

80A0482

SHOREHAM NUCLEAR
POWER STATION
UNIT I
PRESERVICE INSPECTION
PROGRAM PLAN

PREPARED FOR
LONG ISLAND LIGHTING COMPANY
HICKSVILLE, NY

CONTROLLED
COPY

BY

NUCLEAR ENERGY SERVICES, INC.
DANBURY, CT

REV. NO.	DATE
0	2-17-78
1	7-11-79
2	4-21-80
3	6/30/80
4	9/5/80
5	12/2/80

PREPARED BY

Abertuzel
Shoreham ISI Proj. Mgr.

APPROVED BY

H. J. Mann for L.I.
ISI Program Manager

J. S. Le Guardia
QA Manager

8105270435



NUCLEAR ENERGY SERVICES, INC.

RECORD OF REVISION

Rev. No.	Date	Description	Reason	Prep'd by	App'd by
1	7-11-79	<p>Add Appendix P to Preservice Inspection Program Plan.</p> <p>Add on Table of Contents Page under 4 Appendices "Appendix P Controlled Documents".</p> <p>Add to page 3.3 new paragraph to read. "Appendix P contains a list of Controlled Documents, denoting the current revision, that are contained within the Shoreham Preservice Inspection Program". CRA 877</p>	LILCO request	SP	Ent
2	4-21-80	<p>Remove CRD Return System. Implement full compliance of examination requirements of K-1 support members. Implement examination of CRD housing flange & intermediate weld. CRA 1117</p> <p>Revise Appendix A & D and incorporate LILCO comments. (See CRA 1310) Revise Piping Isometrics (See CRA No. 1254)</p>	LILCO comment & request Incorporate as-built revisions.	CJE	AK
3	6/30/80	Standby Liquid Control System (C41) revised. (See CRA 1372)	Incorporate as-built information.	AK	AK
4	9/5/80	RCIC System revised. (See CRA 1467)	Incorporate as-built information.	AK	AK
5	12/2/80	Standby Liquid Control System (C41) revised. (See CRA 1624)	Incorporate as-built information.	AK	AK



SYSTEM Standby Liquid Control

REFERENCE DRAWING: No. 10-01

Preservice Inspection

PROGRAM PLAN AND SCHEDULE

Shoreham

BY: _____ DATE: _____

APP: _____ DATE: _____

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PROJECT

ITEM NO.	COMPONENT IDENTIFICATION	COMPONENT DESCRIPTION	PROCEDURE NUMBER	CALIBRATION BLOCK (If applicable)	CODE CATEGORY	CODE EXAM METHOD	ZONE NO.	REMARKS
		PIPING WELDS						
1	C41-P0955-L	Valve EV-010A to 1 1/2" Pipe	80A0472 80A0473		J-1	PT VT	II	
2	C41-P0955-J	1 1/2" Pipe to Tee	80A0472 80A0473		J-1	PT VT	II	
3	C41-P0955-K	Valve EV-010B to 1 1/2" Pipe	80A0472 80A0473		J-1	PT VT	II	
4	C41-P0955-I	1 1/2" Pipe to Tee	80A0472 80A0473		J-1	PT VT	II	
5	C41-P0955-H	1 1/2" Tee to Pipe	80A0472 80A0473		J-1	PT VT	II	
6	C41-P0949-T	1 1/2" Pipe to Flange	80A0472 80A0473		J-1	PT VT	II	
7	C41-P0949-U	Flange to 1 1/2" Pipe	80A0472 80A0473		J-1	PT VT	II	
8	C41-P0949-V	1 1/2" Pipe to Ell	80A0472 80A0473		J-1	PT VT	II	

SYSTEM Standby Liquid Control
 REFERENCE DRAWING No. 10-01
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PROJECT

ITEM NO	COMPONENT IDENTIFICATION	COMPONENT DESCRIPTION	PROCEDURE NUMBER	CALIBRATION BLOCK (If applicable)	CODE CATEGORY	CODE EXAM METHOD	ZONE NO	REMARKS
		PIPING WELDS						
9	C41-P0949-W	1 1/2" Ell to Pipe	80A0472 80A0473		J-1	PT VT	II	
10	C41-P0949-X	1 1/2" Pipe to Tee	80A0472 80A0473		J-1	PT VT	II	
11	C41-P0949-Y	1 1/2" Tee to 1 1/2" x 3/4" Reducer	80A0472 80A0473		J-1	PT VT	II	
12	C41-P-0949-Z	1 1/2" Tee to Pipe	80A0472 80A0473		J-1	PT VT	II	
13	C41-P0949-AA	1 1/2" Pipe to Ell	80A0472 80A0473		J-1	PT VT	II	
14	C41-P0949-BB	1 1/2" Ell to Pipe	80A0472 80A0473		J-1	PT VT	II	
15	C41-P0949-CC	1 1/2" Pipe to Ell	80A0472 80A0473		J-1	PT VT	II	
16	C41-P0949-DD	1 1/2" Ell to Pipe	80A0472 80A0473		J-1	PT VT	II	

SYSTEM Standby Liquid Control
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PROJECT

ITEM NO.	COMPONENT IDENTIFICATION	COMPONENT DESCRIPTION	PROCEDURE NUMBER	CALIBRATION BLOCK (If applicable)	CODE CATEGORY	CODE EXAM METHOD	ZONE NC.	REMARKS
		PIPING WELDS						
17	C41-P0949-EE	1 1/2" Pipe to Ell	80A0472 80A0473		J-1	PT VT	II	
18	C41-P0949-FF	1 1/2" Ell to Pipe	80A0472 80A0473		J-1	PT VT	II	
19	C41-P0949-GG	1 1/2" Pipe to Ell	80A0472 80A0473		J-1	PT VT	II	
20	C41-P0949-HH	1 1/2" Ell to Pipe	80A0472 80A0473		J-1	PT VT	II	
21	C41-P0946-II	1 1/2" Pipe to Ell	80A0472 80A0473		J-1	PT VT	II	
22	C41-P0946-JJ	1 1/2" Ell to Pipe	80A0472 80A0473		J-1	PT VT	II	
23	C41-P0946-KK	1 1/2" Pipe to Ell	80A0472 80A0473		J-1	PT VT	II	
24	C41-P0946-LL	1 1/2" Ell to Pipe	80A0472 80A0473		J-1	PT VT	II	

SYSTEM: Standby Liquid Control

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PROJECT

ITEM NO.	COMPONENT IDENTIFICATION	COMPONENT DESCRIPTION	PROCEDURE NUMBER	CALIBRATION BLOCK (If applicable)	CODE CATEGORY	CODE EXAM METHOD	ZONE NO.	REMARKS
		PIPING WELDS						
25	C41-P0946-MM	1 1/2" Pipe to Tee	80A0472 80A0473		J-1	PT VT	II	
26	C41-P0946-NN	1 1/2" Tee to 1 1/2" x 3/4" Reducer	80A0472 80A0473		J-1	PT VT	II	
27	C41-P0946-OO	1 1/2" Tee to Pipe	80A0472 80A0473		J-1	PT VT	II	
28	C41-P0946-PP	1 1/2" Pipe to Valve 02V-0010	80A0472 80A0473		J-1	PT VT	II	
29	C41-P0946-I	Valve 02V-0010 to 1 1/2" Pipe	80A0472 80A0473		J-1	PT VT	II	
30	C41-P0946-RR	1 1/2" Pipe to Tee	80A0472 80A0473		J-1	PT VT	II	
31	C41-P0946-SS	1 1/2" Tee to 1 1/2" x 3/4" Reducer	80A0472 80A0473		J-1	PT VT	II	
32	C41-P0946-TT	1 1/2" Tee to Pipe	80A0472 80A0473		J-1	PT VT	II	

SYSTEM Standby Liquid Control
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PROJECT

ITEM NO.	COMPONENT IDENTIFICATION	COMPONENT DESCRIPTION	PROCEDURE NUMBER	CALIBRATION BLOCK (If applicable)	CODE CATEGORY	CODE EXAM METHOD	ZONE NO.	REMARKS
		PIPING WELDS						
33	C41-P0946-UU	1 1/2" Pipe to Tee	80A0472 80A0473		J-1	PT VT	II	
34	C41-P0946-VV	1 1/2" Tee to 1 1/2" x 3/4" Reducer	80A0472 80A0473		J-1	PT VT	II	
35	C41-P0946-WW	1 1/2" Tee to Pipe	80A0472 80A0473		J-1	PT VT	II	
36	C41-P0946-XX	1 1/2" Pipe to Coupling	80A0472 80A0473		J-1	PT VT	II	
37	C41-P0946-QQ	1 1/2" Coupling to Pipe	80A0472 80A0473		J-1	PT VT	II	
38	C41-P0905-A	1 1/2" Pipe to Coupling	80A0472 80A0473		J-1	PT VT	II	
39	C41-P0905-B	1 1/2" Coupling to Pipe	80A0472 80A0473		J-1	PT VT	II	
40	C41-P0905-C	1 1/2" Pipe to Ell	80A0472 80A0473		J-1	PT VT	II	

SYSTEM Standby Liquid Control
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PROJECT

ITEM NO.	COMPONENT IDENTIFICATION	COMPONENT DESCRIPTION	PROCEDURE NUMBER	CALIBRATION BLOCK (if applicable)	CODE CATEGORY	CODE EXAM METHOD	ZONE NO.	REMARKS
		PIPING WELDS						
41	C41-P0905-D	1 1/2" Ell to Pipe	80A0472 80A0473		J-1	PT VT	II	
42	C41-P0905-E	1 1/2" Pipe to Coupling	80A0472 80A0473		J-1	PT VT	II	
43	C41-P0906-A	1 1/2" Coupling to Pipe	80A0472 80A0473		J-1	PT VT	II	
44	C41-P0906-B	1 1/2" Pipe to Ell	80A0472 80A0473		J-1	PT VT	II	
45	C41-P0906-H	1 1/2" Ell to Pipe	80A0472 80A0473		J-1	PT VT	II	
46	C41-P0906-I	1 1/2" Pipe to Ell	80A0472 80A0473		J-1	PT VT	II	
47	C41-P0906-E	1 1/2" Ell to Pipe	80A0472 80A0473		J-1	PT VT	II	
48	C41-P0906-F	1 1/2" Pipe to Coupling	80A0472 80A0473		J-1	PT VT	II	

SYSTEM Standby Liquid Control
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PROJECT

ITEM NO.	COMPONENT IDENTIFICATION	COMPONENT DESCRIPTION	PROCEDURE NUMBER	CALIBRATION BLOCK (If applicable)	CODE CATEGORY	CODE EXAM METHOD	ZONE NO.	REMARKS
		PIPING WELDS						
49	C41-P0907-A	1 1/2" Coupling to Pipe	80A0472 80A0473		J-1	PT VT	II	
50	C41-P0907-B	1 1/2" Pipe to Ell	80A0472 80A0473		J-1	PT VT	II	
51	C41-P0907-C	1 1/2" Ell to Pipe	80A0472 80A0473		J-1	PT VT	II	
52	C41-P0907-D	1 1/2" Pipe to Ell	80A0472 80A0473		J-1	PT VT	II	
53	C41-P0907-E	1 1/2" Ell to Pipe	80A0472 80A0473		J-1	PT VT	II	
54	C41-P0907-F	1 1/2" Pipe to Valve 02V-0008	80A0472 80A0473		J-1	PT VT	II	
55	C41-P0908-A	Valve 02V-0008 to 1 1/2" Pipe	80A0472 80A0473		J-1	PT VT	II	
56	C41-P0908-B	1 1/2" Pipe to Tee	80A0472 80A0473		J-1	PT VT	II	

SYSTEM: Standby Liquid Control
 REFERENCE DRAWING: No. 10-01
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BY: _____ DATE: _____
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PROJECT

ITEM NO	COMPONENT IDENTIFICATION	COMPONENT DESCRIPTION	PROCEDURE NUMBER	CALIBRATION BLOCK (if applicable)	CODE CATEGORY	CODE EXAM METHOD	ZONE NO.	REMARKS
		PIPING WELDS						
57	C41-P0908-K	1 1/2" Tee to 1 1/2" x 3/4" Reducer	80A0472 80A0473		J-1	PT VT	II	
58	C41-P0908-C	1 1/2" Tee to Pipe	80A0472 80A0473		J-1	PT VT	II	
59	C41-P0908-D	1 1/2" Pipe to Tee	80A0472 80A0473		J-1	PT VT	II	
60	C41-P0908-L	1 1/2" Tee to 1 1/2" x 3/4" Reducer	80A0472 80A0473		J-1	PT VT	II	
61	C41-P0908-E	1 1/2" Tee to Pipe	80A0472 80A0473		J-1	PT VT	II	
62	C41-P0908-O	1 1/2" Pipe to Valve HV-023	80A0472 80A0473		J-1	PT VT	II	
63	C41-P0908-N	Valve HV-023 to 1 1/2" Pipe	80A0472 80A0473		J-1	PT VT	II	
64	C41-P0908-H	1 1/2" Pipe to Tee	80A0472 80A0473		J-1	PT VT	II	

SYSTEM Standby Liquid Control
 REFERENCE DRAWING No. 10-01
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PROGRAM PLAN AND SCHEDULE

Shoreham

BY: _____ DATE: _____
 APP: _____ DATE: _____
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PROJECT

ITEM NO.	COMPONENT IDENTIFICATION	COMPONENT DESCRIPTION	PROCEDURE NUMBER	CALIBRATION BLOCK (If applicable)	CODE CATEGORY	CODE EXAM METHOD	ZONE NO.	REMARKS
		PIPING WELDS						
65	C41-P0908-M	1 1/2" Tee to 1 1/2" x 3/4" Reducer	80A0472 80A0473		J-1	PT VT	II	
66	C41-P0908-I	1 1/2" Tee to Pipe	80A0472 80A0473		J-1	PT VT	II	
67	C41-P0908-J	1 1/2" Pipe to Tee	80A0472 80A0473		J-1	PT VT	II	

C41-P0946-SS
 C41-P0946-TT
 UU
 WW
 XX

3
 5

C41-P0905-A
 COUPLING
 C41-P0905-B

C41-P0905-C
 C41-P0905-D
 C41-P0905-E

C41-P0906-A
 C41-P0906-B
 C41-P0906-H

COUPLING

C41-P0907-A
 C41-P0907-B
 C41-P0907-C
 1/2" x 3/4" RED.

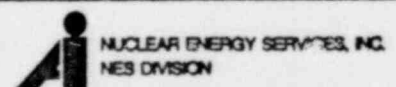
C41-P0908-J
 1/2" x 3/4" RED.
 C41-P0908-I

C41-P0908-D
 C41-P0908-C
 C41-P0908-H
 C41-P0908-M
 C41-P0908-N
 C41-P0908-O
 C41-P0908-E

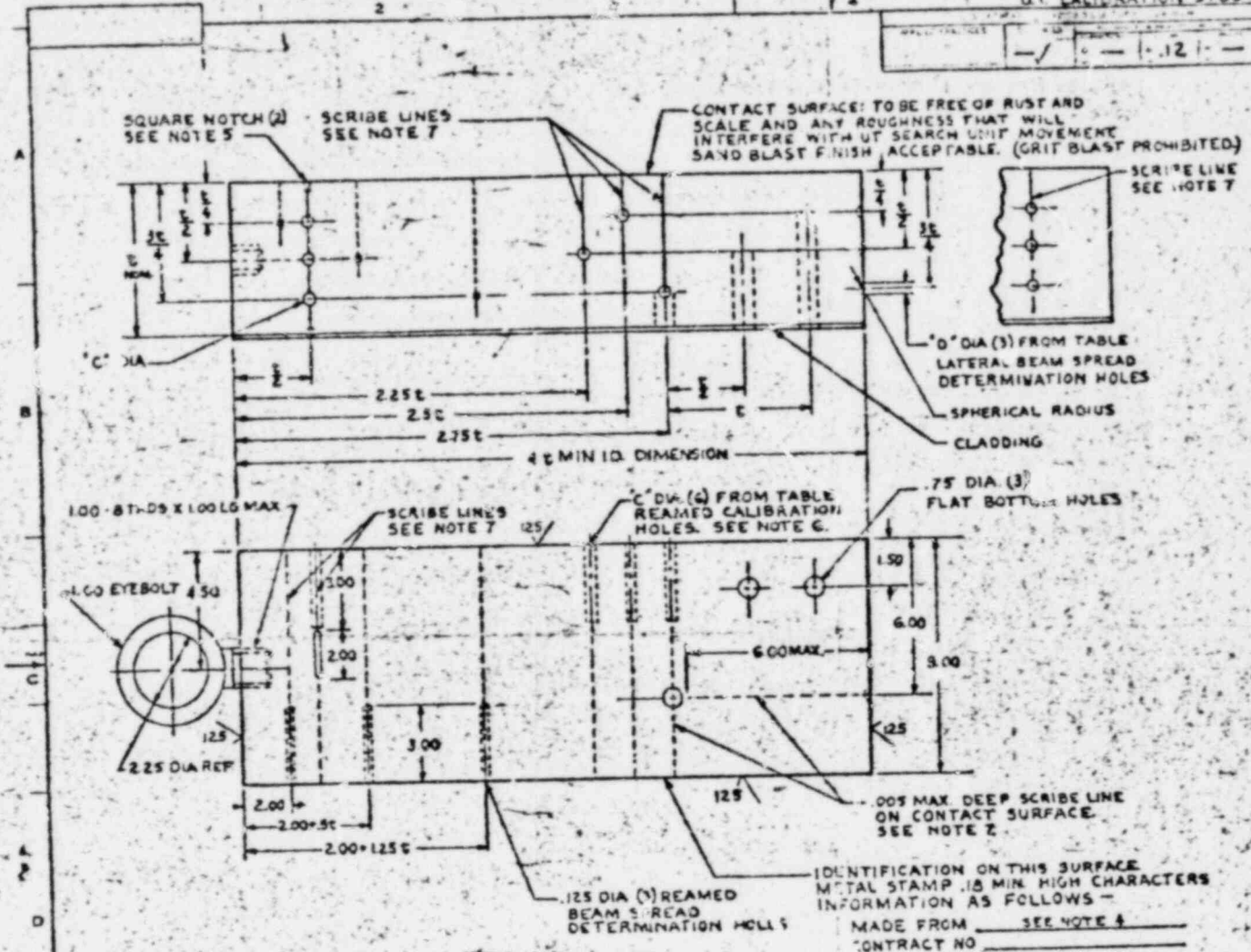
C41-P0907-A
 C41-P0907-F
 C41-P0907-E
 C41-P0907-D

C41
 02V
 0008
 C41-P0908-L
 1/2" x 3/4" RED.

C41 HV 023



SYSTEM NO. C41	TITLE STANDBY LIQUID CONTROL
REV: 5	FIG. NO. 10-01
BY: JB	DATE: 5/12/80
APP: A. Koch	DATE: 5/12/80
PROJECT: 5536 SNPS-1	



HOLE DIAMETERS

ϵ	C $\pm .010$ DIA	D $\pm .010$ DIA
3.00 - 4.00	.185	.185
4.00 - 6.00	.250	.250
6.00 - 8.00	.312	.312
8.00 - 10.00	.375	.375
OVER 10.00	*	*

2 SQUARES

274-4
274-6
274-7/4
274-9

* 375 PLUS .06 FOR EACH 2.00 INCREMENT INCREASE IN ϵ .

POOR ORIGINAL

GENERAL ELECTRIC

131C7902

ULTRASONIC TEST CALIBRATION
STANDARDS VESSEL
PURCHASED PART

FCF-21A8757

STANDARDS SHALL BE MADE FROM NOZZLE CUTTINGS OR
TRIM SECTIONS FOR EACH CLAD AND UNCLAD NOMINAL
THICKNESS OF SHELL OR HEAD MATERIAL. WHEN
CURVED THE RADIUS OF CURVATURE SHALL BE IN
THE LONG DIRECTION.

HEAT TREATMENT: STANDARDS SHALL RECEIVE AT
LEAST THE MINIMUM TENSILING HEAT TREATMENT
REQUIRED BY THE MATERIAL SPECIFICATION FOR
THE TYPE AND SIZE, AND A POST HEAT
TREATMENT OF AT LEAST 2 HOURS AT 1150°F.

MATERIAL SHALL BE FREE OF LAMINAR IN-
CLUSIONS THAT WILL AFFECT ANGLE BEAM
CALIBRATION.

IDENTIFY LOCATION FROM WHICH STANDARD
WAS MADE
E.G. - BOTTOM HEAD SHELL COURSE
TOP HEAD
FIELD SHELL COURSE
REACTOR INLET SHELL COURSE

NOTCHES TO BE .250 DEEP INTO EDGE
MATERIAL MADE WITH A .125 INCH
DIA FLAT END MILL.

CALIBRATION HOLES TO BE REAMED TO FINAL DIAM-
ETER AND DEPTH OF 3.00 INCHES.

SCRIBE LINES ARE TO BE DRAWN FROM CENTERS
OF HOLES TO AND ACROSS CONTACT SURFACE.

DIMENSIONS, LOCATING HOLES AND SPHERICAL
RADII, ARE BASIC WITH NO TOLERANCE. HOLES
AND RADII TO BE LOCATED IN THESE POS. OR
WITHIN ± .010.

131C7902

Handwritten notes: "REWORK", "REWORK", "REWORK"

REV	DATE	DESCRIPTION
2	11/27/74	REDRAWN WITH CHANGES NE-108277

APPROVED
SAN JOSE
R
131C7902

ISSUING STATUS []

FOR INFORMATION ONLY

TO BE RETURNED WITH PROPERTY TO USNR'S
ARMY'S ORLE AS NOTED AND SPECIFIED
BY SUPPLIER

APPROVED FOR USNR'S ACCT'S USE WITH
REVISIONS AS NOTED

APPROVED FOR USNR'S ACCT'S USE

RELEASED FOR FAR RELEASED FOR NAT'L
PACKAGE

STORE & FREIGHT CHG. CONT.

DATE 4/24/78 BY R.W. MOY

SHOREHAM NUCLEAR POWER STATION
LONG ISLAND LIGHTING COMPANY

File No. 11600.02 501-5A

Title: ULTRASONIC TEST CALIBRATION
STANDARDS VESSEL

Work Order E

P.O. No. 31010 Spec. No. SH13

Equip. Mark No. 1A11-R-001

System Name REACTOR ASSEMBLY
BUILDING - REACTOR

Sent to Design on 3-26-78

From R.M. to R.F.

Supplement 11600.02 NEW

Commanded by 11600.02

11600.02-5.01-5A

APPROVED ISSUE

For Information Only

For Control

Approved for Comment

Approved Drawing

POOR ORIGINAL

4

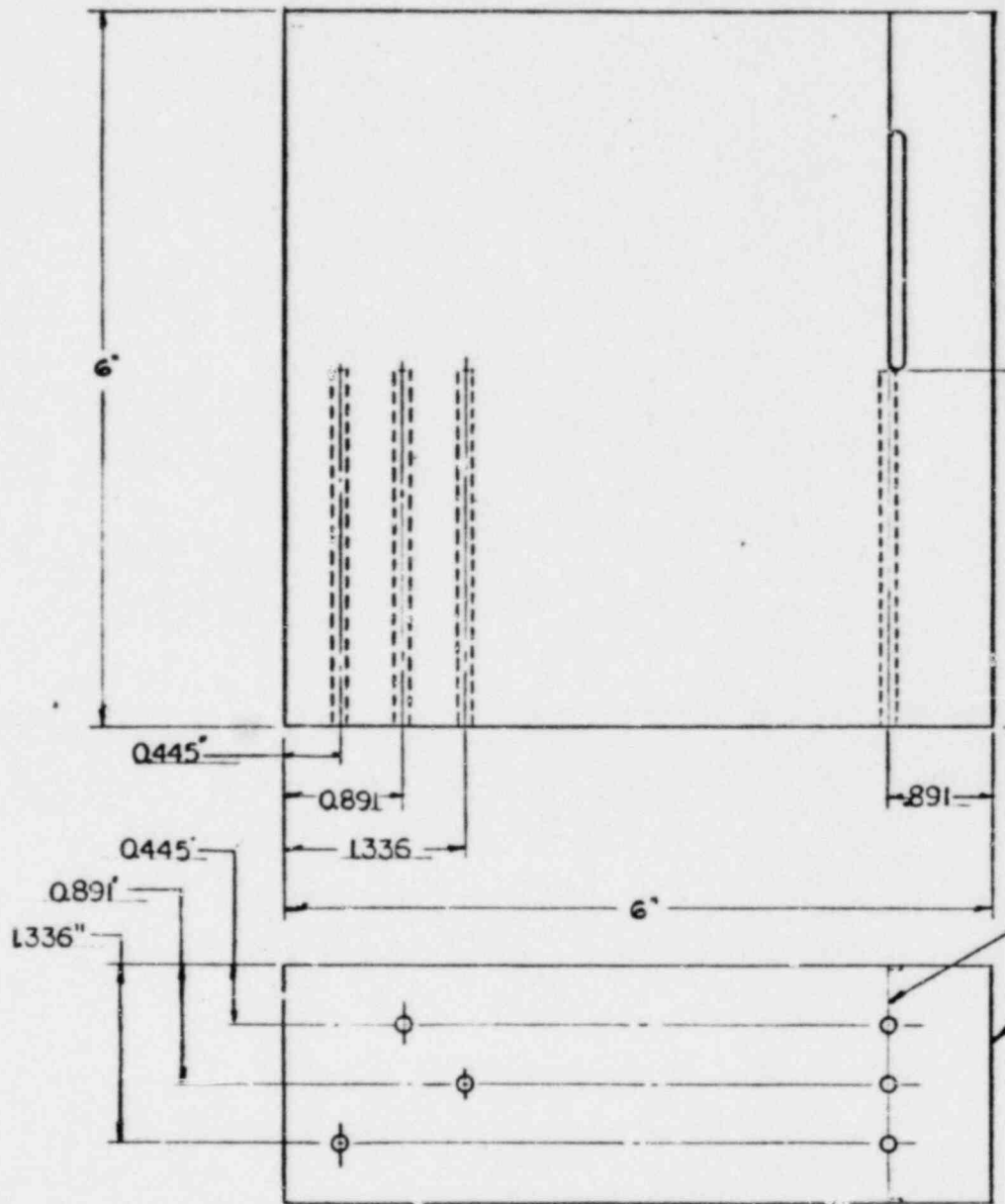
3

D

C

B

A



		DWG
		DEC
		ANG
		DEPT
		MATER
		4
		FINISH
NEXT ASSY	USED ON	
APPLICATION		

2

1

REVISIONS				
ZONE	LYR	DESCRIPTION	DATE	APPROVED

NOTES:

1. HOLES - 1/8" DIA. x 3" DP.
2. NOTCHES - 2' LG. x 1/8" WIDE x 0.036 DP.
3. T = 1.781"

3"

SCRIBE LINE

IDENTIFICATION STAMP: "STEAM"
METAL STAMP WITH .12 HIGH CHARACTERS

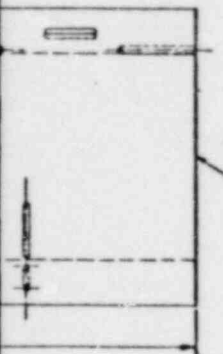
D
C
B
A

80C0413

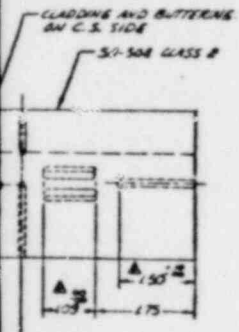
ITEM	QTY	CODE IDENT	PART NUMBER	DESCRIPTION
PARTS LIST				
SIGNATURES		DATE		
DRAWN <i>G. Lammert</i>		7-18-78		
CHECKED <i>Mr. Manning</i>		8-1-78		
TASK ENGR. <i>C. A. Hill</i>		8-1-78		
PROJ MGR. <i>G. Lammert</i>		2-18-79		
ISI ENGR MGR. <i>H. G. Hill</i>		2-18-79		
FLD OPS MGR. <i>T. Lam</i>		8-4-78		
APPROVED DESIGN ACTIVITY				REV.
5336-250				
APPROVED QA MGR. <i>A. E. Lammert</i>				
for CDD. 8-4-78				
SIZE	CODE IDENT NO.	DRAWING NO.		
C	78446	80C0413		
SCALE FULL				SHEET

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES, TOL. FRACTIONS 1/16, 1/32, 1/64, 1/8, 1/4, 1/2, 3/4, 1, 2, 3, 4, 6, 8, 12, 18, 24, 36, 48, 72, 96, 120, 144, 180, 216, 288, 360, 432, 576, 720, 864, 1080, 1440, 1800, 2160, 2880, 3600, 4320, 5400, 7200, 9000, 10800, 14400, 18000, 21600, 28800, 36000, 43200, 54000, 72000, 90000, 108000, 144000, 180000, 216000, 288000, 360000, 432000, 540000, 720000, 900000, 1080000, 1440000, 1800000, 2160000, 2880000, 3600000, 4320000, 5400000, 7200000, 9000000, 10800000, 14400000, 18000000, 21600000, 28800000, 36000000, 43200000, 54000000, 72000000, 90000000, 108000000, 144000000, 180000000, 216000000, 288000000, 360000000, 432000000, 540000000, 720000000, 900000000, 1080000000, 1440000000, 1800000000, 2160000000, 2880000000, 3600000000, 4320000000, 5400000000, 7200000000, 9000000000, 10800000000, 14400000000, 18000000000, 21600000000, 28800000000, 36000000000, 43200000000, 54000000000, 72000000000, 90000000000, 108000000000, 144000000000, 180000000000, 216000000000, 288000000000, 360000000000, 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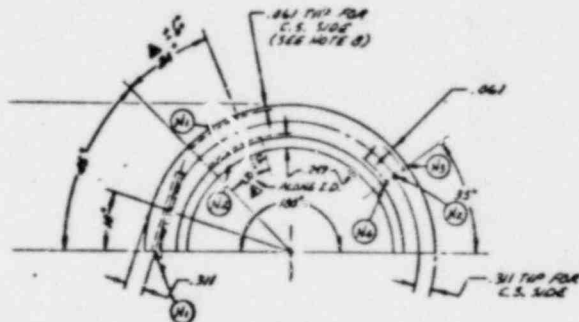
REV	DATE	DESCRIPTION	BY	CHKD
1	11-22-66	ISSUED FOR MFG		
2		SEE CRG AND 225		
3		SEE CRG AND 225		
4		SEE CRG AND 225		
5		SEE CRG AND 225		



IDENTIFICATION ON CURVED SURFACE
METAL STRIP WITH 12 HIGH CHARACTERS
(SEE NOTE 6)

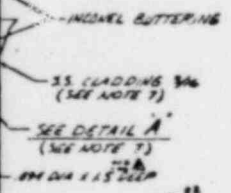


CLADDING AND BUTTERING
ON C.S. SIDE



0.61 THK FOR
C.S. SIDE
(SEE NOTE 8)

0.31 THK FOR
C.S. SIDE

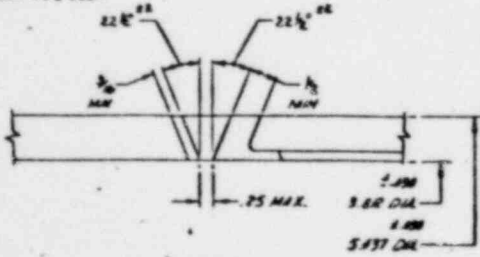


INTERNAL BUTTERING

SS CLADDING 3/16
(SEE NOTE 7)

SEE DETAIL A
(SEE NOTE 7)

0.31 DIA X 1.15 DEEP



STEP 3
DETAIL A
MILD FIT-UP

- NOTES:**
- 1- HOLES: 3/16" DIA. X 1.15 DEEP (TOP 5 PLACES).
 - 2- HOLES: 0.09 WIDE X 1.05 LENGTH X 0.081 DEEP
FIT FOR STAINLESS STEEL TYPE 304
(4 PLACES).
 - 3- MATERIAL: SA-508 CLASS B CARBON STEEL (AS SHOWN
SA-182 TYPE 304 STAINLESS STEEL)
 - 4- BUTTERING AND WELD FILLER METAL 1.8-215 E-
WIC-PA-3 (INCO 182).
 - 5- STAINLESS STEEL CLADDING AND BUTTERING SAME
TYPE E-308-15 FULL FIRST LAYER
TYPE E-308-15 FOR ALL SUBSEQUENT LAYERS
 - 6- IDENTIFICATION: "SNPS-191"
 - 7- REFER TO AWS WELD SPECIFICATION NO. B3.1 FOR
E-308-15
 - 8- HOLES FOR 108 CLASS B - 0.09 WIDE X 1.05 LENGTH
X 0.081 DEEP (IN INERT MATERIAL TOP 4 PLACES).

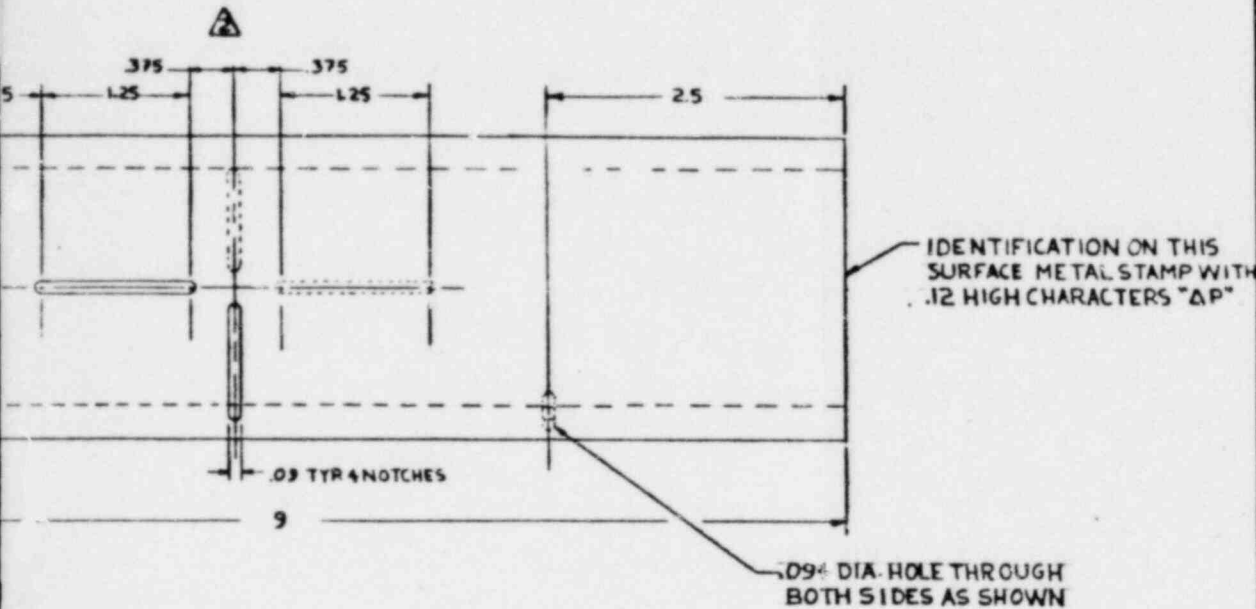
THE DRAWING AFFECTED BY ECD NO. _____		DATE _____		REVISION	
AS SHOWN		11/26/66		E 78446	
TWO OR BETTER		11/26/66		BOE0415	
E 78446		11/26/66		BOE0415	
E 78446		11/26/66		BOE0415	

POOR ORIGINAL

2

1

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE
ALL		DRAWING REDRAWN SEE CRA 1376	7-2-80
ALL		SEE CRA 1443	9-11-80



D

C

B

A

80C0416

ITEM	QTY	CODE IDENT	PART NUMBER	DESCRIPTION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIM ARE IN INCHES, TOL: FRAC. 1/16 DEC 2-0.01 33-0.010 332-0.005 ANGLES 1/4" SURFACE FINISH 125 DEBARR AND BREAK SHARP EDGES		SIGNATURES		DATE
MATERIAL SA182 F304 FORGED ALLOY STEEL		DRAWN V. PRANITIS		6-25-80
125 ✓		CHECKED S. L. FOOTE		7-2-80
		DIR. ENGR. <i>A.T. Carr</i>		7-8-80
		PROJ. MGR. <i>G. J. Smith</i>		7-8-80
		Q.A. MGR. <i>V. J. Smith</i>		7-8-80
APPROVED DESIGN ACTIVITY 5536-250		SCALE	CODE IDENT NO.	DRAWING NO.
APPROVED		C	78446	80C0416
SCALE FULL		SHEET		REV 2

AUTOMATION INDUSTRIES, INC.
NUCLEAR ENERGY SERVICES

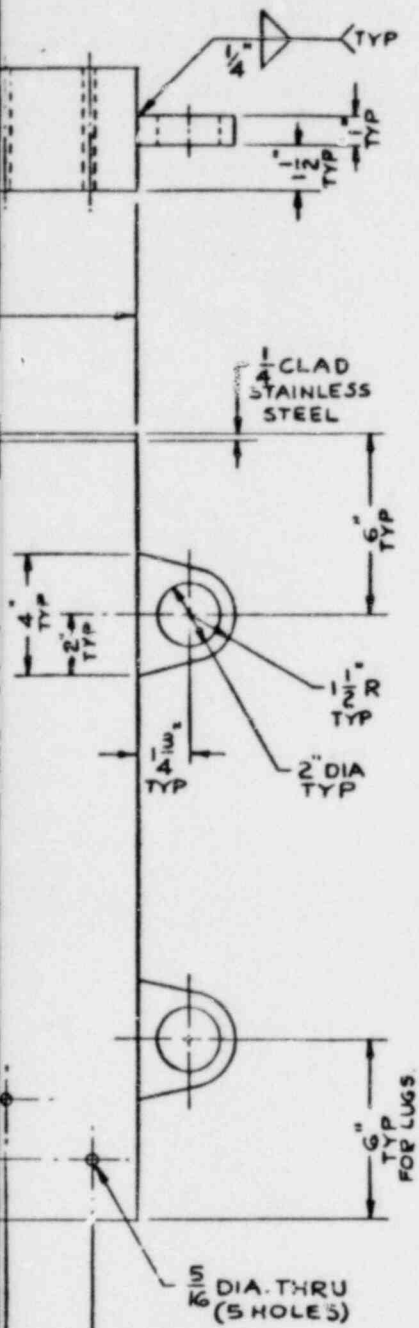
TITLE
CALIBRATION BLOCK
ΔP INSTRUMENT
TO SAFE END

POOR ORIGINAL

2

1

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED



NOTES:

1. MATERIAL:
BLOCK TO BE PER ASME SA 508 CLASS 2
CLADDING TO BE TYPE 309 STAINLESS STEEL.
2. MATERIAL TO BE FREE OF LAMINAR INDICATIONS.
3. CLADDING TO BE MACHINED FLAT AFTER DEPOSITION
4. LUG WELD TO BE MAG PARTICLE OR SURFACE PENETRANT TESTED IN ACCORDANCE WITH ASTM E109 OR E165 BY NES.

D

C

80C0417

B

ITEM	QTY	CODE IDENT	PART NUMBER	DESCRIPTION
PART LIST				
SIGNATURES			DATE	A AUTOMATION INDUSTRIES, INC. NUCLEAR ENERGY SERVICES TITLE CALIBRATION BLOCK FLANGE/LIGAMENTS
DRAWN JOE HORNAK			7-21-78	
CHECKED <i>Jim Harvey</i>			7-31-78	
TASK ENGR <i>J. Hoffman</i>			7-31-78	
PROJ MGR <i>J. Hoffman</i>			7-31-78	
ISI ENGR MGR <i>J. Hoffman</i>			7-31-78	
FLD OPS MGR <i>FD</i>			8-4-78	
APPROVED DESIGN ACTIVITY 5536-250				SIZE C CODE IDENT NO. 78446 DRAWING NO. 80C0417 REV. 0
APPROVED QA MGR <i>PE Longman</i> for 7-28				SCALE 1" = 4" SHEET

A

UNLESS OTHERWISE SPECIFIED
DIM ARE IN INCHES, TOL: FRAC. ± 1/16
DEC 2-0.01 33-0.010 332-0.005
ANGLES 27° SURFACE FINISH 25 μ MIN
DEBURR AND BREAK SHARP EDGES

MATERIAL
SEE NOTES 1 & 2

FINISH
ALL SURFACES TO BE
250 RMS OR BETTER

2

1

REVISIONS						
ZONE	LTR	DESCRIPTION	DRAWN BY	CHECKED	DATE	APPROVED
2B	1	SEE CRA 1748	M. THURSTON	VRP	2-25-81	<i>[Signature]</i>

EXAMINATION SURFACE

METAL STAMP WITH .12 HIGH CHARACTERS
"STUD-6"

.375 DIA REAMED FLAT BOTTOMED HOLE \triangle

NOTE: HOLE ROTATED FOR CLARITY.

NOTE:

1. PRESS FIT PLUG INTO HOLE $2\frac{15}{16}$ " DEEP. PLUG TO BE FLUSH WITH END OF STUD.
2. PLUG TO BE THE SAME AS OR SIMILAR TO THE MATERIAL OF THE STUD. \triangle

D

C

80C0418
B

ITEM	QTY	CODE IDENT	PART NUMBER	DESCRIPTION
PARTS LIST				
SIGNATURES			DATE	A AUTOMATION INDUSTRIES, INC. NUCLEAR ENERGY SERVICES TITLE CALIBRATION BLOCK CLOSURE HEAD STUD
DRAWN		D. HASSINGER	7-21-78	
CHECKED		<i>[Signature]</i>	9-1-78	
TASK ENG		<i>[Signature]</i>	8-1-78	
PROJ. MGR		<i>[Signature]</i>	8-2-78	
MATERIAL		SPARE STUD SA-540 GR. B-24 \triangle	8-2-78	
FINISH		APPROVED DESIGN ACTIVITY 5536-250	8-4-78	SIZE C CODE IDENT NO. 78446 DRAWING NO. 80C0418 REV I
		QA MGR <i>[Signature]</i> for 6-201 8-4-78		SCALE SHEET

A

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE
VARION	1	SEE CRA 1499	10-9-80
B-2	2	SEE CRA 1532	11-19-80

H .12

D

Δ

NOTE:

1. EDM NOTCH 0.030 WIDE x 1.0 LONG x .062 DP.
2. PRESS FIT 0.5 LONG PLUG INTO EACH HOLE
3. PLUGS TO BE MADE OF SAME OR SIMILAR MATERIAL AS THE NUT. Δ

C



80C0419

B

ITEM	QTY	CODE IDENT	PART NUMBER	DESCRIPTION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIM. (7/8 IN INCHES, TOR. FRAC. 1/16 DEC. 1/32) 2X 1/2 DIA. SEE 1-2.889 ANGLES 20°, SURFACE FINISH 750/160 DRESS AND BREAK SHARP EDGES			A AUTOMATION INDUSTRIES, INC. NUCLEAR ENERGY SERVICES TITLE CALIBRATION BLOCK CLOSURE HEAD NUT	
SIGNATURES		DATE		
DRAWN D. HASSINGER		7-20-78		
CHECKED <i>W. H. ...</i>		7-31-78		
TASK ENG <i>C. H. ...</i>		7-31-78		
PROJ MGR <i>...</i>		8-4-78		
MATERIAL		SA-540 GR. 024 Δ		
APPROVED DESIGN ACTIVITY		5536-250	SIZE	CODE IDENT NO.
QA MGR <i>A. E. ...</i>		FOR E.O.B. 8-4-78	C	78446
			DRAWING NO.	80C0419
			REV	2
			SCALE	HALF
			SHEET	

A

REVISIONS				
ZONE	LTN	DESCRIPTION	DATE	APPROVED

BOTTOM HOLE x 3" DP.
(SEE NOTE 1.)

...TION SURFACE

NOTES:

1. PRESS FIT PLUG INTO HOLE 2 5/16" DP. PLUG TO BE FLUSH WITH END OF STUD
2. METAL STAMP WITH .12 HIGH CHARACTERS 'STUD-3'

D

C

80C0420

B

A

ITEM	QTY	CODE IDENT	PART NUMBER	DESCRIPTION														
PARTS LIST																		
UNLESS OTHERWISE SPECIFIED DIM. ARE IN INCHES. TOR. FRAC. 1/16" DEC. 1 - 0.25 1/2 - 0.50 3/4 - 0.75 1 - 0.875 ANGLES 2°. SURFACE FINISH 125 DEBURR AND BREAK SHARP EDGES			<table border="1"> <tr> <th>SIGNATURES</th> <th>DATE</th> </tr> <tr> <td>DRAWN <i>[Signature]</i></td> <td>7-28-78</td> </tr> <tr> <td>CHECKED <i>[Signature]</i></td> <td>7-31-78</td> </tr> <tr> <td>PACKED <i>[Signature]</i></td> <td>8-1-78</td> </tr> <tr> <td>PROJ. ENGR. MGR. <i>[Signature]</i></td> <td>8-1-78</td> </tr> <tr> <td>P.D. OPS. MGR. <i>[Signature]</i></td> <td>8-4-78</td> </tr> </table>		SIGNATURES	DATE	DRAWN <i>[Signature]</i>	7-28-78	CHECKED <i>[Signature]</i>	7-31-78	PACKED <i>[Signature]</i>	8-1-78	PROJ. ENGR. MGR. <i>[Signature]</i>	8-1-78	P.D. OPS. MGR. <i>[Signature]</i>	8-4-78		
SIGNATURES	DATE																	
DRAWN <i>[Signature]</i>	7-28-78																	
CHECKED <i>[Signature]</i>	7-31-78																	
PACKED <i>[Signature]</i>	8-1-78																	
PROJ. ENGR. MGR. <i>[Signature]</i>	8-1-78																	
P.D. OPS. MGR. <i>[Signature]</i>	8-4-78																	
MATERIAL SPARE STUD			<table border="1"> <tr> <td rowspan="2" style="font-size: 2em; vertical-align: middle;">A</td> <td colspan="2">AUTOMATION INDUSTRIES, INC. NUCLEAR ENERGY SERVICES</td> </tr> <tr> <td colspan="2">TITLE CALIBRATION BLOCK RECIRCULATION PUMP STUD</td> </tr> </table>		A	AUTOMATION INDUSTRIES, INC. NUCLEAR ENERGY SERVICES		TITLE CALIBRATION BLOCK RECIRCULATION PUMP STUD										
A	AUTOMATION INDUSTRIES, INC. NUCLEAR ENERGY SERVICES																	
	TITLE CALIBRATION BLOCK RECIRCULATION PUMP STUD																	
FINISH 250 OR BETTER			<table border="1"> <tr> <th>APPROVED DESIGN ACTIVITY</th> <th>SIZE</th> <th>CODE IDENT NO.</th> <th>DRAWING NO.</th> <th>REV</th> </tr> <tr> <td>5536-250</td> <td>C</td> <td>78446</td> <td>80C0420</td> <td>0</td> </tr> </table>	APPROVED DESIGN ACTIVITY	SIZE	CODE IDENT NO.	DRAWING NO.	REV	5536-250	C	78446	80C0420	0	<table border="1"> <tr> <th>APPROVED</th> <th>DATE</th> </tr> <tr> <td><i>[Signature]</i></td> <td>8-4-78</td> </tr> </table>	APPROVED	DATE	<i>[Signature]</i>	8-4-78
APPROVED DESIGN ACTIVITY	SIZE	CODE IDENT NO.	DRAWING NO.	REV														
5536-250	C	78446	80C0420	0														
APPROVED	DATE																	
<i>[Signature]</i>	8-4-78																	
SCALE FULL			SHEET															

2

1

REVISIONS			
ZONE	LTR	DESCRIPTION	APPROVED

AT BOTTOM HOLES
 TH SHOWN
 3 PLCS

D

NOTE:

1. EDM NOTCH 0.030 WIDE x 1.0 LONG x .075 DEEP (FROM THREAD O.D.)
2. PRESS FIT 0.5 LONG PLUG INTO EACH HOLE.

STAMP .12 HIGH
 ACTERS
 UT - 3"

C

T BEAM
 TION

APPE BEAM
 EXAMINATION
 SURFACE

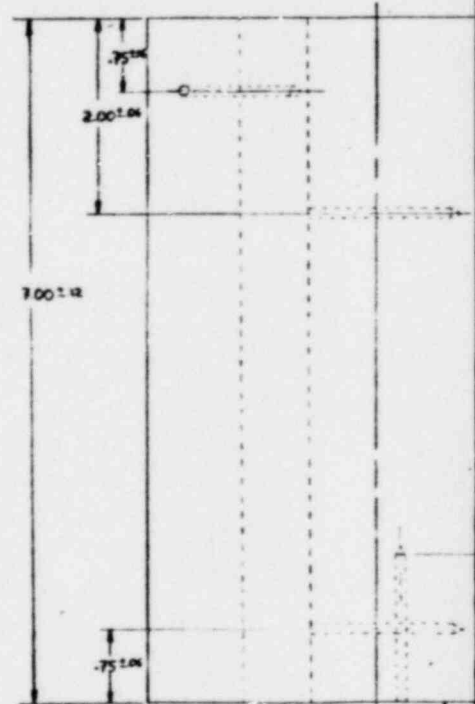
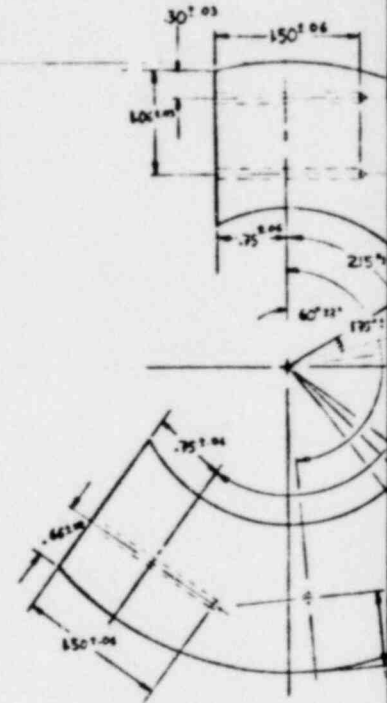
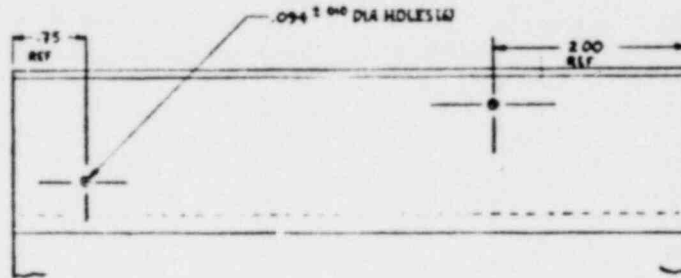
80C0421

B

ITEM	QTY	CODE IDENT	PART NUMBER	DESCRIPTION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIM. SIZE IN INCHES FOR FRACTIONS 1/16 DECIMALS 0.00025 INCHES SURFACE FINISH 125 DROPPED AND BREAK SHARP EDGES		SIGNATURES		DATE
DRAWN <i>J. Hassinger</i>		7-20-78		A AUTOMATION INDUSTRIES, INC. NUCLEAR ENERGY SERVICES TITLE CALIBRATION BLOCK RECIRCULATION PUMP NUT
CHECKED <i>W. Murray</i>		7-31-78		
TASK ENG. <i>J. Hassinger</i>		7-21-78		
PROJ MGR. <i>J. Hassinger</i>		7-24-78		
ISI ENGR MGR. <i>J. Hassinger</i>		7-24-78		
QA OPS MGR. <i>J. Hassinger</i>		8-4-78		
SPARE NUT		APPROVED DESIGN ACTIVITY 5536-250	SIZE C	CODE IDENT NO. 78446
		QA MGR. <i>J. Hassinger</i> for S.P.O. 8-4-78	DRAWING NO. 80C0421	REV 0
SCALE FULL			SHEET	

A

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 INFORMATION. IN ACCESSING THE DRAWING, THE USER AGREES THAT IT
 IS FOR THE USER'S SOLE USE THAT IT WILL NOT BE REPRODUCED OR
 DISTRIBUTED TO OTHERS AND THAT THE DRAWING OR THE INFORMATION
 CONTAINED THEREIN WILL NOT BE USED IN ANY MANNER DETRIMENTAL
 TO AUTOMATION INDUSTRIES INC.

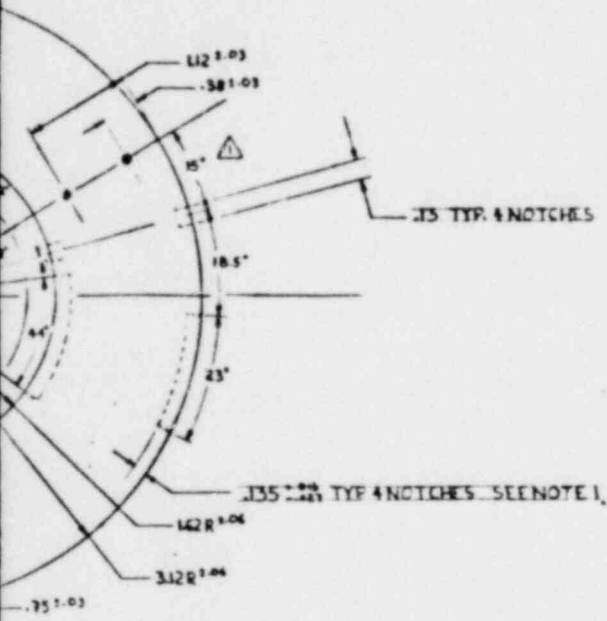


POOR ORIGINAL

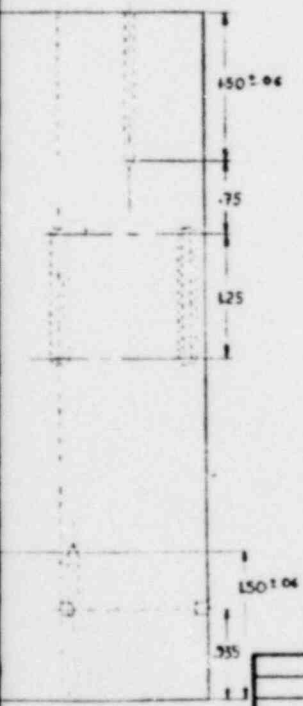
STAMP IN .12 MIN HIGH
 CHARACTERS BASIC CALIBRATION
 BLOCK PROJECT-SHORE-AM
 PART NO 131C8522F1
 NAT'L
 HT. NO
 U.T. APPL. TOP HEAD VENT
 TOP HEAD INST

1

REVISIONS				
ZONE	LTN	DESCRIPTION	DATE	APPROVED
5	6	SEE E&A 1/24	7-18-82	




NOTES:
 1. NOTCH FINISH - 125/ OR BETTER
 2. BLOCK FABRICATED PREVIOUSLY PER G&E DWS NO. 131CB522
 THIS IS MODIFIED BLOCK BY ADDITION OF NOTCHES ONLY



POOR ORIGINAL!

THIS DRAWING AFFECTED BY ECO NO. _____

NO.	ZONE	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
APPROVALS						
DRAWN BY			DATE	APPROVED		
CHECKED			DATE	APPROVED		
TASP ENGINEER			DATE	APPROVED		
PROD. MGR.			DATE	APPROVED		
EST. MGR.			DATE	APPROVED		
QA MGR.			DATE	APPROVED		
INTERNAL						
//						
FINISH						
SEE NOTE 1						
NEXT ASST. USED ON APPLICATION						

NO.	ZONE	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
REVISIONS						
DRAWN BY			DATE	APPROVED		
CHECKED			DATE	APPROVED		
TASP ENGINEER			DATE	APPROVED		
PROD. MGR.			DATE	APPROVED		
EST. MGR.			DATE	APPROVED		
QA MGR.			DATE	APPROVED		
 NUCLEAR ENERGY SERVICES, INC. NES DIVISION						
TITLE						
UT CALIBRATION BLOCK						
TOP HEAD VENT, INST.						
PROJECT	SCALE	SHEET	DRAWING NO.	REVISION		
5536	FULL	D	8000422			

105 GR II

D

C

B

2200422

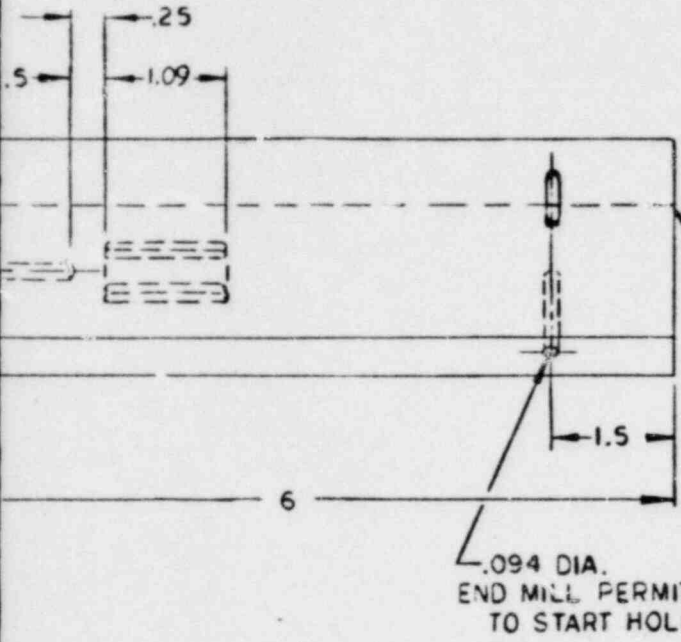
A

X

2

1

REVISIONS						
ZONE	TR	DESCRIPTION	DRAWN	CHKD	DATE	APPROVED
ALL	1	CRA-267	<i>W.H.</i>	<i>W.H.</i>	5-25-77	<i>W.H.</i>



IDENTIFICATION ON CURVED SURFACE WITHOUT HOLE METAL STAMP WITH .12 HIGH CHARACTERS (SEE NOTE 1)

NOTES :

1. THIS DRAWING TO BE USED WITH N.E.'S SPECIFICATION 80A0515.
2. MATERIAL TO BE FREE OF RUST AND SCALE BEFORE MACHINING.
3. FOR SEAMED PIPING SELECT BLOCK SEGMENT TO EXCLUDE SEAM.
4. ALL HOLES DRILLED AND REAMED.

80C0513

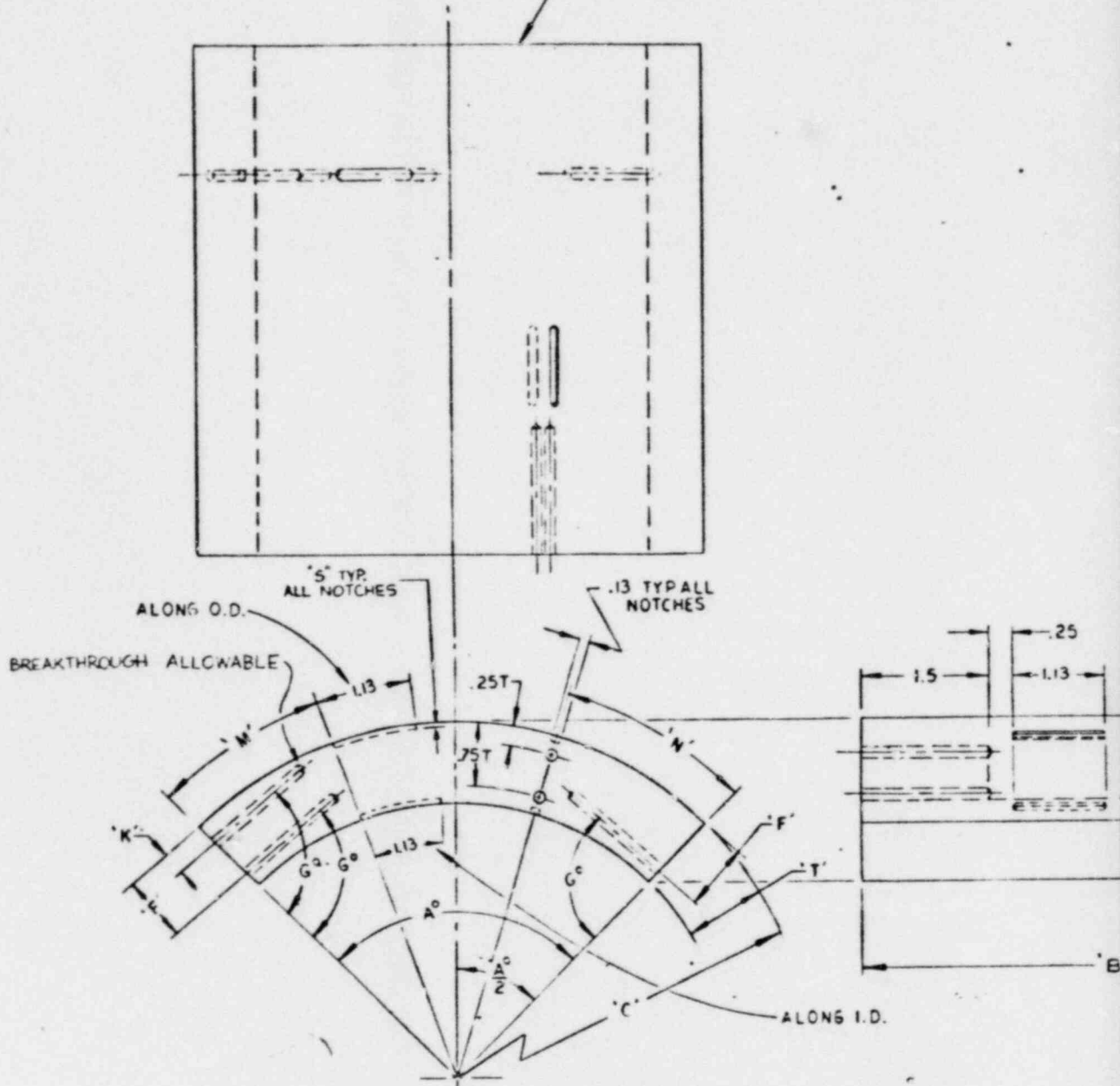
ITEM	QTY	CODE IDENT	PART NUMBER	DESCRIPTION
PARTS LIST				
SIGNATURES		DATE		A AUTOMATION INDUSTRIES, INC. NUCLEAR ENERGY SERVICES TITLE CALIBRATION BLOCK T ≤ 1.00
DRAWN <i>W. HATCH, JR.</i>		1-14-76		
CHECKED <i>[Signature]</i>		5-22-76		
REV. NGR <i>[Signature]</i>		6-23-76		
SSI MGR. <i>[Signature]</i>		6-28-76		
G.A. <i>[Signature]</i>		6/28/76		
APPROVED DESIGN ACTIVITY 5536-500				SIZE C CODE IDENT NO. 78446 DRAWING NO. 80C0513 REV I
APPROVED V.P. ENGR <i>[Signature]</i>				SCALE 1" SHEET

B

A

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TO AUTOMATIC INDUSTRIES INC.

IDENTIFICATION ON CURVED
SURFACE AWAY FROM HOLE
METAL STAMP WITH .12 HIGH
CHARACTERS (SEE NOTE 1)

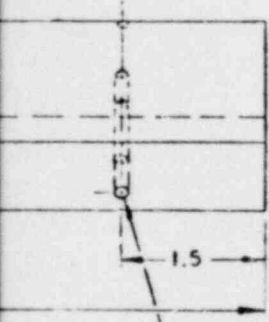


POOR ORIGINAL

REVISIONS						
FORM	LTB	DESCRIPTION	DRW	CHK	DATE	APPROVED
ALL	1	CRG-203	AS	AS	5-20-76	AS

NOTES:

1. THIS DRAWING TO BE USED WITH NES SPECIFICATION 80A0515.
2. MATERIAL TO BE FREE OF RUST AND SCALE BEFORE MACHINING.
3. FOR SEAMED PIPING, SELECT BLOCK SEGMENT TO EXCLUDE SEAM.
4. ALL HOLES DRILLED AND REAMED.



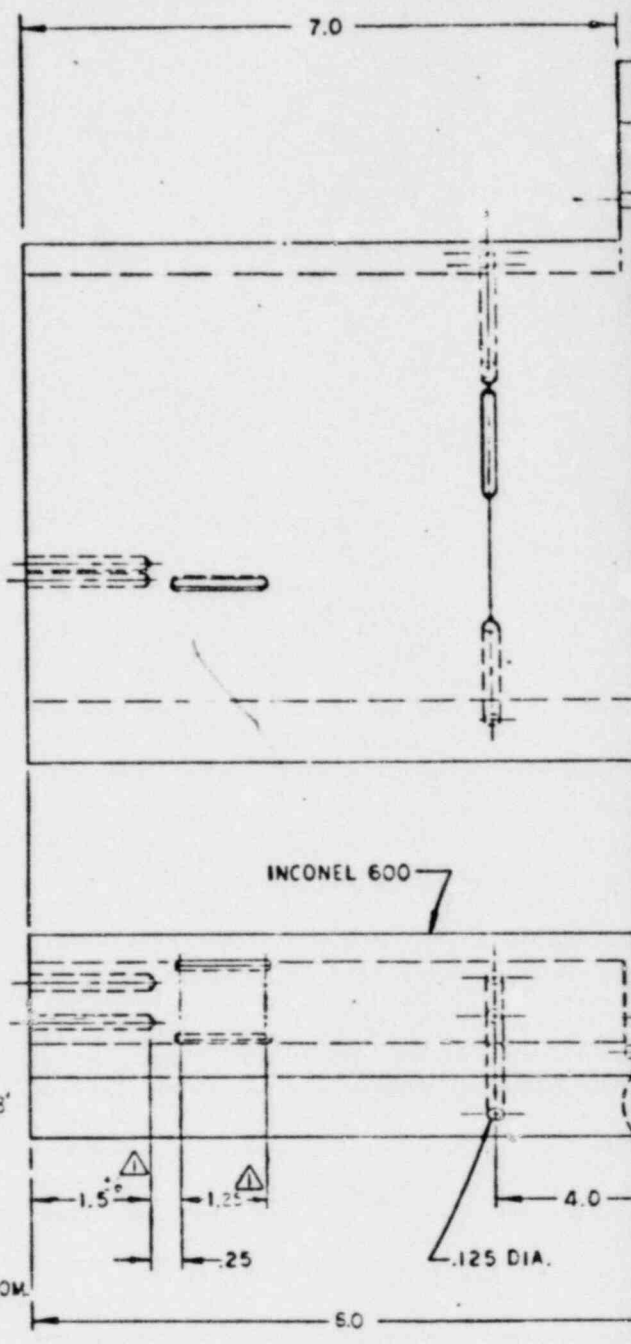
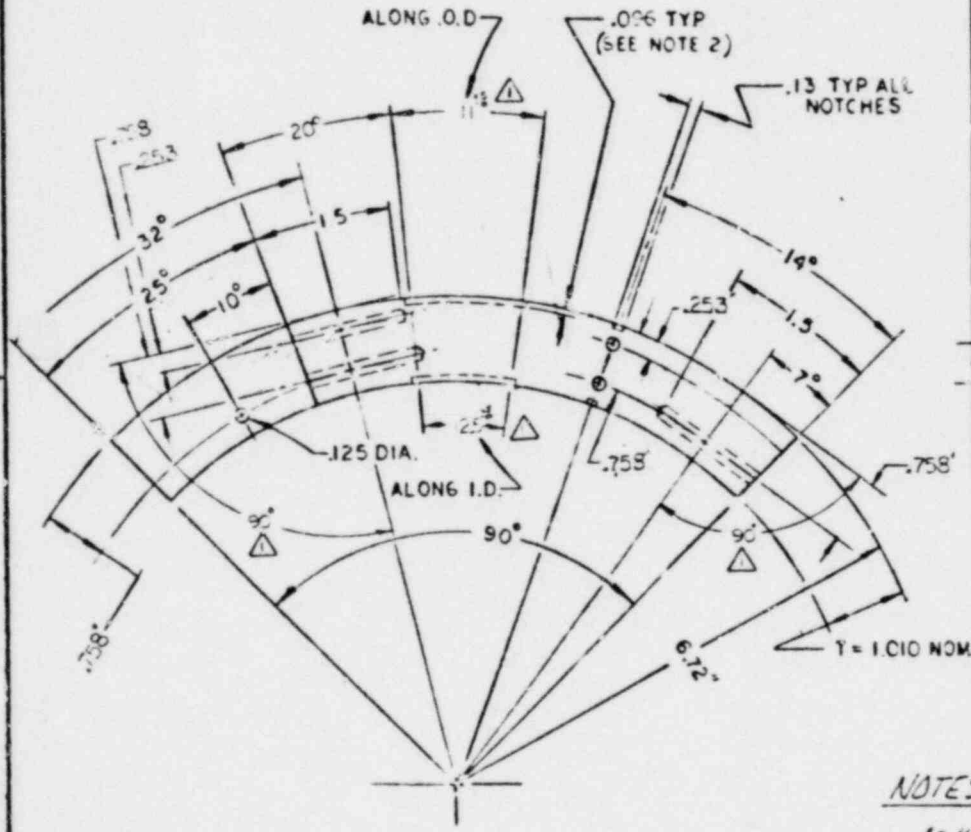
1.25 DIA. X 1.5 DP
5 PLACES
END MILL PERMITTED
TO START HOLE

ITEM	QTY	CODE IDENT	PART NUMBER	DESCRIPTION
UNLESS OTHERWISE SPECIFIED DIM ARE IN INCHES TO 3/16" DEC 3/32 IN 1/8 IN DIA 5/32 IN ANGLES 1/4 SURFACE FINISH REMOVE AND BREAK SHARP EDGES				
MATERIAL				
FINISH				
NEXT ASST. USED ON APPLICATION				

ITEM	QTY	CODE IDENT	PART NUMBER	DESCRIPTION
SIGNATURES				
DRAWN		N. ATCH JR. 5-20-76		
CHECKED		[Signature] 5-22-76		
INSP		V.R. [Signature] 6-23-76		
ISSUED		V.R. [Signature] 6-23-76		
APPROVED		G.A. [Signature] 6/29/76		
APPROVED DESIGN ACTIVITY				SCALE
5536-500				D
APPROVED				CLERK IDENT NO.
V. DEUR 04/26/76				78446
TITLE				DRAWING NO.
AUTOMATION INDUSTRIES, INC. NUCLEAR ENERGY SERVICES				80D0514
CALIBRATION BLOCK T > 1.00				SHEET
				1

B
80D0514

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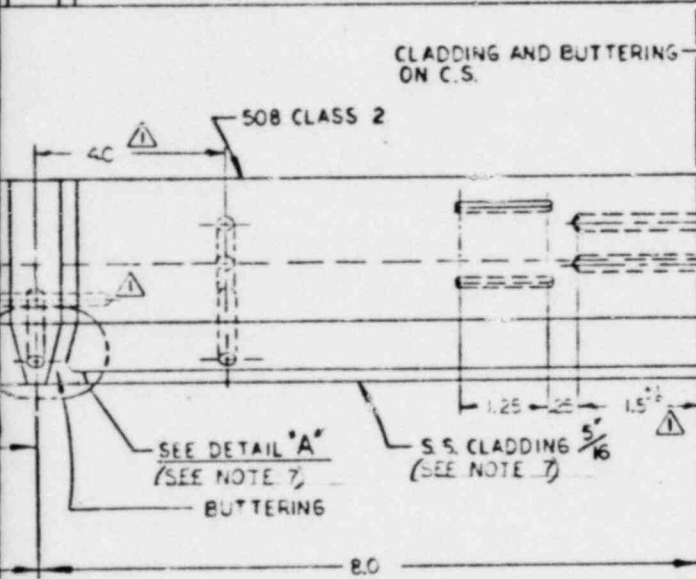
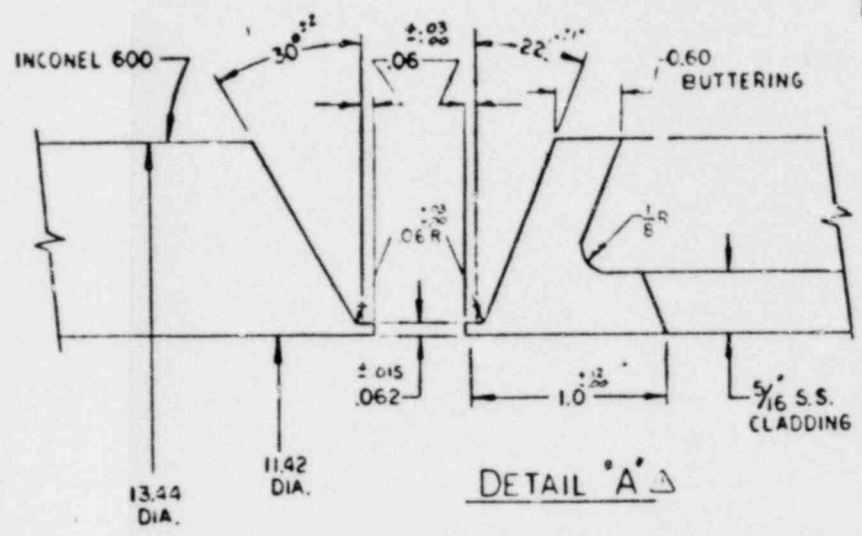
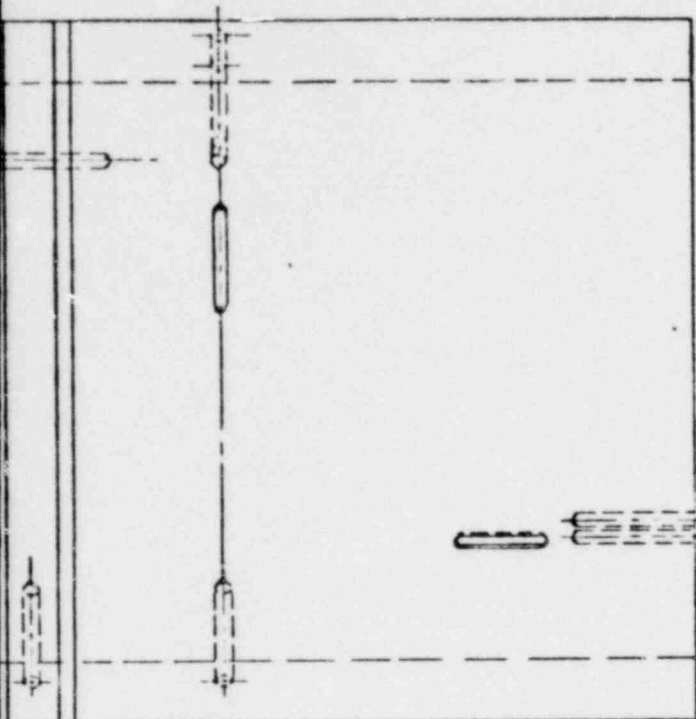


NOTES:

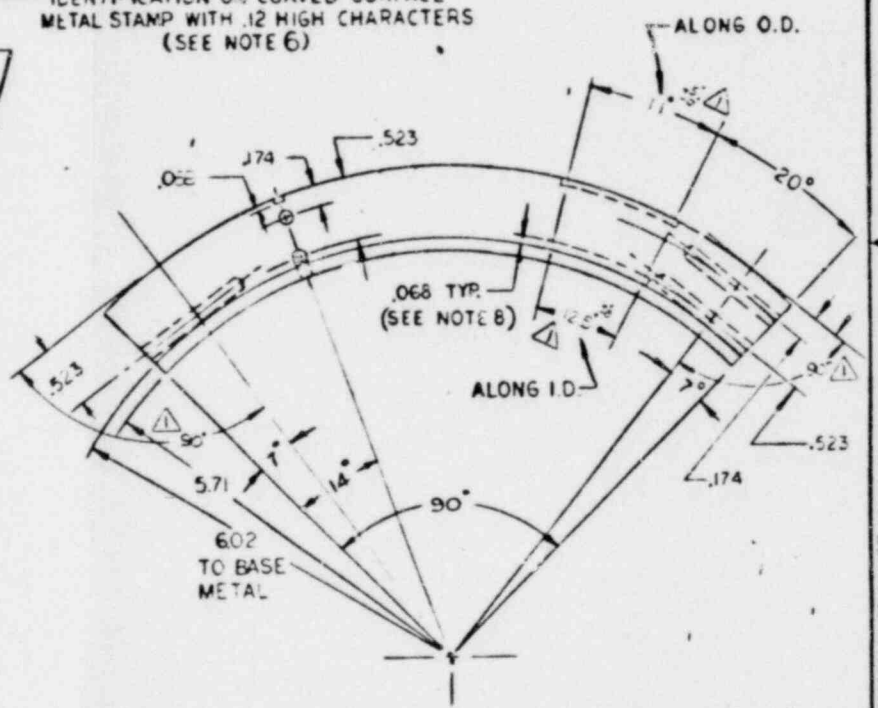
- 1- HOLES: .125 DIA x 1.5" DEEP (TYP 12 PLACES)
- 2- NOTCHES: .13 WIDE x .006 DEEP (TYP FOR INCONEL 600 4 PLCS)
- 3- MATERIAL: SA-508 CLASS 2 CARBON STEEL }
SB-166 TYPE 600 INCONEL } A
- 4- WELD FILLER METAL
E-NiCrFe-3 (Inco 182)
- 5- STAINLESS STEEL CLADDING AND PLATING:
TYPE E-309-15 FOR FIRST LAYER
TYPE E-308-15 FOR ALL SUBSEQUENT LA
- 6- IDENTIFICATION: "CS-1"
- 7- REFER TO NES WELD SPECIFICATION NO. BCAC426
- 8- NOTCHES FOR SUE CLASS 2 .13 WIDE x .006 DEEP (IN PARENT MATERIAL, TYP 4 PLCS)

POOR ORIGINAL

REVISIONS					
NO.	DATE	DESCRIPTION	BY	CHKD	APPROV
ALL	1	SEE CRA 1521



IDENTIFICATION ON CURVED SURFACE
METAL STAMP WITH .12 HIGH CHARACTERS
(SEE NOTE 6)

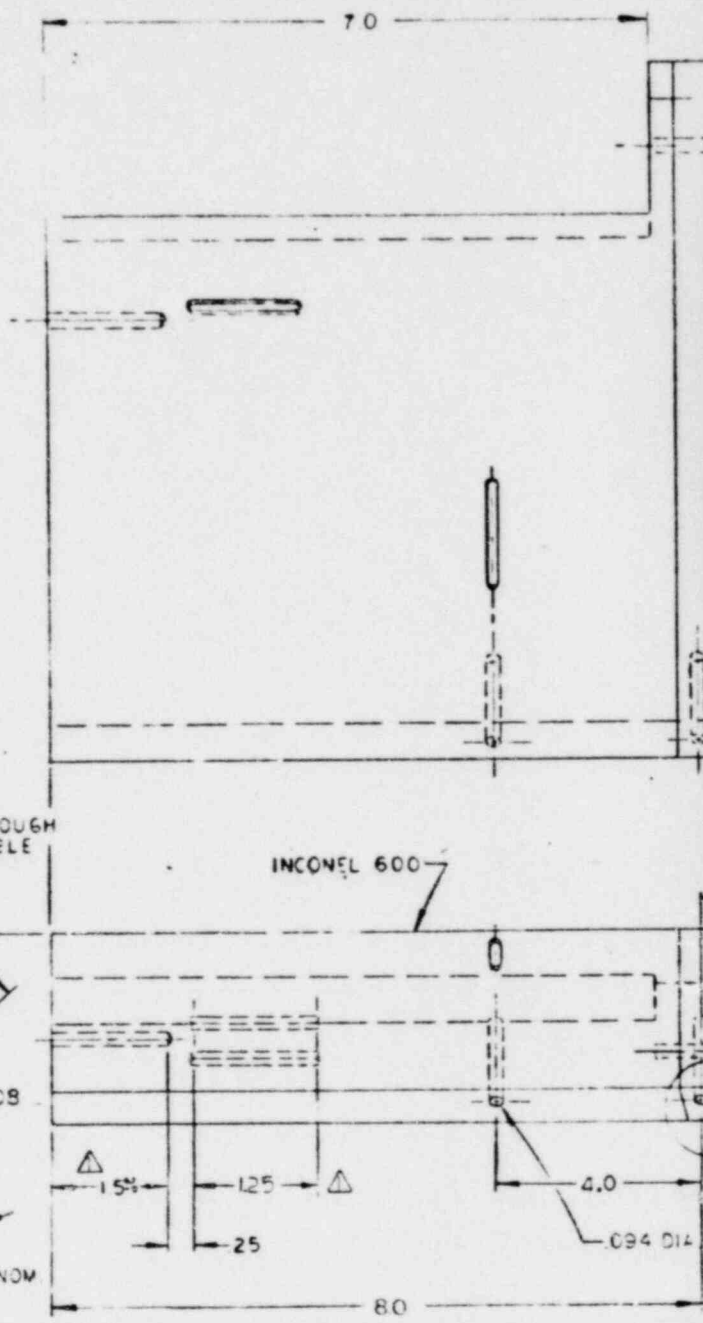
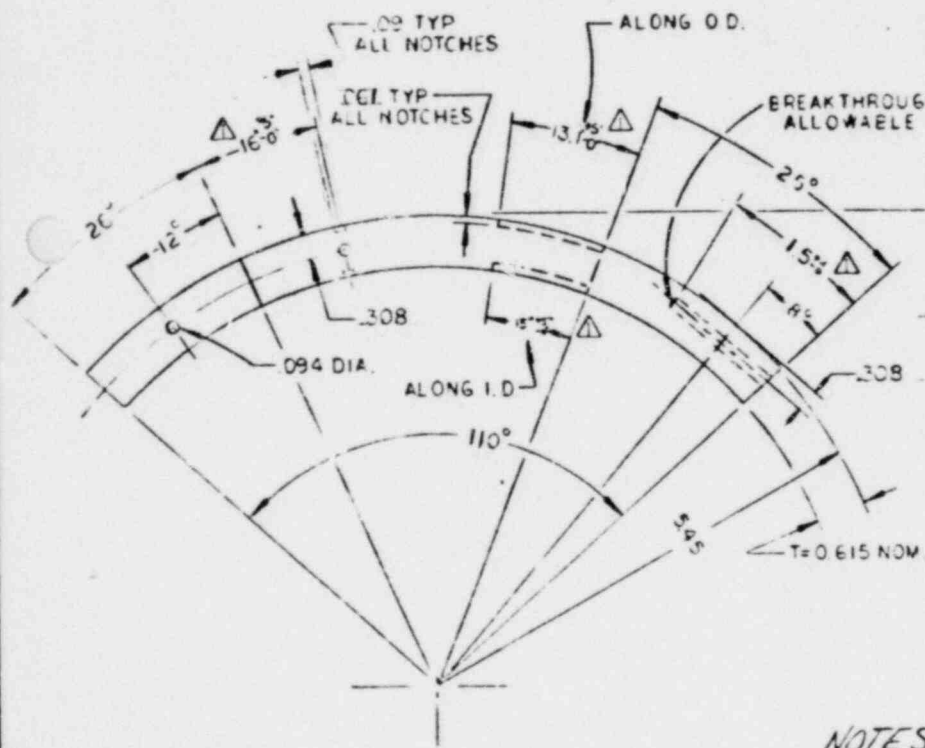


POOR ORIGINAL

AS SHOWN
A298
VERS

ITEM	QTY	CODE IDENT	PART NUMBER	DESCRIPTION
PARTS LIST				
SIGNATURES				DATE
DRAWN: HATCH, R.				5-2-78
CHECKED: [Signature]				5-2-78
TREA ENG: [Signature]				
APP. DES. [Signature]				
APP. DES. [Signature]				
APPROVED DESIGN ACTIVITY				
5536-250				
APPROVED: S.C. GIBBS-DRIVER				
DATE: 5-18-78				
MATERIAL		AS SHOWN		
FINISH		250/ OR BETTER		
NEXT ASST		USED ON		
APPLICATION				
TITLE		CALIBRATION BLOCKS CORE SPRAY NOZZLE TO SAFE END 'CS-1'		
SIZE	CODE IDENT NO	DRAWING NO	REV	
D	78446	8000516	1	
SCALE		SHEET		

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 TO ALLIANT INDUSTRIAL, INC.

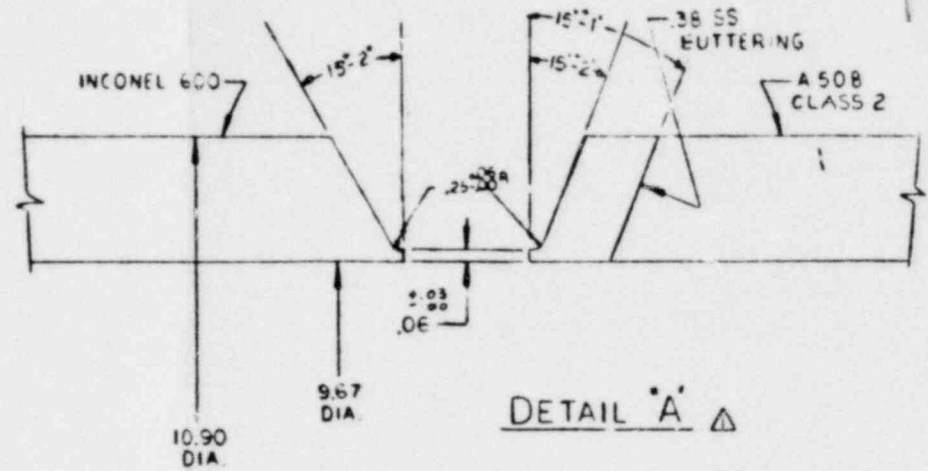
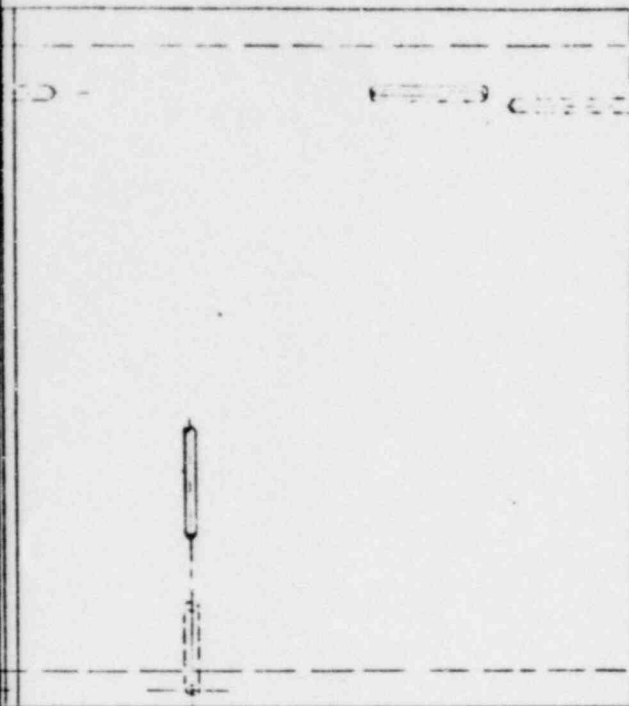


NOTES:

1. HOLES: 0.094" DIA X 1.5"± DEEP (TYP. 6 PLACES) △
2. NOTCHES: 0.09 WIDE X 0.062 DEEP (TYP. 8 PLACES)
3. MATERIAL: 5A-508 CLASS II CARBON STEEL } AS SHD
 5B-166 TYPE 600 INCONEL }
4. WELD FILLER METAL SFA-5.11 E-NICRFE-3 (INCO 192) △
5. STAINLESS STEEL BLT'ING SA298
 TYPE E309-15 FOR FIRST LAYER
 TYPE E-309-10 FOR ALL SUBSEQUENT LAYERS
6. IDENTIFICATION: CS-2
7. REFER TO NBS WELD SPECIFICATION NO. B040-26

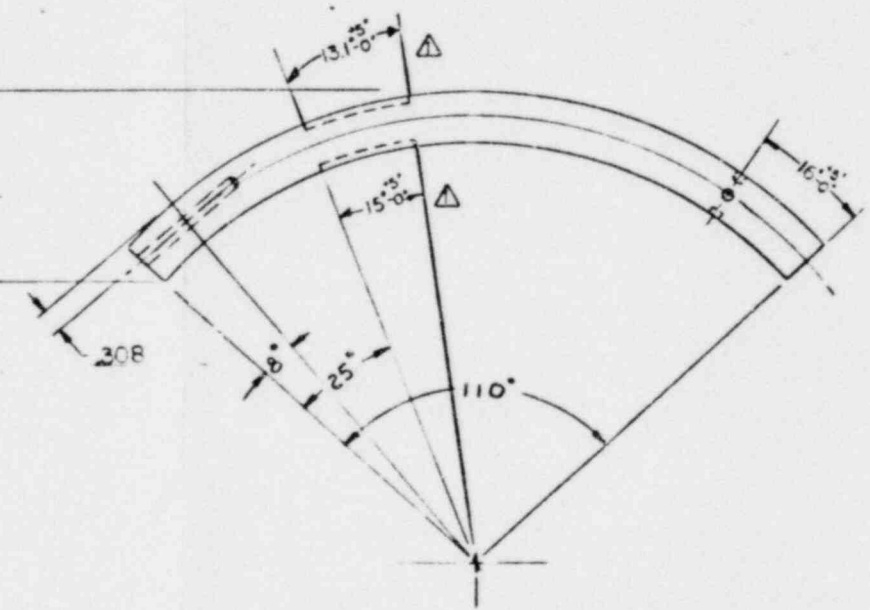
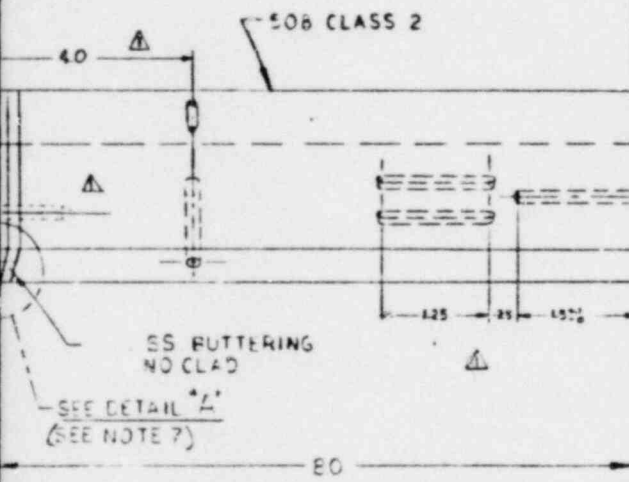
POOR ORIGINAL

REVISIONS			
NO.	DATE	DESCRIPTION	APPROVED
1	10-2-80	SEE C.A. 579	



DETAIL 'A' Δ

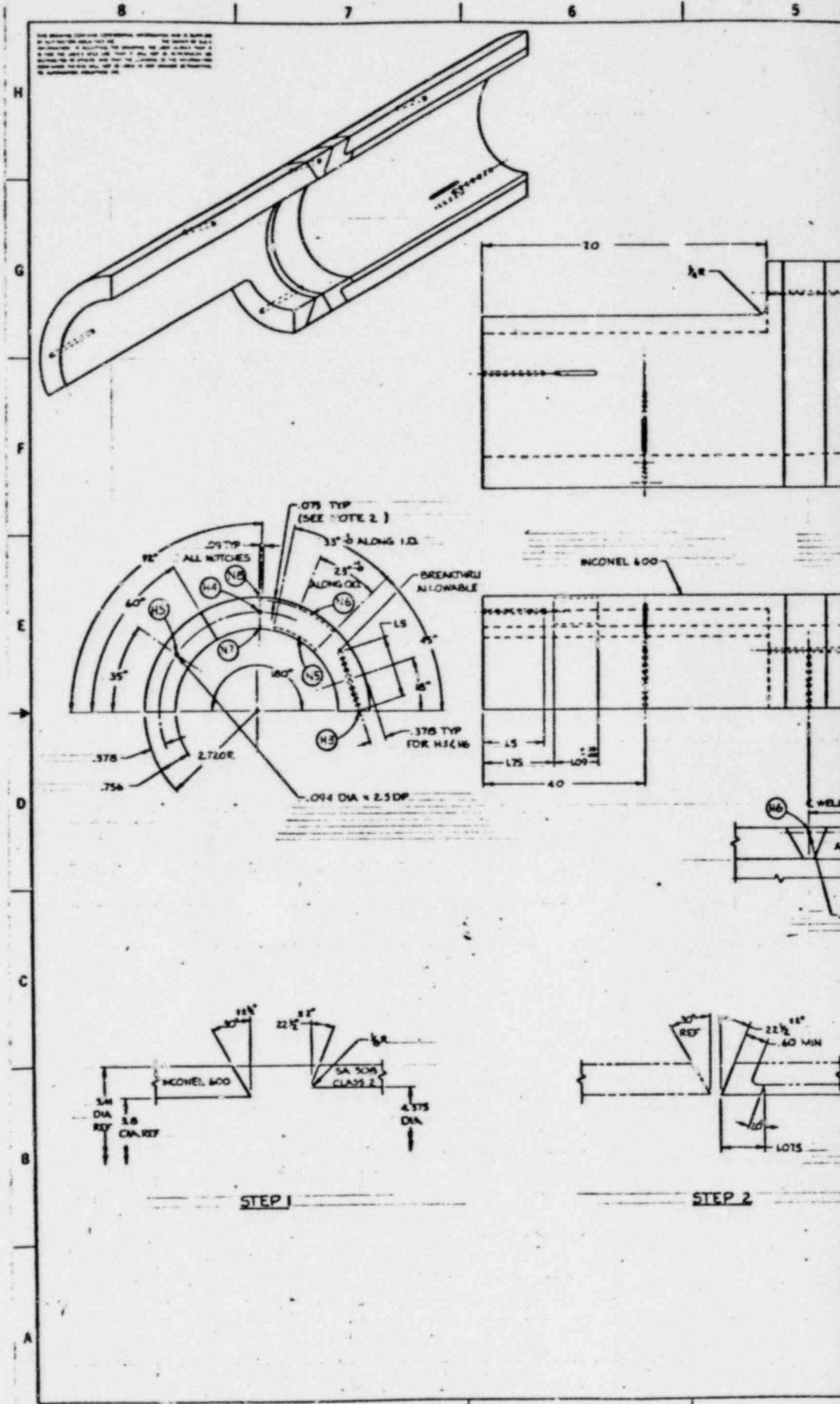
IDENTIFICATION ON CURVED SURFACE
METAL STAMP WITH .12 HIGH CHARACTERS
(SEE NOTE 6)



POOR ORIGINAL

ITEM	QTY	CODE IDENT	PART NUMBER	DESCRIPTION
PARTS LIST				
SIGNATURES				DATE
DRAWN <i>W. H. T. H. R.</i>				5-2-75
<i>INTEGRATED CAL.</i>				5-2-75
<i>PLANT MGR.</i>				5-2-75
<i>DESIGNER</i>				5-4-75
<i>ELD. DES. MGR.</i>				5-4-75
APPROVED DESIGN ACTIVITY				
5536-250				
APPROVED BY <i>J. D. C. G. H. R.</i>				
GINGER				
MATERIAL		AS SHOWN		
FINISH		250 OR BETTER		
NEXT ASST		VWD ON		
APPLICATION				
AUTOMATION INDUSTRIES, INC.		NUCLEAR ENERGY SERVICES		
TITLE		CALIBRATION BLOCKS CCPF SPRAY SAFE END TO EXTENSION		
SIZE	CODE IDENT NO	DRAWING NO		REV
D	78446	80D0517		I
SCALE		SHEET		

D
C
B
A
80D0517



POOR ORIGINAL

