

50-322 OL

I-75

10/22/84

DATE:

4/30/84

103

SHOREHAM NUCLEAR POWER STATION - UNIT 1
EMERGENCY DIESEL GENERATOR DR/QR PROGRAM
DOCUMENT REVIEW TRANSMITTAL

DOCKETED
USNRC

'84 NOV -8 A9:41

- ☐ C. K. Seaman, Program Manager
☐ J. C. Kammeyer, Component Selection Chairman
☐ G. W. Rogers, Design Review Chairperson
☐ V. A. Saleta, Quality Review Chairperson
☐ E. F. Montgomery
☐ M. H. Schuster
☐ G. Nicholas
☐ M. Curry
☐ E. J. Youngling
☐ T. Rose
☐ K. Solon
☐ K. Morrow
☐ A. Asquino
☐ B. T. McCabe
☐ Task Lead Engineer
☒ R. TAYLOR

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

The following documents are attached:

- ☐ Component Design Review Checklist/Task Description No. DR-
☐ Component Revalidation Checklist/Task Description No. QR-
☒ Component Task Evaluation Report (TER) No. Q-465
03-315A

STATUS	SENT FOR YOUR	
<input type="checkbox"/> Preliminary	<input type="checkbox"/> Approval	<input type="checkbox"/> Comment
<input checked="" type="checkbox"/> Final	<input type="checkbox"/> Use	<input type="checkbox"/> Info
<input type="checkbox"/> Revisions as Noted	<input type="checkbox"/> Controlled File	<input checked="" type="checkbox"/> Action

YOUR ATTENTION IS DIRECTED TO THE FOLLOWING:

☐ Please review and return to DR/QR Coordinator this material bearing your signature approval or comments and signoff on form below.

☒ Please acknowledge receipt of this material by signing and returning this form to DR/QR Coordinator.

☐ Please insure that these notes are in accordance with your understanding. If not, please return to DR/QR Coordinator, with comments and signoff on form below.

☐ Please revise this material to incorporate comments as noted and return to DR/QR Coordinator bearing your signature approval and signoff on form below

REVIEW/TITLE	DATE OF SIGNOFF	COMPLETE YES/NO	SIGNATURE

①

8412130315 841022
PDR ADOCK 05000322
PDR

Report No. 50-322
In the matter of 4120
Nuclear Regulatory Commission
Official Ex. No. 51
Staff
Applicant
Interview
County Offr
Contractor
Other
Witness
DATE 10-22-54
RECEIVED
RECEIVED
IDENTIFIED

NOTED APR 27 1984

TER # Q-465

P 1/32

COMPONENT TASK EVALUATION REPORT

SYSTEM/COMPONENT NO. 03-315A D.C. 103R	TDI PART NO. 03-315A	INITIATOR <u>Kevin M. Taylor</u> SIGNATURE	DATE 4-23-84	ORGANIZATION <input type="checkbox"/> ENGINEERING <input checked="" type="checkbox"/> QUALITY
--	-------------------------	--	-----------------	---

CONDITION DETAILS: ATTACHED INSPECTION REPORT (30 PAGES) GENERATED BY D. Johnson
DATED 4-18-84 IS CONSIDERED INFORMATIONAL AS NO ACCEPTANCE CRITERIA WAS
PROVIDED PRIOR TO THE PERFORMANCE OF THE INSPECTION.

RECOMMENDATIONS: FORWARD TO DESIGN REVIEW FOR EVALUATION AND ALSO TO SEO AND LSU
FOR INFORMATION ONLY. Attached IR is informational. see pg 2 attached
for recommended disposition, Ref TER Q-462, 463 (UNSAT LP).

REQUIRED COMPLETION DATE: 4/25/84

ASSIGNMENT

POSITION ASSIGNED TO ENGINEERING <input type="checkbox"/> QUALITY	RESPONSIBLE CHAIRPERSON <u>Steve Elstner</u> SIGNATURE	DATE 4/25/84
--	--	-----------------

DISPOSITION

DISPOSITION DETAILS: FOLLOW PROCEDURE 1 OUTLINED ON PAGE 2

DISPOSITION ASSIGNED TO <input checked="" type="checkbox"/> ENGINEERING <input type="checkbox"/> QUALITY <input type="checkbox"/> NONE REQUIRED					
SUPPLIED BY <u>K. Solm</u>	DATE 4-25-84	REVIEWED BY <u>K. Solm</u>	DATE 4-25-84	APPROVED BY <u>M. Khan</u>	DATE 4-27-84
BESP. CHAIRPERSON			PROGRAM MANAGER		

ACTION

ACTION ASSIGNED TO <u>R. Taylor</u>	ACTION COMPLETED BY _____	DATE _____
--	------------------------------	---------------

C: CKS/GWR/RJN/EFM
TER LOG

RECOMMENDED
INFORMATION TER DISPOSITION

TER # Q-465
PAGE 2 OF 32

Distribution for action as follows:

- 1) Design Review (G. Rogers) - Review as part of Design Review Task. Return to Quality Group a statement of acceptability (i.e., inspection information is sufficient for Design Review Group and no further inspections are required) or provide further detailed inspection/criteria, and add to Task Description "review information provided on TER Q-465", for each component affected.
- 2) SEO (J. Kammeyer) - distribute for information.

EDDY CURRENT CALIBRATION REPORT DG123

Q-465

3/32

Assc

Job No. 7396 Date 4-18-84 Report No. 840418
Material Description Grey Iron Engine Block Between cyl 4+5 stud 6.3
Code or Specification NDE 11.6 Full On NA Full Off NA
Reference Standard PAO 33154 Instrument M1217 S/N B0108x1
840227

Instrument

Freq. 2 MHz Gain 29 Volts/div .5 Phase 218
Test Probe FAA ECP 100B S/N 100B1
Reference Probe FAA ECP 100B S/N 100B1

CALIBRATION

2.6 units @ 1.4 L/O _____ units @ _____ L/O
_____ units @ _____ L/O _____ units @ _____ L/O

STRIP CHART RECORDER

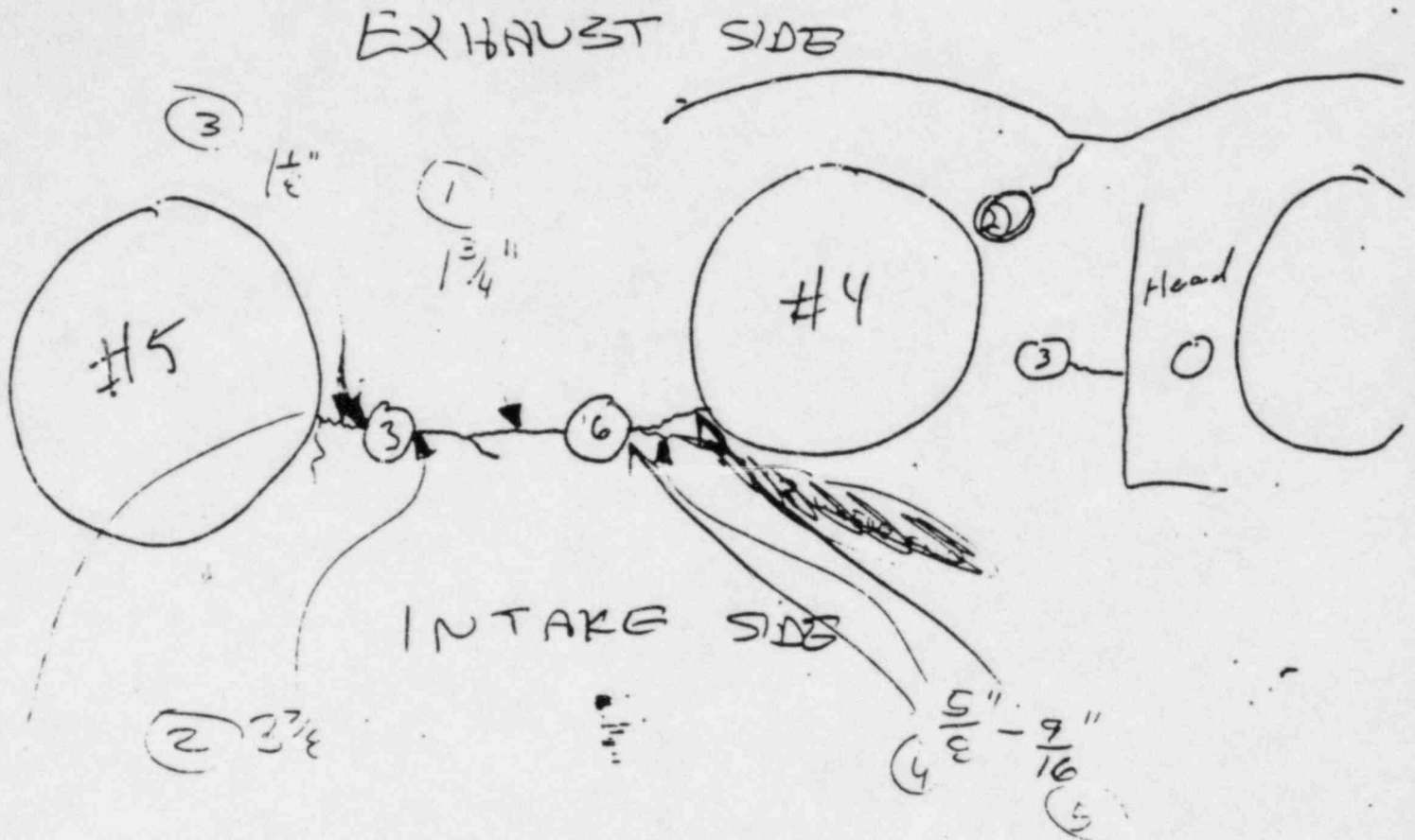
Type NA S/N NA
Channel 1: Sen NA Channel 2: Sen NA
Position @ Null Point NA Position @ Null Point NA
Chart Speed NA mm/sec

Calibration Check

Time	Phase	Gain
<u>9:30</u>	<u>218</u>	<u>29</u>
<u>9:40</u>	<u>218</u>	<u>29</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Material <u>KEY IRON Engine Block</u>		Type: <u>Engine Block</u>	Fabricated process: <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Cast <input type="checkbox"/> Worked	ET Component I.D.
Geometry: <input type="checkbox"/> Pipe <input type="checkbox"/> Plate <input type="checkbox"/> Rod <input checked="" type="checkbox"/> Other: <u>Eng Block</u>				
C. section thickness: <u>N/A</u> Inch	Min. <u>N/A</u> inch	Surface condition: <input checked="" type="checkbox"/> Machined <input type="checkbox"/> Ground <input type="checkbox"/> As fabricated <input type="checkbox"/> Other:		
NDE Procedure no. <u>NDE 11.6</u>	Job no. <u>7396</u>		Report no. <u>840418</u>	
Test condition: Ver <u>N/A</u> Hor <u>N/A</u> Unit <u>B010.581</u> Sen <u>29</u> Freq <u>2 MHz</u> Full-on <u>N/A</u> Full-off <u>N/A</u> Reference no. <u>PA033154</u> Probe type <u>100 P1</u> <u>840227</u>		2.6 Unit at <u>1.4</u> Lo Unit at <u> </u> Lo Unit at <u> </u> Lo Unit at <u> </u> Lo		
Indication no.	Magnitude of indication	Length of indication	Remarks	
<u>#1 4/45</u>	<u>200-750%</u>	<u>1 3/4</u>	<u>between stud 3-scy and 6-scy</u>	
Specific examination area				
Sketch or other data (use other side)				
Acceptance criteria <u>NDE 11.6</u>	Operator: <u>D. Johnson</u> Level: <u>IL</u> Date: <u>4-18-84</u>		Job ending & no. Plaster Area <u>DC103</u>	
Attest <u>D. Johnson</u>	Responsible certified personnel <u>IL</u> Level: <u>IL</u> Date: <u>4-18-84</u>			

Q-465
5/32



IS IT $2\frac{1}{2}$ " HERE?
P18/32

EDDY CURRENT CALIBRATION REPORT

Q-465
6/32

AN
ASSK

Job No. 7376 Date 11-18-84 Report No. 840418
Material Description GREY IRON Engine Block #4Cyl Stud #6
Code or Specification NDE 11.6 Full On NA Full Off NA
Reference Standard PAO 3215A Instrument M12 17 S/N 5010851
K100227

Instrument

Freq. 2 MHz Gain 1B Volts/div 5 Phase 198
Test Probe FAH ECP 1007 S/N 10072
Reference Probe FAH ECP 1008 S/N 10081

CALIBRATION

2.6 units @ -9 L/O
units @ L/O
units @ L/O

STRIP CHART RECORDER

pe NA S/N NA
Channel 1 Channel 2
Sen NA Sen NA
Position @ Null Point NA Position @ Null Point NA
Chart Speed NA mm/sec

Calibration Check

Time	Phase	Gain
<u>10:11</u>	<u>198</u>	<u>1B</u>
<u>10:20</u>	<u>198</u>	<u>1B</u>
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain

EDDY CURRENT CALIBRATION REPORT 106103

Q-465
11/32

ASSC

Job No. 7376 Date 4-18-84 Report No. 840418
Material Description GRY IRON Engine Block Cyl #5 Stud #3
Code or Specification NDI 11.6 Full On NA Full Off NA
Reference Standard PA03315A Instrument M12 17 S/N 5010881
840227

Instrument

Freq. 2 MHz Gain 29 Volts/div .5 Phase 218
Test Probe FHA ECP 100B S/N 100B1
Reference Probe FHA ECP 100B S/N 100B-1

CALIBRATION

3 units @ -5 L/O 2 units @ +1.4 L/O
3.6 units @ 0 L/O 1.6 units @ +2 L/O

STRIP CHART RECORDER

104 S/N NA
Channel 1: Sen NA Position @ Null Point NA
Chart Speed NA mm/sec
Channel 2: Sen NA Position @ Null Point NA

Calibration Check

Time	Phase	Gain
<u>10:20</u>	<u>218</u>	<u>29</u>
<u>10:30</u>	<u>218</u>	<u>29</u>
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain

8

Material SKY IRON Engine Block		Type: Engine Block	Fabricated process: <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Cast <input type="checkbox"/> Worked	ET Component I.D.
Geometry: <input type="checkbox"/> Pipe <input type="checkbox"/> Plate <input type="checkbox"/> Rod <input checked="" type="checkbox"/> Other: Eng. Block				
Cross section thickness:	Max. 6.5 inch	Min. N/A inch	Surface condition: <input checked="" type="checkbox"/> Machined <input type="checkbox"/> Ground <input type="checkbox"/> As fabricated <input type="checkbox"/> Other:	
NDE Procedure no. NDE 11.6		Job no. 2396		Report no. 840418
Test condition: Vol 6A Hot N/A		Unit at 2.6 Lo		
Unit 1010581 Sen 1B Freq 2MHz		Unit at _____ Lo		
Full-on 6A Full-off N/A		Unit at _____ Lo		
Reference no. Pro315A Probe type 100T-2 840227		Unit at _____ Lo		
Indication no.	Magnitude of indication	Length of indication	Remarks	
			#6 Stud hole Threads Clean	
Specific examination area				
INSPECT Threads in Stud holes				
Sketch or other data (use other side)				
Acceptance criteria	NDE 11.6		Operator: D. Johnson Level: II Date: 4-18-84	
Attest	D. Johnson Responsible certified personnel		Level: II Date: 4-18-84	

Job name & no.

Plant/location

DG 103

Ass

Material <u>Grey Iron Engine Block</u>		Type: <u>Engine Block</u>	Fabricated process: <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Cast <input type="checkbox"/> Worked
Cross section thickness:		Max. <u>NA</u> Inch	Min. <u>NA</u> Inch
Surface condition:		<input checked="" type="checkbox"/> Machined <input type="checkbox"/> As fabricated	<input type="checkbox"/> Ground <input type="checkbox"/> Other:
Geometry: <input type="checkbox"/> Pipe <input type="checkbox"/> Plate <input type="checkbox"/> Rod <input checked="" type="checkbox"/> Other: <u>Eng Block</u>			

NDE Procedure no. <u>NDE 11.6</u>	Job no. <u>7396</u>	Report no. <u>840418</u>
Test condition: Ver <u>NA</u> Hor <u>NA</u>		<u>2.6</u> Unit at <u>2.6</u> Lo
Unit <u>BO10881</u> Sen <u>113</u> Freq <u>2 MHz</u>		Unit at Lo
Full-on <u>NA</u> Full-off <u>NA</u>		Unit at Lo
Reference no. <u>PH03315H</u> Probe type <u>100T-2</u> <u>840307</u>		Unit at Lo

Indication no.	Magnitude of indication	Length of indication	Remarks
#1	200-50%	3 7/8	stud #3 cyl #5 crack extends down on outside stud hole

Specific examination area

INSPECT STUD HOLE

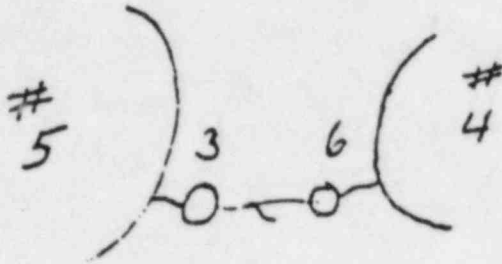
Sketch or other data (use other side)

Acceptance criteria	<u>NDE 11.6</u>	Operator: <u>D. Johnson</u>
Attest	<u>Don Johnson</u> Responsible certified personnel	Level: <u>II</u> Date: <u>4-17-84</u>

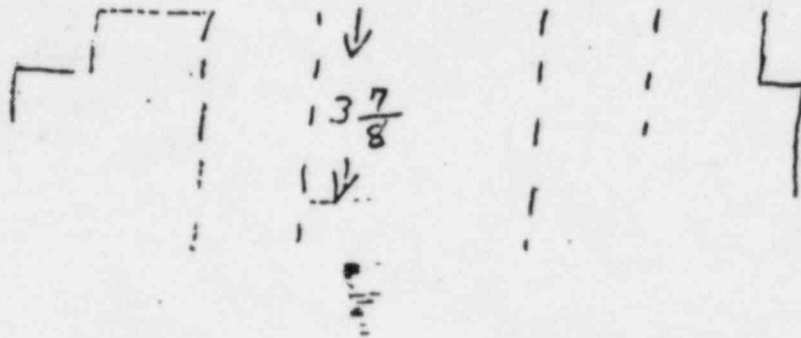
CYL #5
HOLE #3 & 6

5A
Q-465
10/32

EXHAUST



CRACK IN
STUD HOLE #3
~~2 3/8~~ 3 7/8



106103

Material <u>GREY IRON Engine Block</u>		Type: <u>Engine Block</u>	Fabricated process: <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Cast <input type="checkbox"/> Worked
Cross section thickness:		Max. <u>NA</u> Inch	Min. <u>NA</u> Inch
Surface condition:		<input checked="" type="checkbox"/> Machined <input type="checkbox"/> Ground <input type="checkbox"/> As fabricated <input type="checkbox"/> Other:	
Geometry: <input type="checkbox"/> Pipe <input type="checkbox"/> Plate <input type="checkbox"/> Rod <input checked="" type="checkbox"/> Other: <u>Eng Block</u>			

NDE Procedure
no. NDE 11.6

Job no. 2396

Report no. 8404

Test condition: Vol 1. A Hor NA
Unit B010881 Sen 29 Freq 200kHz
Full-on NA Full-off NA
Reference no. PA03315A Probe type 100 G1
840227

3 Unit at -8 Lo
2.6 Unit at 0 Lo
2 Unit at +1.4 Lo
1.6 Unit at +2 Lo

Indication no.	Magnitude of indication	Length of indication	Remarks
<u>1</u>	<u>150-250%</u>	<u>1 1/8" Deep</u>	<u>outside stud #3 cyl #5</u>

Specific examination area

INSPECT SMOOTH SIDE OF STUD HOLE

Sketch or other data (use other side)

Acceptance criteria

NDE 11.6

Operator: D. Jones
Level: II Date: 4-18-84

Attest

Responsible certified personnel

Level

Date

4-18-84

EDDY CURRENT CALIBRATION REPORT

106103

Q-465

13/32

Job No. 7396

Date 4-18-84

Report No. 840418

Material Description GEE 4 Iron Engine Block 2414 Stud #6

Code or Specification NDE 11.6 Full On ON Full Off

Reference Standard PAO 3315A Instrument 1112 17 S/N 8010
840227

Instrument

Freq. 2011.42 Gain 29 Volts/div 5 Phase 218

Test Probe F.A.A. 25N 100B S/N 100B-1

Reference Probe F.A.A. 25N 100B S/N 100B-1

CALIBRATION

3 units @ .8 L/O
2.6 units @ 0 L/O

2 units @ 1.4 L/O
1.6 units @ 1.2 L/O

STRIP CHART RECORDER

NK

S/N

NK

Channel 1

Channel 2

Sen NK

Sen NK

Position @ Null Point NK

Position @ Null Point NK

Chart Speed NK mm/sec

Calibration Check

Time 10:35
Time 10:45
Time
Time
Time
Time
Time
Time
Time
Time
Time

Phase 218
Phase 218
Phase
Phase
Phase
Phase
Phase
Phase
Phase
Phase
Phase

Gain 29
Gain 29
Gain
Gain
Gain
Gain
Gain
Gain
Gain
Gain
Gain

14

(9)

[illegible]

Material GREY IRON Engine Block		Type: Engine Block	Fabricated process: <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Cast <input type="checkbox"/> Worked	ET
Cross section thickness:		Max. NA Inch	Min. NA Inch	Geometry: <input type="checkbox"/> Pipe <input type="checkbox"/> Plate <input type="checkbox"/> Rod <input checked="" type="checkbox"/> Other: Eng Block
		Surface condition: <input checked="" type="checkbox"/> Machined <input type="checkbox"/> Ground <input type="checkbox"/> As fabricated <input type="checkbox"/> Other:		
NDE Procedure no. NDE 11.6		Job no. 2396		Report no. 840418
Test condition: Ver NA Hor NA		Unit at 3 -8 Lo		
Unit # B010821 Sen 27 Freq 244Hz		Unit at 2.6 0 Lo		
Full-on NA Full-off NA		Unit at 2 +1.4 Lo		
Reference no PA03315A Probe type 100 B1 840227		Unit at 1.6 +2 Lo		

Indication no.	Magnitude of indication	Length of indication	Remarks	Job name & no.
1	100 - 75%	9/16	outside stud #6 cyl #4	5

Specific examination area

INSPECT smooth area inside stud hole

Sketch or other data (use other side)

acceptance criteria NDE 11.6	Operator: D Johnson Level: II Date: 4-18-84
Attest Don F. Swa	Responsible certified personnel II Date: 4-18-84

Component I.D.

Job name & no.

Plant/location
D6113

EDDY CURRENT CALIBRATION REPORT

Q-465
17/32

Am
ASSC

D No. 7396 Date 4-15-84 Report No. 840418
Material Description GREY IRON Engine Block Inside Cyl #5 By stud #2+3
Code or Specification NDE II C Full On 102 Full Off 111
Reference Standard PAO 33154 Instrument M12 17 S/N 15010881
840227

Instrument
Freq. 2 MHz Gain 29 Volts/div .5 Phase 218
Test Probe EAA ECP 100B S/N 10015-1
Reference Probe EAA ECP 100P S/N 100P1

CALIBRATION

<u>3</u> units @ <u>-8</u> L/O	<u>2</u> units @ <u>+1.4</u> L/O
<u>2.6</u> units @ <u>0</u> L/O	<u>1.5</u> units @ <u>+2</u> L/O

STRIP CHART RECORDER

Type WA S/N NA
Channel 1
Sen NA Channel 2
Position @ Null Point NA Sen 104
Chart Speed NA Position @ Null Point 104
mm/sec

Calibration Check

Time <u>11:05</u>	Phase <u>218</u>	Gain <u>29</u>
Time <u>11:20</u>	Phase <u>218</u>	Gain <u>29</u>
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____

Serial <u>IRBY Iron Engine</u> <u>Block</u>		Type: <u>Engine Block</u>	Fabricated process: <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Cast <input type="checkbox"/> Worked
Cross section thickness:		Max. <u>NA</u> inch	Min. <u>NA</u> inch
Geometry: <input type="checkbox"/> Pipe <input type="checkbox"/> Plate <input type="checkbox"/> Rod <input checked="" type="checkbox"/> Other: <u>Eng Block</u>		Surface condition: <input checked="" type="checkbox"/> Machined <input type="checkbox"/> Ground <input type="checkbox"/> As fabricated <input type="checkbox"/> Other:	

NDE Procedure no. <u>NDE II C</u>	Job no. <u>7396</u>	Report no. <u>840418</u>
Test condition: Ver <u>WA</u> Hor <u>NA</u>	<u>3</u> Unit at <u>-8</u> Lo <u>2.6</u> Unit at <u>0</u> Lo <u>2</u> Unit at <u>+1.4</u> Lo <u>1.6</u> Unit at <u>+2</u> Lo	
Unit <u>15010881</u> Sen <u>29</u> Freq <u>241Hz</u>		
Full-on <u>NA</u> Full-off <u>NA</u>		
Reference no. <u>PA633/5A</u> Probe type <u>100.37</u> <u>840227</u>		

Indication no.	Magnitude of indication	Length of indication	Remarks
<u>2</u>	<u>150-50%</u>	<u>2 1/2</u>	<u>extends from surface part landing to rough cast surface</u> <u>extends from surface part landing to rough cast surface</u> <u>WHERE IS THIS?</u>
<u>3</u>	<u>150-50%</u>	<u>2 1/2</u>	

Specific examination area

INSPECT INSIDE LINER area of Block

Sketch or other data (use other side)

Acceptance criteria	<u>NDE II C</u>	Operator: <u>D. Johnson</u>
Attest	<u>[Signature]</u> Responsible certified personnel	Level: <u>II</u> Date: <u>4-18-84</u>
		Level: <u> </u> Date: <u> </u>

Job name & no.

Plant/location
DG 103

EDDY CURRENT CALIBRATION REPORT

Q-465
19/32

AN
ASSC

Job No. 7396 Date 4-18-84 Report No. 840418
Material Description Grey Iron Engine Block cyl #4 Pistols 5+607
Code or Specification NDE 116 Full On NA Full Off NA
Reference Standard PAO 3315A Instrument M12 17 S/N 801088
840227

Instrument
Freq. 2 MHz Gain 29 Volts/div .5 Phase 218
Test Probe F&H SCP100B S/N 100B1
Reference Probe F&H SCP100P S/N 100P1

CALIBRATION

<u>3</u> units @ <u>-.8</u> L/O	<u>2</u> units @ <u>+1.4</u> L/O
<u>2.6</u> units @ <u>0</u> L/O	<u>1.6</u> units @ <u>+2</u> L/O

STRIP CHART RECORDER

Sen <u>PA</u>	S/N <u>NA</u>
Channel 1	Channel 2
Position @ Null Point <u>NA</u>	Position @ Null Point <u>NA</u>
Chart Speed <u>NA</u> mm/sec	

Calibration Check

Time <u>11:05</u>	Phase <u>218</u>	Gain <u>29</u>
Time <u>11:20</u>	Phase <u>218</u>	Gain <u>29</u>
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____
Time _____	Phase _____	Gain _____

(20)

ГДА-М-04-

EDDY CURRENT EXAMINATION REPORT

Future
Analysis
Associates

Item inspected:

GREY IRON Engine Block

Cyl #8

Q-465
22/32

Material:

Engine Block

☐ Welded
☐ Worked

☒ Cast

Surface

condition:

☒ Machined

☐ As fabricated

☐ Ground

NDE Procedure
no. NDE 11.6

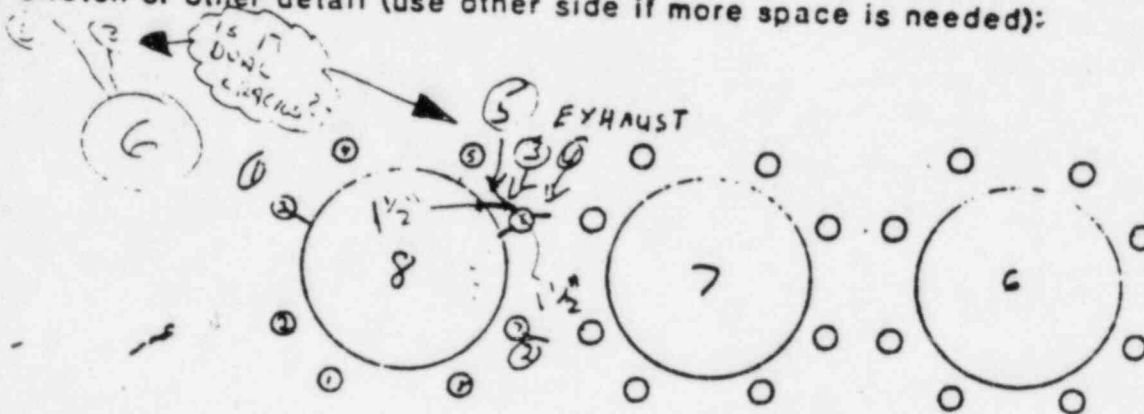
Job no. 7376

Report no. 8/10/19

Recording criteria:

NDE 11.6

Sketch or other detail (use other side if more space is needed):



Specific examination area

WHAT
TELLING IN
INCHES?

Indication no.	Magnitude of indication	Length of indication	Location	Remarks
1) 3#8	3/4"	200%	(1)	To Threads
2) 7#8	3/4"	200%	(2)	To Threads
6#8	3/4" - 1 1/2"	250%	(3)	To Threads + To Liner
6#8	3/4"	300%	(4)	To Thread + 1" out
6#8	?	100%	(5)	1/4" LONG ON TOP

Examiner W. J. [Signature]

Level II

Date 4-19-84

Examiner

Level

Date

EDDY CURRENT EXAMINATION REPORT

Analysis
Associates

Item Inspected:

GREY IRON Engine Block cyl 8

Q-465
23/32

Material:

Engine Block

☐ Welded
☐ Worked

☒ Cast

Surface
condition:

☒ Machined
☐ As fabricated

☐ Ground

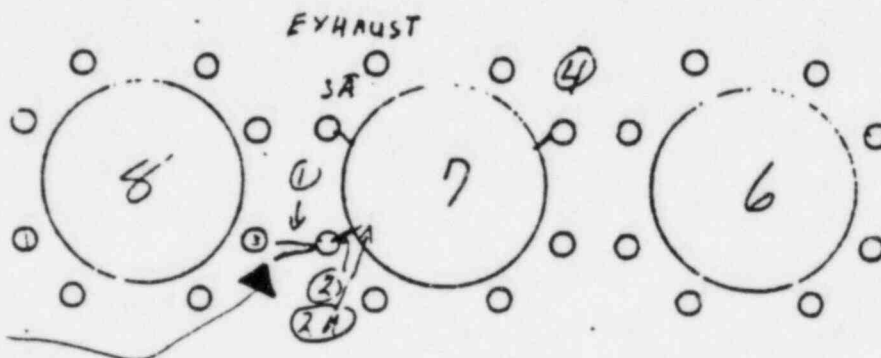
NDE Procedure
no. NDE 116

Job no. 7316

Report no. 840419

Recording criteria:

Sketch or other detail (use other side if more space is needed):



Specific examination area

Indication no.	Magnitude of indication	Length of indication	Location	Remarks
①	150%	3/4"		Stud 7 to Threads
2	100%	3/4"		To Threads 1/4" INTO Stud hole & 1/2 on surface
2A	100%	2 1/2"		To Ruff Cast just inside 1/4" from
3A	150%	2 1/2" ±		from Surface To Below landing.
4	100%	1 1/2" ±		To landing + To Tip of Threads

Examiner [Signature]

Level II

Date 4-19-84

Examiner _____

Level _____

Date _____

11.1.11

EDDY CURRENT EXAMINATION REPORT

Analysis
Associates

Item Inspected:

GREY IRON Engine Block Cyl 6

Q-465
24/32

Material: Engine Block	<input type="checkbox"/> Welded <input type="checkbox"/> Worked	<input checked="" type="checkbox"/> Cast	Surface condition: <input checked="" type="checkbox"/> Machined <input type="checkbox"/> As fabricated	<input type="checkbox"/> Ground <input type="checkbox"/>
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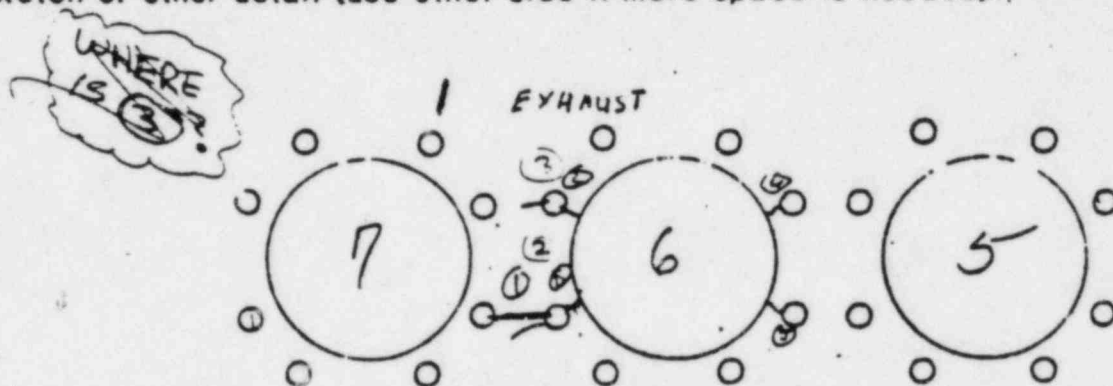
NDE Procedure
no. NDE 11.6

Job no. 7376

Report no. 840419

Recording criteria: NDE 11.6

Sketch or other detail (use other side if more space is needed):



Specific examination area

Indication no.	Magnitude of Indication	Length of Indication	Location	Remarks
1	150%	1 1/2		DEPTH UNKNOWN
2	1000%	1 1/2		To Landing
3	100%	1 1/2		To Landing
4	100	1 1/2		To Landing
5	100	3/4		To threads
6	100	3/4		To threads

Examiner [Signature]

Level II

Date 4-19-84

Examiner _____

Level _____

Date _____

EDDY CURRENT EXAMINATION REPORT

Failure
Analysis
Associates

Item inspected:

GREY IRON Engine Block

cyl #3

Q-465
25/32

Material:

Engine Block

☐ Welded
☐ Worked☒ Cast

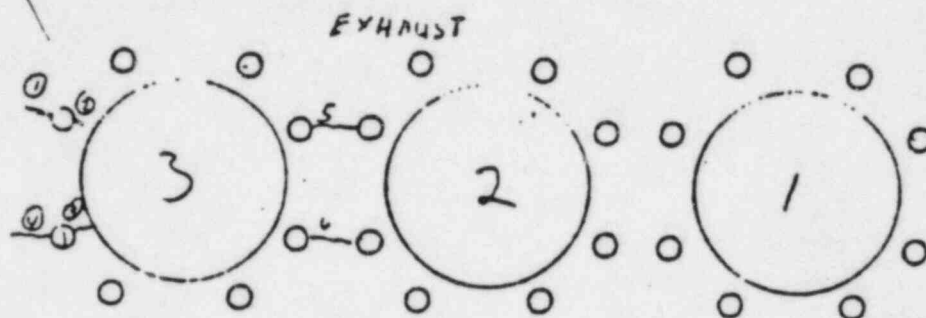
Surface condition:

☒ Machined
☐ As fabricated☐ GroundNDE Procedure
no. NDE H 6Job no. 7376Report no. 810419

Recording criteria:

NDE H 6

Sketch or other detail (use other side if more space is needed):



Specific examination area

Indication no.	Magnitude of Indication	Length of Indication	Location	Remarks
①	100%			Extends across to cyl 4 to stud 6
②	100%	1/4		To waste landing
③	100%	1		Towards landing
④	100%			Extends across to cyl 4 stud 7
⑤	100%			Extends across to cyl #2 " 3
⑥	100%			Extends across to cyl #2 " 2

Examiner B. M. J. J.Level IIDate 4-19-84

Examiner _____

Level _____

Date _____

(25)

EDDY CURRENT EXAMINATION REPORT

Analysis Associates

Item inspected:

GREY IRON Engine Block

Cyl #2

Q-465
26/32

Material:

Engine Block

☐ Welded
☐ Worked

☒ Cast

Surface condition:

☒ Machined
☐ As fabricated

☐ Ground

NDE Procedure no. NDE H.6

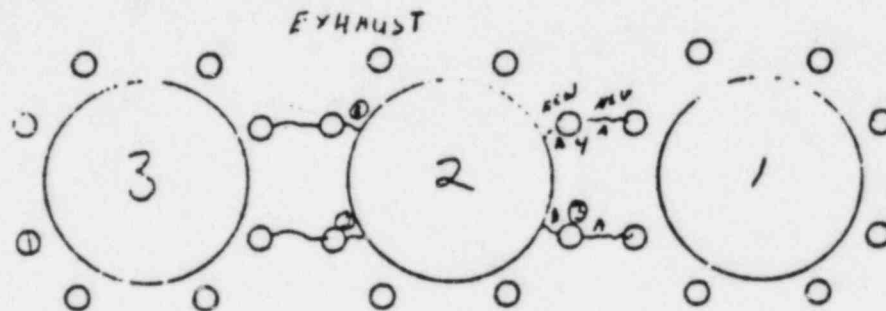
Job no. 7396

Report no. 810419

Recording criteria:

NDE H.6

Sketch or other detail (use other side if more space is needed):



Specific examination area

Indication no.	Magnitude of Indication	Length of Indication	Location	Remarks
①	100%	1 1/2"	①	Extends to landing
②	100%	3/4"	②	" " threads
③	100%	1 1/2"	③	" " landing
④	100%	1 1/4"	④	towards threads
3A	100%		3A	Extends across cyl #1 stud
3B	100%	3/4"	3B	Extends to threads
4A	100%		4A	Extends across to cyl #1 stud
4B	100%	3/4"	4B	Extends to threads
4C	100%	1 1/2"	4C	Extends to landing

Examiner [Signature]

Level II

Date 4-19-74

Examiner _____

Level _____

Date _____

EDDY CURRENT EXAMINATION REPORT

Analysis Associate

Item Inspected:

GREY IRON Engine Block cyl #1

Q-465
27/32

Material:

Engine Block

☐ Welded
☐ Worked

☒ Cast

Surface condition:

☒ Machined
☐ As fabricated

☐ Ground
☐

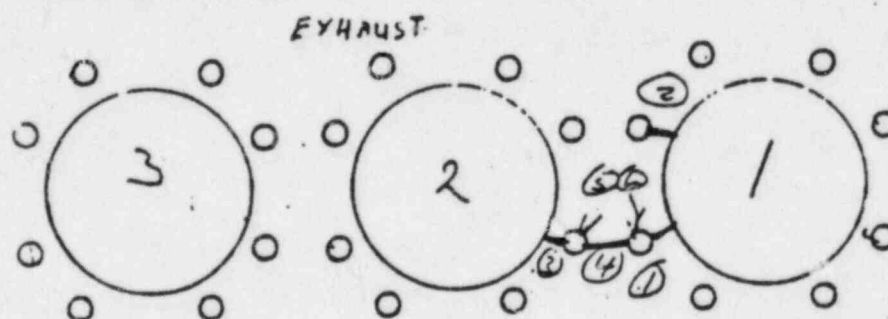
NDE Procedure
no. NDE 11.6

Job no. 7376

Report no. 840419

Recording criteria: NDE 11.6

Sketch or other detail (use other side if more space is needed):



Specific examination area

Indication no.	Magnitude of Indication	Length of indication	Location	Remarks
(1)	100%	1 1/2"	(1)	To Landing, To Thread
2	100%	1 1/2"	2	" "
3	125%	1 1/2"	3	" "
4	200%	1 3/4"	(4)	from Stud hole to Stud title
5	100%	1 1/2"	5	To Thread
6	100%	1 1/2"	6	To Tip and.

Examiner

[Signature]

Level

TL

Date

4-19-84

Examiner

Level

Date

(27)

EDDY CURRENT CALIBRATION REPORT

Q-465 Analysis Associates

Job no. 7396 Date 4-17-84 Report no. 840419
 Material description GREY IRON Engine Block
 Code or specification NDE 11.6 Full on NA Full off NA
 Reference standard PA03315A Instrument PH12 17 S/N 840227
840227

Instrument

Freq. 2 MHz Gain 1 B Volts/div .5 Phase 207
 Test probe Fuji ECP 100 T S/N 100 T-2
 Cable length 6'
 Reference probe Fuji ECP 100 B S/N 100 B-1
 Cable length 6'

Calibration

3 units - 3.5 L/O
2.6 units - 1.8 L/O
1.6 units + 1.6 L/O
 units L/O

Strip Chart Recorder

Type NA S/N NA

Channel 1

Sen NA
 Position null point NA
 Chart speed NA mm/sec

Channel 2

Sen NA
 Position null point NA

Calibration Check

Time	Phase	Gain
<u>22:18</u>	<u>207</u>	<u>1 B</u>
<u>22:29</u>	<u>200</u>	<u>1 B</u>
<u>22:37</u>	<u>207</u>	<u>1 B</u>
<u>22:50</u>	<u>207</u>	<u>1 B</u>
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain
Time	Phase	Gain

Examiner

Don L. L...

Level II

Examiner

(28)

EDDY CURRENT EXAMINATION REPORT

Analysis
Associate

Item inspected:

GREY IRON Engine Block

Cyl #8 Studs 3,7

Q-465
29/32

Material:

Engine Block

☐ Welded

☐ Worked

☒ Cast

Surface

condition:

☒ Machined

☐ As fabricated

☐ Ground

☐

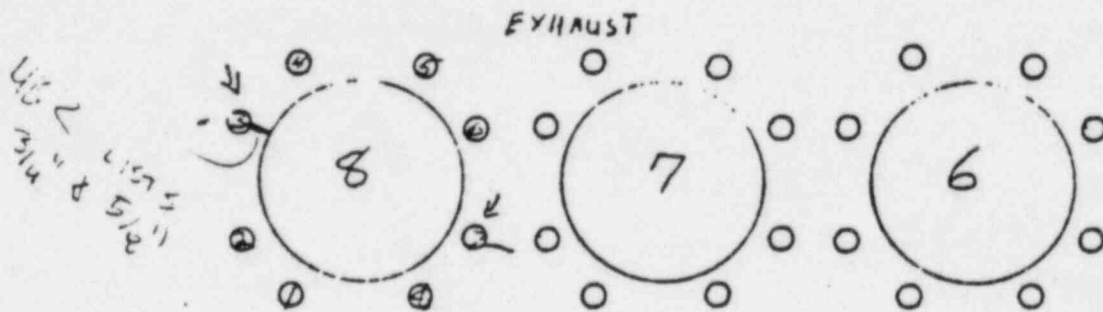
NDE Procedure
no. NDE 11.6

Job no. 7396

Report no. 840419

Recording criteria: NDE 11.6

Sketch or other detail (use other side if more space is needed):



Specific examination area

Indication no.	Magnitude of Indication	Length of Indication	Location	Remarks
3	0	0		NO indication in first thread
7	0	0		" "

Examiner W. J. Jones

Level II

Date 11-17-54

Examiner _____

Level _____

Date _____

EDDY CURRENT EXAMINATION REPORT

Failure
Analysis
Associates

Item Inspected:

GREY IRON Engine Block

Cyl #7 studs 2,3,6

Q-465
30/32

Material:

Engine Block

☐ Welded
☐ Worked

☒ Cast

Surface

condition:

☒ Machined

☐ As fabricated

☐ Ground
☐

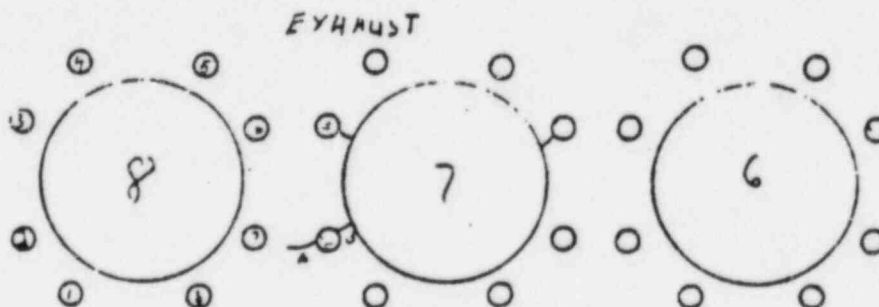
NDE Procedure
no. NDE 11.6

Job no. 7376

Report no. 810419

Recording criteria: NDE 11.6

Sketch or other detail (use other side if more space is needed):



Specific examination area

Indication no.	Magnitude of Indication	Length of Indication	Location	Remarks
2A	100%	1/2" x 1/4"	#2	outside towards cyl 8
2B	0	0	#2	NO INDICATION
3	0	0	#3	NO INDICATION

Examiner

H. L. Johnson

Level

II

Date

4-14-84

Examiner

Level

Date

EDDY CURRENT EXAMINATION REPORT

RESEARCH
Analysis
Associates

Item inspected:

GREY IRON Engine Block cyl/ H C studs 2,3,6,

Q-465
31/32

Material:

Engine Block

☐ Welded
☐ Worked

☒ Cast

Surface

condition:

☒ Machined

☐ As fabricated

☐ Ground

☐

NDE Procedure
no. NDE-11.6

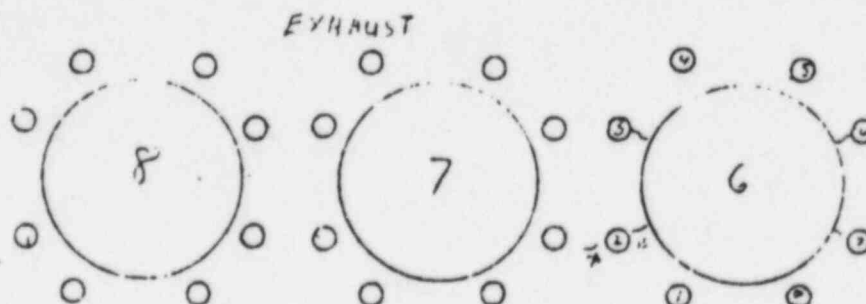
Job no. 7396

Report no. 840419

Recording criteria:

NDE 11.6

Sketch or other detail (use other side if more space is needed):



Specific examination area

Indication no.	Magnitude of indication	Length of indication	Location	Remarks
2A	0	0	20	NO INDICATION
2B	0	0	23	NO INDICATION
2C	0	0	2	NO INDICATION

Examiner Don Harrison

Level II

Date 4-17-84

Examiner _____

Level _____

Date _____

EDDY CURRENT EXAMINATION REPORT

Analysis Associates

Item Inspected:

GREY IRON Engine Block cyl #15 studs 3,6,

Q-465
32/32

Material:

Engine Block

☐ Welded
☐ Worked

☒ Cast

Surface

condition:

☒ Machined

☐ As fabricated

☐ Ground

NDE Procedure
no. NDE 11.6

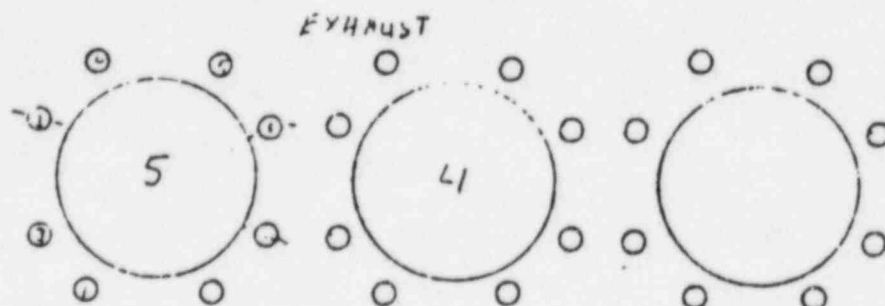
Job no. 7376

Report no. 840419

Recording criteria:

NDE 11.6

Sketch or other detail (use other side if more space is needed):



Specific examination area

Indication no.	Magnitude of Indication	Length of Indication	Location	Remarks
3	0	0	3	No Indication
6	0	0	6	No Indication
7	0	0	7	No Indication

Examiner [Signature]

Level II

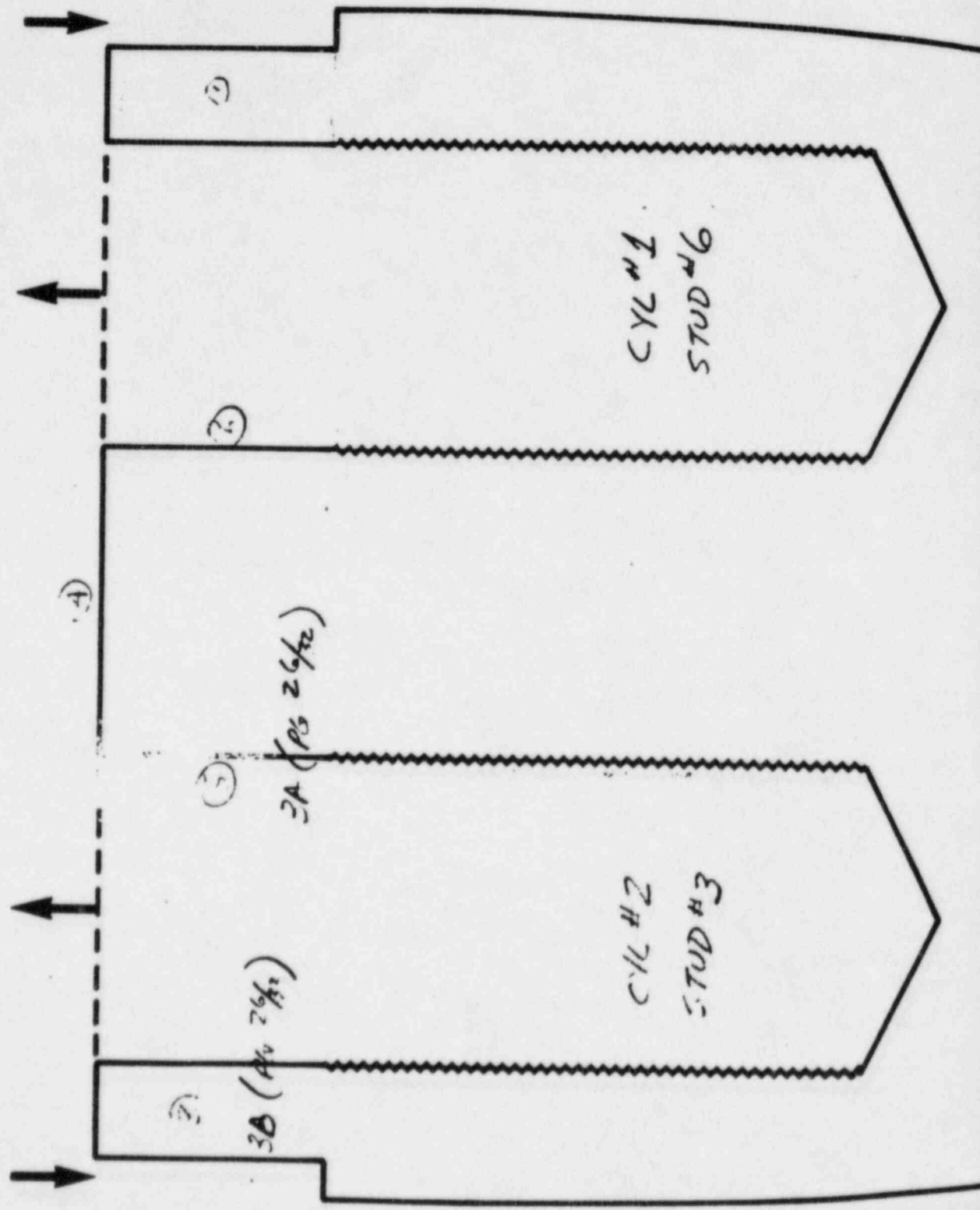
Date 11-17-84

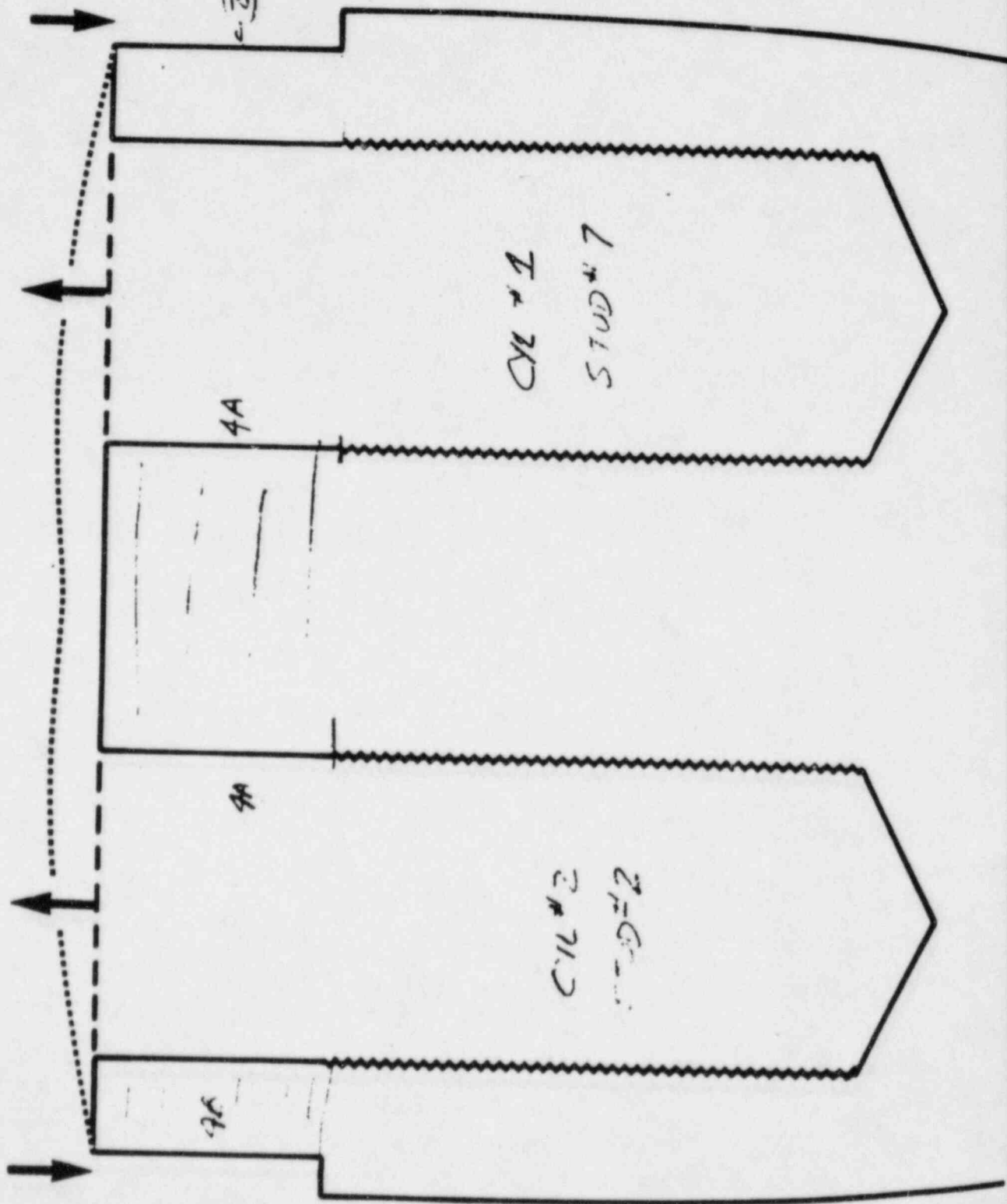
Examiner

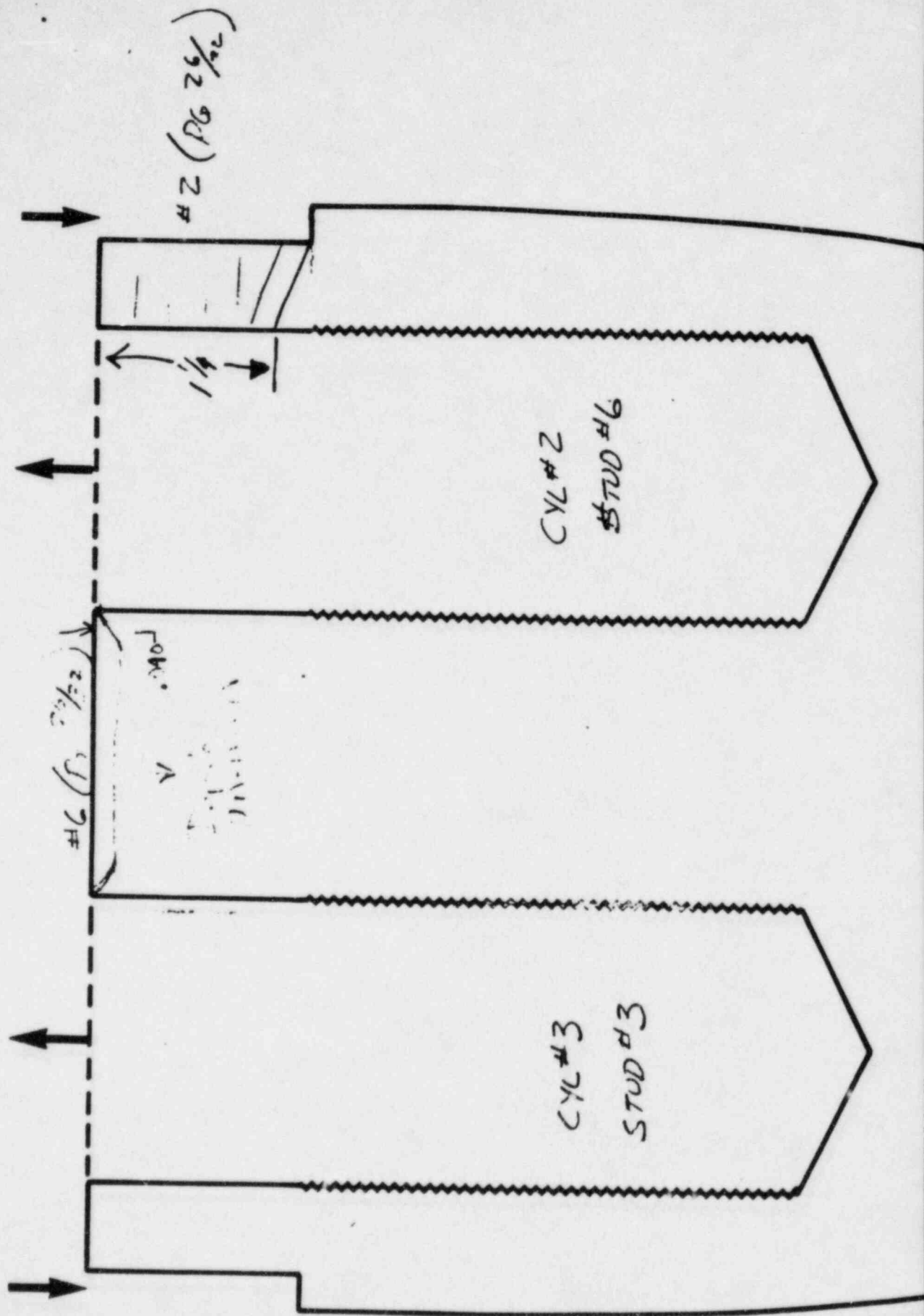
Level

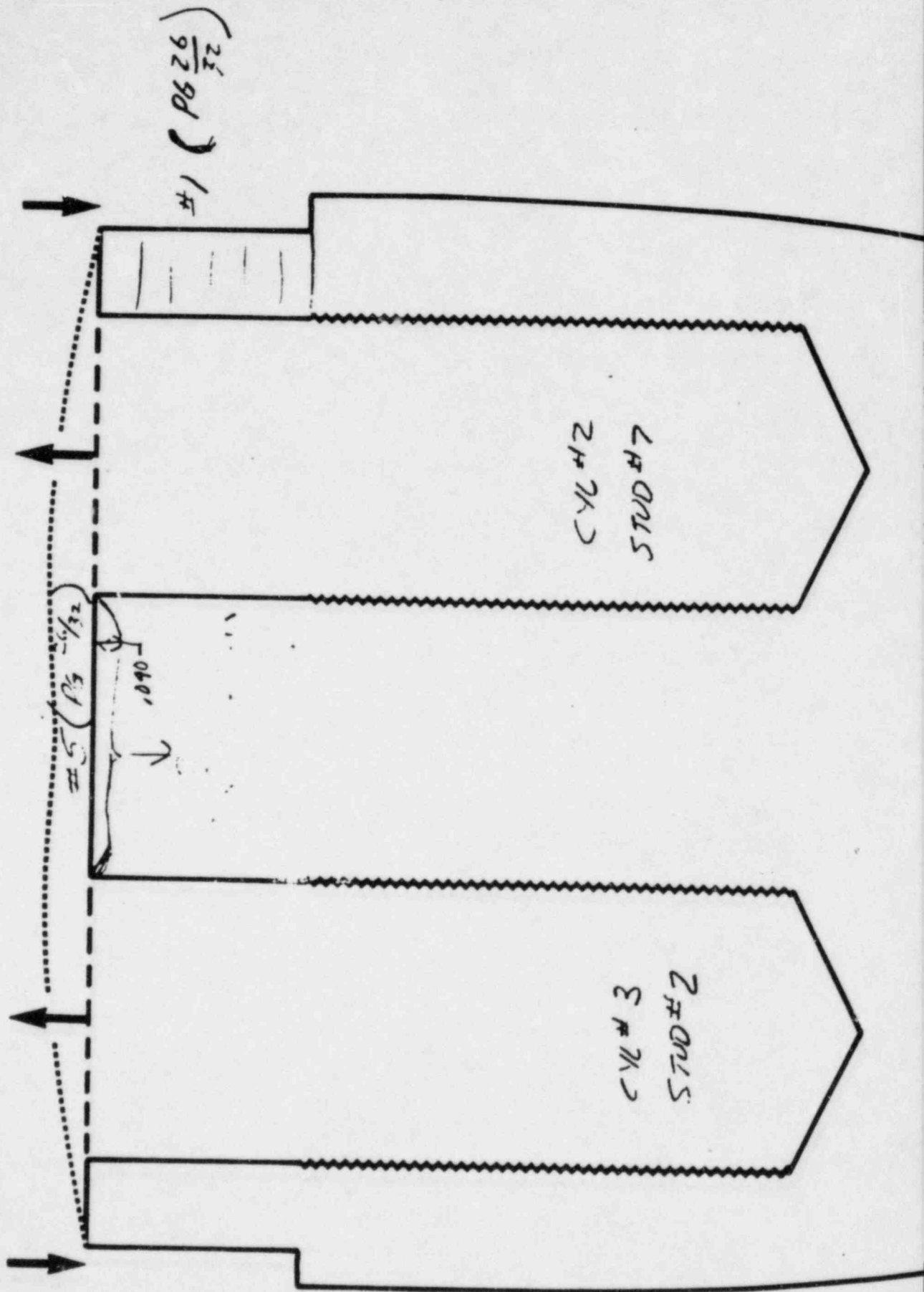
Date

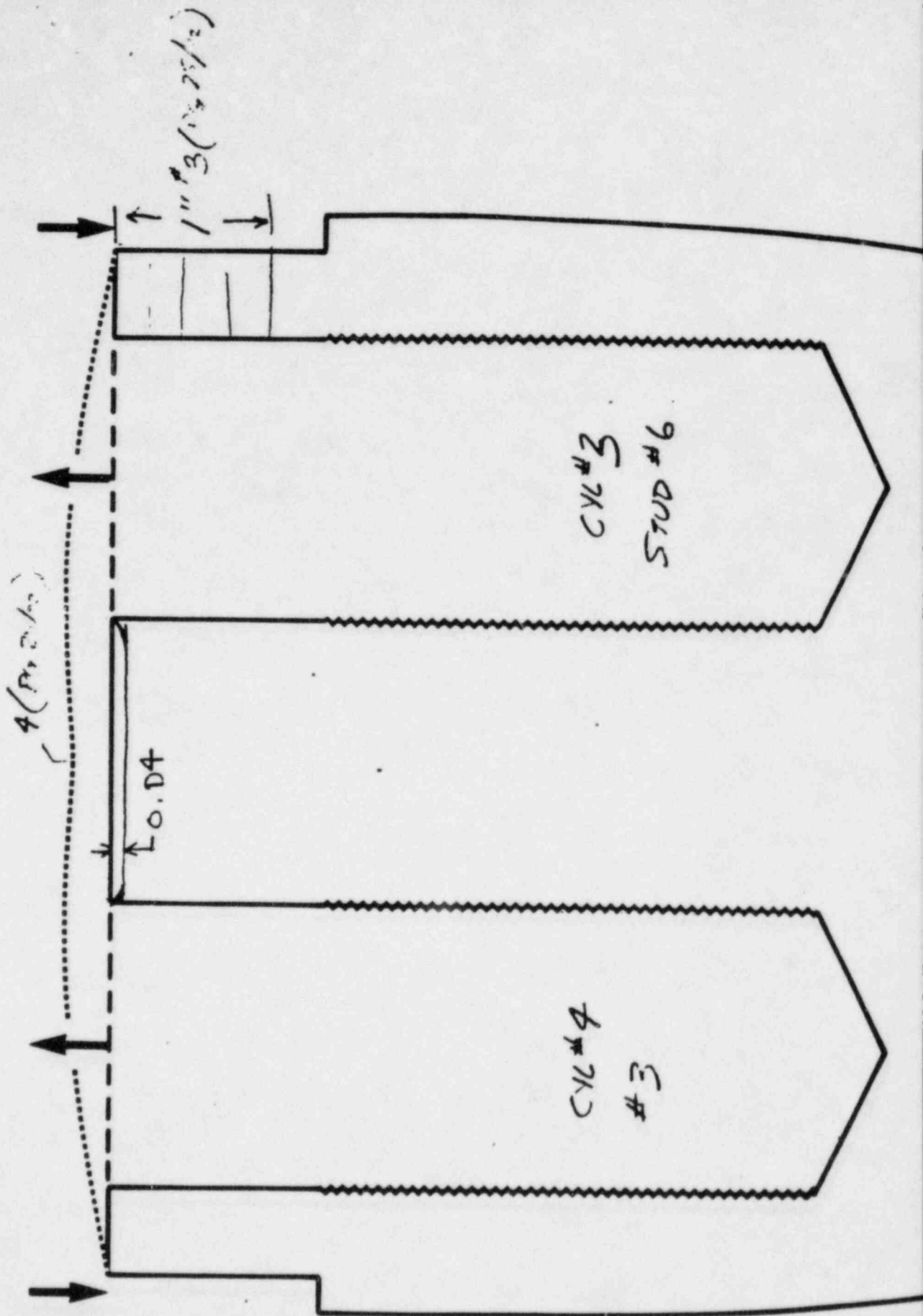
ALL PARTS
1706
27
32





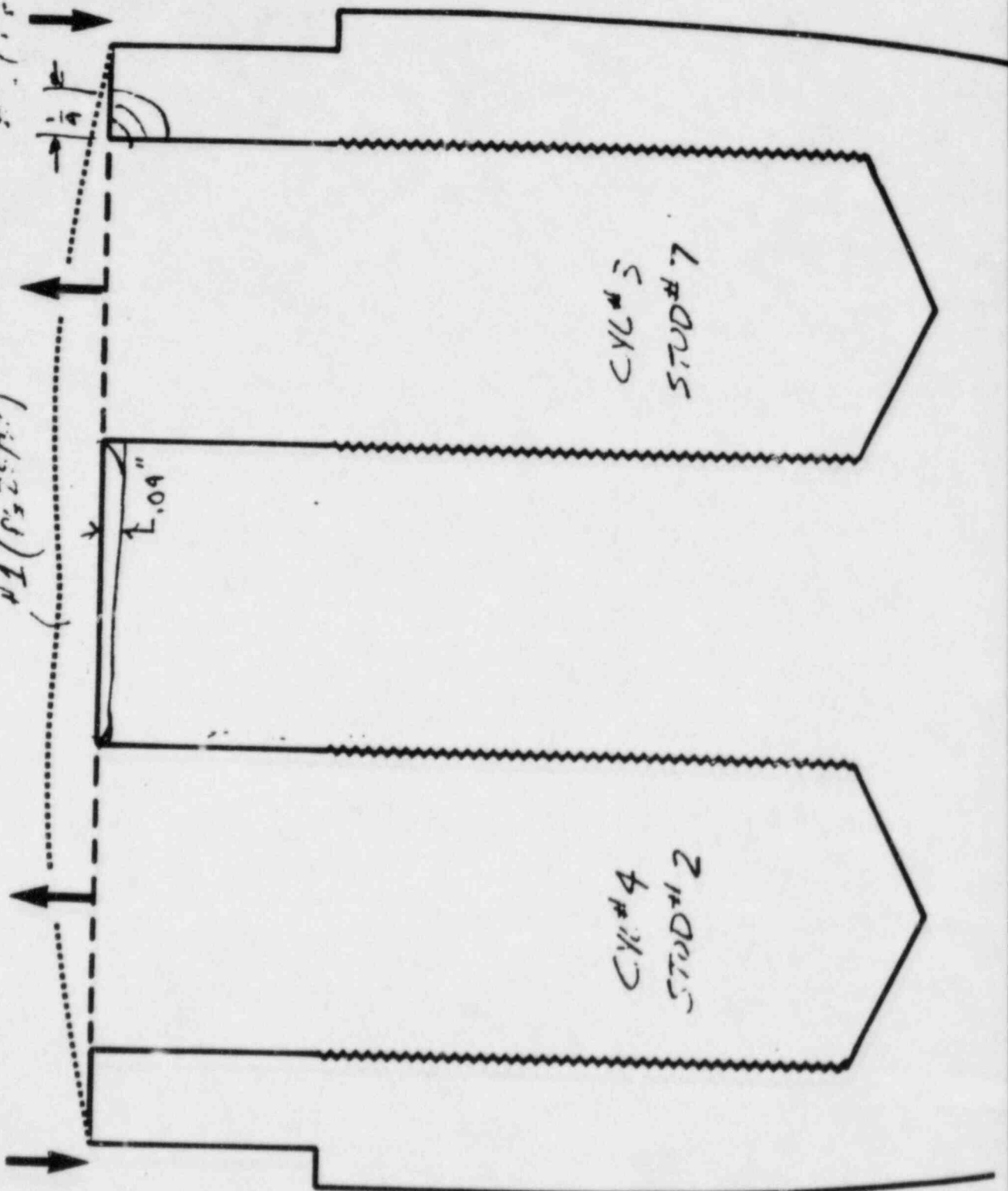


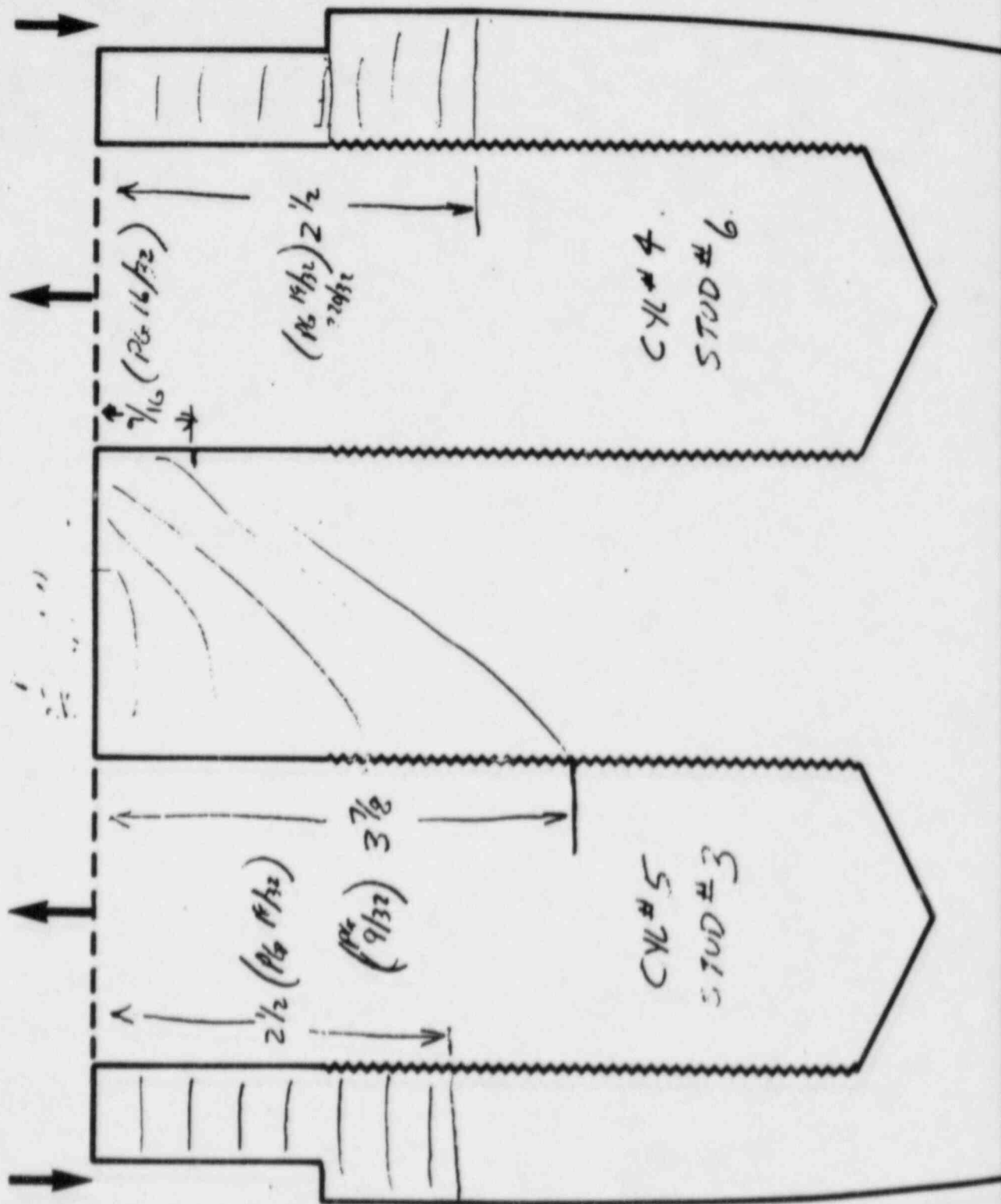




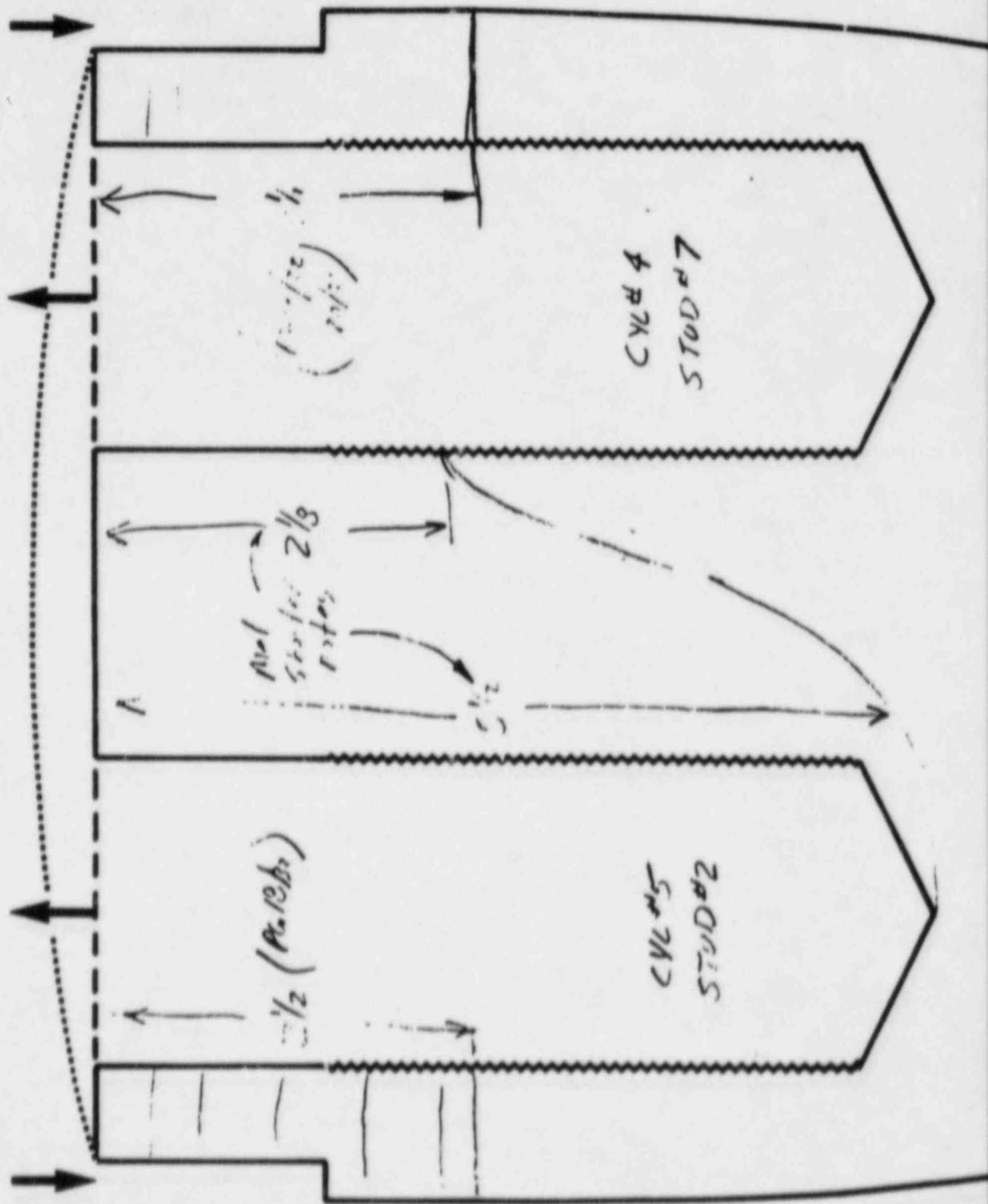
100 (0.0025)

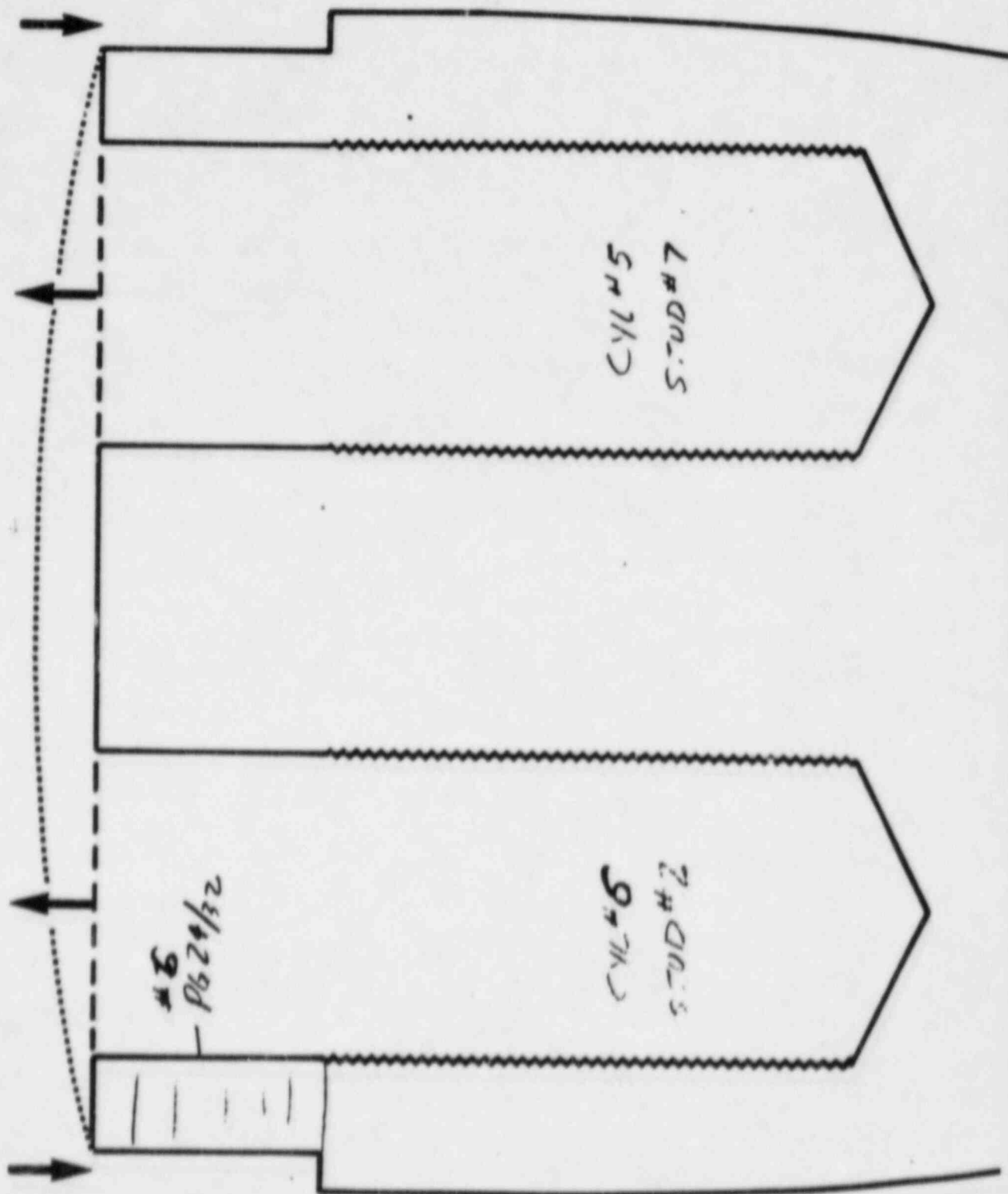
100 (0.0025) T₁

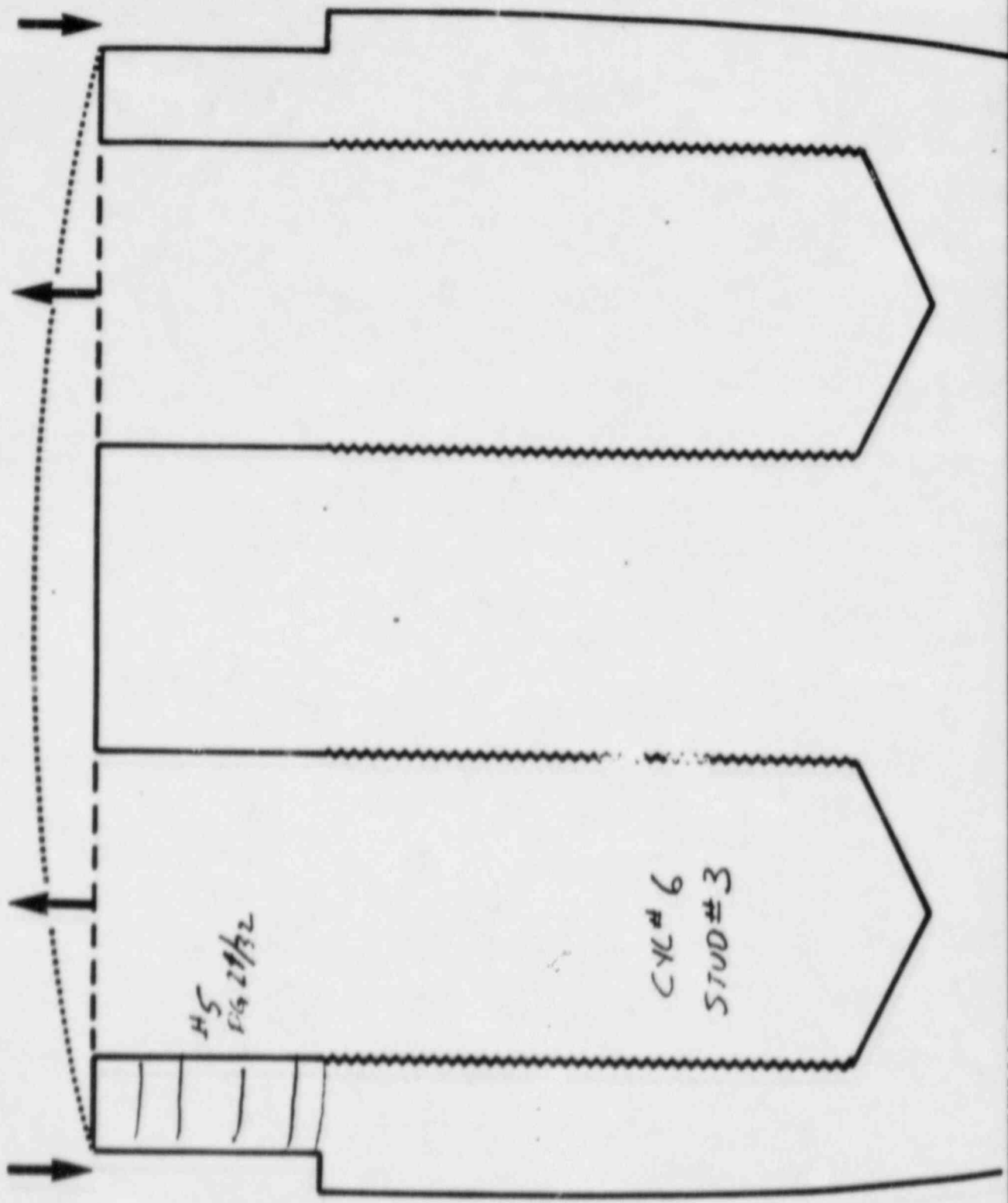




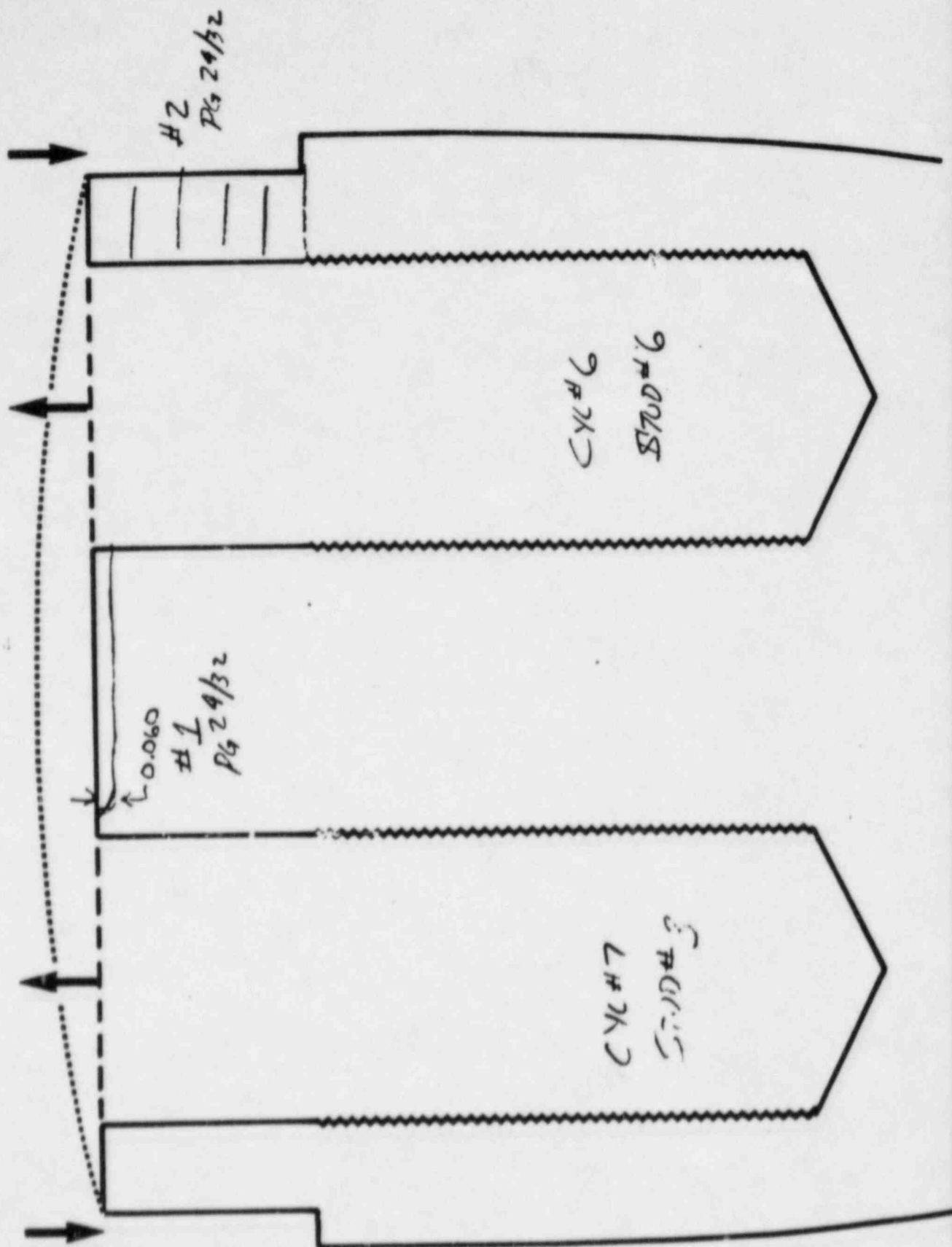
6

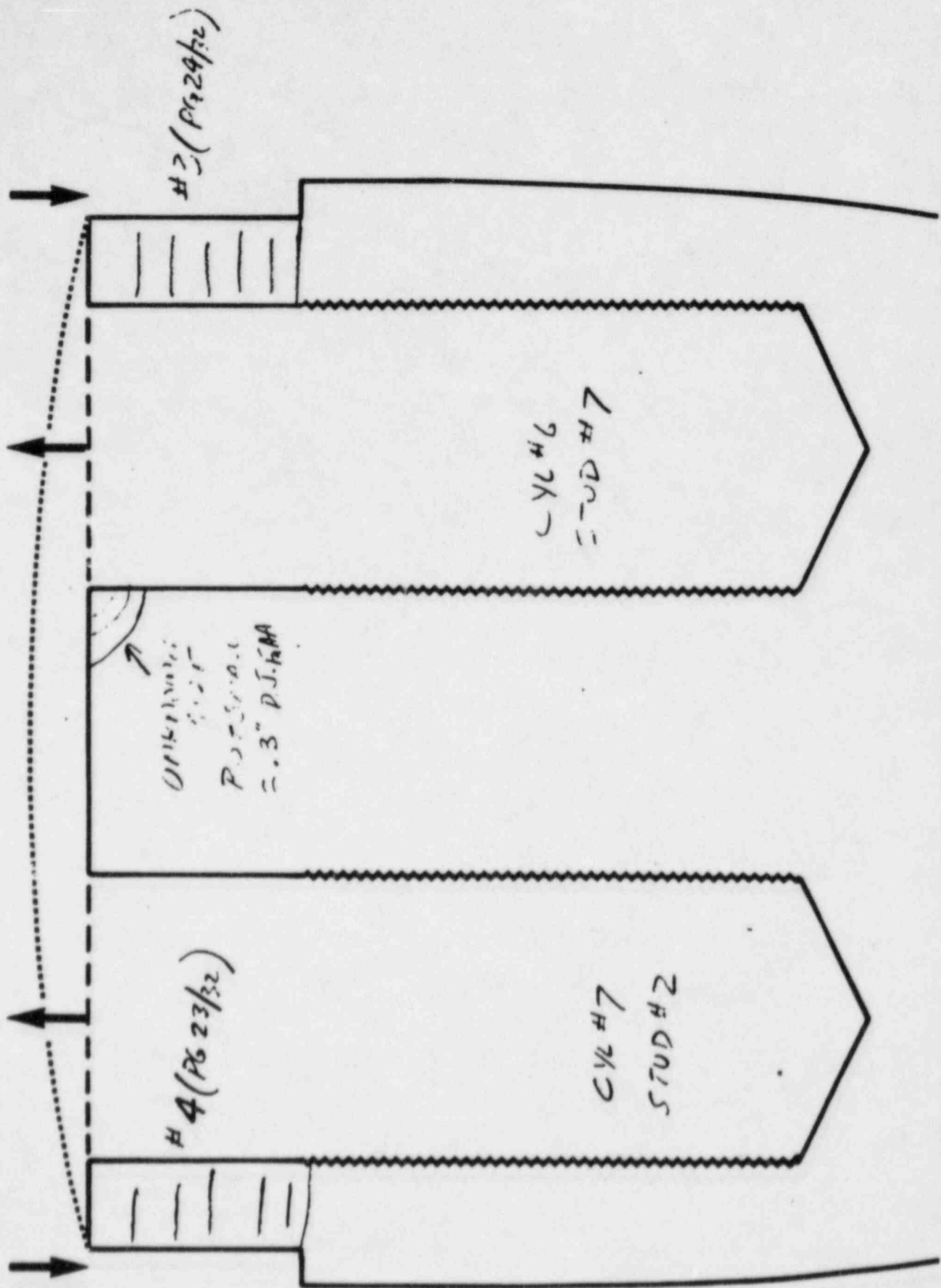




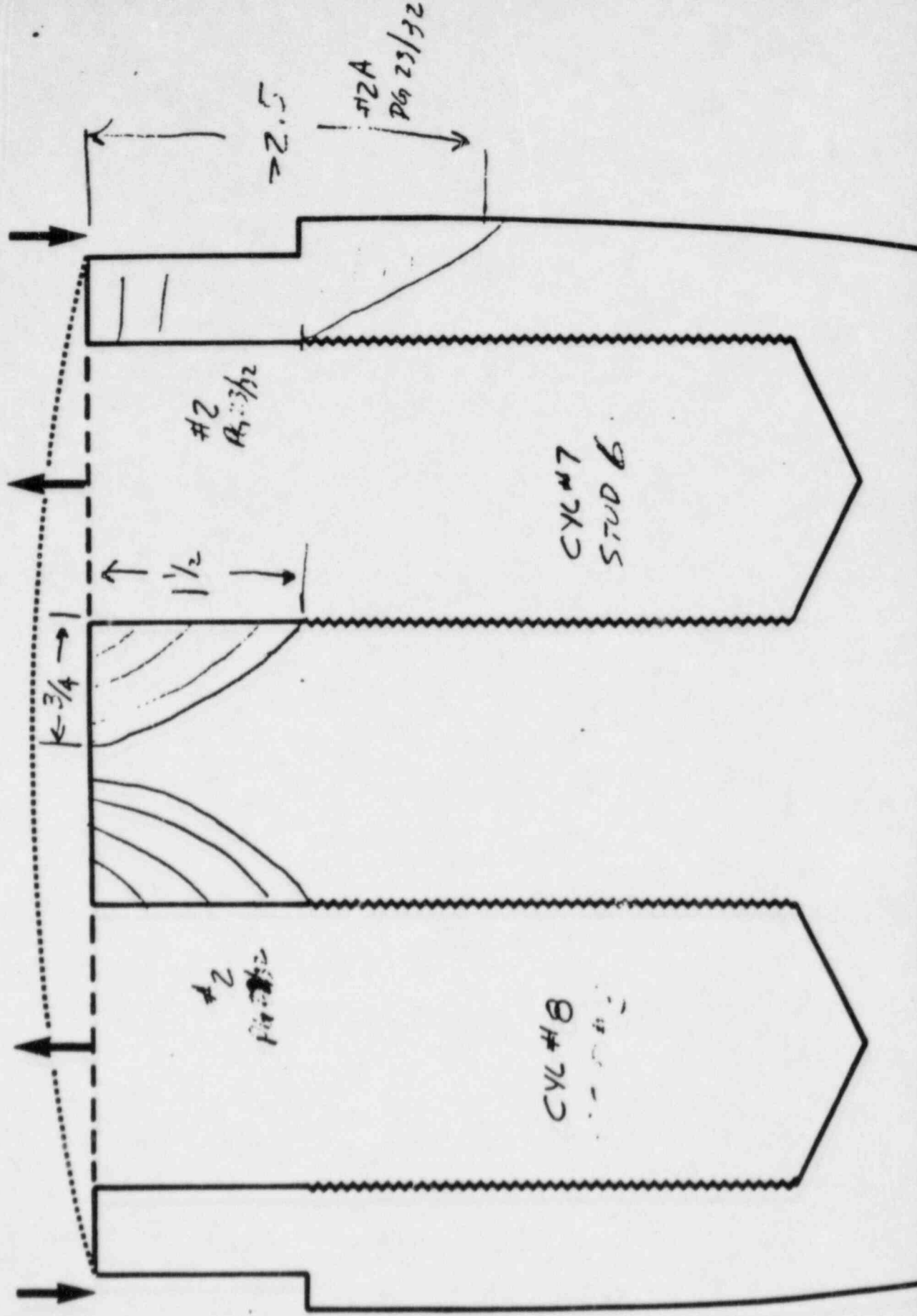


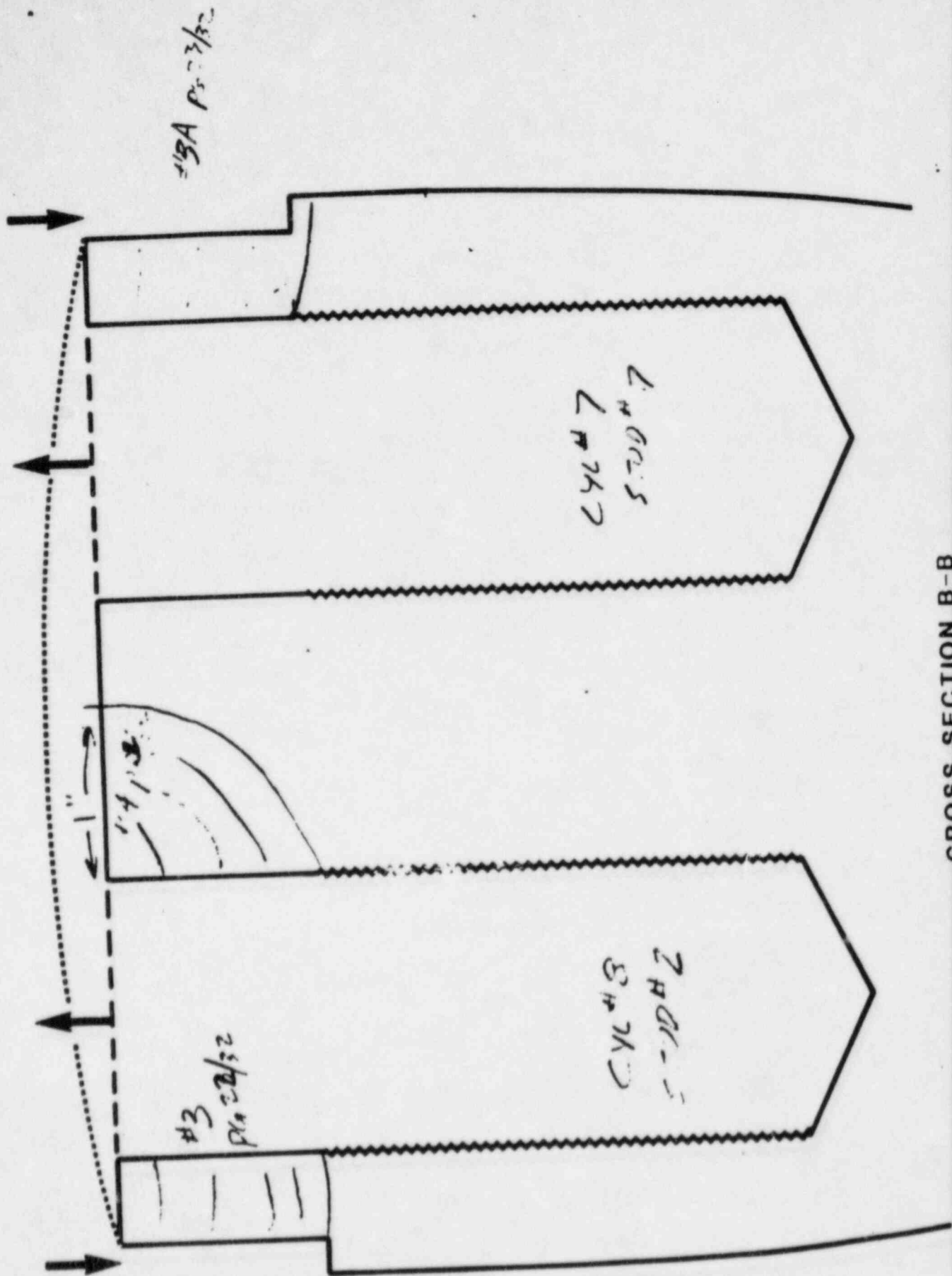
C





CROSS SECTION B-B





CROSS SECTION B-B

