
PDR RC *
SSD PDR

CPAD Technologies Inc.

66 Slater Street, 6th Floor, Ottawa, Ontario, Canada K1P 5H1

Tel.: 613.230.0609 Fax: 613.230.3805
E-mail: cpadtech@cpadtech.com

ANNEX A

RESPONSE TO OBSERVATIONS DATED
AUGUST 27, 1996

The parts list and their applicable drawings are included here. Your attention is drawn to drawing number IM-B-040 note 1, that makes reference to the tamper proof screws, and drawing number LA-B-009 that shows the location of the label on the IMS.

CPAD still requires protection for drawing numbers IM-B-035 and IM-B-037. These two drawings contain information that is considered proprietary and is based on information obtained through research that was sponsored jointly by the United States and Canadian Governments, under a counterterrorism bilateral agreement. An affidavit will follow in a separate letter.

RESPONSE TO OBSERVATIONS DATED
SEPTEMBER 5, 1996

1. Your request for an exempt distribution license has not been received. If this has not been submitted yet, it is recommended that you do so as soon as possible.

Reply:

The letter that requested that initial request (mail control number 123410) be voided and advising that we would be applying for an "Exempt Distribution License" was signed by the CPAD president on September 17, 1996.

2. With respect to the environmental and operating extremes the device may experience, you state that the device will be used for exterior operations. Does this mean the device is portable or moveable, or will it be installed in a fixed position outside, open to the environment?

Reply:

The detection equipment containing the "device" is portable, and in some applications it will be vehicle mounted, but it will not be installed in a fixed unprotected position outside, open to the environment.

3. The labels on the analytical unit you state will be expected to remain intact on the device at temperatures up to 100 degrees C. What is the maximum temperature of the surface the label is attached to will reach?

The measured surface temperature on the Analytical Unit is 70 degrees C. The label and the adhesive selected will stand up to these temperatures. (See my reply to para 5).

4. Per our conversation on September 3, you stated that the label on the detector will have the information engraved in the aluminum. Your letter did not address this. Please verify how the information will be applied to the label.

Reply:

Reply:

My fax stated at para 6 that the label will be made from aluminum plate 20 thousands thick, and secured to the device with screws or rivets.

5. What material will be used for the label attached to the analytical unit? In addition, what adhesive will be used to attach this label to the analytical unit?

Reply:

The label selected for this application is a number 468 "SCOTCH" Brand Adhesive Transfer Tape. The information on the construction is that the adhesive is firm acrylate--0.004 inch, and the liner is silicone release-treated paper--0.004 inch. It meets MIL-P-6906A amendment 1, and the adhesive requirements of MIL-P-19834A, Type 1. Of main concern in this application is the temperature, and the claim from the 3M Company is that "when properly applied to suitable substrates this adhesive is serviceable when exposed to temperatures up to 400 degrees F".

6. With respect to the quality assurance program, please provide a description of the quality control program that is used for the manufacture of the IMS Detector. Please note that your quality control program must ensure that devices meet all specifications provided in your application. Please address how this will be accomplished as well as leak testing of the devices. Coulter Sales will have to do a visual inspection to ensure that devices meet all specifications provided in your application and perform a leak test of all devices shipped or if this is performed by CPAD Technologies Inc., Coulter Sales will have to perform periodic audits to ensure CPAD Technologies Inc. maintains an adequate quality control program.

Reply:

CPAD has initiated the ISO 9001 certification process which includes specific procedures relating to process control, inspection and testing, control of inspecting, measuring and test equipment and corrective and preventive action. CPAD's Quality System is specifically geared to the production of the chemical detection products.

Coulter Sales will not have access to the IMS as such a visual inspection will not be possible. Prior to any shipment of a system or an Analytical Unit, CPAD is required by the license with the Atomic Energy Control Board of Canada, to conduct a wipe test. We are also required to conduct a leak test every 12 months. Coulter Sales will be given a copy of all wipe tests for equipment that enters and stays in the U.S.

7. Please provide scenarios and dose assessments in accordance with 10 CFR 32.27.

Reply:

There is no external radiation emanating from the source since it is a beta source, completely enclosed in metal. As seen from the design of the IMS, the device is impervious to breakage and exposure of the source under normal handling (aided by the safety features including lock nuts and tamper proof screws). the IMS is enclosed in another sealed box which in turn is inside a security sealed cabinet of the instrument. The only possible way the source can leak out of the IMS is along the gas stream, passing through the IMS if the IMS overheats, however this probability is assessed to be negligible based on tests conducted on a similar device by NRD and also on the basis of the results of wipe tests conducted on existing devices in CPAD over the past few years. Overheating of the IMS beyond 300 degrees C is impossible in the Analytical Unit due to the safety controls on the heating device used to control the IMS temperature.

8. Please explain the tamper proof screws and their locations on the device.

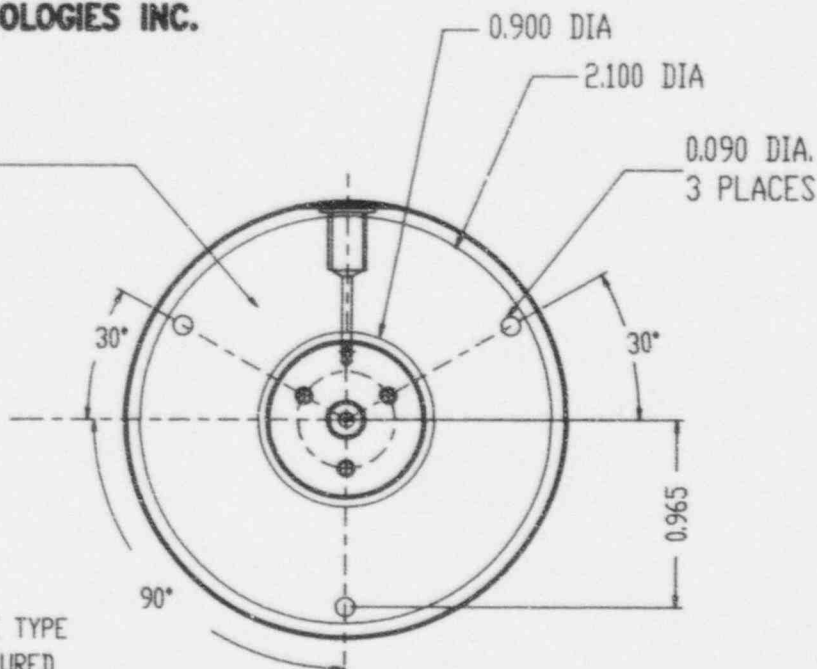
Reply:

The tamper-proof screws have an internal hex head with a pin that requires a special tool for their removal. Drawing number IM-B-040 identifies the location of the screws on the device.

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SYM	REVISION	DATE	BY	CHK

LA-B-009



NOTE: THE LABEL WILL BE A NON-ADHESIVE TYPE WITH THE RADIATION SYMBOL AND TEXT COLOURED MAGENTA ON A YELLOW BACKGROUND.

UNLESS OTHERWISE SPECIFIED

- | | |
|---|--|
| 1. DO NOT SCALE DRAWING. | FRACTIONAL $\pm \frac{\quad}{\quad}$ |
| 2. DIMENSIONS ARE IN <u>INCH</u> | ANGULAR $\pm .1$ |
| 3. THREAD LENGTH DIMENSIONS ARE FULL THREADS. | 5. REMOVE ALL BURRS AND SHARP CORNERS <u>.015</u> MAX. |
| 4. TOLERANCE ON DIMENSIONS (INCLUDING HOLES) | 6. ROUGHNESS OF SURFACE NOT TO EXCEED <u>63</u> IN |
| DECIMAL <u>.XX</u> \pm <u>.01</u> | 7. ALL RADII ARE <u>.125</u> R |
| <u>.XXX</u> \pm <u>.005</u> | |

MATERIAL ALUMINUM SHEET 0.20 THK.

FINISH ANODIZED

DWG BY
NDW

DATE
29/08/96

CHK BY

DATE

APPD BY

DATE

SCALE
1:1



TITLE

I.M.S. RADIATION WARNING
LABEL

SIZE
A

SHEET 1 OF 1

DWG NO

LA-B-009

REV

-

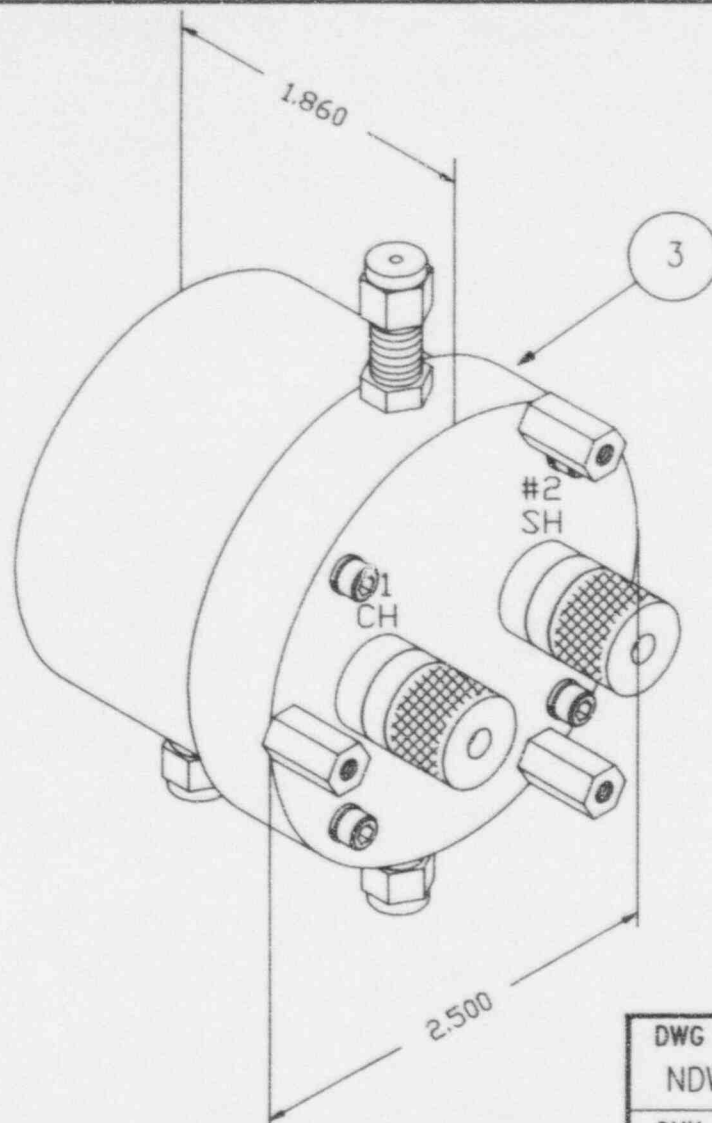



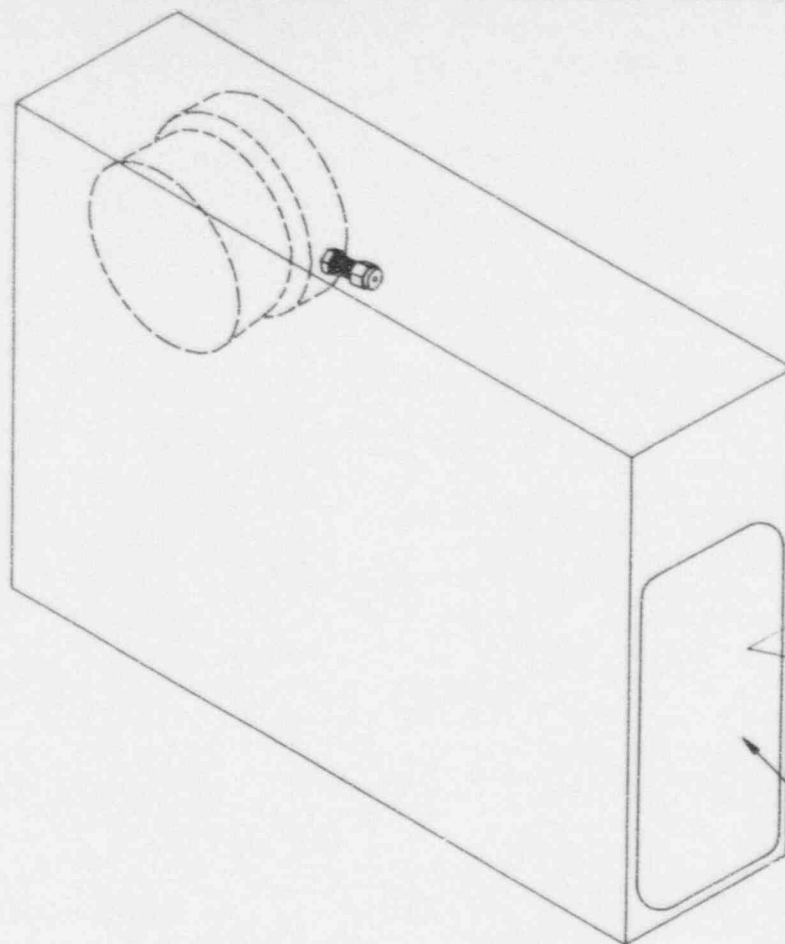
FIGURE A

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SYM	REVISION	DATE	BY	CHK

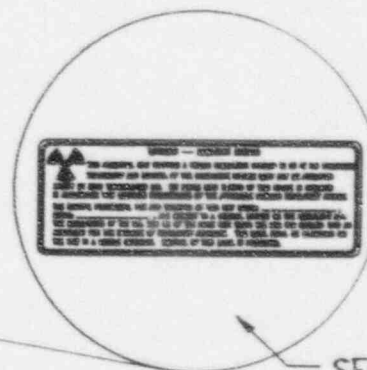
MA-A-077

DWG BY NDW	DATE 30/05/96			
CHK BY RMJ	DATE 03/06/96			
APPD BY WMK	DATE 04/06/96			
SCALE NTS		TITLE IMS ASSEMBLY PICTORIAL REPRESENTATION		
SIZE A		SHEET 1 OF 1	DWG NO MA-A-077	REV -



SYM	REVISION	DATE	BY	CHK

MA-A-079




SEE DWG # LA-B-007

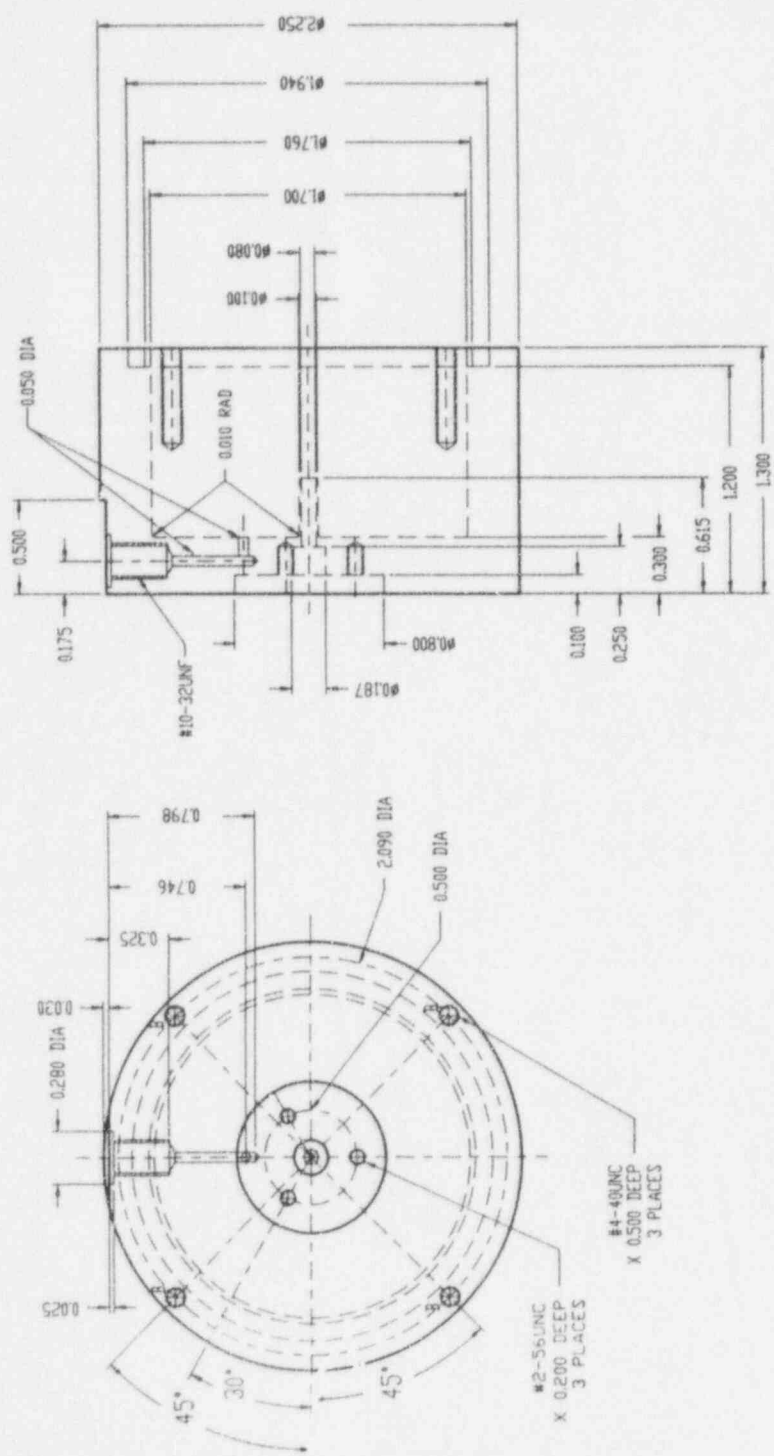
LABEL LOCATION ON BOX

FIGURE C

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DWG BY NDW		DATE 30/05/96			
CHK BY RMJ		DATE XX/06/96			
APPD BY		DATE		TITLE ANALYTICAL BOX PICTORIAL REPRESENTATION	
SCALE NTS		SIZE A	SHEET 1 OF 1	DWG NO MA-A-079	REV -

S/N	REVISION	DATE	BY	CHK



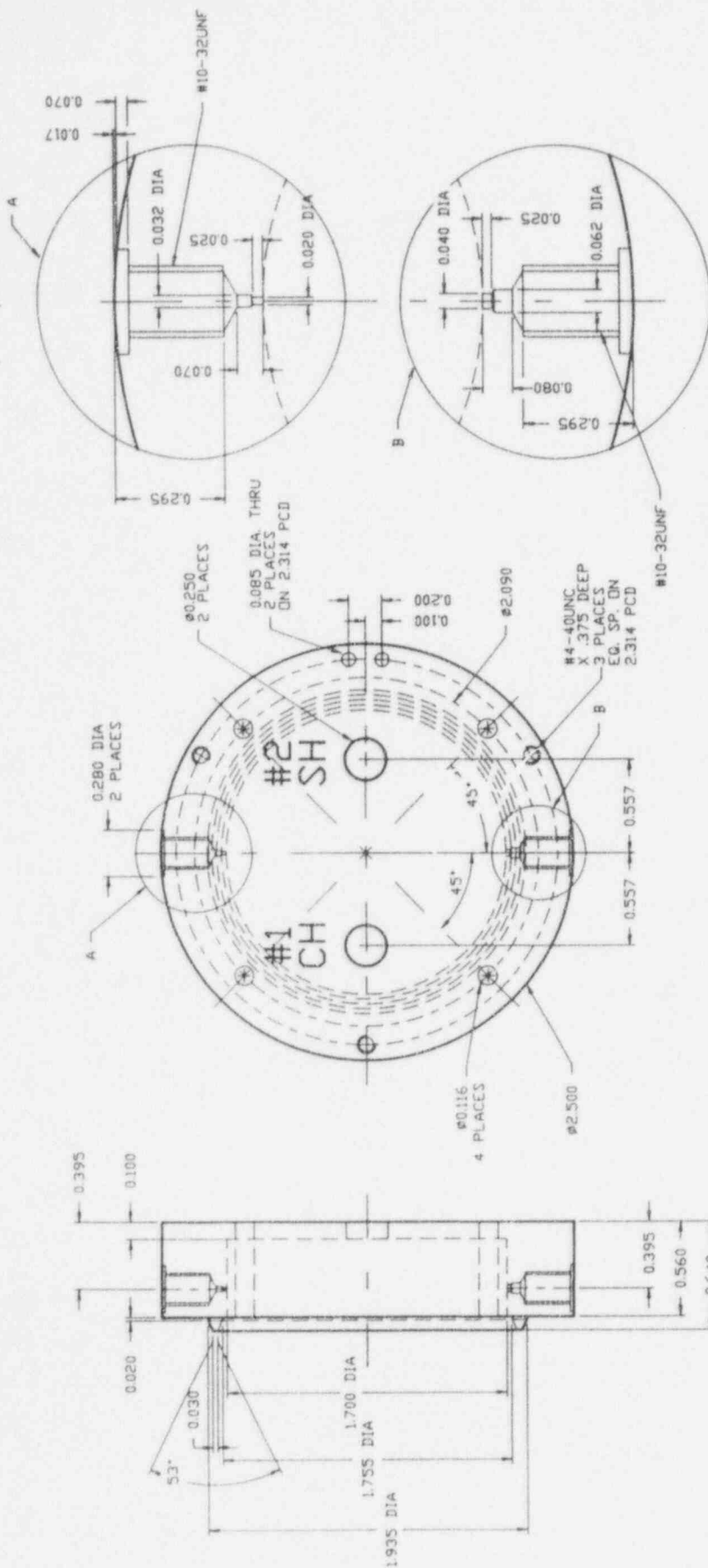
DWG BY	DATE	CHK BY	DATE	APPRO BY	DATE
RMJ	14/07/94	WJK	04.06.98	WJK	04.06.96

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MATERIAL	ALUMINUM BAR
FINISH	NONE

UNLESS OTHERWISE SPECIFIED	
1. DO NOT SCALE DRAWING.	5. REMOVE ALL BURRS AND SHARP CORNERS .015 MAX.
2. DIMENSIONS ARE IN INCH	6. ROUGHNESS OF SURFACE NOT TO EXCEED 6.3 IN
3. THREAD LENGTH DIMENSIONS ARE FULL THREADS.	7. ALL RADII ARE .125 R
4. TOLERANCE ON DIMENSIONS (INCLUDING HOLES)	8.
DECIMAL	.XX ± .01
FRACTIONAL	.XXX ± .002
ANGULAR	.XXXX ± .0005
	± .1

SIZE	DWG NO	REV
B	IM-B-001	A

SYM	REVISION	DATE	BY	CHK



UNLESS OTHERWISE SPECIFIED

1. DO NOT SCALE DRAWING.
2. DIMENSIONS ARE IN INCH
3. THREAD LENGTH DIMENSIONS ARE FULL THREADS.
4. (TOLERANCE ON DIMENSIONS INCLUDING HOLES)
5. REMOVE ALL BURRS AND SHARP CORNERS .015 MAX.
6. ROUGHNESS OF SURFACE NOT TO EXCEED 6.3 IN.
7. ALL RADII ARE .125 R.

- 8.

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MATERIAL	ALUMINUM ROD
FINISH	NONE

DWG BY RMJ	DATE 14/07/94	TITLE
CHK BY WK	DATE 04.06.96	
APPD BY WK	DATE 04.06.96	

SCALE
1.5 : 1

3718 B

SHEET 1 OF 1

14-00000

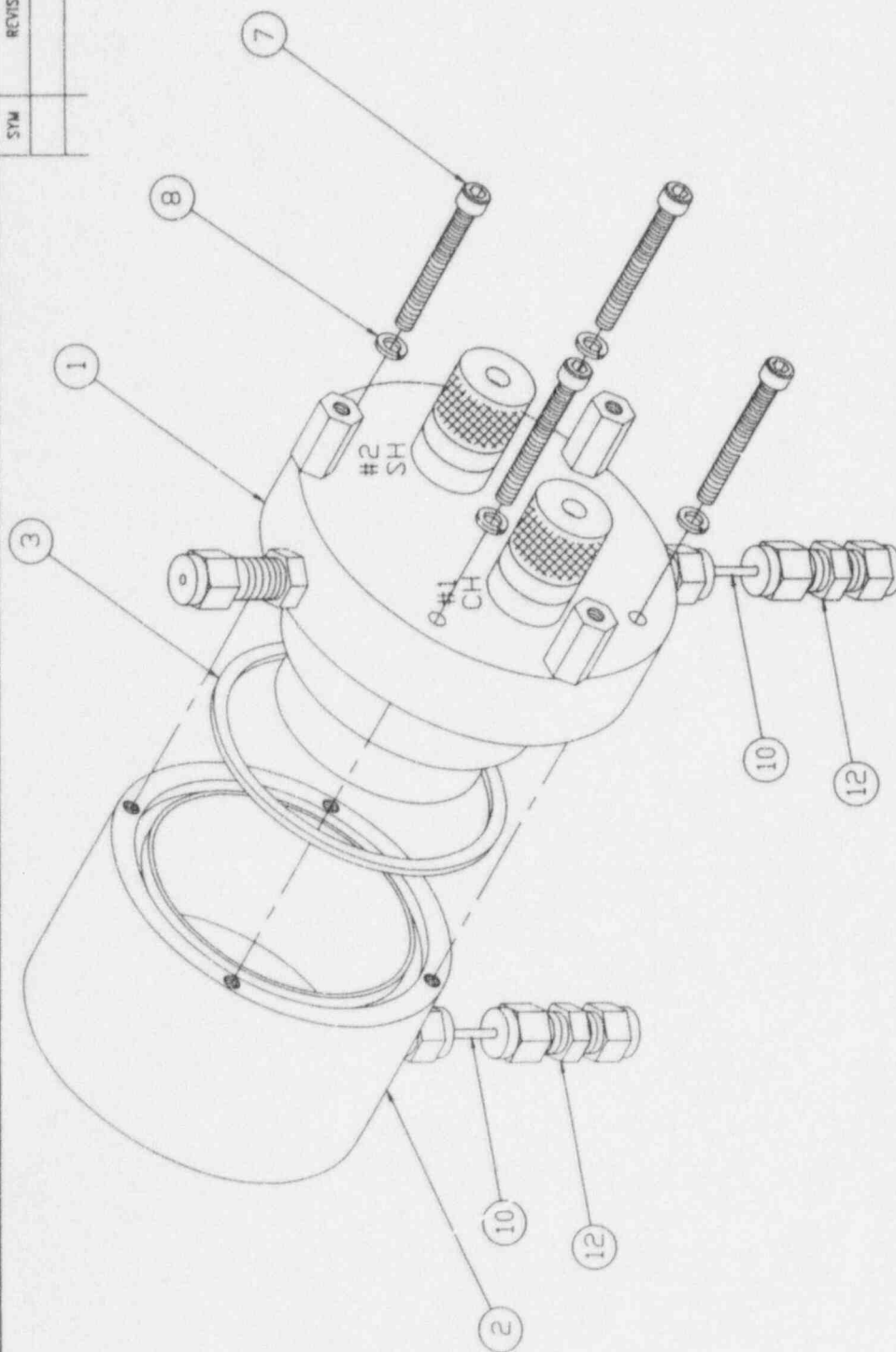
11A-
ON 20

SOURCE BASE

time

OUT

SYM	REVISION	DATE	BY	CHK



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UNLESS OTHERWISE SPECIFIED

- DO NOT SCALE DRAWING.
- DIMENSIONS ARE IN INCH.
- THREAD LENGTH DIMENSIONS ARE FULL THREADS.
- TOLERANCE ON DIMENSIONS (INCLUDING HOLES)
- REMOVE ALL BURRS AND SHARP CORNERS
- ROUGHNESS OF SURFACE NOT TO EXCEED
- ALL RADIUS ARE .125 R

DECIMAL

FRACTIONAL

ANGULAR

± .1

± .0005

± .01

± .005

± .015

± .03

± .06

± .125

± .25

± .5

± 1

± 2

± 3

± 4

± 5

± 6

± 7

± 8

± 9

± 10

± 12

± 15

± 20

± 25

± 30

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± 1000

± 1010

± 1020

± 1030

± 1040

± 1050

± 1060

± 1070

± 1080

± 1090

± 1100

± 1110

± 1120

± 1130

± 1140

± 1150

± 1160

± 1170

± 1180

± 1190

± 1200

± 1210

± 1220

± 1230

± 1240

± 1250

± 1260

± 1270

± 1280

± 1290

± 1300

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± 1390

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± 2170

± 2180

± 2190

± 2200

± 2210

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± 2230

± 2240

± 2250

± 2260

± 2270

± 2280

± 2290

± 2300

± 2310

± 2320

± 2330

± 2340

± 2350

± 2360

± 2370

± 2380

± 2390

± 2400

± 2410

± 2420

± 2430


± 2440

± 2450

± 2460

PARTS LIST					
NO ITEM	PART NO	REV	QTY	DESCRIPTION	MANUFACTURER SUPPLIER /
1	IM-B-036	-	1	SOURCE BASE SUB-ASSY.	
2	IM-B-037	-	1	SOURCE COVER SUB-ASSY.	
3	IM-B-021	-	1	TEFLON SEAL	
4					
5					
6					
7	381-763		4	#4-40 X 1 BUTTON HEAD	SPAE-NAUR
8				SECURITY SCREW	
9					
10	#4		4	LOCK WASHER	
11					
12	NICKEL		2	TUBE 1/16 OD X 3" LG	
13					
14	B-200-6-1		2	REDUCING UNION	SWAGELOK
15					
16					
17					
18					
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21					
22					
23					
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25					
26					
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28					
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30					
31					
32					
33					
34					
35					

NOTES



TITLE

IMS
ASSEMBLY

SYM

REVISION

DATE

BY

CHK

SHEET 1 OF 1

DWG NO
IM-B-040

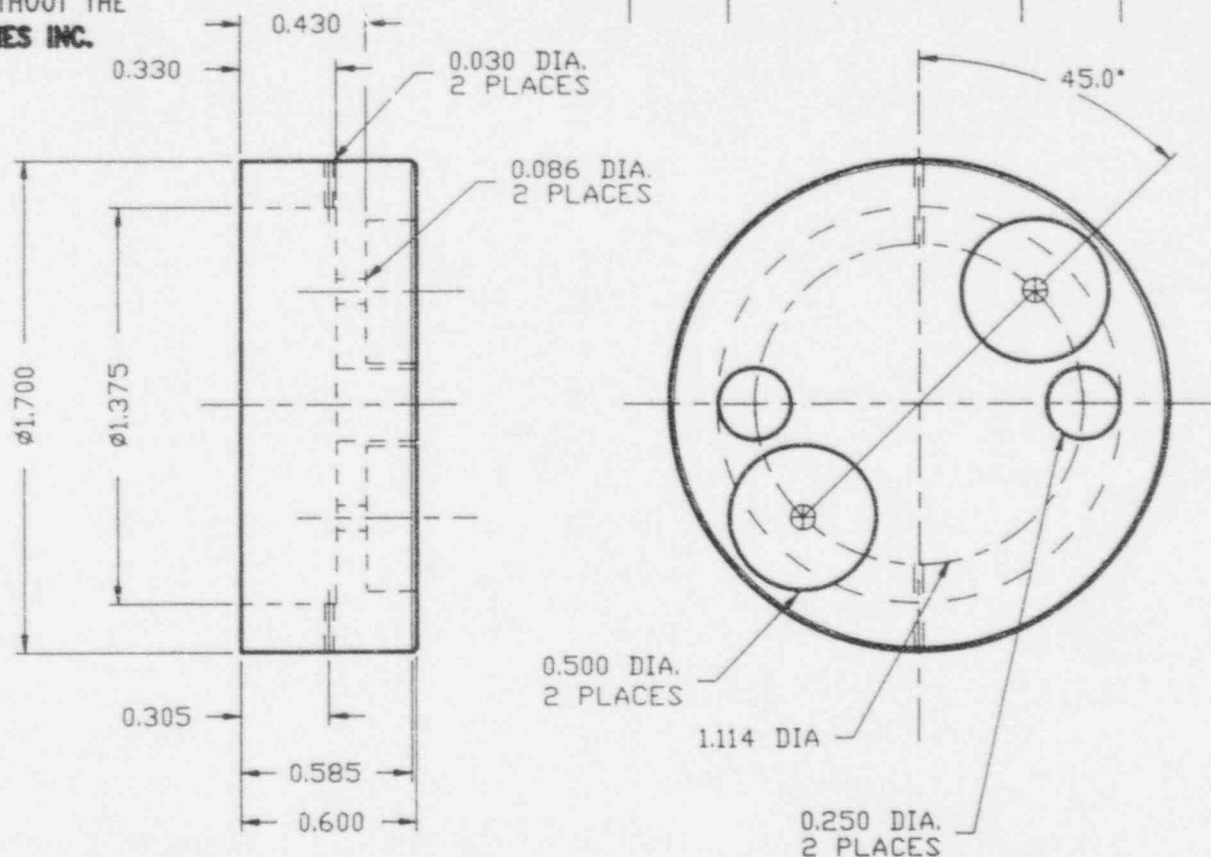
REV
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IM-B-040

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SYM	REVISION	DATE	BY	CHK

IM-B-020



- UNLESS OTHERWISE SPECIFIED
- | | |
|---|---|
| 1. DO NOT SCALE DRAWING. | FRACTIONAL \pm — |
| 2. DIMENSIONS ARE IN INCH | ANGULAR \pm — |
| 3. THREAD LENGTH DIMENSIONS ARE FULL THREADS. | 5. REMOVE ALL BURRS AND SHARP CORNERS .015 MAX. |
| 4. TOLERANCE ON DIMENSIONS (INCLUDING HOLES) | 6. ROUGHNESS OF SURFACE NOT TO EXCEED 632 IN |
| DECIMAL .XX \pm .01 | 7. ALL RADII ARE .125 R |
| .XXX \pm .002 | |

DWG BY RMJ DATE 14/07/94

CHK BY WK DATE 04.06.96

APPD BY WK DATE 04.06.96

CPAD
TECHNOLOGIES INC.

TITLE
TEFLON SOURCE BASE

MATERIAL
TEFLON

FINISH

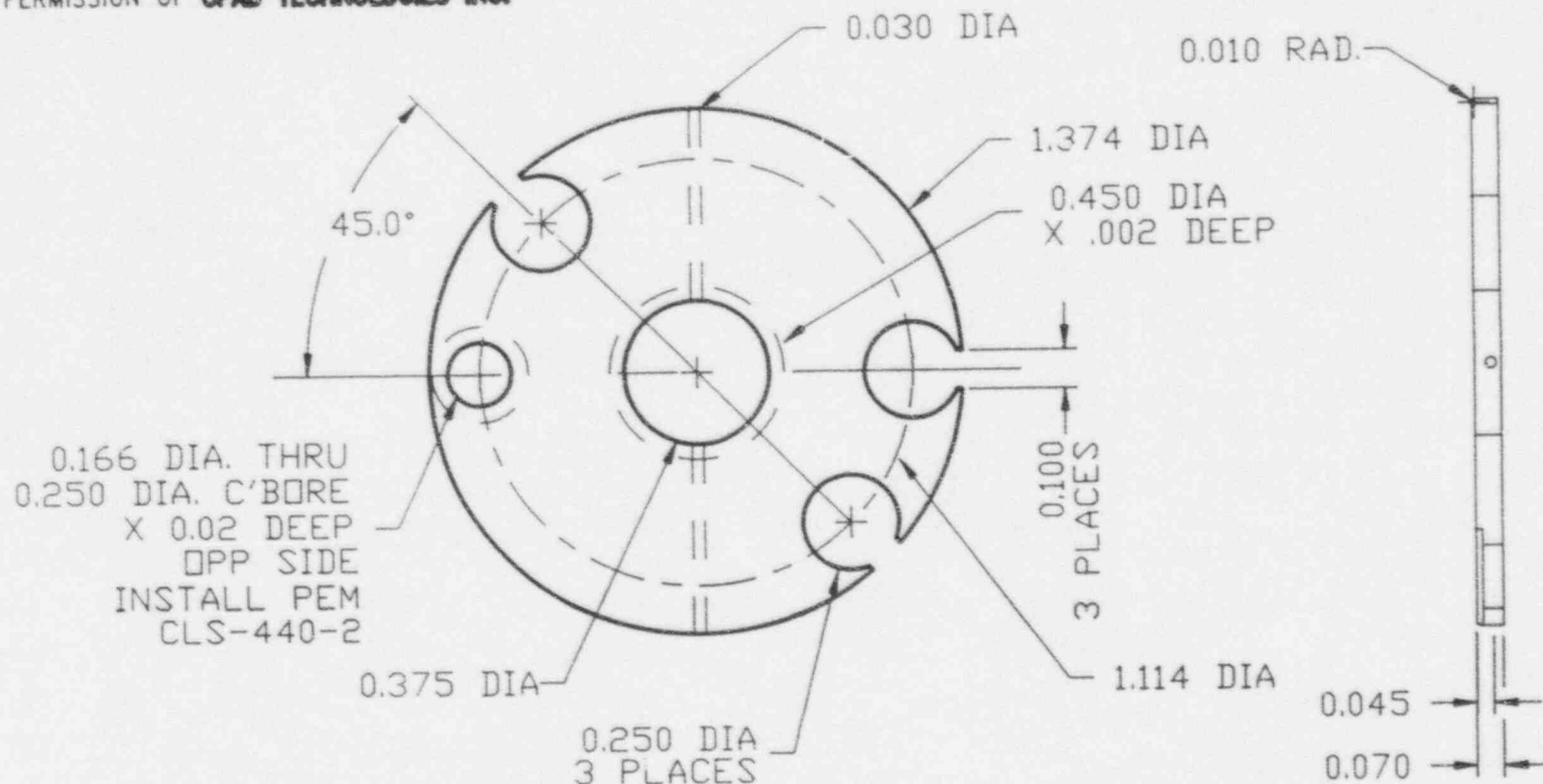
SCALE
1.5 : 1

SIZE A	SHEET 1 OF 1	DWG NO IM-B-020	REV —
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MANUFACTURE OR SALE OF APPARATUS WITHOUT THE
WRITTEN PERMISSION OF **CPAD TECHNOLOGIES INC.**

SYM	REVISION	DATE	BY	CHK

IM-B-022



UNLESS OTHERWISE SPECIFIED

- DO NOT SCALE DRAWING.
- DIMENSIONS ARE IN INCH
- THREAD LENGTH DIMENSIONS ARE FULL THREADS.
- TOLERANCE ON DIMENSIONS (INCLUDING HOLES)
DECIMAL .XX ± .01
XXX ± .002

- REMOVE ALL BURRS AND SHARP CORNERS .015 MAX.
- ROUGHNESS OF SURFACE NOT TO EXCEED 63 IN
- ALL RADII ARE .125 R

DWG BY RMJ	DATE 12/07/94
CHK BY WK	DATE 04.06.96
APPD BY WK	DATE 04.06.96

CPAD
TECHNOLOGIES INC.

TITLE

SOURCE HOLDING WASHER

MATERIAL
ALUMINUM SHEET

FINISH

SCALE
2:1

SIZE
A

SHEET 1 OF 1

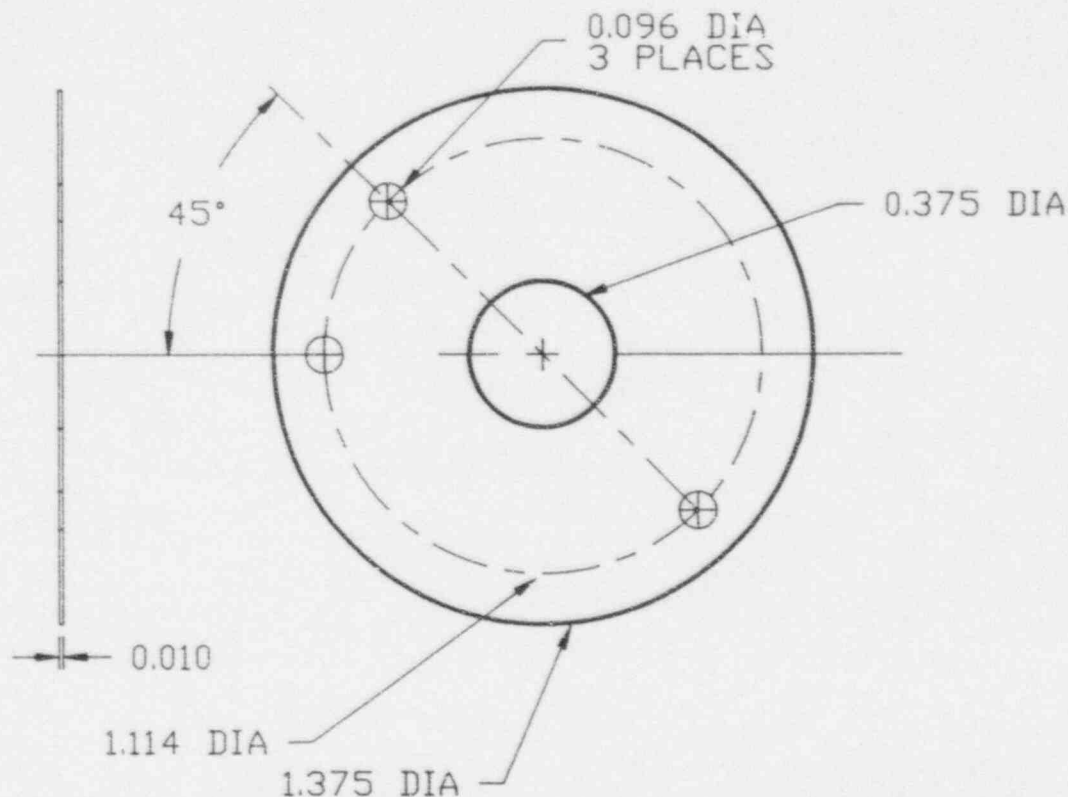
DWG NO
IM-B-022

REV
-

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SYM	REVISION	DATE	BY	CHK

IM-B-023



- DO NOT SCALE DRAWING.
- DIMENSIONS ARE IN INCH
- THREAD LENGTH DIMENSIONS ARE FULL THREADS.
- TOLERANCE ON DIMENSIONS (INCLUDING HOLES)
DECIMAL .XX ± .01
.XXX ± .002

- REMOVE ALL BURRS AND SHARP CORNERS .015 MAX.
- ROUGHNESS OF SURFACE NOT TO EXCEED 63 IN
- ALL RADII ARE .125 R

UNLESS OTHERWISE SPECIFIED

MATERIAL TEFLON

FINISH

DWG BY
RMJ

DATE
13/07/94

CHK BY
WK

DATE
04.06.96

APPD BY
WK

DATE
04.06.96

SCALE
2:1

CPAD
TECHNOLOGIES INC.

TITLE

CUP
WASHER SEPERATOR

SIZE
A

SHEET 1 OF 1

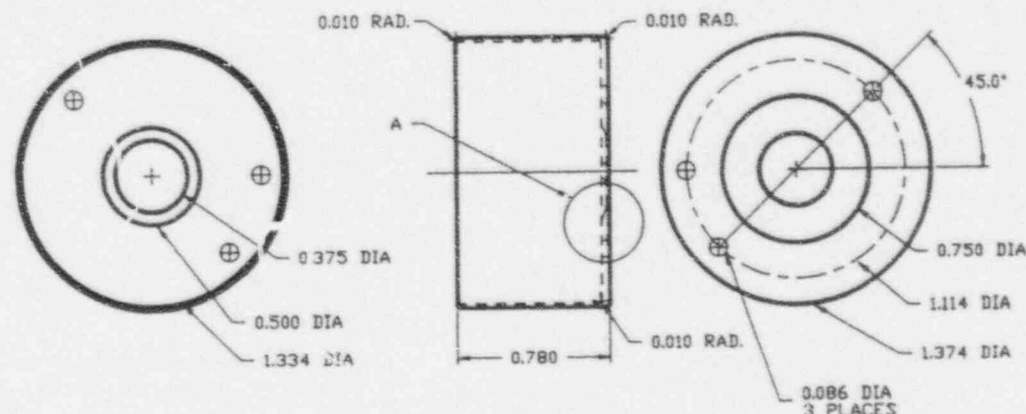
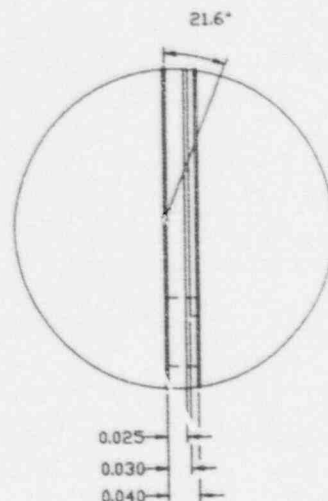
DWG NO
IM-B-023

REV
-

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SYM	REVISION	DATE	BY	CHK

IM-B-024



UNLESS OTHERWISE SPECIFIED

- DO NOT SCALE DRAWING.
- DIMENSIONS ARE IN INCH
- THREAD LENGTH DIMENSIONS ARE FULL THREADS.
- TOLERANCE ON DIMENSIONS (INCLUDING HOLES)
DECIMAL .XX ± .01
XXX ± .002

- REMOVE ALL BURRS AND SHARP CORNERS .015 MAX.
- ROUGHNESS OF SURFACE NOT TO EXCEED 63 IN
- ALL RADII ARE .125 R

DWG BY RMJ	DATE 13/07/94
CHK BY WK	DATE 04.06.96
APPD BY WK	DATE 04.06.96

CPAD
TECHNOLOGIES INC.

TITLE

CUP
SCREEN HOLDER

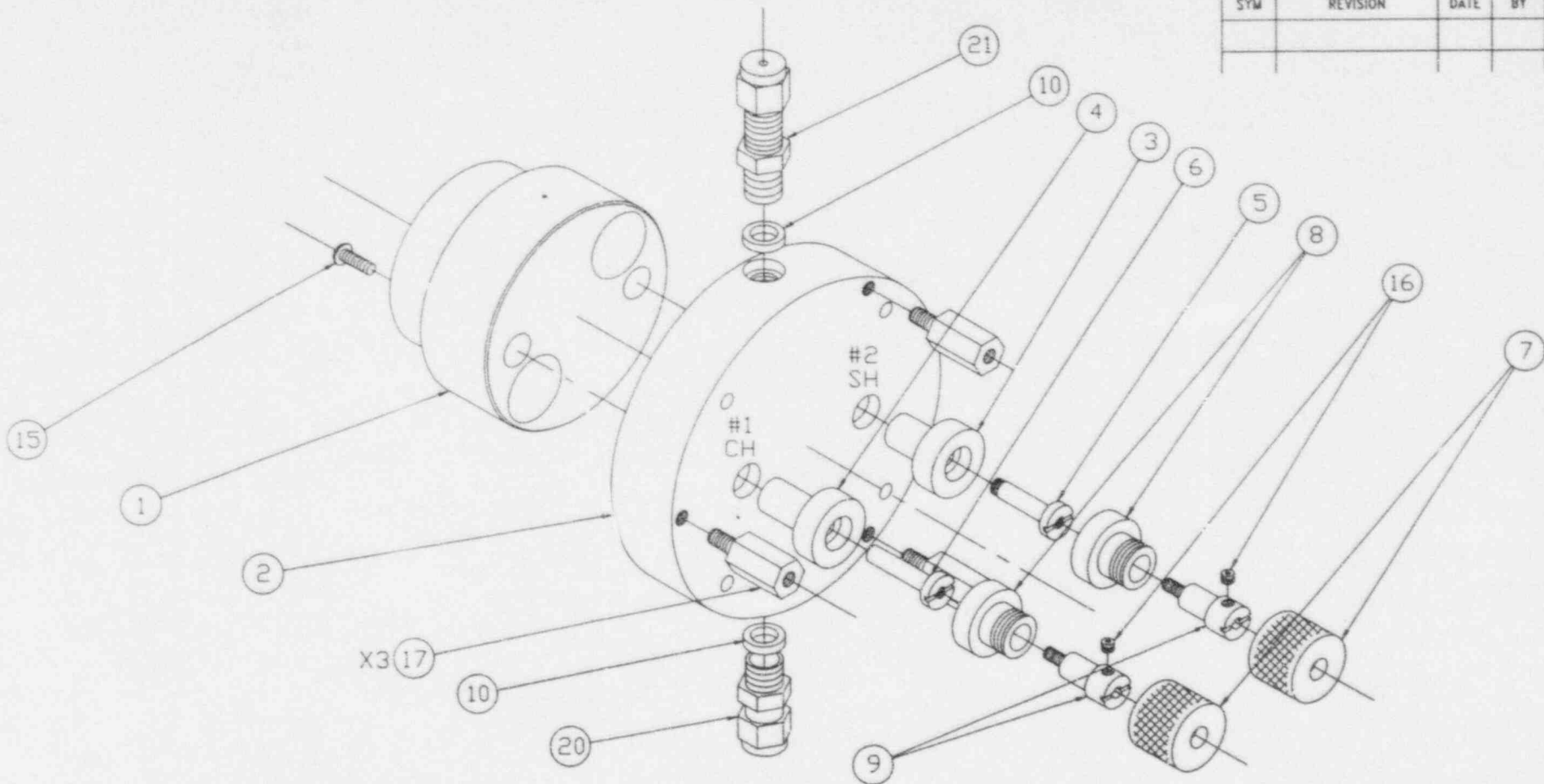
MATERIAL
ALUMINUM ROD

FINISH

SCALE
1:1

SIZE	SHEET 1 OF 1	DWG NO	REV
A		IM-B-024	-

SYM	REVISION	DATE	BY	CHK



UNLESS OTHERWISE SPECIFIED

- DO NOT SCALE DRAWING.
- DIMENSIONS ARE IN INCH
- THREAD LENGTH DIMENSIONS ARE FULL THREADS.
- TOLERANCE ON DIMENSIONS (INCLUDING HOLES)

DECIMAL	.XX ± <u>.01</u>
	.XXX ± <u>.005</u>
	.XXXX ± <u>.0005</u>
FRACTIONAL	± <u>—</u>
ANGULAR	± <u>.1</u>

- REMOVE ALL BURRS AND SHARP CORNERS .015 MAX.
- ROUGHNESS OF SURFACE NOT TO EXCEED 63 IN
- ALL RADII ARE .125 R

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MATERIAL

FINISH

DWG BY	DATE
RMJ	03/10/94
CHK BY	DATE
WK	04.06.96
APPD BY	DATE
WK	04.06.96

SCALE
1:1

CPAD
TECHNOLOGIES INC.

TITLE

SOURCE BASE
SUB-ASSEMBLY


SIZE
B

SHEET 1 OF 1

DWG NO
IM-B-036

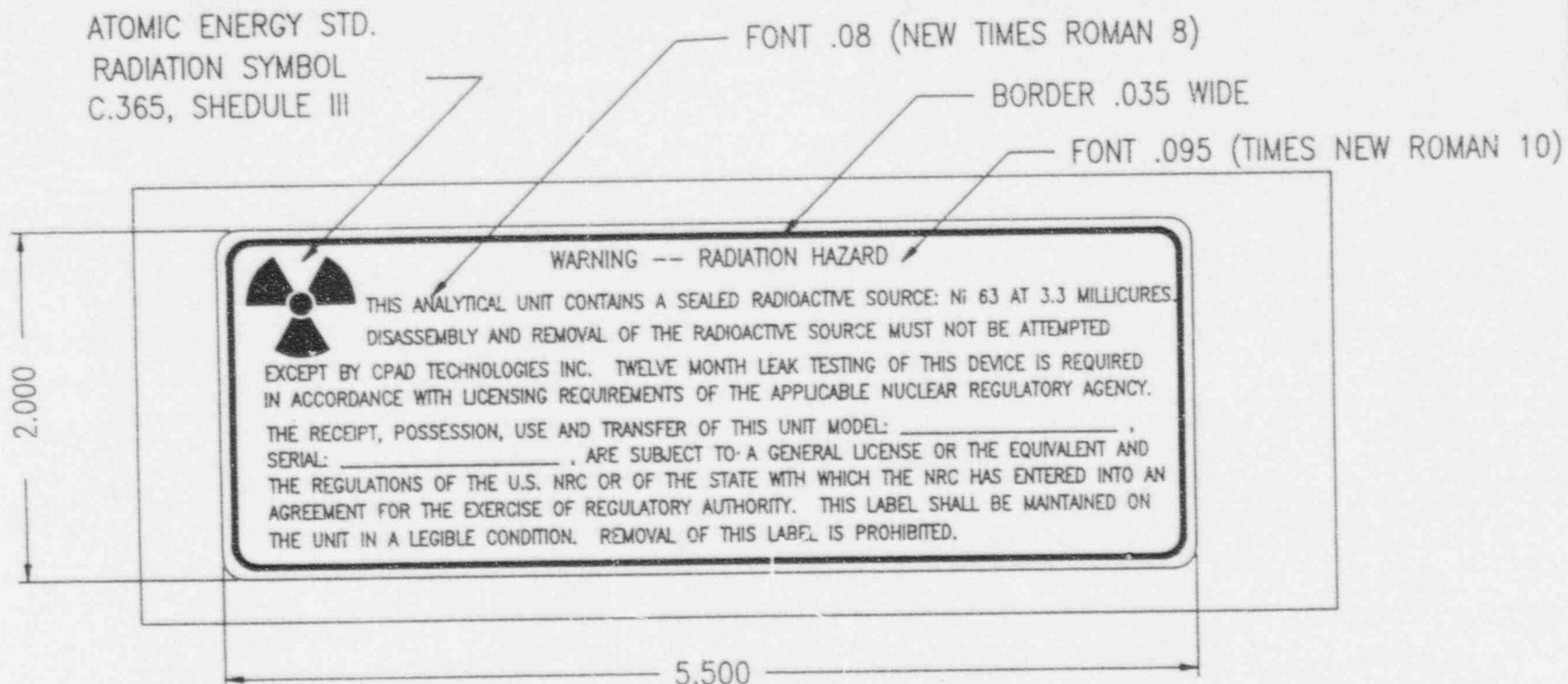
REV

PARTS LIST						IM-B-036
NO ITEM	PART NO	REV	QTY	DESCRIPTION	MANUFACTURER SUPPLIER /	
1	IM-B-035	-	1	SOURCE HOLDER SUB-ASSY.		
2	IM-B-002	-	1	SOURCE BASE		
3	IM-B-007	-	1	H.V. TEFLON SEAL-SHORT		
4	IM-B-008	-	1	H.V. TEFLON SEAL-LONG		
5	IM-B-012	-	1	H.V. TERMINAL SCREW		
6	IM-B-013	-	1	H.V. TERMINAL SCREW		
7	IM-B-017	A	2	H.V. TEFLON NUT		
8	IM-B-028	B	2	H.V. THREADED CAP		
9	IM-B-029	A	2	H.V. WIRE TERMINAL		
10	IM-B-031	-	2	TEFLON WASHER		
11						
12						
13						
14						
15	#2-56X1/4		1	PAN HD. PHILLIPS SCREW		
16	#2-56X1/16		2	SET SCREW		
17	#2088		3	STAND-OFF .355 LG	KEYSTONE	
18						
19						
20	SS-100-6		1	UNION	SWAGELOK	
21	SS-100-61		1	BULKHEAD UNION	SWAGELOK	
22						
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35						

NOTES							
					TITLE SOURCE BASE SUB-ASSY.		
SYM	REVISION	DATE	BY	CHK	SHEET 1 OF 1	DWG NO IM-B-036	REV -


SYM	REVISION	DATE	BY	CHK

LA-B-007



NOTE : THE LABEL WILL BE AN ADHESIVE TYPE.
WITH THE RADIATION SYMBOL AND TEXT COLORED
MAGENTA ON A YELLOW BACKGROUND

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WRITTEN PERMISSION OF **CPAD TECHNOLOGIES INC.**

DWG BY NDW		DATE 30/05/96			
CHK BY RMJ		DATE 03/06/96			
APPD BY WK		DATE 04/06/96			
SCALE 1:1				TITLE RADIATION HAZARD IMS WARNING LABEL	
SIZE A		SHEET 1 OF 1		DWG NO LA-B-007	REV -

WE HAVE MOVED, PLEASE CHECK OUR NEW ADDRESS!

FACSIMILE



FACSIMILE

Date & Time: Monday, September 23, 1996 1:16 PM

Pages To Follow: 5

Send To

Name: Mr. Brian Smith
Company: NRC

FAX: 301-415-5370
Phone: 301-415-5723

From

Name: A. McEachern

Phone: (613) 230-0609
FAX: (613) 230-3805

Address: CPAD Technologies Inc.
66 Slater Street, 6th Floor
Ottawa, Ontario K1P 5H1

cc:

Subject: DEVICE REVIEW

Notes: This fax contains information that I will be sending by courier, (less drawings and parts lists), but I want to make sure I do not delay the process while you wait for the hard copy to arrive. I have attempted to answer your observations as directly as I could, however the fact that we are requesting an "Exempt License" may change some requirements.

Thanks for your support.

Regards,

A handwritten signature in cursive script, appearing to read "A. McEachern".

WE HAVE MOVED, PLEASE CHECK OUR NEW ADDRESS!

WARNING!

This CPAD Technologies Inc. transmission is intended for the addressee. It may contain privileged or confidential information, any unauthorized disclosure is strictly prohibited by law. If you have received this transmission in error, please notify us immediately so that we may correct our transmission. Please then destroy the original. Thank you.



September 23, 1996

Mr. Brian W. Smith, Health Physicist
Sealed Source Safety Section
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial Safety
Office of Nuclear Material Safety
and Safeguards
Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Mr. Smith:

This letter will provide the missing information that you requested in para 13 of your letter date stamped Aug 27, 1996. Along with the parts lists, I have included the applicable drawings with the statement "ORIGINAL Do Not Copy" removed for all drawings, except the two drawings that we want protected (Annex A). At Annex B, you will find the responses to your fax of September 5, 1996.

If you require additional information please do not hesitate to give me a call. Thanks for your support.

Sincerely,

A handwritten signature in dark ink, appearing to read "A.L. McEachern".

A.L. McEachern
Director, Business Development

4707260340 21pp

CPAD Technologies Inc.

88 Slater Street, 8th Floor, Ottawa, Ontario, Canada K1P 5H1

Tel.: 613.230.0609 Fax: 613.230.3806
E-mail: cpadtech@cpadtech.com

ANNEX A

RESPONSE TO OBSERVATIONS DATED
AUGUST 27, 1996

The parts list and their applicable drawings are included here. Your attention is drawn to drawing number IM-B-040 note 1, that makes reference to the tamper proof screws, and drawing number LA-B-009 that shows the location of the label on the IMS.

CPAD still requires protection for drawing numbers IM-B-035 and IM-B-037. These two drawings contain information that is considered proprietary and is based on information obtained through research that was sponsored jointly by the United States and Canadian Governments, under a counterterrorism bilateral agreement. An affidavit will follow in a separate letter.

ANNEX B

RESPONSE TO OBSERVATIONS DATED
SEPTEMBER 5, 1996

1. Your request for an exempt distribution license has not been received. If this has not been submitted yet, it is recommended that you do so as soon as possible.

Reply:

The letter that requested that initial request (mail control number 123410) be voided and advising that we would be applying for an "Exempt Distribution License" was signed by the CPAD president on September 17, 1996.

2. With respect to the environmental and operating extremes the device may experience, you state that the device will be used for exterior operations. Does this mean the device is portable or moveable, or will it be installed in a fixed position outside, open to the environment?

Reply:

The detection equipment containing the "device" is portable, and in some applications it will be vehicle mounted, but it will not be installed in a fixed unprotected position outside, open to the environment.

3. The labels on the analytical unit you state will be expected to remain intact on the device at temperatures up to 100 degrees C. What is the maximum temperature of the surface the label is attached to will reach?

The measured surface temperature on the Analytical Unit is 70 degrees C. The label and the adhesive selected will stand up to these temperatures. (See my reply to para 5).

4. Per our conversation on September 3, you stated that the label on the detector will have the information engraved in the aluminum. Your letter did not address this. Please verify how the information will be applied to the label.

Reply:

Reply:

My fax stated at para 6 that the label will be made from aluminum plate 20 thousands thick, and secured to the device with screws or rivets.

5. What material will be used for the label attached to the analytical unit? In addition, what adhesive will be used to attach this label to the analytical unit?

Reply:

The label selected for this application is a number 488 "SCOTCH" Brand Adhesive Transfer Tape. The information on the construction is that the adhesive is firm acrylate—0.004 inch, and the liner is silicone release-treated paper—0.004 inch. It meets MIL-P-6906A amendment 1, and the adhesive requirements of MIL-P-19834A, Type 1. Of main concern in this application is the temperature, and the claim from the 3M Company is that "when properly applied to suitable substrates this adhesive is serviceable when exposed to temperatures up to 400 degrees F".

6. With respect to the quality assurance program, please provide a description of the quality control program that is used for the manufacture of the IMS Detector. Please note that your quality control program must ensure that devices meet all specifications provided in your application. Please address how this will be accomplished as well as leak testing of the devices. Coulter Sales will have to do a visual inspection to ensure that devices meet all specifications provided in your application and perform a leak test of all devices shipped or if this is performed by CPAD Technologies Inc., Coulter Sales will have to perform periodic audits to ensure CPAD Technologies Inc. maintains an adequate quality control program.

Reply:

CPAD has initiated the ISO 9001 certification process which includes specific procedures relating to process control, inspection and testing, control of inspecting, measuring and test equipment and corrective and preventive action. CPAD's Quality System is specifically geared to the production of the chemical detection products.

Coulter Sales will not have access to the IMS as such a visual inspection will not be possible. Prior to any shipment of a system or an Analytical Unit, CPAD is required by the license with the Atomic Energy Control Board of Canada, to conduct a wipe test. We are also required to conduct a leak test every 12 months. Coulter Sales will be given a copy of all wipe tests for equipment that enters and stays in the U.S.

7. Please provide scenarios and dose assessments in accordance with 10 CFR 32.27.

Reply:

There is no external radiation emanating from the source since it is a beta source, completely enclosed in metal. As seen from the design of the IMS, the device is impervious to breakage and exposure of the source under normal handling (aided by the safety features including lock nuts and tamper proof screws). the IMS is enclosed in another sealed box which in turn is inside a security sealed cabinet of the instrument. The only possible way the source can leak out of the IMS is along the gas stream, passing through the IMS if the IMS overheats, however this probability is assessed to be negligible based on tests conducted on a similar device by NRD and also on the basis of the results of wipe tests conducted on existing devices in CPAD over the past few years. Overheating of the IMS beyond 300 degrees C is impossible in the Analytical Unit due to the safety controls on the heating device used to control the IMS temperature.

8. Please explain the tamper proof screws and their locations on the device.

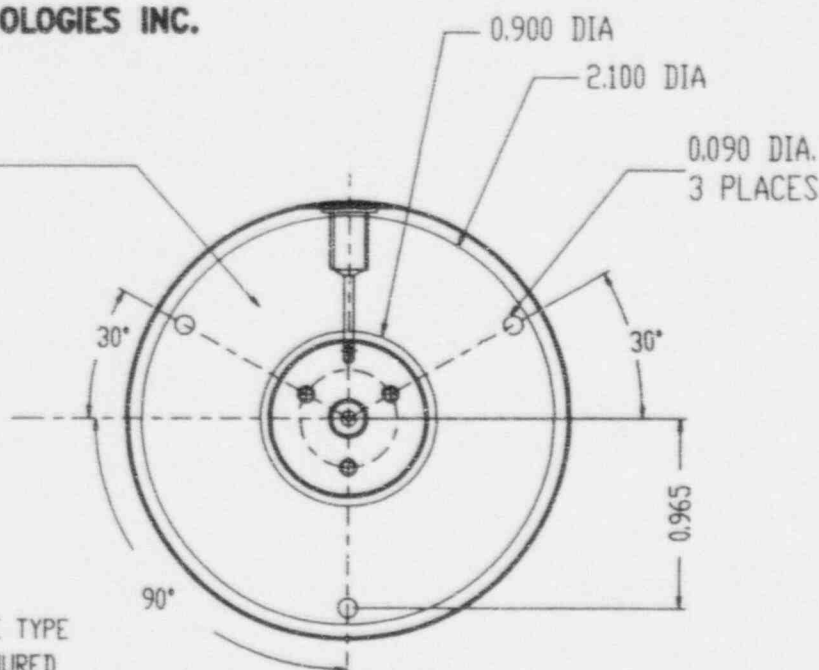
Reply:

The tamper-proof screws have an internal hex head with a pin that requires a special tool for their removal. Drawing number IM-B-040 identifies the location of the screws on the device.


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WRITTEN PERMISSION OF **CPAD TECHNOLOGIES INC.**

SYM	REVISION	DATE	BY	CHK

LA-B-009



NOTE: THE LABEL WILL BE A NON-ADHESIVE TYPE
WITH THE RADIATION SYMBOL AND TEXT COLOURED
MAGENTA ON A YELLOW BACKGROUND.

UNLESS OTHERWISE SPECIFIED		DWG BY NDW	DATE 29/08/96				
1. DO NOT SCALE DRAWING. 2. DIMENSIONS ARE IN INCH 3. THREAD LENGTH DIMENSIONS ARE FULL THREADS. 4. TOLERANCE ON DIMENSIONS (INCLUDING HOLES) DECIMAL .XX ± .01 .XXX ± .005		CHK BY	DATE			TITLE I.M.S. RADIATION WARNING LABEL	
5. REMOVE ALL BURRS AND SHARP CORNERS .015 MAX. 6. ROUGHNESS OF SURFACE NOT TO EXCEED 63 IN 7. ALL RADII ARE .125 R		APPD BY	DATE	SIZE A	SHEET 1 OF 1		DWG NO LA-B-009
MATERIAL ALUMINUM SHEET 0.20 THK.		SCALE 1:1					
FINISH ANODIZED							

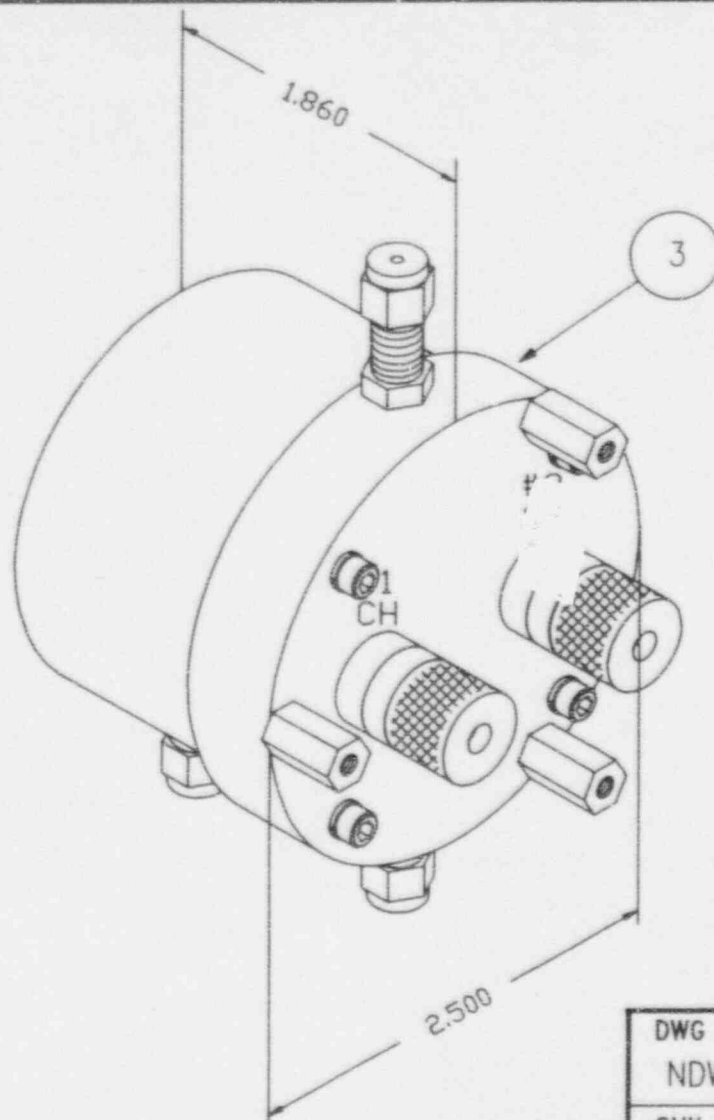


FIGURE A

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SYM	REVISION	DATE	BY	CHK

MA-A-077

DWG BY NDW	DATE 30/05/96
CHK BY RMJ	DATE 03/06/96
APPD BY WMK	DATE 04/06/96
SCALE NTS	

CPAD
TECHNOLOGIES INC.

TITLE

IMS ASSEMBLY
PICTORIAL REPRESENTATION

SIZE
A

SHEET 1 OF 1

DWG NO

MA-A-077

REV

—

SYM	REVISION	DATE	BY	CHK

MA-A-078

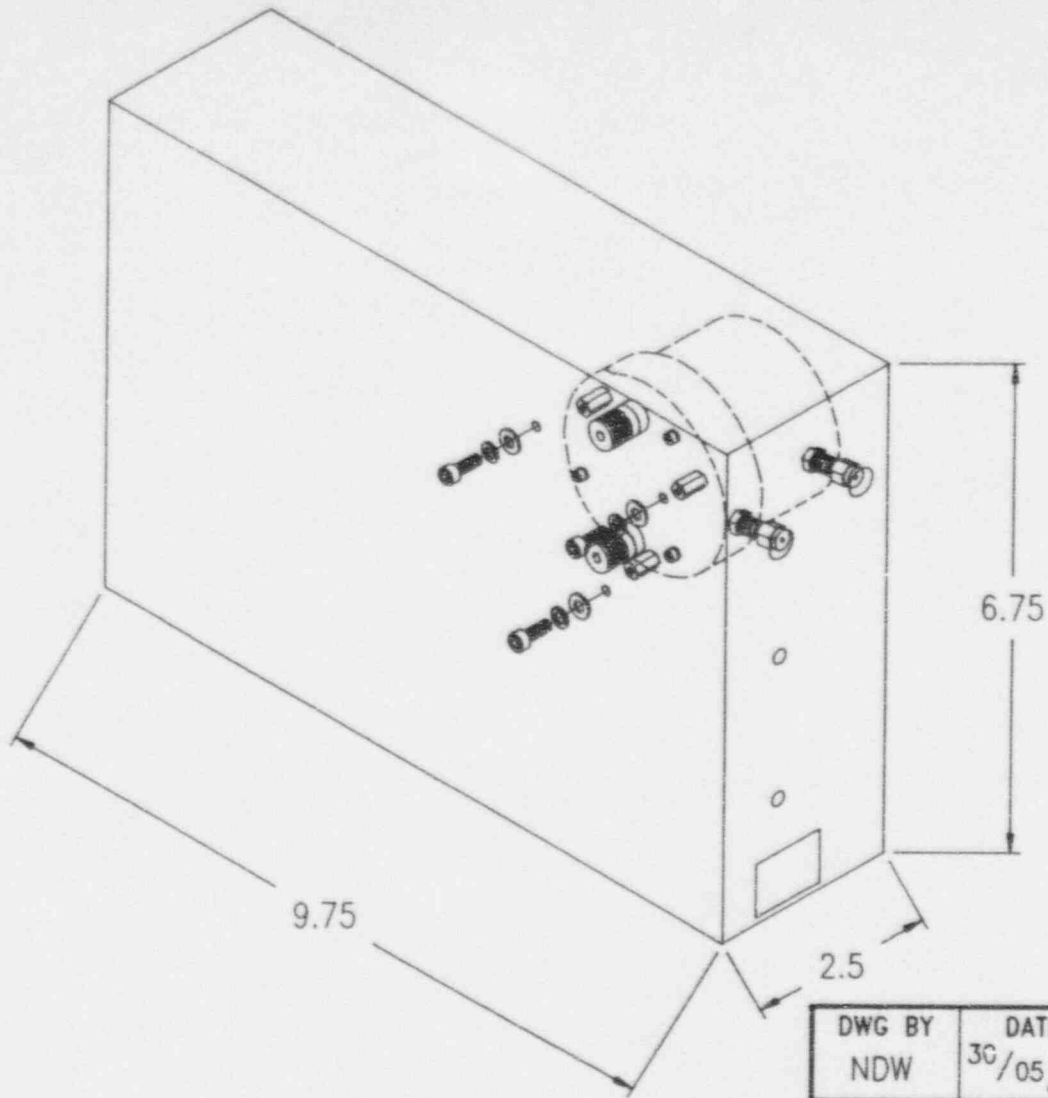


FIGURE B

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DWG BY NDW	DATE 30/05/96
CHK BY RMJ	DATE XX/06/96
APPD BY	DATE

SCALE NTS

ANALYTICAL BOX PICTORIAL REPRESENTATION			
SIZE A	SHEET 1 OF 1	DWG NO MA-A-078	REV -

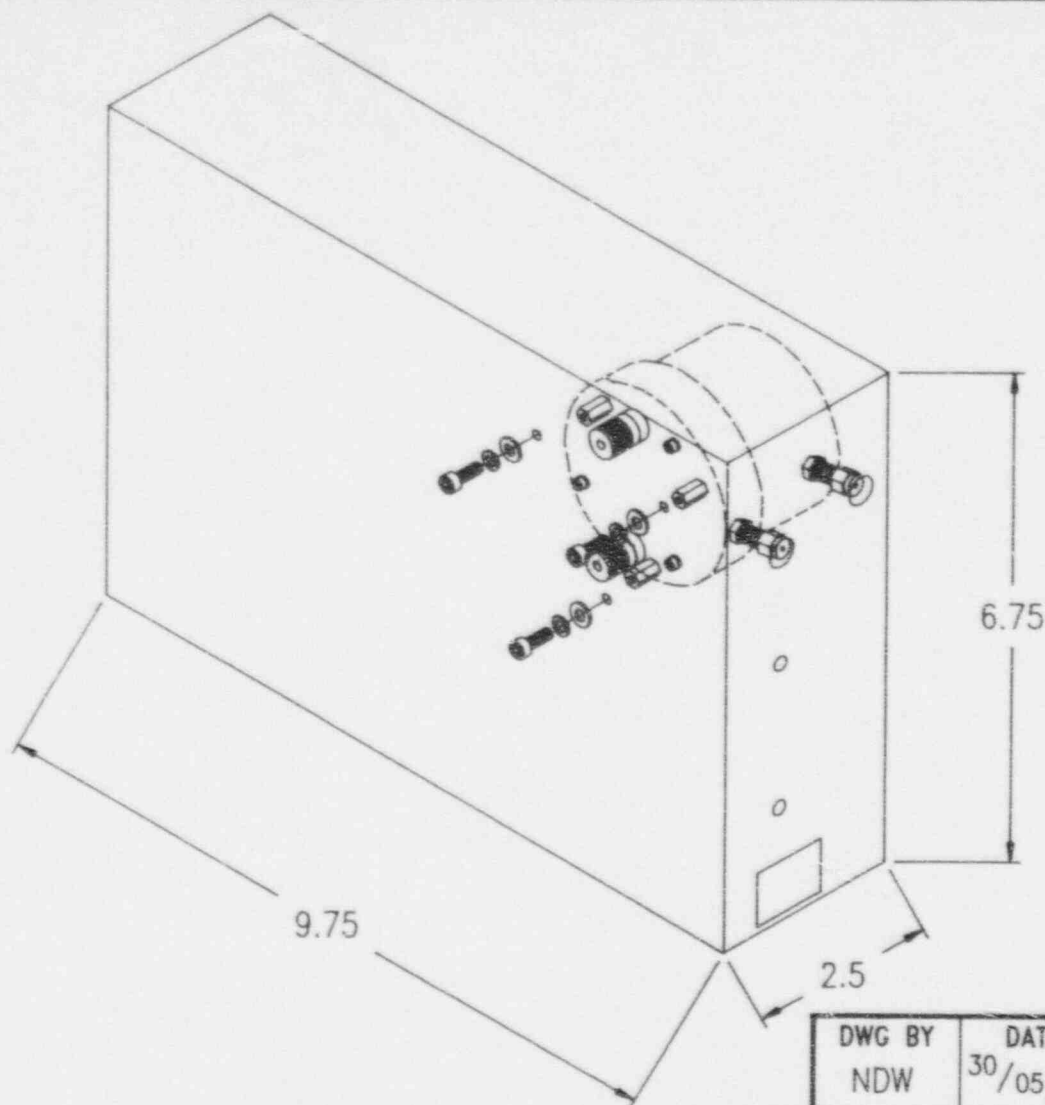


FIGURE B

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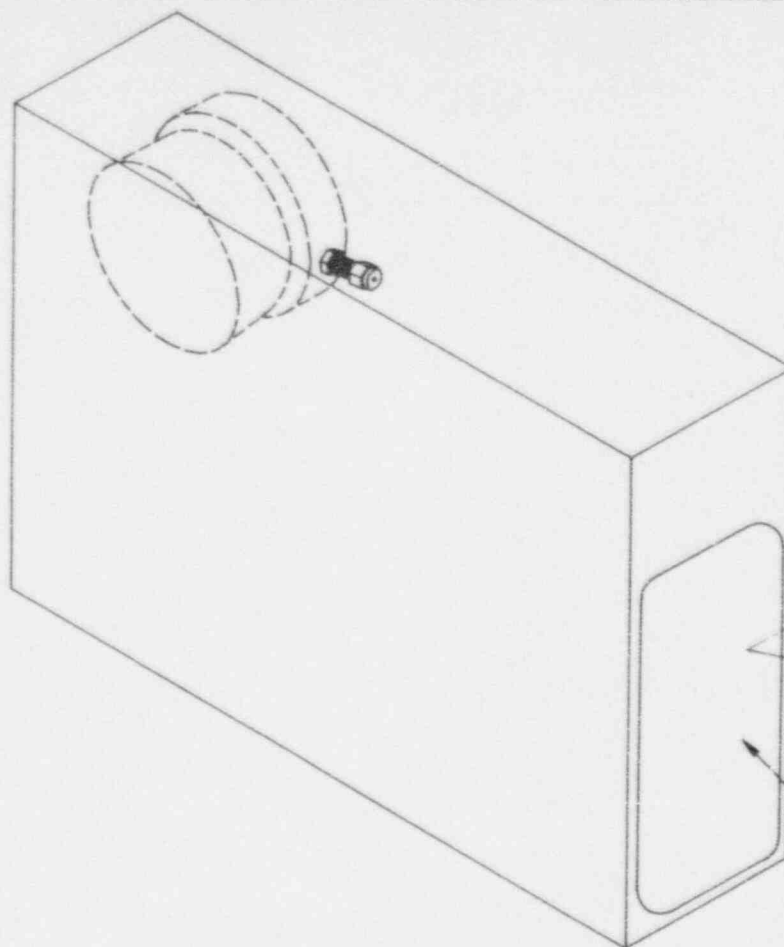
DWG BY NDW	DATE 30/05/96
CHK BY RMJ	DATE XX/06/96
APPD BY	DATE
SCALE NTS	

SYM	REVISION	DATE	BY	CHK

MA-A-078


			
ANALYTICAL BOX PICTORIAL REPRESENTATION			
SIZE A	SHEET 1 OF 1	DWG NO MA-A-078	REV -

SYM	REVISION	DATE	BY	CHK

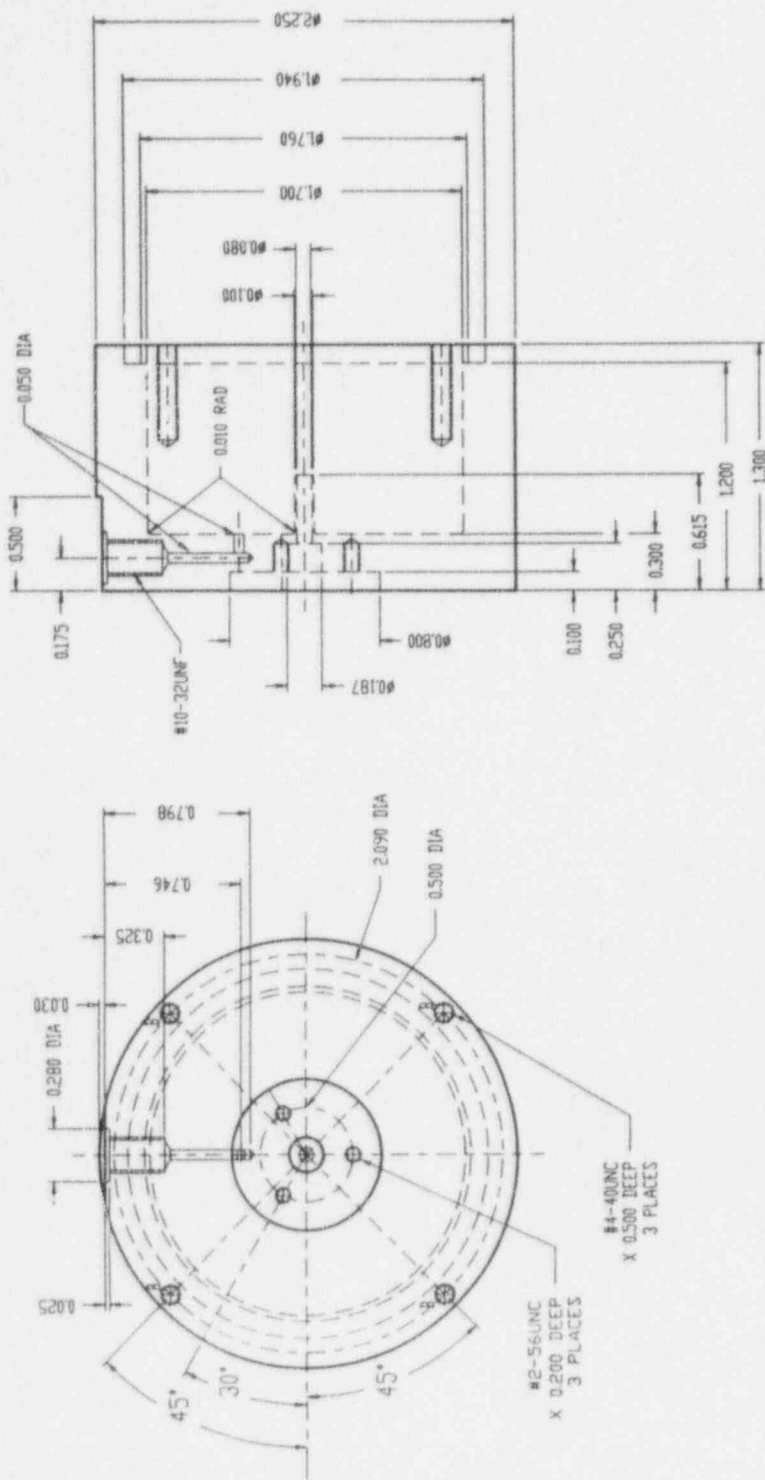


- SEE DWG # LA-B-007

FIGURE C

DWG BY NDW	DATE 30/05/96				
CHK BY RMJ	DATE XX/06/96	TITLE ANALYTICAL BOX PICTORIAL REPRESENTATION			
APPD BY	DATE				
SCALE NTS		SIZE A	SHEET 1 OF 1	DWG NO MA-A-079	REV -

SYM	REVISION	DATE	BY	CHK



UNLESS OTHERWISE SPECIFIED

5. REMOVE ALL BURRS AND SHARP CORNERS .015 MAX.
6. ROUGHNESS OF SURFACE NOT TO EXCEED 6.3 IN
7. ALL RADII ARE .125 R
- 8.

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MATERIAL ALUMINUM BAR

FINISH	NONE
--------	------

DWG BY RMJ	DATE 14/07/94
CHK BY WK	DATE 04.06.96
APPD BY WK	DATE 04.06.96

SCALE
1.5:1

SIZE **B**

SHEET 1 OF 1

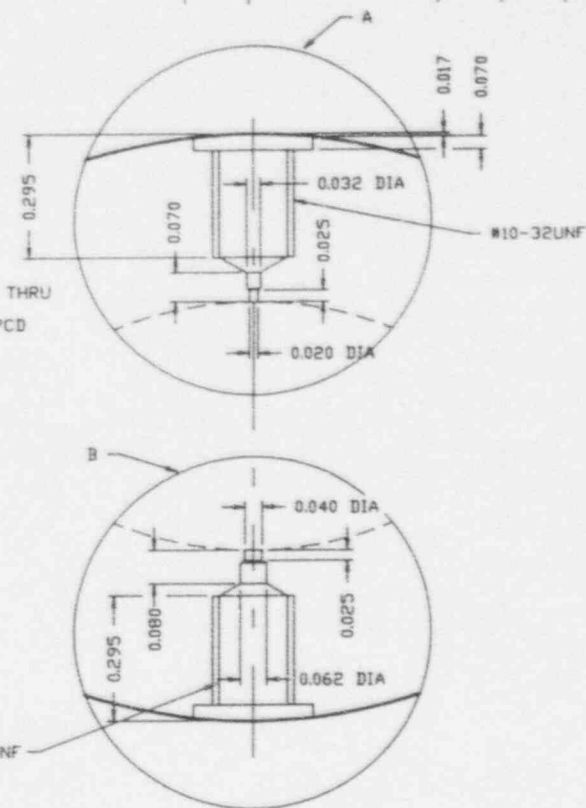
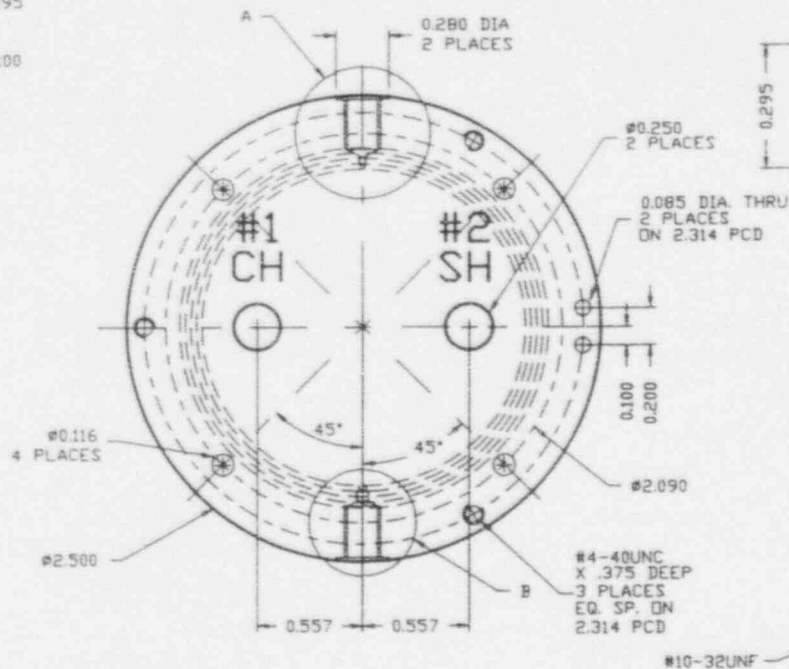
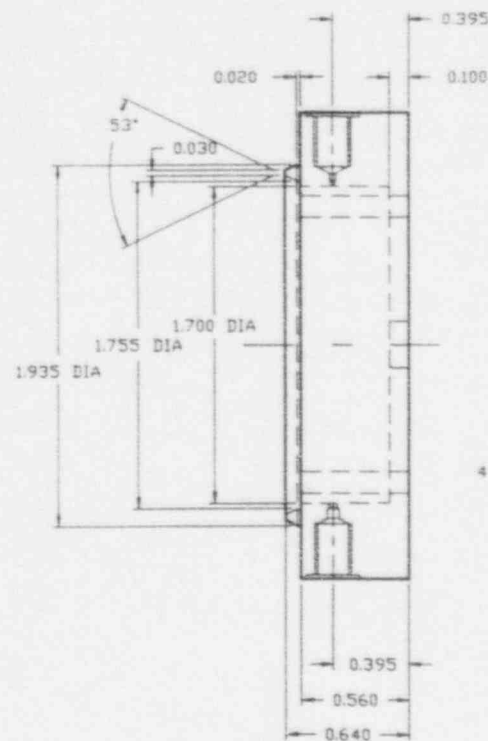
DN 2MG

IM-B-001

A318

BASE

OUR



SYM	REVISION	DATE	BY	CHK

UNLESS OTHERWISE SPECIFIED

- DO NOT SCALE DRAWING.
- DIMENSIONS ARE IN INCH
- THREAD LENGTH DIMENSIONS ARE FULL THREADS.
- TOLERANCE ON DIMENSIONS (INCLUDING HOLES)
DECIMAL
.XX ± .01
.XXX ± .002
.XXXX ± .0005
FRACTIONAL
± 1
ANGULAR
± 1
- REMOVE ALL BURRS AND SHARP CORNERS .015 MAX.
- ROUGHNESS OF SURFACE NOT TO EXCEED 6.3 IN
- ALL RADII ARE .125 R
-

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MATERIAL ALUMINUM ROD
FINISH NONE

DWG BY RMJ
CHK BY WK
APPD BY WK
DATE 14/07/94
DATE 04.06.96
DATE 04.06.96

SCALE
1.5 : 1

CPAD
TECHNOLOGIES INC.

TITLE

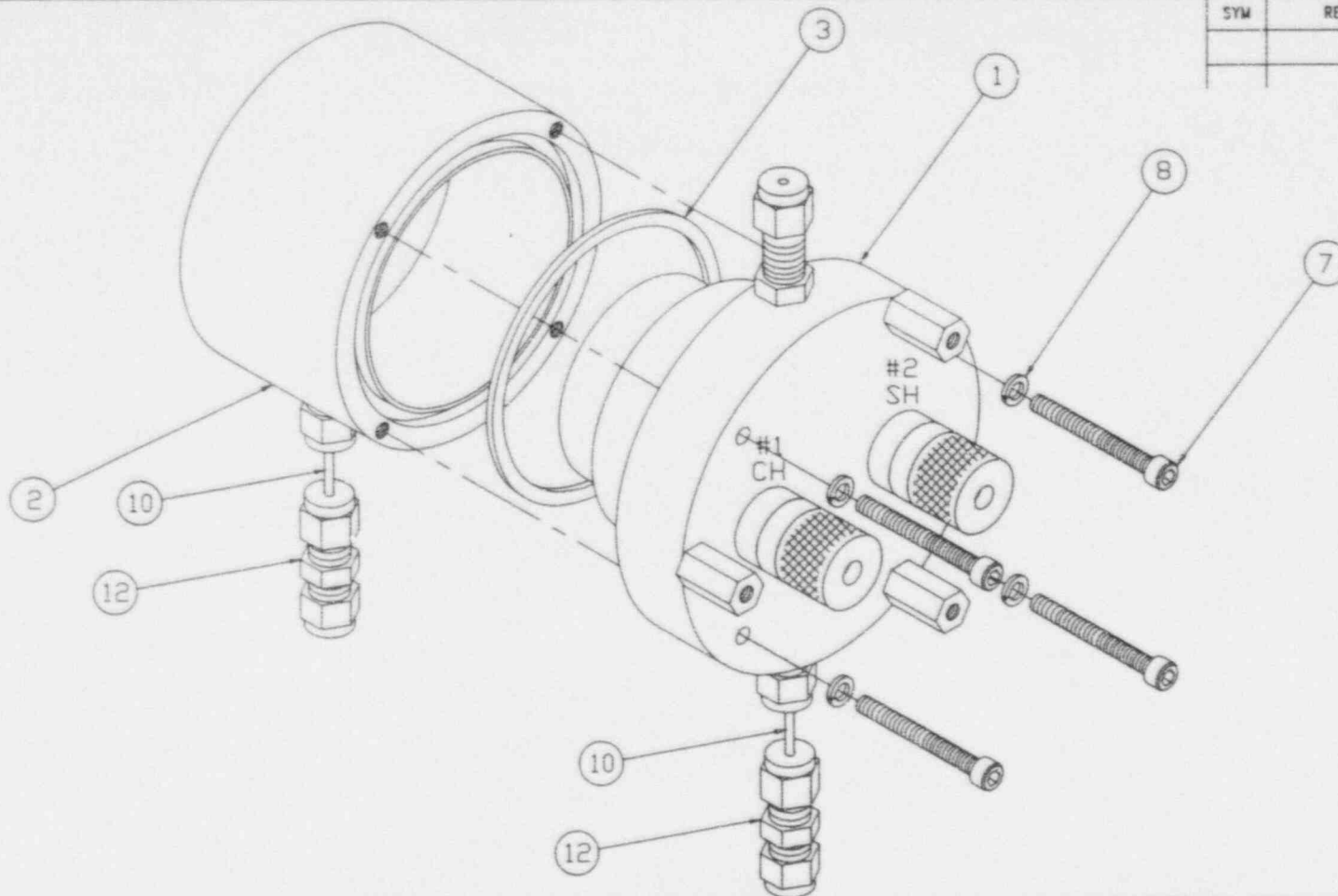
SOURCE BASE

SIZE
B

SHEET 1 OF 1

DWG NO
IM-B-002

REV
-




SYM	REVISION	DATE	BY	CHK

IM-B-040

<p>UNLESS OTHERWISE SPECIFIED</p> <p>1. DO NOT SCALE DRAWING.</p> <p>2. DIMENSIONS ARE IN <u>INCH</u></p> <p>3. THREAD LENGTH DIMENSIONS ARE FULL THREADS.</p> <p>4. TOLERANCE ON DIMENSIONS (INCLUDING HOLES)</p> <p>DECIMAL .XX ± .01</p> <p>.XXX ± .005</p> <p>.XXXX ± .0005</p> <p>FRACTIONAL ±</p> <p>ANGULAR ± .1</p>		<p>5. REMOVE ALL BURRS AND SHARP CORNERS .015 MAX.</p> <p>6. ROUGHNESS OF SURFACE NOT TO EXCEED 63 IN</p> <p>7. ALL RADII ARE .125 R</p> <p>8. _____</p> <p>_____</p> <p>_____</p>		<p>THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF CPAD TECHNOLOGIES INC. AND SHALL NOT BE REPRODUCED, COPIED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS WITHOUT THE WRITTEN PERMISSION OF CPAD TECHNOLOGIES INC.</p> <p>MATERIAL _____</p> <p>FINISH _____</p>		<p>DWG BY RMJ</p> <p>CHK BY WK</p> <p>APPD BY WK</p>	<p>DATE 03/11/94</p> <p>DATE 04.06.96</p> <p>DATE 04.06.96</p>	<p>CPAD TECHNOLOGIES INC.</p> <p>TITLE</p> <p>IMS ASSEMBLY</p>		<p>SCALE 1:1</p>	<p>SIZE B</p>	<p>SHEET 1 OF 1</p>	<p>DWG NO IM-B-040</p>	<p>REV -</p>
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PARTS LIST					
NO ITEM	PART NO	REV	QTY	DESCRIPTION	MANUFACTURER SUPPLIER /
1	IM-B-036	-	1	SOURCE BASE SUB-ASSY.	
2	IM-B-037	-	1	SOURCE COVER SUB-ASSY.	
3	IM-B-021	-	1	TEFLON SEAL	
4					
5					
6					
7	381-763		4	#4-40 X 1 BUTTON HEAD	SPAE-NAUR
8				SECURITY SCREW	
9					
10	#4		4	LOCK WASHER	
11					
12	NICKEL		2	TUBE 1/16 OD X 3" LG	
13					
14	B-200-6-1		2	REDUCING UNION	SWAGELOK
15					
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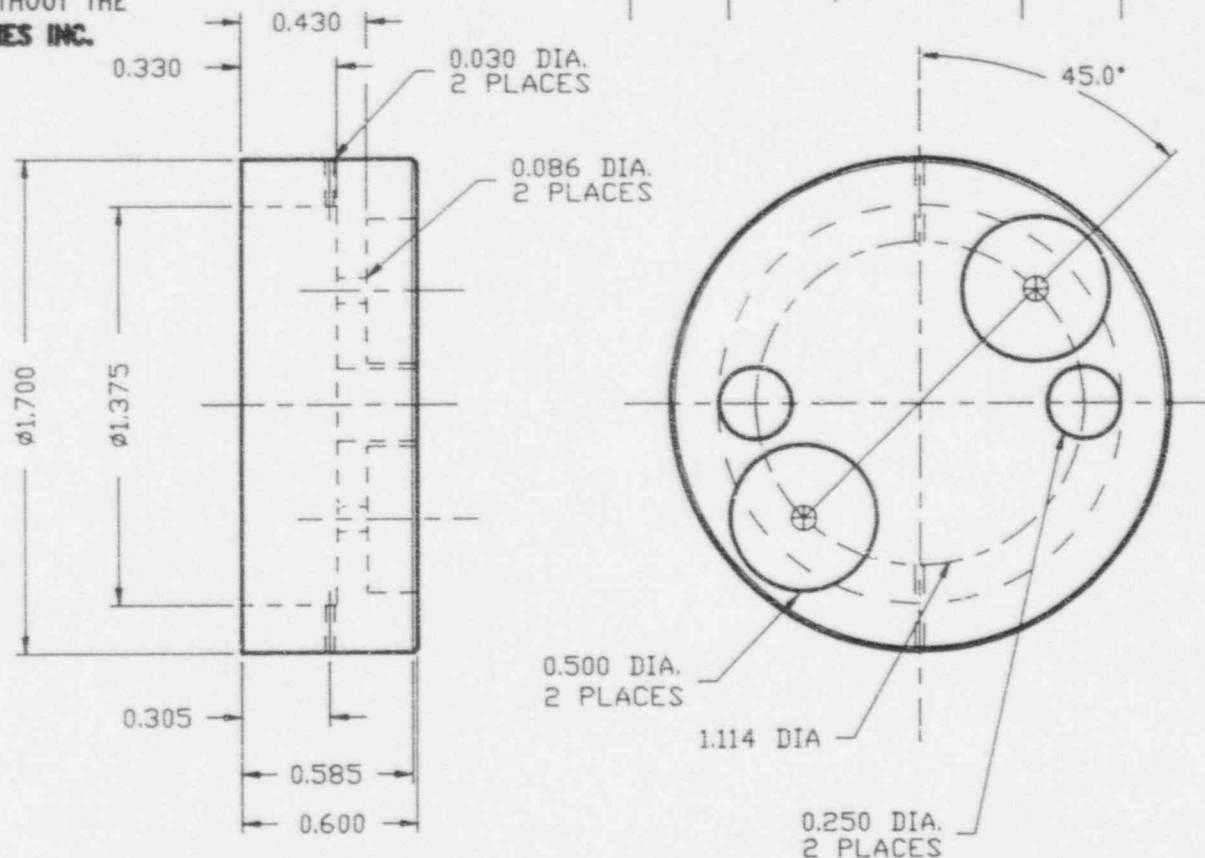
NOTES							
					TITLE IMS ASSEMBLY		
SYM	REVISION	DATE	BY	CHK	SHEET 1 OF 1	DWG NO IM-B-040	REV -

IM-B-040

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SYM	REVISION	DATE	BY	CHK

IM-B-020



UNLESS OTHERWISE SPECIFIED

- | | | | |
|---|---------------------------------------|------|------|
| 1. DO NOT SCALE DRAWING. | FRACTIONAL | ± | 1 |
| 2. DIMENSIONS ARE IN INCH | ANGULAR | ± | 1 |
| 3. THREAD LENGTH DIMENSIONS ARE FULL THREADS. | 5. REMOVE ALL BURRS AND SHARP CORNERS | .015 | MAX. |
| 4. TOLERANCE ON DIMENSIONS (INCLUDING HOLES) | 6. ROUGHNESS OF SURFACE NOT TO EXCEED | 63.2 | IN |
| DECIMAL | 7. ALL RADII ARE | .125 | R |
| .XX ± .01 | | | |
| .XXX ± .002 | | | |

DWG BY
RMJ

DATE
14/07/94

CHK BY
WK

DATE
04.06.96

APPD BY
WK

DATE
04.06.96

CPAD
TECHNOLOGIES INC.

TITLE

TEFLON SOURCE BASE

MATERIAL

TEFLON

SCALE

1.5 : 1

SIZE

A

SHEET 1 OF 1

DWG NO

IM-B-020

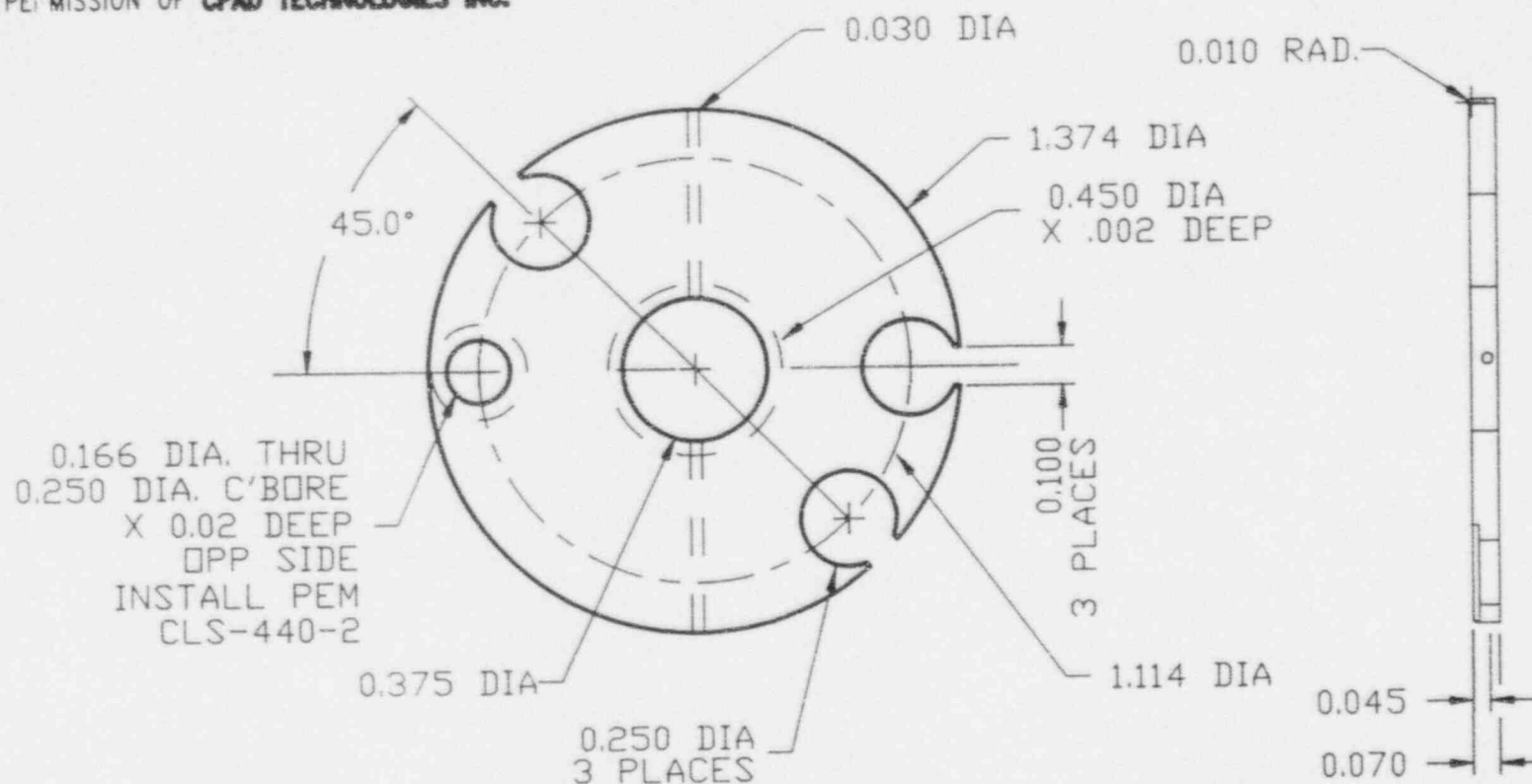
REV

-

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SYM	REVISION	DATE	BY	CHK

IM-B-022



UNLESS OTHERWISE SPECIFIED

- DO NOT SCALE DRAWING.
- DIMENSIONS ARE IN INCH
- THREAD LENGTH DIMENSIONS ARE FULL THREADS.
- TOLERANCE ON DIMENSIONS (INCLUDING HOLES)
DECIMAL .XX ± .01
XXX ± .002

- REMOVE ALL BURRS AND SHARP CORNERS .015 MAX.
- ROUGHNESS OF SURFACE NOT TO EXCEED 63 IN
- ALL RADII ARE .125 R

DWG BY RMJ	DATE 12/07/94
CHK BY WK	DATE 04.06.96
APPD BY WK	DATE 04.06.96

CPAD
TECHNOLOGIES INC.

TITLE

SOURCE HOLDING WASHER

MATERIAL
ALUMINUM SHEET

FINISH

SCALE
2:1

SIZE
A

SHEET 1 OF 1

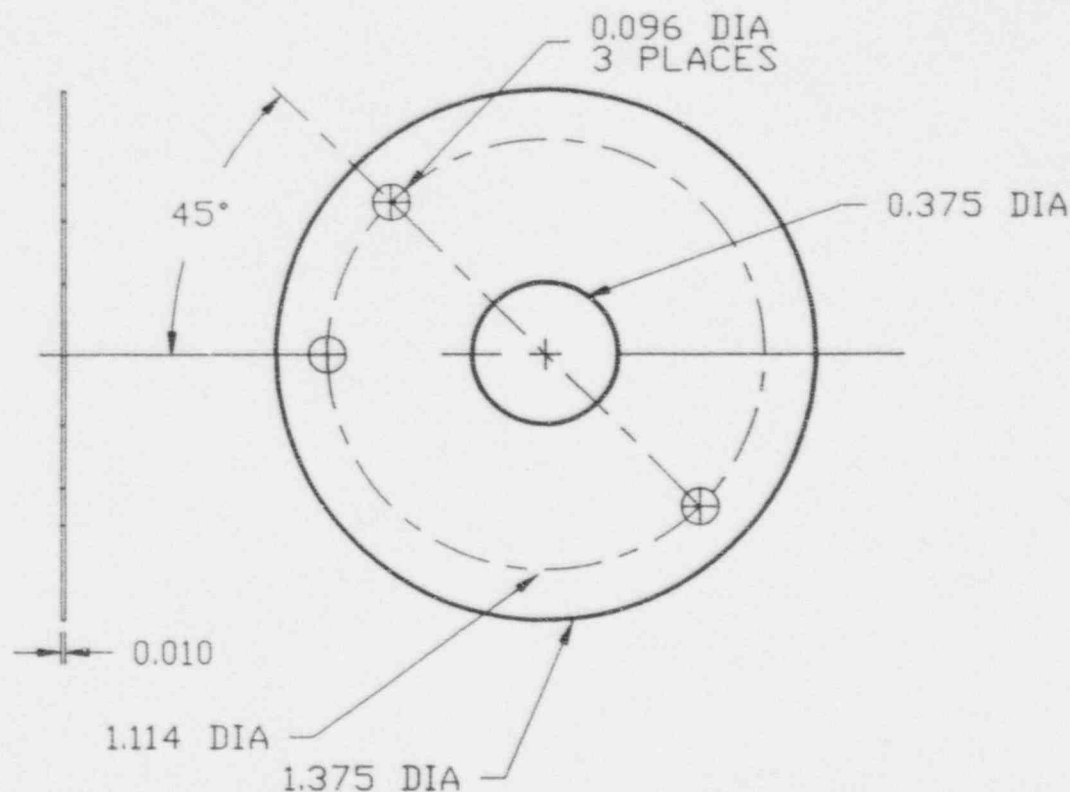
DWG NO
IM-B-022

REV
-

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SYM	REVISION	DATE	BY	CHK

IM-B-023



- UNLESS OTHERWISE SPECIFIED
- | | |
|---|--|
| 1. DO NOT SCALE DRAWING. | FRACTIONAL \pm _____ |
| 2. DIMENSIONS ARE IN <u>INCH</u> | ANGULAR \pm <u>.1</u> |
| 3. THREAD LENGTH DIMENSIONS ARE FULL THREADS. | 5. REMOVE ALL BURRS AND SHARP CORNERS <u>.015</u> MAX. |
| 4. TOLERANCE ON DIMENSIONS (INCLUDING HOLES) | 6. ROUGHNESS OF SURFACE NOT TO EXCEED <u>63</u> IN |
| DECIMAL <u>.XX \pm .01</u> | 7. ALL RADII ARE <u>.125 R</u> |
| <u>.XXX \pm .002</u> | |

MATERIAL TEFLON

FINISH

DWG BY RMJ	DATE 13/07/94
CHK BY WK	DATE 04.06.96
APPD BY WK	DATE 04.06.96

SCALE
2:1

CPAD
TECHNOLOGIES INC.

TITLE

CUP
WASHER SEPERATOR

SIZE

A

SHEET 1 OF 1

DWG NO

IM-B-023

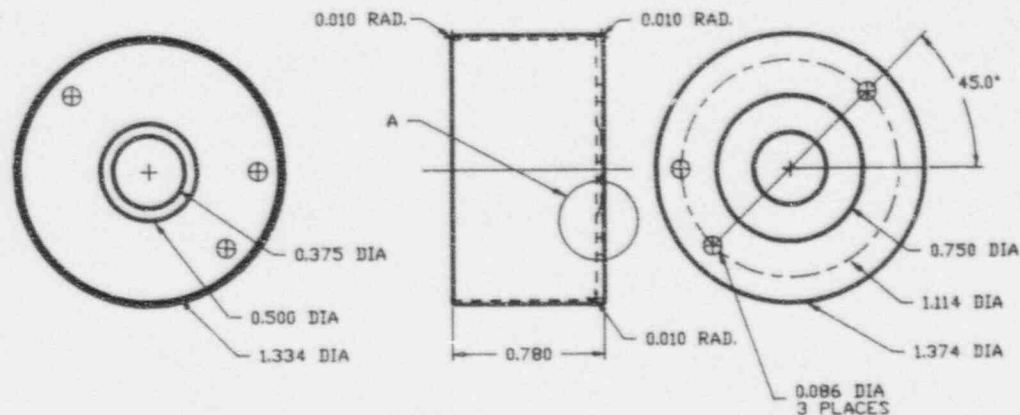
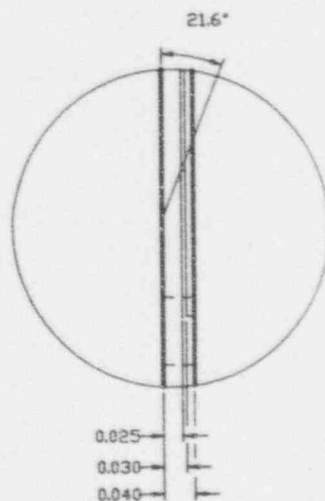
REV

-

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SYM	REVISION	DATE	BY	CHK

IM-B-024



UNLESS OTHERWISE SPECIFIED

- DO NOT SCALE DRAWING.
- DIMENSIONS ARE IN INCH
- THREAD LENGTH DIMENSIONS ARE FULL THREADS.
- TOLERANCE ON DIMENSIONS (INCLUDING HOLES)
DECIMAL .XX ± .01
XXX ± .002

- REMOVE ALL BURRS AND SHARP CORNERS .015 MAX.
- ROUGHNESS OF SURFACE NOT TO EXCEED 63 IN
- ALL RADII ARE .125 R

DWG BY
RMJ

DATE
13/07/94

CHK BY
WK

DATE
04.06.96

APPD BY
WK

DATE
04.06.96

SCALE
1:1

CPAD
TECHNOLOGIES INC.

TITLE

CUP
SCREEN HOLDER

MATERIAL
ALUMINUM ROD

FINISH

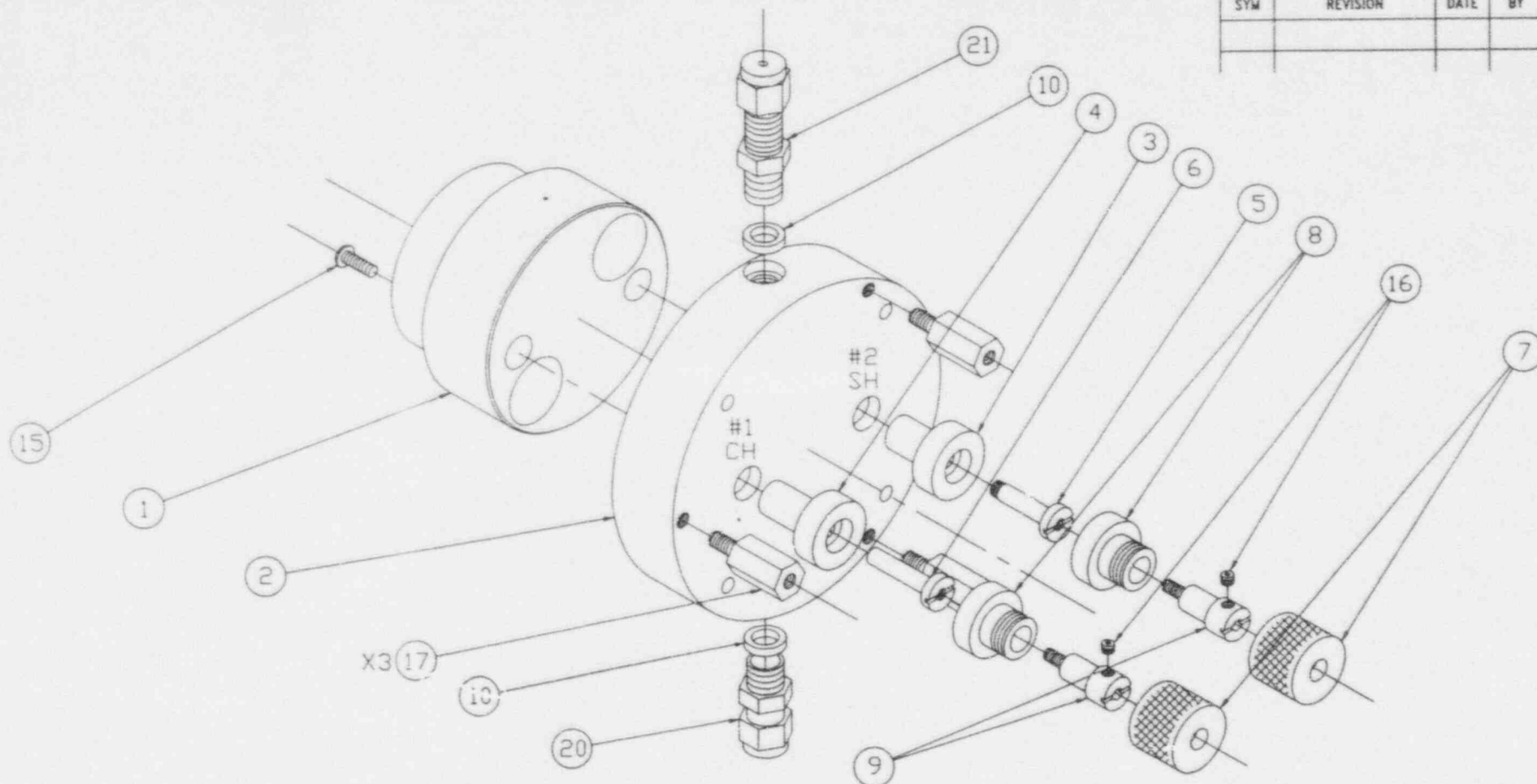
SIZE
A

SHEET 1 OF 1

DWG NO
IM-B-024

REV
-

SYM	REVISION	DATE	BY	CHK



UNLESS OTHERWISE SPECIFIED

- DO NOT SCALE DRAWING.
- DIMENSIONS ARE IN INCH
- THREAD LENGTH DIMENSIONS ARE FULL THREADS.
- TOLERANCE ON DIMENSIONS (INCLUDING HOLES)

DECIMAL	.xx ± .01
	.xxx ± .005
	.xxxx ± .0005
FRACTIONAL	±
ANGULAR	±
- REMOVE ALL BURRS AND SHARP CORNERS .015 MAX.
- ROUGHNESS OF SURFACE NOT TO EXCEED 63 IN
- ALL RADII ARE .125 R
-
-
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MATERIAL

FINISH

DWG BY RMJ DATE 03/10/94

CHK BY WK DATE 04.06.96

APPD BY WK DATE 04.06.96

SCALE
1:1
CPAD
TECHNOLOGIES INC.

TITLE


SOURCE BASE
SUB-ASSEMBLYSIZE
B

SHEET 1 OF 1

DWG NO
IM-B-036

REV

PARTS LIST						IM-B-036
NO ITEM	PART NO	REV	QTY	DESCRIPTION	MANUFACTURER SUPPLIER	
1	IM-B-005	-	1	SOURCE HOLDER SUB-ASSY.		
2	IM-B-002	-	1	SOURCE BASE		
3	IM-B-007	-	1	H.V. TEFLON SEAL-SHORT		
4	IM-B-008	-	1	H.V. TEFLON SEAL-LONG		
5	IM-B-012	-	1	H.V. TERMINAL SCREW		
6	IM-B-013	-	1	H.V. TERMINAL SCREW		
7	IM-B-017	A	2	H.V. TEFLON NUT		
8	IM-B-028	B	2	H.V. THREADED CAP		
9	IM-B-029	A	2	H.V. WIRE TERMINAL		
10	IM-B-031	-	2	TEFLON WASHER		
11						
12						
13						
14						
15	#2-56X1/4		1	PAN HD. PHILLIPS SCREW		
16	#2-56X1/16		2	SET SCREW		
17	#2088		3	STAND-OFF .355 LG	KEYSTONE	
18						
19						
20	SS-100-6		1	UNION	SWAGELOK	
21	SS-100-61		1	BULKHEAD UNION	SWAGELOK	
22						
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NOTES							
					TITLE SOURCE BASE SUB-ASSY.		
SYM	REVISION	DATE	BY	CHK	SHEET 1 OF 1	DWG NO IM-B-036	REV -

LA-B-007

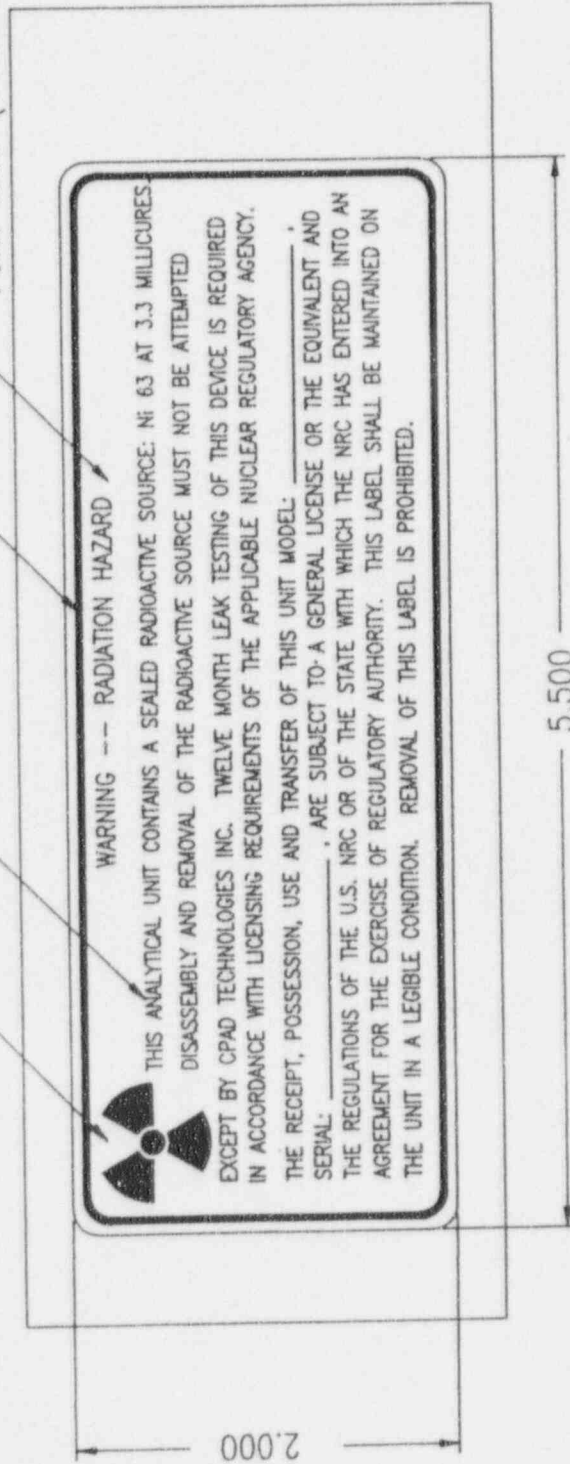
SYM	REVISION	DATE	BY	CHK

ATOMIC ENERGY STD.
RADIATION SYMBOL
C.365, SCHEDULE III

FONT .08 (NEW TIMES ROMAN 8)

BORDER .035 WIDE

FONT .095 (TIMES NEW ROMAN 10)



NOTE : THE LABEL WILL BE AN ADHESIVE TYPE.
WITH THE RADIATION SYMBOL AND TEXT COLORED
MAGENTA ON A YELLOW BACKGROUND

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DWG BY NDW	DATE 30/05/96
CHK BY RMJ	DATE 03/06/96
APPD BY WK	DATE 04/06/96

SCALE
1:1



TITLE

RADIATION HAZARD
IMS WARNING LABEL

SIZE
A

SHEET 1 OF 1

DWG NO
LA-B-007

REV
-